APPENDIX I

Terrestrial Flora and Fauna

I-1 Terrestrial Ecology Assessment

I-2 Plains Mouse Habitat Assessment

I-3 Plains Mouse Targeted Survey

I-4 Migratory Birds Impact Assessment

I-5 Draft Native Vegetation Clearance Data Report

I-6 Significant Impact Assessment

I-7 Draft EPBC Act Offset Strategy

I-8 Threatened Species Management Strategy

I-9 Preliminary SEB Offset Strategy

I-10 Western Grasswren and Plains Mouse Database Records

Appendix I-1:

Terrestrial Ecology Assessment



NORTHERN WATER PROJECT

Department for Infrastructure and Transport

Terrestrial Ecology Assessment

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Northern Water Project – Terrestrial Ecology Assessment

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Executive summary

The Northern Water Project (the Project) aims to provide a secure climate resilient water source for industry in South Australia's Upper Spencer Gulf and Far North. Delivery of the Project will involve the construction and operation of a 51 GL/year seawater reverse osmosis desalination plant located at Mullaquana Station on the Upper Spencer Gulf, and associated water transfer system (including pipelines, transfer pump stations, and water storages) and electricity infrastructure.

The proposed desalination plant site at Mullaquana Station is located approximately 25 km south-west from the centre of Whyalla. The water transfer system runs north from the desalination plant to Olympic Dam passing Whyalla in the Eyre Peninsula (EP) Landscape Management Region (LMR) then Port Augusta, Woomera and Roxby Downs in the South Australian Arid Lands (SAAL) LMR.

This terrestrial ecology baseline report outlines the methods and findings of desktop assessment and field surveys undertaken by Jacobs (and two supplementary field surveys undertaken by Lathwida Environmental (Lathwida)) for the Project. The desktop component involved review of publicly available databases and literature sources and an initial likelihood of occurrence (LoO) assessment which focused on field targeted survey efforts and was subsequently revised to include field survey outcomes. The assessment outcomes include vegetation and habitat mapping, targeted bird surveys, and opportunistic observations for Matters of National Environmental Significance (MNES) protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Twelve field surveys were undertaken between 2021 and 2026 (including 10 by Jacobs and two by Lathwida). The surveys covered areas relevant to the current Project Area, as well as previous alignment revisions. Only data applicable to the current Project Area is presented in this report. As such, some of the threatened species targeted in surveys are not discussed as they are no longer relevant.

Vegetation assessments were conducted in accordance with the relevant Native Vegetation Council (NVC) methodology, being the Bushland Assessment Method (BAM) for sections of the Project Area within the EP LMR (NVC 2024a) and the Rangeland Assessment Method (RAM) for sections of the Project Area within the SAAL LMR (NVC 2024b). The RAM and BAM point data and additional rapid mapping points were used to map vegetation into areas (polygons) of each BAM and RAM vegetation association (VA) across the Project Area. Given the large-scale nature of the Project Area, a higher-level vegetation hierarchy was established for reporting and habitat assessment. This included grouping BAM and RAM detailed VAs (sites) into Broad Vegetation Communities (BVCs) based on floristic composition and land characteristics suited to the vegetation observed. BVCs were then further grouped into Major Vegetation Groups (MVGs) based on key habitat features, major landform and high-level floristic composition.

Interim Biogeographic Regionalisation for Australia (IBRA) are used in datasheets and calculation of offsets using the BAM (EP LMR) and RAM (SAAL LMR) methodologies. There are several versions of IBRA regionalisation with the most recent version (Version 7) remaining incomplete and in progress. Given the large extent of the Construction Footprint, it traverses IBRA Associations updated to Version 7 from Version 6 and areas not updated. As IBRA is an essential component in data sheets for calculating offsets using BAM in the EP LMR (IBRA Association) and RAM in the SAAL LMR (IBRA Sub-region), Jacobs consulted with the Native Vegetation Management Unit in the Department for Environment and Water (DEW) with regard to which version to use and were instructed to use only Version 6 rather than a mix of Versions. The key difference between Version 6 and the current Version 7 IBRA Sub-regions is that the section of the Kingoonya subregion in Version 6 that crossed by the northern end of the transfer system has been split out as the Roxby subregion in Version 7. This subregion has been referred to as Kingoonya throughout this report for consistency. There have been multiple changes to the Version 7 IBRA Associations including a widespread gap in the Whyalla area with no association allocated requiring Version 6 to be used.

Targeted assessments were undertaken for selected MNES fauna species (all listed as Vulnerable (VU) under the EPBC Act) highlighted by the desktop assessment as potentially occurring within the Project Area;

Western Grasswren (*Amytornis textilis myall*), Plains Mouse (*Pseudomys australis*) and Southern Whiteface (*Aphelocephala leucopsis*), along with listed threatened and / or migratory birds (only targeted around the coastline of the Mullaquana Station desalination plant site). Targeted assessment was also undertaken for one MNES flora species, the Vulnerable Bead Samphire (*Tecticornia flabelliformis*) (undertaken around the Mullaquana Station desalination plant). These species were selected as targets for more rigorous investigation due to the greater likelihood of occurrence and potential for clearance of known suitable habitat within the Project Area. Targeted assessment involved one or more methods, depending on suitability for each species, including broad habitat suitability assessment and mapping and survey to detect individuals and / or signs of presence (including 97 timed area searches and 33 song meter deployments).

General findings

The Project Area occurs within the Gawler (GAW) Interim Biogeographic Regionalisation for Australia (IBRA) Bioregion, four IBRA Subregions (Myall Plains, Arcoona Plateau, Gawler Lakes and Kingoonya). Within the EP LMR, the Project Area occurs over three IBRA Associations (Whyalla, Red Rock and Tregolana).

The vegetation in the EP LMR is predominantly characterised by chenopod shrublands and open woodlands, which are generally in good condition with weed cover increasing around existing infrastructure. Coastal shrublands occur around the Mullaquana Station desalination plant. Remnant vegetation is widespread across this area particularly where conditions are too dry for cropping and land use is dominated by sheep grazing and Defence activities. Within the SAAL LMR, extensive intact native vegetation is present through the predominantly pastoral country. From north of Whyalla to Port Augusta, vegetation varies between stony tableland to undulating open woodlands. North of Port Augusta, vegetation is dominated by stony tablelands and gilgai communities of Saltbush (*Atriplex* spp.), Bluebush (*Maireana* spp.), Samphire (*Tecticornia* spp.) and Bindyi (*Sclerolaena* spp.) with run-on areas of Swamp Cane-grass (*Eragrostis australasica*). Limited ephemeral drainage lines, creek lines and water holes are present, particularly in the north, and inland saline depressions are scattered throughout, although concentrated in the far north. Overall vegetation is in moderate to good condition with minimal weeds present, although increasing in density near roads and access tracks. Biotic disturbance indicators are evident in grazed areas.

Overall, 32 BAM VAs have been surveyed within the Project Area within the EP LMR. These were grouped into nine BVCs based on (where relevant) Bushland Condition Monitoring (BCM) classifications for the EP LMR (Milne et al. 2008) which were further grouped into six MVGs. Additionally, 56 RAM VAs have been surveyed in the Project Area within the SAAL LMR. These were grouped into 21 BVCs and 11 MVGs.

More than 254 flora species were observed during the field surveys, including approximately 228 native and 26 exotic species. Six declared weeds under the *Landscape South Australia Act 2019* (LSA Act) were also detected; three of which are also Weeds of National Significance (WoNS). More than 155 fauna species were detected during the field surveys, including 133 birds, five mammals, and 17 reptiles. Of these, 147 were native and eight were exotic species.

Matters of National Environmental Significance (MNES)

Due to the large scale and diversity of habitat across the Project Area, the LoO assessment was undertaken across habitat categories which were selected based on the MVGs identified in the Project Area with consideration of key habitat and key threatened species relevant to the Project Area.

Threatened Ecological Communities (TECs)

The EPBC Act PMST output highlighted three Threatened Ecological Communities (TECs) as potentially occurring within the Study Area of the EP and SAAL LMRs. Of these, the LoO assessment considered that only one TEC, the Subtropical and Temperate Coastal Saltmarsh, is likely to occur within / adjacent to the construction footprint in the EP LMR. This was confirmed as 'known' during the field surveys adjacent to the Mullaquana Station desalination plant site. Vegetation that is representative of the TEC occurs in BAM 145,

meeting the listing criteria in terms of floristic and structural composition, patch size and intersects areas of intertidal and supratidal saltmarsh, hence is considered likely to experience some tidal influence. As the TEC is listed as Vulnerable, approval under the EPBC Act is not required for impacts to vegetation that represents Subtropical and Temperate Coastal Saltmarsh.

Threatened flora

The PMST output for the EP LMR highlighted four EPBC Act listed threatened flora species as potentially occurring within the Study Area. The LoO assessment concluded that none of these species are considered likely to occur within the construction footprint.

Twenty-one EPBC Act listed threatened flora species were identified in the PMST output as potentially occurring within the Study Area in the SAAL LMR. The LoO assessment determined that all 21 species are unlikely to occur in the construction footprint.

Threatened fauna

The PMST output highlighted 38 EPBC Act listed threatened fauna species (excluding marine species) as potentially occurring within the Study Area within the EP LMR. Three additional species were included in the LoO assessment (Grey Plover (*Pluvialis squatarola)* (VU), Black-tailed Godwit (*Limosa lapponica melanuroides)* (EN), and Grey-headed Flying Fox (*Pteropus poliocephalus*) (VU)) as they were highlighted by previous records (DEW 2025). Of the 41 species assessed in the LoO, 16 were considered possible, likely or known to occur in the construction footprint of the EP LMR.

The PMST output for the SAAL LMR highlighted 52 EPBC Act listed threatened fauna species (excluding marine species) as potentially occurring within the Study Area. Three additional species, Kowari (*Dasyuroides byrnei*) (EN), Numbat (*Myrmecobius fasciatus*) (EN), and Grey-headed Flying Fox (VU), were included in the LoO as they were highlighted by BDBSA records. Of the 55 species included in the LoO assessment, 12 were considered possible, likely or known to occur within the construction footprint of the SAAL LMR.

Across the two LMRs, a total of 17 EPBC Act listed threatened fauna species are considered possible, likely or known to occur within at least one habitat type within the construction footprint, including 14 birds and three mammals.

For the targeted species, the following summary applies:

- Western Grasswren (*Amytornis textilis myall*) (VU) is considered known to occur in 'open woodlands over chenopod/ chenopod shrublands / tall chenopod shrublands' in the EP LMR. The species was detected during surveys at several locations around Whyalla, although most observations were concentrated to an area between Mullaquana Station and Whyalla Conservation Park (CP). Observations were made in chenopod shrubland with Black Bluebush habitat, which is considered preferred for this species, although some observations were made in Pearl Bluebush habitat which is atypical habitat for the species. Within the SAAL LMR, the species is known in 'open woodlands over chenopod / chenopod shrublands / tall shrublands of Senna, Mulga on plains', and 'ephemeral creeks / drainage lines'. It is likely to occur in 'low dunes and dune crests of Acacia and Callitris' in RAM 3 and RAM 42 only, and is cautiously considered possible in at least one VA in all remaining habitat types in the SAAL LMR (within the species known distribution) based on suitable understorey composition.
- Migratory and / or threatened shorebirds and a coastal raptor are considered possible to occur in 'coastal saltmarsh / coastal samphire / mangrove' and 'coastal dunes / beach habitats' in the construction footprint in the EP LMR. Suitable broad sandy ocean beach habitat occurs adjacent the construction footprint in the southern section of the Project Area. A small portion of the construction footprint intersects with this habitat at the Mullaquana Station desalination plant site. The remainder of the construction footprint is considered unsuitable or outside of the known range for these species. The Little Tern (*Sternula albifrons*) (VU, MW), was detected during a field survey. However, the extent of suitable

habitats within the construction footprint for Little Tern is considered negligible and impacts are not expected to occur due to underground tunnelling methods being implemented in the only area of coastal habitat within the construction footprint.

- Plains Mouse (*Pseudomys australis*) (VU) is considered likely to occur in 'tableland and inland saline depressions and inland samphire' and is considered possibly occurring in 'grassland and woodlands in dune swales' habitat types in the SAAL LMR (but only during 'boom' periods). This species is known to occupy areas of tableland through the northern portion of the construction footprint within the SAAL LMR (Carrapateena Junction to Carrapateena and Roxby Downs). Within this broad habitat, the Plains Mouse preferentially selects cracking clays and gibber plains, as critical refuge habitat. However, the species occurs more widely during irruption (boom) periods and has not been detected during recent years in some of these locations. The species, or signs of presence were not observed during Jacobs surveys (although trapping was not undertaken). Suitable habitat for this species was observed in large areas of the gibber plain on the Arcoona Plateau within the Project Area and in areas from Lake Pernatty to Pimba. Targeted surveys for this species were not undertaken here but rather high-level generic habitat assessments were conducted to verify potentially suitable areas for the species within the construction footprint.
- Southern Whiteface (*Aphelocephala leucopsis leucopsis*) (VU) is considered known to occur in 'open woodlands over chenopod / chenopod shrublands / tall shrublands' in the construction footprint for both the EP and SAAL LMRs. It is also known in 'low dunes and dune crests of Acacia and Callitris' and 'grasslands and woodlands in dune swales', and likely within 'ephemeral creeks / drainage lines' and 'tableland and inland saline depressions / inland samphire' habitats within the SAAL LMR. Suitable generic roosting, foraging and nesting habitat for this widely distributed habitat generalist occurs in patches throughout the full extent of the Project Area. There are abundant, regular, and recent records of the species around Whyalla and Port Augusta, through to the Woomera and Olympic Dam regions. The species was detected at 21 timed area searches and six song meter sites across both the SAAL and EP LMRs within the construction footprint.

In addition to the targeted species, Blue-winged Parrot (*Neophema chrysostoma*) (VU), was opportunistically observed and is therefore also considered known in the construction footprint.

The remaining 11 EPBC Act listed threatened fauna species (not migratory) were not observed during the field surveys, however based on previous record distribution and the presence of potentially suitable habitat, they are considered possible or likely to occur in the construction footprint.

Migratory fauna

The PMST output highlighted 39 EPBC Act listed migratory species as potentially occurring within the Project Area. Twenty-three migratory birds were not considered further in the LoO assessment for migratory fauna as they were also listed as threatened species under the EPBC Act listed and had already been considered. Migratory species listed under the EPBC Act which also have a *National Parks and Wildlife Act 1974* (NPW Act) listing were considered in the LoO assessment for migratory fauna. As such, 16 migratory fauna were included in the LoO, which identified five EPBC Act listed migratory birds as having the potential to occur within the construction footprint. Three species were considered as possibly occurring within the EP LMR whilst four are possible to occur within the SAAL LMR.

The construction footprint in the EP LMR contains very little suitable habitat for these species, which are considered occasional visitors to the area. Preferred habitat for migratory shorebirds and coastal raptors within the Project Area primarily occurs in coastal areas; nearby the Mullaquana desalination plant site construction footprint. Within the SAAL LMR, there are considerable areas of 'ephemeral creeks / drainage lines' habitat which may also support these migratory species.

Matters of State Conservation Significance

Species listed as threatened under the NPW Act are summarised below, excluding those that are also listed as threatened or migratory under the EPBC Act (as these are included in the discussion above), or following exclusions for geographical range (species with records only in the Flinders-Lofty Block which is geographically distinct from the Project Area).

Threatened communities for South Australia

No State listed threatened vegetation communities were assessed as likely to occur within the construction footprint, nor were any observed during field surveys.

Threatened flora

Three threatened flora species listed under the NPW Act have previously been recorded within the EP LMR Study Area (DEW 2025). Of these, Australian Broomrape (*Orobanche cernua* var. *Australiana*) (R) was considered possible to occur in 'Coastal saltmarsh / mangrove habitats', and Sandalwood (*Santalum spicatum*) (VU) is known to occur in the 'Open woodlands over chenopod / chenopod shrublands / tall chenopod shrubland' habitats of the EP LMR having been recorded during field surveys.

Fifty-three threatened flora species listed under the NPW Act have previously been recorded within the SAAL LMR Study Area (DEW 2025). Of these, 41 species were not considered further in the LoO assessment following exclusions due to the geographical range of records (Flinders-Lofty Block) and / or because they were already assessed under the EPBC Act. Of the remaining 13 species, nine species were considered as possibly occurring within at least one habitat type in the SAAL LMR. Sandalwood was assessed as known to occur within the construction footprint having been recorded during field surveys.

Three specimens of Sandalwood were observed during survey, one adjacent the Carrapateena lateral branch, one west of Whyalla, and one at Nonowie Station. The specimen west of Whyalla was in an area difficult to access with dense variable vegetation. As such, it is possible that other individuals may also occur around the construction footprint.

Threatened fauna

Fifty-seven NPW Act listed threatened fauna species have previously been recorded in the EP LMR (DEW 2025). Of these, 31 species are also listed under the EPBC Act or had subspecies distributions outside of the Study Area so were not assessed further. Of the remaining 25 species assessed in the LoO, 20 were considered possible, likely or known to occur in at least one habitat type within the construction footprint within the EP LMR. During field surveys, two NPW Act listed threatened fauna species were detected within the EP LMR; Australian Bustard (*Ardeotis Australia*) (V) and Sooty Oystercatcher (*Haematopus fuliginosus fuliginosus*) (R).

One hundred and four (104) threatened species listed under the NPW Act were previously recorded in the SAAL LMR (DEW 2025). Of these, 57 were not assessed further as they are also listed under the EPBC Act or their subspecies distributions were not within the Study Area. Of the remaining 47 species included in the LoO assessment, 27 are considered possible, likely or known to occur in at least one habitat type within the construction footprint of the SAAL LMR. The locally endemic Pernatty Knob-tailed Gecko (*Nephrurus deleani*) (R) is considered known in 'Low dunes and dune crests of Acacia and Callitris' in the Carrapateena area based on results of baseline surveys for the Carrapateena Mine access route prior to construction of the mine, during spotlighting in sand dune habitat (EBS Ecology 2013). The construction footprint intersects the known range of the species.

Whilst the Project Area and therefore construction footprint contain ecological values as outlined above, there are large areas of high-quality fauna habitat adjacent to the length of the construction footprint that

fauna can retreat to. The construction footprint itself is primarily located on cleared land or aligned with existing roads, access tracks, infrastructure corridors, and areas of lower-quality vegetation and habitat, wherever possible. The construction footprint represents a narrow corridor within a much broader landscape of continuous, similar vegetation and habitat opportunities, following rail, road, and infrastructure corridors wherever feasible.

ⓘ Important note about this report

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The sole purpose of this report and the associated services performed by Jacobs is to provide desktop and field results of flora and fauna studies to inform alignment options, project planning, the flora and fauna impact assessment chapters of the Northern Water Project Environmental Impact Statement (EIS), and other required environmental approvals. The report is based on a desktop review of available data and documents, as well as field surveys. The scope of services, as described in this report, was developed with DIT.

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Contents

Executive summary ..... **i**
General findings ii
Matters of National Environmental Significance (MNES) ii
Threatened Ecological Communities (TECs) ii
Threatened flora iii
Threatened fauna iii
Migratory fauna iv
Matters of State Conservation Significance v
Threatened communities for South Australia v
Threatened flora v
Threatened fauna v
Acronyms, definitions and abbreviations ..... **xvi**
1. Introduction **1**
1.1 Project elements 1
2. Legislative context **4**
2.1 Commonwealth Environment Protection and Biodiversity Conservation Act 1999 4
2.2 Native Vegetation Act 1991 and Regulations 2017 4
2.3 National Parks and Wildlife Act 1972 5
2.4 Landscape South Australia Act 2019 5
2.5 Planning, Development and Infrastructure Act 2016 6
2.6 Pastoral Land Management and Conservation Act, 1989 6
2.7 Biodiversity Act 2025 6
3. Methods **7**
3.1 Desktop assessment 8
3.2 Likelihood of occurrence assessment 9
3.3 Field survey 10
3.3.1 Vegetation assessment 11
3.3.2 Targeted threatened fauna surveys 13
3.3.3 Targeted threatened flora surveys 26
3.3.4 Opportunistic sightings 26
3.3.5 Mapping data sets 26
3.4 Limitations 27
4. Results and Discussion **28**
4.1 Regional context 28
4.1.1 Surface water 28
4.1.2 Climate 29
4.2 Interim Biogeographic Regionalisation for Australia (IBRA) context 29

4.3 Vegetation descriptions 33
4.3.1 Eyre Peninsula LMR 33
4.3.2 South Australia Arid Lands LMR 51
4.4 Likelihood of Occurrence assessment (LoO) 92
4.4.1 EPBC Act listed threatened flora 93
4.4.2 NPW Act listed threatened flora 94
4.4.3 EPBC Act listed threatened fauna 96
4.4.4 EPBC Act listed migratory species 100
4.4.5 NPW Act listed threatened fauna 102
4.5 LoO assessment of TECs 106
4.6 Literature review, observations and habitat mapping for key species and communities 107
4.6.1 Target TECs 107
4.6.2 Target threatened species 110
4.6.3 Non-target threatened species literature review and observations 123
4.6.4 Threatened species records 129
4.7 General flora and fauna 132
4.7.1 Flora 132
4.7.2 Fauna 132
4.7.3 Weeds and exotic species 132
5. Conclusion 134
6. References 137

Appendices

Appendix A. EPBC Act PMST search results 146
A.1 PMST output (Eyre Peninsula LMR) 146
A.2 PMST output (South Australian Arid Lands LMR) 146
Appendix B. Mapping series 147
B.1 EPBC Act species records within the EP Study Area 147
B.2 NPW Act species records within the EP Study Area 148
B.3 EPBC Act species records within the SAAL Study Area 149
B.4 NPW Act species records within the SAAL Study Area 158
B.5 Vegetation Jacobs RAM / BAM Mapping Series 167
B.6 Broadscale Habitat Mapping for Western Grasswren 185
B.7 Broadscale Habitat Mapping for Migratory birds 201
B.8 Broadscale Habitat Mapping for Southern Whiteface 203
B.9 Broadscale Habitat Mapping for Plains Mouse 218
Appendix C. Likelihood assessments 233

C.1 LoO assessment for EPBC & NPW Act listed TECs considered as potentially occurring within the construction footprint within the EP and SAAL LMR 233
C.2 LoO assessment for EPBC & NPW Act listed threatened or migratory fauna species within the EP LMR Study Area 235
C.3 LoO assessment for EPBC & NPW Act listed threatened or migratory fauna species within the SAAL LMR Study Area 276
C.4 LoO assessment for EPBC & NPW Act listed threatened flora species in the EP LMR Study Area 427
C.5 LoO assessment for EPBC & NPW Act listed threatened flora species in the SAAL LMR Study Area 433
Appendix D. Fauna and Flora Species lists 465
D.1 Summary of Fauna Species Detected 465
D.2 Summary of Flora Species Detected (BAM) 469
D.3 Summary of Flora Species Detected (RAM) 474
Appendix E. Flora and Fauna Survey Locations 478
E.1 Locations of Timed Area and Song Meter Survey Sites 478
E.2 Locations of Opportunistic Threatened Species Observations 482
E.3 Locations of BAM Vegetation Assessments 483
E.4 Locations of RAM Vegetation Assessments 487

Figures

Figure 1-1. Project Infrastructure, major waterbodies, LMRs and protected areas. 3
Figure 3-1. Timed area search and song meter sites implemented over all 10 field surveys (map 1 of 5) 17
Figure 3-2. Timed area search and song meter sites implemented over all 10 field surveys (map 2 of 5) 18
Figure 3-3. Timed area search and song meter sites implemented over all 10 field surveys (map 3 of 5) 19
Figure 3-4. Timed area search and song meter sites implemented over all 10 field surveys (map 4 of 5) 20
Figure 3-5. Timed area search and song meter sites implemented over all 10 field surveys (map 5 of 5) 21
Figure 4-1. Mapped area of Subtropical and Temperate Coastal Saltmarsh TEC at BAM 145 109
Figure 4-2. Subtropical and Temperate Coastal Saltmarsh TEC at BAM 145 110
Figure 4-3. Spectrogram of recorded contact calls of Western Grasswren 114
Figure 4-4. Spectrogram of recorded 'song' of Western Grasswren 114
Figure 4-5. Sooty Oystercatcher at high tide adjacent to the construction footprint near Mullaquana Station 126
Figure 4-6. Sandalwood tree adjacent to the Carrapateena lateral branch 127
Figure 4-7. Sandalwood tree west of Whyalla at BAM 67 128
Figure 4-8. Sandalwood tree on Nonowie Station 128
Figure 4-9. Jacobs observation locations for threatened species in the EP LMR 130
Figure 4-10. Jacobs observation locations for threatened species in the SAAL LMR 131

Tables

Table 3-1. Species likelihood of occurrence criteria used in the study (NVC 2024a). 9
Table 3-2. Ecological surveys previously undertaken for the NW Project 10
Table 3-3. Timed area searches summary details 14
Table 3-4. Song meter survey effort 15
Table 3-5. Song meter deployment summary details 15

Table 3-6. Western Grasswren (*Amytornis textilis myall*) habitat suitability criteria. 22
Table 3-7. Plains Mouse habitat suitability criteria 24
Table 3-8. Southern Whiteface habitat suitability criteria 24
Table 3-9. Migratory shorebird habitat suitability criteria 25
Table 4-1. Climate and rainfall data (BOM 2026) 29
Table 4-2. Summary of IBRA Bioregions, IBRA Subregions and IBRA Associations present within the EP LMR 31
Table 4-3. Summary of IBRA Bioregions, IBRA Subregions and IBRA Associations present within the SAAL LMR 31
Table 4-4. Vegetation communities found to occur within the Project Area and construction footprint within the EP LMR (BAM sites) 34
Table 4-5. Broad Vegetation Community NW EP 2.1 38
Table 4-6. Broad Vegetation Community NW EP. 2.2 40
Table 4-7. Broad Vegetation Community NW EP 2.3 41
Table 4-8. Broad Vegetation Community NW EP 3.1 42
Table 4-9. Broad Vegetation Community NW EP 3.3 43
Table 4-10. Broad Vegetation Community NW EP 4.1 47
Table 4-11. Broad Vegetation Community NW EP 6.1 48
Table 4-12. Broad Vegetation Community NW EP 7.2 49
Table 4-13. Broad Vegetation Community NW EP 12.1 50
Table 4-14. Vegetation communities found to occur within the Project Area and construction footprint within the SAAL LMR (RAM sites) 53
Table 4-15. Broad Vegetation Community NW SAAL 1.1 60
Table 4-16. Broad Vegetation Community NW SAAL 2.1 64
Table 4-17. Broad Vegetation Community NW SAAL 3.1 67
Table 4-18. Broad Vegetation Community NW SAAL 3.2 70
Table 4-19. Broad Vegetation Community NW SAAL 3.3 73
Table 4-20. Broad Vegetation Community NW SAAL 3.4 73
Table 4-21. Broad Vegetation Community NW SAAL 4.1 74
Table 4-22. Broad Vegetation Community NW SAAL 4.2 77
Table 4-23. Broad Vegetation Community NW SAAL 5.1 77
Table 4-24. Broad Vegetation Community NW SAAL 5.2 79
Table 4-25. Broad Vegetation Community NW SAAL 5.3 80
Table 4-26. Broad Vegetation Community NW SAAL 5.4 81
Table 4-27. Broad Vegetation Community NW SAAL 6.1 82
Table 4-28. Broad Vegetation Community NW SAAL 6.2 83
Table 4-29. Broad Vegetation Community NW SAAL 6.3 84
Table 4-30. Broad Vegetation Community NW SAAL 7.1 85
Table 4-31. Broad Vegetation Community NW SAAL 8.1 86
Table 4-32. Broad Vegetation Community NW SAAL 8.2 87
Table 4-33. Broad Vegetation Community NW SAAL 10.1 88
Table 4-34. Broad Vegetation Community NW SAAL11.1 89
Table 4-35. Broad Vegetation Community NW SAAL12.1 90
Table 4-36. Habitat categories across the EP and SAAL LMRs 92
Table 4-37. Summary of the outcomes of the LoO assessment for NPW Act listed threatened flora species potentially occurring in the EP LMR construction footprint. Excludes species also listed under the EPBC Act or considered unlikely to occur. 95
Table 4-38. Summary of the outcomes of the LoO assessment for NPW Act listed threatened flora species potentially occurring in the SAAL LMR construction footprint. Excludes species also listed under the EPBC Act or considered unlikely to occur. 95
Table 4-39. Summary of the outcomes of the LoO assessment for EPBC Act listed threatened fauna potentially occurring in the EP LMR construction footprint. Excludes species considered unlikely to occur. ... 98

Table 4-40. Summary of the outcomes of the LoO assessment for EPBC Act listed threatened fauna potentially occurring in the SAAL LMR construction footprint. Excludes species considered unlikely to occur. 99
Table 4-41. Summary of the LoO assessment outcomes for EPBC Act listed migratory shore / wetland bird species highlighted by the PMST as potentially occurring in the EP LMR construction footprint. Excludes species considered unlikely to occur. 101
Table 4-42. Summary of the LoO assessment for EPBC Act listed migratory shore / wetland bird species potentially occurring in the SAAL LMR construction footprint. Excludes species considered unlikely to occur. 101
Table 4-43. Summary of the LoO assessment for NPW Act listed threatened fauna species potentially occurring in the EP LMR construction footprint. Excludes species also listed under the EPBC Act or considered unlikely to occur 103
Table 4-44. Summary of the LoO assessment for NPW Act listed threatened fauna species potentially occurring in the SAAL LMR construction footprint. Excludes species also listed under the EPBC Act or considered unlikely to occur 104
Table 4-45. LoO assessment for EPBC Act listed TECs Peppermint Box Grassy Woodland and Grey Box Grassy Woodland 106
Table 4-46. Summary details of Western Grasswren (*Amytornis textilis myall*) detection. 112
Table 4-47. Western Grasswren habitat distribution within the construction footprint 115
Table 4-48. Potential Plains Mouse broad-scale habitat distribution within construction footprint 118
Table 4-49. Summary details of Southern Whiteface (*Aphelocephala leucopsis*) detection. 119
Table 4-50. Potential Southern Whiteface habitat distribution within construction footprint 121
Table 4-51. LSA Act declared weeds and Weeds of National Significance previously recorded within the Study Area 132

Plates

Plate 1. BAM 10 *Myoporum platycarpum* / *Acacia papyrocarpa* low open woodland over *Maireana sedifolia* / *Atriplex vesicaria* 39
Plate 2. BAM 19 *Acacia papyrocarpa* low open woodland over *Maireana pyramidata / Atriplex vesicaria / M. sedifolia* 39
Plate 3. BAM 62 *Acacia papyrocarpa* low very open woodland over *Maireana sedifolia / Atriplex vesicaria +/- M. pyramidata* 39
Plate 4. BAM 67 *Acacia papyrocarpa* low woodland over *Maireana sedifolia / Rhagodia ulicina* 39
Plate 5. BAM 81 *Acacia papyrocarpa* low woodland over *Maireana sedifolia +/- Myoporum platycarpum* 39
Plate 6. BAM 106 *Acacia papyrocarpa* low woodland over *Maireana sedifolia / M. pyramidata / Atriplex vesicaria* 39
Plate 7. BAM 7 *Acacia papyrocarpa / Casuarina pauper* low open woodland over chenopods (*Maireana sedifolia / M. pyramidata / Atriplex vesicaria*) +/- *Myoporum platycarpum* 41
Plate 8. BAM 32 *Acacia papyrocarpa* low woodland over chenopods with tall mixed shrubs / *Myoporum platycarpum / Casuarina pauper* 41
Plate 9. BAM 61 *Acacia papyrocarpa* low woodland over *Maireana pyramidata / Atriplex vesicaria* 41
Plate 10. BAM 250 *Casuarina pauper / Acacia papyrocarpa* low open shrubland over chenopods (drainage line) 41
Plate 11. BAM 144 *Myoporum platycarpum* low open woodland over Chenopod shrubs (low dune) 42
Plate 12. BAM 11 *Atriplex vesicaria / Tecticornia halocnemoides* ssp. aff. *longispicata* low shrubland 43
Plate 13. BAM 34 *Maireana sedifolia / Atriplex vesicaria* low shrubland 43
Plate 14. BAM 142 *Atriplex vesicaria / Tecticornia disarticularta* low shrubland 43
Plate 15. BAM 143 *Alyxia buxifloria / Myoporum insulare* shrubland on shell grit low dunes 43
Plate 16. BAM 9 *Maireana sedifolia / Atriplex vesicaria* low open shrubland with emergent *Myoporum platycarpum* 45

Plate 17. BAM 17 *Maireana sedifolia / Atriplex vesicaria* low open shrubland with emergent shrubs (*Senna* spp. / *Eremophila* spp.) +/- *Acacia papyrocarpa* 45
Plate 18. AM 21 *Maireana sedifolia* low open shrubland on calcrete +/- emergent low shrubs / *Myoporum platycarpum / Acacia papyrocarpa* 45
Plate 19. BAM 24 *Maireana sedifolia / Atriplex vesicaria* low open shrubland +/- emergent shrubs / *Myoporum platycarpum* 45
Plate 20. BAM 51 *Maireana sedifolia* open shrubland +/- isolated *Acacia papyrocarpa* 45
Plate 21. BAM 53 *Maireana sedifolia* low shrubland with clusters of *Acacia papyrocarpa* 45
Plate 22. BAM 54 *Maireana sedifolia / Atriplex vesicaria* low open shrubland 46
Plate 23. BAM 59 *Scaevola spinescens* low open shrubland with emergent *Acacia papyrocarpa / Myoporum platycarpum* on borrow pit (degraded) 46
Plate 24. BAM 63 *Maireana sedifolia / Rhagodia ulicina* low shrubland with emergent *Acacia papyrocarpa, Myoporum platycarpum* on calcrete rise 46
Plate 25. BAM 64 *Atriplex vesicaria / Maireana sedifolia* low shrubland with isolated *Acacia papyrocarpa/ Myoporum platycarpum* 46
Plate 26. BAM 65 Broad drainage line with *Maireana pyramidata / Atriplex vesicaria* low shrubland with *Acacia papyrocarpa* 46
Plate 27. BAM 103 *Maireana pyramidata / Atriplex vesicaria* open shrubland +/- *M. sedifolia* 46
Plate 28. BAM 111 *Maireana sedifolia / Atriplex* low open Shrubland +/- emergent tall mixed shrubs (*Alectryon oleifolius / Eremophila* spp. / *Senna* spp.) +/- *Acacia papyrocarpa* 47
Plate 29. BAM 66 Broad drainage line with *Eremophila longifolia* tall shrubland over *Senna artemisioides* with sparse *Maireana sedifolia* 48
Plate 30. BAM 140 *Myoporum insulare/Nitraria billardierii* open shrubland with emergent *Avicennia marina* coastal beach and foredune 49
Plate 31. BAM 145 *Tecticornia halocnemoides* ssp. low open shrubland on tidal flat 50
Plate 32. BAM 141 *Avicennia marina* tall shrubland tidal creek 51
Plate 33. RAM 8 Stony tableland with *Atriplex vesicaria / Tecticornia medullosa / Maireana aphylla / M. astrotricha* low open shrubland 62
Plate 34. RAM 30 *Atriplex vesicaria / Tecticornia medullosa* low open shrubland (Tableland) 62
Plate 35. RAM 36 *Tecticornia medullosa / Atriplex vesicaria / Astrebla pectinata* low very open shrubland (taken from Google Streetview) 62
Plate 36. RAM 40 *Maireana astrotricha* low open shrubland with emergent *Senna* spp. 62
Plate 37. LERAM 64 *Atriplex vesicaria / Maireana pyramidata* low open shrubland on stony soils with sand veneer 63
Plate 38. LERAM 204 Bladder Saltbush *(Atriplex vesicaria),* Samphire *(Tecticornia medullosa),* Black Bluebush *(Maireana pyramidata)* with or without Low Bluebush *(M. astrotricha)* and/or Woolly Bluebush *(M.eriantha)* low chenopod shrubland (stony tableland) 63
Plate 39. *Atriplex vesicaria / Maireana astrotricha / Tecticornia medullosa* chenopod shrubland 63
Plate 40. LERAM 211 *Atriplex vesicaria / Tecticornia medullosa +/- Maireana eriantha* chenopod shrubland 63
Plate 41. LERAM 213 Bladder Saltbush (*Atriplex vesicaria*), Samphire (*Tecticornia medullosa*), Black Bluebush (*Maireana pyramidata*) with or without Low Bluebush (*M. astrotricha*) and/or Woolly Bluebush (*M. eriantha*) low chenopod shrubland (stony tableland) 63
Plate 42. RAM 301 *Maireana sedifolia / Atriplex vesicaria* low open shrubland with emergent *Acacia papyrocarpa* 64
Plate 43. RAM 18 *Maireana pyramidata* low open shrubland +/- *M. sedifolia / Atriplex vesicaria* 66
Plate 44. RAM 23 *Maireana astrotricha* low shrubland +/- *Tecticornia medullosa / Atriplex vesicaria* 66
Plate 45. RAM 25 *Maireana sedifolia* open shrubland with emergent sparse *Acacia papyrocarpa* 66
Plate 46. RAM 27 Mixed chenopod low open shrubland (*Maireana sedifolia / M. astrotricha / M. pyramidata / Atriplex vesicaria*) +/- emergent *Acacia aptaneura / A. papyrocarpa*) 66
Plate 47. LERAM 209 Cotton-bush (*Maireana aphylla*), Black Bluebush and Bladder Saltbush (*Atriplex vesicaria*) chenopod shrubland with emergent Elegant Wattle 67

Plate 48. LERAM 350 *Maireana pyramidata / M. sedifolia* low open shrubland with emergent *Acacia burkittii* 67
Plate 49. RAM 2 Broad drainage line with *Maireana pyramidata / Atriplex vesicaria* low open shrubland with emergent *Acacia victoriae* 69
Plate 50. RAM 31 *Acacia victoriae* tall open shrubland over *Maireana pyramidata* low shrubland 69
Plate 51. RAM 35 Drainage line with *Myoporum montanum / Acacia victoriae* closed shrubland +/- *Maireana pyramidata* 69
Plate 52. LERAM 203 *Acacia victoriae* open tall shrubland in broad drainage lines over chenopods +/- exotic species 69
Plate 53. LERAM 205 Drainage line with *Acacia papyrocarpa* + *Acacia oswaldii* + *Pittosporum* open woodland over chenopod shrubland in drainage line 69
Plate 54. LERAM 210 Elegant Wattle tall open shrubland over Black Bluebush low chenopod shrubland 69
Plate 55. RAM 300 *Maireana pyramidata / Maireana sedifolia* low open shrubland + emergent *Acacia burkittii* broad swale / plain 70
Plate 56. RAM 14 Minor drainage line with *Acacia tetragonophylla / Pittosporum angustifolium* tall shrubland 72
Plate 57. RAM 28 *Casuarina pauper* open woodland over Tussock Grasses (*Eragrostis setifolia / Enteropogon acicularis*) in drainage line +/- *Acacia victoriae* 72
Plate 58. RAM 37 *Acacia ligulata* tall closed shrubland on sandplain in floodout 72
Plate 59. RAM 44 *Acacia papyrocarpa / Casuarina pauper* open woodland over *Maireana pyramidata* and tall shrubland (*Acacia ligulata/ A. burkittii / Senna* spp.) +/- *Callitris gracilis* 72
Plate 60. RAM1 *Melaleuca xerophylla / Acacia burkittii* tall shrubland (drainage line) 72
Plate 61. RAM 16 *Typha domingensis* waterhole with *Eucalyptus camaldulensis* ssp. *arida* open woodland. 73
Plate 62. LERAM 50 *Acacia papyrocapra* low woodland over *Atriplex vesicaria* (minor drainage line) 74
Plate 63. LERAM 56 *Eucalyptus camaldulensis* ssp. *arida* low woodland (major drainage line) 74
Plate 64. LERAM 65 *Eucalyptus camaldulensis* ssp. *arida* low woodland (major drainage line) 74
Plate 65. RAM 3 *Acacia papyrocarpa / Myoporum platycarpum* low open woodland over chenopods (*Maireana pyramidata / M. sedifolia / Atriplex vesicaria*) 76
Plate 66. RAM 42 *Acacia papyrocarpa* open woodland over *Maireana pyramidata / M. sedifolia* 76
Plate 67. LERAM 53 *Acacia papyrocarpa* low woodland over *Maireana pyramidata +/- Maireana sedifolia* .. 76
Plate 68. LERAM 55 *Acacia aneura* low woodland over *Maireana turbinata, Maireana pyramidata* 76
Plate 69. LERAM 202 Western Myall (*Acacia papyrocarpa*) open woodland over Black Bluebush (*Maireana pyramidata*) / Pearl Bluebush (*M. sedifolia*) / Bladder Saltbush (*Atriplex vesicaria*) 76
Plate 70. RAM 7 Low dunes with *Acacia aptaneura* tall open shrubland +/- *A. ligulata* / *A. burkittii* 77
Plate 71. RAM 10 Dune crest with *Acacia ligulata/ Dodonaea viscosa +/- Callitris glaucophylla* tall open shrubland 78
Plate 72. RAM 15 Low dunes with *Dodonaea viscosa / Acacia ligulata / A. burkittii* tall open shrubland +/- *Aristida holathera* 78
Plate 73. RAM 29 Low dunes with *Dodonaea viscosa / Acacia ligulata / A. burkittii* tall open shrubland 79
Plate 74. LERAM 62 Dune crest with *Acacia ligulata / Dodonaea viscosa* ssp. *angustissima* tall open shrubland +/- *Zygochloa paradoxa* 79
Plate 75. RAM 12 Dune crest with *Callitris glaucophylla* open woodland +/- tall shrubs (*Acacia ligulata/ Dodonaea viscosa* ssp.) 80
Plate 76. LERAM 57 *Casuarina pauper* low open woodland over *Maireana pyramidata* on dune crest 81
Plate 77. LERAM *Acacia aneura* low woodland over *Senna* sp./ *Dodonaea viscosa* ssp. *angustissima* and *Acacia ligulata +/- Acacia burkittii* 82
Plate 78. RAM 11 Swale with *Atriplex vesicaria / Maireana astrotricha* low open shrubland 83
Plate 79. RAM 41 Swales of mixed tussock grassland (*Enneapogon avenaceous / E. cylindricus / Aristida contorta / Eragrostis setifolia*) +/- emergent *Acacia aptaneura / A. papyrocarpa* 84
Plate 80. RAM 13 Dune swale with *Acacia papyrocarpa / A. aptaneura* open woodland +/- Tussock Grasses 85
Plate 81. LERAM 52 *Acacia aneura* low woodland over *Aristida contorta* on dune swales 85
Plate 82. RAM 17: Run-on depression with *Eragrostis australasica* tall grassland and chenopod shrubs 86
Plate 83. RAM 39 *Melaleuca xerophila* tall closed shrubland fringing saltpan (*Tecticornia* spp.) 87

Plate 84. RAM 34 *Tecticornia* spp. (*indica* ssp. *leiostachya / halocnemoides*) low open shrubland on salt lake margin 88
Plate 85. LERAM 63 *Tecticornia indica, Tecticornia pergranulata +/- Duma florulenta* open shrubland 88
Plate 86. LERAM 54 *Maireana aphylla* shrubland (clay depression) 89
Plate 87. LERAM 51 *Zygochloa paradoxa* grassland with emergent *Acacia ligulata* and *Alectryon oleifolius* on red sand dune 90
Plate 88. LERAM 207 Black Oak (*Casuarina pauper*) woodland over chenopod shrubland (sandy drainage line) 91

Acronyms, definitions and abbreviations

Acronym / Definition / Initialisation	Description
ALA	Atlas of Living Australia
ARU	Autonomous Recording Units
BAM	Bushland Assessment Methodology
BCM	Bushland Condition Monitoring
BDBSA	Biological Database of South Australia
BL	Birdlife
BVC	Broad Vegetation Communities
CR	Listed as Critically Endangered under the *Environment Protection and Biodiversity Conservation Act 1999*
Cleve TL	Cleve Transmission Line
CP	Conservation Park
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Commonwealth)
DEW	Department for Environment and Water
DoD	Department of Defence (Commonwealth)
EN	Listed as Endangered under the *Environment Protection and Biodiversity Conservation Act 1999*
E	Listed as Endangered under the *National Parks and Wildlife Act 1972.*
EIS	Environmental Impact Statement
EP	Eyre Peninsula
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
EYB	Eyre Yorke Block
GAW	Gawler
GPS	Global Positioning System
HA	Heritage Agreement
HJP	Hydrogen Jobs Plan
IBRA	Interim Biogeographic Regionalisation for Australia
km	Kilometre
Kv	Kilovolt
LMR	Land Management Region
LoO Assessment	Likelihood of Occurrence Assessment
LSA Act	*Landscape South Australia Act 2019*
ML	Megalitres
MM	Migratory Marine
MNES	Matters of National Environmental Significance
MT	Migratory Terrestrial
MW	Migratory Wetland
NP	National Park
NV Act	*Native Vegetation Act 1991*
NVC	Native Vegetation Council

Acronym / Definition / Initialisation	Description
NPW Act	*National Parks and Wildlife Act 1972*
NWP	Northern Water Project
PDI Act	*Planning, Development and Infrastructure Act 2016*
PMST	Protected Matters Search Tool
Project Area	The 'Project Area' is defined based on a 2.5 km buffer surrounding all Project infrastructure including the alignment of linear infrastructure (i.e. a 5 km wide corridor). Linear infrastructure includes pipelines, transmission lines and the desalination plant intake and outfall. The buffer effectively incorporates all Project infrastructure for the purposes of approvals except for the section of the transfer system which is located within the BHP Special Mining Lease (SML).
Project / the Project	the Northern Water Project
Construction footprint	The 'construction footprint' is the current best estimate of surface disturbance (and is classified as temporary or permanent) and has been used to calculate SEB offset values in the Native Vegetation Clearance Data Report. The disturbance width for pipeline construction specified in the construction footprint shapefile is generally 40 m subject to various construction constraints where narrowing of the disturbance footprint is required. The ultimate disturbance footprint will be dependent on the outcomes of detailed design and related construction methodology. It may be reduced in some locations, however, there may also be instances where extra workspace is required e.g. adjacent to highly constrained sections.
PS	Pump Station
RAM	Rangeland Assessment Methodology
R	Listed as Rare under the *National Parks and Wildlife Act 1972.*
SA	South Australia
SAAL	South Australian Arid Lands
SAPPA	SA Property and Planning Atlas
SD	Secure Digital
SEB	Significant Environmental Benefit
sp. / spp. / ssp.	Species / several species / subspecies
SPRAT	Species Profile and Threats Database
Study Area	Refers to the 5 km (EP) or 50 km (SAAL) buffer on the Project Footprint as applied to the relevant data sources (e.g. EPBC PMST / BDBSA).
TEC	Threatened Ecological Community
TSSC	Threatened Species Scientific Committee
VU	Listed as Vulnerable under the EPBC Act
V	Listed as Vulnerable under the *National Parks and Wildlife Act 1972.*
WA	Western Australia

1. Introduction

The Northern Water Project (the Project) aims to provide a secure climate resilient water source for industry in South Australia's Upper Spencer Gulf and Far North. Delivery of the Project will involve the construction and operation of a 51 GL/year seawater reverse osmosis desalination plant located at Mullaquana Station on the Upper Spencer Gulf, and associated water transfer system (including pipelines, transfer pump stations, and water storages) and electricity infrastructure.

The proposed desalination plant site at Mullaquana Station is located approximately 25 km south-west from the centre of Whyalla. The water transfer system runs north from the desalination plant to Olympic Dam passing Whyalla in the Eyre Peninsula (EP) Landscape Management Region (LMR) then Port Augusta, Woomera and Roxby Downs in the South Australian Arid Lands (SAAL) LMR.

JBS&G Australia Pty Ltd (JBS&G) and Jacobs Group (Australia) Pty Ltd (Jacobs) have been engaged by the Department for Infrastructure and Transport (DIT) to prepare and deliver the primary environmental assessments and approvals for all marine and terrestrial works to support the Project. Jacobs' engagement has, and continues to inform Project alignment options, project planning, the flora and fauna impact assessment chapters of the Project's Environmental Impact Statement (EIS), and other required environmental approvals.

This report relates to the terrestrial ecology assessment of the Project and outlines the methodology and results of the desktop assessment and field surveys undertaken by Jacobs. The primary objective of this report is to identify potential presence of Matters of National Environmental Significance (MNES) under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) within or adjacent the Construction Footprint and assess vegetation under the State's *Native Vegetation Act 1991* (NV Act) and *Native Vegetation Regulations 2017* (NV Regulations).

Aquatic ecology has been described and assessed in the Northern Water Project – Surface Water Impact Assessment (Jacobs 2026a) and groundwater dependent ecosystems are addressed in the Hydrogeological Conceptual Model and Groundwater Impact Assessment Report (JBS&G 2026a).

1.1 Project elements

The Project comprises the following key elements:

- a 51 GL/year seawater reverse osmosis desalination plant located at Mullaquana Station approximately 25 km south-west of central Whyalla
- marine intake and outfall tunnels extending underneath the seabed and into Spencer Gulf
- diffuser structures for discharge of return water into Spencer Gulf
- a transfer system consisting of:
    - ~360 km of main transfer pipeline, largely constructed underground terminating at the delivery point at the Olympic Dam copper-gold mine
    - ~46 km of lateral branch to a delivery point at the Carrapateena copper-gold mine (which may be constructed above or below ground)
    - associated transfer pump stations and product water storage
- high voltage electricity supply including new transmission and distribution lines and new substations to provide power to the desalination plant and transfer pump stations

- associated temporary construction-related infrastructure (e.g. construction camps, site offices and amenities, yards, storages and laydown areas)
- access tracks including establishing new tracks and upgrading existing tracks
- enabling roadworks and road upgrades.

The Project infrastructure is illustrated in Figure 1-1. It is noted that the Project design is preliminary and is expected to change through the detailed design process.

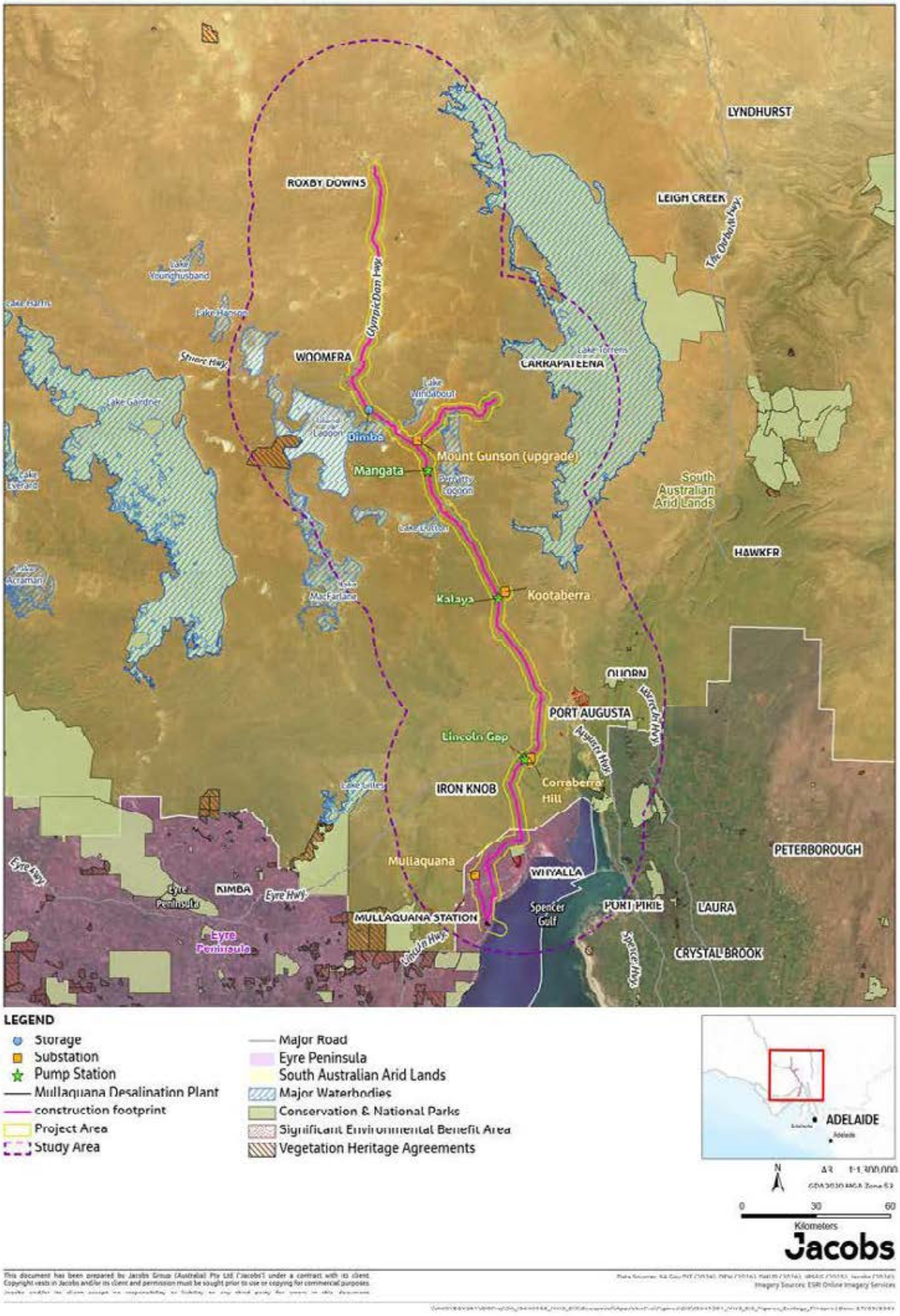


Figure 1-1. Project Infrastructure, major waterbodies, LMRs and protected areas.

2. Legislative context

Legislation relevant to ecological aspects of the Project is summarised below.

2.1 Commonwealth Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act is the Australian Government's central piece of environmental legislation. It provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places, all of which are defined within the Act as MNES.

Under the environmental provisions of the EPBC Act, actions that are likely to have a significant impact (DSEWPaC 2013c) on a MNES require referral to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) for consideration and to determine the requirement for formal assessment and approval under the EPBC Act.

The nine MNES identified in the EPBC Act are:

- world heritage properties
- national heritage places
- wetlands of international importance (listed under the Ramsar Convention)
- threatened species and ecological communities
- migratory species as listed under international agreements
- Commonwealth marine areas
- the Great Barrier Reef Marine Park
- nuclear actions (including Uranium mining), and
- a water resource, in relation to unconventional gas development and large coal mining development.

An EPBC Act referral for the Project was submitted to DCCEEW on 19 December 2025, and it was determined to be a 'controlled action' on 5 February 2026 and therefore subject to assessment and approval under the EPBC Act. The relevant controlling provisions identified were 'listed threatened species and communities', and 'listed migratory species'. The Project will be assessed by accredited assessment under the *Planning, Development and Infrastructure Act 2016* (PDI Act), prior to the Commonwealth Minister making a (separate) decision on whether or not to approve the proposed action under Part 9 of the EPBC Act.

Controlling provisions not related to terrestrial ecology (e.g. listed threatened marine species) are not within the scope of this report.

2.2 Native Vegetation Act 1991 and Regulations 2017

The *Native Vegetation Act 1991* (NV Act) and *Native Vegetation Regulations 2017* (NV Regulations) outline incentives, education measures, and assistance to landowners in relation to the preservation and enhancement of native vegetation and acts to control the clearance of native vegetation. Under the NV Act, legal clearance of native vegetation may be permissible through one of two mechanisms: either by an application to the Native Vegetation Council (NVC), or under exemptions contained within the NV Regulations.

Clearance of vegetation for the Project is applicable under Regulations 12 and 13 and Schedule 1, Part 4, clause 27 – Major projects of the NV Regulations (Regulation 12(27)).

This Regulation is intended to facilitate interactions between the NV Act and the PDI Act as stated in the Guide to the Native Vegetation Regulations (NVC 2024c).

The Project was directed to be assessed as an 'impact assessed' development by the Minister for Planning on 23 December 2025 under Section 131(25) of the PDI Act, requiring the preparation of an Environmental Impact Statement (EIS), subject to the procedures and requirements under Part 7, Subdivision 4 of the PDI Act.

Projects being undertaken by Crown agencies such as DIT are generally subject to the processes applying to a Crown Development under Section 131 of the PDI Act. However, Sections 108 and 131(25), make provision for the Minister to direct a proposed Crown development to be assessed under the Impact Assessed development pathway - requiring preparation of an EIS as set out in Sections 111-115 (inclusive) of the PDI Act. The EIS process provides a unique assessment pathway for larger scale developments or those that require assessment of specific impacts and provides for engagement with the public and State Government agencies to ensure a single, integrated and streamlined assessment of the development.

When an EIS is required, an Impact Assessed Development Application prepared in accordance with the requirements of Practice Direction 17 must be lodged and accompanied by a Planning Report incorporating a preliminary assessment of the key social, environmental and economic issues and impacts associated with the development. The EIS will be referred to the NVC for comment under Section 113(4)(iv) of the PDI Act, and Regulations 12 and 13 and clause 27 of Schedule 1 of the NV Regulations. Clearance for the Project will be guided by the NVC Guide (NVC 2024c) and offsets for approved clearance are required as per the Significant Environmental Benefit (SEB) Policy (NVC 2024d) and SEB Guide (NVC 2024e).

The Project occurs within the Eyre Peninsula (EP) Landscape Management Region (LMR) and the South Australia Arid Lands (SAAL) LMR. Therefore, impacts to vegetation and resulting SEB offset calculation require vegetation to be assessed using NVC Bushland Assessment Methodology (BAM) (NVC 2024a) for sections of the Project within the EP LMR and Rangeland Assessment Methodology (RAM) (NVC 2024b) for sections of the Project within the SAAL LMR. BAM assessments require desktop reviews to investigate a minimum 5 km buffer on the construction footprint and a 50 km buffer for RAM assessments.

Remnant native vegetation is present within the construction footprint and is represented in the Department for Environment and Water (DEW) vegetation mapping layers (DEW 2026b) (Section 4.3 and Appendix B). The Project will require clearance or disturbance of native vegetation for construction of the pipeline and associated infrastructure, transmission lines and the desalination plant.

In South Australia, impacts to benthic or marine flora (e.g., seagrass, macroalgae, marine plants) are not assessed or approved by the NVC. The NVC's jurisdiction applies only to *terrestrial* and *some freshwater* native vegetation under the NV Act.

2.3 National Parks and Wildlife Act 1972

Administered by DEW, the NPW Act establishes the system of conservation reserves in South Australia and provides a framework for the conservation of South Australia's threatened flora and fauna. The NPW Act provides a list of threatened flora and fauna, categorised by threat level. Additionally, areas governed by the NPW Act (e.g. Conservation Parks, Game Reserves) are detailed. Restrictions for interfering with protected flora and fauna are outlined, as well as penalties for doing so. Under the NPW Act, permits are required to undertake activities such as in-situ scientific research and removing protected species. The permits for each survey are detailed in Table 3-2.

2.4 Landscape South Australia Act 2019

The LSA Act is the key framework promoting the sustainable and integrated management of the State's natural resources (land, water, biodiversity) and for the management of pest plants and animals.

Under the LSA Act, South Australia is divided into eight regional landscape boards, of which the Project Area falls within the EP and SAAL Landscape Boards, managed by the South Australian Government. Each board develops its own Regional Plan designed to meet the needs of the local regions and contribute to state level planning.

In the context of the Project, the LSA Act will guide biodiversity management including management of exotic flora and fauna. As mentioned in Section 2.2, the location of assessment areas also influences the method of vegetation assessments (in this case BAM and RAM both apply) required for any proposed impacts to native vegetation and associated approvals.

2.5 Planning, Development and Infrastructure Act 2016

The PDI Act governs the planning system in South Australia and sets out the process and pathways for granting development approvals, including approvals for major developments and assessment through an EIS.

The level of detail required to be addressed in an EIS is determined by Assessment Requirements published by the State Planning Commission pursuant to Section 112 of the PDI Act. The Assessment Requirements will require assessment of the impacts of the Project on matters of environmental, social and economic importance, and the extent to which the development is consistent with the Planning and Design Code.

2.6 Pastoral Land Management and Conservation Act, 1989

The objectives of the *Pastoral Land Management and Conservation Act 1989* (Pastoral Act) are, amongst others, to ensure that pastoral leases are well managed, provide a system of tenure for pastoral purposes, recognise Aboriginal persons' rights to follow traditional pursuits, provide a system of public access to and through pastoral land, and provide for the operation of wind farms.

A pastoral lease allows the occupation and use of Crown (government) land for the use of grazing or raising livestock (pastoralism). There are 323 pastoral leases that cover over 40% of South Australia (DEW 2026b).

The Pastoral Board of South Australia is responsible to the Minister for Climate, Environment and Water for the administration of the Pastoral Act.

2.7 Biodiversity Act 2025

The *Biodiversity Act 2025* (Biodiversity Act), passed through Parliament in June 2025, and is a major legislative reform in South Australia's approach to biodiversity conservation. This new Act aims to consolidate various existing legislation including the NV Act (and NV Regulations) and the NPW Act into a single piece of legislation. The Biodiversity Act also aims to address identified gaps in biodiversity protection in South Australia and will result in significant changes to the concepts, policies, processes and committees that manage the clearance of native vegetation in South Australia. This new Act may also result in changes to the fauna and flora species protected under state legislation as well as the assessment methodologies required for native vegetation clearance applications. The Act will also recognise the important role Aboriginal knowledge and Aboriginal South Australians play in biodiversity management. As this new Act has not yet come into effect, the NV and NPW Acts will continue to apply. The implementation of this Act will occur in stages over the next two or more years, as DEW develop supporting legislation, such as regulations, policies and guidelines.

This Project has been assessed in accordance with the assessment requirements, legislation and policies in force at the time of preparation. As the Biodiversity Act has not yet come into effect, it is not considered relevant to the current legislative requirements of the Project. Accordingly, the Project is required to comply with the existing framework under the Native Vegetation (NV) Act and the National Parks and Wildlife (NPW) Act.

3. Methods

As the Project will require vegetation clearance and approval, desktop assessments were aligned with NVC requirements for the EP and SAAL LMRs. Due to the linear nature of the Project, field methodology was adapted from NVC requirements (NVC 2024a, NVC 2024b, NVC 2024c, NVC 2024e) (as outlined in Section 2.2) and DCCEEW threatened species survey guidelines (DEWHA 2017, DSEWPaC 2011) in consultation with DEW.

For the purpose of this report, the following definitions apply:

- The 'construction footprint' (also referred to in the EIS as the disturbance footprint) is the current best estimate of surface disturbance (and is classified as temporary or permanent) and has been used to calculate SEB offset values. The maximum disturbance width for pipeline construction specified in the construction footprint shapefile is generally 40 m subject to various construction constraints in some locations (typically due to cultural heritage, environment or design constraints) where narrowing of the disturbance footprint is required. The ultimate construction corridor width will be dependent on the outcomes of detailed design and related construction methodology. It may be reduced in some locations, however, there may also be instances where extra workspace is required e.g. adjacent to highly constrained sections.
- The 'Project Area' is defined based on a 2.5 km buffer surrounding all Project infrastructure including the alignment of linear infrastructure (i.e. a 5 km wide corridor). Linear infrastructure includes pipelines, transmission lines and the desalination plant intake and outfall. The buffer effectively incorporates all Project infrastructure for the purposes of approvals except for the section of the transfer system which is located within the BHP SML.
- The 'Study Area' refers to the 5 km (EP LMR) and 50 km (SAAL LMR) buffer on the construction footprint as applied to the relevant data sources described below.

The location of the Project Area, Study Area and relevant LMR boundaries relative to the construction footprint is shown in Figure 1-1.

3.1 Desktop assessment

The desktop assessment for the Project included the following:

- Review of the EPBC Act PMST (DCCEEW 2025) output for the Study Area within the EP LMR and SAAL LMR separately (included in Appendix A) extracted on 24 August 2025 (note PMST outputs generated at various times between October 2021 and July 2024 were also reviewed)
- Review of all BDBSA records (DEW 2025) for the Study Area extracted on 23 July 2025. Only recent (since 1995) and reliable (< 1 km reliability) records were included as per NVC requirements
- Review of Atlas of Living Australia (ALA) records (ALA 2026) for the Study Area. This database was explored when additional record information was required to justify species' classifications
- Review of high-level desktop assessment and pre-feasibility survey undertaken by Jacobs and GHD (Jacobs and GHD 2021), including existing vegetation and habitat data already collected along the Project alignment
- Review of publicly available literature, including the SPRAT (DCCEEW 2026), species recovery plans, conservation advice and Threatened Species Scientific Committee (TSSC) documents
- Review of the DEW's NatureMaps Tool (DEW 2026b) to describe the vegetation communities mapped for the Study Area and identify any ecologically significant features that may occur at the site or surrounds, and
- Liaison with local stakeholders (e.g. DEW) to obtain updated information about the region, including review of biodiversity values mapping provided by DEW to check that species of interest were appropriately covered

Results of the desktop assessment were used to identify the types and indicative locations of native vegetation communities and habitats, migratory species, threatened species and ecological communities potentially occurring within the Study Area. This information was used in part, to inform field survey preparation, including identification of threatened species requiring targeted survey and site selection for the BAM and RAM.

3.2 Likelihood of occurrence assessment

A separate LoO assessment was undertaken for each LMR (EP and SAAL), incorporating information from the PMST output and BDBSA records. These assessments considered migratory species, threatened species, and ecological communities listed under the EPBC Act and NPW Act within the Study Area.

Due to the large scale and diversity of habitat across the Project Area, the LoO assessment was undertaken across multiple broad habitat categories (defined in Table 4-36). These broad habitat categories were selected based on the Major Vegetation Groups (MVGs) identified within the Project Area with consideration of key habitat variances.

The LoO assessments were informed by the desktop review and field surveys, including species observations and habitat / vegetation mapping. An initial LoO assessment, based solely on desktop sources, was undertaken to guide targeted field surveys toward threatened species considered more likely to occur and to identify areas of known suitable habitat within the construction footprint. Following completion of the field surveys, the initial LoO assessment was revised to incorporate survey findings, including habitat evaluations and species observations.

LoO status is based on the criteria provided in Table 3-1, which is derived from standard definitions of occurrence status as defined within the NVC criteria for BAM, RAM and NVC clearance assessments (NVC 2024a, 2024b, 2024c).

Highlighted species (through PMST or BDBSA outputs) with a known distribution (and records) restricted to a 1-10 km area within Mount Remarkable National Park (NP) or The Dutchman's Stern NP were excluded from the LoO assessment. These NPs are located more than 40 km and 30 km (respectively) east of the construction footprint (refer to Table 3-1), with Mount Remarkable NP located on the eastern side of the Upper Spencer Gulf. The biogeographical gap between the construction footprint and the ranges of the Flinders-Lofty Block causes distinct patterns in species movement, with typically only generalist species moving between the two areas freely. Exclusively marine and oceanic species were also excluded from the LoO assessment as their habitat requirements are incongruous within the terrestrial construction footprint (e.g. marine mammals, marine reptiles, sharks, fish). However, migratory marine birds with an EPBC threat status were assessed in the LoO.

Several species were listed under multiple common names and therefore consolidated to reflect the current taxonomy and nomenclature.

Table 3-1. Species likelihood of occurrence criteria used in the study (NVC 2024a).

Likelihood Status	Definition[1,2]
Unlikely	• Recorded recently (since 1995), but the area provides no habitat or feeding resources for the species, including perching, roosting or nesting opportunities, corridor for movement or shelter; and / or • Recorded historically (prior to 1995); however, suitable habitat does not occur, and species of similar habitat requirements have not been recorded in the area; or • No records despite adequate survey effort[3].
Possible	• Recorded recently (since 1995), the area falls inside the known distribution of the species, but the area provides only limited habitat or feeding resources for the species; or • Species is only represented by historical records (prior to 1995) but suitable habitat and feeding resources are present in the area, and species of similar habitat needs have been recorded in the area.
Likely	• Recorded recently (since 1995) in the Study Area, the area falls within the known distribution of the species and the area provides habitat or feeding resources for the species.

Likelihood Status	Definition[1,2]
Known	• Recorded in the last 10 years within the construction footprint or multiple records within ~1 km of the construction footprint; and the species does not have highly specific habitat requirements and / or suitable niche habitat is present, and the area falls within the known range of the species distribution; or • The species was recorded as part of field surveys within the construction footprint.

[1] Knowledge of species ecology also used in conjunction with these guideline definitions, to make decisions on likelihood status
[2] Only records considered reliable (within 1 km reliability) are included
[3] In some instances despite having no records, a species is assigned a likelihood status of 'possible' based on professional knowledge / experience and highly suitable habitat being available in the construction footprint.

3.3 Field survey

Twelve ecological field surveys have been undertaken for the Project, of which ten were undertaken by Jacobs, and two were undertaken by Lathwida (Table 3-2). Each field team comprised two ecologists, including an experienced NVC accredited consultant for the collection of BAM / RAM data and an experienced fauna consultant to undertake habitat assessments and fauna surveys for key threatened species, MNES and other fauna.

The surveys covered areas relevant to the current construction footprint, as well as previous alignment revisions. Only data applicable to the current construction footprint is presented in this report. As such some of the threatened species targeted in surveys are not discussed as they are no longer relevant.

Table 3-2. Ecological surveys previously undertaken for the NW Project

Survey no.	Timing	Permit No.	Description of survey
Survey 1 – Spring	5 – 7 October 2021	Bull_16-2020M2	A vehicular and foot survey undertaken as part of Project pre-feasibility planning (Jacobs and GHD 2021). The survey was undertaken in spring to highlight ecological constraints and provide data for broad mapping of vegetation groups, potential threatened species habitat and potential land management issues.
Survey 2 – Spring	5 – 13 October 2022	Bull_16-2020M2	Vegetation survey (BAM / RAM) and assessment against threatened ecological community (TEC) listing criteria where required. Targeted EPBC Act Vulnerable species (Western Grasswren, Thick-billed Grasswren (*Amytornis modestus indulkanna*), Malleefowl (*Leipoa ocellata*) and Plains Mouse (*Pseudomys australis*) habitat survey, bird surveys and song meter deployment.
Survey 3 – Summer	5 – 9 December 2022	Bull_16-2020M2	Follow-up gap fill vegetation and habitat survey restricted to Whyalla surrounds, bird surveys and song meter deployment.
Survey 4 – Summer	21 – 22 February 2023	C25361-17	Follow-up gap fill vegetation and habitat survey, particularly around revised alignments and revised (but now superseded) desalination plant site location (Cape Hardy). This survey included targeted survey for Bead Glasswort (*Tecticornia flabelliformis*) (EPBC Act VU) in areas of suitable habitat between Mullaquana Station and Whyalla during assessment for a previous alignment.
Survey 5 – Winter	20 July 2023	C25361-17	Survey of the northern section of Munyaroo Conservation Park (CP) to a point approximately 6.5 km south-west of the northern sections of the Munyaroo CP (now outside the Project Area).
Survey 6 – Spring	25 – 26 September 2023	C25361-17	Survey of revised alignment from Cowell to Lincoln Highway north of Whyalla excluding previously surveyed areas.

Survey no.	Timing	Permit No.	Description of survey
Survey 7 – Spring	5 – 8 November 2023	C25361-17	Survey of alignment from Cape Hardy to Cowell (now outside the Project Area) including proposed desalination plant location and western (Ungarra to Cape Hardy) transmission line (TL).
Survey 8 – Summer	3 – 6 February 2025	*C25361-19*	Vegetation (BAM) and habitat survey restricted to the Mullaquana Station desalination plant and surrounds, targeted searches for Bead Glasswort, general and targeted bird surveys and song meter deployment.
Survey 9 – Autumn	7 – 9 May 2025	*C25361-19*	Gap-fill vegetation (BAM and RAM) and habitat survey (target species only) for revised pipeline alignment and surrounds for a large section between the Mullaquana Station desalination plant and Woomera township.
Survey 10 – Winter	25 – 28 August 2025	*C25361-19*	Targeted Western Grasswren timed area searches and song meter deployment at the Mullaquana Station desalination plant and surrounds, as well as vegetation and habitat surveys and general bird surveys along the Mullaquana TL. Gap-fill vegetation and habitat survey for revised pipeline alignment and surrounds within the Cultana Training Area (Department of Defence (DoD) land), as well as general bird surveys, song meter deployment and call-playback for Western Grasswren.
Additional surveys conducted by Lathwida (LE) which are relevant to the Northern Water Project and included in this report			
Lathwida 1 - Autumn	17 - 19 March 2024	N/A	Vegetation (RAM) surveys, ground-truthing existing vegetation mapping layers, and allocating existing Project RAM data where relevant to the Project Area around the Carrapateena lateral. RAM data from nearby sites has also been incorporated from previous surveys undertaken between 26 and 30 April 2023 (Northern Wellfield Expansion), the most recent annual flora and fauna survey at the Carrapateena site (May 2023) and a survey near the Stuart Highway.
Lathwida 2 - Autumn	18 - 22 March 2024	N/A	Ground-truth and / or implementation of RAM/BAM sites to describe the vegetation associations, broad vegetation communities and major vegetation groups present, rapid vegetation assessments (RVA) were also used to inform mapping and vegetation descriptions for Lake Dempsey, Kootaberra and several sites south of Mullaquana Station. Fauna was recorded opportunistically throughout the sites.

3.3.1 Vegetation assessment

The BAM manual (NVC 2024a) and RAM manual (NVC 2024b) were used to assess vegetation composition and condition across the Project Area. BAM sample points were installed within the EP LMR, and RAM sample points within the SAAL LMR (refer to Appendix B for locations). BAM and RAM sample point locations (sites) were based on Project alignment and information at the time of the survey, as such, numerous sites became redundant following changes to the alignment of the Project. Some reference is made to these (now redundant) BAM / RAM sites within the report as appropriate, however, detailed results on redundant sites are excluded from the report.

Within the Project Area, there are 32 BAM sites and 56 RAM sites assessed by Jacobs and relevant to this report. The following information was assessed or recorded at each site:

- Vegetation description of overstorey and understorey
- Observation of flora species (exotic and native) and cover / abundance representative of each site

- Photos taken north, south, east and west (minimum one image captured)
- Consideration of faunal habitat characteristics (e.g., hollows, litter level, presence of preferred vegetation as habitat, gilgai) with particular reference to target EPBC Act listed species.
- Consideration of the presence of TECs (e.g. Subtropical and Temperate Coastal Saltmarsh in coastal areas) and identification of whether assessment against the relevant listing criteria is required (see Section 3.3.41.1), and
- Spatial data (point or polygon 'stop-start' mapping points) collection using a handheld GPS and iPad with spatial software (ArcGIS Field Maps).

The BAM and RAM ultimately inform offset calculation as per the SEB Guide and Policy (NVC 2024d, 2024e). The description of a BAM or RAM association was determined largely at the time of survey based on structural features, floristic composition, condition and value at that location (a sample point) and then extrapolated to the broader landscape (e.g. a mappable polygon unit). Often, more than one BAM or RAM quadrat was assessed for each vegetation association (VA) to enable more accurate valuation across a large scale. However, it was often difficult to allocate vegetation to one BAM or RAM type (already allocated during previous surveys) across multiple surveys (particularly with multiple surveyors). Therefore, new BAM / RAM sites were often installed during a subsequent survey and will be used as the basis for the SEB calculation, which are presented in the *Northern Water Project Native Vegetation Clearance Data Report* (Jacobs, in progress).

3.3.1.1 Threatened Ecological Communities

The Subtropical and Temperate Coastal Saltmarsh TEC was specifically targeted during the field survey given it had been previously confirmed within Mullaquana Station during earlier desalination plant investigations; approximately 800 m from the current desalination plant footprint. This TEC consists mainly of salt-tolerant vegetation with succulent herbs, shrubs (e.g. Samphire species) and grasses, typically less than 0.5 m tall. The TEC often occurs in large areas behind open coastline of sheltered waters, such as in gulfs, which are under regular or intermittent tidal influences (DSEWPaC 2013b).

The Subtropical and Temperate Coastal Saltmarsh TEC is listed as 'Vulnerable', and it does not qualify as a MNES for the purposes of Part 3 of the EPBC Act (requirements for environmental approvals), hence referral and approval under the EPBC Act is not required.

To qualify for listing as the TEC under the EPBC Act, a coastal saltmarsh community must meet the following minimum characteristics and key diagnostic criteria (DSEWPaC 2013b):

- Occurs on the coastal margin, along estuaries and coastal embankments and on low wave energy coasts
- Occurs on places with at least some tidal connection, including rarely inundated supratidal areas, intermittently opened or closed lagoons and groundwater tidal influences, but not areas receiving only aerosol spray
- Occurs on sandy or muddy substrate and may include coastal clay pans
- Consists of dense to patchy areas of characteristic coastal saltmarsh plant species (i.e. salt-tolerant herbs, succulent shrubs or grasses, that may also include bare sediment as part of the mosaic, and
- Proportional cover by tree canopy such as mangroves, Melaleucas or Casuarinas is not greater than 50%, not is proportional ground cover by seagrass greater than 50%.

Condition thresholds and survey guidelines (adapted from DSEWPaC 2013b) include:

- Ecotones – in transitional areas at least 50% of the community is comprised of Coastal Saltmarsh vegetation

- Patch size – minimum patch size of 0.1 ha, and
- Tidal connection – the ecological community requires some form of ongoing connection to the tidal regime. This could occur via both surface and/or ground waters. It may occur within the intertidal or supratidal zone. It may be regular as per lunar tides, or periodic and intermittent, as via the highest tides or storm surges, or as with intermittently closed and open lakes/lagoons. Coastal saltmarsh cut off from the sea by natural barriers but subject to seepage from the sea should be included in the definition.

Exclusions from the TEC include saltmarsh occurring in seepage zones on sea cliffs and elevated rock platforms, saltmarsh occurring on inland saline soils with no tidal connection, isolated patches of saltmarsh <0.1 ha, patches of saltmarsh that contains >50% weeds and patches of saltmarsh within the coastal margin that are disconnected (either naturally or artificially) from a tidal regime but were once connected (DSEWPaC 2013b).

To determine if the TEC was present, vegetation within the survey area was broadly assessed against the listing criteria described, in addition to consideration of floristic composition representative of tidal influence. Any potential TEC was mapped as part of the BAM site (VA) assessment process.

3.3.2 Targeted threatened fauna surveys

Targeted threatened fauna assessments relevant to the construction footprint focused on three EPBC Act listed threatened species (all listed as Vulnerable) and several migratory species (Charadriidae) identified as potentially occurring in the construction footprint through the desktop assessment, being:

- Western Grasswren (Gawler Ranges ssp.)
- Southern Whiteface
- Plains Mouse
- Internationally listed migratory shorebirds (in Order: Charadriiformes) (only targeted around the coastline of the Mullaquana Station desalination plant site) (some are also considered threatened under the EPBC and / or NPW Act).

The potential for Thick-billed Grasswren (*Amytornis modestus*, VU), to occur within the Project Area was considered, involving bird survey within VAs which contained ephemeral drainage lines, creeklines and waterholes in the northern portion of the Project Area within the Kingoonya and Arcoona Plateau IBRA Subregions, including a notably large creekline north of Woomera. However, this area is located more than 50 km from the nearest known record of the species near Roxby Downs. While some habitat with structural characteristics consistent with Thick-billed Grasswren requirements was therefore identified (including areas outside the species' known range), further assessment determined that these areas are unlikely to support the species. As such, targeted survey and detailed habitat mapping were not undertaken. This approach is consistent with that applied to other species in the southern portion of the Project Area (e.g. Malleefowl) for which no suitable or impacted habitat occurs within the Project Area.

Targeted assessments involved one or more of the following methods, depending on suitability for each species:

- Broad high-level habitat suitability assessment and mapping aligned with vegetation mapping (all target species)
- Surveys for individuals and / or signs of presence (bird surveys only), and
- Song meter deployment for bird species detection.

Broad high-level habitat suitability assessment is outlined under Section 3.3.1. Surveys and song meter deployment are discussed further below, along with criteria relevant to each of the target species.

3.3.2.1 Timed area searches

Timed area searches were undertaken to detect the presence of birds, involving one or two surveyors conducting a roaming survey beginning from a chosen location usually aligning with a BAM / RAM location or rapid vegetation mapping point. Surveys were undertaken for around 20 minutes per site for each observer in line with bird survey guidelines (DEWHA 2017). All bird species observed during timed area searches were recorded (i.e. not just the target EPBC Act listed species). Call-playback was used to assist in the detection of target bird species where it was deemed appropriate and ethical.

A total of 97 timed area searches were undertaken across the 10 Jacobs surveys (including 57 within the Project Area, of which 22 are within the construction footprint). The 97 sites (including the 40 beyond the Project Area, which are important for context e.g. understanding of species distribution and habitat use in the landscape) resulted in a combined total of over 50 hours of survey effort and are presented in Table 3-3 and mapped in Figure 3-1 through to Figure 3-5.

Table 3-3. Timed area searches summary details

Survey Number	Number of Sites	Total Survey Efforts (hrs)	Dates
2	59	26.15	05/10/2022-13/10/2022
3	17	11.33	01/12/2022-09/12/2022
8	7	5.83	03/02/2025-04/02/2025
9	1	0.33	08/05/2025
10	13	7	25/08/2025-28/08/2025
TOTAL	97	50.64	

3.3.2.2 Song meter deployment and analysis

Song meter devices (Autonomous Recording Units (ARUs) of the song meter mini bat model; Wildlife Acoustics 2022) were fitted with an acoustic stub microphone to enable recording of vocal bird species in the audible frequency range (PTS 2022). These recordings increase opportunity for detection of cryptic species such as Western Grasswren and Thick-billed Grasswren and improve data robustness. The additional use of song meters enabled sufficient hours of data collection to meet guideline requirements for survey for Australia's threatened birds (DEWHA 2017).

A total of 33 song meters were deployed across the 10 Jacobs surveys (including 23 within the Project Area, of which 10 are within the construction footprint). The location of all 33 sites (including the 10 beyond the Project Area) are presented in Figure 3-1 through to Figure 3-5 as they are important for understanding context of species presence.

Song meter deployment sites were chosen based on habitat suitability for Western Grasswren (Black et al. 2009, Black et al. 2011) and in an open location away from any artificial sounds that may have interfered with results. Song meters were configured to record in acoustic mode for one hour on either side of sunset and sunrise. In this configuration, for every 24 hours of continuous deployment, each song meter captured a total of four hours of acoustic recordings. Song meters were deployed at each site for a minimum of 24 hours, resulting in a combined total of 640 hours across the 33 sites (Table 3-4).

Table 3-4. Song meter survey effort

Survey Number	Number of Sites	Total Survey Efforts (hrs)	Dates
2	16	384	10/06/2022-10/10/2022
3	7	168	01/12/2022-06/12/2022
8	3	36	03/02/2024
10	7	52	25/08/2025-28/08/2025
TOTAL	33	640	

Each song meter was affixed to a tree or other stable object using cable ties. All cable ties were clipped short to avoid the potential for whistling interference in high winds. Song meters were synchronised with a GPS reading from the user's smartphone to correctly set sunrise and sunset times. The location of each deployment was also marked using a conventional GPS unit (iPad).

A summary of song meter deployment locations is provided in Table 3-5, and shown in in Figure 3-1 through to Figure 3-5.

Table 3-5. Song meter deployment summary details

Song meter deployment number	Date and time of deployment[1]	GPS coordinates
SM1	2022-10-06 4:44	53H 734419, 6346045
SM2	2022-10-06 4:44	53H 734067, 6345370
SM3	2022-10-06 5:28	53H 733455, 6340870
SM4	2022-10-06 5:17	53H 733660, 6341339
SM5	2022-10-07 4:53	53H 740190, 6354303
SM6	2022-10-07 3:57	53H 739431, 6346597
SM7	2022-10-07 4:14	53H 739754, 6347417
SM8	2022-10-07 4:40	53H 740680, 6351455
SM9	2022-10-08 5:01	53H 745913, 6392397
SM10	2022-10-08 4:50	53H 746546, 6394255
SM11	2022-10-08 4:22	53H 747117, 6396503
SM12	2022-10-08 5:10	53H 745137, 6391446
SM13	2022-10-09 23:35	53J 682170, 6623661
SM14	2022-10-10 0:15	53J 682801, 6622298
SM15	2022-10-10 1:07	53J 684146, 6619630
SM16	2022-10-10 1:40	53J 683962, 6616120
SM17	2022-12-05 6:17	53H 722762, 6316847
SM18	2022-12-05 6:59	53H 721671, 6317078
SM19	2022-12-06 0:40	53H 728956, 6339903
SM20	2022-12-06 3:46	53H 729782, 6335531
SM21	2022-12-06 23:00	53H 742995, 6358146
SM22	2022-12-07 4:39	53H 739141, 6383259
SM23	2022-12-08 6:27	53H 740612, 6352911
SM24	2025-02-03 19:20	53H 725353, 6321287

[1] Date presented in US format.

Song meter deployment number	Date and time of deployment[1]	GPS coordinates
SM25	2025-02-03 19:20	53H 726241, 6320909
SM26	2025-02-03 19:20	53H 726503, 6320455
SM27	2025-08-25 16:45	53H 724619, 6321395
SM28	2025-08-25 16:45	53H 724991, 6322099
SM29	2025-08-25 16:45	53H 723950, 6328825
SM30	2025-08-25 16:45	53H 721744, 6335140
SM31	2025-08-28 16:45	53H 735402, 6375800
SM32	2025-08-28 16:45	53H 738039, 6366065
SM33	2025-08-28 16:45	53H 739795, 6355917

3.3.2.2.1 Acoustic analysis

Song meters recorded all data on Secure Digital (SD) cards. The data were transferred to a laptop computer and backed up to internal servers. Recordings were processed using Raven Lite 2 bioacoustics analysis software (Yang 2022).

While the focus for song meter deployment was for the detection of Western Grasswren, all species detected during analysis of the recordings were noted. Although Southern Whiteface was not a target species for the 2022 surveys, due to its listing under the EPBC Act (March 2023) occurring post survey design and after much fauna survey work had been completed, given its behaviour, wide distribution and occurrence in a range of habitat types (including those suitable for Western Grasswren) it is considered that the implemented survey effort (bird surveys and deployment of song meters) was suitable to detect this species if it was present where efforts were concentrated. All 2025 surveys included Southern Whiteface as a target species for on-ground and acoustic data analysis.

All recordings were analysed for the presence of any fauna species firstly by detection using a combination of listening through in real time and high-speed visual spectrogram scanning. All audible taxa were noted in the order in which they appear in recordings. Any unidentified signals were noted and, if they could not be identified by consultation with other ecologists, were documented in analysis notes.

All acoustic records and visual survey records were tabulated for threatened species. Non-threatened birds previously observed during visual bird surveys were not tabulated as acoustic data. A summary table is available in Appendix D.

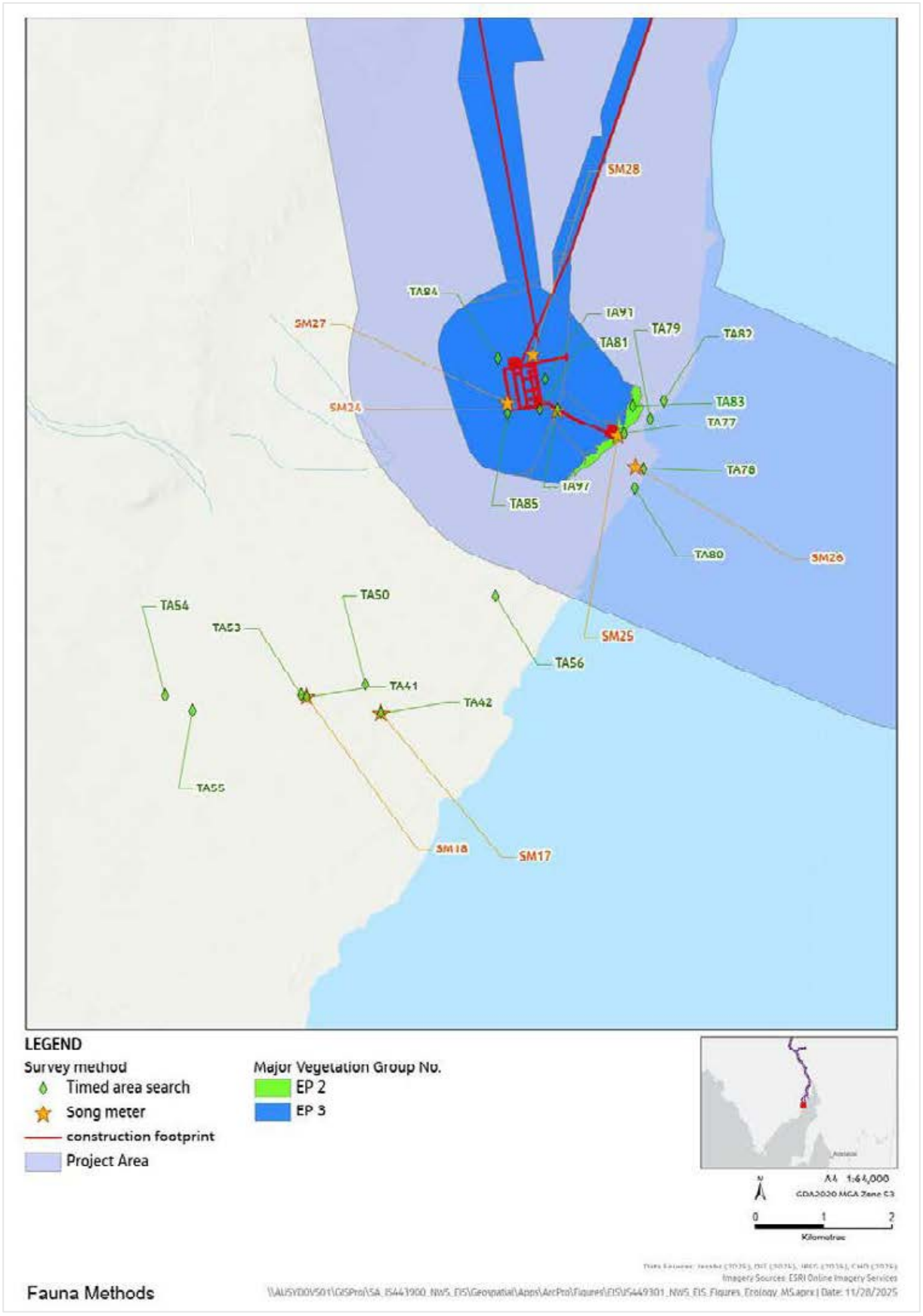


Figure 3-1. Timed area search and song meter sites implemented over all 10 field surveys (map 1 of 5)

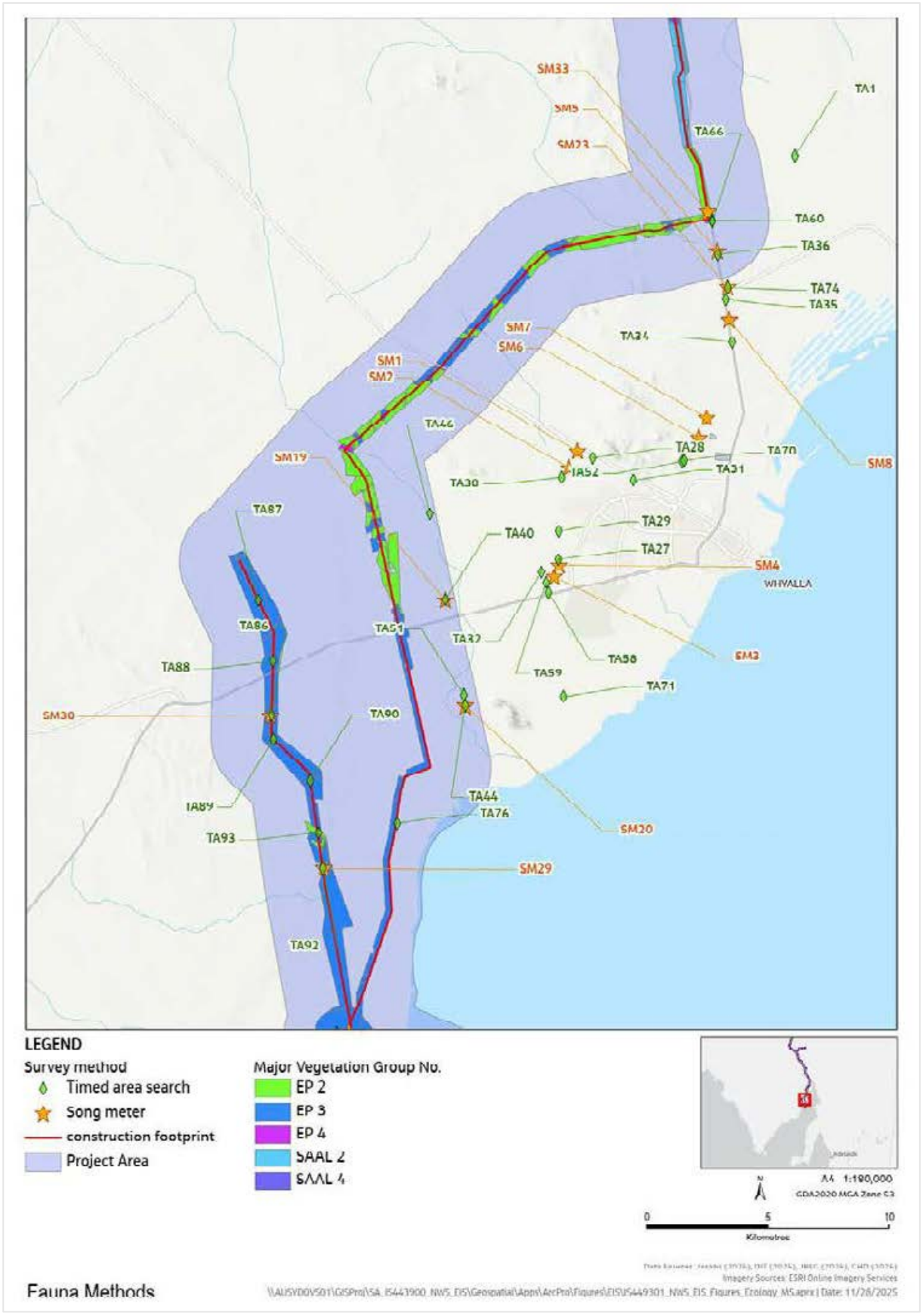


Figure 3-2. Timed area search and song meter sites implemented over all 10 field surveys (map 2 of 5)

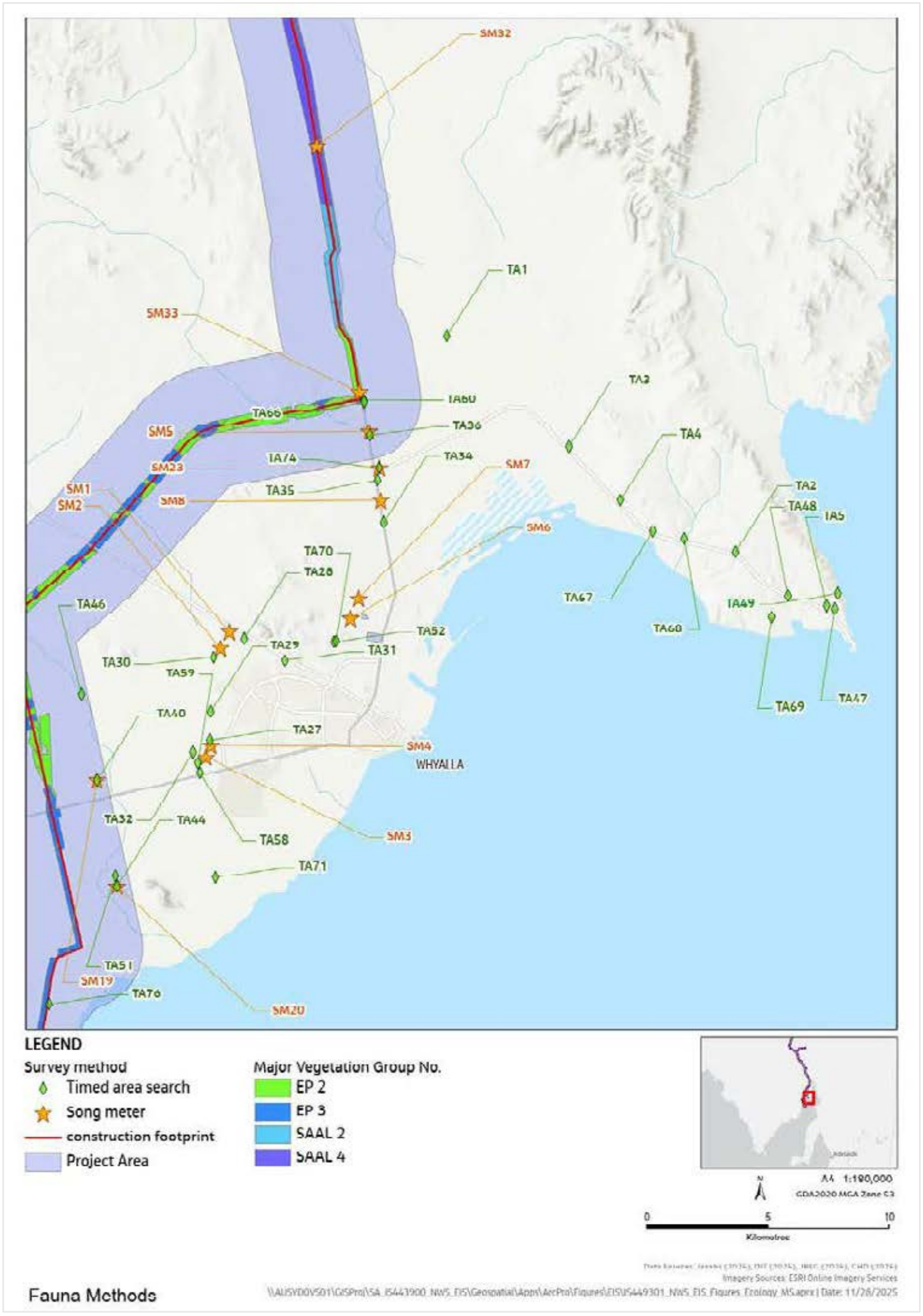


Figure 3-3. Timed area search and song meter sites implemented over all 10 field surveys (map 3 of 5)

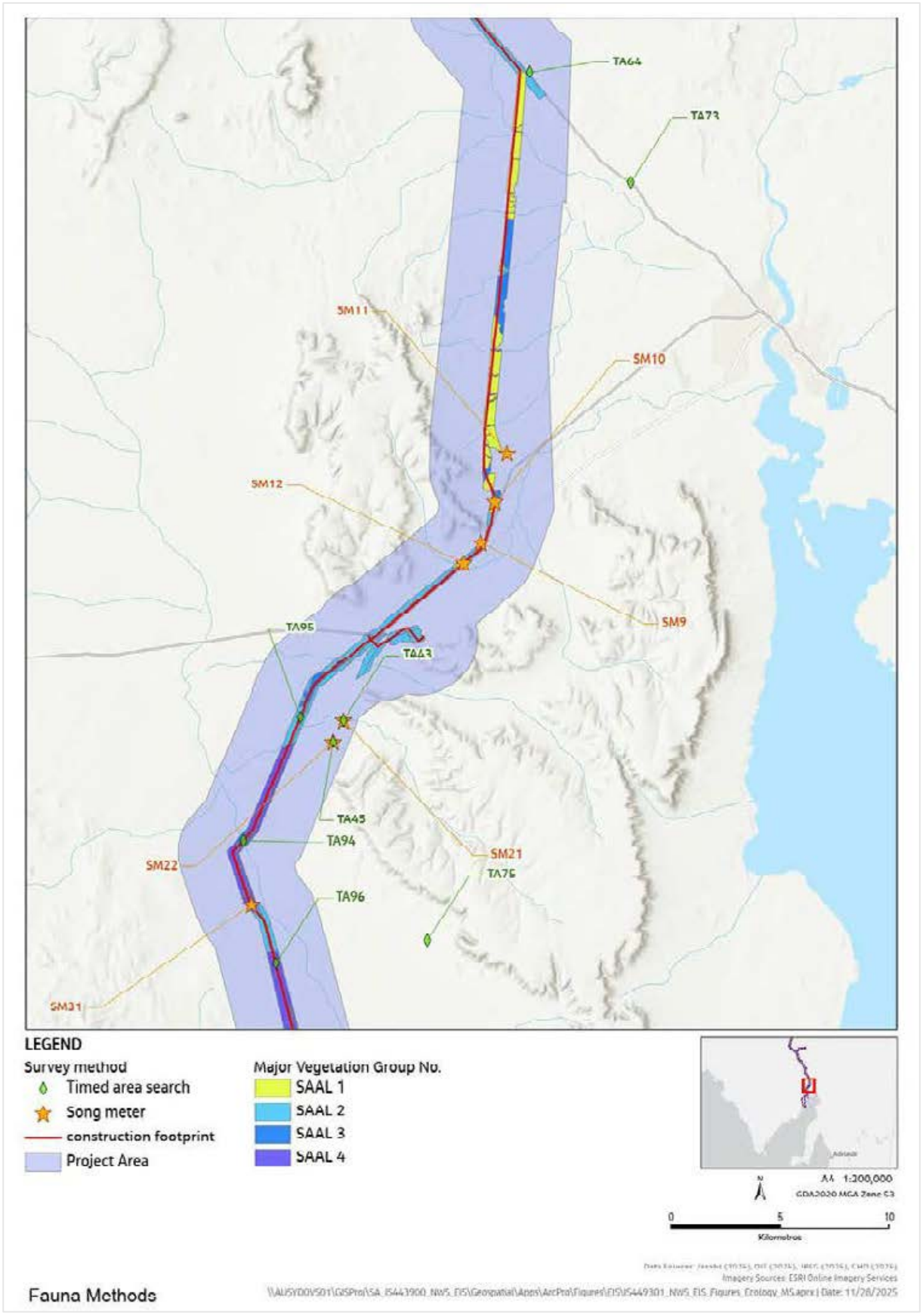


Figure 3-4. Timed area search and song meter sites implemented over all 10 field surveys (map 4 of 5)

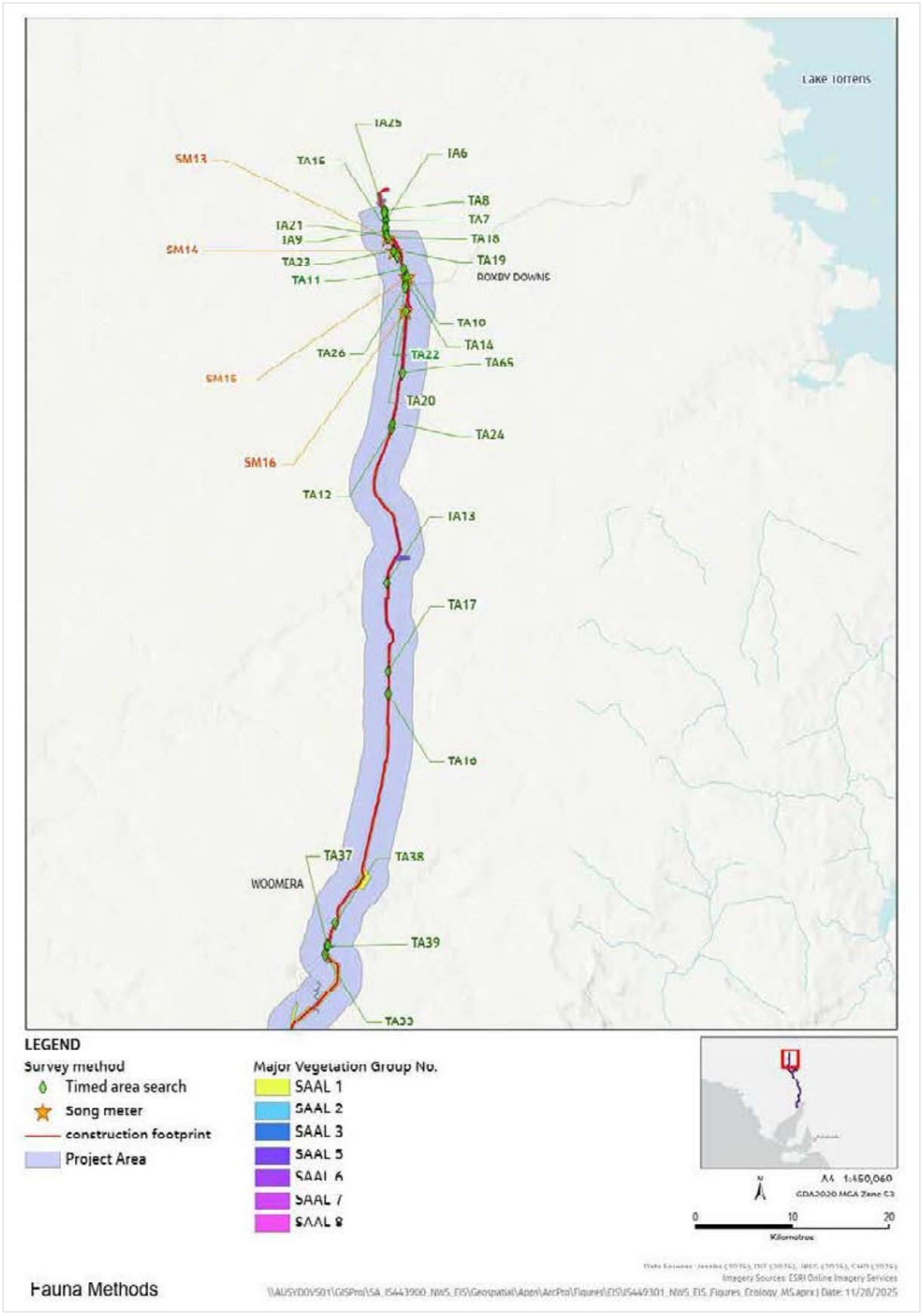


Figure 3-5. Timed area search and song meter sites implemented over all 10 field surveys (map 5 of 5)

3.3.2.3 Target species criteria

The following sections describe the assessment criteria for each of the targeted species.

3.3.2.3.1 Western Grasswren (*Amytornis textilis myall*)

Western Grasswren (Gawler Ranges / north-western SA subspecies) surveys involved assessment of vegetation for habitat suitability (as per Table 3-6), undertaking timed area searches and deploying song meters to obtain a minimum of one afternoon / dusk and one morning / dawn survey during known periods of activity. The Survey Guidelines for Australia's Threatened Birds (DEWHA 2017) suggest optimal months for detection are generally between June and September. However, in 2022, given the high rainfall and mild season, detection was expected to extend into the summer months and birds were detected during surveys in October and early December.

In addition, three surveys in 2025 targeted this species around the Mullaquana Station desalination plant site. The August 2025 survey was undertaken when Black Bluebush (*Maireana pyramidata*) was in full flower, resulting in high Lepidoptera abundance. Under such conditions, Western Grasswren may be less reliant on active foraging, making them more centralised around flowering shrubs and are therefore less detectable as the need to travel for hunting reduces. Furthermore, low rainfall in early 2025 may have reduced overall habitat productivity, potentially lowering the number of detections during these surveys.

Western Grasswren habitat suitability varies across the landscape and depends on site specific characteristics (e.g. density and cover of dominant species, presence and height and cover of spiny shrubs). Classifications of habitat suitability for the species were applied based on the criteria presented in Table 3-6.

Targeted timed area searches and song meter deployment were undertaken in the southern section of the Project Area for Western Grasswren to align with known species ranges and previous records (DEW 2025). Survey effort aligned with criteria in DEWHA (2017), which suggest a survey duration over three days (15 person hours), using timed area searches (detection of calls and sightings of birds) early in the morning to determine presence / absence. The total timed area search time for the Project was over 50 hours. This was supplemented by song meter recordings in the morning and evening, as outlined in Section 3.3.2.2. The combination of the timed area searches (often utilising call-playback) and deployment of song meters exceeded the requirements outlined in the guidelines.

As per Section 3.3.2, sites where the species were detected were mapped as points and high-level habitat mapping was created using the vegetation mapping layer as a base.

Table 3-6. Western Grasswren (*Amytornis textilis myall*) habitat suitability criteria.

Habitat suitability	Criteria	Rationale
Preferred	Total shrub cover 0 – 1 m 25 - 60%; Cover of spiny shrub > 0.5 m, or other dense tall chenopod shrubs (0.5 – 1 m) represents a high proportion of the total shrub cover; Dominant shrub species include Black Bluebush, Australian Boxthorn (*Lycium austral),* Spiny Saltbush (*Rhagodia spinescens*) and Bladder Saltbush (*Atriplex vesicaria*); Can occur with Western Myall, Bullock Bush (*Alectryon oleifolius)* low woodlands (less typically including Spiny Fan Flower (*Scaevola spinescens)).*	Mean shrub cover of sites surveyed by Black et al. (2009) which had Grasswren was 30.6%. Sites with Grasswren recorded historically have a high cover of shrubs to ground level, provided by dense chenopod shrubs and / or spiny shrubs. The majority of sites with Grasswren recorded by Black et al. (2009) "*were generally confined to drainage lines*" and had dense Black Bluebush and / or Australian Boxthorn with Spiny Saltbush or Spiny Goosefoot (*Rhagodia ulicina)* and Bladder Saltbush commonly recorded. From Black (2017) Table 4 – Black Bluebush and Australian Boxthorn low shrublands or open Western Myall and Bullock Bush low woodlands, less commonly Nitre Goosefoot

Habitat suitability	Criteria	Rationale
		(*Chenopodium nitrariaceum*) or other shrublands, rarely mallee; Spiny Saltbush common.
Atypical	Total shrub cover 0 – 1 m 15 - 25%; Cover of spiny shrub > 0.5 m, or other dense tall chenopod shrubs (0.5 – 1 m) represents a high to moderate proportion of the total shrub cover; Dominant shrub species include Pearl Bluebush (*Maireana sedifolia),* Spiny Fan Flower, Lobed-leaved Hop Bush *(Dodonaea lobulata)*, Pin Bush (*Acacia nyssophylla);* Bladder Saltbush +/- dense shrubs (e.g. *Senna* spp.); Can occur with Western Myall, Bullock Bush +/- Sugarwood low woodlands; May include Black Oak with spiny shrubs present. BDBSA / Jacobs records and/or habitat connectivity to known areas of preferred habitat within the landscape.	Black et al. (2009) recorded Grasswren at a lesser number of sites, described as "atypical", which displayed these characteristics. These sites were generally not in drainage lines, but may be subject to artificial water and did not contain Black Bluebush and/or Australian Boxthorn as dominants (i.e. can occur, but not dominant), but did have a "high cover" of dense spiny shrubs. Whilst this vegetation is atypical it is considered a highly suitable for Western Grasswren, particularly within the species known range.
Low potential	Spiny shrubs and/or dense chenopod shrubs present, but at 5 - 15% cover or < 0.5 m tall. Some records (BDBSA / Jacobs) within 20 km and limited habitat connectivity to known areas of preferred habitat within the landscape.	Black et al. (2009) found that habitats in which grasswrens were recorded had a high cover of dense shrubs 0 – 1 m tall.
Not suitable	Total shrub cover 0-1 m is very low; spiny shrubs are not present or <1% cover. No records (BDBSA / Jacobs) within 20 km and no habitat connectivity within the landscape.	Lack key shrub cover, species mixes and densities of preferred / atypical habitats.

3.3.2.3.2 Plains Mouse (*Pseudomys australis*)

Survey for Plains Mouse habitat included consideration of vegetation and landform suitability during RAM assessments in areas of known species distribution. Suitable habitat includes areas with gibber and cracking clays and associated with drainage features; major drainage lines with riparian vegetation (but not trees) and a sandy clay creek bed or minor drainage lines with little vegetation, but cracking clays and less-friable gibber plains with low chenopods. However, during natural irruption (boom) events (i.e. after significant rainfall) the species is known to temporarily extend into less preferred habitat (Moseby 2012). Broad habitat mapping was undertaken using the Project vegetation mapping (polygon data) as a basis and broadly applying relevant criteria (Table 3-7). A more detailed Plains Mouse study was undertaken separately to inform the EIS (Lathwida 2026).

Observations for signs of Plains Mouse (such as burrows, tracks, scats) were conducted as part of RAM assessments and timed area searches within representative habitats, as per species conservation advice and recovery plans (Moseby 2012) and survey guidelines (DSEWPaC 2011).

Table 3-7. Plains Mouse habitat suitability criteria

Habitat suitability	Criteria
Suitable [1]	Key critical refuge habitat for the species occurs within extensive gibber plains characterised by deep cracking clay soils that form gilgais (micro-depressions that retain moisture and organic matter). These gilgais are typically associated with minor drainage lines and run-on depressions (Brandle & Moseby 1999; DSEWPaC 2011). Vegetation within these gilgai systems is distinct, often dominated by moisture-tolerant species such as Swamp Cane-grass (*Eragrostis australasica*) and Cotton-bush (*Maireana aphylla*) (Moseby 2012) in the SAAL LMR. As soil characteristics were not surveyed as part of Jacobs habitat mapping surveys, all gibber, swales and drainage lines within the species are of known distribution are considered suitable habitat.
Not suitable	Habitat criteria listed above is not present.
[1] For additional detail, refer to Lathwida Plains Mouse habitat suitability report	

3.3.2.3.3 Southern Whiteface (*Aphelocephala leucopsis leucopsis*)

Southern Whiteface was not listed under the EPBC Act or the NPW Act during the initial surveys and was therefore not a target species. However, the species was recorded in all baseline timed area searches prior to the 2023 EPBC Act listing of the species, and all surveys since then have targeted Southern Whiteface. Habitat mapping has been generated based on field observations, species records and vegetation associations which meet the criteria presented in Table 3-8.

Southern Whiteface is considered sedentary, but individuals may move into wetter areas outside their normal range during drought periods. They forage almost exclusively on the ground, favouring habitat with low tree densities and an herbaceous understorey litter cover. The Conservation Advice (DCCEEW 2023a) defines habitat critical to the survival of the Southern Whiteface and includes areas of:

- Relatively undisturbed open woodlands and shrublands with an understorey of grasses or shrubs, or both
- Habitat with low tree densities and an herbaceous understory litter cover which provides essential foraging habitat, and
- Living and dead trees with hollows and crevices which are essential for roosting and nesting.

As habitat preferences for Southern Whiteface are less clearly defined with the species documented to utilise a wide variety of habitats, the habitat suitability categories for Southern Whiteface are limited to 'suitable' and 'not suitable', as presented in Table 3-8 (adapted from DCCEEW 2023a).

Table 3-8. Southern Whiteface habitat suitability criteria

Habitat Suitability	Criteria
Suitable	A wide range of open woodlands and shrublands where there is an understorey of grasses or shrubs, or both. These areas are usually in habitats dominated by Acacias or Eucalypts on ranges, foothills and lowlands, and plains. The species may move beyond these habitats during drought, into surrounding areas containing drainage lines and / or waterbodies. Often found to utilise Australian Boxthorn and African Boxthorn (*Lycium ferrocissium*) (DCCEEW 2023a). For likelihood of use also consider BDBSA / previous survey records within 5 km and habitat connectivity within the landscape.
Not Suitable	Areas containing no mid-to-tall shrubs or understorey, including very low shrubland and gibber. Also likely to disfavour areas with very high tree densities with no herbaceous understorey little cover.

Habitat Suitability	Criteria
	Consider BDBSA / previous survey records not within 5 km and limited to no habitat connectivity within the landscape.

3.3.2.3.4 Migratory shorebirds

Preferred habitat for migratory shorebirds (Order: Charadriiformes) occurs exclusively in coastal areas. Broad habitat mapping was undertaken using the Project vegetation mapping (polygon data) as a basis and broadly applying relevant habitat suitability categories and criteria as summarised in Table 3-9. Migratory shorebirds were targeted during field surveys around the Mullaquana desalination plant site, utilising timed area searches, song meter recordings and opportunistic observations.

Habitat suitability criteria for migratory shorebirds, including internationally and nationally important sites, are presented in Table 3-9 (adapted from Commonwealth of Australia 2017).

Table 3-9. Migratory shorebird habitat suitability criteria

Habitat Suitability	Criteria
Internationally Important Habitat	Suitable shorebird habitat is broadly defined as shorelines of coasts and inland water bodies including: ▪ Coastal wetlands, estuaries, mudflats, rocky inlets, reefs and sandy beaches, often supporting mangroves; or ▪ Inland wetlands, floodplains and grassland areas, often with ephemeral water sources. Internationally important shorebird habitat includes ecosystems listed above, which regularly supports: ▪ 1 per cent of the individuals in a population of one species or subspecies of waterbird; or ▪ a total abundance of at least 20 000 waterbirds.
Nationally Important Habitat	Suitable shorebird habitat is broadly defined as shorelines of coasts and inland water bodies including: ▪ Coastal wetlands, estuaries, mudflats, rocky inlets, reefs and sandy beaches, often supporting mangroves; or ▪ Inland wetlands, floodplains and grassland areas, often with ephemeral water sources. Nationally important shorebird habitat includes ecosystems listed above, which regularly supports: ▪ 0.1 per cent of the flyway population of a single species of migratory shorebird; or ▪ 2000 migratory shorebirds; or ▪ 15 migratory shorebird species.
Suitable	Suitable shorebird habitat is broadly defined as shorelines of coasts and inland water bodies including: ▪ Coastal wetlands, estuaries, mudflats, rocky inlets, reefs and sandy beaches, often supporting mangroves; or ▪ Inland wetlands, floodplains and grassland areas, often with ephemeral water sources. For likelihood of use also consider BDBSA / previous survey records of migratory species within 5 km and habitat connectivity within the landscape.
Not Suitable	Areas devoid of shorelines of coasts and / or inland water bodies.

3.3.3 Targeted threatened flora surveys

The following sections describe the flora assessment methodologies for each of the targeted species.

3.3.3.1 Bead Glasswort (*Tecticornia flabelliformis*)

There is currently no federally approved methodology for conducting targeted surveys for threatened samphire species. As such, field surveys targeted Bead Glasswort through initial assessment of the species' habitat criteria, specifically *"areas with groundwater connectivity to tidal bodies, included within or is near to the EPBC Act-listed ecological community Subtropical and Temperate Coastal Saltmarsh"* (DCCEEW 2024a). This description was only met in the area adjacent the Mullaquana Station desalination plant, which was subsequently traversed by foot in search of the species.

The habitat ecology of Bead Glasswort is described as saline wetlands on coastal clay flats (sabkha) over gypsum deposits (fragipans) or on the margins of inland salt lakes (DCCEEW 2024a). No soil type attributes are available for the Mullaquana Station desalination plant site. The closest available soil data is located 15 km south and consists of Shallow calcareous loam on calcrete, and Siliceous sand (DEW 2026b). However, a cautious approach was taken and all VAs containing samphire were traversed with particular focus on identifying species which resembled Bead Glasswort.

3.3.4 Opportunistic sightings

Opportunistic sightings of threatened species (flora and fauna) including species listed under the EPBC Act and / or the NPW Act, common native fauna species, pest weeds of note (e.g. Declared weeds or WoNS) and signs of pest fauna (e.g. European Fox (*Vulpes vulpes*) den / European Rabbit (*Oryctolagus cuniculus*) warren) within (or nearby) the Project Area were also noted.

3.3.5 Mapping data sets

A range of mapping data sets have been developed as part of the Project. These include:

- Northern Water vegetation mapping (polygon data)
- BAM and RAM sample points (point data)
- Threatened species observations (point data)
- Habitat mapping for targeted EPBC Act listed species (polygon data)
- Bird survey sites (point data), and
- Song meter deployment sites (point data).

In addition, rapid mapping (start-stop point data) was used in the field to map extent of vegetation polygons but will not comprise a formal data set.

Vegetation in the Project Area was mapped initially in the field using 'stop-start' mapping points and finalised via desktop. This incorporated collation of a range of data including existing DEW data, aerial imagery, and data collected at individual BAM / RAM sites and rapid mapping points. Rapid mapping points occurred where a full BAM / RAM was not undertaken but a photo was captured, a high-level vegetation description was noted, a bird survey was undertaken or where historical mapping was ground-truthed.

Due to the scale of the Project and alignment changes, some areas were predictively mapped using aerial photography, site knowledge and DEW remnant vegetation mapping.

Vegetation polygon mapping is used in various applications including informing LoO assessments, driving mitigation, habitat mapping and to calculate an SEB for the Project based on the number of hectares of each VA occurring in the construction footprint.

Broad habitat mapping for targeted threatened fauna species was also undertaken (see Section 3.3.2) largely based on vegetation mapping coupled with habitat assessments undertaken in the field. High quality EPBC Act listed species habitat was separated where feasible but often occurred as pockets of optimal habitat amongst broader vegetation groupings.

3.4 Limitations

Limitations related to the desktop assessment and field surveys are as follows:

- Field surveys covered key focus areas and target species based on the Project Area applicable at the time of survey. Some areas of the construction footprint (particularly access tracks and laydown areas (e.g. Carriewerloo Road west of Lincoln Gap) have not been ground-truthed due to factors including time constraints, access limitations, safety considerations, alignment changes and inclusion of new Project infrastructure post field survey. Where gaps in survey data were present, historical and publicly accessible survey data from nearby areas has been used.
- The Carrapateena lateral was surveyed by Lathwida and data provided to Jacobs for use in this report. This area has not been ground-truthed by Jacobs and is assumed to be accurate based on verification against aerial imagery.
- Vegetation was surveyed on ground where feasible. However, given the very large scale and linear nature of the construction footprint and inaccessibility to some areas, a range of techniques were applied to vegetation and habitat mapping including on-ground vegetation survey (RAM / BAM), rapid point sampling, review of DEW vegetation mapping, review of aerial imagery and knowledge of species' occurrence. In addition, where gaps in recent survey data were present, historical survey data from nearby projects has been used.
- Vegetation communities were mapped broadly based on IBRA subregions (and associations where available), vegetation community composition and broad changes in condition. It was not feasible to capture changes in condition at small scales such as near water points or across paddocks (as per RAM assessment across smaller scales).
- Given alignment changes, some aspects of data collection outside the Project Area, such as threatened species points, survey effort points and habitat mapping to show avoidance of ecological constraints, are displayed where relevant.
- Fauna survey methods were adapted (i.e. survey timings) from the DSEWPaC (DSEWPaC 2011) and DEWHA (DEWHA 2017) guidelines to suit the linear nature of the Project.
- Fauna trapping was not undertaken given the large-scale linear nature of the Project.
- Plains Mouse, Western Grasswren, Southern Whiteface and threatened and migratory shorebird habitat mapping has been undertaken at a high level only based on VAs. Detailed habitat mapping such as marking gilgai was not included in Jacobs' scope of works.

4. Results and Discussion

This section presents the outcomes of the desktop assessment and field surveys, including LoO assessments. The findings have been used to summarise flora and fauna observations, develop vegetation descriptions, inform mapping outputs, and provide a broad overview of habitat features within the Project Area.

4.1 Regional context

The primary land use within and adjacent the Project Area is agriculture, including sheep grazing on Freehold and Pastoral Lease (Crown Land), with a significant proportion of land within the north-west of Whyalla being identified as public institution, representing the Department of Defence (DoD) Cultana Training Area.

The Project Area does not intersect any protected areas (Heritage Agreements, SEB Areas, CPs or NPs). However, a section of the construction footprint north of Whyalla is located approximately 2.4 km from the north-west corner of the Whyalla CP. The northern end of the main transfer pipeline occurs approximately 38 km west from Lake Torrens NP at its closest point. The eastern extents of the lateral pipeline to Carrapateena Mine are approximately 22 km from the Lake Torrens NP. Arid Recovery, a 123 km^2 wildlife reserve, adjoins the northern boundary of the Olympic Dam Mine site, approximately 8.5 km north of the northern extent of the Project Area.

4.1.1 Surface water

The construction footprint crosses multiple ephemeral watercourses and floodplains. Typical of the semi-arid and arid environment, these ephemeral watercourses and floodplains only flow during and after intense climatic events but are largely dry otherwise.

In the EP LMR, the surface water features include:

- Minor drainage lines present across the Project Area.
- Tidal channels south of Cowleds Landing.
- Land subject to inundation consisting of intertidal samphire wetlands along the coast between Mullaquana Station and Whyalla (outside the construction footprint).
- Ephemeral lakes around Whyalla including the Whyalla Wetlands (12 km from construction footprint).
- One main drainage line in the construction footprint, Salt Creek.

In the SAAL LMR the surface water features include:

- Mainly minor drainage lines present across the Project Area.
- Two major drainage lines in the construction footprint, Pine Creek and Black Oak Creek.
- Intermittent significant lakes adjacent the construction footprint including Lake Dempsey (~5 km from pipeline), Lake Dutton (~1.4 km from pipeline), Pernatty Lagoon (~5 km from pipeline), Lake Windabout (~3 km from pipeline), Island Lagoon (~1.5 km from pipeline).
- Intermittent minor lakes adjacent the construction footprint including Coorlay Lagoon (~1 km from pipeline), Purple Swamp (~2 km from pipeline), Purple Lake (~3 km from pipeline), Red Swamp (~2 km from pipeline), Lake Mary (~1.6 km from pipeline), Cocky Swamp (~5 km from pipeline), Mirage Lagoon (~2 km from pipeline), and Red Lake (~4.5 km from pipeline).
- Creeks running adjacent and sometimes transecting the main transfer pipeline alignment. The main drainages include Myall Creek, Coorlay Creek, Sanders Creek, Wirrawirralu Creek, Island Creek and Mason Creek.

- Creeks running adjacent and sometimes transecting the Carrapateena lateral branch. The main drainages include Elizabeth Creek, Yeltacowie Creek, Carra Creek and Pernatty Creek (Pernatty Lagoon Catchment).
- The construction footprint intermittently transects and / or runs adjacent to land between Woomera and Roxby Downs that may be subject to flooding and ponding following significant rain events.

4.1.2 Climate

The Project Area within the EP LMR experiences a semi-arid climate, with fairly low annual rainfall, while the SAAL LMR experiences semi-arid climate in the southern sections and a more arid climate in the northern extent of the Project Area. The 2025 climate and rainfall data at various weather stations along the alignment are presented in Table 4-1.

Table 4-1. Climate and rainfall data (BOM 2026)

	2025 total Rainfall	Mean Annual Rainfall	Mean Monthly Rainfall	Min. Mean Annual Temp.	Coolest Month Temp.	Max. Mean Annual Temp.	Warmest Month Temp.
Whyalla	146.2	259.5	12.2	11.6	Jul 17.1/5.3	23.8	Jan 30.2/17.9
Pt Augusta West	134.8 (missing dec)	250.1	12.3 (missing dec)	12.2	Jul 17.9/4.7	26.3	Jan 34.2/19.5
Yudnapinna	149.6	211.0	12.5	11.1	Jul 16.8/4.4	25.3	Jan 33.7/ Feb 17.9
Woomera Aerodrome	114	183.0	9.5	12.8	Jul 17.1/5.8	25.9	Jan 34.7/19.7
Roxby Downs (Olympic Dam Aerodrome)	100.4	147.5	8.4	12.7	Jun 18.6/ Jul 4.3	27.8	Jan 37.1/21.3
Rainfall unit of measurement: millimetres (mm). Temperature unit of measurement: degrees Celsius (°C)							

4.2 Interim Biogeographic Regionalisation for Australia (IBRA) context

The IBRA a tool for identifying land for conservation under Australia's Strategy for the National Reserve System (Thackway and Cresswell 1995). The IBRA classifies Australia's landscapes into 89 Bioregions and 419 Subregions (DCCEEW 2026). Each Bioregion is a distinct area characterised by a combination of characteristics such as geology, landform patterns, climate, ecological features, and plant and animal communities. IBRA classifications help explain the distribution across the landscape of landform, vegetation communities and the fauna and flora they support, including species of national and state significance.

Assessment under the NV Act requires each BAM to be assigned to an IBRA Association and each RAM to be assigned to an IBRA Subregion. In the electronic scoresheets, this contributes to background landscape content scores based on calculations associated with the percentage of remnant vegetation protected in each respective IBRA classification area. There are several versions of IBRA regionalisation with the most recent version (Version 7) remaining incomplete and in progress. Given the large extent of the construction footprint, it traverses IBRA Associations updated to Version 7 from Version 6 and areas not updated. As IBRA is an essential component in data sheets for calculating offsets using BAM in the EP LMR (IBRA Association) and RAM in the SAAL LMR (IBRA Sub-region), Jacobs consulted with the Native Vegetation Management Unit in DEW with regard to which version to use and were instructed to use only Version 6 rather than a mix of Versions. The key difference between Version 6 and the current Version 7 IBRA Sub-regions is that the section of the Kingoonya subregion in Version 6 that crossed by the northern end of the transfer system has been split out as the Roxby subregion in Version 7. This subregion has been referred to as Kingoonya throughout

this report for consistency. There have been multiple changes to the Version 7 IBRA Associations including a widespread gap in the Whyalla area with no association allocated requiring Version 6 to be used.

IBRA classifications are a tool for describing the landscape for the desktop assessment and observations from field surveys over a Project Area. IBRA classifications help explain the distribution across the landscape of vegetation communities and the fauna and flora they support, including species of national and state significance. The Project Area occurs within the IBRA Gawler Bioregion, and spans four IBRA Subregions across both LMRs Table 4-2 and Table 4-3). Within the EP LMR, the Project Area occurs within three IBRA Associations (Table 4-2).

Table 4-2. Summary of IBRA Bioregions, IBRA Subregions and IBRA Associations present within the EP LMR

IBRA Bioregion	IBRA Subregion (Version 6)	IBRA Association (Version 6)	Location	Landforms and habitats
Gawler (GAW) (Depositional Plain)	**Myall Plains (GAW 01)** Extends from Mullaquana Station to north of Whyalla	Whyalla	Mullaquana Station to just north of Whyalla	Easterly sloping calcreted plain with occasional hills on outcropping conglomerate, and with Mangrove flats along the coastal margin. Low open woodland of Black Oak and Western Myall sometimes with False Sandalwood, low woodland of Mangrove and chenopod shrubland of samphire.
		Red Rock	Small sliver north of Whyalla	Hills on conglomerate with long dissected footslopes. Low open woodland of Western Myall and Myall / Black Oak. However, vegetation tended to tall shrublands noted during field surveys
		Tregolana	North of Whyalla to near boundary with SAAL LMR	Undulating plain with occasional low sand dunes and some samphire or mangrove flats. Low woodland of Western Myall and Black Oak, chenopod shrubland of saltbush and bluebush, chenopod shrubland of samphire and low woodland of mangroves.

Table 4-3. Summary of IBRA Bioregions, IBRA Subregions and IBRA Associations present within the SAAL LMR

IBRA Bioregion	IBRA Subregion (Version 6)	Location	Landforms and habitats
Gawler (GAW) (Depositional Plain)	**Arcoona Plateau (GAW04)** From north of Whyalla to north of Port Augusta, an area around Pernatty Lagoon and the Woomera area west of Lake Torrens	SAAL LMR boundary to north-west of Port Augusta including the Lake Pernatty and Woomera areas.	Landforms include a dissected sandstone plateau with bold eastern escarpment. The surface is undulating to hilly and often gibber-covered, particularly in east. Habitats range from Woodlands of Black Oak to shrublands of chenopods and Cane-grass areas.
	Gawler Lakes (GAW03) North of Port Augusta to south of Pimba (excluding Pernatty Lagoon)	Areas north-west of Port Augusta to Pernatty Lagoon and near the Carrapateena lateral branch	Undulating plains overlain with sand sheets and dunes, with occasional silcrete capped rises. Habitat consists of Chenopod shrublands with some woodlands and tussock or Cane-grass grasslands. Some open woodlands of Western Myall and Mulga.
	Kingoonya (GAW07) From 32 km north of Woomera to Roxby Downs	South from Roxby Downs for approximately 50 km	Dunefield with tall shrubland of Mulga and Turpentine Mulga, or Horse Mulga, chenopod shrubland of saltbush and either bluebush or bindyi, woodland of native pine and chenopod shrubland or Samphire.

4.3 Vegetation descriptions

A diverse range of landforms and vegetation communities occur across the Project Area. To broadly summarise vegetation over such a large scale, vegetation within the Project Area was mapped into BAM and RAM sites then grouped and mapped into Broad Vegetation Communities (BVCs) and Major Vegetation Groups (MVGs) to provide high level descriptions of vegetation and support threatened species habitat mapping.

The vegetation is described and summarised for each of the LMRs below, including a general overview and summary of MVGs, BVCs, BAM and RAM sites.

4.3.1 Eyre Peninsula LMR

The vegetation in the EP LMR is predominantly characterised by chenopod shrublands and open woodlands, which are generally in good condition with weed cover increasing around existing infrastructure. Coastal shrublands occur around the Mullaquana Station desalination plant. Remnant vegetation is widespread where conditions are too dry for cropping and land use is dominated by sheep grazing and DoD activities.

4.3.1.1 Mullaquana Station to Whyalla

Vegetation comprises low coastal chenopod shrublands with Bladder Saltbush +/- Grey Samphire and patches of taller Pearl Bluebush and Black Bluebush shrubland persists in some areas. Coastal low shrublands (in the Project Area) transition to supra-tidal and inter-tidal samphire which is classified as the Subtropical and Temperate Coastal Saltmarsh TEC. There are no formally mapped areas of supra-tidal or inter-tidal samphire on NatureMaps representing the TEC within the construction footprint (DEW 2026b), but a thin strip of vegetation considered to represent the TEC was observed on the edge of the Project Area during the field survey (in BAM 145). However, this area falls outside of the construction footprint as the intake / outfall pipes will be tunnelled underground and the Project is not anticipated to impact the TEC.

4.3.1.2 North of Whyalla to the EP / SAAL boundary

Vegetation comprises vast flat to undulating plains of Western Myall / Black Oak / Sugarwood open woodlands over chenopods or chenopod shrublands including on DoD land (Cultana Training Area) and on roadsides (Myall Plains IBRA Subregion), providing habitat for the EPBC Act listed Western Grasswren.

4.3.1.3 Summary of MVGs and BVCs in EP LMR

Across the Project Area within the EP LMR, 32 BAM VAs were surveyed and grouped into nine BVCs, based on Bushland Condition Monitoring (BCM) classifications where applicable (Milne et al. 2008). These BVCs were further consolidated into six MVGs. Within the construction footprint, 23 BAM VAs were recorded, grouped into six BVCs, which were further consolidated into three MVGs. The MVGs with their respective BVCs and BAM VAs are summarised in Table 4-4 with the distribution of each VA described in in Table 4-5 to Table 4-13 and shown in greater detail in the map series provided in Appendix B.

Table 4-4. Vegetation communities found to occur within the Project Area and construction footprint within the EP LMR (BAM sites)

Major Vegetation Group	Broad Vegetation Community	BAM / RAM no.	Vegetation Association	IBRA Association (V6)
EP 2. Open Woodlands of Western Myall / Black Oak /Sugarwood	NW EP 2.1. Low open woodlands of Western Myall with a Chenopod shrub understorey	BAM 10*	*Myoporum platycarpum / Acacia papyrocarpa* low open woodland over *Maireana sedifolia / Atriplex vesicaria*	Whyalla
		BAM 19*	*Acacia papyrocarpa* low open woodland over *Maireana pyramidata / Atriplex vesicaria / Maireana sedifolia*	Red Rock
		BAM 62	*Acacia papyrocarpa* low very open woodland over *Maireana sedifolia / Atriplex vesicaria +/- Maireana pyramidata*	Red Rock
				Tregolana
				Whyalla
		BAM 67	*Acacia papyrocarpa* low woodland over *Maireana sedifolia / Rhagodia ulicina*	Red Rock
				Whyalla
		BAM 81*	*Acacia papyrocarpa* low woodland over *Maireana sedifolia +/- Myoporum platycarpum*	Tregolana
		BAM 106*	*Acacia papyrocarpa* low woodland over *Maireana sedifolia / Maireana pyramidata / Atriplex vesicaria*	Tregolana
	NW EP 2.2. Low open woodlands with Western Myall and Black Oak over Chenopod shrub understorey	BAM 7	*Acacia papyrocarpa / Casuarina pauper* low open woodland over chenopods (*Maireana sedifolia / Maireana pyramidata / Atriplex vesicaria*) +/- *Myoporum platycarpum*	Red Rock
				Tregolana
				Whyalla
		BAM 32*	*Acacia papyrocarpa* low woodland over chenopods with tall mixed shrubs / *Myoporum platycarpum / Casuarina pauper*	Tregolana

Major Vegetation Group	Broad Vegetation Community	BAM / RAM no.	Vegetation Association	IBRA Association (V6)
		BAM 61	*Acacia papyrocarpa* low woodland over *Maireana pyramidata / Atriplex vesicaria* with sparse *Maireana sedifolia +/- Casuarina pauper*	Red Rock
				Tregolana
				Whyalla
		BAM 250	*Casuarina pauper / Acacia papyrocarpa* low open woodland over chenopods (drainage line)	Whyalla
	NW EP 2.3. Low open woodlands of Sugarwood with a Chenopod shrub understorey	BAM 144	*Myoporum platycarpum* low open woodland over Chenopod shrubs (low dune)	Whyalla
EP 3. Chenopod Shrublands (including drainage lines)	NW EP 3.1. Coastal environments with low open chenopod shrublands on stony hills or undulating plains +/- Samphire	BAM 11	*Atriplex vesicaria / Tecticornia halocnemoides* ssp. aff. *longispicata* low shrubland	Whyalla
		BAM 34	*Maireana sedifolia / Atriplex vesicaria* low shrubland	Whyalla
		BAM 142	*Atriplex vesicaria / Tecticornia disarticularta* low shrubland	Whyalla
		BAM 143*	*Alyxia buxifloria / Myoporum insulare* shrubland on shell grit low dunes	Whyalla
	NW EP 3.3. Chenopod open shrublands +/- emergent trees	BAM 9	*Maireana sedifolia / Atriplex vesicaria* low open shrubland with emergent *Myoporum platycarpum*	Whyalla
		BAM 17	*Maireana sedifolia / Atriplex vesicaria* low open shrubland with emergent shrubs (*Senna* spp. / *Eremophila* spp.) +/- *Acacia papyrocarpa*	Red Rock
				Whyalla
		BAM 21	*Maireana sedifolia* low open shrubland on calcrete +/- emergent low shrubs / *Myoporum platycarpum / Acacia papyrocarpa*	Tregolana

Major Vegetation Group	Broad Vegetation Community	BAM / RAM no.	Vegetation Association	IBRA Association (V6)
		BAM 24	*Maireana sedifolia / Atriplex vesicaria* low open shrubland +/- emergent shrubs / *Myoporum platycarpum*	Whyalla
		BAM 51	*Maireana sedifolia* open shrubland +/- isolated *Acacia papyrocarpa*	Red Rock
				Tregolana
				Whyalla
		BAM 53	*Maireana sedifolia* low shrubland with clusters of *Acacia papyrocarpa*	Whyalla
		BAM 54	*Maireana sedifolia / Atriplex vesicaria* low open shrubland	Whyalla
		BAM 59	*Scaevola spinescens* open shrubland with emergent *Acacia papyrocarpa, Myoporum platycarpum*	Tregolana
		BAM 63	*Maireana sedifolia / Rhagodia ulicina* low shrubland with emergent *Acacia papyrocarpa / Myoporum platycarpum* on calcrete rise	Red Rock
				Whyalla
		BAM 64	*Atriplex vesicaria / Maireana sedifolia* low Shrubland with isolated *Acacia papyrocarpa / Myoporum platycarpum*	Whyalla
		BAM 65	Broad drainage line with *Maireana pyramidata / Atriplex vesicaria* low Shrubland with *Acacia papyrocarpa*	Whyalla
		BAM 103	*Maireana pyramidata / Atriplex vesicaria* open shrubland +/- *Maireana sedifolia*	Tregolana
				Whyalla

Major Vegetation Group	Broad Vegetation Community	BAM / RAM no.	Vegetation Association	IBRA Association (V6)
		BAM 111	*Maireana sedifolia / Atriplex* low open Shrubland +/- emergent tall mixed shrubs (*Alectryon oleifolius / Eremophila* spp. / *Senna* spp) +/- *Acacia papyrocarpa*	Whyalla
EP 4. Tall shrublands in drainage lines and on plains	NW EP 4.1. Inland tall shrublands in drainage lines and on plains	BAM 66	Broad drainage line with *Eremophila longifolia* tall Shrubland over *Senna artemisioides* with sparse *Maireana sedifolia*	Whyalla
EP 6. Coastal shrublands	NW EP 6.1. Coastal tall shrublands	BAM 140*	*Myoporum insulare / Nitraria billardierii* open shrubland with emergent *Avicennia marina* coastal beach and foredune	Whyalla
EP 7. Coastal saltmarsh and samphire	NW EP 7.2. Temperate coastal saltmarsh on intertidal flats	BAM 145*	*Tecticornia halocnemoides* ssp. / *T. arbuscula* low open shrubland	Whyalla
EP 12. Mangroves	NW EP 12.1. Mangroves in tidal areas	BAM 141*	*Avicennia marina* ssp. *marina* tall shrubland	Whyalla
The current Project Area avoids some BAM / RAM sites which were previously recorded during the field survey. These sites are not represented in this table * Indicates BAMs which were assessed as part of the Project Area but are not impacted by the Rev 5.2 construction footprint.				

4.3.1.3.1 MVG EP 2 – Open woodlands of Western Myall / Black Oak / Sugarwood

MVG EP 2 (Open woodlands of Western Myall / Black Oak / Sugarwood) is represented by three BVCs within the Project Area. In addition, each BVC is represented by a number of VAs (BAM sites) as summarised below in Table 4-5, Table 4-6 and Table 4-7.

Table 4-5. Broad Vegetation Community NW EP 2.1

Broad Vegetation Community NW EP 2.1 **Low open woodlands of Western Myall with a chenopod shrub understorey**		
General description Broad Vegetation Community NW EP 2.1 represents flat to gently undulating plains of Western Myall open woodland over a chenopod shrubland with dominant species including Black Bluebush, Pearl Bluebush, Bladder Saltbush and less often Intricate Saltbush. Other species include Spiny Fanflower, Australian Boxthorn, Thorny Lawrencia (*Lawrencia squamata*) and emergent tall shrubs including Emubush spp., Sheep Bush and Sennas. The community varies in condition but is generally found to be in moderate to good condition, retaining palatable species and with low to moderate grazing pressure. The community often contains emergent False Sandalwood. Similar communities containing Black Oak are separated into BVC NW EP 2.2 whilst communities comprised of False Sandalwood without Western Myall are separated into BVC NW EP 3.1. In addition, larger drainage lines are separated into MVG EP 3 and 4. This community is mapped predominantly west of Whyalla and occurs across the Myall Plains Subregion and crosses three IBRA Associations.		
Suitability for key threatened species or community This BVC contains atypical, but still highly suitable habitat for Western Grasswren due to the high cover of dense spiny shrubs utilised by this species as well as some previous database records, however this BVC rarely contained preferred species such as Black Bluebush and / or Australian Boxthorn as dominant vegetation. Suitable habitat for the Southern Whiteface is also present across this BVC. Suitable habitat for this species includes a wide range of open woodlands and shrublands with an understorey of grasses or shrubs often where Acacias or Eucalypts dominate. This species has also been found to utilise Australian Boxthorn and African Boxthorn, so the presence of these species makes a habitat more suitable for the Southern Whiteface.		
BAM #	**BAM site description (vegetation association)**	**General location description**
BAM 10	*Myoporum platycarpum* / *Acacia papyrocarpa* low open woodland over *Maireana sedifolia* / *Atriplex vesicaria*	Small patch on the southern-most boundary of the Project Area at Mullaquana Station.
BAM 19	*Acacia papyrocarpa* low open woodland over *Maireana pyramidata* / *Atriplex vesicaria* / *M. sedifolia*	Very narrow strips near Whyalla CP.
BAM 62	*Acacia papyrocarpa* low very open woodland over *Maireana sedifolia* / *Atriplex vesicaria* +/- *Maireana pyramidata*	Several large patches west of Whyalla to Cultana.
BAM 67	*Acacia papyrocarpa* low woodland over *Maireana sedifolia* / *Rhagodia ulicina*	~5 km extent from Lincoln Highway north to a creek line, west of Whyalla.
BAM 81	*Acacia papyrocarpa* low woodland over *Maireana sedifolia* +/- *Myoporum platycarpum*	Few patches along the eastern extent of Whyalla CP along Lincoln Highway.
BAM 106	*Acacia papyrocarpa* low woodland over *Maireana sedifolia* / *M. pyramidata* / *Atriplex vesicaria*	Few fragmented patches north of Whyalla CP along Lincoln Highway.

Broad Vegetation Community NW EP 2.1
Low open woodlands of Western Myall with a chenopod shrub understorey



Plate 1. BAM 10 *Myoporum platycarpum / Acacia papyrocarpa* low open woodland over *Maireana sedifolia / Atriplex vesicaria*



Plate 2. BAM 19 *Acacia papyrocarpa* low open woodland over *Maireana pyramidata / Atriplex vesicaria / M. sedifolia*



Plate 3. BAM 62 *Acacia papyrocarpa* low very open woodland over *Maireana sedifolia / Atriplex vesicaria +/- M. pyramidata*



Plate 4. BAM 67 *Acacia papyrocarpa* low woodland over *Maireana sedifolia / Rhagodia ulicina*



Plate 5. BAM 81 *Acacia papyrocarpa* low woodland over *Maireana sedifolia +/- Myoporum platycarpum*



Plate 6. BAM 106 *Acacia papyrocarpa* low woodland over *Maireana sedifolia / M. pyramidata / Atriplex vesicaria*

Table 4-6. Broad Vegetation Community NW EP. 2.2

Broad Vegetation Community NW EP 2.2 **Low open woodlands with Western Myall and Black Oak over chenopod shrub understorey**		
General description Broad Vegetation Community NW EP 2.2 represents open woodlands similar to community NW EP 2.1, but with Western Myall and Black Oak varying in their dominance with or without False Sandalwood. Black Oak increases in frequency of occurrence north of Whyalla near Whyalla CP and is dominant in smaller patches or as scattered individuals. In roadside areas, the community often supports dense regeneration of Western Myall whilst young specimens are often grazed out, where the community extends into pastoral land. The understorey occurs predominantly over chenopod shrublands including Black Bluebush, Pearl Bluebush, Bladder saltbush and less often Intricate Saltbush. Tall shrubs are also common including Emubush spp., Sheep Bush and Sennas. The community varies in condition but is generally found to be in moderate to good condition and of better quality on roadsides. This BVC is represented by four BAMs across three IBRA Associations and was mapped exclusively north of Whyalla along the Lincoln Highway. The community occurs only in the Myall Plains Subregion. Similar BVCs without Black Oak are described in community NW EP 2.1 whilst communities comprised of Sugarwood without Western Myall are separated into BVC NW EP 3.1.		
Suitability for key threatened species or community This BVC contains atypical and preferred habitat for the Western Grasswren. Some of this community contains a high cover of Black Bluebush, Australian Boxthorn and other spiny shrubs creating ideal habitat for this species. Other parts of this community did not contain Black Bluebush and / or Australian Boxthorn as dominant vegetation but had shrub species filling the same niche, as well as previous Western Grasswren records in the area and is therefore considered atypical, but still highly suitable habitat. This community contains open woodlands and shrublands dominated by Acacias or Eucalypts with an understorey of shrubs making it also highly suitable habitat for Southern Whiteface.		
BAM #	**BAM site description (vegetation association)**	**General location description**
BAM 7	*Acacia papyrocarpa* / *Casuarina pauper* low open woodland over chenopods (*Maireana sedifolia* / *M. pyramidata* / *Atriplex vesicaria*) +/- *Myoporum platycarpum*	Widespread patches east to north of Whyalla from Middleback Range to Tregalana.
BAM 32	*Acacia papyrocarpa* low woodland over chenopods with tall mixed shrubs / *Myoporum platycarpum* / *Casuarina pauper*	North-east corner of Whyalla CP along Lincoln Highway.
BAM 61	*Acacia papyrocarpa* low woodland over *Maireana pyramidata* / *Atriplex vesicaria*	North of Whyalla CP and east of Whyalla near Iron Knob Road railway.
BAM 250	*Casuarina pauper / Acacia papyrocarpa* low open shrubland over chenopods (drainage line)	Large patch following a creek line within the Nonowie Transmission Line footprint west of Cowleds Landing.



Plate 7. BAM 7 *Acacia papyrocarpa / Casuarina pauper* low open woodland over chenopods (*Maireana sedifolia / M. pyramidata / Atriplex vesicaria*) +/- *Myoporum platycarpum*



Plate 8. BAM 32 *Acacia papyrocarpa* low woodland over chenopods with tall mixed shrubs / *Myoporum platycarpum / Casuarina pauper*



Plate 9. BAM 61 *Acacia papyrocarpa* low woodland over *Maireana pyramidata / Atriplex vesicaria*



Plate 10. BAM 250 *Casuarina pauper / Acacia papyrocarpa* low open shrubland over chenopods (drainage line)

Table 4-7. Broad Vegetation Community NW EP 2.3

Broad community NW EP 2.3 **Low open woodlands of Sugarwood with a chenopod shrub understorey**		
General description Broad Vegetation Community NW EP 2.3 occurs on flat to gently undulating sandy plains and low coastal dunes with an overstorey comprised of False Sandalwood without Western Myall (or if present very sparse). The understorey comprises chenopods including Black Bluebush, Pearl Bluebush, Bladder Saltbush, Spiny Goosefoot and emergent shrubs (Emubush spp., Senna, Sheep Bush). This community is in good condition with reasonable diversity and presence of taller chenopod specimens. This community is represented entirely by BAM 144 located within the Whyalla IBRA Association.		
Threatened species or community This community contains open woodlands and shrublands dominated by Acacias or Eucalypts with an understorey of shrubs making it a highly suitable habitat for the Southern Whiteface.		
BAM #	**BAM site description (vegetation association)**	**General location description**
BAM 144	*Myoporum platycarpum* low open woodland over Chenopod shrubs (low dune)	Long patch along coastline, south of Cowleds Landing at Mullaquana Station.

Broad community NW EP 2.3 Low open woodlands of Sugarwood with a chenopod shrub understorey


Plate 11. BAM 144 *Myoporum platycarpum* low open woodland over Chenopod shrubs (low dune)

4.3.1.3.2 MVG EP 3 – Chenopod shrublands (including drainage lines)

MVG EP 3 (Chenopod shrublands (including drainage lines)) is represented by two BVCs within the Project Area. In addition, each BVC is represented by a number of VAs (BAM sites) summarised below in Table 4-8 and Table 4-9.

Table 4-8. Broad Vegetation Community NW EP 3.1

Broad Vegetation Community NW EP 3.1 Coastal environments with low open chenopod shrublands on stony hills or undulating plains +/- Samphire		
General description Broad Vegetation Community EP 3.1 comprises gently undulating to steep rock slopes of chenopod shrubland in coastal areas with species dominated by Pearl Bluebush and Bladder Saltbush, with occasional patches of Black Bluebush. This community is restricted to coastal areas and excludes vast areas of chenopod shrublands in the Myall Plains Subregion, which are described as BVC NW EP 3.3. The community has scattered emergent shrubs particularly Sheep Bush and Sennas. The community is considered in moderate to good condition, becoming more degraded near infrastructure and roadsides. This community is represented by four BAMs and is exclusive to coastal areas occurring around Mullaquana Station and north-west of Cowleds Landing. It occurs within one IBRA Association and the Myall Plains Subregions.		
Suitability for key threatened species or community This BVC contains atypical, low potential and some not-suitable habitat for Western Grasswren. Areas within BAM 142 and BAM 34 are considered to provide atypical habitat for this species. There is 189 ha of vegetation (BAM 142) within the desalination plant construction footprint classified as atypical Western Grass Wren habitat. However BAM 142 was considered only marginally atypical lacking the structural characteristics preferred by the species. This area (BAM 142) is dominated by low Bladder Saltbush and Grey Samphire with only occasional Black Bluebush or Pearl Bluebush preferred by the species and lacking Australian Boxthorn. The remainder of this BVG is considered to have low potential to not-suitable for Western Grasswren as there are limited preferred flora species / coverage present. This community contains low open shrublands on undulating plains and hills making it a highly suitable habitat for the wide-ranging Southern Whiteface. Coastal environments with chenopod shrublands create highly suitable habitat for these species and occurs across BAM 143 within this community.		
BAM #	**BAM site description (vegetation association)**	**General location description**
BAM 11	*Atriplex vesicaria* / *Tecticornia halocnemoides* ssp. aff. *longispicata* low shrubland	Many patches following coastline along Cowleds Landing.
BAM 34	*Maireana sedifolia* / *Atriplex vesicaria* low shrubland	Within the Nonowie TL footprint west of Cowleds Landing.

Broad Vegetation Community NW EP 3.1 Coastal environments with low open chenopod shrublands on stony hills or undulating plains +/- Samphire		
BAM 142	*Atriplex vesicaria / Tecticornia disarticularta* low shrubland	Large patch around the Mullaquana Station desalination plant.
BAM 143	*Alyxia buxifloria / Myoporum insulare* shrubland on shell grit low dunes	Several patches along the coast adjacent the Mullaquana Station desalination plant.



Plate 12. BAM 11 *Atriplex vesicaria / Tecticornia halocnemoides* ssp. aff. *longispicata* low shrubland



Plate 13. BAM 34 *Maireana sedifolia / Atriplex vesicaria* low shrubland



Plate 14. BAM 142 *Atriplex vesicaria / Tecticornia disarticularta* low shrubland



Plate 15. BAM 143 *Alyxia buxifloria / Myoporum insulare* shrubland on shell grit low dunes

Table 4-9. Broad Vegetation Community NW EP 3.3

Broad Vegetation Community NW EP 3.3 Chenopod open shrublands +/- emergent trees
General description Broad Vegetation Community NW EP 3.3 represents chenopod open shrublands on flat and gently undulating loam and calcareous plains. Dominant chenopods are Pearl Bluebush and Black Bluebush. The species vary in their dominance and often form a mosaic with Black Bluebush dominating in lower lying heavier soils and near water points (given its lower palatability) and Pearl Bluebush dominating on higher slopes particularly on calcareous rises. Bladder Saltbush is often co-dominant. Less frequently patches of Spiny Goosefoot, Samphire and Spiny Fanflower were also observed. The community supports scattered emergent shrubs and trees including False Sandalwood, Sheep Bush, Emubush spp. and Senna in addition to occasional Western Myall, Dead Finish (*Acacia tetragonophylla*) and Umbrella Wattle (*A. oswaldii*). However, where the community tends to woodland structure it is described under BVC NW EP 2.1, EP 2.2 or EP 2.3.

Broad Vegetation Community NW EP 3.3
Chenopod open shrublands +/- emergent trees

This BVC occurs in three IBRA Associations and across the Myall Plains Subregion and is represented by 13 BAMs. Predominantly mapped around Whyalla, the community is interspersed with low open woodlands of Western Myall / Black Oak with a Chenopod shrub understorey (NW EP 2.1 & EP 2.2) and within an area of inland tall shrubs in drainage lines (NW EP 4.1) west of Mullaquana Station.

Suitability for key threatened species or community

Preferred habitat for Western Grasswren is present within this BVC where spiny shrub species such as Black Bluebush and Australian Boxthorn are dominant. A few Western Grasswren were also observed in this community within BAM 51 and BAM 111. The majority of this community is considered to contain atypical (but highly suitable) habitat for this species, with one area having low potential (BAM 9).
This community contains open shrublands with some Acacias or Eucalypts making it highly suitable habitat for the Southern Whiteface. Several individuals of this species were also observed during field surveys within this community, specifically within BAM 51, BAM 111 and BAM 103.

BAM #	BAM site description (vegetation association)	General location description
BAM 9	*Maireana sedifolia* / *Atriplex vesicaria* low open shrubland with emergent *Myoporum platycarpum*	Scattered patches east of Middleback Range from the Lincoln Highway and south.
BAM 17	*Maireana sedifolia* / *Atriplex vesicaria* low open shrubland with emergent shrubs (*Senna* spp. / *Eremophila* spp.) +/- *Acacia papyrocarpa*	Small patches east of Middleback Range north of Lincoln Highway and on the western extent of Whyalla CP.
BAM 21	*Maireana sedifolia* low open shrubland on calcrete +/- emergent low shrubs / *Myoporum platycarpum* / *Acacia papyrocarpa*	Rectangular patch within Whyalla Barson near Whyalla solar farm.
BAM 24	*Maireana sedifolia* / *Atriplex vesicaria* low open shrubland +/- emergent shrubs / *Myoporum platycarpum*	Two adjacent patches ~8 km long east of Middleback Range.
BAM 51	*Maireana sedifolia* open shrubland +/- isolated *Acacia papyrocarpa*	Several large patches north of Middleback Range and several more patches scattered east and north of Whyalla CP.
BAM 53	*Maireana sedifolia* low shrubland with clusters of *Acacia papyrocarpa*	Three small patches west of Whyalla CP.
BAM 54	*Maireana sedifolia* / *Atriplex vesicaria* low open shrubland	One patch south of Lincoln Highway and Middleback Range and another along Iron Knob Road west of Whyalla CP.
BAM 59	*Scaevola spinescens* low open shrubland with emergent *Acacia papyrocarpa / Myoporum platycarpum* on borrow pit (degraded)	Single small patch within Whyalla Barson near Whyalla solar farm.
BAM 63	*Maireana sedifolia / Rhagodia ulicina* low shrubland with emergent *Acacia papyrocarpa / Myoporum platycarpum* on calcrete rise	Small patches north of Whyalla CP and west of Whyalla south of Iron Knob Road.
BAM 64	*Atriplex vesicaria / Maireana sedifolia* low shrubland with isolated *Acacia papyrocarpa / Myoporum platycarpum*	Several fragmented patches west of Whyalla CP.
BAM 65	Broad drainage line with *Maireana pyramidata / Atriplex vesicaria* low shrubland with *Acacia papyrocarpa*	Several small patches north and south of Iron Knob Road, west of Whyalla.
BAM 103	*Maireana pyramidata* / *Atriplex vesicaria* open shrubland +/- *M. sedifolia*	Several patches west of Cowleds Landing along the Nonowie TL and north of Whyalla CP.
BAM 111	*Maireana sedifolia / Atriplex* low open Shrubland +/- emergent tall mixed shrubs *(Alectryon oleifolius / Eremophila* spp. */ Senna* spp.*) +/- Acacia papyrocarpa*	Few patches west of Middleback Range crossing Lincoln Highway.

Broad Vegetation Community NW EP 3.3
Chenopod open shrublands +/- emergent trees



Plate 16. BAM 9 *Maireana sedifolia / Atriplex vesicaria* low open shrubland with emergent *Myoporum platycarpum*



Plate 17. BAM 17 *Maireana sedifolia / Atriplex vesicaria* low open shrubland with emergent shrubs (*Senna* spp. / *Eremophila* spp.) +/- *Acacia papyrocarpa*



Plate 18. AM 21 *Maireana sedifolia* low open shrubland on calcrete +/- emergent low shrubs / *Myoporum platycarpum / Acacia papyrocarpa*



Plate 19. BAM 24 *Maireana sedifolia / Atriplex vesicaria* low open shrubland +/- emergent shrubs / *Myoporum platycarpum*



Plate 20. BAM 51 *Maireana sedifolia* open shrubland +/- isolated *Acacia papyrocarpa*



Plate 21. BAM 53 *Maireana sedifolia* low shrubland with clusters of *Acacia papyrocarpa*

Broad Vegetation Community NW EP 3.3
Chenopod open shrublands +/- emergent trees



Plate 22. BAM 54 *Maireana sedifolia / Atriplex vesicaria* low open shrubland



Plate 23. BAM 59 *Scaevola spinescens* low open shrubland with emergent *Acacia papyrocarpa / Myoporum platycarpum* on borrow pit (degraded)



Plate 24. BAM 63 *Maireana sedifolia / Rhagodia ulicina* low shrubland with emergent *Acacia papyrocarpa, Myoporum platycarpum* on calcrete rise



Plate 25. BAM 64 *Atriplex vesicaria / Maireana sedifolia* low shrubland with isolated *Acacia papyrocarpa/ Myoporum platycarpum*



Plate 26. BAM 65 Broad drainage line with *Maireana pyramidata / Atriplex vesicaria* low shrubland with *Acacia papyrocarpa*



Plate 27. BAM 103 *Maireana pyramidata / Atriplex vesicaria* open shrubland +/- *M. sedifolia*

Broad Vegetation Community NW EP 3.3 Chenopod open shrublands +/- emergent trees


Plate 28. BAM 111 *Maireana sedifolia / Atriplex* low open Shrubland +/- emergent tall mixed shrubs (*Alectryon oleifolius / Eremophila* spp. */ Senna* spp.) +/- *Acacia papyrocarpa*

4.3.1.3.3 MVG EP 4 – Tall shrublands in drainage lines and on plains

MVG EP 4 (Tall shrublands in drainage lines and on plains) is represented by one BVC within the Project Area. The community is represented by a single VA (BAM site) as summarised below in Table 4-10.

Table 4-10. Broad Vegetation Community NW EP 4.1

Broad Vegetation Community NW EP 4.1 Inland tall shrublands in drainage lines and on plains		
General description Broad Vegetation Community NW EP 4.1 represents tall shrublands often over chenopod shrublands in minor or broad drainage lines. Shrublands are dominated by Elegant Wattle, Emubush spp. (*Eremophila alternifolia, E. longifolia*), Native Apricot (*Pittosporum angustifolium*), Leafless Cherry (*Exocarpos aphyllus*), Sheep Bush and Sennas. The community occurs around Whyalla. The community is difficult to access except on foot, therefore the BAM sample point was established in an accessible area then aerial photography and site knowledge was applied to extend mapping where it could not be reached on ground. The community is represented by one BAM occurring in one IBRA Association in the Myall Plains Subregions. The community is represented by BAM 66 north of Lincoln Highway, west of Mullaquana Station.		
Suitability for key threatened species or community Preferred habitat for Western Grasswren is present within this BVC where spiny shrub species such as Black Bluebush and Australian Boxthorn are dominant. The majority of this community is considered to contain atypical, but still suitable, habitat for this species. This community contains open woodlands dominated by Acacias or Eucalypts with an understorey of shrubs making it a highly suitable habitat for the Southern Whiteface.		
BAM #	**BAM site description (vegetation association)**	**General location description**
BAM 66	Broad drainage line with *Eremophila longifolia* tall shrubland over *Senna artemisioides* with sparse *Maireana sedifolia*	Several patches west of Whyalla, south of Iron Knob Road.

Broad Vegetation Community NW EP 4.1 Inland tall shrublands in drainage lines and on plains


Plate 29. BAM 66 Broad drainage line with *Eremophila longifolia* tall shrubland over *Senna artemisioides* with sparse *Maireana sedifolia*

4.3.1.3.1 MVG EP 6 – Coastal shrublands

MVG EP 6 (Coastal shrublands) is represented by one BVC within the Project Area. The community was represented by a single VA (BAM site) as summarised in Table 4-11.

Table 4-11. Broad Vegetation Community NW EP 6.1

Broad Vegetation Community NW EP 6.1 Coastal tall shrublands		
General description Broad Vegetation Community NW EP 6.1 occurs in coastal areas on low sand dunes and comprises Coast Daisy-bush over Bladder Saltbush and Native Pigface (*Carpobrotus rossii*) with scattered shrubs including Spiny Saltbush and emergent Sallow Wattle (*Acacia longifolia* ssp. *sophorae)* and Leafless Ballart. Sheep Bush and Sea Box were recorded as co-dominant species on some low dunes. It occurs in the Whyalla IBRA Association and Myall Plains Subregion and is represented by BAM 140.		
Suitability for key threatened species or community The coastal tall shrublands which occur across this community make it highly suitable for these threatened and / or migratory bird species.		
BAM #	**BAM site description (vegetation association)**	**General location description**
BAM 140	*Myoporum insulare / Nitraria billardierii* open shrubland with emergent *Avicennia marina* coastal beach and foredune	Single narrow patch along the coast south of Cowleds Landing, adjacent the Mullaquana Station desalination plant.

Broad Vegetation Community NW EP 6.1 Coastal tall shrublands


Plate 30. BAM 140 *Myoporum insulare/Nitraria billardierii* open shrubland with emergent *Avicennia marina* coastal beach and foredune

4.3.1.3.2 MVG EP 7 – Coastal saltmarsh and samphire

MVG EP 7 (Coastal saltmarsh and samphire) is represented by one BVC in the Project Area. The community is represented by a single VA (BAM site) as summarised in Table 4-12.

Table 4-12. Broad Vegetation Community NW EP 7.2

Broad Vegetation Community NW EP 7.2 Samphire of chenopod shrublands with infrequent inundation / saline soils		
General description Broad Vegetation Community NW EP 7.2 occurs in mapped tidal zones (DEW 2026b) and comprises mixed Samphire spp. including *Tecticornia disarticulata, T. halocnemoides* and *T. pergranulata*) on adjacent higher zones, with scattered salt tolerant shrubs such as Mallee Hemichroa *(Hemichroa diandra*) and Bladder Saltbush. The community is represented by one BAM within one IBRA Association within the Myall Plains Subregion.		
Suitability for key threatened species or community This community consists of chenopod shrublands in tidal zones which create highly suitable habitat for these threatened and / or migratory species. The entire extent of BAM 145 is considered to qualify as the TEC as it meets the listing criteria in terms of floristic and structural composition and patch size and intersects areas of intertidal and supratidal saltmarsh so is therefore likely to experience some tidal influence. However, as tunnelling will be utilised to construct the intake and outfall pipes, the VA will not be impacted by Project infrastructure.		
BAM #	**BAM site description (vegetation association)**	**General location description**
BAM 145	*Tecticornia halocnemoides* ssp. low open shrubland on tidal flat	Single large patch along coastline, south of Cowleds Landing, adjacent the Mullaquana Station desalination plant.

Broad Vegetation Community NW EP 7.2 Samphire of chenopod shrublands with infrequent inundation / saline soils


Plate 31. BAM 145 *Tecticornia halocnemoides* ssp. low open shrubland on tidal flat

4.3.1.3.3 MVG EP 12 – Mangroves

MVG EP 12 (Mangroves) is represented by one BVC within the Project Area. The community is represented by one VA (BAM site) as summarised in Table 4-13.

Table 4-13. Broad Vegetation Community NW EP 12.1

Broad Vegetation Community NW EP 12.1 Mangroves in tidal areas		
General description Broad Vegetation Community NW EP 12.1 comprises tidal creeks and mudflats adjacent to the coast supporting Grey Mangrove tall shrubland. The slightly elevated creek banks support Glasswort (*Tecticornia halocnemoides* ssp.) / Shrubby Glasswort and Coastal Bluebush and patches of Silky Wilsonia (*Wilsonia humilis*). The community is represented by one BAM occurring in the Whyalla IBRA Association within the Myall Plains Subregion.		
Suitability for key threatened species or community The mangrove habitat present across this community creates highly suitable habitat for these threatened and / or migratory species. This community does not comprise a TEC. However, BAM 141 boarders a VA (BAM 145) considered as Subtropical and Temperate Coastal Saltmarsh of South Australia TEC.		
BAM #	**BAM site description (vegetation association)**	**General location description**
BAM 141	*Avicennia marina* tall shrubland tidal creek	Single long patch along the coast, south of Cowleds Landing, adjacent the Mullaquana Station desalination plant.

Broad Vegetation Community NW EP 12.1
Mangroves in tidal areas



Plate 32. BAM 141 *Avicennia marina* tall shrubland tidal creek

4.3.2 South Australia Arid Lands LMR

Overall vegetation in the SAAL LMR was found to be in moderate to good condition with extensive intact native vegetation throughout the Project Area. Minimal weeds were present throughout the majority of the Project Area within SAAL LMR although increased in density near roads, tracks and easements where the pipeline will be positioned where feasible. Biotic disturbance indicators were evident in grazed areas (majority of site) and increased close to water points and fence lines.

4.3.2.1 Whyalla to Port Augusta

Between Whyalla and Port Augusta vegetation varied between stony tableland with Low Bluebush (*Maireana astrostricha)* in the Arcoona Plateau IBRA Subregion tending to flat to undulating plains of open woodlands of Western Myall, Black Oak and False Sandalwood and mixed chenopod shrublands of Black Bluebush, Pearl Bluebush and Bladder Saltbush. Chenopod Shrublands through this area with Black Bluebush, Pearl Bluebush and / or other spiny shrubs (and woodlands with this understorey) may provide suitable habitat for Western Grasswren where bushes are large enough.

4.3.2.2 Port Augusta to Olympic Dam

North of Port Augusta is an area of Arcoona Plateau with stony tableland of Low Bluebush, *Tecticornia medullosa* and Bladder Saltbush with drainage networks of *Senna* spp. and Elegant Wattle. Closer to Port Augusta, the Arcoona Plateau extends into vast plains of Western Myall over chenopod and patches of chenopod shrubland in the Gawler Lakes IBRA Subregion extending to sand plains of mixed Western Myall and Mulga.

To the north, the vast Arcoona Plateau was dominated by stony tablelands with gilgai communities of Bladder Saltbush, Low Bluebush, *Tecticornia medullosa* and Bindyi run-on areas of Swamp Cane-grass providing habitat for Plains Mouse where cracking clays and friable soils are present.

In the far north, the Kingoonya IBRA Subregion comprised vast dunefields with low sand dunes of Slender Mulga (*Acacia aptaneura)*, native cypress-pine (*Callitris* spp.) and Umbrella Bush with swales varying from woodlands of Western Myall and Slender Mulga to perennial grassland and Low Bluebush chenopod shrubland.

A limited extent of ephemeral drainage lines, creeklines and water holes are present in the north in the Kingoonya and Arcoona Plateau IBRA Subregion with a particularly large creekline observed north of

Woomera which may provide habitat for Thick-billed Grasswren, although noting this is over 50 km from the nearest record for this species which occurs near Roxby Downs.

Inland saline depressions are scattered throughout the SAAL LMR predominantly in the far north.

4.3.2.3 Summary of MVGs and BVCs in the SAAL LMR

Across the Project Area within the SAAL LMR, 57 RAM VAs were surveyed and grouped into 21 BVCs. These BVCs were further consolidated into 11 MVGs. Within the construction footprint, 54 RAM / LERAM VAs were recorded, grouped into 21 BVCs, which were further consolidated into 11 MVGs (Table 4-14). The distribution of MVGs across the Project Area is illustrated in Table 4-15 to Table 4-35 and shown in greater detail in the map series provided in Appendix B.

Table 4-14. Vegetation communities found to occur within the Project Area and construction footprint within the SAAL LMR (RAM sites)

Major Vegetation Group	Broad Vegetation Community number and description	BAM / RAM no.	Vegetation Association	IBRA Subregion (V6)
SAAL 1. Stony plains and tableland with chenopod shrublands	NW SAAL 1.1. Chenopod / Samphire low shrublands on stony plains and tableland	RAM 8	Stony tableland with *Atriplex vesicaria / Tecticornia medullosa / Maireana aphylla / Maireana astrotricha* low open shrubland	Arcoona Plateau
				Gawler Lakes
				Kingoonya
		RAM 30	*Atriplex vesicaria / Tecticornia medullosa* low open shrubland (Tableland)	Arcoona Plateau
		RAM 36	*Tecticornia medullosa / Atriplex vesicaria / Astrebla pectinata* low very open shrubland	Kingoonya
		RAM 40	*Maireana astrotricha* low open shrubland with emergent Senna spp.	Kingoonya
		LERAM 59	*Atriplex vesicaria / Tecticornia medullosa* low open shrubland (stony tableland)	Arcoona Plateau
				Gawler Lakes
		LERAM 64	*Atriplex vesicaria / Maireana pyramidata* low open shrubland on stony soils with sand veneer	Arcoona Plateau
		LERAM 204	Bladder Saltbush (*Atriplex vesicaria*), Samphire (*Tecticornia medullosa*), Black Bluebush (*Maireana pyramidata*) with or without Low Bluebush (*M. astrotricha*) and / or Woolly Bluebush (*M. eriantha*) low chenopod shrubland (stony tableland)	Arcoona Plateau
		LERAM 208*	*Atriplex vesicaria / Maireana astrotricha / Tecticornia medullosa* chenopod shrubland	Arcoona Plateau
		LERAM 211	*Atriplex vesicaria / Tecticornia medullosa +/- Maireana eriantha* chenopod shrubland	Arcoona Plateau

Major Vegetation Group	Broad Vegetation Community number and description	BAM / RAM no.	Vegetation Association	IBRA Subregion (V6)
		LERAM 213	Bladder Saltbush *(Atriplex vesicaria),* Samphire *(Tecticornia medullosa),* Black Bluebush *(Maireana pyramidata)* with or without Low Bluebush *(M. astrotricha)* and/or Woolly Bluebush *(M. eriantha)* low chenopod shrubland (stony tableland)	Arcoona Plateau
		RAM 301*	*Maireana sedifolia / Atriplex vesicaria* low open shrubland with emergent *Acacia papyrocarpa*	Gawler Lakes
SAAL 2. Chenopod shrublands on flat to undulating plains	NW SAAL 2.1. Chenopod low open shrublands +/- emergent trees	RAM 18	*Maireana pyramidata* low open shrubland +/- *Maireana sedifolia / Atriplex vesicaria*	Arcoona Plateau
				Myall Plains
		RAM 23	*Maireana astrotricha* low shrubland +/- *Tecticornia medullosa / Atriplex vesicaria*	Arcoona Plateau
				Gawler Lakes
		RAM 25	*Maireana sedifolia* open shrubland with emergent sparse *Acacia papyrocarpa*	Arcoona Plateau
				Gawler Lakes
		RAM 27	Mixed chenopod low open shrubland (*Maireana sedifolia / Maireana astrotricha / Maireana pyramidata / Atriplex vesicaria*) +/- emergent *Acacia aptaneura / Acacia papyrocarpa*	Gawler Lakes
		LERAM 209	Cotton-bush (*Maireana aphylla*), Black Bluebush and Bladder Saltbush (*Atriplex vesicaria*) chenopod shrubland with emergent Elegant Wattle	Arcoona Plateau
		RAM 350	*Maireana pyramidata / M. sedifolia* low open shrubland with emergent *Acacia burkittii*	Arcoona Plateau

Major Vegetation Group	Broad Vegetation Community number and description	BAM / RAM no.	Vegetation Association	IBRA Subregion (V6)
SAAL 3. Ephemeral and permanent drainage lines and waterholes	NW SAAL 3.1. Drainage lines with tall shrubs over Maireana pyramidata / chenopod	RAM 2	Broad drainage line with *Maireana pyramidata / Atriplex vesicaria* low open shrubland with emergent *Acacia victoriae*	Arcoona Plateau
		RAM 31	*Acacia victoriae* tall open shrubland over *Maireana pyramidata* low shrubland	Arcoona Plateau
		RAM 35	Drainage line with *Myoporum montanum / Acacia victoriae* closed shrubland +/- *Maireana pyramidata*	Arcoona Plateau
		LERAM 203	*Acacia victoriae* open tall shrubland in broad drainage lines over chenopods +/- exotic species	Arcoona Plateau
		LERAM 205	Drainage line with *Acacia papyrocarpa + Acacia oswaldii + Pittosporum* open woodland over chenopod shrubland in drainage line	Arcoona Plateau
		LERAM 210	Elegant Wattle tall open shrubland over Black Bluebush low chenopod shrubland	Arcoona Plateau
		RAM 300	*Maireana pyramidata / Maireana sedifolia* low open shrubland + emergent *Acacia burkittii* broad swale / plain	Arcoona Plateau
	NW SAAL 3.2. Drainage lines with tall shrubs +/- Black Oak	RAM 1	*Melaleuca xerophylla / Acacia burkittii* tall shrubland (drainage line)	Myall Plains
		RAM 14	Minor drainage line with *Acacia tetragonophylla / Pittosporum angustifolium* tall shrubland	Kingoonya
		RAM 28	Drainage line with *Casuarina pauper* open woodland over Tussock Grasses (*Eragrostis setifolia / Enteropogon acicularis*) +/- *Acacia victoriae*	Arcoona Plateau

Major Vegetation Group	Broad Vegetation Community number and description	BAM / RAM no.	Vegetation Association	IBRA Subregion (V6)
		RAM 37*	*Acacia ligulata* tall shrubland (sandy creeks or sandy plain floodouts)	Gawler Lakes
				Kingoonya
		RAM 44	Sandy drainage line with *Acacia papyrocarpa / Casuarina pauper /* open woodland over *Maireana pyramidata* and tall shrubland (*Acacia ligulata / Acacia burkittii / Senna* spp) +/- *Callitris gracilis*	Arcoona Plateau
	NW SAAL 3.3. Ephemeral to permanent waterholes and drainage lines	RAM 16	*Typha domingensis* waterhole with *Eucalyptus camaldulensis* ssp. *arida* open woodland	Arcoona Plateau
	NW SAAL 3.4. Drainage lines with River Red Gum and/or Myall	LERAM 50	*Acacia papyrocapra* low woodland over *Atriplex vesicaria* (minor drainage line)	Arcoona Plateau
				Gawler Lakes
		LERAM 56*	*Eucalyptus camaldulensis* ssp. *arida* low woodland (major drainage line)	Arcoona Plateau
				Gawler Lakes
		LERAM 65	*Eucalyptus camaldulensis* ssp. *arida* low woodland (in major drainage line)	Arcoona Plateau
				Gawler Lakes
SAAL 4. Open woodlands of Western Myall and Mulga on sand plains and low dunes	NW SAAL 4.1. Low open Western Myall woodlands with a Chenopod shrub understorey	RAM 3	*Acacia papyrocarpa / Myoporum platycarpum* low open woodland over chenopods (*Maireana pyramidata / Maireana sedifolia / Atriplex vesicaria*)	Arcoona Plateau
				Gawler Lakes
				Myall Plains
		RAM 42	*Acacia papyrocarpa* open woodland over *Maireana pyramidata / Maireana sedifolia*	Arcoona Plateau
				Myall Plains

Major Vegetation Group	Broad Vegetation Community number and description	BAM / RAM no.	Vegetation Association	IBRA Subregion (V6)
		LERAM 53	*Acacia papyrocarpa* low woodland over *Maireana pyramidata +/- Maireana sedifolia*	Arcoona Plateau
				Gawler Lakes
		LERAM 55	*Acacia aneura* low woodland over *Maireana turbinata, Maireana pyramidata*	Arcoona Plateau
				Gawler Lakes
		LERAM 202	Western Myall (*Acacia papyrocarpa*) open woodland over Black Bluebush (*Maireana pyramidata*) / Pearl Bluebush (*M. sedifolia*) / Bladder Saltbush (*Atriplex vesicaria*)	Gawler Lakes
	NW SAAL 4.2. Mulga woodlands and tall shrublands on plains and low dunes in the Gawler Lakes	RAM 7	Low dunes with *Acacia aptaneura* tall open shrubland +/- *Acacia ligulata / Acacia burkittii*	Arcoona Plateau
				Gawler Lakes
SAAL 5. Woodlands and shrublands on low dunes and dune crests	NW SAAL 5.1. Low dune crests with tall shrubland +/- Cypress-pine woodlands	RAM 10	Dune crest with *Acacia ligulata / Dodonaea viscosa +/- Callitris glaucophylla* tall open shrubland	Kingoonya
		RAM 15	Low dunes with *Dodonaea viscosa / Acacia ligulata / Acacia burkittii* tall open shrubland +/- *Aristida holathera*	Arcoona Plateau
		RAM 29	Low dunes with *Dodonaea viscosa / Acacia ligulata / Acacia burkittii* tall open shrubland	Gawler Lakes
				Kingoonya
		LERAM 62	Dune crest with *Acacia ligulata / Dodonaea viscosa* ssp. *angustissima* tall open shrubland +/- *Zygochloa paradoxa*	Arcoona Plateau
				Gawler Lakes
		RAM 12		Gawler Lakes

Major Vegetation Group	Broad Vegetation Community number and description	BAM / RAM no.	Vegetation Association	IBRA Subregion (V6)
	NW SAAL 5.2. Cypress-pine woodlands on dune crests		Dune crest with *Callitris glaucophylla* open woodland +/- tall shrubs (*Acacia ligulata / Dodonaea viscosa* ssp.)	Kingoonya
	NW SAAL 5.3. Black Oak Woodlands on dunes	LERAM 57	Casuarina pauper low open woodland over *Maireana pyramidata* on dune crest	Arcoona Plateau
				Gawler Lakes
	NW SAAL 5.4. Mulga woodlands and tall shrublands (dunes)	LERAM 58	*Acacia aneura* low woodland over *Senna* sp. / *Dodonaea viscosa* ssp. *angustissima* and *Acacia ligulata +/- Acacia burkittii*	Arcoona Plateau
				Gawler Lakes
SAAL 6. Dune swales with open woodlands, shrublands and tussock grassland	NW SAAL 6.1. Chenopod low open shrubland in dune swale +/- emergent trees	RAM 11	Swale with *Atriplex vesicaria / Maireana astrotricha* low open shrubland	Arcoona Plateau
				Gawler Lakes
				Kingoonya
	NW SAAL 6.2. Tussock grassland in dune swales +/- emergent trees	RAM 41	Swales of mixed tussock grassland (*Enneapogon avenaceous / Enneapogon cylindricus / Aristida contorta / Eragrostis setifolia*) +/- emergent *Acacia aptaneura / Acacia papyrocarpa*	Kingoonya
	NW SAAL 6.3. Open woodlands in dune swales	RAM 13	Dune swale with *Acacia papyrocarpa / Acacia aptaneura* open woodland +/- Tussock Grasses	Kingoonya
		LERAM 52	*Acacia aneura* low woodland over Aristida contorta on dune swales	Arcoona Plateau
				Gawler Lakes
SAAL 7. Cane-grass run-on areas and depressions	NW SAAL 7.1. Swamp Cane-grass grassland	RAM 17	Run-on depression with *Eragrostis australasica* tall grassland and Chenopod shrubs	Arcoona Plateau
				Gawler Lakes

Major Vegetation Group	Broad Vegetation Community number and description	BAM / RAM no.	Vegetation Association	IBRA Subregion (V6)
				Kingoonya
SAAL 8. Inland Saline depressions and drainage lines	NW SAAL 8.1. Tall shrublands on inland saline depressions	RAM 39	*Melaleuca xerophila* tall closed shrubland fringing saltpan (*Tecticornia* spp.)	Kingoonya
	NW SAAL 8.2. Inland Samphire depressions and drainage lines	RAM 34	*Tecticornia* spp. (*indica* ssp. *leiostachya / halocnemoides*) low open shrubland on salt lake margin	Arcoona Plateau
				Gawler Lakes
				Kingoonya
		LERAM 63	*Tecticornia indica, Tecticornia pergranulata +/- Duma florulenta* open shrubland	Arcoona Plateau
				Gawler Lakes
SAAL 10. Non-saline shrublands in clay depressions	NW SAAL 10.1. Non-saline shrublands in clay depressions	LERAM 54	*Maireana aphylla* shrubland (clay depression)	Arcoona Plateau
				Gawler Lakes
SAAL 11. Sandhill Cane-grass grassland	NW SAAL 11.1. Sandhill Cane-grass grassland	LERAM 51	*Zygochloa paradoxa* grassland with emergent *Acacia ligulata* and *Alectryon oleifolius* on red sand dune	Arcoona Plateau
				Gawler Lakes
SAAL 12. Woodlands of Black Oak on flat undulating plains	NW SAAL 12.1 Woodlands of Black Oak on flat undulating plains	LERAM 207	Black Oak (*Casuarina pauper*) woodland over chenopod shrubland (sandy drainage line)	Arcoona Plateau

The current Project Area avoids some BAM / RAM sites which were previously recorded during the field survey. These sites are not represented in this table.

* Indicates RAM which were assessed as part of the Project Area but are not impacted by the Rev 5.2 construction footprint.

4.3.2.3.1 MVG SAAL 1 – Stony plains and tableland with chenopod shrublands

MVG SAAL 1 (Stony plains tableland with chenopod shrublands) is represented by one BVC within the Project Area. The community is represented by a number of VAs (RAM sites) as summarised in Table 4-15.

Table 4-15. Broad Vegetation Community NW SAAL 1.1

Broad Vegetation Community NW SAAL 1.1 **Chenopod/Samphire low shrublands on stony plains and tableland**		
General description Broad Vegetation Community NW SAAL 1.1 represents low open chenopod shrublands on stony tableland country characteristic of the Arcoona Plateau tableland IBRA Subregion. Plant communities are dominated by Bladder Saltbush, *Tecticornia medullosa* and *Bindyi* spp., particularly Tangled Copperburr (*Sclerolaena divaricata),* Poverty-bush *(S. intricata)* and Short-wing Saltbush (*S. brachyptera)*. Tussock grasses also form a dominant part of this community including Mitchell Grass (*Astrebla pectinata*) and Neverfail Grass (*Aristida Eragrostis setifolia*). Low Bluebush occurs in patches or across large areas noting that where it occurs on sandy loam plains it is described under BVC NW SAAL 2.1. Drainage lines with tall shrubs, woodlands and taller chenopods occur in low lying areas, but are described separately where possible. This community fringes salt lakes and saltpans, particularly near Woomera. The community occasionally supports emergent shrubs and trees but is generally characterised by low treeless plains. The community covers a large portion of the Project Area, predominantly in the Arcoona Plateau but also occurring in the Kingoonya Roxby and Gawler Lakes Subregions. It is represented by 11 RAM sites, including RAM 30 west of Port Augusta, RAM 36 in the Arcoona Plateau north of Purple Downs, RAM 40 which occurs north of Woomera in a stretch of the Arcoona Plateau Subregion that intersects the Kingoonya Subregion and several more RAM further south. This community occurs across the Arcoona Plateau, Kingoonya and Gawler Lakes Subregions.		
Suitability for key threatened species or community Preferred habitat for Western Grasswren is present within some of this BVC within LERAM 213, where spiny shrub species such as Black Bluebush and Australian Boxthorn are dominant. This community is also considered to contain atypical and low potential habitat for this species. However, most of this BVC is considered outside the known range of Western Grasswren. LERAM 213 contains open woodlands and shrublands dominated by Acacias or Eucalypts with an understorey of shrubs making it highly suitable habitat for Southern Whiteface. However, most of this BVC contains habitat which is considered not suitable for the Southern Whiteface. Areas with drainage lines and open woodlands, Cane-grass swampland, or tussock grassland, particularly those with gilgais and deep cracking clay make highly suitable habitat for Plains Mouse. Suitable habitat for the Plains Mouse is present within some of this community, in areas where there are drainage lines and grasses. Although the majority of this BVC is located outside the known range of this species, and may only represent generic boom or irruption habitat rather than critical refuge habitat.		
RAM #	**RAM site description (vegetation association)**	**General location description**
RAM 8	Stony tableland with *Atriplex vesicaria/ Tecticornia medullosa / Maireana aphylla / M. astrotricha* low open shrubland	Dominant association with many patches from approximately Purple Downs south to Lake Dutton.
RAM 30	*Atriplex vesicaria / Tecticornia medullosa* low open shrubland (Tableland)	Several large patches covering ~10 km west of Port Augusta.
RAM 36	*Tecticornia medullosa / Atriplex vesicaria / Astrebla pectinata* low very open shrubland	Large group of patches covering ~25 km north of Purple Downs.
RAM 40	*Maireana astrotricha* low open shrubland with emergent *Senna* spp.	Confined to an area west of Coorlay Lagoon (south of Roxby Downs) in drainage lines.
LERAM 59	*Atriplex vesicaria / Tecticornia medullosa* low open shrubland (stony tableland)	Several large, scattered patches – some along Stuart Highway east of Pernatty Lagoon, others north of the lagoon extending to Carrapateena Mine.
LERAM 64	*Atriplex vesicaria / Maireana pyramidata* low open shrubland on stony soils with sand veneer	Three patches north of Pernatty Lagoon.

Broad Vegetation Community NW SAAL 1.1 Chenopod/Samphire low shrublands on stony plains and tableland		
LERAM 204	Bladder Saltbush *(Atriplex vesicaria),* Samphire *(Tecticornia medullosa),* Black Bluebush *(Maireana pyramidata)* with or without Low Bluebush *(M. astrotricha)* and/or Woolly Bluebush *(M.eriantha)* low chenopod shrubland (stony tableland)	Isolated fragments west of Port Augusta.
LERAM 208	*Atriplex vesicaria / Maireana astrotricha / Tecticornia medullosa* chenopod shrubland	Around Lake Dempsey.
LERAM 211	*Atriplex vesicaria / Tecticornia medullosa +/- Maireana erianthum* chenopod shrubland	Around Lake Dempsey just south of Carriewerloo road.
LERAM 213	Bladder Saltbush (*Atriplex vesicaria*), Samphire (*Tecticornia medullosa*), Black Bluebush (*Maireana pyramidata*) with or without Low Bluebush (*M. astrotricha*) and / or Woolly Bluebush (*M. eriantha*) low chenopod shrubland (stony tableland)	Large long patches south of Carriewerloo, just below Stuart Highway.
RAM 301	*Maireana sedifolia / Atriplex vesicaria* low open shrubland with emergent *Acacia papyrocarpa*	Singular large patch in Kootaberra along Stuart Highway.

Broad Vegetation Community NW SAAL 1.1
Chenopod/Samphire low shrublands on stony plains and tableland



Plate 33. RAM 8 Stony tableland with *Atriplex vesicaria / Tecticornia medullosa / Maireana aphylla / M. astrotricha* low open shrubland



Plate 34. RAM 30 *Atriplex vesicaria / Tecticornia medullosa* low open shrubland (Tableland)



Plate 35. RAM 36 *Tecticornia medullosa / Atriplex vesicaria / Astrebla pectinata* low very open shrubland (taken from Google Streetview)



Plate 36. RAM 40 *Maireana astrotricha* low open shrubland with emergent *Senna* spp.

Broad Vegetation Community NW SAAL 1.1
Chenopod/Samphire low shrublands on stony plains and tableland



Plate 37. LERAM 64 *Atriplex vesicaria / Maireana pyramidata* low open shrubland on stony soils with sand veneer



Plate 38. LERAM 204 Bladder Saltbush *(Atriplex vesicaria),* Samphire *(Tecticornia medullosa),* Black Bluebush *(Maireana pyramidata)* with or without Low Bluebush *(M. astrotricha)* and/or Woolly Bluebush *(M.eriantha)* low chenopod shrubland (stony tableland)



Plate 39. *Atriplex vesicaria / Maireana astrotricha / Tecticornia medullosa* chenopod shrubland

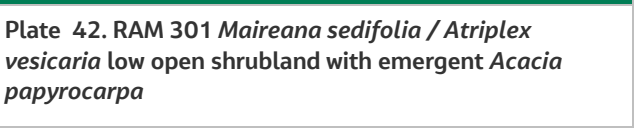


Plate 40. LERAM 211 *Atriplex vesicaria / Tecticornia medullosa +/- Maireana eriantha* chenopod shrubland



Plate 41. LERAM 213 Bladder Saltbush (*Atriplex vesicaria*), Samphire (*Tecticornia medullosa*), Black



Broad Vegetation Community NW SAAL 1.1 Chenopod/Samphire low shrublands on stony plains and tableland	
Bluebush (*Maireana pyramidata*) with or without Low Bluebush (*M. astrotricha*) and/or Woolly Bluebush (*M. eriantha*) low chenopod shrubland (stony tableland)	**Plate 42. RAM 301 *Maireana sedifolia / Atriplex vesicaria* low open shrubland with emergent *Acacia papyrocarpa*** 

4.3.2.3.2 MVG SAAL 2 – Chenopod shrublands on flat to undulating plains

MVG SAAL 2 (Chenopod shrublands on flat to undulating plains) is represented by one BVC within the Project Area. The community is represented by a number of vegetation associations (RAM sites) as summarised in Table 4-16.

Table 4-16. Broad Vegetation Community NW SAAL 2.1

Broad Vegetation Community NW SAAL 2.1 Chenopod low open shrublands on flat to undulating plains		
General description Broad Vegetation Community NW SAAL 2.1 represents chenopod open shrublands on flat and undulating sandy loam plains and occurs in patches throughout the Project Area predominantly in the Arcoona Plateau Subregion. Communities are dominated by Pearl Bluebush, Black Bluebush (southern areas) or occasionally Low Bluebush although this species is more often associated with tableland. Co-dominant perennial species are generally Bladder Saltbush and short-lived perennial Bindyi (*Sclerolaena* spp.). Spear Grasses (*Austrostipa* spp.) are common and emergent shrubs and trees include Western Myall, Mulga (*Acacia anuera)*, Sennas and Emubush species. This community crosses the Arcoona Plateau, Myall Plains and Gawler lakes Subregions and in four IBRA Associations and is represented by six RAM sites. It predominantly occurs in the southern areas of the alignment West of Blanche Harbor continuing north of Port Augusta. A few single patches also occur east of Lake Dutton, near Kootaberra and north of Pernatty Lagoon.		
Suitability for key threatened species or community Most of this BVC is considered to contain preferred habitat for the Western Grasswren, where spiny shrub species such as Black Bluebush and Australian Boxthorn are dominant. This community is also considered to contain atypical habitat within RAM 18 and RAM 250 for this species. The remainder of this BVC is considered low potential habitat or outside the known range (RAM 23 and RAM 27) of Western Grasswren. This community contains low open shrublands on flat and undulating plains making it a highly suitable habitat for Southern Whiteface. Several individuals of this species were also observed during field surveys within this community, specifically within RAM 350. Suitable boom habitat for Plains Mouse is also present within this BVC in areas where there are drainage lines and grasses specifically within RAM 23 and RAM 27 may provide boom habitat. However, most of this BVC is considered not suitable or outside the known range of this species.		
RAM #	**RAM site description (vegetation association)**	**General location description**
RAM 18	*Maireana pyramidata* low open shrubland +/- *M. sedifolia / Atriplex vesicaria*	Widespread group of patches around the Eyre / Lincoln Highway intersection.
RAM 23	*Maireana astrotricha* low shrubland +/- *Tecticornia medullosa / Atriplex vesicaria*	A continuous group of patches along Stuart Highway north of Port Augusta.
RAM 25	*Maireana sedifolia* open shrubland with emergent sparse *Acacia papyrocarpa*	A continuous group of patches patch along rail line north-west of Port Augusta.
RAM 27	Mixed chenopod low open shrubland *(Maireana sedifolia / M. astrotricha / M. pyramidata / Atriplex vesicaria)* +/- emergent *Acacia aptaneura / A. papyrocarpa*	Two small patches below Pernatty Lagoon (east) and Lake Dutton (west).
LERAM 209	Cotton-bush *(Maireana aphylla),* Black Bluebush and Bladder Saltbush *(Atriplex*	Follows creek line east of Port Augusta and south of Carriewerloo Road.

Broad Vegetation Community NW SAAL 2.1 Chenopod low open shrublands on flat to undulating plains		
	vesicaria) chenopod shrubland with emergent Elegant Wattle	
RAM 350	*Maireana pyramidata / M. sedifolia* low open shrubland with emergent *Acacia burkittii*	Large linear patch along Lincoln Highway south of Lincoln Gap.

Broad Vegetation Community NW SAAL 2.1
Chenopod low open shrublands on flat to undulating plains



Plate 43. RAM 18 *Maireana pyramidata* low open shrubland +/- *M. sedifolia / Atriplex vesicaria*



Plate 44. RAM 23 *Maireana astrotricha* low shrubland +/- *Tecticornia medullosa / Atriplex vesicaria*



Plate 45. RAM 25 *Maireana sedifolia* open shrubland with emergent sparse *Acacia papyrocarpa*



Plate 46. RAM 27 Mixed chenopod low open shrubland (*Maireana sedifolia / M. astrotricha / M. pyramidata / Atriplex vesicaria*) +/- emergent *Acacia aptaneura / A. papyrocarpa*)

Broad Vegetation Community NW SAAL 2.1 Chenopod low open shrublands on flat to undulating plains	
	
Plate 47. LERAM 209 Cotton-bush (*Maireana aphylla*), Black Bluebush and Bladder Saltbush (*Atriplex vesicaria*) chenopod shrubland with emergent Elegant Wattle	**Plate 48. LERAM 350 *Maireana pyramidata / M. sedifolia* low open shrubland with emergent *Acacia burkittii***

4.3.2.3.3 MVG SAAL 3 – Ephemeral and permanent drainage lines and waterholes

MVG SAAL 3 (Ephemeral and permanent drainage lines and waterholes) is represented by four BVCs within the Project Area. In addition, each BVC is represented by a number of VAs (RAM sites) as summarised in Table 4-17 to Table 4-20.

Table 4-17. Broad Vegetation Community NW SAAL 3.1

Broad Vegetation Community NW SAAL 3.1 Drainage lines with tall shrubs over *Maireana pyramidata* / chenopods		
General description Broad Vegetation Community NW SAAL 3.1 comprises broad drainage lines with tall shrubs over chenopods in the SAAL LMR. This BVC was mapped, given its increased habitat potential for threatened and common species. BVC NW SAAL 3.1 includes VAs with a tall chenopod composition west of Port Augusta dominated by Black Bluebush with emergent shrubs such as Elegant Wattle and *Senna* spp. The community is represented by seven RAM sites occurring in the Simmens and Woomera IBRA Associations across the Arcoona Plateau Subregion. RAM 35 forms part of a large drainage line bound by cliffs to the west and an old ruin.		
Suitability for key threatened species or community Most of this BVC is considered to contain preferred habitat for the Western Grasswren, where spiny shrub species such as Black Bluebush and Australian Boxthorn are dominant. This community is also considered to contain atypical, but suitable, habitat for this species, particularly within LERAM 210, LERAM 205 and RAM 203. However, the remainder of this BVC is considered outside the known range (RAM 35 and RAM 300) of Western Grasswren. This BVC contains chenopod shrublands with emergent Acacia species making it a highly suitable habitat for the wide-ranging Southern Whiteface.		
RAM #	**RAM site description (vegetation association)**	**General location description**
RAM 2	Broad drainage line with *Maireana pyramidata / Atriplex vesicaria* low open shrubland with emergent *Acacia victoriae*	Single small patch along highway south of Port Augusta.
RAM 31	*Acacia victoriae* tall open shrubland over *Maireana pyramidata* low shrubland	~17 km fragmented patches spanning from north of Port Augusta southwards.
RAM 35	Drainage line with *Myoporum montanum / Acacia victoriae* closed shrubland +/- *Maireana pyramidata*	Small patch of a drainage line just north of Woomera.

Broad Vegetation Community NW SAAL 3.1 **Drainage lines with tall shrubs over *Maireana pyramidata* / chenopods**		
LERAM 203	*Acacia victoriae* open tall shrubland in broad drainage lines over chenopods +/- exotic species	One large and one small patch west of Port Augusta.
LERAM 205	Drainage line with *Acacia papyrocarpa + Acacia oswaldii + Pittosporum* open woodland over chenopod shrubland in drainage line	Around Lake Dempsey
LERAM 210	Elegant Wattle tall open shrubland over Black Bluebush low chenopod shrubland	One patch along Carriewerloo Road, north of Port Augusta and another east of Port Augusta.
RAM 300	*Casuarina pauper* tall shrubs over *Duma floruenta* shrubland	Creekline south-east of Woomera.

Broad Vegetation Community NW SAAL 3.1
Drainage lines with tall shrubs over *Maireana pyramidata* / chenopods



Plate 49. RAM 2 Broad drainage line with *Maireana pyramidata / Atriplex vesicaria* low open shrubland with emergent *Acacia victoriae*



Plate 50. RAM 31 *Acacia victoriae* tall open shrubland over *Maireana pyramidata* low shrubland



Plate 51. RAM 35 Drainage line with *Myoporum montanum / Acacia victoriae* closed shrubland +/- *Maireana pyramidata*



Plate 52. LERAM 203 *Acacia victoriae* open tall shrubland in broad drainage lines over chenopods +/- exotic species



Plate 53. LERAM 205 Drainage line with *Acacia papyrocarpa* + *Acacia oswaldii* + *Pittosporum* open woodland over chenopod shrubland in drainage line



Plate 54. LERAM 210 Elegant Wattle tall open shrubland over Black Bluebush low chenopod shrubland

Broad Vegetation Community NW SAAL 3.1 Drainage lines with tall shrubs over *Maireana pyramidata* / chenopods

Plate 55. RAM 300 *Maireana pyramidata / Maireana sedifolia* low open shrubland + emergent *Acacia burkittii* broad swale / plain

Table 4-18. Broad Vegetation Community NW SAAL 3.2

Broad Vegetation Community NW SAAL 3.2 Drainage lines with tall shrubs +/- Black Oak		
General description Broad Vegetation Community NW SAAL 3.2 occurs in drainage lines with mixed tall shrubs, sometimes with emergent Black Oak. Common shrubs include Elegant Wattle, *Senna* spp., Native Apricot and Umbrella Bush (*Acacia ligulata).* Chenopods such as Spiny Goosefoot, Fragrant Saltbush (*Rhagodia parabolica)* and Black Bluebush are occasionally present, and tussock grasses occur frequently. The community is represented by five RAM and occurs across six IBRA Associations and four Subregions (Myall Plains, Arcoona Plateau, Gawler Lakes and Kingoonya) but could potentially occur in drainage lines throughout the SAAL LMR.		
Suitability for key threatened species or community Preferred habitat for the Western Grasswren is present within some of this BVC within RAM 44, where spiny shrub species such as Black Bluebush and Australian Boxthorn are dominant. This BVC is also considered to contain atypical, but suitable, habitat for this species, particularly within RAM 44 and RAM 1. However, most of this community is considered to contain low potential habitat or is outside the known range of the Western Grasswren. This community contains open woodlands dominated by Acacias or Eucalypts with an understorey of shrubs making it a highly suitable habitat for the Southern Whiteface. The presence of tussock grasses and drainage lines makes most of this community potentially suitable for Plains Mouse. However, some areas within this BVC are outside the known range of Plains Mouse.		
RAM #	**RAM site description (vegetation association)**	**General location description**
RAM 1	*Melaleuca xerophylla / Acacia burkittii* tall shrubland (drainage line)	Singular patch on Lincoln Highway east of Blanche Harbor.
RAM 14	Minor drainage line with *Acacia tetragonophylla / Pittosporum angustifolium* tall shrubland	Within a single drainage line west of Coorlay Lagoon.
RAM 28	Drainage line with *Casuarina pauper* open woodland over tussock grasses *(Eragrostis setifolia / Enteropogon acicularis) +/- Acacia victoriae*	Within narrow drainage lines both north and south of Pernatty Lagoon.
RAM 37	Floodout on sandplain with *Acacia ligulata* tall closed shrubland	Small patch between Roxby Downs and Woomera and a larger patch west of Pernatty Lagoon.

Broad Vegetation Community NW SAAL 3.2 Drainage lines with tall shrubs +/- Black Oak		
RAM 44	Sandy drainage line with *Acacia papyrocarpa / Casuarina pauper* open woodland over *Maireana pyramidata* and tall shrubland *(Acacia ligulata/ A. burkittii / Senna* spp.*) +/- Callitris gracilis*	Several isolated sections surrounding ranges south of Port Augusta along Lincoln Highway.

Broad Vegetation Community NW SAAL 3.2
Drainage lines with tall shrubs +/- Black Oak



Plate 56. RAM 14 Minor drainage line with *Acacia tetragonophylla / Pittosporum angustifolium* tall shrubland



Plate 57. RAM 28 *Casuarina pauper* open woodland over Tussock Grasses (*Eragrostis setifolia / Enteropogon acicularis*) in drainage line +/- *Acacia victoriae*



Plate 58. RAM 37 *Acacia ligulata* tall closed shrubland on sandplain in floodout



Plate 59. RAM 44 *Acacia papyrocarpa / Casuarina pauper* open woodland over *Maireana pyramidata* and tall shrubland (*Acacia ligulata/ A. burkittii / Senna* spp.) +/- *Callitris gracilis*



Plate 60. RAM1 *Melaleuca xerophylla / Acacia burkittii* tall shrubland (drainage line)

Table 4-19. Broad Vegetation Community NW SAAL 3.3

Broad Vegetation Community NW SAAL 3.3 **Ephemeral to permanent waterholes and drainage lines**		
General description Broad Vegetation Community NW SAAL 3.3 occurs in the Woomera area where major drainage lines appear to contain permanent water, potentially from artificial drainage systems from the townships. The community supports species evident of permanent or regular inundation including Narrow-leaf Bulrush (*Typha domingensis*), Spiny Flat-sedge (*Cyperus gymnocaulos)* and Lignum (*Duma florenta*). Other species include emergent Northern River Red Gum (*Eucalyptus camaldulensis* ssp. *arida*), Western Boobialla *(Myoporum montanum*) and Elegant Wattle. The community was represented by RAM 16 in the Arcoona Plateau Subregion north of Woomera.		
Suitability for key threatened species or community Waterholes and drainage lines present within this BVC make it a highly suitable habitat for the Southern Whiteface which often move into these habitats during drought. The presence of drainage lines makes some of this community potentially suitable for Plains Mouse particularly within RAM 16. However, most of the habitat within this BVC is considered not suitable for this species.		
RAM #	**RAM site description (vegetation association)**	**General location description**
RAM 16	*Typha domingensis* waterhole with *Eucalyptus camaldulensis* ssp. *arida* open woodland	Several fragmented patches following slight depressions associated with lakes north of Woomera.



Plate 61. RAM 16 *Typha domingensis* waterhole with *Eucalyptus camaldulensis* ssp. *arida* open woodland

Table 4-20. Broad Vegetation Community NW SAAL 3.4

Broad Vegetation Community NW SAAL 3.4 **Drainage lines with River Red Gum and / or Myall**
General description Broad Vegetation Community NW SAAL 3.4 occurs along the Carrapateena lateral where minor drainage lines and sandy floodplains are present. The vegetation comprises an overstory of Northern River Red Gum (*Eucalyptus camaldulensis* ssp. *arida)* and / or Western Myall with a moderately dense tall shrubland understorey of Slender Mulga (*Acacia aptaneura*) and Bullock Bush and low shrubs such as Spiny Saltbush, Bladder Saltbush, Desert Lantern-bush (*Abutilon otocarpum*), Ruby Saltbush (*Enchylaena tomentosa*), Samphire and a grass, Knotty-butt Paspalidium (*Setaria constricta*). The community is represented by three VAs across three IBRA Associations and the Arcoona Plateau and Gawler Lakes Subregions.
Suitability for key threatened species or community This community provides suitable habitat for the Southern Whiteface, and potentially Grey Falcon (*Falco hypoleucos)* (VU) (nesting and roosting) and Blue-winged Parrot (*Neophema chrysostoma*) (VU) (migratory roosting / foraging). The rocky / cracking clay substrate may provide suitable Plains Mouse habitat (foraging), and the shallow sand over

Broad Vegetation Community NW SAAL 3.4 Drainage lines with River Red Gum and / or Myall		
rocky soils may provide suitable foraging habitat during irruptive phases where this community adjoins tablelands (however would be unsuitable burrowing habitat).		
RAM #	**RAM site description (vegetation association)**	**General location description**
LERAM 50	*Acacia papyrocapra* low woodland over Atriplex vesicaria (minor drainage line)	Many small patches north of Pernatty Lagoon along the road to Carrapateena Mine.
LERAM 56	*Eucalyptus camaldulensis* ssp. *arida* low woodland (major drainage line)	Isolated area along Yellacowie Creek, north east of Pernatty Lagoon.
LERAM 65	*Eucalyptus camaldulensis* ssp. *arida* low woodland (in major drainage line)	Several patches along Yellacowie Creek, north east of Pernatty Lagoon.



Plate 62. LERAM 50 *Acacia papyrocapra* low woodland over *Atriplex vesicaria* (minor drainage line)



Plate 63. LERAM 56 *Eucalyptus camaldulensis* ssp. *arida* low woodland (major drainage line)



Plate 64. LERAM 65 *Eucalyptus camaldulensis* ssp. *arida* low woodland (major drainage line)

4.3.2.3.4 MVG SAAL 4 – Open woodlands of Western Myall and Mulga on sand plains and low dunes

MVG SAAL 4 (Open woodlands of Western Myall and Mulga on sand plains and low dunes) is represented by two BVCs within the Project Area. Each BVC is represented by several VAs (RAM sites) as summarised in Table 4-21 and Table 4-22.

Table 4-21. Broad Vegetation Community NW SAAL 4.1

Broad Vegetation Community NW SAAL 4.1
Low open Western Myall woodlands with a chenopod shrub understorey

General description

Broad Vegetation Community NW SAAL 4.1 comprises Western Myall woodlands over chenopods and mixed shrubs on sandy loam plains predominantly in the Gawler Lakes Subregion. The overstorey is dominated by Western Myall and scattered False Sandalwood with Mulga and Horse Mulga scattered in patches in deeper sands. Understorey is dominated by chenopods predominantly Pearl Bluebush with Black Bluebush in low lying areas and near waterpoints, Bladder Saltbush and *Bindyi* sp.

The community covers vast areas in the Gawler Lakes Subregion where it is represented by RAM 3 on the Stuart Highway but also occurs north of Whyalla and south of Port Augusta within six IBRA associations and the Myall Plains, Gawler Lakes and Arcoona Plateau Subregions (RAM 42) with additional areas north of Lake Dutton.

Suitability for key threatened species or community

Almost all of this BVC is outside the known range of the Western Grasswren, however there are some sections of atypical and preferred habitat. Atypical and preferred habitat is present within RAM 42 and RAM 3 where there are high densities of spiny shrub species such as Black Bluebush and Australian Boxthorn and where drainage lines are present.

This community contains open woodlands dominated by Acacias or Eucalypts with an understorey of shrubs making it a highly suitable habitat for Southern Whiteface.

The presence of deep sands and tall shrubs makes RAM 3, within this community potentially suitable for Plains Mouse. However, some areas of this BVC are not suitable or outside the known range of Plains Mouse.

RAM #	RAM site description (vegetation association)	General location description
RAM 3	*Acacia papyrocarpa / Myoporum platycarpum* low open woodland over chenopods *(Maireana pyramidata / M. sedifolia / Atriplex vesicaria)*	Very widespread (dominant) between Port Augusta and north to Lake Dutton.
RAM 42	*Acacia papyrocarpa* open woodland over *Maireana pyramidata / M. sedifolia*	Several fragmented patches surrounding ranges south of Port Augusta.
LERAM 53	*Acacia papyrocarpa* low woodland over *Maireana pyramidata +/- Maireana sedifolia*	Many fragmented patches, north-west of Pernatty Lagoon along road to Carrapateena Mine.
LERAM 55	*Acacia aneura* low woodland over *Maireana turbinata, Maireana pyramidata*	Isolated fragments north of Pernatty Lagoon along road to Carrapateena Mine.
LERAM 202	Western Myall (*Acacia papyrocarpa*) open woodland over Black Bluebush (*Maireana pyramidata*) / Pearl Bluebush (*M. sedifolia*) / Bladder Saltbush (*Atriplex vesicaria*)	Long area in Kootaberra off of Stuart Highway.

Broad Vegetation Community NW SAAL 4.1
Low open Western Myall woodlands with a chenopod shrub understorey



Plate 65. RAM 3 *Acacia papyrocarpa / Myoporum platycarpum* low open woodland over chenopods (*Maireana pyramidata / M. sedifolia / Atriplex vesicaria*)



Plate 66. RAM 42 *Acacia papyrocarpa* open woodland over *Maireana pyramidata / M. sedifolia*



Plate 67. LERAM 53 *Acacia papyrocarpa* low woodland over *Maireana pyramidata +/- Maireana sedifolia*



Plate 68. LERAM 55 *Acacia aneura* low woodland over *Maireana turbinata, Maireana pyramidata*



Plate 69. LERAM 202 Western Myall (*Acacia papyrocarpa*) open woodland over Black Bluebush (*Maireana pyramidata*) / Pearl Bluebush (*M. sedifolia*) / Bladder Saltbush (*Atriplex vesicaria*)

Table 4-22. Broad Vegetation Community NW SAAL 4.2

Broad Vegetation Community NW SAAL 4.2 **Mulga woodlands and tall shrublands on plains and law dunes in the Gawler Lakes**		
General description Broad Vegetation Community NW SAAL 4.2 represents Slender Mulga open woodland on plains and tending to low sand dunes in the north. Slender Mulga often co-occurs with Western Myall and other Wattle species (*A. burkittii* and *A. ramulosa*) in addition to tall shrubs including Sticky Hop-bush (*Dodonaea viscosa* ssp.). The understorey is dominated by chenopods including *Maireana* spp. and grasses, predominantly Kerosene Grass (*Aristida holathera*). The community is represented by RAM 7 and occurs within the Gawler Lakes and Arcoona Plateau Subregions west of Pernatty Lagoon.		
Suitability for key threatened species or community This community contains open woodlands dominated by Acacias or Eucalypts with an understorey of shrubs and grasses making it a highly suitable habitat for the Southern Whiteface. This habitat may also represent foraging habitat for Plains Mouse when in the species known range.		
RAM #	**RAM site description (vegetation association)**	**General location description**
RAM 7	Low dunes with *Acacia aptaneura* tall open shrubland +/- *A. ligulata / A. burkittii*	Near-continuous section west of Pernatty Lagoon, south of Woomera.



Plate 70. RAM 7 Low dunes with *Acacia aptaneura* tall open shrubland +/- *A. ligulata / A. burkittii*

4.3.2.3.5 MVG SAAL 5 – Woodlands and shrublands on low dunes and dune crests

MVG SAAL 5 (Woodlands and shrublands on low dunes and dune crests) is represented by two BVCs within the Project Area. In addition, these BVCs were represented by a number of VAs (RAM sites) as summarised in Table 4-23 to Table 4-26.

Table 4-23. Broad Vegetation Community NW SAAL 5.1

Broad Vegetation Community NW SAAL 5.1 **Low dune crests with tall shrubland +/- Cypress-pine woodlands**
General description Broad Vegetation Community NW SAAL 5.1 describes tall shrublands on low dunes in the northern part of the Project Area predominantly Wattle spp. (*A. ligulat*a and *A. burkittii*) and Sticky Hopbush with scattered emergent White Cypress-pine (*Callitris glaucophylla)*. Understorey comprises tussock grasses including Kerosene Grass, Common Bottle-washers *(Enneapogon avenaceous),* Silver Mulla Mulla (*Ptilotus obovatus)*, scattered chenopods (Black Bluebush), Plumbush (*Santalum lanceolatum)* and Bladder Saltbush. This community occurs in the Kingoonya and Gawler Lakes Subregions, extending into the Arcoona Plateau in transition zones and was represented by three RAM.
Suitability for key threatened species or community

Broad Vegetation Community NW SAAL 5.1 Low dune crests with tall shrubland +/- Cypress-pine woodlands		
The tall Acacia species and understorey of chenopod shrublands present within this community make it a highly suitable habitat for the Southern Whiteface. This species was also observed during two timed area surveys in this BVC within RAM 10. Most of this BVC does not contain suitable habitat for the Plains Mouse however one small area does have potential habits. RAM 29 is considered potential boom foraging habitat for Plains Mouse.		
RAM #	**RAM site description (vegetation association)**	**General location description**
RAM 10	Dune crest with *Acacia ligulata / Dodonaea viscosa +/- Callitris glaucophylla* tall open shrubland	Very widespread (dominant) from Olympic Village south to the Lake Mary / Red Swamp Mirage Lagoon area.
RAM 15	Low dunes with *Dodonaea viscosa / Acacia ligulata / A. burkittii tall open shrubland +/- Aristida holathera*	Between drainage lines associated with lakes north of Woomera.
RAM 29	Low dunes with *Dodonaea viscosa / Acacia ligulata / A. burkittii* tall open shrubland	Three isolated sections near drainage lines, two near Square Lake south of Woomera, other near Coorlay Lagoon north of Roxby Downs.
LERAM 62	Dune crest with *Acacia ligulata / Dodonaea viscosa* ssp. *angustissima* tall open shrubland +/- *Zygochloa paradoxa*	Large cluster of patches north of Pernatty Lagoon along the road to Carrapateena Mine.



Plate 71. RAM 10 Dune crest with *Acacia ligulata/ Dodonaea viscosa +/- Callitris glaucophylla* tall open shrubland



Plate 72. RAM 15 Low dunes with *Dodonaea viscosa / Acacia ligulata / A. burkittii* tall open shrubland +/- *Aristida holathera*

Broad Vegetation Community NW SAAL 5.1 Low dune crests with tall shrubland +/- Cypress-pine woodlands	
	
Plate 73. RAM 29 Low dunes with *Dodonaea viscosa / Acacia ligulata / A. burkittii* tall open shrubland	**Plate 74. LERAM 62 Dune crest with *Acacia ligulata / Dodonaea viscosa* ssp. *angustissima* tall open shrubland +/- *Zygochloa paradoxa***

Table 4-24. Broad Vegetation Community NW SAAL 5.2

Broad Vegetation Community NW SAAL 5.2 Cypress-pine woodlands on dune crests		
General description Broad Vegetation Community NW SAAL 5.2 comprises White Cypress-Pine (*Callitris glaucophylla)* woodlands on dune crests in deep sands in the Kingoonya Subregion. The overstorey is dominated by White Cypress-Pine, whilst the understorey comprises tall shrubs predominantly *Acacia* spp. (*ligulata* and *burkittii*) and *Dodonaea viscosa* ssp. Ground level species include tussock grasses (*Aristida holathera, Enneapogon avenaceous*), Silver Mulla Mulla, scattered chenopods (Black Bluebush and Bladder Saltbush). This community occurs within three IBRA Associations and in the Kingoonya, Gawler Lakes and Arcoona Plateau Subregions and was represented by one RAM (RAM 12) with two sample points (RAM 12a and RAM 12b).		
Suitability for key threatened species or community The tall Acacia species and understorey of chenopod shrublands present within this community make it a highly suitable habitat for the Southern Whiteface.		
RAM #	**RAM site description (vegetation association)**	**General location description**
RAM 12	Dune crest with *Callitris glaucophylla* open woodland +/- tall shrubs *(Acacia ligulata / Dodonaea viscosa* ssp.)	Widespread from Olympic Village to south of Purple Downs and a few more patches north of Pernatty Lagoon.

Broad Vegetation Community NW SAAL 5.2 Cypress-pine woodlands on dune crests

Plate 75. RAM 12 Dune crest with *Callitris glaucophylla* open woodland +/- tall shrubs (*Acacia ligulata/ Dodonaea viscosa* ssp.)

Table 4-25. Broad Vegetation Community NW SAAL 5.3

Broad Vegetation Community NW SAAL 5.3 Black Oak Woodlands on dunes		
General description Broad Vegetation Community NW SAAL 5.3 is represented entirely by LERAM 57 and has a dominant overstory of Black Oak with tall shrubs such as Umbrella Bush. Black Bluebush is the most dominant species in the understory but other shrubs such as Sandhill Saltbush (*Acacia velutinella*), Desert Lantern-bush (*Abutilon otocarpum*), Curly Wire-grass, Ruby Saltbush, Sand Sida (*Sida ammophila*) and Tar-vine (*Boerhavia domini*) are also present. Sparsely present species include Velvet-leaf Hibiscus (*Hibiscus krichauffianus*), Brown-head Samphire (*Tecticornia indica* ssp. *leiostachya*), Shrubby Riceflower (*Pimelea microcephala* ssp. *microcephala*) and *Osteocarpum dipterocarpum* (Lathwida 2024a). This community occurred across two IBRA associations and within the Gawler lakes and Arcoona Plateau subregions.		
Suitability for key threatened species or community The tall Acacia species and understorey of chenopod shrublands present within this community make it a highly suitable habitat for Southern Whiteface.		
RAM #	**RAM site description (vegetation association)**	**General location description**
LERAM 57	*Casuarina pauper* low open woodland over *Maireana pyramidata* on dune crest	Two small patches along the road to Carrapateena Mine, north of Pernatty Lagoon.

Broad Vegetation Community NW SAAL 5.3 Black Oak Woodlands on dunes


Plate 76. LERAM 57 *Casuarina pauper* low open woodland over *Maireana pyramidata* on dune crest

Table 4-26. Broad Vegetation Community NW SAAL 5.4

Broad Vegetation Community NW SAAL 5.4 Mulga woodlands and tall shrublands (dunes)		
General description Broad vegetation community SAAL 5.4 comprises a dominant overstorey of Mulga trees with a few areas of deeper sandy rises supporting species such as Horse Mulga (*Acacia ramulosa*). Some other taller shrubs are also present including Umbrella Bush and Senna (*Senna artemisioides* ssp. *petiolaris*) with patches of Narrow-leaf Hop-bush (*Dodonaea viscosa* ssp. *angustissima*). In areas of this BVC which are located close to highways, some annual exotic species are sparsely present (Lathwida 2024a). This BVC is represented by LERAM 58 and occurs across two IBRA associations (Oakden, Mt. Gunson) and in two Subregions, Gawler Lakes and Arcoona Plateau.		
Suitability for key threatened species or community The tall Acacia species and understorey of chenopod shrublands present within this community make it a highly suitable habitat for the Southern Whiteface.		
RAM #	**RAM site description (vegetation association)**	**General location description**
LERAM 58	*Acacia aneura* low woodland over *Senna sp./ Dodonaea viscosa* ssp. *angustissima* and *Acacia ligulata +/- Acacia burkittii*	Many fragmented patches along Stuart Highway and road to Carrapateena Mine, west of Pernatty Lagoon.

Broad Vegetation Community NW SAAL 5.4 Mulga woodlands and tall shrublands (dunes)


Plate 77. LERAM *Acacia aneura* low woodland over *Senna* sp./ *Dodonaea viscosa* ssp. *angustissima* and *Acacia ligulata +/- Acacia burkittii*

4.3.2.3.6 MVG SAAL 6 – Dune swales with open woodlands, shrublands and tussock grassland

MVG SAAL 6 (Dune swales with open woodlands, shrublands and tussock grassland) is represented by three BVCs within the Project Area. Each BVC is represented by one or two VAs (RAM site) as summarised in Table 4-27 to Table 4-29.

Table 4-27. Broad Vegetation Community NW SAAL 6.1

Broad Vegetation Community NW SAAL 6.1 Chenopod low open shrubland in dune swale +/- emergent trees		
General description Broad vegetation community NW SAAL 6.1 comprises chenopod shrublands of Bladder Saltbush and Low Bluebush in dune swales in the Kingoonya Subregion. Emergent trees Western Myall and Mulga are scattered sparsely throughout the Project Area, but the community is largely treeless. The community is represented by RAM 11 but occurs frequently in dune swales throughout the Gawler Lakes, Kingoonya and Arcoona Plateau Subregion.		
Suitability for key threatened species or community The low open shrubland with some Acacia species within this community make it a highly suitable habitat for Southern Whiteface. Dune swales with tall shrubs occur across this community, which are potential foraging habitat for Plains Mouse.		
RAM #	**RAM site description (vegetation association)**	**General location description**
RAM 11	Swale with *Atriplex vesicaria* / *Maireana astrotricha* low open shrubland	Many patches, generally situated between Olympic Village to Woomera. More patches north of Pernatty Lagoon.

Broad Vegetation Community NW SAAL 6.1 Chenopod low open shrubland in dune swale +/- emergent trees



Plate 78. RAM 11 Swale with *Atriplex vesicaria / Maireana astrotricha* low open shrubland

Table 4-28. Broad Vegetation Community NW SAAL 6.2

Broad Vegetation Community NW SAAL 6.2 Tussock grassland in dune swales +/- emergent trees		
General description Broad vegetation community NW SAAL 6.2 comprises tussock grasslands in sand dune swales in the Kingoonya Subregion. Vegetation communities are dominated by mixed grass species (*Enneapogon avenaceus / E. cylindricus / Aristida contorta / Eragrostis setifolia*) and saltbush species with occasional emergent trees of Western Myall. The community is represented by RAM 41 and occurs frequently in dune swales throughout the Kingoonya Subregion.		
Suitability for key threatened species or community The grasslands with some chenopod species, make it a highly suitable habitat for Southern Whiteface. This species was also observed during two timed area surveys in this community within RAM 41. Dune swales with tall shrubs occur across this community, may provide potential foraging habitat for Plains Mouse.		
RAM #	**RAM site description (vegetation association)**	**General location description**
RAM 41	Swales of mixed tussock grassland (*Enneapogon avenaceous / E. cylindricus / Aristida contorta / Eragrostis setifolia*) +/- emergent *Acacia aptaneura / A. papyrocarpa*	Many isolated patches from Olympic Village south to between Roxby Downs and Woomera.

Broad Vegetation Community NW SAAL 6.2 Tussock grassland in dune swales +/- emergent trees

Plate 79. RAM 41 Swales of mixed tussock grassland (*Enneapogon avenaceous / E. cylindricus / Aristida contorta / Eragrostis setifolia*) +/- emergent *Acacia aptaneura / A. papyrocarpa*

Table 4-29. Broad Vegetation Community NW SAAL 6.3

Broad Vegetation Community NW SAAL 6.3 Open woodlands in dune swales		
General description Broad vegetation community NW SAAL 6.3 comprises open to very open woodlands of Western Myall and Slender Mulga in the Kingoonya Subregion on sandy plains and occasionally cracking clays. Woodlands occur predominantly over tussock grasses (*Enneapogon avenaceous / E. cylindricus / Aristida contorta / Eragrostis setifolia)* and chenopods (*Sclerolaena* spp., *Maireana* spp., *Atriplex* spp.). This community is represented by RAM 13 and LERAM 52 and occurs in three IBRA Associations and within the Kingoonya, Gawler Lakes, Arcoona Plateau Subregions.		
Suitability for key threatened species or community The open woodlands with chenopod and grass understorey, make it a highly suitable habitat for Southern Whiteface. Dune swales with tall shrubs occur across this community, may provide potential foraging habitat for Plains Mouse.		
RAM #	**RAM site description (vegetation association)**	**General location description**
RAM 13	Dune swale with *Acacia papyrocarpa / A. aptaneura* open woodland +/- Tussock Grasses	Several fragmented patches from Olympic Village to Mirage Lagoon, with a noteable absence on the plains below Roxby Downs.
LERAM 52	*Acacia aneura* low woodland over *Aristida contorta* on dune swales	Semi-fragmented patches following dune swales located around Pernatty Lagoon along Stuart Highway.

Broad Vegetation Community NW SAAL 6.3 Open woodlands in dune swales	
	
Plate 80. RAM 13 Dune swale with *Acacia papyrocarpa / A. aptaneura* open woodland +/- Tussock Grasses	**Plate 81. LERAM 52 *Acacia aneura* low woodland over *Aristida contorta* on dune swales**

4.3.2.3.7 MVG SAAL 7 – Cane-grass run-on and depressions

MVG SAAL 7 (Cane-grass run-on and depressions) is represented by one BVC within the Project Area. The community is represented by a single VA (RAM site) as summarised in Table 4-30.

Table 4-30. Broad Vegetation Community NW SAAL 7.1

Broad Vegetation Community NW SAAL 7.1 Swamp Cane-grass grassland		
General description Broad vegetation community NW SAAL 7.1 comprises low-lying swamps of Swamp Cane-grass observed in the Kingoonya Subregion in dune swales and in the Arcoona Plateau Subregion on cracking clays. Where observed in the Kingoonya Subregion cracking clays were minor and lacking deep crevices. This community is of low diversity with co-occurring species including Bristly Love-grass (*Eragrostis setifolia*) and Thyme Sea-Heath (*Frankenia serpyllifolia)* in dune swales and Bladder Saltbush and Black Bluebush in tableland depressions. The community was represented by RAM 17 only but occurs in four IBRA Associations and in the Kingoonya, Gawler Lakes and Arcoona Plateau Subregions.		
Suitability for key threatened species or community The grasslands with some chenopod species, make it a suitable foraging habitat for Southern Whiteface, but no nesting habitat is present. Cane-grass grassland with cracking clays is considered preferred critical refuge habitat (nesting and foraging) for Plains Mouse and occurs across this community.		
RAM #	**RAM site description (vegetation association)**	**General location description**
RAM 17	Run-on depression with *Eragrostis australasica* tall grassland and chenopod shrubs	Several very isolated patches spanning from Roxby Downs to west of Pernatty Lagoon in small, swampy areas.

Broad Vegetation Community NW SAAL 7.1 Swamp Cane-grass grassland


Plate 82. RAM 17: Run-on depression with *Eragrostis australasica* tall grassland and chenopod shrubs

4.3.2.3.8 MVG SAAL 8 – Inland saline depressions and drainage lines

MVG SAAL 8 (Inland saline depressions and drainage lines) is represented by two BVCs within the Project Area. Each BVC is represented by one or two VAs (RAM sites) as summarised below in Table 4-31 and Table 4-32.

Table 4-31. Broad Vegetation Community NW SAAL 8.1

Broad Vegetation Community NW SAAL 8.1 Tall shrublands on inland saline depressions		
General description Broad vegetation community NW SAAL 8.1 comprises tall shrublands occurring on inland saline depressions. Within the Project Area the community is dominated by Boree (*Melaleuca xerophila*) tall closed shrubland fringing samphire dominated saltpan. Ground level species include Mulga, Ruby Saltbush and Spiny Saltbush. This community is represented by RAM 8 and occurs exclusively in saline depressions within the Kingoonya Subregion.		
Suitability for key threatened species or community The tall shrublands with chenopod and grass species, make it a highly suitable habitat for Southern Whiteface which often move into these habitats during drought.		
RAM #	**RAM site description (vegetation association)**	**General location description**
RAM 39	*Melaleuca xerophila* tall closed shrubland fringing saltpan (*Tecticornia* spp.)	Small patches surrounding Lake Mary between Roxby Downs and Woomera.

Broad Vegetation Community NW SAAL 8.1 Tall shrublands on inland saline depressions


Plate 83. RAM 39 *Melaleuca xerophila* tall closed shrubland fringing saltpan (*Tecticornia* spp.)

Table 4-32. Broad Vegetation Community NW SAAL 8.2

Broad Vegetation Community NW SAAL 8.2 Inland Samphire depressions and drainage lines		
General description Broad vegetation community NW SAAL 8.2 comprises samphire species dominated depressions and drainage lines. Within the Project Area the community comprises a *Tecticornia* spp. low shrubland with ground level species including Bladder Saltbush, Bush Minuria (*Minuria cunninghamii)* and Western Boobialla (*Myoporum monathanum)* and occurs west of Port Augusta (RAM 33). Sections occurring in the north of the alignment are also inclusive of Grey Glasswort (*T. halocnemoides)* with a similar ground layer. This community is represented by two RAM and occurs throughout the region within the Arcoona Plateau, Gawler Lakes and Kingoonya Subregions.		
Suitability for key threatened species or community Drainage lines and chenopod species present within this community make it a highly suitable foraging habitat for Southern Whiteface which often move into these habitats during drought. Drainage lines create potentially suitable habitat for this Plains Mouse and occur within part of this community. However, the habitat across most of this community is considered not suitable for Plains Mouse.		
RAM #	**RAM site description (vegetation association)**	**General location description**
RAM 34	*Tecticornia* spp. (*indica* ssp. *leiostachya* / *halocnemoides*) low open shrubland on salt lake margin	Several patches within drainage lines of Square Lake, and Pernatty Lagoon, Lake Dutton and below Olympic Dam.
LERAM 63	*Tecticornia indica, Tecticornia pergranulata +/- Duma florulenta* open shrubland	Isolated area north of Pernatty Lagoon along road to Carrapateena Mine.

Broad Vegetation Community NW SAAL 8.2 Inland Samphire depressions and drainage lines	
	
Plate 84. RAM 34 *Tecticornia* spp. (*indica* ssp. *leiostachya / halocnemoides*) low open shrubland on salt lake margin	**Plate 85. LERAM 63 *Tecticornia indica, Tecticornia pergranulata +/- Duma florulenta* open shrubland**

4.3.2.3.9 MVG SAAL 10 – Non-saline shrublands in clay depressions

MVG SAAL 10 (Non-saline shrublands in clay depressions) is represented by one BVC within the Project Area. The community was represented by a single vegetation association (RAM site) as summarised in Table 4-33.

Table 4-33. Broad Vegetation Community NW SAAL 10.1

Broad Vegetation Community NW SAAL 10.1 Non-saline shrublands in clay depressions		
General description Broad vegetation community NW SAAL 10.1 consists of Cottonbush (*Maireana aphylla*) and/or Lignum and/or Nitre Goosefoot (*Chenopodium nitrariaceum*) shrubland (clay depression). The main vegetation association represented in the construction footprint for this BVC was Cottonbush shrubland in clay depression being represented by LERAM 54. Other low shrubs that are present include Bluerod (*Stemodia florulenta*), Bristly Love-grass (*Eragrostis setifolia*), Grey Germander (*Teucrium racemosum*) and Desert Sneezeweed *(Centipeda thespidioides*) (Lathwida 2024a). This community occurs across two IBRA Associations and within the Gawler Lakes and Arcoona Plateau Subregions.		
Suitability for key threatened species or community Depressions and chenopod shrublands present within this community make it a suitable foraging habitat for Southern Whiteface which often move into these habitats during drought. Clay depressions with friable soils, and tall shrubs create suitable habitat for Plains Mouse and occur across this community. However, the scattered nature of these small patches, particularly along the Western Access Road and where grazing occurs, would only provide low suitable refuge habitat or habitat for the species during boom periods (Lathwida 2025).		
RAM #	**RAM site description (vegetation association)**	**General location description**
LERAM 54	*Maireana aphylla* shrubland (clay depression)	Scattered patches along the road to Carrapateena Mine, north and west of Pernatty Lagoon.

Broad Vegetation Community NW SAAL 10.1 Non-saline shrublands in clay depressions


Plate 86. LERAM 54 *Maireana aphylla* shrubland (clay depression)

4.3.2.3.10 MVG SAAL 11 – Sandhill Cane-grass grassland

MVG SAAL 11 (Sandhill Cane-grass grassland) is represented by one BVC within the Project Area. The community is represented by a single VA (RAM site) as summarised in Table 4-34.

Table 4-34. Broad Vegetation Community NW SAAL11.1

Broad Vegetation Community NW SAAL 11.1 Sandhill Cane-grass grassland		
General description Broad vegetation community NW SAAL 11.1 is represented by LERAM 51. Sandhill Cane-grass is the dominant overstorey on this sand dune vegetation, with emergent Umbrella Bush and Bullock Bush. Other species that are moderately present include Black Bluebush, Loose-flowered Rattlepod (*Crotalaria eremaea ssp. eremaea*), Tar-vine, Velvet Tobacco (*Nicotiana velutina*), Silky Glycine (*Glycine canescens*) and Poached-egg Daisy (*Polycalymma stuartii*). Two exotic species are moderate to sparsely present; Bitter Melon (*Citrullus* sp.) and Mustard (*Sisymbrium erysimoides*) (Lathwida 2024a). This community occurs across two IBRA Associations and within the Gawler Lakes and Arcoona Plateau Subregions.		
Suitability for key threatened species or community The grasslands with some chenopod species, make it a highly suitable habitat for Southern Whiteface. Sandhill Cane-grass grassland is potential foraging habitat for Plains Mouse and occurs across this community.		
RAM #	**RAM site description (vegetation association)**	**General location description**
LERAM 51	*Zygochloa paradoxa* grassland with emergent *Acacia ligulata* and *Alectryon oleifolius* on red sand dune	Group of patches along the road to Carrapateena Mine, north of Pernatty Lagoon.

Broad Vegetation Community NW SAAL 11.1 Sandhill Cane-grass grassland

Plate 87. LERAM 51 *Zygochloa paradoxa* grassland with emergent *Acacia ligulata* and *Alectryon oleifolius* on red sand dune

4.3.2.3.1 MVG SAAL 12 – Woodlands of Black Oak on flat and undulating plains

MVG SAAL 12 (Woodlands of Black Oak on flat and undulating plains) is represented by one BVC within the Project Area. The community is represented by a single VA (LERAM 207) as summarised in Table 4-35.

Table 4-35. Broad Vegetation Community NW SAAL12.1

Broad Vegetation Community NW SAAL 12.1 Woodlands of Black Oak on flat and undulating plains		
General description Broad vegetation community NW SAAL 11.1 is represented by LERAM 207. Black Oak (*Casuarina pauper*) is the dominant overstorey, over chenopod shrubland. Additional flora species that were recorded as present included Bullock Bush, Australian Boxthorn, Samphire, Bladder Saltbush, Spiny Saltbush, Ruby Saltbush, Black Bluebush and Pearl Bluebush. Sparse to nil exotic species were recorded at the in this BVC. This community occurs in one IBRA Association and exclusively within the Arcoona Plateau Subregion.		
Suitability for key threatened species or community Almost all of this BVC is considered atypical, but suitable habitat for the Western Grasswren, however there is one section of preferred habitat where there are high densities of spiny shrub species such as Black Bluebush and Australian Boxthorn and where drainage lines are present. This area (west of Lake Dempsey) is on the cusp of the species known range. The grasslands with taller trees and chenopod species, make it a highly suitable habitat (foraging, nesting and roosting) for Southern Whiteface.		
RAM #	**RAM site description (vegetation association)**	**General location description**
LERAM 207	Black Oak (*Casuarina pauper*) woodland over chenopod shrubland (sandy drainage line)	Lake Dempsey

Broad Vegetation Community NW SAAL 12.1
Woodlands of Black Oak on flat and undulating plains



Plate 88. LERAM 207 Black Oak (*Casuarina pauper*) woodland over chenopod shrubland (sandy drainage line)

4.4 Likelihood of Occurrence assessment (LoO)

Due to the large scale and diversity of habitat across the Project, the LoO assessment for threatened and migratory species was undertaken across broad habitat categories. These broad habitat categories were selected based on the MVGs identified in the Project Area with consideration of key habitat and key threatened and migratory species relevant to the Project Area. The habitat categories considered are provided in Table 4-36.

Summaries of the LoO assessments are provided in the following sections. Database records of threatened species within the Study Area (5 km in the EP LMR, 50 km in the SAAL LMR) are provided in Appendix B. Full LoO assessment tables are included in Appendix C, which incorporate habitat information, record details, survey findings and a likelihood assessment against the habitat categories for all threatened species identified as potentially occurring within the Study Area based on previous records (DEW 2025) or through the PMST output (excluding marine or oceanic species).

Table 4-36. Habitat categories across the EP and SAAL LMRs

LMR	Habitat category	Description
EP	Coastal dunes/ beaches	Well-vegetated coastal dunes aid in the control of coastal erosion and wind damage to native flora and infrastructure further inland. With several different zones (i.e. terrestrial, aquatic, tidal) this habitat type provides key habitat for many fauna and flora species. The PMST and BDBSA searches highlighted threatened and/ or migratory bird species which rely on this habitat for breeding and foraging.
	Coastal saltmarsh/coastal samphire/mangrove	Historically, these habitats have been overlooked, causing them to become threatened in many regions. Flora associated with the habitats are often endemic to restricted areas, and others, such as Bead Samphire (*Tecticornia flabelliformis*), are nationally threatened due to the removal and degradation of key coastal habitats. Such habitats are critical for maintaining water quality and controlling coastal erosion, as well as providing suitable breeding and foraging habitat for both aquatic and terrestrial fauna. Several threatened and / or migratory bird species highlighted in the PMST and BDBSA searches utilise these saline environments to forage for specific invertebrates.
	Open woodlands over chenopod/ chenopod shrublands/ tall chenopod shrublands	A major habitat type along the construction footprint and surrounding region. Chenopods are typically slow-growing and long-lived. They provide rich nutrients for both native fauna and livestock, which can result in fragmented patches and allow for invasive species to infiltrate. Often incredibly diverse, these habitats have multiple strata which can be utilised by a wide range of flora, fauna and fungi. Birds of prey may utilise tree canopies to hunt and construct large nests, while shrubby strata can provide shelter, nesting, and foraging opportunities for birds, mammals, and reptiles. Insect/pollinator diversity also thrives in diverse chenopod shrublands, which aids in a range of ecological processes.
SAAL	Ephemeral creeks/drainage lines	Habitats which are largely dry except during and after major rain events. They provide valuable inland habitat for many threatened and/or rare fauna including migratory birds such as the nationally threatened Curlew Sandpiper (*Calidris ferruginea*). When not inundated, cracks in clay soils can still offer habitat for fauna such as frogs. Drainage lines can support a range of vegetation types including open-to-closed shrubland and woodland. Wetland associated flora such as sedges and rushes can further increase the diversity of flora/fauna seen within this habitat.

LMR	Habitat category	Description
	Low dunes and dune crests of *Acacia* and *Callitris*	These habitats are formed and changed by accreting sand and succumbing to wind erosion. Many native mammals in the critical weight range (the most at-risk group) are supported by dunes with sufficient vegetation. They are able to burrow into the well-stabilised soils and forage for a wide range of invertebrates. Many reptiles and bird species also occur in this habitat type. The PMST and BDBSA results highlighted several threatened bird species and some mammals which can occur in this habitat.
	Open woodlands over chenopod/chenopod shrublands/tall shrublands of *Senna*, Mulga on plains	A major habitat type within the Project Area and surrounding region. Chenopods are typically slow-growing and long-lived. They provide rich nutrients for both native fauna and livestock, which can result in fragmented patches and allow invasive species to infiltrate. Often incredibly diverse, these habitats have multiple strata which can be utilised by a wide range of flora, fauna and fungi. Birds of prey may utilise tree canopies to hunt and construct large nests, while shrubby strata can provide shelter, nesting, and foraging opportunities for birds, mammals, and reptiles. Insect/pollinator diversity also thrives in diverse chenopod shrublands, which aids in a range of ecological processes.
	Tableland and inland saline depressions, inland samphire	A major habitat type within the Project Area and surrounding region. Flat, stony (gibber plain) tablelands with scattered low-open chenopod shrubland. Often includes cracking clay habitat. This tableland is considered hostile due to extreme conditions, including high temperatures and limited resources. As such, many inhabitant species are moderately to highly specialised. Many avian species are likely to occur in this habitat within the Project Footprint including several threatened species. Gibber plains and depressions with Swamp Cane-grass, such as those occurring west of Pernatty Lagoon, provide critical habitat for fauna such as the nationally threatened Plains Mouse. Gibber plains (from "kibba", meaning "stone") also hold major cultural significance.
	Grasslands/ woodlands in dune swales	The environment between sand dunes where the soil is more structured. Temperatures in these areas get hotter than surrounding dunes. Swales are typically more impermeable than dunes and hold surface water at higher rates creating ponds after rains. As seeds remain in the soil during drought induced die-back, many herbaceous plants emerge following large rain events. The PMST and BDBSA searches highlighted several threatened bird and floral species which may occur within this habitat.

4.4.1 EPBC Act listed threatened flora

The PMST output for the EP LMR highlighted four EPBC Act listed threatened flora species as potentially occurring within the Study Area. All of these species are considered unlikely to occur within the construction footprint.

The PMST output for the SAAL LMR highlighted 21 EPBC Act listed threatened flora species as potentially occurring within the Study Area. Of these, three species have recent and reliable records (DEW 2025). However, all 21 of the flora species included in the LoO assessment are considered unlikely to occur in the construction footprint.

4.4.2 NPW Act listed threatened flora

The BDBSA output for the EP LMR highlighted recent and reliable records for 16 NPW Act listed flora species within the Study Area. Of these, 13 species were not considered further in the LoO assessment, following exclusions for geographical range (Flinders-Lofty Block species detailed in Section 3.2) or because they were already assessed as part of the LoO assessment for threatened flora species listed under the EPBC Act in Section 4.4.1 (i.e. they are also listed under the EPBC Act). A summary of results of the LoO assessment for those species assessed as known, likely or possible to occur in the construction footprint is provided in Table 4-37.

The BDBSA output for the SAAL LMR highlighted recent and reliable records for 53 NPW Act listed flora species within the Study Area. Of these 41 species were not considered further in the LoO assessment, being removed following exclusions for geographical range (Flinders-Lofty Block species detailed in Section 3.2) or because they were already assessed as part of the LoO assessment for flora species listed under the EPBC Act in Section 4.4.1.

The LoO assessment identified that:

- One species is considered known to occur within the construction footprint – Sandalwood (*Santalum spicatum*) (V); observed during the survey in or near the construction footprint in both the EP and SAAL LMRs.
- One species is considered to possibly occur within the construction footprint in the EP LMR, Australian Brooomrape *(Orobanche cernua* var. *Australiana)* (R).
- Eight species are considered to possibly occur within the SAAL LMR construction footprint; Cane Spear-grass *(Austrostipa breviglumis)* (R), Desert Lime *(Citrus glauca)* (V), Round Sea-heath (*Frankenia subteres)* (R), Western Tar-vine (*Gilesia biniflora*) (R), One-bristle Everlasting *(Gratwickia monochaeta)* (R), Small-fruit Twinleaf *(Roepera humillimia)* (R), Sandalwood (*Santalum spicatum*) (in habitat categories in addition to the one it is considered known in) (V) and Star Nancy *(Wurmbea stellata)* (R).
- The remaining three species are considered unlikely to occur within the construction footprint.

A summary of the LoO assessment results for those species assessed as known to occur, likely or possibly occurring in the construction footprint is provided in Table 4-38.

Table 4-37. Summary of the outcomes of the LoO assessment for NPW Act listed threatened flora species potentially occurring in the EP LMR construction footprint. Excludes species also listed under the EPBC Act or considered unlikely to occur.

Species	Common name	NPW Act status[1]	Coastal saltmarsh/ mangrove	Open woodlands over chenopod/ chenopod shrublands/ tall chenopod shrublands	Coastal dunes/ beaches
Orobanche cernua var. australiana	Australian Broomrape / Native Broomrape	R	**Possible**		
Santalum spicatum	Sandalwood	V		**Known**	

[1] NPW Act status: Endangered (E); Vulnerable (V); Rare (R).

Table 4-38. Summary of the outcomes of the LoO assessment for NPW Act listed threatened flora species potentially occurring in the SAAL LMR construction footprint. Excludes species also listed under the EPBC Act or considered unlikely to occur.

Species	Common name	NPW Act status[1]	Ephemeral creeks/ drainage lines	Tableland and inland saline depressions, inland samphire	Open woodlands over chenopod/ chenopod shrublands/ tall shrublands of *Senna*, Mulga on plains	Low dunes and dune crests of *Acacia* & *Callitris*	Grasslands/ woodlands in dune swales
Austrostipa breviglumis	Cane Spear-grass	R					**Possible**
Citrus glauca	Desert Lime	V			**Possible**		
Frankenia subteres	Round Sea-heath	R		**Possible**			
Gilesia biniflora	Western Tar-vine	R	**Possible**	**Possible**			
Gratwickia monochaeta	One-bristle Everlasting	R				**Possible**	
Roepera humillima	Small-fruit Twinleaf	R		**Possible**			
Santalum spicatum	Sandalwood	V	**Possible**		**Known**	**Possible**	**Possible**
Wurmbea stellata	Star Nancy	R		**Possible**			

[1] NPW Act status: Endangered (E); Vulnerable (V); Rare (R).

4.4.3 EPBC Act listed threatened fauna

The PMST output highlighted 46 EPBC Act listed threatened fauna species as potentially occurring within the construction footprint within the EP LMR. Of these, eight species were not considered further in the LoO assessment as they are marine species, including two mammals (whales/sea-lions), three turtles, two sharks and one fish. Three additional species, the Grey Plover (*Pluvialis squatarola)* (VU), the Black-tailed Godwit (*Limosa lapponica melanuroides)* (EN), and the Grey-headed Flying Fox (*Pteropus poliocephalus*) (VU), were included in the LoO as they were highlighted by previous records (DEW 2025). In total, 41 species were assessed in the LoO including 38 birds, two mammals, and one reptile. Of these, 13 had recent and reliable records (DEW 2025) in the Study Area in the EP LMR.

Of the 41 species included in the LoO assessment, 15 are considered possible, likely, or known to occur in the construction footprint in the EP LMR. These species are highlighted in Table 4-39 with the full assessment available in Appendix C. As previously mentioned, the LoO assessment assessed likelihood status across several habitat types, therefore each species can have a range of likelihood status. The following summary, highlights the highest status assigned for each species within the EP LMR:

- Four bird species are considered known to occur within at least one habitat type present in the construction footprint – Western Grasswren (VU), Southern Whiteface (VU), Blue-winged Parrot (*Neophema chrysostoma*) (VU) and Little Tern (*Sternula albifrons*) (VU, MW).
- Three species (two birds and one mammal) are considered likely to occur within the construction footprint –Australian Fairy Tern (*Sternula nereis nereis)* (VU), Common Greenshank (*Tringa nebularia*) (EN, MW), Grey-headed Flying Fox (*Pteropus poliocephalus*) (VU).
- Eight bird species are considered to possibly occur within the construction footprint – Sharp-tailed sandpiper (*Calidris acuminata*) (VU, MW), Curlew Sandpiper (*Calidris ferruginea*) (CR, MW), Grey Falcon (*Falco hypoleucos*) (VU), Bar-tailed Godwit (*Limosa lapponica*) (ssp. EN, MW), Black-tailed Godwit (*Limosa limosa melanuroides*) (EN, MW), Far Eastern Curlew (*Numenius madagascariensis*) (CR, MW), Grey Plover (*Pluvialis squatarola*) (VU), Hooded Plover (*Thinornis cucullatus cucullatus*) (VU),
- The remaining 26 species are considered unlikely to occur within the construction footprint.

The PMST for the SAAL LMR highlighted 60 EPBC Act listed threatened fauna species as potentially occurring within the construction footprint. Of these, eight species were not considered further in the LoO assessment as they are marine species, including two mammals (whales/sea-lions), three turtles, two sharks and one fish. Three additional species, the Kowari (*Dasyuroides byrnei*) (EN), the Numbat (*Myrmecobius fasciatus*) (EN), and the Grey-headed Flying Fox (VU), were included in the LoO as they were highlighted by BDBSA records. In total, 55 species were considered further in a LoO assessment including 41 birds, 12 mammals, and two reptiles. Of these, 35 have recent and reliable records (DEW 2025).

Of the 55 species assessed in the LoO assessment, 12 are considered possible, likely, or known to occur within at least one habitat type within the construction footprint in the SAAL LMR. These species are highlighted in Table 4-40, with the full assessment available in Appendix C. As for the EP LMR above, the following summary highlights the highest status for each species within the SAAL LMR:

- Two bird species are considered known to occur within at least one habitat type present in the construction footprint – Western Grasswren (VU) and Southern Whiteface (VU).
- Three species (one bird and two mammals) are considered likely to occur within at least one habitat type occurring in the construction footprint – Blue-winged Parrot (*Neophema chrysostoma*) (VU), Plains Mouse (VU), and Grey-headed Flying Fox (VU).
- Seven species (six birds and one mammal) are considered to possibly occur within the construction footprint – Thick-billed Grasswren (*Amytornis modestus*) (VU), Sharp-tailed Sandpiper (VU, MW),

Curlew Sandiper (CR, MW), Grey Falcon (VU), Black-tailed Godwit (EN, MW), Common Greenshank (EN, MW), Dusky Hopping-mouse (*Notomys fuscus*) (VU),.

- The remaining 43 species are considered unlikely to occur within the construction footprint.

Further information on EPBC Act listed species considered known, likely or possibly occurring (except flyovers) within the construction footprint is provided in Appendix C.

Table 4-39. Summary of the outcomes of the LoO assessment for EPBC Act listed threatened fauna potentially occurring in the EP LMR construction footprint. Excludes species considered unlikely to occur.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Coastal saltmarsh/ mangrove	Open woodlands over chenopod/ chenopod shrublands/ tall chenopod shrublands	Coastal dunes/ beaches
AVES						
Amytornis textilis myall	Western Grasswren	VU	V		**Known**	
Aphelocephala leucopsis	Southern Whiteface	VU	-		**Known**	
Calidris acuminata	Sharp-tailed Sandpiper	VU, MW	-	**Possible**		**Possible**
Calidris ferruginea	Curlew Sandpiper	CR, MW	E	**Possible**		**Possible**
Falco hypoleucos	Grey Falcon	VU	R		**Possible**	
Limosa lapponica	Bar-tailed Godwit	EN, MW	R	**Possible**		**Possible**
Limosa limosa melanuroides	Black-tailed Godwit	EN, MW	R	**Possible**		
Neophema chrysostoma	Blue-winged Parrot	VU	V	**Likely**	**Known**	
Numenius madagascariensis	Far Eastern Curlew	CR, MW	E	**Possible**		**Possible**
Pluvialis squatarola	Grey Plover	VU	-	**Possible**		**Possible**
Sternula albifrons	Little Tern	VU, MW	-	**Possible**		**Known**
Sternula nereis nereis	Australian Fairy Tern	VU	E			**Likely**
Thinornis cucullatus cucullatus	Hooded Plover	VU	V	**Possible**		**Possible**
Tringa nebularia	Common Greenshank	EN, MW	-	**Possible**		**Likely**
MAMMALS						
Pteropus poliocephalus	Grey-headed Flying Fox	VU	**R**		**Likely**	

[1] EPBC Act status: Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Migratory Wetland (MW); Migratory Terrestrial (MT); Migratory Marine (MM)

[2] NPW Act status: Endangered (E); Vulnerable (V); Rare (R).

Table 4-40. Summary of the outcomes of the LoO assessment for EPBC Act listed threatened fauna potentially occurring in the SAAL LMR construction footprint. Excludes species considered unlikely to occur.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Ephemeral creeks/ drainage lines	Tableland and inland saline depressions, inland samphire	Open woodlands over chenopod/ chenopod shrublands/ tall shrublands of *Senna*, Mulga on Plains	Low dunes and dune crests of Acacia & Callitris	Grasslands/ woodlands in dune swales
AVES								
Amytornis modestus	Thick-billed Grasswren	VU	-	**Possible**	**Possible**			
Amytornis textilis myall	Western Grasswren	VU	V	**Known**	**Possible**	**Known**	**Likely**	**Possible**
Aphelocephala leucopsis	Southern Whiteface	VU	-	**Likely**	**Likely**	**Known**	**Known**	**Known**
Calidris acuminata	Sharp-tailed Sandpiper	VU, MW	-	**Possible**	**Possible**			
Calidris ferruginea	Curlew Sandpiper	CR, MW	E	**Possible**				
Falco hypoleucos	Grey Falcon	VU	R	**Possible (for hunting)**	**Possible (for hunting)**	**Possible**	**Possible**	**Possible**
Limosa limosa	Black-tailed Godwit	EN, MW	R	**Possible**				
Neophema chrysostoma	Blue-winged Parrot	VU	V	**Possible**	**Likely**	**Likely**	**Possible**	**Possible**
Tringa nebularia	Common Greenshank	EN, MW	-	**Possible**	**Possible**			
MAMMALS								
Notomys fuscus	Dusky Hopping-mouse, Wilkiniti	VU	V	**Possible**			**Possible**	**Possible**
Pseudomys australis	Plains Mouse	VU	V		**Likely**			**Possible**
Pteropus poliocephalus	Grey-headed Flying Fox	VU	R	**Likely**		**Likely**		

[1] EPBC Act status: Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Migratory Wetland (MW); Migratory Terrestrial (MT); Migratory Marine (MM).

[2] NPW Act status: Endangered (E); Vulnerable (V); Rare (R)

4.4.4 EPBC Act listed migratory species

The PMST output highlighted 39 EPBC listed migratory species (all birds) as having the potential to occur within the Project Area. Twenty-three of these migratory species were not considered further in the LoO for migratory fauna as they were also listed as threatened under the EPBC Act and had already been considered in the LoO assessment for EPBC threatened species. Of the remaining 16 species, the LoO identified five EPBC Act listed migratory shore / wetland bird species as having the potential to occur within the construction footprint (ranging from likely to possible). This list is excluding EPBC Act listed migratory species also listed as threatened under the EPBC Act (as these are discussed in the previous section). It does include EPBC Act listed migratory species which are also listed as threatened under the NPW Act. The five species are:

- Common Sandpiper (*Actitis hypoleucos*) (MW) (R)
- Red-necked Stint (*Calidris ruficollis*) (MW)
- Osprey (*Pandion haliaetus cristatus*) (MW) (E ssp.)
- Pectoral Sandpiper (*Calidris melanotos*) (MW) (R)
- Marsh Sandpiper (*Tringa stagnatilis*) (MW)

As per Table 4-41 and Table 4-42, three species are identified as potentially occurring within the EP LMR, while four have the potential to occur within the SAAL LMR. The construction footprint contains very little suitable habitat for these species, which would be considered only occasional visitors to the area, if they were to occur.

A separate report providing detailed information on EPBC Act listed migratory bird species is being prepared by Lathwida (2025); refer to this report for further information and for Figures showing the location of previous records.

Table 4-41. Summary of the LoO assessment outcomes for EPBC Act listed migratory shore / wetland bird species highlighted by the PMST as potentially occurring in the EP LMR construction footprint. Excludes species considered unlikely to occur.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Coastal Saltmarsh/ Mangrove	Open Woodlands over Chenopod/ chenopod shrublands/ tall chenopod shrublands	Coastal Dunes/ Beaches
AVES						
Actitis hypoleucos	Common Sandpiper	MW	R	**Possible**		**Possible**
Calidris ruficollis	Red-necked Stint	MW	-	**Likely**		**Likely**
Pandion haliaetus / Pandion haliaetus cristatus	Osprey	MW	E (ssp.)			**Possible**

[1] EPBC Act status: Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Migratory Wetland (MW); Migratory Terrestrial (MT); Migratory Marine (MM).

[2] NPW Act status: Endangered (E); Vulnerable (V); Rare (R).

Table 4-42. Summary of the LoO assessment for EPBC Act listed migratory shore / wetland bird species potentially occurring in the SAAL LMR construction footprint. Excludes species considered unlikely to occur.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open woodlands over chenopod/ chenopod shrublands/ tall shrublands of *Senna*, Mulga on Plains	Low dunes and dune crests of *Acacia* & *Callitris*	Grasslands/ woodlands in dune swales
AVES								
Actitis hypoleucos	Common Sandpiper	MW	R	**Possible**	**Possible**			
Calidris melanotos	Pectoral Sandpiper	MW	R	**Possible**				
Calidris ruficapillus	Red-necked Stint	MW	-	**Possible**				
Tringa stagnatilis	Marsh Sandpiper, Little Greenshank	MW	-	**Possible**				

[1] EPBC Act status: Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Migratory Wetland (MW); Migratory Terrestrial (MT); Migratory Marine (MM).

[2] NPW Act status: Endangered (E); Vulnerable (V); Rare (R).

4.4.5 NPW Act listed threatened fauna

Fifty-seven NPW Act listed fauna species have recent and reliable records within the EP LMR Study Area (DEW 2025). Of these, 23 are also listed as threatened under the EPBC Act and were therefore assessed under Section 4.4.3. A further three species were excluded from assessment as their NPW Act listed subspecies' distributions are located outside of the regions associated with the Project. A further six NPW listed species are also listed as migratory species under the EPBC Act and where therefore addressed in Section 4.4.4 and are not assessed further here. Of the 25 species assessed in the LoO assessment, 20 are considered possible, likely, or known to occur in at least one habitat type within the construction footprint (or adjacent), as summarised in Table 4-43.

The BDBSA output for the SAAL LMR highlighted 104 NPW Act listed fauna species with recent and reliable records within the Study Area. Of these, 41 are also listed under the EPBC Act and were assessed as such. A further 16 species were excluded from assessment as their NPW Act listed subspecies' distributions are located outside of the regions associated with the project. Of the 47 species assessed, 27 are considered possible, likely, or known to occur in at least one habitat type within the construction footprint or adjacent, as summarised in Table 4-44.

Two NPW Act listed fauna were detected during surveys:

- Australian Bustard (*Ardeotis australis*) (V) – EP LMR
- Sooty Oystercatcher (*Haematopus fuliginosus fuliginosus*) (R) – EP LMR

A third species, the Pernatty Knob-tailed Gecko (*Nephrurus deleani*) (R), while not observed during surveys is considered known to occur in the vicinity of the construction footprint along the Carrapateena lateral, near Carrapateena Mine in sand dune habitats (EBS Ecology 2013).

All threatened species which were observed during field surveys are discussed further in Section 4.6.2 and Section 4.6.3.

Full likelihood of occurrence assessments for the species investigated are provided in Appendix C.

Table 4-43. Summary of the LoO assessment for NPW Act listed threatened fauna species potentially occurring in the EP LMR construction footprint. Excludes species also listed under the EPBC Act or considered unlikely to occur

Species	Common name	NPW Act status[1]	Coastal Saltmarsh/ Mangrove	Open Woodlands over Chenopod/ chenopod shrublands/ tall chenopod shrublands	Coastal Dunes/ Beaches
AVES					
Acanthiza iredalei iredalei	Slender-billed Thornbill (western)	R		Possible	
Anhinga novaehollandiae	Australian Darter	R			Possible
Ardea intermedia plumifera	Plumed Egret	R			Possible
Ardeotis australis	Australian Bustard	V		Known	
Bubulcus ibis coromandus	Eastern Cattle Egret	R			Possible
Cinclosoma castanotum	Chestnut quail-thrush (Chestnut-backed quail-thrush)	R		Possible	
Cladorhynchus leucocephalus	Banded Stilt	V	Likely		Likely
Corcorax melanorhamphos	White-winged Chough	R		Possible	
Egretta garzetta nigripes	Little Egret	R	Possible		Likely
Falco peregrinus macropus	Peregrine Falcon	R	Possible	Possible	Possible
Haematopus fuliginosus fuliginosus	Sooty Oystercatcher	R	Likely		Known
Haematopus longirostris	Pied Oystercatcher	R	Likely		Likely
Haliaeetus leucogaster	White-bellied Sea Eagle	E	Possible		Possible
Hylacola pyrrhopygia	Chestnut-rumped Heathwren	E		Likely	
Myiagra inquieta	Restless Flycatcher	R		Possible	
Pachycephala inornata	Gilbert's Whistler	R		Likely	
Podiceps cristatus australis	Great Crested Grebe	R	Possible		
Spatula rhychotis	Australian Shoveler	R	Possible		Possible
Sterna Hirundo longipennis	Common Tern	R			Possible
Zapornia tabuensis tabuensis	Spotless Crake	R	Possible		

[1] NPW Act status: Endangered (E); Vulnerable (V); Rare (R).

Table 4-44. Summary of the LoO assessment for NPW Act listed threatened fauna species potentially occurring in the SAAL LMR construction footprint. Excludes species also listed under the EPBC Act or considered unlikely to occur

Species	Common name	NPW Act status[1]	Ephemeral Creeks/ Drainage Lines	Tableland and inland saline depressions, inland samphire	Open Woodlands over chenopod/ chenopod shrublands/ tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of *Acacia* & Callitris	Grasslands/ Woodlands in Dune Swales
AVES							
Acanthiza iredalei iredalei	Slender-billed Thornbill (western)	R		**Likely**	**Likely**		
Ardeotis australis	Australian Bustard	V		**Likely**	**Likely**		**Likely**
Biziura lobata menziesi	Musk Duck	R	**Likely**	**Possible**			
Cladorhynchus leucocephalus	Banded Stilt	V	**Possible**				
Climacteris affins	White-browned Treecreeper	R			**Possible**		
Egretta garzetta nigripes	Little Egret	R	**Possible**				
Falco peregrinus macropus	Peregrine Falcon	R	**Possible**	**Possible (as flyover)**	**Possible**		**Possible**
Falco subniger	Black Falcon	R			**Possible (for hunting)**		**Possible (for hunting)**
Gerygone fusca	Western Gerygone	R	**Possible**		**Possible**		
Gerygone olivacea olivacea	White-throated Gerygone	R			**Possible**		
Haliaeetus leucogaster	White-bellied Sea Eagle	E	**Possible**				
Hamirostra melanosternon	Black-breasted Buzzard	R	**Possible**		**Possible**		
Hieraaetus morphnoides	Little Eagle	V			**Possible**		**Possible**
Hylacola cauta	Shy Heathwren	R			**Possible**		
Hylacola pyrrhopygia	Chestnut-rumped Heathwren	E			**Possible**		
Lophochroa leadbeateri mollis	Major Mitchell's Cockatoo / Pink Cockatoo	R			**Likely**	**Possible**	**Possible**
Neophema elegans elegans	Elegant Parrot	R		**Possible**	**Likely**	**Possible**	
Neophema splendida	Scarlet-chested Parrot	R			**Likely**	**Possible**	**Possible**

Species	Common name	NPW Act status[1]	Ephemeral Creeks/ Drainage Lines	Tableland and inland saline depressions, inland samphire	Open Woodlands over chenopod/ chenopod shrublands/ tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of *Acacia* & Callitris	Grasslands/ Woodlands in Dune Swales
Oxyura australis	Blue-billed Duck	R	**Possible**				
Pachycephala inornata	Gilbert's Whistler	R			**Possible**		
Phaps histrionica	Flock Bronzewing	R		**Possible**	**Possible**		**Possible**
Podiceps cristatus australis	Great Crested Grebe	R	**Possible**				
Spatula rhychotis	Australasian Shoveler	R	**Possible**				
Stictonetta naevosa	Freckled Duck	V	**Possible**				
Tringa glareola	Wood Sandpiper	R	**Possible**	**Possible**		**Possible**	
Zapornia tabuensis	Spotless Crake	R	**Possible**	**Possible**			
REPTILES							
Nephrurus deleani	Pernatty Knob-tailed Gecko	R				**Known (restricted to N and W of Pernatty Lagoon)**	

[1] NPW Act status: Endangered (E); Vulnerable (V); Rare (R).

4.5 LoO assessment of TECs

The following section summarises the TECs potentially occurring within the Study Area and incorporates findings of desktop and field assessments. The EPBC Act PMST output (sourced July 2025; refer Appendix A) highlighted three TECs with potential to occur within the Study Area:

- Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of SA (Critically Endangered)
- Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia (Endangered), and
- Subtropical and Temperate Coastal Saltmarsh (Vulnerable).

Of the three highlighted TECs, the LoO assessment found that two are considered unlikely to occur in the construction footprint and one, Subtropical and Temperate Coastal Saltmarsh, is known to occur in the Project Area and construction footprint within the EP LMR. The outcomes of the LoO assessment for Peppermint Box Woodland and Grey Box Woodland TECs are summarised in Table 4-45 and is considered sufficient to justify the 'unlikely to occur' outcome. Further information is provided on Subtropical and Temperate Coastal Saltmarsh in Section 4.6.1.

Table 4-45. LoO assessment for EPBC Act listed TECs Peppermint Box Grassy Woodland and Grey Box Grassy Woodland

Threatened Ecological Community	EPBC Act status	Likelihood of occurrence in EP LMR construction footprint	Likelihood of occurrence in SAAL LMR construction footprint
Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia	CE	PMST suggests TEC may occur in the Study Area (5 km buffer only). **Unlikely** This TEC has not been previously mapped (DEW 2025) within the Study Area within the EP LMR. The Project Area and therefore construction footprint within the EP LMR are outside of the area prescribed in the EPBC Act listing advice for the community (TSSC 2007), with the TEC not being known to occur west of Port Augusta. According to the EPBC Act listing advice (TSSC 2007), this community is known from the southern Flinders Ranges to Lake Alexandrina, with the majority of this community found in the Flinders-Lofty Block Bioregion. The nearest occurrences are from Mount Remarkable NP and Wapma Thura Southern Flinders Ranges NP to the east of Port Augusta and on the eastern side of the Upper Spencer Gulf. The TEC comprises an understorey of mainly grasses and herbs which can vary from a relatively dense and diverse layer, in more open sites, to a sparse layer under more densely wooded sites. Species that most often occur include Wallaby Grasses (*Austrodanthonia* spp.), Spear Grasses (*Austrostipa* spp.), Iron-grasses (*Lomandra* spp.) and Black-anther Flax Lily (*Dianella revoluta*). Shrubs are sparse in the	PMST suggests TEC likely to occur in the Study Area (50 km buffer only). **Unlikely** This TEC has been previously mapped (DEW 2025) within the Study Area within the SAAL LMR with occurrences near Mount Remarkable NP and Wapma Thura Southern Flinders Ranges NP. This is consistent with the known distribution of this TEC described in EPBC Act listing advice (TSSC 2007). While located within 50 km of the construction footprint (and therefore within the Study Area), these occurrences are located to the east of Port Augusta and on the eastern side of the Upper Spencer Gulf within the Flinders Lofty Block Bioregion and the Northern and Yorke LMR. In contrast, the construction footprint is west of Port Augusta and within the GAW and EYB Bioregions, and the SAAL (and EP) LMR. In the Project Area, Peppermint Box occurs in a mountain range with much higher rainfall (490 mm annual average) compared with the drier landscape (270 mm annual rainfall average).

Threatened Ecological Community	EPBC Act status	Likelihood of occurrence in EP LMR construction footprint	Likelihood of occurrence in SAAL LMR construction footprint
		understorey of this TEC with cover up to 30%, most common species being Sweet Bursaria (*Bursaria spinosa*) and Golden Wattle (*Acacia pycnantha*) (TSSC 2007).	This TEC has not been observed in the Project Area during field surveys and is considered unlikely to occur.
Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	EN	PMST did not identify this TEC as potentially occurring within the Study Area. **Unlikely** Not highlighted in PMST and not observed within the Project Area during field surveys.	PMST suggests this TEC is likely to occur in the Study Area (50 km buffer only). **Unlikely** This community has been observed in the Study Area previously (DEW 2025), within the 50 km buffer on the construction footprint, with disjunct occurrences known from the Flinders-Lofty Block Bioregion. However, Port Augusta is the westernmost extent for this TEC, as shown on mapping supporting the EPBC Act listing advice. The community occurs in higher rainfall areas near Adelaide and the Flinders Ranges. Therefore, the construction footprint is considered to occur outside of the known range of this TEC. This TEC has not been observed in the Project Area during field surveys.
Subtropical and Temperate Coastal Saltmarsh	VU	PMST suggests this TEC is likely to occur within the Study Area. **Known** Coastal saltmarsh qualifying as this TEC occurs in a narrow margin along the EP coast, and accounts for ~20% of the extent of the TEC within SA. By definition, to qualify as this TEC, coastal saltmarsh requires some tidal connection including inter-tidal and rarely inundated supra-tidal zones. Such zones are mapped around the coastline along Mullaquana Station (DEW 2026b).	PMST suggests this TEC is likely to occur in the Study Area (50 km buffer only). **Unlikely** The construction footprint within the SAAL LMR occurs inland, away from the coast, therefore this TEC is unlikely to occur in the construction footprint.

4.6 Literature review, observations and habitat mapping for key species and communities

The following section details the relevant background information, desktop assessment findings, field survey findings, and habitat mapping for each of the targeted species and TECs as well as some additional non-targeted species.

4.6.1 Target TECs

This section includes further information, assessment results and discussion for the TEC classified (through the LoO assessment detailed in Section 4.4) as known to occur in the construction footprint for at least one key habitat type.

4.6.1.1 Subtropical and Temperate Coastal Saltmarsh

This TEC consists mainly of salt-tolerant vegetation with succulent herbs, shrubs (e.g. Samphire species) and grasses, typically less than 0.5 m tall. The TEC often occurs in large areas behind open coastline of sheltered waters, such as in gulfs, which are under regular or intermittent tidal influences (DSEWPaC 2013b).

As mentioned in Section 3.3.1.1, Subtropical and Temperate Coastal Saltmarsh is listed as 'Vulnerable', and it does not qualify as a MNES for the purposes of Part 3 of the EPBC Act (requirements for environmental approvals), hence referral and approval under the EPBC Act is not required for impacts to this TEC. Regardless, design revision to avoid or reduce impacts to this TEC were considered throughout Project phases, given the TEC does provide suitable habitat for some threatened and migratory species, particularly when water is present.

4.6.1.1.1 Desktop assessment

The LoO assessment considers Subtropical and Temperate Coastal Saltmarsh to be known to occur within the construction footprint within the EP LMR and unlikely to occur within the construction footprint within the SAAL LMR.

4.6.1.1.2 Field results

The Subtropical and Temperate Coastal Saltmarsh TEC occurs within a relatively narrow margin of the Australian coastline inclusive of SA (DSEWPaC 2013b). Areas of intertidal, supratidal and stranded tidal samphire (saltmarsh) are mapped along the coast in proximity to the construction footprint within the EP LMR between Mullaquana Station and Whyalla (DEW 2026b).

During field survey, the coastal saltmarsh TEC was confirmed within the entire extent of BAM (VA) 145 within the Project Area (Figure 4-2). This area is considered to qualify as the TEC as it meets the listing criteria in terms of floristic and structural composition and patch size and intersects areas of intertidal and supratidal saltmarsh mapped in NatureMaps (DEW 2026b) and is therefore likely to experience some tidal influence as required by the listing criteria. The Project Area intersects the TEC for approximately 230 m of the intake pipe. However, construction is not anticipated to impact the TEC due to the tunnelling construction method for the intake and outfall pipe infrastructure within this location.

Coastal saltmarsh also provides suitable habitat for threatened and migratory shorebirds listed under the EPBC and NPW Acts. However, no clearance of this coastal saltmarsh habitat is expected due to the aforementioned tunnelling construction method.

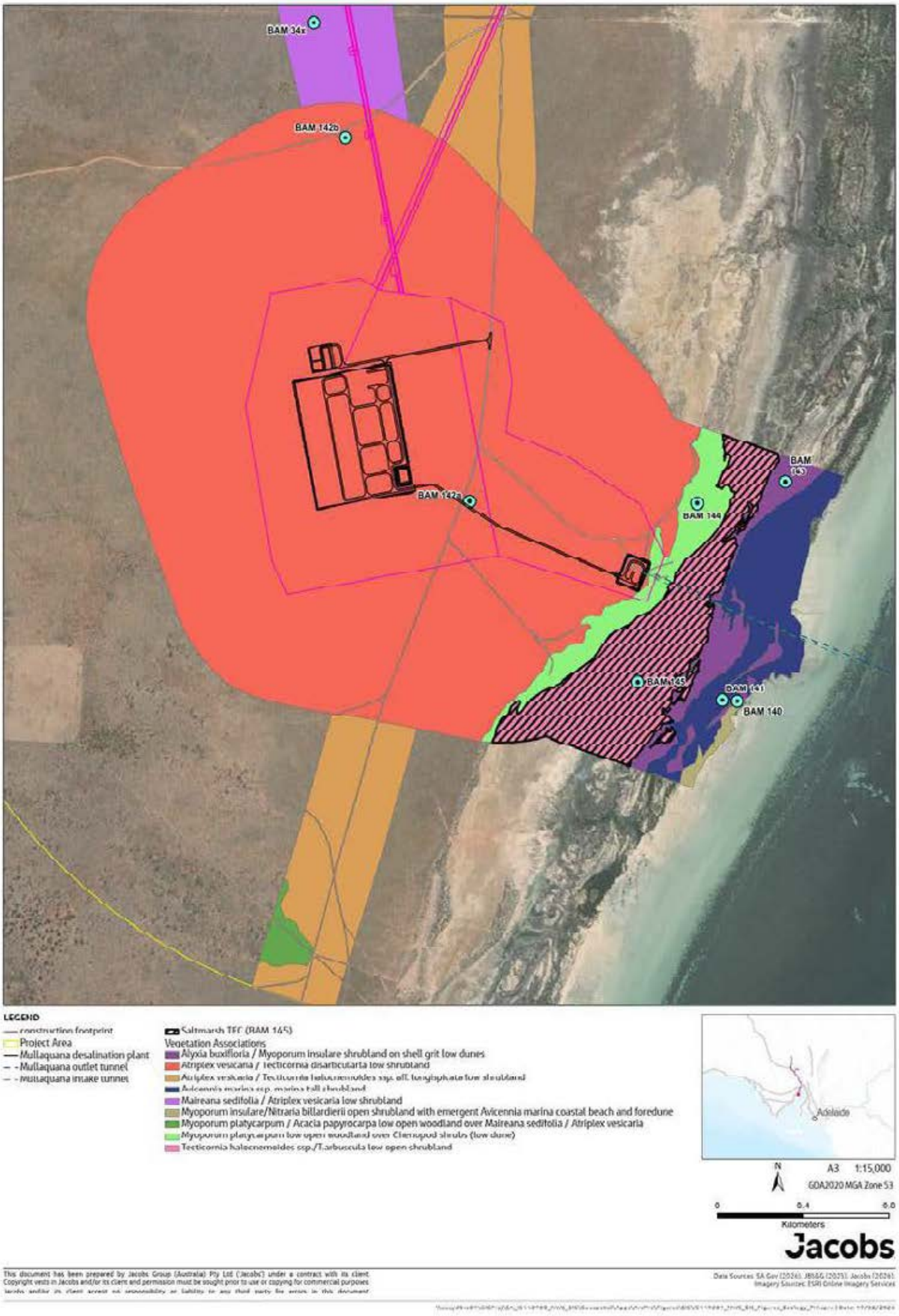


Figure 4-1. Mapped area of Subtropical and Temperate Coastal Saltmarsh TEC at BAM 145



Figure 4-2. Subtropical and Temperate Coastal Saltmarsh TEC at BAM 145

4.6.2 Target threatened species

This section includes further information, assessment results and discussion for the EPBC and NPW Act listed flora and fauna species classified (through the LoO assessment detailed in Section 4.4) as known or likely to occur in the construction footprint for at least one key habitat type. Targeted threatened species were chosen as the LoO assessment identified highly suitable widespread habitat for these species within the construction footprint and subsequent targeted surveys for each species were conducted.

This section also includes habitat mapping undertaken for target EPBC Act listed fauna species where there was potential for the species to occur in the construction footprint (with a focus on species known to occur), the species had specific habitat requirements over a limited range or extent, and / or it was considered feasible that habitat could be tied to vegetation mapping for the Project and mapped to a reasonable and useful level. These includes:

- Western Grasswren
- Southern Whiteface
- Plains Mouse
- Threatened and / or migratory shorebirds

Habitat mapping was not undertaken for EPBC listed flora species as the LoO suggests they are unlikely to occur within the construction footprint. It was also not undertaken for other EPBC Act listed fauna species identified as having potential to occur in the construction footprint as they have more variable and

widespread habitat preferences and distributions compared with (the above) species selected for habitat mapping as this mapping output would have limited use or value. The only exception to this was Southern Whiteface, which was selected for habitat mapping despite having a broad habitat range, due to the large number of detections of this species during surveys.

Additional mapping and classification (not included in this report) has been undertaken for Plains Mouse to provide more granular habitat mapping (e.g. large gilgais and cracking clays) (refer Lathwida 2024a).

Appendices B.6, B.7, B.8 and B.9 include a map series showing the location and broad extent of habitat (classified by suitability categories determined appropriate for each species).

4.6.2.1 Western Grasswren (*Amytornis textilis myall*)

4.6.2.1.1 Desktop assessment

Western Grasswren is listed as Vulnerable under the EPBC Act and NPW Act. There are 218 recent and reliable BDBSA and BL records (1999-2024) identified for Western Grasswren within the Study Area in the EP LMR, predominantly occurring within 2 km of the construction footprint at Whyalla CP. Within the SAAL LMR there are 390 recent and reliable BDBSA and BL records (1999-2024) identified for Western Grasswren. However, due to the 50 km buffer which extends into the EP LMR, 234 of these occur within the EP LMR (some of which occur >5 km from the construction footprint and as such were not highlighted in the EP LMR records).

Western Grasswren was assessed as:

- Known in one habitat type (open woodlands over chenopod/ chenopod shrublands/ tall chenopod shrublands) in the construction footprint in EP LMR.
- Known in two habitat types (ephemeral creeks / drainage lines; open woodlands over chenopod/ chenopod shrublands/ tall shrublands of Senna, Mulga on plains) in the construction footprint in SAAL LMR.
- Likely in one habitat type (low dunes and dune crests of Acacia and Callitris*)* in the construction footprint in SAAL LMR (limited to RAM 3 and RAM 42 due to suitable understorey characteristics).
- Possible in two habitat types (tableland and inland saline depressions / inland samphire; grasslands / woodlands in dune swales) in the construction footprint in SAAL LMR.

The Western Grasswren is a small endemic songbird species occurring in two widely geographically separated populations recognised with subspecies status, *Amytornis textilis myall,* in the Gawler ranges in SA (relevant to this Project Area) and *Amytornis textilis textilis* which occurs in semi-arid shrubland on coastal dunes, plains and drainage lines in Western Australia (Higgins et al. 2001). The relevant subspecies distribution is limited to areas of suitable habitat on the western side of Spencer Gulf in SA (Rowley et al. 2020). All reference to Western Grasswren in this investigation refers exclusively to *A. textilis myall* and not the western subspecies, *Amytornis textilis textilis.*

The Western Grasswren was officially separated from the Thick-billed Grasswren in 2009. Prior to this, the elusive nature and sparse occurrence across its preferred habitat resulted in the species being poorly recognised and understood. The species inhabits arid and semi-arid shrublands with preferred habitats evidently containing various combinations of saltbush, bluebush and wattles. It may disperse short distances from the natal territory after fledging but further studies are needed to determine precise distances (current maximum recorded dispersal is 400 m). The species is otherwise sedentary and exhibits no migratory movements or nomadic responses to resource fluctuations. Breeding behaviour is poorly described but is thought to occur during late June through to September with monogamous pairs or groups requiring a territory of around one hectare in optimal seasons. Nests are often formed within low chenopod shrubs such as saltbush and Black Bluebush where two to three eggs are laid per breeding pair (Higgins et al. 2001).

Preferred habitat is characterised by moderate to high shrub cover with dense, tall chenopod or spiny shrubs, typically around drainage-lines where shrub density and structural complexity are greatest (Black et al. 2009). Atypical habitat still supports the species at lower shrub cover levels, often outside drainage lines, but remains suitable where dense patches of spiny shrubs provide a "high cover" refuge, particularly within otherwise connected landscapes (Black et al. 2009). As shrub cover declines further, habitat becomes less suitable. Low-potential areas (<15% cover or sparse/short shrubs) lack sufficient structure, while unsuitable habitat (<1% shrub cover) lacks the vegetation complexity required for shelter, nesting, and predator avoidance (Black et al. 2009) (for detailed Western Grasswren habitat criteria, refer to Table 3-6).

In areas of preferred habitat, the Western Grasswren can become abundant. The total subspecies population has been estimated at around 8,400 individuals (Garnett et al. 2011) spread across more than 10 locations (Higgins et al. 2001). Despite probably never being widely distributed, the species has suffered range contraction due to overgrazing from introduced species and predation by feral cats (Rowley et al. 2020). Other potential threats include quarrying and mineral extraction operations (Rowley et al. 2020) and military use including high explosive munitions activities.

4.6.2.1.2 Field survey

Western Grasswren were observed during Jacobs surveys through observation of individuals and detection of calls (through song meter recordings and timed area searches). Observations were made at a number of locations around Whyalla although generally confined to an area between Mullaquana Station and Whyalla CP. Hotspots were located predominantly north of Whyalla in the area also subject to assessment for the Hydrogen Jobs Plan (HJP) Project and west of Whyalla in high quality vegetation used for recreation (these locations are both now avoided by the construction footprint). The species was also observed at an earlier desalination plant location at Mullaquana Station, south-west of the current construction footprint.

Potential habitat (preferred, atypical, low suitability) for the species was observed throughout the entire southern portion of the Project Area, ranging from north-east of Port Augusta to Mullaquana (and extending below). Habitat mapping for this species is discussed in Section 4.6.2.1.3 and extent shown in Appendix B. Western Grasswren were observed in chenopod shrubland with Black Bluebush, which is considered preferred habitat for the species, as well as in Pearl Bluebush considered atypical, but still suitable habitat for the species. Overall, the species seems to prefer areas with structural diversity and mid-storey shrubs and were particularly abundant in ungrazed areas near the Whyalla water tanks (even with low density of Black Bluebush) and west of Whyalla in Wilsons Pastoral with foliage of palatable species such as Leafless Cherry *(Exocarpos aphyllus)* and Bullock Bush to the ground.

Western Grasswren observations are summarised in Table 4-46, whilst spectrograms extracted from song meters displaying recording of the calls of Western Grasswren are provided in Figure 4-3 and Figure 4-4.

Table 4-46. Summary details of Western Grasswren (*Amytornis textilis myall*) detection.

Site name[1]	Date	Details	General location	Habitat type
TA27*	October 2022	5-6 birds; 2 observed, others heard	South-west of Whyalla township	*Senna* shrubland over broad drainage line
TA29*	October 2022	1-2 individuals heard	South-west of Whyalla township	Possibly open woodlands of Western Myall / Black Oak / Sugarwood
TA32*	October 2022	3-4 birds; 2-3 individuals heard, another observed	South-west of Whyalla township	Possibly open woodlands of Western Myall / Black Oak / Sugarwood
TA59*	October 2022	3-4 birds; 2 individuals observed, others heard	South-west of Whyalla township	Possibly open woodlands of Western Myall / Black Oak / Sugarwood

Site name[1]	Date	Details	General location	Habitat type
TA70*	October 2022	5-6 individuals observed	Whyalla water tanks	Myoporum over *Maireana sedifolia,* tending to shrubland
SM7*	October 2022	1 heard	North of Whyalla water tanks	*Acacia papyrocarpa* low very open woodland over *Maireana pyramidata / Maireana sedifolia / Atriplex vesicaria*
TA43	December 2022	Only a potential sighting	DoD land south of Port Augusta	Sandy drainage line with *Acacia papyrocarpa / Casuarina pauper* / open woodland over *Maireana pyramidata* and tall shrubland (*Acacia ligulata / Acacia burkittii / Senna* spp) +/- *Callitris gracilis*
TA46	December 2022	1 individual observed in response to callback	Nonowie North of Lincoln Highway	Mixed shrubland and chenopod shrubland.
TA51	December 2022	2 individuals sighted	Nonowie South of Lincoln Highway	Dense *Maireana pyramidata* low open shrubland
TA52*	December 2022	1 individual sighted	Whyalla water tanks	*Maireana pyramidata / Sida petrophila* shrubland with emergent *Acacia papyrocaroa / Myoporum platycarpum*
SM17*	December 2022	Unknown number heard on song meter	Mullaquana Station	Possibly *Atriplex vesicaria / Tecticornia halocnemoides* ssp. / aff. *longispicata* low shrubland
SM19*	December 2022	Unknown number heard on song meter	South-west of Whyalla	Possibly open woodlands of Western Myall / Black Oak / Sugarwood
TA87	August 2025	2 individuals observed	Nonowie North of Lincoln Highway	*Maireana sedifolia* open shrubland +/- isolated *Acacia papyrocarpa*
TA88	August 2025	1 individual observed	Nonowie North of Lincoln Highway	*Maireana sedifolia / Atriplex* low open shrubland +/- emergent tall mixed shrubs (*Alectryon oleifolius / Eremophila spp. / Senna spp.)* +/- *Acacia papyrocarpa*
SM30	August 2025	Unknown number heard on song meter	Nonowie South of Lincoln Highway	*Maireana pyramidata / Atriplex vesicaria* open shrubland +/- *Maireana sedifolia*
Opportunistic*	October 2022	3 individuals heard	Whyalla water tanks	*Myoporum platycarpum* low very open woodland over dense shrubs on stony hill
Opportunistic*	October 2022	1 individual observed	Whyalla water tanks	*Myoporum platycarpum* low very open woodland over *Maireana pyramidata* – high quality habitat.
Opportunistic*	October 2022	2-3 individuals heard	South-west of Whyalla	Atypical / preferred habitat; drainage line
Opportunistic*	September 2023	1 individual observed	Northeast of Boral Quarries	Not recorded
Opportunistic*	February 2024	1 individual observed	Whyalla water tanks	*Maireana pyramidata / Sida petrophila* shrubland with emergent

Site name[1]	Date	Details	General location	Habitat type
				Acacia papyrocarpa / Myoporum platycarpum
Opportunistic*	February 2024	2 individuals observed	South of Boral Quarries	Not recorded
Opportunistic*	February 2024	1 individual observed	South of Boral Quarries	*Acacia papyrocarpa* low very open woodland over mixed chenopods *(Maireana sedifolia / Maireana pyramidata / Atriplex vesicaria)*

[1]TA/SM = Timed area / song meter survey location number

*Refers to detections of Western Grasswren at locations associated with a previous version of the construction footprint, that are no longer impacted by the current construction footprint.

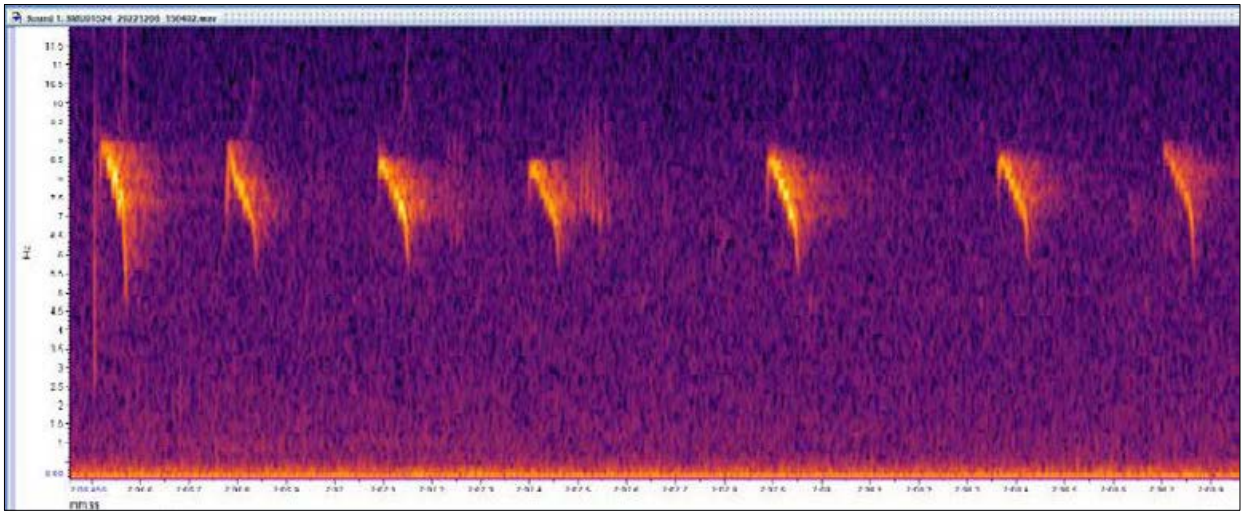


Figure 4-3. Spectrogram of recorded contact calls of Western Grasswren

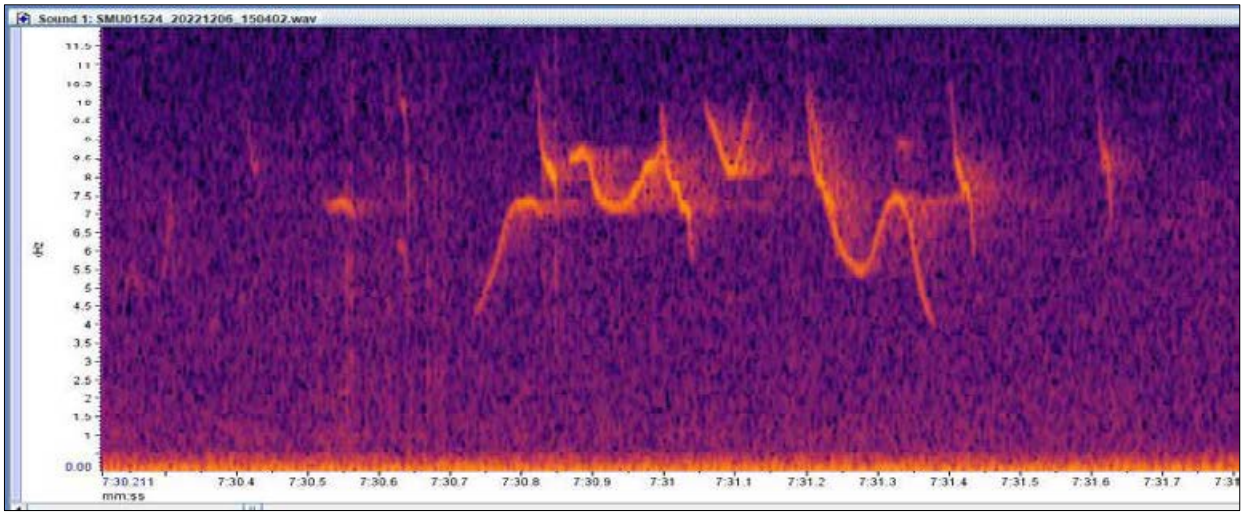


Figure 4-4. Spectrogram of recorded 'song' of Western Grasswren

4.6.2.1.3 Habitat mapping

Within the Project Area in the EP LMR, habitat for the Western Grasswren is present predominantly surrounding Whyalla CP and north of the Whyalla township approaching the Whyalla water tanks. More fragmented patches are also located west of Whyalla and to the west of Cowleds Landing nearby Mullaquana

Station. Preferred habitat extends from the EP LMR through to the SAAL LMR, where it mosaics around atypical and low potential habitat extending to the west of Port Augusta near Lincoln Gap. Other potential habitat within the Project Area (atypical, low potential) occurs relatively continuously, aside from patches of preferred habitat, from north of Carriewerloo in the SAAL LMR to Mullaquana Station in the EP LMR in the transfer system and electricity infrastructure locations. While the desalination plant site was conservatively assessed as providing atypical habitat for the species, targeted and extensive survey efforts did not detect Western Grasswren at the desalination plant site within the Project Area. Furthermore, vegetation at the desalination plant was only conservatively classified as atypical habitat but vegetation lacks the structural characteristics typically associated with key breeding or foraging habitat including the density and height of chenopod shrubs. Vegetation in the desalination plant site is dominated by Bladder Saltbush and Grey Samphire with only sparse Black Bluebush and Pearl Bluebush which are preferred by the species.

Western Grasswren were detected in areas contiguous with the broader Project Area around the desalination plant, including locations approximately 4.6 km and 4.8 km south of the desalination plant site. However, the habitat within the proposed construction footprint in the desalination plant is unlikely to support core populations or serve as important breeding habitat. Opportunistic use by Western Grasswren during periods of high abundance or favourable conditions cannot be excluded, however the Mullaquana Station desalination plant site does not represent optimal habitat.

The extent of each habitat category for Western Grasswren is summarised in Table 4-47. Western Grasswren habitat distribution within the construction footprint and detailed mapping series is provided in Appendix B.6. Approximately 456.94 ha of suitable habitat (preferred, atypical and low potential) occurs within the EP LMR construction footprint and 290.49 ha in the SAAL LMR construction footprint. The remaining 1243.02 ha of the construction footprint is considered not suitable or outside the known range of this species.

Table 4-47. Western Grasswren habitat distribution within the construction footprint

Habitat suitability category	Approximate area in EP LMR construction footprint	Approximate area in SAAL LMR construction footprint	Approximate area in total construction footprint
Preferred	13.58	122.12	135.70
Atypical (water transfer system / electricity infrastructure)	192.69	73.47	266.16
*Atypical (marginal) (desalination plant site)	188.86	NA	188.86
Low potential	61.81	94.90	156.71
Not suitable	1.28	-	1.28
Outside known range	-	1,243.02	1,243.02
Area in hectares (ha)			

*Habitat suitability in the desalination plant area was conservatively classified as atypical habitat, however it was considered only marginally atypical with low Bladder Saltbush and Grey Samphire dominating and only occasional Black Bluebush and Pearl Bluebush which are preferred by the species. The species may occasionally visit the area but it is not optimal habitat and it is considered highly unlikely the species would breed in the area.

4.6.2.2 Plains Mouse (*Pseudomys australis*)

4.6.2.2.1 Desktop assessment

Plains Mouse is listed as Vulnerable under the EPBC Act and NPW Act. There are 720 BDBSA records for Plains Mouse in the Study Area in the SAAL LMR, largely within the Arid Recovery Reserve area north of the construction footprint. Other records are located near Woomera and Island Lagoon, as well as around the Carrapateena Mine site (15 record locations of 1-6 individuals) (DEW 2025).

Plains Mouse was assessed as:

- Likely in one habitat type (tableland and inland saline depressions / inland samphire) in the construction footprint in SAAL LMR.
- Possible in one habitat type (grasslands / woodlands in dune swales) in the construction footprint in SAAL LMR (as boom habitat only).
- This species is thought to occupy areas of tableland through the northern portion of the construction footprint (Carrapateena Junction to Carrapateena and Roxby Downs). However, the species occurs more widely during irruption periods and has not been detected during recent years in some of these locations.
- Not observed during surveys, but numerous records (including within the construction footprint) and suitable habitat present in the northern extent of the Project Area, including within the construction footprint.

The Plains Mouse is a small to mid-sized rodent native to arid and semi-arid areas of SA. The species' preferred habitat is characterised by gibber, stony desert plains, small boulders and gilgais (Brandle and Moseby 1999). The Arcoona Tableland (part of which occurs with the Project Area) represents one of the five broad geographic zones considered to comprise the bulk of the remaining high-value habitat for extant populations of the species (the other four regions are southern Lake Eyre, the Moon Plains of SA, the Oodnadatta and Witjira NP region, and Andado Station and Mac Clark Conservation Reserve in the southern NT (Moseby 2012)).

Habitats typical of the Arcoona Tableland include cracking clay, minor drainage lines ephemeral grasslands and ephemeral Cane-grass swamps. Areas of higher shelter value (cracking clays, gilgais and Swamp Cane-grass) may represent refugia into which Plains Mice may retreat during unfavourable seasons. Following rains, the species may rapidly spread outwards again from these areas in a process called irruption, sometimes into habitat types and areas not typically associated with the species (Pavey et. al. 2014, Young et. al. 2017).

The species spends most of its time in extensive shallow tunnel systems beneath the surface. This species is highly social and lives in colonies which can extend over 40 km long and 1 km wide underground (Watts and Aslin 1981). It emerges at night to feed on seeds, fibrous plant stems and arthropod prey. Several other small mammal species are known to co-exist with the Plains Mouse, such as the Fat-tailed Dunnart (*Sminthopsis crassicaudata*) and Giles' Planigale (*Planigale gilesi*). They will breed at any time of year in response to resource availability and, during consecutive years of good rainfall, their lifespan may be as long as 4.5 years. In counterpoint to this, during poor years, individuals may perish after only one year (Brandle and Pavey 2013).

Although the key threats to the Plains Mouse have not been clearly identified, it has been suggested that predation by introduced cats and foxes is a major threat to this species particularly during dry periods when the populations are contracted and more vulnerable to extinction. Habitat degradation because of stock grazing may also be a major threatening process. Gilgais, a key habitat for Plains Mouse, frequently attract high densities of stock which can result in the removal of vegetation cover, trampling of burrows and siltation of cracks. It has been noted that efforts to increase stock watering points in pastoral areas of South Australia may also worsen this threat as more habitats become subjected to stock grazing (Davies et al. 2010). As a

result, Plains Mouse populations in gilgai areas are under the greatest threat more so than those in cracking clay plains, Swamp Cane-grass and minor drainage lines (Davies et al. 2010).

4.6.2.2.2 Field survey

Plains Mouse was not observed during Jacobs surveys (noting that observations would generally require active trapping). Potentially suitable habitat for this species occurs in large areas of gibber plain on the Arcoona Plateau (flat to undulating plains with chenopod low open shrubland) within the Study Area. However, the species is most likely to occur in areas with greater densities of gilgais identified from Lake Pernatty to Pimba and from Pimba to 50 km south of Olympic Dam and particularly areas with cracking clays. Cane-grass swamps and other drainage lines may also support a higher density of refugia when they have deep soil cracks. Some gilgais observed within the Project Area contained large cracks providing potentially valuable habitat, but it was noted that small Swamp Cane-grasslands observed in the Project Area during survey generally did not have these habitat types. Targeted trapping surveys for this species were not undertaken but high-level habitat assessments were conducted to verify potentially suitable areas for the species within the Project Area. The Arcoona Plateau is vast beyond the Project Area and as such, the entire region may provide suitable habitat for the species despite lacking records.

4.6.2.2.3 Habitat mapping

Suitable Plains Mouse habitat occurs in the SAAL LMR Project Area in vast patches spanning from Kootaberra north to Olympic Dam, becoming more fragmented approaching Roxby Downs. These patches are broken by larger areas of unsuitable habitat near Purple Downs and north of Pernatty Lagoon both along the Stuart Highway and Carrapateena Lateral branch.

Following periods of high rainfall, areas currently mapped as not suitable may become heavily vegetated and cause population booms of Plains Mouse (Moseby 2012). Some dune swales containing Swamp Cane-grass and other swale communities in the Roxby Downs area may also provide limited potential habitat during favourable periods. However, cracking clays were observed to be limited through these areas (based on field survey at RAM sites and limited rapid mapping points undertaken on foot).

Preliminary generic habitat mapping presented here for the Plains Mouse is representative of broad-scale potential habitat classification based on large-scale vegetation mapping. As such, variabilities within the habitat across such a vast area (such as individual gilgais or areas of deep cracking clays) were not mapped.

Broadly it was estimated that no suitable habitat occurs within the EP LMR construction footprint and 809.16 ha of suitable habitat occurs in the SAAL LMR construction footprint. The extent of broadly suitable habitat of each category mapped for Plains Mouse is documented in Table 4-48 and detailed mapping series is provided in Appendix B.9. This includes very broad habitats considered suitable during irruptive / boom periods.

Further work has been done by Lathwida to provide additional granularity for habitat suitability for this species at a more localised and specific scale (refer Lathwida 2024a). Such granular mapping separates habitat suitability into preferred critical refuge habitat and generic irruptive/boom habitat.

Table 4-48. Potential Plains Mouse broad-scale habitat distribution within construction footprint

Habitat suitability category	Approximate area in EP LMR construction footprint	Approximate area in SAAL LMR construction footprint	Approximate area in Project construction footprint
Suitable	-	809.16	809.16
Not suitable	-	242.39	242.39
Outside known range	458.21	481.96	940.17
Area in hectares (ha)			

4.6.2.3 Southern Whiteface (*Aphelocephala leucopsis leucopsis*)

4.6.2.3.1 Desktop assessment

Southern Whiteface (South-eastern subspecies) is listed as Vulnerable under the EPBC Act. There are 1,030 BDBSA and BL records identified within the Study Area for this species, listing 1-15 individuals at each record. Records are scattered throughout the Study Area with a small gap north of Woomera. Two clusters are present surrounding Roxby Downs in the SAAL LMR and Whyalla CP and township in the EP LMR.

Southern Whiteface was assessed as:

- Known to occur in one habitat type (open woodlands over chenopod/ chenopod shrublands/ tall chenopod shrublands) in the construction footprint in EP LMR.
- Known to occur in three habitat types (open woodlands over chenopod / chenopod shrublands / tall shrublands of Senna, Mulga on plains; low dunes and dune crests of Acacia & Callitris; grasslands / woodlands in dune swales) in the construction footprint in SAAL LMR.
- Likely to occur in two habitat types (ephemeral creeks/ drainage lines; tableland and inland saline depressions / inland samphire) in the construction footprint in SAAL LMR.

Southern Whiteface (South-eastern subspecies) was listed as Vulnerable under the EPBC Act on 31 March 2023 as the population has declined substantially by an estimated 30 to 50% every ten years since 1999, with no indication that the declines are slowing (Ehmke et al. 2021). However, this species does not have a conservation rating in SA and is broadly present across the State, with frequent detections recorded during field surveys. There is a second subspecies of Southern Whiteface (South-western subspecies (*A. l. castaneiventris*)) which is not listed under State or federal legislation and is therefore not referred to in this report.

The Southern Whiteface is a small, widespread songbird species endemic to Australia. It is very broadly distributed and can be found in a range of habitats, mostly below the tropics, from coastal and near coastal areas to the most inland areas of the continent. It predominantly occupies arid and semi-arid biomes, favouring habitats characterised by Wattles, Native pines and mallee scrubland, woodland, and shrubland communities with an understorey of grass and low shrubs such as saltbush, bluebush, and Emu Bush (Ehmke 2021). As a mostly insectivorous species, the Southern Whiteface subsists primarily on a diet comprising various arthropods and their larval progeny, gleaned from foliage and terrestrial substrates. Opportunistic consumption of seeds, fungi and small fruits may augment dietary intake, particularly when insect prey is less available. It is frequently observed in mixed-species foraging flocks with similar-sized and congeneric species (Menkhorst et al. 2019).

The species constructs its own nest which is usually lodged in a tree hollow or other similar cavity or sometimes in low bushes. As such, availability of nest holes is highly important for breeding success. Breeding has been recorded in all months but is significantly affected by rainfall in arid regions and shows peaks around July-November and again in March-April. Little is known about the species' social structure but breeding often occurs in pairs, although observations of co-operative breeding with up to four individuals has

been observed. A clutch size is typically 3-4 eggs with the young fledging between 14-19 days after hatching. It is also not uncommon for breeding pairs to raise several broods in a season (Higgins et al. 2002).

The species has declined in some areas but is locally quite common albeit patchily distributed. Habitat degradation and loss of nesting hollows due to human influences such as deforestation, pastoral activity, and urban encroachment are likely causes of any declines along with direct and nest predation by introduced cats and rats. Increasing frequency and likelihood of droughts, wildfire and heatwaves is also considered a likely threat to this species and its habitat, although it is not fully known how these weather events will affect Southern Whiteface survival (Gregory 2020).

4.6.2.3.2 Field survey

Southern Whiteface was not a target species for the 2021-2023 surveys, due to its listing under the EPBC Act (March 2023) occurring post survey design and after most fauna survey work had been completed. However, given its behaviour, wide distribution and occurrence in a range of habitat types (including those suitable for Western Grasswren) it is considered that the implemented survey effort (bird surveys and deployment of song meters) was suitable to detect this species if it was present where efforts were concentrated. All three 2025 surveys targeted Southern Whiteface and verified vegetation suitable to provide habitat to the species.

The species was detected at 29 sites during Jacobs surveys, including during timed area searches at 21 sites, via song meters at six sites and opportunistic observations at two sites. In the EP LMR Southern Whiteface was detected during surveys (either through observations or calls heard) at 12 sites, detected through song meter deployment at an additional six sites and observed opportunistically at two sites. In the SAAL LMR Southern Whiteface was detected during timed area searches at nine sites in the northern extent of the Project Area and near Port Augusta. The species was also observed north of Whyalla during survey for the HJP Project (EBS Ecology 2023). Observation records and details are shown in Table 4-49.

Table 4-49. Summary details of Southern Whiteface (*Aphelocephala leucopsis*) detection.

Site name[1]	Date	General location	LMR	Habitat type
TA12	October 2022	Coorlay Lagoon (south of Roxby Downs)	SAAL	Dune swales with open woodlands / shrublands and tussock grassland
TA13	October 2022	Lake Mary (south of Roxby Downs)	SAAL	Dune crest with *Acacia ligulata / Dodonaea viscosa +/- Callitris glaucophylla* tall open shrubland
TA15	October 2022	Olympic Dam airport	SAAL	Dune crest with *Acacia ligulata / Dodonaea viscosa +/- Callitris glaucophylla* tall open shrubland
TA18	October 2022	Olympic Dam airport	SAAL	Dune crest with *Acacia ligulata / Dodonaea viscosa +/- Callitris glaucophylla* tall open shrubland
TA20	October 2022	Roxby Downs	SAAL	Run-on depression with *Eragrostis australasica* tall grassland and chenopod shrubs
TA21	October 2022	Olympic Dam airport	SAAL	Dune swales with open woodlands / shrublands and tussock grassland
TA26	October 2022	Roxby Downs	SAAL	Dune crest with *Acacia ligulata / Dodonaea viscosa +/- Callitris glaucophylla* tall open shrubland
TA54*	October 2022	South of Mullaquana Station	EP	Unknown (previous mapping)
TA55*	October 2022	South of Mullaquana Station	EP	Unknown (previous mapping)

Site name[1]	Date	General location	LMR	Habitat type
TA57*	October 2022	Murninnie	EP	Unknown (previous mapping)
TA6	October 2022	Olympic Dam airport	SAAL	Dune crest with *Acacia ligulata / Dodonaea viscosa +/- Callitris glaucophylla* tall open shrubland
TA61*	October 2022	Murninnie	EP	Unknown
TA64	October 2022	Lake Dempsey	EP	*Maireana astrotricha* low shrubland +/- *Tecticornia medullosa / Atriplex vesicaria*
TA71	October 2022	Mullaquana	EP	Unknown (previous mapping)
TA73	October 2022	Lake Dempsey	EP	*Maireana pyramidata* low open shrubland +/- *Maireana sedifolia / Atriplex vesicaria*
TA9	October 2022	Olympic Dam airport	SAAL	Dune swales with open woodlands / shrublands and tussock grassland
TA50*	December 2022	South of Mullaquana Station	EP	Unknown (previous mapping)
SM17*	December 2022	South of Mullaquana Station	EP	Possibly *Atriplex vesicaria / Tecticornia halocnemoides* ssp. / aff. *longispicata* low shrubland
SM18*	December 2022	South of Mullaquana Station	EP	Unknown (previous mapping)
SM19	December 2022	Southwest of Whyalla	EP	Possibly open woodlands of Western Myall / Black Oak / Sugarwood
SM20	December 2022	Nonowie, south of Lincoln Highway	EP	Dense *Maireana pyramidata* low open shrubland
TA95	August 2025	DoD land south of Port Augusta	EP	*Maireana pyramidata / M. sedifolia* low open shrubland with emergent *Acacia burkittii*
TA87	August 2025	Nonowie, north of Lincoln Highway	EP	*Maireana sedifolia* open shrubland +/- isolated *Acacia papyrocarpa*
TA88	August 2025	Nonowie, north of Lincoln Highway	EP	*Maireana sedifolia / Atriplex* low open shrubland +/- emergent tall mixed shrubs (*Alectryon oleifolius / Eremophila* spp. / *Senna* spp.) +/- *Acacia papyrocarpa*
TA92	August 2025	Murrippi Beach	EP	*Maireana pyramidata / Atriplex vesicaria* open shrubland +/- *Maireana sedifolia*
SM29	August 2025	Murrippi Beach	EP	*Maireana pyramidata / Atriplex vesicaria* open shrubland +/- *Maireana sedifolia*
SM30	August 2025	Northwest of Murrippi Beach	EP	*Maireana pyramidata / Atriplex vesicaria* open shrubland +/- *Maireana sedifolia*
Opportunistic	August 2025	Nonowie, north of Lincoln Highway – nearby TA88	EP	*Maireana sedifolia / Atriplex* low open shrubland +/- emergent tall mixed shrubs (*Alectryon oleifolius / Eremophila* spp. / *Senna* spp.) +/- *Acacia papyrocarpa*
Opportunistic	August 2025	Mullaquana Station	EP	*Maireana sedifolia / Atriplex vesicaria* low shrubland

[1]TA/SM = Timed area / song meter survey location number

*Refers to detections of Southern Whiteface at locations associated with a previous version of the construction footprint, that are no longer impacted by the current construction footprint.

4.6.2.3.3 Habitat Mapping

Suitable habitat for Southern Whiteface is widespread throughout the Project Area in both the SAAL and EP LMRs, noting that the species also has a widespread distribution throughout the Project Area.
Around the Woomera area, suitable habitat becomes sparser as treeless plains become more dominant, however ephemeral creeks may provide habitat throughout the area. Other small but notable areas of unsuitable habitat occur north of Purple Downs, north of Pernatty Lagoon, and west of Port Augusta. Besides the small mangrove coastal saltmarsh patches at Mullaquana Station, the entire EP LMR is mapped as suitable for the Southern Whiteface.

Broadly it was estimated that 458.12 ha of suitable habitat occurs within the EP LMR construction footprint and 876.96 ha of suitable habitat occurs in the SAAL LMR construction footprint. The extent of habitat of each category mapped for Southern Whiteface is documented in Table 4-50 and detailed mapping series is provided in Appendix B.8.

Table 4-50. Potential Southern Whiteface habitat distribution within construction footprint

Habitat suitability category	Approximate area in EP LMR construction footprint	Approximate area in SAAL LMR construction footprint	Approximate area in Project construction footprint
Suitable	458.21	876.96	1,335.17
Not suitable	-	656.55	656.55
Area in hectares (ha)			

4.6.2.4 Migratory birds

4.6.2.4.1 Desktop assessment

Several migratory shorebirds and one raptor identified as potentially occurring within the construction footprint are protected under the EPBC Act as a listed migratory species and / or threatened species. Several other shorebird species identified as potentially occurring within the construction footprint are also protected as they are listed as threatened under the NPW Act. Most records for these species occur within 'Coastal Saltmarsh, Coastal Samphire / Mangrove habitats' as well as 'Coastal Dunes and Beaches' within the EP LMR. Several records are also present for some of these species within the 'Ephemeral Creeks / Drainage Lines and Tableland' and 'Inland Saline Depressions / Inland Samphire' within the SAAL LMR.

The threatened and /or migratory species which were identified as likely or possibly occurring in the above-mentioned habitat types within the construction footprint, were targeted for field assessment, and include:

- Bar-tailed Godwit (*Limosa lapponica*) (EPBC: MW, EN)
- Black-tailed Godwit (*Limosa limosa melanuroides*) (EPBC: MW, EN)
- Common Greenshank (*Tringa nebularia*) (EPBC: MW, EN)
- Common Sandpiper (*Actitis hypoleucos*) (EPBC: MW) (NPW: R)
- Curlew Sandpiper (*Calidris ferruginea*) (EPBC: MW, CR)
- Far Eastern Curlew (*Numenius madagascariensis*) (EPBC: MW, CR)
- Little Tern (*Sternula albifrons*) (EPBC: MW, VU)
- Marsh Sandpiper (*Tringa stagnatilis*) (EPBC: MW)
- Osprey (*Pandion haliaetus cristatus*) (EPBC: MW) (NPW: E)

- Pectoral Sandpiper (*Calidris melanotos*) (EPBC: MW) (NPW: R)
- Red-necked Stint (*Calidris ruficollis*) (EPBC: MW)
- Sharp-tailed Sandpiper (*Calidris acuminata*) (EPBC: MW, VU)

These species are a diverse group of birds which are found worldwide, occupying marine, coastal, freshwater and terrestrial habitats. They are mostly medium to large sized birds with longish bills, short legs, long wings, and dull coloured plumage. Order *Charadriiformes* includes both shorebirds and seabirds which fill an important niche in coastal ecosystems. Migratory members of this Order often breed in Europe, Asia or the Arctic before migrating to Australia, commonly in spring or summer. Juveniles of some migratory species will remain in Australia for the first winter before returning to their breeding location. One migratory raptor (Osprey) belongs to Order *Accipitriformes*, which includes most diurnal birds of prey, including hawks, eagles, and kites (but does not include falcons). Most species migrate to areas of south-east Australia where they often inhabit coastal ecosystems. These migratory species are typically known to inhabit coastal wetlands, estuaries, mudflats, rocky inlets, reefs and sandy beaches, floodplains and grassland areas often with ephemeral water sources. These habitats regularly support an abundance of between 2000 to 20,000 waterbirds (Commonwealth of Australia, 2017).

Key threats to these species include habitat loss from development, pollution and agricultural expansion along coastlines as well as the disturbance of nesting colonies by human interaction. Threats from invasive predators such as cats, foxes and rats also prevent population recruitment. Increasing dramatic weather conditions particularly around coastal areas as a result of climate change is also a major threat to these species. A separate, more detailed migratory birds report has been developed separate to this scope of works (Lathwida 2025).

4.6.2.4.2 Field survey

Vegetation Associations within suitable mudflat, mangrove, and beach habitats adjacent to the desalination plant site were targeted for EPBC Act migratory birds during 2025 field surveys. One listed target species was observed during the field survey:

- Little Tern (*Sternula albifrons*) (EPBC: MW, VU)

However, the extent of suitable habitats within the construction footprint is considered negligible and impacts are not expected to occur due to underground tunnelling of the intake and outfall pipeline. The remainder of the Project Area in the EP LMR and SAAL LMR is generally considered unsuitable habitat or outside of the known range for migratory or shorebird species.

4.6.2.4.3 Habitat mapping

Suitable habitat for migratory shorebirds and raptors is limited to coastal areas where wide, sandy ocean beaches are present (Appendix B.7). Such habitat within the Project Area is limited to one area of tall coastal shrublands adjacent the beaches near the Mullaquana Station desalination plant. Threatened (under EPBC and NPW) and / or migratory birds which were identified as potentially occurring within the Study Area but were not present within the construction footprint due to the tunnelling construction method which is proposed in the migratory shorebird's habitat.

4.6.2.5 Bead Glasswort (*Tecticornia flabelliformis*)

Bead Glasswort was initially identified as a target species as it is listed as Vulnerable under the EPBC and NPW Acts, and records were identified within the Project Area relevant to a previous alignment, at Arno Bay located over 100 km from the current Project Area. Within the current Study Area, the PMST highlighted this species as likely to occur within the SAAL LMR, but not likely to occur in the EP LMR. However, as the PMST for the SAAL LMR utilises a 50 km buffer, more suitable coastal habitat would be captured than is likely to occur in

the SAAL Project Area. Coastal habitat is more likely to occur within the Project Area of the EP LMR however this only utilises a 5 km buffer which could have excluded suitable habitat for Bead Glasswort.

Key habitat for Bead Glasswort is typically located in saline wetlands on coastal clay flats (sabkha) over gypsum deposits (fragipans) or on the margins of inland salt lakes (DCCEEW 2024a). Habitat meeting this description was detected during field surveys, occurring in the Project Area adjacent to the Mullaquana Station. Targeted surveys for Bead Glasswort were conducted in these areas of key habitat during February of 2023. However, no individuals were observed within the Project Area and therefore no further assessment for this species was conducted.

4.6.3 Non-target threatened species literature review and observations

This section includes further information, assessment results and discussion for the EPBC and NPW Act listed threatened fauna species which are not considered target species. Species described here were observed during field surveys but were not target species for the purpose of as discussed in Section 4.6.2.

4.6.3.1 Blue-winged Parrot (*Neophema chrysostoma*)

4.6.3.1.1 Desktop assessment

There are 17 BDBSA records scattered throughout the Study Area within the SAAL LMR. Records occur near Whyalla, Port Augusta, Woomera and Roxby Downs (DEW 2025). There are also clusters in the Southern Flinders Ranges and the Carrapateena Mine site. A single record is present in Cowell within the EP LMR.

Blue-winged Parrot is listed as Vulnerable under the EPBC Act and NPW Act. It was listed as under the EPBC Act on 31 March 2023 as the population appears to have declined by 30–50% in three generations (DCCEEW 2023f). This species was not a target species as habitat considered preferred is not proposed to be impacted, however observations of the species are described below.

Blue-winged Parrot was assessed as:

- Known in one habitat type (open woodlands over chenopod / chenopod shrublands / tall chenopod shrublands) in the construction footprint in EP LMR.
- Likely in one habitat type (coastal saltmarsh / coastal samphire / mangrove) in the construction footprint in EP LMR.
- Likely in two habitat types (tableland and inland saline depressions / inland samphire; open woodlands over chenopod / chenopod shrublands / tall chenopod shrublands of Senna, Mulga on plains) in the construction footprint in SAAL LMR.
- Possible in three habitat types (ephemeral creeks / drainage lines; low dunes and dune crests of *Acacia* and *Callitris;* grasslands / woodlands in dune swales) in the construction footprint in SAAL LMR.

The Blue-winged Parrot is a slender parrot with olive-green to yellow plumage contrasted against a blue band across the forehead and blue patches on the wings. Breeding couples form monogamous pairs, and both parents feed their young. The breeding range of the Blue-winged Parrot includes Tasmania, coastal regions of south-east South Australia, and southern Victoria. The species is considered vagrant to the remainder of South Australia (including the Project Area), New South Wales, and southernmost Queensland. They inhabit a range of environments including coastal, sub-coastal, and inland areas where they favour grasslands and grassy woodlands (DCCEEW 2023f). The birds migrate from Tasmania to the mainland and are known to travel upward of 100 kms inland, where they feed in semi-arid chenopod shrubland and sparse grassland. It does not breed in the LMRs in which the Project Area is located.

No threats have been identified as causative of the decline of the Blue-winged Parrot, though several are thought to compound against the species. Habitat loss and degradation is considered the most consequential

threat along with invasive weeds, inappropriate fire regimes, sea-level rise, and increased extreme events (drought, wildfire, etc.). Coastal and inland grasslands, grassy woodlands, semi-arid chenopod shrublands, and wetlands are considered critical for the survival of the species (DCCEEW 2023f).

4.6.3.1.2 Field survey

There was one detection of Blue-winged Parrot within the construction footprint via a song meter (SM24) deployed at Mullaquana Station in the EP LMR during survey 8 in February of 2025. The song meter was located in False Sandalwood (*Myoporum platycarpum*) low open woodland over chenopod shrubs on low dunes.

4.6.3.2 Australian Bustard (*Ardeotis australis*)

4.6.3.2.1 Desktop assessment

There are 24 BDBSA and BL records for the species within the construction footprint (DEW 2025). One record however is located at Mount Remarkable NP in the Northern and Yorke LMR. Six records are situated within the EP LMR from Point Lowly to Cowleds Landing south of Whyalla. The remaining 17 records occur along the Eyre Highway near Port Augusta, at Carrapateena Mine, and at Roxby Downs.

Australian Bustard is listed as Vulnerable under the NPW Act. As this species is not EPBC Act listed it was not considered a target species for the purpose of field surveys.

Australian Bustard was assessed as:

- Known in one habitat type (open woodlands over chenopod/ chenopod shrublands/ tall chenopod shrublands) in the construction footprint in EP LMR.
- Likely in three habitat types (tableland and inland saline depressions / inland samphire; open woodlands over chenopod shrublands / chenopod shrublands / tall shrublands of Senna, Mulga on plains; grasslands / woodlands in dune swales) in the construction footprint in SAAL LMR.

The Australian Bustard is a large stately bird of open plains and arid and semi-arid grasslands. It may also occur in open woodlands, savanna and low shrublands. They have been occasionally observed in modified habitat areas such as farmlands and golf courses. It is present across all of Australia's mainland states although it is notably rarer in the south and east of the continent (Menkhorst et al. 2019).

Australian Bustards are primarily nomadic in the arid parts of their range, tracking rainfall and food. They breed once a year, laying eggs from September to November in a hollow on the ground. Females produce two and less often three eggs each breeding season, incubating them for around 24 days until hatching, after which the males play no further role in raising the chicks (Menkhorst et al. 2019).

Historic hunting and continued illegal hunting have significantly reduced their populations whilst poisoning from rabbit baiting can also pose a threat. The species has declined due to the effects of habitat modification and nest predation by introduced predators. In areas close to human habitation, even in areas where it may be otherwise common, it can be locally absent due to hunting pressure and general disturbance (Collar 2020).

4.6.3.2.2 Field Survey

A single Australian Bustard was observed in December of 2022 during a survey at BAM 11 near Mullaquana Station in the EP LMR within chenopod shrubland habitat dominated by *Atriplex vesicaria* and *Tecticornia halocnemoides* ssp. aff. *longispicata*.

4.6.3.3 Sooty Oystercatcher (*Haematopus fuliginosus fuliginosus*)

4.6.3.3.1 Desktop assessment

Sooty Oystercatcher is listed as Rare under the NPW Act. Twenty four BDBSA records were identified within the Study Area within the EP LMR; all located along the coast. A further 24 BDBSA records were identified within the SAAL LMR, along the upper Spencer Gulf, which is not intersected by the construction footprint (DEW 2025).

Sooty Oystercatcher was assessed as:

- Likely to occur in Coastal Saltmarsh / Coastal Samphire / Mangrove habitat type in the construction footprint within the EP LMR.
- Known to occur in Coastal Dunes / Beaches within the EP LMR.

Sooty Oystercatcher distribution is widespread along the Australian coastline, and in particular, the SA and Tasmanian coastlines (ALA 2026). The species is endemic to Australia and is strictly coastal, usually found within 50 m of the ocean. Sooty Oystercatcher prefers rocky shores, but will be seen on coral reefs or sandy beaches near mudflats. It breeds on offshore islands and isolated rocky headlands (Birdlife 2026).

Sooty Oystercatcher faces a range of threats, including continual disturbance to its coastal feeding, nesting and roosting habitats from beach-combing, fishing, dog-walking, horse-riding and 4WD vehicles, all of which can disrupt essential behaviours and reduce breeding success. Predation pressure is also high, with eggs and chicks vulnerable to foxes, dogs, cats, rats and raptors. Ongoing habitat destruction linked to residential, agricultural and tourism development further reduces the availability of suitable breeding and foraging areas. Hydrological alterations to estuaries and similar water bodies can modify or eliminate critical habitat, compounding these impacts. During the sensitive incubation period between October and November, boat landings on islands can flush adults from nests, leaving eggs exposed to opportunistic predators. Insufficient knowledge of long-term abundance trends and breeding success also constrains conservation planning and the ability to detect population changes in time to implement corrective actions (OEH 2023).

4.6.3.3.2 Field Survey

Three observations of Sooty Oystercatcher were made in beach habitat during surveys near Mullaquana Station in February 2025 (Figure 4-5) (noting this may have been the same individual observed over three days).



Figure 4-5. Sooty Oystercatcher at high tide adjacent to the construction footprint near Mullaquana Station

4.6.3.4 Sandalwood (*Santalum spicatum*)

4.6.3.4.1 Desktop assessment

Sandalwood is listed as Vulnerable under the NPW Act. Three BDBSA records were identified within the Study Area within the EP LMR; two within Whyalla CP and one on Nonowie Station. A further 37 BDBSA records were identified within the SAAL LMR, including a cluster situated within the Project Area west of Port Augusta (DEW 2025).

Sandalwood was assessed as:

- Known to occur in open woodlands over chenopod/ chenopod shrublands/ tall chenopod shrublands habitat type in the construction footprint within both the EP and SAAL LMR.
- Considered possible to occur in ephemeral creeks / drainage lines, low dunes / dune crests of Acacia & Callitris, and grasslands / woodlands in dune swales within the SAAL LMR.

Sandalwood is Vulnerable under the NPW Act due to severe population fragmentation and low recruitment (IUCN 2024). The species is a shrub or tree growing to 8m in height with dark green leaves, fragrant flowers, and edible nuts (DEW 2026a). Australian Sandalwood comprises almost half of globally sold Sandalwood, but trade in SA has lessened since timber harvesting almost exhausted the wild population (DEW 2026a). The species grows in sandy, gravel, and loamy soils and has been observed near granite outcrops as well as dune crests, ridges, and hill foot-slopes with soil derived from slope erosion (Pobke 2007). Brush-tail Bettongs (*Bettongia penicillata*) are associated with higher recruitment rates and increased dispersal. Conservation of

Sandalwood is expected to benefit a number of other flora and fauna species (Pobke 2007). Forty-eight sub-populations have been recorded throughout the Eyre Peninsula, all of which are considered critical to the survival of the species.

4.6.3.4.2 Field survey

Three specimens of Sandalwood were observed within the Project Area during surveys: one adjacent the Carrapateena lateral branch (Figure 4-6), one west of Whyalla in a broad drainage line (BAM 67) (Figure 4-7), and another at Nonowie Station (Figure 4-8). The specimen west of Whyalla was in an area difficult to access with dense variable vegetation, so other specimens may have also been present but could not be observed. The species is widespread throughout its range in SA and therefore may occur in other locations in the construction footprint with similar habitat.



Figure 4-6. Sandalwood tree adjacent to the Carrapateena lateral branch



Figure 4-7. Sandalwood tree west of Whyalla at BAM 67



Figure 4-8. Sandalwood tree on Nonowie Station

4.6.4 Threatened species records

Species listed as threatened under the EPBC Act and / or NPW Act which were observed in the Project Area (and beyond, as part of surveys for previous alignments) during Jacobs' surveys are shown in Figure 4-9 for the EP LMR and Figure 4-10 for the SAAL LMR, noting that some opportunistic species observations exact locations were not recorded and are therefore not displayed in figures.

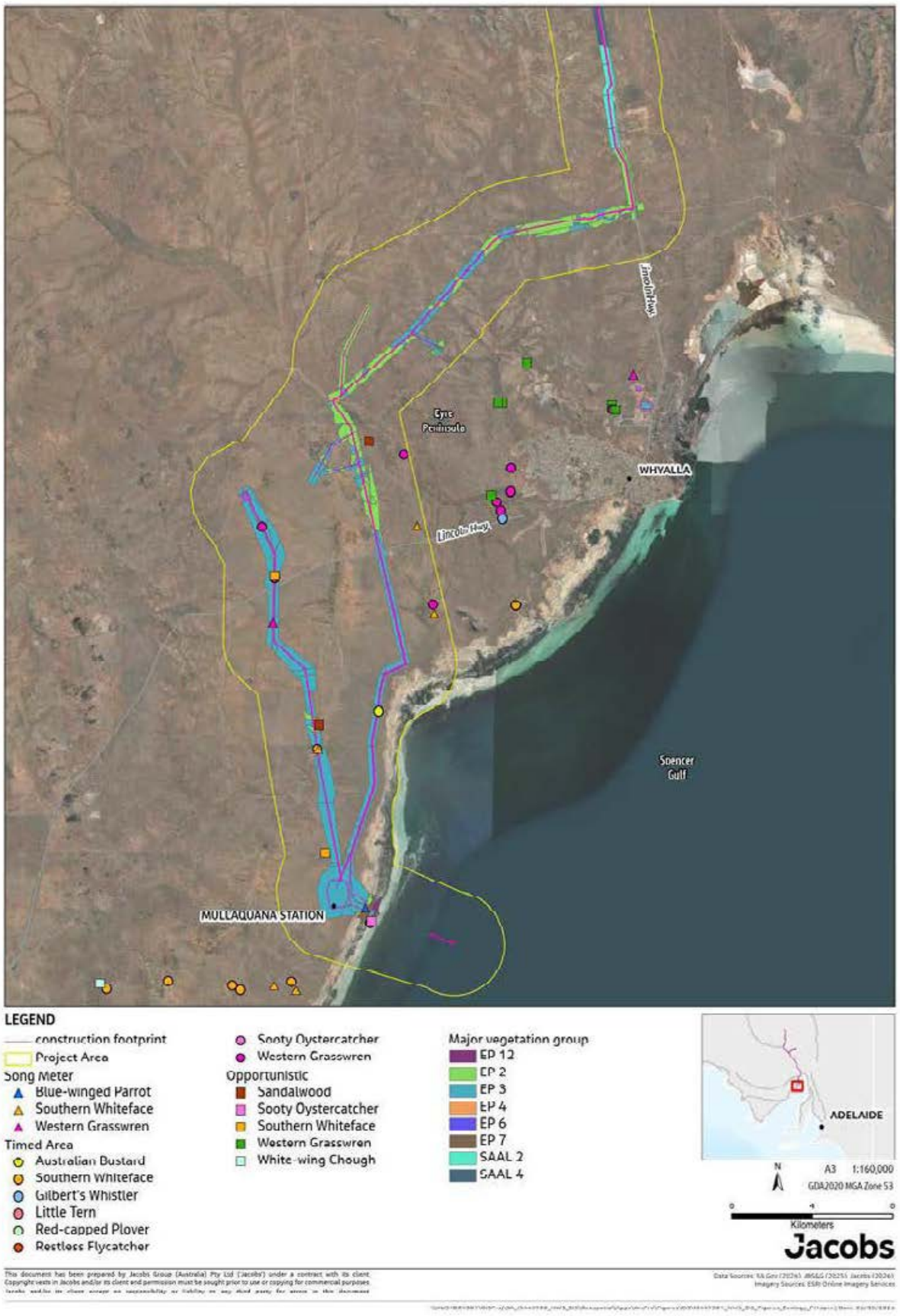


Figure 4-9. Jacobs observation locations for threatened species in the EP LMR

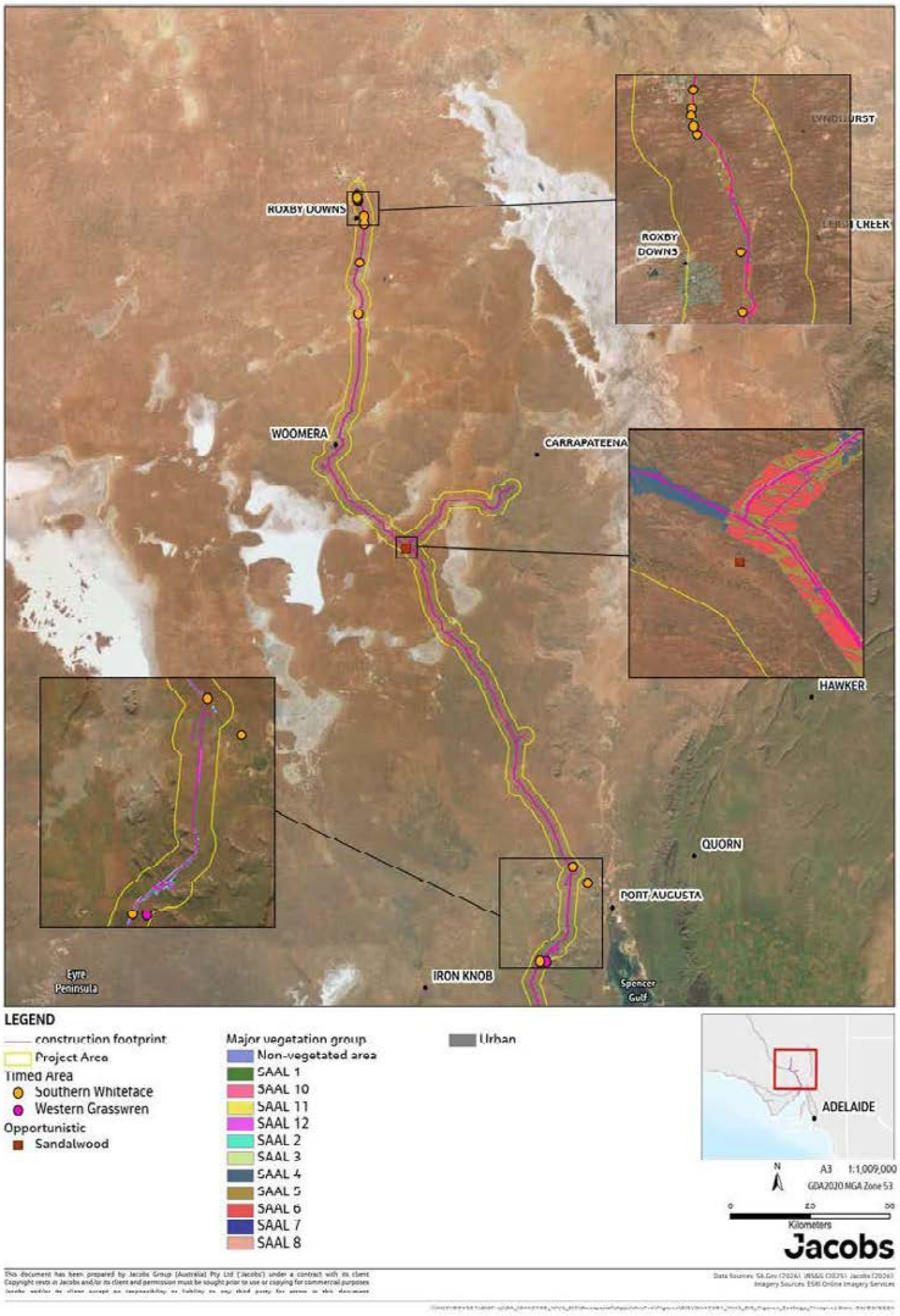


Figure 4-10. Jacobs observation locations for threatened species in the SAAL LMR

4.7 General flora and fauna

4.7.1 Flora

During the field surveys, a total of 254 flora species were recorded across the Project Area, including 228 native and 26 exotic species. Within the EP LMR (BAM sites), 182 flora species were observed including 158 native and 24 exotic species. Within the SAAL LMR (RAM sites), 133 species were observed including approximately 127 native and 6 exotic species.

Flora species observed at each BAM / RAM site are summarised in Appendix D and within relevant electronic BAM / RAM scoresheets submitted with the Native Vegetation Clearance Data Report (Jacobs 2026) which document all flora species observed.

4.7.2 Fauna

During the field surveys, 155 fauna species were recorded across the Project Area and adjacent areas surveyed as part of previous alignments, during the field surveys. This included 133 birds, five mammals and 17 reptiles of which 147 are native species and 8 are exotic species. Exotic fauna observed included European Fox, European Rabbit, Common Starling (*Sturnus vulgaris*), Common Blackbird (*Turdus merula*), Spotted Dove (*Spilopelia chinensis*), Rock Dove (*Columba livia*) and House Sparrow (*Passer domesticus*).

Further detail and species lists are provided in Appendix D.

4.7.3 Weeds and exotic species

4.7.3.1 Desktop

There are previous recent and reliable records for six weed species declared under the LSA Act within the Study Area, of which three are also considered Weeds of National Significance (WoNS). All six species have previously been recorded within the EP LMR Study Area, none within the SAAL LMR Study Area (Table 4-51).

Table 4-51. LSA Act declared weeds and Weeds of National Significance previously recorded within the Study Area

Species	Declared[1]	WoNS[2]	LMR[3]	LSA Act Requirements
Bridal Creeper *Asparagus asparagoides f.*	Y	Y	EP, X	186(2) Prohibiting movement on public roads 188(1) Prohibiting sale of the plant 188(2) Prohibiting sale of contaminated goods 192(2) Land owners to control the plant on their properties 194 Recovery of control costs on adjoining road reserves (except for Carrion-flower)
African Boxthorn *Lycium ferocissimum*	Y	Y	EP, X	
Horehound *Marrubium vulgare*	Y		EP, X	
Prickly Pear *Opuntia* spp.	Y	Y	EP, X	
Carrion-flower *Orbea variegata*	Y		EP, X	
Bathurst Burr *Xanthium spinosum*	Y		EP, X	

[1] Declared plant species. Y = Yes it is a declared species.
[2] Weeds of National Significance. Y = Yes it is a WoNS.
[3]Landscape Management Regions: Eyre Peninsula (EP); South Australian Arid Lands (SAAL). X = previous record (BDBSA 2025).

4.7.3.2 Field Survey

Eleven Declared weeds were detected during the field surveys; Buffel Grass (*Cenchrus ciliaris*), Salvation Jane (*Echium plantagineum*), Horehound (*Marrubium vulgare*), Three-corner Jack (*Rumex hypogaeus*), Bathurst Burr (*Xanthium spinosum*), Carrion-flower (*Orbea variegata*), Lincoln Weed (*Diplotaxis tenuifolia*), Gazania (*Gazania linearis*), Bridal Creeper (*Lycium ferocissimum*), African Boxthorn (*Lycium ferocissimum*) and Prickly-pear (*Opuntia* sp.). The latter three species are also WoNS. It should be noted that weeds were recorded at BAM and RAM sites as part of broader surveys but were not part of a targeted assessment.

Overall, few weeds were observed in the SAAL LMR with most species occurring adjacent to roadsides in areas with increased run-off or disturbance. Buffel Grass occurs in places along the Stuart Highway, noticed first north of Port Augusta but noting weeds were not specifically mapped along the highway. The occurrence of Horehound, Bathurst Burr and Salvation Jane is sporadic but is generally in discrete patches. In the EP LMR, occurrence of weeds increase but are generally restricted to areas close to existing infrastructure and roadsides. The occurrence of Carrion-flower and African Boxthorn increases around Whyalla.

5. Conclusion

The ecological assessments undertaken for the Project, including the proposed Mullaquana Station desalination plant site and associated infrastructure, has identified 89 VAs (32 BAM sites and 57 RAM sites) across 30 BVCs and 17 MVGs and several MNES relevant to the construction footprint.

The Subtropical and Temperate Coastal Saltmarsh TEC was confirmed within an area at the proposed Mullaquana Station desalination plant (BAM 145, *Tecticornia halocnemoides* ssp. / *T. arbuscula* low open shrubland). This patch meets the listing criteria in terms of floristic composition, structural integrity, and patch size, and is likely subject to tidal influence. However, this section of the Project Area will only involve construction of the intake and outfall tunnels. The proposed tunnels will be constructed beneath the ground surface, avoiding any direct disturbance to this TEC. As this community is listed as 'Vulnerable' and does not constitute a MNES under Part 3 of the EPBC Act, referral and approval for impacts to this TEC are not required.

Across the 10 field surveys conducted by Jacobs, a total of 33 song meters were deployed and 97 timed area searches implemented to determine utilisation of key EPBC listed bird species deemed likely to occur in the LoO assessment; Western Grasswren, Southern Whiteface and EPBC-listed threatened / migratory shorebirds. Although many of these survey sites are now outside of the current construction footprint, they are important for understanding context of species presence. Some areas within the current construction footprint had a lower survey effort or were undertaken during poor weather conditions due to time constraints, access limitations and additional ancillary infrastructure plans being added after surveys were completed. As such, it is important to consider the surrounding survey records of threatened species, particularly Western Grasswren, to understand potential impacts to the species, and areas that have been avoided by the Project.

Western Grasswren was recorded at a total of 22 sites during surveys, of which16 were observed in areas associated with a previous version of the construction footprint that are no longer impacted by the current construction footprint. The remaining six observations are located within the current construction footprint and were made through timed area searches and song meter recordings. All 22 species observations occurred in VAs which contain chenopod understorey of varied density, height and condition. This species has a distribution limited between Munyaroo CP to Port Augusta and west across to Lake Gairdner, of which the construction footprint intersects from the desalination plant site (at Mullaquana) to the top of their range (west of Port Augusta). The most recent field survey was conducted during the species' breeding season (August 2025), coinciding with the flowering period of Black Bluebush (a preferred spiny shrub which Western Grasswren is recorded to shelter in). During this time, an abundance of moths was observed across most chenopod VAs. This high availability of nearby food resources, reducing the need for pursuit of prey over distance, may explain the lower number of Western Grasswren observations recorded during the survey.

Habitat mapping for Western Grasswren conservatively assessed all VAs containing suitable chenopod coverage as ranging from 'low potential' to 'preferred' habitat. 'Atypical' habitat is also highly suitable for the species, particularly when contiguous with preferred habitat or during boom seasons. The total area assessed as suitable habitat for Western Grasswren within the construction footprint is approximately 747.42 ha, including 135.70 of preferred habitat, 266.16 ha of atypical habitat for construction of the water transfer system and electricity infrastructure, 188.86 ha of atypical habitat (which is considered only marginally suitable) at the desalination plant site and 156.71 ha of low potential habitat. While the desalination plant site was conservatively assessed as providing atypical habitat for the species, targeted and extensive survey efforts did not detect Western Grasswren at the desalination plant site within the Project Area. Vegetation at the desalination plant site lacks the structural characteristics typically associated with key breeding or foraging habitat, including the density and height of chenopod shrubs preferred by Western Grasswren. Although Western Grasswren were detected in areas contiguous with the broader Project Area, including locations approximately 4.6 km and 4.8 km south of the desalination plant site, the habitat within the proposed construction footprint in this area is unlikely to support core populations or serve as important breeding habitat. Opportunistic use by Western Grasswren during periods of high abundance or favourable conditions cannot be excluded, however the Mullaquana Station desalination plant site does not represent

optimal preferred habitat. Construction of the desalination plant would require clearance of 189 ha of marginal habitat which is unlikely to support core populations, while construction of the transfer system and transmission lines involves clearance of approximately 136 ha of preferred habitat and 266 ha of atypical habitat, along a length of approximately 100 km.

Southern Whiteface was observed across the construction footprint within the EP and SAAL LMR and was detected at 27 bird survey sites (on six song meters and during 21 timed area searches), as well as two opportunistic observations (with two individuals each), within the construction footprint and the broader survey areas (for previous alignments). This species is widespread and highly mobile and does not exhibit strong dependence on niche habitat types, enabling it to occupy a broad range of vegetation communities.

The LoO assessment classified Southern Whiteface as likely to known in all vegetation categories containing tall shrubs and trees within the construction footprint. Habitat mapping reflects this assessment, with suitable habitat occurring in almost all MVGs across the Project Area. Although Southern Whiteface was not detected at the proposed Mullaquana Station desalination plant site during extensive targeted surveys, the species was recorded at multiple locations within the broader area surveyed for previous alignments, including sites approximately 4.6 km and 4.8 km south of the desalination plant footprint (the same sites as the aforementioned Western Grasswren observations). Given its ecological flexibility and widespread distribution, Southern Whiteface is expected to occur intermittently within the Project Area, particularly in areas supporting woodland and chenopod shrubland vegetation. The total area assessed as suitable habitat for Southern Whiteface is approximately 1,335.17 ha within the construction footprint. However, the desalination plant site itself lacks wooded areas and is therefore considered suboptimal habitat for the species.

VAs within suitable mudflat, mangrove, and beach habitats adjacent to the desalination plant site were targeted for EPBC Act migratory shorebirds during 2025 field surveys. One EPBC Act listed Vulnerable migratory shorebird, Little Tern, was observed during the field survey. However, the extent of suitable habitats within the construction footprint is considered negligible and impacts are not expected to occur due to underground tunnelling of the intake and outfall pipeline.

Other nationally significant species, including Plains Mouse, Blue-winged Parrot and Grey-headed Flying Fox, were also assessed for their potential occurrence within the Project Area. Plains Mouse was not detected during field surveys, but was assessed as likely to occur in the LoO assessment due to the presence of suitable habitat across a substantial portion of the SAAL LMR. Approximately 809.16 ha of habitat is mapped as suitable within the construction footprint (this conservatively includes both preferred critical refuge habitat and irruptive / boom habitat). The tableland country of the Arcoona Plateau, around and north of Woomera, contains extensive undulating plains with gilgai formations and Cane-grass swamps on deep cracking clays, which may provide habitat for Plains Mouse, though typically only during irruption events. Limited ephemeral drainage lines, creek lines and waterholes occur in the area, particularly in the north, and inland saline depressions are scattered throughout, with higher concentrations in the far north. More targeted assessment for Plains Mouse has been undertaken under a separate scope of works (refer Lathwida 2025a, 2025b).

Blue-winged Parrot was recorded once, via song meter, within a narrow strip near the desalination plant site in False Sandalwood (*Myoporum platycarpum*) low open woodland over chenopod shrubs on low dunes. This detection likely represents a transient individual rather than a resident population. Grey-headed Flying Fox was not detected during surveys, and while occasional foraging visits may occur, the construction footprint is unlikely to provide suitable roosting habitat for the species. The species roost in camps, with small camps recorded across the EP including Port Augusta.

The construction footprint extends to considerable dunefields in the Roxby Downs area where dune crests may provide habitat for Dusky Hopping Mouse (only during irruption events). There is also very limited potential habitat for Thick-Billed Grasswren (e.g. tall chenopod shrublands near drainage lines / saline depression), however the construction footprint occurs outside the known range for these species.

No EPBC Act listed threatened flora species were recorded within the construction footprint, and the available habitat is not considered likely to support any of the threatened species highlighted by the PMST output as having potential to occur.

Several individuals of Sandalwood, listed as Vulnerable under the NPW Act, were recorded adjacent to the Carrapateena lateral branch, near Whyalla, and at Nonowie Station along the Transmission Line. The LoO determined that habitat within the construction footprint is considered to potentially supporting a limited number of other NPW Act listed threatened flora species, predominantly those classified as Rare.

Two NPW Act listed threatened fauna species were detected during field surveys, all within the EP LMR; Australian Bustard and Sooty Oystercatcher. A third species, Pernatty Knob-tailed Gecko, is known in low dunes and dune crests of Acacia and Callitris restricted to Pernatty Lagoon near the Carrapateena area based on baseline survey outcomes for the Carrapateena Mine access route prior to construction of the mine (spotlighting in sand dune habitat) (EBS Ecology 2013).

Overall, data collected from the extensive multi-year survey effort has directly informed project design revisions, resulting in the minimisation of impacts to MNES as far as reasonably practicable. Impacts to the Subtropical and Temperate Coastal Saltmarsh TEC have been entirely avoided through design solutions such as the adoption of underground tunnelling methodologies. Ongoing application of mitigation measures, supported by adherence to Environmental Management Protocols and Plans, will ensure residual risks remain low. The construction footprint represents a narrow corridor within a much broader landscape of continuous vegetation and habitat, aligned to rail, road and infrastructure corridors where practicable.

Although this report assesses the current construction footprint, it reflects an iterative design process informed by ecological assessments and field surveys undertaken over several years, including early desktop constraints analyses. Identification of ecological values throughout this process has continually guided alignment refinement to avoid or minimise impacts wherever possible.

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Appendix A. EPBC Act PMST search results

A.1 PMST output (Eyre Peninsula LMR)

See Attached Document 'EP PMST_5km_Protected Matters'

A.2 PMST output (South Australian Arid Lands LMR)

See Attached Document 'SAAL PMST_50km_Protected Matters'

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 13-Nov-2025

Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	1
Listed Threatened Species:	46
Listed Migratory Species:	42

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	3
Commonwealth Heritage Places:	None
Listed Marine Species:	72
Whales and Other Cetaceans:	8
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	3
Regional Forest Agreements:	None
Nationally Important Wetlands:	1
EPBC Act Referrals:	18
Key Ecological Features (Marine):	None
Biologically Important Areas:	3
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Amytornis textilis myall			
Western Grasswren (Gawler Ranges) [64454]	Vulnerable	Species or species habitat known to occur within area	In feature area
Aphelocephala leucopsis			
Southern Whiteface [529]	Vulnerable	Species or species habitat known to occur within area	In feature area
Ardenna grisea			
Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Arenaria interpres			
Ruddy Turnstone [872]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Calidris acuminata			
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris canutus			
Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat known to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area	In feature area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Endangered	Species or species habitat may occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat may occur within area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat may occur within area	In feature area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Breeding likely to occur within area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche impavida			
Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris			
Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche steadi			
White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Thinornis cucullatus cucullatus			
Eastern Hooded Plover, Eastern Hooded Plover [90381]	Vulnerable	Species or species habitat may occur within area	In feature area
Tringa nebularia			
Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area	In feature area
FISH			
Seriolella brama			
Blue Warehou [69374]	Conservation Dependent	Species or species habitat likely to occur within area	In buffer area only
MAMMAL			
Eubalaena australis			
Southern Right Whale [40]	Endangered	Breeding known to occur within area	In buffer area only
Neophoca cinerea			
Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat may occur within area	In buffer area only
Sminthopsis psammophila			
Sandhill Dunnart [291]	Endangered	Species or species habitat likely to occur within area	In feature area
PLANT			
Frankenia plicata			
[4225]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Pterostylis xerophila](#) Desert Greenhood [7997]	Vulnerable	Species or species habitat may occur within area	In feature area
[Swainsona pyrophila](#) Yellow Swainson-pea [56344]	Vulnerable	Species or species habitat likely to occur within area	In feature area
REPTILE			
[Aprasia pseudopulchella](#) Flinders Ranges Worm-lizard [1666]	Vulnerable	Species or species habitat may occur within area	In feature area
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In feature area
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In feature area
[Dermochelys coriacea](#) Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In feature area
SHARK			
[Carcharodon carcharias](#) White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
[Galeorhinus galeus](#) School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453]	Conservation Dependent	Species or species habitat may occur within area	In buffer area only

Listed Migratory Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
[Apus pacificus](#) Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
[Ardenna carneipes](#) Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Ardenna grisea Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Thalassarche melanophris](#) Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
[Thalassarche steadi](#) White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Migratory Marine Species			
[Balaenoptera edeni](#) Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
[Caperea marginata](#) Pygmy Right Whale [39]		Species or species habitat may occur within area	In buffer area only
[Carcharias taurus](#) Grey Nurse Shark [64469]		Species or species habitat may occur within area	In buffer area only
[Carcharodon carcharias](#) White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In feature area
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In feature area
[Dermochelys coriacea](#) Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In feature area
[Eubalaena australis as Balaena glacialis australis](#) Southern Right Whale [40]	Endangered	Breeding known to occur within area	In buffer area only
[Lagenorhynchus obscurus](#) Dusky Dolphin [43]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat likely to occur within area	In buffer area only
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat likely to occur within area	In buffer area only
Migratory Terrestrial Species			
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris alba Sanderling [875]		Species or species habitat likely to occur within area	In buffer area only
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris ruficollis Red-necked Stint [860]		Species or species habitat likely to occur within area	In buffer area only
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Transport and Regional Services - Australian National Railways Commission		
Commonwealth Land - Australian National Railways Commission [41565]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41425]	SA	In feature area

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian National Railways Commission [40934]	SA	In buffer area only

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Ardenna carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Ardenna grisea as Puffinus griseus Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris alba Sanderling [875]		Species or species habitat likely to occur within area	In buffer area only
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area	In feature area
[Calidris ruficollis](#) Red-necked Stint [860]		Species or species habitat likely to occur within area overfly marine area	In buffer area only
[Chalcites osculans as Chrysococcyx osculans](#) Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area	In feature area
[Charadrius leschenaultii](#) Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Charadrius veredus](#) Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area overfly marine area	In feature area
[Diomedea antipodensis](#) Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
[Diomedea epomophora](#) Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In feature area
[Diomedea exulans](#) Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
[Gallinago hardwickii](#) Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat likely to occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area	In feature area
Phalacrocorax fuscescens Black-faced Cormorant [59660]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Sterna striata White-fronted Tern [799]		Migration route may occur within area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Thinornis cucullatus as Thinornis rubricollis](#)			
Hooded Plover, Hooded Dotterel [87735]		Species or species habitat may occur within area overfly marine area	In feature area
[Thinornis cucullatus cucullatus as Thinornis rubricollis rubricollis](#)			
Eastern Hooded Plover, Eastern Hooded Plover [90381]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
[Tringa nebularia](#)			
Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Fish			
[Acentronura australe](#)			
Southern Pygmy Pipehorse [66185]		Species or species habitat may occur within area	In buffer area only
[Filicampus tigris](#)			
Tiger Pipefish [66217]		Species or species habitat may occur within area	In buffer area only
[Heraldia nocturna](#)			
Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area	In buffer area only
[Hippocampus breviceps](#)			
Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area	In buffer area only
[Histiogamphelus cristatus](#)			
Rhino Pipefish, Macleay's Crested Pipefish, Ring-back Pipefish [66243]		Species or species habitat may occur within area	In buffer area only
[Hypselognathus rostratus](#)			
Knifesnout Pipefish, Knife-snouted Pipefish [66245]		Species or species habitat may occur within area	In buffer area only
[Kaupus costatus](#)			
Deepbody Pipefish, Deep-bodied Pipefish [66246]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Leptoichthys fistularius Brushtail Pipefish [66248]		Species or species habitat may occur within area	In buffer area only
Lissocampus caudalis Australian Smooth Pipefish, Smooth Pipefish [66249]		Species or species habitat may occur within area	In buffer area only
Lissocampus runa Javelin Pipefish [66251]		Species or species habitat may occur within area	In buffer area only
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area	In buffer area only
Notiocampus ruber Red Pipefish [66265]		Species or species habitat may occur within area	In buffer area only
Phycodurus eques Leafy Seadragon [66267]		Species or species habitat may occur within area	In buffer area only
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area	In buffer area only
Pugnaso curtirostris Pugnose Pipefish, Pug-nosed Pipefish [66269]		Species or species habitat may occur within area	In buffer area only
Solegnathus robustus Robust Pipehorse, Robust Spiny Pipehorse [66274]		Species or species habitat may occur within area	In buffer area only
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area	In buffer area only
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Stipecampus cristatus Ringback Pipefish, Ring-backed Pipefish [66278]		Species or species habitat may occur within area	In buffer area only
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area	In buffer area only
Vanacampus margaritifer Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area	In buffer area only
Vanacampus phillipi Port Phillip Pipefish [66284]		Species or species habitat may occur within area	In buffer area only
Vanacampus poecilolaemus Longsnout Pipefish, Australian Long-snout Pipefish, Long-snouted Pipefish [66285]		Species or species habitat may occur within area	In buffer area only
Vanacampus vercoi Verco's Pipefish [66286]		Species or species habitat may occur within area	In buffer area only
Mammal			
Arctocephalus forsteri Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat may occur within area	In buffer area only
Arctocephalus pusillus Australian Fur-seal, Australo-African Fur-seal [21]		Species or species habitat may occur within area	In buffer area only
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat may occur within area	In buffer area only
Reptile			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In feature area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In feature area

Whales and Other Cetaceans [Resource Information]

Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
Caperea marginata Pygmy Right Whale [39]		Species or species habitat may occur within area	In buffer area only
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In buffer area only
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area	In buffer area only
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area	In buffer area only
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat likely to occur within area	In buffer area only
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area	In buffer area only
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In buffer area only

Extra Information

State and Territory Reserves [Resource Information]

Protected Area Name	Reserve Type	State	Buffer Status
Unnamed (No.HA1588)	Heritage Agreement	SA	In buffer area only
Upper Spencer Gulf	Marine Park	SA	In buffer area only
Whyalla	Conservation Park	SA	In buffer area only

Nationally Important Wetlands [Resource Information]

Wetland Name	State	Buffer Status
Upper Spencer Gulf	SA	In buffer area only

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Cultana Solar Farm project	2023/09658		Assessment	In buffer area only
Magnetite Expansion Project Stage 2 / SIMEC Mining	2024/09878		Assessment	In feature area
Mara team testing - Release 37 Wei	2024/09831		Post-Approval	In buffer area only
Northern Water Desalination and Pipeline Infrastructure Project, SA	2023/09717		Assessment	In feature area
Port Bonython Bulk Commodities Export Facility, SA	2012/6336		Completed	In feature area
South Australian Government Renewable Hydrogen Power Station, Electrolysers and Storage Facility	2023/09759		Post-Approval	In feature area
Whyalla Hydrogen Pipeline (WHP)	2024/09873		Approval	In buffer area only
Controlled action				
Arafura Whyalla Rare Earths Complex	2011/5877	Controlled Action	Completed	In buffer area only
Expansion of the Cultana Training Area	2010/5316	Controlled Action	Post-Approval	In feature area
Expansion of the Olympic Dam copper, uranium, gold and silver mine, processing plant and associated	2005/2270	Controlled Action	Post-Approval	In feature area
Pig Iron Smelter	2001/473	Controlled Action	Completed	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Pig Iron Smelter (Cultana)	2001/466	Controlled Action	Completed	In buffer area only
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area
Project Magnet	2004/1724	Not Controlled Action	Completed	In feature area
Whyalla Solar Farm Project, SA	2017/7910	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Small scale uranium In-situ Recovery Field Trial	2010/5751	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Biologically Important Areas			[Resource Information]
Scientific Name	Behaviour	Presence	Buffer Status
Seabirds			
Ardenna tenuirostris			
Short-tailed Shearwater [82652]	Foraging (in high numbers)	Likely to occur	In buffer area only
Phalacrocorax fuscescens			
Black-faced Cormorant [59660]	Foraging	Known to occur	In buffer area only
Sternula nereis			
Fairy Tern [82949]	Foraging	Known to occur	In buffer area only

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 13-Nov-2025

Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	1
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	80
Listed Migratory Species:	50

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	194
Commonwealth Heritage Places:	None
Listed Marine Species:	88
Whales and Other Cetaceans:	8
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	24
Regional Forest Agreements:	None
Nationally Important Wetlands:	2
EPBC Act Referrals:	40
Key Ecological Features (Marine):	None
Biologically Important Areas:	3
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

National Heritage Places [Resource Information]

Name	State	Legal Status	Buffer Status
Natural			
Cuttlefish Coast Sanctuary Zone	SA	Listed place	In buffer area only

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community likely to occur within area	In buffer area only
Peppermint Box (Eucalyptus odorata) Grassy Woodland of South Australia	Critically Endangered	Community likely to occur within area	In buffer area only
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area	In buffer area only

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Amytornis merrotsyi merrotsyi			
Short-tailed Grasswren (Flinders Ranges) [86269]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Amytornis modestus			
Thick-billed Grasswren [84121]	Vulnerable	Species or species habitat known to occur within area	In feature area
Amytornis textilis myall			
Western Grasswren (Gawler Ranges) [64454]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Aphelocephala leucopsis](#) Southern Whiteface [529]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Ardenna grisea](#) Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Arenaria interpres](#) Ruddy Turnstone [872]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Calidris canutus](#) Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
[Calidris tenuirostris](#) Great Knot [862]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
[Charadrius leschenaultii](#) Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
[Charadrius mongolus](#) Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area	In buffer area only
[Diomedea antipodensis](#) Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
[Diomedea epomophora](#) Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat known to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat known to occur within area	In feature area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Endangered	Species or species habitat may occur within area	In buffer area only
Limosa limosa Black-tailed Godwit [845]	Endangered	Species or species habitat known to occur within area	In buffer area only
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Neophema chrysogaster Orange-bellied Parrot [747]	Critically Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat may occur within area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Polytelis alexandrae Princess Parrot, Alexandra's Parrot [758]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche impavida			
Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris			
Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche steadi			
White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Thinornis cucullatus cucullatus			
Eastern Hooded Plover, Eastern Hooded Plover [90381]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Tringa nebularia			
Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area	In feature area
FISH			
Seriolella brama			
Blue Warehou [69374]	Conservation Dependent	Species or species habitat known to occur within area	In buffer area only
MAMMAL			
Bettongia lesueur lesueur			
Burrowing Bettong (Shark Bay), Boodie [66659]	Vulnerable	Translocated population known to occur within area	In buffer area only
Dasyurus geoffroii			
Chuditch, Western Quoll [330]	Vulnerable	Translocated population known to occur within area	In feature area
Eubalaena australis			
Southern Right Whale [40]	Endangered	Breeding known to occur within area	In buffer area only
Leporillus conditor			
Wopilkara, Greater Stick-nest Rat [137]	Vulnerable	Translocated population known to occur within area	In buffer area only
Macrotis lagotis			
Greater Bilby [282]	Vulnerable	Translocated population known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Neophoca cinerea](#) Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat may occur within area	In buffer area only
[Notomys fuscus](#) Dusky Hopping-mouse, Wilkiniti [125]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Perameles bougainville](#) Shark Bay Bandicoot [278]	Endangered	Translocated population known to occur within area	In buffer area only
[Petrogale xanthopus xanthopus](#) Yellow-footed Rock-wallaby (SA and NSW) [66646]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
[Pseudomys australis](#) Plains Rat, Palyoora, Plains Mouse [108]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Sminthopsis psammophila](#) Sandhill Dunnart [291]	Endangered	Species or species habitat likely to occur within area	In feature area
PLANT			
[Acanthocladium dockeri](#) Spiny Everlasting, Spiny Daisy [17632]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
[Brachyscome muelleri](#) Corunna Daisy [18836]	Endangered	Species or species habitat known to occur within area	In buffer area only
[Caladenia gladiolata](#) Bayonet Spider-orchid, Clubbed Spider-orchid [8079]	Endangered	Species or species habitat known to occur within area	In buffer area only
[Caladenia tensa](#) Greencomb Spider-orchid, Rigid Spider-orchid [24390]	Endangered	Species or species habitat known to occur within area	In buffer area only
[Caladenia woolcockiorum](#) Woolcock's Spider-orchid [55023]	Vulnerable	Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Caladenia xantholeuca White Rabbits, Flinders Ranges White Caladenia [55025]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Codonocarpus pyramidalis Slender Bell-fruit, Camel Poison [19507]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Dodonaea subglandulifera Peep Hill Hop-bush [11956]	Endangered	Species or species habitat may occur within area	In buffer area only
Frankenia plicata [4225]	Endangered	Species or species habitat known to occur within area	In feature area
Hibbertia crispula Ooldea Guinea-flower [15222]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Limosella granitica Granite Mudwort [6704]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Olearia pannosa subsp. pannosa Silver Daisy-bush, Silver-leaved Daisy, Velvet Daisy-bush [12348]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Prasophyllum pallidum Pale Leek-orchid [20351]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Prasophyllum validum Sturdy Leek-orchid, Mount Remarkable Leek-orchid [10268]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Pterostylis xerophila Desert Greenhood [7997]	Vulnerable	Species or species habitat may occur within area	In feature area
Senecio macrocarpus Large-fruit Fireweed, Large-fruit Groundsel [16333]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Senecio megaglossus](#) Superb Groundsel [13374]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
[Swainsona pyrophila](#) Yellow Swainson-pea [56344]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Tecticornia flabelliformis](#) Bead Glasswort, Bead Samphire [82664]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
[Veronica parnkalliana](#) Port Lincoln Speedwell [17458]	Endangered	Species or species habitat known to occur within area	In buffer area only
REPTILE			
[Aprasia pseudopulchella](#) Flinders Ranges Worm-lizard [1666]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Dermochelys coriacea](#) Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only
[Notechis scutatus ater](#) Krefft's Tiger Snake (Flinders Ranges) [82287]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
SHARK			
[Carcharodon carcharias](#) White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Galeorhinus galeus School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453]	Conservation Dependent	Species or species habitat may occur within area	In buffer area only

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Ardenna grisea Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche carteri			
Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta			
Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche impavida			
Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris			
Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche steadi			
White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Migratory Marine Species			
Balaenoptera edeni			
Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
Caperea marginata			
Pygmy Right Whale [39]		Species or species habitat may occur within area	In buffer area only
Carcharias taurus			
Grey Nurse Shark [64469]		Species or species habitat may occur within area	In buffer area only
Carcharodon carcharias			
White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Caretta caretta			
Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Dermochelys coriacea](#) Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only
[Eubalaena australis as Balaena glacialis australis](#) Southern Right Whale [40]	Endangered	Breeding known to occur within area	In buffer area only
[Lagenorhynchus obscurus](#) Dusky Dolphin [43]		Species or species habitat may occur within area	In buffer area only
[Lamna nasus](#) Porbeagle, Mackerel Shark [83288]		Species or species habitat likely to occur within area	In buffer area only
[Megaptera novaeangliae](#) Humpback Whale [38]		Species or species habitat likely to occur within area	In buffer area only
Migratory Terrestrial Species			
[Motacilla cinerea](#) Grey Wagtail [642]		Species or species habitat may occur within area	In feature area
[Motacilla flava](#) Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
[Actitis hypoleucos](#) Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
[Arenaria interpres](#) Ruddy Turnstone [872]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris alba Sanderling [875]		Species or species habitat likely to occur within area	In buffer area only
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area	In feature area
Calidris pugnax as Philomachus pugnax Ruff [91256]		Species or species habitat known to occur within area	In buffer area only
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area	In buffer area only
Calidris tenuirostris Great Knot [862]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area	In buffer area only
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Gallinago stenura](#) Pin-tailed Snipe [841]		Species or species habitat known to occur within area	In buffer area only
[Limosa lapponica](#) Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In buffer area only
[Limosa limosa](#) Black-tailed Godwit [845]	Endangered	Species or species habitat known to occur within area	In buffer area only
[Numenius madagascariensis](#) Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
[Pandion haliaetus](#) Osprey [952]		Species or species habitat known to occur within area	In feature area
[Thalasseus bergii](#) Greater Crested Tern [83000]		Breeding known to occur within area	In buffer area only
[Tringa brevipes](#) Grey-tailed Tattler [851]		Species or species habitat known to occur within area	In buffer area only
[Tringa nebularia](#) Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area	In feature area
[Tringa stagnatilis](#) Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area	In buffer area only

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Defence		
Defence - AIRTC WHYALLA [40170]	SA	In buffer area only

Commonwealth Land Name	State	Buffer Status
Defence - CULTANA TRAINING AREA [40104]	SA	In buffer area only
Defence - CULTANA TRAINING AREA [40106]	SA	In buffer area only
Defence - CULTANA TRAINING AREA [40103]	SA	In buffer area only
Defence - CULTANA TRAINING AREA [40102]	SA	In buffer area only
Defence - DEFENCE SUPPORT CENTRE - WOOMERA [40019]	SA	In feature area
Defence - EL ALAMEIN - PORT AUGUSTA [40105]	SA	In buffer area only
Defence - EL ALAMEIN - PORT AUGUSTA [40013]	SA	In buffer area only
Defence - EL ALAMEIN - PORT AUGUSTA [40014]	SA	In buffer area only
Defence - EL ALAMEIN - PORT AUGUSTA [40015]	SA	In buffer area only
Defence - EL ALAMEIN - PORT AUGUSTA [40011]	SA	In buffer area only
Defence - EL ALAMEIN - PORT AUGUSTA [40012]	SA	In buffer area only
Defence - LAUNCHER SITE RANGE - WOOMERA [40023]	SA	In buffer area only
Defence - Range Head (Range E) ; LAUNCHER SITE RANGE - KOOLYMILKA [40021]	SA	In buffer area only
Defence - Range Head (Range E) ; LAUNCHER SITE RANGE - KOOLYMILKA [40022]	SA	In buffer area only
Defence - WHYALLA TRAINING DEPOT [40172]	SA	In buffer area only
Defence - WHYALLA TRAINING DEPOT [40171]	SA	In buffer area only
Defence - WOOMERA AIR WEAPONS RANGE [40059]	SA	In buffer area only
Defence - WOOMERA AIR WEAPONS RANGE [40043]	SA	In buffer area only
Defence - WOOMERA AIR WEAPONS RANGE [40069]	SA	In feature area
Defence - WOOMERA AIR WEAPONS RANGE [40078]	SA	In buffer area only
Defence - WOOMERA AIR WEAPONS RANGE [40036]	SA	In buffer area only
Defence - WOOMERA AIR WEAPONS RANGE [40086]	SA	In buffer area only
Defence - WOOMERA AIR WEAPONS RANGE [40070]	SA	In feature area
Defence - WOOMERA AIR WEAPONS RANGE [40080]	SA	In buffer area only
Defence - WOOMERA AIR WEAPONS RANGE [40081]	SA	In buffer area only
Defence - Defence Housing Authority		

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Defence Housing Authority [40689]	SA	In buffer area only
Commonwealth Land - Defence Housing Authority [41344]	SA	In buffer area only
Commonwealth Land - Defence Housing Authority [41343]	SA	In buffer area only
Commonwealth Land - Defence Housing Authority [41338]	SA	In buffer area only
Commonwealth Land - Defence Housing Authority [41342]	SA	In buffer area only
Immigration and Multicultural and Indigenous Affairs - Aboriginal and Torres Strait Islander Commission		
Commonwealth Land - Aboriginal & Torres Strait Islander Commission [40684]	SA	In buffer area only
Commonwealth Land - Aboriginal & Torres Strait Islander Commission [40686]	SA	In buffer area only
Commonwealth Land - Aboriginal & Torres Strait Islander Commission [40687]	SA	In buffer area only
Commonwealth Land - Aboriginal & Torres Strait Islander Commission [40682]	SA	In buffer area only
Commonwealth Land - Aboriginal & Torres Strait Islander Commission [41341]	SA	In buffer area only
Commonwealth Land - Aboriginal & Torres Strait Islander Commission [41340]	SA	In buffer area only
Commonwealth Land - Aboriginal & Torres Strait Islander Commission [40683]	SA	In buffer area only
Immigration and Multicultural and Indigenous Affairs - Minister of Aboriginal Affairs		
Commonwealth Land - Minister of Aboriginal Affairs [41348]	SA	In buffer area only
Transport and Regional Services		
Commonwealth Land - Minister of Transport [40709]	SA	In buffer area only
Transport and Regional Services - Australian National Railways Commission		
Commonwealth Land - Australian National Railways Commission [41015]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41412]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41133]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41426]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40730]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40688]	SA	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian National Railways Commission [40731]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40720]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41425]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40721]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41014]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40685]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40738]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41134]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41337]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40681]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41013]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40700]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41012]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41429]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41011]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41431]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40703]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41430]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40806]	SA	In feature area

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian National Railways Commission [41432]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40724]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40727]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40726]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41010]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40725]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40801]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40800]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40744]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41008]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40808]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41456]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40694]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40795]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41127]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40695]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40692]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40723]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41451]	SA	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian National Railways Commission [40708]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41533]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41452]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41009]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40704]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41414]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40741]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41535]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41534]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41537]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41536]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41355]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41007]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41612]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40735]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40802]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40732]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41611]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40733]	SA	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian National Railways Commission [40742]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40698]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40699]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40814]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40736]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41402]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41427]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40734]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41411]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40737]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40697]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40722]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40693]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40799]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40702]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41128]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40696]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40701]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40706]	SA	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian National Railways Commission [40707]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40705]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40729]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41336]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41347]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41502]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41544]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41129]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40796]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41543]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41388]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41545]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40728]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40797]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40713]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40714]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40717]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40716]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40718]	SA	In feature area

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian National Railways Commission [40719]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40740]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40798]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40650]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40826]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40821]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40827]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40822]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40820]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40823]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40825]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41565]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41606]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40807]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40805]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41470]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40813]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41449]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40812]	SA	In feature area

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian National Railways Commission [40819]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41579]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41469]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40712]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40711]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40710]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40809]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41578]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40934]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40739]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41572]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41574]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41577]	SA	In feature area
Unknown		
Commonwealth Land - [41349]	SA	In buffer area only
Commonwealth Land - [40833]	SA	In buffer area only
Commonwealth Land - [41494]	SA	In buffer area only
Commonwealth Land - [40834]	SA	In buffer area only
Commonwealth Land - [40811]	SA	In buffer area only
Commonwealth Land - [40691]	SA	In buffer area only
Commonwealth Land - [40690]	SA	In buffer area only
Commonwealth Land - [41339]	SA	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - [41580]	SA	In feature area
Commonwealth Land - [41428]	SA	In feature area
Commonwealth Land - [41346]	SA	In buffer area only
Commonwealth Land - [41345]	SA	In buffer area only
Commonwealth Land - [40829]	SA	In buffer area only
Commonwealth Land - [40828]	SA	In buffer area only
Commonwealth Land - [40715]	SA	In buffer area only
Commonwealth Land - [40824]	SA	In buffer area only
Commonwealth Land - [40927]	SA	In buffer area only
Commonwealth Land - [41604]	SA	In buffer area only
Commonwealth Land - [40804]	SA	In buffer area only
Commonwealth Land - [40810]	SA	In buffer area only
Commonwealth Land - [40803]	SA	In feature area

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Ardenna carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Ardenna grisea as Puffinus griseus Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris alba Sanderling [875]		Species or species habitat likely to occur within area	In buffer area only
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In buffer area only
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area	In feature area
Calidris pugnax as Philomachus pugnax Ruff [91256]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Calidris tenuirostris Great Knot [862]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Chalcites osculans as Chrysococcyx osculans			
Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area	In feature area
Charadrius leschenaultii			
Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Charadrius mongolus			
Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area	In buffer area only
Charadrius ruficapillus			
Red-capped Plover [881]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Charadrius veredus			
Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area overfly marine area	In feature area
Chroicocephalus novaehollandiae as Larus novaehollandiae			
Silver Gull [82326]		Breeding known to occur within area	In buffer area only
Diomedea antipodensis			
Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea epomophora			
Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Diomedea exulans			
Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Gallinago hardwickii			
Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Gallinago stenura Pin-tailed Snipe [841]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In buffer area only
Limosa limosa Black-tailed Godwit [845]	Endangered	Species or species habitat known to occur within area overfly marine area	In buffer area only
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat may occur within area overfly marine area	In buffer area only
Neophema chrysogaster Orange-bellied Parrot [747]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In buffer area only
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Onychoprion fuscatus as Sterna fuscata Sooty Tern [90682]		Breeding known to occur within area	In buffer area only
Pachyptila turtur Fairy Prion [1066]		Species or species habitat likely to occur within area	In buffer area only
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In feature area
Phalacrocorax fuscescens Black-faced Cormorant [59660]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Recurvirostra novaehollandiae Red-necked Avocet [871]		Species or species habitat known to occur within area overfly marine area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Rostratula australis as Rostratula benghalensis (sensu lato)			
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Sterna striata			
White-fronted Tern [799]		Migration route may occur within area	In feature area
Sternula nereis as Sterna nereis			
Fairy Tern [82949]		Breeding known to occur within area	In buffer area only
Thalassarche carteri			
Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta			
Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche impavida			
Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris			
Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche steadi			
White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Thalasseus bergii as Sterna bergii			
Greater Crested Tern [83000]		Breeding known to occur within area	In buffer area only
Thinornis cucullatus as Thinornis rubricollis			
Hooded Plover, Hooded Dotterel [87735]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Thinornis cucullatus cucullatus as Thinornis rubricollis rubricollis			
Eastern Hooded Plover, Eastern Hooded Plover [90381]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Tringa brevipes as Heteroscelus brevipes](#) Grey-tailed Tattler [851]		Species or species habitat known to occur within area	In buffer area only
[Tringa nebularia](#) Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
[Tringa stagnatilis](#) Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Fish			
[Acentronura australe](#) Southern Pygmy Pipehorse [66185]		Species or species habitat may occur within area	In buffer area only
[Filicampus tigris](#) Tiger Pipefish [66217]		Species or species habitat may occur within area	In buffer area only
[Heraldia nocturna](#) Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area	In buffer area only
[Hippocampus breviceps](#) Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area	In buffer area only
[Histiogamphelus cristatus](#) Rhino Pipefish, Macleay's Crested Pipefish, Ring-back Pipefish [66243]		Species or species habitat may occur within area	In buffer area only
[Hypselognathus rostratus](#) Knifesnout Pipefish, Knife-snouted Pipefish [66245]		Species or species habitat may occur within area	In buffer area only
[Kaupus costatus](#) Deepbody Pipefish, Deep-bodied Pipefish [66246]		Species or species habitat may occur within area	In buffer area only
[Leptoichthys fistularius](#) Brushtail Pipefish [66248]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Lissocampus caudalis Australian Smooth Pipefish, Smooth Pipefish [66249]		Species or species habitat may occur within area	In buffer area only
Lissocampus runa Javelin Pipefish [66251]		Species or species habitat may occur within area	In buffer area only
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area	In buffer area only
Notiocampus ruber Red Pipefish [66265]		Species or species habitat may occur within area	In buffer area only
Phycodurus eques Leafy Seadragon [66267]		Species or species habitat may occur within area	In buffer area only
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area	In buffer area only
Pugnaso curtirostris Pugnose Pipefish, Pug-nosed Pipefish [66269]		Species or species habitat may occur within area	In buffer area only
Solegnathus robustus Robust Pipehorse, Robust Spiny Pipehorse [66274]		Species or species habitat may occur within area	In buffer area only
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area	In buffer area only
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area	In buffer area only
Stipecampus cristatus Ringback Pipefish, Ring-backed Pipefish [66278]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Urocampus carinirostris](#) Hairy Pipefish [66282]		Species or species habitat may occur within area	In buffer area only
[Vanacampus margaritifer](#) Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area	In buffer area only
[Vanacampus phillipi](#) Port Phillip Pipefish [66284]		Species or species habitat may occur within area	In buffer area only
[Vanacampus poecilolaemus](#) Longsnout Pipefish, Australian Long-snout Pipefish, Long-snouted Pipefish [66285]		Species or species habitat may occur within area	In buffer area only
[Vanacampus vercoi](#) Verco's Pipefish [66286]		Species or species habitat may occur within area	In buffer area only
Mammal			
[Arctocephalus forsteri](#) Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat may occur within area	In buffer area only
[Arctocephalus pusillus](#) Australian Fur-seal, Australo-African Fur-seal [21]		Species or species habitat may occur within area	In buffer area only
[Neophoca cinerea](#) Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat may occur within area	In buffer area only
Reptile			
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only

Whales and Other Cetaceans [Resource Information]

Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
Caperea marginata Pygmy Right Whale [39]		Species or species habitat may occur within area	In buffer area only
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In buffer area only
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area	In buffer area only
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area	In buffer area only
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat likely to occur within area	In buffer area only
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area	In buffer area only
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In buffer area only

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Buckaringa	Private Nature Reserve	SA	In buffer area only
Franklin Harbor	Marine Park	SA	In buffer area only
Lake Torrens	National Park	SA	In buffer area only
Mount Brown	Conservation Park	SA	In buffer area only
Mount Remarkable	National Park	SA	In buffer area only
Munyaroo	Conservation Park	SA	In buffer area only
The Dutchmans Stern	Conservation Park	SA	In buffer area only
Unnamed (No.HA105)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1135)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1278)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1279)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1280)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1281)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1394)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1462)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1483)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1507)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1523)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1572)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1588)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1636)	Heritage Agreement	SA	In buffer area only
Upper Spencer Gulf	Marine Park	SA	In buffer area only
Whyalla	Conservation Park	SA	In buffer area only
Winninowie	Conservation Park	SA	In buffer area only

Nationally Important Wetlands

[Resource Information]

Wetland Name	State	Buffer Status
Inland Saline Lakes	SA	In buffer area only
Upper Spencer Gulf	SA	In feature area

EPBC Act Referrals

[Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Aurora Energy Project (AEP)	2025/10119		Referral Decision	In feature area
BHP Olympic Dam Corporation Pty Ltd - Evaporation Pond 7 Project	2023/09655		Referral Decision	In buffer area only
Cultana Pumped Hydro Energy Scheme, near Port Augusta, SA	2019/8420		Completed	In buffer area only
Cultana Solar Farm project	2023/09658		Assessment	In buffer area only
Magnetite Expansion Project Stage 2 / SIMEC Mining	2024/09878		Assessment	In buffer area only
Mara team testing - Release 37 Wei	2024/09831		Post-Approval	In buffer area only
Morgan Whyalla Pipeline No.1 Renewal ? Stage 1	2022/09438		Post-Approval	In buffer area only
Northern Water Desalination and Pipeline Infrastructure Project, SA	2023/09717		Assessment	In feature area
Oak Dam Underground Access Project, SA	2023/09696		Completed	In feature area
Olympic Dam Resource Development Strategy	2019/8570		Completed	In feature area
Olympic Dam Smelter Refinery Expansion (SRE) Project.	2024/10096		Referral Decision	In feature area
Port Bonython Bulk Commodities Export Facility, SA	2012/6336		Completed	In buffer area only
South Australian Government Renewable Hydrogen Power Station, Electrolysers and Storage Facility	2023/09759		Post-Approval	In buffer area only
Whyalla Hydrogen Pipeline (WHP)	2024/09873		Approval	In buffer area only
Controlled action				
Arafura Whyalla Rare Earths Complex	2011/5877	Controlled Action	Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Carrapateena Project copper -gold mining and ore processing, SA	2017/7895	Controlled Action	Post-Approval	In feature area
Construction and operation of a coal storage facility	2001/463	Controlled Action	Completed	In buffer area only
Expansion of the Cultana Training Area	2010/5316	Controlled Action	Post-Approval	In feature area
Expansion of the Olympic Dam copper, uranium, gold and silver mine, processing plant and associated	2005/2270	Controlled Action	Post-Approval	In feature area
National Low Level Radioactive Waste Repository, Central-North SA	2001/151	Controlled Action	Post-Approval	In buffer area only
Nava-1 Cable System	2001/510	Controlled Action	Completed	In feature area
Pig Iron Smelter	2001/473	Controlled Action	Completed	In buffer area only
Pig Iron Smelter (Cultana)	2001/466	Controlled Action	Completed	In buffer area only
Prominent Hill Copper-Gold Project	2005/2040	Controlled Action	Post-Approval	In feature area
Wilcherry Hill Project	2010/5478	Controlled Action	Post-Approval	In feature area
Not controlled action				
132kV Electricity Transmission Line for the Prominent Hill Copper-Gold Project	2006/3110	Not Controlled Action	Completed	In buffer area only
Carrapateena Deposit - Advanced Exploration Works, SA	2012/6494	Not Controlled Action	Completed	In feature area
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Increasing a wall height of the tailings storage facility (TSF4), Olympic Dam, SA	2015/7416	Not Controlled Action	Completed	In buffer area only
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In buffer area only
Olympic Dam Evaporation Pond 6	2019/8526	Not Controlled Action	Completed	In feature area
Olympic Dam Operations Tailings Storage Facility Six, SA	2019/8465	Not Controlled Action	Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Pilot desalination plant, Olympic Dam Expansion Project	2007/3391	Not Controlled Action	Completed	In buffer area only
Port Augusta Renewal Energy Park, SA	2015/7614	Not Controlled Action	Completed	In buffer area only
Project Magnet	2004/1724	Not Controlled Action	Completed	In buffer area only
Whyalla Solar Farm Project, SA	2017/7910	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
Asteroid sampler re-entry vehicle recovery	2002/544	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Olympic Dam Heap Leach Trial, Roxby Downs, SA	2014/7280	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Small scale uranium In-situ Recovery Field Trial	2010/5751	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only

Biologically Important Areas			[Resource Information]
Scientific Name	Behaviour	Presence	Buffer Status
Seabirds			
Ardenna tenuirostris Short-tailed Shearwater [82652]	Foraging (in high numbers)	Likely to occur	In buffer area only
Phalacrocorax fuscescens Black-faced Cormorant [59660]	Foraging	Known to occur	In buffer area only
Sternula nereis Fairy Tern [82949]	Foraging	Known to occur	In buffer area only

Bioregional Assessments			[Resource Information]
SubRegion	BioRegion	Website	Buffer Status
Arckaringa	Lake Eyre Basin	BA website	In buffer area only

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

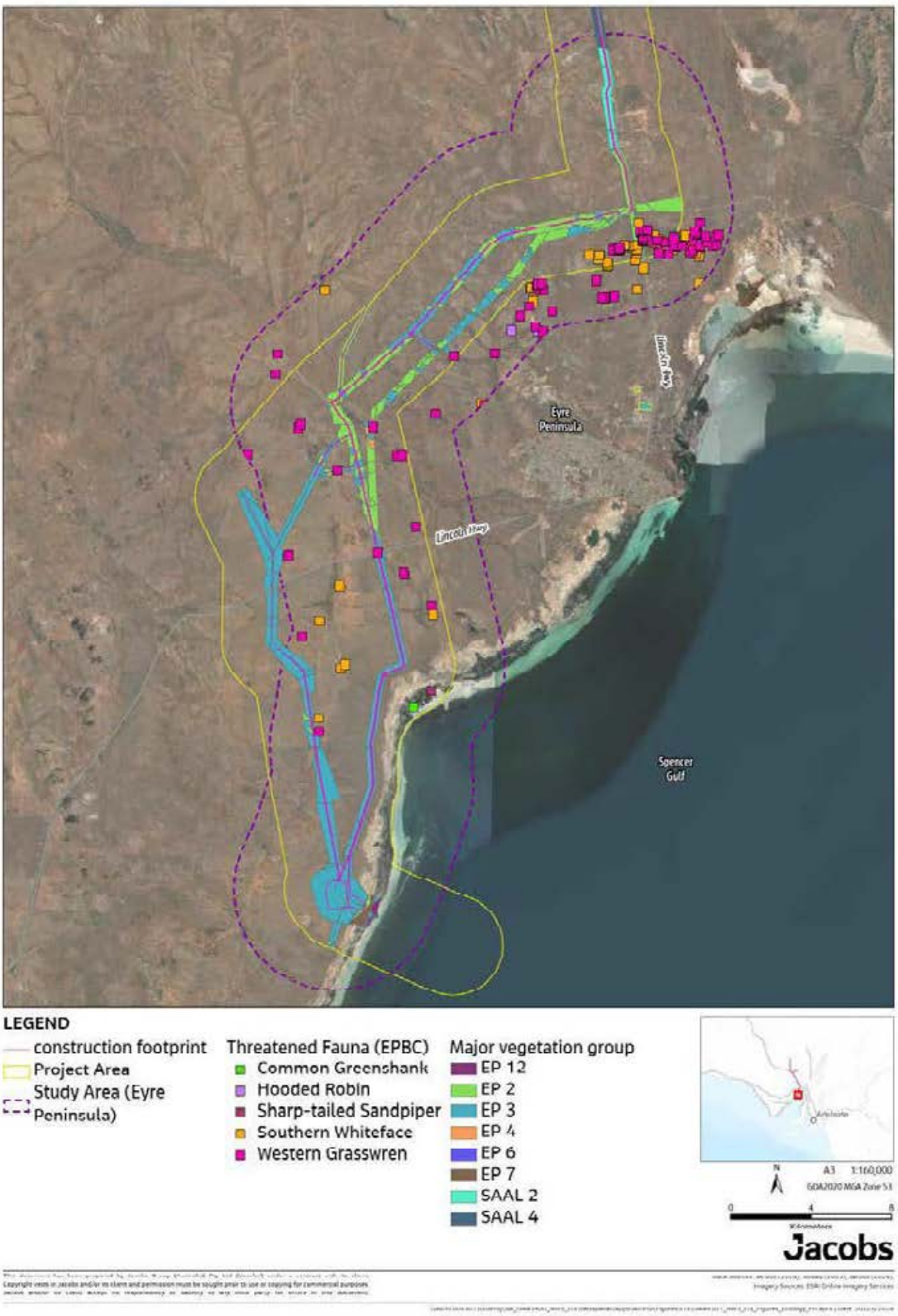
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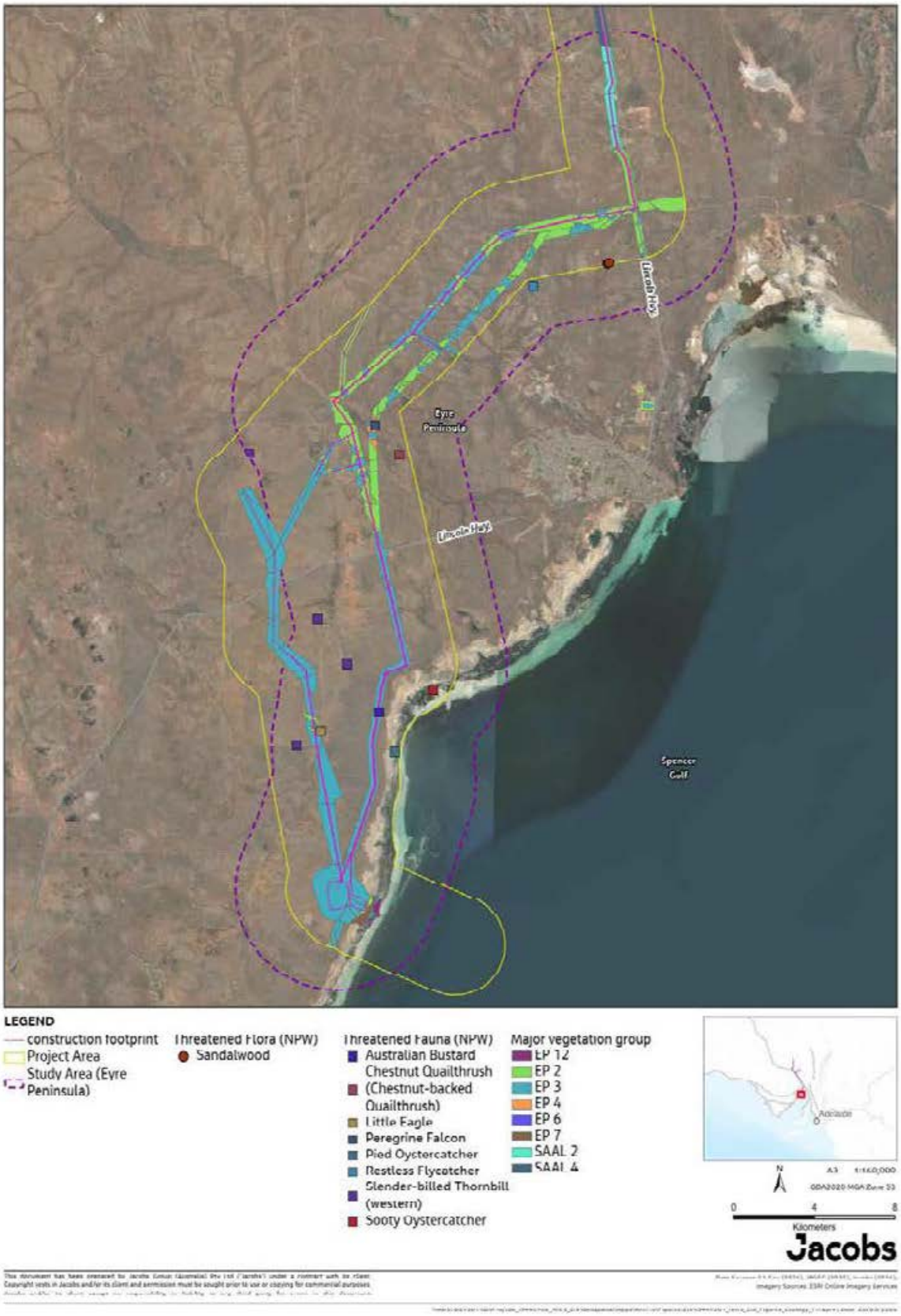
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Canberra ACT 2601 Australia
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Appendix B. Mapping series

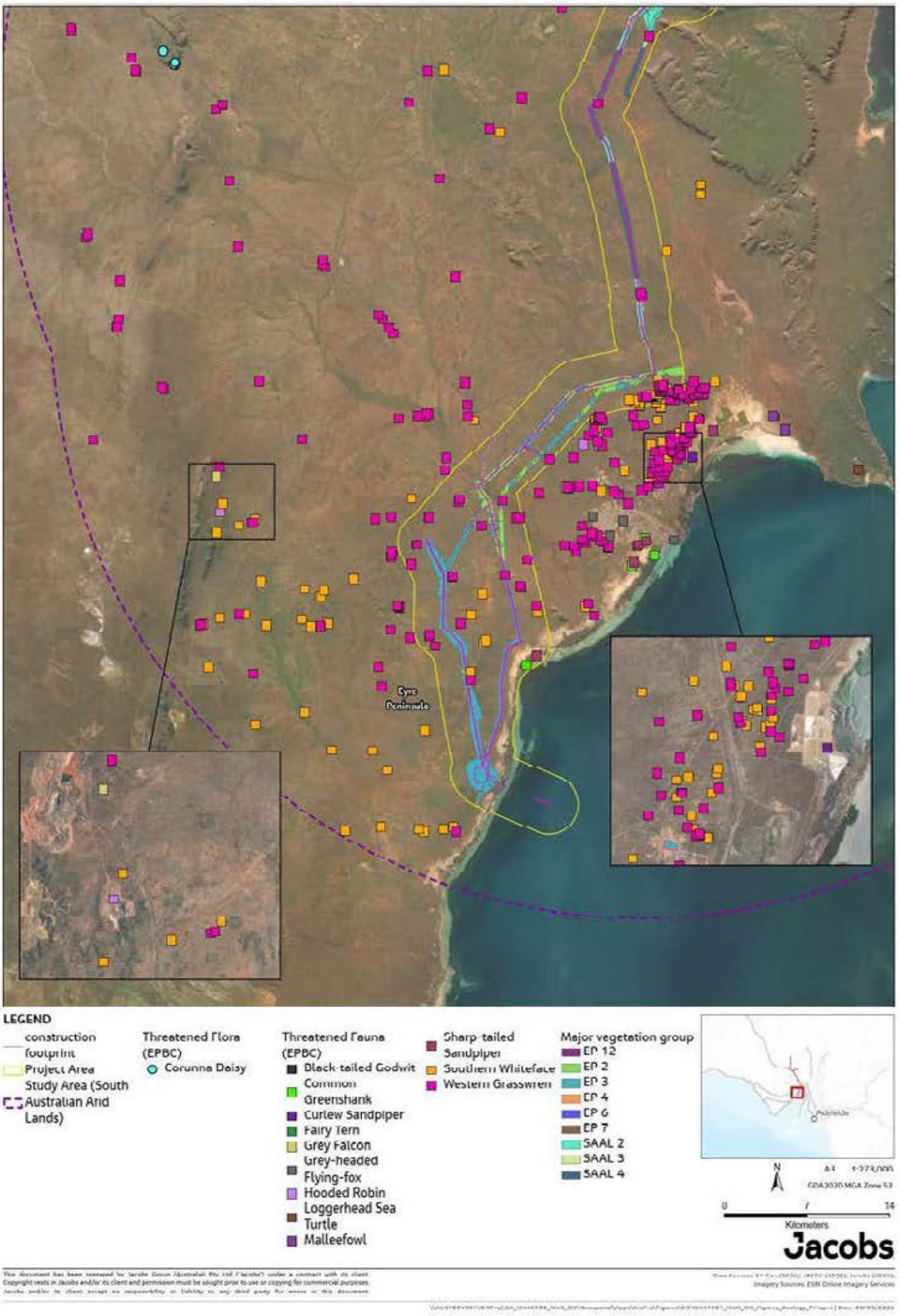
B.1 EPBC Act species records within the EP Study Area

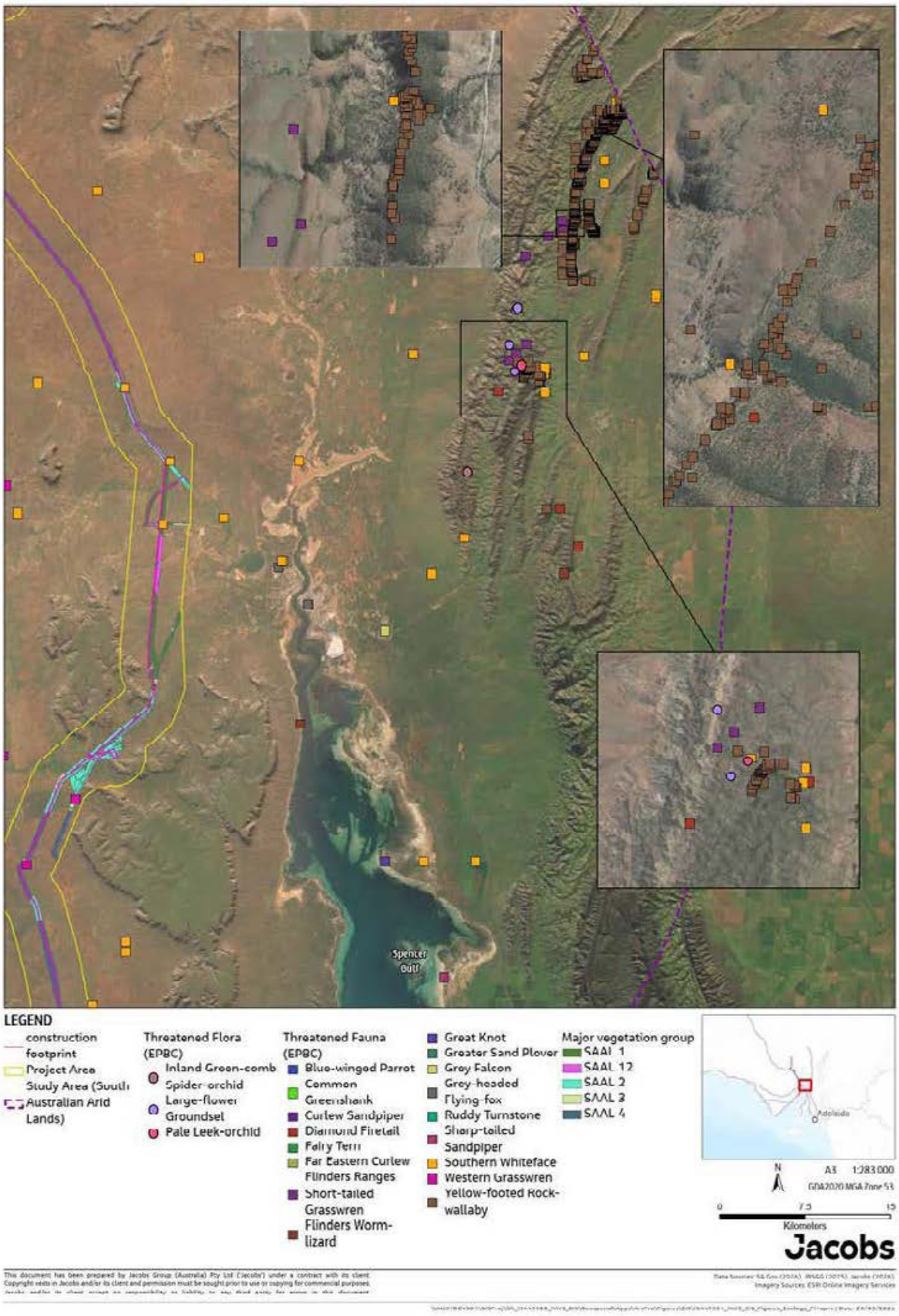


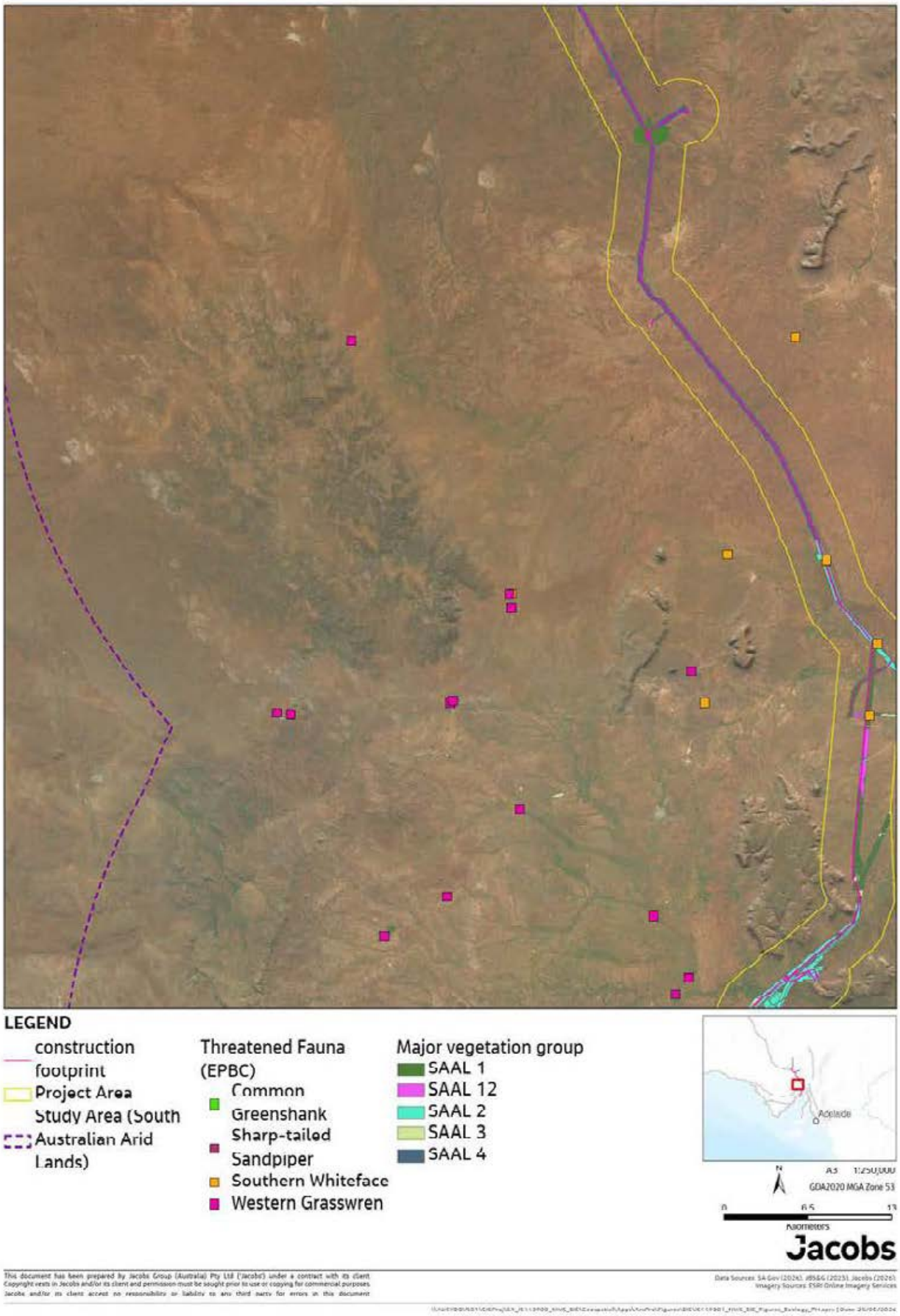
B.2 NPW Act species records within the EP Study Area

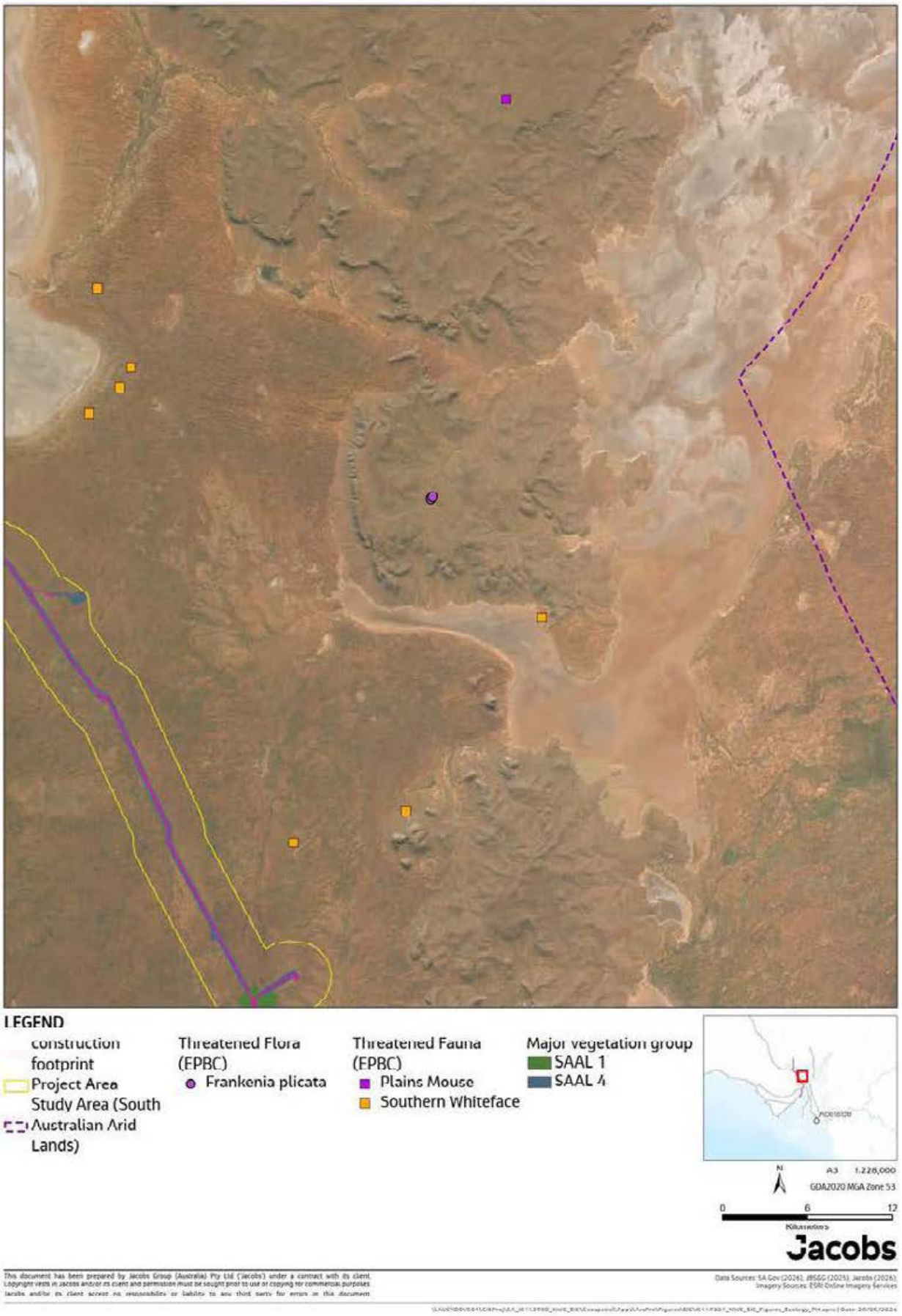


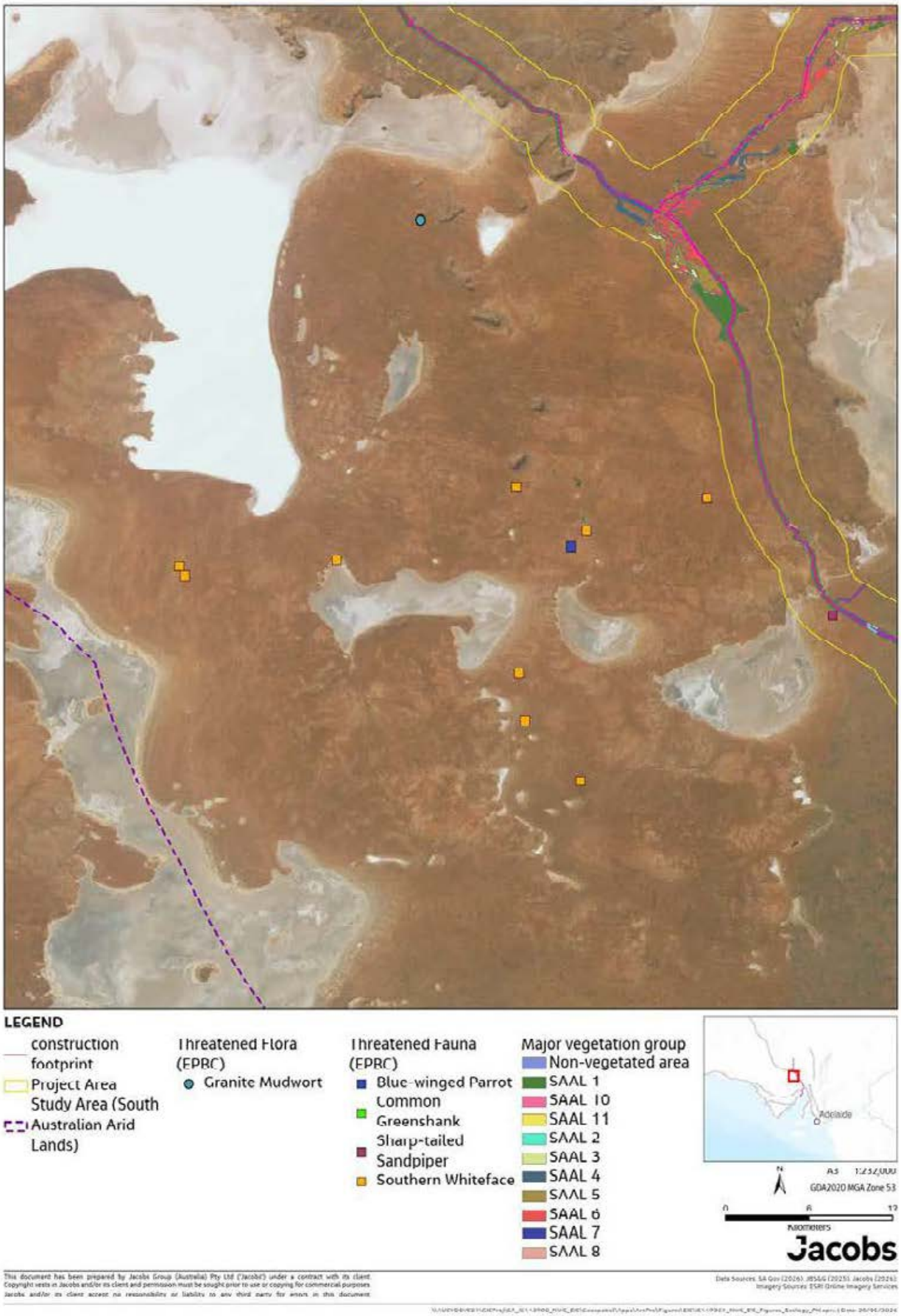
B.3 EPBC Act species records within the SAAL Study Area

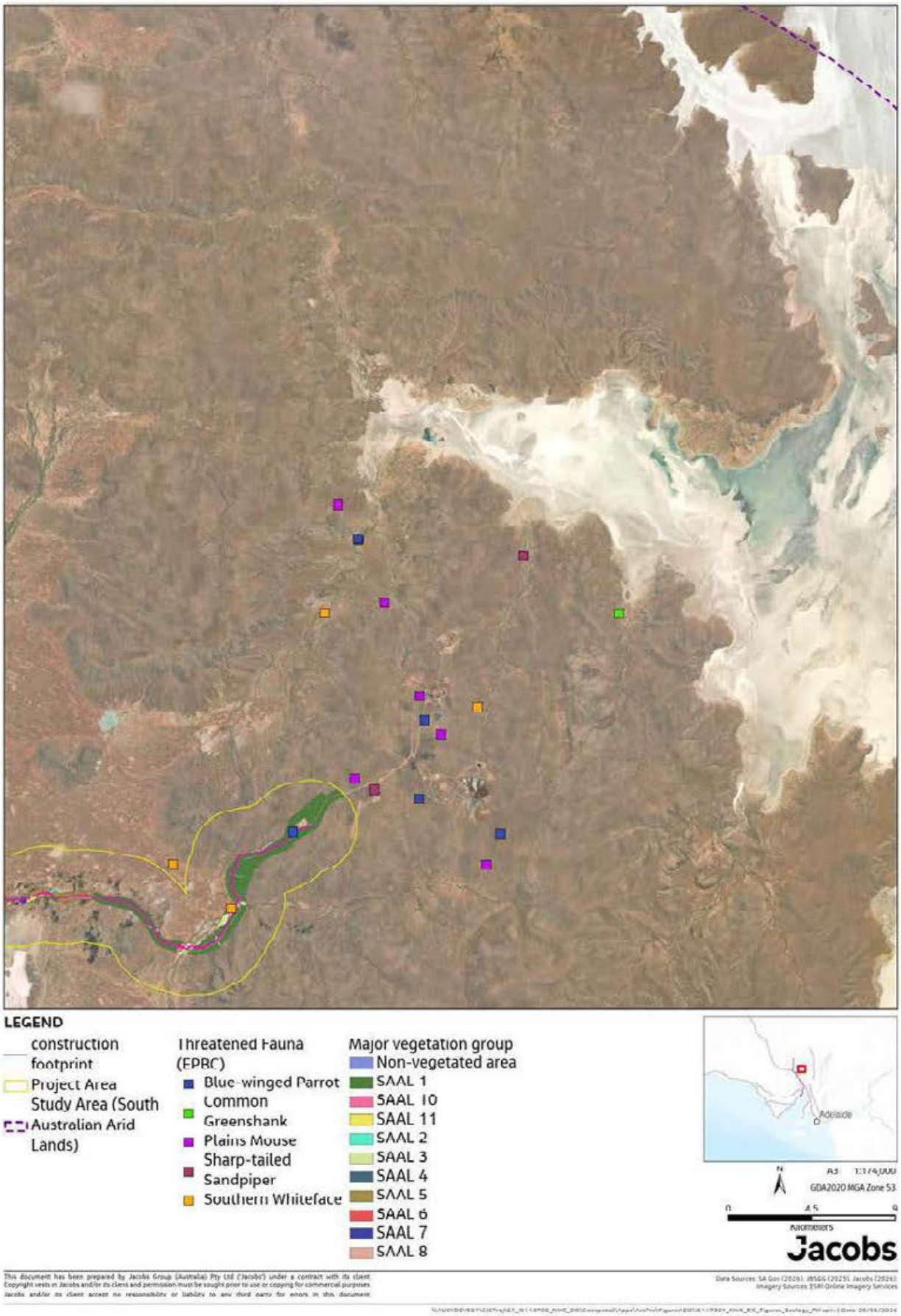


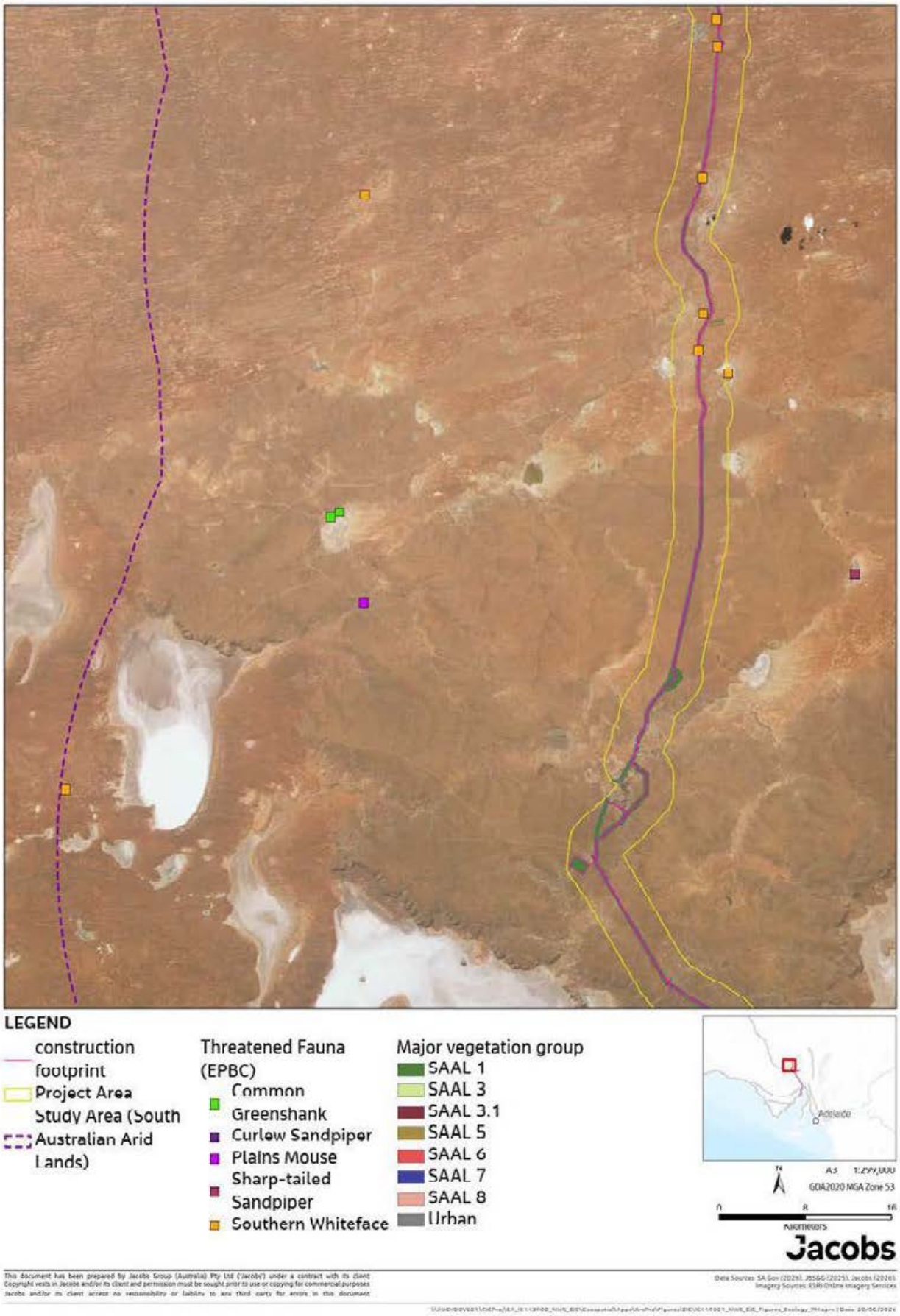

Spencer Gulf
LEGEND
construction footprint
Project Area
Study Area (South Australian Arid Lands)
Threatened Flora (EPBC)
Inland Green-comb Spider-orchid
Large-flower Groundsel
Pale Leek-orchid
Threatened Fauna (EPBC)
Blue-winged Parrot
Common Greenshank
Curlew Sandpiper
Diamond Firetail
Fairy Tern
Far Eastern Curlew
Flinders Ranges Short-tailed Grasswren
Flinders Worm-lizard
Great Knot
Greater Sand Plover
Grey Falcon
Grey-headed Flying-fox
Ruddy Turnstone
Sharp-tailed Sandpiper
Southern Whiteface
Western Grasswren
Yellow-footed Rock-wallaby
Major vegetation group
SAAL 1
SAAL 12
SAAL 2
SAAL 3
SAAL 4
Adelaide
N
A3 1:283 000
GDA2020 MGA Zone 53
0 7.5 15
Kilometers
Jacobs

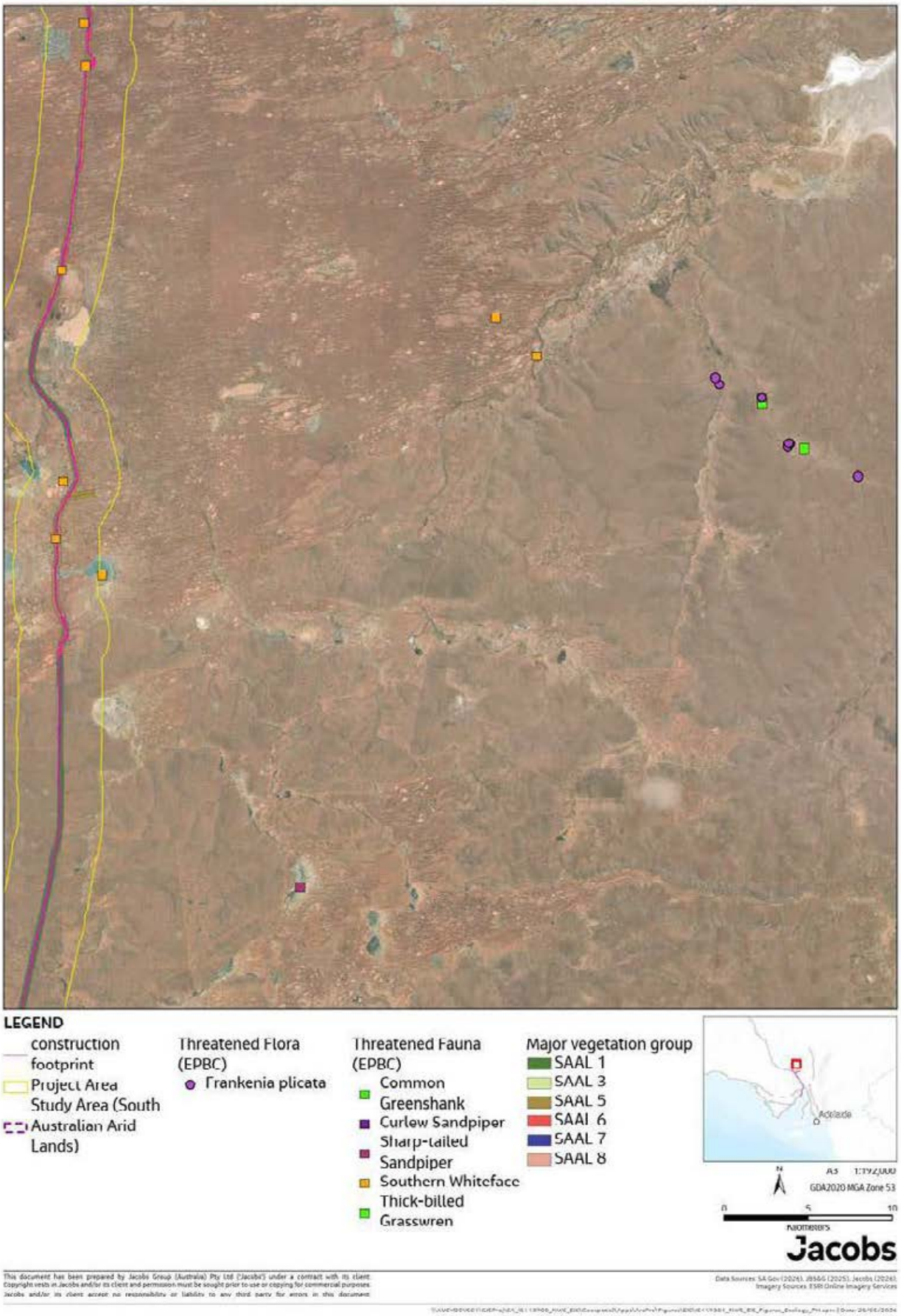

LEGEND
construction footprint
Project Area
Study Area (South Australian Arid Lands)
Threatened Fauna (EPBC)
Common Greenshank
Sharp-tailed Sandpiper
Southern Whiteface
Western Grasswren
Major vegetation group
SAAL 1
SAAL 12
SAAL 2
SAAL 3
SAAL 4
Adelaide
GDA2020 MGA Zone 53
Jacobs

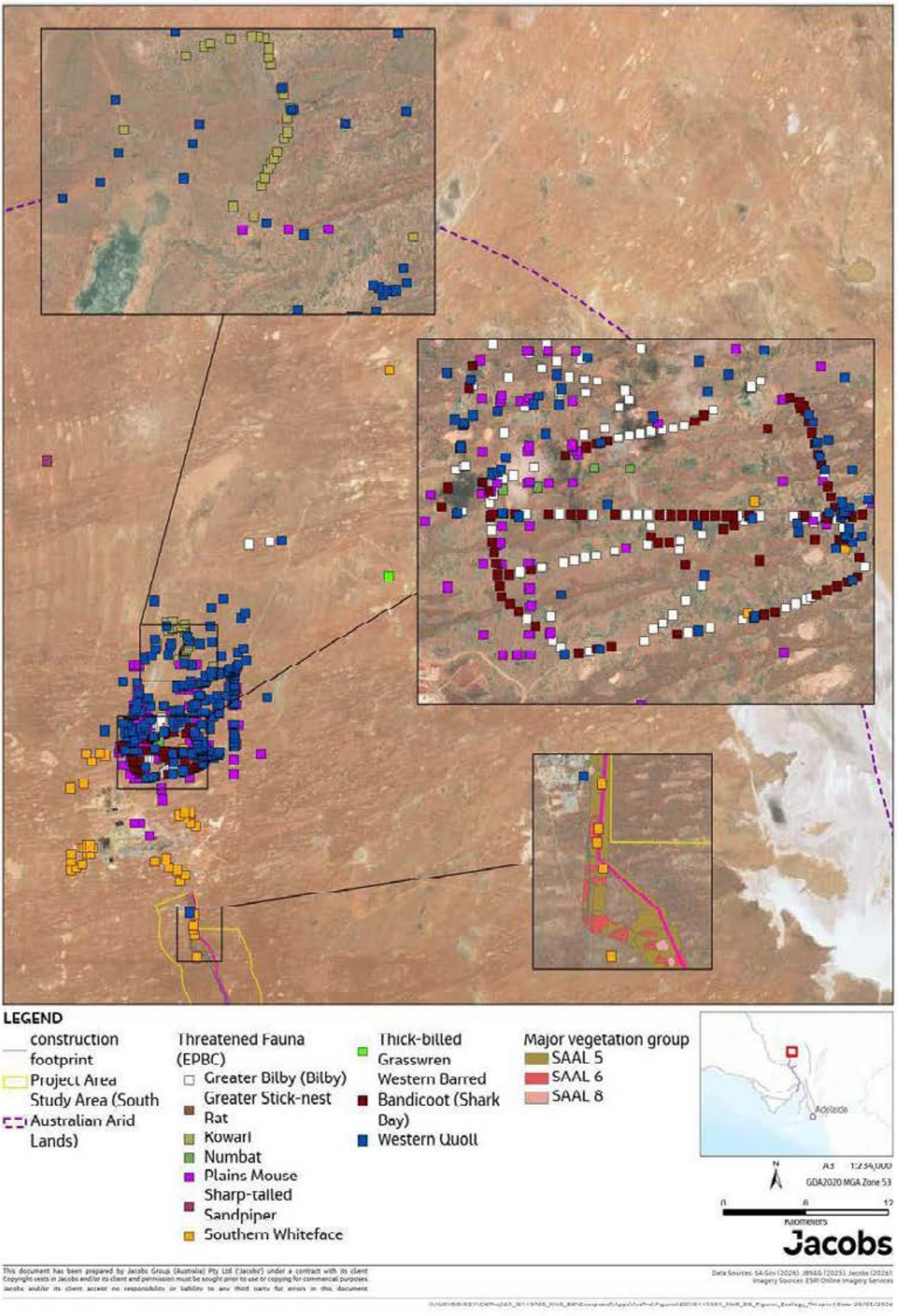

LEGEND
construction footprint
Project Area
Study Area (South Australian Arid Lands)
Threatened Flora (EPBC)
Frankenia plicata
Threatened Fauna (EPBC)
Plains Mouse
Southern Whiteface
Major vegetation group
SAAL 1
SAAL 4
N
A3 1:228,000
GDA2020 MGA Zone 53
0 6 12
Kilometers
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Data Sources: SA Gov (2026); BSGG (2025); Jacobs (2026)
Imagery Sources: ESRI Online Imagery Services


LEGEND
construction footprint
Project Area
Study Area (South Australian Arid Lands)
Threatened Flora (EPBC)
Granite Mudwort
Threatened Fauna (EPBC)
Blue-winged Parrot
Common Greenshank
Sharp-tailed Sandpiper
Southern Whiteface
Major vegetation group
Non-vegetated area
SAAL 1
SAAL 10
SAAL 11
SAAL 2
SAAL 3
SAAL 4
SAAL 5
SAAL 6
SAAL 7
SAAL 8
Adelaide
A3
GDA2020 MGA Zone 53
Jacobs


LEGEND
construction footprint
Project Area
Study Area (South Australian Arid Lands)
Threatened Fauna (EPBC)
Blue-winged Parrot
Common Greenshank
Plains Mouse
Sharp-tailed Sandpiper
Southern Whiteface
Major vegetation group
Non-vegetated area
SAAL 1
SAAL 10
SAAL 11
SAAL 2
SAAL 3
SAAL 4
SAAL 5
SAAL 6
SAAL 7
SAAL 8
Adelaide
A3
GDA2020 MGA Zone 53
Jacobs


LEGEND
construction footprint
Project Area
Study Area (South Australian Arid Lands)
Threatened Fauna (EPBC)
Common Greenshank
Curlew Sandpiper
Plains Mouse
Sharp-tailed Sandpiper
Southern Whiteface
Major vegetation group
SAAL 1
SAAL 3
SAAL 3.1
SAAL 5
SAAL 6
SAAL 7
SAAL 8
Urban
Adelaide
GDA2020 MGA Zone 53
Jacobs

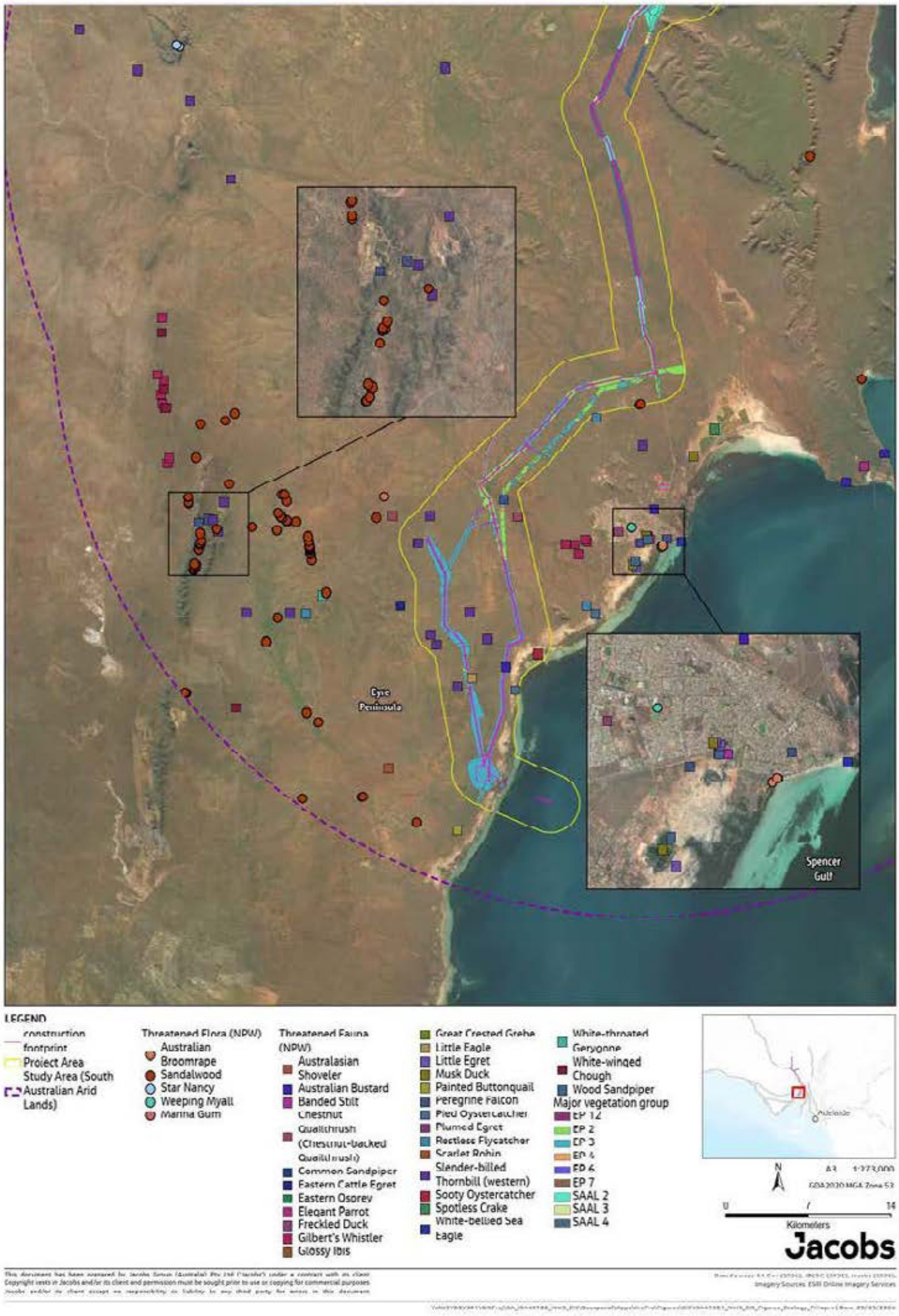

LEGEND
construction footprint
Project Area
Study Area (South Australian Arid Lands)
Threatened Flora (EPBC)
Frankenia plicata
Threatened Fauna (EPBC)
Common Greenshank
Curlew Sandpiper
Sharp-tailed Sandpiper
Southern Whiteface
Thick-billed Grasswren
Major vegetation group
SAAL 1
SAAL 3
SAAL 5
SAAL 6
SAAL 7
SAAL 8
Adelaide
A3
GDA2020 MGA Zone 53
0
5
10
NORTHERN
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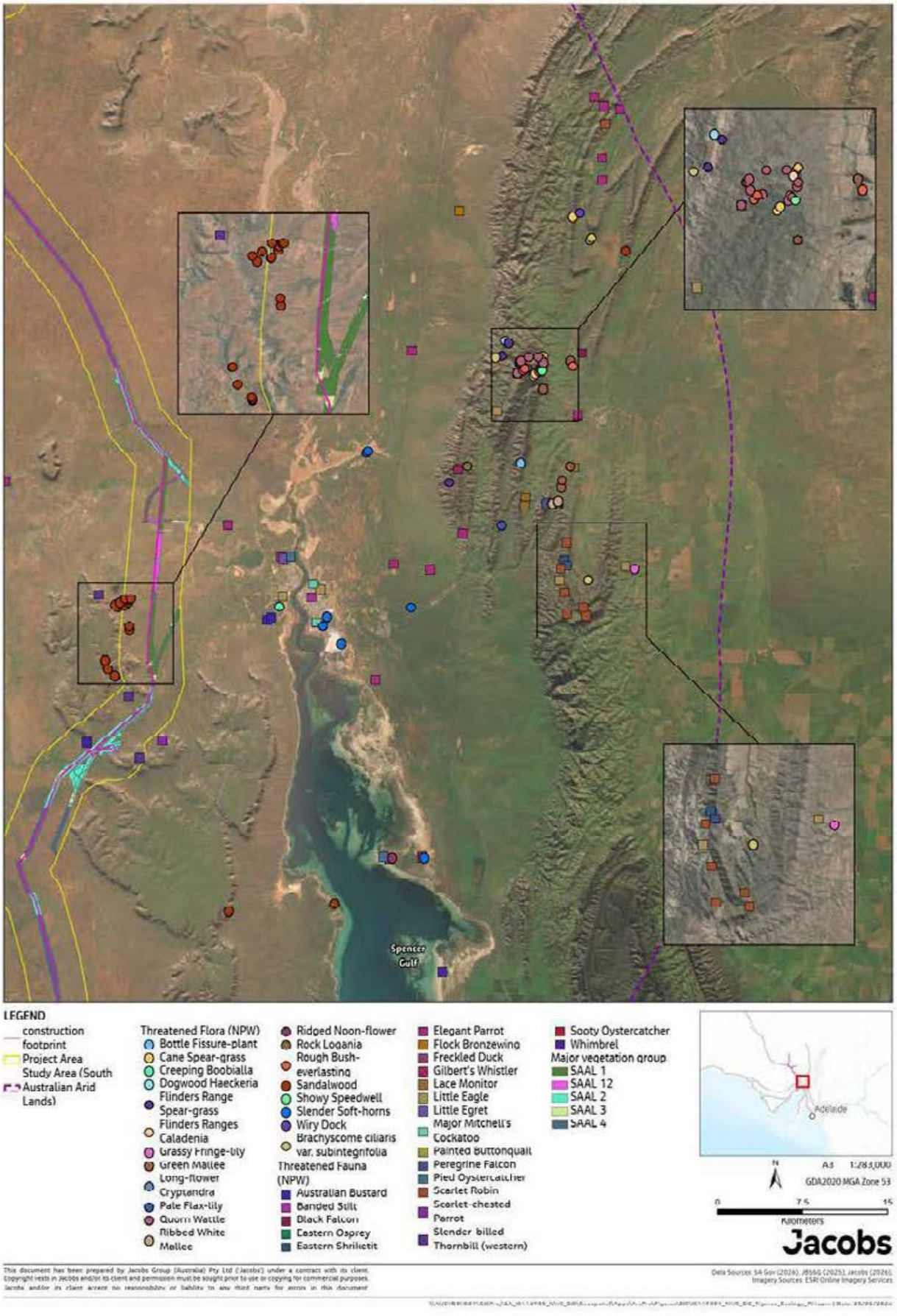


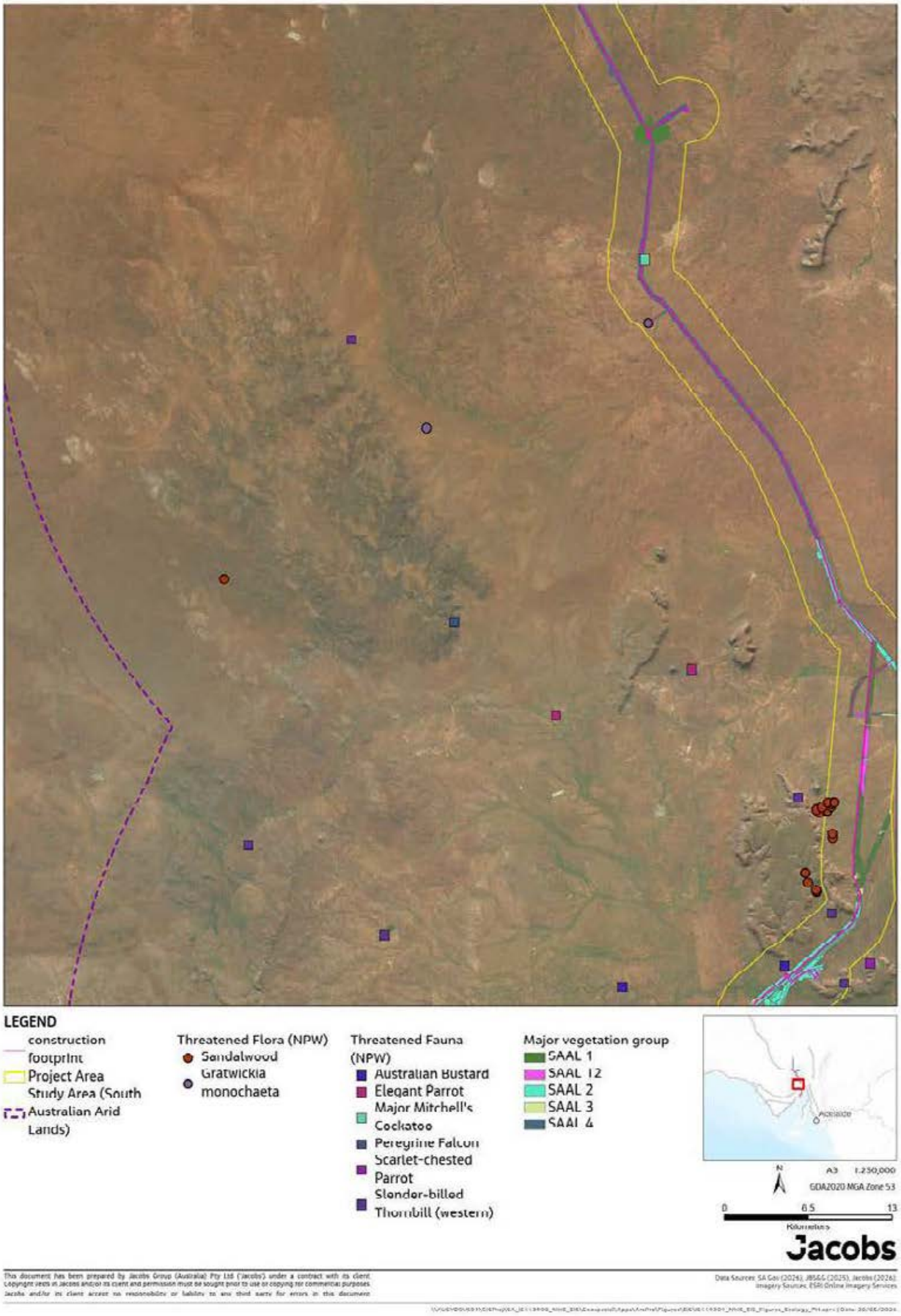
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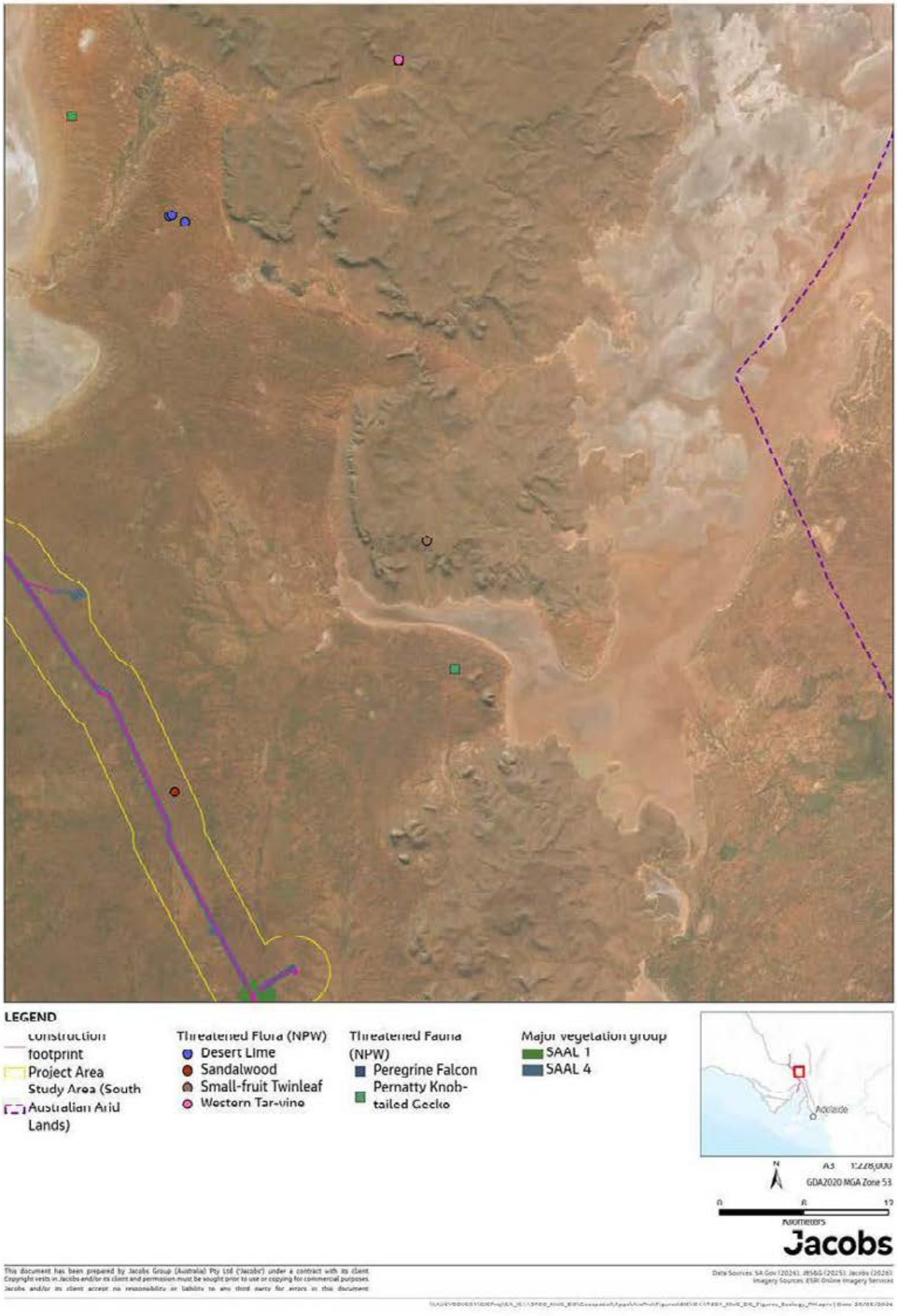
Data Sources: SA.Gov (2024); JBSG (2025); Jacobs (2024)
Imagery Sources: ESRI Online Imagery Services

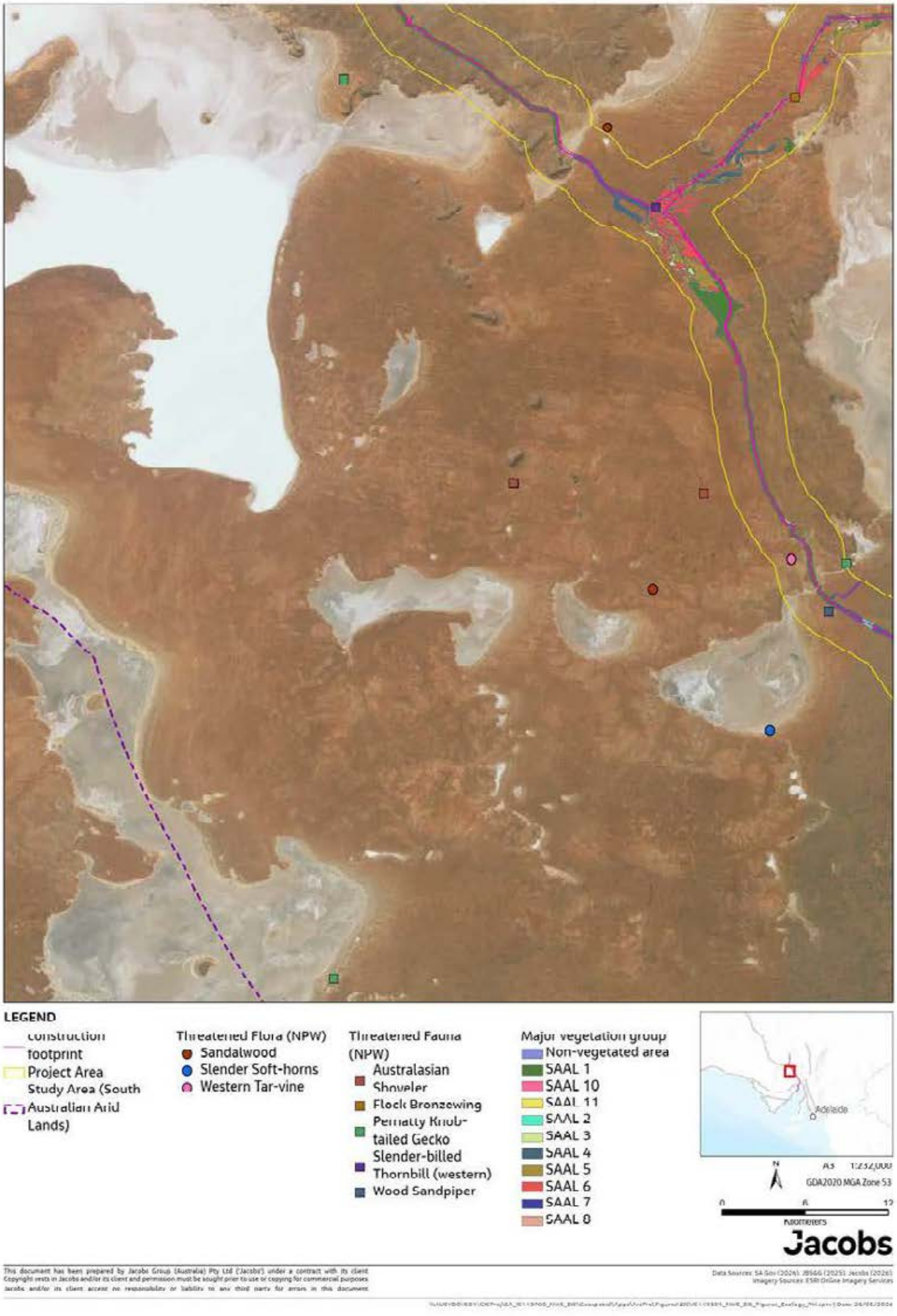
B.4 NPW Act species records within the SAAL Study Area




Spencer Gulf
LEGEND
construction footprint
Project Area
Study Area (South Australian Arid Lands)
Threatened Flora (NPW)
Bottle Fissure-plant
Cane Spear-grass
Creeping Boobialla
Dogwood Haeckeria
Flinders Range Spear-grass
Flinders Ranges Caladenia
Grassy Fringe-lily
Green Mallee
Long-flower Cryptandra
Pale Flax-lily
Quorn Wattle
Ribbed White Mallee
Ridged Noon-flower
Rock Logania
Rough Bush-everlasting
Sandalwood
Showy Speedwell
Slender Soft-horns
Wiry Dock
Brachyscome ciliaris var. subintegrifolia
Threatened Fauna (NPW)
Australian Bustard
Banded Stilt
Black Falcon
Eastern Osprey
Eastern Shriketit
Elegant Parrot
Flock Bronzewing
Freckled Duck
Gilbert's Whistler
Lace Monitor
Little Eagle
Little Egret
Major Mitchell's Cockatoo
Painted Buttonquail
Peregrine Falcon
Pied Oystercatcher
Scarlet Robin
Scarlet-chested Parrot
Slender-billed Thornbill (western)
Sooty Oystercatcher
Whimbrel
Major vegetation group
SAAL 1
SAAL 12
SAAL 2
SAAL 3
SAAL 4
Adelaide
N
A3
1:278,000
GDA2020 MGA Zone 53
0
7.5
15
Kilometers
Jacobs
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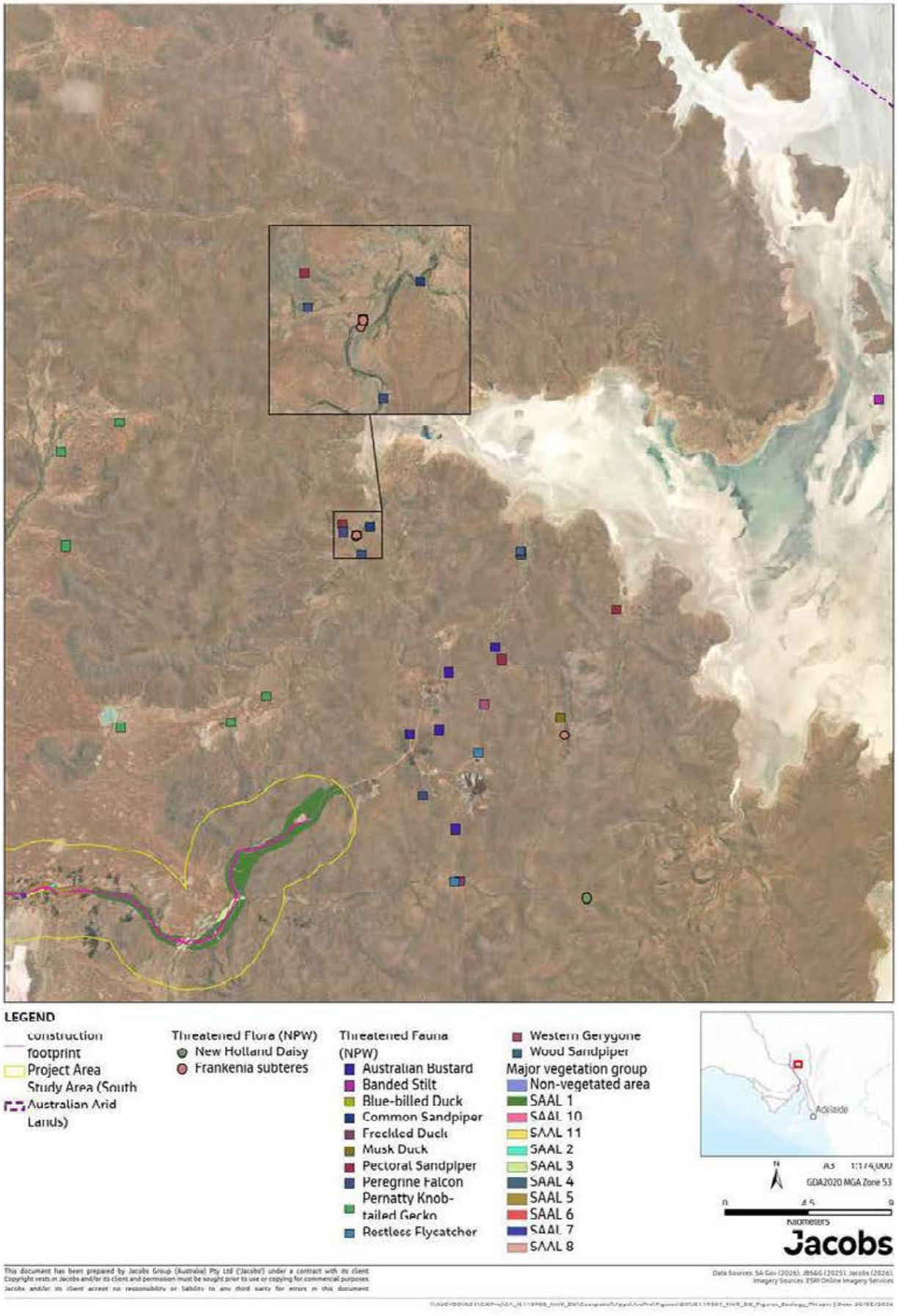

LEGEND
construction footprint
Project Area
Study Area (South Australian Arid Lands)
Threatened Flora (NPW)
Sandalwood
Gratwickia monochaeta
Threatened Fauna (NPW)
Australian Bustard
Elegant Parrot
Major Mitchell's Cockatoo
Peregrine Falcon
Scarlet-chested Parrot
Slender-billed Thornbill (western)
Major vegetation group
SAAL 1
SAAL 12
SAAL 2
SAAL 3
SAAL 4
Adelaide
N
A3 1:250,000
GDA2020 MGA Zone 53
0 6.5 13
Kilometres
Jacobs
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Data Sources: SA Gov (2026); JBS&G (2025); Jacobs (2026); Imagery Sources: ESRI Online Imagery Services

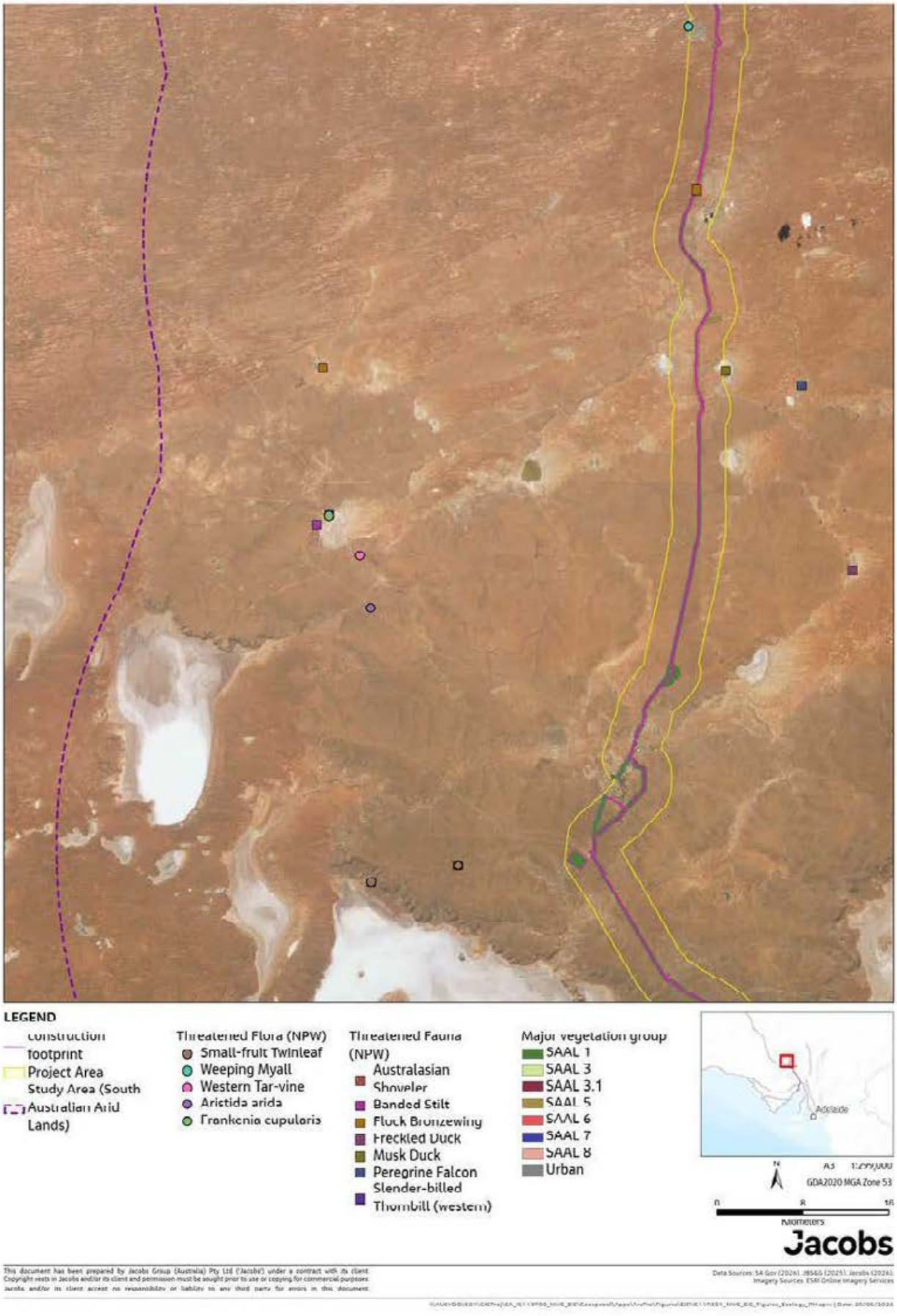

LEGEND
construction footprint
Project Area
Study Area (South Australian Arid Lands)
Threatened Flora (NPW)
Desert Lime
Sandalwood
Small-fruit Twinleaf
Western Tar-vine
Threatened Fauna (NPW)
Peregrine Falcon
Pernatty Knob-tailed Gecko
Major vegetation group
SAAL 1
SAAL 4
Adelaide
GDA2020 MGA Zone 53
Jacobs

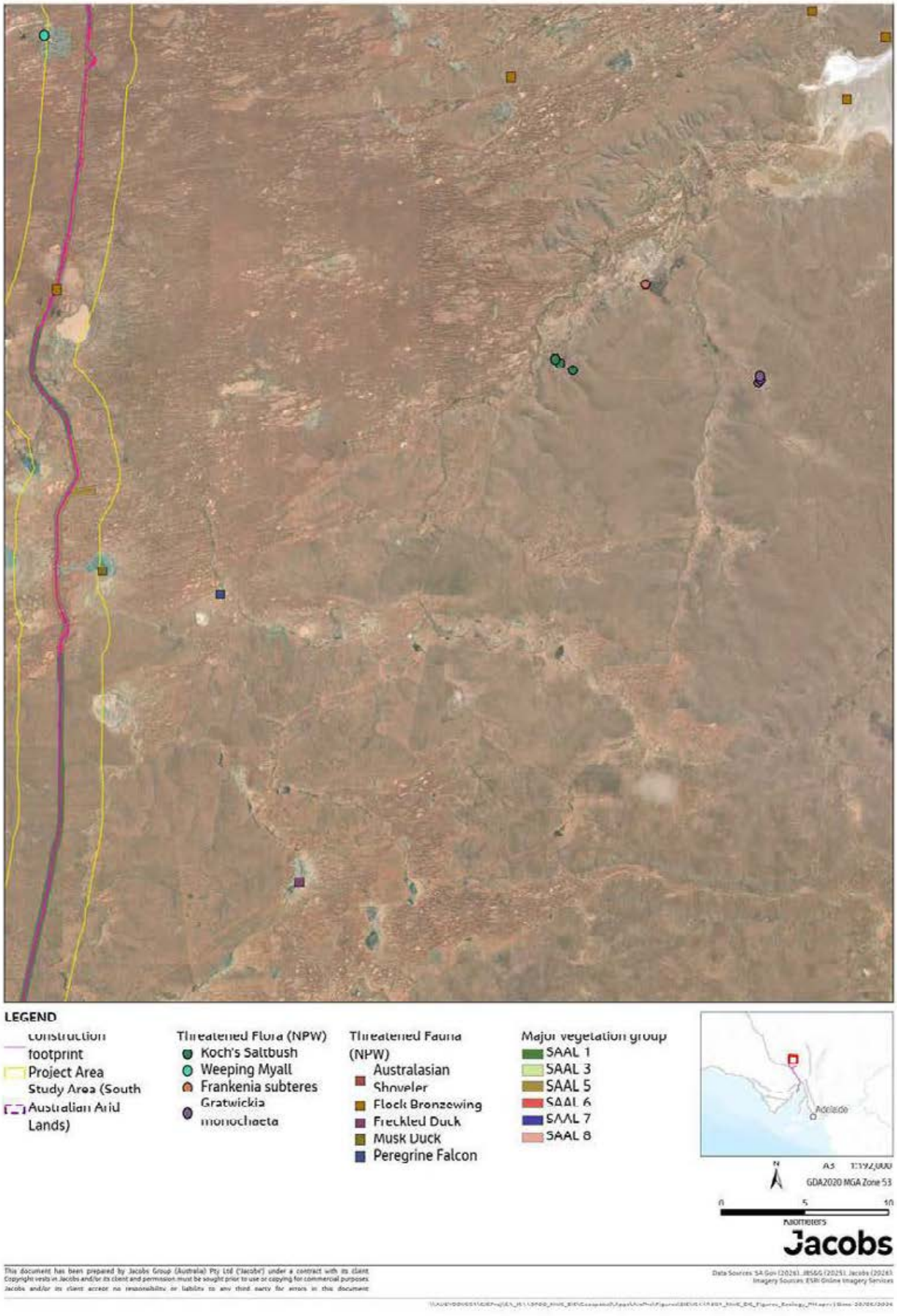


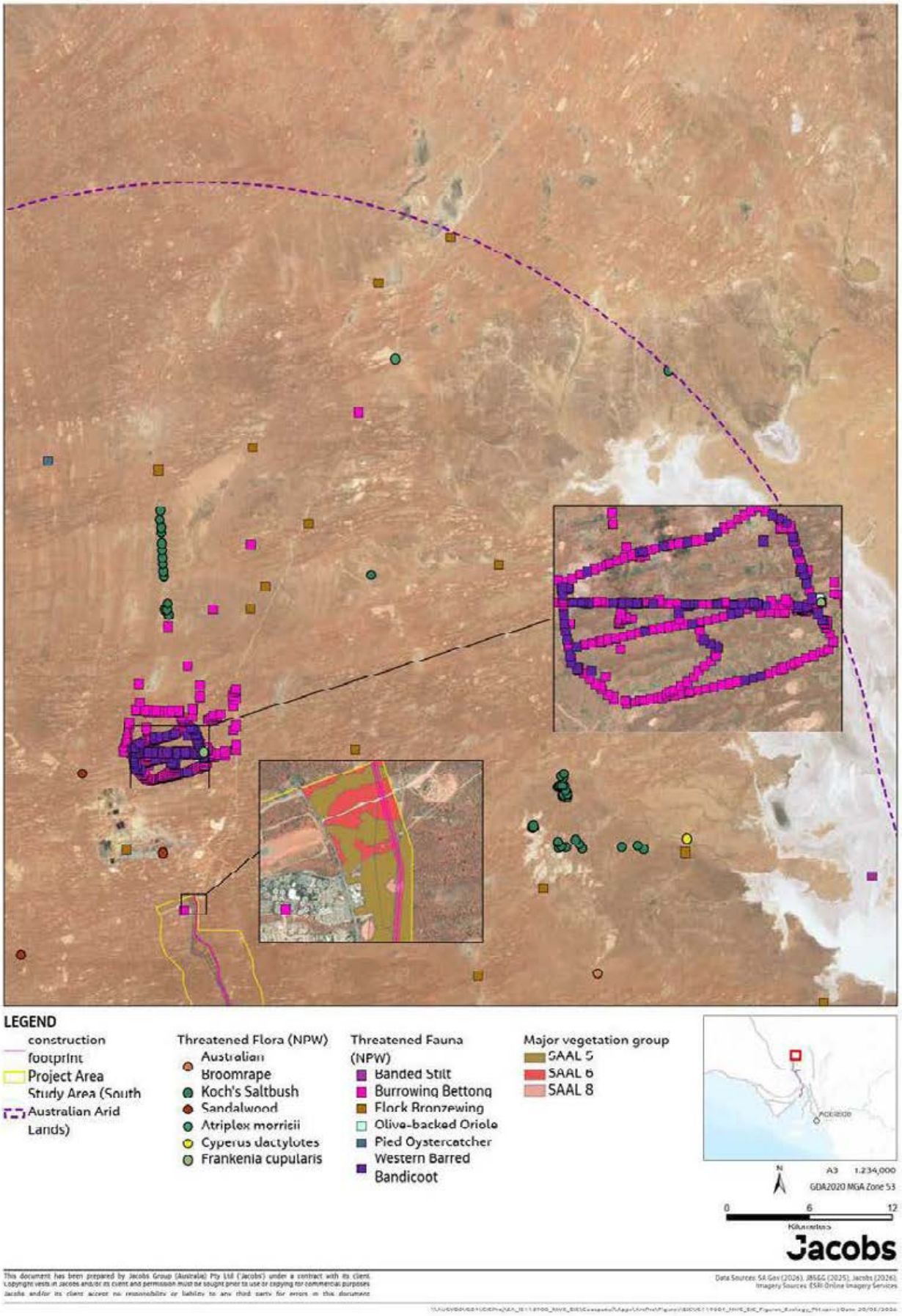
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Data Sources: SA Gov (2026); JBS&G (2025); Jacobs (2026)
Imagery Sources: ESRI Online Imagery Services


LEGEND
construction footprint
Project Area
Study Area (South Australian Arid Lands)
Threatened Flora (NPW)
New Holland Daisy
Frankenia subteres
Threatened Fauna (NPW)
Australian Bustard
Banded Stilt
Blue-billed Duck
Common Sandpiper
Freckled Duck
Musk Duck
Pectoral Sandpiper
Peregrine Falcon
Pernatty Knob-tailed Gecko
Rectices Flycatcher
Western Gerygone
Wood Sandpiper
Major vegetation group
Non-vegetated area
SAAL 1
SAAL 10
SAAL 11
SAAL 2
SAAL 3
SAAL 4
SAAL 5
SAAL 6
SAAL 7
SAAL 8
Adelaide
GDA2020 MGA Zone 53
Jacobs

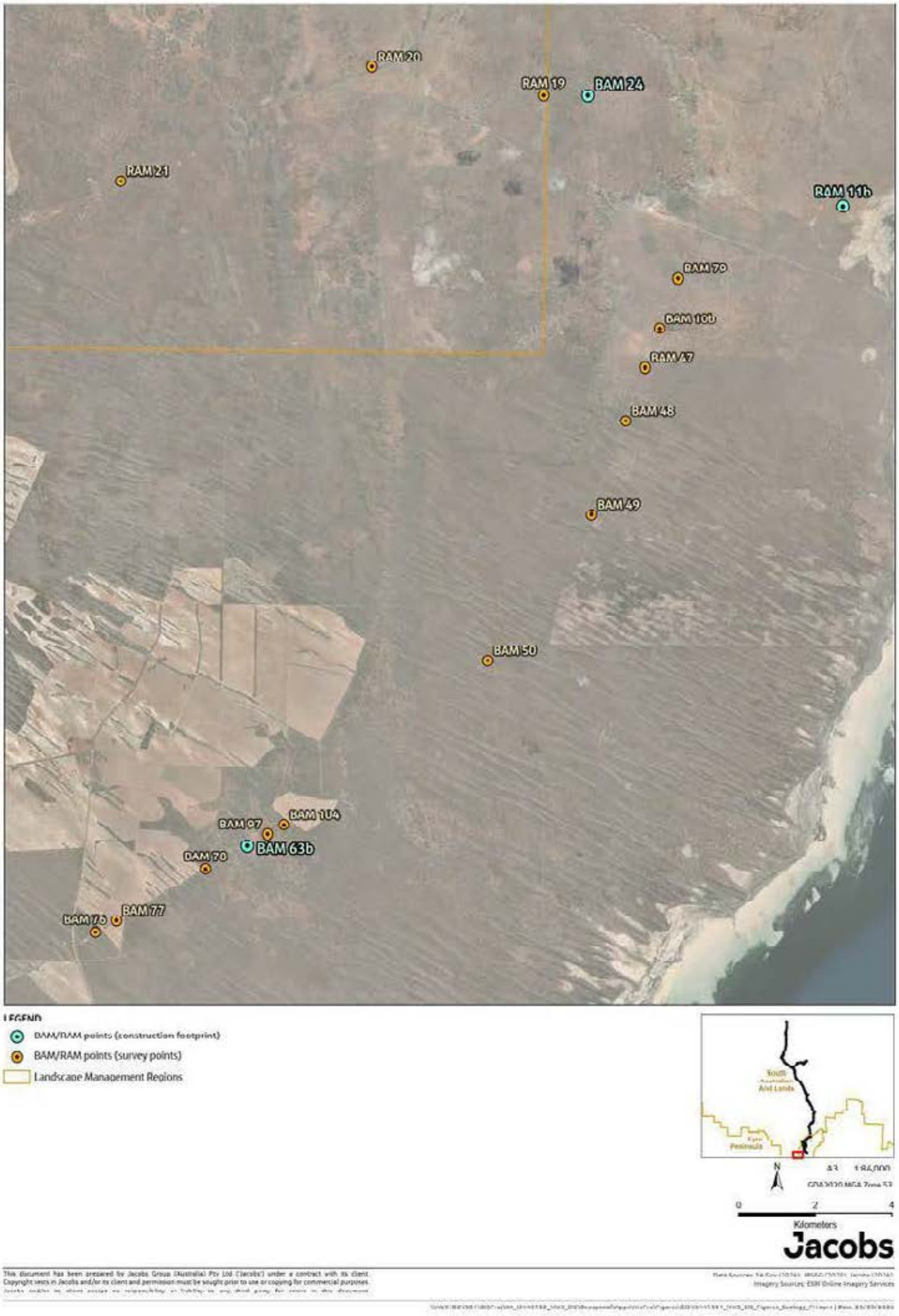

LEGEND
construction footprint
Project Area
Study Area (South Australian Arid Lands)
Threatened Flora (NPW)
Small-fruit Twinleaf
Weeping Myall
Western Tar-vine
Aristida arida
Frankenia cupularis
Threatened Fauna (NPW)
Australasian Shoveler
Banded Stilt
Fluck Bronzewing
Freckled Duck
Musk Duck
Peregrine Falcon
Slender-billed Thornbill (western)
Major vegetation group
SAAL 1
SAAL 3
SAAL 3.1
SAAL 5
SAAL 6
SAAL 7
SAAL 8
Urban
Adelaide
GDA2020 MGA Zone 53
Jacobs

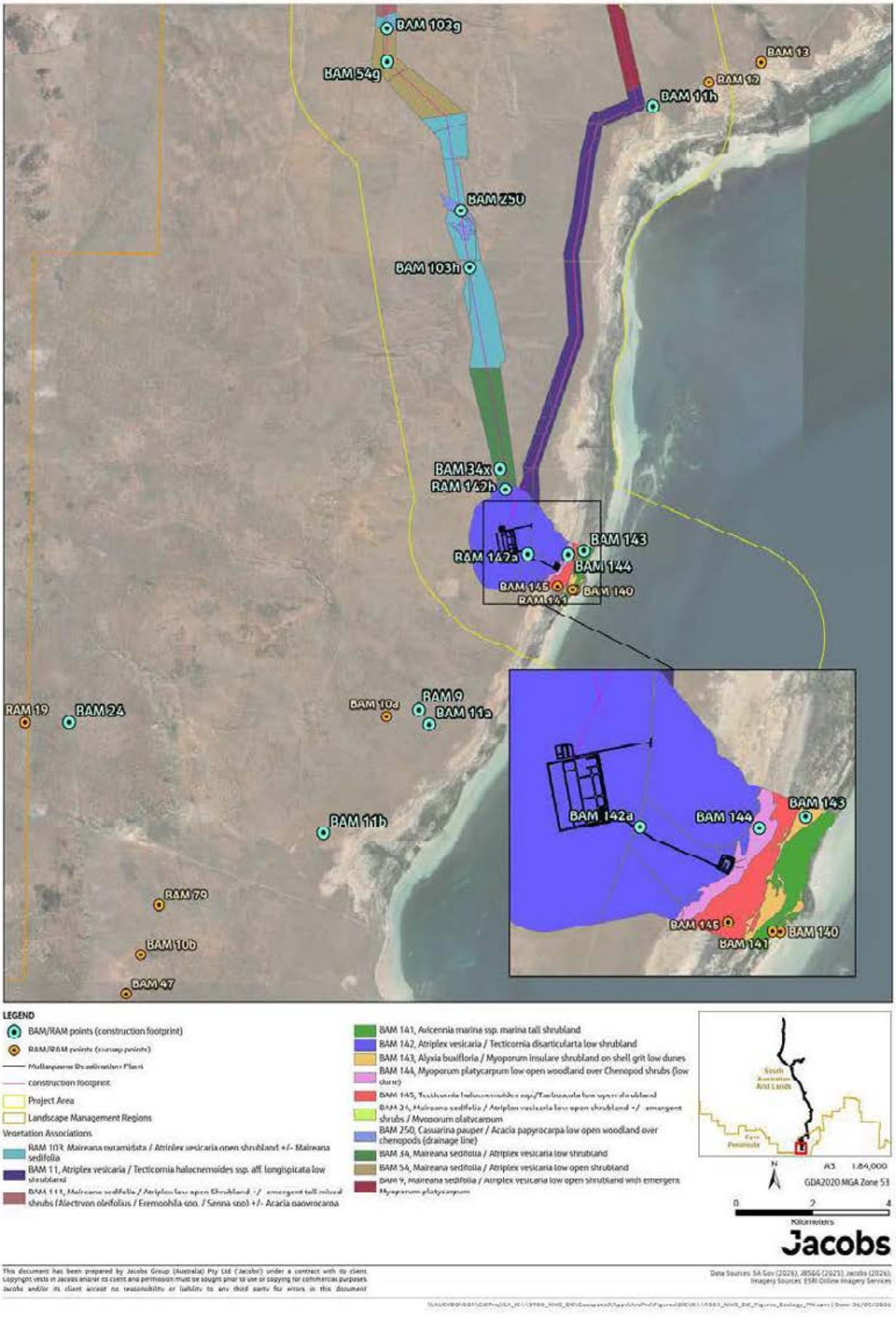

LEGEND
construction footprint
Project Area
Study Area (South Australian Arid Lands)
Threatened Flora (NPW)
Koch's Saltbush
Weeping Myall
Frankenia subteres
Gratwickia monochaeta
Threatened Fauna (NPW)
Australasian Shoveler
Flock Bronzewing
Freckled Duck
Musk Duck
Peregrine Falcon
Major vegetation group
SAAL 1
SAAL 3
SAAL 5
SAAL 6
SAAL 7
SAAL 8
Adelaide
N
A3
GDA2020 MGA Zone 53
0
5
10
Kilometers
Jacobs
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Imagery Sources: ESRI Online Imagery Services

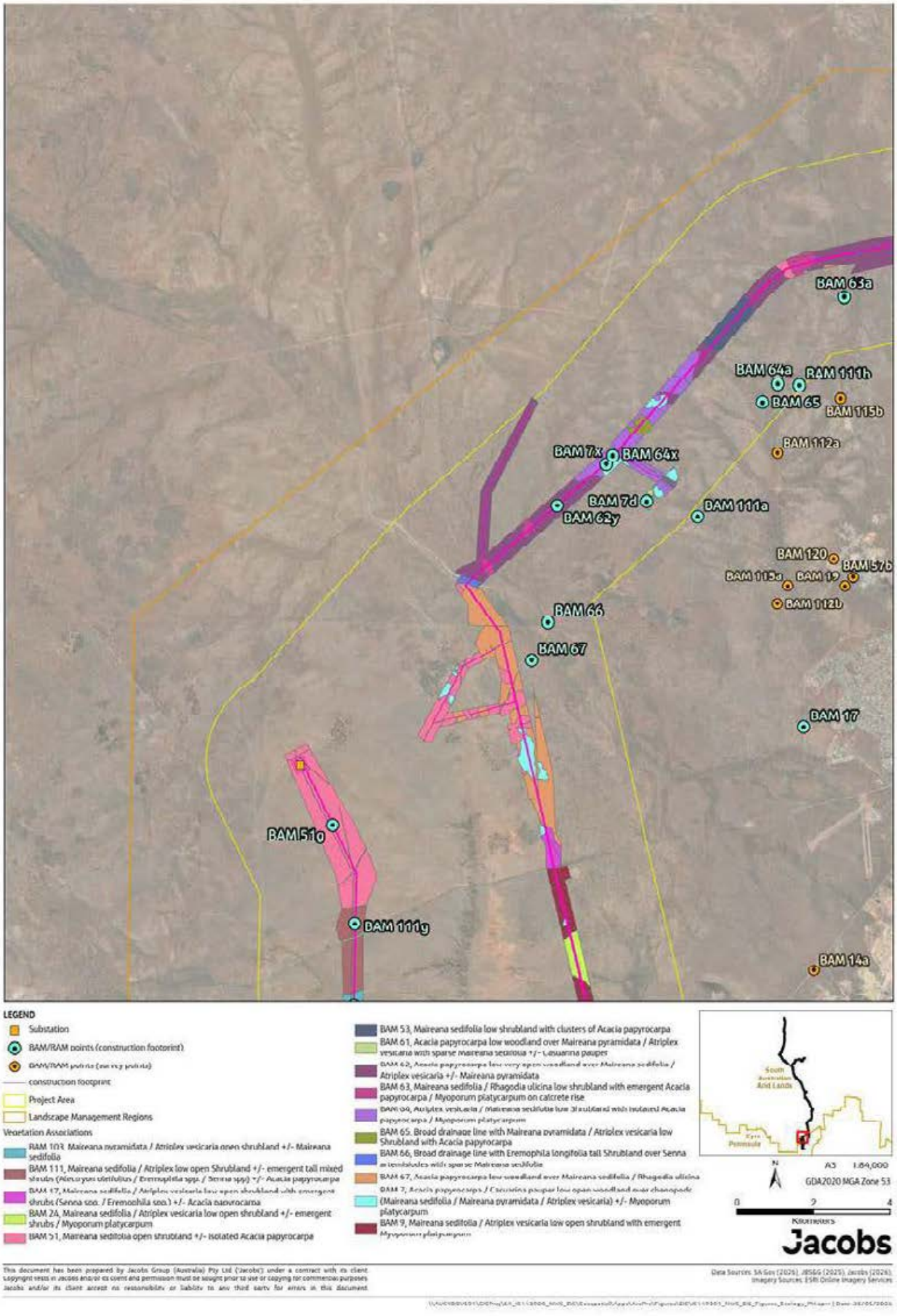

LEGEND
construction footprint
Project Area
Study Area (South Australian Arid Lands)
Threatened Flora (NPW)
Australian Broomrape
Koch's Saltbush
Sandalwood
Atriplex morrisii
Cyperus dactylotes
Frankenia cupularis
Threatened Fauna (NPW)
Banded Stilt
Burrowing Bettong
Flock Bronzewing
Olive-backed Oriole
Pied Oystercatcher
Western Barred Bandicoot
Major vegetation group
SAAL 5
SAAL 6
SAAL 8
N
A3 1:234,000
GDA2020 MGA Zone 53
0 6 12
Kilometres
Jacobs
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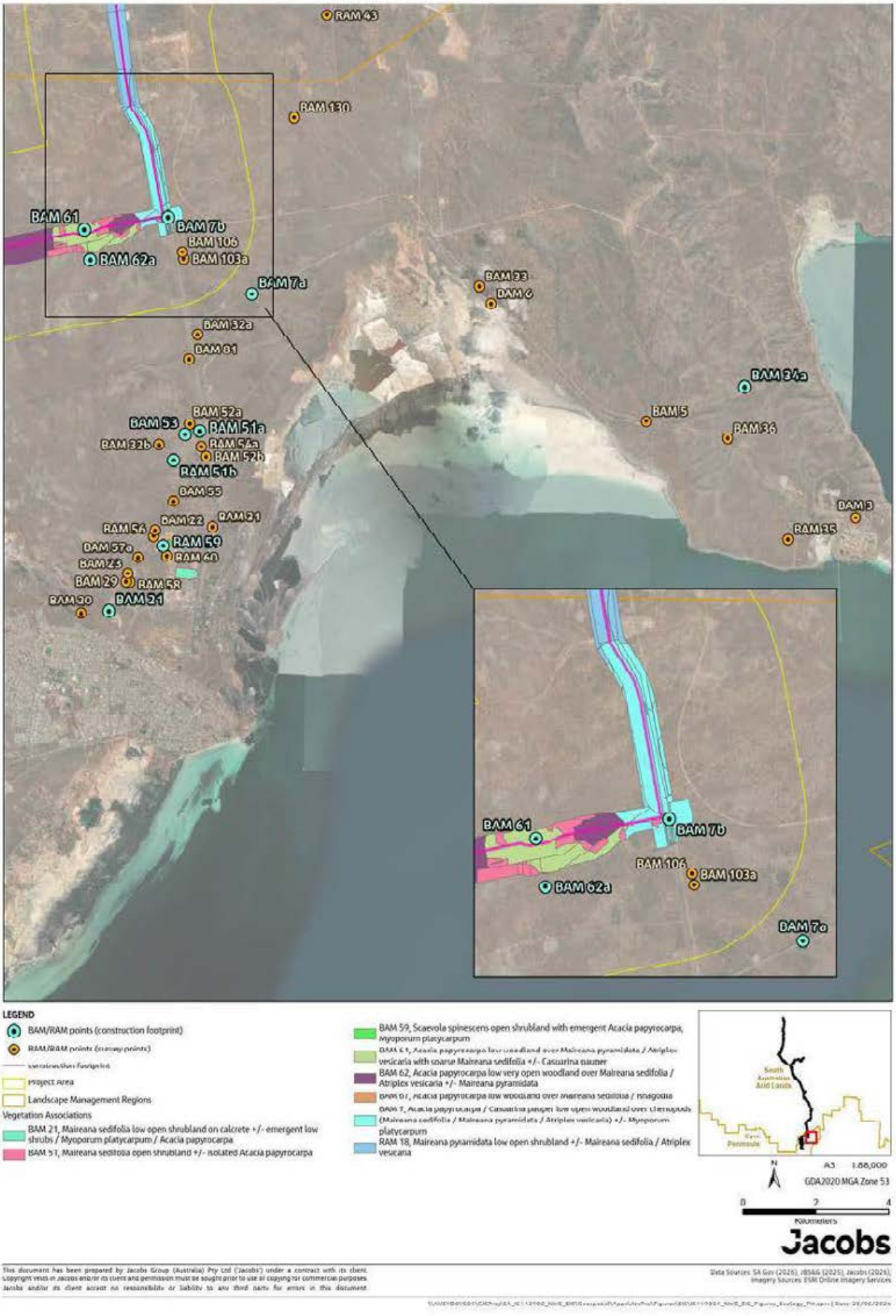
B.5 Vegetation Jacobs RAM / BAM Mapping Series

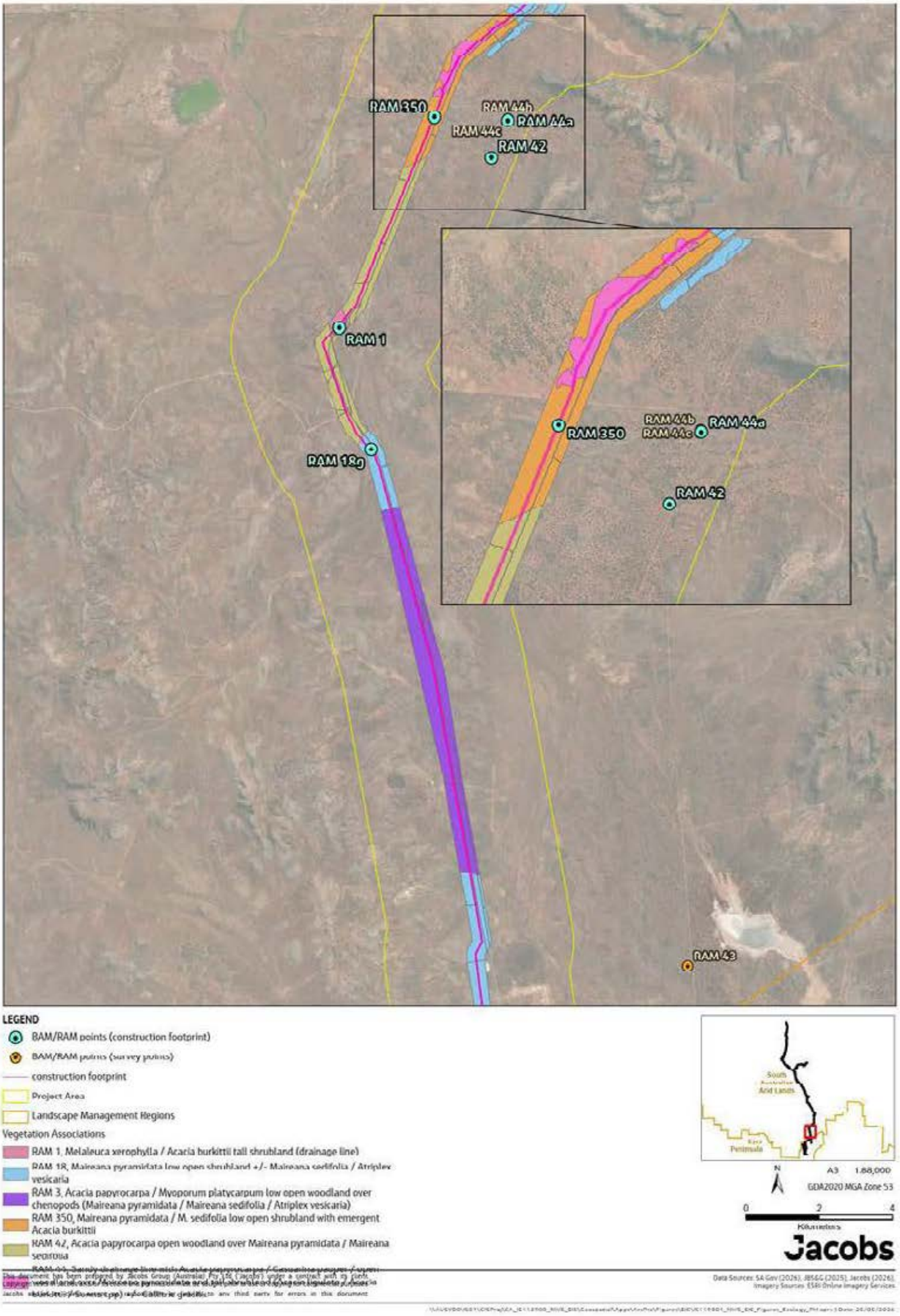
Vegetation mapping relevant to the Project Area are provided below (map series 1-17).

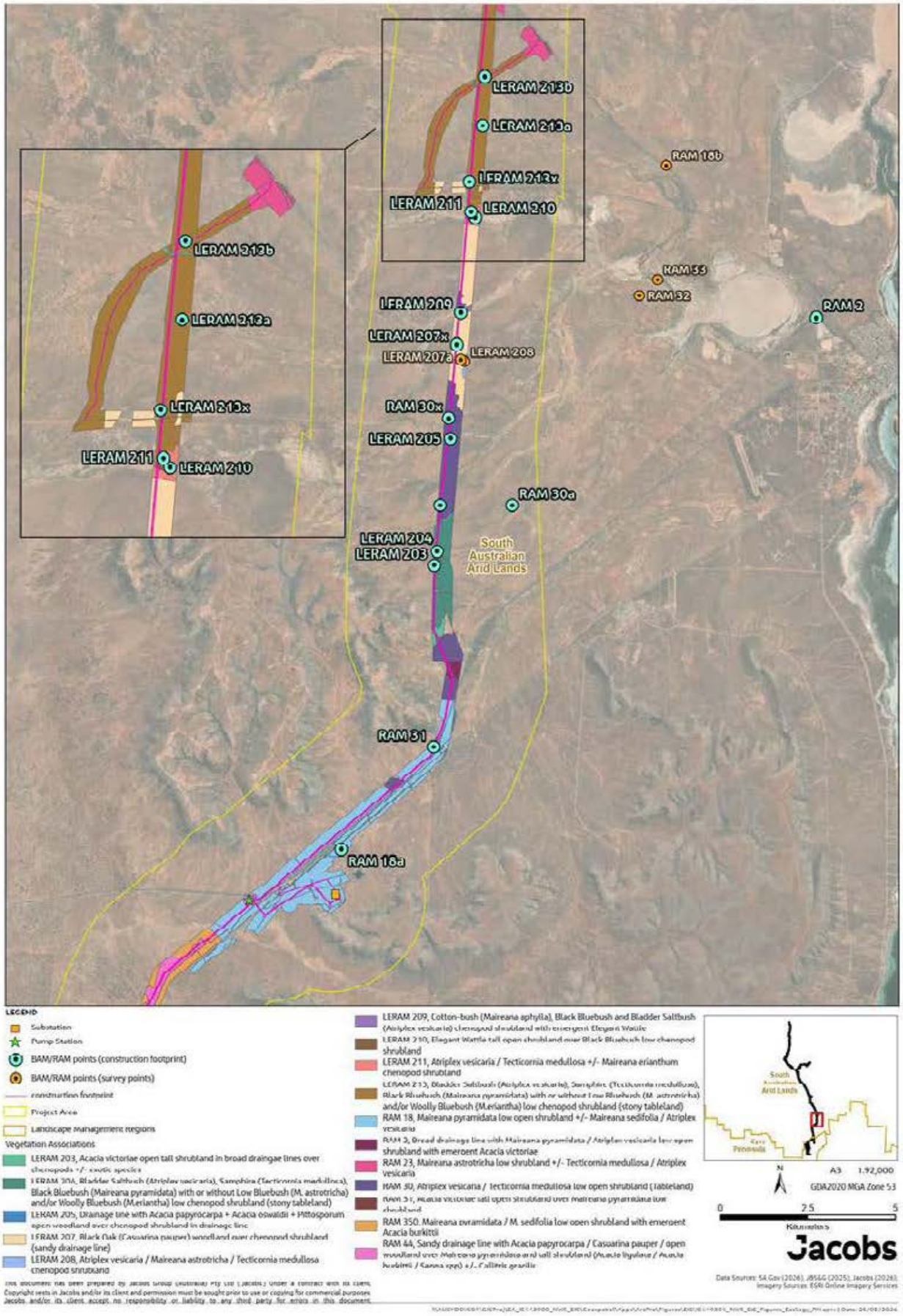

RAM 20
RAM 19
BAM 24
RAM 21
RAM 11b
RAM 79
BAM 100
RAM 47
BAM 48
BAM 49
BAM 50
BAM 104
BAM 97
BAM 63b
BAM 78
BAM 77
BAM 75
LEGEND
BAM/RAM points (construction footprint)
BAM/RAM points (survey points)
Landscape Management Regions
Kilometers
Jacobs

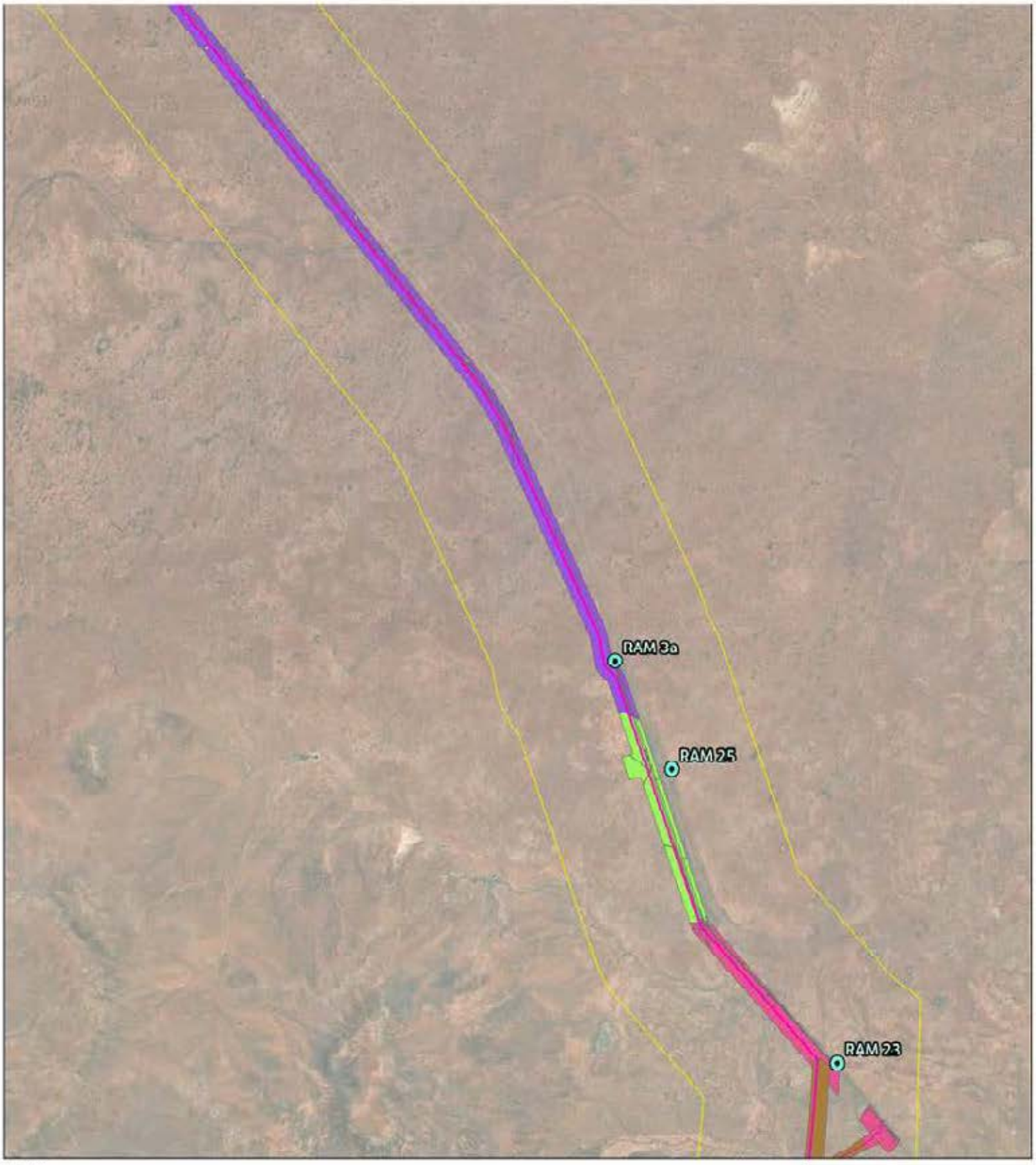

BAM 102g
BAM 54g
BAM 13
RAM 12
BAM 11h
BAM 250
BAM 103h
BAM 34x
RAM 142h
BAM 143
RAM 142a
BAM 144
BAM 145
BAM 140
RAM 141
RAM 19
RAM 24
BAM 10d
BAM 9
BAM 11a
BAM 11b
RAM 79
BAM 10b
BAM 47
LEGEND
BAM/RAM points (construction footprint)
construction footprint
Project Area
Landscape Management Regions
Vegetation Associations
BAM 141, Avicennia marina ssp. marina tall shrubland
BAM 142, Atriplex vesicaria / Tecticornia disarticularta low shrubland
BAM 143, Alyxia buxifloria / Myoporum insulare shrubland on shell grit low dunes
BAM 144, Myoporum platycarpum low open woodland over Chenopod shrubs (low dune)
BAM 250, Casuarina pauper / Acacia papyrocarpa low open woodland over chenopods (drainage line)
BAM 54, Maireana sedifolia / Atriplex vesicaria low shrubland
BAM 54, Maireana sedifolia / Atriplex vesicaria low open shrubland
BAM 9, maireana sedifolia / Atriplex vesicaria low open shrubland with emergent Myoporum platycarpum
A3
1:84,000
GDA2020 MGA Zone 53
Kilometers
Jacobs

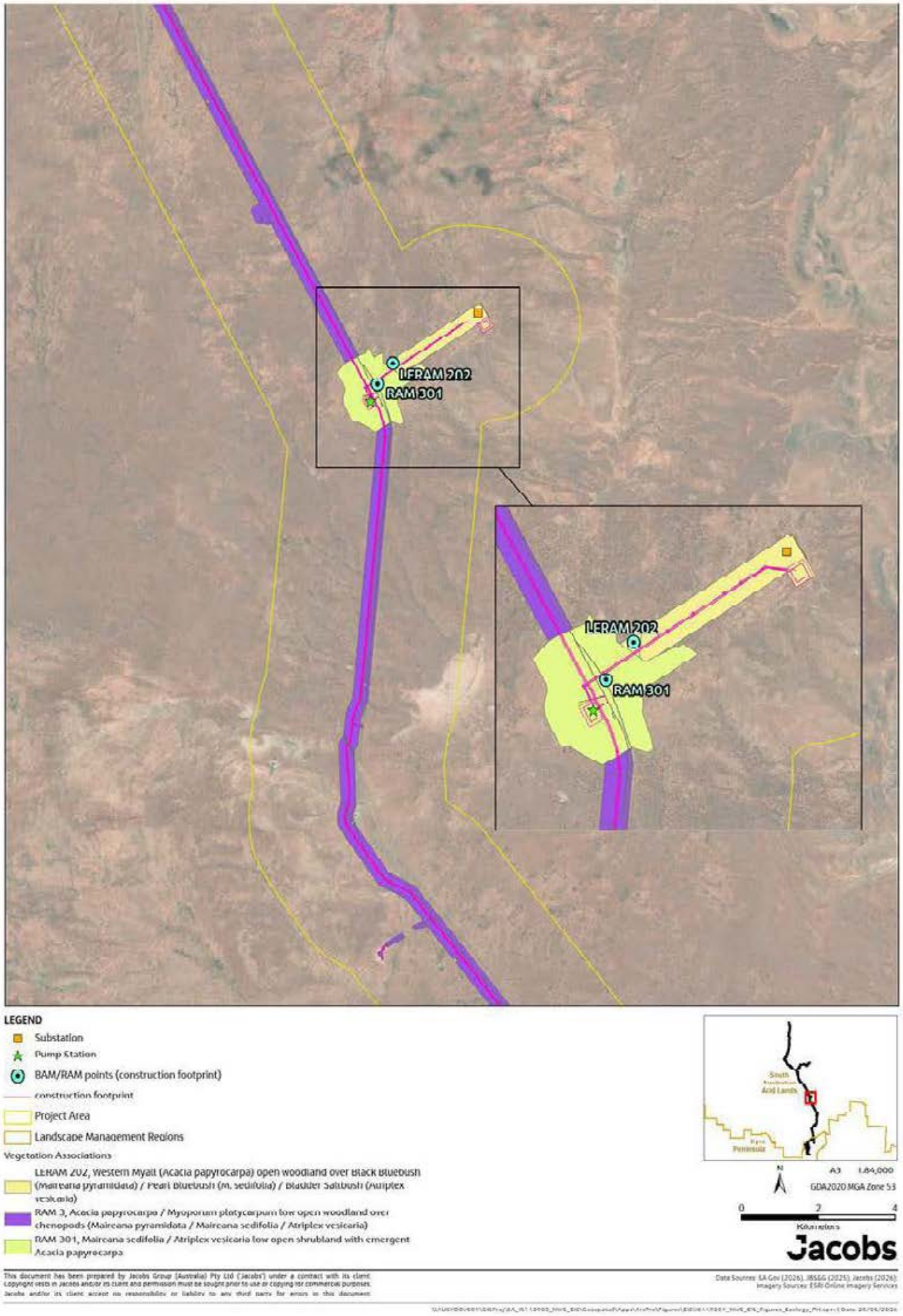

BAM 63a
BAM 64a
RAM 111h
BAM 65
BAM 115b
BAM 112a
BAM 7x
BAM 64x
BAM 7d
BAM 62y
BAM 111a
BAM 120
BAM 57b
BAM 113a
BAM 19
BAM 112b
BAM 66
BAM 67
BAM 17
BAM 51o
BAM 111g
BAM 14a
LEGEND
Substation
BAM/RAM points (construction footprint)
construction footprint
Project Area
Landscape Management Regions
Vegetation Associations
BAM 53, Maireana sedifolia low shrubland with clusters of Acacia papyrocarpa
BAM 65, Broad drainage line with Maireana pyramidata / Atriplex vesicaria low shrubland with Acacia papyrocarpa
BAM 66, Broad drainage line with Eremophila longifolia tall Shrubland over Senna
BAM 67, Acacia papyrocarpa low woodland over Maireana sedifolia / Rhagodia ulicina
BAM 9, Maireana sedifolia / Atriplex vesicaria low shrubland with emergent
N
A3
1:84,000
GDA2020 MGA Zone 53
0
2
4
Kilometers
Jacobs

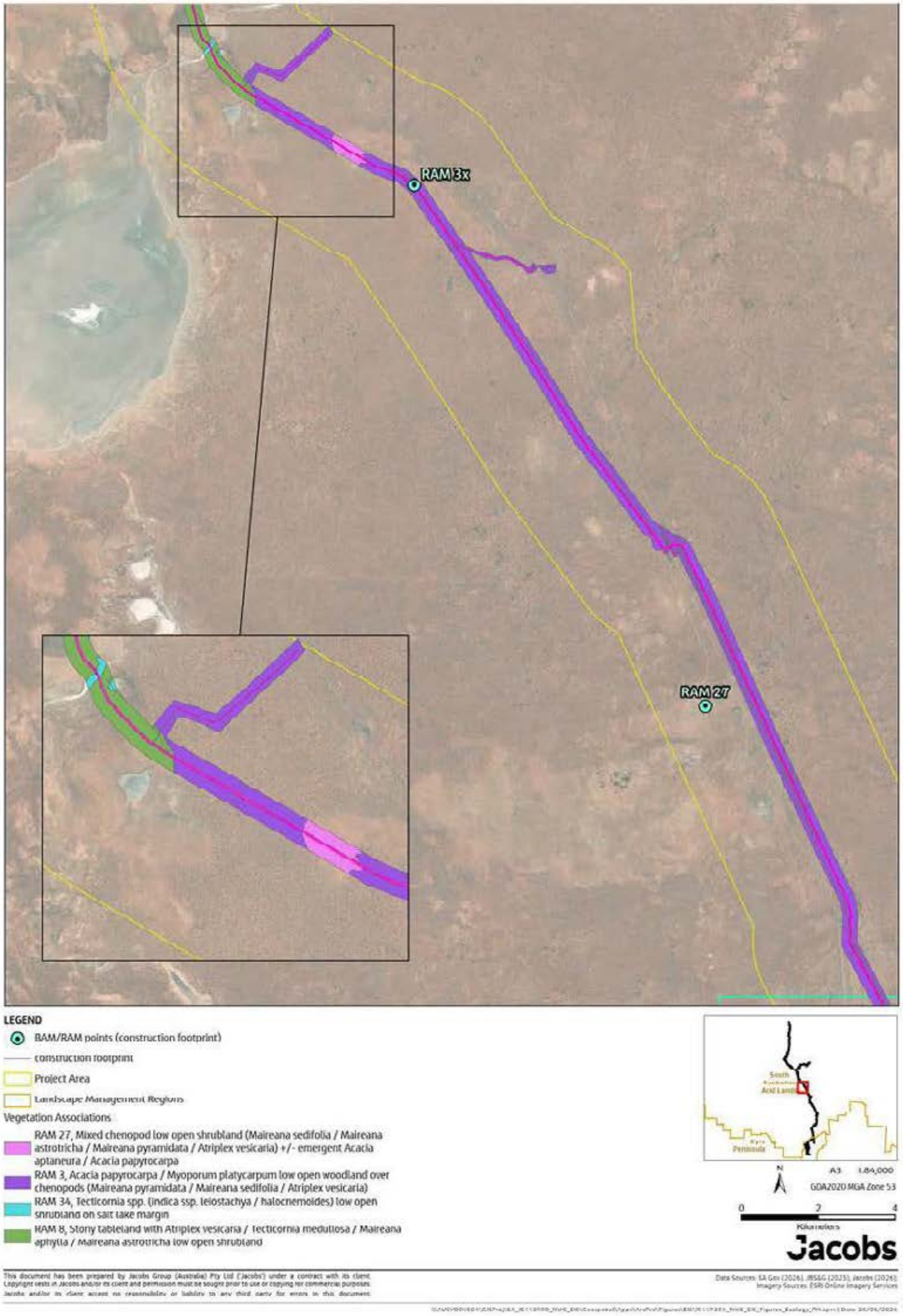

RAM 43
BAM 130
BAM 61
BAM 7b
BAM 106
BAM 62a
BAM 103a
BAM 7a
BAM 33
BAM 6
BAM 32a
BAM 31
BAM 34a
BAM 5
BAM 36
BAM 52a
BAM 53
BAM 51a
BAM 32b
BAM 54a
BAM 52b
BAM 51b
BAM 55
BAM 3
BAM 22
BAM 21
BAM 35
BAM 56
BAM 59
BAM 57a
BAM 60
BAM 23
BAM 29
BAM 58
BAM 20
BAM 21
BAM 61
BAM 7b
BAM 106
BAM 103a
BAM 62a
BAM 7a
LEGEND
BAM/RAM points (construction footprint)
Project Area
Landscape Management Regions
Vegetation Associations
BAM 21, Maireana sedifolia low open shrubland on calcrete +/- emergent low shrubs / Myoporum platycarpum / Acacia papyrocarpa
BAM 59, Scaevola spinescens open shrubland with emergent Acacia papyrocarpa, Myoporum platycarpum
BAM 62, Acacia papyrocarpa low very open woodland over Maireana sedifolia / Atriplex vesicaria +/- Maireana pyramidata
BAM 18, Maireana pyramidata low open shrubland +/- Maireana sedifolia / Atriplex vesicaria
A3
1:66,000
GDA2020 MGA Zone 53
0
2
4
Kilometers
Jacobs

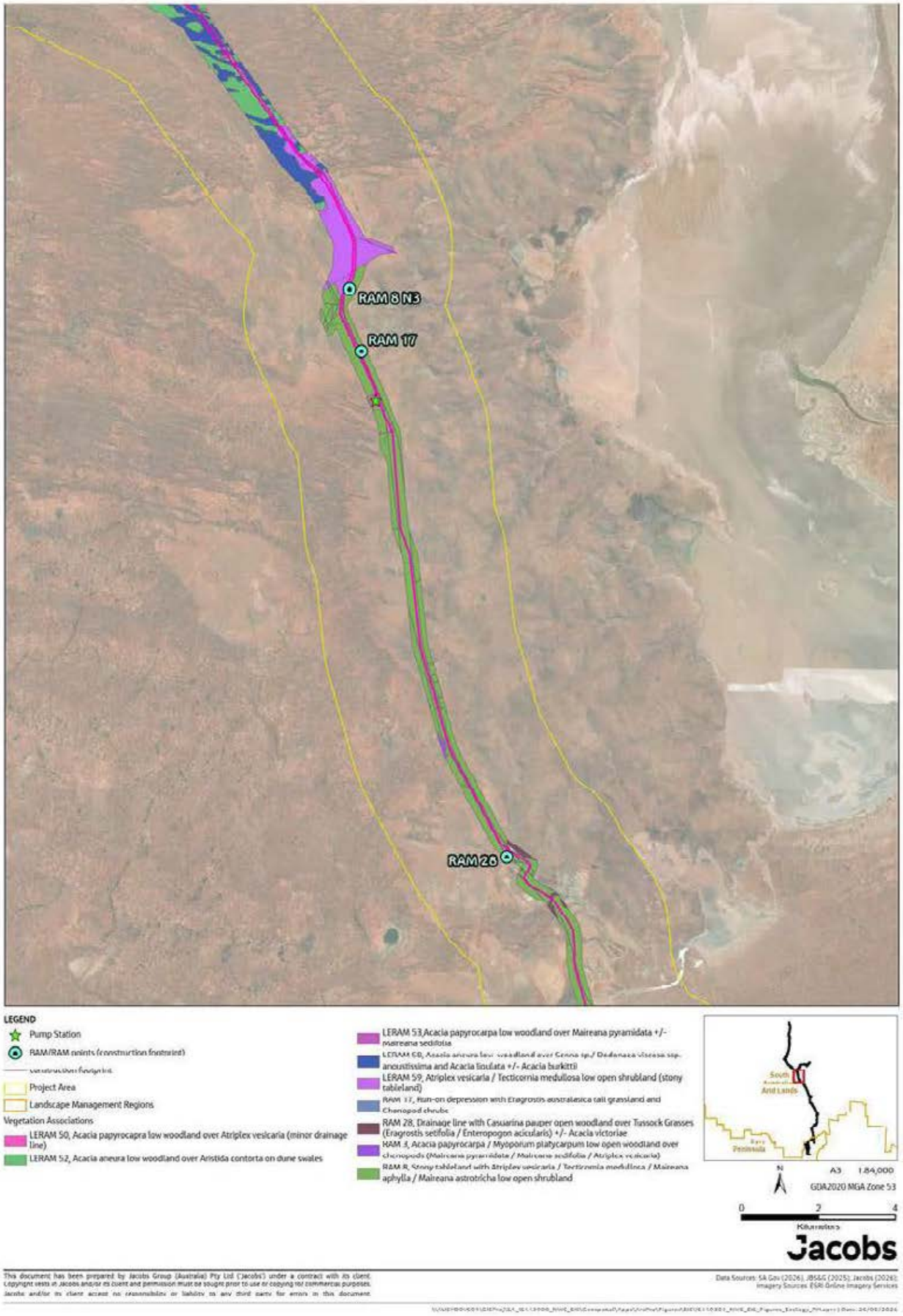

RAM 350
RAM 44b
RAM 44a
RAM 44c
RAM 42
RAM 1
RAM 18g
RAM 43
LEGEND
BAM/RAM points (construction footprint)
BAM/RAM points (survey points)
construction footprint
Project Area
Landscape Management Regions
Vegetation Associations
RAM 1, Melaleuca xerophylla / Acacia burkittii tall shrubland (drainage line)
RAM 18, Maireana pyramidata low open shrubland +/- Maireana sedifolia / Atriplex vesicaria
RAM 3, Acacia papyrocarpa / Myoporum platycarpum low open woodland over chenopods (Maireana pyramidata / Maireana sedifolia / Atriplex vesicaria)
RAM 350, Maireana pyramidata / M. sedifolia low open shrubland with emergent Acacia burkittii
RAM 42, Acacia papyrocarpa open woodland over Maireana pyramidata / Maireana sedifolia
N
A3
1:80,000
GDA2020 MGA Zone 53
0
2
4
Kilometres
Jacobs

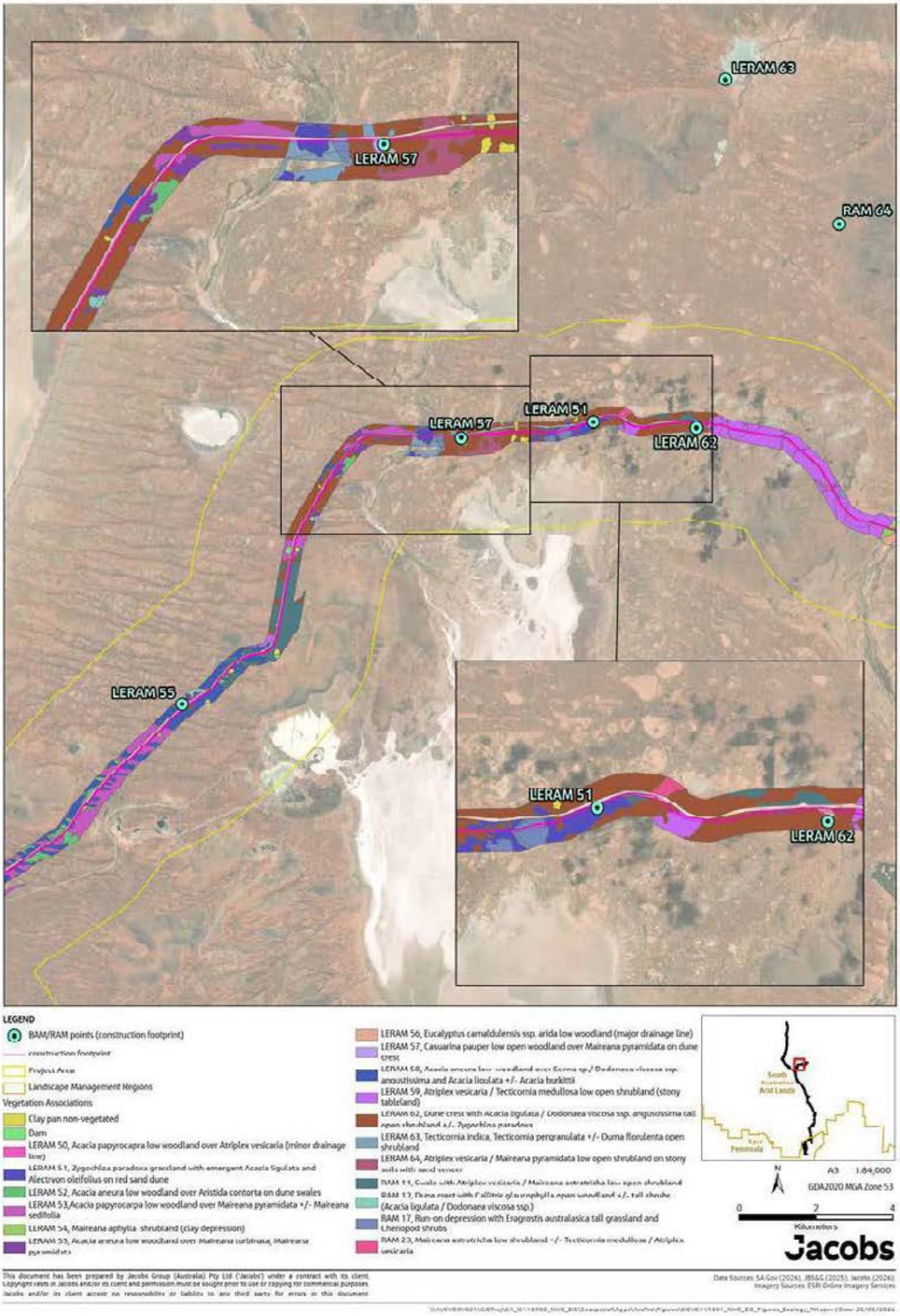

LERAM 213b
LERAM 213a
LERAM 213x
LERAM 211
LERAM 210
LERAM 212b
LERAM 212a
LERAM 212x
LERAM 211
LERAM 210
RAM 16b
RAM 33
RAM 32
RAM 2
LERAM 209
LERAM 207x
LERAM 207a
LERAM 208
RAM 30x
LERAM 205
RAM 30a
LERAM 204
LERAM 203
South Australian Arid Lands
RAM 31
RAM 18a
LEGEND
Substation
Pump Station
BAM/RAM points (construction footprint)
BAM/RAM points (survey points)
construction footprint
Project Area
Landscape management regions
Vegetation Associations
LERAM 203, Acacia victoriae open tall shrubland in broad drainage lines over chenopods +/- exotic species
LERAM 209, Cotton-bush (Maireana aphylla), Black Bluebush and Bladder Saltbush (Atriplex vesicaria) chenopod shrubland with emergent Elegant Wattle
LERAM 210, Elegant Wattle tall open shrubland over Black Bluebush low chenopod shrubland
LERAM 211, Atriplex vesicaria / Tecticornia medullosa +/- Maireana erianthum chenopod shrubland
LERAM 213, Bladder Saltbush (Atriplex vesicaria), Samphire (Tecticornia medullosa), Black Bluebush (Maireana pyramidata) with or without Low Bluebush (M. astrotricha) and/or Woolly Bluebush (M.erianthra) low chenopod shrubland (stony tableland)
LERAM 204, Drainage line with Acacia papyrocarpa + Acacia oswaldii + Pittosporum open woodland over chenopod shrubland in drainage line
LERAM 207, Black Oak (Casuarina pauper) woodland over chenopod shrubland (sandy drainage line)
LERAM 208, Atriplex vesicaria / Maireana astrotricha / Tecticornia medullosa chenopod shrubland
RAM 18, Maireana pyramidata low open shrubland +/- Maireana sedifolia / Atriplex vesicaria
RAM 23, Maireana astrotricha low shrubland +/- Tecticornia medullosa / Atriplex vesicaria
RAM 30, Atriplex vesicaria / Tecticornia medullosa low open shrubland (Tableland)
RAM 31, Acacia victoriae tall open shrubland over Maireana pyramidata low shrubland
RAM 350, Maireana pyramidata / M. sedifolia low open shrubland with emergent Acacia burkittii
RAM 44, Sandy drainage line with Acacia papyrocarpa / Casuarina pauper / open woodland over Maireana pyramidata tall shrubland (Acacia ligulata / Acacia burkittii / Senna spp.) +/- Callitris gracilis
South Australian Arid Lands
Eyre Peninsula
N
A3
1:92,000
GDA2020 MGA Zone 53
0
2.5
5
Kilometres
Jacobs
Data Sources: SA Gov (2026); JBS&G (2025); Jacobs (2026).
Imagery Sources: ESRI Online Imagery Services


RAM 3a
RAM 25
RAM 23
LEGEND
BAM/RAM points (construction footprint)
construction footprint
Project Area
Landscape Management Regions
Vegetation Associations
LERAM 213, Bladder Saltbush (Atriplex vesicaria), Samphire (Tecticornia medullosa), Black Bluebush (Maireana pyramidata) with or without Low Bluebush (M. astrotricha) and/or Woolly Bluebush (M.eriantha) low chenopod shrubland (stony tableland)
RAM 23, Maireana astrotricha low shrubland +/- Tecticornia medullosa / Atriplex vesicaria
RAM 25, Maireana sedifolia open shrubland with emergent sparse Acacia papyrocarpa
RAM 3, Acacia papyrocarpa / Myoporum platycarpum low open woodland over chenopods (Maireana pyramidata / Maireana sedifolia / Atriplex vesicaria)
N
A3
1:84,000
GDA2020 MGA Zone 53
0
2
4
Kilometers
Jacobs


LERAM 202
RAM 301
LERAM 202
RAM 301
LEGEND
Substation
Pump Station
BAM/RAM points (construction footprint)
construction footprint
Project Area
Landscape Management Regions
Vegetation Associations
LERAM 202, Western Myall (Acacia papyrocarpa) open woodland over Black Bluebush (Maireana pyramidata) / Pearl Bluebush (M. sedifolia) / Bladder Saltbush (Atriplex vesicaria)
RAM 3, Acacia papyrocarpa / Myoporum platycarpum low open woodland over chenopods (Maireana pyramidata / Maireana sedifolia / Atriplex vesicaria)
RAM 301, Maireana sedifolia / Atriplex vesicaria low open shrubland with emergent Acacia papyrocarpa
A3
1:84,000
GDA2020 MGA Zone 53
Kilometers
Jacobs

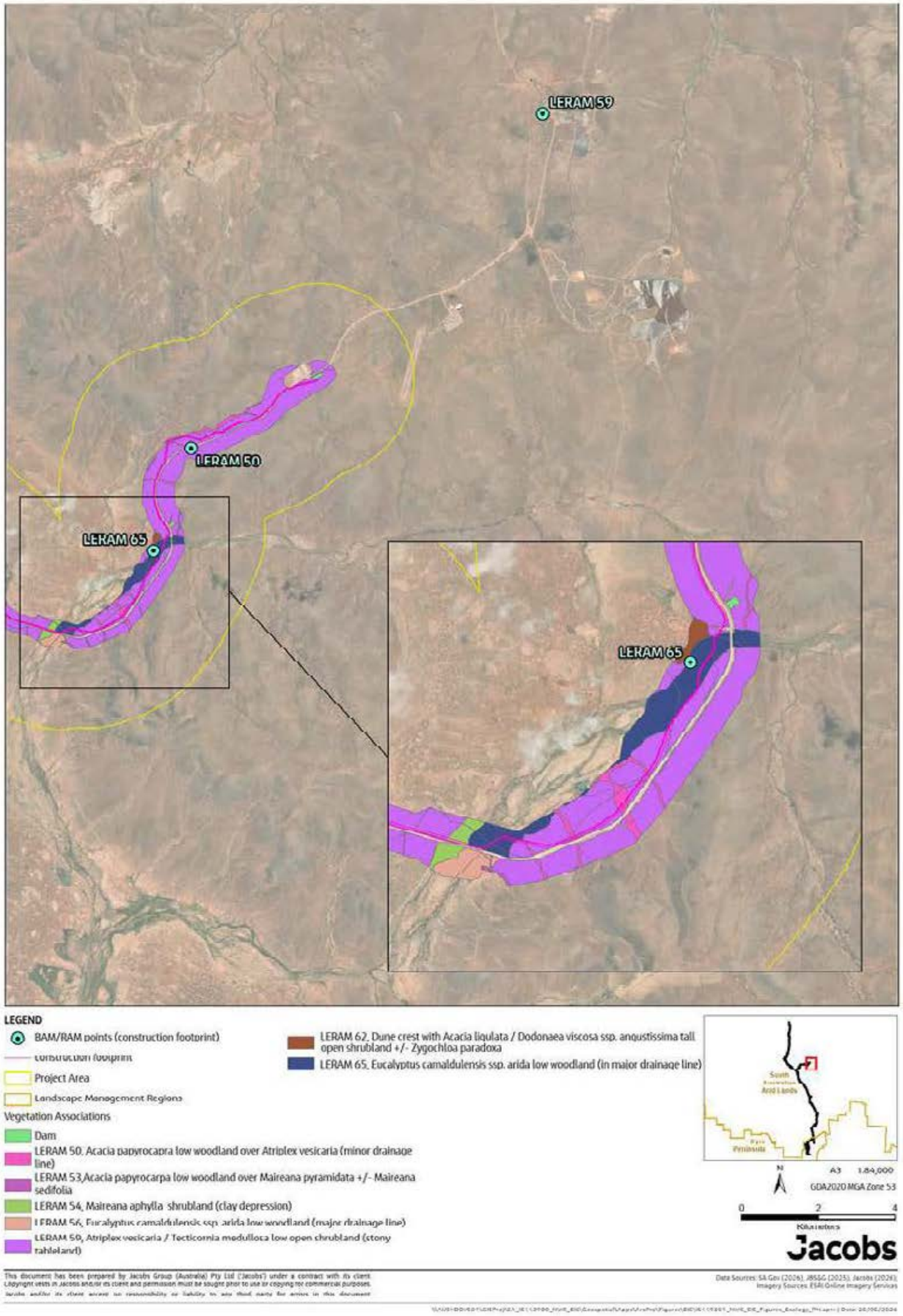

RAM 3x
RAM 27
LEGEND
BAM/RAM points (construction footprint)
construction footprint
Project Area
Landscape Management Regions
Vegetation Associations
RAM 27, Mixed chenopod low open shrubland (Maireana sedifolia / Maireana astrotricha / Maireana pyramidata / Atriplex vesicaria) +/- emergent Acacia aptaneura / Acacia papyrocarpa
RAM 3, Acacia papyrocarpa / Myoporum platycarpum low open woodland over chenopods (Maireana pyramidata / Maireana sedifolia / Atriplex vesicaria)
RAM 34, Tecticornia spp. (indica ssp. leiostachya / halocnemoides) low open shrubland on salt lake margin
RAM 8, Stony tableland with Atriplex vesicaria / Tecticornia medullosa / Maireana aphylla / Maireana astrotricha low open shrubland
A3 1:84,000
GDA2020 MGA Zone 53
0 2 4
Kilometers
Jacobs

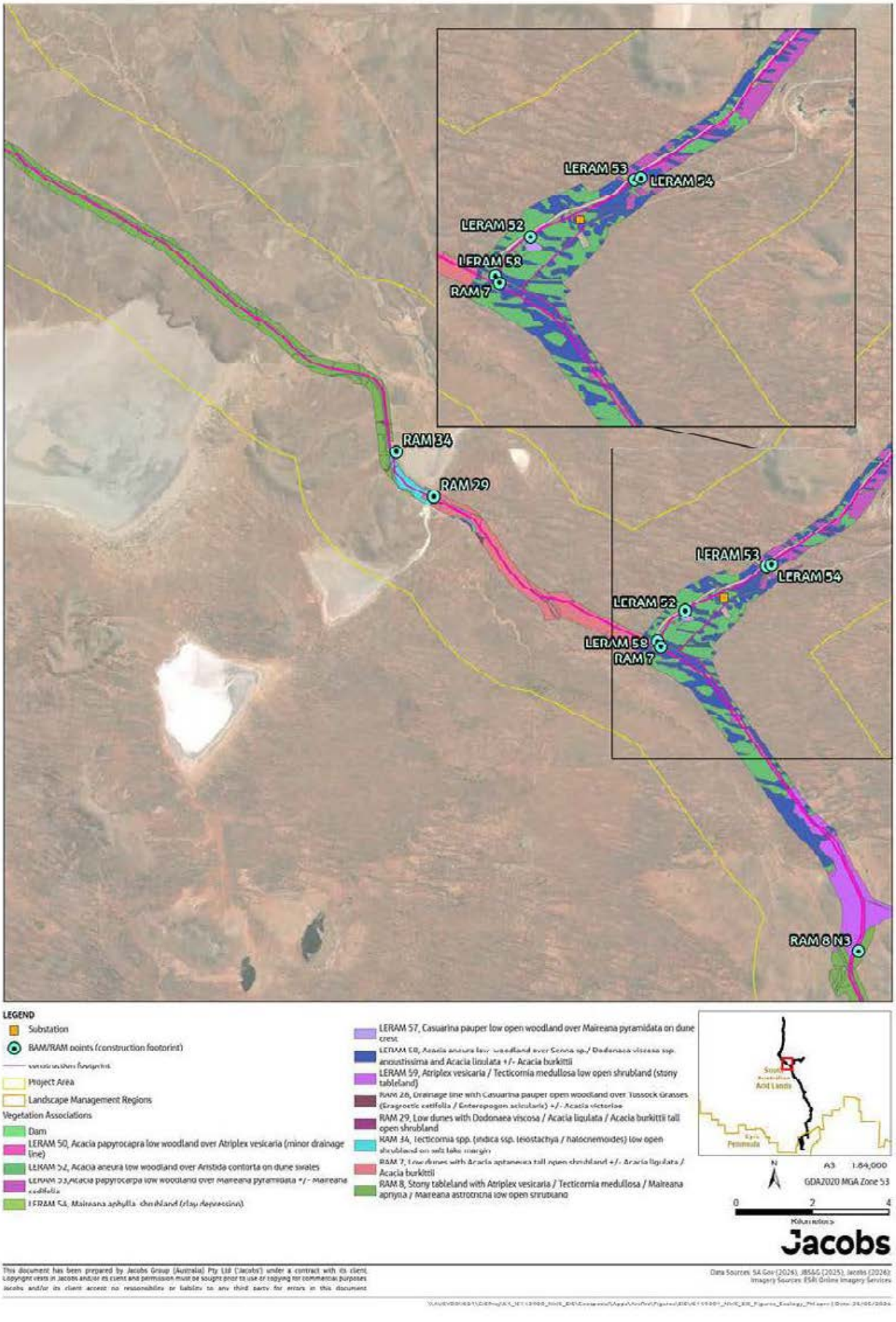

RAM 8 N3
RAM 17
RAM 20
LEGEND
Pump Station
RAM/RAM points (construction footprint)
Project Area
Landscape Management Regions
Vegetation Associations
LERAM 50, Acacia papyrocapra low woodland over Atriplex vesicaria (minor drainage line)
LERAM 52, Acacia aneura low woodland over Aristida contorta on dune swales
LERAM 53,Acacia papyrocarpa low woodland over Maireana pyramidata +/- Maireana sedifolia
LERAM 59, Atriplex vesicaria / Tecticornia medullosa low open shrubland (stony tableland)
RAM 17, Run-on depression with Eragrostis australasica tall grassland and Chenopod shrubs
RAM 28, Drainage line with Casuarina pauper open woodland over Tussock Grasses (Eragrostis setifolia / Enteropogon acicularis) +/- Acacia victoriae
RAM 3, Acacia papyrocarpa / Myoporum platycarpum low open woodland over chenopods (Maireana pyramidata / Maireana sedifolia / Atriplex vesicaria)
RAM 8, Stony tableland with Atriplex vesicaria / Tecticornia medullosa / Maireana aphylla / Maireana astrotricha low open shrubland
South Australian Arid Lands
Eyre Peninsula
N
A3
1:84,000
GDA2020 MGA Zone 53
0
2
4
Kilometres
Jacobs
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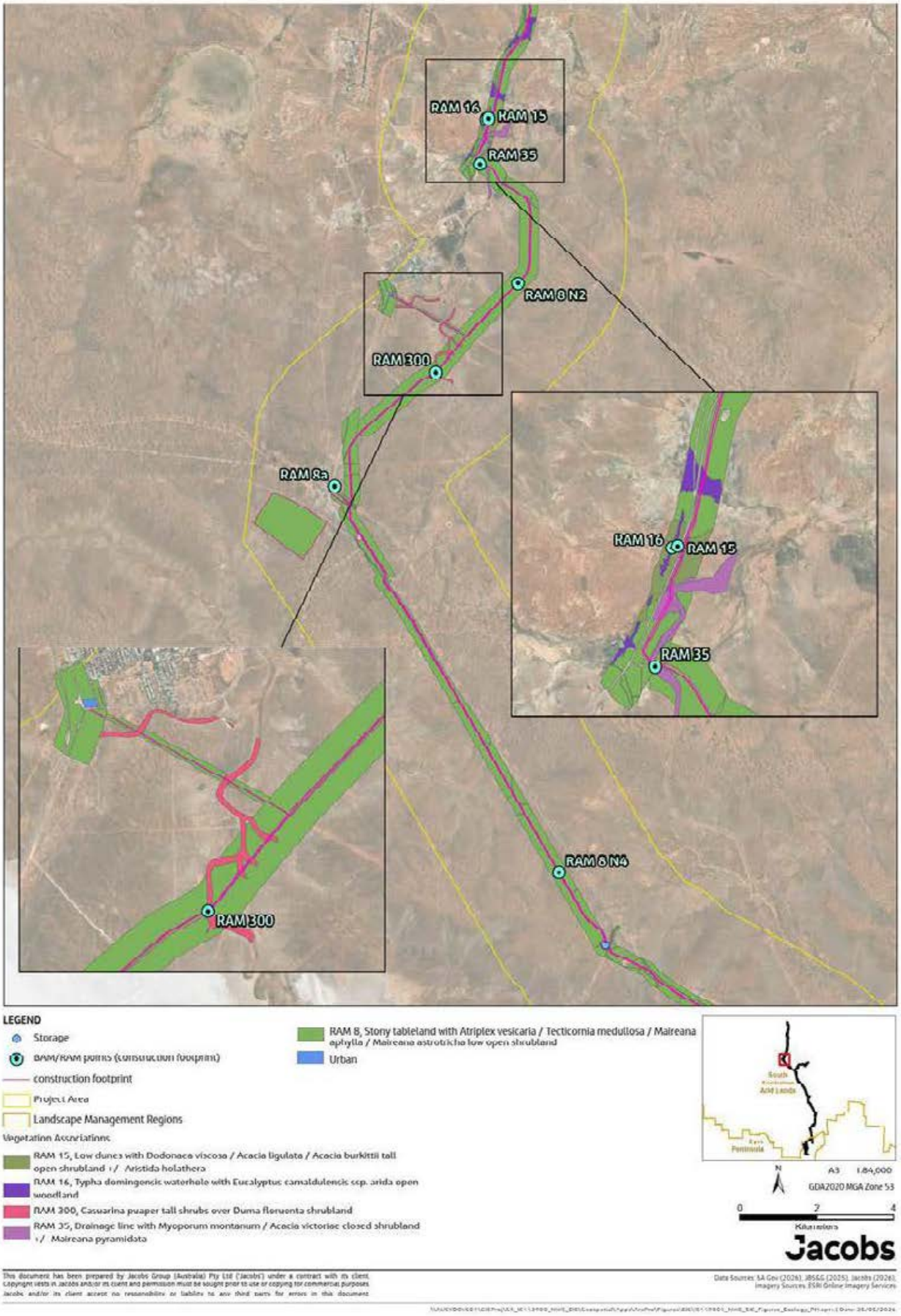
Data Sources: SA.Gov (2026), JBS&G (2025), Jacobs (2026)
Imagery Sources: ESRI Online Imagery Services

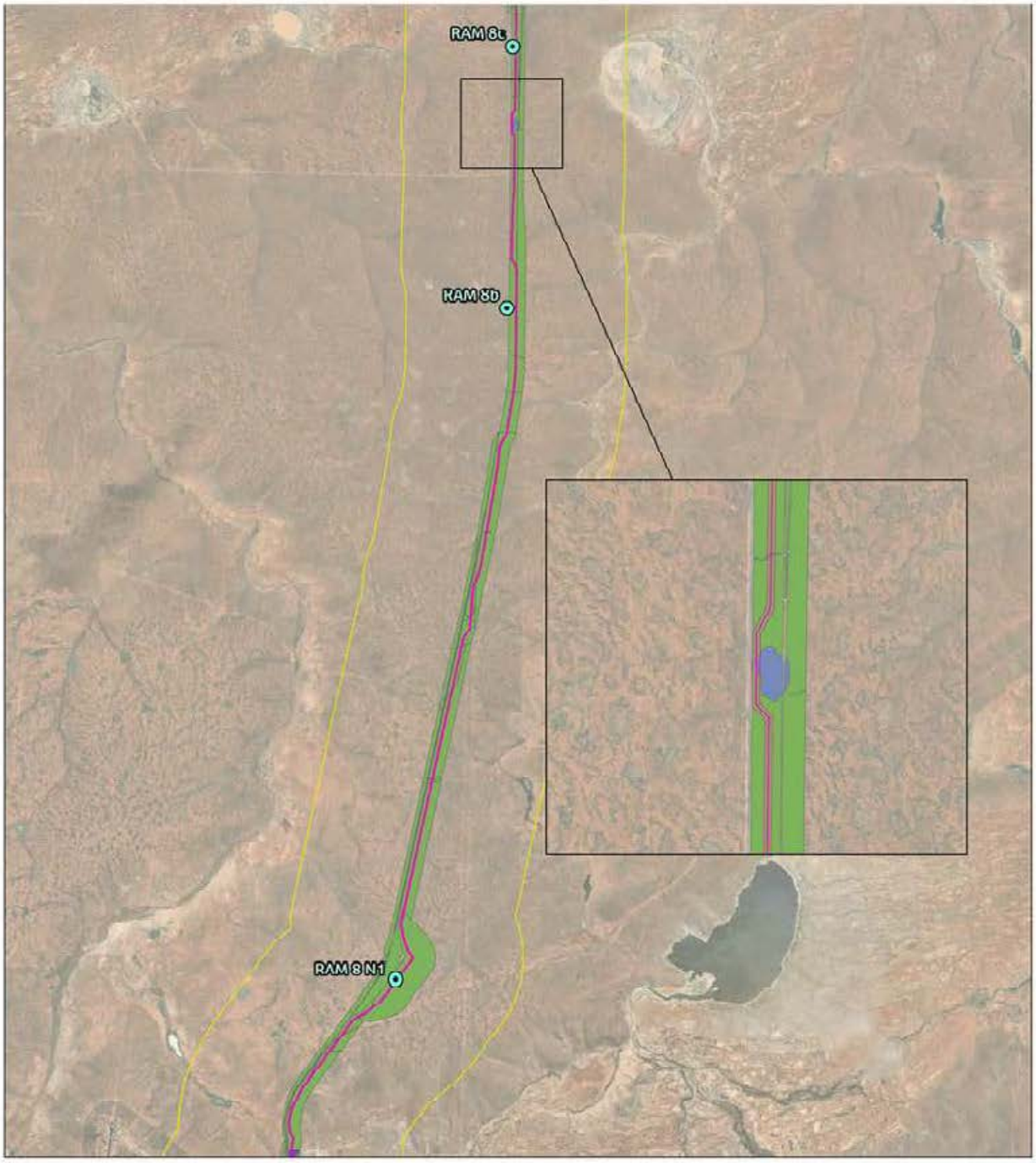

LERAM 59
LERAM 50
LERAM 65
LERAM 65
LEGEND
BAM/RAM points (construction footprint)
Construction footprint
Project Area
Landscape Management Regions
Vegetation Associations
Dam
LERAM 50, Acacia papyrocarpa low woodland over Atriplex vesicaria (minor drainage line)
LERAM 53,Acacia papyrocarpa low woodland over Maireana pyramidata +/- Maireana sedifolia
LERAM 54, Maireana aphylla shrubland (clay depression)
LERAM 56, Eucalyptus camaldulensis ssp. arida low woodland (major drainage line)
LERAM 59, Atriplex vesicaria / Tecticornia medulloca low open chrubland (stony tableland)
LERAM 62, Dune crest with Acacia liqulata / Dodonaea viscosa ssp. angustissima tall open shrubland +/- Zygochloa paradoxa
LERAM 65, Eucalyptus camaldulensis ssp. arida low woodland (in major drainage line)
A3 1:84,000
GDA2020 MGA Zone 53
0 2 4
Kilometers
Jacobs



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Data Sources: SA Gov (2026), JBS&G (2025), Jacobs (2026)
Imagery Sources: ESRI Online Imagery Services


RAM 16
RAM 15
RAM 35
RAM 8 N2
RAM 300
RAM 8a
RAM 16
RAM 15
RAM 35
RAM 8 N4
RAM 300
LEGEND
Storage
RAM/RAM points (construction footprint)
construction footprint
Project Area
Landscape Management Regions
Vegetation Associations
RAM 15, Low dunes with Dodonaea viscosa / Acacia ligulata / Acacia burkittii tall open shrubland +/ Aristida holathera
RAM 16, Typha domingensis waterhole with Eucalyptus camaldulensis ssp. arida open woodland
RAM 300, Casuarina pusper tall shrubs over Duma florulenta shrubland
RAM 35, Drainage line with Myoporum montanum / Acacia victoriae closed shrubland +/ Maireana pyramidata
RAM 8, Stony tableland with Atriplex vesicaria / Tecticornia medullosa / Maireana aphylla / Maireana astrotricha low open shrubland
Urban
A3
1:84,000
GDA2020 MGA Zone 53
0
2
4
Kilometers
Jacobs

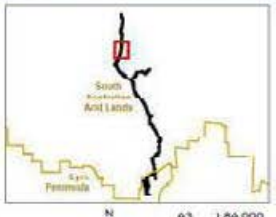


LEGEND

- BAM/RAM points (construction footprint)
- construction footprint
- Project Area
- Landscape Management Regions

Vegetation Associations

- RAM 16, Typha domingensis waterhole with Eucalyptus camaldulensis ssp. arida open woodland
- RAM 17, Run-on depression with Eragrostis australasica tall grassland and Chenopod shrubs
- RAM 8, Stony tableland with Atriplex vesicaria / Tecticornia medullosa / Maireana aphylla / Maireana astrotricha low open shrubland



N

A3 1:84,000

GDA2020 MGA Zone 53

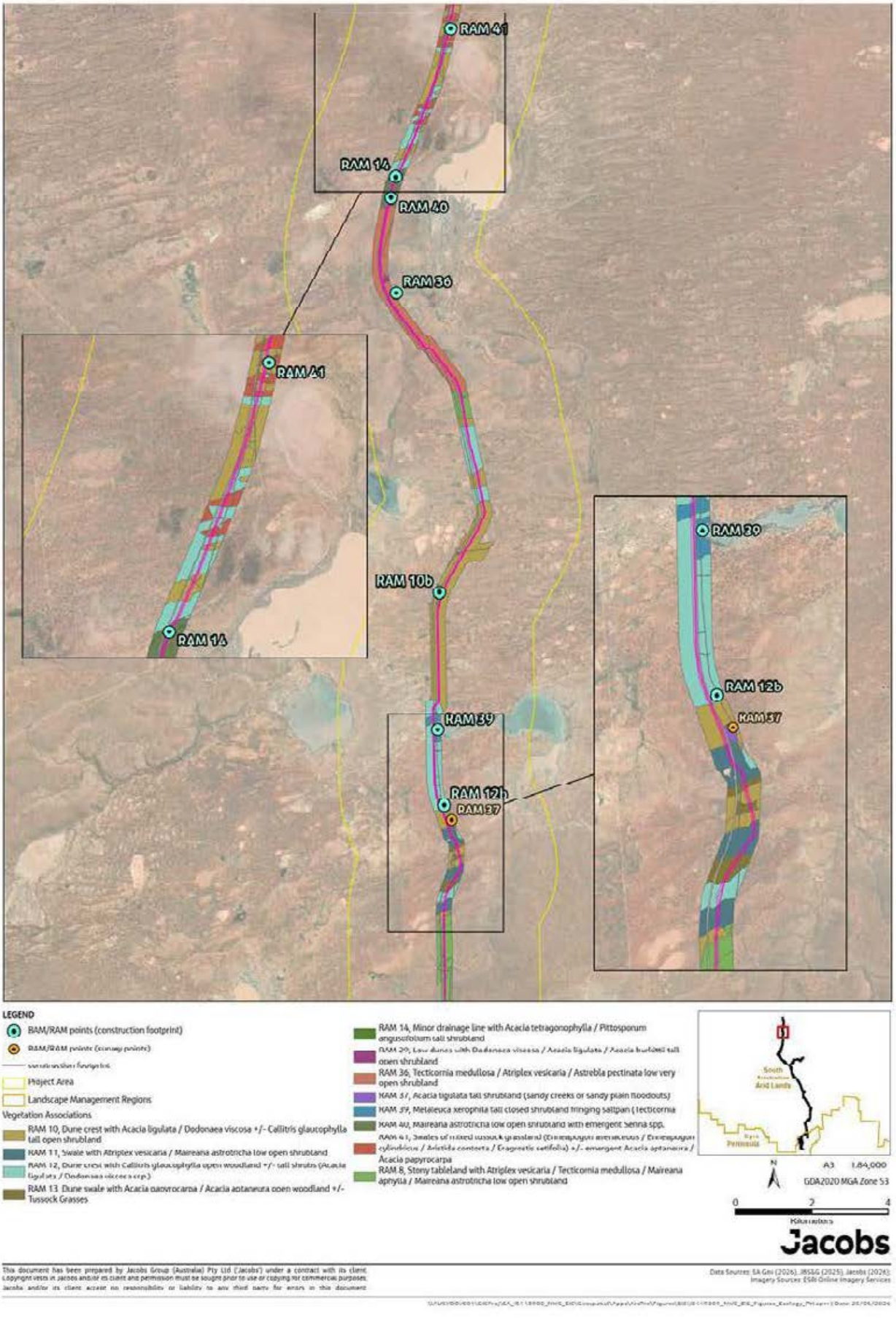
0 2 4

Kilometres

Jacobs

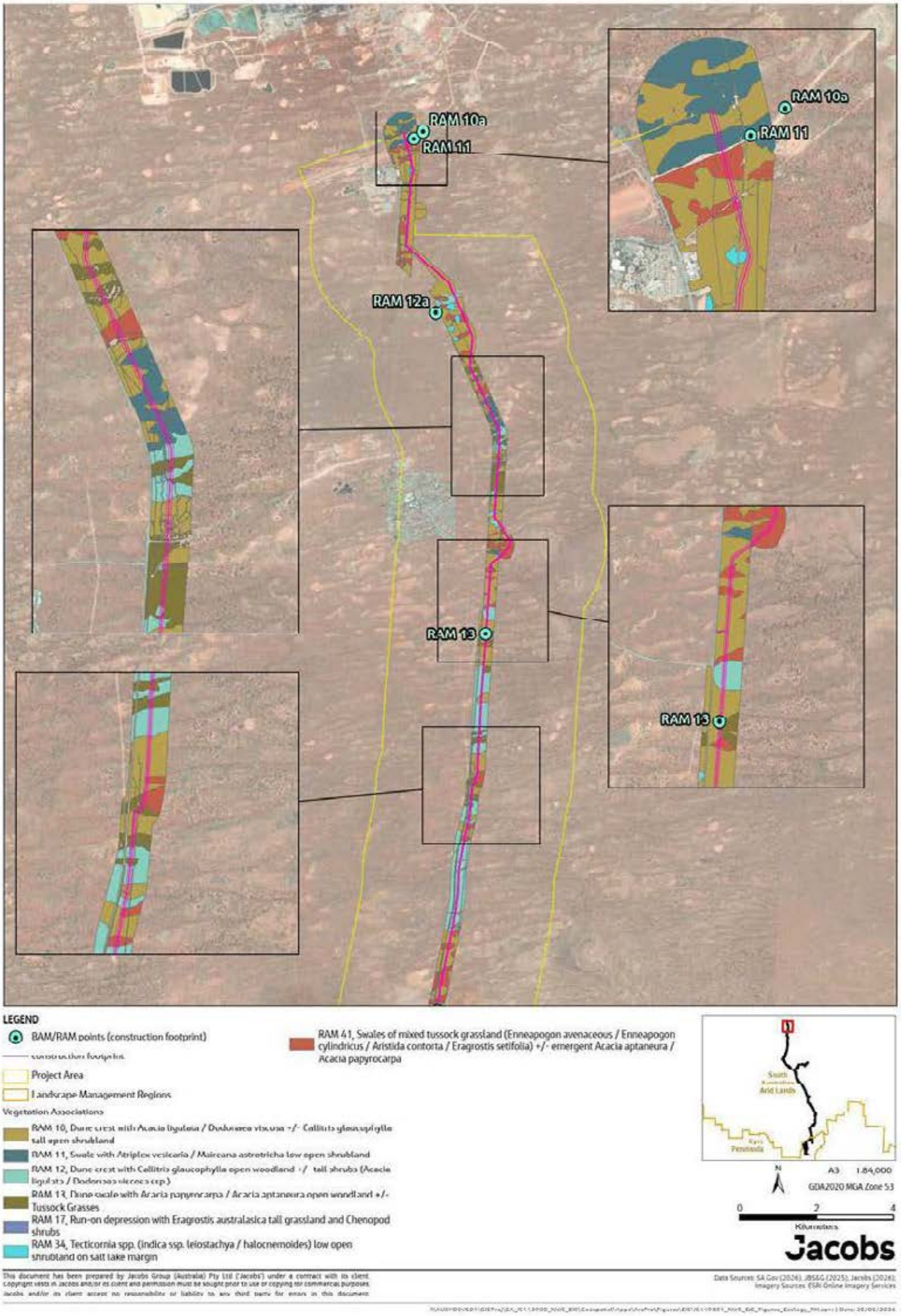
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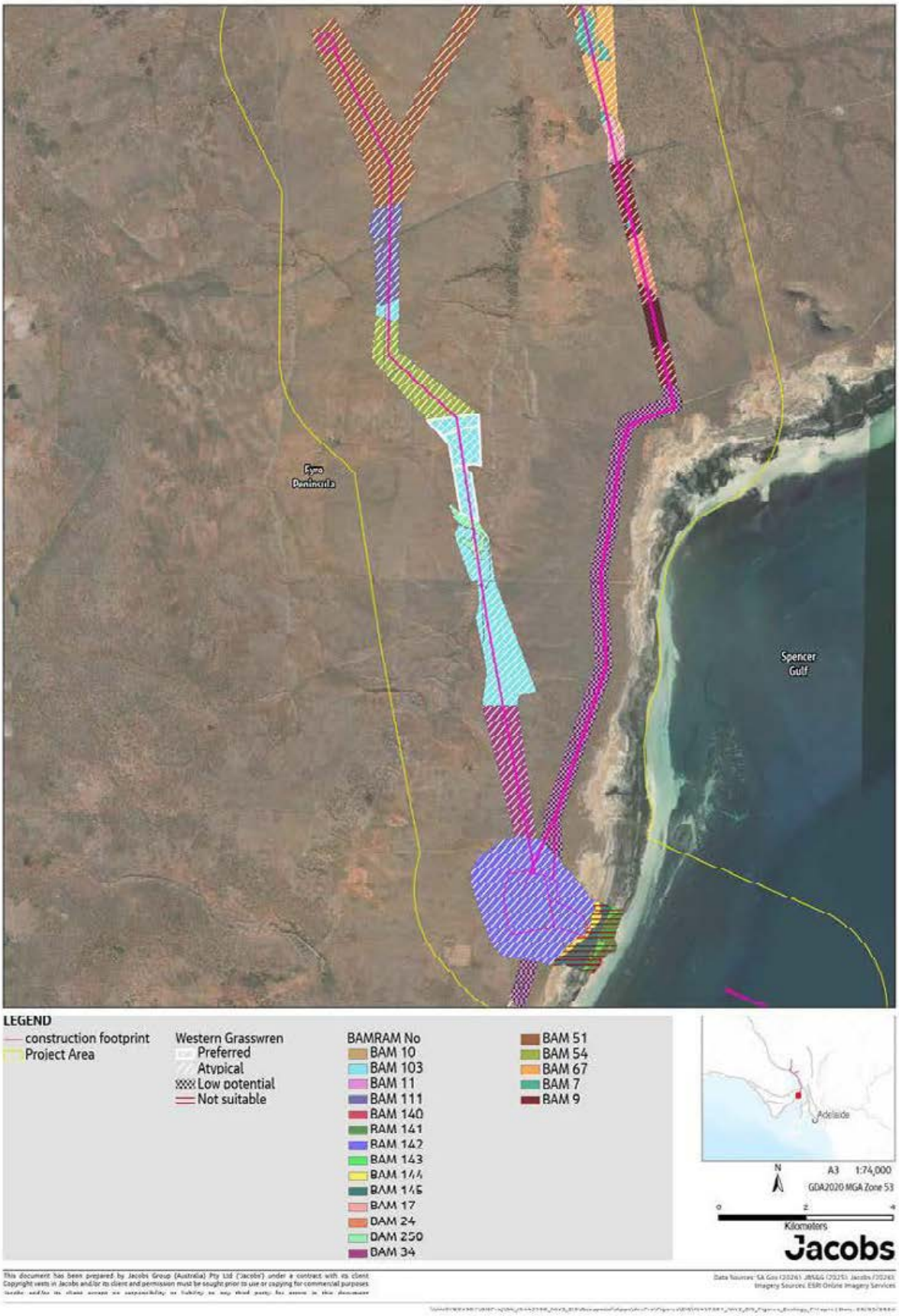


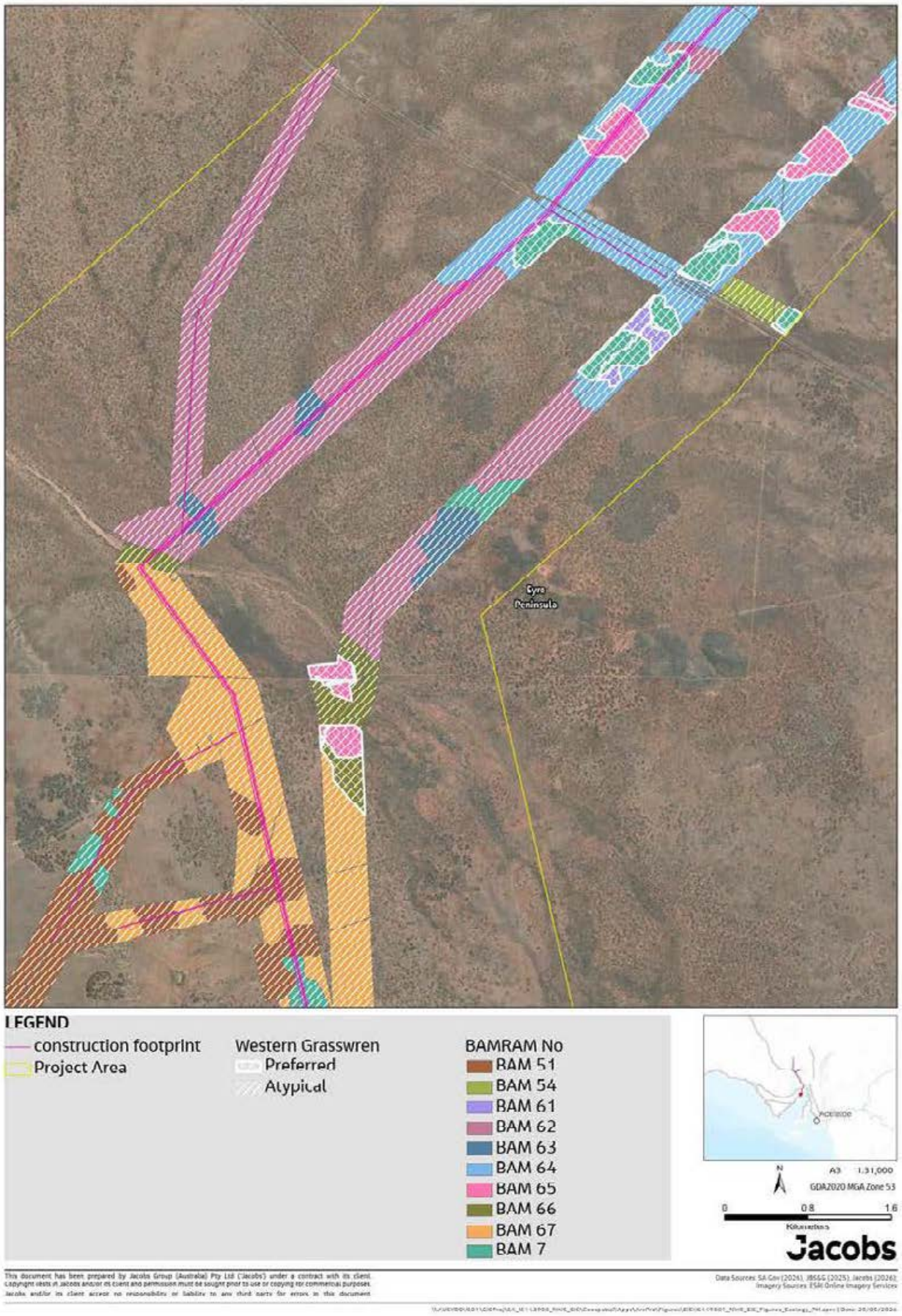
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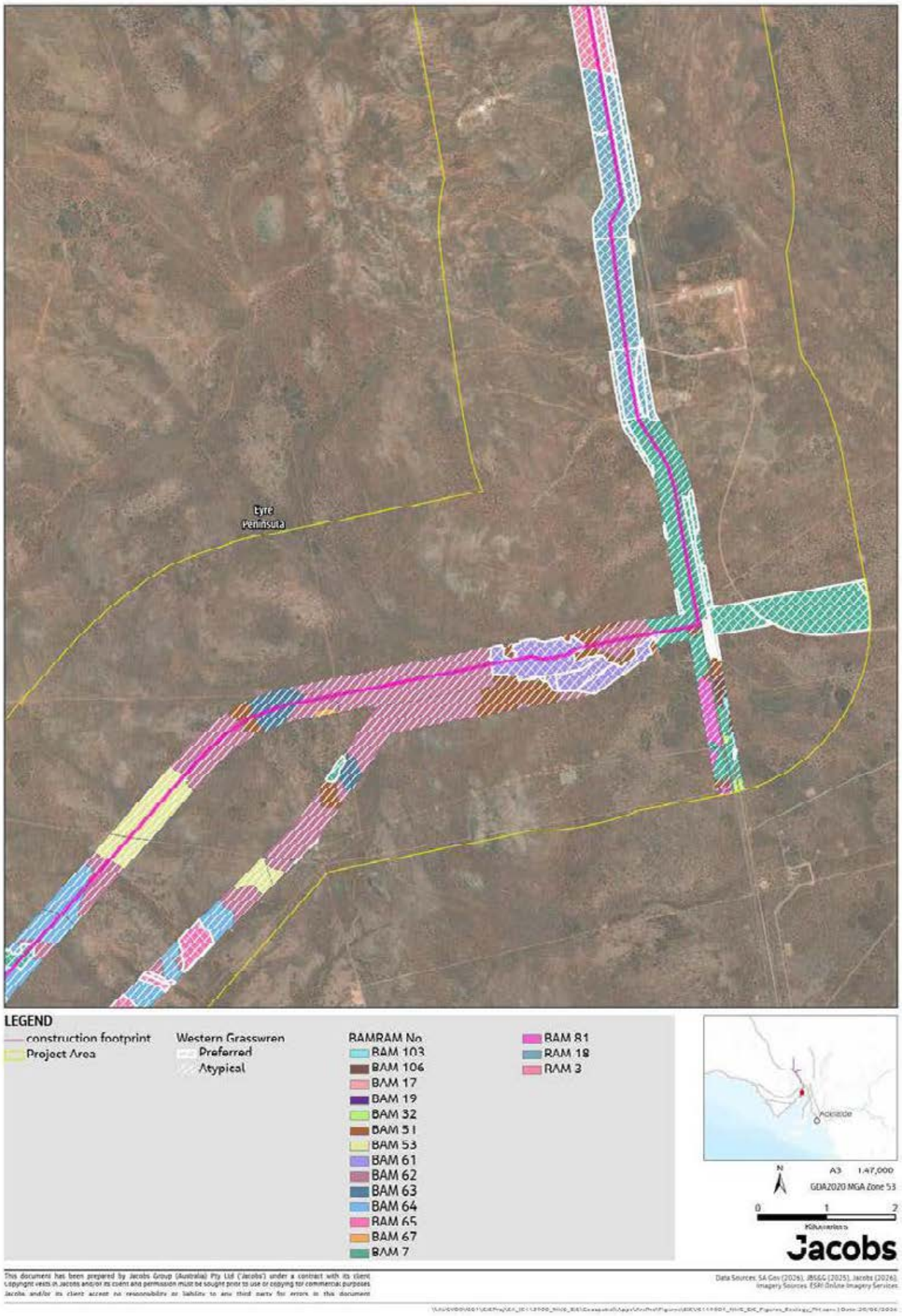
Data Sources: GA Geo (2026), BRSAG (2025), Jacobs (2026); Imagery Sources: ESRI Online Imagery Services

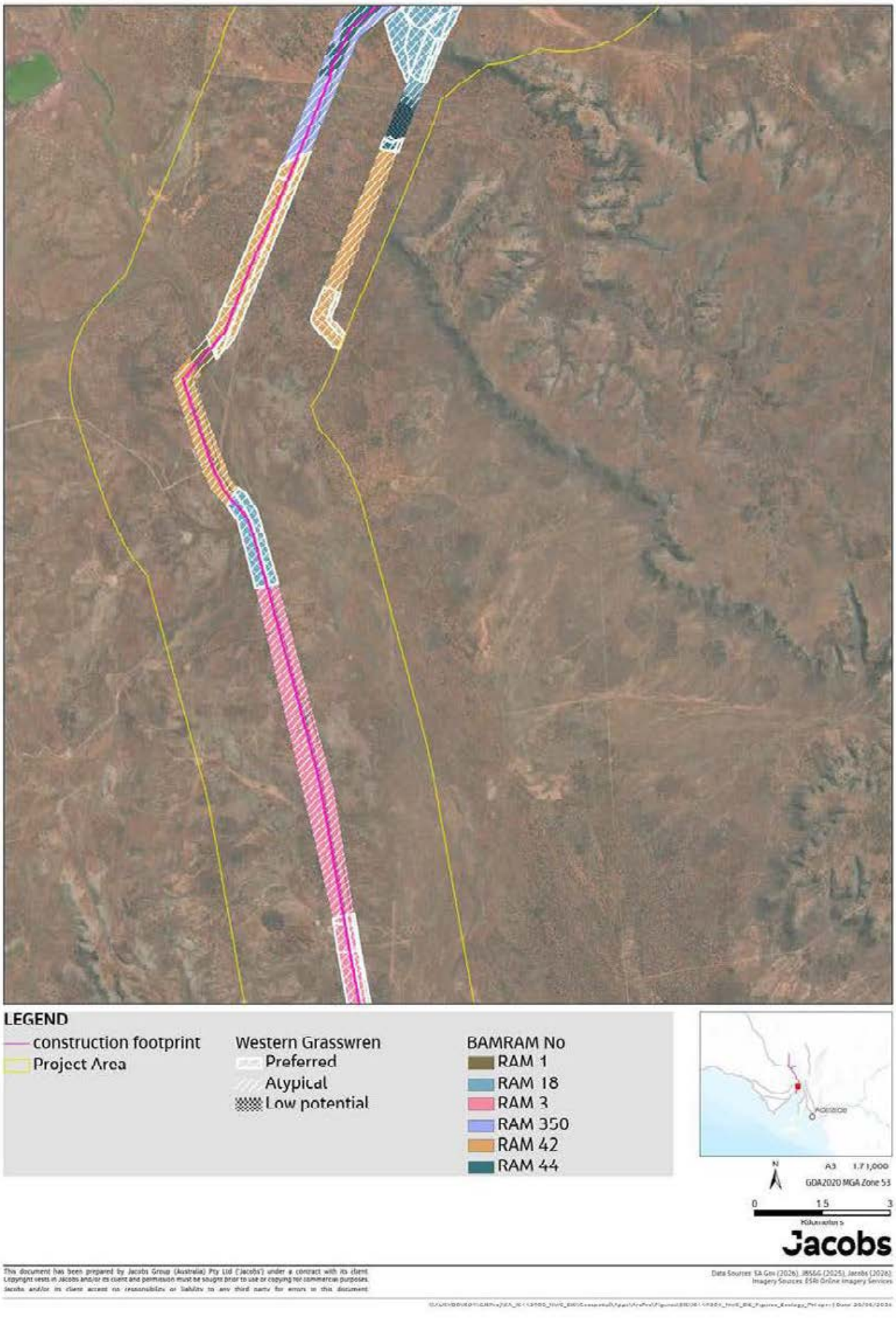

RAM 10a
RAM 11
RAM 12a
RAM 13
RAM 13
RAM 10a
RAM 11
LEGEND
BAM/RAM points (construction footprint)
Project Area
Landscape Management Regions
Vegetation Associations
RAM 10, Dune crest with Acacia ligulata / Dodonaea viscosa +/- Callitris glaucophylla tall open shrubland
RAM 11, Swale with Atriplex vesicaria / Maireana astrotricha low open shrubland
RAM 12, Dune crest with Callitris glaucophylla open woodland +/- tall shrubs (Acacia ligulata / Dodonaea viscosa ssp.)
RAM 13, Dune swale with Acacia papyrocarpa / Acacia aptaneura open woodland +/- Tussock Grasses
RAM 17, Run-on depression with Eragrostis australasica tall grassland and Chenopod shrubs
RAM 34, Tecticornia spp. (indica ssp. leiostachya / halocnemoides) low open shrubland on salt lake margin
RAM 41, Swales of mixed tussock grassland (Enneapogon avenaceous / Enneapogon cylindricus / Aristida contorta / Eragrostis setifolia) +/- emergent Acacia aptaneura / Acacia papyrocarpa
Arid Lands
Eyre Peninsula
N
A3
1:84,000
GDA2020 MGA Zone 53
0
2
4
Kilometers
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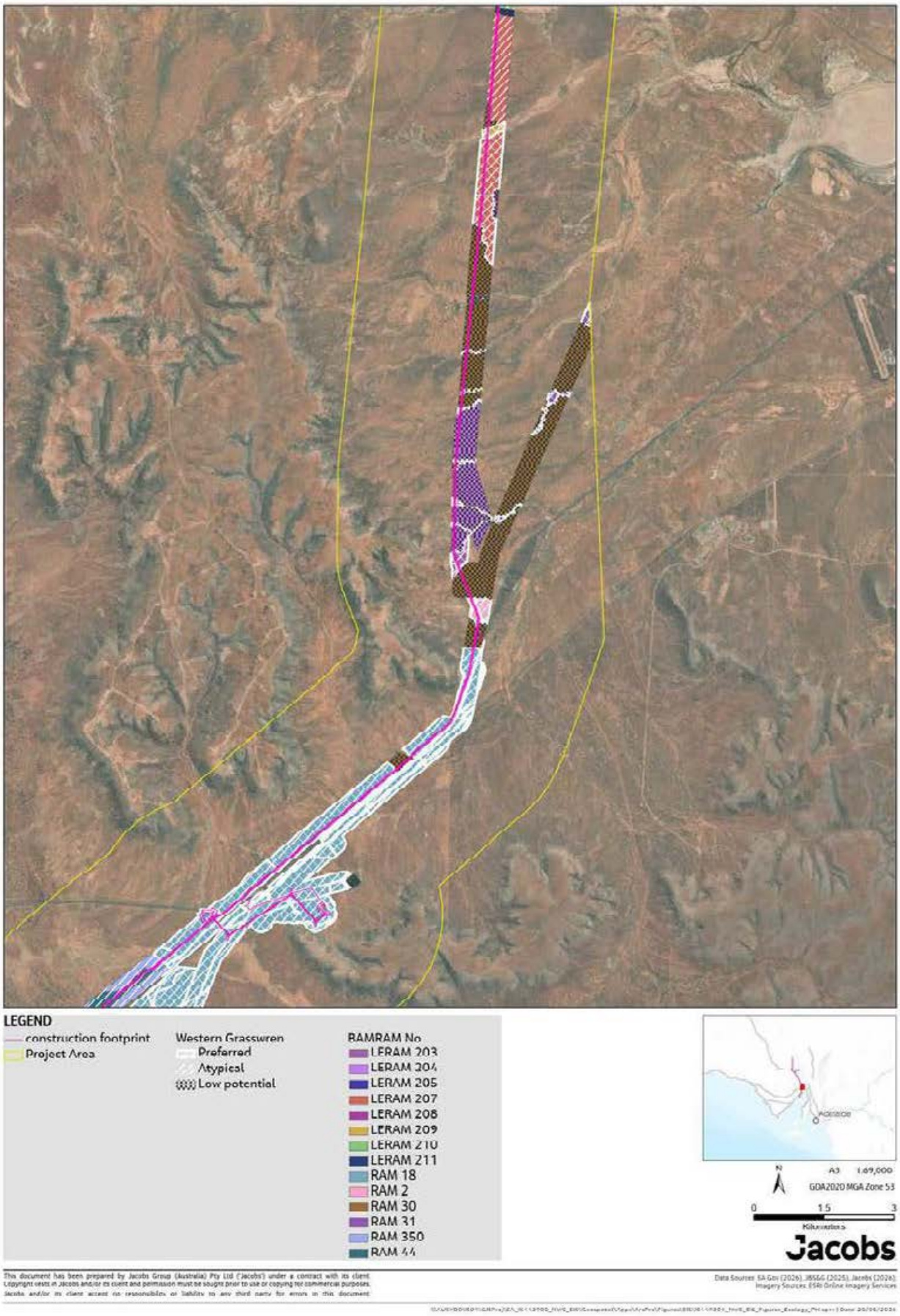
B.6 Broadscale Habitat Mapping for Western Grasswren

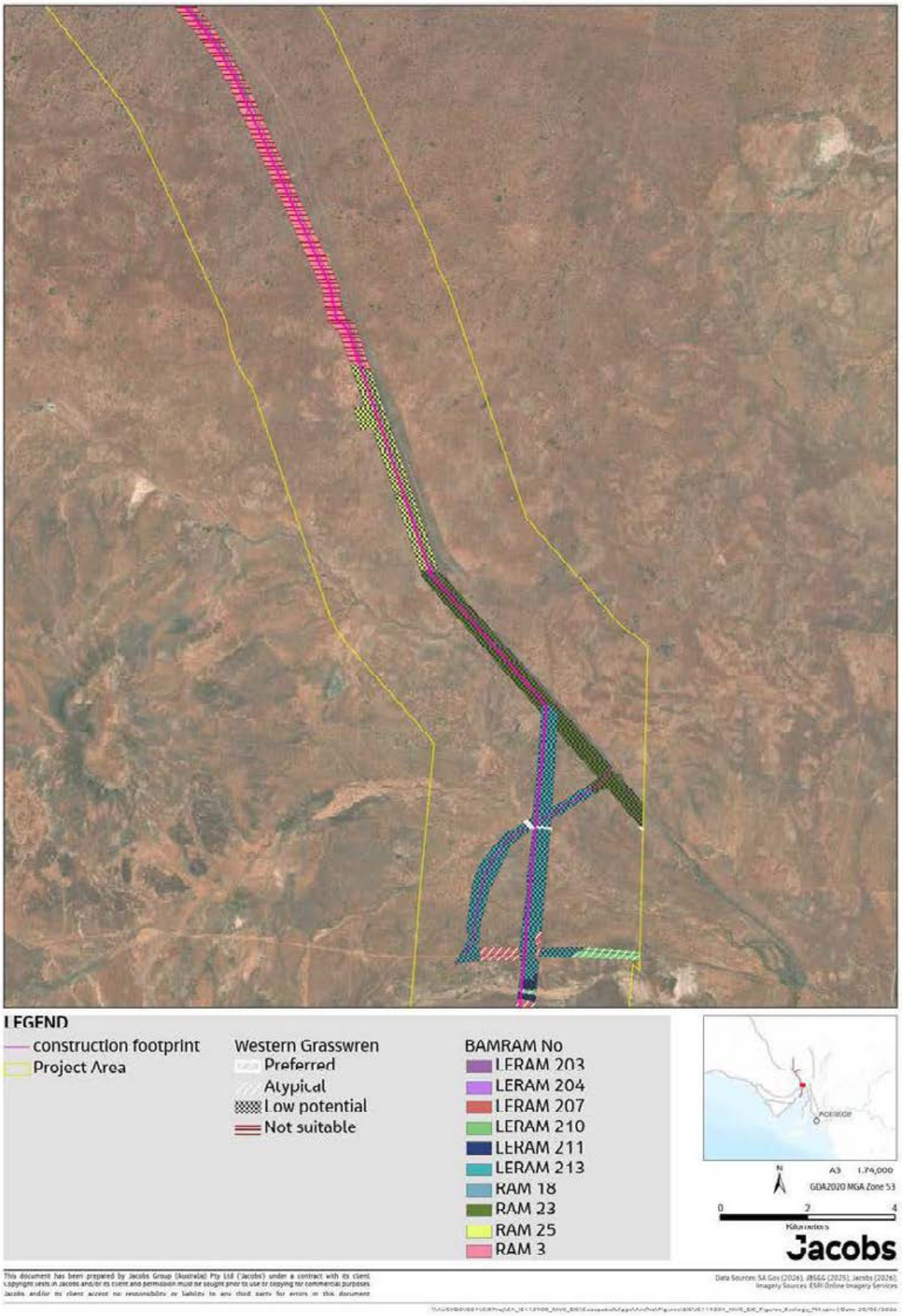


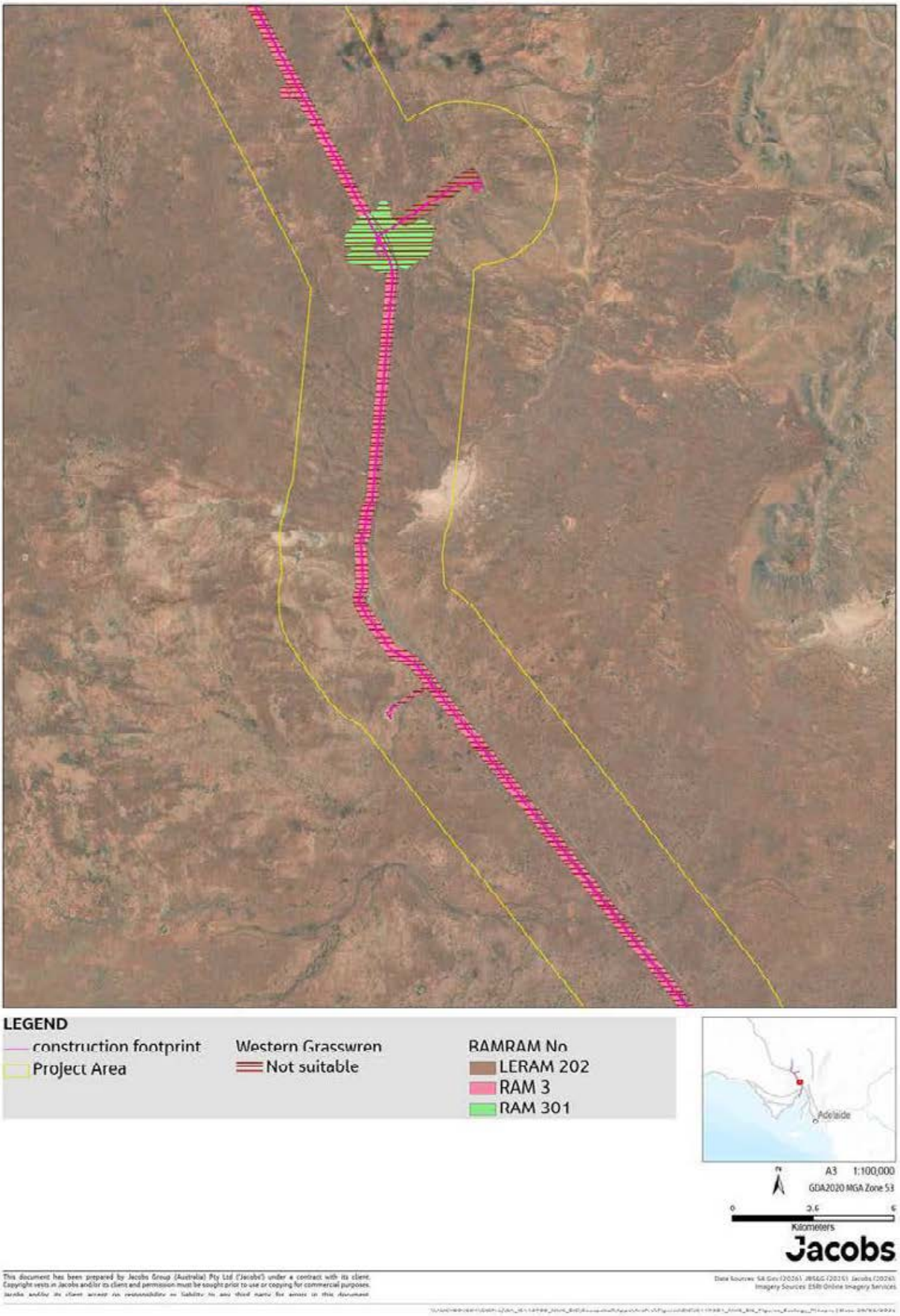

Eyre Peninsula
LEGEND
construction footprint
Project Area
Western Grasswren
Preferred
Atypical
BAMRAM No
BAM 51
BAM 54
BAM 61
BAM 62
BAM 63
BAM 64
BAM 65
BAM 66
BAM 67
BAM 7
A3 1:31,000
GDA2020 MGA Zone 53
0 0.8 1.6
Kilometres
Jacobs


Eyre Peninsula
LEGEND
construction footprint
Project Area
Western Grasswren
Preferred
Atypical
RAMRAM No
BAM 103
BAM 106
BAM 17
BAM 19
BAM 32
BAM 51
BAM 53
BAM 61
BAM 62
BAM 63
BAM 64
BAM 65
BAM 67
BAM 7
BAM 81
BAM 18
BAM 3
Adelaide
N
A3 1:47,000
GDA2020 MGA Zone 53
0 1 2
Kilometres
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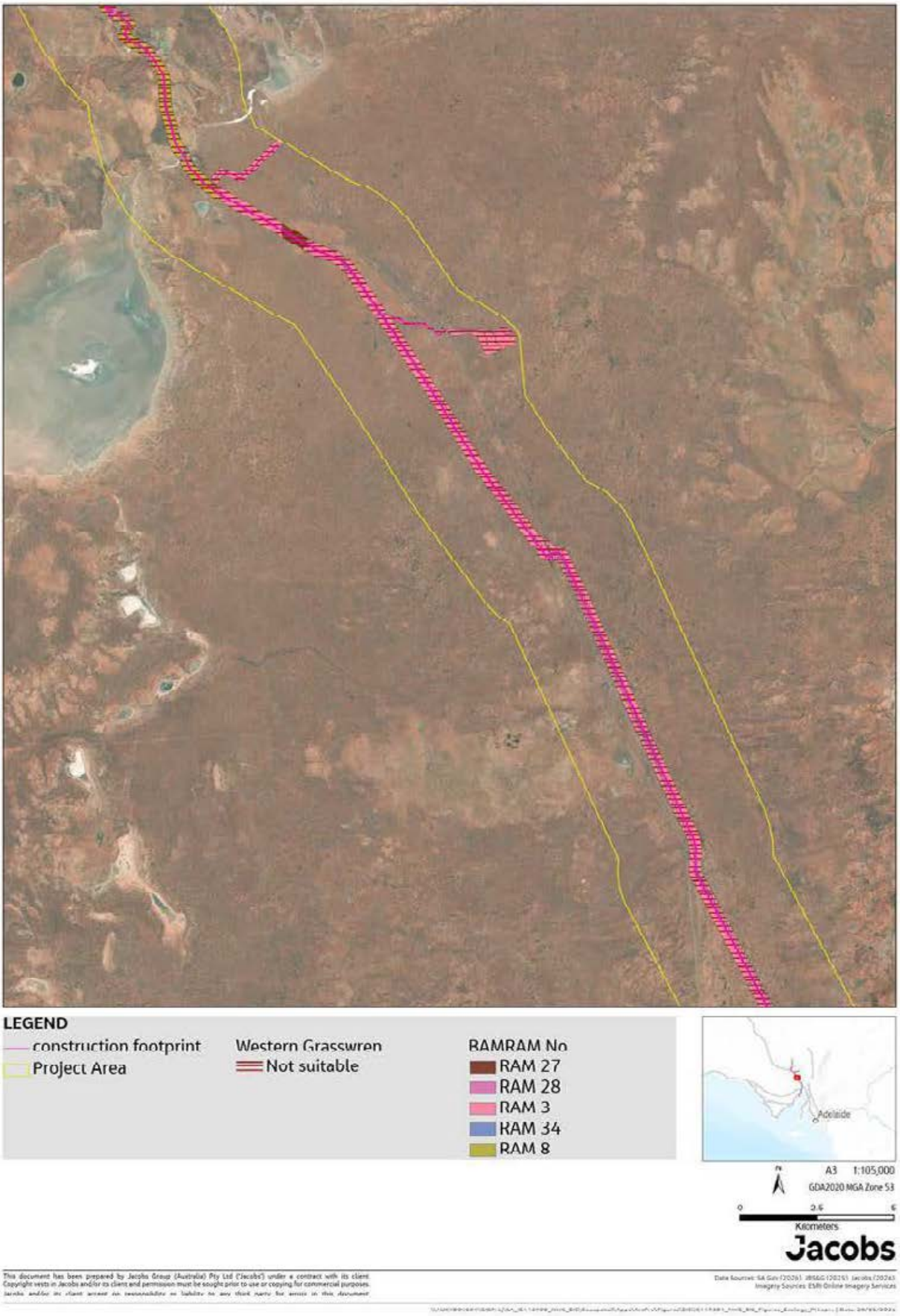

LEGEND
construction footprint
Project Area
Western Grasswren
Preferred
Atypical
Low potential
BAMRAM No
RAM 1
RAM 18
RAM 3
RAM 350
RAM 42
RAM 44
N
A3
1:1,000
GDA2020 MGA Zone 53
0
1.5
3
Kilometers
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LEGEND
construction footprint
Project Area
Western Grasswren
Preferred
Atypical
Low potential
RAMRAM No
LERAM 203
LERAM 204
LERAM 205
LERAM 207
LERAM 208
LERAM 209
LERAM 210
LERAM 211
RAM 18
RAM 2
RAM 30
RAM 31
RAM 350
RAM 44
A3
1:69,000
GDA2020 MGA Zone 53
0
1.5
3
Kilometres
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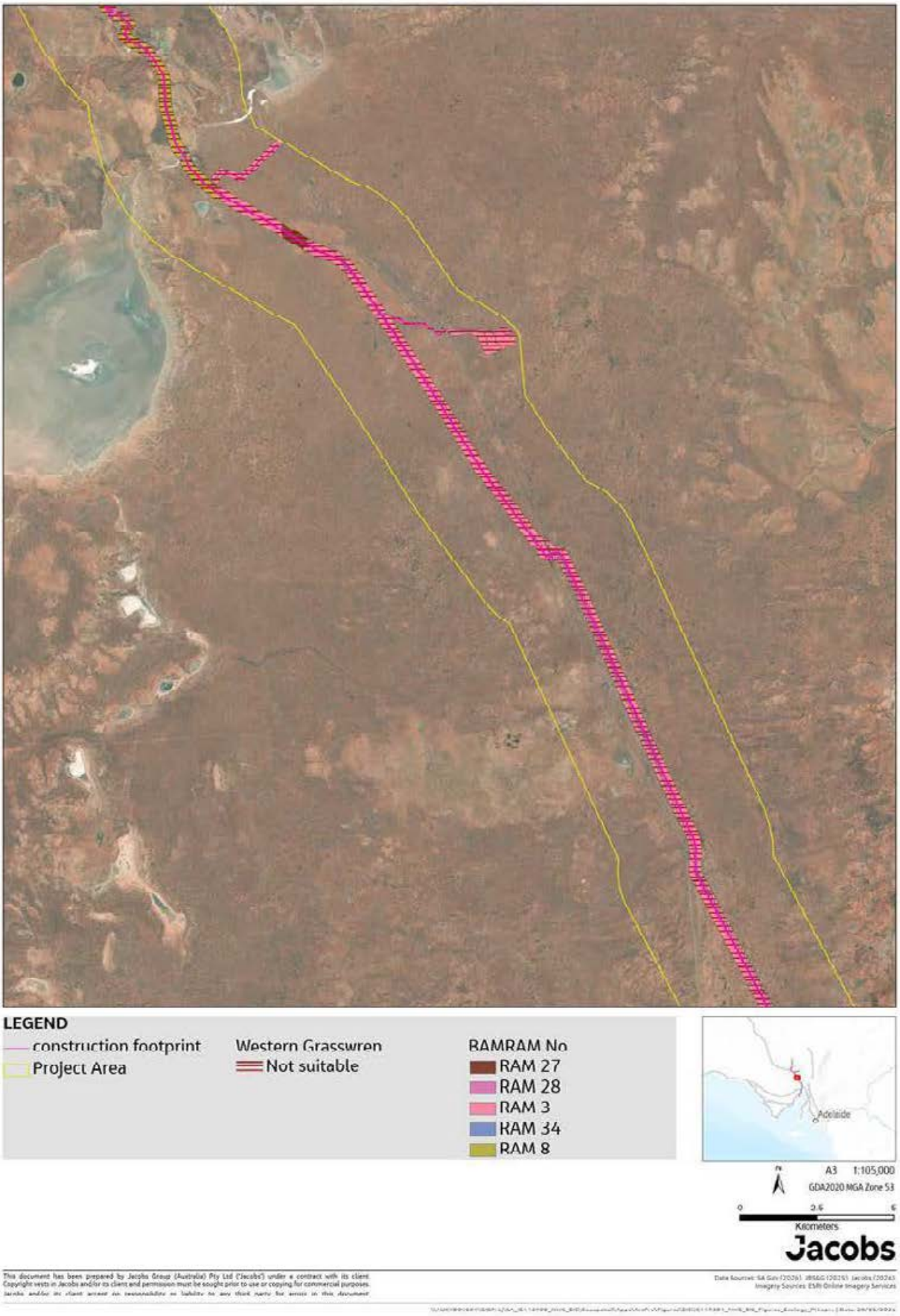

LEGEND
construction footprint
Project Area
Western Grasswren
Preferred
Atypical
Low potential
Not suitable
BAMRAM No
LERAM 203
LERAM 204
LERAM 207
LERAM 210
LERAM 211
LERAM 213
RAM 18
RAM 23
RAM 25
RAM 3
ADELAIDE
N
A3 1:74,000
GDA2020 MGA Zone 53
0 2 4
Kilometres
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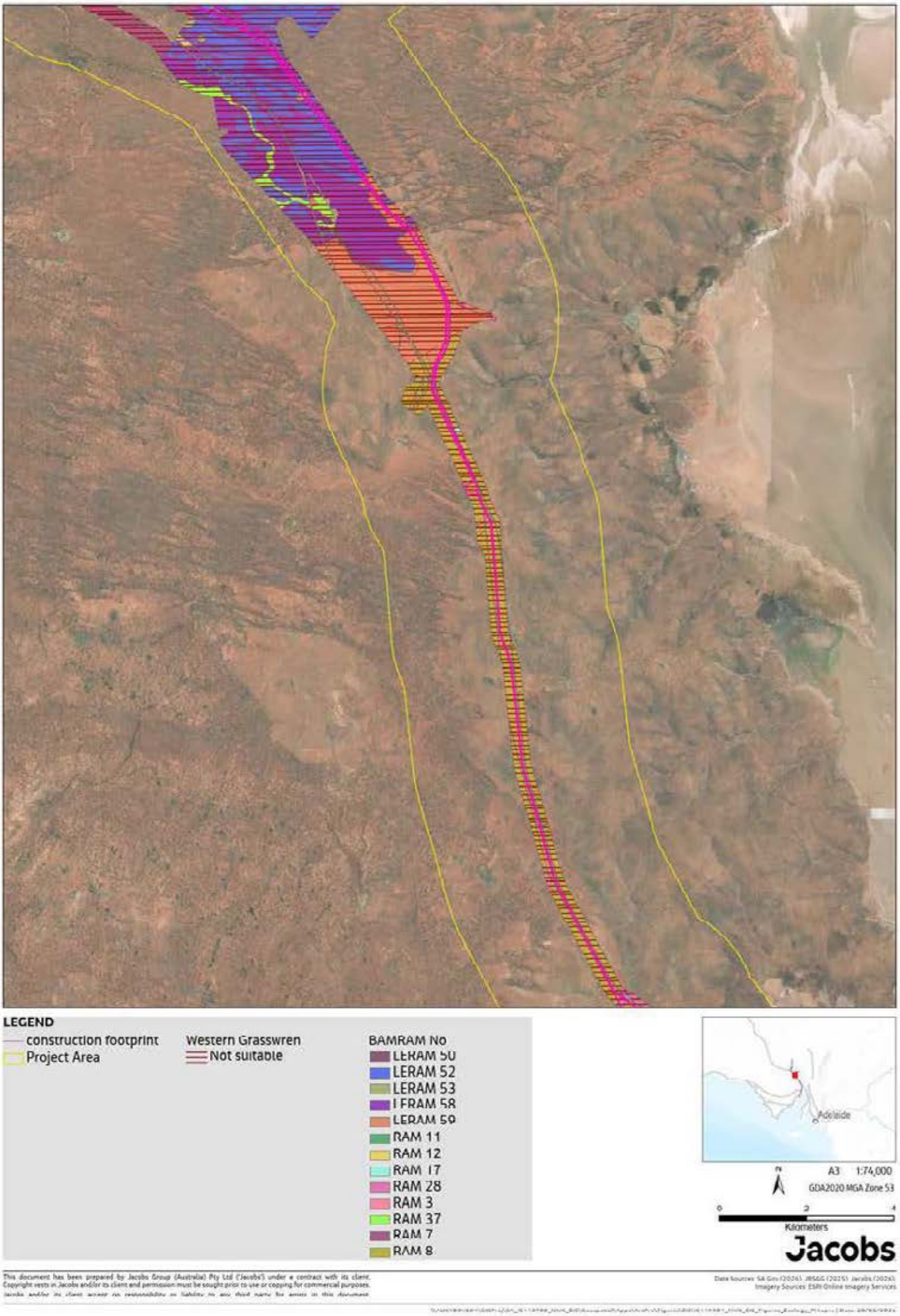
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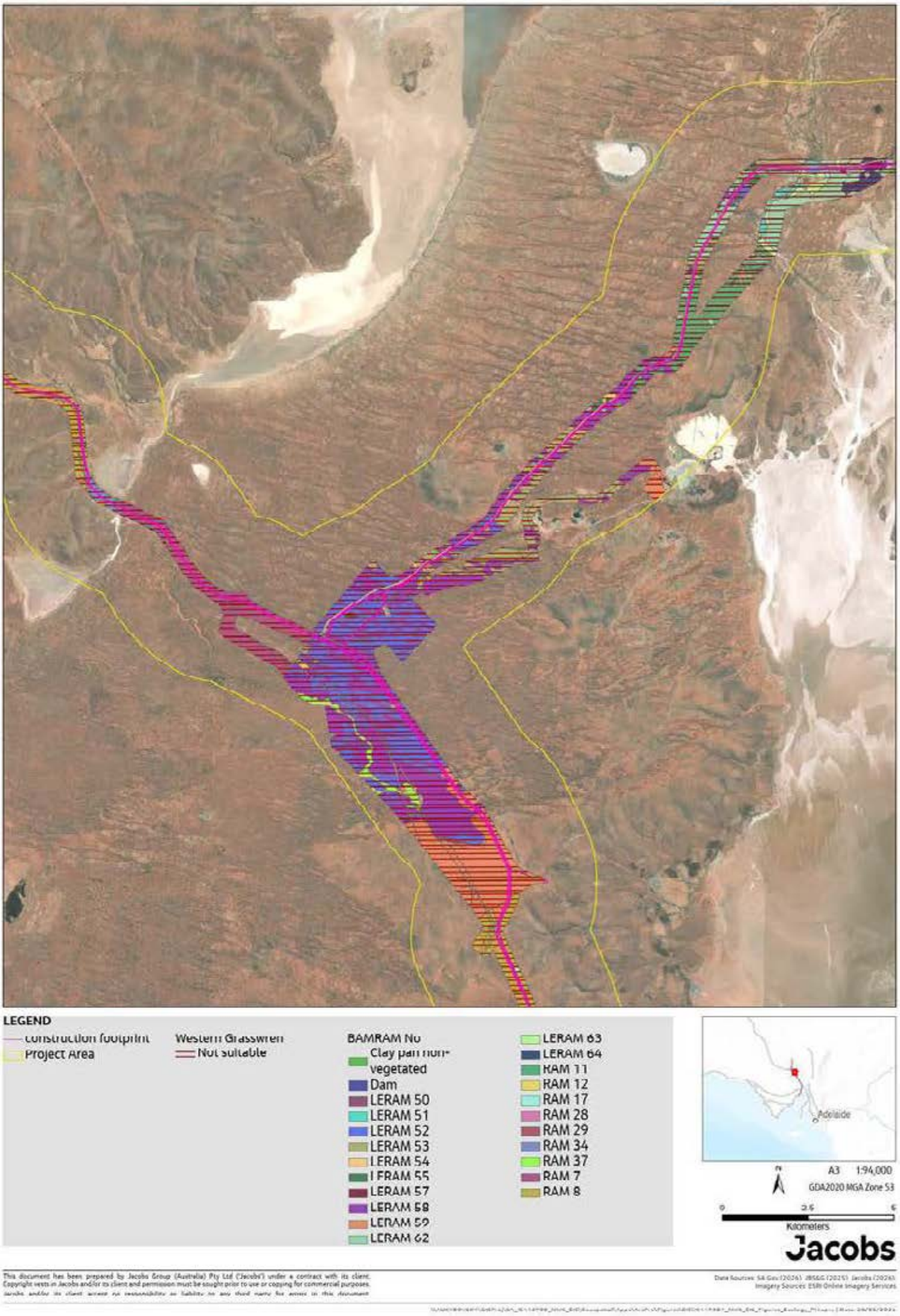


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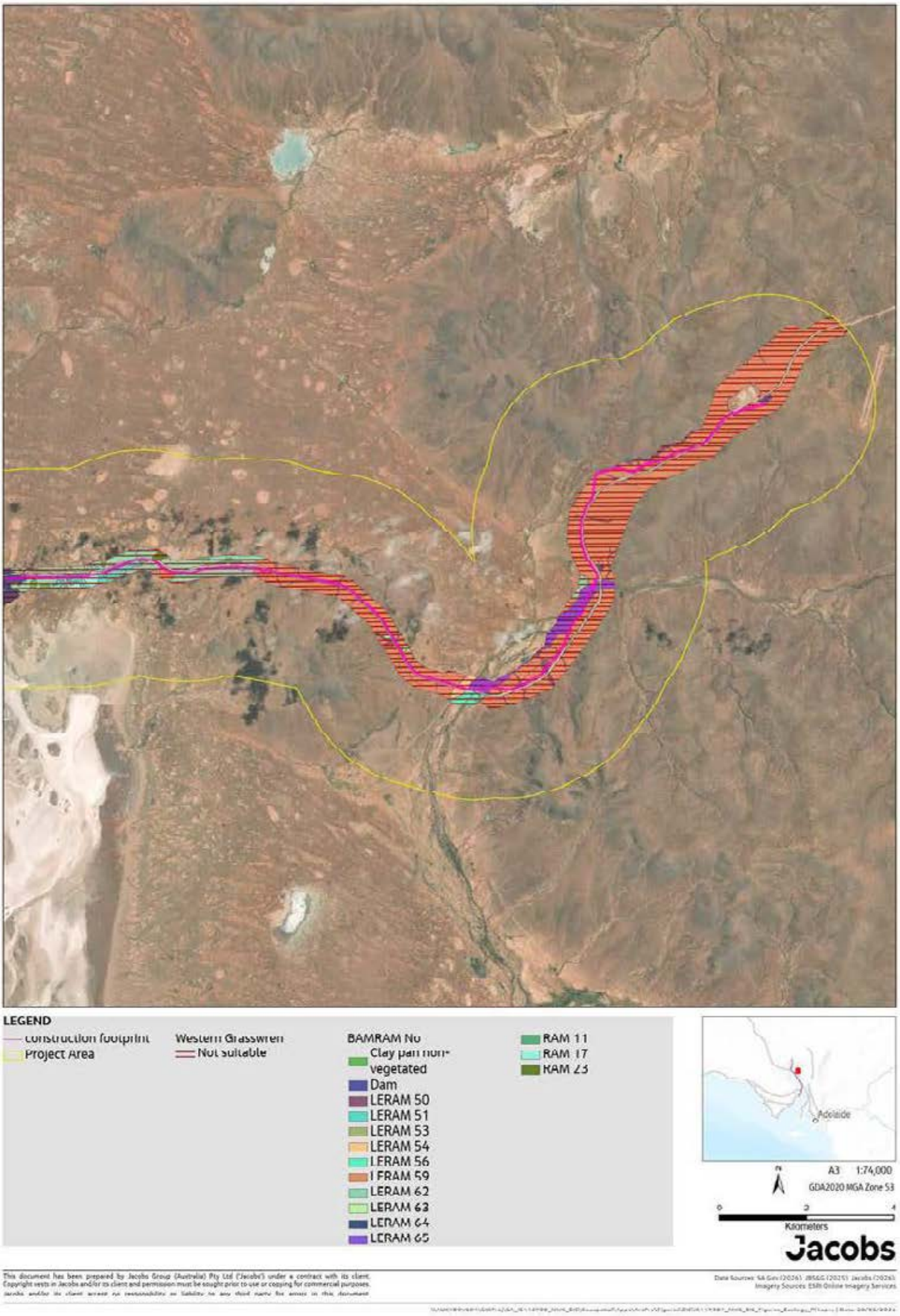


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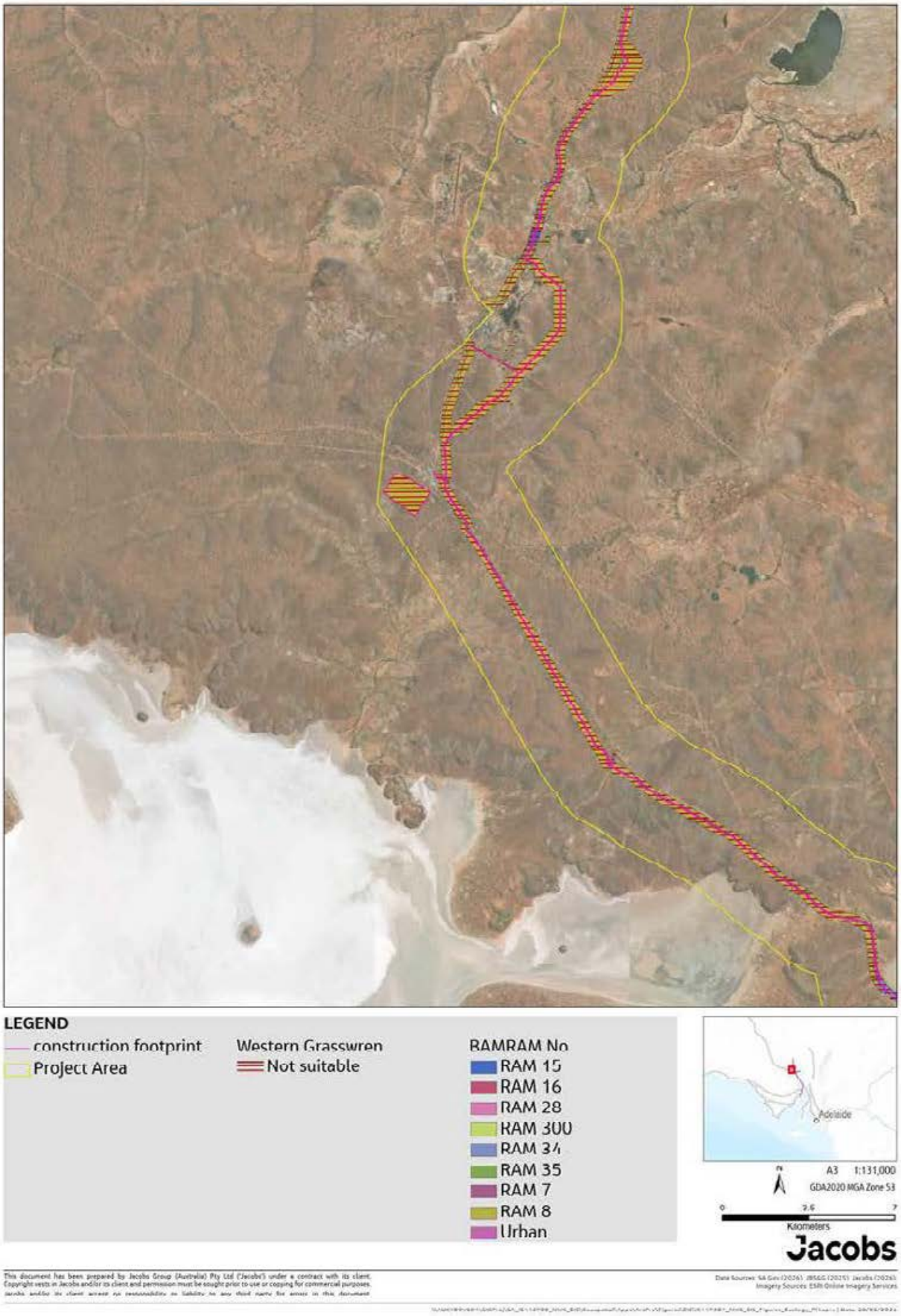

LEGEND
construction footprint
Project Area
Western Grasswren
Not suitable
BAMRAM No
LERAM 50
LERAM 52
LERAM 53
LERAM 58
LERAM 59
RAM 11
RAM 12
RAM 17
RAM 28
RAM 3
RAM 37
RAM 7
RAM 8
Adelaide
A3 1:74,000
GDA2020 MGA Zone 53
Kilometers
Jacobs



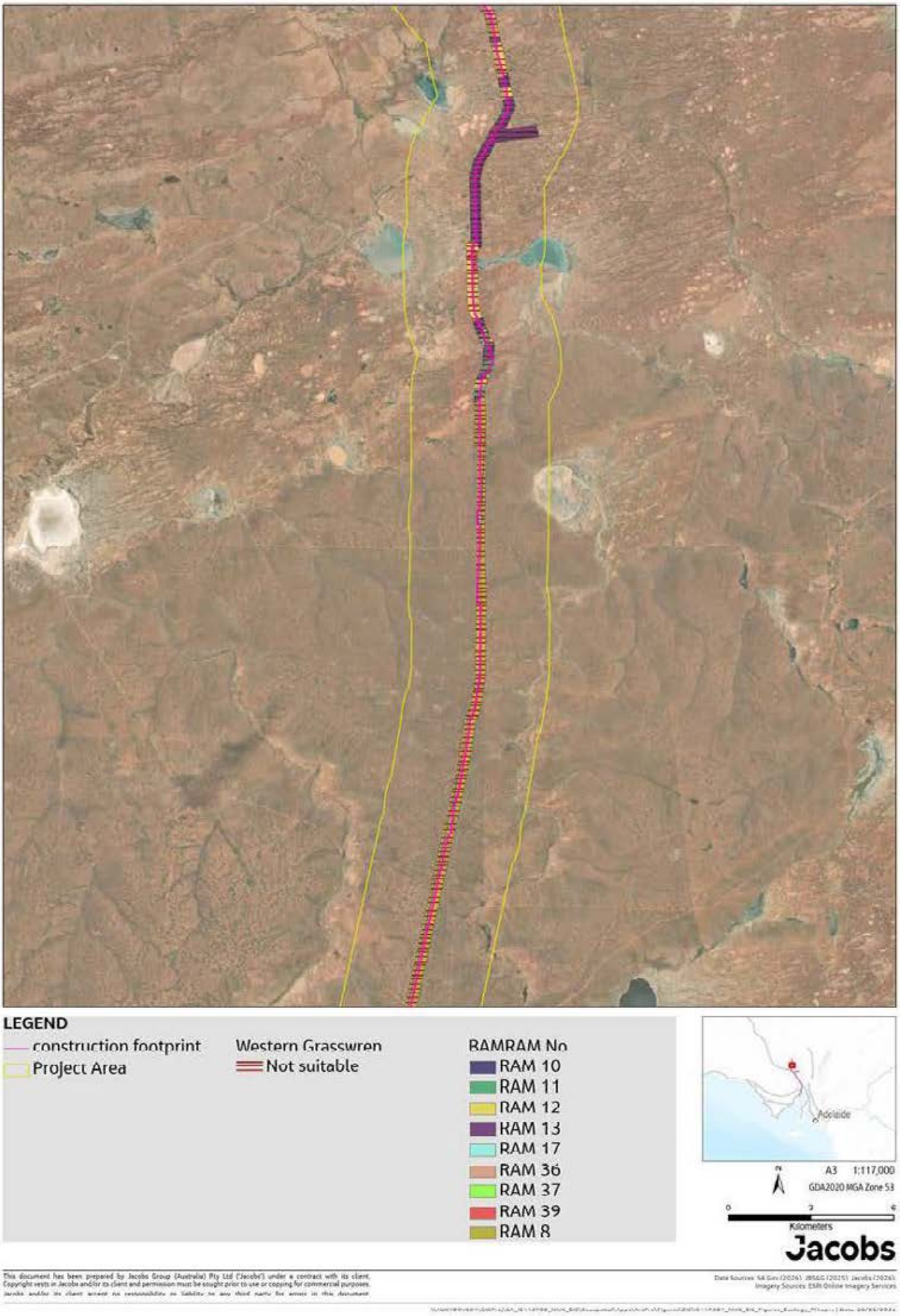
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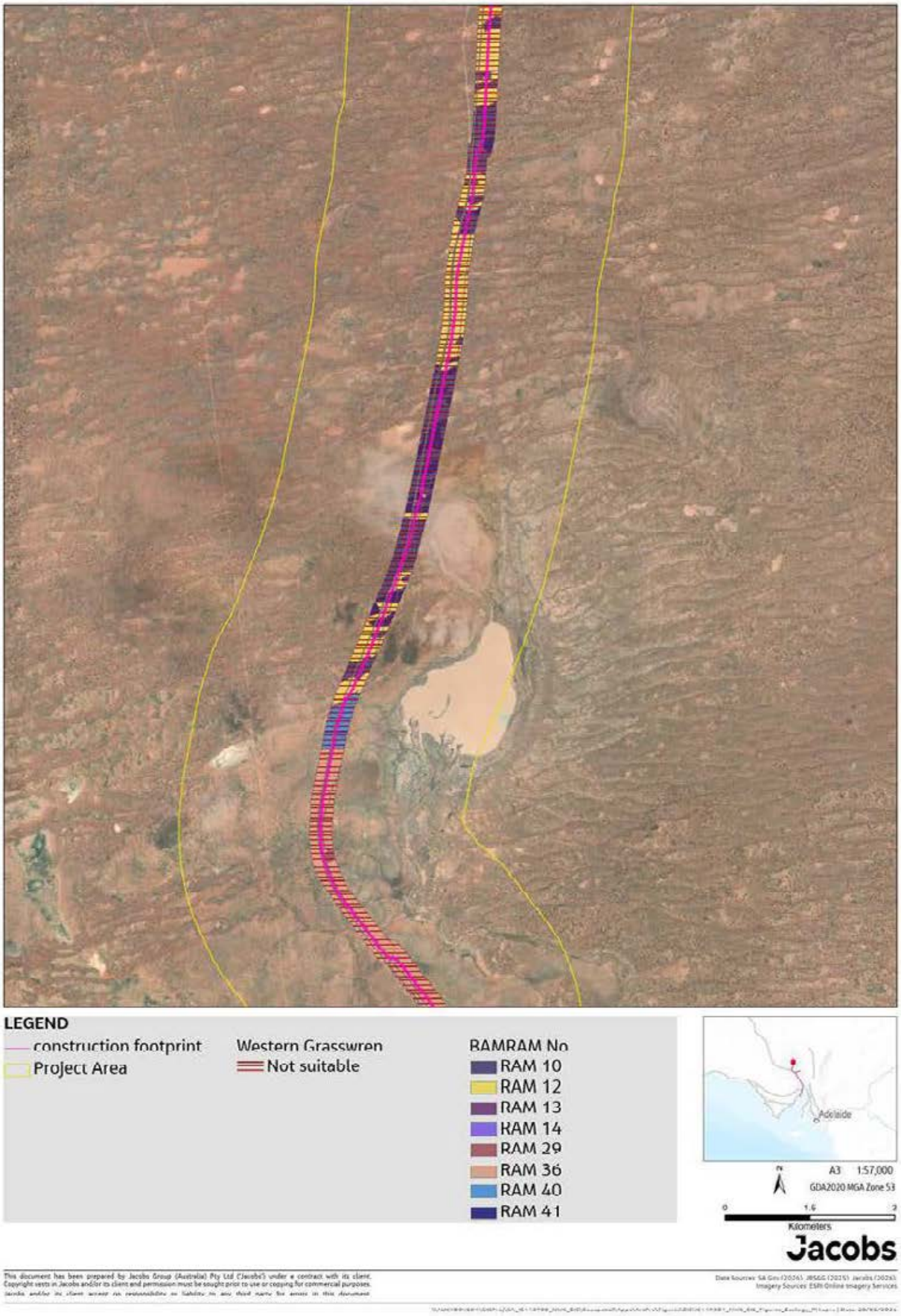
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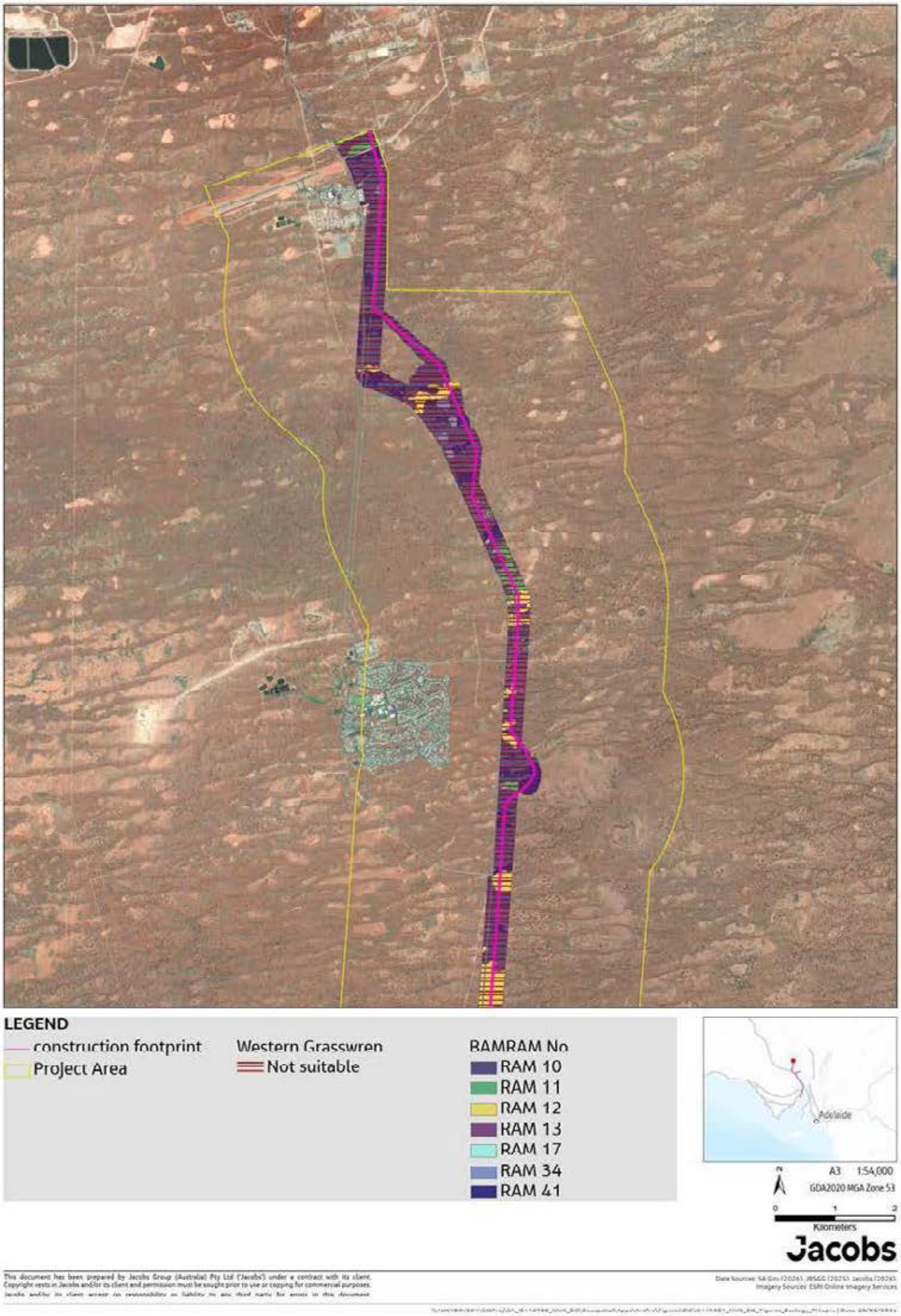
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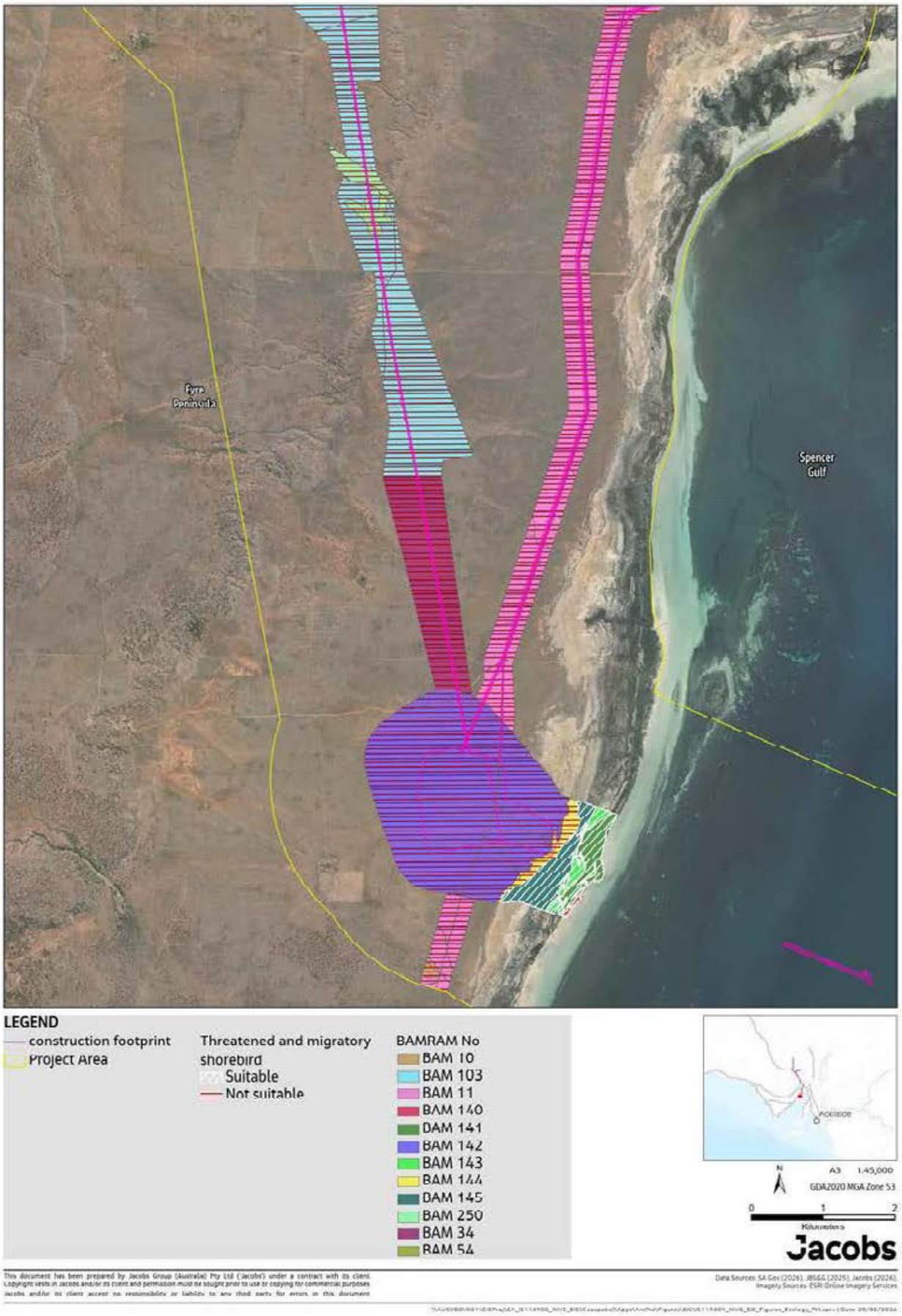
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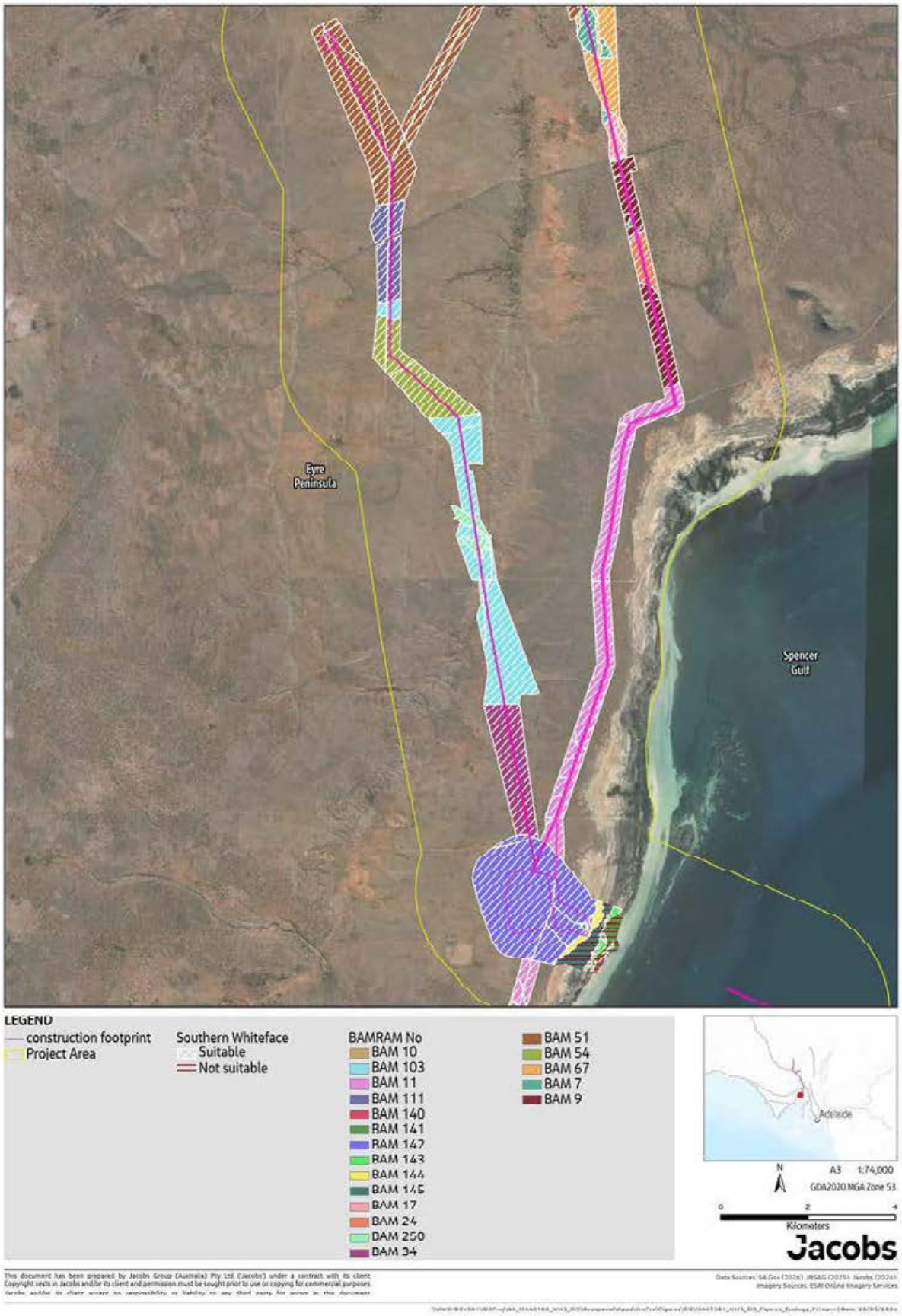
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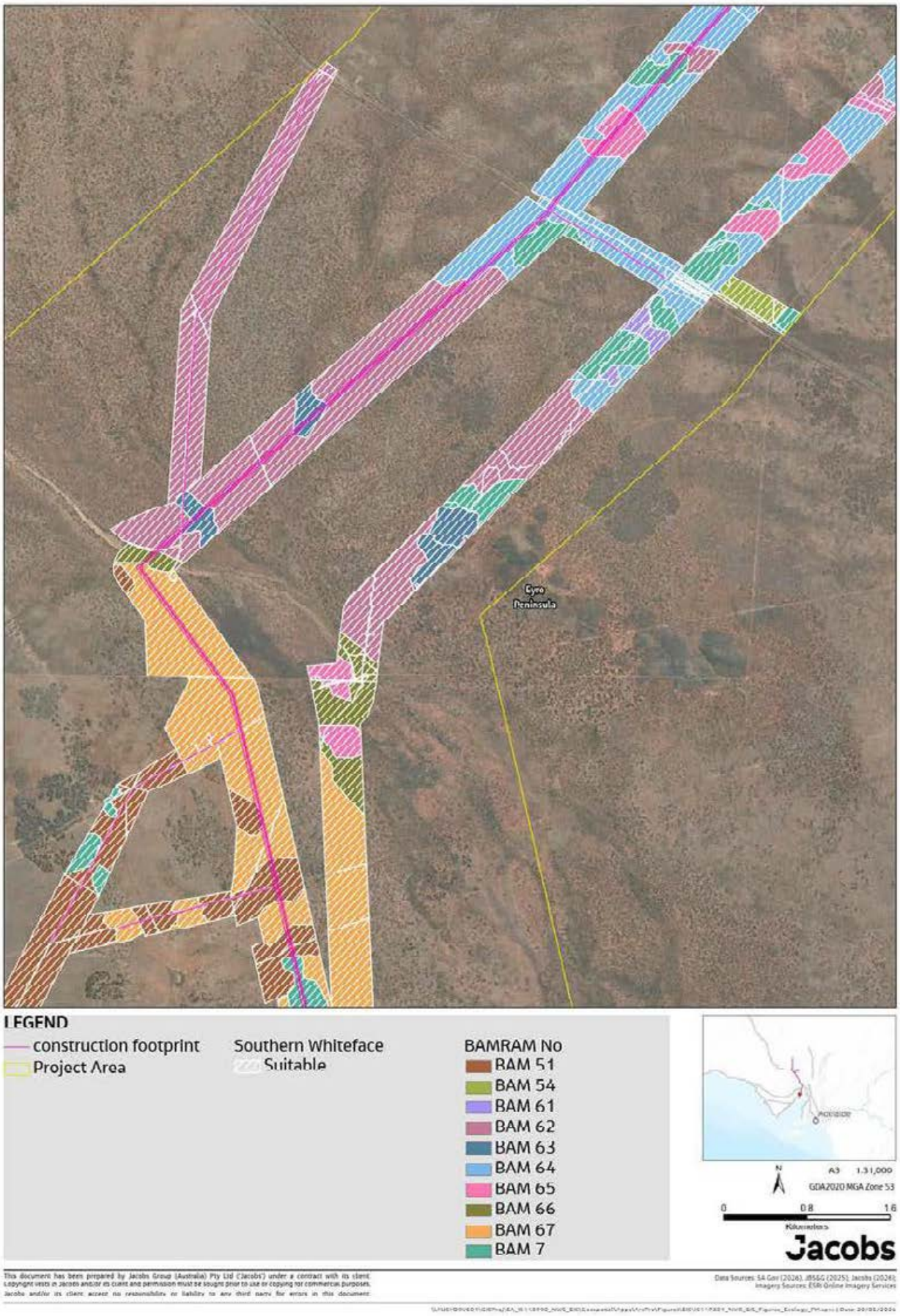
B.7 Broadscale Habitat Mapping for Migratory birds

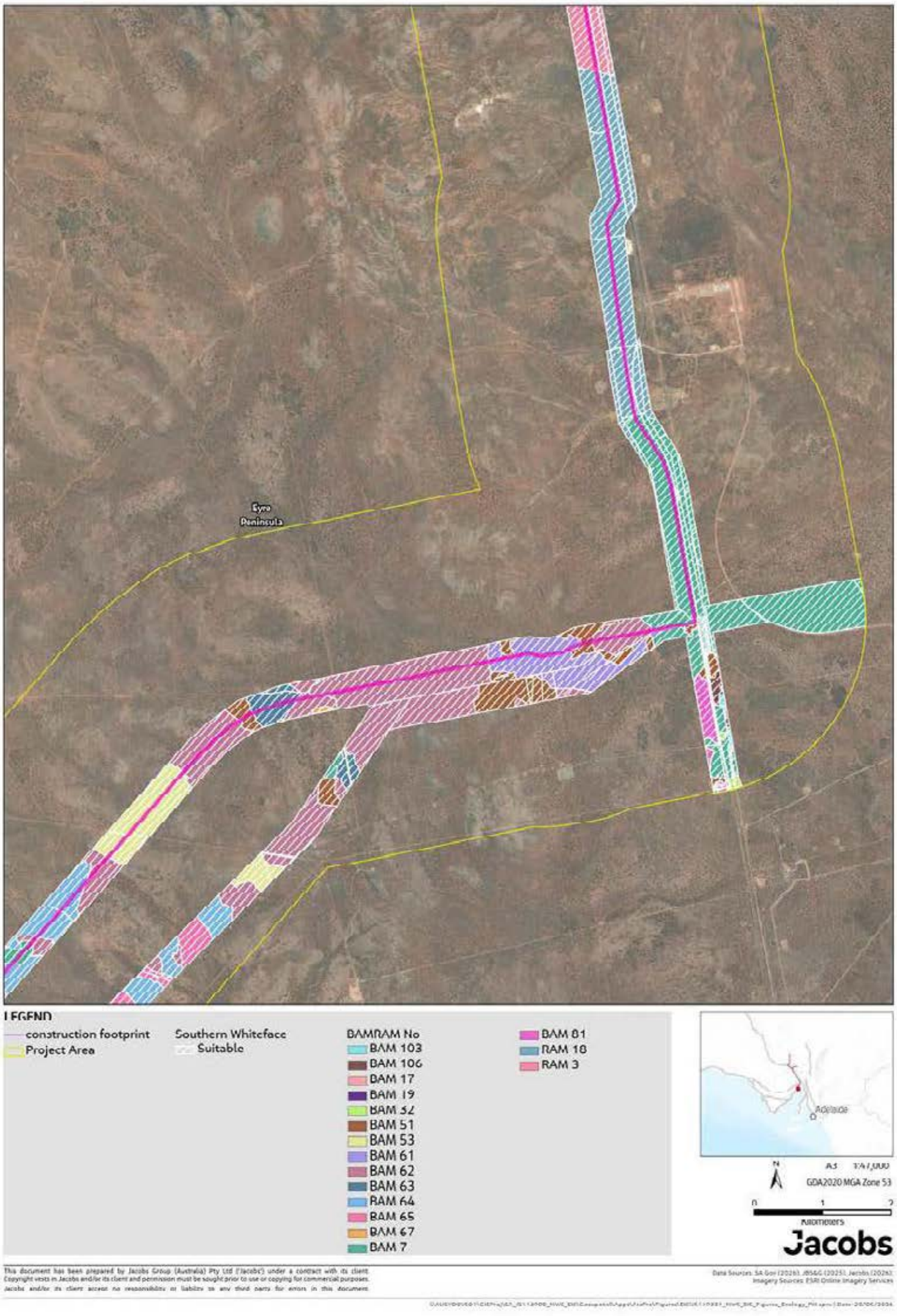
Only areas providing suitable habitat (of varying levels) are displayed in the figure.


Fyre Peninsula
Spencer Gulf
LEGEND
construction footprint
Project Area
Threatened and migratory shorebird
Suitable
Not suitable
BAMRAM No
BAM 10
BAM 103
BAM 11
BAM 140
BAM 141
BAM 142
BAM 143
BAM 144
BAM 145
BAM 250
BAM 34
BAM 54
Adelaide
N
A3 1:45,000
GDA2020 MGA Zone 53
0 1 2
Kilometers
Jacobs
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Imagery Sources: ESRI Online Imagery Services

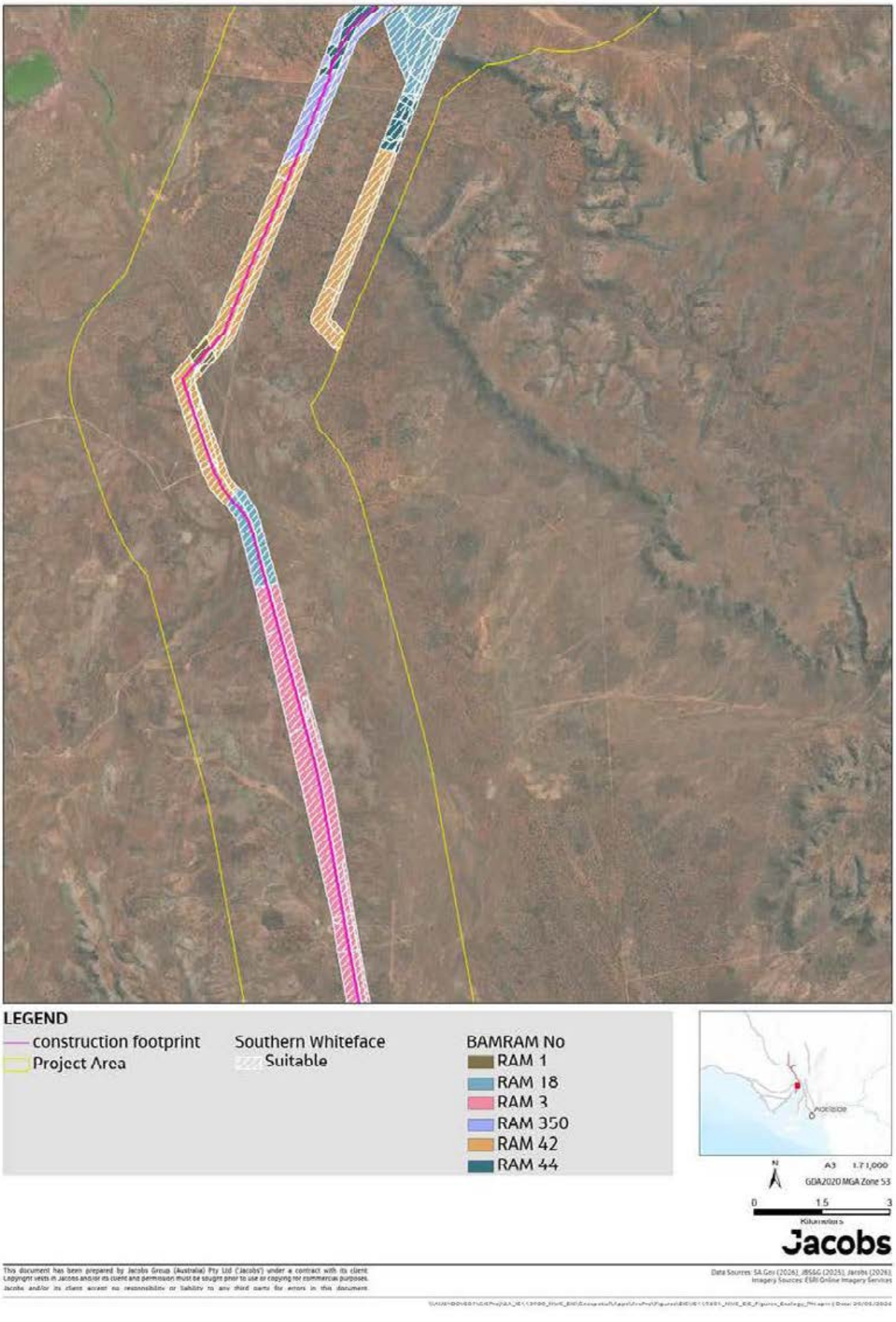
B.8 Broadscale Habitat Mapping for Southern Whiteface




Eyre Peninsula
LEGEND
construction footprint
Project Area
Southern Whiteface
Suitable
BAMRAM No
BAM 51
BAM 54
BAM 61
BAM 62
BAM 63
BAM 64
BAM 65
BAM 66
BAM 67
BAM 7
A3 1:1,000
GDA2020 MGA Zone 53
0 0.8 1.6
Kilometers
Jacobs

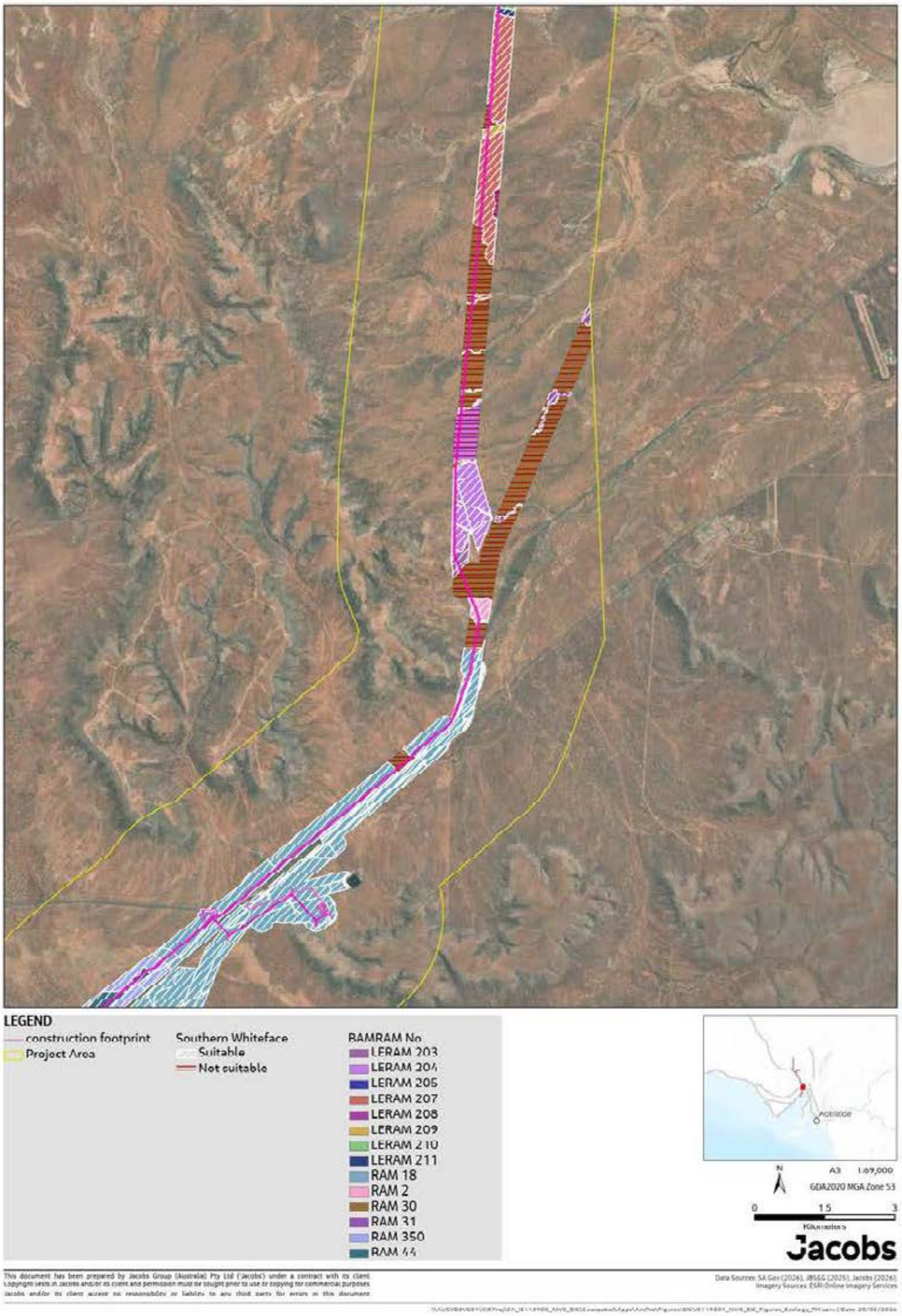


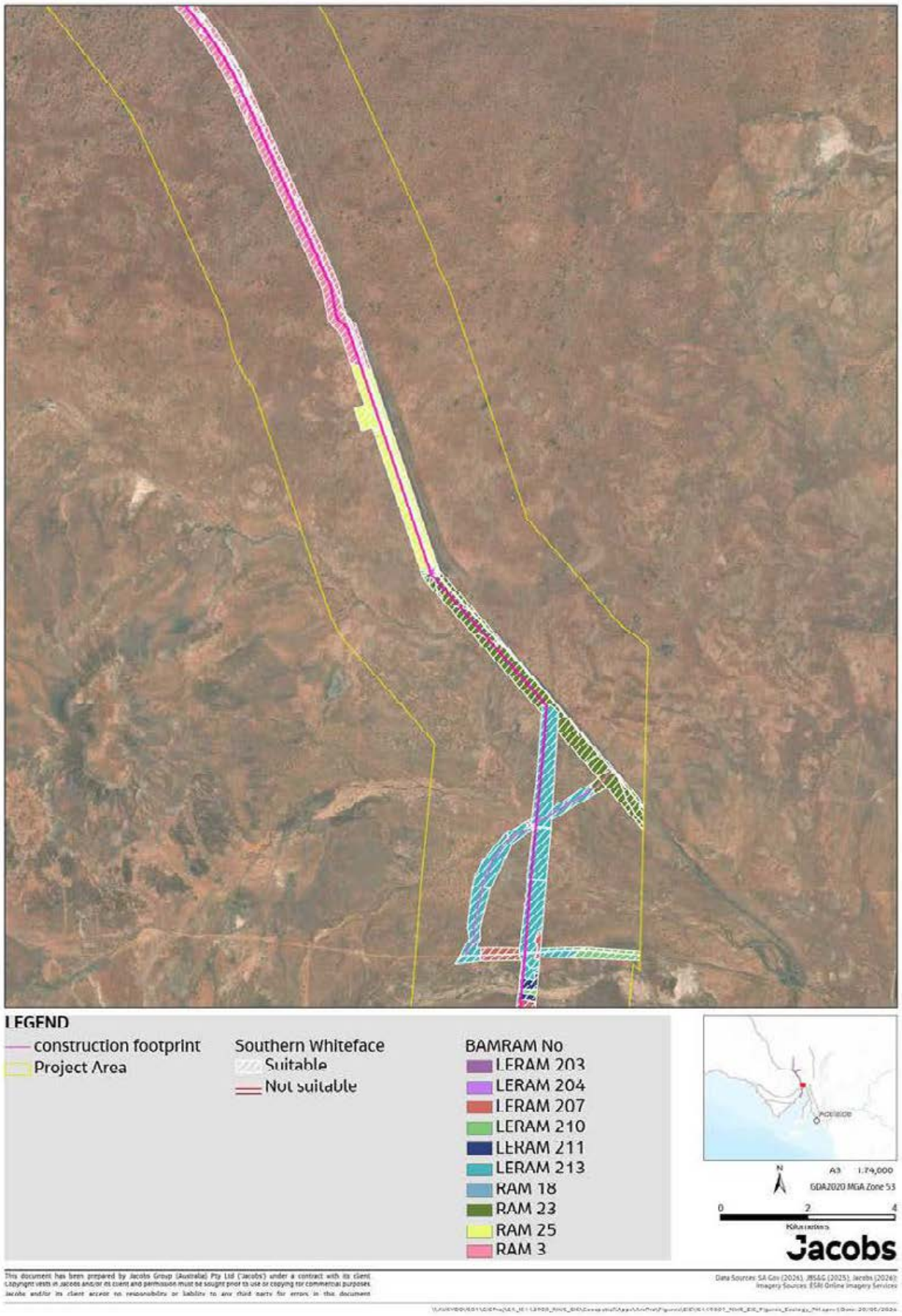
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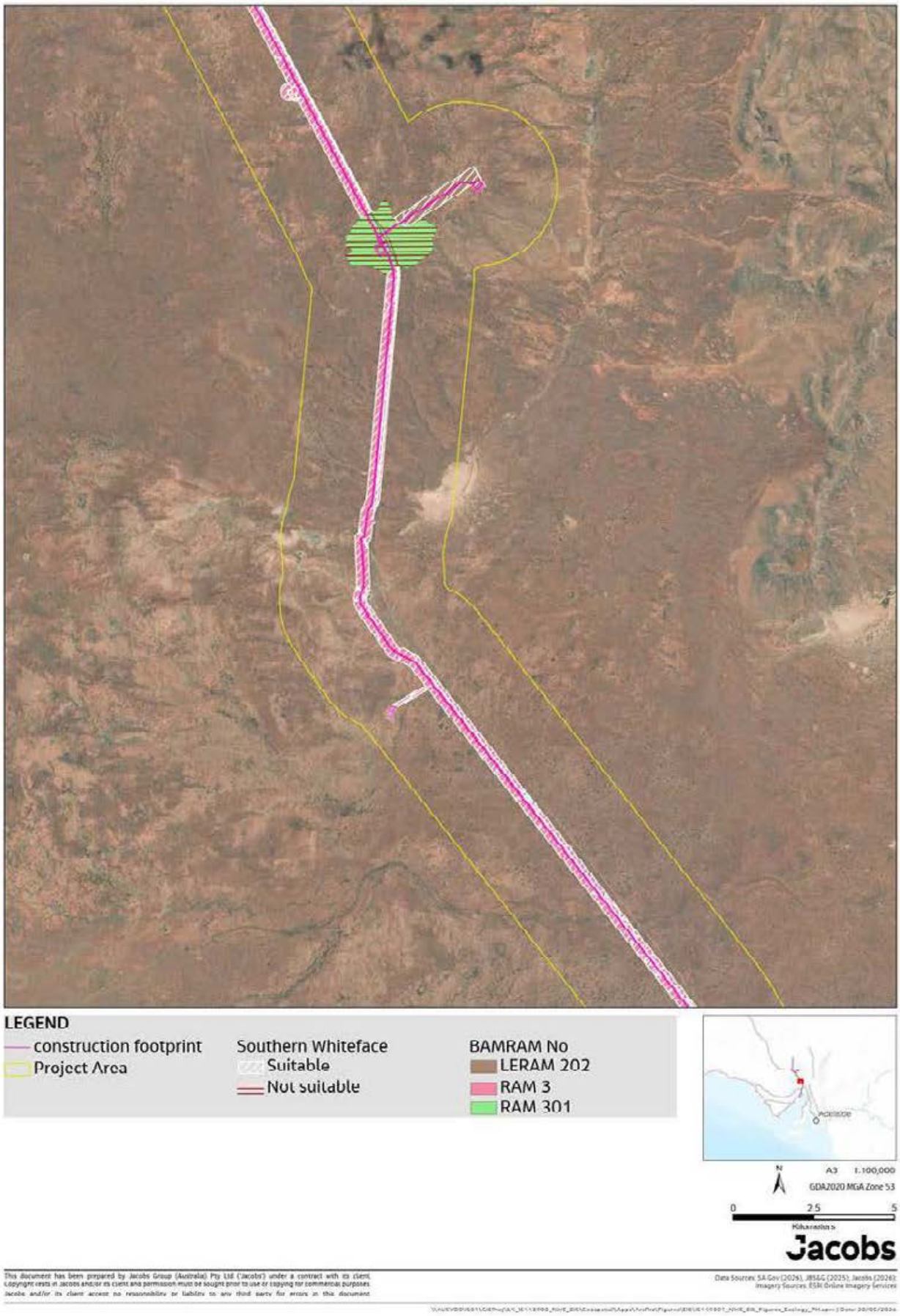
Data Sources: SA Gov (2026); JBS&G (2025); Jacobs (2026)
Imagery Sources: ESRI Online Imagery Services


LEGEND
construction footprint
Project Area
Southern Whiteface
Suitable
Not suitable
RAMRAM No
LERAM 203
LERAM 204
LERAM 205
LERAM 207
LERAM 208
LERAM 209
LERAM 210
LERAM 211
RAM 18
RAM 2
RAM 30
RAM 31
RAM 350
RAM 44
Adelaide
N
A3 1:69,000
GDA2020 MGA Zone 53
0 1.5 3
Kilometers
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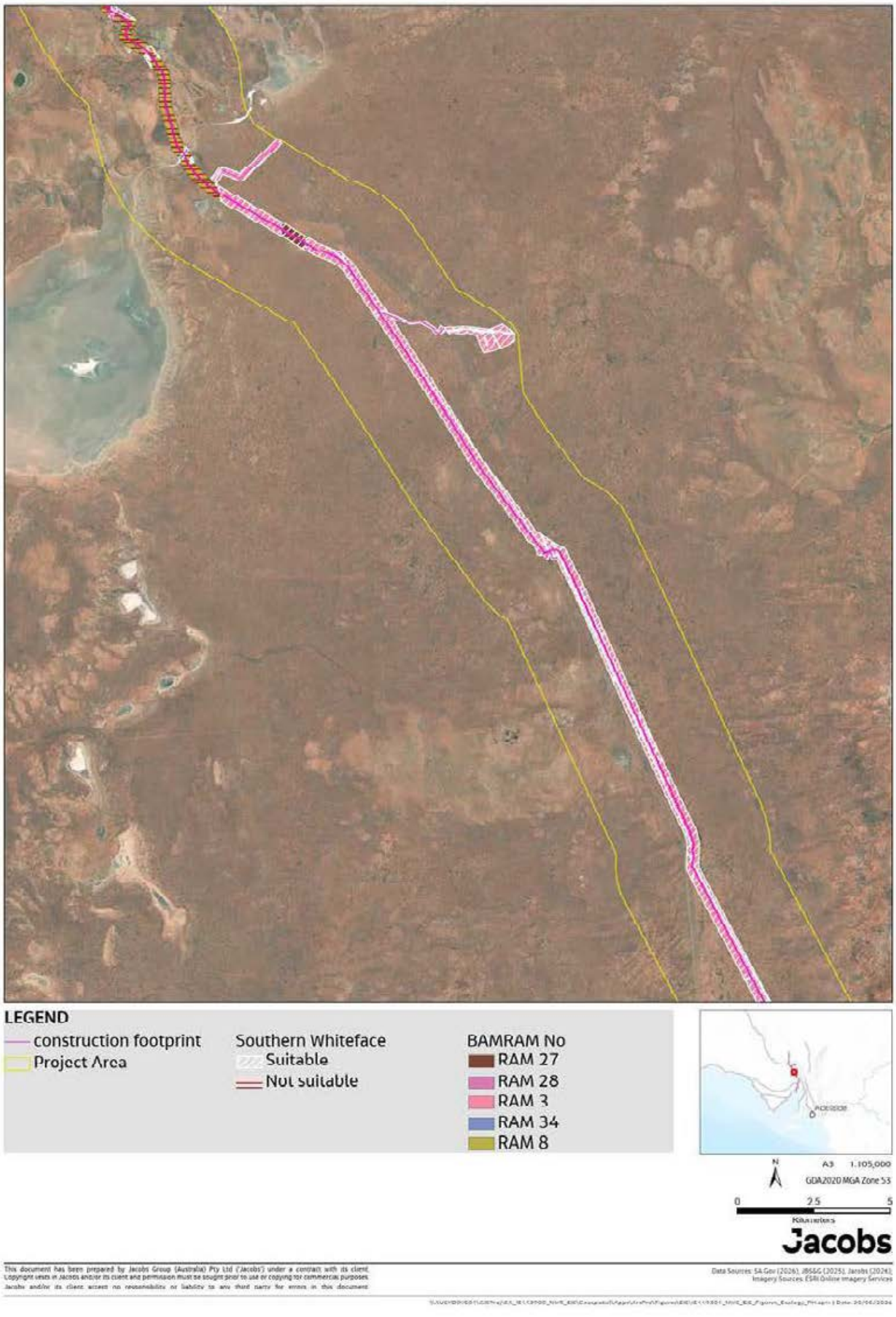
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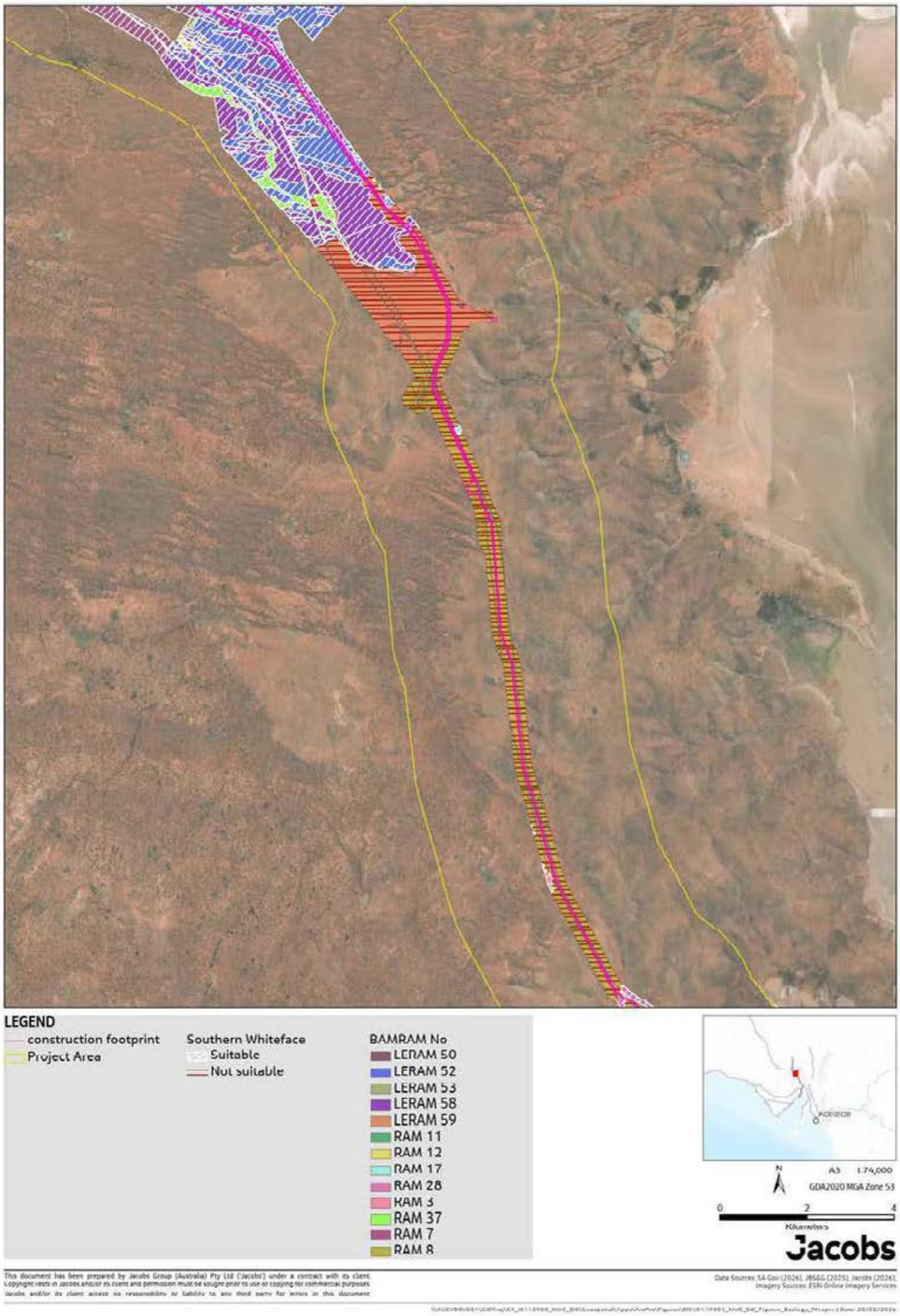
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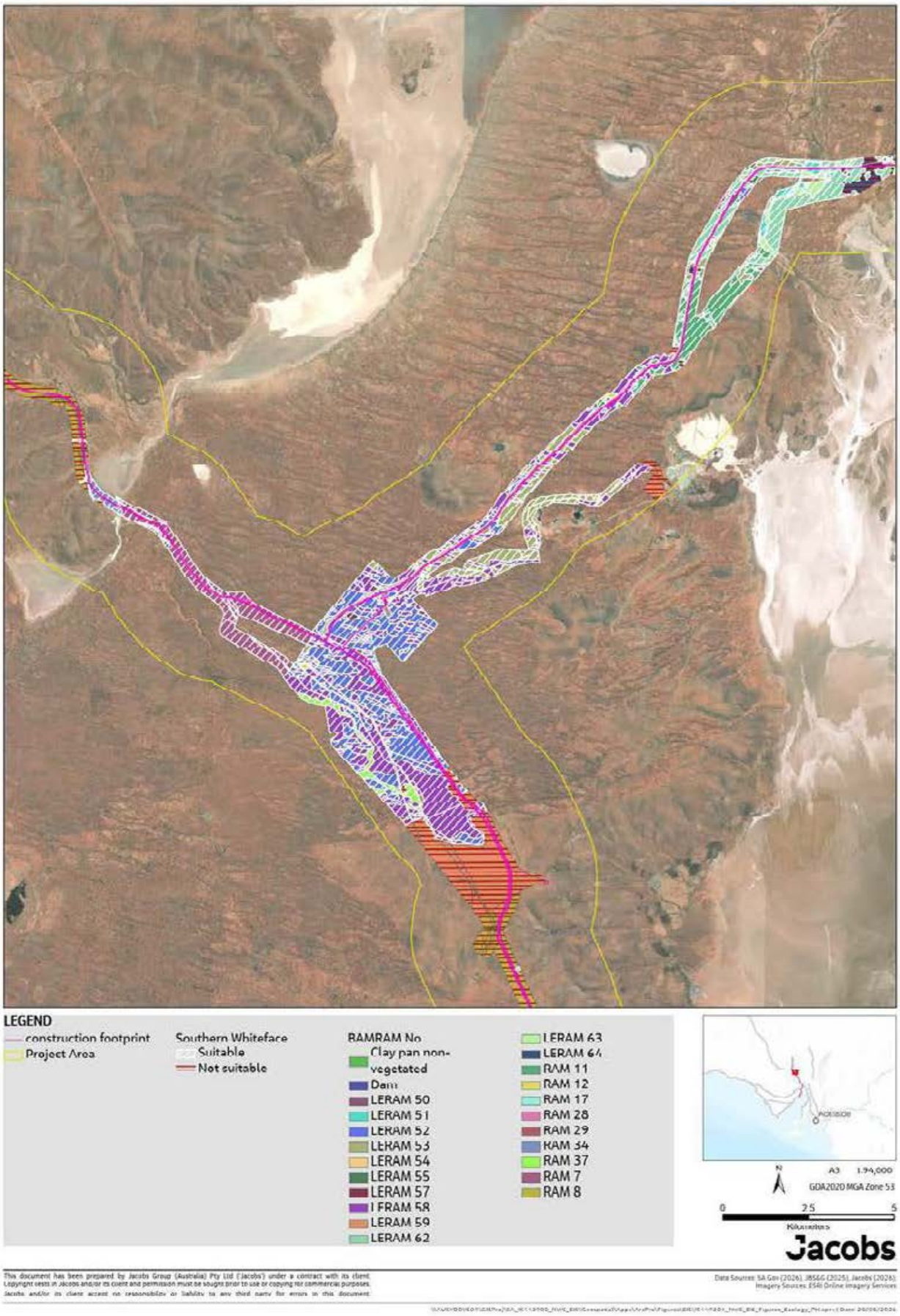


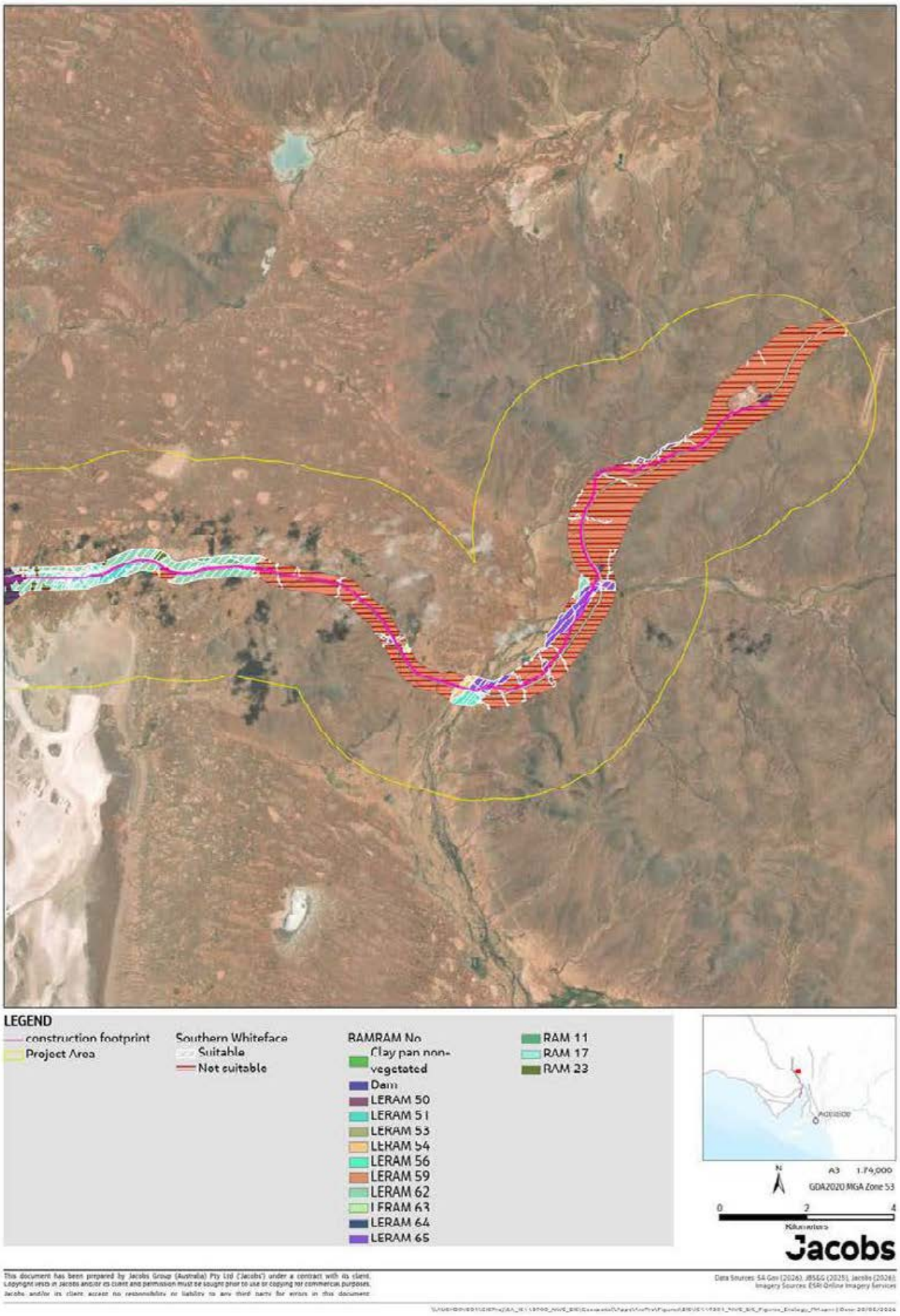
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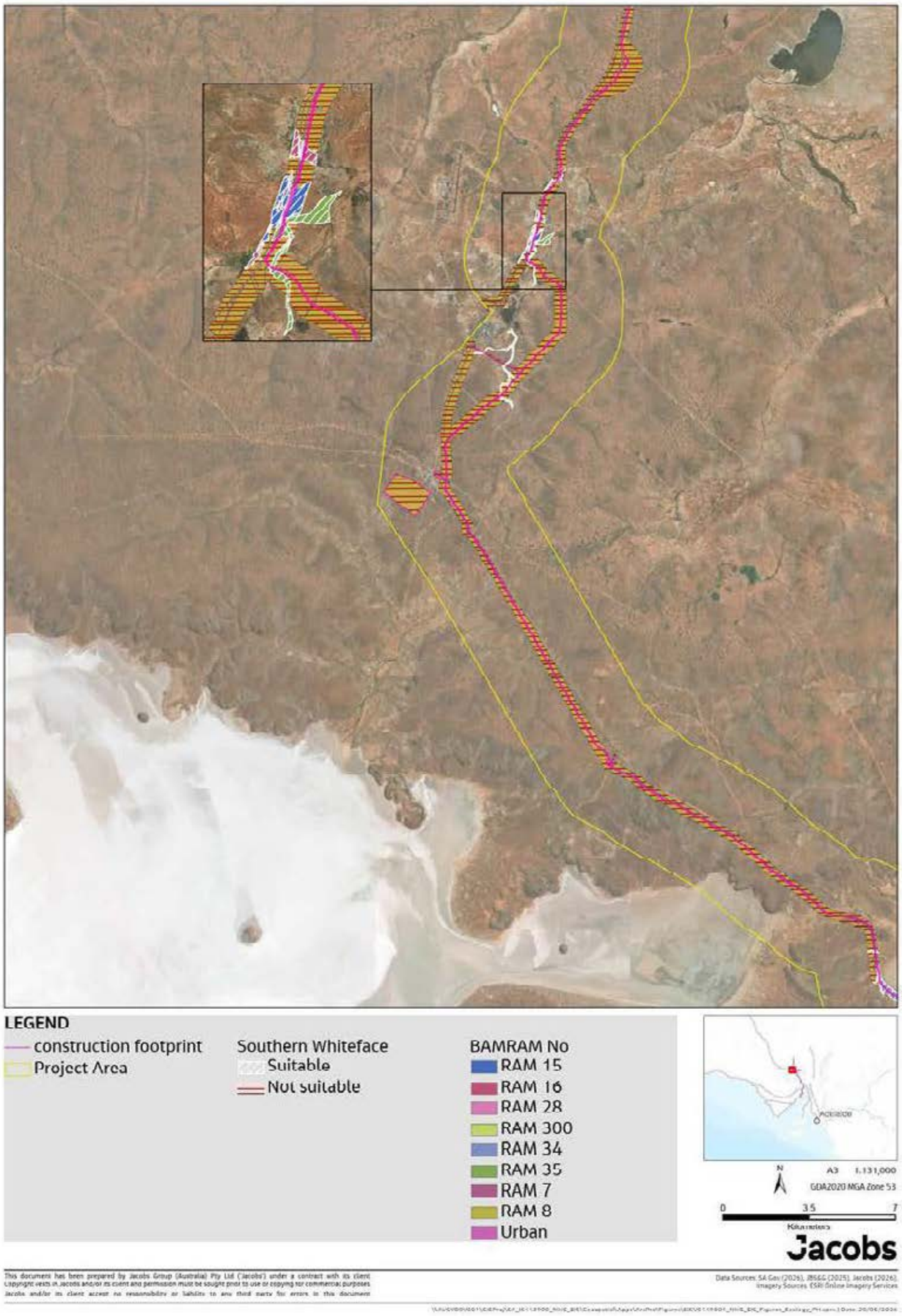

LEGEND
construction footprint
Project Area
Southern Whiteface
Suitable
Not suitable
BAMRAM No
RAM 27
RAM 28
RAM 3
RAM 34
RAM 8
A3 1:105,000
GDA2020 MGA Zone 53
0 2.5 5
Kilometers
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LEGEND
construction footprint
Project Area
Southern Whiteface
Suitable
Not suitable
BAMRAM No
LERAM 50
LERAM 52
LERAM 53
LERAM 58
LERAM 59
RAM 11
RAM 12
RAM 17
RAM 28
RAM 5
RAM 37
RAM 7
RAM 8
N
A3 1:74,000
GDA2020 MGA Zone 53
0 2 4
Kilometres
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Imagery Sources: ESRI Online Imagery Services


LEGEND
construction footprint
Project Area
Southern Whiteface
Suitable
Not suitable
RAMRAM No
Clay pan non-vegetated
Dam
LERAM 50
LERAM 51
LERAM 52
LERAM 53
LERAM 54
LERAM 55
LERAM 57
LERAM 58
LERAM 59
LERAM 62
LERAM 63
LERAM 64
RAM 11
RAM 12
RAM 17
RAM 28
RAM 29
RAM 34
RAM 37
RAM 7
RAM 8
A3
1:94,000
GDA2020 MGA Zone 53
0
2.5
5
Kilometres
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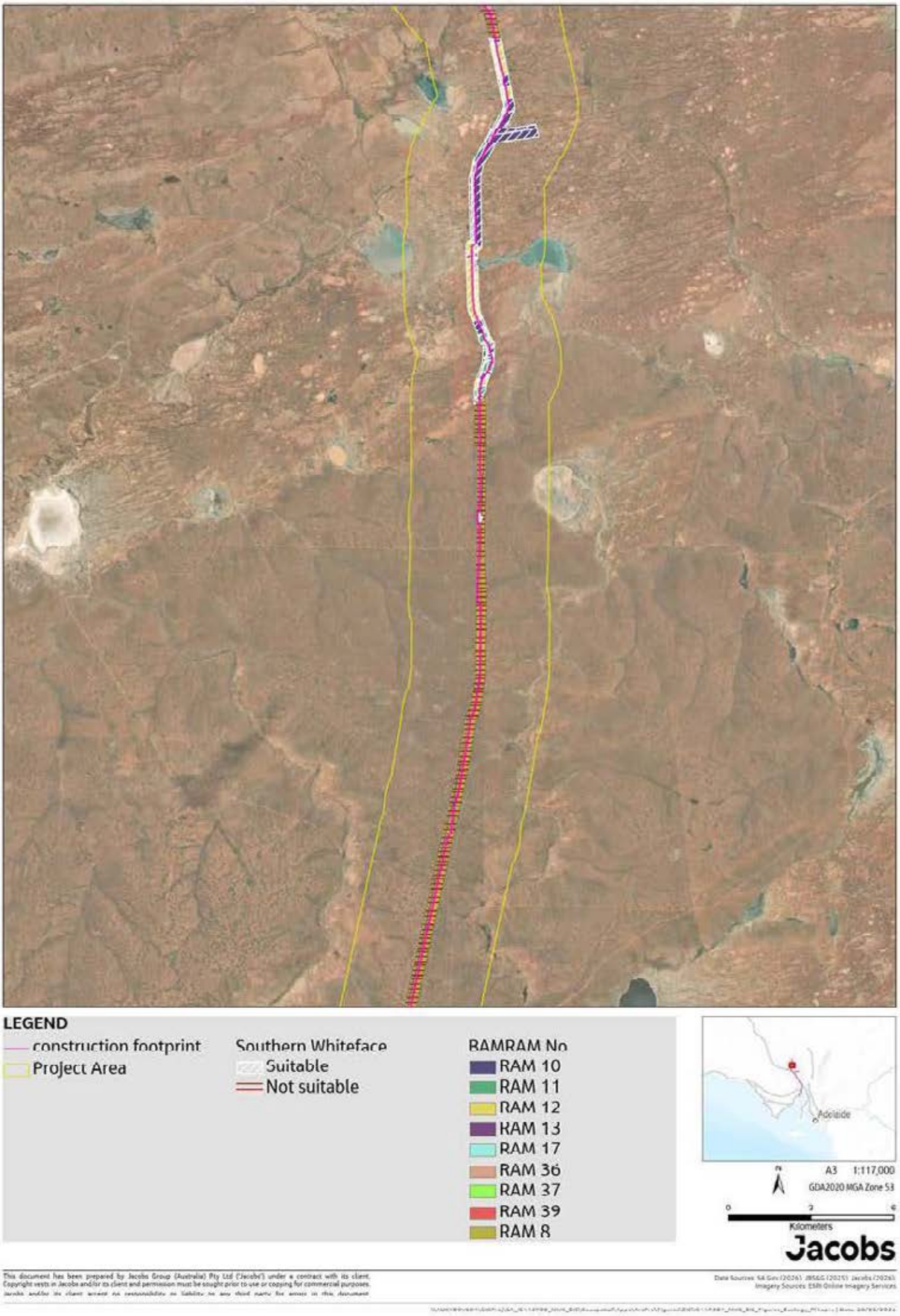


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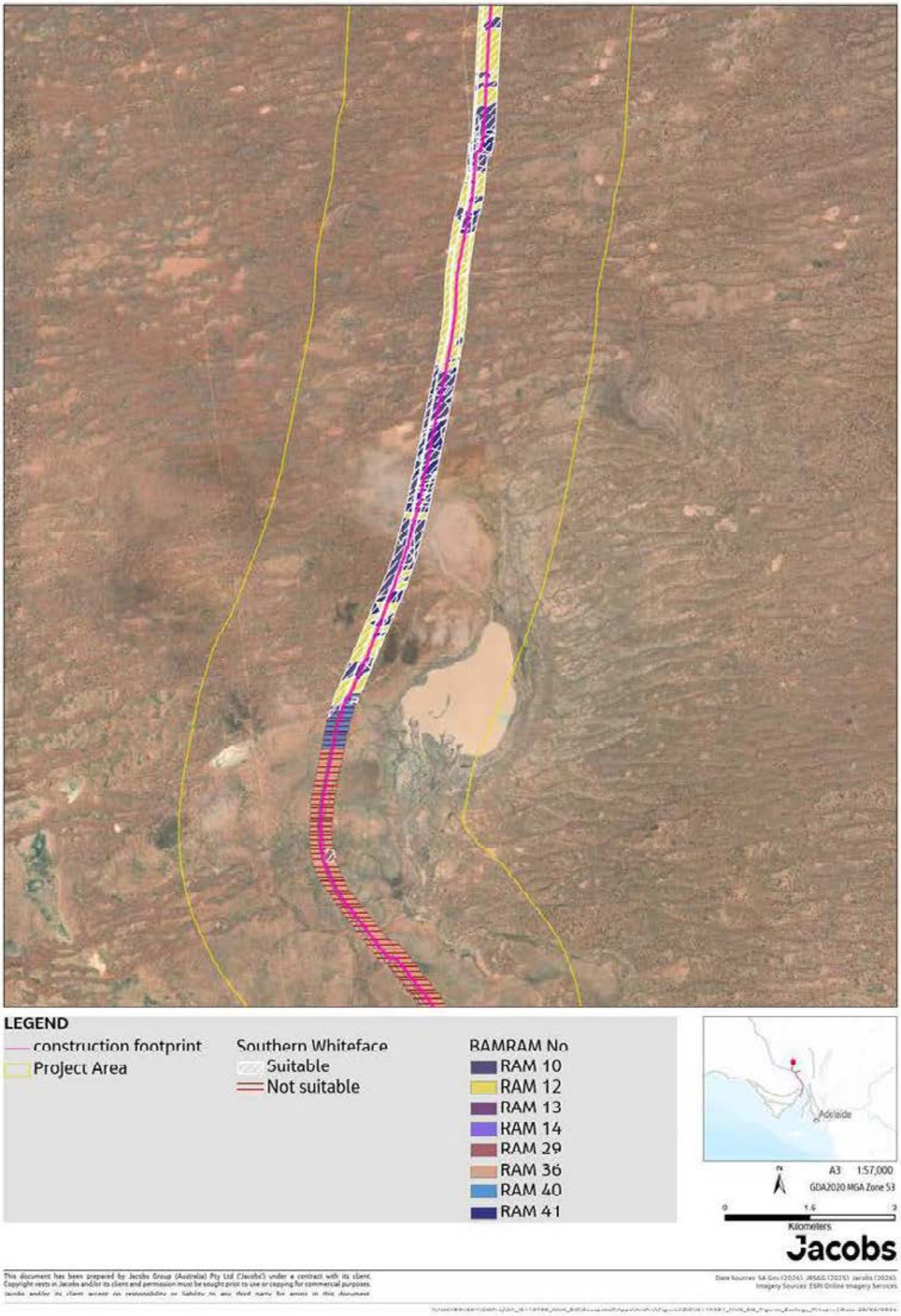


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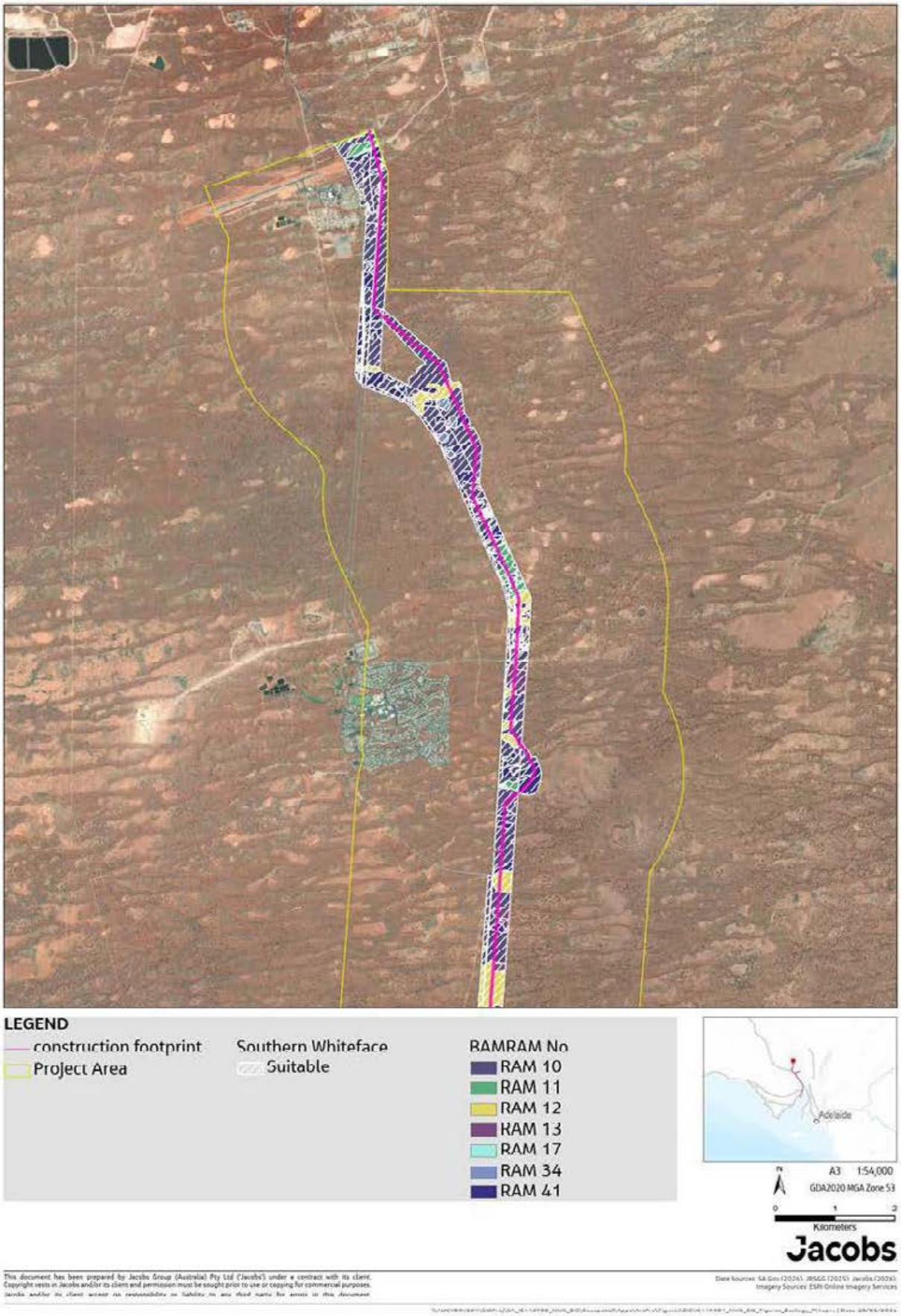
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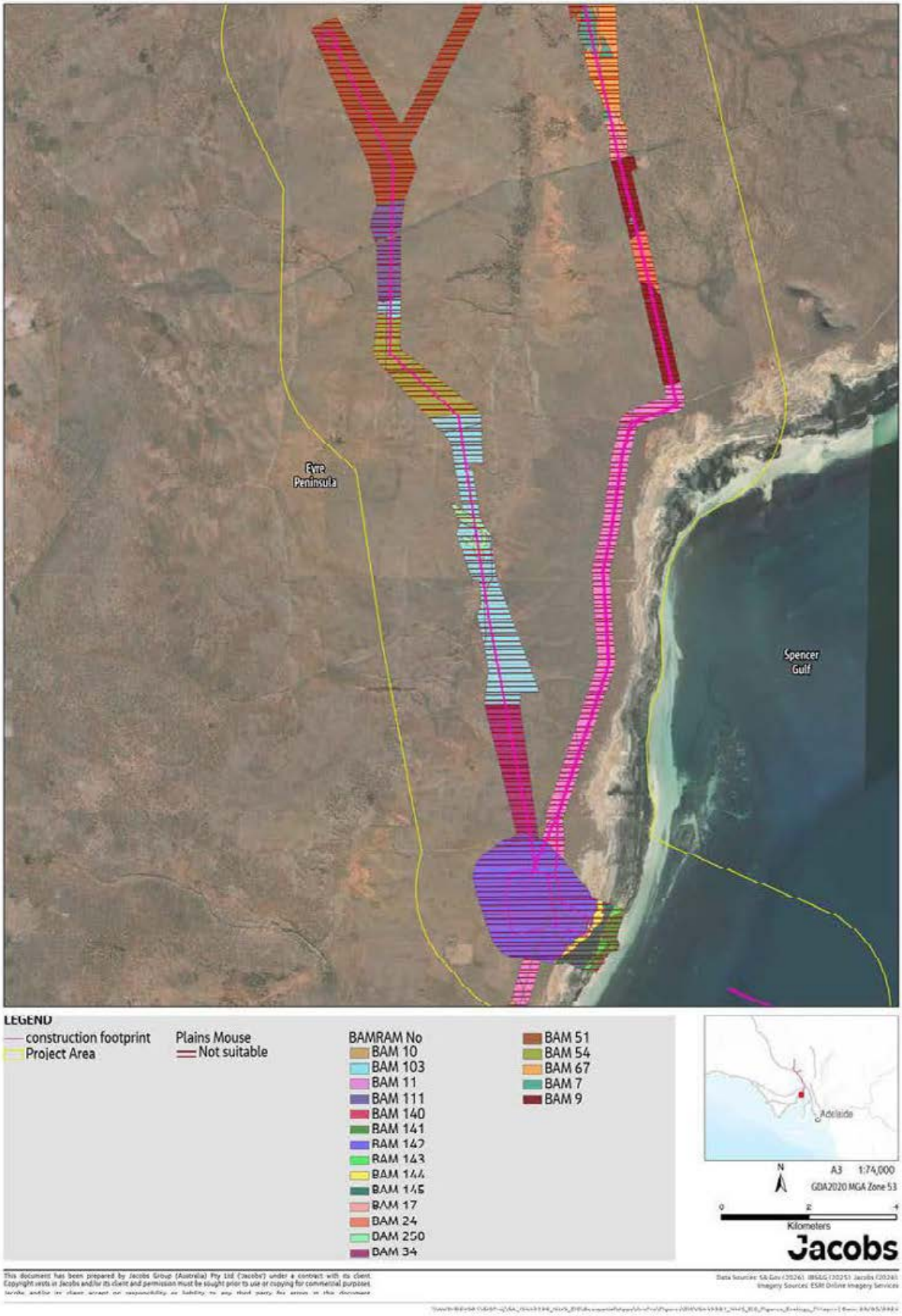


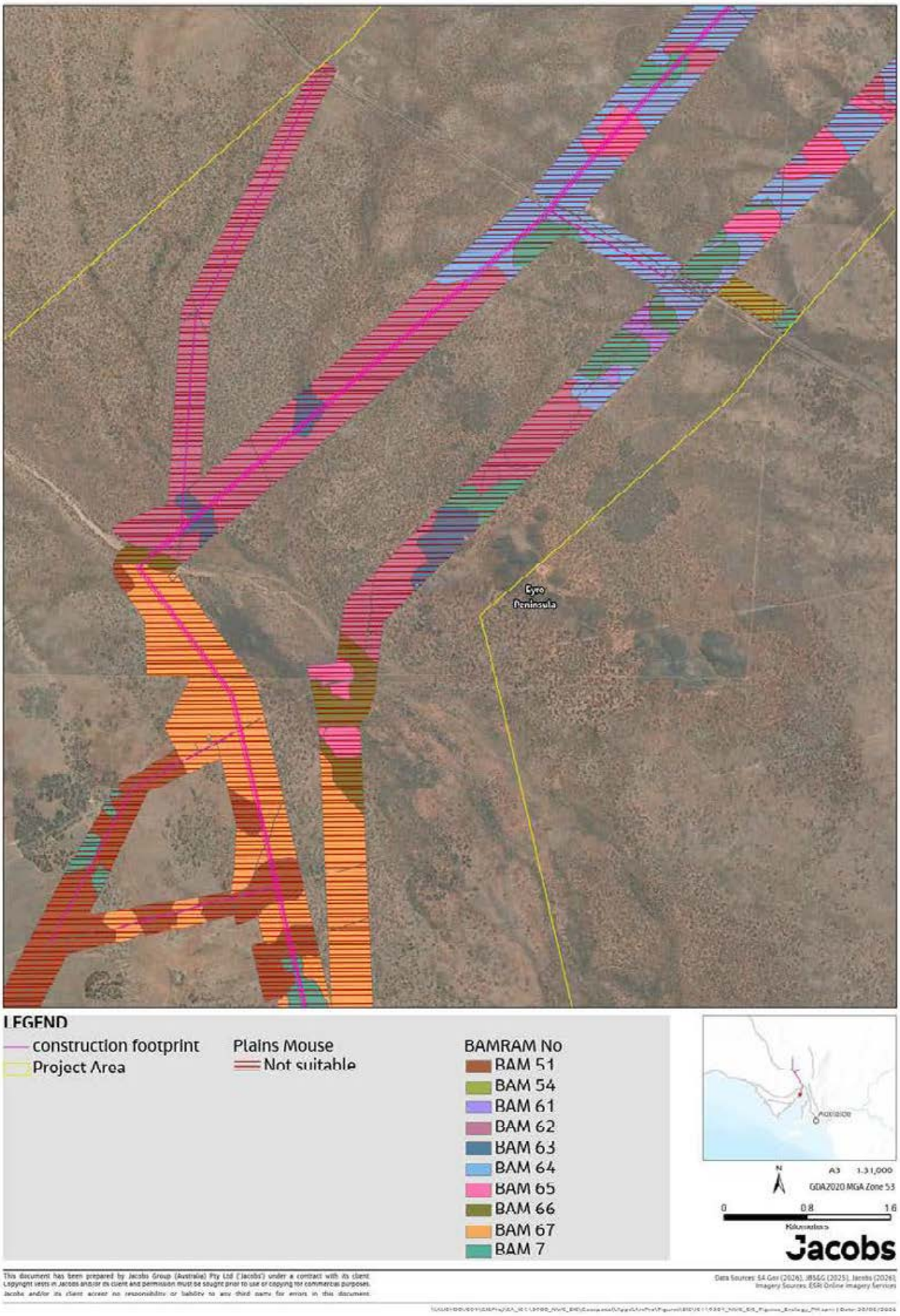
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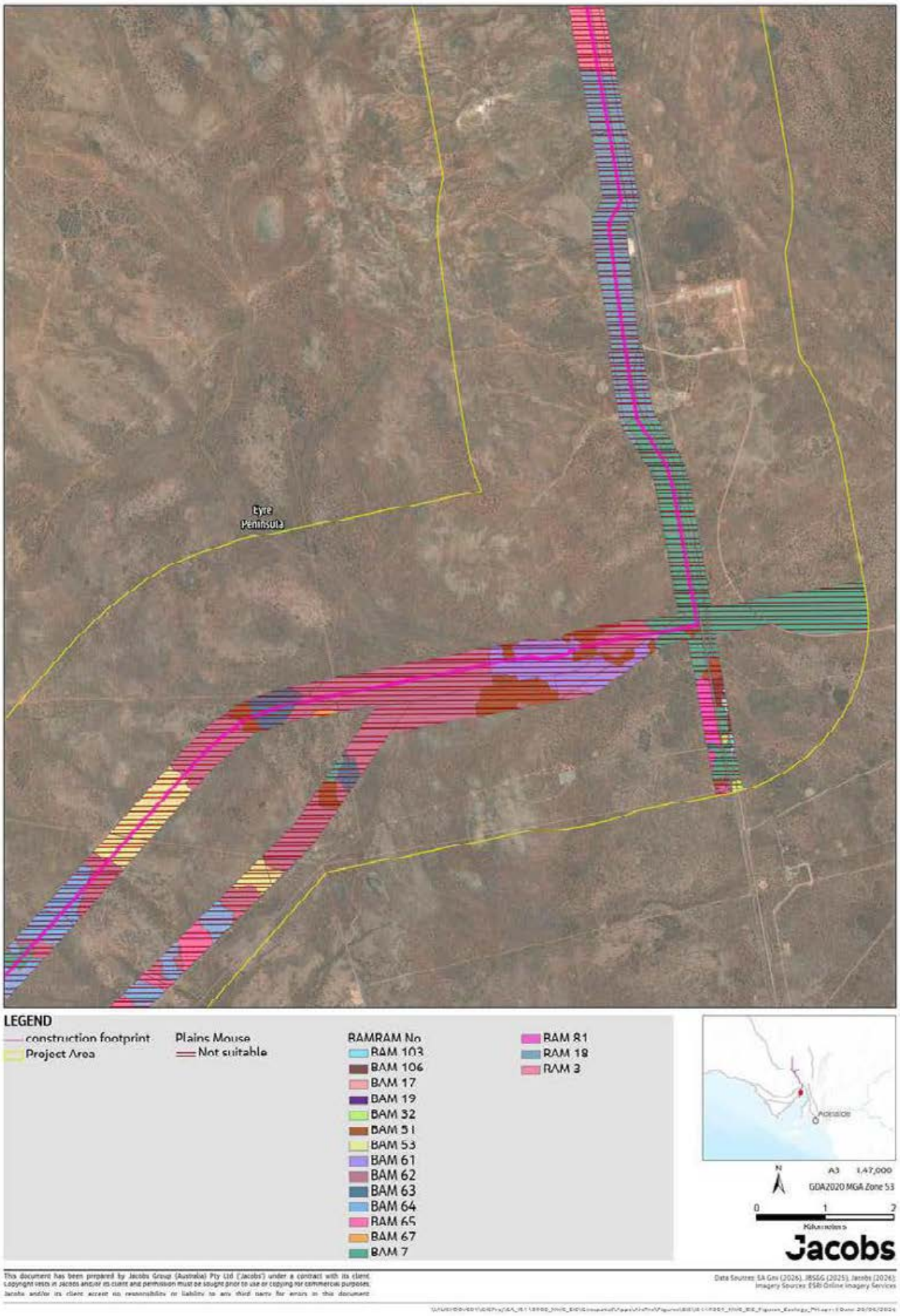


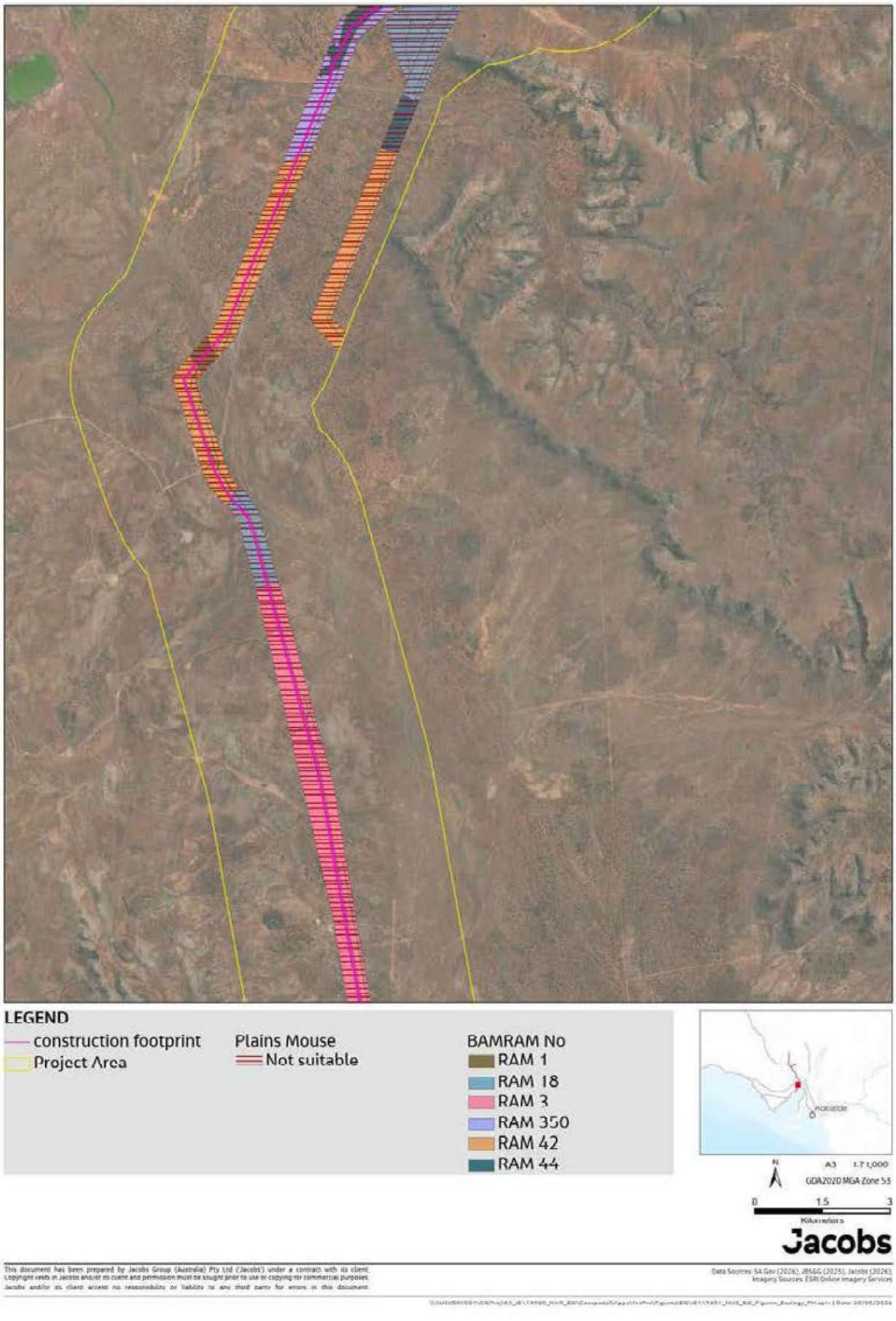
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B.9 Broadscale Habitat Mapping for Plains Mouse



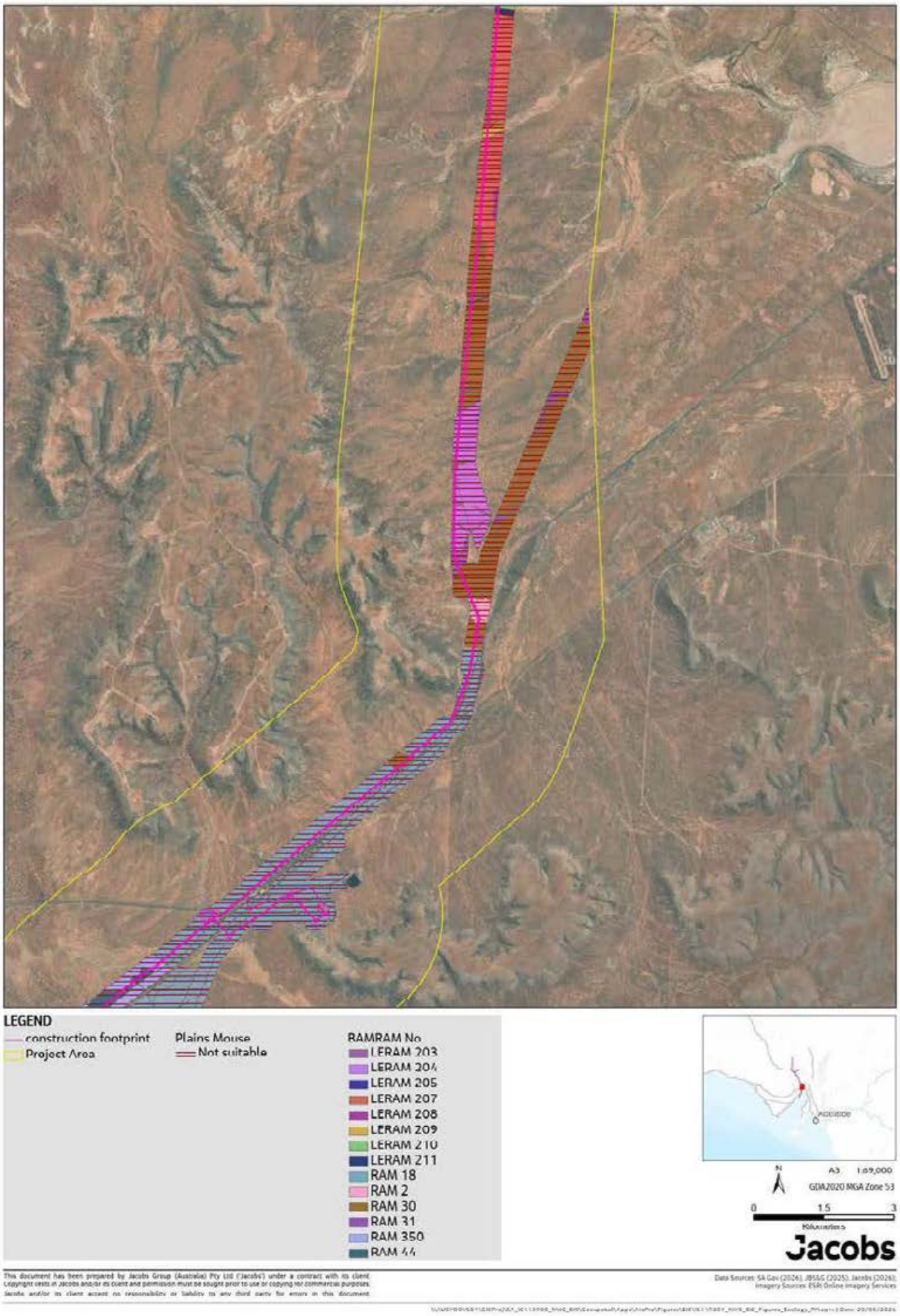

Eyre Peninsula
LEGEND
construction footprint
Project Area
Plains Mouse
Not suitable
BAMRAM No
BAM 51
BAM 54
BAM 61
BAM 62
BAM 63
BAM 64
BAM 65
BAM 66
BAM 67
BAM 7
N
A3 1:31,000
GDA2020 MGA Zone 53
0 0.8 1.6
Kilometres
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Imagery Sources: ESRI Online Imagery Services


Eyre Peninsula
LEGEND
construction footprint
Project Area
Plains Mouse
Not suitable
BAMRAM No
BAM 103
BAM 106
BAM 17
BAM 19
BAM 32
BAM 51
BAM 53
BAM 61
BAM 62
BAM 63
BAM 64
BAM 65
BAM 67
BAM 7
BAM 81
BAM 18
BAM 3
Adelaide
N
A3
1:47,000
GDA2020 MGA Zone 53
0
1
2
Kilometres
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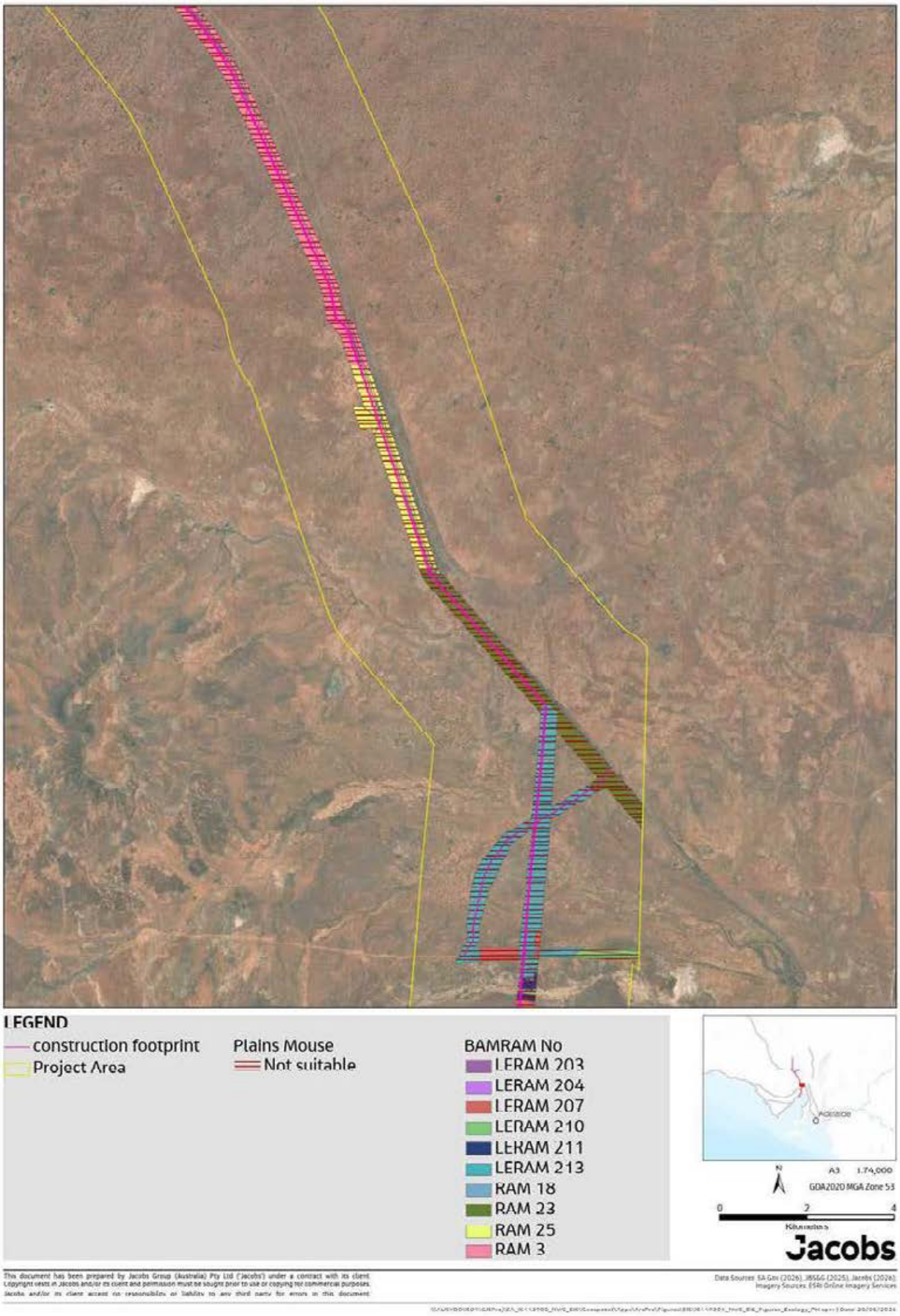
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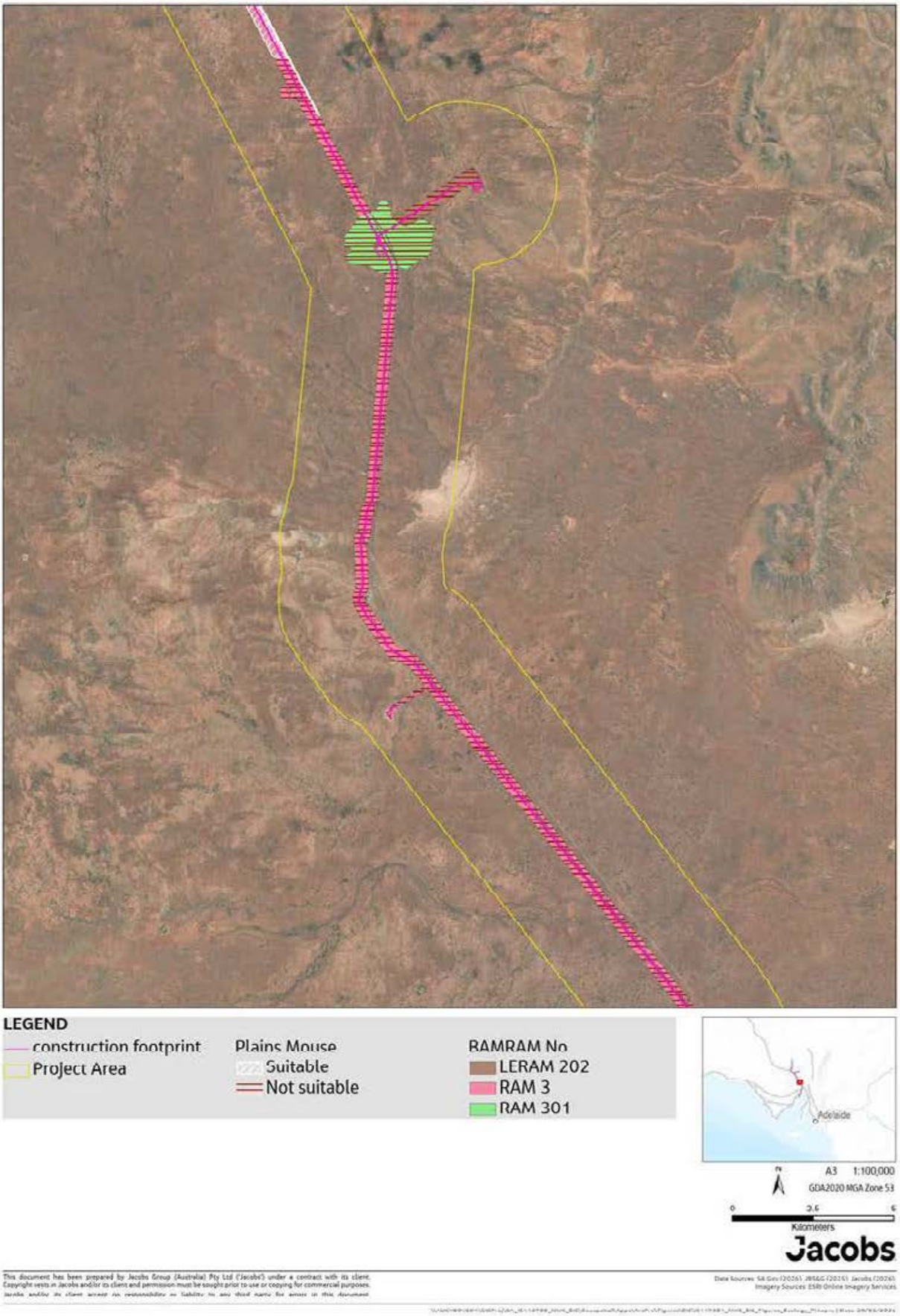
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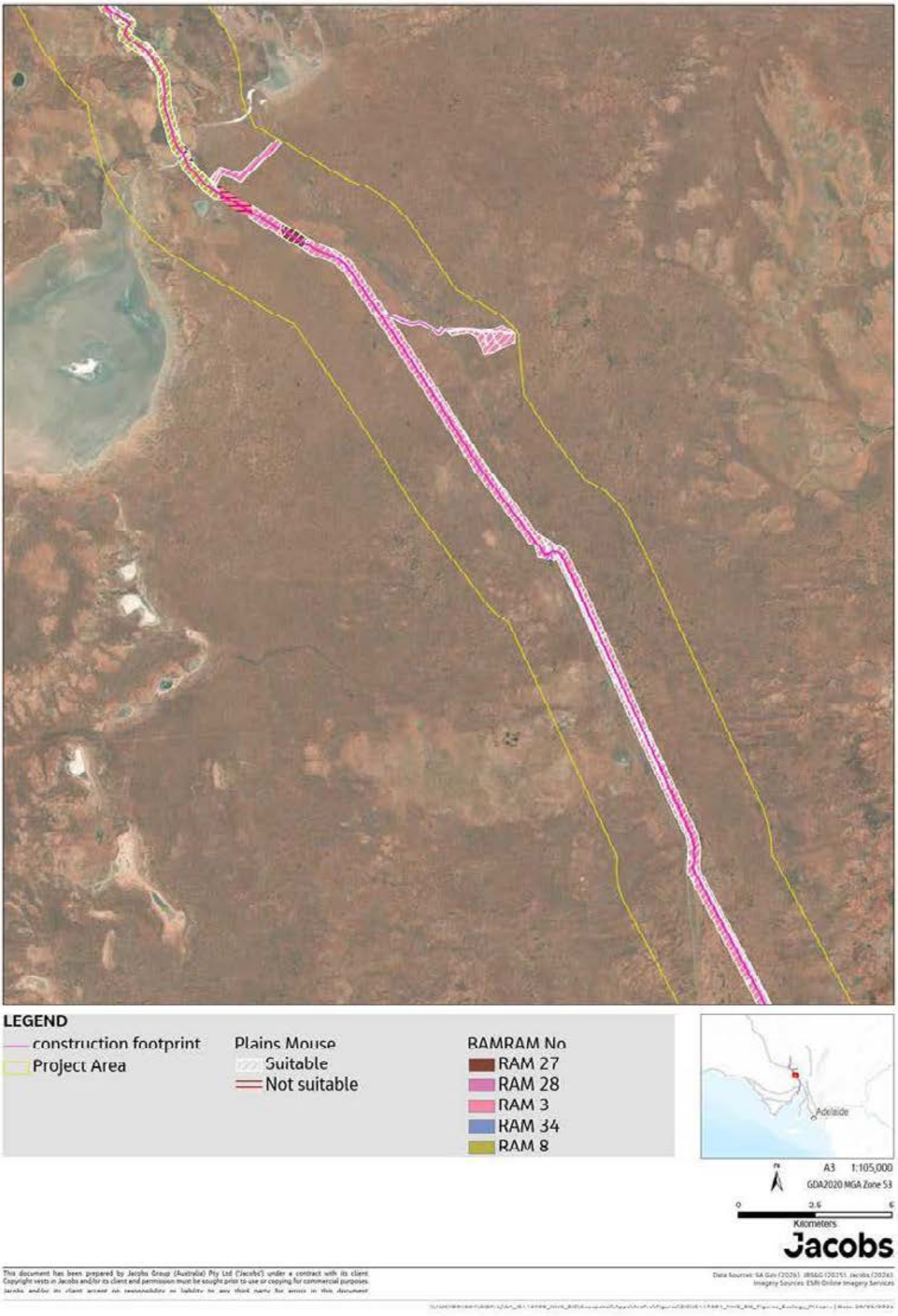
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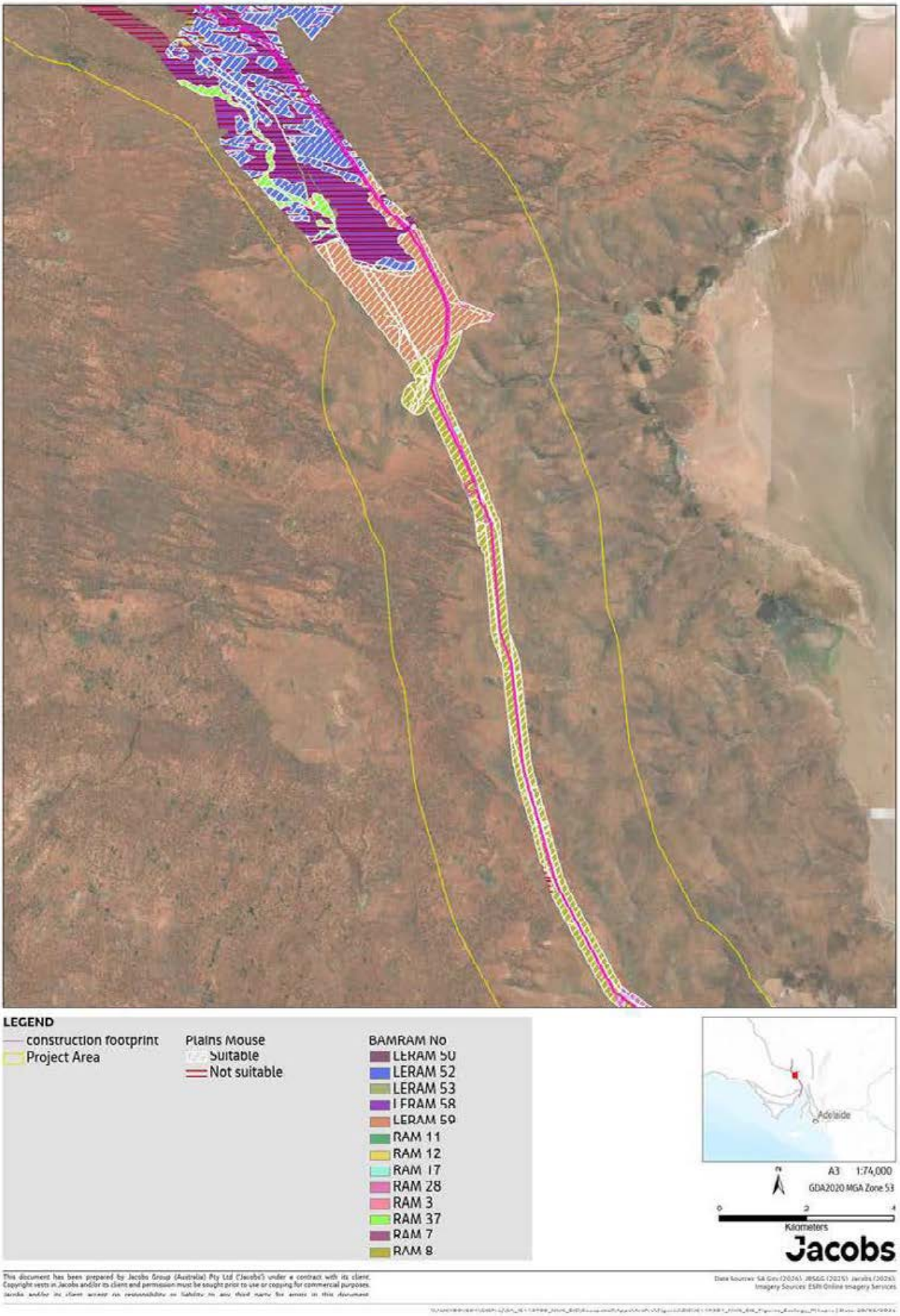

LEGEND
construction footprint
Project Area
Plains Mouse
Not suitable
BAMRAM No
LERAM 203
LERAM 204
LERAM 207
LERAM 210
LERAM 211
LERAM 213
RAM 18
RAM 23
RAM 25
RAM 3
A3 1:74,000
GDA2020 MGA Zone 53
0 2 4
Kilometres
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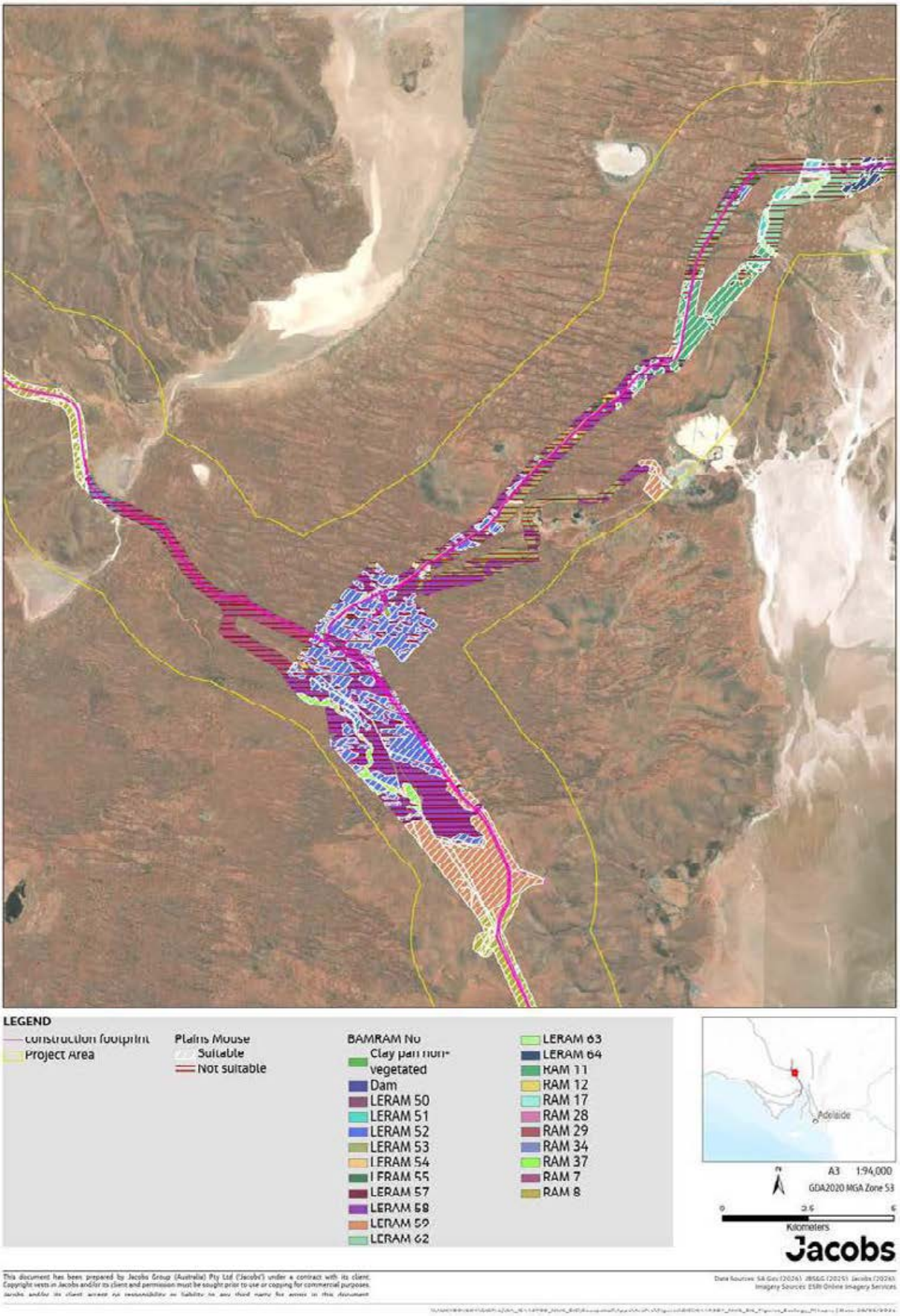


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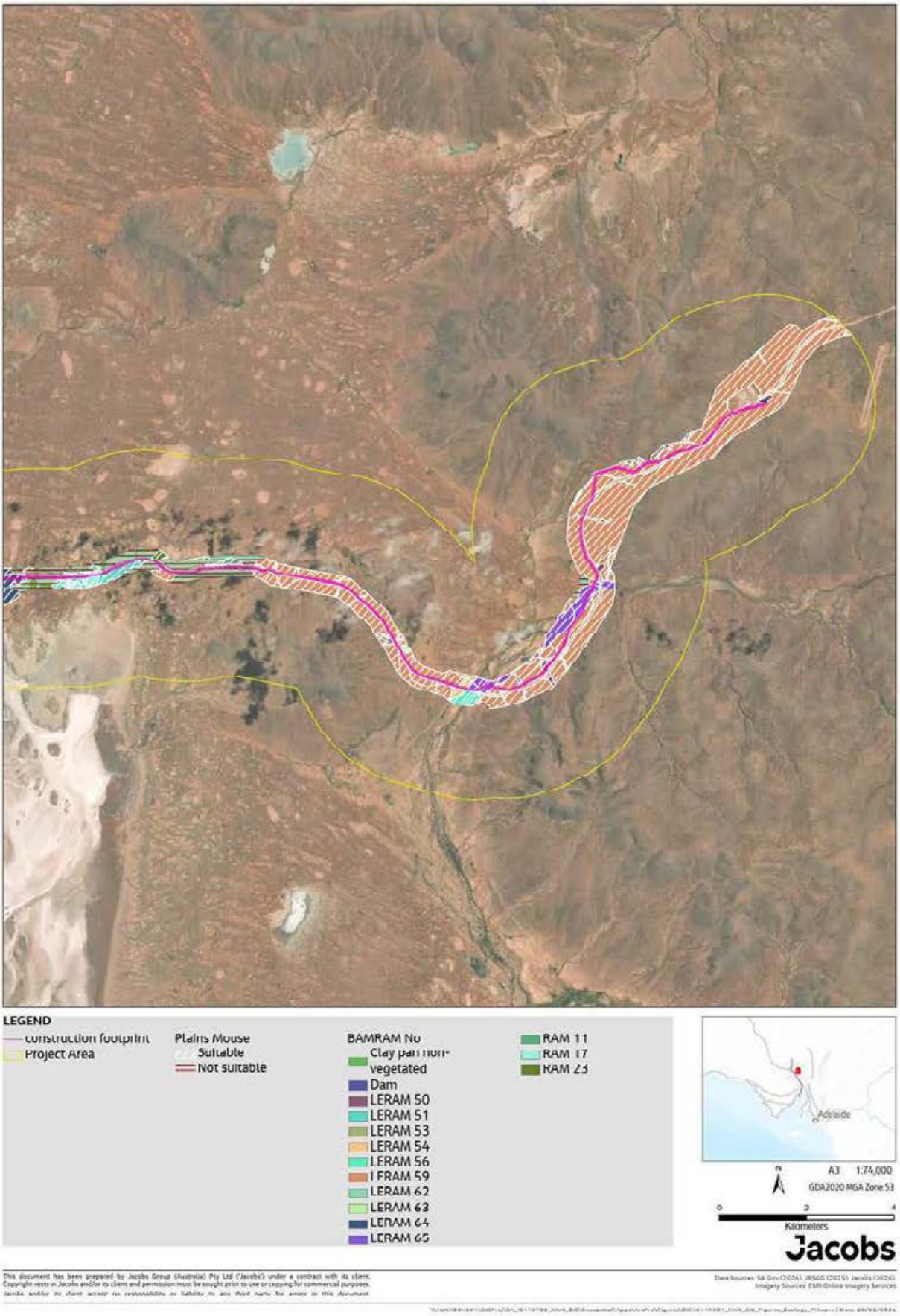


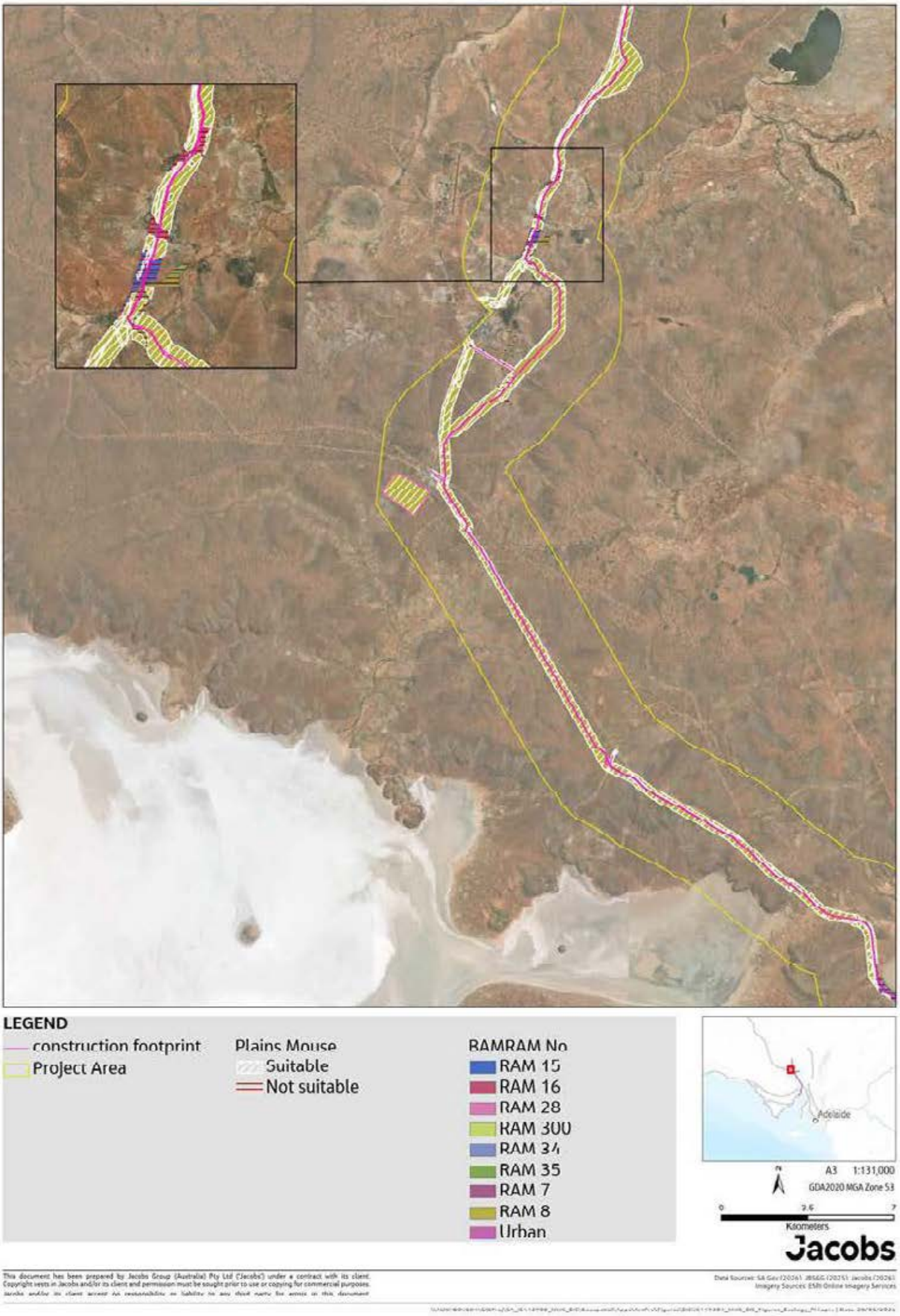
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LEGEND
construction footprint
Project Area
Plains Mouse
Suitable
Not suitable
BAMRAM No
LERAM 50
LERAM 52
LERAM 53
LERAM 58
LERAM 59
RAM 11
RAM 12
RAM 17
RAM 28
RAM 3
RAM 37
RAM 7
RAM 8
Adelaide
A3 1:74,000
GDA2020 MGA Zone 53
Kilometers
Jacobs

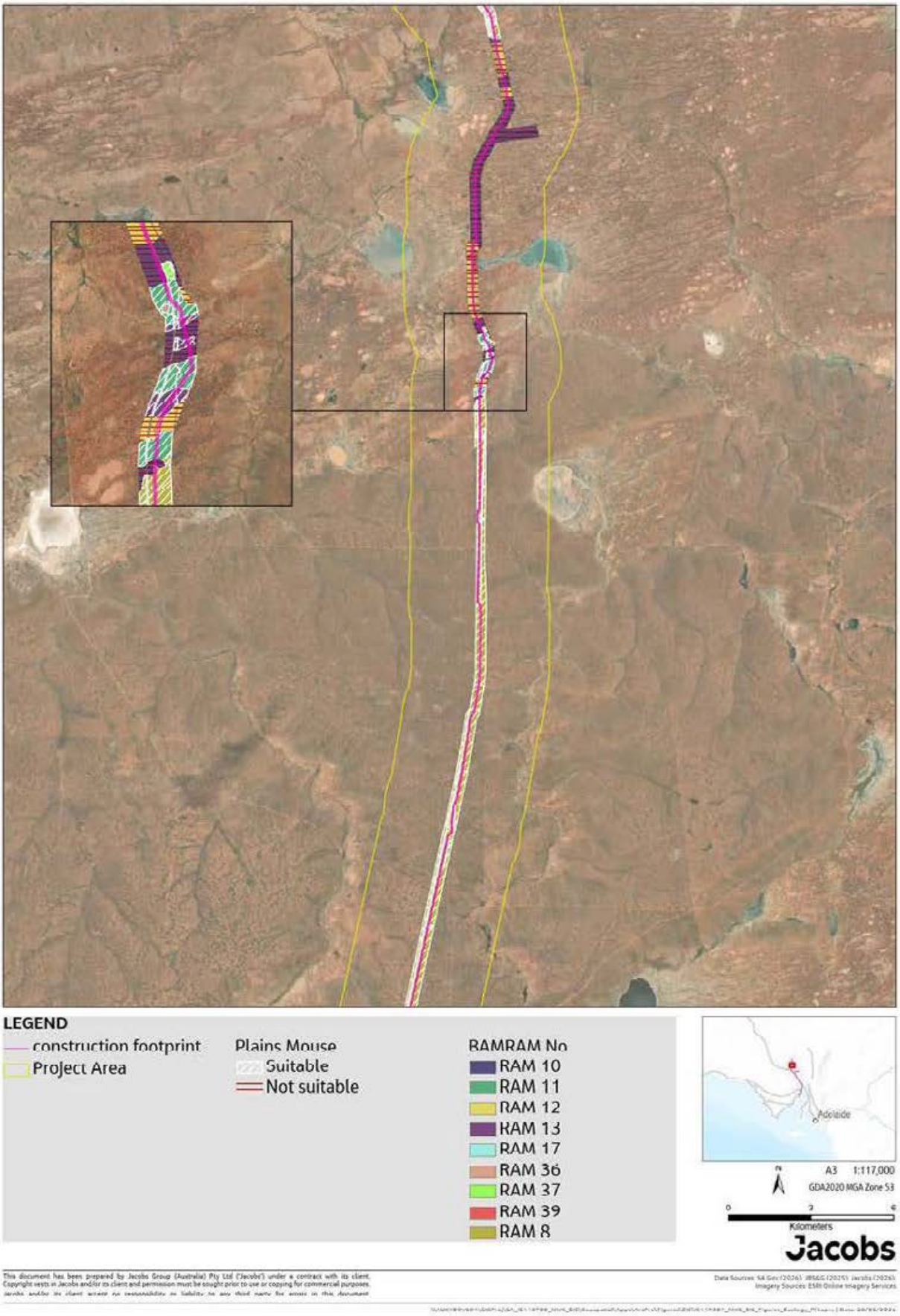


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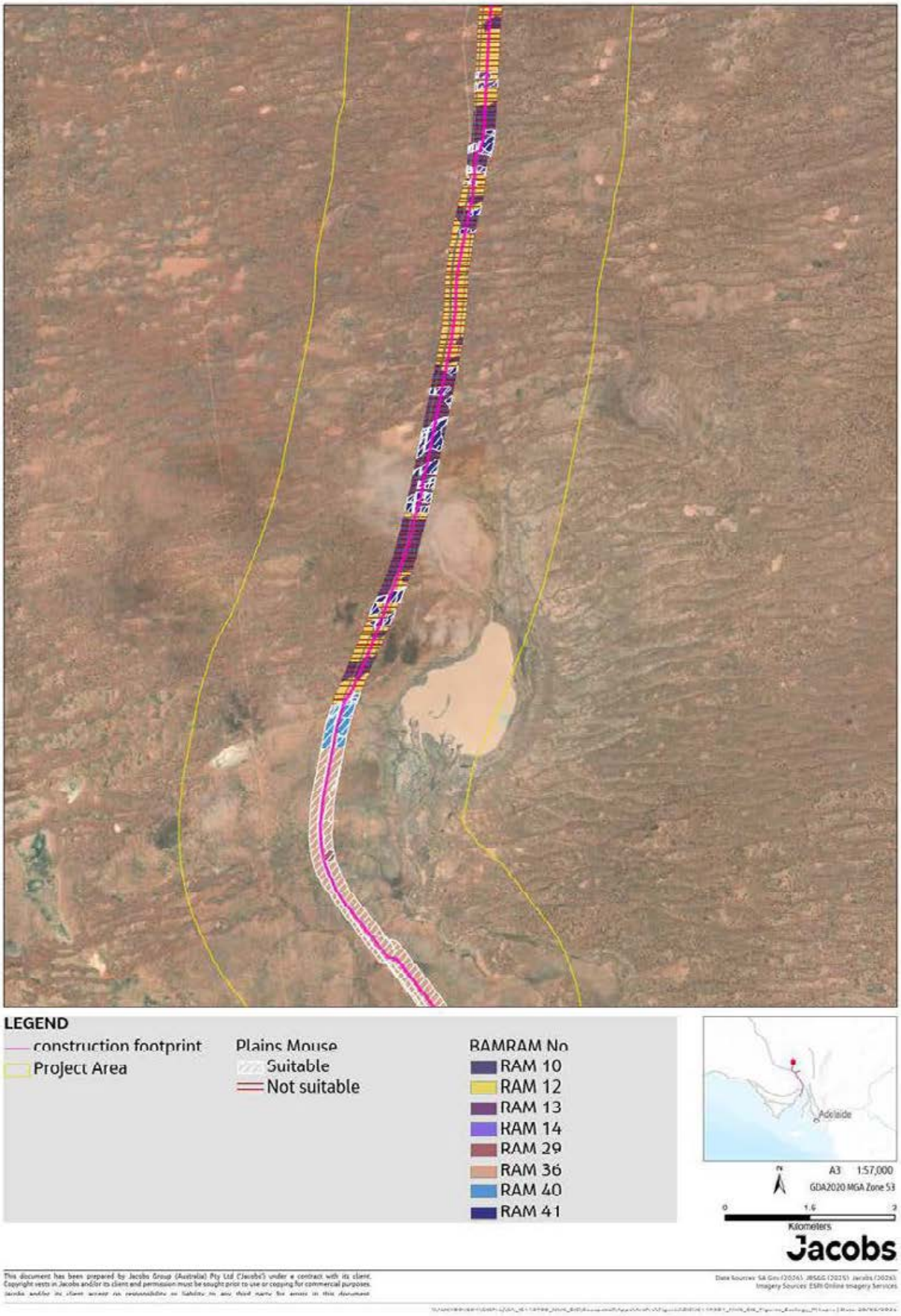

LEGEND
Construction footprint
Project Area
Plains Mouse
Suitable
Not suitable
BAMRAM No
Clay pan non-vegetated
Dam
LERAM 50
LERAM 51
LERAM 53
LERAM 54
LERAM 56
LERAM 59
LERAM 62
LERAM 63
LERAM 64
LERAM 65
RAM 11
RAM 17
RAM 23
Adelaide
A3 1:74,000
GDA2020 MGA Zone 53
Kilometers
Jacobs



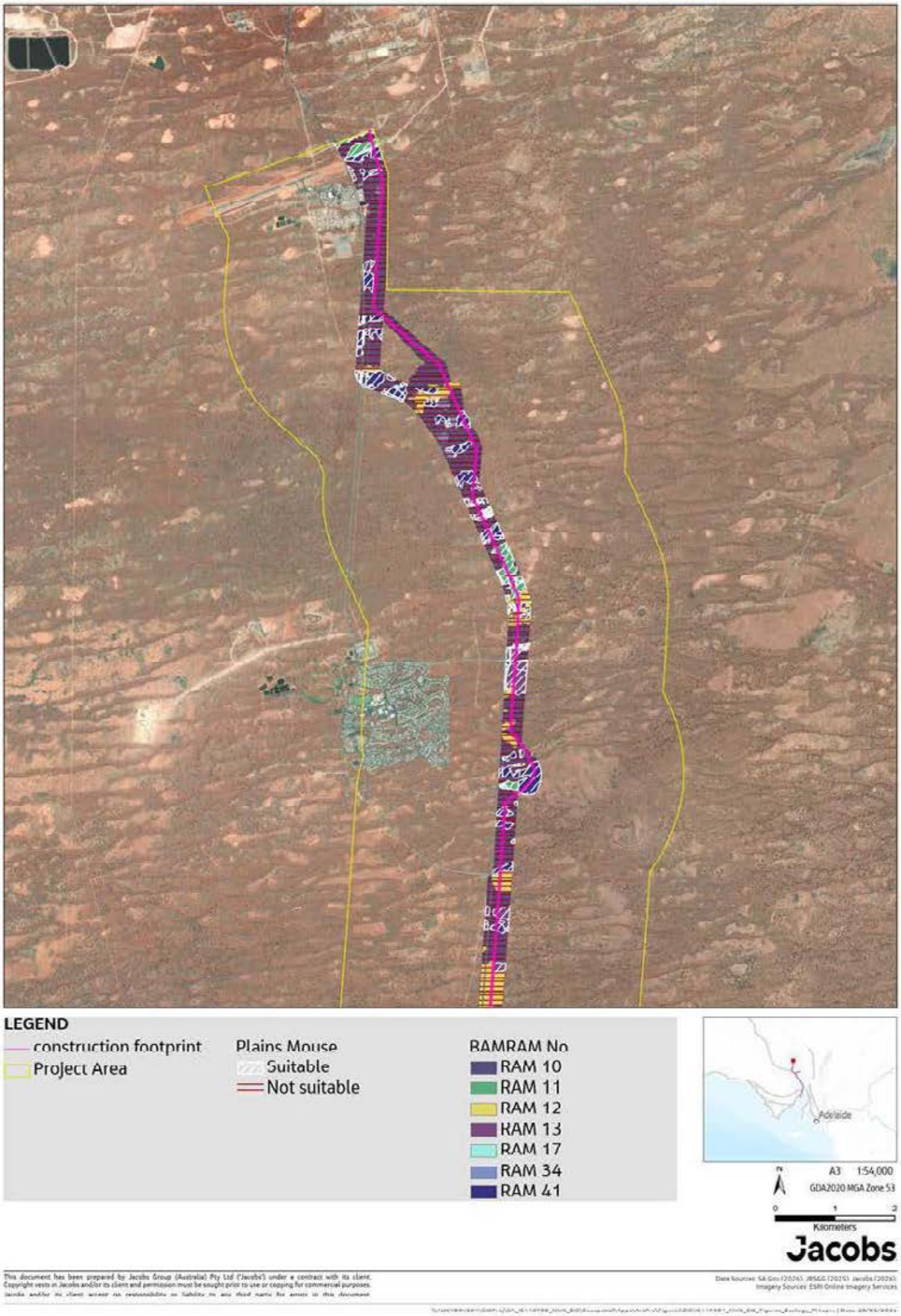
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Appendix C. Likelihood assessments

C.1 LoO assessment for EPBC & NPW Act listed TECs considered as potentially occurring within the construction footprint within the EP and SAAL LMR

Community name	EPBC Act status[1]	Likelihood of occurrence in construction footprint in EP LMR	Likelihood of occurrence in construction footprint in SAAL LMR
Subtropical and Temperate Coastal Saltmarsh	VU	PMST suggests this community is likely to occur within the Study Area. **Known** The Subtropical and Temperate Coastal Saltmarsh TEC occurs within a relatively narrow margin of the Australian coastline inclusive of South Australia. Coastal saltmarsh was observed during previous field surveys at several locations. Three of these locations relate to previous project alignments and are not considered further. During surveys of the proposed Mullaquana Station desalination plant site in February 2025, coastal samphire was observed occurring within the entire extent of BAM (VA) 145. This area is considered to qualify as the TEC as it meets the listing criteria in terms of floristic and structural composition and patch size and intersects areas of intertidal and supratidal saltmarsh mapped in NatureMaps (DEW 2026b) and is therefore likely to experience some tidal influence as required by the listing criteria.	PMST suggests this community is likely to occur within the Study Area. **Unlikely** The Project Footprint in the SAAL LMR is distant from the coast therefore this community is unlikely to occur in the Project Footprint. This community has not been observed during field surveys within the SAAL LMR.

Community name	EPBC Act status[1]	Likelihood of occurrence in construction footprint in EP LMR	Likelihood of occurrence in construction footprint in SAAL LMR
Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia	CR	PMST does not identify this community as potentially occurring within the Study Area. **Unlikely** Not highlighted in PMST, known range occurs outside of the Study Area and not observed within the Project Area during field surveys. This community has not been previously mapped (DEW 2025) within the Study Area within the EP LMR. The Project Area within the EP LMR are outside of the area prescribed in the EPBC Act listing advice for the community (TSSC 2007), with the TEC not being known to occur west of Port Augusta. According to the EPBC Act listing advice, this community is known from the southern Flinders Ranges to Lake Alexandrina, with the majority of this community found in the Flinders-Lofty Block Bioregion. The nearest occurrences are from Mount Remarkable National Park (NP) and Wapma Thura Southern Flinders Ranges NP to the east of Port Augusta and on the eastern side of the Upper Spencer Gulf.	PMST suggests this community is likely to occur within the Study Area. **Unlikely** This community has been previously mapped (DEW 2025) within the Study Area within the SAAL LMR with occurrences near Mount Remarkable NP and Wapma Thura Southern Flinders Ranges NP. This is consistent with the known distribution of this TEC described in EPBC Act listing advice (TSSC 2007). While located within 50 km of the construction footprint (and therefore within the Study Area), these occurrences are located to the east of Port Augusta and on the eastern side of the Upper Spencer Gulf within the Flinders Lofty Block Bioregion and the Northern and Yorke LMR. In contrast, the construction footprint is west of Port Augusta and within the GAW and EYB Bioregions, and the SAAL (and EP) LMR. In the Study Area, Peppermint Box occurs in a mountain range with much higher rainfall (490 mm annual average) compared with the drier landscape (270 mm annual rainfall average) across the construction footprint. This TEC has not been observed in the Project Area during field surveys and is considered unlikely to occur.
Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	EN	PMST does not identify this community as potentially occurring within the Study Area. **Unlikely** Not highlighted in PMST, not observed within Project Area during field surveys and is considered unlikely to occur.	PMST suggests this community is likely to occur within the Study Area. **Unlikely** This community has been mapped within the Study Area previously (DEW 2025), but outside the construction footprint, with disjunct occurrences known from the Flinders-Lofty Block Bioregion. However, Port Augusta is the westernmost extent for this TEC, as shown on mapping supporting the EPBC Act listing advice.The community occurs in higher rainfall areas near Adelaide and the Flinders Ranges. The construction footprint is considered to occur outside of the known range of this TEC. This TEC has not been observed in the Project Area during field surveys and is considered unlikely to occur.

[1] EPBC Act status: Critically Endangered (CR); Endangered (EN); Vulnerable (VU).

C.2 LoO assessment for EPBC & NPW Act listed threatened or migratory fauna species within the EP LMR Study Area

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
AVES									
Acanthiza iredalei iredalei	Slender-billed Thornbill (western)	-	R	1	2024	The Slender-billed Thornbill are mainly restricted to chenopod shrublands, particularly samphire dominated by Shrubby Glasswort *(Sclerostegia arbuscula*), on narrow coastal saline mudflats usually within 20m of a tidal channel or saline lake (Garnett et al. 2011). Species often uses mangroves (NRM n.d a). Previous records: 10 BDBSA records within Study Area, 7 of which are scattered 500m – 1.5km from alignment west of Cowleds Landing.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.	**Possible** Species primarily restricted to this habitat. Previous records place this species within the Project Area and directly on the Construction Footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.
Actitis hypoleucos	Common Sandpiper	MW	R	2,3	2021	PMST highlights the species as known to occur within the Study Area. The Common Sandpiper is a migratory shorebird that occurs in a variety of habitats, including a wide range of coastal and inland wetlands with varying levels of salinity. It is mostly found around muddy margins or rocky shores and rarely on intertidal mudflats. The species also occurs on steep sided sewage ponds, dams, muddy habitats, and mangrove-lined inlets. Has a widespread distribution across Australia, in late July to March (Simpson and Day 2010).	**Possible** Habitat suitable for the species. Records place the species within the Whyalla area.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Possible** Habitat suitable for the species. Records place the species within the Whyalla area.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						Previous records: 13 (2016-2021) in Whyalla Wetlands and Whyalla Saltpans.			
Amytornis textilis myall	Western Grasswren	VU	V	1,2,3,4	2024	PMST highlights the species as known to occur within the Study Area. Western Grasswren prefers low shrublands, chiefly comprising Black Bluebush and Australian Boxthorn, or open woodlands, mostly comprising Western Myall *(Acacia papyrocarpa*) and / or Bullock Bush *(Alectryon oleifolius*) (Black et al. 2009, Black 2017). Preferred habitats are drainage lines, low rocky hills, and semi-arid woodlands with preferred vegetation, rarely mallee, commonly with spiny saltbush species (Black 2017). **Previous records:** 247 BDBSA and BL records (1999-2024) in the Study Area in the EP LMR, including a cluster in the Whyalla Conservation Park and opposite the CP on the eastern side of the Lincoln Highway. Records were also scattered west of Whyalla and to the south west, with the southern-most record (within 5km of the construction footprint) recorded 7.5 km north of the proposed Mullaquana Station desalination plant. **Field survey result:** Observed during field surveys by Jacobs, through observation of individuals and detection of calls (through song meter recordings and during surveys) at a	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Known** Habitat is preferred by the species, occurs throughout Whyalla CP where records are dense. Observations made during surveys confirm species is active in this vegetation type, particularly around Whyalla township. Previous records provide consistent and long-term data of species presence.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						number of locations around Whyalla, generally confined to an area between Mullaquana Station and Whyalla CP; >20 locations with almost 40 individual birds detected.			
Anhinga novaehollandiae novaehollandiae	Australasian Darter	-	R	2	2009	The Australasian Darter occupies wetlands and sheltered coastal waters. Typically observed inland, they venture to coastal areas during calm water conditions to feed. This species prefers water bodies with structures such as tree trunks and posts on which they can perch and dry off (Birds in Backyards n.d). This subspecies is associated with the Gawler (GAW) and Eyre-Yorke Block (EYB) IBRA regions (ALA 2026). **Previous records:** 1 BL record within the Study Area.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.	**Possible** Habitat suitable for the species. Previous records suggest that Whyalla may support the species.
Aphelocephala leucopsis	Southern Whiteface	VU	-	1,2,3,4	2024	PMST highlights the species as known to occur within the Study Area. Southern Whiteface occurs in wide range of open woodlands and shrublands where there is an understory of grasses or shrubs, or both. Habitat is usually dominated by Acacias or Eucalypts on ranges, foothills, lowland, and plains (DCCEEW 2023a). The species is considered sedentary except during drought when individuals have been recorded travelling for resources (DCCEEW 2023a).	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Known** Habitat is preferred by the species and occurs throughout the Construction footprint. Observations made during surveys confirm species is active in this vegetation type,	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						Previous records: 142 (1999-2024). A cluster of records are situated within the Whyalla CP south of the construction footprint and opposite the Lincoln Highway. A number of records from 2024 may be associated with increased survey effort for the Hydrogen Jobs Plan Project. The remainder are scattered throughout the Study Area and extend to within 7 km north of the proposed Mullaquana Station desalination plant. **Field survey result:** Observed during field surveys by Jacobs, through observation of individuals and detection of calls (through song meter recordings and during surveys) at a number of locations around False Bay, Mullaquana Station and between Mullaquana Station and Whyalla. Observed both within the construction footprint and in previous alignment areas. Was also observed north of Whyalla during survey for the HJP Project (EBS 2023).		particularly around Whyalla CP. Previous records provide consistent and long-term data of species presence within this area.	
Apus pacificus	Fork-tailed Swift	MM	-	1,2,3	2024	PMST highlights the species as likely to occur within the Study Area. The Fork-tailed Swift is highly mobile, almost entirely aerial, and rarely recorded on the ground. The species has a widespread distribution across Australia, in summer (ALA 2026). **Previous records:** Seven (2018-2024), at Whyalla wetlands and Point Lowly. Recently	**Unlikely** Species is predominantly aerial and is not associated with this vegetation type.	**Unlikely** Species is predominantly aerial and is not associated with this vegetation type. There are no previous records of	**Unlikely** Species is predominantly aerial and is not associated with this vegetation type. There are no previous records

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						recorded on the EP near Whyalla (flock of over 200, flying over 200m above mallee (G. Smith pers. comm).	There are no previous records of the species in this vegetation type.	the species in this vegetation type.	of the species in this vegetation type.
Ardea intermedia plumifera	Plumed Egret	-	R	1	2001	The Plumed Egret occupies a range of coastal and inland waterbodies including seasonally flooded agricultural land, salt flats, estuaries, and rivers (Birdlife Australia 2026). It is typically found in shallow waters at the edges of water sources (ALA 2026). **Previous records:** 1 BDBSA record within the Study Area.	**Unlikely** Habitat is unlikely to provide adequate resources for the species within the Study Area. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.	**Possible** Habitat suitable for the species. Previous records suggest that Whyalla may support the species.
Ardeotis australis	Australian Bustard	-	V	1,4	2022	The Australian Bustard lives on dry plains, grasslands, and open woodlands, and they favour tussock and hummock grasslands. Occasionally they are seen in modified habitat areas such as farmlands and golf courses (NRM n.d b).	**Unlikely** Habitat not suitable for the species. There are no previous	**Known** Habitat suitable for the species. The species was observed in chenopod	**Unlikely** Habitat not suitable for the species. There are no previous records

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						Previous records: 2 BDBSA records, one within Project Area ~60m from alignment west of Cowleds Landing. **Field survey results:** One individual was observed near Mullaquana Station during field surveys within a BAM 11 site.	records of the species in this vegetation type within the Study Area.	shrublands during surveys.	of the species in this vegetation type within the Study Area.
Arenaria interpres interpres	Ruddy Turnstone	VU, MW	R	3	-	PMST highlights the species as known to occur within the Study Area. Ruddy Turnstone breeds in Siberia and Alaska. When in Australia prefers rocky coastlines, coral and sand islands, less common on intertidal mudflats, also occurs on beaches (Geering et al. 2008, (Davies 2022)). Range includes coastline of Australia except Great Australian Bight (Davies 2022). **Previous records:** None	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Species can occur in beach habitat but it is not preferred and use is less common. There are no previous records of the species in this vegetation type.
Biziura lobata menziesi	Musk Duck	-	R	1,2	2024	The Musk Duck, endemic to Australia, occurs in deep freshwater lagoons with dense reed beds. They are normally seen singly or in pairs but may form medium to large groups in the winter (Australian Museum 2024a).	**Unlikely** Habitat not suitable for the species. There are no previous records of the	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						Previous records: 11 BDBSA & BL records – 101 individuals recorded within 500m of Whyalla laydown site	species in this vegetation type within the Study Area	within the Study Area.	this vegetation type within the Study Area.
Bubulcus ibis coromandus	Eastern Cattle Egret	-	R	1	2019	The Eastern Cattle Egret is concentrated around coastal areas of Eastern Australia (ALA 2026). Although the cattle egret sometimes feeds in shallow water, unlike most herons it is typically found in fields and dry grassy habitats, reflecting its greater dietary reliance on terrestrial insects rather than aquatic prey (ALA 2026). **Previous records:** 3 BDBSA records within Study Area – 1 within 500m of Whyalla laydown area.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.	**Possible** Habitat suitable for the species. Previous records are mainly situated around the coastline, which comes within 5 km of the Construction footprint in several areas.
Calidris acuminata	Sharp-tailed Sandpiper	VU, MW	-	1,2,3	2024	PMST highlights the species as known to occur within the Study Area. Sharp-tailed Sandpiper (recently listed threatened in Jan 2024) is a migratory shorebird that occurs in coastal and inland areas but prefers non-tidal fresh or brackish wetlands, damp grasslands, will also use dams, artificial habitats with water / mud edge and coastal populations will use tidal flats (Geering et al. 2008, Simpson and Day 2010, Menkhorst et al. 2019). Breeds in Siberia and migrates to New	**Possible** Habitat suitable for the species. Records place the species within the Whyalla area.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Possible** Habitat suitable for the species. Records place the species within the Whyalla area.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						Guinea and Australia (summer). This species has a widespread distribution across Australia when present (ALA 2026). **Previous records:** 17 (2014 - 2023), most at Whyalla wetlands, few at beach / foreshore near Whyalla, few at sewage ponds.			
Calidris alba	Sanderling	MW	R (ssp.)	3	-	PMST highlights the species as likely to occur within the Study Area. Sanderling is a migratory shorebird from the high Arctic usually prefers ocean beaches and occasionally intertidal flats (Davies 2022). Roosts in beach debris (Geering et al. 2008). **Previous records:** None.	**Unlikely** Habitat not likely suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not likely suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not likely suitable for the species. There are no previous records of the species in this vegetation type.
Calidris canutus	Red Knot	VU, MW	E (ssp.)	3	-	PMST highlights the species as known to occur within the Study Area. Two subspecies are known to regularly inhabit Australia: ▪ *C. c. rogersi* (southern Australia) ▪ *C. c piersmai* (north-west Australia) *C. c. rogersi* is also listed on the NPW Act of South Australia and was recorded in BDBSA & BL data.	**Unlikely** No records of species within this vegetation type within the Study Area.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** No records of species within this vegetation type within the Study Area.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						In January 2024 this species' EPBC Act status changed from Endangered to Vulnerable. Red Knot is a migratory bird which does not breed in Australia (breeds in Siberia). When in Australia (Sept/Oct – March/April) occurs on extensive intertidal mud flats and rarely ventures inland (Geering et al. 2008). **Previous records:** None.			
Calidris ferruginea	Curlew Sandpiper	CR, MW	E	1,2,3	2019	PMST highlights the species as known to occur within the Study Area. Curlew Sandpiper is a migratory shorebird which prefers coastal or inland mudflats but will also visit artificial dams and inland water habitats, freshwater and brackish wetlands (Simpson & Day 2010, Menkhorst et al. 2019). A common summer migrant widespread across Australia, in spring and summer, but does not breed in Australia (Geering et al. 2008, ALA 2026). Juveniles remain in Australia for first Austral Winter (2 years old) (Menkhorst et al. 2019). It is most common in the far south-east and north-west of Australia. It is found on intertidal mudflats of estuaries, lagoons, mangroves, as well as beaches, rocky shores and around lakes, dams, and floodwaters.	**Possible** Habitat likely to support the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Possible** Habitat likely to support the species. There are no previous records of the species in this vegetation type.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						Previous records: Four (2005-2019); two in Whyalla saltpans and two on the beach near Whyalla.			
Calidris melanotos	Pectoral Sandpiper	MW	R	3	-	PMST highlights the species as known to occur within the Study Area. Pectoral Sandpiper is a migratory shorebird that occurs in freshwater or brackish wetlands, grassy or lightly vegetated coastal and inland swamps (Geering et al. 2008). Is widespread across south-east Australia (ALA 2026). Usually occurs solitarily or in small flocks, range does not include inland SA (Geering et al. 2008; Menkhorst et al. 2019). **Previous records:** None.	**Unlikely** No records of species within this vegetation type.	**Unlikely** Habitat not likely suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not likely suitable for the species. There are no previous records of the species in this vegetation type.
Calidris ruficollis	Red-necked Stint	MW	-	1,2,3	2024	PMST highlights the species as known to occur within the Study Area. Red-necked Stint is a migratory shorebird from the Arctic Tundra, in Australia August to November. Primarily occurs on tidal flats, but also uses open beaches (with seagrass wrack); will occur in a range of sparsely vegetated brackish and freshwater inland with muddy / sandy areas for foraging. **Previous records:** 9 records (2023 - 2024) all at Cowleds landing	**Likely** Habitat suitable for the species. Records place the species within 2 km of the construction footprint near	**Unlikely** Habitat not likely suitable for the species. There are no previous records of the species in this vegetation type.	**Likely** Habitat suitable for the species. Records place the species within 2 km of the construction footprint near Cowleds Landing.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
							Cowleds Landing.		
Calidris tenuirostris	Great Knot	VU, MW	E	3	-	PMST highlights the species as known to occur within the Study Area. In January 2024 this species' EPBC Act status changed from Endangered to Vulnerable. Great Knot is a migratory bird that does not breed in Australia. Prefers sheltered coastal habitats, with large intertidal mudflats or sandflats, including natural environments along and close to the coast, and artificial environments such as ponds in saltworks (Geering et al. 2008; DCCEEW 2024d). **Previous records:** None.	**Unlikely** No records of species within this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** No records of species within this vegetation type.
Charadrius leschenaultii	Greater Sand Plover	VU, MW	R	3	-	PMST highlights the species as likely to occur within the Study Area. Greater Sand Plover is an early migratory shorebird that visits Australia (Aug-March) and remains for first austral winter. Occurs in tidal flats and roosts on beaches at high tide (Menkhorst et al. 2019). The species occurs in a range of natural environments along and close to the coast, and artificial environments such as ponds in saltworks (DCCEEW 2023e). **Previous records:** None.	**Unlikely** No records of species within this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** No records of species within this vegetation type.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
Charadrius veredus	Oriental Plover, Oriental Dotterel	MW	-	3	-	PMST highlights that the species may occur within the Study Area. Oriental Plover occurs in both coastal habitats (e.g. estuarine mudflats and sandbanks, sandy or rocky ocean beaches or nearby reefs, when they arrive, before moving to near-coastal grasslands) and flat, open, semi-arid or arid grasslands. Has a widespread distribution throughout Australia (ALA 2026). Breeds in China and Mongolia, migrates to coastal northern Australia, sometimes stragglers occur in SA. Is usually solitary or in small flocks on dry grasslands (including airfields), favouring shorter grass and recently burnt areas. Rarely feeds in wet habitats but may move onto mudflats or beaches to roost (Geering et al. 2008). Has a widespread distribution throughout Australia (ALA 2026). **Previous records:** None.	**Unlikely** Habitat suitable for the species. Known distribution of the species is unclear, though occurrence in the southern portion of Australia appears contested. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat suitable for the species. Known distribution of the species is unclear, though occurrence in the southern portion of Australia appears contested. There are no previous records of the species in this vegetation type.
Cinclosoma castanotum	Chestnut Quailthrush (Chestnut-backed Quailthrush)	-	R	1	2024	Chestnut Quailthrush distribution is widespread throughout SA (ALA 2026). The species is mainly found in semi-arid to arid shrubland. **Previous records:** 2 BDBSA records within the Study Area	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this	**Possible** Habitat may be suitable for the species. There are no previous records of the species in this vegetation type	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
							vegetation type within the Study Area.	within the Study Area.	type within the Study Area.
Cladorhynchus leucocephalus	Banded Stilt	-	V	1,2	2019	The Banded Stilt inhabits freshwater, saltwater marshes, tidal mudflats and ephemeral inland lakes where salinity is increasing (Simpson and Day 2010). **Previous records:** 6 BDBSA and BL records within the Study Area – 1 within 500m of Whyalla laydown area. One Whyalla wetlands record has 4,900 individuals counted.	**Likely** Habitat likely to support the species. Previous BDBSA and BL records place the species within this vegetation type within the Study Area.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.	**Likely** Habitat likely to support the species. Previous BDBSA and BL records place the species within this vegetation type within the Study Area.
Corcorax melanorhamphos	White-winged Chough	-	R	4	2020	White-winged Chough are mostly sedentary and colonial species. Inhabits woodlands and taller mallee, with a preference for wetter areas with leaf litter for feeding, and available mud for nest building (Rowley and Russell 2020). **Previous records:** None **Field survey results:** Species opportunistically observed during a site visit in mallee in the EP LMR, but the location was not recorded.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.	**Possible** Habitat may provide additional resources for the species. There are no previous records within the Study Area, however the opportunistic sighting provides evidence of occurrence.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
Egretta garzetta nigripes	Little Egret	-	R	1,2	2024	The Little Egret inhabits shallows of saltwater and freshwater wetlands, flooded pasture, mangroves, and intertidal mudflats (Birdlife Australia 2026, Simpson and Day 2010). **Previous records:** 21 BDBSA and BL records within the Study Area – 1 with 40 individuals listed within 500m of Whyalla laydown area	**Possible** Habitat is likely to support the species. >5 records suggest that this may act as secondary habitat for the species.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.	**Likely** Habitat is likely to support the species. Previous records suggest that the species is active along this habitat type.
Falco hypoleucos	Grey Falcon	VU	R	3	-	PMST highlights the species as known to occur within the Study Area. Grey Falcon is a rare pale falcon. Preferred habitat includes open plains and treed watercourses in arid inland areas. When not actively hunting it roosts in shady trees or communications towers (Menkhorst et al. 2019). The species has a widespread, but sparse distribution across Australia (TSSC 2020; ALA 2026). **Previous records:** None. **Field survey result:** Not observed during field survey.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Possible** Habitat may be suitable for the species given the presence of taller Eucalypt species for nesting/hunting, and often open shrubland/grassland for spotting prey. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.
Falco peregrinus macropus	Peregrine Falcon	-	R	1	2023	The Peregrine Falcon is found in most habitats, from rainforests to the arid zone, and at most altitudes, from the coast to alpine areas. It	**Possible (as flyover)**	**Possible (as flyover)** Habitat may support prey items of the	**Possible (as flyover)**

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						requires abundant prey and secure nest sites and prefers coastal and inland cliffs or open woodlands near water and may even be found nesting on high city buildings (Australian Museum 2024c). The sub-species' distribution is widespread across SA (ALA 2026). **Previous records:** 5 BDBSA records within the Study Area	Habitat may support prey items of the raptor species, which is known to travel vast distances for hunting. There are no previous records of the species in this vegetation type within the Study Area.	raptor species, which is known to travel vast distances for hunting. There are no previous records of the species in this vegetation type within the Study Area.	Habitat may support prey items of the raptor species, which is known to travel vast distances for hunting. There are no previous records of the species in this vegetation type within the Study Area.
Gallinago hardwickii	Latham's Snipe / Japanese Snipe	VU, MW	R	3	-	PMST highlights that the species may occur within the Study Area. Latham's Snipe breeds in Japan and migrates to SE Australia and occasionally Qld. Prefers tussock grass and low dense sedges surrounding freshwater wetland, including marshes and flooded grassland. In dense cover by day, forage dawn dusk or at night (Menkhorst et al. 2019). The species has a widespread distribution throughout eastern Australia (ALA 2026). Study Area is outside known core range in Australia; in SA range include includes south-east, not EP (Menkhorst et al. 2019).	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						Previous records: None.			
Gallinago stenura	Pin-tailed Snipe	MW	-	3	-	PMST highlights the species as known to occur within the Study Area. Pin-tailed Snipe is an uncommon, elusive migratory species, that does not breed in Australia (Geering et al. 2008). Occur in freshwater wetlands of coastal plains of northern Western Australia and Northern Territory (Menkhorst et al. 2019, Davies 2022). **Previous records:** None.	**Unlikely** Study Area occurs outside of the known range of the species, which is north-west Australia. There are no previous records of the species in this vegetation type.	**Unlikely** Study Area occurs outside of the known range of the species, which is north-west Australia. There are no previous records of the species in this vegetation type.	**Unlikely** Study Area occurs outside of the known range of the species, which is north-west Australia. There are no previous records of the species in this vegetation type.
Grantiella picta	Painted Honeyeater	VU	R	3	-	PMST highlights that the species may occur within the Study Area. The Painted Honeyeater is endemic to mainland Australia, primarily occurring in Queensland, New South Wales, and Victoria, occasionally in the Northern Territory and may be a vagrant to SA. Occurs in dry open forests and woodlands Prefers wattle woodland / She-oak woodland and is strongly associated with Mistletoe (*Amyema* sp.). May also be found along rivers, on plains with scattered trees and on farmland with remnant vegetation. Rare throughout its	**Unlikely** Study Area is outside the known range of the species. There are no previous records of the species in this vegetation type.	**Unlikely** Study Area is outside the known range of the species. There are no previous records of the species in this vegetation type.	**Unlikely** Study Area is outside the known range of the species. There are no previous records of the species in this vegetation type.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						range (Menkhorst et al. 2019). The known range within SA occurs within semi-arid north-east SA and the Mount Lofty Ranges. **Previous records:** None.			
Haematopus fuliginosus fuliginosus	Sooty Oystercatcher	-	R	1,2	2024	Sooty Oystercatcher distribution is widespread along the Australian coastline, and in particular, the SA and Tas coastlines (ALA 2026). **Previous records:** 24 BDBSA and BL records within the Study Area. **Field survey result:** Three individuals were observed in beach habitat during surveys near Mullaquana Station (noting this may have been the same individual observed on three consecutive days).	**Likely** Habitat suitable for species. Previous records place the species consistently along the coastline, though there are insufficient records within 1 km of the Construction footprint to categorise the species as known.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.	**Known** Habitat suitable for species. Previous records place the species consistently along the coastline. The species was observed during a field survey near Mullaquana Station.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
Haematopus longirostris	Pied Oystercatcher	-	R	1,2	2024	The Pied Oystercatcher habits intertidal flats of inlets and bays, open beaches, and sandbanks. Forages on exposed sand, mud, and rock at low tide (Birdlife Australia 2026). **Previous records:** 16 BDBSA and BL records within the Study Area.	**Likely** Habitat suitable for species. Previous records place the species consistently along the coastline, though there are insufficient records within 1 km of the Construction footprint to categorise the species as known.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.	**Likely** Habitat suitable for species. >10 previous records suggest the species may utilise this habitat along the Construction footprint near Cowell and Port Neill.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
Haliaeetus leucogaster	White-bellied Sea Eagle	-	E	1,2	2024	The White-bellied Sea Eagle inhabits coastal habitats around terrestrial wetlands in tropical and temperate regions. Habitat often characterised by large areas of open water. Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, forest, and even urban areas (ALA 2026). **Previous records:** 3 BDBSA and BL records within the Study Area.	**Possible** Habitat potentially suitable for species. Previous records place the species within the Whyalla coastline.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.	**Possible** Habitat potentially suitable for species. Previous records place the species within the Whyalla coastline.
Hieraaetus morphnoides	Little Eagle	-	V	1	2024	The Little Eagle occurs in open eucalypt forest, woodland, or open woodland, as well as Sheoak or Acacia woodlands and riparian woodlands (OEH 2021). **Previous records:** 1 BDBSA record, approximately 275m from alignment west of Cowleds Landing	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
Hylacola cauta cauta	Shy Heathwren	-	R	1	2021	The Shy Heathwren inhabits mallee woodlands with a relatively dense understorey of shrubs and heath plants. Sometimes eats seeds including those of saltbush (BirdA 2024). **Previous records:** 3 BDBSA records within the Study Area.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.
Hylacola pyrrhopygia	Chestnut-rumped Heathwren	-	E	1	2021	The Chestnut-rumped Heathwren occurs in dense heathland and undergrowth in Eucalyptus forests and woodlands, most commonly found in rocky areas. Vegetation consists of a mixture of dense shrubs (such as Banksia, Hakea and Leptospermum), grass trees Xanthorrhoea and ferns Pteridium, beneath a canopy of Eucalyptus trees (including *E. obliqua* and *E. odorata*) and (in at least some sites) scattered Allocasuarina trees (Birds of the World 2020a). **Previous records:** 3 BDBSA records within the Study Area	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.	**Likely** Habitat suitable for species. Previous records place the species within Whyalla CP >5 km from the Construction footprint.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
Leipoa ocellata	Malleefowl	VU	V	1,3,4	2019	PMST highlights the species as known to occur within the Study Area. Malleefowl are a terrestrial ground-dwelling species which make large conspicuous nesting mounds. Preferred habitat is semi-arid to arid shrublands and low woodlands (especially those dominated by Mallee and/or Wattle). Sandy soils and abundance leaf litter are required for breeding. Prefers mosaics of burnt / unburnt mallee and large tracts of mallee (DCCEEW 2024b). **Previous records:** There are no records within 5km of the construction footprint. **Field survey result:** Not observed within the Project Area during field surveys. However, one Malleefowl was observed approximately 35 km south-west of the southern extent of the construction footprint during field surveys for a previous alignment	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for Malleefowl. Woodlands do not occur near Mallee in the Project Area, therefore the species is considered unlikely to move through woodlands.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type.
Limosa lapponica / Limosa lapponica baueri	Bar-tailed Godwit	EN (ssp.), MW	R (ssp.)	2,3	2004	*Limosa lapponica* - PMST highlights the species as known (*Limosa lapponica*, MW) to occur or may occur (*Limosa lapponica baueri*, EN) within the Study Area. (MW) Bar-tailed Godwit breeds in northern Europe and north-western Asia (DCCEEW 2026). Bar-tailed Godwits inhabit estuarine mudflats, beaches and mangroves. They are common in coastal areas around Australia. They are social birds and are	**Possible** Habitat is suitable for the species. Previous record places the species within	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of	**Possible** Habitat is suitable for the species. Previous record places the species within

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						often seen in large flocks and in the company of other waders (Birdlife Australia 2026). **Previous records:** One (*L. lapponica*) at Whyalla wetland.	the Whyalla area.	the species in this vegetation type.	the Whyalla area.
Limosa limosa melanuroides	Black-tailed Godwit	EN, MW	R (ssp.)	1 (ssp. 1)	2018	PMST did not highlight this species as potentially occurring within the Study Area. The Black-tailed Godwit occurs as three subspecies: - *L. l. melanuroides* - *L. l. limosa* - *L. l. islandica* *Limosa limosa melanuroides* is the only subspecies which migrates to Australia, primarily South Australia. They occur mainly along the metropolitan and eastern coast, and inland between central and north-eastern SA. The Black-tailed Godwit prefers muddy intertidal mudflats, as well as shallow inland fresh and brackish wetlands (Geering et al 2008; Menkhorst et al 2019). **Previous records:** One record near Whyalla water treatment plant.	**Possible** Habitat is suitable for the species. Previous record places the species within the Whyalla area.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type.
Melanodryas cucullata cucullatta	South-eastern	EN	R	1,2,3	2024	PMST highlights that the species may occur within the Study Area.	**Unlikely** Construction footprint is	**Unlikely** Construction footprint is outside	**Unlikely** Construction footprint is

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
	Hooded Robin					The South-eastern Hooded Robin is a large-bodied Robin distributed from south-eastern Australia to far south-east Queensland. The Yorke Peninsula is the westernmost connected extent of their distribution, with small patches mapped as potential habitat on the Eyre Peninsula. They prefer dry Eucalypt and Acacia woodlands and shrublands with open understorey or grassy areas, and a complex ground layer (DCCEEW 2023b). They tend to avoid woodlands with tall and dense trees but may occur in surrounding dense heath. In largely agricultural areas they preferentially select larger sized patches (>50 ha) of habitat than in alternate areas. The South-eastern Hooded Robin's preferred habitat type is listed as critical to the survival of the species, as well as dead or live trees and stumps essential for nesting, roosting, and foraging. **Previous records:** No records of the subspecies. Six (2014-2024) of *Melanodryas cucullata,* however it is not clear which subspecies these are.	outside of the known range of the species. No records of the species occur in this vegetation type.	of the known range of the species. No records of the species occur in this vegetation type.	outside of the known range of the species. No records of the species occur in this vegetation type.
Motacilla cinerea	Grey Wagtail	MT	-	3	-	PMST highlights that the species may occur within the Study Area. Grey Wagtail favours fast-flowing streams and rivers often in forested areas, in addition to lowland watercourses (Birdlife Australia 2026).	**Unlikely** Construction footprint is outside of the	**Unlikely** Construction footprint is outside of the known range of the species.	**Unlikely** Construction footprint is outside of the

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						Occasionally occurs in waterfalls, fast-flowing rocky waterways of northern Australia (Kimberly, WA, NT, Wet Tropics). Known range is considered to be northern coastal Australia (Davies et al. 2022). **Previous records:** None.	known range of the species. No records of the species occur in this vegetation type.	No records of the species occur in this vegetation type.	known range of the species. No records of the species occur in this vegetation type.
Motacilla flava	Yellow Wagtail	MT	-	3	-	PMST highlights that the species may occur within the Study Area. Yellow Wagtail has undergone taxonomic revision; this race is now *M. tschutschensis.* Uncommon migratory wagtail. Occurs in a variety of damp or wet habitats including marshes and bogs. Forages in damp grassland or on bare ground at the edge of rivers, lakes and other wetlands (Tyler and Christie 2020). This species has a widespread distribution around the northern coast of Australia, in spring to autumn (Menkhorst et al. 2019, ALA 2026). **Previous records:** None.	**Unlikely** Construction footprint is outside of the known range of the species. No records of the species occur in this vegetation type.	**Unlikely** Construction footprint is outside of the known range of the species. No records of the species occur in this vegetation type.	**Unlikely** Construction footprint is outside of the known range of the species. No records of the species occur in this vegetation type.
Myiagra inquieta	Restless Flycatcher	-	R	1	2015	Restless Flycatcher distribution is widespread throughout Australia, excluding central and north-west WA (ALA 2026). **Previous records:** 1 BDBSA record within the Study Area.	**Unlikely** Habitat not likely to be suitable for species. There are no previous	**Possible** Habitat suitable for the species. Previous records suggest that Whyalla CP may support the species.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						Field survey results: This species was observed during field surveys near Whyalla but beyond the extent of the current Project Area.	records of the species in this vegetation type within the Study Area.		of the species in this vegetation type within the Study Area.
Neophema chrysostoma	Blue-winged Parrot	VU	V	3	-	PMST highlights the species as likely to occur within the Study Area. Blue-winged Parrot prefers grasslands and grassy woodlands, often near wetlands near the coast and in semi-arid zones. Species can also use modified habitats such as airfields, golf courses, and paddocks (DCCEEW 2023f). The species will also feed on saltmarsh (Davies et al. 2022). The species breeds in Tasmania and on mainland Australia south of the Great Dividing Range but can be found in large parts of south-eastern Australia outside the breeding season (DCCEEW 2023f). **Previous records:** None. There are a few historic records (pre-1995) of Blue-winged Parrot on Eyre Peninsula, one near Mullaquana Station. **Field survey result:** Flight call recorded on song meter at 6:44am during February 2025 survey of the Mullaquana Station desalination plant site, over open woodland over chenopods.	**Likely** Suitable foraging habitat is present, may occur during inland winter migration. Species does not breed in SA.	**Known** Habitat suitable for the species. Suitable foraging/roosting habitat is present. Species was detected in this habitat type during survey.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.
Numenius madagascariensis	Far Eastern Curlew	CR, MW	E	2,3	2006	PMST highlights the species as known to occur within the Study Area.	**Possible**	**Unlikely**	**Possible**

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						Far Eastern Curlew is a migratory wader / large shorebird. Breeds in NE Asia, Siberia and is a spring migrant to Australia where it is found in all states. Within Australia, the species has a primarily coastal distribution, with very few inland records. Its preferred habitat is coastal lakes, inlets, bays, and estuaries where it occupies intertidal mudflats, particularly exposed seagrass beds (Menkhorst et al. 2019, Geering et al. 2008). **Previous records:** 1 BL record within the Study Area in Whyalla.	Habitat is suitable for the species. Previous record places the species within the Whyalla area.	Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.	Habitat is suitable for the species. Previous record places the species within the Whyalla area.
Pachycephala inornata	Gilbert's Whistler	-	R	2	2020	Gilbert's Whistler is sparsely distributed over much of arid and semi-arid zone of inland SA. Preferred habitats include a dense shrub layer, and it has been widely recorded in mallee shrublands, but also box-ironbark, Cypress Pine and Belah, and River Red Gum forests along the Murray, Edwards and Wakool Rivers (OEH 2017a). **Previous records:** 1 BL record within the Study Area. **Field survey results:** This species was observed during field surveys near Whyalla but beyond the extent of the current Project Area.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.	**Likely** Habitat suitable for the species and occurs along the Construction footprint. Few records are situated within 1 km of this habitat type along the Construction footprint, but the number is insufficient to categorise the species as known.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
Pandion haliaetus / Pandion haliaetus cristatus	Osprey	MW	E (ssp.)	3 (ssp. 1,2)	2016	PMST highlights the species as known to occur within the Study Area. Subspecies *P.h. cristatus* is NPW Act listed. The Osprey is a large-bodied raptor which feeds primarily on both freshwater and marine fish. It has a worldwide distribution, occurring on every continent except Antarctica, and inhabit coastal areas. Ospreys from lower latitudes are largely solitary, while northern individuals are known to migrate long distances. Breeding Ospreys tend to return to their natal area to breed and exhibit philopatry. The Eastern Osprey generally occurs on or near the coast, but also range inland along large rivers, bays, estuaries, along tidal stretches of large coastal rivers, mangrove swamps, terrestrial wetlands and coastal lands of tropical and temperate Australia and offshore islands. Nests in trees (often dead or with dead tops), rocky coastlines and on artificial structures such as telecommunication towers. The subspecies is widely distributed along the Australian coastline (ALA 2026). **Previous records:** 2 **(**of subspecies *P.h. cristatus)* (2005-2016) BDBSA and BL records within the Study Area.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type.	**Possible** Habitat suitable for the species. Previous record places the species along the coastline within this vegetation type.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
Pedionomus torquatus	Plains-wanderer	CR	E	3	-	PMST highlights that the species may occur within the Study Area. Plains-wanderer inhabits open native grasslands on hard red-brown clay soils. Prefers extensive grasslands, with core populations known in NSW. Occasionally occurs in other types of habitats such as stubble, low cereal crops, or low, sparse chenopod shrubland (Simpson and Day 2010, Menkhorst et al. 2019). Has a widespread distribution across central and eastern Australia (ALA 2026). The core range of this species is in SW NSW, with the occasional range extending into central Victoria and NE SA (Davies et al. 2022). **Previous records:** None.	**Unlikely** Study Area outside known range of the species. Very rare bird. There are no previous records of the species in this vegetation type.	**Unlikely** Study Area outside known range of the species. Very rare bird. There are no previous records of the species in this vegetation type.	**Unlikely** Study Area outside known range of the species. Very rare bird. There are no previous records of the species in this vegetation type.
Philomachus pugnax	Ruff (Reeve)	MW	R	3	-	PMST highlights the species as known to occur within the Study Area. *Listed under NPW Act as Calidris pugnax* and in the PMST output. Ruff, a migratory shorebird that occurs in a variety of open moist habitats, grasslands and agricultural lands but freshwater wetland habitats are preferred in Australia (Menkhorst et al. 2019). Known range includes eastern NSW through Victoria, lower south-east SA to Yorke Peninsula, excludes EP and inland SA (Davies et al. 2022).	**Unlikely** Study Area is outside of known range for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Study Area is outside of known range for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Study Area is outside of known range for the species. There are no previous records of the species in this vegetation type.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						Previous records: None.			
Plegadis falcinellus	Glossy Ibis	M (M)	R	1	2017	The Glossy Ibis prefers fresh water sources such as lakes, reservoirs, swamps, and irrigated areas for feeding and breeding, but occasionally visits coastal waters including estuaries and saltmarshes to breed. During droughts they are more frequent in coastal areas and permanent wetlands. Breeding occurs near water sources in trees and shrubs and occurs from mid-spring to the end of summer (Marchant & Higgins 1990). **Previous records:** 1BDBSA record within the Study Area in Whyalla wetlands.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.
Pluvialis squatarola	Grey Plover	VU	-	2	2019	PMST did not highlight this species as potentially occurring in the Study Area. *Pluvialis squatarola* was listed under the EPBC Act on 5 January 2024. Grey Plover is a migratory shorebird that does not breed in Australia, but visits Australia during summer, being recorded through all states, but primarily found along the west and south coasts. The largest populations are found between the Coorong and western beaches of the Eyre Peninsula in South Australia, and along the coast of Western Australia between Albany and the northern Kimberley (DCCEEW 2024c).	**Possible** Habitat, particularly along the construction footprint near Whyalla saltworks and the Mullaquana Station desalination plant, may be suitable for the species.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type.	**Possible** Habitat suitable for the species. There is a single record within this habitat type in the Study Area.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						Grey Plovers usually roost in sandy areas such as on unvegetated sandbanks or sand-spits along sheltered beaches, or around other sheltered environments such as estuaries or lagoons. Also often seen in small numbers on mangrove mudflats. Artificial wetlands such as dams, saltworks, ports and wastewater sites often provide alternative coastal habitat. Less often occur along the muddy edges of estuaries or water storage sites such as reservoirs, or claypans located 2 km inland from the sea (DCCEEW 2024c). **Previous records**: Subspecies *P. ss squatarola*: a single record at the beach near Whyalla.	There are no previous records of the species in this vegetation type.		
Podiceps cristatus australis	Great Crested Grebe	-	R	1	2019	The Great Crested Grebe occurs in freshwater lakes with emergent aquatic and marginal vegetation when breeding. Also occurs on fresh or saline waters including lakes, lagoons, reservoirs, estuaries, and open water of bays (Simpson and Day 2010). **Previous records:** 2 BDBSA records within the Study Area, one which lists 99 individuals within 500m of the Whyalla laydown area.	**Possible** Habitat suitable for the species. Previous records suggest that Whyalla may support the species.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.
Rostratula australis	Australian Painted Snipe	EN	E	3	-	PMST highlights that the species may occur within the Study Area.	**Unlikely** Habitat not likely to be	**Unlikely**	**Unlikely** Habitat not likely to be

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						Australian Painted Snipe, an elusive bird that occurs in freshwater wetland habitats with dense reeds and rushes/ well vegetated margins (Simpson and Day 2010, Menkhorst et al. 2019). Has a widespread distribution across eastern and northern Australia (ALA 2026). Conservation advice lists below Whyalla as a likely region for the species to occur (DSEWPaC 2013d). **Previous records:** None.	suitable for species. There are no previous records of the species in this vegetation type.	Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type.	suitable for species. There are no previous records of the species in this vegetation type.
Spatula rhychotis	Australasian Shoveler	-	R	1,2	2024	Australian Shovelers utilise a variety of fresh and saltwater wetlands but prefer large and permanent lakes or swamps which are densely vegetated (ALA 2026; Morecombe 2021). **Previous records:** 4 BDBSA and BL records within the Study Area.	**Possible** Habitat suitable for the species. Previous records suggest that Whyalla may support the species.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.	**Possible** Habitat suitable for the species. Previous records suggest that Whyalla may support the species.
Stagonopleura guttata	Diamond Firetail	VU	V	3	-	PMST highlights this species may occur within the Study Area. Diamond Firetail occurs in grassy eucalypt woodlands, open forest, mallee, Natural Temperate Grassland, and in secondary grassland derived from other communities. Often found in riparian areas (rivers and creeks),	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the	**Unlikely** Habitat in the Habitat not likely to be suitable for species (lacks grassy understorey). There are no previous records of	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						and sometimes in lightly wooded farmland (DCCEEW 2023c). **Previous records:** None.	species in this vegetation type.	the species in this vegetation type.	this vegetation type.
Sterna hirundo longipennis	Common Tern	-	R	2	2000	This subspecies is the most prominent within Australia, occupying marine, pelagic, and coastal zones. They feed, breed, and roost in or very close to waterbodies, including muddy flats, beaches, and rocky shores (ALA 2026). **Previous records:** 1 BL record within the Study Area.	**Unlikely** Habitat is unlikely to provide adequate resources for the species within the Study Area. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.	**Possible** Habitat suitable for the species. Previous records suggest that Whyalla may support the species.
Sternula albifrons	Little Tern	MW, VU		2	2023	The little tern is a marine species which occupies sheltered coastal environments such as lagoons, river mouths, gently sloping beaches, and bays (DCCEEW 2025c). **Previous records:** 1 BL record within the Study Area.	**Unlikely** Habitat is unlikely to provide adequate resources for the species within the Study Area.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type	**Known** Habitat suitable for the species. Previous records suggest that Whyalla may support the species.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						Field survey results: The species was observed in coastal habitat nearby the Mullaquana Station desalination site.	There are no previous records of the species in this vegetation type within the Study Area.	within the Study Area.	The species was observed near the Mullaquana Station desalination site.
Stictonetta naevosa	Freckled Duck	-	V	1,2	2018	The Freckled Duck inhabits permanent freshwater swamps and creeks with heavy growth of swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. In drier times species move from ephemeral breeding swamps to more permanent waters such as lakes, reservoirs farm dams and sewage ponds (Australian Museum 2024e). **Previous records:** 13 BDBSA and BL records within the Study Area,	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.
Sternula nereis nereis	Australian Fairy Tern	VU	E	1,2,3	2019	PMST highlights this species as known to occur within the Study Area. Australian Fairy Tern occurs along coasts and estuaries, and breeds on sandy beaches or pits (Simpson & Day 2010). Along the coast, this sub-species generally nests on sandy beaches and banks above the high tide line and below vegetation. Will roost on jetty structures. The sub-species' distribution extends along the	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type.	**Likely** Habitat suitable for the species and occurs along the construction footprint. Previous records of the species

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						coasts of SA, Tasmania, and central Western Australia (ALA 2026). **Previous records:** 2 BDBSA and BL records within the Study Area.	vegetation type.		along the coastline within the Study Area.
Thinornis cucullatus cucullatus	Hooded Plover	VU	V	3,4	-	PMST highlights the species as known to occur within the Study Area. Hooded Plover, a resident shorebird, mainly occurs on wide beaches backed by dunes, in creeks or inlet entrances (Menkhorst et al. 2019). The sub-species is known to occur on many South Australian beaches, including some with human activity presence. **Previous records:** None. **Field survey result:** The species was observed incidentally during a site visit to a previously proposed desalination plant site at Cape Hardy which is no longer relevant to the Project.	**Possible** Habitat may be suitable for the species, for foraging. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type.	**Possible** Habitat may be suitable for species near desalination plant. There are no previous records of the species in this vegetation type.
Tringa glareola	Wood Sandpiper	-	R	1,2	2024	The wood sandpiper typically occupies shallow freshwater wetlands. They preferentially reside in ponds or pools with emergent reeds which are surrounded by tall vegetation and other natural structures. They forage for insects within muddy areas and shallow water, and breed in various environments (Birdlife Australia 2026).	**Unlikely** Habitat not likely to support the species given its distribution. Construction footprint is >30 km from	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type	**Unlikely** Habitat not likely to support the species given its distribution. Construction footprint is >30 km from

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						Previous records: 6 BDBSA and BL records within the Study Area.	nearest record of the species	within the Study Area.	nearest record of the species
Tringa nebularia	Common Greenshank	EN, MW	-	1,2,3	2024	PMST highlights the species as known to occur within the Study Area. Common Greenshank, a migratory shorebird, occurs in intertidal mudflats, fresh and saltwater wetlands along the coast or inland (Geering et al. 2008). Also occupies artificial habitats. Has a widespread distribution throughout Australia, in summer (Geering et al. 2008, ALA 2026). In Australia from Aug (northern areas) to Oct / Nov (Menkhorst et al. 2019); does not breed in Australia. **Previous records:** 36 (1998-2024), in coastal areas near Whyalla including sewage works, wetlands, saltpans, water treatment plant, shoreline, beach as well as the old rubbish dump and coastal area 12 km SW of Whyalla.	**Possible** Habitat may be suitable for the species. Records suggest that the species may be present within this habitat.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type.	**Likely** Habitat may be suitable for species near desalination plant. Previous records support the species' occurrence within this habitat in the Study Area.
Tringa stagnatilis	Marsh Sandpiper, Little Greenshank	MW	-	2,3	2013	PMST highlights the species as known to occur within the Study Area. Marsh Sandpiper, a migratory shorebird, breeds in Northern Hemisphere, arrives in Australia Sep / Nov (Menkhorst et al. 2019). Prefer shallow fresh or brackish inland wetlands, rivers, water meadows, sewage farms, drains, lagoons and swamps. Also on tidal flats when arrives (Menkhorst et al. 2019). Range includes eastern	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type.	**Unlikely** There are no previous records of the species in this vegetation type.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						and northern half of Australia (Menkhorst et al. 2019, Davies et al. 2022). **Previous records:** Two (2005, 2017) at Whyalla wetlands and beach.	vegetation type.		
Turnix varius varius	Painted Buttonquail	-	R	1	2022	The Painted Buttonquail prefers temperate woodlands, typically with closed canopies, understorey vegetation, and deep leaf litter which is used to form nests (Birdlife Australia 2026). **Previous records:** 1 BDBSA record within the Study Area, ~4.7km south of alignment.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.
Zapornia tabuensis tabuensis	Spotless Crake	-	R	1,2	2019	Usually dense vegetation in, or at margins of freshwater or saline wetlands, either permanent or ephemeral. Occurs in marshes, swamps, salt-marsh and peat bogs; also at margins of rivers, streams, tidal creeks, ponds and lakes. May prefer wetlands with shallow, slow-flowing water; overstorey of willows or tall reedbed vegetation such as *Typha orientalis*, may be important requirement of breeding habitat in New Zealand. Frequently inhabits artificial wetlands such as salt-works, sewage farms, rice paddies, taro ponds, irrigation channels,	**Possible** Habitat suitable for the species. Previous records suggest that Whyalla may support the species.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						farmland, golf courses, lawns and gardens (Birds of the World 2020b). **Previous records:** 5 BDBSA and BL records within the Study Area.			
Ardenna grisea	Sooty Shearwater	MM, VU		3	-	PMST highlights the species may occur – Sooty Shearwater, Southern Royal Albatross, Southern Giant-Petrel, Sooty Albatross, Campbell Albatross. PMST highlights the species is likely to occur – Antipodean Albatross, Wandering Albatross, Northern Giant Petrel, Fairy Prion, Indian Yellow-nosed Albatross, Shy Albatross, Black-browed Albatross, Flesh-footed Shearwater. PMST highlights the species is known to occur – White-capped Albatross. All of these bird species are pelagic species, preferring deep sea habitats. **Previous records:** None, for any of the species.	**Unlikely** Habitat not suitable for species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for species. There are no previous records of the species in this vegetation type.
Diomedea antipodensis	Antipodean Albatross	MM, VU							
Diomedea epomophora	Southern Royal Albatross	MM, VU							
Diomedea exulans	Wandering Albatross	MM, VU							
Macronectes giganteus	Southern Giant-Petrel	MM, EN							
Macronectes halli	Northern Giant Petrel	MM, VU							
Pachyptila turtur subantarctica	Fairy Prion (southern)	VU	-						
Phoebetria fusca	Sooty Albatross	MM, VU							

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
Thalassarche carteri	Indian Yellow-nosed Albatross	MM, VU							
Thalassarche cauta	Shy Albatross	MM, EN							
Thalassarche impavida	Campbell Albatross	MM, VU							
Thalassarche melanophris	Black-browed Albatross	MM, VU							
Thalassarche steadi	White-capped Albatross	MM, VU							
Ardenna carneipes	Flesh-footed Shearwater	MM							
Pteropus poliocephalus	Grey-headed Flying Fox	VU	R	1	2024	PMST does not highlight this species as potentially occurring in the Study Area. The Grey-headed Flying Fox is usually found on the coastal lowlands and slopes of Eastern Australia below altitudes of 200 m. Has been recorded in urban areas, forests, and woodlands. A nationally important roosting camp is present at Botanic Park in Adelaide, with new camps also recently reported at Port Augusta and near Mount Gambier (DEW 2025). The species is known to travel up to 40 km to feed on fruits	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Likely** Habitat could provide roosting and foraging habitat for this species. Particularly within 40 km of the known camp at Port Augusta.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						such as figs, blossoms of myrtaceous species such as Eucalypt, Bloodwood (*Corymbia* spp.) and Smooth-barked Apple (*Angophora* spp.), Paperbark (*Melaleuca* spp.), Banksia (*Banksia* spp.) (ALA 2026). **Previous records:** Four BDBSA records (2022 - 2024) within Whyalla township.			
MAMMALIA									
Sminthopsis psammophila	Sandhill Dunnart	EN	V	3	-	PMST highlighted the species as likely to occur within the Study Area. Sandhill Dunnart occurs in Spinifex Hummock (*Triodia* sp,) grasslands between 8 to 20 years post fire (Churchill 2001). Commonly found within mallee or Marble Gum (*Eucalyptus gongylocarpa*), often with Turpentine Pine (*Callitris verrucosa*) and an associated complex shrub understorey (ALA 2026). Given the history of vegetation clearance, habitat on EP is likely to be more limited. Has been recorded throughout areas nearby Ironstone Hill CP, west and north Middleback Ranges (DEW 2025), which falls on the eastern extent of the species' range (ALA 2026). Distribution is restricted predominantly to the Great Victoria Desert and EP (Churchill 2001). Nocturnal nature of the species limits records.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						Previous records: None.			
REPTILIA									
Aprasia pseudopulchella	Flinders Ranges Worm-lizard	VU	-	3	-	PMST highlights the species as likely to occur within the Study Area. The Flinders Ranges Worm-lizard is a very small, worm-like, burrowing lizard with no obvious external ear opening (Cogger 2000). It burrows freely in loose sand and soil, under rocks and litter. Occurs in open woodland, native tussock grassland, riparian habitats, and rocky isolates. Prefers stony soils, or clay soils with a stony surface, and has been found sheltering beneath stones and rotting stumps. This species has a highly restricted distribution to the Mount Lofty Ranges, Mid North and Flinders Ranges in South Australia (ALA 2026). Known from Flinders Ranges of SA, extending south to the western slopes and northern and central Mount Lofty Ranges (Cogger 2000). Also found in northern suburbs of Adelaide and Mount Remarkable National Park (NP). Is known to occur within the Adelaide and Mount Lofty Ranges and the South Australian Arid Lands Natural Resource Management Region. **Previous records:** None.	**Unlikely** Study Area occurs outside the known range of the species. There are no previous records of the species in this vegetation type.	**Unlikely** Study Area occurs outside the known range of the species. There are no previous records of the species in this vegetation type.	**Unlikely** Study Area occurs outside the known range of the species. There are no previous records of the species in this vegetation type.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches

[1] EPBC Act status: Critically Endangered (CR); Endangered (EN); Vulnerable (VU). Migratory status: Migratory Wetland (MW); Migratory Terrestrial (MT); Migratory Marine (MM).
[2] NPW Act status: Endangered (E); Vulnerable (V); Rare (R).
*Source: BDBSA (1); BirdLife (2); PMST (3); Observed during field surveys (4).

C.3 LoO assessment for EPBC & NPW Act listed threatened or migratory fauna species within the SAAL LMR Study Area

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
AMPHIBIANS											
Pseudophryne bibronii	Brown Toadlet / Brown Broodfrog	-	R	1	2009	The Brown Toadlet is widely distributed through south-eastern QLD, eastern NSW, Vic and south-eastern SA and Tas. Inhabits damp areas with log and stone cover, including forests, heathlands, and grasslands. Flinders Ranges is the westernmost extent of their range. Appears to be closely associated with edges of small ephemeral creeks and depressions with	**Unlikely** Construction footprint is outside the known range of the species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Construction footprint is outside the known range of the species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Construction footprint is outside the known range of the species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Construction footprint is outside the known range of the species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Construction footprint is outside the known range of the species. There are no previous records of the species in this vegetation type within the Study Area.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						accumulation of leaf-litter and debris. Occasionally uses small temporary dams, vegetated roadside drainage lines and ditches with debris build up. In AMLR is not necessarily found in presence of permanent water (DEW 2008b). **Previous records:** 2 BDBSA record within the Study Area in Mount Remarkable NP.					
AVES											
Acanthiza iredalei iredalei	Slender-billed Thornbill (western)	-	R	1	2024	The Slender-billed Thornbill is mainly restricted to chenopod shrublands, particularly	**Unlikely** Habitat not likely suitable for the species.	**Likely** Habitat suitable for the species.	**Likely** Habitat suitable for the species. Previous records place the species	**Unlikely** Habitat not likely suitable for the species.	**Unlikely** Habitat not likely suitable for the species.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						samphire dominated by Shrubby Glasswort (*Sclerostegia arbuscula*), on narrow coastal saline mudflats usually within 20m of a tidal channel or saline lake (Garnett et al. 2011). Species often uses samphire and mangroves (NRM n.d a). The species shows high home range fidelity, with 650m being the longest recorded movement (NRM n.d a). Distribution maps indicate that the species is a resident of much of the Study Area	There are no previous records of the species in this vegetation type within the Study Area.	Previous records place the species within 5 km of this vegetation type near Pimba, and where the EP and SAAL LMRs overlap north of Whyalla. May occur in this vegetation type toward Olympic Village as there is a described population, however no BDBSA records can confirm this. As the species shows high site fidelity, this population may rely solely	within 5 km of this vegetation type where the EP and SAAL LMRs overlap north of Whyalla. As the species shows high site fidelity, this population may rely solely on the vegetation within this area.	There are no previous records of the species in this vegetation type within the Study Area.	There are no previous records of the species in this vegetation type within the Study Area.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						to just below Pimba, with an isolated known population in the Olympic Dam region (DEW 2026b). **Previous records:** 38 BDBSA records within the Study Area, 14 of which are south of the SAAL LMR. The remaining 17 are scattered between Whyalla and Pimba. All occur on the western side of the Construction footprint, and all appear to be situated on rocky tablelands.		on the vegetation within this area.			
Actitis hypoleucos	Common Sandpiper	MW	R	1,2,3	2021	PMST highlights the species as	**Possible**	**Possible**	**Unlikely**	**Unlikely**	**Unlikely**

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						known to occur within the Study Area. The Common Sandpiper is a migratory shorebird that occurs in a variety of habitats, including a wide range of coastal and inland wetlands with varying levels of salinity. It is mostly found around muddy margins or rocky shores and rarely on intertidal mudflats. The species also occurs on steep sided sewage ponds, dams, muddy habitats, and mangrove-lined inlets. Has a	During wetter periods, this habitat may provide inland habitat for the species. There are no previous records of the species in this vegetation type.	Habitat potentially suitable for the species following rain events. One record occurs within 1km of the construction footprint in Woomera.	Habitat not likely suitable for the species. There are no previous records of the species in this vegetation type.	Habitat not likely suitable for the species. There are no previous records of the species in this vegetation type.	Habitat not likely suitable for the species. There are no previous records of the species in this vegetation type.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						widespread distribution across Australia, in late July to March (Simpson and Day 2010). **Previous records:** 33 BDBSA within the Study Area, approximately 12 of which are situated within the EP LMR. The remainder occur in proximity to Port Augusta, Olympic Dam, Woomera, and Carrapateena Mine.					
Amytornis merrotsyi merrotsyi	Short-tailed Grasswren (Flinders Ranges)	VU	V	1,3	2001	PMST highlights the species as known to occur within the Study Area. Known preferred habitat for the Flinders Ranges	**Unlikely** Construction footprint is outside of the known range for the restricted species. The	**Unlikely** Construction footprint is outside of the known range for the restricted species. The	**Unlikely** Construction footprint is outside of the known range for the restricted species. The closest record is >30 km east in the	**Unlikely** Construction footprint is outside of the known range for the restricted species. The	**Unlikely** Construction footprint is outside of the known range for the restricted species. The closest record is >30 km east in the

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Short-tailed Grasswren includes rocky ridges, stony slopes with Hummock Grass (*Triodia* sp.) and extensive gentle Hummock Grass slopes in Flinders Ranges and Gawler Ranges. Known distribution is limited and isolated, restricted to hills (Black 2017). **Previous records:** 9 BDBSA records within the Study Area with 1-10 individuals listed in each. Plus an additional four BL records, but not identified as the ssp. All are clustered in an	closest record is >30 km east in the Dutchman's Stern CP. There are no previous records of the species in this vegetation type within 30 km of the construction footprint.	closest record is >30 km east in the Dutchman's Stern CP. There are no previous records of the species in this vegetation type within 30 km of the construction footprint.	Dutchman's Stern CP. There are no previous records of the species in this vegetation type within 30 km of the construction footprint.	closest record is >30 km east in the Dutchman's Stern CP. There are no previous records of the species in this vegetation type within 30 km of the construction footprint.	Dutchman's Stern CP. There are no previous records of the species in this vegetation type within 30 km of the construction footprint.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						area >30 km east of the construction footprint in Dutchman Stern CP.					
Amytornis modestus	Thick-billed Grasswren	VU	-	1,2,3	2021	PMST highlights the species as known to occur within the Study Area. The Thick-billed Grasswren is now restricted to chenopod shrublands, especially those dominated by Saltbush (*Atriplex* spp.) and Bluebush (*Maireana* spp.) and may favour areas along drainage lines where their preferred vegetation is	**Possible** Some limited habitat observed in the Construction footprint, but species was not observed or recorded on song meters despite targeted survey. Records are all situated >5 km from the Construction footprint but given the life habit of the species their	**Possible** Habitat potentially suitable for the species given the presence of Saltbush and Bluebush. Records are all situated >5 km from the Construction footprint but given the life habit of the species their home range and distribution may fluctuate	**Unlikely** Some limited habitat observed in the Construction footprint, but species was not observed or recorded on song Meters despite targeted survey. Records are all situated >5 km from the Construction footprint but given the life habit of the species their home range and distribution may fluctuate with conditions.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						taller and thicker (DCCEEW 2014). The species forages on the ground for insects, seeds, and berries. Their nests are constructed within shrubby vegetation. **Previous records:** Nine records within the Study Area, the majority near Lake Torrens between 29 and 49km of the construction footprint and two 10-20km north of the northern extent of the Construction Footprint. **Field survey result:** Not	home range and distribution may fluctuate with conditions. Majority of existing records are situated within drainage lines and depressions. It's entirely possible that the local population will stick to this preferred habitat and disperse throughout similar surrounding landscape features.	with conditions. Majority of existing records are situated within drainage lines and depressions. It's entirely possible that the local population will stick to this preferred habitat and disperse throughout similar surrounding landscape features.	Majority of existing records are situated within drainage lines and depressions. It's entirely possible that the local population will stick to this preferred habitat and disperse throughout similar surrounding landscape features.		

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						observed during field surveys. Targeted surveys including bird survey and acoustic monitoring (song meters) in potentially suitable habitat through the northern section of the Project Area failed to detect this species. Detailed habitat assessment / mapping undertaken.					
Amytornis textilis myall	Western Grasswren	VU	V	1,2,3,4	2024	PMST highlights the species as known to occur within the Study Area. Western Grasswren prefers low	**Known** Habitat suitable for species where drainage lines include tall chenopod vegetation.	**Possible** Habitat potentially suitable for the species, particularly where Black Bluebush is	**Known** Habitat is preferred by the species and occurs throughout the construction footprint. Only relevant to the southern	**Likely** Habitat potentially suitable for the species, particularly where Black Bluebush is	**Possible (occasional)** Habitat potentially suitable for the species. Fewer preferred flora species, and fewer previous

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						shrublands, chiefly comprising Black Bluebush (*Maireana pyramidata*) and Australian Boxthorn *(Lycium australe*), or open woodlands, mostly comprising Western Myall *(Acacia papyrocarpa*) and / or Bullock Bush *(Alectryon oleifolius*) (Black et al. 2009, Black 2017). Preferred habitats are drainage lines, low rocky hills, and semi-arid woodlands with preferred vegetation, rarely mallee, commonly with spiny saltbush	This particularly occurs from Port Augusta to Whyalla. The species was observed in this habitat during surveys. There are no previous records of the species in this vegetation type within several km of the construction footprint.	dominant with a shrubby understorey. Few records occur within several km of this habitat along the construction footprint where it approaches Port Augusta.	section of the SAAL LMR. Observations made during surveys confirm species is active in this vegetation type. Previous records provide consistent and long-term data of species presence.	dominant with a shrubby understorey. Few records occur within several km of this habitat along the construction footprint where it approaches Port Augusta.	records within several km of the construction footprint however the habitat may be utilised on occasion.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						species (Black 2017). **Previous records:** 390 records (1999 - 2024) from Kootaberra south into the EP LMR, the majority around Whyalla in the buffer area with scattered records extending north into the SAAL LMR but none further north than level with Port Augusta. **Field survey result: O**bserved during field surveys in SAAL and EP LMRs. Detailed habitat assessment / mapping undertaken within the Project Area and beyond						

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						(for previous alignments).					
Aphelocephala leucopsis	Southern Whiteface	VU	-	1,2,3,4	2025	PMST highlights the species as known to occur within the Study Area. Southern Whiteface occurs in wide range of open woodlands and shrublands where there is an understory of grasses or shrubs, or both. Habitat is usually dominated by Acacias or Eucalypts on ranges, foothills, lowland, and plains (DCCEEW 2023a). The species is considered sedentary except during drought	**Likely** Habitat suitable for species where drainage lines include tall chenopod vegetation. This particularly occurs from Whyalla to Port Augusta. A cluster of 11 records is found at the SA Arid Lands Botanic Gardens which is situated 4.5 km east of where this habitat occurs along the	**Likely** Habitat is potentially suitable for the species, particularly given the presence of emergent Senna and open shrubland that occurs in tableland habitats. >5 previous records occur on/within 5 km of this vegetation type along the construction footprint.	**Known** Habitat is preferred by the species and occurs throughout the construction footprint >10 previous records occur on or in close proximity to the construction footprint, from Whyalla to Olympic Dam. The species was observed within this habitat type during surveys.	**Known** Habitat is suitable for the species and occurs along the construction footprint to the north. The species was observed within this habitat during surveys.	**Known** Habitat is suitable for the species and occurs along the construction footprint to the north. The species was observed within this habitat type during surveys.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						when individuals have been recorded travelling for resources (DCCEEW 2023a). **Previous records:** >900 records within the SAAL LMR Study Area with 1-15 individuals listed in each. Records are scattered / spread throughout the Study Area with a small gap north of Woomera, and more concentrated records near the northern extent of the construction footprint. **Field survey result:** Observed	construction footprint.				

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						during field surveys by Jacobs, through observation of individuals at a number of locations in the northern extent of the Construction footprint., as well as near Port Augusta and scattered observations between Port Augusta and the northern extent of the construction footprint.					
Apus pacificus	Fork-tailed Swift	MM	-	1, 2, 3	2024	PMST highlights the species as likely to occur within the Study Area. The Fork-tailed Swift is highly	**Unlikely** Species is predominantly aerial and is not associated with this	**Unlikely** Species is predominantly aerial and is not associated with this	**Unlikely** Species is predominantly aerial and is not associated with this vegetation type.	**Unlikely** Species is predominantly aerial and is not associated with this	**Unlikely** Species is predominantly aerial and is not associated with this vegetation type.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						mobile, almost entirely aerial, and rarely recorded on the ground. The species has a widespread distribution across Australia, in summer (ALA 2026). **Previous records:** 26 records within the Study Area. Including in the vicinity of Carrapateena Mine, and the townships of Whyalla, Port Augusta and Roxby Downs.	vegetation type. There are no previous records of the species in this vegetation type.	vegetation type. There are no previous records of the species in this vegetation type.	There are no previous records of the species in this vegetation type.	vegetation type. There are no previous records of the species in this vegetation type.	There are no previous records of the species in this vegetation type.
Ardeotis australis	Australian Bustard	-	V	1,2	2024	The Australian Bustard lives on dry plains, grasslands, and open woodlands, and they favour	**Unlikely** Habitat not suitable for the species. There are no previous	**Likely** Habitat is suitable for the species. >5 previous records occur	**Likely** Habitat is suitable for the species. >5 records occur on/within 5 km of this vegetation	**Unlikely** Habitat not suitable for the species. There are no previous	**Likely** Habitat is suitable for the species. >5 previous records occur on/within 5 km of

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						tussock and hummock grasslands. Occasionally they are seen in modified habitat areas such as farmlands and golf courses (NRM n.d b). **Previous records:** 20 BDBSA and BL records within the Study Area with clusters in the Port Augusta area and Carrapateena Mine. Several records occur within the EP LMR and Mount Remarkable NP, ~45km east of the Construction footprint. **Field survey results:** Not	records of the species in this vegetation type within the Study Area.	on/within 5 km of this vegetation type along the Construction footprint.	type along the Construction footprint.	records of the species in this vegetation type within the Study Area.	this vegetation type along the Construction footprint.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						observed during field surveys in the SAAL LMR (observed in the EP LMR).					
Arenaria interpres interpres	Ruddy Turnstone	VU, MW	R	1,3	2017	PMST highlights the species as known to occur within the Study Area. Ruddy Turnstone breeds in Siberia and Alaska. When in Australia prefers rocky coastlines, coral and sand islands, less common on intertidal mudflats, also occurs on beaches (Geering et al. 2008, Davies et al. 2022). Range includes coastline of Australia except	**Unlikely** Habitat not suitable for the species. Requires coastal habitat. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. Requires coastal habitat. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. Requires coastal habitat. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. Requires coastal habitat. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. Requires coastal habitat. There are no previous records of the species in this vegetation type.

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						Great Australian Bight (Davies et al. 2022). **Previous records:** Two records, one in Winninowie CP (on the eastern side of the Upper Spencer Gulf) and other in Munyaroo CP, both some distance from the construction footprint in the SAAL LMR.					
Biziura lobata menziesi	Musk Duck	-	R	1,2	2024	The Musk Duck is endemic to Australia. Occurs in deep freshwater lagoons, with dense reed beds. They are normally seen singly or in pairs but may form medium to large	**Likely** Habitat suitable for the species. Several records occur within lakes with drainage lines that intercept the	**Possible** Habitat potentially suitable for the species following rain events. Several BDBSA records associate the species with this habitat	**Unlikely** Habitat not likely suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not likely suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not likely suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						groups in the winter (ALA 2026). **Previous records:** 63 BDBSA and BL records within the Study Area, scattered throughout water sources along the Construction footprint such as lakes and sewage ponds (Roxby Downs).	Construction footprint.	along the Construction footprint near Woomera, Roxby Downs, and Olympic Village where there is permanent water.			
Bubulcus ibis coromandus	Eastern Cattle Egret	-	R	1,2	2019	The Eastern Cattle Egret is a subspecies distribution extends along the coastline of eastern Australia but is concentrated along the SA coastline (ALA 2026).	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Previous records: 4 BDBSA and BL records within the Study Area with 1-6 individuals listed in each. All records occur either south of the SAAL LMR within the EP LMR, or in Mount Remarkable NP.					
Calidris acuminata	Sharp-tailed Sandpiper	VU, MW	-	1,2,3	2024	PMST highlights the species as known to occur within the Study Area. Sharp-tailed Sandpiper (recently listed threatened in Jan 2024) is a migratory shorebird that occurs in coastal and inland areas	**Possible** Habitat potentially suitable for species, particularly where freshwater sources are close by or within them. Several records occur within several	**Possible** Habitat potentially suitable for species after rain events when depressions may become inundated. Few records occur within proximity of this habitat	**Unlikely** Habitat not suitable for the species. Previous records all occur in proximity to water sources and are associated with such features, rather than any specific vegetation type.	**Unlikely** Habitat not suitable for the species. Previous records all occur in proximity to water sources and are associated with such features, rather than	**Unlikely** Habitat not suitable for the species. Previous records all occur in proximity to water sources and are associated with such features, rather than any specific vegetation type.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						but prefers non-tidal fresh or brackish wetlands, damp grasslands, will also use dams, artificial habitats with water / mud edge and coastal populations will use tidal flats (Geering et al. 2008, Simpson and Day 2010, Menkhorst et al. 2019). Breeds in Siberia and migrates to New Guinea and Australia (summer). This species has a widespread distribution across Australia when present (ALA 2026). **Previous records:** 52 records (1998	km of this vegetation type along the construction footprint but are more strongly associated with the freshwater found nearby.	type along the construction footprint around Lake Dutton and Lake Torrens NP.		any specific vegetation type.	

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						- 2024) with 1 – 50 individuals listed in each. The majority of these are situated within the EP and Northern and Yorke LMRs along the Spencer Gulf coastline due to the buffer area. Remaining records are situated in Port Augusta, Carrapateena, Roxby Downs, and within 1km of the construction footprint at Lake Dutton.					
Calidris alba	Sanderling	MW	R (ssp.)	3	-	PMST highlights the species as likely to occur within the Study Area.	**Unlikely** Habitat not likely suitable for the species.	**Unlikely** Habitat not likely suitable for the species.	**Unlikely** Habitat not likely suitable for the species.	**Unlikely** Habitat not likely suitable for the species.	**Unlikely** Habitat not likely suitable for the species.

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						Sanderling is a migratory shorebird from the high Arctic usually prefers ocean beaches and occasionally intertidal flats (Davies et al. 2022). Roosts in beach debris (Geerling et al. 2008). **Previous records:** None.	There are no previous records of the species in this vegetation type.	There are no previous records of the species in this vegetation type.	There are no previous records of the species in this vegetation type.	There are no previous records of the species in this vegetation type.	There are no previous records of the species in this vegetation type.
Calidris canutus	Red Knot	VU, MW	E (ssp.)	2,3	2024	PMST highlights the species as known to occur within the Study Area. Two subspecies are known to regularly inhabit Australia: ▪ *C. c. rogersi* (southern Australia)	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within proximity to the	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.

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						▪ C. c piersmai (north-west Australia) *C. c. rogersi* is listed under the NPW Act. In January 2024 this species' EPBC Act status changed from Endangered to Vulnerable. Red Knot is a migratory bird which does not breed in Australia (breeds in Siberia). When in Australia (Sept/Oct – March/April) occurs on extensive intertidal mud flats and rarely ventures inland (Geering et al. 2008).	construction footprint.				

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						Previous records: Two, one at Ward Spit (eastern side of the Upper Spencer Gulf) and one at Mount Arden Station in the Upper Spencer Gulf Wetlands, north of Port Augusta.					
Calidris ferruginea	Curlew Sandpiper	CR, MW	E	1,2,3	2025	PMST highlights the species as known to occur within the Study Area. Curlew Sandpiper is a migratory shorebird which prefers coastal or inland mudflats but will also visit artificial dams and inland water habitats, freshwater and brackish wetlands (Simpson and	**Possible** Habitat potentially suitable for species, particularly where freshwater sources are close by or within them. There are no previous records of the species in this vegetation type within 5	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within proximity to the construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within proximity of the construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.

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						Day 2010, Menkhorst et al. 2019). A common summer migrant widespread across Australia, in spring and summer, but does not breed in Australia (Geering et al. 2008, ALA 2026). Juveniles remain in Australia for first Austral Winter (2 years old) (Menkhorst et al. 2019). It is most common in the far south-east and north-west of Australia. It is found on intertidal mudflats of estuaries, lagoons, mangroves, as	km of the construction footprint. However, one record occurs within Arcoona Lake, of which drainage lines may intercept the construction footprint.				

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						well as beaches, rocky shores and around lakes, dams, and floodwaters. **Previous records:** 13 records, though 11 are within the EP and Northern and Yorke LMRs. One SAAL record occurs east of Port Augusta, and the other in Lake Dutton.					
Calidris melanotos	Pectoral Sandpiper	MW	R	1,3	2013	PMST highlights the species as known to occur within the Study Area. Pectoral Sandpiper is a migratory shorebird that occurs in freshwater or brackish	**Possible** Habitat potentially suitable for species, particularly where freshwater sources are close by or within them.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.

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						wetlands, grassy or lightly vegetated coastal and inland swamps (Geering et al. 2008). Is widespread across south-east Australia (ALA 2026). Usually occurs solitarily or in small flocks, range does not include inland SA (Geering et al. 2008, Menkhorst et al. 2019). **Previous records:** Four, all at / near Carrapateena mine and adjacent Lake Torrens.	There are no previous records of the species in this vegetation type within proximity of the construction footprint, but there are records near lake Torrens.				
Calidris ruficollis	Red-necked Stint	MW	-	1,2,3	2024	PMST highlights the species as known to occur within the Study Area.	**Possible** Habitat suitable for the species.	**Unlikely** Habitat not likely suitable for the species.	**Unlikely** Habitat not likely suitable for the species.	**Unlikely** Habitat not likely suitable for the species.	**Unlikely** Habitat not likely suitable for the species.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Red-necked Stint is a migratory shorebird from the Arctic Tundra, in Australia August to November. Primarily occurs on tidal flats, but also uses open beaches (with seagrass wrack); will occur in a range of sparsely vegetated brackish and freshwater inland with muddy / sandy areas for foraging. **Previous records:** 113 records, predominantly within the EP and Northern and Yorke LMRs along the Spencer Gulf.	<5 records are situated within 5 km of this vegetation type along the construction footprint, however the species occurs at several inland ephemeral lakes in Project surrounds.	There are no previous records of the species in this vegetation type.	There are no previous records of the species in this vegetation type.	There are no previous records of the species in this vegetation type.	There are no previous records of the species in this vegetation type.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						SAAL records occur in a cluster in Port Augusta, and sporadically to the northern extent of the Study Area. One record occurs within 1km of the construction footprint at Lake Dutton.					
Calidris tenuirostris	Great Knot	VU, MW	E	1,2,3	2024	PMST highlights the species as known to occur within the Study Area. In January 2024 this species' EPBC Act status changed from Endangered to Vulnerable. Great Knot is a migratory bird that does not breed in Australia. Prefers	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						sheltered coastal habitats, with large intertidal mudflats or sandflats, including natural environments along and close to the coast, and artificial environments such as ponds in saltworks (Geering et al. 2008, DCCEEW 2024d). **Previous records:** Two, Wards Spit and Winninowie CP (both on eastern side of the Upper Spencer Gulf (opposite Eyre Peninsula)).					
Charadrius leschenaultii	Greater Sand Plover	VU, MW	R	1, 3	2024	PMST highlights the species as likely to occur	**Unlikely**	**Unlikely**	**Unlikely**	**Unlikely**	**Unlikely**

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						within the Study Area. Greater Sand Plover is an early migratory shorebird that visits Australia (Aug-March) and remains for first austral winter. Occurs in tidal flats and roosts on beaches at high tide (Menkhorst et al. 2019). The species occurs in a range of natural environments along and close to the coast, and artificial environments such as ponds in saltworks (DCCEEW 2023e). **Previous records:** One, Winninowie	Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	Habitat not suitable for the species. There are no previous records of the species in this vegetation type.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						CP (on eastern side of the Upper Spencer Gulf (opposite Eyre Peninsula)).					
Charadrius mongolus	Lesser Sand Plover	EN	E	1,2, 3	2000	PMST highlights the species as known to occur within the Study Area. The Lesser Sand Plover is a migrant from Siberia, within Australia, it is widespread in coastal regions, and has been recorded in all states but mainly occurs in northern and eastern Australia (TSSC 2016a). In Australia, the species inhabits large intertidal sandflats or	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						mudflats in sheltered bays, harbours, and estuaries, and occasionally sandy ocean beaches, coral reefs, wave-cut rock platforms and rocky outcrops. It also sometimes occurs in short saltmarsh or among mangroves (Menkhorst et al. 2019, Davies et al. 2022). **Previous records:** Two records, one at Jarrold Point (eastern side of the Upper Spencer Gulf (opposite Eyre Peninsula)) and one near Port Augusta.					

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
Charadrius veredus	Oriental Plover, Oriental Dotterel	MW	-	1,3	1996	PMST highlights that the species may occur within the Study Area. Oriental Plover occurs in both coastal habitats (e.g. estuarine mudflats and sandbanks, sandy or rocky ocean beaches or nearby reefs, when they arrive, before moving to near-coastal grasslands) and flat, open, semi-arid or arid grasslands. Has a widespread distribution throughout Australia (ALA 2026). Breeds in China and Mongolia, migrates to coastal northern	**Unlikely** Habitat possibly suitable for the species, though occurrence in the southern portion of Australia is contested. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.

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						Australia, sometimes stragglers occur in SA. Is usually solitary or in small flocks on dry grasslands (including airfields), favouring shorter grass and recently burnt areas. Rarely feeds in wet habitats but may move onto mudflats or beaches to roost (Geering et al. 2008). Has a widespread distribution throughout Australia (ALA 2026). **Previous records:** Two, ~14 km from Construction					

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						footprint with 11 individuals listed in each - possible duplication of records, as information inside each identical.					
Cinclosoma castanotum	Chestnut Quailthrush (Chestnut-backed Quailthrush)	-	R	1,2	2024	Chestnut Quailthrush distribution is widespread throughout southern Australia (ALA 2026). The species is mainly found in semi-arid to arid shrubland. Distribution maps indicate that the species may be present within the Construction footprint up to approximately	**Unlikely** Construction footprint appears to be outside of recorded range of the species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Construction footprint appears to be outside of recorded range of the species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Construction footprint appears to be outside of recorded range of the species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Construction footprint appears to be outside of recorded range of the species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Construction footprint appears to be outside of recorded range of the species. There are no previous records of the species in this vegetation type within the Study Area.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Pimba, however no databases show records within proximity to the Construction footprint. **Previous records:** 5 BDBSA and BL records, 3 of which are in the EP LMR.					
Cladorhynchus leucocephalus	Banded Stilt	-	V	1,2	2022	The Banded Stilt inhabits freshwater, saltwater marshes, tidal mudflats and ephemeral inland lakes where salinity is increasing (Simpson and Day 2010). **Previous records:** 66 BDBSA and BL	**Possible** Habitat suitable for the species. Several records (>5 km) occur within lakes with drainage lines which intercept the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						records within the Study Area. A small cluster in Whyalla (EP LMR), and a larger cluster in Port Augusta. Remainder of records (~15) are scattered throughout the lakes north of Pimba.					
Climacteris affinis	White-browed Treecreeper	-	R	2	2020	The White-browed Treecreeper inhabits arid and semi-arid woodlands, with a preference for old-growth Mulga (*Acacia aneura*) forests (eBird 2024). **Previous records:** 4, all north of Wilmington on the eastern side	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.	**Possible** Habitat suitable for the species. No records associate the species with this habitat within the Construction footprint, however the rare bird is sporadically recorded throughout arid	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within the Study Area.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						of Mount Remarkable NP.			South Australia in such habitat.		
Corcorax melanorhamphos	White-winged Chough	-	R	1,2	2023	The White-winged Chough is a mostly sedentary and colonial species. Inhabits woodlands and taller mallee, with a preference for wetter areas with leaf litter for feeding, and available mud for nest building (Rowley and Russell 2020). Known range of the species does not extend into the SAAL LMR. **Previous records:** 10 BDBSA and BL	**Unlikely** Construction footprint is outside of the known range of the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Construction footprint is outside of the known range of the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Construction footprint is outside of the known range of the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Construction footprint is outside of the known range of the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Construction footprint is outside of the known range of the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.

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						records within the Study Area with 1-9 individuals listed in each. All records occur within Mount Remarkable NP or west of Whyalla but within the SAAL LMR. **Field survey results:** Not observed during field surveys in the SAAL LMR (observed opportunistically in EP LMR).					
Coturnix ypsilophora australis	Brown Quail	-	V	1,2	2017	The Brown Quail occurs in dense crops, irrigated pastures, rank grasslands and sedgelands, especially where native species are dominant, and	**Unlikely** Construction footprint appears to lay outside of the known distribution of the species, which extends	**Unlikely** Construction footprint appears to lay outside of the known distribution of the species, which extends	**Unlikely** Construction footprint appears to lay outside of the known distribution of the species, which extends west to Port Augusta and	**Unlikely** Construction footprint appears to lay outside of the known distribution of the species, which extends	**Unlikely** Construction footprint appears to lay outside of the known distribution of the species, which extends west to Port Augusta and

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						often bordering swamps (DEW 2008a). Occasionally seen in coastal shrublands. Distribution extends to most of mainland Australia except western SA and eastern-central WA. **Previous records:** 4 BDBSA and BL records within the Study Area. The closest records to the Construction footprint are >5 km east within the Upper Spencer Gulf/Port Augusta region.	west to Port Augusta and north to Whyalla in SA. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	west to Port Augusta and north to Whyalla in SA. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	north to Whyalla in SA. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	west to Port Augusta and north to Whyalla in SA. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	north to Whyalla in SA. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
Egretta garzetta nigripes	Little Egret	-	R	1,2	2024	The Little Egret inhabits shallows of saltwater and freshwater wetlands, flooded pasture, mangroves, and intertidal mudflats (Birdlife Australia 2026, Simpson and Day 2010). **Previous records:** 74 BDBSA and BL records, all but one at Olympic Dam occur along the upper Spencer Gulf coast. Large clusters occur in Whyalla, Port Augusta, and Winninowie on the eastern side of the Gulf.	**Possible** Habitat suitable for the species. No records within the SAAL LMR place the species directly along the Construction footprint, however they may occur following rain where drainage lines intercept the footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.

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Egretta sacra sacra	Pacific Reef Heron	-	R	2	2023	The Pacific Reef Heron (eastern subspecies) is a marine bird which favours rocky coastlines (eBird 2024). **Previous records:** 1 bordering the SAAL and Northern & Yorke LMRs. Four within the EP LMR.	**Unlikely** Habitat not suitable for the species. The Construction footprint is outside of the known, coastal distribution of the species.	**Unlikely** Habitat not suitable for the species. The Construction footprint is outside of the known, coastal distribution of the species.	**Unlikely** Habitat not suitable for the species. The Construction footprint is outside of the known, coastal distribution of the species.	**Unlikely** Habitat not suitable for the species. The Construction footprint is outside of the known, coastal distribution of the species.	**Unlikely** Habitat not suitable for the species. The Construction footprint is outside of the known, coastal distribution of the species.

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Falco hypoleucos	Grey Falcon	VU	R	1,2,3	2014	PMST highlights the species as known to occur within the Study Area. Grey Falcon is a rare pale falcon. Preferred habitat includes open plains and treed watercourses in arid inland areas. When not actively hunting it roosts in shady trees or communications towers (Menkhorst et al. 2019). The species has a widespread, but sparse distribution across Australia (ALA 2026). **Previous records:** 10 records within the Study Area	**Possible (for hunting)** Habitat potentially suitable for the species, which is often found in inland watercourses. There is one record near Island Lagoon.	**Possible (for hunting)** Habitat potentially suitable for the species as hunting ground. One record is within 5 km of the construction footprint within this habitat type, east of Pimba.	**Possible** Habitat is suitable for the species for both hunting and nesting opportunities. There are no previous records of the species in this vegetation type.	**Possible** Habitat is suitable for the species for both hunting and nesting, particularly given the presence of multiple Acacia species which are described as preferred. There are no previous records of the species in this vegetation type.	**Possible** Habitat is suitable for the species as both hunting ground and potentially nesting if tall, sturdy trees are present. There are no previous records of the species in this vegetation type.

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						including four on the eastern side of the Upper Spencer Gulf, some in the Flinders Ranges, and scattered records near Whyalla, Port Augusta, Island Lagoon and Woomera .					
Falco peregrinus macropus	Peregrine Falcon	-	R	1,2	2024	The Peregrine Falcon is found in most habitats, from rainforests to the arid zone, and at most altitudes, from the coast to alpine areas. It requires abundant prey	**Possible** Where taller trees such as *Casuarina pauper* are preset, habitat may be suitable for perch hunting, nesting, and water sources.	**Possible (as flyover)** Habitat suitable, particularly as hunting ground given the likelihood that prey items will be available.	**Possible** Habitat is suitable for the species as abundant prey may be within shrubby vegetation and any tall trees can provide perching and nesting habitat.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the	**Possible** Habitat is suitable for the species as abundant prey may be within shrubby vegetation and any tall trees can provide perching and nesting habitat.

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						and secure nest sites and prefers coastal and inland cliffs or open woodlands near water, and occasionally found nesting on high city buildings (Australian Museum 2024c). The sub-species' distribution is widespread across southern Australia (ALA 2026). Peregrine Falcons can travel vast distances and reach extreme speeds while hunting (Birdlife Australia 2026). **Previous records:** 44 BDBSA and BL records in the	Previous records cannot associate the species with this habitat along the Construction footprint however it is seen in similar habitat >5 km from the Construction footprint.	Previous records cannot associate the species with this habitat along the Construction footprint however it is seen in similar habitat at >5 km near Lake Torrens National Park (NP).	No records can associate the species with this vegetation type, as they all occur >5 km from the Construction footprint. The species is present in open woodland/chenopod habitat in the EP LMR just south of SAAL LMR and are known to travel large distances from their home ranges.	Construction footprint.	No records can associate the species with this vegetation type, as they all occur >5 km from the Construction footprint. The species is present in open woodland/chenopod habitat in the EP LMR just south of SAAL LMR.

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						Study Area with 1-4 individuals listed within each – Over half of records occur within the Flinders Ranges and associated southern NPs , and approximately 5 records occur in the EP LMR. A small cluster occurs near Carrapateena Mine.					
Falco subniger	Black Falcon	-	R	2	2024	The Black Falcon occurs in woodland, shrubland and grassland in the arid and semi-arid zones, especially wooded watercourses; it also uses agricultural land	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the	**Possible (hunting or nesting)** Habitat is suitable for the species, particularly where taller trees are present. There are no previous records of the species in this vegetation type within 5 km of the	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the	**Possible (hunting or nesting)** Habitat is suitable for the species, particularly where taller trees are present. There are no previous records of the species in this vegetation type within 5 km of the

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						with scattered remnant trees. The Black Falcon is often associated with streams or wetlands, visiting them in search of prey (SWIFFT 2024). **Previous records:** 28 BDBSA and BL records within the Study Area, 15 of which occur within Mount Remarkable NP. The remainder are scattered around the Port Augusta region, besides one record at Olympic Dam.	Construction footprint.	Construction footprint.	Construction footprint.	Construction footprint.	Construction footprint.
Gallinago hardwickii	Latham's Snipe	VU, MW	R	2,3	2000	PMST highlights that the species	**Unlikely**	**Unlikely**	**Unlikely**	**Unlikely**	**Unlikely**

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						may occur within the Study Area. Latham's Snipe breeds in Japan and migrates to SE Australia and occasionally Qld. Prefers tussock grass and low dense sedges surrounding freshwater wetland, including marshes and flooded grassland. In dense cover by day, forage dawn dusk or at night (Menkhorst et al. 2019). The species has a widespread distribution throughout eastern Australia (ALA 2026). Study Area is	Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	Habitat not suitable for the species. There are no previous records of the species in this vegetation type.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						outside known core range in Australia; in SA range include includes south-east, not EP (Menkhorst et al. 2019). **Previous records:** One, entered in an office in Olympic Village and does not contain location of sighting.					
Gallinago stenura	Pin-tailed Snipe	MW	-	3	-	PMST highlights the species as known to occur within the Study Area. Pin-tailed Snipe is an uncommon, elusive migratory species, that does not breed in Australia (Geering et al. 2008). Occur in	**Unlikely** Outside of the known range of the species, which is north-west Australia. There are no previous records of the species in this vegetation type.	**Unlikely** Outside of the known range of the species, which is north-west Australia. There are no previous records of the species in this vegetation type.	**Unlikely** Outside of the known range of the species, which is north-west Australia. There are no previous records of the species in this vegetation type.	**Unlikely** Outside of the known range of the species, which is north-west Australia. There are no previous records of the species in this vegetation type.	**Unlikely** Outside of the known range of the species, which is north-west Australia. There are no previous records of the species in this vegetation type.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						freshwater wetlands of coastal plains of northern Western Australia and Northern Territory (Menkhorst et al. 2019, Davies et al. 2022). **Previous records:** None.					
Gerygone fusca	Western Gerygone	-	R	1	2023	The tiny Western Gerygone inhabits wooded habitats ranging from sclerophyllous forests to sparse mallee and shrublands. It can often be found along wooded watercourses (ALA 2026). **Previous records:** 1 BDBSA record	**Possible** Habitat is suitable for the species. One previous record associates the species with this habitat within the Study Area.	**Unlikely** Habitat is not suitable for the species. There are no previous records of the species in this within the Study Area.	**Possible** Habitat is suitable for the species. No previous records associate the species with this habitat type within the Study Area.	**Unlikely** Habitat is not suitable for the species. There are no previous records of the species in this within the Study Area.	**Unlikely** Habitat is not suitable for the species. There are no previous records of the species in this within the Study Area.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						between Lake Torrens NP and Carrapateena Mine. This is the sole record for the species					
Geryone olivacea olivacea	White-throated Geryone	-	R	1	2022	The White-throated Gerygone occupies open eucalypt woodlands and forests, as well as within vegetation fringing watercourses (ALA 2026). The species occupies a large band from the Kimberley in WA, around the east coast, and to the eastern extent of the Yorke Peninsula in SA. Sporadic records occur from	**Unlikely** Habitat not suitable for the species. The portion of the Construction footprint which occurs in the SAAL LMR is outside of the known range of the species.	**Unlikely** Habitat not suitable for the species. The portion of the Construction footprint which occurs in the SAAL LMR is outside of the known range of the species.	**Possible** Habitat is suitable for the species. No previous records associate the species with this habitat type within the Study Area.	**Unlikely** Habitat not suitable for the species. The portion of the Construction footprint which occurs in the SAAL LMR is outside of the known range of the species.	**Unlikely** Habitat not suitable for the species. The portion of the Construction footprint which occurs in the SAAL LMR is outside of the known range of the species.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Wallaroo to south of Whyalla. **Previous records:** 1 BDBSA record situated toward the southernmost extent of the SAAL LMR, bordering the EP LMR west of Whyalla.					
Grantiella picta	Painted Honeyeater	VU	R	3	-	PMST highlights the species as likely to occur within the Study Area. The Painted Honeyeater is endemic to mainland Australia, primarily occurring in Queensland, New South Wales, and Victoria, occasionally in	**Unlikely** Habitat does not suit the needs of the species as it typically lacks the taller strata and mistletoe-bearing species. There are no previous records of the species in this	**Unlikely** Habitat does not suit the needs of the species as it typically lacks the taller strata and mistletoe-bearing species. There are no previous records of the species in this	**Unlikely** Habitat does not suit the needs of the species as it typically lacks the taller strata and mistletoe-bearing species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat does not suit the needs of the species as it typically lacks the taller strata and mistletoe-bearing species. There are no previous records of the species in this	**Unlikely** Habitat does not suit the needs of the species as it typically lacks the taller strata and mistletoe-bearing species. There are no previous records of the species in this vegetation type.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						the Northern Territory and may be a vagrant to SA. Occurs in dry open forests and woodlands. Prefers wattle woodland / She-oak woodland and is strongly associated with Mistletoe (*Amyema* sp.). May also be found along rivers, on plains with scattered trees and on farmland with remnant vegetation. Rare throughout its range (Menkhorst et al. 2019). The known range within SA occurs within semi-arid north-east SA	vegetation type.	vegetation type.		vegetation type.	

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						and the Mount Lofty Ranges. **Previous records:** None.					
Haematopus fuliginosus fuliginosus	Sooty Oystercatcher	-	R	1,2	2024	Sooty Oystercatcher distribution is widespread along the Australian coastline, and in particular, the SA and Tas coastlines (ALA 2026). **Previous records:** 58 BDBSA and BL records, all situated around the coast of the Spencer Gulf including Port Augusta. However, due to the buffer area 34 records are	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						within the EP and NY LMRs.					
Haematopus longirostris	Pied Oystercatcher	-	R	1,2	2024	The Pied Oystercatcher habits intertidal flats of inlets and bays, open beaches, and sandbanks. Forages on exposed sand, mud, and rock at low tide (Birdlife Australia 2026). **Previous records:** 127 BDBSA and BL records situated along the coast of the Spencer Gulf. One record north of Roxby Downs is likely a misidentification.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
Haliaeetus leucogaster	White-bellied Sea Eagle	-	E	1,2	2024	The White-bellied Sea Eagle inhabits coastal habitats around terrestrial wetlands in tropical and temperate regions. Habitat often characterised by large areas of open water. Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, forest, and even urban areas (ALA 2026). **Previous records:** 1 BDBSA record within SAAL LMR, on the eastern side of the	**Possible** Habitat suitable for the species within the southernmost portion of the SAAL LMR Construction footprint, particularly surrounding Port Augusta and Whyalla. There are no previous records of the species within this vegetation type within 5km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Spencer Gulf. All others are within the EP LMR along the coast of Whyalla.					
Hamirostra melanosternon	Black-breasted Buzzard	-	R	2	2006	The Black-breasted Buzzard is a large, endemic Australian bird of prey. It occupies areas with annual rainfall >500mm, though it is rarer in southern South Australia. The species is found in wooded open habitats, riparian forests, and tall-open woodlands surrounded by mid-dense shrubs. It is highly associated with River Red Gum (*E. camaldulensis)*	**Possible** Habitat suitable for the species, particularly where banks are lined with larger trees. There are no previous records of the species in this vegetation type within 5km of the Construction footprint	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Possible** Habitat suitable for the species. There is 1 previous record along the Construction footprint within this vegetation type near RAM18 south of Port Augusta.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						open woodland (ALA 2026). **Previous records:** 1 BL record along the Construction footprint south of Port Augusta.					
Hieraaetus morphnoides	Little Eagle	-	V	1,2	2024	The Little Eagle occurs in open eucalypt forest, woodland, or open woodland, as well as Sheoak or Acacia woodlands and riparian woodlands (OEH 2021). **Previous records:** 45 BDBSA and BL records within the Study Area – 20 of which occur in the SAAL LMR. The remaining records occur in	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Possible** Habitat is suitable for the species particularly where taller trees are present. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Possible** Habitat is suitable for the species particularly where taller trees are present. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Mount Remarkable NP and the EP LMR.					
Hylacola cauta	Shy Heathwren	-	R	1,2	2021	The Shy Heathwren inhabits mallee woodlands with a relatively dense understorey of shrubs and heath plants. Sometimes eats seeds including those of saltbush (BirdA 2024). Known range of the species extends to the southernmost extent of the SAAL LMR near Port Augusta. **Previous records:** 5 BDBSA and BL records within the Study Area, two north of Port Augusta, 3 in	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Possible** Habitat potentially suitable for species near Port Augusta. Previous records within the EP (Whyalla CP) occur just south of the SAAL portion of the Construction footprint, as well as <10 km east of the Construction footprint near Port Augusta.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Whyalla CP (EP LMR).					
Hylacola pyrrhopygia	Chestnut-rumped Heathwren	-	E	1,2	2021	The Chestnut-rumped Heathwren occurs in dense heathland and undergrowth in Eucalyptus forests and woodlands, most commonly found in rocky areas. Vegetation consists of a mixture of dense shrubs (such as *Banksia, Hakea* and *Leptospermum*), Grass-trees (*Xanthorrhoea)* and ferns Pteridium, beneath a canopy of Eucalyptus trees (including *E. obliqua* and *E. odorata*) and (in	**Unlikely** Construction footprint is outside the known range for the species, which extends to just within the 50 km buffer area. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Construction footprint is outside the known range for the species, which extends to just within the 50 km buffer area. There are no previous records of the species in this vegetation type within the Study Area.	**Possible** Habitat suitable for the species within the southernmost SAAL LMR portion of the Construction footprint. There are no previous records of the species within this vegetation type within the SAAL LMR, however there are several in the northern EP LMR around Whyalla CP.	**Unlikely** Construction footprint is outside the known range for the species, which extends to just within the 50 km buffer area. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Construction footprint is outside the known range for the species, which extends to just within the 50 km buffer area. There are no previous records of the species in this vegetation type within the Study Area.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						at least some sites) scattered *Allocasuarina* trees (Birds of the World 2020a). Known range of the species occurs below the SAAL region. **Previous records:** 13 BDBSA and BL records within the Study Area with 1-3 individuals recorded within each; 4 occur in Port Augusta, the remaining are in Whyalla (EP LMR) and Mount Remarkable NP.					
Larus dominicanus dominicanus	Kelp Gull	-	R	2	2017	The Kelp Gull predominantly occupies coastal areas in South America but also occurs in	**Unlikely** Habitat not suitable for the species.	**Unlikely** Habitat not suitable for the species.	**Unlikely** Habitat not suitable for the species.	**Unlikely** Habitat not suitable for the species.	**Unlikely** Habitat not suitable for the species.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						southern Australia, where it is heavily restricted to coastlines. **Previous records:** 1 BL record situated in Point Lowly, east of Whyalla (EP LMR).	There are no previous records of the species in habitats associated with this LMR.	There are no previous records of the species in habitats associated with this LMR.	There are no previous records of the species in habitats associated with this LMR.	There are no previous records of the species in habitats associated with this LMR.	There are no previous records of the species in habitats associated with this LMR.
Leipoa ocellata	Malleefowl	VU	V	1,2, 3	2024	PMST highlights the species as known to occur within the Study Area. Malleefowl are a terrestrial ground-dwelling species which make large conspicuous nesting mounds. Preferred habitat is semi-arid to arid shrublands and low	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.

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						woodlands (especially those dominated by Mallee and/or Wattle). Sandy soils and abundance leaf litter are required for breeding. Prefers mosaics of burnt / unburnt mallee and large tracts of mallee (DCCEEW 2024b). **Previous records:** There are three records with good spatial reliability within the Study Area, all located near Point Lowly east of the Whyalla saltpans (within the EP LMR but just south of the					

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						SAAL LMR boundary). **Field survey result:** Not observed during field surveys in SAAL LMR					
Limosa lapponica / Limosa lapponica baueri	Bar-tailed Godwit	EN (ssp.), MW	R (ssp.)	2,3	2024	PMST highlights the species as known to occur within the Study Area. *Baueri* – may occur Bar-tailed Godwit breeds in northern Europe and north-western Asia. Bar-tailed Godwits inhabit estuarine mudflats, beaches and mangroves. They are common in	**Unlikely** Habitat not likely suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not likely suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not likely suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not likely suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not likely suitable for the species. There are no previous records of the species in this vegetation type.

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						coastal areas around Australia. They are social birds and are often seen in large flocks and in the company of other waders (Birdlife Australia 2026). **Previous records:** Two, both listed as *L lapponica.* One at Ward spit (eastern side of the Upper Spencer Gulf) and one at Whyalla Wetland.					
Limosa limosa / Limosa limosa melanuroides	Black-tailed Godwit	EN, MW	*R (ssp.)*	3 *(ssp. 1,2)*	2018	PMST highlights the species as known to occur within the Study Area.	**Possible** After heavy rains when ephemeral creeks are inundated, the habitat may provide	**Unlikely** Habitat not suitable for the species. There are no previous records of the	**Unlikely** Habitat not suitable for the species. There are no previous records of	**Unlikely** Habitat not suitable for the species. There are no previous records of the	**Unlikely** Habitat not suitable for the species. There are no previous records of

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						The Black-tailed Godwit occurs as three subspecies: - *L. l. melanuroides* - *L. l. limosa* - *L. l. islandica* *Limosa limosa melanuroides* is the only subspecies which migrates to Australia, primarily South Australia. They occur mainly along the metropolitan and eastern coast, and inland between central and north-eastern SA. The Black-tailed Godwit prefers muddy intertidal mudflats, as well as shallow inland	suitable inland habitat. No previous records for the SAAL LMR associate the species with this habitat, as the only two records were entered in an office in Olympic Village and do not include location information.	species in this vegetation type.	the species in this vegetation type.	species in this vegetation type.	the species in this vegetation type.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						fresh and brackish wetlands (Geering et al 2008; Menkhorst et al 2017). **Previous records:** Three records, one near Whyalla water treatment plant (EP LMR) and two appear to have been entered in an office in Olympic Dan Village and do not contain location of sighting.					
Lophochroa leadbeateri	Major Mitchell's Cockatoo / Pink Cockatoo	-	R	1,2	2023	The Major Mitchell's Cockatoo lives in arid and semi-arid woodlands dominated by Mulga (*Acacia aptaneura*), mallee and box eucalypts,	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5	**Likely** Habitat suitable for the species, particularly where Mulga is the dominant tree species. 5 records occur on and within 5 km of this habitat type	**Possible** Habitat suitable for the species, particularly where *Callitris* is dominant. There are no previous records of the	**Possible** Habitat suitable for the species, particularly where *Callitris* is dominant. There are no previous records of the species in this vegetation type

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						slender cypress pine (*Callitris gracilis*) or belah (*Casuarina cristata*) (DCCEEW 2023g). **Previous records:** 43 BDBSA and BL records within the Study Area with 1-3 individuals listed in each – 14 records clustered in Port Augusta, ~7 far-west of the Construction footprint, the remainder are scattered from Olympic Dam to north of Port Augusta along the Construction footprint. Ten records are of the subspecies *L.l.*	km of the Construction footprint.	km of the Construction footprint.	along the Construction footprint.	species in this vegetation type within 5 km of the Construction footprint.	within 5 km of the Construction footprint.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						mollis. These occur from Pimba to Port Augusta.					
Melanodryas cucullata cucullata	South-eastern Hooded Robin	EN	R	1, 3	2024	PMST highlights the species as likely to occur within the Study Area. The South-eastern Hooded Robin is a large-bodied Robin distributed from south-eastern Australia to far south-east Queensland. The Yorke Peninsula is the westernmost connected extent of their distribution, with small patches mapped as potential habitat on the Eyre Peninsula.	**Unlikely** Construction footprint is outside the known region/potential extent of this species. There are no previous records of the species in this vegetation type.	**Unlikely** Construction footprint is outside the known region/potential extent of this species. There are no previous records of the species in this vegetation type.	**Unlikely** Construction footprint is outside the known region/potential extent of this species. There are no previous records of the species in this vegetation type.	**Unlikely** Construction footprint is outside the known region/potential extent of this species. There are no previous records of the species in this vegetation type.	**Unlikely** Construction footprint is outside the known region/potential extent of this species. There are no previous records of the species in this vegetation type.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						They prefer dry Eucalypt and Acacia woodlands and shrublands with open understorey or grassy areas, and a complex ground layer (DCCEEW 2023b). They tend to avoid woodlands with tall and dense trees but may occur in surrounding dense heath. In largely agricultural areas they preferentially select larger sized patches (>50 ha) of habitat than in alternate areas. The South-eastern Hooded Robin's preferred					

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						habitat type is listed as critical to the survival of the species, as well as dead or live trees and stumps essential for nesting, roosting, and foraging. **Previous records:** One record within the Study Area, to the East of the construction footprint, Flinders Ranges area. >50 records for *M. cucullata* (but not the subspecies).					
Motacilla cinerea	Grey Wagtail	MT	-	3	-	PMST highlights that the species may occur within the Study Area. Grey Wagtail favours fast-flowing streams	**Unlikely** Outside of the known range for the species. There are no previous	**Unlikely** Outside of the known range for the species. There are no previous	**Unlikely** Outside of the known range for the species. There are no previous records of	**Unlikely** Outside of the known range for the species. There are no previous	**Unlikely** Outside of the known range for the species. There are no previous records of

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						and rivers often in forested areas, in addition to lowland watercourses (Birdlife Australia 2026). Occasionally occurs in waterfalls, fast-flowing rocky waterways of northern Australia (Kimberly, WA, NT, Wet Tropics). Known range is considered to be northern coastal Australia (Davies et al. 2022). **Previous records:** None.	records of the species in this vegetation type.	records of the species in this vegetation type.	the species in this vegetation type.	records of the species in this vegetation type.	the species in this vegetation type.
Motacilla flava	Yellow Wagtail	MT	-	3	-	PMST highlights that the species may occur within the Study Area.	**Unlikely** Outside of the known range for the species.	**Unlikely** Outside of the known range for the species.	**Unlikely** Outside of the known range for the species.	**Unlikely** Outside of the known range for the species.	**Unlikely** Outside of the known range for the species.

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						Yellow Wagtail has undergone taxonomic revision, this race is now *M. tschutschensis*. Uncommon migratory wagtail. Occurs in a variety of damp or wet habitats including marshes and bogs. Forages in damp grassland or on bare ground at the edge of rivers, lakes and other wetlands (Tyler and Christie 2020). This species has a widespread distribution around the northern coast of Australia, in spring to autumn (Menkhorst et al.	There are no previous records of the species in this vegetation type.	There are no previous records of the species in this vegetation type.	There are no previous records of the species in this vegetation type.	There are no previous records of the species in this vegetation type.	There are no previous records of the species in this vegetation type.

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						2019, ALA 2026). **Previous records:** None.					
Myiagra inquieta	Restless Flycatcher	-	R	1,2	2023	Restless Flycatcher distribution is widespread throughout Australia, excluding central and north-west WA (ALA 2026). The Restless Flycatcher is found in open forests and woodlands and is frequently seen in farmland (Birdlife Australia 2026). Estimated range of the species overlaps with the entire Construction footprint,	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.

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						however records are scarce. **Previous records:** 12 BDBSA and BL records within the Study Area; 5 of which occur in Mount Remarkable NP and EP LMR. The remainder are near Carrapateena and Port Agusta. **Field survey results:** Not observed during field surveys in the SAAL LMR (observed in EP LMR).					
Neophema chrysogaster	Orange-bellied Parrot	CR	E	3	-	PMST highlights that the species may occur within the Study Area. The Orange-bellied Parrot is	**Unlikely** Habitat not suitable for the species.	**Unlikely** Habitat not suitable for this species.	**Unlikely** Habitat not suitable for this species	**Unlikely** Habitat not suitable for the species.	**Unlikely** Habitat not suitable for the species.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						endemic to south-eastern Australia, but fewer than an estimated 50 birds remain in the wild (DELWP 2016). A small ground-feeding bird that migrates between distinct breeding and non-breeding ranges. Breeding occurs in south-west Tasmania in summer, and the birds overwinter on the coast of south-east mainland Australia (Vic and Lower SE of SA) (DELWP 2016). Non-breeding birds can occur along the lower south-east coast of SA and	With <50 individuals remaining in the wild it is highly unlikely that range expansion has pushed the population into the construction footprint. There are no previous records of the species in this vegetation type. The closest reliable record on a public database (ALA) occurs near Port Augusta, but the exact location has been withheld.	With <50 individuals remaining in the wild it is highly unlikely that range expansion has pushed the population into the construction footprint. There are no previous records of the species in this vegetation type. The closest reliable record on a public database (ALA) occurs near Port Augusta, but the exact location has been withheld.	With <50 individuals remaining in the wild it is highly unlikely that range expansion has pushed the population into the construction footprint. There are no previous records of the species in this vegetation type. The closest reliable record on a public database (ALA) occurs near Port Augusta, but the exact location has been withheld.	With <50 individuals remaining in the wild it is highly unlikely that range expansion has pushed the population into the construction footprint. There are no previous records of the species in this vegetation type. The closest reliable record on a public database (ALA) occurs near Port Augusta, but the exact location has been withheld.	With <50 individuals remaining in the wild it is highly unlikely that range expansion has pushed the population into the construction footprint. There are no previous records of the species in this vegetation type. The closest reliable record on a public database (ALA) occurs near Port Augusta, but the exact location has been withheld.

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						Victoria, with well-supported records in the last 10 years limited to between Goolwa, SA and Corner Inlet, Victoria (Birdlife Australia 2026). On the mainland, birds are usually found in locations associated with coastal saltmarshes and adjacent pastures, close to free-standing water bodies (Ehmke 2009,Ehmke and Tzaros 2009). **Previous records:** None.					
Neophema chrysostoma	Blue-winged Parrot	VU	V	1,2,3	2023	PMST highlights the species as known to occur	**Possible** Habitat potentially	**Likely** Habitat suitable for the	**Likely**	**Possible** Habitat potentially	**Possible** Habitat potentially suitable for the

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						within the Study Area. Blue-winged Parrot prefers grasslands and grassy woodlands, often near wetlands near the coast and in semi-arid zones. Species can also use modified habitats such as airfields, golf courses, and paddocks (DCCEEW 2023f). The species will also feed on saltmarsh (Davies et al. 2022). The species breeds in Tasmania and on mainland Australia south of the Great Dividing Range but can be found in large parts of	suitable not for the species. Some patches of this habitat include *Atriplex* spp. that may provide feeding opportunity. There are no previous records of the species in this vegetation type within proximity of the construction footprint.	species where chenopod occurs on tablelands, such as the Carrapateena Mine site. Chenopod shrublands, particularly with water sources nearby, can be utilised for foraging. Several records occur within proximity of the construction footprint. within this habitat type. Records are sporadic around the construction footprint, and	Habitat suitable for the species. Detected in this habitat type, however only on a song meter in the EP LMR	suitable for the species for feeding within lower strata. There are no previous records of the species in this vegetation type within proximity of the construction footprint.	species for feeding within lower strata. There are no previous records of the species in this vegetation type within proximity of the construction footprint.

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						south-eastern Australia outside the breeding season (DCCEEW 2023f). **Previous records:** 17 records within the Study Area, occurring throughout the Study Area including near Whyalla, Port Augusta, Woomera and Roxby Downs . There are clusters in the Southern Flinders Ranges and at the Carrapateena Mine site. One record was entered at an office in Olympic Village and includes no location information.		it is likely that they are moving throughout.			

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						Field survey result: Not observed during field survey in SAAL LMR. Detected on a song meter in the EP LMR.					
Neophema elegans elegans	Elegant Parrot	-	R	1,2	2024	The Elegant Parrot occurs in open country and semi-arid scrublands (Simpson and Day 2010). This parrot lives in open forests, woodlands, mallee, Mulga, salt marsh (Birds in Backyards n.d). **Previous records:** 138 BDBSA and BL records within the Study Area with 1-5 individuals listed within each –	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Possible** Habitat suitable for the species, particularly where chenopod shrubland understorey occurs near Port Augusta. <5 records occur along or within 5 km of the Construction footprint.	**Likely** Habitat suitable for the species. <5 records occur along or within 5 km of the Construction footprint, however several more occur within similar habitat in Port Augusta.	**Possible** Habitat potentially suitable for the species. There are no previous records of the species in this vegetation type within 5km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5km of the Construction footprint.

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						~130 occur within the Flinders Ranges and associated parks, largely beyond the SAAL LMR. The remaining records are scattered around the Port Augusta region. **Field survey results:** Not observed during field surveys in the SAAL LMR (observed opportunistically in a previous alignment in EP LMR at Point Lowly just south of the SAAL LMR boundary).					
Neophema petrophila zietzi	Rock Parrot	-	R	2	1998	This subspecies is exclusive to coastal areas including	**Unlikely** Construction footprint in the SAAL LMR	**Unlikely** Construction footprint in the SAAL LMR	**Unlikely** Construction footprint in the SAAL LMR occurs	**Unlikely** Construction footprint in the SAAL LMR	**Unlikely** Construction footprint in the SAAL LMR occurs

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						offshore islands of South Australia. They are well-adapted to limited freshwater and vegetation, and occur in small crevices abandoned by shorebirds (ALA 2026). **Previous records:** 1 BL record on the eastern coast of the Spencer Gulf near Winninowie.	occurs outside of the species' known range. There are no previous records of the species in this vegetation type within the Study Area.	occurs outside of the species' known range. There are no previous records of the species in this vegetation type within the Study Area.	outside of the species' known range. There are no previous records of the species in this vegetation type within the Study Area.	occurs outside of the species' known range. There are no previous records of the species in this vegetation type within the Study Area.	outside of the species' known range. There are no previous records of the species in this vegetation type within the Study Area.
Neophema splendida	Scarlet-chested Parrot	-	R	1,2	2022	Scarlet-chested Parrot distribution is widespread across southern Australia (ALA 2026). The species is found in open woodlands of	**Unlikely** Habitat not suitable for the species, except as source of water. There are no previous records of the	**Unlikely** Habitat not suitable for the species, except as source of water. There are no previous records of the	**Likely** Habitat suitable for the species. 2 records occur just south-west of Port Augusta within 5 km of the Construction footprint.	**Possible** Habitat suitable for the species. There are no previous records of the species in this vegetation	**Possible** Habitat suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction

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						eucalypts, she-oak, mulga with spinifex and saltbush (Birdlife Australia 2026). Species is very nomadic and undergoes significant boom and bust cycles in the arid zone. Despite the colourful plumage the bird is very elusive and is thought to be underrepresented. **Previous records:** 5 BDBSA and BL records within the Study Area; 3 from southernmost extent of the SAAL LMR, 2 records entered	species in this vegetation type within 5 km of the Construction footprint.	species in this vegetation type within 5 km of the Construction footprint.		type within 5 km of the Construction footprint. The species is noted to be very elusive despite colourful plumage.	footprint. The species is noted to be very elusive despite colourful plumage.

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						in offices of Olympic Village do not include location information.					
Numenius madagascariensis	Far Eastern Curlew	CR, MW	E	1,2,3	2024	PMST highlights the species as known to occur within the Study Area. Far Eastern Curlew is a migratory wader / large shorebird. Breeds in NE Asia, Siberia and is a spring migrant to Australia where it is found in all states. Within Australia, the species has a primarily coastal distribution, with very few inland records. Its preferred habitat	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.

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						is coastal lakes, inlets, bays, and estuaries where it occupies intertidal mudflats, particularly exposed seagrass beds (Menkhorst et al. 2019, Geering et al. 2008). **Previous records:** 11 records within the Study Area, all but one along the coast on the eastern side of the Upper Spencer Gulf (opposite Eyre Peninsula). One record is near Whyalla in the EP LMR.					
Numenius phaeopus variegatus	Whimbrel	-	R	1	2021	This migratory species winters on the coastline	**Unlikely** Construction footprint	**Unlikely** Construction footprint	**Unlikely** Construction footprint occurs	**Unlikely** Construction footprint	**Unlikely** Construction footprint occurs

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						of Australia (ALA 2026). **Previous records:** 1 BDBSA record on the Winninowie shoreline, on the east of the Spencer Gulf.	occurs outside of the species' known range. There are no previous records of the species in this vegetation type within the Study Area.	occurs outside of the species' known range. There are no previous records of the species in this vegetation type within the Study Area.	outside of the species' known range. There are no previous records of the species in this vegetation type within the Study Area.	occurs outside of the species' known range. There are no previous records of the species in this vegetation type within the Study Area.	outside of the species' known range. There are no previous records of the species in this vegetation type within the Study Area.
Oriolus sagittatus sagittatus	Olive-backed Oriole	-	R	1	2012	The Olive-backed Oriole occurs in coastal regions of northern and eastern Australia. Inhabits forests, woodlands and rainforests, as well as well-treed urban areas, particularly parks and golf courses (Birdlife Australia 2026). **Previous records:** 1 BDBSA record in the Study Area	**Unlikely** Construction footprint occurs outside of the species' known range. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Construction footprint occurs outside of the species' known range. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Construction footprint occurs outside of the species' known range. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Construction footprint occurs outside of the species' known range. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Construction footprint occurs outside of the species' known range. There are no previous records of the species in this vegetation type within the Study Area.

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						within the Arid Recovery Reserve – observed by Ornithologists outside the described range of the species.					
Oxyura australis	Blue-billed Duck	-	R	1,2	2018	Blue-billed Duck is endemic to Australia, found in the temperate wetlands of the south-east and south-west parts of the continent. Species is almost entirely aquatic, and non-breeding flocks congregate on large, deep open freshwater damns and lakes in Autumn. Daylight hours are spent alone in small, concealed bays within vegetation,	**Possible** Habitat suitable for species following large rain events. 3 records within 5 km of the Construction footprint occur within lakes or sewage ponds.	**Unlikely** Habitat not suitable for the species. Previous records all occur in proximity to water sources and are associated with such features, rather than any specific vegetation type.	**Unlikely** Habitat not suitable for the species. Previous records all occur in proximity to water sources and are associated with such features, rather than any specific vegetation type.	**Unlikely** Habitat not suitable for the species. Previous records all occur in proximity to water sources and are associated with such features, rather than any specific vegetation type.	**Unlikely** Habitat not suitable for the species. Previous records all occur in proximity to water sources and are associated with such features, rather than any specific vegetation type.

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						or communally in large, exposed rafts far from the shore. Species is seasonally nomadic (Birdlife Australia 2026). **Previous records:** 9 BDBSA and BL records within the Study Area, 3 within 5 km of Construction footprint within water sources, 4 within EP and Mount Remarkable NP, 1 on Lake Torrens.					
Pachycephala inornata	Gilbert's Whistler	-	R	1,2	2023	Gilbert's Whistler is sparsely distributed over much of arid and semi-arid zone of inland SA. Preferred habitats include a	**Unlikely** Habitat not likely to support the species given its distribution.	**Unlikely** Habitat not likely to support the species given its distribution.	**Possible** Habitat is suitable for the species and occurs along the Construction footprint.	**Unlikely** Habitat along Construction footprint occurs north of the species' known extent.	**Unlikely** Habitat along Construction footprint occurs north of the species' known extent.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						dense shrub layer, and it has been widely recorded in mallee shrublands, but also box-ironbark, Cypress Pine and Belah, and River Red Gum forests along the Murray, Edwards and Wakool Rivers (OEH 2017a). **Previous records:** 20 BDBSA and BL records within the Study Are. Four are within the Flinders Ranges, 4 are within Whyalla (EP LMR), and 1 is along the Construction footprint north of	Construction footprint is >30 km from nearest record of the species.	Construction footprint is >30 km from nearest record of the species.	No records occur within 5 km of the Construction footprint.	There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Port Augusta. The remaining records are west of Whyalla. **Field survey results:** Not observed during field surveys in SAAL LMR (observed opportunistically in EP LMR).					
Pandion haliaetus / Pandion haliaetus cristatus	Osprey	MW	E (ssp.)	3 (ssp. 1,2)	2022 (for the ssp)	PMST highlights the species as known to occur within the Study Area. Subspecies *P.h. cristatus* is listed under the NPW Act. The Osprey is a large-bodied raptor which feeds primarily on both freshwater and marine fish. It has	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						a worldwide distribution, occurring on every continent except Antarctica, and inhabit coastal areas. Ospreys from lower latitudes are largely solitary, while northern individuals are known to migrate long distances. Breeding Ospreys tend to return to their natal area to breed and exhibit philopatry. The Eastern Osprey generally occurs on or near the coast, but also range inland along large rivers, bays, estuaries, along tidal stretches of					

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						large coastal rivers, mangrove swamps, terrestrial wetlands and coastal lands of tropical and temperate Australia and offshore islands. Nests in trees (often dead or with dead tops), rocky coastlines and on artificial structures such as telecommunication towers. The subspecies is widely distributed along the Australian coastline (ALA 2026). **Previous records:** Five for *Pandion haliaetus cristatus* (2005-2022): all on the					

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						coastline of the Upper Spencer Gulf between Munyaroo and Port Augusta. Some records are in the EP LMR.					
Petroica boodang boodang	Scarlet Robin	-	R	1,2	2025	The Scarlet Robin occurs within Eucalypt woodlands and forests. It requires adequate leaf litter as well as fallen logs (ALA 2026). **Previous records:** 50 BDBSA and BL records – one is south of Whyalla in the EP LMR, and the remainder are far-east of the Construction footprint in the	**Unlikely** Construction footprint occurs outside of the species' known range. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Construction footprint occurs outside of the species' known range. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Construction footprint occurs outside of the species' known range. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Construction footprint occurs outside of the species' known range. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Construction footprint occurs outside of the species' known range. There are no previous records of the species in this vegetation type within the Study Area.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Flinders Ranges – Port Pirie.					
Phaps histrionica	Flock Bronzewing	-	R	1	2013	The Flock Bronzewing is mostly found in arid and semi-arid inland Northern Australia (eBird 2024). Has been observed in a variety of vegetation types including grassy plains, saltbush, spinifex and open Mulga, with preferred habitat of tussock grassland, in particular Mitchell grassland (OEH 2017b). **Previous records:** 23 BDBSA records in the Study Area with	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Possible** Habitat is suitable for the species where chenopod shrubby understorey exists in depressions. <5 records occur within 5 km of the Construction footprint at the northern end.	**Possible** Habitat is suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Possible** Habitat is suitable for the species. <5 records occur within 5 km of the Construction footprint at the northern end.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						1-200 individuals listed in each.					
Philomachus pugnax	Ruff (Reeve)	MW	R	3	-	PMST highlights the species as known to occur within the Study Area. Listed in PMST output and under NPW Act as *Calidris pugnax*. Listed as migratory as *P. pugnax* Ruff, a migratory shorebird that occurs in a variety of open moist habitats, grasslands and agricultural lands but freshwater wetland habitats are preferred in Australia (Menkhorst et al. 2019). Known range includes	**Unlikely** Outside of the known range of the species. There are no previous records of the species in this vegetation type.	**Unlikely** Outside of the known range of the species. There are no previous records of the species in this vegetation type.	**Unlikely** Outside of the known range of the species. There are no previous records of the species in this vegetation type.	**Unlikely** Outside of the known range of the species. There are no previous records of the species in this vegetation type.	**Unlikely** Outside of the known range of the species. There are no previous records of the species in this vegetation type.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						eastern NSW through Victoria, lower south-east SA to Yorke Peninsula, excludes EP and inland SA (Davies et al. 2022). **Previous records:** None.					
Plectorhyncha lanceolata	Striped Honeyeater	-	R	2	2012	The Striped Honeyeater occupies dry, open forests including mallee and mulga within its inland distribution. Port Augusta comprises the westernmost extent of the species' range (ALA 2026). **Previous records:** 2 BL records	**Unlikely** Construction footprint largely occurs outside of the species' known range. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Construction footprint largely occurs outside of the species' known range. There are no previous records of the species in this vegetation type within the Study Area	**Unlikely** Construction footprint largely occurs outside of the species' known range. There are no previous records of the species in this vegetation type within the Study Area	**Unlikely** Construction footprint largely occurs outside of the species' known range. There are no previous records of the species in this vegetation type within the Study Area	**Unlikely** Construction footprint largely occurs outside of the species' known range. There are no previous records of the species in this vegetation type within the Study Area

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						within Port Augusta.					
Plegadis falcinellus	Glossy Ibis	M (M)	R	1, 2	2017	The Glossy Ibis prefers fresh water sources such as lakes, reservoirs, swamps, and irrigated areas for feeding and breeding, but occasionally visits coastal waters including estuaries and saltmarshes to breed. During droughts they are more frequent in coastal areas and permanent wetlands. Breeding occurs near water sources in trees and shrubs and occurs from mid-spring to the end of summer	**Unlikely** Creeks and drainage lines unlikely to provide freshwater habitat suitable for the species. Species is elusive with no previous records within 5 km of the construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the construction footprint.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						(Marchant & Higgins 1990). **Previous records:** 3 BDBSA and BL records – within Whyalla (EP LMR), Olympic Dam, and Andamooka.					
Pluvialis squatarola	Grey Plover	VU	-	1,2	2019	PMST did not highlight this species as potentially occurring in the Study Area. *Pluvialis squatarola* was listed under the EPBC Act on 5 January 2024. Grey Plover is a migratory shorebird that does not breed in Australia, but visits Australia	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area. The construction footprint in SAAL LMR	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						during summer, being recorded through all states, but primarily found along the west and south coasts. The largest populations are found between the Coorong and western beaches of the Eyre Peninsula in South Australia, and along the coast of Western Australia between Albany and the northern Kimberley (DCCEEW 2024c). Grey Plovers usually roost in sandy areas such as on unvegetated sandbanks or				does not occur near the coast.	

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						sand-spits along sheltered beaches, or around other sheltered environments such as estuaries or lagoons. Also often seen in small numbers on mangrove mudflats. Artificial wetlands such as dams, saltworks, ports and wastewater sites often provide alternative coastal habitat. Less often occur along the muddy edges of estuaries or water storage sites such as reservoirs, or claypans located 2 km inland from					

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						the sea (DCCEEW 2024c). **Previous records:** Subspecies P. s squatarola: five records, all are coastal and all but one are south of the SAAL LMR, including on the eastern side of the Gulf and as far south as Munyaroo CP. There is a single record near Port Augusta on the eastern side of the gulf.					
Podiceps cristatus australis	Great Crested Grebe	-	R	1	2019	The Great Crested Grebe occurs in freshwater lakes with emergent aquatic and marginal vegetation when breeding. Also	**Possible** Habitat potentially suitable for species. One previous records associates the	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						occurs on fresh or saline waters including lakes, lagoons, reservoirs, estuaries, and open water of bays (Simpson and Day 2010). **Previous records:** 6 BDBSA and BL records – sporadically recorded from Olympic Dam to Port Augusta near water sources.	species with this habitat type along the Construction footprint.	type within 5 km of the Construction footprint.	Construction footprint.	type within 5 km of the Construction footprint.	Construction footprint.
Polytelis alexandrae	Princess Parrot, Alexandra's Parrot	VU	V	3	-	PMST highlights that the species may occur within the Study Area. The Princess Parrot occurs in arid regions of Western Australia,	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this	**Unlikely** Habitat suitable for the species, but outside the usual range of the species (further west).	**Unlikely** Habitat suitable for the species, but outside the usual range of the species (further west).	**Unlikely** Habitat suitable for the species, but outside the usual range of the species (further west).

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Northern Territory and SA. At least part of the population appears to be highly dispersive, and many records are ephemeral. Typically found in shrublands and savannah woodlands amongst sand dunes, usually consisting of spinifex and shrubs, such as Wattle, Cassia (*Cassia* spp.), Emu Bush (*Eremophila* spp.), Spider Flower (*Grevillea* spp.), Pincushion (*Hakea* spp.), Senna (*Senna* spp.), with scattered emergent trees	vegetation type.	vegetation type.	Several records on ALA in 2023 describe one or more escapee Princess Parrots from the northernmost Adelaide Metropolitan – Whyalla regions. All records are considered reliable due to credible identifiers and/or images supplied and verified. There are no previous records of the species in this vegetation type.	Several records on ALA in 2023 describe one or more escapee Princess Parrots from the northernmost Adelaide Metropolitan – Whyalla regions. All records are considered reliable due to credible identifiers and/or images supplied and verified. There are no previous records of the species in this vegetation type.	Several records on ALA in 2023 describe one or more escapee Princess Parrots from the northernmost Adelaide Metropolitan – Whyalla regions. All records are considered reliable due to credible identifiers and/or images supplied and verified. There are no previous records of the species in this vegetation type.

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						including Eucalypt and Sheoak (*Allocasuarina* spp.). The species also occurs and breeds in vegetated riverine and littoral areas (TSSC 2018). Nests have been recorded in hollows of River Red-gum (*Eucalyptus camaldulensis*), Marble Gum (*E. gongylocarpa*) and Desert Oak (*Allocasuarina decaisneana*) (TSSC 2018). **Previous records:** None.					
Rostratula australis	Australian Painted Snipe	EN	E	3	-	PMST highlights the species as likely to occur	**Unlikely**	**Unlikely**	**Unlikely**	**Unlikely**	**Unlikely**

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						within the Study Area. Australian Painted Snipe, an elusive bird that occurs in freshwater wetland habitats with dense reeds and rushes/ well vegetated margins (Simpson and Day 2010, Menkhorst et al. 2019). Has a widespread distribution across eastern and northern Australia (ALA 2026). Conservation advice lists below Whyalla as a likely region for the species to occur (DSEWPaC 2013d).	Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	Habitat not suitable for the species. There are no previous records of the species in this vegetation type.

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						Previous records: None.					
Stagonopleura guttata	Diamond Firetail	VU	V	1,2,3	2024	PMST highlights the species as known to occur within the Study Area. Diamond Firetail occurs in grassy eucalypt woodlands, open forest, mallee, Natural Temperate Grassland, and in secondary grassland derived from other communities. Often found in riparian areas (rivers and creeks), and sometimes in lightly wooded farmland (DCCEEW 2023d). Known	**Unlikely** Outside of the known range for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Outside of the known range for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Outside of the known range for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Outside of the known range for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Outside of the known range for the species. There are no previous records of the species in this vegetation type.

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						range of the species extends to the Flinders Ranges to the west, with a small population mapped from Port Lincoln to Whyalla . **Previous records:** 82 records within the Study Area with 1-5 individuals listed in each. All records occur within National Parks east of the Construction footprint, not on Eyre Peninsula.					
Spatula rhychotis	Australasian Shoveler	-	R	1,2	2024	Australian Shovelers utilise a variety of fresh and saltwater wetlands but prefer large and permanent lakes	**Possible** Habitat potentially suitable for species. <5 records associate the	**Unlikely** Habitat not suitable for the species. There are no previous records of the	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this	**Unlikely** Habitat not suitable for the species. There are no previous records of the	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						or swamps which are densely vegetated (ALA 2026; Morecombe 2021). **Previous records:** 35 BDBSA and BL records, 4 of which occur outside of the SAAL LMR. The remainder are scattered throughout water sources from Port Augusta to Olympic Dam.	species with this habitat type along the Construction footprint.	species in this vegetation type within 5 km of the Construction footprint.	vegetation type within 5 km of the Construction footprint.	species in this vegetation type within 5 km of the Construction footprint.	vegetation type within 5 km of the Construction footprint.
Sternula nereis nereis	Australian Fairy Tern	VU	E	1,2,3	2024	PMST highlights the species as known to occur within the Study Area. Australian Fairy Tern occurs along coasts and estuaries, and	**Unlikely** Outside of the known range for the species. There are no previous records of the species in this	**Unlikely** Outside of the known range for the species. There are no previous records of the species in this	**Unlikely** Outside of the known range for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Outside of the known range for the species. There are no previous records of the species in this	**Unlikely** Outside of the known range for the species. There are no previous records of the species in this vegetation type.

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						breeds on sandy beaches or pits (Simpson and Day 2003). Along the coast, this sub-species generally nests on sandy beaches and banks above the high tide line and below vegetation. Will roost on jetty structures. The sub-species' distribution extends along the coasts of SA, Tasmania, and central Western Australia (ALA 2026). **Previous records:** 10 records within the Study Area. All records occur along the coast of the Upper Spencer Gulf and	vegetation type.	vegetation type.		vegetation type.	

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						all but one are either in the EP LMR or on the eastern side of the gulf. There is one record on the coast near Port Augusta.					
Stictonetta naevosa	Freckled Duck	-	V	1,2	2023	The Freckled Duck inhabits permanent freshwater swamps and creeks with heavy growth of swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. In drier times species move from ephemeral breeding swamps to more permanent waters such as lakes, reservoirs	**Possible** Habitat potentially suitable for species. <5 records associate the species with this habitat type along the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						farm dams and sewage ponds (Australian Museum 2024e). **Previous records:** 29 BDBSA and BL records, 4 of which occur outside of the SAAL LMR.					
Thalasseus bergii	Greater Crested Tern	MW	-	3 (ssp. 1,2)	2021	PMST highlights the species as known to breed in the Study Area. All Australian Greater Crested Terns belong to the subspecies *Thalasseus bergii cristatus* and are paler in colour. The Greater Crested Tern is a slender tern with a black, shaggy	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						crest and yellow bill. The subspecies occurs along coasts of the eastern Indian Ocean and western Pacific Ocean. Within Australia the highest concentration of the birds is along the coast of South Australia and Victoria. They feed predominantly on fish but will also consume squid, crabs, and other aquatic prey. They are very rarely found on tidal creeks or inland waters. **Previous records:** >150 records (all the ssp.					

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						cristatus), all but one situated along the coast of the Upper Spencer Gulf from Whyalla to Port Augusta and on the eastern side of the gulf. There is one record inland adjacent the Construction footprint from 1995.					
Thinornis cucullatus cucullatus	Hooded Plover (Eastern)	VU	V	3	-	PMST highlights the species as known to occur within the Study Area. Hooded Plover, a resident shorebird, mainly occurs on wide beaches backed by dunes, in creeks or inlet entrances	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.

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						(Menkhorst et al. 2019). The sub-species is known to occur on many SA beaches, including some with human activity presence. **Previous records:** None. **Field survey result:** Not observed during field surveys in SAAL LMR (observed incidentally in EP LMR but not within proximity to the construction footprint (south near Cape Hardy)).					
Tringa brevipes	Grey-tailed Tattler	MW	R	3	-	PMST highlights the species as known to occur	**Unlikely** Habitat not likely suitable	**Unlikely** Habitat not likely suitable	**Unlikely** Habitat not likely suitable for the	**Unlikely** Habitat not likely suitable	**Unlikely** Habitat not likely suitable for the

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						within the Study Area. Grey-tailed Tattler breed in Siberia. When in Australia the species occurs in coastal areas on larger tidal flats and rocky shorelines, reef platforms (Menkhorst et al. 2019). Will perch on branches of mangroves, artificial structures such as piers and breakwaters (Geering et al. 2008). Core range includes coastal areas of northern Australia, occasional range includes coastal SA, but not	for the species, which does not venture inland. There are no previous records of the species in this vegetation type.	for the species, which does not venture inland. There are no previous records of the species in this vegetation type.	species, which does not venture inland. There are no previous records of the species in this vegetation type.	for the species, which does not venture inland. There are no previous records of the species in this vegetation type.	species, which does not venture inland. There are no previous records of the species in this vegetation type.

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						inland areas (Geering et al. 2008, Menkhorst et al. 2019, Davies et al 2022). **Previous records:** None.					
Tringa glareola	Wood Sandpiper	-	R	1,2	2024	The Wood Sandpiper prefers a well-vegetated, shallow, freshwater wetland, such as swamps, billabongs, lakes, pools and waterholes (Australian Museum 2022). Unlike other migratory shorebirds, the species does not occupy coastal mudflats within	**Possible** Habitat potentially suitable for species. <5 records associate the species with this habitat type along the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Possible** Habitat potentially suitable for species. <5 records associate the species with this habitat type along the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.

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						Australia (Birdlife Australia 2026). **Previous records:** 13 BDBSA and BL records in the Study Area, 2 of which occur in the EP LMR. One record is situated within the Construction footprint at Lake Dutton.					
Tringa nebularia	Common Greenshank, Greenshank	EN, MW	-	1,2,3	2024	PMST highlights the species as known within the Study Area. Common Greenshank, a migratory shorebird, occurs in intertidal mudflats, fresh and saltwater wetlands along the coast or inland (Geering	**Possible** Habitat potentially suitable for the species when conditions are favourable. There are no previous records of the species in this vegetation type within	**Possible** Habitat may become suitable for the species when depressions and samphire regions are inundated. There are no previous records of the species in this	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						et al. 2008). Also occupies artificial habitats. Has a widespread distribution throughout Australia, in summer (Geering et al. 2008, ALA 2026). In Australia from Aug (northern areas) to Oct / Nov (Menkhorst 2019); does not breed in Australia. **Previous records:** 70 BDBSA and BL records within the Study Area with 1-9 individuals listed in each. Most occur along the coast of the Upper Spencer Gulf (eastern and western side).	proximity to the construction footprint. There are records around lakes.	vegetation type within proximity to the construction footprint. There are records around lakes.			

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						Several inland records scattered near the Construction footprint between Lake Dutton and the northern extent of the Construction footprint.					
Tringa stagnatilis	Marsh Sandpiper, Little Greenshank	MW	-	1,2,3	2014	PMST highlights the species as known to occur within the Study Area. Marsh Sandpiper, a migratory shorebird, breeds in Northern Hemisphere, arrives in Australia Sep / Nov (Menkhorst et al. 2019). Prefer shallow fresh or brackish inland wetlands,	**Possible** Habitat suitable for the species. There are no previous records of the species in this vegetation type within proximity of the construction footprint, though it has been recorded 12 km east of	**Unlikely** Habitat not likely suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not likely suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not likely suitable for the species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not likely suitable for the species. There are no previous records of the species in this vegetation type.

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						rivers, water meadows, sewage farms, drains, lagoons and swamps. Also on tidal flats when arrives (Menkhorst et al. 2019). Range includes eastern and northern half of Australia (Menkhorst et al. 2019, Davies et al. 2022). **Previous records:** 10 records, some with 1-10 individuals listed in each. Includes at Lake Arcoona.	the construction footprint at Arcoona Lake. Within these records were 12 listed individuals.				
Turnix varius varius	Painted Buttonquail	-	R	1,2	2024	The Painted Buttonquail occupies temperate forests and woodlands with preference for closed	**Unlikely** Construction footprint occurs outside of the subspecies' known range.	**Unlikely** Construction footprint occurs outside of the subspecies' known range.	**Unlikely** Construction footprint occurs outside of the subspecies' known range.	**Unlikely** Construction footprint occurs outside of the subspecies' known range.	**Unlikely** Construction footprint occurs outside of the subspecies' known range.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						canopies (Birdlife Australia 2026). **Previous records:** 13 BDBSA and BL records, only three of which occur within the SAAL LMR, and are situated within the Flinders Ranges >35km east of the Construction footprint.	There are no previous records of the species in this vegetation type within the Study Area	There are no previous records of the species in this vegetation type within the Study Area	There are no previous records of the species in this vegetation type within the Study Area	There are no previous records of the species in this vegetation type within the Study Area	There are no previous records of the species in this vegetation type within the Study Area
Zapornia tabuensis	Spotless Crake	-	R	1,2	2019	Usually dense vegetation in, or at margins of freshwater or saline wetlands, either permanent or ephemeral. Occurs in marshes, swamps, salt-marsh and peat bogs; also at margins of rivers, streams, tidal creeks, ponds	**Possible** Habitat potentially suitable for species. There are no previous records of the species in this vegetation type within 5 km of the	**Possible** Habitat potentially suitable for species. There are no previous records of the species in this vegetation type within 5 km of the	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.

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						and lakes. May prefer wetlands with shallow, slow-flowing water; overstorey of willows or tall reedbed vegetation such as *Typha orientalis*, may be important requirement of breeding habitat in New Zealand. Frequently inhabits artificial wetlands such as salt-works, sewage farms, rice paddies, taro ponds, irrigation channels, farmland, golf courses, lawns and gardens (Birds of the World 2020b).	Construction footprint.	Construction footprint.			

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						Previous records: 8 BDBSA and BL records, 3 of which occur within the EP LMR. The remainder are in Olympic Dam and Port Augusta.					
Ardenna grisea	Sooty Shearwater	MM, VU		3	-	PMST highlights the species may occur – Sooty Shearwater, Southern Royal Albatross, Southern Giant-Petrel, Sooty Albatross, Campbell Albatross. PMST highlights the species is likely to occur – Antipodean Albatross, Wandering	**Unlikely** Habitat not suitable for species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for species. There are no previous records of the species in this vegetation type.	**Unlikely** Habitat not suitable for species. There are no previous records of the species in this vegetation type.
Diomedea antipodensis	Antipodean Albatross	MM, VU									
Diomedea epomophora	Southern Royal Albatross	MM, VU									
Diomedea exulans	Wandering Albatross	MM, VU									
Macronectes giganteus	Southern Giant-Petrel	MM, EN									
Macronectes halli	Northern Giant Petrel	MM, VU									

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Pachyptila turtur subantarctica	Fairy Prion (southern)	VU				Albatross, Northern Giant Petrel, Fairy Prion, Indian Yellow-nosed Albatross, Shy Albatross, Black-browed Albatross, Flesh-footed Shearwater. PMST highlights the species is known to occur – White-capped Albatross. All of these bird species are pelagic species, preferring deep sea habitats. **Previous records:** None, for any of the species.					
Phoebetria fusca	Sooty Albatross	MM, VU									
Thalassarche carteri	Indian Yellow-nosed Albatross	MM, VU									
Thalassarche cauta	Shy Albatross	MM, EN									
Thalassarche impavida	Campbell Albatross	MM, VU									
Thalassarche melanophris	Black-browed Albatross	MM, VU									

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Thalassarche steadi	White-capped Albatross	MM, VU									
Ardenna carneipes	Flesh-footed Shearwater	MM									
MAMMALIA											
Bettongia lesueur	Burrowing Bettong	VU	E	1,3	2024	PMST highlighted the Burrowing Bettong, Greater Stick-nest Rat, and Western Barred Bandicoot as known to occur within the Study Area. The Western Quoll and Greater Bilby were highlighted as known to occur	**Unlikely** Fauna in the Arid Recovery Program are situated within fenced predator exclusion areas which are regularly monitored. Escapee animals are unlikely.	**Unlikely** Fauna in the Arid Recovery Program are situated within fenced predator exclusion areas which are regularly monitored. Escapee animals are unlikely.	**Unlikely** Fauna in the Arid Recovery Program are situated within fenced predator exclusion areas which are regularly monitored. Escapee animals are unlikely.	**Unlikely** Fauna in the Arid Recovery Program are situated within fenced predator exclusion areas which are regularly monitored. Escapee animals are unlikely.	**Unlikely** Fauna in the Arid Recovery Program are situated within fenced predator exclusion areas which are regularly monitored. Escapee animals are unlikely.
Dasyuroides byrnei	Kowari	EN	E	1	2023						
Dasyurus geoffroii	Western Quoll	VU	E	1,3	2024						
Leporillus conditor	Greater Stick-nest Rat	VU	V	1,3	2019						
Macrotis lagotis	Greater Bilby (Bilby)	VU	V	1,3	2024						
Myrmecobius fasciatus	Numbat	EN	E	1	2006						

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Perameles bougainville	Western Barred Bandicoot	EN	E	1,3	2024	within the Study Area. These species are known to occur in a fenced translocated population as part of the Arid Recovery Program (ARP) associated with the Olympic Dam Project. Arid Recovery is a program that has a fenced area of land 8 km north of the Olympic Dam mine site (8,600 ha of land). The area protects native flora and fauna from invasive species and other threats and is managed by BHPB, SA Government and					

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						University of Adelaide and Bush Heritage Australia. Fauna have been reintroduced or have self-established within the ARP. There are >3,000 records for these species within the ARP.					
Notomys fuscus	Dusky Hopping-mouse, Wilkiniti	VU	V	3	-	PMST highlights this species as likely to occur within the Study Area. Dusky Hopping-mouse is patchily distributed across arid areas of south-west Queensland, north-east SA, and western NSW (ALA 2026). Inhabits soft	**Possible** Outside of the known range for the species, however if conditions have been favourable the population may have expanded to the south. There are no previous	**Unlikely** Construction footprint is outside of the known range for the species and habitat is unlikely to be suitable. There are no previous records of the species in this	**Unlikely** Construction footprint is outside of the known range for the species and habitat is unlikely to be suitable. There are no previous records of the species in this vegetation type.	**Possible** Construction footprint is outside of the known range for the species, however if conditions have been favourable the population may have expanded to the south. This vegetation	**Possible** Construction footprint is outside of the known range for the species, however if conditions have been favourable the population may have expanded to the south. This vegetation type has been associated with the

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						sandy habitats. They prefer dunes vegetated with Sandhill Cane-grass (*Zygochloa paradoxa)*, Umbrella Bush (*Acacia ligulate*), Nitre-bush (*Nitraria billardierei*), Narrow-leaved Hop-bush *(Dodonaea viscosa*) and other annual and ephemeral plants. They are usually found on gibber plains with low Chenopod shrubs and often claypans (DCCEEW 2008). **Previous records:** None. **Field survey result:** Not	records of the species in this vegetation type.	vegetation type.		type has been associated with the species in the Conservation Advice (DCCEEW 2008). There are no previous records of the species in this vegetation type.	species in the Conservation Advice (DCCEEW 2008). There are no previous records of the species in this vegetation type.

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						observed during field surveys. Detailed habitat assessment / mapping undertaken, no targeted (trapping) survey.					
Petrogale xanthopus xanthopus	Yellow-footed Rock-wallaby	VU	V	1,3	2024	PMST highlights the species as known to occur within the Study Area. Yellow-footed Rock-wallaby prefers low hills with isolated steep rocky outcrops and scree slopes, which can be surrounded by Mulga (*Acacia* spp.) dominant vegetation for foraging, and a permanent water supply within 5	**Unlikely** Outside of the known range for the species. The closest record to the construction footprint is 30 km east in Mount Brown CP.	**Unlikely** Outside of the known range for the species. The closest record to the construction footprint is 30 km east in Mount Brown CP.	**Unlikely** Outside of the known range for the species. The closest record to the construction footprint is 30 km east in Mount Brown CP.	**Unlikely** Outside of the known range for the species. The closest record to the construction footprint is 30 km east in Mount Brown CP.	**Unlikely** Outside of the known range for the species. The closest record to the construction footprint is 30 km east in Mount Brown CP.

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						km (DEWHA 2008a). The species' distribution comprises discrete colonies in the Gawler Ranges, Flinders Ranges and Olary Hills (Olary Spur) of SA and in NSW (DEWHA 2008a). **Previous records:** >1,000, with 1-10 individuals listed in each. All records are within Flinders Ranges in the Dutchman's Stern and Mount Remarkable NPs, not on the Eyre Peninsula.					

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Pseudomys australis	Plains Mouse	VU	V	1,3	2024	PMST highlights the species as known to occur within the Study Area. The Plains Mouse occurs in gibber plains and mid slopes with boulders, small stones and gilgais with deep cracking clays. Gilgais and watercourses within these areas are considered to provided critical refuge during dry periods (ALA 2026). The species has a limited distribution to the gibber plains of the Lake Eyre Basin, SA (Moseby 2012,	**Unlikely** Habitat unlikely to support the species. There are no previous records of the species in this vegetation type within proximity of the construction footprint.	**Likely** Rocky tableland habitat suitable for the species. Depressions within this habitat are critical for the species as they catch water after rain events. Several records associate the species with this habitat, particularly surrounding the Carrapateena Mine site west of Lake Torrens NP. This population is	**Unlikely** Habitat unlikely to support the species. There are no previous records of the species in this vegetation type within proximity of the construction footprint.	**Unlikely** Habitat unlikely to support the species. There are no previous records of the species in this vegetation type within proximity of the construction footprint.	**Possible** Cracking clays within swales likely to support the species. There are no previous records of the species in this vegetation type within proximity of the construction footprint.

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						ALA 2026). It is an irruptive species (responds to rainfall / good conditions), not always present. Is known (previous records) to occupy areas of tableland through the northern portion of the Study Area. **Previous records:** 720 (1994-2024) records in the Study Area, many north of the construction footprint within the Arid Recovery Reserve Construction footprint. Other records occur around the Carrapateena		known and is described on the Recovery Plan for the species.			

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Mine site (15 records with 1-6 individuals listed in each). There are also several records in the vicinity of Woomera and island Lagoon. **Field survey result:** Not observed during field surveys. Detailed habitat assessment / mapping undertaken within Project Area but no targeted (trapping) survey.					
Pteropus poliocephalus	Grey-headed Flying Fox	VU	R	1	2024	PMST does not highlight this species as potentially occurring in the Study Area.	**Likely** Where there are large trees, habitat could provide foraging or roosting	**Unlikely** Habitat is unlikely to be suitable for this species.	**Likely** Habitat could provide roosting and foraging habitat for this species.	**Unlikely** Habitat is unlikely to be suitable for this species.	**Unlikely** Habitat is unlikely to be suitable for this species.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						The Grey-headed Flying Fox is usually found on the coastal lowlands and slopes of Eastern Australia below altitudes of 200 m. Has been recorded in urban areas, forests, and woodlands. A nationally important roosting camp is present at Botanic Park in Adelaide, with new camps also recently reported at Port Augusta and near Mount Gambier. The species is known to travel up to 40 km to feed on fruits such as figs, blossoms of myrtaceous species such as	opportunities for this species. Particularly in proximity to the known camp at Port Augusta.		Particularly in proximity to the known camp at Port Augusta.		

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Eucalypt, Bloodwood (*Corymbia* spp.) and Smooth-barked Apple (*Angophora* spp.), Paperbark (*Melaleuca* spp.), Banksia (*Banksia* spp.) (ALA 2026). **Previous records:** 26 records (2018-2024), clustered around the townships of Whyalla and Port Augusta including one in the Port Augusta Arid Lands Botanic Gardens. There is also a records near Mount Remarkable NP. **Field survey result:** Not					

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						observed during field survey.					
Sminthopsis psammophila	Sandhill Dunnart	EN	V	3	-	PMST highlights the species as likely to occur within the Study Area. Sandhill Dunnart occurs in Spinifex Hummock (*Triodia* sp,) grasslands between 8 to 20 years post fire (Churchill 2001). Commonly found within mallee or Marble Gum (*Eucalyptus gongylocarpa*), often with Turpentine Pine (*Callitris verrucosa*) and an associated complex shrub understorey (ALA	**Unlikely** Within the SAAL LMR, the construction footprint is outside of the known range of the species. There are no previous records of the species in this vegetation type.	**Unlikely** Within the SAAL LMR, the construction footprint is outside of the known range of the species. There are no previous records of the species in this vegetation type.	**Unlikely** Within the SAAL LMR, the construction footprint is outside of the known range of the species. There are no previous records of the species in this vegetation type.	**Unlikely** Within the SAAL LMR, the construction footprint is outside of the known range of the species. There are no previous records of the species in this vegetation type.	**Unlikely** Within the SAAL LMR, the construction footprint is outside of the known range of the species. There are no previous records of the species in this vegetation type.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						2026). Has been recorded throughout areas nearby Ironstone Hill CP, west and north Middleback Ranges (DEW 2019), which falls on the eastern extent of the species' range (ALA 2026). Distribution is restricted predominantly to the Great Victoria Desert and EP (Churchill 2001). Nocturnal nature of the species limits records. **Previous records:** No records. F**ield survey result:** Not observed during					

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						field surveys. Detailed habitat assessment / mapping not undertaken. No targeted (trapping) survey undertaken.					
Trichosurus vulpecula	Common Brushtail Possum	-	R	1	2024	The Common Brushtail Possum is found in Eucalyptus and Sheoak woodlands. Nests are made in tree hollows or other confined spaces such as hollow logs, dense vegetation or crevices. Species has adapted to urban areas and is known to feed on planted gardens and can nest in roof spaces (NRM n.d). Species is	**Unlikely** Habitat not likely suitable for the species. Previous records are confined to Mount Remarkable NP, east of Port Augusta.	**Unlikely** Habitat not likely suitable for the species. Previous records are confined to Mount Remarkable NP, east of Port Augusta.	**Unlikely** Habitat would be suitable for the species, however due to fragmentation they are unlikely to be able to travel from their known range of Mount Remarkable, to the Construction footprint. Previous records are confined to Mount Remarkable NP, east of Port Augusta.	**Unlikely** Habitat not likely suitable for the species. Previous records are confined to Mount Remarkable NP, east of Port Augusta.	**Unlikely** Habitat would be suitable for the species, however due to fragmentation they are unlikely to be able to travel from their known range of Mount Remarkable, to the Construction footprint. Previous records are confined to Mount Remarkable NP, east of Port Augusta.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						now considered rare in South Australia due to extreme fragmentation of habitat and populations. **Previous records:** 3 BDBSA records within the Study Area in Mount Remarkable NP.					
REPTILIA											
Aprasia pseudopulchella	Flinders Ranges Worm-lizard	VU	-	1,3	2017	PMST highlights the species as known to occur within the Study Area. The Flinders Ranges Worm-lizard is a very small, worm-like, burrowing lizard with no obvious external ear opening (Cogger	**Unlikely** Outside of the known range for the species. The nearest record also sits beyond the species' range and is 13.3 km east of the Construction footprint.	**Unlikely** Outside of the known range for the species. The nearest record also sits beyond the species' range and is 13.3 km east of the Construction footprint.	**Unlikely** Outside of the known range for the species. The nearest record also sits beyond the species' range and is 13.3 km east of the Construction footprint. Within the described range, the nearest	**Unlikely** Outside of the known range for the species. The nearest record also sits beyond the species' range and is 13.3 km east of the Construction footprint.	**Unlikely** Outside of the known range for the species. The nearest record also sits beyond the species' range and is 13.3 km east of the Construction footprint. Within the described range, the nearest

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						2000). It burrows freely in loose sand and soil, under rocks and litter. Occurs in open woodland, native tussock grassland, riparian habitats, and rocky isolates. Prefers stony soils, or clay soils with a stony surface, and has been found sheltering beneath stones and rotting stumps. This species has a highly restricted distribution to the Mount Lofty Ranges, Mid North and Flinders Ranges in South Australia (ALA 2026). Known from Flinders Ranges	Within the described range, the nearest record is 30.1 km east of the construction footprint.	Within the described range, the nearest record is 30.1 km east of the construction footprint.	record is 30.1 km east of the construction footprint	Within the described range, the nearest record is 30.1 km east of the construction footprint	record is 30.1 km east of the construction footprint

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						of SA, extending south to the western slopes and northern and central Mount Lofty Ranges (Cogger 2000). Also found in northern suburbs of Adelaide and Mount Remarkable NP. Is known to occur within the Adelaide and Mount Lofty Ranges and the South Australian Arid Lands Natural Resource Management Region (ALA 2026). **Previous records:** Seven, in Mount Remarkable NP, Mount Brown CP.					

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
Morelia spilota	Carpet Python	-	R	1	2019	Carpet Python distribution is widespread across southern, eastern and northern Australia. Inhabits forest and areas near water, as well as urban areas, in a diverse range of habitat types (ALA 2026). **Previous records:** 3 BDBSA records in the Study Area, all within Mount Remarkable NP.	**Unlikely** Construction footprint is outside the known range of the species. All records of the species are situated in Mount Remarkable NP on the eastern side of the Upper Spencer Gulf.	**Unlikely** Construction footprint is outside the known range of the species. All records of the species are situated in Mount Remarkable NP on the eastern side of the Upper Spencer Gulf.	**Unlikely** Construction footprint is outside the known range of the species. All records of the species are situated in Mount Remarkable NP on the eastern side of the Upper Spencer Gulf.	**Unlikely** Construction footprint is outside the known range of the species. All records of the species are situated in Mount Remarkable NP on the eastern side of the Upper Spencer Gulf.	**Unlikely** Construction footprint is outside the known range of the species. All records of the species are situated in Mount Remarkable NP on the eastern side of the Upper Spencer Gulf.
Nephrurus deleani	Pernatty Knob-tailed Gecko	-	R	1	2013	During the day the Pernatty Knob-tailed Gecko is found in burrows in sand, with suitable habitat consisting of loose, aeolian	**Unlikely** Habitat not likely suitable for the species. There are no previous records of the species in this	**Possible** Habitat potentially suitable for the species. There are no previous records of the	**Unlikely** Habitat not likely suitable for the species. There are no previous records of the species in this vegetation type	**Known** Habitat is suitable to support the species. Multiple records within 50 km.	**Unlikely** Habitat not likely suitable for the species. There are no previous records of the species in this vegetation type

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						sand dunes around Island Lagoon, Lake Macfarlane and Pernatty Lagoon. The species has an extremely restricted range and is only known from the area surrounding Pernatty Lagoon, though the exact location of many records is concealed due to concerns of illegal trading (DEW n.d.). **Previous records:** 39 BDBSA records in the Study Area with 1-2 individuals listed in each. Scattered throughout middle section of	vegetation type within 5 km of the Construction footprint.	species in this vegetation type within 5 km of the Construction footprint.	within 5 km of the Construction footprint.	There are records of the species in this vegetation type within 5 km of the Construction footprint. The species is known locally, particularly within Carrapateena Mine.	within 5 km of the Construction footprint.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						the Project Area through the SAAL LMR, predominantly surrounding Carrapateena Mine and occur between 2-53 km away. **Field survey results:** Not observed during field surveys by Jacobs. Was observed by EBS Ecology (2013) during baseline surveys for the Carrapateena mine access route prior to construction of the mine.					
Notechis scutatus ater	Krefft's Tiger Snake (Flinders Ranges)	VU	-	1,3	2005	PMST highlights the species as Likely to occur within the Study Area.	**Unlikely** Outside of the known range for the species.	**Unlikely** Outside of the known range for the species.	**Unlikely** Outside of the known range for the species.	**Unlikely** Outside of the known range for the species.	**Unlikely** Outside of the known range for the species.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						The Krefft's Tiger Snake (Flinders Ranges) subspecies is confined to several stream systems in the southern Flinders Ranges, SA. It occurs in Mount Remarkable NP, Doughboy Reserve south-east of Melrose, Spring Creek and Cannons Swamp north of Melrose, and the mouth of the Broughton River south of Port Pirie. The southernmost limit of the subspecies is likely to be Crystal Brook (Broughton River) (DCCEEW 2026).	There are no previous records of the species in this vegetation type.	There are no previous records of the species in this vegetation type.	There are no previous records of the species in this vegetation type.	There are no previous records of the species in this vegetation type.	There are no previous records of the species in this vegetation type.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Previous records: None.					
Varanus varius	Lace Monitor	-	R	1	2024	The Lace Monitor is found in eastern mainland Australia. Habitat consists of dry sclerophyll forests and woodlands, where they actively forage over large areas. Species is semi-arboreal, and moves via trees and shelters in tree hollows, although also sometimes forages on the ground. Nesting often occurs in termite nests (ALA 2026). Westernmost extent of the species' range is	**Unlikely** Construction footprint is outside of the known range for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Construction footprint is outside of the known range for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Construction footprint is outside of the known range for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Construction footprint is outside of the known range for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Construction footprint is outside of the known range for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Mount Remarkable NP. **Previous records:** 29 BDBSA records within the Study Area, all within Mount Remarkable NP and south of Quorn.					
Vermicella annulata	Common Bandy Bandy	-	R	1	2008	The Common Bandy Bandy is found throughout northern and eastern Australia in a variety of habitats including wet coastal forests, Acacia, Mulga and mallee scrub, savannah woodland and spinifex desert sandhills (ALA 2026).	**Unlikely** Construction footprint is outside of the known range for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Construction footprint is outside of the known range for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Construction footprint is outside of the known range for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Construction footprint is outside of the known range for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Construction footprint is outside of the known range for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.

Species	Common name	EPBC Act status [1]	NPW Act status [2]	Data source *	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Previous records: 1 BDBSA record in Mount Remarkable NP.					

[1] EPBC Act status: Critically Endangered (CR); Endangered (EN); Vulnerable (VU). Migratory status: Migratory Wetland (MW); Migratory Terrestrial (MT); Migratory Marine (MM).
[2] NPW Act status: Endangered (E); Vulnerable (V); Rare (R).
*Source: BDBSA (1); BirdLife (2); PMST (3); Observed during field surveys (4).

C.4 LoO assessment for EPBC & NPW Act listed threatened flora species in the EP LMR Study Area

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
Acacia pendula	Weeping Myall	-	V	1	2018	Weeping Myall grows on major river floodplains in heavy clay soils, sometimes dominant in woodland and open woodland. Species is distributed west of the Great Divide from Emerald in central Queensland through to NSW to the Vic border, with isolated occurrences in the Little Desert area, western Vic and far eastern SA (ALA 2026). Range appears to extend only to Port Augusta on the western extent. **Previous records:** 1 BDBSA record within the Study Area in Uni SA Whyalla grounds. **Field survey results:** Not observed during field surveys.	**Unlikely** Construction footprint appears to be outside the known range for wild-growing individuals of the species which is commonly planted. Previous record was taken as a school project and is located on the University Whyalla campus and is likely to be an amenity planting.	**Unlikely** Construction footprint appears to be outside the known range for wild-growing individuals of the species which is commonly planted. Previous record was taken as a school project and is located on the University Whyalla campus and is likely to be an amenity planting.	**Unlikely** Construction footprint appears to be outside the known range for wild-growing individuals of the species which is commonly planted. Previous record was taken as a school project and is located on the University Whyalla campus and is likely to be an amenity planting.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
Caladenia tensa	Greencomb Spider-orchid, Rigid Spider-orchid	EN	-	1,3	1999	PMST highlights the species as known to occur within the Study Area. Inland Green-comb Spider-orchid tend to occupy fragmented forests and woodlands in agricultural landscapes (TSSC 2016b). Species occurs in south-east SA as far west as Port Augusta. Various habitats have been described including Cypress Pine / SA Blue Gum Woodland (DSEWPaC 2013a), Pine / Box Woodland, Mallee-heath sites, healthy woodland and mallee woodland, generally with rock outcrops (TSSC 2016b). **Previous records:** 2 BDBSA records, both within the Flinders-Lofty Block **Field survey results:** Not observed during field surveys.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.
Frankenia plicata	Sea Heath	EN	V	3	-	PMST highlights that the species may occur within the Study Area. Grows in a range of habitats, including on small hillside channels, which take the first run-off after rain. In the Simpson Desert, the species has been found predominantly from swales of loamy sands to clay. This species is found in a wide range of vegetation communities that have good drainage, however several records in the herbarium have been misidentified, and updates to records are ongoing (Helen Vonow. Pers. Comm). The species occurs within the SAAL LMR (DEWHA 2008b). **Previous records:** None. **Field survey result:** Not observed during surveys.	**Unlikely** Outside the known range for the species, which occurs to the north in the SAAL LMR. No previous records align the species with this	**Unlikely** Outside the known range for the species, which occurs to the north in the SAAL LMR. No previous records align the species with this vegetation type.	**Unlikely** Outside the known range for the species, which occurs to the north in the SAAL LMR. No previous records align the species with this

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
							vegetation type.		vegetation type.
Malacocera gracilis	Slender Soft-horns	-	V	1	2023	The Slender Soft-horn is an erect annual or perennial herb reaching heights of 25cm. Woolly white flowers appear on woolly leaves from May to August. The species is recorded across several regions in South Australia, growing on saline clay soils or gypseous mounds (FloraSA 2025). **Previous records:** None **Field survey result:** Not observed during surveys.	**Possible** Habitat is suitable for the species. No records are situated within the Study Area; however, the EP LMR is listed in the distribution of the species.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.
Orobanche cernua var. australiana	Australian Broomrape/ Native Broomrape	-	R	1	2016	Australian Broomrape scattered distribution across eastern half of SA, also found in NSW, Vic, and Tas. Grows in sand dunes and sandy creek beds and is parasitic on native Senecio species (DEW 2008c). **Previous records:** 3 BDBSA records within the Study Area – all on Whyalla coast. The EP Land Management Board released a statement in 2023 describing recent records within Cowleds Landing south of Whyalla.	**Possible** Habitat not likely to be suitable for species. No previous records occur within 5 km of the Construction	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						Field survey results: Not observed during field surveys.	footprint, however the statement from the EP Land Management Board suggests that the species may occur within this habitat at Crowe's Landing, where the Construction footprint approaches the coast.	type within the Study Area.	vegetation type within the Study Area.
Pterostylis xerophila	Desert Greenhood	VU	V	3	-	PMST highlights that the species may occur within the Study Area. Little is known of the precise habitat requirements of Desert Greenhood. In SA, occurs in dry woodland on fertile red loamy soils, on or around granite or quartzite rock outcrops (Duncan 2010). Commonly occurs in association with Broombush, Ridge-fruited Mallee, Red Mallee and/or March Mallee (*Eucalyptus leptophylla*) (Pobke 2007) The species is known from very few records and occurs west of Cowell and within Gawler Ranges NP.	**Unlikely** Habitat not likely to be suitable for species. No previous records align the species with this	**Unlikely** Habitat not likely to be suitable for species. No previous records align the species with this vegetation type.	**Unlikely** Habitat not likely to be suitable for species. No previous records align the species with this

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						Surveys in the region of the Southern Middleback Ranges on the Eyre Peninsula found several populations of Desert Greenhood, all within *Melaleuca uncinata* (Broombush) tall shrubland with rocky outcrops (JBSG 2024). **Previous records:** None. **Field survey result:** Not observed during surveys.	vegetation type.		vegetation type.
Santalum spicatum	Sandalwood	-	V	1,4	2020	Sandalwood is widely distributed from WA through the semi-arid zone to the Gammon Ranges in SA (ALA 2026). **Previous records:** 3 BDBSA records within the Study Area **Field survey results:** One specimen was observed on Nonowie Station. Another was observed south-west of Whyalla in a broad drainage line in an area difficult to access with dense variable vegetation. As such, it is possible that other individuals may also occur in this area.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.	**Known** The preferred habitat of the species. Two observations are listed in this vegetation type along the Construction footprint within the EP LMR. Two previous records occur within Whyalla CP.	**Unlikely** Habitat not likely to be suitable for species. There are no previous records of the species in this vegetation type within the Study Area.
Swainsona pyrophila	Yellow Swainson-pea	VU	R	3	-	PMST highlights the species is likely to occur within the Study Area. Occurs in mallee vegetation communities on a variety of soil types. Has been recorded with Eucalypts including Gilja	**Unlikely** Habitat not likely to be	**Unlikely**	**Unlikely** Habitat not likely to be

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Coastal Saltmarsh / Coastal Samphire / Mangrove	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Chenopod Shrublands	Coastal Dunes / Beaches
						(*Eucalyptus brachycalyx*), Gooseberry Mallee (*E. calycogona*), Yorrell, Ridge-fruited Mallee, Narrow-leaved Mallee (*E. leptophylla*), Red Mallee and Beaked Red Mallee sometimes with Broombush tall shrubland (Tonkinson and Robertson 2010). Regenerates after fire or disturbance. No known above-ground populations occur, though four populations of seed are believed to be within South Australian Conservation Parks. Munyaroo CP is listed as an important seedbank population for the species. **Previous records:** None (since 1972) **Field survey result:** Not observed during surveys.	suitable for species. No previous records align the species with this vegetation type.	Habitat not likely to be suitable for species. No previous records align the species with this vegetation type.	suitable for species. No previous records align the species with this vegetation type.

[1] EPBC Act status: Critically Endangered (CR); Endangered (EN); Vulnerable (VU).

[2] NPW Act status: Endangered (E); Vulnerable (V); Rare (R).

*Source: BDBSA (1); BirdLife (2); PMST (3); Observed during field surveys (4).

C.5 LoO assessment for EPBC & NPW Act listed threatened flora species in the SAAL LMR Study Area

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
Acacia pendula	Weeping Myall	-	V	1	2019	Weeping Myall grows on major river floodplains in heavy clay soils, sometimes dominant in woodland and open woodland. Species is distributed west of the Great Divide from Emerald in central Queensland through to NSW to the Vic border, with isolated occurrences in the Little Desert area, western Vic and far eastern SA (ALA 2026). BDBSA and online databases both show Port Augusta as the northernmost extent of the species within local LMRs. **Previous records:** 2 BDBSA records in the Study Area within central Port Augusta. **Field survey results:** Not observed during field surveys.	**Unlikely** Construction footprint is outside of known range according to available records. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Construction footprint is outside of known range according to available records. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Construction footprint is outside of known range according to available records. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Construction footprint is outside of known range according to available records. There are no previous records of the species in this vegetation type within the Study Area.	**Unlikely** Construction footprint is outside of known range according to available records. There are no previous records of the species in this vegetation type within the Study Area.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
Acanthocladium dockeri	Spiny Everlasting	CR	E	1,3	2008	PMST highlights the species as may occur in the Study Area. The Spiny Everlasting is now confined to remnant grassland on low hills and plains in the mid north of SA; a habitat that has largely been cleared for winter cereal cropping throughout the region. All known existing populations occur on narrow road reserves that have been repeatedly disturbed in the past. The main plant species that occur with the Spiny Everlasting are Scented Mat-rush (*Lomandra effusa*), Spear Grasses (*Austrostipa* sp.) and Wallaby Grasses (*Rytidosperma* sp.) (and various native forbs) (Clarke et al. 2013). **Previous records:** Six, all within Telowie Gorge CP, Southern Flinders (i.e. other side of the Spencer Gulf to the Project).	**Unlikely** Outside the known range of the species. No records can align the species with this vegetation type. The nearest record is in southern Mount Remarkable NP.	**Unlikely** Outside the known range of the species. No records can align the species with this vegetation type. The nearest record is in southern Mount Remarkable NP.	**Unlikely** Outside the known range of the species. No records can align the species with this vegetation type. The nearest record is in southern Mount Remarkable NP.	**Unlikely** Outside the known range of the species. No records can align the species with this vegetation type. The nearest record is in southern Mount Remarkable NP.	**Unlikely** Outside the known range of the species. No records can align the species with this vegetation type. The nearest record is in southern Mount Remarkable NP.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Field survey result: Not observed during surveys.					
Atriplex kochiana	Koch's Saltbush	-	V	1	2013	Koch's Saltbush is an annual or short-lived perennial shrub. Endemic to SA and very rare, known only from a few sites around Lake Torrens and Oodnadatta (eFlora 2025). **Previous records:** 51 BDBSA records within the Study Area; all >30 km away between the Construction footprint and Lake Torrens/Arid Recovery Reserve. **Field survey results:** Not observed during field surveys.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.
Austrostipa breviglumis	Cane Spear-grass	-	R	1	2019	Cane Spear-grass is found in the Flinders Ranges and Mount Lofty Ranges in SA, as well as Vic. Habitat includes hills and ridges in sandy loam soils (SoSA 2026).	**Unlikely** Habitat not suitable for the species. There are no previous records of	**Unlikely** Habitat not suitable for the species. There are no previous records of	**Unlikely** Habitat not suitable for the species. There are no previous records of	**Unlikely** Habitat not suitable for the species. There are no previous records of	**Possible** Occurs east within Mount Remarkable NP, with the possibility

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Previous records: 9 BDBSA records within the Study Area all within Mount Remarkable NP/EP LMR. **Field survey results:** Not observed during field surveys.	the species in this vegetation type within 5 km of the Construction footprint.	the species in this vegetation type within 5 km of the Construction footprint.	the species in this vegetation type within 5 km of the Construction footprint.	the species in this vegetation type within 5 km of the Construction footprint.	that the population has extended.
Austrostipa petraea	Flinders Range Spear-grass	-	R	1	2005	Flinders Range Spear-grass endemic to SA, found in the northern and southern Flinders Ranges. Tufted perennial grass which grows in rocky habitats (SoSA 2026). **Previous records:** 3 BDBSA records within the Study Area, all within Mount Remarkable NP. **Field survey results:** Not observed during field surveys.	**Unlikely** Construction footprint occurs outside of the known range of the species. There are no previous records of the species in this vegetation type within 5 km of the	**Unlikely** Construction footprint occurs outside of the known range of the species. There are no previous records of the species in this vegetation type within 5 km of the	**Unlikely** Construction footprint occurs outside of the known range of the species. There are no previous records of the species in this vegetation type within 5 km of the	**Unlikely** Construction footprint occurs outside of the known range of the species. There are no previous records of the species in this vegetation type within 5 km of the	**Unlikely** Construction footprint occurs outside of the known range of the species. There are no previous records of the species in this vegetation type within 5 km of the

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
							Construction footprint.	Construction footprint.	Construction footprint.	Construction footprint.	Construction footprint.
Brachyscome muelleri	Corunna Daisy	EN	E	1,3	2005	PMST highlights the species as known to occur within the Study Area. The Corunna Daisy is known from one site on Corunna Station in the upper EP of SA. About 10,000 plants occur over an area of 0.35 km^2 on a steep, south facing slope of a gorge in the Baxter Hills immediately above the Corunna homestead (DCCEEW 2013a). **Previous records:** four, >30km west of the Construction footprint at Corunna homestead / station. **Field survey result:** Not observed during surveys.	**Unlikely** Outside of the known range for the species which is 34.8 km west of the construction. No records align the species with this habitat.	**Unlikely** Outside of the known range for the species which is 34.8 km west of the construction. No records align the species with this habitat.	**Unlikely** Outside of the known range for the species which is 34.8 km west of the construction. No records align the species with this habitat.	**Unlikely** Outside of the known range for the species which is 34.8 km west of the construction. No records align the species with this habitat.	**Unlikely** Outside of the known range for the species which is 34.8 km west of the construction. No records align the species with this habitat.
Bothriochloa macra	Red-leg Grass	-	R	1	1998	Red-leg Grass occurs in the eastern states of Australia, widespread in overgrazed pastures (PlantNET 2024).	**Unlikely** Construction footprint occurs	**Unlikely** Construction footprint occurs	**Unlikely** Construction footprint occurs	**Unlikely** Construction footprint occurs	**Unlikely** Construction footprint occurs

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Previous records: 3 BDBSA records within the Study Area, all within Mount Remarkable NP. **Field survey results:** Not observed during field surveys.	outside of the known range of the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	outside of the known range of the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	outside of the known range of the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	outside of the known range of the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	outside of the known range of the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.
Caladenia gladiolata	Bayonet Spider-orchid	EN	E	1,3	2022	PMST highlights the species as known to occur within the Study Area (buffer only). The Bayonet Spider-orchid grows in woodland dominated by SA Blue Gum (*Eucalyptus leucoxylon*), Sugar Gum (*E. cladocalyx*) or Pink Gum (*E. fasciculosa*). Grows on moderate to steep slopes in sandy loam soils	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						with scattered shale and quartzite (TSSC 2021a). Known from three populations in Mount Remarkable NP and one in Scott Creek CP. **Previous records:** 119 records int eh Study Area, all in Mount Remarkable NP. **Field survey result:** Not observed during surveys.					
Caladenia macroclavia	Large-club Spider-orchid	EN	E	3	-	PMST highlights the species may occur within the Study Area. The Large-club Spider-orchid only occurs within SA and is restricted to the Lofty Block region. Associated with mallee vegetation. Species has not been observed on the EP since 1985 (TSSC 2021b). **Previous records:** None. **Field survey result:** Not observed during surveys.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
Caladenia tensa	Greencomb Spider-orchid, Rigid Spider-orchid	EN	-	1,3	1999	PMST highlights the species as known to occur within the Study Area. Inland Green-comb Spider-orchid tend to occupy fragmented forests and woodlands in agricultural landscapes (TSSC 2016b). Species occurs in south-east SA as far west as Port Augusta. Various habitats have been described including Cypress Pine / SA Blue Gum Woodland, Pine / Box Woodland, Mallee-heath sites, healthy woodland and mallee woodland, generally with rock outcrops (TSSC 2016b). **Previous records:** Two, in Mount Remarkable NP. **Field survey result:** Not observed during surveys.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat..	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.
Caladenia woolcockiorum	Woolcock's Spider-orchid	VU	E	1,3	2008	PMST highlights the species as known to occur within the Study Area.	**Unlikely** Outside the known range	**Unlikely** Outside the known range	**Unlikely** Outside the known range	**Unlikely** Outside the known range	**Unlikely** Outside the known range

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						The Woolcock's Spider-orchid typically grows in Sugar Gum, Long-leaf Box (*E. goniocalyx*), Boland Yellow Gum (*E. leucoxylon subsp. pruinosa*) open forest or woodland with an understorey of Golden Wattle (*Acacia pycnantha*), Cough Bush (*Cassinia laevis*), Spiky Guinea-flower (*Hibbertia exutiacies*), Mat Rush (*Lomandra densiflora*), Bulbine Lily (*Bulbine bulbosa*), Blue Grass Lily (*Caesia vittata*) and Plantain (*Plantago* spp.). Also grows in Boland Yellow Gum, Drooping She-oak (*Allocasuarina verticillata*) woodland over Golden Wattle, Graceful Wattle (*Acacia gracilifolia*), Scented Bush-pea (*Pultenaea graveolens*) and Cough Bush. It grows on gentle south facing slopes and flats with clay loam soils (TSSC 2021c). All populations of the species are considered important to its survival (TSSC 2021c). The	of the species, which occurs only in Mount Remarkable NP.	of the species, which occurs only in Mount Remarkable NP.	of the species, which occurs only in Mount Remarkable NP.	of the species, which occurs only in Mount Remarkable NP.	of the species, which occurs only in Mount Remarkable NP.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						species is restricted to a 16 km^2 area in Mount Remarkable NP. **Previous records:** 201, all clustered within Mount Remarkable NP. **Field survey result:** Not observed during surveys.					
Caladenia xantholeuca	Flinders Ranges White Caladenia	EN	E	1,3	2002	PMST highlights the species as known to occur within the Study Area. Flinders Ranges White Caladenia occurs in White Cypress-pine (*Callitris glaucophylla*) woodland, often on south-facing slopes in heavily shaded areas, where it grows on mossy rock ledges and red-brown loam soils (Quarmby 2010). This species occurs within the Northern and Yorke (SA) LMR (DEWHA 2008c). The distribution of this species overlaps with the "Peppermint Box Grassy	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Woodland of SA" TEC (DEWHA 2008c). The species is known from two populations in Mount Remarkable NP and a third in Telowie Gorge CP. **Previous records:** four, all within Mount Remarkable NP. **Field survey result:** Not observed during surveys.					
Citrus glauca	Desert Lime	-	V	1	2007	The Desert Lime is native to QLD, NSW and SA and is cold, heat, drought and salinity tolerant (ALA 2026). Occurs in variety of soil types. Associated vegetation is often chenopod shrublands such as Bluebush (*Maireana sedifolia*) or Black Bluebush (*M. pyrimidata*), but may also include other small trees such as Black Oak (*Casuarina pauper*) or Bullock Bush (*Alectryon oleifolius*), and various *Senna* or *Eremophila* species. SAAL LMB (2010)	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Possible** Habitat suitable for the species. BDBSA records do not occur within 5 km of the Construction footprint, however the SAAL Land Management	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						highlight records from Port Augusta – Pernatty Lagoon, however it's unclear whether these are historic or recent records. **Previous records:** 3 BDBSA records in the Study Area west of Pernatty Lagoon (24.4 km from the Construction footprint for the main pipeline, 17 km from the Construction footprint for the Carapateena lateral). **Field survey results:** Not observed during field surveys.			Board highlight occurrences surrounding Port Augusta within *Acacia papyrocarpa* plains.		
Codonocarpus pyramidalis	Slender Bell-fruit, Camel Poison	VU	E	3	-	PMST highlights the species as known to occur within the Study Area. Slender Bell-fruit occurs in odd, scattered locations in the northern Flinders Ranges and the Olary Ranges near the Barrier Highway. Being wind-dispersed it is often observed as just one individual in a range of habitats and vegetation	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						types but shows a preference for shaley hill slopes and crests, or anywhere in skeletal soil types where physical soil or landscape disturbance has occurred (e.g. from erosion or road construction). Associated plant communities are shrublands of Senna (*Senna* sp.), Emubush (*Eremophila* sp.) or Hop- Bush (*Dodonaea* sp.), or of Prickly Wattle (*Acacia victoriae*) and Dead-finish (*A. tetragonophylla*). However, Slender Bellfruit is sometimes the only tree or shrub in localised patches (DEWHA 2008d). **Previous records:** None. **Field survey result:** Not observed during surveys.					
Dodonaea subglandulifera	Peep Hill Hop-bush	EN	E	3	-	PMST highlights the species as may occur within the Study Area.	**Unlikely** Outside the known range	**Unlikely** Outside the known range	**Unlikely** Outside the known range	**Unlikely** Outside the known range	**Unlikely** Outside the known range

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Peep Hill Hop-bush is endemic to SA. Low hills and plains on loamy soils with rocky (limestone, slate, shale) outcrops. Found in Mallee woodland, often with Cypress-pine Southern (*Callitris preissii*) and *Allocasuarina* sp. (She-oak). It also has been found in wattle shrubland (Moritz and Bickerton 2010). Species is known from records on the Yorke Peninsula, Murray Darling Basin, and Flinders Ranges. Populations do not overlap with the Construction footprint. **Previous records:** None. **Field survey result:** Not observed during surveys.	of the species. No records align the species with this habitat.	of the species. No records align the species with this habitat.	of the species. No records align the species with this habitat.	of the species. No records align the species with this habitat.	of the species. No records align the species with this habitat.
Frankenia plicata	Sea Heath	EN	V	1,3	1996	PMST highlights the species as known to occur within the Study Area.	**Unlikely** Records are >30 km from the	**Unlikely** Records are >30 km from the	**Unlikely** Records are >30 km from the	**Unlikely** Records are >30 km from the	**Unlikely** Records are >30 km from the

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Grows in a range of habitats, including on small hillside channels, which take the first run-off after rain. In the Simpson Desert, the species has been found predominantly from swales of loamy sands to clay. This species is found in a wide range of vegetation communities that have good drainage, however a number of records in the herbarium have been misidentified, and updates to records are ongoing (Helen Vonow. Pers. Comm). The species occurs within the SAAL LMR (DEWHA 2008b). **Previous records:** 12, all >30 km east of the Construction footprint near Lake Torrens. **Field survey result:** Not observed during surveys.	construction footprint. No records align the species with this habitat.	construction footprint. No records align the species with this habitat.	construction footprint. No records align the species with this habitat.	construction footprint. No records align the species with this habitat.	construction footprint. No records align the species with this habitat.
Frankenia subteres	-	-	R	1	2019	*Frankenia subteres* occurs in Lake Eyre and Flinders Ranges herbarium regions of SA (DEW	**Unlikely**	**Possible** Habitat potentially	**Unlikely**	**Unlikely**	**Unlikely**

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						2026b). It grows in dry shrubland and desert biomes (POTW 2024). **Previous records:** 6 BDBSA records in the Study Area; 5 north of Carrapateena Mine and 1 south, both within 10 km of the Construction footprint. **Field survey results:** Not observed during field surveys.	Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	suitable for the species. No BDBSA records occur within 5 km of the Construction footprint, however 6 occur within 10 km both north and east of the easternmost end of the Carrapateena lateral.	Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.
Gilesia biniflora	Western Tar-vine	-	R	1	2016	Western Tar-vine scattered distribution across northern SA, as well as NT, QLD and NSW. Occurs on saline clay soils (SoSA 2026). **Previous records:** 3 sporadic BDBSA records in the Study Area	**Possible** Habitat suitable for the species. BDBSA record within 5 km	**Possible** Habitat suitable for the species. BDBSA record within 5 km of the	**Unlikely** Habitat not suitable for the species. There are no previous records of	**Unlikely** Habitat not suitable for the species. There are no previous records of	**Unlikely** Habitat not suitable for the species. There are no previous records of

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						from Lake Dutton to Koolymilka Lake. Two on the west side and one on the Arcoona Plateau to the east. **Field survey results:** Not observed during field surveys.	of the Construction footprint describes a 300 m patch of the species within a drainage line.	Construction footprint describes a 300 m patch of the species within a drainage line.	the species in this vegetation type within 5 km of the Construction footprint.	the species in this vegetation type within 5 km of the Construction footprint.	the species in this vegetation type within 5 km of the Construction footprint.
Gratwickia monochaeta	One-bristle Everlasting	-	R	1	2007	One-bristle Everlasting is endemic to SA, found in the central part and on Eyre Peninsula growing in various habitats but usually in sand (SoSA 2026). **Previous records:** 5 BDBSA records within the Study Area; 3 west of Lake Torrens, one south-east of Yudnapinna, and one 1.7 km east of the Construction footprint. **Field survey results:** Not observed during field surveys.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	**Possible** Habitat potentially suitable for the species. Only one BDBSA record within 5 km of the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
Hibbertia crispula	Ooldea Guinea-flower	VU	V	3	-	PMST highlights that the species may occur within the Study Area. Ooldea Guinea-flower primarily occurs from south-central Western Australia to SA. It grows primarily in the desert or dry shrubland biome (DEWHA 2008e). The species is restricted to a population in the Lake Everard region and one in the Ooldea region of SA (DEWHA 2008e). **Previous records:** None. **Field survey result:** Not observed during surveys.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.
Limosella granitica	Granite Mudwort	VU		1,3	2001	PMST highlights that the species may occur within the Study Area. Granite Mudwort occurs in a small number of disjunct sub-populations across northern Eyre Peninsula. The five known sub-populations occur in the district councils of Le Hunte, Cleve,	**Unlikely** Habitat is unlikely to be suitable for this species.	**Unlikely** Habitat is unlikely to be suitable for this species.	**Unlikely** Habitat is unlikely to be suitable for this species.	**Unlikely** Habitat is unlikely to be suitable for this species.	**Unlikely** Habitat is unlikely to be suitable for this species.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Streaky Bay and Bosanquet (Gawler Ranges National Park) (Pokbe, 2007). It grows in fine silt in seasonally wet granite rockholes, with the depth and water quality of these pools affecting habitat quality for this species. Known sub-populations are thought to contain approximately 500 individual plants (DEWHA 2008f). **Previous records:** One, near Island Lagoon. **Field survey result:** Not observed during surveys.	There is only a single record in the Study Area near island Lagoon.	There is only a single record in the Study Area near island Lagoon.	There is only a single record in the Study Area near island Lagoon.	There is only a single record in the Study Area near island Lagoon.	There is only a single record in the Study Area near island Lagoon.
Malacocera gracilis	Slender Soft-horns	-	V	1	2023	The Slender Soft-horn is an erect annual or perennial herb reaching heights of 25cm. Woolly white flowers appear on woolly leaves from May to August. The species is recorded across several regions in South Australia, growing on saline	**Possible** Habitat is suitable for the species. Previous records indicate that	**Possible** Habitat is suitable for the species. Previous records indicate that	**Unlikely** Habitat not suitable for the species. There are no previous records of the species	**Unlikely** Habitat not suitable for the species. There are no previous records of the species	**Unlikely** Habitat not suitable for the species. There are no previous records of the species

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						clay soils or gypseous mounds (FloraSA 2025). **Previous records:** Eight BDBSA records, one on the margin of Lake Dutton, and seven scattered throughout saline areas of Port Augusta. **Field survey result:** Not observed during surveys.	the species may utilise saline drainage lines within the LMR.	the species utilises margins of saline lakes within the LMR.	in this vegetation type within 5 km of the Construction footprint.	in this vegetation type within 5 km of the Construction footprint.	in this vegetation type within 5 km of the Construction footprint.
Olearia pannosa* ssp. *pannosa	Silver Daisy-bush	VU	V	3	-	PMST highlights the species as known to occur within the Study Area. Silver Daisy-bush occurs in sandy, flat areas and in hilly, rocky areas in woodland or mallee. Hilly area soil types include hard pedal mottled-yellow duplex and hard pedal red duplex (DCCEEW 2013b). This species occurs east of Port Augusta with a sub-population below Whyalla.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Previous records: None. **Field survey result:** Not observed during surveys.					
Prasophyllum pallidum	Pale Leek-orchid	VU		1,3	2009	PMST highlights the species as known to occur within the Study Area. Pale Leek-orchid is known singly or in groups in well-grassed open forests from the Flinders Ranges to the Northern and Southern Lofty regions of South Australia (Jessop & Toelken, 1986). The current status of Pale Leek-orchid is insufficiently known (Rouse, 2002). This species occurs within the Adelaide and Mount Lofty Ranges, and Northern and Yorke (South Australia) Natural Resource Management Regions (DEWHA 2008g). **Previous records:** One, in Dutchman's Stern CP (NE of construction footprint)	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Field survey result: Not observed during surveys.					
Prasophyllum validum	Sturdy Leek-orchid, Mount Remarkable Leek-orchid	VU	V	1,3	2023	PMST highlights the species as known to occur within the Study Area. Sturdy Leek-orchid occurs in SA in the Flinders Ranges and Flinders Lofty Block IBRA bioregions. Tends to grow in drier woodland habitats, generally with a low sparse understorey (Duncan 2010). Construction footprint is outside of the known distribution of this species which lies to the east of Port Augusta (Duncan 2010). **Previous records:** 79 records, all in Mount Remarkable NP. **Field survey result:** Not observed during surveys.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.
Pterostylis xerophila	Desert Greenhood	VU	V	1,3	-	PMST highlights that the species may occur within the Study Area.	**Unlikely**	**Unlikely**	**Unlikely**	**Unlikely**	**Unlikely**

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Little is known of the precise habitat requirements of Desert Greenhood. In SA, the species occurs in dry woodland on fertile red loamy soils, on or around granite or quartzite rock outcrops (Duncan 2010). Commonly occurs in association with Broombush, Ridge-fruited Mallee, Red Mallee and/or March Mallee (*Eucalyptus leptophylla*) (Pobke 2007). The species is known from very few records and occurs west of Cowell and within Gawler Ranges NP. **Previous records:** One, Southern Middleback Ranges (EP LMR). **Field survey result:** Not observed during surveys.	Outside the known range of the species. No records align the species with this habitat.	Outside the known range of the species. No records align the species with this habitat.	Outside the known range of the species. No records align the species with this habitat.	Outside the known range of the species. No records align the species with this habitat.	Outside the known range of the species. No records align the species with this habitat.
Roepera humillima	Small-fruit Twinleaf	-	R	1	1996	Synonym: *Zygophyllum humillimum*. Small-fruit Twinleaf grows on red-brown cracking clay and sandy loam with gypsum (eFlora 2025). Distributed across south-west	**Unlikely** Habitat not suitable for the species.	**Possible** Habitat potentially suitable for the species if gypsum	**Unlikely** Habitat not suitable for the species.	**Unlikely** Habitat not suitable for the species.	**Unlikely** Habitat not suitable for the species.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						QLD, north-east SA, and north-west NSW (PlantNET 2024). **Previous records:** 3 BDBSA records in the Study Area; 2 north of Island Lagoon and 1 south of Lake Torrens. All >13 km from Construction footprint. **Field survey results:** Not observed during field surveys.	There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	deposits are present. No records are within 5 km of the Construction footprint however they occur on both sides and over a large temporal scale.	There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.	There are no previous records of the species in this vegetation type within 5 km of the Construction footprint.
Santalum spicatum	Sandalwood	-	V	1,3	2020	Sandalwood is widely distributed from WA through the semi-arid zone to the Gammon Ranges in SA (ALA 2026). Occurs on well-drained soil types that supported open-woodland or mallee–heath communities. It is also known to occur on sand dunes and rocky habitats (IUCN 2024).	**Possible** Habitat is suitable for the species and occurs in abundance along the Construction footprint.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation	**Known** Habitat is suitable for the species and occurs in abundance along the Construction footprint.	**Possible** Habitat suitable for the species which has been described as occurring on sandy dunes.	**Possible** Habitat may be suitable for the species. There are no previous records of the species in this

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Previous records: 37 BDBSA records within the Study Area; 20 of which are within 5 km of the Construction footprint. Two records are between Pimba and Port Augusta on the eastern side of the Construction footprint. Eighteen records are within 3-5 km from the Construction footprint west of Port Augusta. The remaining 17 records are in the EP region and Mount Remarkable NP. **Field survey results:** The species was observed during field surveys (one specimen) adjacent the Carrapateena Spur.	>10 records occur on or within 5 km of this vegetation type along the Construction footprint west of Port Augusta.	type within 5 km of the Construction footprint.	>10 records occur on or within 5 km of the Construction footprint. The species was observed in this habitat type during field surveys.	2 BDBSA records occur within 5 km of this habitat along the Construction footprint.	vegetation type within 5 km of the Construction footprint.
Senecio macrocarpus	Large-fruit Fireweed, Large-fruit Groundsel	VU		3	-	PMST highlights that the species may occur within the Study Area. The large-fruit fireweed is endemic to south-eastern Australia. Historically this species was widely distributed from the southern Flinders Ranges in South	**Unlikely** Outside the known range of the species. No records align the	**Unlikely** Outside the known range of the species. No records align the	**Unlikely** Outside the known range of the species. No records align the	**Unlikely** Outside the known range of the species. No records align the	**Unlikely** Outside the known range of the species. No records align the

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						Australia (SA) through Victoria (Vic) to northern and central Tasmania (Tas) (DCCEEW 2024e). Currently, in SA there are fewer than 10 extant subpopulations known (the exact number is not well defined), the largest occurring in Messent CP and contains an estimated 35,000 plants. Other recorded subpopulations occur in Gum LagoonCP, Bunbury Conservation Reserve, Hanson Scrub CP, Yalkuri Station (private land near Lake Albert) and private land near Tarcowie in the southern Flinders Ranges; many of these subpopulations contain only a few plants. All occur East of the Construction footprint, none are on the EP. It occurs in a variety of habitats, including grasslands, sedgelands, shrublands and woodlands, generally growing on sparsely	species with this habitat.	species with this habitat.	species with this habitat.	species with this habitat.	species with this habitat.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						vegetated sites on sandy loam to heavy clay soils, often in depressions that are waterlogged in winter (Sinclair 2010). **Previous records:** None. **Field survey result:** Not observed during surveys.					
Senecio megaglossus	Superb Groundsel	VU	E	3	-	PMST highlights the species may occur within the Study Area. The Superb Groundsel primarily inhabits rocky gorges and valley slopes and has been recorded within several vegetation types including grasslands; tall open shrublands with Native Apricot (*Pittosporum angustifolium*), Bullock Bush (*Alectryon oleifolius*) and Embush (*Eremophila longifolia*); in association with Spinifex (*Triodia irritans*); and with White Cypress-pine (*Callitris columellaris*) and River Red-gum (*Eucalyptus camaldulensis*). The	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						westernmost extent of records for this species is northwest of Wilmington within the Flinders Ranges. **Previous records:** six records within the Flinders Ranges; five in Dutchman's Stern CP, one northwest of Wilmington. **Field survey result:** Not observed during surveys.					
Swainsona pyrophila	Yellow Swainson-pea	VU	R	3	-	PMST highlights the species as likely to occur within the Study Area. Yellow Swainson-pea occurs in mallee vegetation communities on a variety of soil types. Has been recorded with Eucalyptus including Gilja (*E. brachycalyx*), Gooseberry Mallee (*E. calycogona*), White Mallee (*E. dumosa*), Yorrell (*E. gracilis*), Ridge-fruited Mallee (*E. incrassata*), Narrow-leaved Mallee	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.	**Unlikely** Outside the known range of the species. No records align the species with this habitat.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						(*E. leptophylla*), Red Mallee (E. oleosa) and Beaked Red Mallee (*E. socialis*), sometimes with Broombush (*Melaleuca uncinata*) tall shrubland (Tonkinson and Robertson 2010). Regenerates after fire or disturbance. The species reaches northern EP but does not extend into the SAAL LMR. **Previous records:** Three records, in the Southern Middleback Ranges. **Field survey result:** Not observed during surveys.					
Tecticornia flabelliformis	Bead Glasswort, Bead Samphire	VU	V	3	-	PMST highlights the species as likely to occur within the Study Area. Bead Glasswort is widespread but scattered in saltmarsh vegetation across southern mainland Australia (DCCEEW 2024a). A population of the species is known	**Unlikely** Outside the known range of the species. No records align the	**Unlikely** Outside the known range of the species. No records align the	**Unlikely** Outside the known range of the species. No records align the	**Unlikely** Outside the known range of the species. No records align the	**Unlikely** Outside the known range of the species. No records align the

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						in the Arno Bay area within the EP LMR. No records have occurred in the SAAL LMR. **Previous records:** None. **Field survey result:** Not observed during surveys.	species with this habitat.	species with this habitat.	species with this habitat.	species with this habitat.	species with this habitat.
Veronica parnkalliana	Port Lincoln Speedwell	EN	E	1,3	2008	PMST highlights the species as known to occur within the Study Area. The Port Lincoln Speedwell is endemic to SA. This species is now thought to be regionally extinct on the EP (the region of its type locality), predominantly as a result of land clearance for agriculture. The Mount Remarkable NP population of the Port Lincoln Speedwell occurs in Long-leaved Box (*E. goniocalyx*) woodland on sandy loam flats amongst scattered strewn sandstone rocks with Mt Lofty Grass-tree (*Xanthorrhoea*	**Unlikely** The species is presumed extinct within proximity to the construction footprint. No records align the species with this habitat. The nearest record is in Mount Remarkable	**Unlikely** The species is presumed extinct within proximity to the construction footprint. No records align the species with this habitat. The nearest record is in Mount Remarkable NP, where	**Unlikely** The species is presumed extinct within proximity to the construction footprint. No records align the species with this habitat. The nearest record is in Mount Remarkable	**Unlikely** The species is presumed extinct within proximity to the construction footprint. No records align the species with this habitat. The nearest record is in Mount Remarkable	**Unlikely** The species is presumed extinct within proximity to the construction footprint. No records align the species with this habitat. The nearest record is in Mount Remarkable

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						quadrangulata), Hill Raspwort (*Gonocarpus elatus*), Common Fringe-myrtle (*Calytrix tetragona*), Mallee Pomaderris (*Pomaderris paniculosa*) and Guinea Flower (*Hibbertia* sp.) (TSSC 2016c). **Previous records:** One, in Mount Remarkable NP. **Field survey result:** Not observed during surveys.	NP, where the species has persisted.	the species has persisted.	NP, where the species has persisted.	NP, where the species has persisted.	NP, where the species has persisted.
Wurmbea stellata	Star Nancy	-	R	1	2008	Star Nancy is endemic to SA (ALA 2026). Grows in rocky semi-arid areas. Is more likely to occur following heavy Autumn rains, as is supported in recent (2019-2024) ALA records (ALA 2026). **Previous records:** 2 BDBSA records on Corunna Hill north of Iron Knob >35 km west of the Construction footprint. ALA records appear scattered throughout the Construction	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the	**Possible** Given the consistency of records describing rocky areas which catch rain, it is possible that this habitat can support the species.	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the	**Unlikely** Habitat not suitable for the species. There are no previous records of the species in this vegetation type within 5 km of the

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Data source*	Date of last record	Species known habitat preferences, PMST and BDBSA outputs	Ephemeral Creeks / Drainage Lines	Tableland and Inland Saline Depressions / Inland Samphire	Open Woodlands over Chenopod / Chenopod Shrublands / Tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of Acacia & Callitris	Grasslands / Woodlands in Dune Swales
						footprint and are considered reliable as they were collected by State Herbarium personnel. **Field survey results:** Not observed during field surveys.	Construction footprint.	Previous records cannot support the presence of the species along the Construction footprint, however online records are scattered sporadically throughout the Construction footprint.	Construction footprint.	Construction footprint.	Construction footprint.

[1] EPBC Act status: Critically Endangered (CR); Endangered (EN); Vulnerable (VU).
[2] NPW Act status: Endangered (E); Vulnerable (V); Rare (R).
*Source: BDBSA (1); BirdLife (2); PMST (3); Observed during field surveys (4).

Appendix D. Fauna and Flora Species lists

D.1 Summary of Fauna Species Detected

Species[1, 2]	Common Name	EPBC[3]	NPW[4]
Acanthagenys rufogularis	Spiny-cheeked Honeyeater	-	-
Acanthiza apicalis	Inland Thornbill	-	-
Acanthiza chrysorrhoa	Yellow-rumped Thornbill	-	-
Acanthiza iredalei	Slender-billed Thornbill	-	R
Acanthiza uropygialis	Chestnut-rumped Thornbill	-	-
Accipiter cirrocephalus	Collared Sparrowhawk	-	-
Acrocephalus australis	Australian Reed-Warbler	-	-
Aegotheles cristatus	Australian Owlet-Nightjar	-	-
*Alauda arvensis arvensis**	Eurasian Skylark	-	-
Amytornis textilis myall	Western Grasswren	VU	V
Anas gracilis	Grey Teal	-	-
Anas superciliosa	Pacific Black Duck	-	-
Anthochaera carunculata	Red Wattlebird	-	-
Anthochaera chrysoptera	Little Wattlebird	-	-
Anthus australis	Australian Pipit	-	-
Aphelocephala leucopsis	Southern Whiteface	VU	-
Aquila audax	Wedge-tailed Eagle	-	
Ardeotis australis	Australian Bustard	-	V
Artamus cinereus	Black-faced Woodswallow	-	-
Artamus personatus	Masked Woodswallow	-	-
Artamus superciliosus	White-browed Woodswallow	-	-
Aythya australis	Hardhead	-	-
Barnardius zonarius	Australian Ringneck	-	-
Cacatua sanguinea	Little Corella	-	-
Cacomantis pallidus	Pallid Cuckoo	-	-
Calamanthus campestris	Rufous Fieldwren	-	-
Calidris acuminata	Sharp-tailed Sandpiper	VU	-
Calidris ruficapillus	Red-capped Plover	-	-
Certhionyx variegatus	Pied Honeyeater	-	-
Charadrius ruficapillus	Red-capped Plover	-	-
Chenonetta jubata	Australian Wood Duck	-	-
Cheramoeca leucosternon	White-backed Swallow	-	-
Chroicocephalus novaehollandiae	Silver Gull	-	-
Chrysococcyx basalis	Horsfield's Bronze-Cuckoo	-	-
Chrysococcyx osculans	Black-eared Cuckoo	-	-
Cincloramphus cruralis	Brown Songlark	-	-
Cincloramphus mathewsi	Rufous Songlark	-	-

Species[1, 2]	Common Name	EPBC[3]	NPW[4]
Circus assimilis	Spotted Harrier	-	-
Colluricincla harmonica	Grey Shrikethrush	-	-
*Columba livia**	Rock Dove	-	-
Coracina novaehollandiae	Black-faced Cuckooshrike	-	-
Corcorax melanorhamphos	White-winged Chough	-	R
Corvus bennetti	Little Crow	-	-
Corvus coronoides	Australian Raven	-	-
Corvus mellori	Little Raven	-	-
Coturnix pectoralis	Stubble Quail	-	-
Cracticus nigrogularis	Pied Butcherbird	-	-
Cracticus tibicen	Australian Magpie	-	-
Cracticus torquatus	Grey Butcherbird	-	-
Ctenophorus cristatus	Crested Dragon	-	-
Ctenophorus fionni	Peninsula Dragon	-	-
Ctenophorus fordi	Mallee Military Dragon	-	-
Ctenophorus nuchalis	Central Netted Dragon	-	-
Ctenophorus pictus	Painted Dragon	-	-
Ctenotus olympicus	Saltbush Ctenotus	-	-
Ctenotus schomburgkii	Barred Wedgesnout Ctenotus	-	-
Cygnus atratus	Black Swan	-	-
Demansia reticulata	Reticulated Whipsnake	-	-
Dicaeum hirundinaceum	Mistletoebird	-	-
Dromaius novaehollandiae	Emu	-	-
Egernia stokesii	Gidgee Skink	-	-
Egretta novaehollandiae	White-faced Heron	-	-
Elseyornis melanops	Black-fronted Dotterel	-	-
Eolophus roseicapillus	Galah	-	-
Epthianura albifrons	White-fronted Chat	-	-
Epthianura aureus	Orange Chat	-	-
Epthianura tricolor	Crimson Chat	-	-
Falco berigora	Brown Falcon	-	-
Falco cenchroides	Nankeen Kestrel	-	-
Falco longipennis	Australian Hobby	-	-
Gavicalis virescens	Singing Honeyeater	-	-
Gelochelidon macrotarsa	Australian Gull-billed Tern	-	-
Geopelia cuneata	Diamond Dove	-	-
Grallina cyanoleuca	Magpie-lark	-	-
Haematopus fuliginosus fuliginosus	Sooty Oyster Catcher	-	R
Haliastur sphenurus	Whistling Kite	-	-
Himantopus leucocephalus	Pied Stilt	-	-

Species[1, 2]	Common Name	EPBC[3]	NPW[4]
Hirundo neoxena	Welcome Swallow	-	-
Hydroprogne caspia	Caspian Tern	-	-
Lalage tricolor	White-winged Triller	-	-
Larus pacificus	Pacific Gull	-	-
Leipoa ocellata	Malleefowl	VU	V
Lichenostomus ornatus	Yellow-plumed Honeyeater	-	-
Macropus fuliginosus	Western Grey Kangaroo	-	-
Malurus assimilis	Purple-backed Fairywren	-	-
Malurus lamberti	Variegated Fairywren	-	-
Malurus leucopterus	White-winged Fairywren	-	-
Malurus sp.	Fairywren	-	-
Malurus splendens	Splendid Fairywren	-	-
Manorina flavigula	Yellow-throated Miner	-	-
Melopsittacus undulatus	Budgerigar	-	-
Merops ornatus	Rainbow Bee-eater	-	-
Microcarbo melanoleucos	Little Pied Cormorant	-	-
Microeca fascinans	Jacky Winter	-	-
Milvus migrans	Black Kite	-	-
Myiagra inquieta	Restless Flycatcher	-	R
Neophema chrysostoma	Blue-winged Parrot	VU	V
Neophema elegans	Elegant Parrot	-	R
Nesoptilotus leucotis	White-eared Honeyeater	-	-
Northiella haematogaster	Eastern Bluebonnet	-	-
Nymphicus hollandicus	Cockatiel	-	-
Ocyphaps lophotes	Crested Pigeon	-	-
Oreoica gutturalis	Crested Bellbird	-	-
*Oryctolagus cuniculus**	European Rabbit	-	-
Osphranter robustus	Common Wallaroo (Euro)	-	-
Osphranter rufus	Red Kangaroo	-	-
Pachycephala inornata	Gilbert's Whistler	-	R
Pachycephala rufiventris	Rufous Whistler	-	-
Pardalotus striatus	Striated Pardalote	-	-
Parvipsitta porphyrocephala	Purple-crowned Lorikeet	-	-
*Passer domesticus**	House Sparrow	-	-
Pelecanus conspicillatus	Australian Pelican	-	-
Peltohyas australis	Inland Dotterel	-	-
Petrochelidon ariel	Fairy Martin	-	-
Petrochelidon nigricans	Tree Martin	-	-
Petroica goodenovii	Red-capped Robin	-	-
Phalacrocorax sulcirostris	Little Black Cormorant	-	-
Phalacrocorax varius	Pied Cormorant	-	-

Species[1, 2]	Common Name	EPBC[3]	NPW[4]
Phaps chalcoptera	Common Bronzewing	-	-
Phylidonyris novaehollandiae	New Holland Honeyeater	-	-
Podargus strigoides	Tawny Frogmouth	-	-
Pogona vitticeps	Central Bearded Dragon	-	-
Pomatostomus superciliosus	White-browed Babbler	-	-
Psephotellus varius	Mulga Parrot	-	-
Pseudonaja inframacula	Peninsula Brown Snake	-	-
Psophodes cristatus	Chirruping Wedgebill	-	-
Ptilotula penicillata	White-plumed Honeyeater	-	-
Purnella albifrons	White-fronted Honeyeater	-	-
Pyrrholaemus brunneus	Redthroat	-	-
Rhipidura albiscapa	Grey Fantail	-	-
Rhipidura leucophrys	Willie Wagtail	-	-
Smicrornis brevirostris	Weebill	-	-
*Spilopelia chinensis**	Spotted Dove	-	-
Sternula albifrons	Little Tern	VU	E
Strepera versicolor	Grey Currawong	-	-
Strophrous	Spiny-tailed Gecko	-	-
*Sturnus vulgaris**	Common Starling	-	-
Tachybaptus novaehollandiae	Australian Grebe	-	-
Taeniopygia guttata castanotis	Zebra Finch	-	-
Threskiornis moluccus	Australian White Ibis	-	-
Tiliqua rugosa	Sleepy Lizard	-	-
Tiliqua scincoides	Eastern Blue-tongue Lizard	-	-
Todiramphus pyrrhopygia	Red-backed Kingfisher	-	-
Trichoglossus moluccanus	Rainbow Lorikeet	-	-
*Turdus merula**	Common Blackbird	-	-
Turnix varius	Painted Buttonquail	-	R
Turnix velox	Little Buttonquail	-	-
Tympanocryptis fictilis	Harlequin Earless Dragon	-	-
Tympanocryptis tolleyi	Gawler Earless Dragon	-	-
Tyto delicatula	Eastern Barn Owl	-	-
Vanellus miles	Masked Lapwing	-	-
Vanellus tricolor	Banded Lapwing	-	-
Varanus gouldii	Gould's Sand Monitor	-	-
*Vulpes vulpes**	European Red Fox	-	-
Zosterops lateralis	Silvereye	-	-

[1] Introduced species are marked with *
[2] All species within this list were observed to occur during field surveys. Some detections may have occurred in surveys conducted for previous construction footprint alignments and may now be beyond the extent of the current Project Area.
[3] EPBC Act status: Critically Endangered (CR); Endangered (EN); Vulnerable (VU). Migratory status: Migratory Wetland (MW); Migratory Terrestrial (MT); Migratory Marine (MM).
[4] NPW Act status: Endangered (E); Vulnerable (V); Rare (R).

D.2 Summary of Flora Species Detected (BAM)

Species[1]	Common Name	Introduced[2]
Abutilon otocarpum	Desert Lantern-bush	
Abutilon sp.	Lantern-bush	
Acacia calamifolia	Wallowa	
Acacia oswaldii	Umbrella Wattle	
Acacia papyrocarpa	Western Myall	
Alectryon oleifolius ssp. *canescens*	Bullock Bush	
Alyxia buxifolia	Sea Box	
Amyema maidenii ssp. *maidenii*	Pale-leaf Mistletoe	
Amyema miraculosa ssp. *boormanii*	Fleshy Mistletoe	
Amyema quandang var. *quandang*	Grey Mistletoe	
Amyema sp.	Mistletoe	
Arabidella sp.	Native Cress	
Asphodelus fistulosus	Onion Weed	*
Atriplex cinerea	Coast Saltbush	
Atriplex stipitata	Mallee saltbush	
Atriplex vesicaria	Bladder Saltbush	
Austrostipa elegantissima	Feather Spear-grass	
Austrostipa nitida	Balcarra Spear-grass	
Austrostipa platychaeta	Flat-awn Spear-grass	
Austrostipa scabra ssp.	Rough Spear-grass	
Austrostipa sp.	Spear-grass	
Avicennia marina ssp. *marina*	Grey Mangrove	
Beyeria lechenaultii	Pale Turpentine Bush	
Brachyachne ciliaris	Hairy Native Couch	
Brachyscome ciliaris var. *lanuginosa*	Woolly Variable Daisy	
Bulbine semibarbata	Small Leek-lily	
Calandrinia eremaea	Dryland Purslane	
Calotis hispidula	Hairy Burr-daisy	
Carpobrotus rossii	Native Pigface	
Carrichtera annua	Ward's Weed	*
Carthamus lanatus	Saffron Thistle	*
Casuarina pauper	Black Oak	
Chenopodium curvispicatum	Cottony Goosefoot	
Chenopodium desertorum ssp.	Desert Goosefoot	
Chenopodium desertorum ssp. *desertorum*	Frosted Goosefoot	
Convolvulus erubescens complex	Australian Bindweed	
Convolvulus remotus	Grassy Bindweed	
crassula colorata var.	Dense Crassula	
Cratystylis conocephala	Bluebush Daisy	
Daucus glochidiatus	Native Carrot	
Dissocarpus biflorus var.	Two-horn Saltbush	

Species[1]	Common Name	Introduced[2]
Dissocarpus biflorus var. *biflorus*	Two-horn Saltbush	
Dissocarpus paradoxus	Ball Bindyi	
Dissocarpus sp.		
Dodonaea lobulata	Lobed-leaf Hop-bush	
Dodonaea viscosa ssp. *angustissima*	Narrow-leaf Hop-bush	
Dysphania melanocarpa	Black Crumbweed	
Dysphania sp.	Crumbweed/Rat Tails	
Einadia nutans ssp.	Climbing Saltbush	
Enchylaena tomentosa var.	Ruby Saltbush	
Enchylaena tomentosa var. *tomentosa*	Ruby Saltbush	
Enneapogon nigricans	Black-head Grass	
Eremophila alternifolia	Narrow-leaf Emubush	
Eremophila deserti	Turkey-bush	
Eremophila glabra ssp.	Tar Bush	
Eremophila glabra ssp. *glabra*	Tar Bush	
Eremophila longifolia	Weeping Emubush	
Eremophila oppositifolia ssp.	Opposite-leaved Emubush	
Eremophila scoparia	Broom Emubush	
Eriochiton sclerolaenoides	Woolly-fruit Bluebush	
Erodiophyllum elderi	Koonamore Daisy	
Erodium cicutarium	Cut-leaf Heron's-bill	*
Euphorbia australis var.	Hairy Caustic Weed	
Euphorbia drummondii group	Caustic Weed	
Euphorbia tannensis ssp. *eremophila*	Desert Spurge	
Exocarpos aphyllus	Leafless Cherry	
Exocarpos cupressiformis	Native Cherry	
Frankenia pauciflora var.	Southern Sea-heath	
Frankenia serpyllifolia	Thyme Sea-heath	
Frankenia sessilis	Small-leaf Sea-heath	
Frankenia sp.	Sea-heath	
Geijera linearifolia	Sheep Bush	
Gnephosis arachnoidea	Spidery Button-flower	
Hemichroa diandra	Mallee Hemichroa	
Lawrencia squamata	Thorny Lawrencia	
Lycium australe	Australian Boxthorn	
Lycium ferocissimum	African Boxthorn	*
Lysiana exocarpi ssp. *exocarpi*	Harlequin Mistletoe	
Maireana brevifolia	Short-leaf Bluebush	
Maireana georgei	Satiny Bluebush	
Maireana georgei / turbinata	Satiny Bluebush	
Maireana oppositifolia	Salt Bluebush	
Maireana pentatropis	Erect Mallee Bluebush	

Species[1]	Common Name	Introduced[2]
Maireana pyramidata	Black Bluebush	
Maireana radiata	Radiate Bluebush	
Maireana sedifolia	Bluebush	
Maireana trichoptera	Hairy-fruit Bluebush	
Maireana turbinata	Top-fruit Bluebush	
Marrubium vulgare	Horehound	*
Medicago arabica	Spotted Medic	*
medicago minima	Little Medic	*
Medicago polymorpha	Burr-medic	*
Medicago sp.	Medic	*
Melaleuca lanceolata	Dryland Tea-tree	
Mesembryanthemum aitonis	Angled Iceplant	*
Mesembryanthemum crystallinum	Common Iceplant	*
Mesembryanthemum nodiflorum	Slender Iceplant	*
Mesembryanthemum sp.	Iceplant	*
Minuria cunninghamii	Bush Minuria	
Minuria leptophylla	Minnie Daisy	
Myoporum insulare	Common Boobialla	
Myoporum platycarpum ssp.	False Sandalwood	
Myoporum platycarpum ssp. *platycarpum*	False Sandalwood	
Nicotiana glauca	Tree Tobacco	*
Nicotiana goodspeedii	Small-flower Tobacco	
Nicotiana sp.	Tobacco	
Nitraria billardierei	Nitre-bush	
Olearia axillaris	Coast Daisy-bush	
Olearia calcarea	Crinkle-leaf Daisy-bush	
Olearia pimeleoides	Pimelea Daisy-bush	
Opuntia sp.	Prickly Pear	*
Orbea variegata	Carrion-flower	*
Oxalis perennans	Native Sorrel	
Oxalis perennans / exilis	Native Oxalis	
Pimelea microcephala ssp.	Shrubby Riceflower	
Pimelea simplex ssp.	Desert Riceflower	
Pittosporum angustifolium	Native Apricot	
Plantago sp.	Plantain	
Pterocaulon sphacelatum	Apple-bush	
Ptilotus obovatus	Silver Mulla Mulla	
Reichardia tingitana	False Sowthistle	*
Rhagodia crassifolia	Fleshy Saltbush	
Rhagodia parabolica	Mealy Saltbush	
Rhagodia sp.	Saltbush	
Rhagodia spinescens	Spiny Saltbush	

Species[1]	Common Name	Introduced[2]
Rhagodia ulicina	Intricate Saltbush	
Rhodanthe corymbiflora	Paper Everlasting	
Roepera ammophila	Sand Twinleaf	
Roepera aurantiaca ssp.	Shrubby Twinleaf	
Roepera billardierei	Coast Twinleaf	
Roepera eremaea	Climbing Twinleaf	
Roepera ovata	Dwarf Twinleaf	
Roepera sp.	Twinleaf	
Rostraria pumila	Tiny Bristle-grass	*
Rumex vesicarius	Rosy Dock	*
Rytidosperma caespitosum	Common Wallaby-grass	
Rytidosperma setaceum	Small-flower Wallaby-grass	
Rytidosperma sp.	Wallaby-grass	
Salsola australis	Buckbush	
Salvia verbenaca var.	Wild Sage	*
Santalum acuminatum	Quandong	
Santalum spicatum	Sandalwood	
Sarcozona praecox	Sarcozona	
Scaevola spinescens	Spiny Fanflower	
Sclerolaena brachyptera	Short-wing Bindyi	
Sclerolaena diacantha	Grey Bindyi	
Sclerolaena obliquicuspis	Oblique-spined Bindyi	
Sclerolaena patenticuspis	Spear-fruit Bindyi	
Sclerolaena uniflora	Small-spine Bindyi	
Senecio glossanthus	Annual Groundsel	
Senna artemisioides ssp.	Desert Senna	
Senna artemisioides ssp. *artemisioides* x ssp. *coriacea*	Desert Senna	
Senna artemisioides ssp. *artemisioides* x ssp. *filifolia*	Desert Senna	
Senna artemisioides ssp. *filifolia*	Fine-leaf Desert Senna	
Senna artemisioides ssp. X *coriacea*	Broad-leaf Desert Senna	
Senna artemisioides ssp. X *petiolaris*	Woody Desert Senna	
Senna sp.	Senna	
Setaria constricta	Knotty-butt Paspalidium	
Sida fibulifera	Pin Sida	
Sida intricata	Twiggy Sida	
Sida petrophila	Rock Sida	
Sida spodochroma	Limestone Sida	
Sisymbrium erysimoides	Smooth Mustard	*
Sisymbrium sp.	Wild Mustard	*
Solanum aridicola	Desert Nightshade	
Solanum coactiliferum	Tomato-bush	
Solanum quadriloculatum	Plains Nightshade	

Species[1]	Common Name	Introduced[2]
solanum sturtianum	Sturt's Nightshade	
Sonchus oleraceus	Common Sow-thistle	*
Suaeda australis	Austral Seablite	
Tecticornia arbuscula	Shrubby Samphire	
Tecticornia halocnemoides ssp.	Grey Samphire	
Tecticornia halocnemoides ssp. *halocnemoides*	Grey Samphire	
Tecticornia halocnemoides ssp. *longispicata*	Grey Samphire	
Tecticornia sp.	Samphire	
Tetragonia implexicoma	Bower Spinach	
Tetragonia tetragonoides	New Zealand Spinach	
Tripogonella loliiformis	Five-minute Grass	
Vittadinia cervicularis var. *cervicularis*	Waisted New Holland Daisy	
Vittadinia cuneata var.	Fuzzy New Holland Daisy	
Vittadinia sp.	New Holland Daisy	
Wilsonia humilis	Silky Wilsonia	

[1] All species within this list were observed to occur during field surveys. Some detections may have occurred in surveys conducted for previous construction footprint alignments and may now be beyond the extent of the current Project Area.
[2] Introduced species are marked with *

D.3 Summary of Flora Species Detected (RAM)

Species[1]	Common Name	Introduced[2]
Abutilon fraseri ssp.	Dwarf Lantern-flower	
Abutilon halophilum	Plains Lantern-bush	
Abutilon otocarpum	Desert Lantern-bush	
Abutilon sp.	Lantern-bush	
Acacia aneura complex	Mulga	
Acacia aneura var.	Mulga	
Acacia brachystachya	Turpentine Mulga	
Acacia burkittii	Pin-bush Wattle	
Acacia ligulata	Umbrella Bush	
Acacia oswaldii	Umbrella Wattle	
Acacia papyrocarpa	Western Myall	
Acacia ramulosa var.	Horse Mulga	
Acacia ramulosa var. *ramulosa*	Horse Mulga	
Acacia stenophylla	River Cooba	
Acacia tetragonophylla	Dead Finish	
Acacia victoriae ssp.	Elegant Wattle	
Alectryon oleifolius ssp. *canescens*	Bullock Bush	
Aristida contorta	Curly Wire-grass	
Asphodelus fistulosus	Onion Weed	*
Astrebla pectinata	Barley Mitchell-grass	
Atriplex angulata	Fan Saltbush	
Atriplex holocarpa	Pop Saltbush	
Atriplex stipitata	Mallee Saltbush	
Atriplex vesicaria	Bladder Saltbush	
Austrostipa scabra ssp.	Rough Spear-grass	
Callitris glaucophylla	White Cypress-pine	
Callitris gracilis	Southern Cypress Pine	
Carpobrotus rossii	Native Pigface	
Carrichtera annua	Ward's Weed	*
Carthamus lanatus	Saffron Thistle	*
Casuarina pauper	Black Oak	
Chenopodium curvispicatum	Cottony Goosefoot	
Chenopodium nitrariaceum	Nitre Goosefoot	
Dissocarpus biflorus var. *biflorus*	Two-horn Saltbush	
Dissocarpus paradoxus	Ball Bindyi	
Dodonaea lobulata	Lobed-leaf Hop-bush	
Dodonaea microzyga var. *microzyga*	Brilliant Hop-bush	
Dodonaea viscosa ssp. *angustissima*	Narrow-leaf Hop-bush	
Duboisia hopwoodii	Pituri	
Duma florulenta	Lignum	
Einadia nutans ssp.	Climbing Saltbush	

Species[1]	Common Name	Introduced[2]
Enchylaena tomentosa var.	Ruby Saltbush	
Enneapogon avenaceus	Common Bottle-washers	
Enneapogon polyphyllus	Leafy Bottle-washers	
Eragrostis australasica	Cane-grass	
Eragrostis setifolia	Bristly Love-grass	
Eremophila deserti	Turkey-bush	
Eremophila duttonii	Harlequin Emubush	
Eremophila freelingii	Rock Emubush	
Eremophila glabra ssp.	Tar Bush	
Eremophila glabra ssp. *glabra*	Tar Bush	
Eremophila latrobei ssp. *glabra*	Crimson Emubush	
Eremophila longifolia	Weeping Emubush	
Eremophila maculata ssp. *maculata*	Spotted Emubush	
Eremophila oppositifolia ssp. *oppositifolia*	Opposite-leaved Emubush	
Eremophila scoparia	Broom Emubush	
Eremophila serrulata	Green Emubush	
Eriochiton sclerolaenoides	Woolly-fruit Bluebush	
erodium crinitum	Blue Heron's-bill	
Eucalyptus camaldulensis ssp.	River Red Gum	
Eucalyptus camaldulensis ssp. *arida*	Northern River Red Gum	
Eulalia aurea	Silky Brown-top	
Euphorbia tannensis ssp. *eremophila*	Desert Spurge	
Exocarpos aphyllus	Leafless Cherry	
Frankenia serpyllifolia	Thyme Sea-heath	
Grevillea huegelii	Comb Grevillea	
Gunniopsis quadrifida	Sturt's Pigface	
Heliotropium europaeum	Common Heliotrope	*
Hibiscus krichauffianus	Velvet-leaf Hibiscus	
Lycium australe	Australian Boxthorn	
Lycium ferocissimum	African Boxthorn	*
Maireana aphylla	Cotton-bush	
Maireana appressa	Pale-fruit Bluebush	
Maireana astrotricha	Low Bluebush	
Maireana campanulata	Bell-fruit Bluebush	
Maireana eriantha	Woolly Bluebush	
Maireana georgei	Satiny Bluebush	
Maireana integra	Entire-wing Bluebush	
Maireana oppositifolia	Salt Bluebush	
Maireana pentatropis	Erect Mallee Bluebush	
Maireana pyramidata	Black Bluebush	
Maireana sedifolia	Bluebush	
Maireana sp.	Bluebush/Fissure-plant	

Species[1]	Common Name	Introduced[2]
Maireana trichoptera	Hairy-fruit Bluebush	
Maireana turbinata	Top-fruit Bluebush	
Melaleuca glomerata	Inland Paper-bark	
Melaleuca pauperiflora ssp. *mutica*	Boree	
Melaleuca xerophila	Boree	
Minuria cunninghamii	Bush Minuria	
Myoporum montanum	Native Myrtle	
Myoporum platycarpum ssp.	False Sandalwood	
Myoporum platycarpum ssp. *platycarpum*	False Sandalwood	
Nitraria billardierei	Nitre-bush	
Osteocarpum acropterum var.	Bonefruit	
Pimelea microcephala ssp. *microcephala*	Shrubby Riceflower	
Pimelea stricta	Erect Riceflower	
Pittosporum angustifolium	Native Apricot	
Pterocaulon sphacelatum	Apple-bush	
Ptilotus obovatus	Silver Mulla Mulla	
Rhagodia crassifolia	Fleshy Saltbush	
Rhagodia spinescens	Spiny Saltbush	
Rhagodia ulicina	Intricate Saltbush	
Roepera aurantiacum/eremaeum	Shrubby Twinleaf	
Roepera sp.	Twinleaf	
Rytidosperma caespitosum	Common Wallaby-grass	
Santalum lanceolatum	Plumbush	
Scaevola spinescens	Spiny Fanflower	
Sclerolaena brachyptera	Short-wing Bindyi	
Sclerolaena cuneata	Tangled Bindyi	
Sclerolaena divaricata	Tangled Bindyi	
Sclerolaena obliquicuspis	Oblique-spined Bindyi	
Sclerolaena tatei	Tate's Bindyi	
Sclerolaena ventricosa	Salt Bindyi	
Senna artemisioides ssp. *petiolaris*	Woody Desert Senna	
Senna artemisioides ssp. X *artemisioides*	Silver Senna	
Senna artemisioides ssp. X *coriacea*	Broad-leaf Desert Senna	
Senna artemisioides ssp. X *petiolaris*	Woody Desert Senna	
Senna cardiosperma ssp. *gawlerensis*	Gawler Ranges Senna	
Setaria constricta	Knotty-butt Paspalidium	
Sida ammophila	Sand Sida	
Sida intricata	Twiggy Sida	
Sida petrophila	Rock Sida	
Solanum quadriloculatum	Plains Nightshade	
Tecticornia arbuscula	Shrubby Samphire	
Tecticornia halocnemoides ssp. *tenuis*	Red Glasswort	

Species[1]	Common Name	Introduced[2]
Tecticornia indica ssp. *leiostachya*	Brown-head Samphire	
Tecticornia medullosa	Samphire	
Tecticornia tenuis	Slender Samphire	
Tetragonia tetragonoides	New Zealand Spinach	
Teucrium racemosum	Grey Germander	
Themeda triandra	Kangaroo Grass	
Xanthium spinosum	Bathurst Burr	*
Zygochloa paradoxa	Sandhill Cane-grass	

[1] All species within this list were observed to occur during field surveys. Some detections may have occurred in surveys conducted for previous construction footprint alignments and may now be beyond the extent of the current Project Area.
[2] Introduced species are marked with *

Appendix E. Flora and Fauna Survey Locations

E.1 Locations of Timed Area and Song Meter Survey Sites

Survey Site	Eastings	Northings
TA1	743401	6358235
TA2	755327	6349342
TA3	748451	6353690
TA4	750567	6351468
TA5	759084	6347109
TA6[◊,2]	681999	6625518
TA7	681888	6625536
TA8	681841	6626430
TA9[◊,2]	681900	6624438
TA10	683119	6621797
TA11[◊]	683788	6620421
TA12[◊,2]	682531	6604009
TA13[2]	682049	6588052
TA14	683911	6619501
TA15[◊,2]	681927	6624700
TA16	682189	6576609
TA17	682178	6578900
TA18[2]	682152	6623616
TA19	682787	6622354
TA20[2]	684026	6616102
TA21[2]	682007	6623973
TA22[◊]	684142	6619588
TA23	682765	6622284
TA24[◊]	682633	6604487
TA25[◊]	681796	6626252
TA26[2]	683966	6618633
TA27[1]	733622	6341565
TA28	735046	6345762
TA29[1]	733651	6342744
TA30	733769	6344978
TA31	736717	6344848
TA32[1,8]	732923	6341060
TA33	675676	6549718
TA34	740807	6350553
TA35	740548	6352303
TA36	740220	6354151
TA37	675882	6550712

TA38	676729	6552929
TA39	675997	6550632
TA40	728958	6339906
TA41	721672	6317080
TA42	722761	6316846
TA43[1]	739607	6384243
TA44	729784	6335533
TA45	739143	6383261
TA46[1]	728321	6343457
TA47	759423	6346986
TA48[7]	757493	6347530
TA49	759547	6347623
TA50[2]	722534	6317263
TA51[1]	729724	6335979
TA52[1]	738735	6345628
TA53	721590	6317110
TA54[2]	719593	6317100
TA55[2]	719995	6316875
TA56	724445	6318553
TA57[2]	716403	6317333
TA58[8]	733210	6340219
TA59[1]	733125	6340626
TA60	739978	6355595
TA61[2]	713341	6316979
TA62	707737	6317786
TA63	701146	6314828
TA64[2]	748151	6413978
TA65	683631	6609698
TA66	739990	6355517
TA67	751910	6350197
TA68	753209	6349886
TA69	756824	6346643
TA70[1]	738828	6345658
TA71[2,5,8]	733846	6335912
TA72	712259	6316961
TA73[2]	752794	6408911
TA74	740621	6352804
TA75	743460	6374159
TA76[3]	726976	6330668
TA77	726333	6320944
TA78	726618	6320426
TA79	726714	6321158

TA80[4,9]	726490	6320144
TA81[◊]	725094	6321294
TA82	726916	6321426
TA83	726461	6321347
TA84[◊]	724480	6322045
TA85[◊]	724620	6321236
TA86[◊]	721786	6335134
TA87[◊,1, 2]	721233	6339902
TA88[◊,1, 2]	721850	6337374
TA89[◊]	721857	6334146
TA90[◊]	723390	6332441
TA91[◊]	725174	6321736
TA92[◊,2]	723906	6328826
TA93[◊]	723721	6330299
TA94[◊]	735032	6378732
TA95[◊,2]	737623	6384387
TA96[◊]	736521	6373107
TA97	725356	6321301
SM1	734420	6346047
SM2	734068	6345372
SM3	733456	6340872
SM4	733661	6341341
SM5	740192	6354305
SM6	739433	6346599
SM7[1]	739755	6347419
SM8	740681	6351457
SM9	745914	6392399
SM10[◊]	746547	6394257
SM11	747118	6396505
SM12[◊]	745138	6391448
SM13	682171	6623663
SM14	682802	6622300
SM15[◊]	684148	6619632
SM16	683963	6616122
SM17[1, 2]	722761	6316846
SM18[2]	721672	6317080
SM19[1, 2]	728958	6339906
SM20[2]	729784	6335533
SM21	739607	6384243
SM22	739143	6383261
SM23	740621	6352804
SM24[◊,6]	725353	6321288

SM25[◊]	726241	6320910
SM26	726503	6320456
SM27[◊]	724619	6321395
SM28[◊]	724991	6322099
SM29[2]	723950	6328825
SM30[1,2]	721744	6335140
SM31[◊]	735402	6375800
SM32[◊]	738039	6366065
SM33[◊]	739795	6355917

[◊] Indicates survey sites which are expected to be impacted by the Rev 5.2 construction footprint.
[1] Indicates survey sites in which Western Grasswren (*Amyornis textilis myall*) were observed or heard.
[2] Indicates survey sites in which Southern Whiteface (*Aphelocephala leucopsis*) were observed or heard.
[3] Indicates survey sites in which Australian Bustard (*Ardeotis australis*) were observed or heard.
[4] Indicates survey sites in which Sooty Oystercatcher (*Haematopus fuliginosus fuliginosus*) were observed or heard.
[5] Indicates survey sites in which Sooty Restless Flycatcher (*Myiagra inquieta*) were observed or heard.
[6] Indicates survey sites in which Blue-winged Parrot (*Neophema chrysostoma*) were observed or heard.
[7] Indicates survey sites in which Elegant Parrot (*Neophema elegans*) were observed or heard.
[8] Indicates survey sites in which Gilberts Whistler (*Pachycephala inornata*) were observed or heard.
[9] Indicates survey sites in which Little Tern (*Sternula albifrons sinensis*) were observed or heard.

E.2 Locations of Opportunistic Threatened Species Observations

Species	Count	Eastings	Northings
Western Grasswren	3	738712	6345800
Western Grasswren	1	738713	6345651
Western Grasswren	2-3	732666	6341362
Western Grasswren	1	738859	6345594
Western Grasswren	1	734479	6347946
Western Grasswren	2	733233	6346026
Western Grasswren	1	733030	6346015
Southern Whiteface	2	721857	6337478
Southern Whiteface	2	724281	6323647
White-wing Chough	1	713017	6317245
Sooty Oystercatcher	1	726548	6320231
Malleefowl	1	692385	6306821

E.3 Locations of BAM Vegetation Assessments

BAM Site	Eastings	Northings
BAM 100	679754	6276489
BAM 101a◊	685064	6278066
BAM 101b◊	681576	6277016
BAM 102	685188	6278100
BAM 103a	740403	6354448
BAM 103g◊	721797	6335093
BAM 103h◊	723921	6328824
BAM 104	705278	6298006
BAM 106	740367	6354635
BAM 10a	721660	6317092
BAM 10b	715183	6310903
BAM 111a◊	730885	6347837
BAM 111b◊	733572	6351261
BAM 111g◊	721837	6337243
BAM 112a	732986	6349490
BAM 112b	732953	6345543
BAM 115a	733233	6346009
BAM 115b	734647	6350905
BAM 11a◊	722777	6316873
BAM 11b◊	719989	6314057
BAM 11h◊	728747	6333005
BAM 12	730219	6333623
BAM 120	734437	6346705
BAM 13	731592	6334140
BAM 130	743461	6358304
BAM 140	726628	6320372
BAM 141	726559	6320377
BAM 142a◊	725387	6321310
BAM 142b◊	724820	6323008
BAM 143	726859	6321390
BAM 144◊	726448	6321294
BAM 145	726164	6320463
BAM 14a	733847	6335940
BAM 14b	680883	6276796
BAM 17◊	733621	6342312
BAM 19	734729	6345991
BAM 20	737527	6344744
BAM 21◊	738286	6344794
BAM 22	739568	6347007

BAM Site	Eastings	Northings
BAM 23	738810	6345826
BAM 24◊	713350	6316997
BAM 250◊	723703	6330318
BAM 29	738762	6345604
BAM 3	758783	6347212
BAM 31	741144	6347084
BAM 32a	740769	6352366
BAM 32b	739691	6349350
BAM 33	748510	6353629
BAM 34a◊	755764	6350819
BAM 34x◊	724677	6323545
BAM 35	756925	6346633
BAM 36	755291	6349412
BAM 47	714793	6309879
BAM 48	714278	6308487
BAM 49	713366	6306051
BAM 5	753061	6349897
BAM 50	710631	6302250
BAM 51a◊	740810	6349714
BAM 51b◊	740089	6348918
BAM 51g◊	721277	6339822
BAM 52a	740541	6349910
BAM 52b	740982	6349015
BAM 53a◊	740410	6349624
BAM 53b◊	740408	6349628
BAM 54a◊	740850	6349286
BAM 54g◊	721797	6334225
BAM 55	740078	6347796
BAM 56	739523	6346845
BAM 57a	739096	6346265
BAM 57b	734947	6346224
BAM 58	738860	6345586
BAM 59◊	739788	6346573
BAM 6	748826	6353155
BAM 60	739884	6346300
BAM 61◊	737683	6355259
BAM 62a◊	737841	6354433
BAM 62y◊	727212	6348153
BAM 63a◊	734763	6353558
BAM 63b◊	704320	6297460
BAM 64a◊	733007	6351298

BAM Site	Eastings	Northings
BAM 64x◊	728674	6349445
BAM 65◊	732603	6350817
BAM 66◊	726948	6345102
BAM 67◊	726518	6344108
BAM 68a	688062	6279082
BAM 68b	697180	6279232
BAM 68c	699652	6279807
BAM 69a	687816	6278945
BAM 69b	648778	6253273
BAM 70a	690074	6279360
BAM 70c	648615	6253294
BAM 70d	656926	6255671
BAM 71	691730	6279313
BAM 72a	693200	6279310
BAM 72b	641944	6251922
BAM 73a	700816	6291201
BAM 73b	700599	6292319
BAM 73c	654704	6254010
BAM 74	700840	6291674
BAM 75	679509	6276446
BAM 76	700339	6295234
BAM 77	700887	6295526
BAM 78	703223	6296863
BAM 79	715671	6312203
BAM 7a◊	742267	6353468
BAM 7b◊	739982	6355579
BAM 7d◊	729554	6348243
BAM 7x◊	728503	6349228
BAM 81	740535	6351689
BAM 82	621109	6217349
BAM 83	621962	6217179
BAM 84a	621709	6217668
BAM 84b	621745	6218018
BAM 85	619549	6217238
BAM 86	619386	6217247
BAM 87	618603	6217269
BAM 88	618116	6217287
BAM 89	616569	6217335
BAM 9◊	722511	6317257
BAM 90	604983	6217717
BAM 91	622421	6220453

BAM Site	Eastings	Northings
BAM 92	622263	6225409
BAM 93	625242	6231783
BAM 94a	646561	6253192
BAM 94b	647078	6253237
BAM 95	634309	6242473
BAM 96	634640	6242833
BAM 97	704850	6297757
BAM 98	666698	6265735
BAM 99	679103	6276315
LEBAM 200	677560	6275674

◊ Indicates survey sites which are expected to be impacted by the Rev 5.2 construction footprint.

E.4 Locations of RAM Vegetation Assessments

RAM Site	Eastings	Northings
LERAM 202◊	731160	6454259
LERAM 203◊	746091	6397560
LERAM 204◊	746176	6397957
LERAM 205◊	746582	6401170
LERAM 207a◊	746890	6403423
LERAM 207x◊	746776	6403852
LERAM 208	746993	6403369
LERAM 209◊	746903	6404765
LERAM 210◊	747330	6407480
LERAM 211◊	747213	6407644
LERAM 213a◊	747561	6410098
LERAM 213b◊	747631	6411496
LERAM 213x◊	747170	6408502
LERAM 50◊	726786	6531503
LERAM 51◊	715320	6529625
LERAM 52◊	697332	6516531
LERAM 53◊	699472	6517688
LERAM 54◊	699603	6517723
LERAM 55◊	704545	6522345
LERAM 57◊	711872	6529228
LERAM 58◊	696604	6515738
LERAM 59◊	736001	6540156
LERAM 62◊	718006	6529448
LERAM 63◊	718822	6538525
LERAM 64◊	721765	6534734
LERAM 65◊	725787	6528839
RAM 1◊	734988	6378606
RAM 10a◊	682371	6627119
RAM 10b◊	682194	6589450
RAM 11◊	682132	6626932
RAM 12a◊	682671	6622395
RAM 12b◊	682281	6583873
RAM 13◊	683907	6614019
RAM 14◊	681126	6600333
RAM 15◊	675920	6550796
RAM 16◊	675865	6550780
RAM 17◊	702106	6505964
RAM 18a◊	743384	6389470
RAM 18b◊	752787	6408927
RAM 18g◊	735834	6375276

RAM Site	Eastings	Northings
RAM 19	712195	6317004
RAM 2◊	757036	6404545
RAM 20	707714	6317791
RAM 21	701134	6314846
RAM 23◊	748174	6413958
RAM 25◊	744475	6420638
RAM 27◊	720926	6470992
RAM 28◊	705797	6492755
RAM 29◊	690770	6519571
RAM 300◊	674500	6544184
RAM 301◊	730757	6453719
RAM 30a◊	748326	6399253
RAM 30x◊	746533	6401752
RAM 31◊	746040	6392377
RAM 32	751990	6405217
RAM 33	752519	6405664
RAM 34◊	689795	6520751
RAM 35◊	675690	6549609
RAM 350◊	737623	6384343
RAM 36◊	681120	6597293
RAM 37	682473	6583486
RAM 39◊	682122	6585855
RAM 3a◊	743210	6423098
RAM 3x◊	713441	6484627
RAM 40◊	680999	6599789
RAM 41◊	682593	6604205
RAM 42◊	739175	6383222
RAM 43	744379	6361105
RAM 44a◊	739629	6384231
RAM 44b◊	739623	6384264
RAM 44c◊	739610	6384213
RAM 7◊	696688	6515595
RAM 8 N1◊	679382	6557265
RAM 8 N2◊	676661	6546499
RAM 8 N3◊	701809	6507584
RAM 8 N4◊	677620	6531137
RAM 8a◊	671845	6541241
RAM 8b◊	682009	6572459
RAM 8c◊	682183	6578381

◊ Indicates survey sites which are expected to be impacted by the Rev 5.2 construction footprint.

Appendix I-2:

Plains Mouse Habitat Assessment

Northern Water Project

Plains Mouse (*Pseudomys australis*) habitat assessment

Department for Infrastructure and Transport

LATHWIDA ENVIRONMENTAL



December 2025

Final

Document status

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The sole purpose of this report and the associated services performed by Lathwida is to document and map suitable habitat for Plains Mouse within the proposed construction footprint of the Project. This document and associated data will support the development of primary approval documentation required for the Northern Water Project in South Australia. The report is based on a desktop review of available data, analysis of freely available spatial imagery, and ground-truthing conducted during a field survey (16 to 19 March 2024) for DIT. The scope of services, as described in this report, was developed with DIT.

In preparing this report, Lathwida has relied upon, and presumed accurate, any information (or confirmation of the absence thereof) provided by the Client and/or from other sources. Except as otherwise stated in the report, Lathwida has not attempted to verify the accuracy or completeness of any such information. If the information is subsequently determined to be false, inaccurate, or incomplete then it is possible that our observations and conclusions as expressed in this report may change.

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Executive summary

ES1 Introduction

The Northern Water Project (the Project) aims to provide a secure climate resilient water source for industry in South Australia's Upper Spencer Gulf and Far North. This will enable the growth of industries and key mining resources crucial for contributing to decarbonisation initiatives, sustainability and unlocking long term economic prosperity for South Australia. The delivery of the Project will involve the construction and operation of a 51 gigalitre per year (GL/y) seawater reverse osmosis desalination plant at Mullaquana Station in the Upper Spencer Gulf, and it's connection to the Far North via approximately 400 km of transfer system (including pipeline, transfer pump stations, and water storages) and electricity infrastructure. The proposed desalination plant site at Mullaquana Station is located approximately 25 km south-west from the centre of Whyalla. One lateral branch pipeline is also proposed, connecting BHP's existing Carrapateena mine from the main transfer pipeline north of Port Augusta.

The Project traverses a substantial portion of South Australia, and as a result, intersects known habitat for a number of conservation significant species listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act). These species warrant more targeted investigation to better understand the extent of potential impacts that may result from the Project. One of these species, Plains Mouse (*Pseudomys australis*), is known to occur in the northern portion of the Project's transfer system alignment, including along the Carrapateena lateral branch (EBS Ecology 2013, 2017c, 2017d, Jacobs 2021, Jacobs 2025).

ES2 Potential Plains Mouse habitat

The Plains Mouse is a medium-sized rodent native to the arid regions of south and south-eastern Australia. Plains Mouse distribution has been reduced by 50 to 90% since European settlement and it is currently restricted mainly to the Stony Plains Bioregion of South Australia with small populations in the Northern Territory and Queensland. The species is listed as Vulnerable nationally under EPBC Act and is recognised as threatened in all the states where it occurs, including in South Australia where it is listed as vulnerable under the *National Parks and Wildlife Act 1972* (SA) (NPW Act). According to the Plains Mouse Recovery Plan, all populations of the species should be considered important populations.

Though historic and fossil records indicate that the Plains mouse previously inhabited a range of habitats, its permanent refuge habitat outside of managed reserves now includes two main habitat types:

- large open gypseous cracking clay areas associated with minor drainage features
- depressions (gilgais) within gibber stony plains.

These habitats represent more productive patches with greater survivorship in their respective environments which allows Plains Mouse to persist during years of dry conditions with overall low productivity, and as such, they reflect critical refuge habitat for the species.

The northern portion of the Project main transfer pipeline and the lateral branch to the Carrapateena mine traverse potential Plains Mouse habitat, resulting in the potential for loss of habitat for the species. To better understand the extent of impacts, Lathwida Environmental (Lathwida) was requested to refine earlier high-level Plains Mouse habitat mapping previously conducted along the main transfer line of the pipeline and along the Carrapateena lateral branch. This refinement was originally completed in August 2024 and included a combination of updated vegetation classification, using updated aerial imagery to identify key habitat features which likely represent suitable habitat, and on-ground verification of areas of potential habitat against desktop mapping. Following an update to the Project alignment, in November 2025 Lathwida completed a desktop aerial assessment of the revised construction footprint to determine if any additional suitable Plains Mouse refuge habitat was present within any newly affected areas.

These assessments identified 123.1 ha of suitable refuge habitat and 10.4 ha of low suitability refuge habitat within the main transfer pipeline construction footprint. Within the construction footprint along the Carrapateena lateral pipeline, 17.1 ha of suitable refuge habitat and 0.5 ha of low suitability refuge habitat have been identified. A total of 151.1 ha of Plains Mouse refuge habitat was mapped within the construction footprint for the Project. In a landscape context, there are vast areas of suitable habitat adjacent to each corridor and extending further north where the Plains Mouse distribution extends into the Northern Territory, which includes an estimated total area of occupancy of 2,000,000 ha and extent of occurrence of 10,000,000 ha for the species.

Table of contents

1 Introduction 1
1.1 Background 1
1.2 Project Location and Proposed Infrastructure 1
1.3 Plains Mouse 2
1.4 Assessment objectives 4
2 Methodology 6
2.1 Main transfer pipeline alignment 6
2.2 Carrapateena lateral branch 10
2.3 Plains Mouse habitat characterisation 11
3 Results 12
4 Discussion 18
5 References 19

List of tables

Table 3.1 Assessment overview: Plains Mouse habitat areas 13

List of figures

Figure 1.1: Plains Mouse habitat assessment location 5
Figure 2.1: Plains Mouse in-field ground-truthing 9
Figure 3.1: Plains Mouse habitat mapping overview 14

List of plates

Plate 1.1: Plains Mouse (*Pseudomys australis*) (photo from Moseby 2012b) 2
Plate 3.1: Example of areas defined as 'not suitable' habitat for Plains Mouse (site PM1, Lathwida 2024) 15
Plate 3.2: Example of areas defined as 'not suitable' habitat for Plains Mouse (site PM17, Lathwida 2024) 15
Plate 3.3: Example of areas defined as 'low suitability' habitat for Plains Mouse (site PM2, Lathwida 2024) 16
Plate 3.4: Example of areas defined as 'low suitability' habitat for Plains Mouse (site PM8, Lathwida 2024) 16
Plate 3.5: Example of areas defined as 'suitable' habitat for Plains Mouse (site PM9, Lathwida 2024) 17
Plate 3.6: Example of areas defined as 'suitable' habitat for Plains Mouse (site PM24, Lathwida 2024). ... 17

List of appendices

Appendix A. Main transfer pipeline Plains Mouse habitat mapping series
Appendix B. Carrapateena lateral pipeline Plains Mouse habitat mapping series

1 Introduction

1.1 Background

The Northern Water Project (the Project) aims to provide a secure climate resilient water source for industry in South Australia's Upper Spencer Gulf and Far North. This will enable the growth of industries and key mining resources crucial for contributing to decarbonisation initiatives, sustainability and unlocking long term economic prosperity for South Australia. The delivery of the Project will involve the construction and operation of a 51 gigalitre per year (GL/y) seawater reverse osmosis desalination plant at Mullaquana Station in the Upper Spencer Gulf, and it's connection to the Far North via approximately 400 km of transfer system (including pipeline, transfer pump stations, and water storages) and electricity infrastructure.

1.2 Project Location and Proposed Infrastructure

The Project is comprised of a desalination plant, approximately 400 km of transfer system and electricity infrastructure. The proposed desalination plant site at Mullaquana Station is located approximately 25 km south-west from the centre of Whyalla. One lateral branch pipeline is also proposed, connecting BHP's existing Carrapateena mine from the main transfer pipeline north of Port Augusta. (Figure 1.1).

The Project comprises the following key elements:

- a 51 GL/year seawater reverse osmosis desalination plant located at Mullaquana Station approximately 25 km south-west of central Whyalla
- marine intake and outfall tunnels extending underneath the seabed and into the Spencer Gulf
- diffuser structures for discharge of return water into Spencer Gulf
- a transfer system consisting of:
    - ~ 360 km of main transfer pipeline, largely constructed underground, terminating at the delivery point at the Olympic Dam copper-gold mine
    - ~ 46 km Carrapateena lateral branch pipeline to a delivery point at the Carrapateena copper-gold mine (which may be constructed above or below ground)
    - associated transfer pump stations and storage tanks
- high voltage electricity supply including powerlines, network and facility substations to provide power to the desalination plant and transfer pump stations
- associated temporary construction-related infrastructure (e.g. construction camps, site offices and amenities, yards, storages and laydown areas)
- access tracks including upgrading existing tracks and establishing new tracks
- enabling roadworks and road upgrades.

The Project traverses a substantial portion of South Australia, and as a result, intersects known habitat for a number of conservation significant species listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act). These species warrant more targeted investigation to better understand the extent of potential impacts that may result from the Project. One of these species, Plains Mouse (*Pseudomys australis*), is known to occur in the northern portion of the Project's pipeline alignment, including along the Carrapateena lateral branch (EBS Ecology 2013, 2017c, 2017d, Jacobs 2021, Jacobs 2025).

1.3 Plains Mouse

The Plains Mouse, also referred to as the Plains Rat, is a medium (30 to 50 g) rodent native to the arid regions of south and south-eastern Australia (Plate 1.1). The species overall extent of occurrence is estimated at 100,000 km^2 (10,000,000 ha) which excludes some outlying recent records of the species. The area of occupancy within the extent of occurrence is assumed to be approximately 20,000 km^2 (2,000,000 ha) (Moseby 2012a). The distribution of Plains Mouse is thought to have been reduced by 50 to 90% since European settlement and it is currently restricted mainly to the Stony Plains Bioregion of South Australia with small populations in the Northern Territory and Queensland (Moseby 2012b). As such, the species is listed as Vulnerable nationally under the EPBC Act and is recognised as threatened in all the states where it occurs, including in South Australia where it is listed as vulnerable under the *National Parks and Wildlife Act 1972* (SA) (NPW Act) (DCCEEW 2025). According to the Plains Mouse Recovery Plan, all populations of the species should be considered important populations (Moseby 2012b). Five geographic zones have been defined for the current population and one of these zones is the Arcoona Tableland location, including Pernatty Station in South Australia (Moseby 2021b).



Plate 1.1: Plains Mouse (*Pseudomys australis*) (photo from Moseby 2012b)

Similar to a number of fauna species that occupy arid regions, Plains Mouse populations follow a 'boom-and-bust' cycle, retracting to refuge habitat during regular and prolonged drought periods and expanding their habitat range following periods of sustained rainfall. Though historic and fossil records indicate that the Plains Mouse previously inhabited a range of habitats, based on records since 2000, its known refuge habitat now includes two main types (Brandle et al. 1999; Arid Recovery 2025):

- large open gypseous cracking clay areas associated with minor drainage features
- depressions (gilgais) within gibber stony plains.

These habitat types provide higher survivorship and productivity for the species than surrounding environments because they function as run-on areas, receiving more water and collecting seeds and organic matter, as well as providing physical refuge in the form of deep cracks in the clay soils. This allows Plains Mouse to persist during years of dry conditions and low productivity and from these refuges the species is able to disperse to surrounding areas during periods with more favourable conditions (Moseby 2012b). Other examples of habitats include major drainage lines with riparian vegetation (but devoid of trees) and a sandy clay creek bed or minor drainage lines with little vegetation, but cracking clays and less-friable gibber plains with low chenopods (Moseby 2012; Brandle et al. 1999). Flora species associated with habitats where Plains Mouse have been recorded include Swamp Cane-grass (*Eragrostis australasica*), Cottonbush (*Maireana aphylla*), Oodnadatta Saltbush (*Atriplex nummularia* ssp. *omissa*) (Moseby 2012a, 2012b; Brandle et al. 1999), Lignum (*Duma florulenta*) swamps (SA Museum record) and Bladder Saltbush (*Atriplex vesicaria*) shrublands on tablelands at Carrapateena (EBS Ecology 2017a; 2017c). Other flora species that occur around gilgais that are historically associated with Plains Mouse captures include Bristly Love-grass (*Eragrostis setifolia*), Mitchell Grass (*Astrebla pectinata*), and Cannonball (*Dissocarpus paradoxa*) (Brandle et al. 1999; Jacobs 2021; 2023).

In distinguishing critical Plains Mouse refuge habitats from other 'opportunistic' habitats, the presence of friable cracking clay soil appears to be more essential than the type and structure of the vegetation (Moseby 2012b). Whilst Plains Mouse presence can be detected through scats and burrows, due to the elusive nature of the species, particularly in dry conditions, soil habitat characteristics are the best indicator of refuge habitat locations rather than direct signs of the species (Moseby 2012b). The edges of Cane-grass swamps often support the best areas of friable cracking clay and Moseby (2012a) suggests that a 150 m buffer should be applied around these swamps when determining suitable Plains Mouse refuge habitat. Although clay soils are recognised as the core habitat for Plains Mouse, the species has also been observed in sandy habitats in the Arid Recovery Reserve during boom periods (Moseby 2012a; 2012b). It is important to note that the Arid Recovery Reserve population is protected from predators through fencing which has enabled Plains Mouse to occupy a broader range of habitats than in areas where predators (e.g. cats, foxes) are present (Arid Recovery 2025).

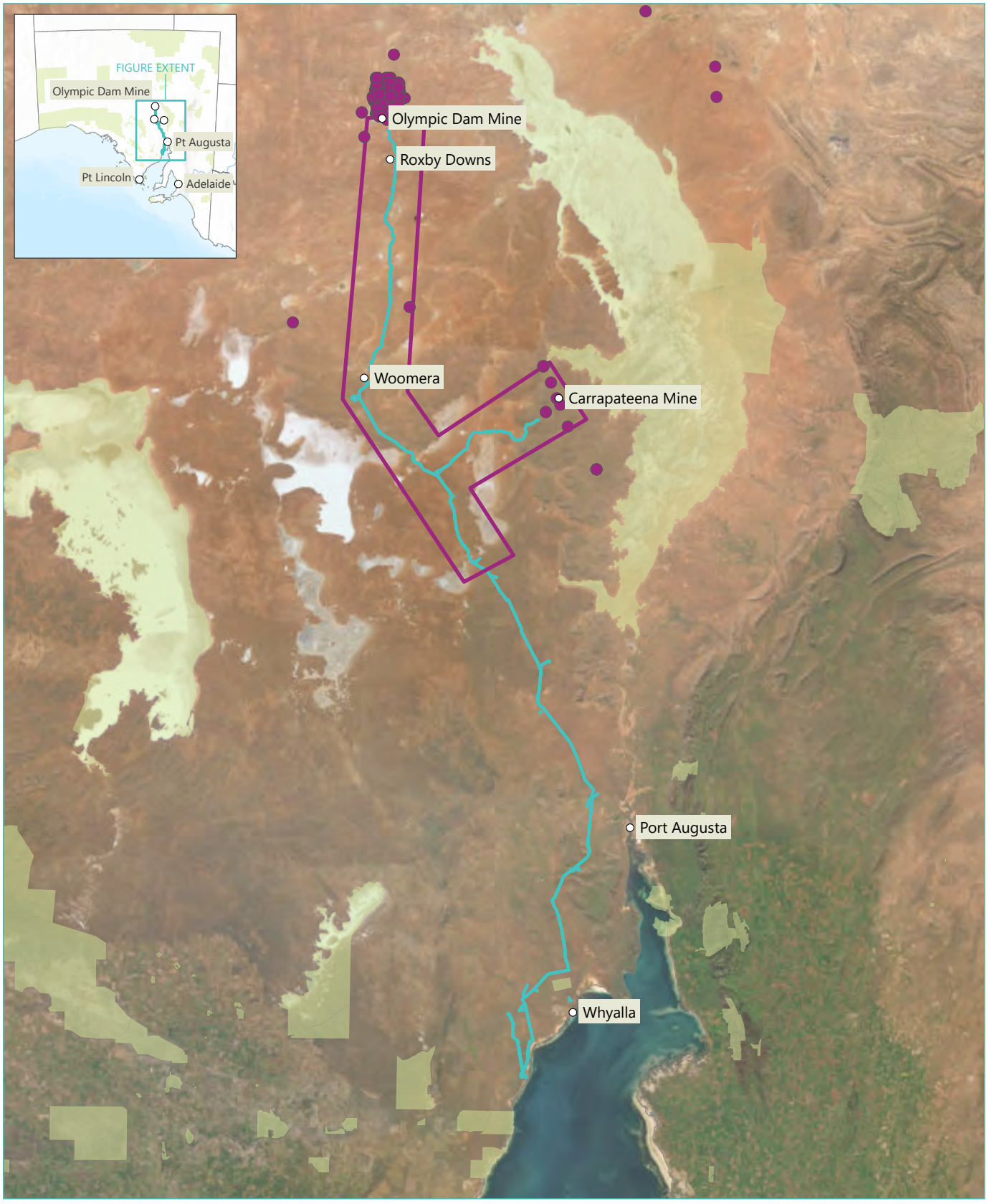
Earlier mapping of potential Plains Mouse habitat was undertaken by Jacobs (in progress) for the main transfer pipeline and by EBS Ecology (2017d) for the Carrapateena lateral branch (as part of baseline investigations for the mine and associated access road (EBS Ecology 2013; EBS Ecology 2017c). The Jacobs (in progress) mapping was based on broad vegetation associations only, whilst the earlier Carrapateena lateral pipeline mapping (EBS Ecology 2017d) assessed aerial imagery and mapped likely refuge areas at a more granular level. This assessment includes refinement of the previous mapping through further

detailed vegetation assessment, by using habitat characteristics interpreted from aerial imagery, and with ground-truthed verification of predicted suitable refuge habitat to fine tune the imagery assessment.

1.4 Assessment objectives

This report aims to assess and map areas of potential refuge habitat for Plains Mouse that overlap with the Project.

Figure 1.1 indicates the Plains Mouse assessment area in relation to the Project, with historic records of Plains Mouse (NatureMaps 2025) shown. The assessment was restricted to the area broadly recognised as potential Plains Mouse habitat from the distribution of historic records of the species (Study Area).



Plains Mouse Records (NatureMaps)
Study Area
Disturbance Footprint

N

0 12.5 25 50
Kilometres

GDA2020 MGA Zone 53
A4 1:1,750,000

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Figure 1.1: Plains Mouse habitat assessment location
Northern Water Project Plains Mouse habitat assessment

2 Methodology

The assessment and mapping of Plains Mouse refuge habitat included two approaches which varied based on the extent of previous mapping (i.e. main transfer pipeline and Carrapateena lateral branch). The main transfer pipeline of the Project which runs parallel with the highway to Olympic Dam was previously mapped at a high level only by Jacobs (in progress) and was broadly based on the suitability of the vegetation associations present to support Plains Mouse. The Carrapateena lateral branch alignment was previously mapped by EBS Ecology (2017b) based on vegetation mapping and features visible in older aerial imagery. Additionally, revisions to the Project alignment (primarily along the southern portion of the Project but also including some areas to the north) required additional assessment to determine if potential Plains Mouse refuge habitat is present. Methods are summarised below for each assessment area.

2.1 Main transfer pipeline alignment

The Plains Mouse refuge habitat mapping along the main transfer pipeline included four stages as detailed below.

2.1.1 Stage 1 – Broad refinement of previous habitat mapping

The broad conservative mapping undertaken by Jacobs (in progress) was based largely on suitability of vegetation associations (VAs) for Plains Mouse, with the VAs present mapped based on recent on-ground surveys as part of the ecological assessment for the Project. The VAs included as potential Plains Mouse habitat by Jacobs were reviewed, and those with a predominately sandy soil type were excluded or considered 'not suitable'.

As per Section 1.3, such habitats may support Plains Mouse periodically during boom years (or in managed reserves such as in Arid Recovery) but are considered unlikely to include areas with friable or deep cracking clays that represent the important refuge habitat (Arid Recovery 2025). As such, the preliminary potential PM habitat layer (Jacobs, in progress) was updated.

2.1.2 Stage 2 – Preliminary habitat mapping based on aerial imagery

Detailed review of aerial imagery was undertaken along all the areas defined as potential PM habitat during Stage 1 (i.e. those areas broadly considered to have a higher likelihood to contain the refuge habitat features). This was done by identifying and mapping features in the landscape visible in the imagery which appear to be deeper gilgais (i.e. discrete areas supporting denser vegetation interspersed with darker soils), areas with concentrations of smaller gilgais, or run on areas likely to support cracking clays (i.e. the key characteristics of refuge habitat).

Following Moseby's (2012a) recommendation, an approximate 150 m buffer was applied around suitable refuge habitat considered to be Cane-grass swamps, vegetated clay depressions, or well vegetated gilgais. The outcome was a spatial layer of potential Plains Mouse polygons along the main transfer line to review in the field. These polygons included the following field categories:

- Plains Mouse 'possible' habitat
- Plains Mouse 'likely' habitat
- Plains Mouse suitable vegetation types.

2.1.3 Stage 3 – In-field ground-truthing

Between 16 and 19 March 2024, two ecologists from Lathwida (Dr Zeta Bull and Dr Sonia Croft), both with extensive experience in vegetation of the region and Plains Mouse surveys, undertook ground-truthing at point locations and / or linear stretches of Stage 2 preliminary habitat mapping areas (Figure 2.1). Ground-truthing broadly assessed habitat using characteristics described by Moseby (2012a) as well as information gathered from surveys undertaken at Carrapateena between 2018 and 2023 (Jacobs 2021, 2023). The ground-truthing assessments included observations for:

- presence of gilgais, Cane-grass swamps, or other areas with friable cracking clay and shallow-rooted grass species
- the extent of areas with cracking clay (e.g. Tableland areas with clusters of gilgais)
- depth of cracks in clay, where present.

Ground-truthing was conducted through a combination of reference checks at selected locations, and through higher level assessment from the road which the pipeline alignment follows. It is noted that at the time of the survey, grasses (e.g. Mitchell Grass (*Astrebla pectinata*)) were abundant and allowed for easy detection from a distance. Potential habitat was defined by in-field categories at either points or linear stretches with the following criteria:

- Suitable
    - aligned with appropriate vegetation association (e.g. Tablelands on clay, Cane-grass Swamp, clay-depressions)
    - evidence of larger gilgais or clusters of gilgais
    - cracks in clay present
    - clay substrate with bare areas (e.g. visible under/between large rocks)
    - linear stretches based on alignment of mapping clusters with visible in-field extent of matching habitat.
- Low suitability
    - aligned with appropriate vegetation association, but slightly higher elevation
    - greater distance between clusters or smaller individual gilgais

  - clay substrate with bare areas, opportunities to form cracks following sufficient rainfall
  - landscape connectivity to areas mapped as suitable.
- Not suitable
  - non-core vegetation association (e.g. dunefields, dune swales/crests)
  - lack of clay substrate, e.g. dunefields / sandy drainage lines with trees
  - saline areas (e.g. saline clay areas, artificial saline areas associated with road / rail construction.

2.1.4 Stage 4 – Mapping refinements based on ground-truth data

The initial assessment of Plains Mouse refuge habitat data layer (created during Stage 2) was adjusted using the results of the in-field ground-truthing point and linear assessments (point and polygon data). If features included in the initial assessment were confirmed on-ground as gilgais or run-on features containing cracking clays, they were retained. If additional suitable habitats were identified on-ground which were not identified as suitable features in the imagery assessment, those features and other 'like' features were included. Where broader linear stretches were deemed as 'not suitable' on ground they were excluded from the data layer, and where stretches were deemed as suitable, they were included if not already captured.

Mapping refinements adopted the following approach with ground-truth categories:

- suitable points and polygons were retained
- low suitability points and polygons were retained
- unsuitable points and polygons were excluded.

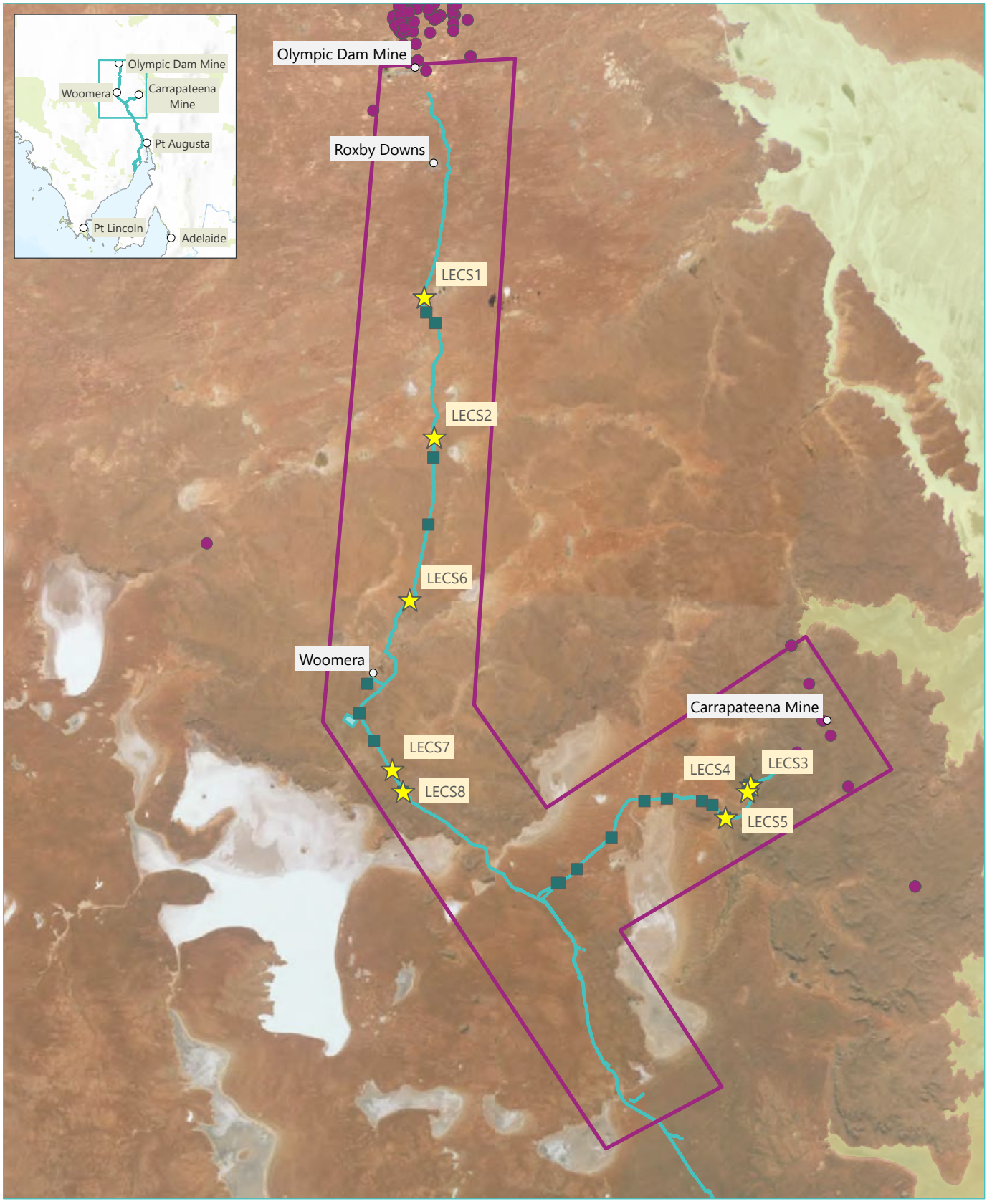


Figure 2.1: Plains Mouse in-field ground-truthing
Northern Water Project Plains Mouse habitat assessment

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2.2 Carrapateena lateral branch

The Plains Mouse refuge habitat mapping along the Carrapateena lateral branch included two stages, noting that mapping using aerial imagery (representing an approximation of Stage 2 for the main transfer pipeline as described in Section 2.1.2) had already been undertaken by EBS Ecology (2017b; 2017c) as part of baseline studies for the Carrapateena mine (and access road) project's approval.

2.2.1 Stage 1 – In-field vegetation mapping

Between 16 and 19 March 2024, two ecologists from Lathwida (Dr Zeta Bull and Dr Sonia Croft), both with extensive experience in flora and fauna surveys in the arid region of SA, undertook detailed on-ground vegetation survey and mapping to update previous vegetation mapping undertaken by EBS Ecology (2017) (Figure 2.1). Vegetation assessments were completed using the Rangelands Assessment Method (NVC 2020) which includes noting suitability of each vegetation association for threatened species, including Plains Mouse. In addition, habitat information from regular baseline and compliance fauna and flora surveys conducted at Carrapateena since 2012, specifically targeting Plains Mouse, allowed for refinement of vegetation mapping (Lathwida 2024). Preliminary Plains Mouse mapping was also undertaken for some areas of the Carrapateena lateral branch for approvals associated with the Carrapateena Mine (EBS Ecology 2017d).

Vegetation communities (as defined by Jacobs (in progress)) detected along the Carrapateena lateral pipeline and considered suitable for Plains Mouse included:

- Chenopod / Samphire low shrubland on stony plains and tablelands
    - Vegetation association – Bladder Saltbush (*Atriplex vesicaria*) / Samphire (*Tecticornia medullosa*) low open shrubland (Tableland)
- Swamp Cane-grass grassland
    - Vegetation association – Swamp Cane-grass tall grassland and Chenopod shrubs on run-on depression
- Non-saline shrublands in clay depressions (given these associations occur in smaller discrete patches, they were mapped as Cottonbush and/or Lignum and/or Nitre Goosefoot shrubland (clay depression) by Lathwida (2024))
    - Vegetation association – Cotton-bush shrubland in clay depression
    - Vegetation association – Nitre Goosefoot (*Chenopodium nitrariaceum*) shrubland on ephemeral swamp.

2.2.2 Stage 2 – Refinement of previous habitat mapping

Similar to the methods outlined in Section 2.1.4 for the main transfer line, the existing EBS (2017d) Plains Mouse habitat layer was updated to produce Plains Mouse habitat mapping for the Project. The preliminary layer was reviewed along with more recent aerial imagery, and the updated vegetation mapping for the Carrapateena lateral branch (Lathwida 2024). Areas mapped as suitable for the current assessment aligned with areas mapped as suitable in the existing mapping. These areas aligned with the extensive Bladder Saltbush / Samphire tableland areas that occur at Carrapateena, as well as areas of known Swamp Cane-grass grassland. Newly mapped areas (Lathwida 2024) that were distant from the main clusters and existing records e.g. small discrete patches of Swamp Cane-grass or non-saline shrublands in clay depressions were mapped as low suitability. Areas that were considered 'not suitable' were also refined (e.g. saline areas, salt lakes, dunefields, major drainage lines with trees and sandy substrates).

2.3 Plains Mouse habitat characterisation

Using the above approaches, the following categories of Plains Mouse refuge habitat were defined for both the main transfer pipeline alignment and the Carrapateena lateral pipeline alignment:

- suitable (large clusters of gilgais, aligning with known vegetation associations over clay substrates)
- low suitability (smaller isolated gilgais or clay depressions, Cane-grass Swamps distant from larger clusters).

The area of each habitat category within the proposed Project Footprint (Disturbance Footprint) of the Project was calculated.

2.3.1 Project alignment revision

Following a Project realignment in 2025, a desktop assessment was undertaken to determine if any additional potential Plains Mouse refuge habitat is present within both the main transfer pipeline alignment and the Carrapateena lateral branch alignment. In November 2025, aerial imagery was assessed (similar to the methods outlined in Section 2.1.2) to determine the extent of Plains Mouse refuge habitat in previously unmapped areas (noting that further ground truthing would be required to confirm the presence of Plains Mouse potential refuge habitat). Newly identified areas that may serve as Plains Mouse refuge habitat were defined in the same categories identified in Section 2.3 to be consistent with previous mapping efforts.

Total areas of each habitat category (i.e. suitable, low suitability) within the revised Project / Disturbance Footprint were then calculated.

3 Results

Plains Mouse habitat assessment was conducted within the Project Footprint along the northern-most 163 km of the proposed main transfer pipeline alignment, and along the Carrapateena lateral branch alignment, aligning with the species broad distribution and vegetation associations which potentially support the species.

For the main transfer pipeline alignment, ground verification of mapped habitat features occurred at 27 individual survey locations. The initial high level habitat mapping conducted by Jacobs (in progress) reported 563.4 ha of potentially suitable vegetation associations for Plains Mouse occurrence within the main transfer pipeline construction footprint (Stage 1) which was refined to 428.8 ha based on a closer assessment of the vegetation associations which might support important refuge habitat (e.g. removing sand dune habitats) (Stage 2). This mapping was further refined using ground-truthing and aerial imagery to define areas of potential important refuge habitat (Stage 3 and Stage 4) resulting in the final identification of 123.1 ha of suitable refuge habitat and 10.4 ha of low suitability refuge habitat within the main transfer pipeline construction footprint.

Along the Carrapateena lateral branch alignment, Plains Mouse habitat assessment was undertaken through a broader envelope around the alignment (that being assessed for vegetation concurrent with this assessment). The lateral pipeline is approximately 46 km long, and earlier mapping of Plains Mouse habitat undertaken by EBS Ecology (2017d) as part of the Carrapateena Mine approvals identified 31.8 ha of Plains Mouse habitat within the Carrapateena lateral branch Project Footprint (Stage 1). Refinement based on updated vegetation mapping and higher resolution imagery analysis (and cleaning/editing of previous polygons, where required) identified 17.1 ha of suitable refuge habitat with an 0.5 ha of low suitability refuge habitat within the assessed footprint (Stage 2).

A total of 151.1 ha of potential Plains Mouse refuge habitat was identified within the main transfer and Carrapateena lateral branch Disturbance Footprint.

Table 3.1 provides a summary of Plains Mouse refuge habitat identified within the main transfer and Carrapateena lateral branch alignments across the various survey stages.

An overview of location and category of Plains Mouse habitat along both the main transfer pipeline and the Carrapateena lateral pipeline is provided in Figure 3.1, with historic records of Plains Mouse shown (NatureMaps 2025).

Detailed mapping of Plains Mouse refuge habitat is available in Appendix A for the main transfer pipeline construction footprint and Appendix B for the Carrapateena lateral branch.

Photographic examples of locations considered as not suitable habitat (Plate 3.1, Plate 3.2), refuge habitat with low suitability (Plate 3.3, Plate 3.4) and suitable refuge habitat (Plate 3.5, Plate 3.6) were originally identified during the in-field surveys for the Carrapateena lateral pipeline (Lathwida 2024) are provided below.

Table 3.1 Assessment overview: Plains Mouse habitat areas

Location, stage and totals	Area within construction footprint (ha)
Main transfer pipeline (~163 km with the potential for Plains Mouse)	
Stage 1 and Stage 2 assessments	
Initial general vegetation associations considered potentially suitable for Plains Mouse (not refuge habitat) *(based on initial high-level assessment by Jacobs (in progress)*	563.4
Revised vegetation associations considered potentially suitable for Plains Mouse (not refuge habitat) *(based on the current assessment removing areas of sandy soils, these areas were then ground-truthed and further revised)*	428.8
Total refuge habitat within main transfer Project Footprint (Stage 1 and Stage 2)	**428.8**
Stage 3 and Stage 4 assessments	
Suitable Plains Mouse refuge habitat *(revised total based on desktop aerial imagery assessment following revisions to the Project alignment)*	123.1
Low suitability Plains Mouse refuge habitat *(revised total based on desktop aerial imagery assessment following revisions to the Project alignment)*	10.4
Total refuge habitat within main transfer Project Footprint (final)	**133.5**
Carrapateena lateral branch (~46 km)	
Stage 1 assessment	
Plains Mouse habitat mapped by EBS Ecology (2017d)	31.8
Total refuge habitat within Carrapateena lateral branch Project Footprint (Stage 1)	**31.8**
Stage 2 assessment	
Suitable Plains Mouse refuge habitat *(revised total based on desktop aerial imagery assessment following revisions to the Project alignment)*	17.1
Low suitability Plains Mouse refuge habitat *(revised total based on desktop aerial imagery assessment following revisions to the Project alignment)*	0.5
Total refuge habitat within Carrapateena lateral branch Project Footprint (final)	**17.6**
Total refuge habitat within the Project construction footprint (main transfer and Carrapateena lateral branch, final)	***151.1***

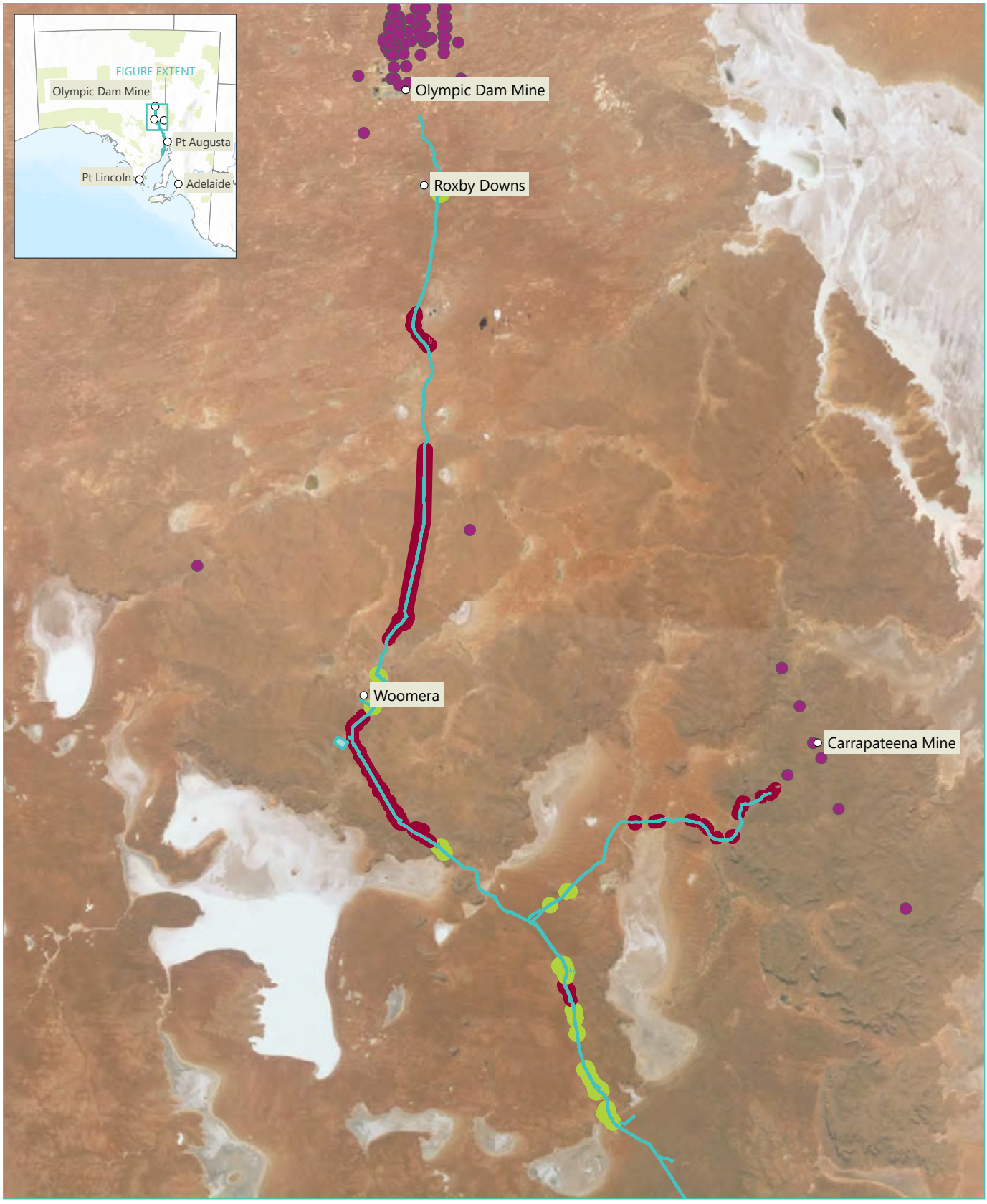


Figure 3.1: Plains Mouse habitat mapping overview
Northern Water Project Plains Mouse habitat assessment

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Plate 3.1: Example of areas defined as 'not suitable' habitat for Plains Mouse (site PM1, Lathwida 2024)



Plate 3.2: Example of areas defined as 'not suitable' habitat for Plains Mouse (site PM17, Lathwida 2024)



Plate 3.3: Example of areas defined as 'low suitability' habitat for Plains Mouse (site PM2, Lathwida 2024)



Plate 3.4: Example of areas defined as 'low suitability' habitat for Plains Mouse (site PM8, Lathwida 2024)



Plate 3.5: Example of areas defined as 'suitable' habitat for Plains Mouse (site PM9, Lathwida 2024)



Plate 3.6: Example of areas defined as 'suitable' habitat for Plains Mouse (site PM24, Lathwida 2024).

4 Discussion

To better understand the potential impacts to important refuge habitat for Plains Mouse (*Pseudomys australis*) arising from the proposed Project, this assessment of Plains Mouse habitat suitability builds on earlier assessments that were undertaken at a high level (e.g. Jacobs, in progress) for the main transfer pipeline alignment or historically for an alternate project (e.g. EBS Ecology 2017d) for the Carrapateena lateral pipeline alignment.

This assessment focused on all areas that could be considered as potentially suitable for Plains Mouse based on vegetation associations present (including those potentially utilised during boom periods for the species) with a focus on areas that likely represent important suitable refuge habitats for the species to utilise during 'normal' conditions or drought periods. The assessment identified a final total of 151.1 ha of habitat considered as potential refuge habitat for Plains Mouse within the Project (construction) Footprint, including 133.5 ha of suitable refuge habitat and 17.6 ha considered as low suitability refuge habitat for Plains Mouse. These areas include buffers around habitat features and occur adjacent to existing major highways (Stuart Highway) and roads (Carrapateena Western Access Road). This habitat occurs within the 2 million ha estimated area of occupancy for Plains Mouse that spans from the Project area into the Northern Territory (Moseby 2012b). It is noted that following a variation to the Proposed Project alignment (Rev5), some portions (approximately 37 km) of the Project area have only been assessed via desktop aerial survey following revisions to the Project alignment. To confirm that potential Plains Mouse refuge habitat is present in these areas, further in-field ground truthing would be required.

Whilst the vast majority of Plains Mouse suitable refuge habitat present within the construction footprint is proposed to be rehabilitated following construction, these areas are not expected to readily return to suitable refuge habitats in the short to medium term with the required soil characteristics and structure to form deep cracks within clays. However, the areas may serve as foraging habitat for the species, and dispersal or movement across the landscape will not be impeded. As all populations of Plains Mouse have been considered important populations in the species Recovery Plan (Moseby 2012b), impacts to potential refuge habitat should be minimised to the greatest practicable extent during construction of the Project.

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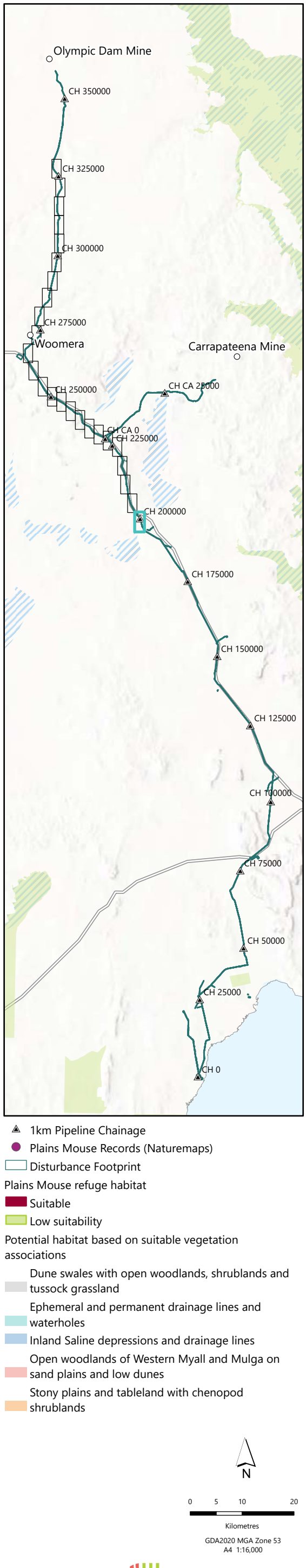
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Appendices

Appendix A. Main transfer pipeline Plains Mouse habitat mapping series

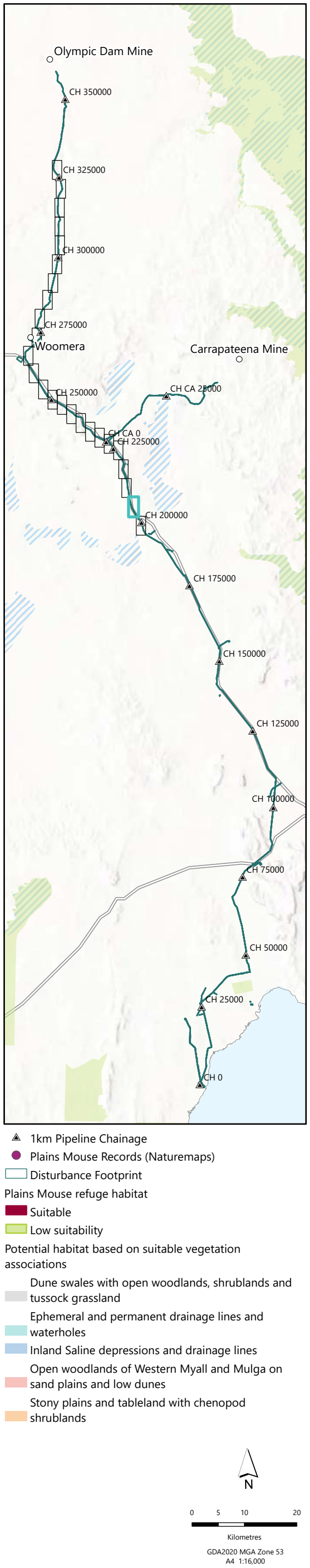




Appendix A: Plains Mouse refuge habitat, main transfer pipeline overview Map 1 of 25
Northern Water Project Plains Mouse habitat assessment

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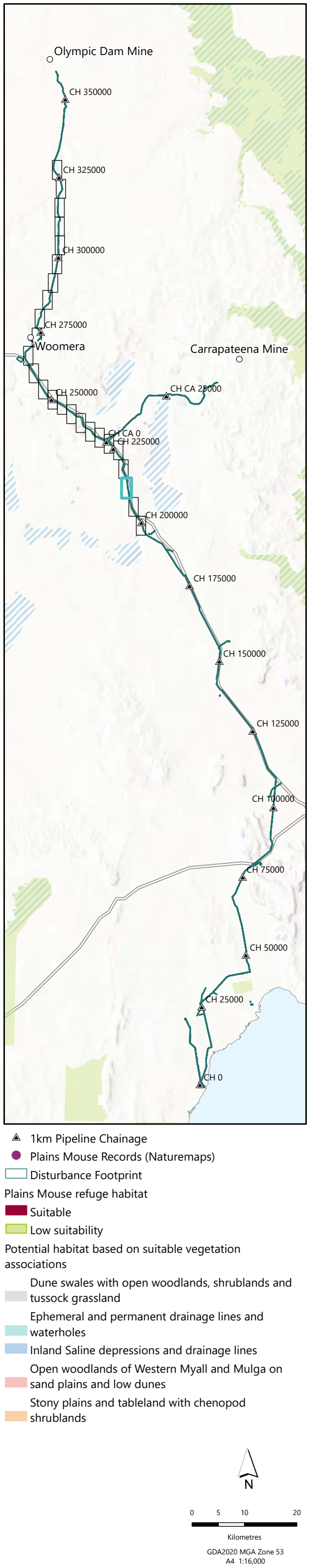




Appendix A: Plains Mouse refuge habitat, main transfer pipeline overview Map 2 of 25
Northern Water Project Plains Mouse habitat assessment

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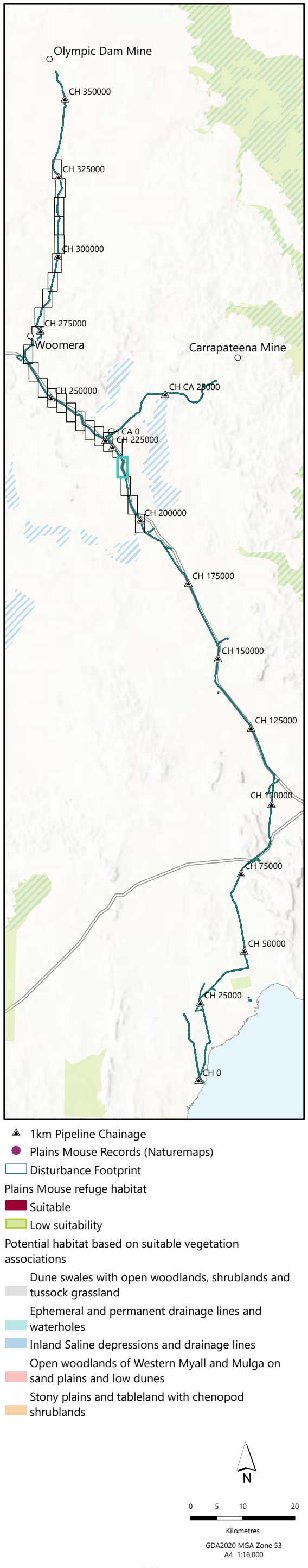




Appendix A: Plains Mouse refuge habitat, main transfer pipeline overview Map 3 of 25
Northern Water Project Plains Mouse habitat assessment

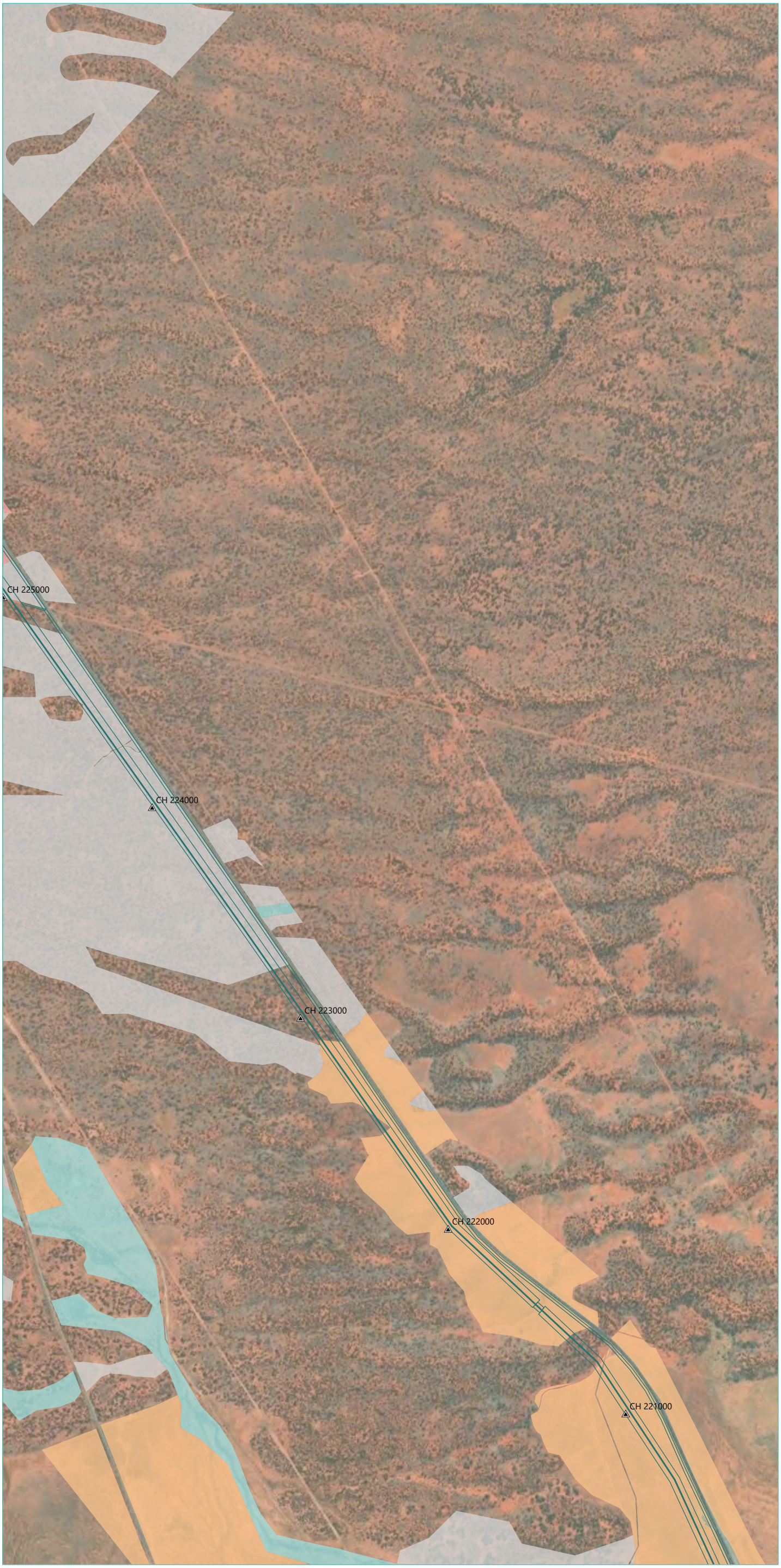
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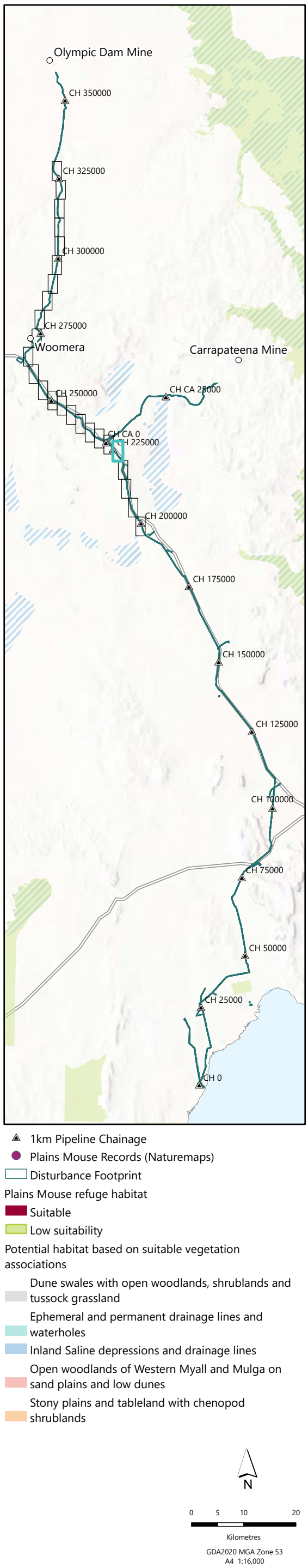




Appendix A: Plains Mouse refuge habitat, main transfer pipeline overview Map 4 of 25
Northern Water Project Plains Mouse habitat assessment

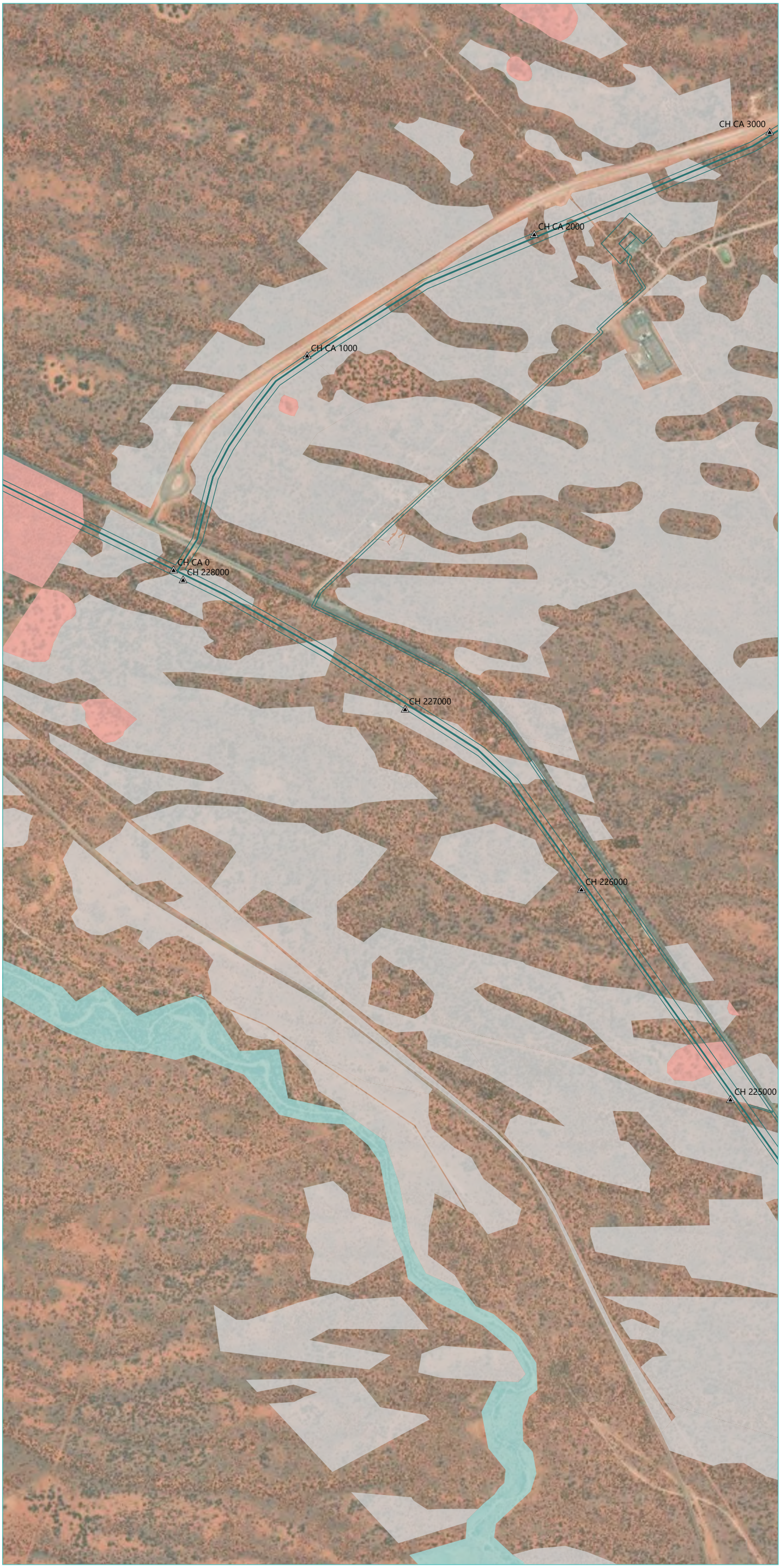
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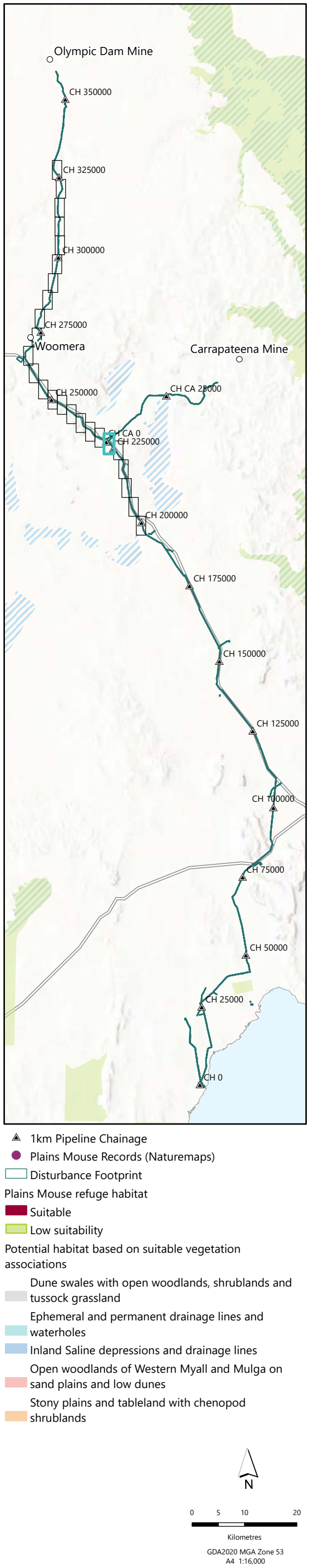




Appendix A: Plains Mouse refuge habitat, main transfer pipeline overview Map 5 of 25
Northern Water Project Plains Mouse habitat assessment

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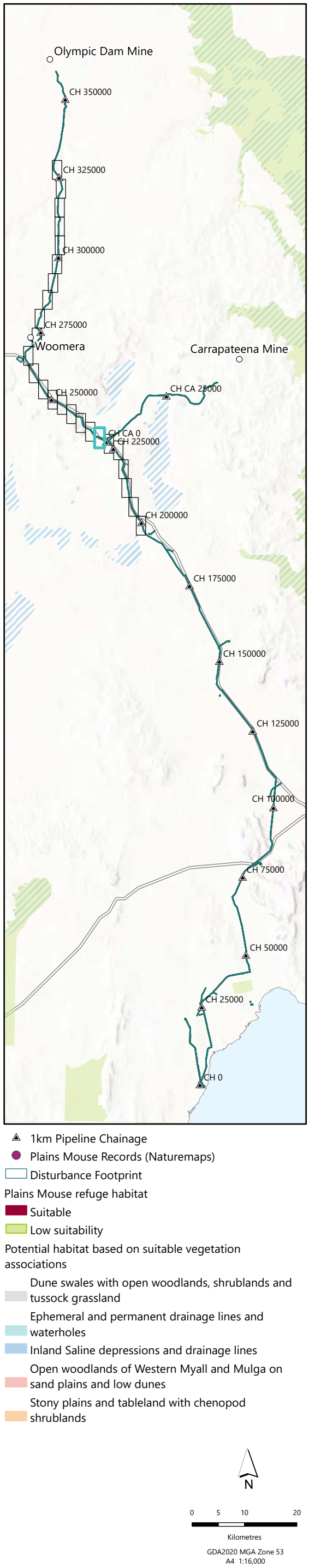




Appendix A: Plains Mouse refuge habitat, main transfer pipeline overview Map 6 of 25
Northern Water Project Plains Mouse habitat assessment

LATHWIDA

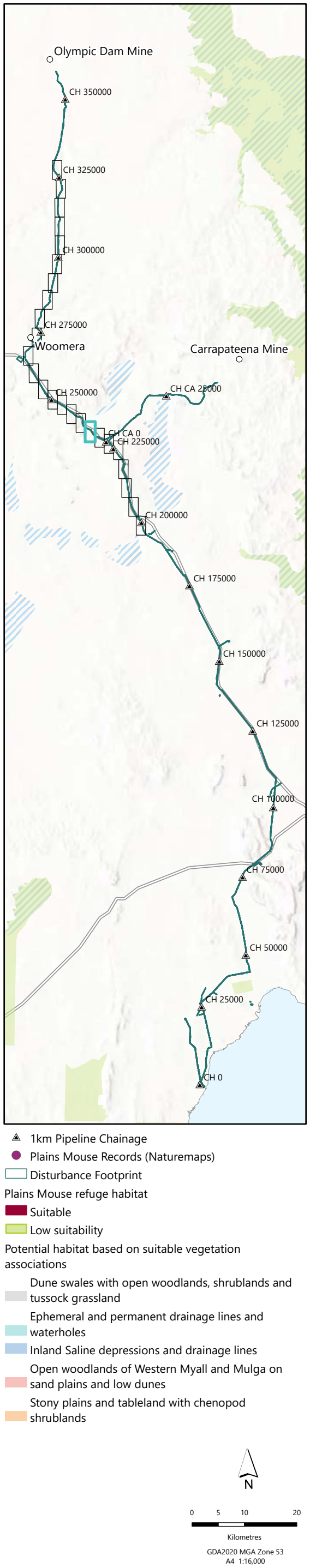




Appendix A: Plains Mouse refuge habitat, main transfer pipeline overview Map 7 of 25
Northern Water Project Plains Mouse habitat assessment

LATHWIDA

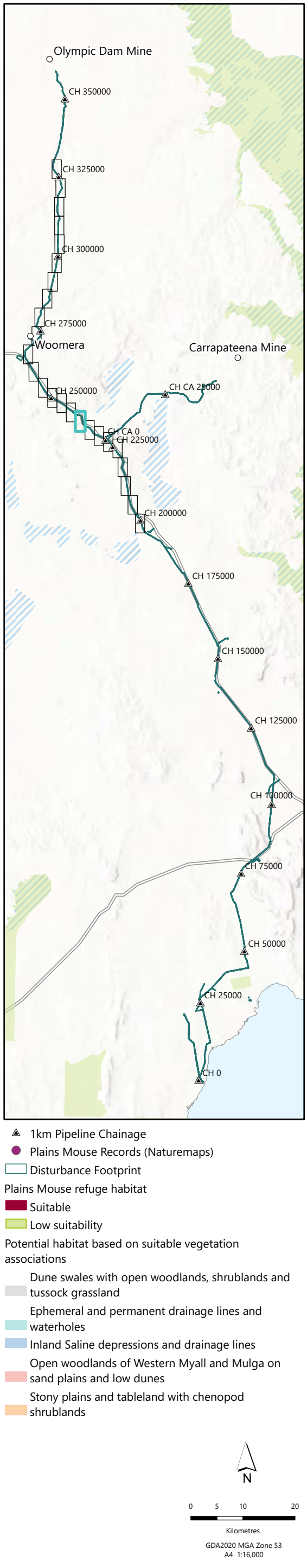




Appendix A: Plains Mouse refuge habitat, main transfer pipeline overview Map 8 of 25
Northern Water Project Plains Mouse habitat assessment

LATHWIDA

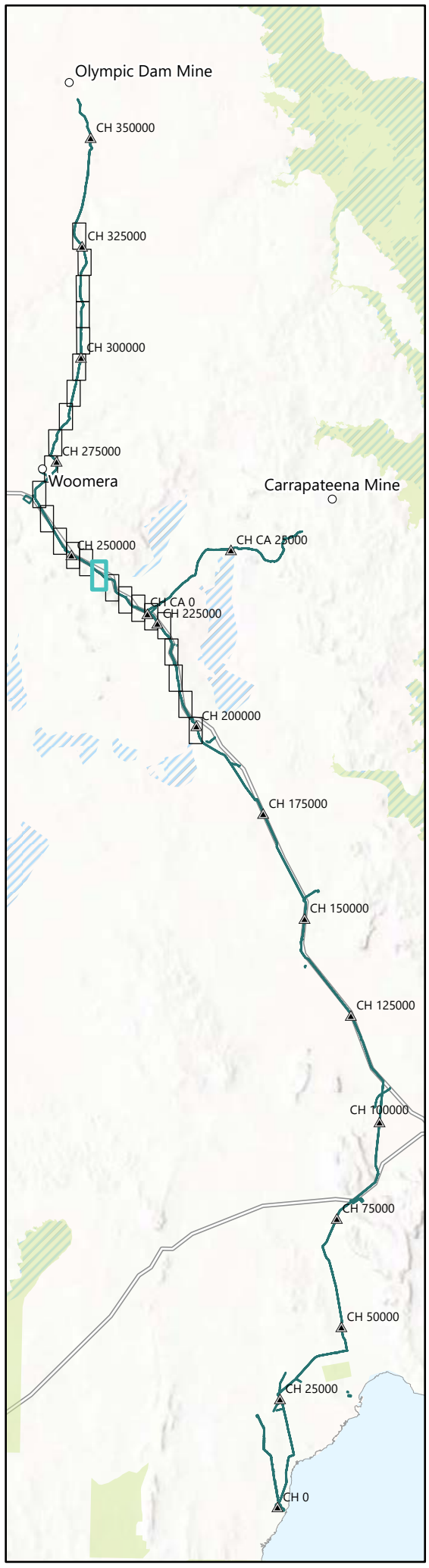




Appendix A: Plains Mouse refuge habitat, main transfer pipeline overview Map 9 of 25
Northern Water Project Plains Mouse habitat assessment

LATHWIDA





1km Pipeline Chainage

Plains Mouse Records (Naturemaps)

Disturbance Footprint

Plains Mouse refuge habitat

Suitable

Low suitability

Potential habitat based on suitable vegetation associations

Dune swales with open woodlands, shrublands and tussock grassland

Ephemeral and permanent drainage lines and waterholes

Inland Saline depressions and drainage lines

Open woodlands of Western Myall and Mulga on sand plains and low dunes

Stony plains and tableland with chenopod shrublands

N

0 5 10 20

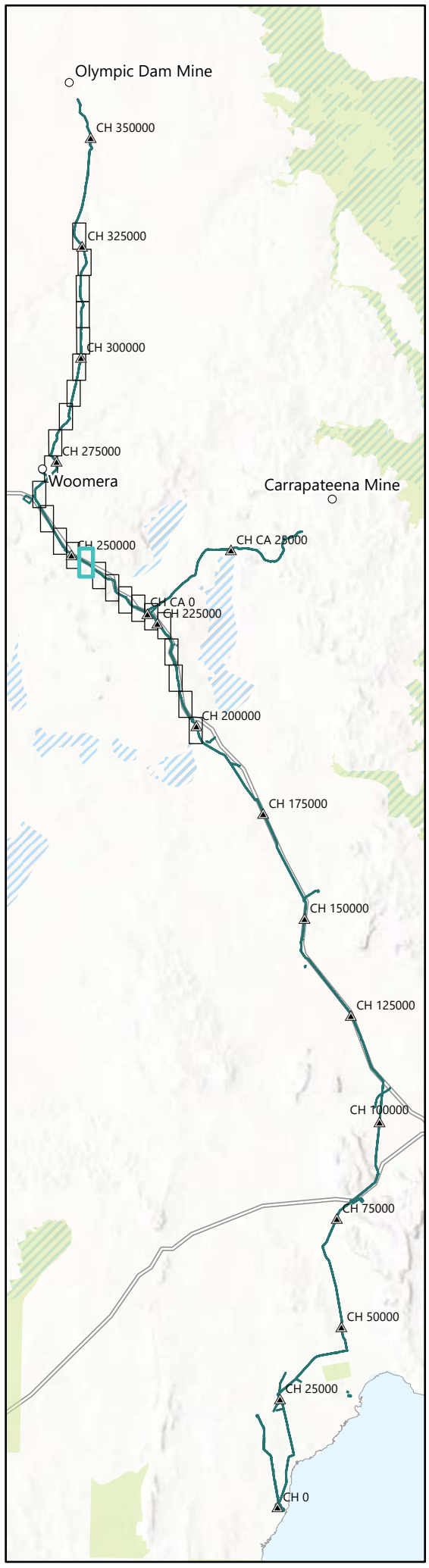
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LATHWIDA

Appendix A: Plains Mouse refuge habitat, main transfer pipeline overview Map 10 of 25
Northern Water Project Plains Mouse habitat assessment





1km Pipeline Chainage

Plains Mouse Records (Naturemaps)

Disturbance Footprint

Plains Mouse refuge habitat

Suitable

Low suitability

Potential habitat based on suitable vegetation associations

Dune swales with open woodlands, shrublands and tussock grassland

Ephemeral and permanent drainage lines and waterholes

Inland Saline depressions and drainage lines

Open woodlands of Western Myall and Mulga on sand plains and low dunes

Stony plains and tableland with chenopod shrublands

N

0 5 10 20

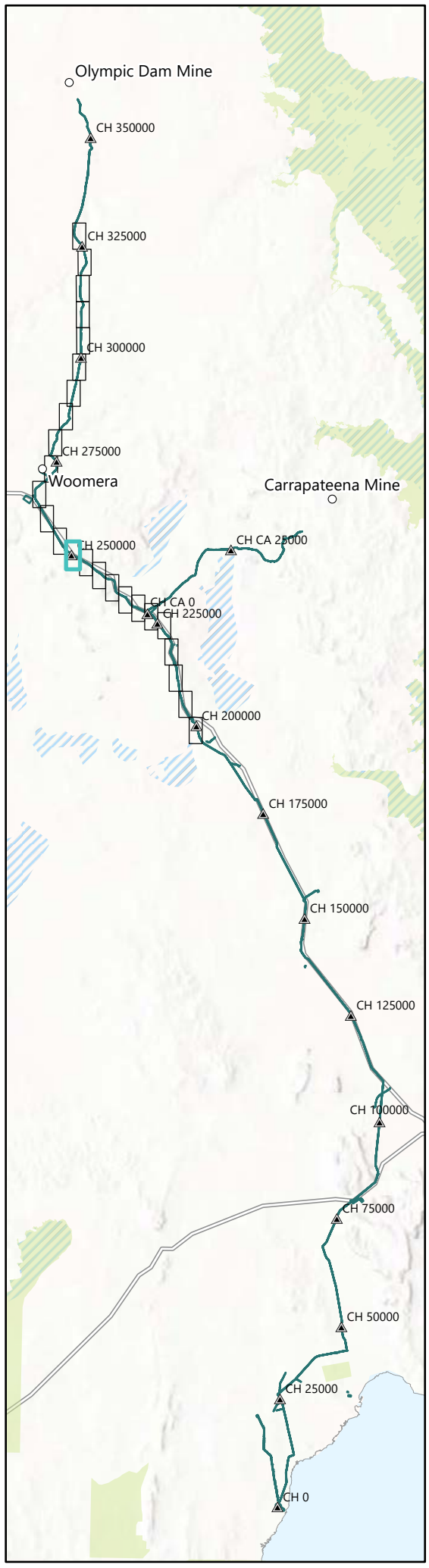
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LATHWIDA

Appendix A: Plains Mouse refuge habitat, main transfer pipeline overview Map 11 of 25
Northern Water Project Plains Mouse habitat assessment





▲ 1km Pipeline Chainage

● Plains Mouse Records (Naturemaps)

Disturbance Footprint

Plains Mouse refuge habitat

Suitable

Low suitability

Potential habitat based on suitable vegetation associations

Dune swales with open woodlands, shrublands and tussock grassland

Ephemeral and permanent drainage lines and waterholes

Inland Saline depressions and drainage lines

Open woodlands of Western Myall and Mulga on sand plains and low dunes

Stony plains and tableland with chenopod shrublands

N

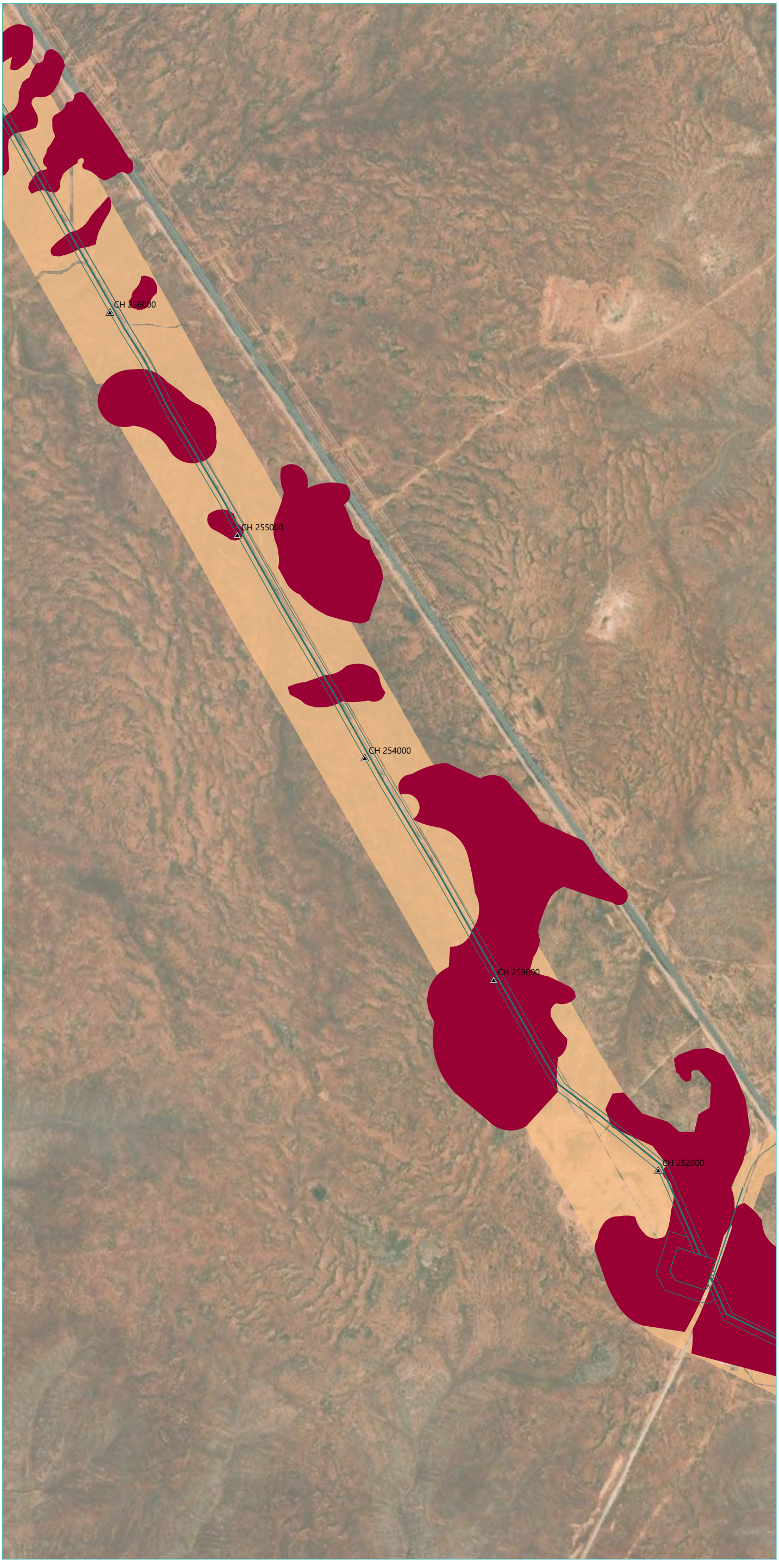
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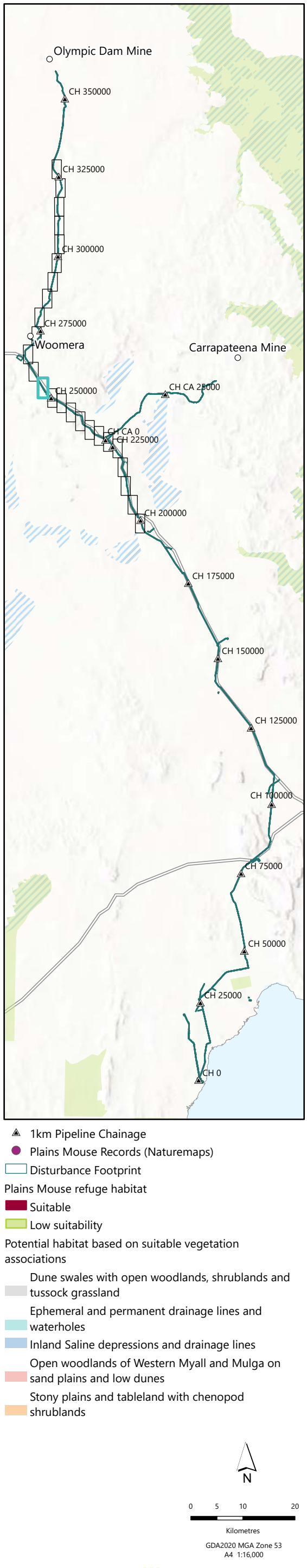
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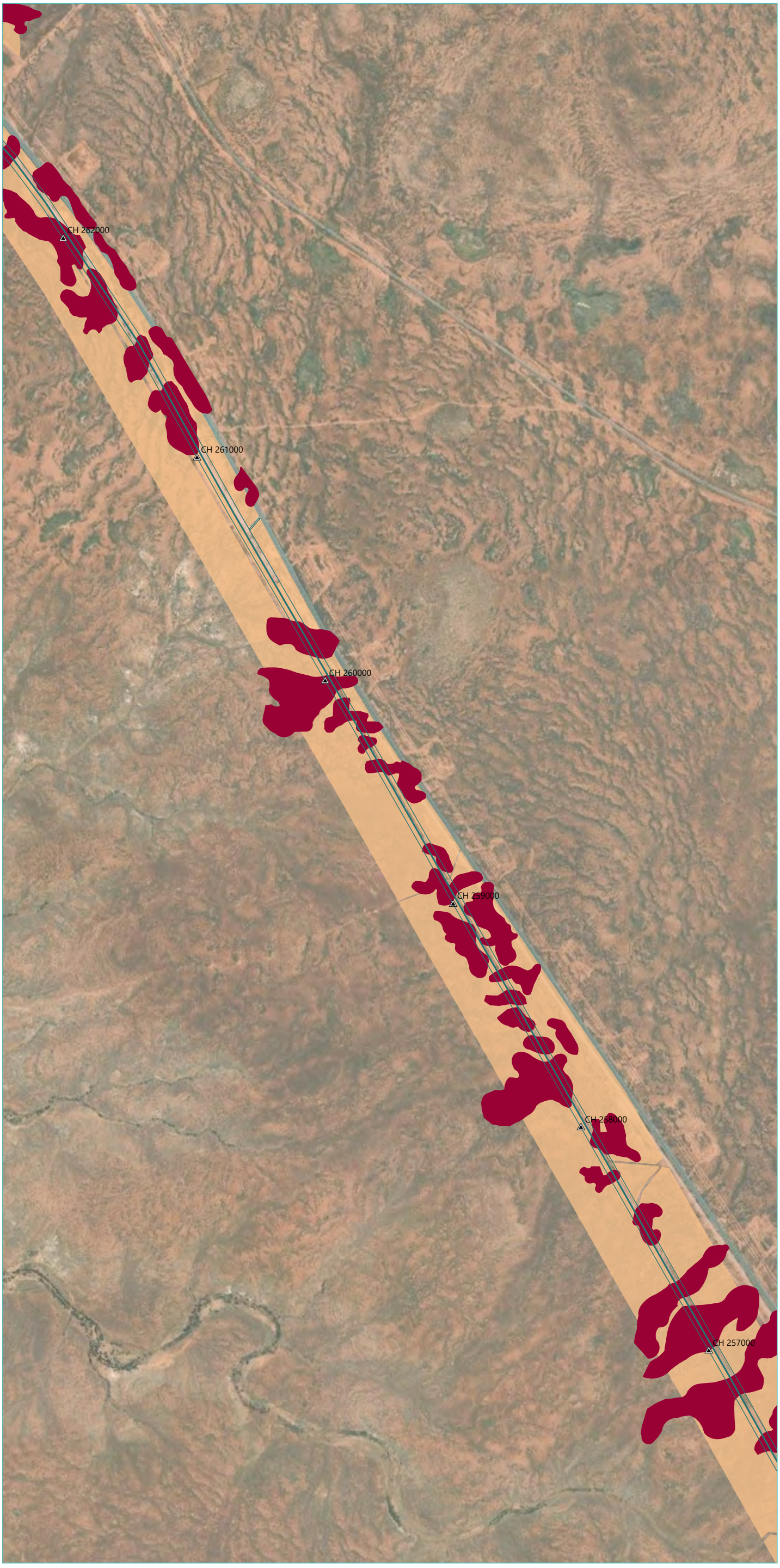
Appendix A: Plains Mouse refuge habitat, main transfer pipeline overview Map 12 of 25
Northern Water Project Plains Mouse habitat assessment

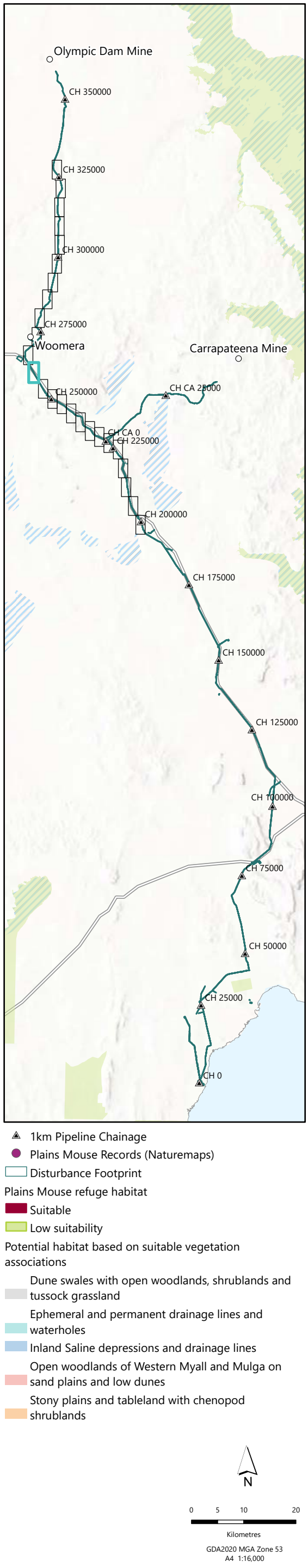




Appendix A: Plains Mouse refuge habitat, main transfer pipeline overview Map 13 of 25
Northern Water Project Plains Mouse habitat assessment

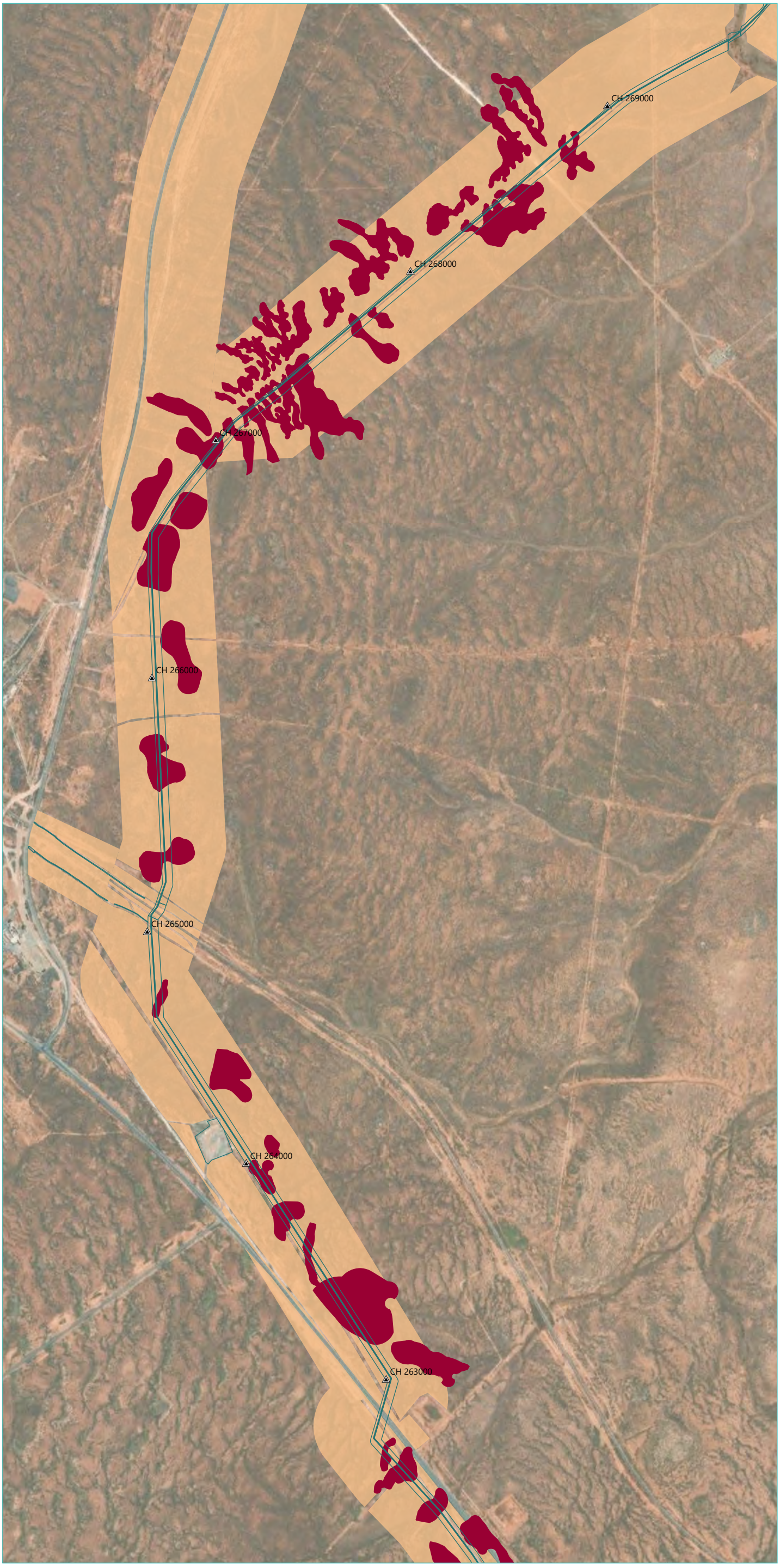
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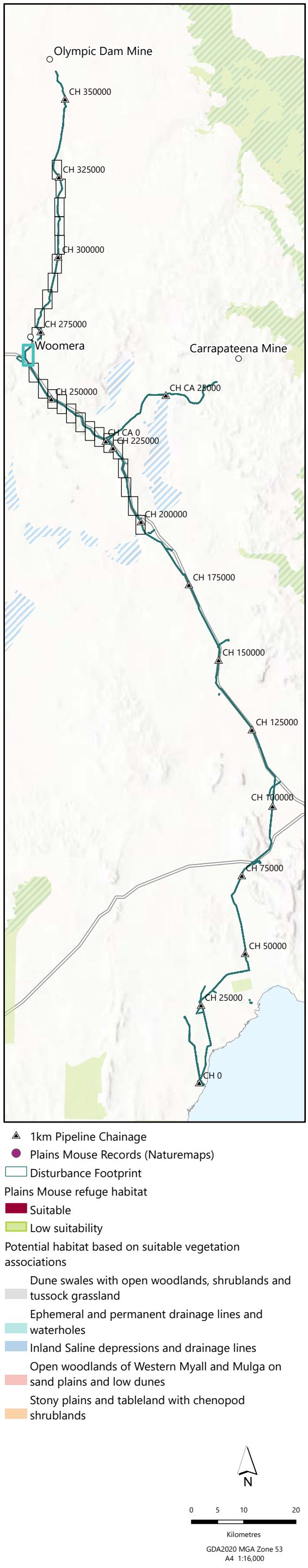




Appendix A: Plains Mouse refuge habitat, main transfer pipeline overview Map 14 of 25
Northern Water Project Plains Mouse habitat assessment

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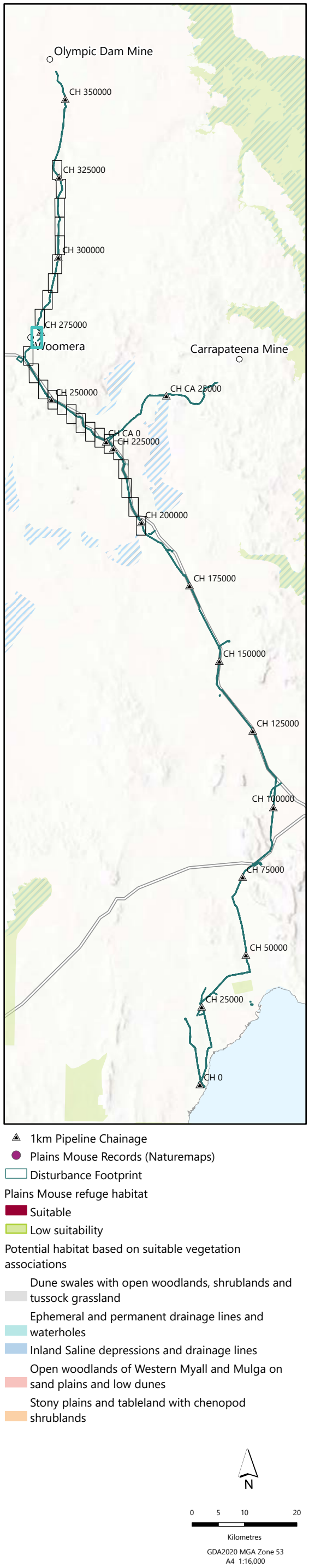




Appendix A: Plains Mouse refuge habitat, main transfer pipeline overview Map 15 of 25
Northern Water Project Plains Mouse habitat assessment

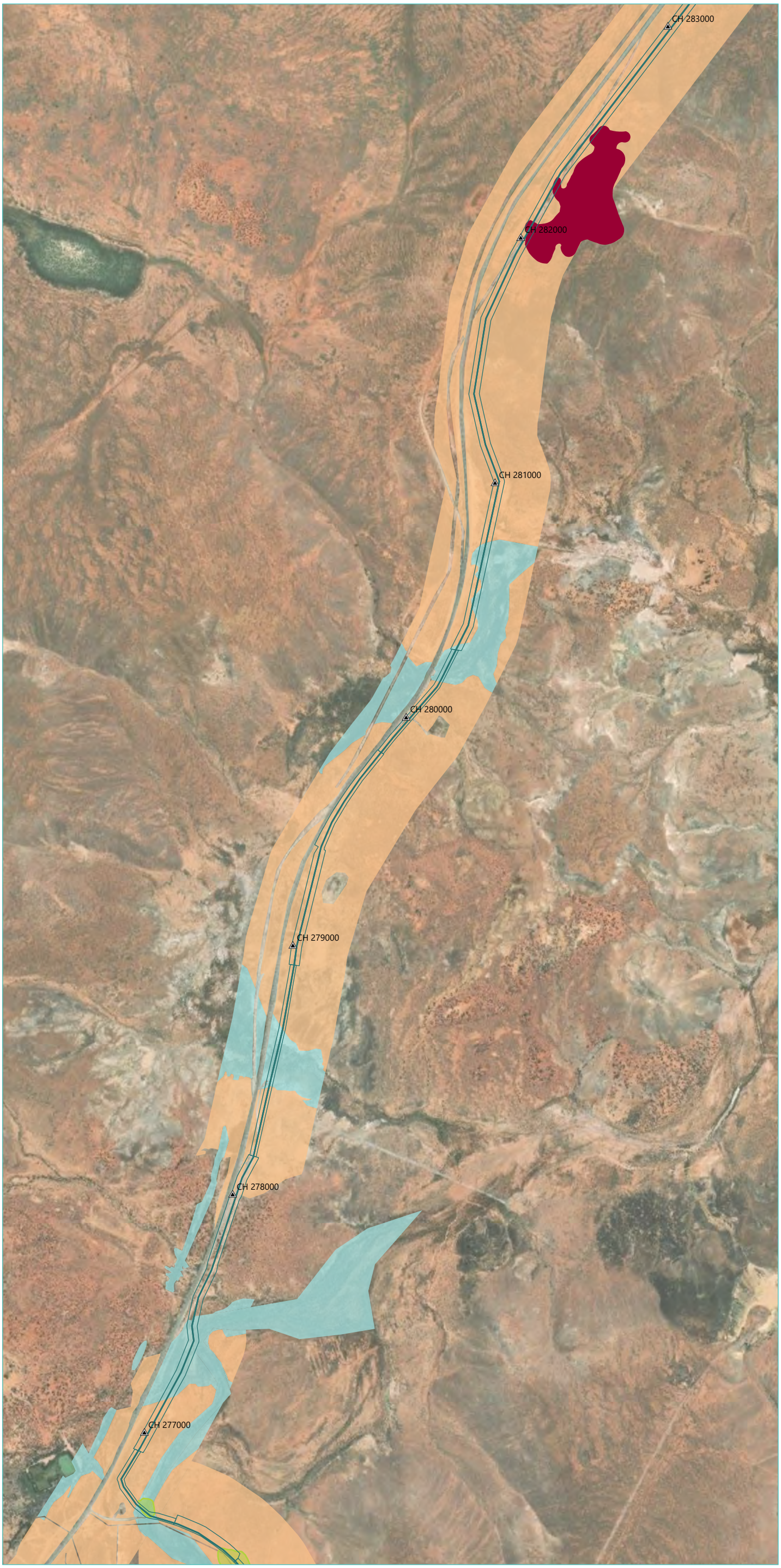
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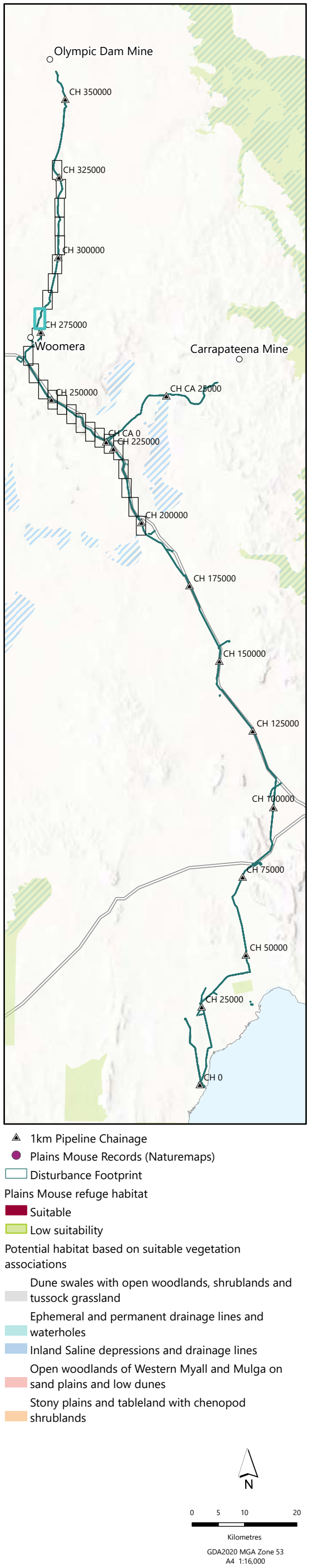




Appendix A: Plains Mouse refuge habitat, main transfer pipeline overview Map 16 of 25
Northern Water Project Plains Mouse habitat assessment

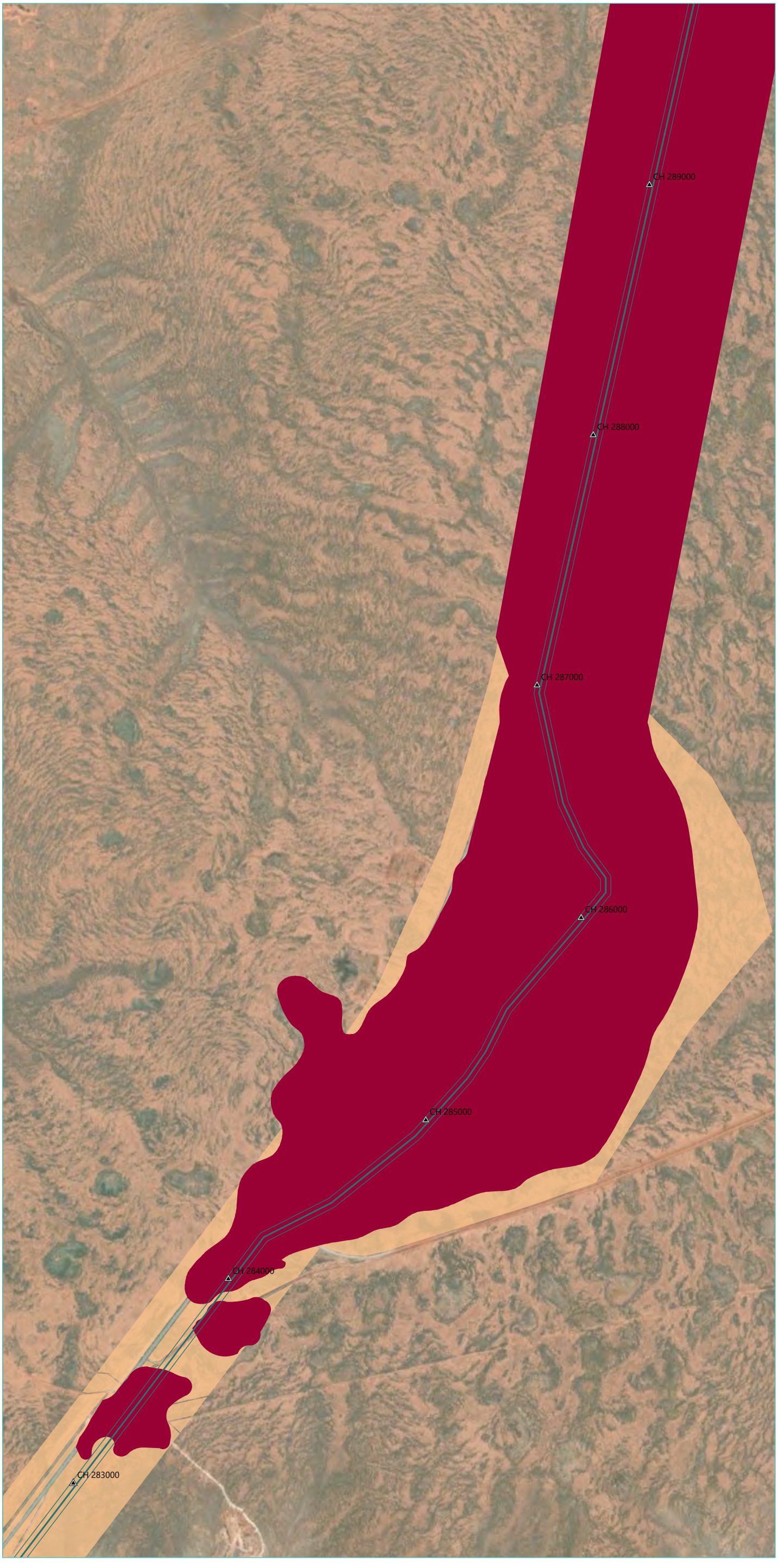
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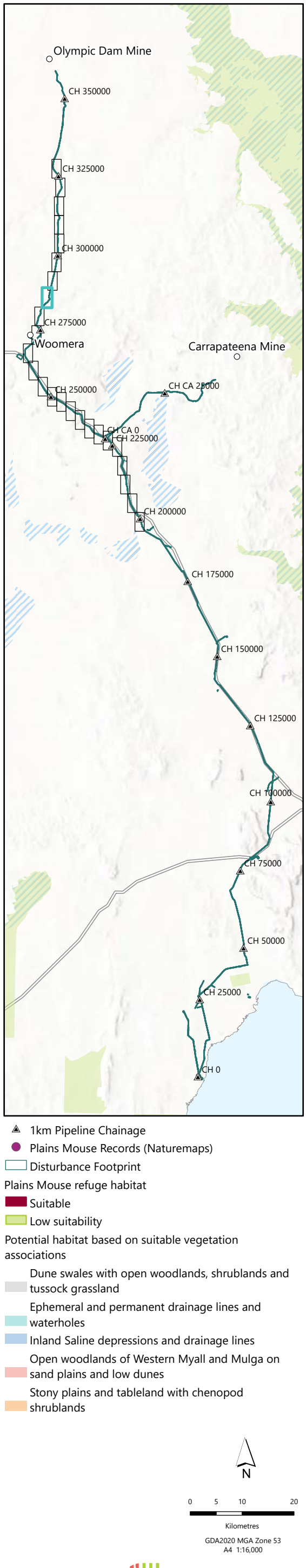




Appendix A: Plains Mouse refuge habitat, main transfer pipeline overview Map 17 of 25
Northern Water Project Plains Mouse habitat assessment

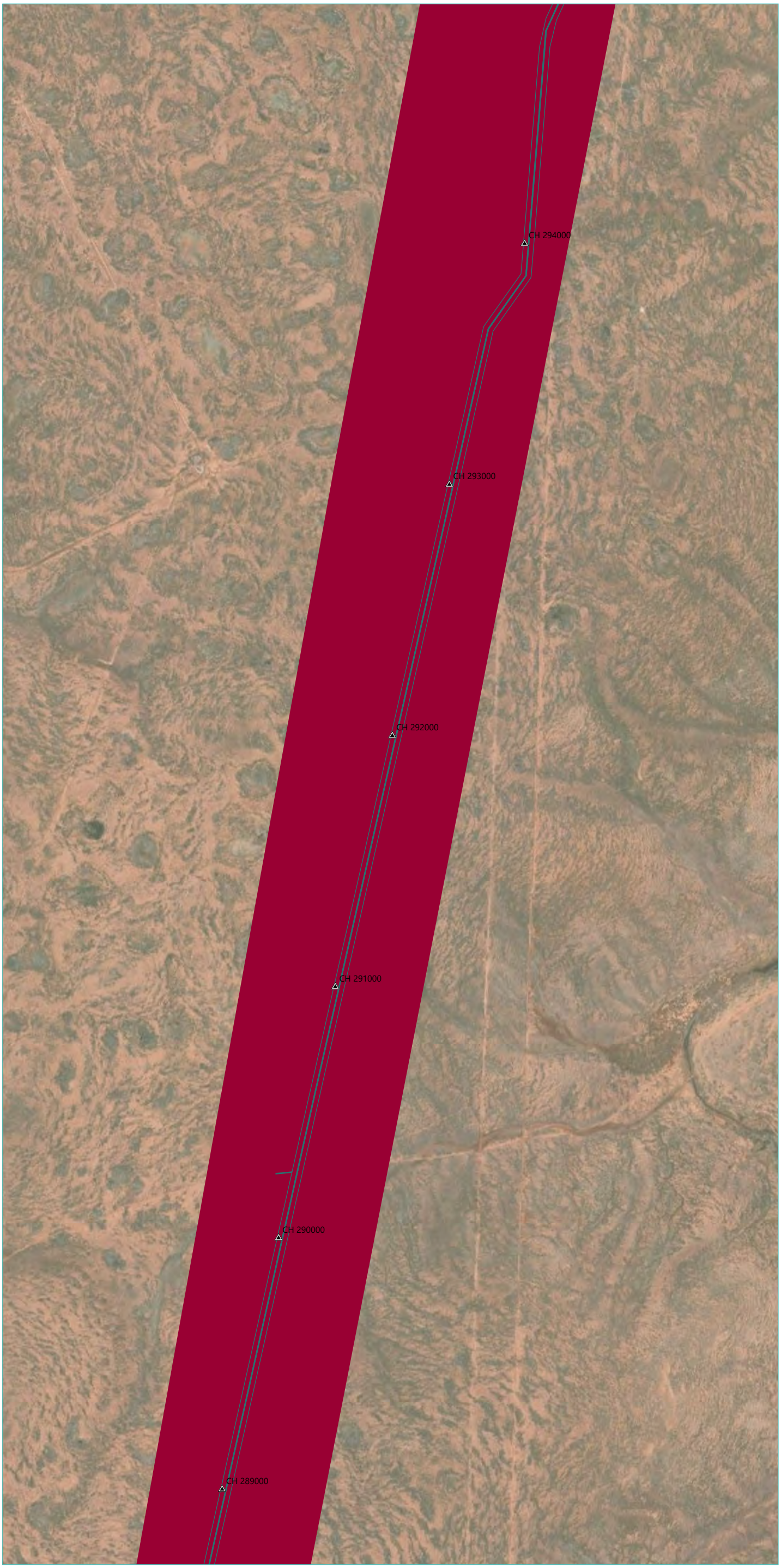
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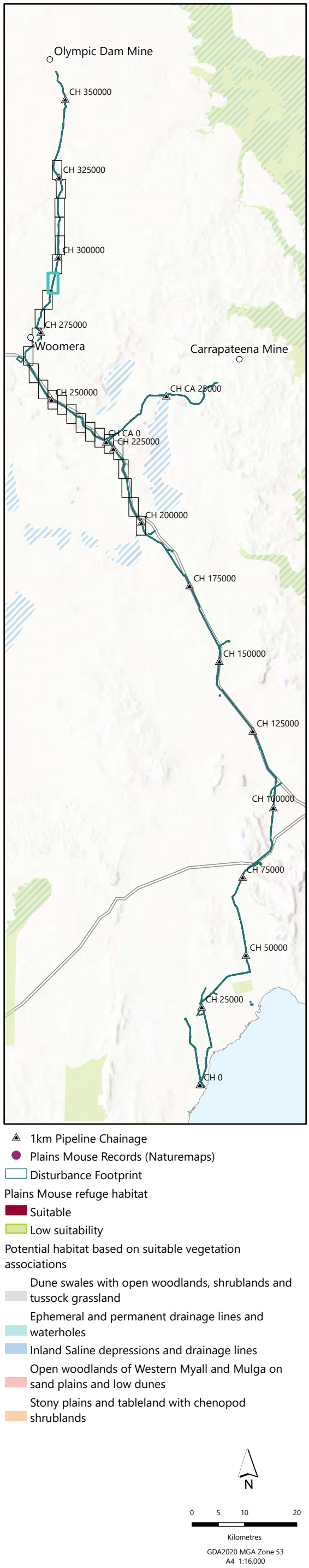




Appendix A: Plains Mouse refuge habitat, main transfer pipeline overview Map 18 of 25
Northern Water Project Plains Mouse habitat assessment

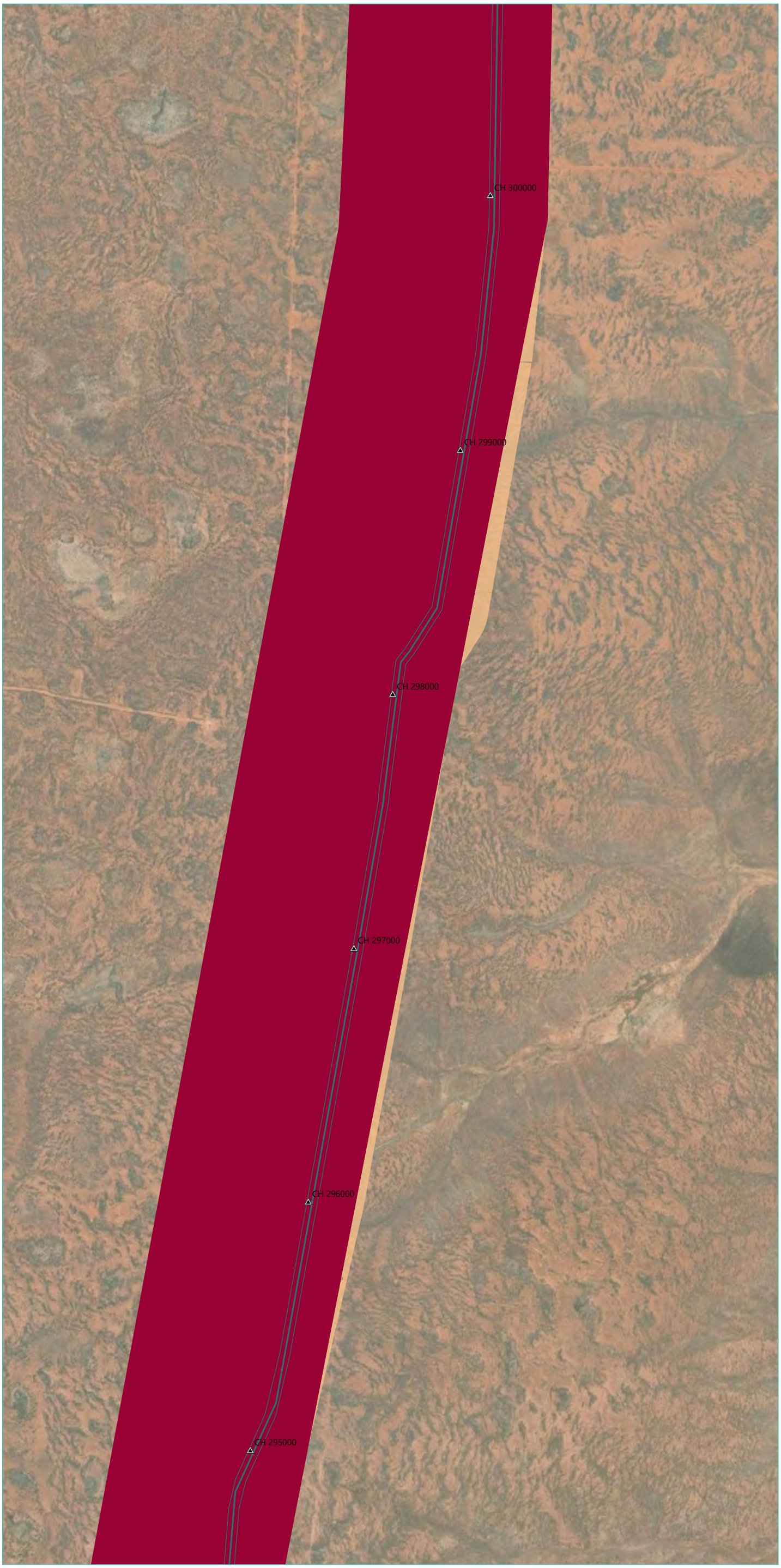
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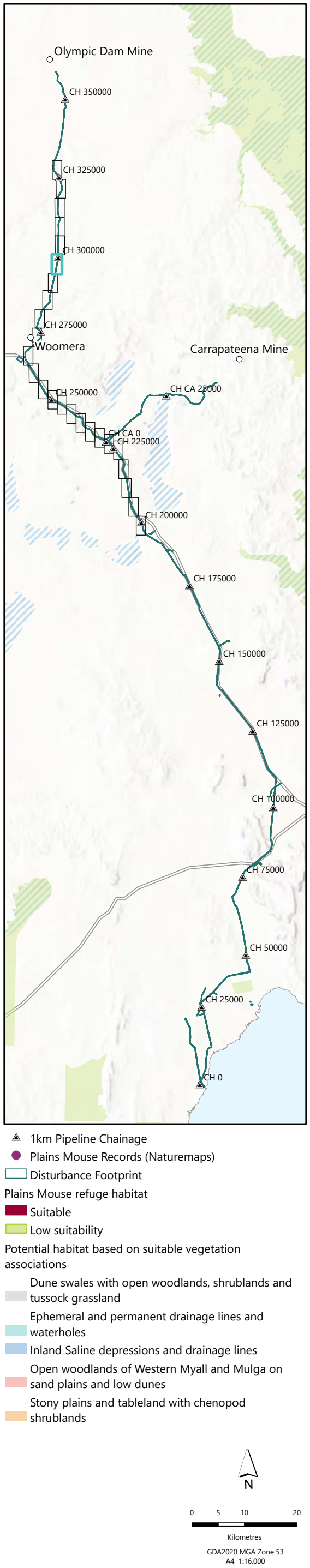




Appendix A: Plains Mouse refuge habitat, main transfer pipeline overview Map 19 of 25
Northern Water Project Plains Mouse habitat assessment

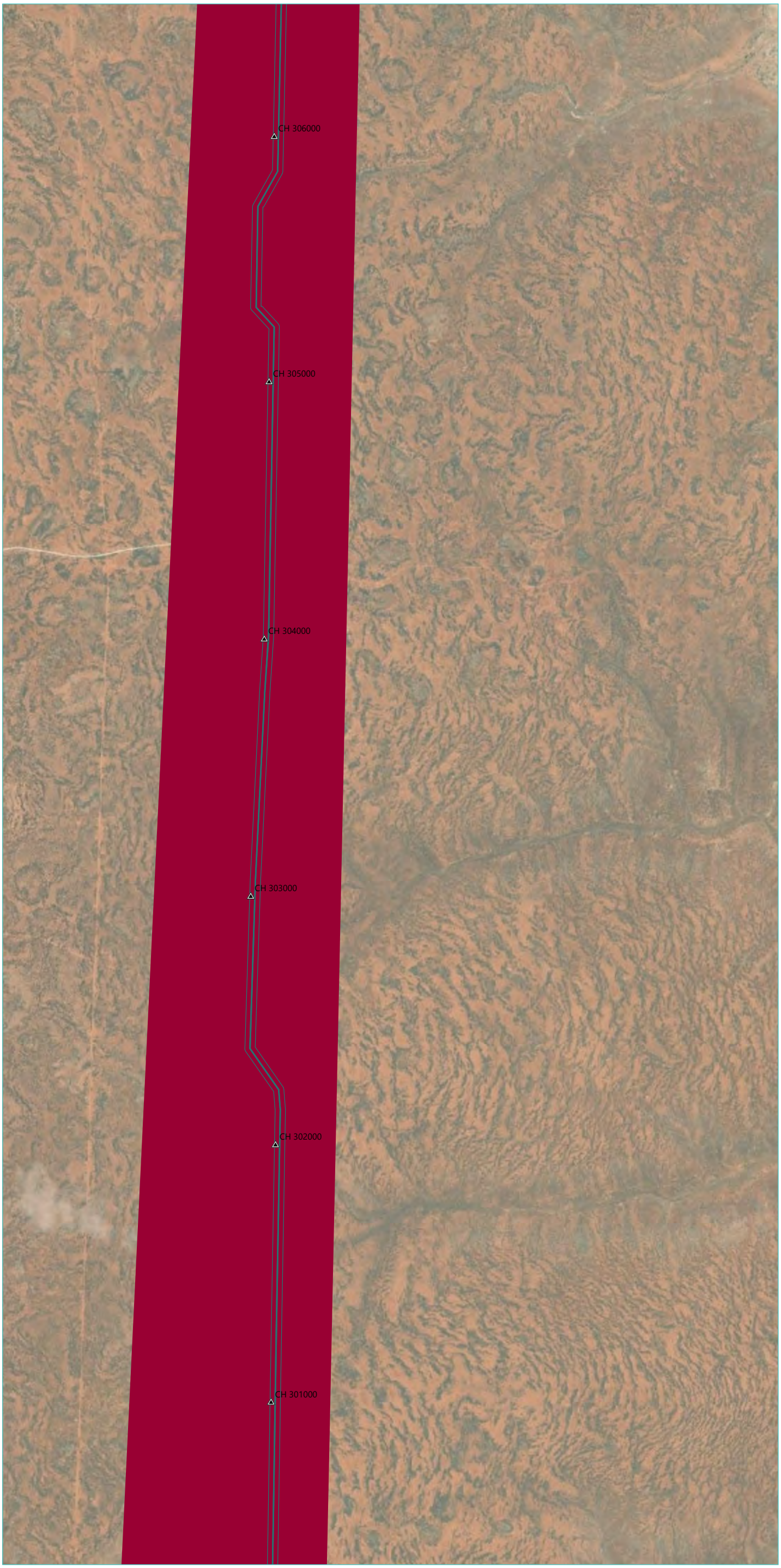
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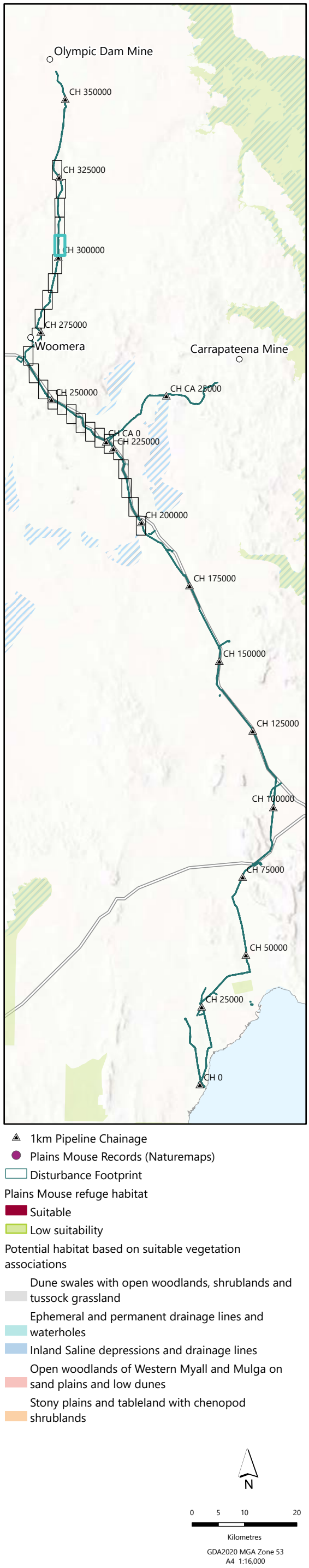




Appendix A: Plains Mouse refuge habitat, main transfer pipeline overview Map 20 of 25
Northern Water Project Plains Mouse habitat assessment

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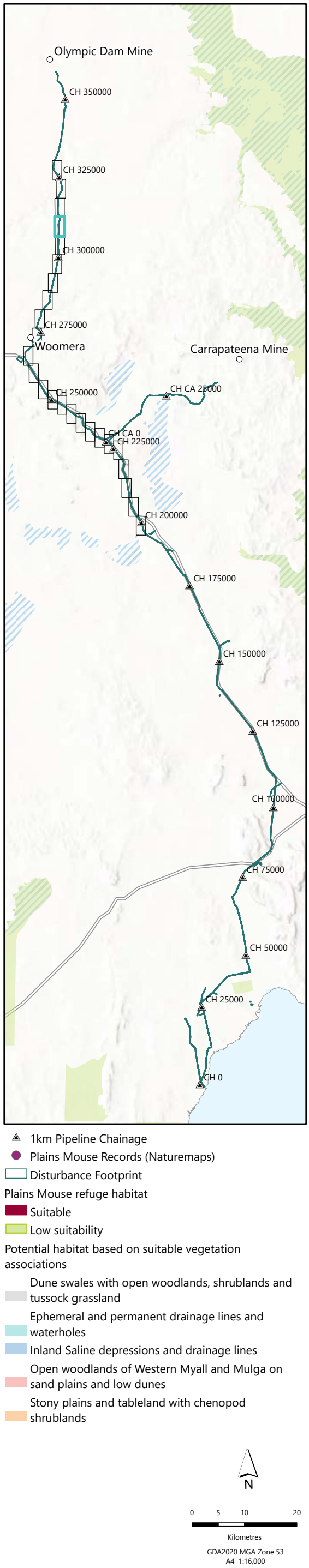




Appendix A: Plains Mouse refuge habitat, main transfer pipeline overview Map 21 of 25
Northern Water Project Plains Mouse habitat assessment

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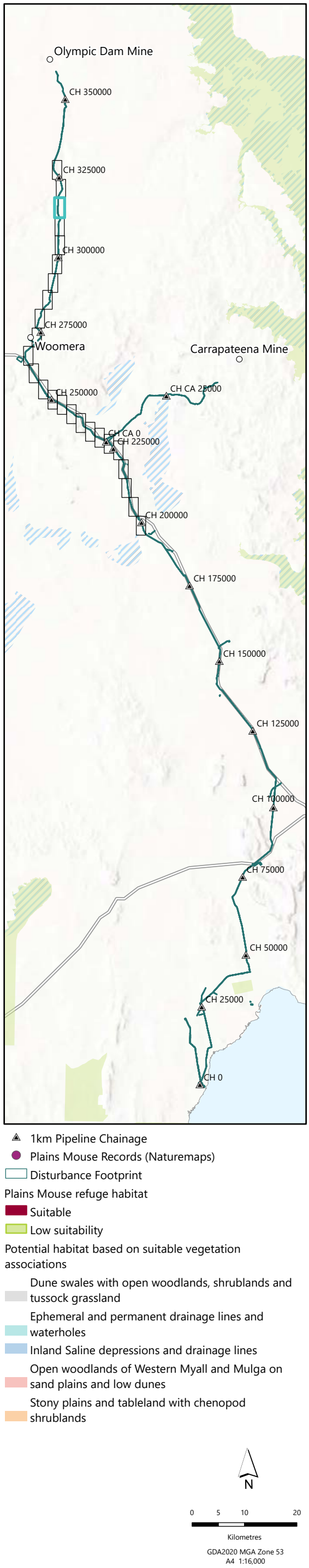




Appendix A: Plains Mouse refuge habitat, main transfer pipeline overview Map 22 of 25
Northern Water Project Plains Mouse habitat assessment

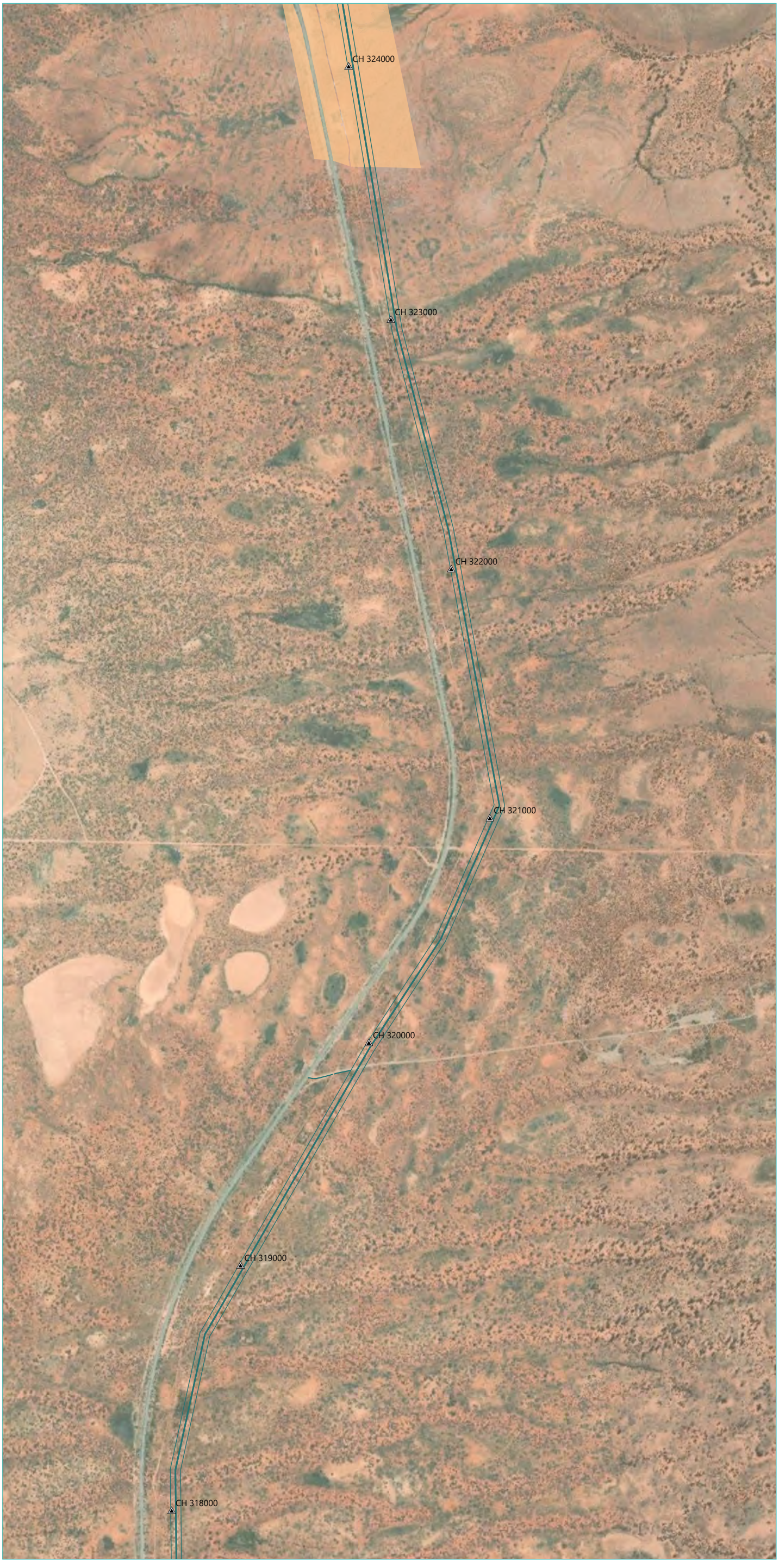
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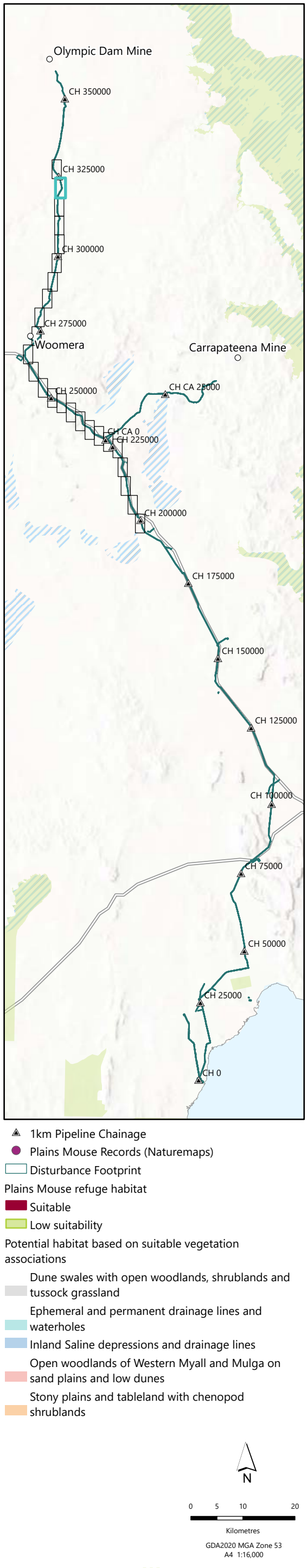




Appendix A: Plains Mouse refuge habitat, main transfer pipeline overview Map 23 of 25
Northern Water Project Plains Mouse habitat assessment

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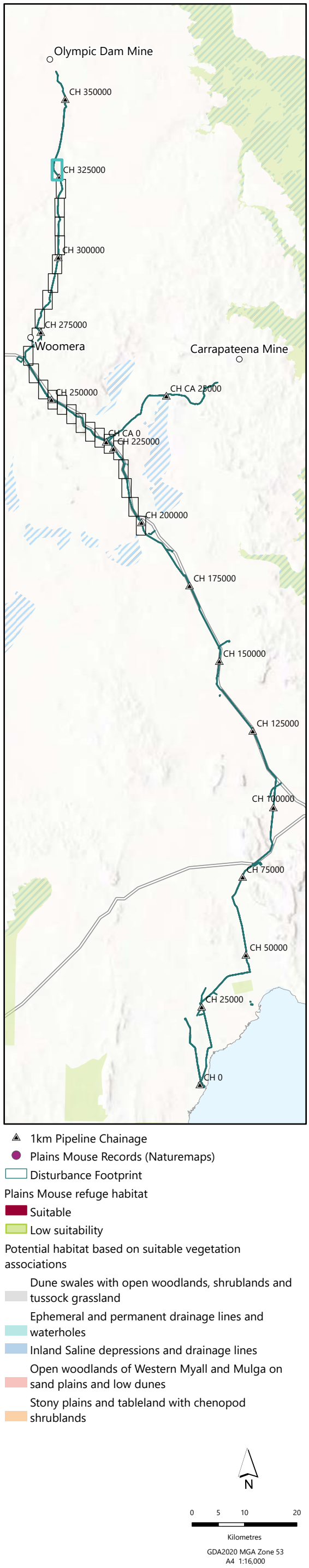




Appendix A: Plains Mouse refuge habitat, main transfer pipeline overview Map 24 of 25
Northern Water Project Plains Mouse habitat assessment

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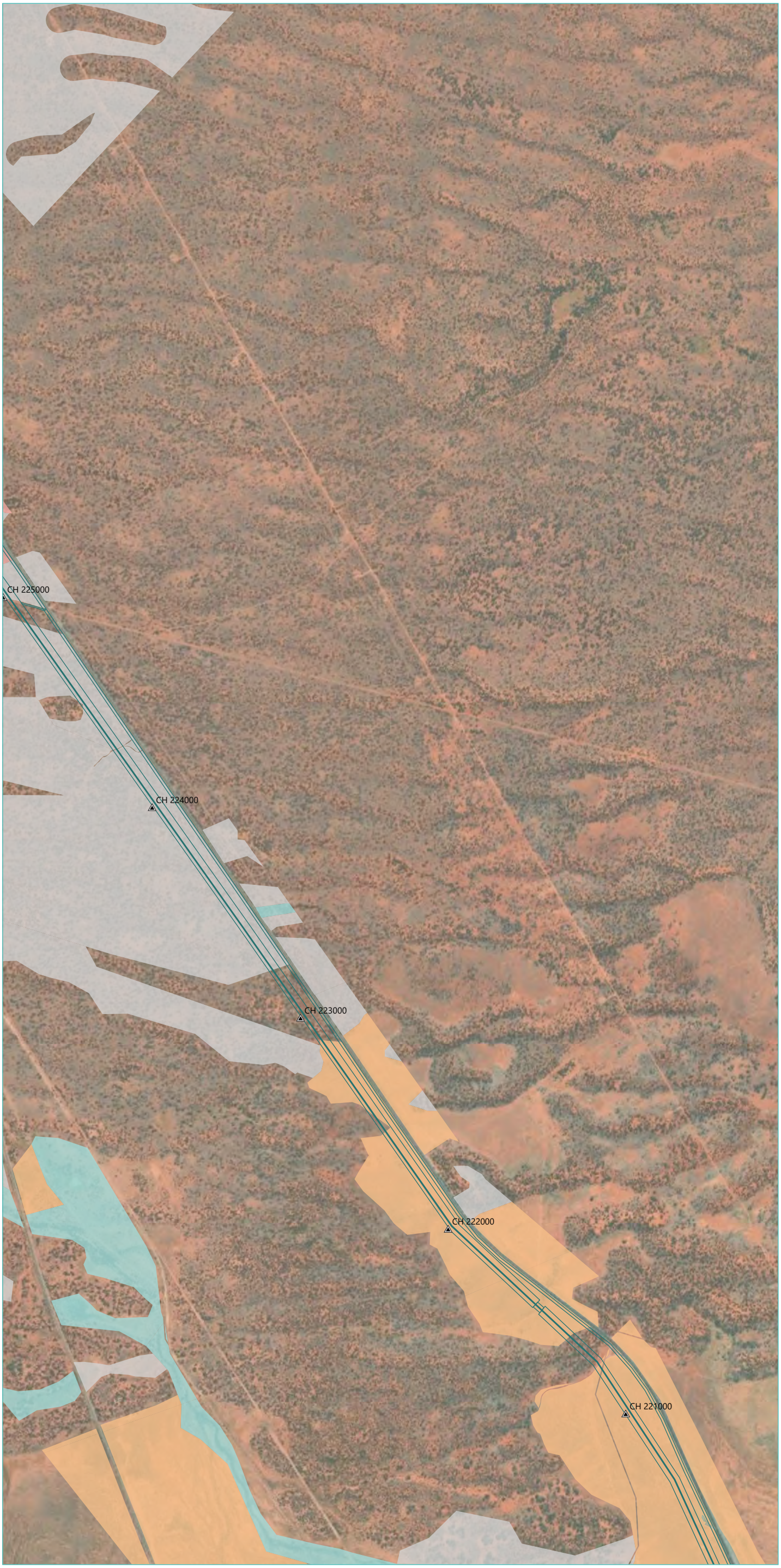


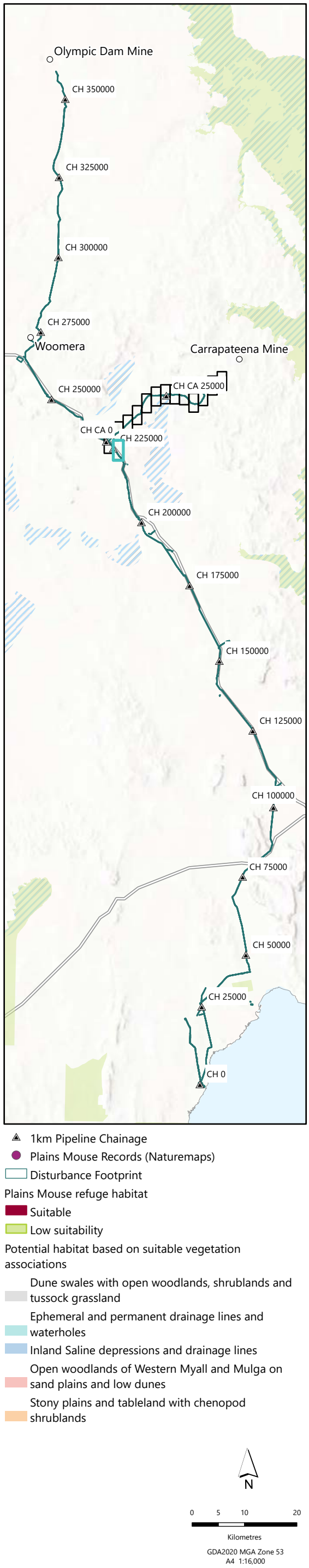


Appendix A: Plains Mouse refuge habitat, main transfer pipeline overview Map 25 of 25
Northern Water Project Plains Mouse habitat assessment

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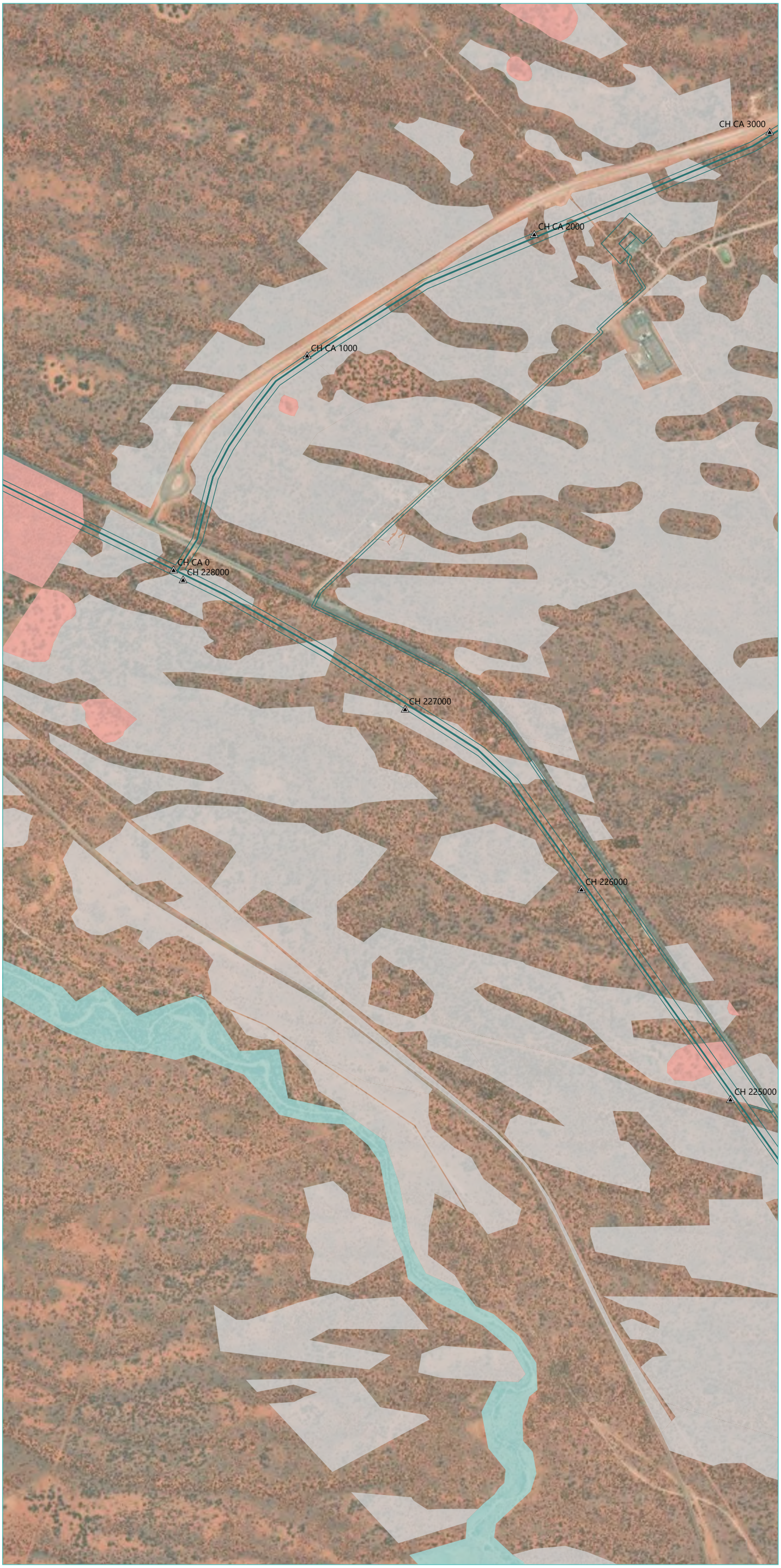
Appendix B. Carrapateena lateral pipeline Plains Mouse habitat mapping series

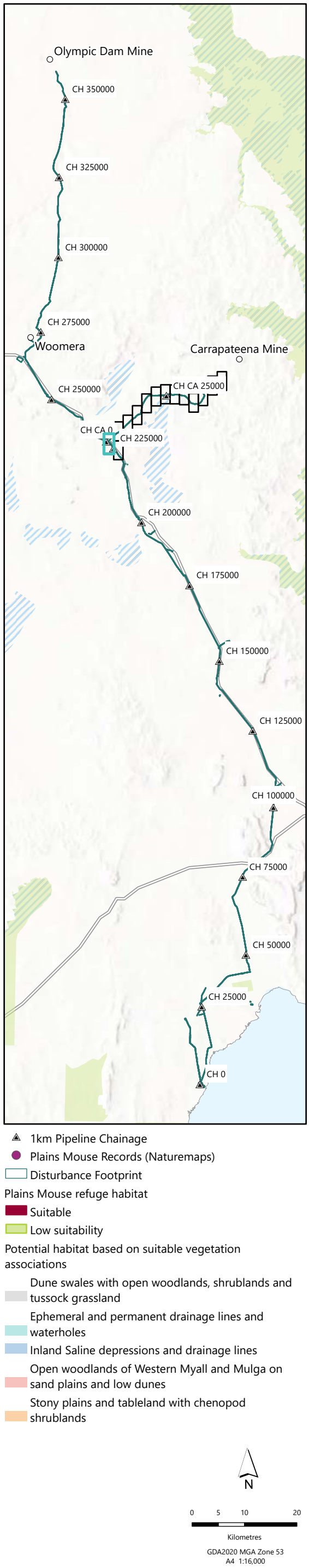




Appendix B: Plains Mouse habitat mapping, Carrapateena lateral pipeline overview Map 1 of 14
Northern Water Project Plains Mouse habitat assessment

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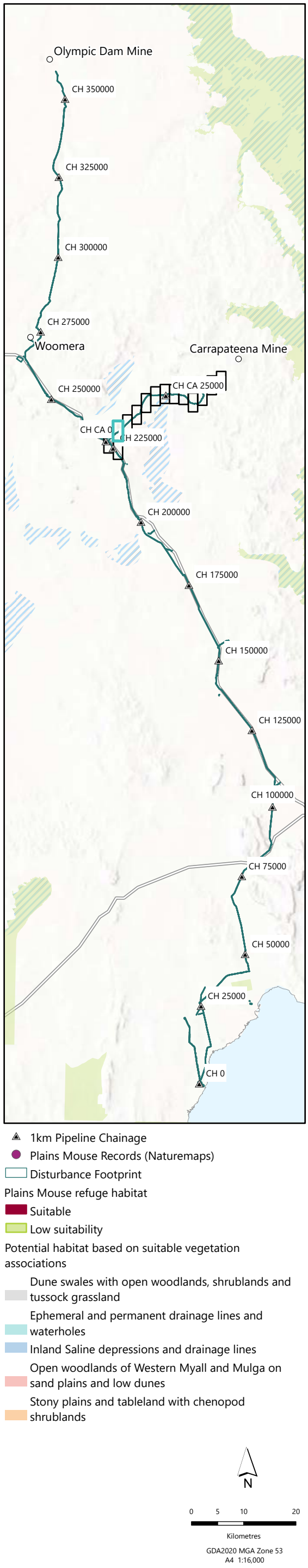




Appendix B: Plains Mouse habitat mapping, Carrapateena lateral pipeline overview Map 2 of 14
Northern Water Project Plains Mouse habitat assessment

LATHWIDA

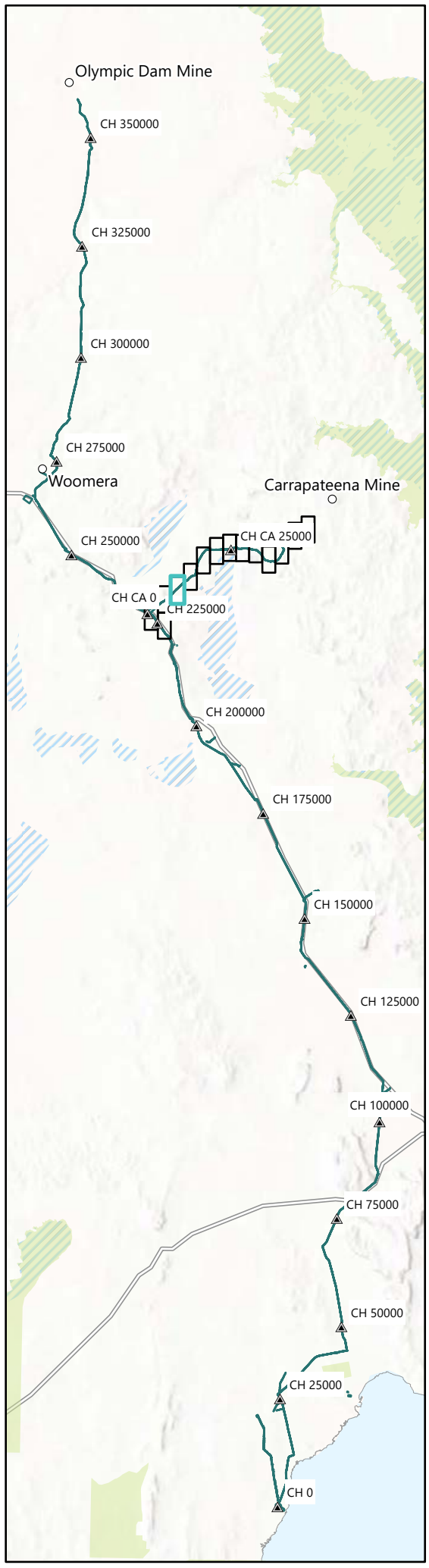




Appendix B: Plains Mouse habitat mapping, Carrapateena lateral pipeline overview Map 3 of 14
Northern Water Project Plains Mouse habitat assessment

LATHWIDA

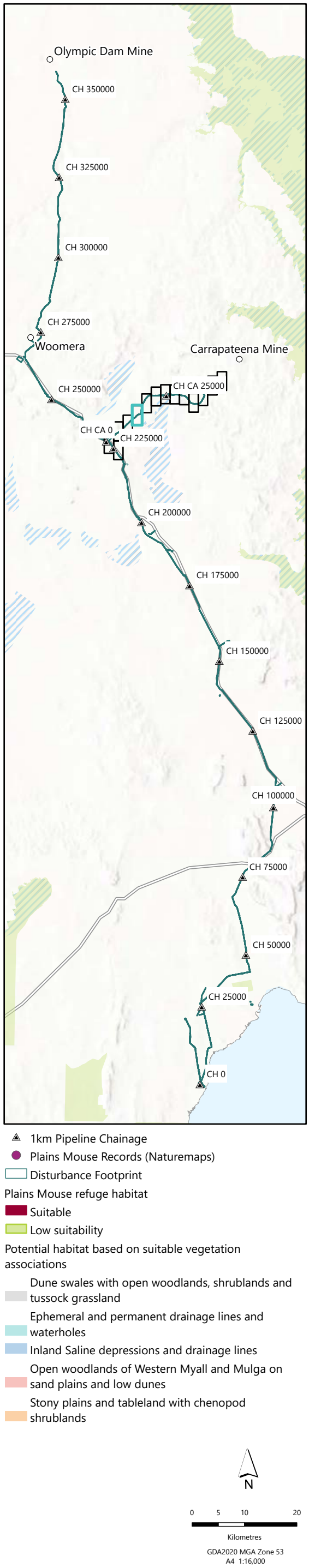




Appendix B: Plains Mouse habitat mapping, Carrapateena lateral pipeline overview Map 4 of 14
Northern Water Project Plains Mouse habitat assessment

LATHWIDA





1km Pipeline Chainage

Plains Mouse Records (Naturemaps)

Disturbance Footprint

Plains Mouse refuge habitat

Suitable

Low suitability

Potential habitat based on suitable vegetation associations

Dune swales with open woodlands, shrublands and tussock grassland

Ephemeral and permanent drainage lines and waterholes

Inland Saline depressions and drainage lines

Open woodlands of Western Myall and Mulga on sand plains and low dunes

Stony plains and tableland with chenopod shrublands

N

0 5 10 20

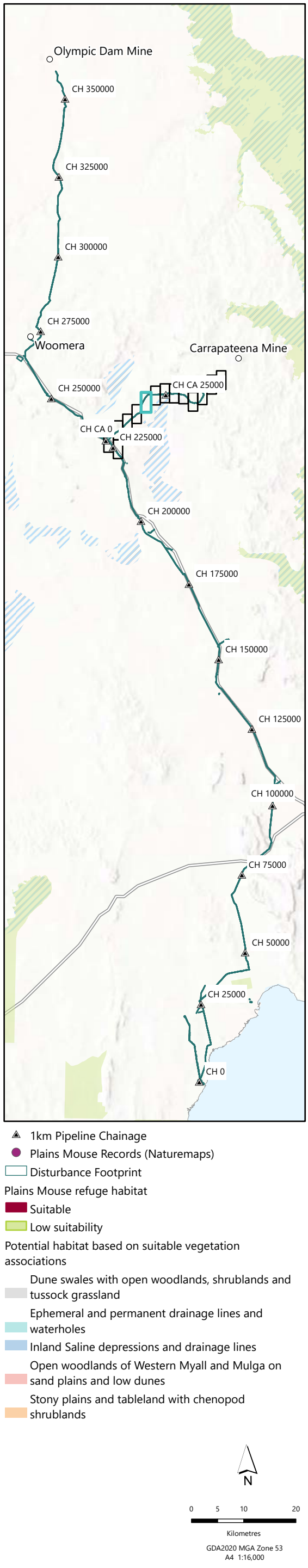
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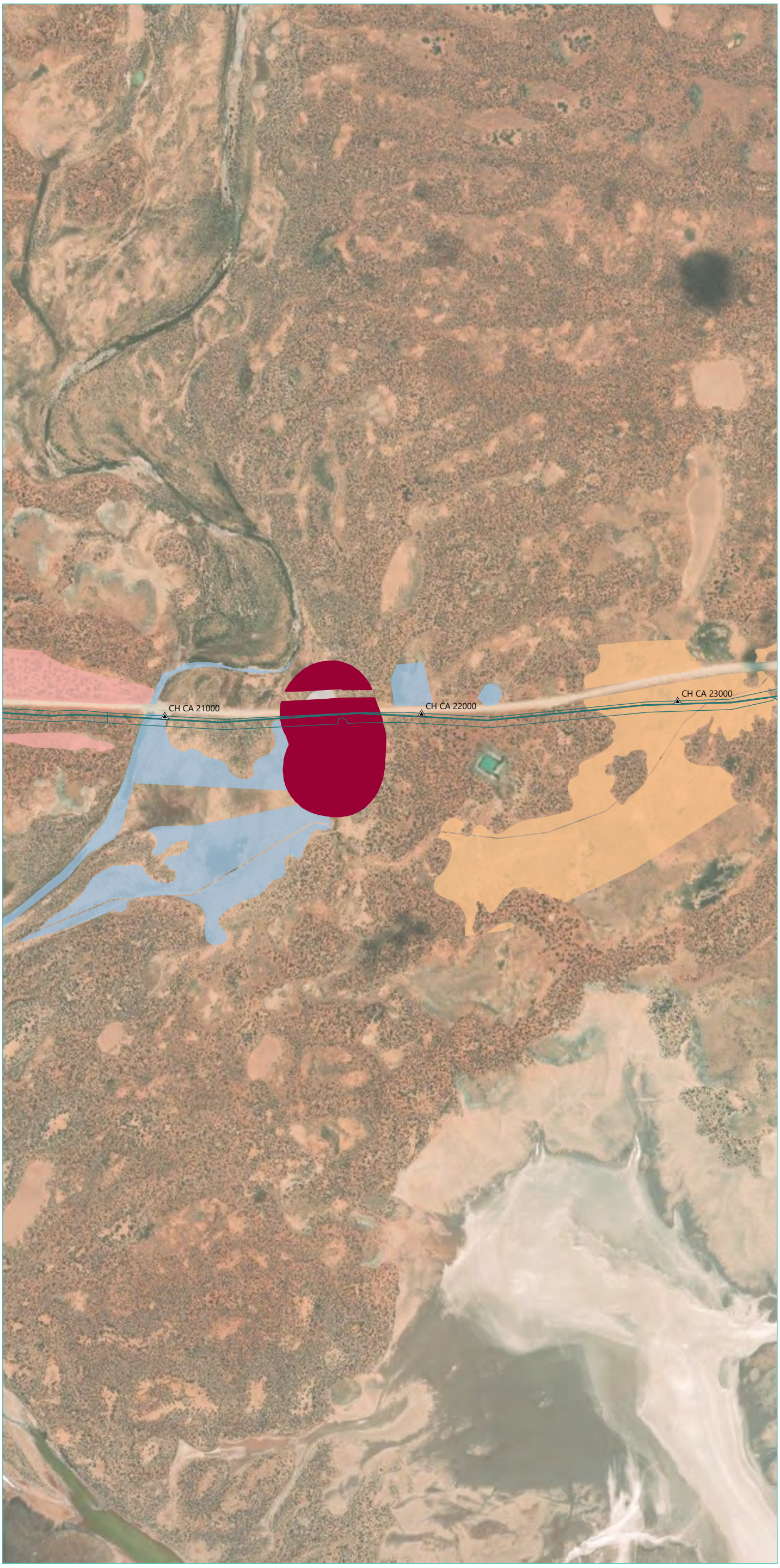
Appendix B: Plains Mouse habitat mapping, Carrapateena lateral pipeline overview Map 5 of 14
Northern Water Project Plains Mouse habitat assessment

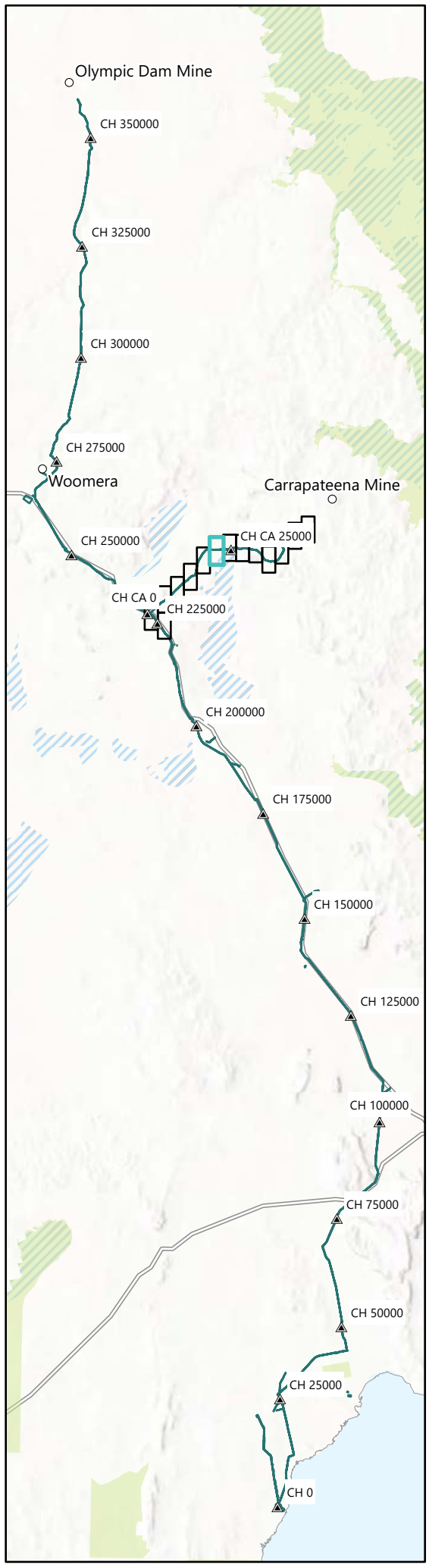




Appendix B: Plains Mouse habitat mapping, Carrapateena lateral pipeline overview Map 6 of 14
Northern Water Project Plains Mouse habitat assessment

LATHWIDA





1km Pipeline Chainage

Plains Mouse Records (Naturemaps)

Disturbance Footprint

Plains Mouse refuge habitat

Suitable

Low suitability

Potential habitat based on suitable vegetation associations

Dune swales with open woodlands, shrublands and tussock grassland

Ephemeral and permanent drainage lines and waterholes

Inland Saline depressions and drainage lines

Open woodlands of Western Myall and Mulga on sand plains and low dunes

Stony plains and tableland with chenopod shrublands

N

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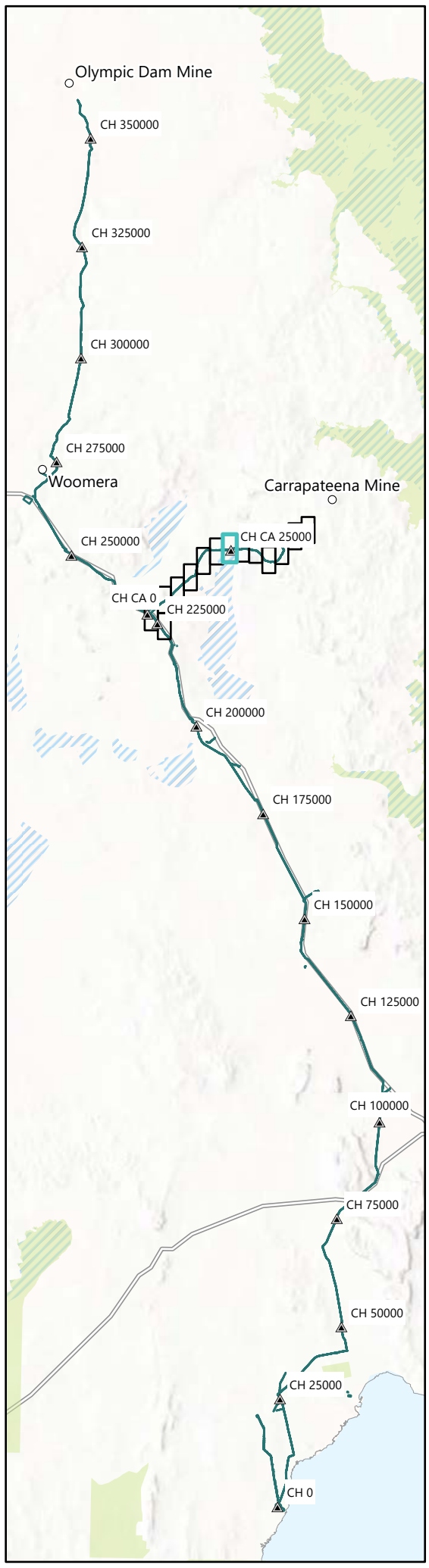
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Appendix B: Plains Mouse habitat mapping, Carrapateena lateral pipeline overview Map 7 of 14
Northern Water Project Plains Mouse habitat assessment





1km Pipeline Chainage

Plains Mouse Records (Naturemaps)

Disturbance Footprint

Plains Mouse refuge habitat

Suitable

Low suitability

Potential habitat based on suitable vegetation associations

Dune swales with open woodlands, shrublands and tussock grassland

Ephemeral and permanent drainage lines and waterholes

Inland Saline depressions and drainage lines

Open woodlands of Western Myall and Mulga on sand plains and low dunes

Stony plains and tableland with chenopod shrublands

N

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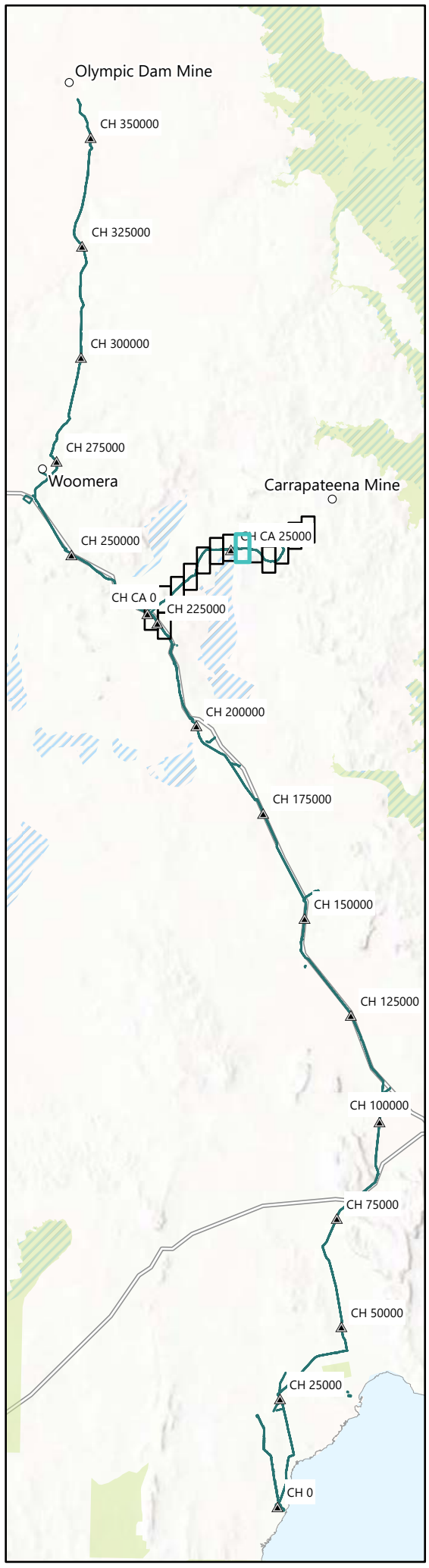
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Appendix B: Plains Mouse habitat mapping, Carrapateena lateral pipeline overview Map 8 of 14
Northern Water Project Plains Mouse habitat assessment





▲ 1km Pipeline Chainage

● Plains Mouse Records (Naturemaps)

▭ Disturbance Footprint

Plains Mouse refuge habitat

- Suitable
- Low suitability

Potential habitat based on suitable vegetation associations

- Dune swales with open woodlands, shrublands and tussock grassland
- Ephemeral and permanent drainage lines and waterholes
- Inland Saline depressions and drainage lines
- Open woodlands of Western Myall and Mulga on sand plains and low dunes
- Stony plains and tableland with chenopod shrublands

N

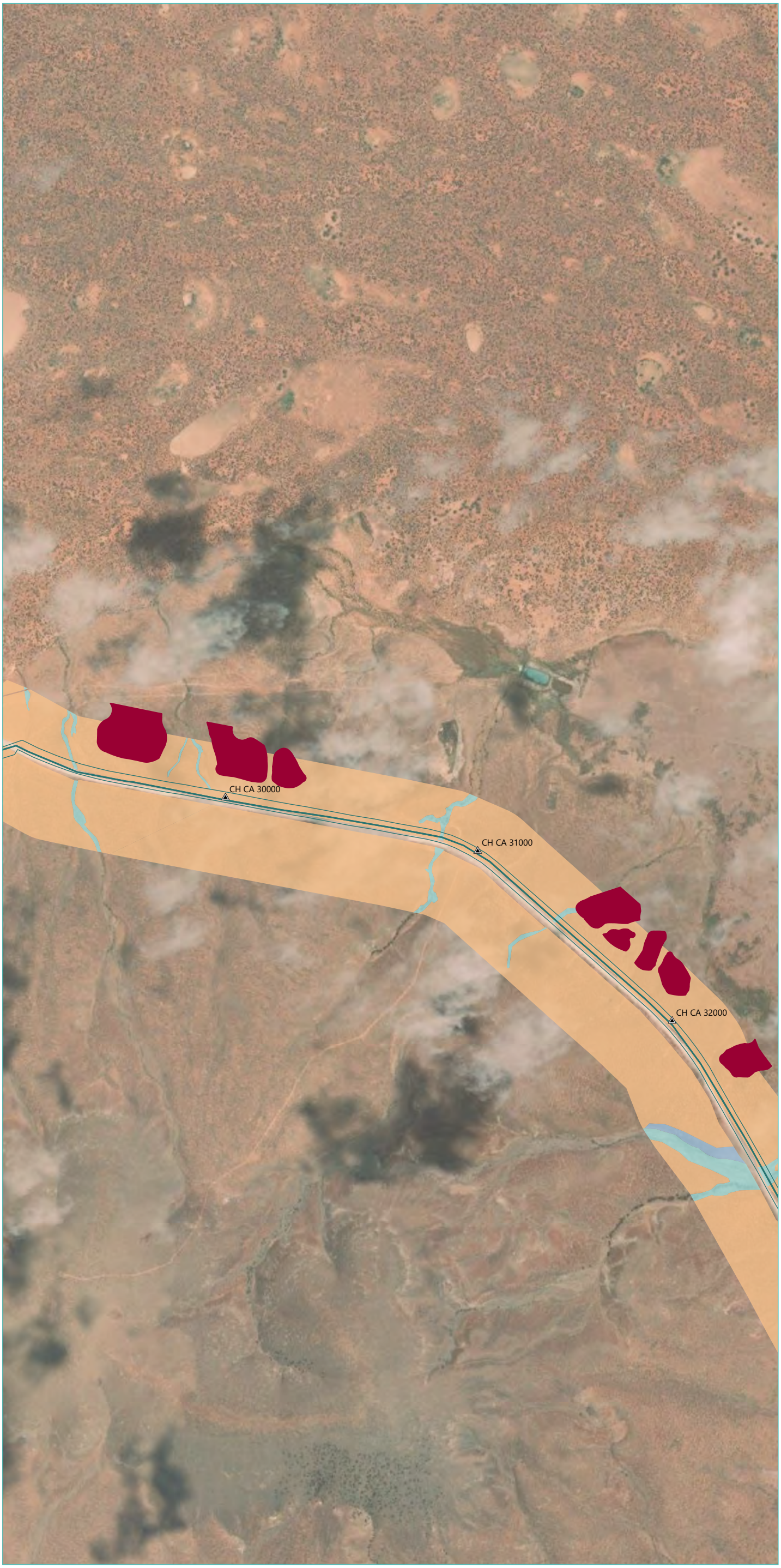
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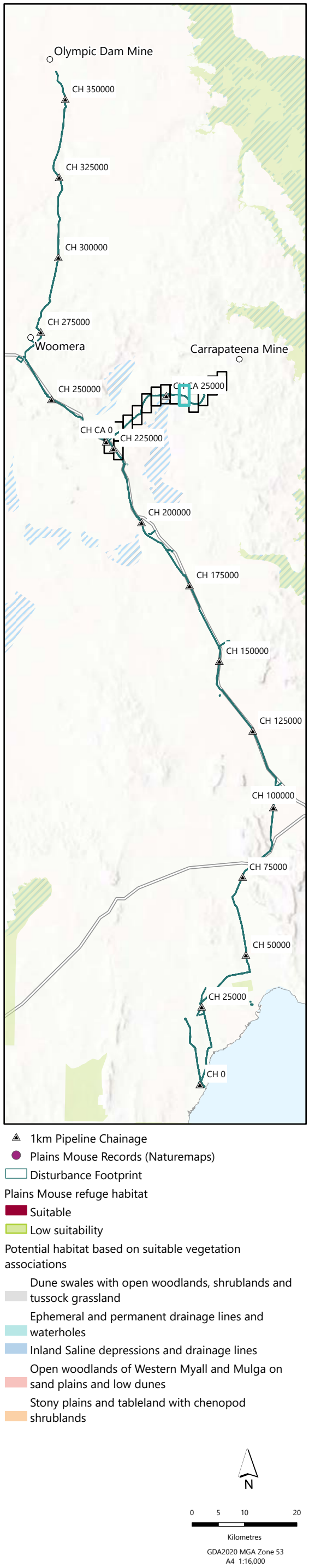
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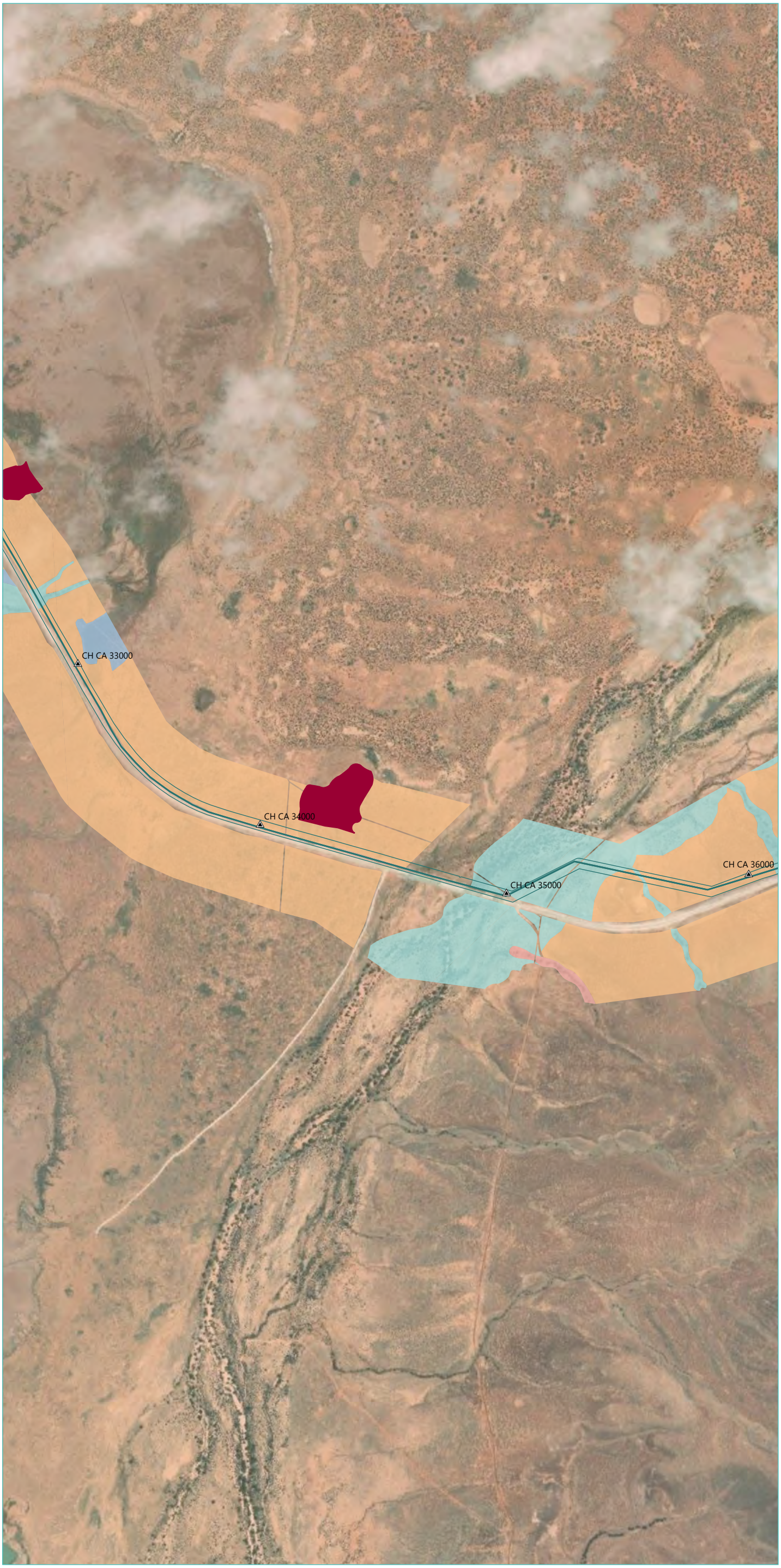
Appendix B: Plains Mouse habitat mapping, Carrapateena lateral pipeline overview Map 9 of 14
Northern Water Project Plains Mouse habitat assessment

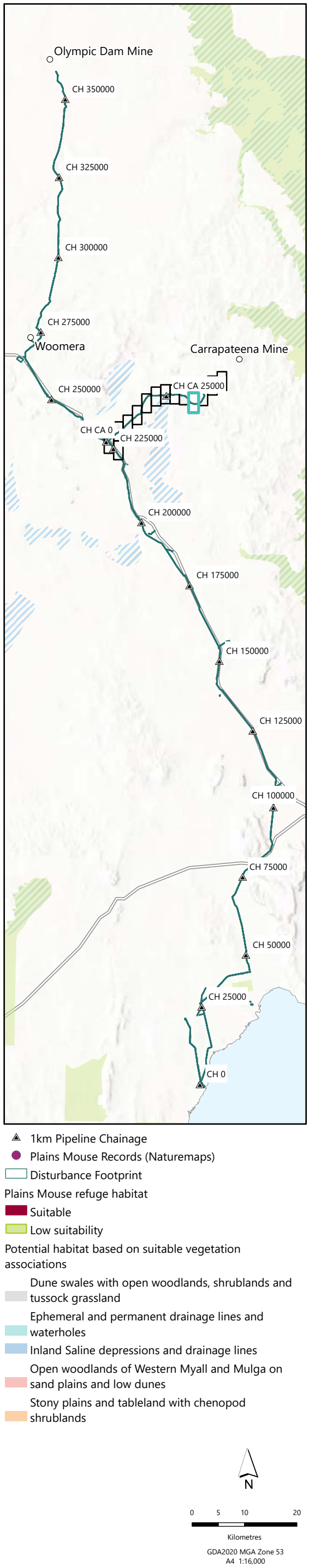




Appendix B: Plains Mouse habitat mapping, Carrapateena lateral pipeline overview Map 10 of 14
Northern Water Project Plains Mouse habitat assessment

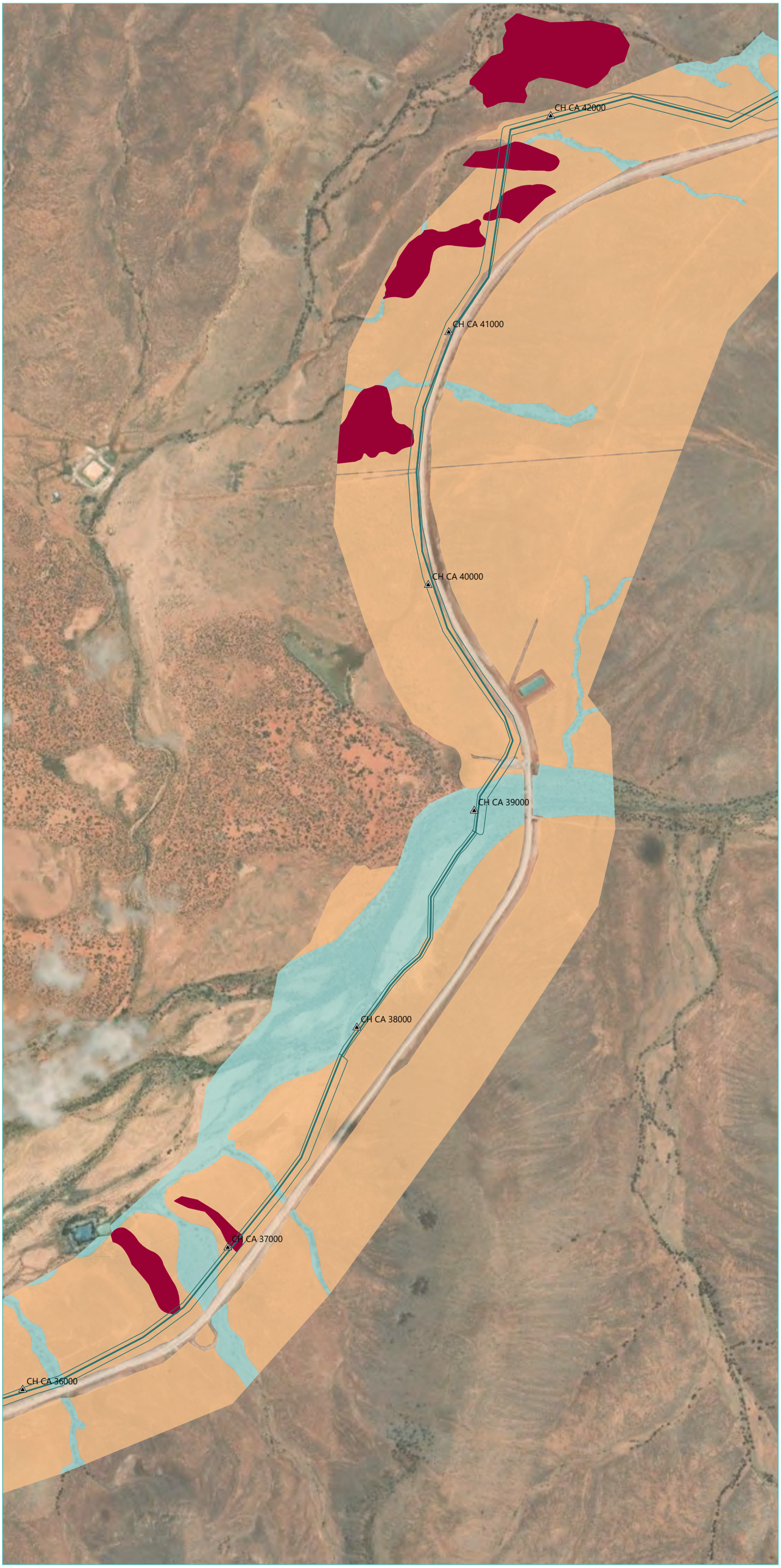
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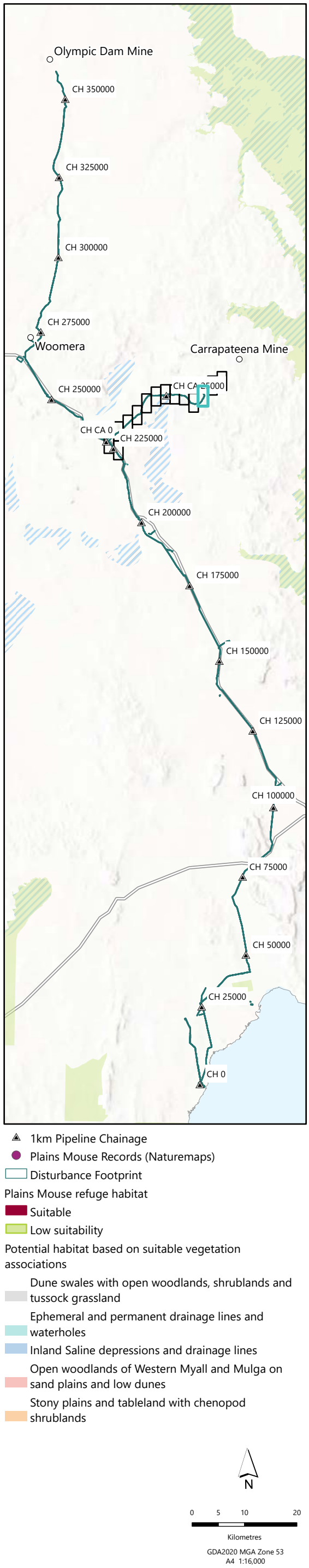




Appendix B: Plains Mouse habitat mapping, Carrapateena lateral pipeline overview Map 11 of 14
Northern Water Project Plains Mouse habitat assessment

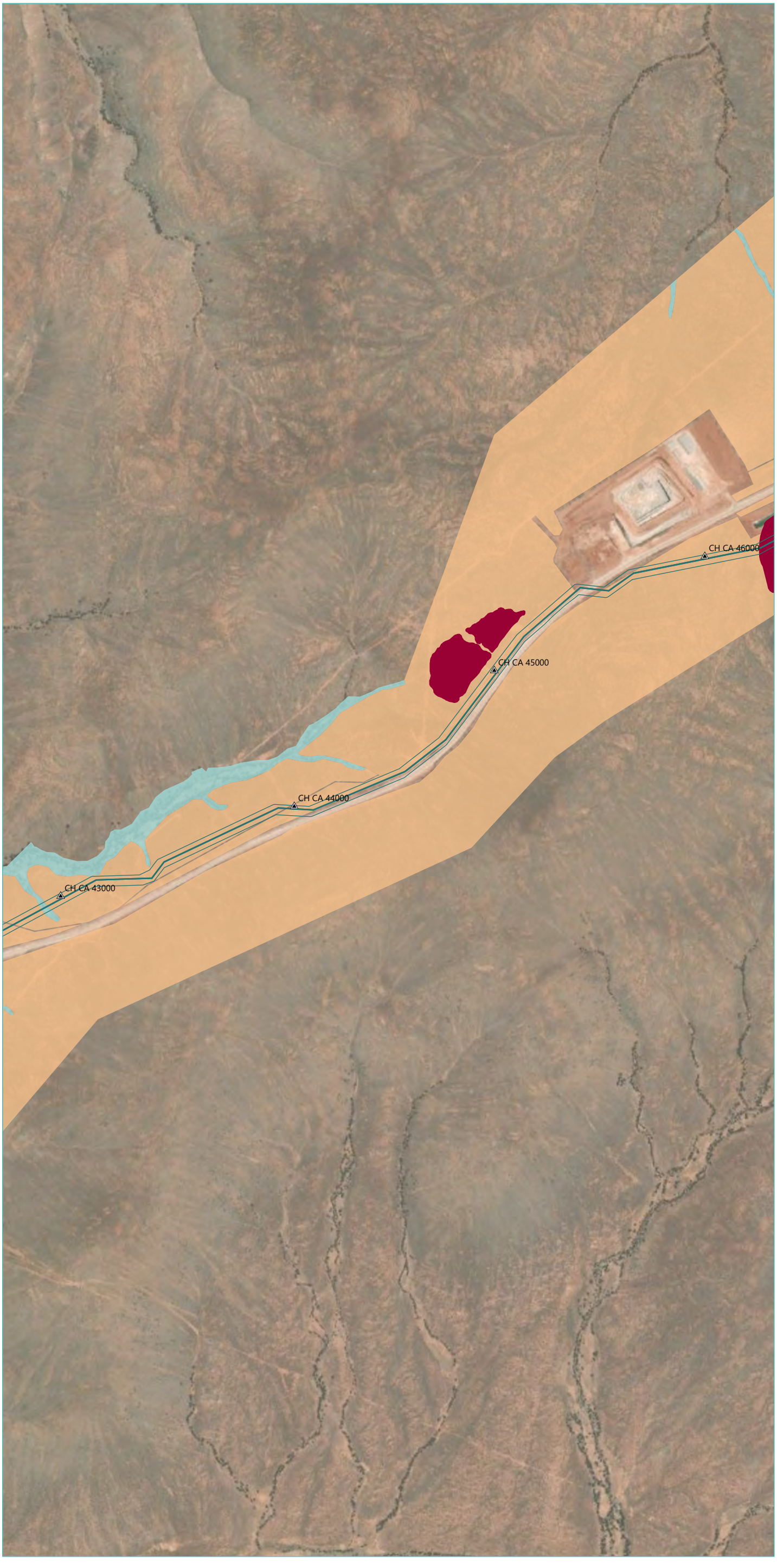
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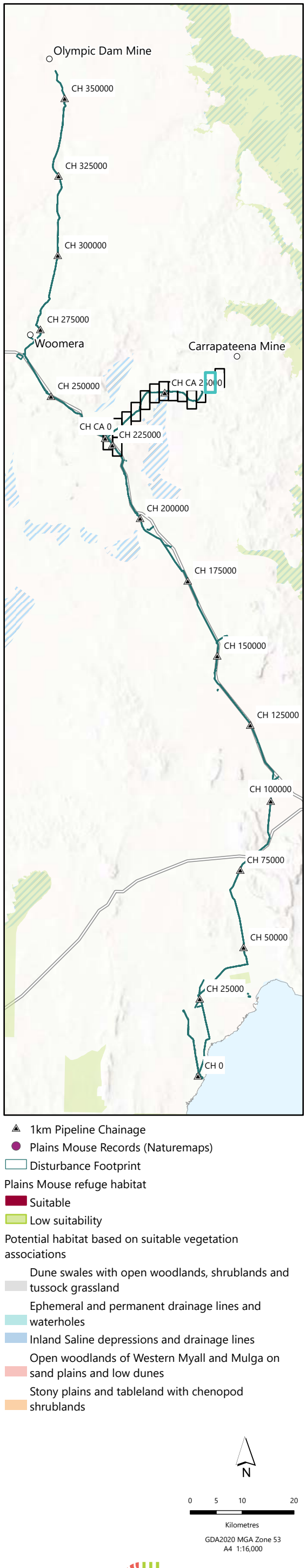




Appendix B: Plains Mouse habitat mapping, Carrapateena lateral pipeline overview Map 12 of 14
Northern Water Project Plains Mouse habitat assessment

LATHWIDA

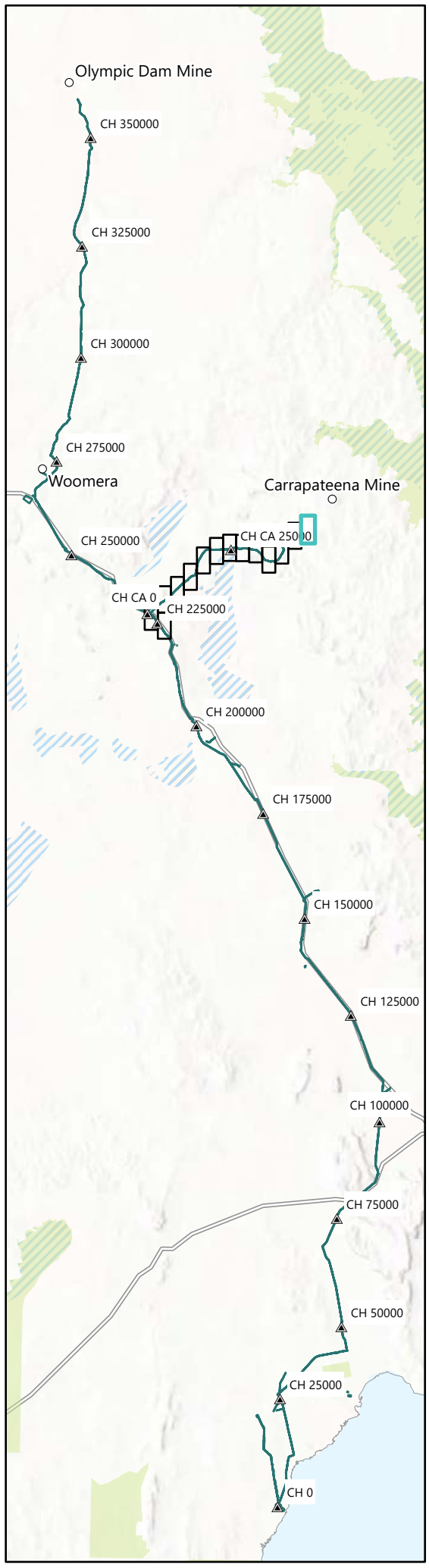




Appendix B: Plains Mouse habitat mapping, Carrapateena lateral pipeline overview Map 13 of 14
Northern Water Project Plains Mouse habitat assessment

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▲ 1km Pipeline Chainage

● Plains Mouse Records (Naturemaps)

Disturbance Footprint

Plains Mouse refuge habitat

Suitable

Low suitability

Potential habitat based on suitable vegetation associations

Dune swales with open woodlands, shrublands and tussock grassland

Ephemeral and permanent drainage lines and waterholes

Inland Saline depressions and drainage lines

Open woodlands of Western Myall and Mulga on sand plains and low dunes

Stony plains and tableland with chenopod shrublands

N

0 5 10 20

Kilometres

GDA2020 MGA Zone 53
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Appendix B: Plains Mouse habitat mapping, Carrapateena lateral pipeline overview Map 14 of 14
Northern Water Project Plains Mouse habitat assessment



Appendix I-3:

Plains Mouse Targeted Survey

Northern Water Project

Plains Mouse Targeted Survey Spring 2024

Department for Infrastructure and Transport

LATHWIDA ENVIRONMENTAL



December 2025

Final

Document status

Revision	Doc Type	Reviewed By	Approved By	Date Issued
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This report should be read in full, and no excerpts are to be taken as representative of the findings. No responsibility is accepted by Lathwida for use of any part of this report in any other context.

The sole purpose of this report and the associated services performed by Lathwida is to document results of survey findings for the survey area. This document and associated data will support the development of primary approval documentation required for the Northern Water project in South Australia. The report is based on survey findings within the survey area and buffers (where relevant) for the Department for Infrastructure and Transport. The scope of services, as described in this report, was developed with the Department for Transport and Infrastructure.

In preparing this report, Lathwida has relied upon, and presumed accurate, any information (or confirmation of the absence thereof) provided by the Client and/or from other sources. Except as otherwise stated in the report, Lathwida has not attempted to verify the accuracy or completeness of any such information. If the information is subsequently determined to be false, inaccurate or incomplete then it is possible that our observations and conclusions as expressed in this report may change.

Lathwida collected and reviewed data and information available in the public domain at the time or times outlined in this report. The passage of time, manifestation of latent conditions or impacts of future events may require further examination of the project and subsequent data analysis, and re-evaluation of the data, findings, observations and conclusions expressed in this report. Lathwida has prepared this report in accordance with the usual care and thoroughness of the consulting profession, for the sole purpose described above and by reference to applicable standards, guidelines, procedures and practices at the date of issue of this report. For the reasons outlined above, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this report, to the extent permitted by law

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Executive summary

ES1 Introduction

The Northern Water Project (the Project) aims to provide a secure climate resilient water source for industry in South Australia's Upper Spencer Gulf and Far North. This will enable the growth of industries and key mining resources crucial for contributing to decarbonisation initiatives, sustainability and unlocking long term economic prosperity for South Australia. The delivery of the Project will involve the construction and operation of a 51 gigalitre per year (GL/y) seawater reverse osmosis desalination plant at Mullaquana Station in the Upper Spencer Gulf, and it's connection to the Far North via approximately 400 km of transfer system (including pipeline, transfer pump stations, and water storages) and electricity infrastructure.

The Project comprises the following key elements:

- a 51 GL/year seawater reverse osmosis desalination plant located at Mullaquana Station approximately 25 km south-west of central Whyalla
- marine intake and outfall tunnels extending underneath the seabed and into the Spencer Gulf
- diffuser structures for discharge of return water into the Spencer Gulf
- a transfer system consisting of:
    - ~360 km main transfer pipeline, largely constructed underground, terminating at the delivery point at the Olympic Dam copper-gold mine
    - ~46 km Carrapateena lateral branch pipeline to a delivery point at the Carrapateena copper-gold mine (which may be constructed above or below ground)
    - associated transfer pump stations and storage tanks
- high voltage electricity supply including powerlines, network and facility substations to provide power to the desalination plant and transfer pump stations
- associated temporary construction-related infrastructure (e.g. construction camps, site offices and amenities, yards, storages and laydown areas)
- access tracks including upgrading existing tracks and establishing new tracks
- enabling roadworks and road upgrades.

The Project traverses a large portion of South Australia, extending into the South Australia Arid Lands, and as a result, is considered to intersect with known habitat for a number of conservation significant species.

ES2 Legislative background

This report has been prepared to support State and Commonwealth assessment of the Project under the *Planning, Development and Infrastructure Act 2016* (SA) and the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).

ES3 Potential Plains Mouse habitat, scope and objectives

A number of previous studies undertaken in the region noted that the Plains Mouse is known to occur in areas that overlap with the northern portion of the Project's pipeline alignment, including within the area of the proposed Carrapateena lateral branch. Disturbance activities associated with the Project, including vegetation clearance, and excavations for the installation of the water pipeline, have the potential to impact Plains Mouse habitat, and as a result, targeted surveys are required to determine whether the species exists within the Project Area, and if so, to determine the extent of occurrence within the area.

This report addresses the assessment requirements specifically related to Plains Mouse by presenting results of a targeted camera trapping survey for the Plains Mouse in relation to the Project.

ES4 Methodology

A targeted Plains Mouse camera trapping survey was conducted at eight sites from 3 September 2024 to 23 October 2024. Baited camera traps were placed in habitat which was considered most suitable to Plains Mouse, including areas of Cane-grass swamps or particularly large gilgais (or clusters of gilgais). All camera traps were placed within, or in close proximity to, the Project / Disturbance Footprint of the proposed pipeline alignment.

Cameras were deployed onsite for 50 days which well exceeds the upper limit of 14 days recommended in the Department of Sustainability, Environment, Water, Population and Communities' Survey Guidelines for Australia's Threatened Mammals. Survey effort is therefore considered to exceed requirements for targeted survey of the species.

Images from the camera traps were assessed to determine any Plains Mouse based on size and physiological proportions of individual mammals in the images.

ES5 Survey results and discussion

Temperatures and rainfall during the survey and in the six-month period leading up to the survey were generally comparable to the average temperatures in the region (i.e. those recorded between 1991 to 2020) and were not considered to negatively impact to the outcomes of the survey.

On-ground habitat suitability surveys were conducted at 26 potential camera trap sites, and the habitat suitability to Plains Mouse generally aligned with the previous habitat mapping undertaken by Lathwida in 2024. Eight sites were selected as the most likely to represent Plains Mouse habitat within the survey area, whilst also considering spread of camera traps throughout the survey area.

At the 8 camera sites, the cameras were deployed for 40 to 50 nights, resulting in a total of 334 trap nights. The survey captured a total of 16,238 photos, including 640 which recorded images of identifiable fauna, of which 21 were of small ground dwelling mammals. All small mammal photos were examined by two experienced ecologists. No Plains Mouse were recorded during the survey.

The absence of Plains Mouse records during the current survey cannot be used as definitive evidence that the Plains Mouse is not present in the Study Area. Small numbers of Plains Mouse are likely to persist in refuge habitat sites during period of average or below average rainfall, from where they spread to surrounding habitats following the periods of prolonged rainfall and resultant seed production. The Plains Mouse's elusive nature and ability to contract from large parts of their range during average or poor conditions, to re-populate the larger areas and more diverse habitats when favourable conditions arise, is why the Plains Mouse Recovery Plan recommends survey for suitable refuge habitat rather than for the animals themselves. Previous habitat mapping conducted by Lathwida in 2025, and confirmed by this survey, shows that suitable Plains Mouse refuge habitat is present within the Project Area. Additional surveys for the Plains Mouse within this Project Area is not recommended, as Plains Mouse can be assumed to occasionally inhabit areas of suitable refuge habitat within their range.

With only very low numbers of Plains Mouse potentially present (assumed presence only) within the Project / Disturbance Footprint, impact to the species as a result of temporary disturbance for installation of the water transfer system, followed by site rehabilitation, are not considered to be significant. The species has a very broad range, and its ability to recover during boom periods and to spread into adjacent habitats is likely to make any short-term impacts arising from the Project to the species undetectable following the next population irruption period.

Table of contents

1 Introduction 1
1.1 Project summary 1
1.2 Legislative background 2
1.3 Plains Mouse assessment guidelines 2
1.4 Potential Plains Mouse habitat in Project Area 3
1.5 Scope and objectives 5
2 Methodology 7
2.1 Field survey 7
2.2 Image analysis and classification 8
3 Survey results 10
3.1 Survey conditions 10
3.2 Survey outcomes 11
4 Discussion 15
5 References 16

List of tables

Table 2.1: Size and physiological proportions of small mammals (rodents and marsupials) in the same size range as the Plains Mouse 9
Table 3.1: Fauna records recorded by camera trap site 13

List of figures

Figure 1.1: Project location and Plains Mouse Study Area 6
Figure 3.1: Temperatures at Woomera during and preceding the survey months 10
Figure 3.2: Rainfall in Woomera during and preceding the survey months 11
Figure 3.3: Plains Mouse survey sites, incorporating the Plains Mouse habitat assessment (Lathwida 2025) 12

List of plates

Plate 2.1: Camera trap set-up 8
Plate 3.1: Mouse investigating the bait, note the rounded nose and slim tail 14
Plate 3.2: Dunnart at the bait station, note the pointy nose and thick tail 14

List of appendices

Appendix A. Camera site photos

1 Introduction

1.1 Project summary

The Northern Water Project (the Project) aims to provide a secure climate resilient water source for industry in South Australia's Upper Spencer Gulf and Far North. This will enable the growth of industries and key mining resources crucial for contributing to decarbonisation initiatives, sustainability and unlocking long term economic prosperity for South Australia. The delivery of the Project will involve the construction and operation of a 51 gigalitre per year (GL/y) seawater reverse osmosis desalination plant at Mullaquana Station in the Upper Spencer Gulf, and it's connection to the Far North via approximately 400 km of transfer system (including pipeline, transfer pump stations, and water storages) and electricity infrastructure.

The Project comprises the following key elements:

- a 51 GL/year seawater reverse osmosis desalination plant located at Mullaquana Station approximately 25 km south-west of central Whyalla
- marine intake and outfall tunnels extending underneath the seabed and into the Spencer Gulf
- diffuser structures for discharge of return water into the Spencer Gulf
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    - associated transfer pump stations and storage tanks
- high voltage electricity supply including powerlines, network and facility substations to provide power to the desalination plant and transfer pump stations
- associated temporary construction-related infrastructure (e.g. construction camps, site offices and amenities, yards, storages and laydown areas)
- access tracks including upgrading existing tracks and establishing new tracks
- enabling roadworks and road upgrades.

1.1.1 Key terms and definitions:

The Project: the Northern Water Project inclusive of the desalination plant (including marine components), power transmission lines and substations, water pipelines, water storage facilities and pump stations, and temporary facilities and infrastructure to enable construction.

Project Area: The area required for the safe and efficient construction and operation of the Northern Water Project. Specifically, a 2.5 km buffer of the alignment of linear infrastructure (i.e. a 5 km wide corridor) with isolated areas outside of the buffer that have been identified for potential laydown areas. Linear infrastructure includes pipelines, transmission lines, and the desalination plant intake and outfall pipelines. The buffer effectively incorporates all Project infrastructure for the purposes of approvals, including buffer areas around proposed infrastructure and the Disturbance Footprint.

Disturbance Footprint (Project Footprint): the proposed area of clearance required for the construction and installation of all Project components (includes construction buffers, laydown areas, stockpile areas, and construction access routes).

Study Area: The northern portion of the Project Area where the targeted survey for the Plains Mouse occurred for this survey.

1.2 Legislative background

This report has been prepared to support State and Commonwealth assessment of the Project under the *Planning, Development and Infrastructure Act 2016* (SA) and the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act).

1.3 Plains Mouse assessment guidelines

Recommended techniques for assessment of Plains Mouse and suitable Plains Mouse habitat are provided in the Survey Guidelines for Australia's Threatened Mammals (DSEWPaC 2011) and include:

- daytime searches for potentially suitable habitat resources such as gilgai habitats associated with drainage features in gibber plains, but also sand dunes after rainfall
- daytime searches for signs, including burrows, tracks, and scats
- collection of predator scats, owl casts, or remains in predatory bird/mammal nests/dens located within suitable Plains Mouse habitat
- Pitfall and Elliott trapping surveys over periods of three to five nights
- consultation with local people, particularly investigating potential Indigenous knowledge of this species' presence in an area and discussion with graziers and farm hands, particularly in dry periods when densities are likely to be low.

While not specifically outlined by DSEWPaC (2011) for Plains Mouse, camera trapping has been found to be an effective method for detecting species at low or moderate densities (Vine et al. 2009). General camera trapping guidelines provided in DSEWPaC (2011) recommend a survey period of at least 14 nights. Further details regarding camera trapping techniques are provided in Section 1.4.2.

1.4 Potential Plains Mouse habitat in Project Area

The Project traverses a large portion of South Australia, extending into the South Australian Arid Lands (SAAL), and as a result intersects with the extent of occurrence of the Plains Mouse (*Pseudomys australis*) (DEW 2024), which is listed as Vulnerable under both the EPBC Act and the *National Parks and Wildlife Act 1972* (SA) (NPW Act). The species has been previously recorded within the area overlapping with the northern portion of the Project's main transfer pipeline alignment (EBS 2013; EBS 2017a; EBS 2017b; Jacobs 2021), including along the Carrapateena lateral branch (Figure 1.1, Figure 3.3).

Disturbance activities associated with the Project, including ground clearance, and excavations required for the installation of the water pipeline, have the potential to impact Plains Mouse habitat. As a result, targeted surveys specific to the Plains Mouse are required to determine whether the species exists within the Project Area, and if so, to determine the extent of occurrence within the area.

1.4.1 Plains Mouse ecology and habitat

The Plains Mouse, also referred to as the Plains Rat, is a medium (30 to 50 g) sized rodent, native to the arid regions of south and south-eastern Australia. The species overall extent of occurrence is estimated at 100,000 km^2 (10,000,000 ha) which excludes some outlying recent records of the species. An area of occupancy within the extent of occurrence is assumed to be approximately 20,000 km^2 (2,000,000 ha) (Moseby 2012a). The distribution of the Plains Mouse is thought to have been reduced by 50 to 90% since European settlement and it is currently restricted mainly to the Stony Plains Bioregion of South Australia with small populations in Northern Territory and Queensland (Moseby 2012a). Plains Mouse is listed as Vulnerable nationally under the EPBC Act, and it is recognised as threatened in all the states where it occurs, including in South Australia where it is listed as Vulnerable under the NPW Act. According to the Plains Mouse Recovery Plan all populations of the species should be considered important populations (Moseby 2012a). Five geographic zones have been defined for the current population and one of these zones is the Arcoona Tableland location, including Pernatty Station in South Australia (Moseby 2012a) which the Project traverses.

As with a number of fauna species which occupy arid regions, Plains Mouse populations follow a 'boom-and-bust' cycle, retracting to refuge habitat during regular and prolonged drought periods. Though historic and fossil records indicate that the Plains Mouse previously inhabited a range of habitats, based on records since 2000, its known refuge habitat now includes two main types (Brandle et al. 1999; Nature Foundation 2023):

- large open gypseous cracking clay areas associated with minor drainage features
- depressions (gilgais) within gibber stony plains.

These habitat types provide higher survivorship and productivity for the species than surrounding environments because they function as run-on areas, receiving more water and collecting seeds and organic matter, as well as providing physical refuge in the form of deep cracks in the clay soils. This allows Plains Mouse to persist during years of dry conditions and low productivity. Following periods of more favourable conditions, the species can disperse from the refuge habitat to surrounding areas, utilising a much broader range of habitats during short periods of time (Moseby 2012a). Other examples of habitat

considered suitable for the species include major drainage lines with riparian vegetation (but devoid of trees) and a sandy clay creek bed or minor drainage lines with little vegetation, but cracking clays and less-friable gibber plains with low chenopods (Brandle et al. 1999; Moseby 2012a).

In distinguishing the critical Plains Mouse refuge habitats from other 'opportunistic' habitats, the presence of friable cracking clay soil appears to be more essential than the type and structure of the vegetation (Moseby 2012a). Whilst Plains Mouse presence can be detected through scats and burrows, due to the elusive nature of the species, particularly in dry conditions, soil habitat characteristics rather than direct signs of the species are the best indicator of refuge habitat locations (Moseby 2012a). The edges of Cane-grass (*Eragrostis australasica*) swamps often support the best areas of friable cracking clay, with Moseby (2012a and 2012b) suggesting that a 150 m buffer is applied around these swamps when determining suitable Plains Mouse refuge habitat. Although clay is recognised as the core habitat for Plains Mouse, the species has also been observed in sandy habitats in the Arid Recovery Reserve to the north of BHP's Olympic Dam mine during boom periods (Moseby 2012a; Moseby 2012b). It is important to note however, that the Arid Recovery Reserve population is protected from predators through fencing, which has enabled Plains Mouse to occupy a broader range of habitats than in areas outside the reserve where predators (cats, foxes) are present (Arid Recovery 2024).

Plains Mouse have previously been recorded close to the northern end of the proposed pipeline alignment around Olympic Dam and along the proposed Carrapateena Lateral branch (DEW 2024). Plains Mouse were also recorded during a long term, year-round camera trap-based survey at South Gap Station (Nature Foundation 2023), located approximately 50 km east of the main transfer pipeline and approximately 30 km south-east of Carrapateena.

1.4.2 Use of camera trap surveys for Plains Mouse

Some important factors to consider when planning a camera trap-based survey for a particular target species are described by Meek et al. (2012) and Paull et al. (2011), and include:

- Can the target species be readily identified from photographs?
- Are similar species likely to be present?
- When should the cameras be deployed?
- Should bait be used and which bait?
- For how long should the cameras be deployed?

At the South Gap Station, Plains Mouse are recorded solely based on images from camera traps. This study indicates that the detectability of Plains Mouse is highest in August to October (Nature Foundation 2023). The South Gap study utilises lures with peanut butter to attract the Plains Mouse (Nature Foundation 2023). The significance and effectiveness of various baits on medium sized marsupials and rodents was investigated by Paul et al. (2011), who found peanut butter and oats to be a good general bait, which significantly increased the number of recordings of the target species. Paull et al. (2011) also investigated the effect of deployment time and found that cameras should be deployed for a minimum of 14 days per survey. This aligns with DSEWPaC guidelines (2011) as well as findings from Meek et al. (2012) which recommends a deployment time of 12 to 18 days to survey for small mammals.

1.5 Scope and objectives

This study aimed to determine the presence of Plains Mouse within the portion of the Project Area which overlaps with the species' known extent of occurrence, specifically within the Project / Disturbance Footprint. This included areas which were identified as meeting Plains Mouse habitat criteria, as assessed in the recent Plains Mouse habitat assessment (Lathwida 2025).

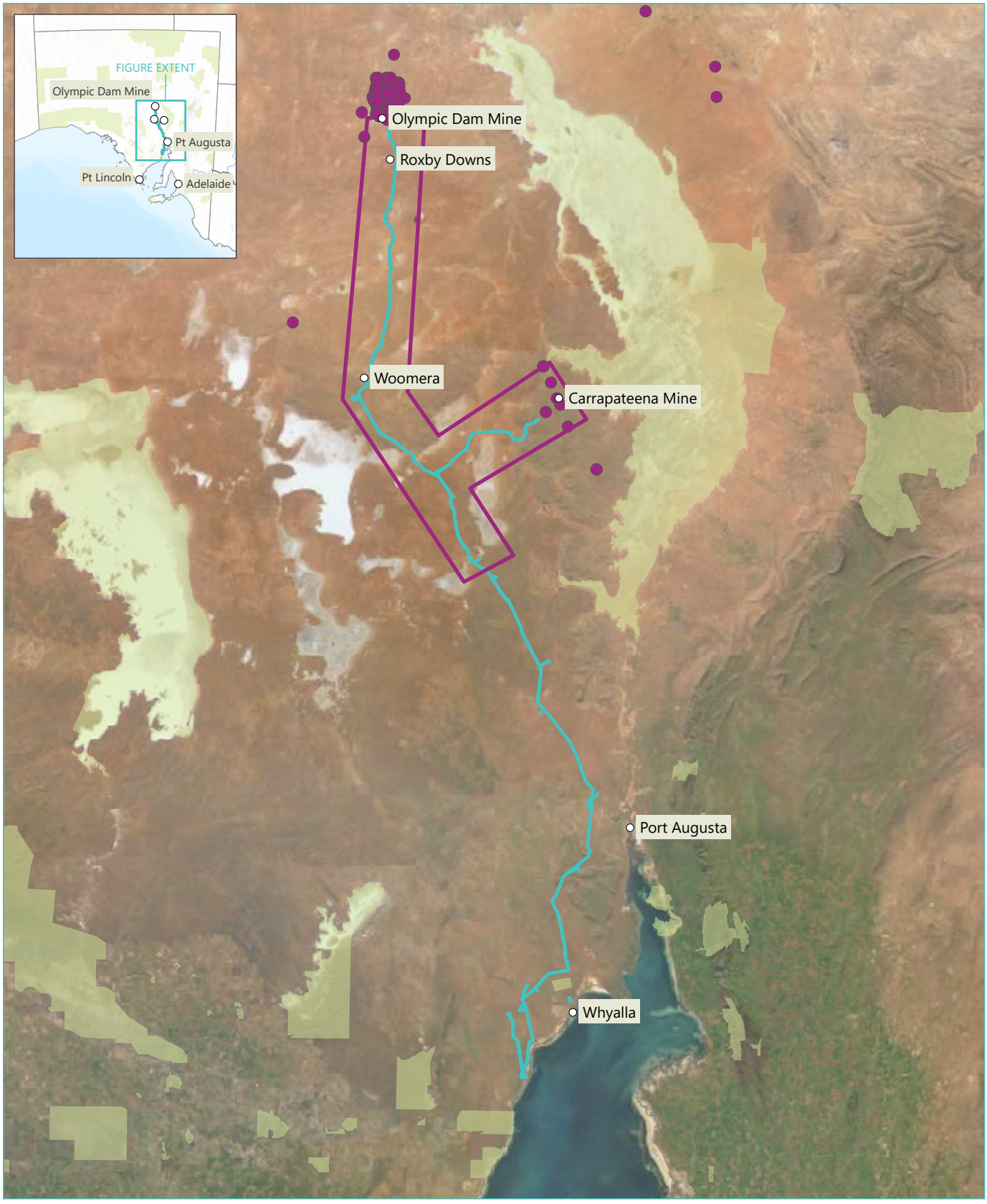


Figure 1.1: Project location and Plains Mouse Study Area
Northern Water Project Plains Mouse Targeted Survey Spring 2024

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2 Methodology

The Plains Mouse survey was conducted at eight sites from 3 September 2024 to 23 October 2024, aligning with the period of highest number of records observed at the nearby South Gap Station (Nature Foundation 2023) using baited camera traps placed in habitat considered suitable to Plains Mouse. All camera traps were placed within, or close to, the Disturbance Footprint of the proposed pipeline alignment.

2.1 Field survey

The Study Area included the areas previously mapped by Lathwida (2024) as potentially suitable habitat for Plains Mouse, which was based upon aerial imagery analysis and verified during on-ground habitat assessments. A portion of the proposed pipeline alignment occurs within the known range of Plains Mouse and is predominantly located in close proximity to the Olympic Dam Highway or the Carrapateena Western Access Road. As such, two ecologists from Lathwida traversed these roads seeking locations which were considered habitat suitable to Plains Mouse. Where habitat was encountered which appeared more suitable to Plains Mouse than the surrounding habitat, such as areas of Cane-grass swamps or particularly large gilgais (or clusters of gilgais), the patch was surveyed on foot to determine whether the site would be suitable for camera deployment. This was based on characteristics outlined by Moseby (2012b) which included:

- the presence of friable clay
- the presence, depth and extent of cracks, suitable as refuge for Plains Mouse
- the presence of burrows likely to be used by Plains Mouse
- the presence of Plains Mouse runways and scats.

From the assessed locations which were surveyed on foot, eight sites were chosen based on the habitat characteristics which indicated a high suitability for Plains Mouse habitat. In order to provide coverage across the entire Study Area, the location of the eight sites was distributed across the Study Area.

At each of the eight sites, a 300 x 300 mm cork tile with a 50 x 50 mm grid (to assist with size identification) was pegged to the ground and a bait container holding a mixture of peanut butter and oats was attached to one of the pegs. In areas with very soft ground, the cork tile was further secured with rocks to weigh down the corners. A fauna camera trap (Reconyx HF2X HyperFire 2 Covert IR Camera) with freshly charged batteries and a formatted 64 GB SD-card was mounted at a star dropper approximately 1 m above the cork tile facing down at the bait, as presented in Plate 2.1. This method takes the considerations of Meek et al. (2012) and Paull et al. (2011) into account and has proven successful at detecting Plains Mouse at South Gap Station (Nature Foundation 2023). The cameras were deployed for 50 days, which notably exceeds the 14 days recommended by Paull et al. (2011) and DSEWPaC (2011), and the 12 to 18 days recommended by Meek et al. (2012). Cameras were set to take a series of three photos when movement were detected, in addition to take one photo every hour.



Plate 2.1: Camera trap set-up

2.2 Image analysis and classification

Of the images collected by the camera traps, a preliminary sorting was undertaken to identify any small mammals of a similar size and shape to the Plains Mouse. The potential Plains Mouse photos identified during the preliminary sorting were subsequently examined in further detail to determine any Plains Mouse based on size and physiological proportions of individual mammals in the images, using the 50 x 50 mm grid as a size reference. The size ranges, general physiological proportions, and characteristics of a number of small mammals (rodents and marsupial species) which may potentially be found within the Study Area are outlined Table 2.1 (adapted from Menkhorst and Knight 2011).

Table 2.1: Size and physiological proportions of small mammals (rodents and marsupials) in the same size range as the Plains Mouse

Species	Common Name	Head and body length (mm)	Tail Length (mm)	Weight (g)	Characteristics
Leggadina forresti	Central Short-tailed Mouse	70–100	45–70	15–25	• Tail short and thick approximately 70% of head and body length • Ears small and rounded
Mus musculus	House Mouse	60–90	75–90	10–25	• Tail equal or slightly longer than head and body length • Ears large and rounded • Small eyes
Planigale gilesi	Gile's Planigale	60–80	55–70	6–15	• Pointy faced • Tail thin (depending on condition) and shorter than head and body length • Ears short
Planigale tenuirostris	Narrow-nosed Planigale	50–75	50–65	4–9	• Flat triangular head • Tail slightly shorter than head and body length,
Pseudomys australis	**Plains Mouse**	**100–140**	**90–120**	**40–75**	• Stout built large Rodent • Tail slightly shorter than head and body length • Short and rounded snout • Long ears • Big eyes
Pseudomys bolami	Bolam's Mouse	57–77	89–96	10–21	• Tail clearly longer than head and body length • Ears long and rounded
Pseudomys hermannsburgensis	Sandy Inland Mouse	62–77	73–90	9–17	• Tail clearly longer than head and body length • Ears long and rounded
Sminthopsis crassicaudata	Fat-tailed Dunnart	60–90	45–70	10–20	• Pointy faced • Very large ears • Tail fat and shorter than head body length (depending on condition)
Sminthopsis macroura	Stripe-faced Dunnart	75–98	80–100	15–25	• Pointy faced, occasionally with a dark stripe on top of head • Very large ears • Tail longer than head body length and thinner in the end

Note. Table adapted from Menkhorst and Knight (2011)

3 Survey results

3.1 Survey conditions

Temperatures and rainfall as recorded at the nearby Woomera weather station (BoM 2024) during the survey and in the six-months leading up to the survey are presented in Figure 3.1. The temperatures measured before and during the survey are generally comparable to the average temperatures in the period 1991 to 2020, and are not considered to negatively impact to the outcomes of the survey. The monthly 2024 rainfall in the lead up to the survey period was also comparable to the average monthly rainfall between 1991 to 2020, though there was less rainfall in September 2024 and October 2024 than the historic averages for these month (Figure 3.2). Given resource availability for Plains Mouse is likely determined by rainfall in preceding rather than current months, the 2024 rainfall is considered to provide suitable conditions for the survey.

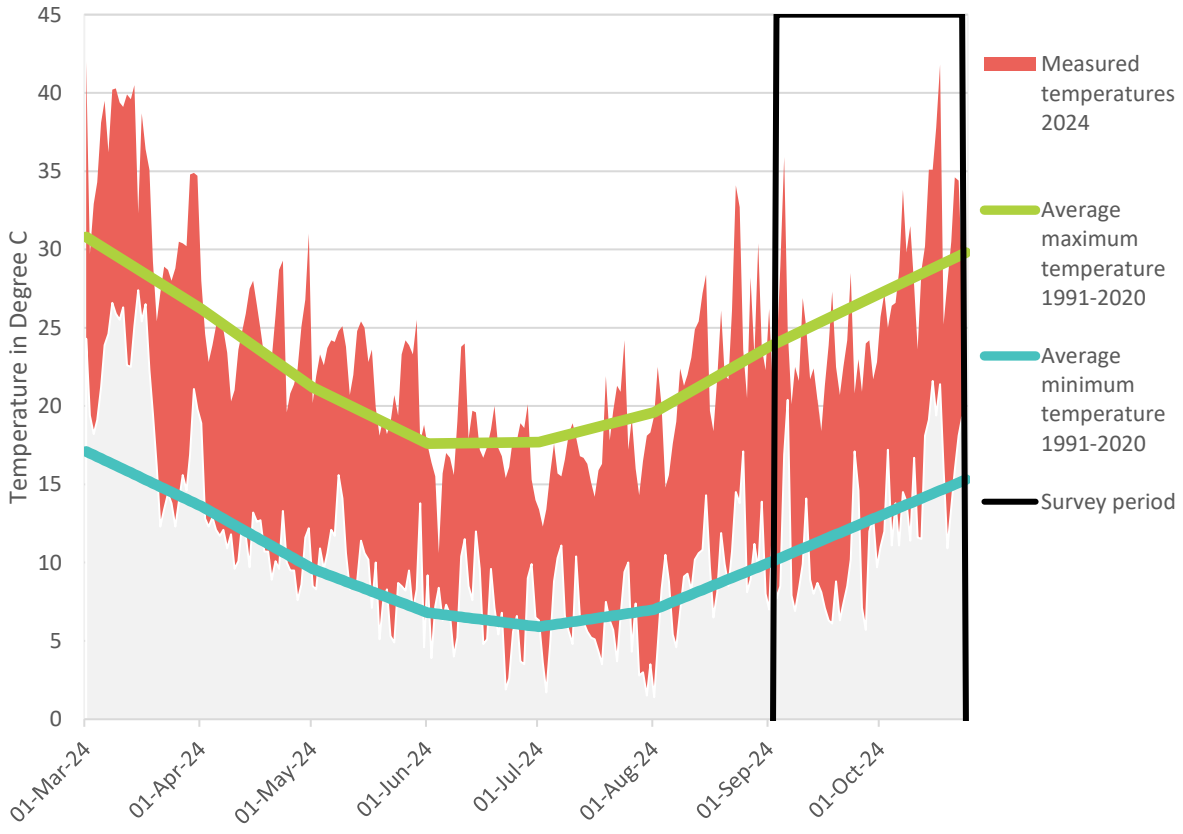


Figure 3.1: Temperatures at Woomera during and preceding the survey months

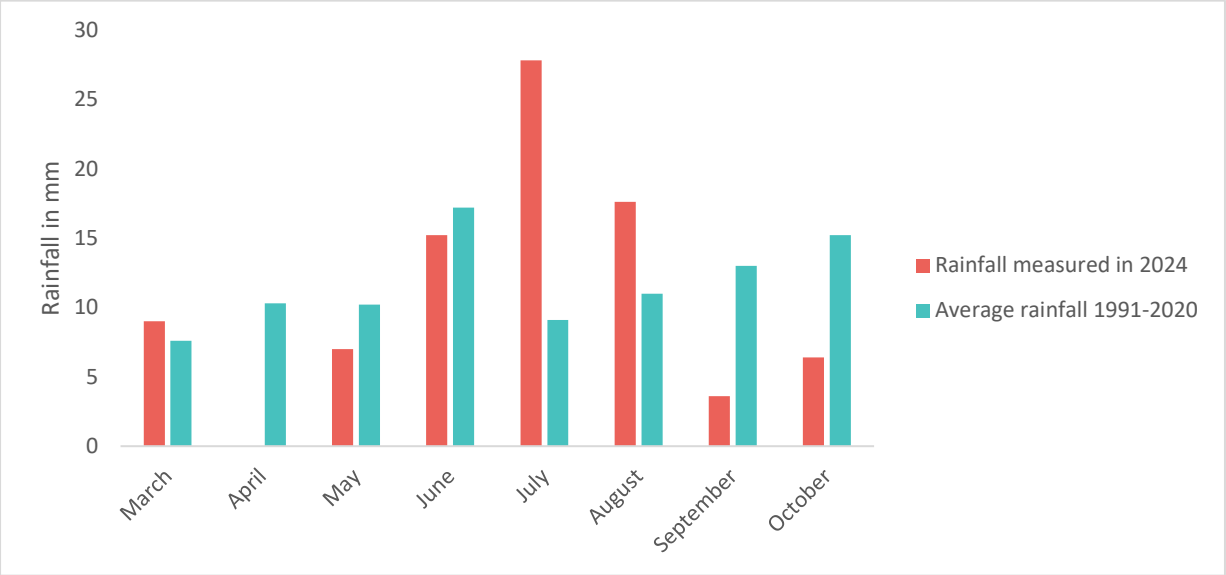


Figure 3.2: Rainfall in Woomera during and preceding the survey months

3.2 Survey outcomes

The on-ground habitat suitability surveys conducted at each of the 26 potential camera trap sites generally aligned with the previous Plains Mouse habitat mapping undertaken by Lathwida (2024), and sites within areas previously mapped as good habitat showed only minor differences in Plains Mouse suitability based on ground observations. No found definitive signs of Plains Mouse activity were recorded at any of the 26 sites during the initial habitat assessments.

The camera trap survey consisted of 8 camera sites (Figure 3.3) and the cameras were deployed for 40 to 50 nights, resulting in a total of 334 trap nights, noting some cameras were inadvertently disturbed and knocked over by large fauna (likely livestock or kangaroos). The survey effort is considered to substantially exceeded the recommendations as described in Paull et al. (2011) (recommended minimum 14 nights of survey effort for the species), and Meek et al. (2012) (recommend a deployment time of 12 to 18 days for surveys of small mammals). Survey timing aligned with maximum 'capture' rates recorded at nearby South Gap Station during the ongoing offset monitoring program for Plains Mouse run by Nature Foundation (2023).

In total, the survey captured a total of 16,238 photos, including 640 which recorded images of identifiable fauna, of which 21 were of small ground dwelling mammals. All small mammal photos were examined by two experienced ecologists. No Plains Mouse were recorded during the survey. An overview of the photos recorded during the survey, categorised into mice species (e.g. Plate 3.1), Dunnarts (Plate 3.2), and major functional groups for all other fauna recorded, is presented in Table 3.1.

The camera at camera site 1 (LECS1), appeared to be triggered by vegetation which produced a large number of photos, while the camera at camera site 5 (LECS5) was knocked over by cattle after only nine trap nights with a corresponding lower number of photos.

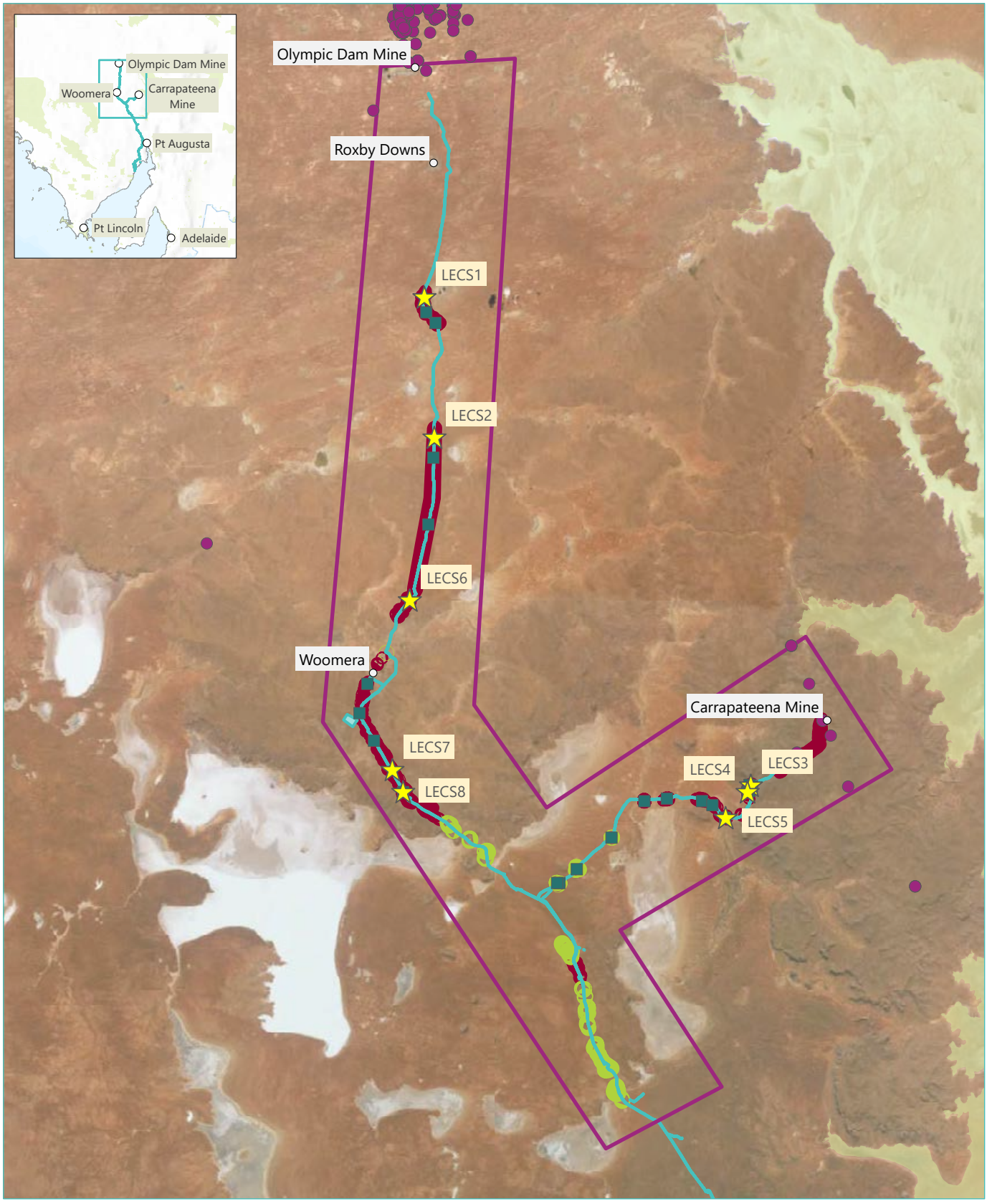


Figure 3.3: Plains Mouse survey sites, incorporating the Plains Mouse habitat assessment (Lathwida 2025)
Northern Water Project Plains Mouse Targeted Survey Spring 2024

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Table 3.1: Fauna records recorded by camera trap site

Survey Site		LECS1	LECS2	LECS3	LECS4	LECS5	LECS6	LECS7	LECS8
Survey Effort and Results									
Trap Nights		50	50	40	40	9	49	48	48
Photos Recorded		7011	1265	1192	1026	222	1253	1385	2884
Small Mammal Species Recorded									
Plains Mouse	***Pseudomys australis***	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Other Mice Species	Forrest's Mouse (*Leggadina forresti*) House Mouse (*Mus musculus*) Bolam's Mouse (*P. bolami*) Sandy Inland Mouse (*P. hermannsburgensis*)	3	1	1	5	0	0	0	0
Dunnarts	Stripe-faced Dunnart (*Sminthopsis macroura*) Fat-tailed Dunnart (*S. rassicaudata*)	7	4	0	0	0	0	0	0
Other Fauna Species Recorded									
Bats		0	0	0	3	0	0	0	0
Birds		5	0	0	3	0	0	13	3
Large Native Animals (e.g. Kangaroo, Echidna)		0	42	194	15	3	4	152	0
Livestock and feral animals (e.g. Cattle, Goat, Cat)		3	0	9	0	78	0	0	0
Reptiles (e.g. Sleepy Lizard, Sand Goanna, Bearded Dragon)		33	5	3	9	0	1	1	40



Plate 3.1: Mouse investigating the bait, note the rounded nose and slim tail



Plate 3.2: Dunnart at the bait station, note the pointy nose and thick tail

4 Discussion

No Plains Mouse were recorded during this targeted survey within suitable habitat within the Study Area. Plains Mouse are considered to be an elusive species, with a clear 'boom-bust' lifecycle. The species is considered particularly difficult to record during periods when not in an irruptive phase as population numbers are low and the species is not common. The method used in this survey has, however, previously been proven successful in detecting the presence of Plains Mouse (Nature Foundation 2023). It is noted that during the current survey the methods successfully recorded a number of other small mammal species. The elusiveness of the Plains Mouse was considered in the survey methodology with the camera traps deployed in what was considered locations of highly suitable habitat, for more than twice the length of the minimum effort recommended for small mammal surveys recommended by Meek et al. (2012) and Paull et al. (2011). There is, therefore, no evidence to suggest that the methodology of the survey is the reason for the lack of Plains Mouse records.

In terms of weather leading up to the survey, rainfall in the 3 months before the survey commenced was at or above the long term monthly averages for the region, however, the general low number of small mammal records combined with anecdotal reports of low numbers of Plains Mouse recorded at South Gap Offset Area during 2024 indicates that small mammals in general were at low numbers within the region. If so, Plains Mouse were likely restricted to areas of critical refuge habitat, that they utilise during periods of low productivity, occurring in restricted parts of their overall range. As such, they are difficult to detect.

However, it should be noted that the lack of Plains Mouse records during the current survey cannot be used as definitive evidence that the Plains Mouse is not present in the Study Area. Small groups of Plains Mouse are likely to survive in a few secluded refuge habitat sites, from where they can spread to the surrounding habitat following the next period of prolonged rainfall and resultant seed production. The Plains Mouse's elusive nature and their ability to withdraw from large parts of their range during poor conditions, to re-populate the habitats when favourable conditions arise, is why the Plains Mouse recovery plan (Moseby 2012a) suggests surveying for suitable habitat rather than for the animals themselves. Previous habitat mapping conducted by Lathwida (2024), and verified during this survey, shows that habitat suitable to Plains Mouse is considered to be present within the Study Area. Additional surveys for the Plains Mouse within this Study Area are not currently recommended, as Plains Mouse can be assumed to occasionally inhabit areas of suitable habitat within their range.

With only very low numbers of Plains Mouse potentially present (an assumed presence only) within the Project / Disturbance Footprint, potential impacts to the species as a result of temporary disturbance for installation of the water transfer system followed by site rehabilitation are not considered to be significant, given the very broad range across which the species persists, and the species' ability to recover during boom periods, and to spread into adjacent habitats.

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Appendices

Appendix A. Camera site photos



Appendix Plate A1: LECS1 Camera set-up



Appendix Plate A2 LECS1, facing north



Appendix Plate A3 LECS1, facing east



Appendix Plate A4 LECS1, facing south



Appendix Plate A5 LECS1, facing west



Appendix Plate A6 LECS2 Camera set-up



Appendix Plate A7 LECS2, facing north



Appendix Plate A8 LECS2, facing east



Appendix Plate A9 LECS2, facing south



Appendix Plate A10 LECS2, facing west



Appendix Plate A11 LECS3 Camera set-up



Appendix Plate A12 LECS3, facing north



Appendix Plate A13 LECS3, facing east



Appendix Plate A14 LECS3, facing south



Appendix Plate A15 LECS3, facing west



Appendix Plate A16 LECS4 Camera set-up



Appendix Plate A17 LECS4, facing north



Appendix Plate A18 LECS4, facing east



Appendix Plate A19 LECS4, facing south



Appendix Plate A20 LECS4, facing west



Appendix Plate A21 LECS5 Camera set-up



Appendix Plate A22 LECS5, facing north



Appendix Plate A23 LECS5, facing east



Appendix Plate A24 LECS5, facing south



Appendix Plate A25 LECS5, facing west



Appendix Plate A26 LECS6 Camera set-up



Appendix Plate A27 LECS6, facing north



Appendix Plate A28 LECS6, facing east



Appendix Plate A29 LECS6, facing south



Appendix Plate A30 LECS6, facing west



Appendix Plate A31 LECS7 Camera set-up



Appendix Plate A32 LECS7, facing north



Appendix Plate A33 LECS7, facing east



Appendix Plate A34 LECS7, facing south



Appendix Plate A35 LECS7, facing west



Appendix Plate A36 LECS8 Camera set-up



Appendix Plate A37 LECS8 facing north



Appendix Plate A38 LECS8 facing east



Appendix Plate A39 LECS8, facing south



Appendix Plate A40 LECS8, facing west



Appendix I-4:

Migratory Birds Impact Assessment

Northern Water Project

Migratory Birds Impact Assessment

Department for Infrastructure and Transport

LATHWIDA ENVIRONMENTAL



September 2026

Final

Document status

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Disclaimer

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The sole purpose of this report and the associated services performed by Lathwida is to document results of a desktop impact assessment for migratory birds with potential to be impacted by the Northern Water Project. The assessment is based on the Project Footprint as of November 2025 (Rev 5), which is also specified and mapped within this report, with minor updates based on Rev5.2, as relevant. This document and associated data will support the development of primary approval documentation required for the Northern Water Project in South Australia. The report is based on a desktop review of available data (including mapping layers) and reports outlining assessment findings within the study area and buffers for the Northern Water Project. The scope of services, as described in this report, was developed with DIT.

In preparing this report, Lathwida has relied upon, and presumed accurate, any information (or confirmation of the absence thereof) provided by the Northern Water and/or from other sources. Except as otherwise stated in the report, Lathwida has not attempted to verify the accuracy or completeness of any such information. If the information is subsequently determined to be false, inaccurate or incomplete then it is possible that our observations and conclusions as expressed in this report may change.

Lathwida collected and reviewed data and information available in the public domain at the time or times outlined in this report. The passage of time, manifestation of latent conditions or impacts of future events may require further examination of the project and subsequent data analysis, and re-evaluation of the data, findings, observations and conclusions expressed in this report. Lathwida has prepared this report in accordance with the usual care and thoroughness of the consulting profession, for the sole purpose described above and by reference to applicable standards, guidelines, procedures and practices at the date of issue of this report. For the reasons outlined above, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this report, to the extent permitted by law.

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Executive summary

The Northern Water Project (the Project) aims to provide a secure climate resilient water source for industry in South Australia's Upper Spencer Gulf and Far North. This will enable the growth of industries and key mining resources crucial for contributing to decarbonisation initiatives, sustainability and unlocking long term economic prosperity for South Australia. The delivery of the Project will involve the construction and operation of a 51 gigalitre per year (GL/y) seawater reverse osmosis desalination plant at Mullaquana Station in the Upper Spencer Gulf, and connection to the Far North via approximately 400 km of transfer system (including pipeline, transfer pump stations, and water storages) and electricity infrastructure. The proposed desalination plant site at Mullaquana Station is located approximately 25 km south-west from the centre of Whyalla. One lateral branch pipeline is also proposed, connecting BHP's existing Carrapateena mine from the main transfer pipeline north of Port Augusta.

This document presents supplementary ecological information to support the assessment and approval of the Project. It provides a targeted assessment of the potential for residual impacts on migratory birds (primarily shorebirds) arising from the Project and concludes that no significant impacts to any migratory species are expected. This is a stand-alone Significant Impact Assessment (SIA) for impacts predicted to arise from the Project on migratory birds listed as Matters of National Environmental Significance (MNES), excluding migratory terrestrial species and migratory marine species that are not birds. The assessment is undertaken in accordance with the Commonwealth MNES Significant Impact Guidelines 1.1.

Habitats known to support migratory species during inland or coastal migration are known to occur in or adjacent the Project's Study Area and some of these habitats are considered important in the National Shorebird Directory and / or National Wetland Directory. Important regional locations that are not in proximity to the Project Area or Project Footprint include the Whyalla Salt fields and / or Inland Lakes north of Port Augusta. These areas are important, but not unique, to several shorebird species including the Grey Plover, Red-necked Stint, Ruddy Turnstone and Sharp-tailed Sandpiper. These areas are avoided by the Project Footprint.

Thirty-nine listed migratory bird species were considered in the assessment presented; 37 highlighted in the Protected Matters Search Tool (PMST) output and two detected as Biological Databases of South Australia (BDBSA) records and / or during field survey. Of these 39 species, 22 species do not occur, or are considered unlikely to occur in the Project Footprint, 15 are considered as possible occurrences, and two are considered likely in the Project Footprint. The species that are considered likely include the Little Tern and Sharp-tailed Sandpiper. Although these species are considered likely to occur if water is present, there are extensive areas of more suitable resource-rich habitats elsewhere in the region, including inland lakes, beaches and mudflats of the Upper Spencer Gulf, Whyalla Salt fields (located over 5 km away from the Project Area) and Franklin Harbour (located over 70 km away). In addition, suitable intertidal habitats within the Project Footprint at the Mullaquana Station site will be avoided due to the use of tunnel boring. Therefore, significant impacts to any migratory species as a result of the Project are considered unlikely.

Table of contents

1 Introduction 1
1.1 Project overview 1
1.2 Existing studies and field surveys 2
1.3 Migratory birds 5
1.4 Project terms and definitions 6
2 Methodology 8
2.1 Approach to impact assessment 8
2.2 Significant Impact Criteria 10
2.3 Australian National Directory of Important Migratory Shorebird Habitat 12
3 Desktop assessment 13
3.1 Migratory shorebird habitats within the Study Area 13
3.2 Listed protected areas 16
3.3 Migratory birds relevant to protected area 20
4 Significant Impact Assessment for migratory shorebirds 22
5 Summary 45
6 References 46

List of tables

Table 1.1: Summary of Northern Water Project previous ecology desktop studies and field surveys 4
Table 2.1: Likelihood of occurrence criteria 9
Table 2.2: Significant Impact Criteria for Critically Endangered and Endangered MNES 10
Table 2.3: Significant Impact Criteria for Vulnerable MNES 11
Table 2.4: Significant Impact Criteria for Migratory MNES 11
Table 3.1: Listed Protected Areas and Nationally Important Wetlands relevant to the Project 18
Table 3.2: Summary of migratory species numbers per Project PMST Report 20
Table 3.3: Migratory shorebirds species relevant to Protected Areas (as per PMST output) 21
Table 4.1: Project mitigation measures for migratory birds 22
Table 4.2: Significant Impact Assessment for Migratory Shorebirds potential in the Project Footprint 24

List of figures

Figure 1.1: Northern Water Project Footprint 3
Figure 1.2: Key Project Areas 7
Figure 3.1: Important habitat areas 17
Figure 4.1: Migratory species records – Southern Study Area 43
Figure 4.2: Migratory species records – Northern Study Area 44

List of appendices

Appendix A. PMST reports

Appendix B. Likelihood Assessment and SIA for species considered not to occur, or unlikely to occur

1 Introduction

1.1 Project overview

The Northern Water Project (the Project) aims to provide a secure climate resilient water source for industry in South Australia's Upper Spencer Gulf and Far North. This will enable the growth of industries and key mining resources crucial for contributing to decarbonisation initiatives, sustainability and unlocking long term economic prosperity for South Australia. The delivery of the Project will involve the construction and operation of a 51 gigalitre per year (GL/y) seawater reverse osmosis desalination plant at Mullaquana Station in the Upper Spencer Gulf, and its connection to the Far North via approximately 400 km of transfer system (including pipeline, transfer pump stations, and water storages) and electricity infrastructure. The proposed desalination plant site at Mullaquana Station is located approximately 25 km south-west from the centre of Whyalla (see Figure 1.1).

The Project comprises the following key elements:

- a 51 GL/year seawater reverse osmosis desalination plant located at Mullaquana Station approximately 25 km south-west of central Whyalla
- marine intake and outfall tunnels extending underneath the seabed and into the Spencer Gulf
- diffuser structures for discharge of return water into the Spencer Gulf
- a transfer system consisting of:
    - ~360 km main transfer pipeline, largely constructed underground, terminating at the delivery point at the Olympic Dam copper-gold mine
    - ~46 km Carrapateena lateral branch pipeline to a delivery point at the Carrapateena copper-gold mine (which may be constructed above or below ground)
    - associated transfer pump stations and storage tanks
- high voltage electricity supply including powerlines, network and facility substations to provide power to the desalination plant and transfer pump stations
- associated temporary construction-related infrastructure (e.g. construction camps, site offices and amenities, yards, storages and laydown areas)
- access tracks including upgrading existing tracks and establishing new tracks
- enabling roadworks and road upgrades.

The water transfer system runs north from the desalination plant at Mullaquana Station to Olympic Dam passing Whyalla in the Eyre Peninsula (EP) Landscape Management region (LMR) then Port Augusta, Woomera and Roxby Downs in the South Australian Arid Lands (SAAL) LMR.

This document presents the stand-alone significant impact assessment of residual impacts which may arise from the Project on Migratory birds listed as Matters of National Environmental Significance (MNES) under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act). This assessment

is undertaken in accordance with the Commonwealth MNES Significant Impact Guidelines 1.1 (DotE 2013) and considers the relevant criteria for migratory birds (including those that are also listed as threatened).

1.2 Existing studies and field surveys

A number of desktop studies were undertaken for the various iterations of the Project between 2021 and 2023. The more recent and relevant ecological desktop studies and field surveys that have been undertaken for the Project are outlined in Table 1.1. Results from these studies have broadly been used to guide and support the detailed impact assessment for migratory birds undertaken in this report. While there is overlap between this report and other studies, this report focuses specifically on migratory shorebirds and the key important habitats which they utilise and assesses each individual migratory species against the Department of Climate Change, Energy, the Environment and Water (DCCEEW) Significant Impact Criteria (DotE 2013). This report excludes assessment of migratory terrestrial species, which are addressed elsewhere.



Figure 1.1: Northern Water Project Footprint
Northern Water Project Migratory Birds Impact Assessment

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Table 1.1: Summary of Northern Water Project previous ecology desktop studies and field surveys

Report	Assessment
Northern Water Project Baseline Terrestrial Ecology Assessment Jacobs (2026)	Outcomes of a series of field surveys along the Project alignment (at the time) including assessments of vegetation, habitat and targeted fauna assessments for select EPBC listed species considered likely to occur in the Study area between Mullaquana Station (the preferred desalination plant location at the time of surveys) and Olympic Dam. 10 field surveys were undertaken; 4 in spring (October 2021, 2022, September and November 2023, three in summer (December 2022, February 2023 and 2025) 1 in autumn (May 2025) and two in winter (July, August 2025). 28 broad vegetation communities were described across the Project Area within the Eyre Peninsula Landscape Management Region (EP LMR) and South Australian Arid Lands (SAAL LMR). Flora and fauna species records from desktop reviews and field surveys were summarised.
Northern Water Project Ecological Assessment Summary for EPBC Referral (Jacobs 2025a)[1]	Summary memo of the ecological assessments that have been undertaken for the project to date.
Northern Water Project Ecology Survey and Reporting Mullaquana Station Desalination Plant (Jacobs 2025b)[1]	Summary memo of target flora and fauna surveys at Mullaquana Station, in particular categorisation of coastal habitats and coastal bird surveys, along with surveys for Western Grasswren and Southern Whiteface. Habitat suitable for shorebirds is present at Mullaquana Station, including saltmarsh that represents a Threatened Ecological Community and mangroves. These areas are avoided by the Project Footprint.

[1] Note these two summary interim reports (submitted as part of the EPBC referral) have been integrated into the final Terrestrial Ecology Assessment (Jacobs 2026).

1.3 Migratory birds

Migratory species are listed as MNES under the EPBC Act if they are:

- Native species and included in the appendices to the Bonn Convention.
- Migratory species and included in the annexes for the Japan-Australia Migratory Bird Agreement (JAMBA).
- Migratory species and included in the annexes for the China-Australia Migratory Bird Agreement (CAMBA).
- Native, migratory species included in the annexes for the Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA).
- Native species and identified within an international agreement approved under Section 209(4) of the EPBC Act (DCCEEW 2024a).

Under the EPBC Act, a migratory species is defined consistently with Article I of the Bonn Convention, which states that a migratory species means "the entire population or any geographically separate part of the population of any species or lower taxon of wild animals, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries" (Bonn Convention) (CMS 2020). In order to comply with the EPBC Act, decisions about migratory species in Australia must not be inconsistent with Australia's obligations under the aforementioned international conventions and/or agreements (DCCEEW 2024a).

While migratory species listed under the EPBC Act can include fish, reptiles and mammals that are largely obligate marine species, this report specifically focuses on migratory birds due to the primarily terrestrial placement of the Project. Migratory birds listed under the EPBC Act largely include waterbirds, mostly shorebirds and seabirds that have a greater reliance on coastal environments that are vulnerable to disturbance and predation impacts (DCCEEW 2024a).

Species listed as migratory may also be listed as threatened species under the EPBC Act. Where a species is listed as both migratory and threatened under the EPBC Act, significant impact criteria relevant to their threatened status have been used for the assessment given these criteria are more stringent. However, if a species is only listed as migratory under the EPBC Act, then significant impact criteria specific to migratory species are used for the impact assessment (DotE 2013). The current report focus is on migratory birds that are marine or occur at the coastal interface (shorebirds). Terrestrial birds are excluded as they are being assessed elsewhere.

1.4 Project terms and definitions

For the purpose of this impact assessment of the Project, the following terminology has been adopted:

- Northern Water Project (the Project) (Figure 1.1)
- Project Footprint – which includes the area within the construction footprint associated with the Project alignment (Revision 5, received in November 2025) (Figure 1.1). The construction footprint is generally 40 m subject to various construction constraints (typically due to cultural heritage, environment or design constraints) where narrowing of the disturbance footprint is required. The as constructed disturbance footprint would be dependent on the outcomes of detailed design and related construction methodology.
- Project Area – which is defined in shapefiles associated with the Project alignment Revision 5 and is generally a 2.5 km buffer either side of the linear infrastructure alignment (i.e. a 5 km wide corridor).
- Study Area – Project Footprint with a buffer on each Land Management Region (LMR) (Figure 1.2), encompassing:
    - 5 km buffer for the Eyre Peninsula LMR (5 km wide corridor)
    - 50 km buffer for the South Australian Arid Lands (SAAL) LMR (50 km wide corridor).
- Whyalla Salt fields – an important bird habitat east of Whyalla, located approximately 6 km east of the Project Footprint (also referred to as the BHP Salt fields in some literature due to historical ownership or the Whyalla Salt Evaporation Ponds) (Figure 3.1).
- East Asian-Australasian Flyway (EAAF) – a flyway represents the collective migration routes of waterbirds, including shorebirds, between their breeding and non-breeding areas. There are nine flyways globally: the EAAF encompasses Australia, New Zealand and another 21 countries, spanning nearly 120 degrees of latitude north to the Arctic (Hansen et al. 2016).

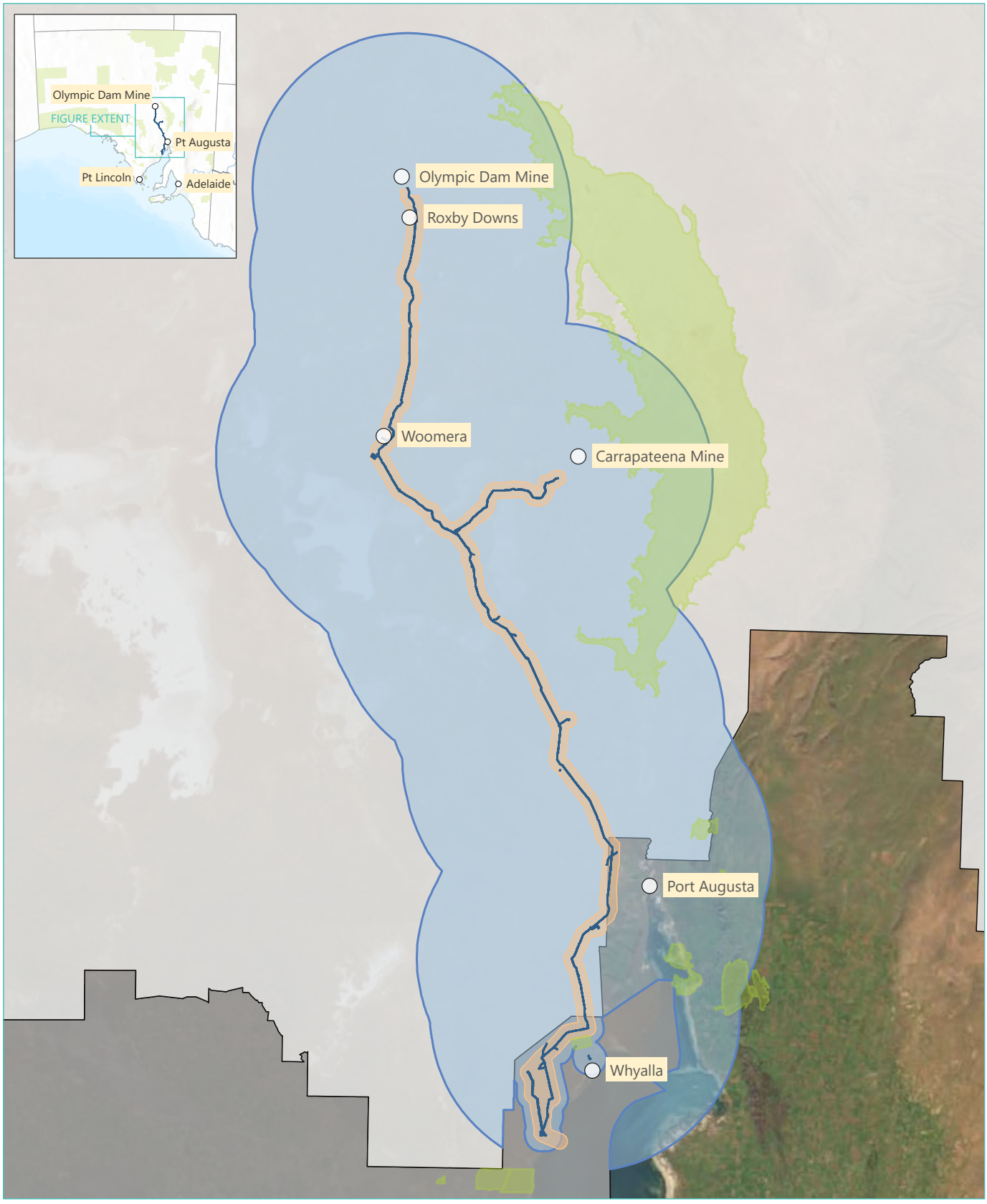


Figure 1.2: Key Project Areas
Northern Water Project Migratory Birds Impact Assessment

2 Methodology

2.1 Approach to impact assessment

This document draws upon existing reports and information available at the time of preparation, including habitat assessments for conservation significant species, vegetation mapping, targeted surveys and review of publicly available databases. A summary of previous studies undertaken was outlined in Table 1.1.

Several Protected Matters Search Tool (PMST) outputs have been generated during baseline ecological desktop studies for the Project and have been considered here as part of the review of previous reports. However, for the purpose of this assessment, the most recent two PMST outputs from 13 November 2025 have been used (Appendix A). These PMST outputs are inclusive of the Study Area (Figure 1.2), one for each of the two relevant LMRs with appropriate buffers to align with other approval aspects of the Project (e.g. baseline ecology assessment and Native Vegetation Clearance Data Report), as per the following:

- PMST EP LMR (agricultural zone) with a 5 km buffer (Appendix A1)
- PMST SAAL LMR (rangelands zone) with a 50 km buffer (Appendix A2).

All relevant migratory MNES identified in the PMST outputs have been considered in the likelihood of occurrence and significant impact assessment (see Section 3.3 for further detail).

The assessment was undertaken using the following process:

- Review of PMST reports and key literature such as the Project Baseline Ecology Report (Jacobs 2026) and the ecological assessment summary for the EPBC referral (Jacobs 2025a), a Significant Impact Assessment (SIA) prepared for a previous iteration of the Project and the Australian National Directory of Important Migratory Shorebird Habitat (Shorebird Directory) (Weller et al. 2020, Driessen et al. 2025).
- Review of historic records of species using relevant databases (i.e. Biological Databases of Australia (BDBSA) extracts that include Birdlife records (BDBSA 2025) and Atlas of Living Australia (ALA) (ALA 2025), where necessary for species distributions or where additional species information is available.
- Review of publicly available species literature (e.g. Species Profiles and Threat Database (SPRAT) profiles, Threatened Species Conservation Advice, Recovery Plans, migratory shorebird estimates and conservation plans (DotE 2015, 2016)).
- Desktop assessment of migratory bird habitat relevant to the Study Area and Project Footprint. The PMST outputs, databases and literature (including the baseline report, Jacobs 2026) were used to identify areas of particularly high-quality habitat where the Project may have increased risk of impacting migratory birds.
- Desktop assessment of migratory bird species relevant to the Study Area and Project Footprint. PMST outputs, databases and literature were used to identify migratory species likely to occur in the Study Area and Project Footprint and with increased risk of being significantly impacted by the Project, i.e. depending on habitat presence and species presence. This included undertaking a likelihood assessment using the Project specific criteria outlined in Table 2.1.

- Following the likelihood assessment, species that are considered likely to occur, or to possibly occur in the Project Footprint were further assessed using the DCCEEW significant impact criteria (DotE 2013). For completeness, where species were listed as both threatened and migratory the more detailed assessment was undertaken using the threatened species criteria. The criteria for threatened and migratory species are outlined in Section 2.2. This SIA involves consideration of residual impacts to migratory birds (i.e. migratory wetland, migratory marine, but excluding migratory terrestrial) after project mitigation measures are applied, rather than inherent risks or impacts to MNES, in line with the DotE (2013) Significant Impact Guidelines.
- The significant impact assessment of relevant migratory species considers important bird habitats in the Study Area and the potential for interaction of relevant migratory bird species in the Project Footprint, mitigation measures and potential for residual impacts.

Note the outcomes of the likelihood assessment and significant impact assessment are combined in Section 4, Table 4.2 for known, likely and possible species, and in Appendix B for species considered to not occur or unlikely occur with associated justification.

Approximate numbers of records are provided where there are multiple records for species as there are likely to be duplicates in the datasets used e.g. BDBSA fauna and Birdlife extracts in the 5 km search and the 50 km search buffers near the boundary of the EP and SAAL LMRs.

Table 2.1: Likelihood of occurrence criteria

Likelihood of Occurrence	Definition[1,2]
Does not occur	• No records of the species in the Study Area (5 km EP LMR or 50 km SAAL LMR); and • No suitable habitat for the species within the Project Area; and • Known species distribution (literature) does not overlap with the Project Area.
Unlikely	• No records in the Study Area, and the Project Area provides no habitat or feeding resources for the species, including perching, roosting or nesting opportunities, corridor for movement or shelter; or • Recorded historically (prior to 1995) in or near the Study Area, however, suitable habitat does not occur in the Project Area, and species of similar habitat requirements have not been recorded in the area; or • No records in Project Footprint despite adequate survey effort[3].
Possible	• Recorded recently (since 1995) in or near the Study Area, the Project Area falls inside the known distribution of the species, but the Project Footprint provides limited habitat or feeding resources for the species; or • Species is only represented by historical records (prior to 1995) in or near the Study Area, but suitable habitat and feeding resources are present in the Project Area and Footprint, and species of similar habitat needs have been recorded in the area.
Likely	• Recorded recently (since 1995) in the Study Area, the Project Area falls within the known distribution of the species and the Project Footprint provides habitat or feeding resources for the species.
Known	• Recorded in the last 10 years within the Project Footprint or multiple records within the Project Area; and the species does not have highly specific habitat requirements and/or suitable niche habitat is present, and the area falls within the known range of the species distribution; or • The species was recorded as part of field surveys for the Project (in or adjacent the Project Footprint).

[1] Knowledge of species ecology also used in conjunction with these guideline definitions, to make decisions on likelihood status
[2] Only records considered reliable (within 1km reliability) are included (unless specific location comments are provided (e.g. Whyalla Salt fields)
[3] In some instances despite having no records, a species (particularly those that are highly mobile) is assigned a likelihood status of 'possible' based on professional knowledge/experience and highly suitable habitat being available in the Project Footprint.

2.2 Significant Impact Criteria

Significant impact criteria provided by DotE (2013), and summarised below, were used to determine the significance of any potential impacts to migratory species. When a species is listed as both migratory and threatened (i.e. Critically Endangered, Endangered or Vulnerable) under the EPBC Act, the significant impact criteria for its threatened status are used to determine the significance of any potential impacts for that species. Significant impact criteria for migratory species and each threatened category (where Critically Endangered and Endangered criteria are grouped together) are outlined below.

2.2.1 Critically Endangered and Endangered MNES

Significant Impact Criteria for MNES listed as Critically Endangered or Endangered under the EPBC Act are presented in Table 2.2.

Table 2.2: Significant Impact Criteria for Critically Endangered and Endangered MNES

Criteria Reference Used in Assessment	Criteria
A	Lead to a long-term decrease in the size of a population
B	Reduce the area of occupancy of the species
C	Fragment an existing population into two or more populations
D	Adversely affect habitat critical to the survival of a species
E	Disrupt the breeding cycle of a population
F	Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline
G	Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat
H	Introduce disease that may cause the species to decline
I	Interfere with the recovery of the species

2.2.2 Vulnerable MNES

Significant Impact Criteria for MNES listed as Vulnerable under the EPBC Act are presented in Table 2.3. In these criteria, 'important population' is used. An 'important population' is defined as a population necessary for the long-term survival and/or recovery of a species (DotE 2013) and may include populations identified by recovery plans and/or that are:

- key source populations either for breeding or dispersal
- populations necessary for maintaining genetic diversity, and/or
- populations near the limits of a species' range.

Published literature – particularly Approved Conservation Advice - available via the DCCEEW Species Profile and Threats Database (SPRAT) may provide information for determining whether an important population is present in many cases. However, for migratory shorebirds, the Shorebird Directory

(Driessen et al. 2025) can also be used to identify the presence of important habitats and populations of shorebirds within a Project Area (Section 2.3).

Table 2.3: Significant Impact Criteria for Vulnerable MNES

Criteria Reference Used in Assessment	Criteria
A	Lead to a long-term decrease in the size of an important population of a species
B	Reduce the area of occupancy of an important population
C	Fragment an existing important population into two or more populations
D	Adversely affect habitat critical to the survival of a species
E	Disrupt the breeding cycle of an important population
F	Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline
G	Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat
H	Introduce disease that may cause the species to decline
I	Interfere substantially with the recovery of the species

2.2.3 Migratory MNES

Significant Impact Criteria for species listed as migratory under the EPBC Act is provided in Table 2.4. The Shorebird Directory (Driessen et al. 2025) is a critical resource for defining important habitat and populations for Migratory MNES.

Table 2.4: Significant Impact Criteria for Migratory MNES

Criteria Reference Used in Assessment	Criteria
A	Substantially modify (including by fragmenting, altering fire regimes, nutrient cycles or hydrological cycles), destroy or isolate an area of important habitat for a migratory species
B	Result in an invasive species that is harmful to a migratory species becoming established in an area of important habitat for migratory species
C	Seriously disrupt the life cycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of a population of a migratory species

2.3 Australian National Directory of Important Migratory Shorebird Habitat

The Shorebird Directory (Driessen et al. 2025) lists important shorebird habitat areas for each state and discusses individual species at an international and national context. Maps depicting the boundaries of shorebird habitat areas are also provided in the Shorebird Directory and these areas are referred to in the DCCEEW threatened and migratory species' conservation advice and / or recovery plans.

For migratory shorebirds listed under the EPBC Act, habitats in Australia that are listed as 'important' include those recognised as nationally or internationally important in Driessen et al. (2025). The widely accepted and applied approach to identifying internationally important shorebird habitat throughout the world has been through the use of criteria adopted under the Ramsar Convention (Hansen et al. 2016).

A site is considered an internationally important wetland for shorebirds if it regularly supports:

- 1.0 % of the East Asian-Australasian Flyway (EAAF) individuals in a population of one species or subspecies of waterbird, or
- a total abundance of 20,000 or more waterbirds.

A site is considered to provide nationally important habitat for migratory shorebirds if it regularly supports:

- 0.1 % of the EAAF population of a single species of migratory shorebird (with the exception of Latham's Snipe, which has a threshold of 0.05%), or
- an abundance of 2,000 migratory shorebirds (any species), or
- a diversity of 15 migratory shorebird species (Hansen et al. 2016).

In South Australia, 44 areas are listed in the Shorebird Directory as being internationally or nationally important for shorebird species (Driessen et al. 2025). Key areas include low energy coastlines in large bays (e.g. Coffin Bay, Venus Bay, Baird Bay and Franklin Harbour) with small sea openings and the innermost parts of gulfs (e.g. Spencer Gulf and Gulf St. Vicent). These areas accumulate sediment and result in extensive and productive intertidal flats. The gulfs function as reverse estuaries, with large areas of shallow water, fluctuating temperatures and salinity and a lack of freshwater inflows at the heads. These variable ecological conditions create a mosaic of habitats which support a wide variety of shorebirds which feed in the intertidal zone. Lake Eyre in the arid zone and a number of inland wetlands also provide important habitat and staging areas for shorebirds, and these areas are also dependent on rain and flooding events (Driessen et al. 2025).

There are also a number of internationally significant near-coastal wetlands (saline and fresh) such as the Coorong complex. The Coorong provides the most significant shorebird habitat in South Australia, but is ecologically dependent on upstream flows from the Murray-Darling System (Driessen et al. 2020).

Whilst the larger significant SA migratory shorebird sites and all nationally important areas listed in the Shorebird Directory are avoided by the Project there are some smaller areas that have been considered as part of this assessment (Section 3.1).

3 Desktop assessment

3.1 Migratory shorebird habitats within the Study Area

The main habitat areas within the Study Area which are relevant to migratory birds identified by Jacobs (2025a, 2025b, 2026) are described in sections below.

3.1.1 Mullaquana Station desalination plant site

- The Mullaquana Station desalination plant site does not meet the criteria for an internationally important wetland or nationally important habitat for migratory shorebirds.
- The Mullaquana Station desalination plant site is located adjacent to the coast, and the intake and outfall tunnels cross into the marine environment. The main transfer pipeline leaving the desalination plant heading north runs within proximity to the coast for approximately 12 km.
- The state benthic mapping and shoreline classification suggests the Study Area of the marine intake and outfall tunnels includes intertidal mangroves fronted by wide bare sand flats and patchy seagrass beds (NatureMaps, DEW 2025). Field assessments confirmed the presence of dense intertidal mangroves, beach areas and supratidal salt marsh (~200 m) from the shoreline which may provide suitable foraging habitat for shorebirds (Jacobs 2025a, 2025b). There are also vast areas of coastline adjacent the Project Area that provide similar habitats for highly mobile shorebird species. The habitats are not unique. Other habitats present at Mullaquana Station that may be suitable for migratory shorebirds roosting and foraging include (Jacobs 2025a):
    - Boobialla (*Myoporum insulare*) / Nitre Bush (*Nitraria billardierii*) open shrubland with emergent Grey Mangrove (*Avicennia marina* ssp. *marina*) intertidal beach and coastal foredune
    - Sea Box (*Alyxia buxifolia*) / Boobialla shrubland on shell grit low dunes, often immediately adjacent the coastal foredune and scattered across the tidal saline flats
    - Grey Mangrove tall shrubland over tidal creeks and mudflats
    - Grey Glasswort (*Tecticornia halocnemoides* ssp.) / Shrubby Glasswort (*T. arbuscula*) low open shrubland on saline plains and grey clay soils.
- The Project avoids disturbance to the coastline (beach habitat) as tunnel boring would be used for construction of the intake and outfall locations from the shore to under the seabed.
- Sandy ocean beaches that support shorebirds are known to occur in the Study Area (EP LMR). Suitable broad sandy ocean beach habitat occurs adjacent the southern section of the Project Footprint. Targeted bird surveys were undertaken where beaches intersect the Project Footprint. At the coastal boundary of Mullaquana Station there is a large dense mangrove woodland, with a strip of beach to the south-east. Both the beach and mangrove vegetation associations are considered suitable habitat for EPBC species listed as Migratory. Shorebirds detected during bird surveys included Little Tern (*Sternula albifrons*, EPBC Act: V and MM) and Sooty Oystercatcher (*Haematopus fuliginosus fuliginosus*, NPW Act: R)). However, this beach habitat is avoided by the Project Footprint

as the intake and outfall locations for the desalination plant will be constructed below ground via tunnel boring methods. Impacts to these species are not expected.

3.1.2 Ephemeral waterway crossings

- There are a number of surface water features along the length of the Study Area (DEW 2025). Typical of the semi-arid and arid environment, there are ephemeral and highly ephemeral watercourses and floodplains that only flow during and after intense climatic events but are largely dry otherwise. The long, linear Project Footprint crosses multiple smaller and a few larger ephemeral watercourses and floodplains, and these are summarised in the Project baseline ecology report (Jacobs 2026).
- None of the ephemeral water crossings within the Study Area are considered to provide important habitat for migratory species, or to represent internationally important wetlands.
- Ephemeral habitats such as crossings may provide occasional habitat for migratory species when water is present and sufficient high protein food resources are present (e.g. worms, bivalves and crustaceans). These areas only represent small potential areas of foraging habitat for migratory species, with known coastal staging areas and larger inland lakes avoided by the Project, providing more suitable resource rich habitat.
- In the EP LMR the main drainage lines include Windittie Creek, Salt Creek and Black Oak Creek.
- In the SAAL LMR there are primarily minor drainage lines present with one major drainage line in the Project Footprint, Pine Creek. There are also creeks running adjacent and sometimes intersecting the main transfer pipeline alignment. The main drainages include Coorlay Creek, Wirrawirralu Creek, and Sanders Creek (Jacobs 2026). Watercourse and drainages running adjacent and sometimes occasionally intersecting the Carrapateena lateral branch include Elizabeth Creek, Carra Creek, Yeltacowie Creek and Pernatty Creek (Pernatty Lagoon catchment).

3.1.3 Inland lakes

- A number of large inland salt lakes that provide known habitat for migratory species when they are present in Australia occur in the Study Area. These include Lake Torrens, Pernatty Lagoon, Lake Dutton, Lake Windabout, Lake Richardson, Arcoona Lake, Lake Mary, Lake Campbell, Coorlay Lagoon. None of these lakes are in the Project Footprint, however as per above some of the smaller ephemeral creeks (crossings) that drain to the lakes intersect the Project Footprint Some of these lakes also provide important shorebird habitat for particular species (e.g. Sharp-tailed Sandpiper (refer Table 3.1 for further detail).
- Lake Torrens is an inland lake in the Study Area that meets the criteria for Nationally Important Wetland and provides shorebird habitat, however is avoided by the Project and is over 30 km to the east of the main transfer pipeline and over 13 km east of the Carrapateena lateral branch (refer Table 3.1 for further detail).

- In the SAAL region there are intermittent lakes adjacent the Project Footprint north-west of Port Augusta up to near the Carrapateena lateral branch including Lake Dempsey. There are large intermittent salt lakes including Lake Torrens, Lake Dutton, Pernatty Lagoon, Lake Windabout, and Island Lagoon. Smaller intermittent lakes are scattered along the extent of the pipeline alignment.
- The pipeline alignment also intermittently transects and / or runs adjacent to land between Woomera and Olympic Dam that may be subject to flooding and ponding following significant rain events. Whilst these areas may occasionally attract migratory shorebirds, they do not provide the resource rich habitats of the lagoons, swamps and inland lakes, as mentioned above. Further detail about the specific ephemeral wetlands, lakes and swamps in this area that provide important shorebird habitat for Sharp-tailed Sandpiper are provided in Table 3.1. These areas are avoided by the Project Footprint.

3.1.4 Saltmarsh

- Earlier pipeline alignments between the desalination site at Mullaquana Station and Whyalla traversed within close proximity to a coastal flat identified as supporting the EPBC listed Subtropical and Temperate Coastal Saltmarsh TEC. These areas include land subject to inundation that are now outside the Project Footprint. These areas area also known to provide habitat to some migratory shorebirds for foraging and roosting, however are not listed as specifically meeting national / international important shorebird habitat criteria.
- The current proposed pipeline alignment turns inland earlier, and avoids proximity to the TEC / saltmarsh, whilst also avoiding larger areas of ephemeral watercourse which are more likely to support denser shrublands which are preferred by terrestrial threatened species such as Western Grasswren in this area.
- Saltmarsh that represents the EPBC listed Subtropical and Temperate Coastal Saltmarsh TEC was confirmed within an area adjacent to the proposed Mullaquana Station desalination plant (BAM 145, *Tecticornia halocnemoides* ssp. / *T. arbuscula* low open shrubland). This patch meets the listing criteria in terms of floristic composition, structural integrity, and patch size, and is likely subject to tidal influence (Jacobs 2025a, 2025b). However, this section of the Project Area will only involve construction of the intake and outfall tunnels. The proposed tunnels will be constructed beneath the ground surface, avoiding any direct disturbance to this TEC.

3.1.5 Bays and artificial habitats

- There are a number of bays along the coastline of the Study Area with regular estuaries and inverse estuaries that provide suitable habitat for shorebirds, e.g. Upper Spencer Gulf (USG). Whilst these areas are outside of the Project Footprint and outside the Project Area, the USG is part of a Nationally Important Wetland, and includes artificial habitats such as the Whyalla Salt Evaporation Ponds / Whyalla Salt fields and Whyalla Wetlands and that meet national shorebird habitat significance criteria for several species (see Section 3.2, Table 3.1, Table 3.3 and Table 3.1 for further detail). These areas do not interact with the Project Footprint. The USG Marine Park also occurs in the area, encompassing oceanic habitat within the USG. The desalination plant outfall is located

over 6 km south of the southern boundary of the oceanic habitat of the USG Marine Park (Parks 2022, NatureMaps, DEW 2025).

- There are tidal channels between Cowleds Landings and Munyaroo Conservation Park (CP) and these areas are known to intersect intertidal and supratidal saltmarsh, that is considered to represent the EPBC listed Subtropical and Temperate Coastal Saltmarsh (Jacobs 2025a, 2025b). These areas are avoided by the Project Footprint and not impacted.
- Regionally, Franklin Harbour (located over 70 km south of the southern extent of the Project Area) is listed as important habitat and varying extents are protected (e.g. as a Marine Park, Conservation Park, Nationally Important Wetland and Important Shorebird habitat) (refer Table 3.1, and Figure 3.1). Franklin Harbour (also known as Cowell estuary) includes a shallow embayment that is almost totally landlocked, with a long narrow sandy peninsula that protects the mouth of the harbour. Shorebird habitat consists of a coastal dune system, sand flats and tidal mud flats. There is also a diversity of vegetation including transition from mangroves into samphire (saltmarsh), saltbush and mallee (Driessen et al. 2020, DEW 2025). Areas further south along the coast that have tidal interaction meet national significance criteria for several species (see Section 3.2, Table 3.1 and Figure 3.1 for further detail). These areas are avoided by the Project Area, and the closest area to the Project Footprint is the northern boundary of the Franklin Harbour Marine Park (oceanic) which is over 11 km south of the Desalination Site outfall location hence significant impacts to migratory species are not expected (refer Section 4).

3.2 Listed protected areas

Important habitat areas for migratory birds are listed in the three main directories / reports, including the Directory of Important Wetlands Australia (DIWA) (DCCEEW 2021), the Australian National Directory of Important Migratory Shorebird Habitat (Driessen et al. 2025) and are also highlighted in the PMST report (Appendix A). A search of these directories and reports highlighted Protected Areas relevant to the Study Area and some of these areas interact with the Project. A summary of these areas and Project interaction is provided in Table 3.1.

The PMST highlighted Whyalla CP, and unnamed Heritage Agreement (HA1588) and Upper Spencer Gulf Marine Park as protected areas that overlapped with the Study Area (buffer on Project Footprint only and not intersected by the Project Footprint) (Parks Australia 2022, DEW 2025). In addition, Upper Spencer Gulf is listed as Nationally Important Wetlands and the Arcoona Lakes system between Olympic Dam and Woomera is listed as Important Shorebird habitat for some species. These protected areas and nationally important wetlands are particularly important as they may provide high quality habitat for migratory species and/or be relevant to the conventions and international agreements used to guide listing of migratory species under the EPBC Act.

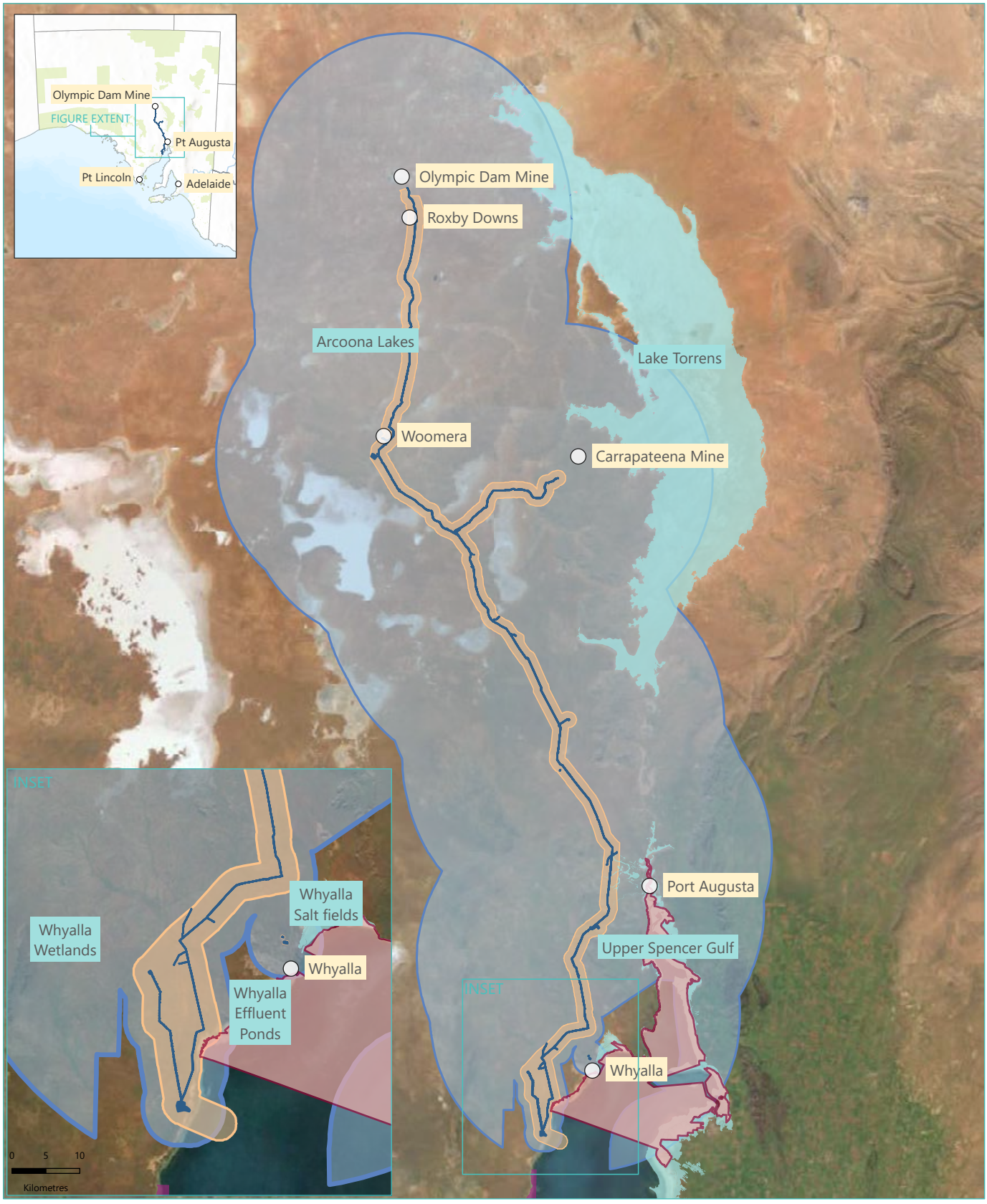


Figure 3.1: Important habitat areas
Northern Water Project Migratory Birds Impact Assessment

LATHWIDA

Table 3.1: Listed Protected Areas and Nationally Important Wetlands relevant to the Project

Location	PMST likelihood suggestion	Important habitat present	Driessen et al. (2025) criteria met	Project Footprint comments	Potential impacts	Residual impacts
Franklin Harbour Marine Park	In buffer area only (50 km Study Area)	Includes Franklin Harbour and extends along the coast from south of Murninnie Beach to Mills Beach / Port Gibbon. Includes beaches, saltmarsh, mangroves and coastal cliffs (DEW 2024).	Overlaps with Shorebird Area at Franklin Harbour, which is located over 70 km from the Project Area	Avoided by the Project. The closest interaction is over 11 km from the Project Footprint (e.g. Mullaquana Station intake / outfall tunnels).	Indirect impacts: Downstream hydrological changes.	Significant impacts are not expected. No areas in the Project Footprint meet shorebird international significance criteria. Residual impacts are not expected following implementation of mitigation measures as per the Project Construction Environment Management Plan (CEMP) and Operation Environment Management Plan (OEMP).
Nationally Important Wetland - Upper Spencer Gulf (USG)	In buffer area only (5 km Study Area) In feature area (50 km) (Project Footprint)	From the Directory of Important Wetlands (DIWA) (DCCEEW 2021): Inverse estuary containing shallow, warm saline areas and includes mangrove forests, tidal sand and mud flats, with some areas of shingle and sandy beaches. Some major creeks connected to the network of tidal channels include Chinaman Creek, First-Seventh Creek, Port Davis Creek and Fisherman Creek. Known to support 67 waterbird species. Migration stopover location for 14 species (e.g. Marsh Sandpiper, Red-necked Stint, Red Knot, Sanderling, Grey, Pacific Golden Plover, Grey-tailed Tattler, Bar-tailed Godwit and Ruddy Turnstone). 50% of these areas also occur within the USG Marine Park	<u>245. BHP Salt fields / Whyalla Salt fields / Whyalla Salt Evaporation Ponds (5,234 ha)</u>: Western side of USG, includes 800 ha of commercial salt ponds, coastal habitats, sand and mud flats, tidal channels. Does not meet international significance criteria. Meets national significance criteria for Shorebird aggregations, Red-necked Stint, Sharp-tailed Sandpiper, Curlew Sandpiper. <u>244. Whyalla Effluent Ponds (32 ha):</u> Was listed in Weller et al. 2020, but not listed in Driessen et al. 2025. Western side of USG. Shorebird area includes managed effluent ponds, tidal sand and mud flats, connect to tidal channels and the USG. Does not meet international significance criteria. Previously, met national significance criteria for Sharp-tailed Sandpiper (200 birds in 2009).	Largely avoided by the Project. The only areas in the Project Footprint are northwest of Port Augusta and include DIWA ephemeral drainage lines that connect to Lake Dempsey (DCCEEW 2021, DEW 2024). These areas do not meet international and national habitat criteria for shorebird species. Winninowie Coastal Park and Port Pirie Coast shorebird areas are on eastern side of gulf distant from Project Footprint. Whyalla Effluent Ponds and BHP / Whyalla Salt fields are avoided by the Project. The USG Marine Park does not interact with the Project Footprint	Indirect impacts: Hydrology changes. Unplanned sedimentation / dust / noise / water quality.	Significant impacts are not expected. No areas in the Project Footprint meet shorebird international significance criteria. No areas in the Project Footprint meet national significance criteria. Residual impacts are not expected following implementation of mitigation measures as per the Project CEMP and OEMP. In particular, avoiding works when water is present and implementation of sediment, erosion and drainage management plan (SEDMP) as part of CEMP.
Nationally Important Wetland - Inland Saline Lakes	In buffer area (50 km Study Area)	From the DIWA (DCCEEW 2021): Includes Lake Torrens (570,000 ha), Lake Frome (259,000 ha). When in flood provides suitable habitat for large wader populations. Lake Callabonna and Lake Torrens are one of the few arid zone areas where large colonies of Banded Stilts breed. Known to support 30 waterbird species, including breeding for 9 species. Migration stop-over for Marsh Sandpiper, Common Greenshank, Red-necked Stint, Sharp-tailed Sandpiper, Curlew Sandpiper and Australian Pratincole.	Inland, South Australia's largest potential shorebird habitats occur in the arid zone. Episodic flooding of the Channel Country rivers briefly provides extensive muddy habitat, and intense local rainfall fills vast salt lakes like Lake Eyre and Lake Torrens. These boom events support spectacular bird aggregations and are critical for arid-zone breeders such as Banded Stilt, and for staging Sharp-tailed Sandpipers and other migratory species when conditions are favourable.	Avoided by the Project. Lake Torrens is over 30 km from the Project Footprint (main pipeline) and 13 km from the eastern end of the Carrapateena lateral branch. Lake Frome well over 200 km east of the Project Footprint.	Impacts are unlikely	Residual impacts unlikely

Location	PMST likelihood suggestion	Important habitat present	Driessen et al. (2025) criteria met	Project Footprint comments	Potential impacts	Residual impacts
Arcoona Lakes	NA	From Weller et al. 2020: A 12,000 ha system of lakes that occur between Woomera and Olympic Dam with diverse hydrology. Some are large and highly saline and provide rich ephemeral shorebird habitat. Others provide deep freshwater for several years. They fill and remain inundated following above-average rainfall. Wet /dry cycles provide abundant resource pulses for waterbirds. Includes 13 wetlands: Coorlay Lagoon, Chances Swamp, Lake Mary, Lake Bessie, Purple Lake, Purple Swamp, Red Swamp, Lake Koolymilka, Lake Echo North, Lake Echo South, Lake Campbell, Arcoona Lake, and Lake Richardson.	242. Arcoona Lakes (12,000 ha): Was listed in Weller et al. 2020, but not listed in Driessen et al. 2025. Is not a flyway network site. Does not meet International Significance Criteria. Previously met National Significance criteria for Sharp-tailed Sandpiper (222 birds in 2009).	Avoided by Project, over 150 m to 33 km from Project Footprint [Coorlay Lagoon (over 1 km east), Chances Swamp (12 km west), Lake Mary (over 1.6 km east, smaller areas ~ 150 m from main pipeline), Lake Bessie (Mirage Lagoon 2 km east), Purple Lake (2.5 km west), Purple Swamp (2 km west), Red Swamp (over 2 km west), Lake Koolymilka (33 km west), Lake Echo North / South (25 km west), Lake Campbell (30 km west), Arcoona Lake (14 km east), and Lake Richardson (over 6 km east)].	Indirect impacts: Hydrology changes. Unplanned sedimentation / dust / noise / water quality.	Significant impacts are not expected. No areas in the Project Footprint meet shorebird international significance criteria. Areas near the Project Footprint meet national significance criteria (the closest is Lake Mary). Residual impacts are not expected following implementation of mitigation measures as per the Project Construction Environment Management Plan (CEMP) and Operation Environment Management Plan (OEMP). In particular, avoiding works when water is present in the Project Footprint.

DIWA = Directory of Important Wetlands Australia (DCCEEW 2021)

3.3 Migratory birds relevant to protected area

A desktop assessment was undertaken using a combination of the two PMSTs, NatureMaps (DEW 2025), Biological Databases of South Australia (BDBSA) and the Shorebird Directory to identify migratory shorebirds with potential to be impacted by the Project.

The Project PMST reports for each LMR (Appendix A) highlighted 42 and 50 Listed Migratory species relevant to the Project Area within each LMR. For the purposes of this assessment 13 species were excluded as they were Migratory Marine Species (not birds) or Migratory Terrestrial Species. A summary of migratory species per PMST is provided in Table 3.2.

Table 3.2: Summary of migratory species numbers per Project PMST Report

PMST	Migratory Marine Bird Species	Migratory Wetland Bird Species	Migratory Marine Species[1]	Migratory Terrestrial species[1]	Species Unique to PMST	Total Migratory
Eyre Peninsula LMR (5 km buffer)	14	15	11 (4 whales, 3 sharks, 3 turtles, 1 dolphin)	2 (Grey Wagtail, Yellow Wagtail)		42
South Australian Arid Lands LMR (50 km buffer)	14	23	11 species (4 whales, 3 sharks, 3 turtles and 1 dolphin)	2 (Grey Wagtail, Yellow Wagtail)	Lesser Sand Plover Greater Crested Tern Grey-tailed Tattler	50

[1] Excluded from further assessment in this report.

A total of 39 migratory birds were further assessed as having potential to be impacted by the Project. This included the 37 migratory (marine / wetland) bird species highlighted by the PMSTs and two additional species; Grey Plover (*Pluvialis squatarola*) which was identified in the Shorebird Directory and BDBSA records, and Little Tern (*Sternula albifrons*) which was recorded in field assessments of the Project Area near Mullaquana Station (Jacobs 2025b).

In addition to the habitats suggested in the PMST report (as Protected Area or a Nationally Important Wetland), the Wetland Directory (DCCEEW 2021) Shorebird Directory (Driessen et al. 2025) lists three important habitats that are in or adjacent the Study Area; Arcoona Lakes, BHP (now Whyalla) Salt fields and Whyalla Effluent Ponds (Table 3.1). Species relevant to these three important habitats, based on the PMST output and likelihood assessment presented are outlined in Table 3.3.

Table 3.3: Migratory shorebirds species relevant to Protected Areas (as per PMST output)

Species	PMST likelihood	Important habitat present in Study Area	Species likelihood in Project Footprint (Table 4.2)	Driessen et al. (2025) criteria resulting in important habitat status
Red-necked Stint (*Calidris ruficollis*) – MW	Species or species habitat known to occur in feature area	BHP Salt fields (BHPS)	Possible	National species criteria met in 2023 (BHPS, 2000 birds)
Sharp-tailed Sandpiper (*Calidris acuminata*) VU, MW	Species or species habitat known to occur in feature area	BHP Salt fields (BHPS)	Likely	National species criteria met in 2023 (BHPS 1,110 birds)
Curlew Sandpiper (*Calidris ferruginea*)	Species or species habitat known to occur in feature area	BHP Salt fields (BHPS)	Possible	National species criteria met in 2021 (BHPS 200 birds)

EPBC Act; VU = Vulnerable, MM = Migratory Marine, MW = Migratory Wetland; National Criteria met when max count of 0.1% of flyway population is detected at a site (refer Section 2.3)

4 Significant Impact Assessment for migratory shorebirds

For the 39 migratory marine and migratory wetland bird species identified from the desktop assessment as having potential to be impacted by the Project, an SIA is provided in Table 4.2 and Appendix B. These tables, summarise the likelihood of occurrence for each of the species. Where species are considered known to occur, likely to occur or as possible occurrences, potential impacts from the Project are identified, proposed mitigation measures are considered and a residual SIA is presented in accordance with the significant impact criteria discussed in Section 2.2. A summary of the Project mitigation measures which are relevant to migratory birds is provided in Table 4.1.

Results of the likelihood of occurrence assessment indicate that seventeen species are considered known, likely or to possibly occur in the Study Area and have potential for interaction with the Project Footprint. These species are summarised in Table 4.2. Twenty species were considered unlikely to occur or do not occur in the Study Area and therefore do not occur in the Project Footprint. The likelihood of occurrence assessment for these species, primarily Migratory Marine Birds is provided in Appendix B.

Table 4.1: Project mitigation measures for migratory birds

Mitigation Measure #	Mitigation measure description
1.	Desktop and field surveys carried out to identify key ecological constraints, informing design options to avoid and minimise interaction with important habitat as far as reasonably practicable.
2.	Where the construction footprint intersects with, or comes within proximity of, key coastal and inland ephemeral swamps and salt lake habitats supporting EPBC listed threatened or migratory shorebird species, the construction footprint boundary will be defined to avoid unintentional disturbance outside of defined construction areas. Identification of key habitats to be identified by suitably qualified ecologist prior to disturbance (e.g. areas with recent (in the last 10 years) records, areas with water present and shorebird species present during migration).
3.	The Project will avoid construction works associated with crossings of ephemeral lakes and watercourses when water is present in or adjacent to the Project Footprint, where practicable (e.g. between September and March, if shorebird species are present). This would not be required where trenchless construction methods are used (e.g. directional drilling).
4.	Micro-siting of transmission towers to avoid disturbance to inland lakes and other potential foraging habitat where practicable.
5.	A field inspection will be undertaken with an experienced ecologist and construction design specialist in order to further reduce the construction corridor width, where possible, and to assist with demarcation of no-go zones for particularly sensitive areas.
6.	Preparation of a project-specific CEMP including controls on activities near salt pans and clay pans, weed hygiene, weed monitoring and progressive rehabilitation of all temporary construction areas. Weed monitoring targeting Weeds of National Significance (WoNS) and Declared Weed species, with follow up controls as required for any identified weed outbreaks. Use of existing disturbance corridors wherever possible (i.e. road corridors, tracks, rail corridors, other utilities corridors). Preparation of a Threatened Species Management Plan (TSMP) as a sub-plan to the project-specific CEMP. As a minimum include: • pre-construction inspection of any areas with suspected EPBC threatened or migratory species or habitat prior to commencement of access and clearing activities (e.g. 1-4 weeks, considering rainfall events) • development and implementation of waste management protocols to avoid an increase in, or attraction of, feral pest animals to the Project area

Mitigation Measure #	Mitigation measure description
	• restriction of travel on access tracks during project operation to daylight hours as far as practicable • speed restrictions within construction areas and along access tracks • implementation of weed hygiene practices including: vehicle checks and washdowns as required on vehicles or plant entering the construction site • weed surveillance monitoring targeting WoNS and Declared Weed species, with follow up controls as required for any identified weed outbreaks.
7.	Operations Environmental Management Plan (OEMP) prepared and implemented prior to commissioning. As a minimum include: • Use of existing disturbance (e.g. existing track) wherever possible. • Use of existing disturbance corridors wherever possible (i.e. road corridors, rail corridors, other utilities corridors). • Implement weed surveillance and control programs targeting WoNS and Declared Weed species (if weeds identified) (e.g. for 5-7 years post construction).
8.	Offset all Native Vegetation Clearance as per the state *Native Vegetation Act 1991* (SA) requirements and the Significant Environmental Offset Policy (NVC 2024a, 2024b, 2024c, 2024d, 2024e). Progressive rehabilitation of all temporary construction areas

Table 4.2: Significant Impact Assessment for Migratory Shorebirds potential in the Project Footprint

Species, or Community	EPBC Act[1]	NPW Act[2]	Likelihood of Occurrence[1]	Potential impacts	Mitigations measures	Significant Impact Assessment (impacts following mitigation measures)
Migratory species listed as threatened						
Common Greenshank (*Tringa nebularia*)	EN, MW	-	PMST output suggests species or species habitat is known to occur in the EP Project Area (feature areas) and likely to occur in the SAAL Project Area (feature area) (Appendix A). This migratory species was also recently listed as an EPBC threatened species (5 Jan 2023). The Common Greenshank is migratory shorebird that has extensive breeding grounds in Europe / Siberia (DCCEEW 2024i). The species has a broad distribution across Australia during the summer month (Geering et al. 2008, ALA 2025, DCCEEW 2024i) where it occurs predominantly in coastal regions, but also at a number of inland locations which periodically hold water. In South Australia there are historic records distributed along large portions of the state coastline, from the Coorong and Lower Lakes and the south-east region, from the Riverland, and from further inland around the location of ephemeral lakes (DCCEEW 2024i, DEW 2024). The species occurs in all types of wetlands (fresh and saltwater) along the coast or inland as well as intertidal mudflats, in locations near mangroves, saltmarsh or with fringing sedges (Geering et al. 2008, DCCEEW 2024i). It also occupies artificial habitats and will also forage on seagrass wrack on beaches. Critical habitat for the species includes areas for breeding (outside of Australia), foraging, roosting or dispersal. Critical feeding and roosting habitats are associated with mosaic of feeding and roosting habitat, i.e. variety of freshwater, marine or artificial wetlands, as well as flooded grasslands, coastal flats (DCCEEW 2024i). Important habitat areas in Australia for Common Greenshank are those listed in the National Directory of Important Migratory Shorebird Habitat (Driessen et al. 2025; DCCEEW 2024i). None of the important wetlands for Common Greenshank as listed in the Shorebird Directory are within the Project Footprint. In SA important habitats include the Coorong, Eyre Island, Gulf St. Vincent, eastern Spencer Gulf and western Eyre Peninsula. Whilst inland Saline Lakes are noted as important to shorebirds (e.g. Lake Torrens, Lake Eyre, Lake Frome, Lake Calladonna), they are not listed as important for the Common Greenshank and are not within proximity of the Project Footprint. As such, no important habitats supporting populations through parts of their	Indirect disturbance / short-term loss of small areas of ephemeral habitat; indirect disturbance to small area of coastal habitat. Injury of mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. Injury or mortality from collisions with vehicles traversing access tracks. Introduction of invasive weed species or disease.	Refer Table 4.1	**No significant impacts expected** **A. Unlikely.** This species is widespread globally, including in coastal regions all around Australia and at suitable inland locations across the country, and internationally through Europe, Africa, Asia, Melanesia, and Australasia, as it migrates through the East Asian-Australasian Flyway (DCCEEW 2024i). Population estimates are reported as 440,000-1,500,000 individuals, and it is not considered to be globally threatened (considered secure) due to its extensive breeding range (DCCEEW 2024i). Breeding does not occur in Australia. No areas of important habitat are recognised within proximity to the Project Footprint, and coastal habitats which may be utilised by the species are avoided by the Project. The Mullaquana Station desalination plant inlet and outlet will be tunnelled underneath a single beach location where there are no historic records of the species. Potential impacts may include temporary noise impacts from construction activities where works are in proximity to potential habitat (e.g., traverse across Lake Windabout) however where practicable, construction activities would occur when these areas are dry, hence the species would not be present. When water is present, the sediment, erosion and drainage management plan (SEDMP) would be implemented as part of the CEMP. Given beach habitats are avoided and a population is not known from the Project Area, it is unlikely the Project would lead to a long-term decrease in the size of a population. **B. Unlikely.** The area of occupancy of this species is widespread in coastal regions all around Australia and at suitable inland locations across the country. The species also occurs internationally through Europe, Africa, Asia, Melanesia, and Australasia and migrates through the East Asian-Australasian Flyway (DCCEEW 2024i). The species is highly mobile and any non-breeding birds will be able to move away from any temporary disturbance in or adjacent the Project Footprint (e.g. associated with construction noise in areas within proximity to any suitable habitat). Hence the Action is unlikely to reduce the overall area of occupancy of this species. **C. Unlikely.** There are no distinct populations of Common Greenshank within the Project Footprint, and no areas of important habitat have been identified in the Project Footprint (Weller et al. 2020). Construction is proposed through any water holding habitats within dry conditions (where practicable), and this highly mobile species would easily avoid any temporary disturbance in proximity to coastal areas. Hence, it is unlikely the Action will fragment an existing population into two or more populations. **D. Unlikely.** The Project Footprint does not contain beach or wetland habitats. Whilst there is saltmarsh, mangroves and a section of beach at the MQ Station desalination site, marine intake and outfall structures will be constructed below the intertidal zone and below the sea bed via tunnelling and or float and sink option. There have been no historic records of the species in the MQ Station area, the nearest records are north at Cowleds Landing), and the inland ephemeral Lake Windabout crossing. Additionally, no areas of important wetland habitat for the species have been identified in the Shorebird Directory (Weller et al. 2020). Given the limited interaction with suitable habitat, and the mitigations proposed, it is very unlikely that the Project will affect habitat critical to this species (which has a mosaic of feeding and roosting habitat through coastal and inland Australia). **E. Unlikely.** Given the species breeds outside of Australia, and no important areas of roosting / feeding habitat are present within the Project Footprint (Weller et al. 2020), the breeding cycle of a population of the species is unlikely to be impacted. **F. Unlikely.** There is no breeding habitat present within the Project Footprint, as the species does not breed in Australia. Although there are records of this species along the eastern coast of the Eyre Peninsula in proximity to the Project Footprint, the

Species, or Community	EPBC Act[1]	NPW Act[2]	Likelihood of Occurrence[1]	Potential impacts	Mitigations measures	Significant Impact Assessment (impacts following mitigation measures)
			migratory lifecycle are known for the Project Footprint. There are however records of the species in proximity to the Project Footprint, with most restricted to the coast fringe adjacent the alignment from Mullaquana Station to Whyalla (DEW 2025, ALA 2025). There are 60 BDBSA records (1981-2024), and over 59 Birdlife records (1998-2022) from coastal and inland aquatic habitats within the Study Area (BDBSA 2025, Figure 4.1). The highest density of records in proximity to the Project Area is along the coastal fringe of Whyalla, the Whyalla Salt fields, near Munyaroo CP (south of Mullaquana Station) and Cowleds Landing. These coastal areas are avoided by the Project Footprint. Additional records of the species exist at discrete inland locations associated with highly ephemeral water bodies, where it is assumed that the species would only be present when water was present (e.g. Lake Dutton, Lake Richardson, Arcoona Lake, Lake Mary, Coorlay Lagoon). These areas are avoided by the Project Footprint, or where minor crossings are proposed (e.g. Lake Windabout) trenching would not be undertaken when water is present. This species is considered known to occur in the Study Areas and Project Area and to **possibly occur in the Project Footprint**, in aquatic habitats when water is present.			Construction Footprint does not impact these coastal areas, and there are no identified areas of important habitat for the species within the Project Footprint. Regardless, footprints will be minimised wherever possible, and particularly at the coastal interface, where tunnelling for marine intake and outfall locations will occur beneath the coastal interface (e.g. mangrove shrublands, low dunes and samphire shrublands). Therefore, quality habitat important to the survival of the species is unlikely to be modified, destroyed or removed to the extent that the species will decline. **G. and H: Unlikely.** Key threats include reduction in quality of habitat in East Asian – Australasian Flyway. Important habitat areas do not occur in the Project Footprint. Management measures (e.g. weed controls during and post construction, vehicle hygiene practices, hence avoid establishment of new weed species or diseases in the Project Footprint is not considered likely. Measures such as use of existing tracks and waste management, are expected to control any increase in abundance of feral predator species. The action is therefore not expected to result in the introduction of invasive weed or species or disease which may cause this species to decline as a result of impacts to the species or the species' habitat**.** **I. Unlikely.** There is no species recovery plan for the Common Greenshank (stated as not required), but conservation strategies within the Conservation Advice are considered sufficient (DCCEEW 2024b), 2024i). Key threats relate to habitat loss, sea level rise and disturbance at feeding and roosting sites. Mitigation measures are proposed to avoid direct and indirect impacts, and no identified important habitat is impacted by the project, so the proposed action is unlikely to interfere substantially with recovery of the species. **Significance Summary** Whilst there are records for the species within the Study Areas and Project Area, there are nil to limited suitable aquatic habitats in the Project Footprint and no records in the Project Footprint. Given low possibility of occurrence in the Project Footprint and the fact that core habitats will not be impacted, significant impacts to the species are considered unexpected.
Curlew Sandpiper (*Calidris ferruginea*)	CE, MW	E	PMST output suggests that species or species habitat known to occur within the Project Area (feature areas) (Appendix A). The Curlew Sandpiper is a non-breeding migratory wader mostly occur on intertidal mudflats in sheltered coastal areas such as estuaries, bays, inlets and lagoons, and around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms (Geering et al. 2008). They have also been recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand (DCCEEW 2023c). They occur in both fresh and brackish waters. In SA the species is widespread in coastal and subcoastal areas east of Streaky Bay and important sites include the 'ICI and Price' Salt fields (Gulf St. Vincent) and the Coorong, and they are also known to visit inland areas of the Eyre Peninsula (DCCEEW 2023c).	Indirect disturbance / short-term loss of small areas of ephemeral habitat; indirect disturbance to small area of coastal habitat. Injury of mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. Introduction of invasive weed species or disease	Refer Table 4.1	**No significant impacts expected** **A. Unlikely.** Key sites for migratory shorebirds are listed in the Shorebird Directory (Driesen et al. 2025). Key sites listed for Curlew Sandpiper do not intersect the Project Footprint. With only occasional and very low numbers of historic records of the species recorded in proximity of the Project Footprint in coastal and tidal flats, it is considered that the Project Footprint itself does not support any notable populations of the species. With minimisation of the Project Footprints and specific measures taken to avoid notable coastal environments, any residual impacts to a small area of potential coastal and salt lake habitat is not expected to result in a long-term decrease in the size of the population (40,100 mature individuals (DCCEEW 2023c). **B. Unlikely.** The area of occupancy is widespread within Australia (800,000 ha) for this migratory species which breeds outside of Australia, with an extent of occurrence of 1,090,000,000 ha (Garnet and Baker 2021, DCCEEW 2023c). Given no specific preferred habitat occurs within the Project Footprint, and potential foraging habitats e.g. mangrove habitats) can either be easily avoided or impact to these habitats therefore minimised (i.e. by tunnelling for intake and outfall tunnels), the area of occupancy for this species will not be notably reduced. **C. Unlikely.** The area of occupancy is widespread in Australia for this migratory species, which breeds outside of Australia (DCCEEW 2023c, Geering et al. 2008). Given there is no breeding habitat, minimal preferred habitat, and no habitat critical to the survival of the species in the Project Footprint, it is unlikely to represent important habitat for the

Species, or Community	EPBC Act[1]	NPW Act[2]	Likelihood of Occurrence[1]	Potential impacts	Mitigations measures	Significant Impact Assessment (impacts following mitigation measures)
			In the Study Area there are 25 BDBSA records (1981-2024), many with poor spatial reliability, but some from, Whyalla Salt fields, Port Davis, Port Pirie) and 22 Birdlife records (1999-2024, beaches near and Whyalla, Wilmington Sewage Ponds, Chinaman's Creek) (BDBSA 2025, Figure 4.1). There are also other records near inland lakes that will not be impacted by the Project (e.g. Arcoona Lake, Coorlay Lagoon, Lake Mary, Lake Richardson, Lake Echo, Lake Campbell). In SA the Shorebird Directory lists important habitats for this species as Lake Alexandrina and Lake Albert, Gulf St Vincent, the Coorong, Baird Bay, Eyre Island, Taratap, Lake Newland, Port MacDonnell, Winninowie CP, Port Pirie Coast, Sceale Bay, Lake Eliza, Tourville Bay, Streaky Bay, BHP Salt fields and St. Peter Island (Driessen et al. 2025). No listed important habitats are in or adjacent the Project Footprint (Driessen et al. 2025). Critical habitats include a mosaic of feeding and roosting habitat, with upper tidal flats considered especially important (DCCEEW 2023c). This species is known in the Study Areas, with limited occurrence in the Project Area, and is considered as a **possible occurrence in the Project Footprint** in suitable aquatic habitats.			species. Hence, the Project is unlikely to fragment an existing population of the species. **D. Unlikely.** The area of occupancy is widespread within Australia for this migratory species, which breeds outside of Australia (DCCEEW 2023c). In SA, key stopover sites include the Coorong which is distant from the Project Area. Given there is no breeding habitat, minimal preferred foraging habitat, and no habitat critical to the survival of the species within the Project Area, habitat that is critical to the survival of this species will not be adversely affected. **E. Unlikely.** Given the species does not breed in Australia (i.e. breeds in the Arctic Tundra of Siberia (Geerling et al. 2008, DCCEEW 2023c), and limited key stopover sites / resources occur within the Project Footprint, the breeding cycle of the Australian population will not be impacted. **F. Unlikely.** There is minimal preferred foraging or roosting habitat (i.e. coastal bays, inland salt lakes, Geering et al. 2008) that will be impacted within the Project Footprint. The proposed Project Footprint largely avoids traversing potential foraging habitat, except at Pernatty Lagoon, where it is located adjacent existing infrastructure and between Lake Dutton and Island Lagoon (where the narrowest crossing has been selected). Construction footprints will be restricted as far as practicable through these sensitive environments which are highly ephemeral, as well as at the coastal interface. Therefore, quality habitat important to the survival of the species is unlikely to be modified, destroyed or removed to the extent that the species will decline. **G. and H: Unlikely.** No known populations of the species occur in the Project Footprint. As such, any introduction of weeds is not considered likely to result in establishment and degradation of preferred habitat. The Project Footprint not in a high-risk Phytophthora area. Management measures include weed controls during and post construction as well as vehicle hygiene practices, so establishment of new weed species or diseases in the Project Footprint is not considered likely. Tracks exist within the Project Area and waste will be managed; hence the proposal is not expected to result in an increase in abundance of feral predator species. The action is therefore not expected to result in the introduction of invasive species or disease which are harmful to this threatened species. **I. Unlikely.** There is no specific recovery plan for this species. Conservation actions relate to loss of key habitat within Australia and East China. Australian conservation actions relate to reducing impacts from human disturbance, habitat loss, invasive plants and altering salinity regimes at key feeding grounds (DCCEEW 2023c). Key feeding grounds do not occur within the Project Area, therefore, with mitigation measures, the proposed action is unlikely to interfere with the recovery of the species. **Significance Summary** Whilst there are records for the species within the Study Area and limited records in the Project Area, there are nil to limited suitable aquatic habitats in the Project Footprint and no records in the Project Footprint. Given low possibility of occurrence in the Project Footprint and the fact that core habitats will not be impacted, significant impacts to the species are considered unexpected.
Eastern Curlew (*Numenius madagascariensis*)	CE, MW	E	PMST output suggests that species or species habitat known to occur within the Project Area (feature areas) (Appendix A). The Eastern Curlew is a migratory wader/large shorebird that does not breed in Australia. The species is mostly recorded in sheltered coastal habitats, especially estuaries, bays, harbours, inlets and coastal lagoon with large intertidal mudflats or sandflats particularly those with extensive seagrass beds (DCCEEW 2023b). Often	Indirect disturbance / short-term loss of small areas of ephemeral habitat; indirect disturbance to small area of coastal habitat. Injury of mortality from collisions with powerline conductors.	Refer Table 4.1	**No significant impacts expected** **A. Unlikely.** Important sites for the Eastern Curlew are listed in the Shorebird Directory (Driessen et al. 2025) and these do not occur in the Study area and are not intersected by the Project Footprint. With only occasional records of the species recorded nearby (e.g. 4 records near Whyalla salt fields 1981-2000), it is considered that key populations of the species do not occur within the Project Footprint. With minimal impact to a small area of potential coastal habitat (where the desalination plant intake and outfall will be located) is therefore not expected to result in a long-term decrease in the size of the Australian, or global population.

Species, or Community	EPBC Act[1]	NPW Act[2]	Likelihood of Occurrence[1]	Potential impacts	Mitigations measures	Significant Impact Assessment (impacts following mitigation measures)
			recorded on mudflats fringed by mangroves, coastal estuaries and saltmarsh where they will roost (Geering et al. 2008, DCCEEW 2023b). This species is endemic to the East Asian – Australasian Flyway, breeding in Siberia and far eastern Russia (DCCEEW 2023b). Critical habitat includes areas for breeding (which are outside of Australia), foraging, roosting or dispersal. Important habitat in Australia includes those areas listed in the national Directory of Important Migratory Shorebird Habitat (Driessen et al. 2025; DCCEEW 2023b). In South Australia areas listed as important habitat in the Shorebird Directory include St. Peters Island (Driessen et al. 2025). These important habitat areas are not in the Study Area and distant from the Project Footprint. There are 7 BDBSA records (1981-2024) and 21 Birdlife records (1999-2024) near the Study Area from, Whyalla salt fields and across to eastern shores of Spencer Gulf (BDBSA 2025, Figure 4.1). Many of these records have low spatial reliability (1-10km). These areas are avoided by the Project. Potential suitable habitat occurs near the southern parts of the Project Footprint (e.g. mangroves, beach front), these areas will not be impacted (e.g. tunnelling under) and intertidal areas with extensive patchy seagrass beds are also avoided by this method. This species is considered known to occur in the Study Area, primarily in the south and is **possible in the Project Footprint** in suitable aquatic habitats, when water is present.	Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. Injury or mortality from collisions with vehicles traversing access tracks in proximity to the coast.		**B. Unlikely.** The area of occupancy is widespread within Australia (and globally) for this migratory species which breeds outside of Australia (DCCEEW 2023b). Given minimal preferred habitat occurs within the Project Footprint, and potential foraging habitats can either be easily avoided (e.g. tunnel boring for Mullaquana Station marine intake and outfall tunnels) or impacts to these habitats minimised, the area of occupancy for this species is not likely to be reduced. **C. Unlikely.** The area of occupancy is widespread in Australia for this migratory species, which breeds outside of Australia (DCCEEW 2023b). Given there is no breeding habitat, minimal preferred habitat, and no habitat critical to the survival of the species in the Project Footprint, it is unlikely to support an existing population. Hence, the Project is unlikely to fragment an existing population into two or more populations. **D. Unlikely.** The area of occupancy is widespread within Australia for this migratory species, which breeds outside of Australia (DCCEEW 2023b). Given there is no breeding habitat, minimal preferred habitat, and no habitat critical to the survival of the species within the Project Footprint, habitat that is critical to the survival of this species will not be adversely affected. **E. Unlikely.** Given the species does not breed in Australia (DCCEEW 2023b) and critical feeding habitats do not occur in the Project Footprint, the breeding cycle of the population will not be impacted. **F. Unlikely.** There is minimal suitable habitat (e.g. mangrove inlets for roosting) and preferred habitat (i.e. coastal bays of intertidal mudflats with extensive seagrass beds, Geering et al. 2008, DCCEEW 2023b) that will be impacted within the Project Footprint. The only suitable habitat is limited to the desalination plant intake and outfall site where tunnelling will occur beneath and there will be no impacts to coastal area (e.g. mangroves, narrow beach front and patchy seagrass bed). Footprints will be minimised wherever possible, and particularly at the coastal interface. Therefore, quality habitat important to the survival of the species is unlikely to be modified, destroyed or removed to the extent that the species will decline. **G. and H: Unlikely.** It is considered unlikely that a significant population of Eastern Curlew exists in the Project Footprint. As such, any introduction of weeds is not considered likely to result in establishment and degradation of preferred habitat. The Project Footprint is not in a high-risk Phytophthora area. Management measures include weed controls during and post construction as well as vehicle hygiene practices, so establishment of new weed species or diseases in the Project Footprint is not considered likely. Tracks exist within the Project Footprint and waste will be managed, so the proposal is not expected to result in an increase in abundance of feral predator species. The action is therefore not expected to result in the introduction of invasive weed and pest species or disease which are harmful to this threatened species or species habitat. **H. Unlikely.** There is no specific recovery plan for this species. Conservation actions relate to loss of key habitat staging sites (intertidal flats), particularly in the Yellow Sea (DCCEEW 2023b). Australian conservation actions relate to reducing impacts from human disturbance, habitat loss, and disturbance at roosting sites, in particular off-leash dogs (DECCEW 2023b). Key feeding grounds do not occur within the Project Footprint, therefore, with mitigation measures, the proposed action is unlikely to interfere with the recovery of the species. **Significance Summary** Whilst there are records for the species within the southern Study Area, and no records in the Project Area, there are nil to limited suitable aquatic habitats in the Project Footprint and no records in the Project Footprint. Given low possibility of occurrence in the Project Footprint and the fact that core habitats will not be impacted, significant impacts to the species are considered unexpected.

Species, or Community	EPBC Act[1]	NPW Act[2]	Likelihood of Occurrence[1]	Potential impacts	Mitigations measures	Significant Impact Assessment (impacts following mitigation measures)
Great Knot (*Calidris tenuirostris*)	VU, MW	E	PMST output suggests that species or species habitat known to occur within the SAAL Project Area only (feature area) (Appendix A). Species recently transferred from Critically Endangered to Vulnerable (Jan 2024). The Great Knot (*Calidris tenuirostris*) typically prefers sheltered coastal habitats, with large intertidal mudflats or sandflats within bays, inlets, harbours, estuaries and lagoons (Higgins and Davies 1996). They occasionally occur on exposed reefs, rock platforms, shorelines with mangrove vegetation, ponds in saltworks and swamps, salt lakes and non-tidal lagoons (Geering et al 2008). This species is a non-breeding visitor to Australia. Critical habitat includes areas for breeding (which are outside of Australia), foraging, roosting or dispersal. Important habitat in Australia includes those areas listed in the national Directory of Important Migratory Shorebird Habitat (Driessen et al. 2025; DCCEEW 2024h). In South Australia important habitat occurs in St. Peter Island (near Ceduna) (Driessen et al. 2025). This area is avoided by the Project and distant from the Project Footprint. There are 4 records in the Study Area (1982-2024)**,** most with very low spatial reliability; Ward's Spit (eastern side of Spencer Gulf) and Chinaman's Creek (BDBSA 2025). Potential habitat is noted in proximity to the southern extents of the Project Footprint, but the coastal flats and mangrove intertidal areas are almost exclusively avoided by the Project Footprint. Given the limited records, this species is considered as possible to occur in the Study Area in suitable beach habitats, and **possible in the Project Footprint** in suitable aquatic habitats, although these habitats will not be directly impacted.	Indirect disturbance / short-term loss of small areas of ephemeral habitat; indirect disturbance to small area of coastal habitat. Injury of mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. Injury or mortality from collisions with vehicles traversing access tracks in proximity to the coast.	Refer Table 4.1	**No significant impacts expected** **A. Unlikely.** As a non-breeding visitor to Australia, this project will not interfere with potential breeding of this species. Strongholds for this species are found in northern Australia, being far less common in South Australia (DCCEEW 2024h). The project will interact with a very small area of coast environment (intake/outfall pipes associated with the Mullaquana Station desalination plant, will be tunnel bored). With only occasional and low numbers of this species recorded in the broader region, and with the proposed avoidance of coastal foraging habitat, this Project is unlikely to lead to a long-term decrease in the size of an important population. **B. Unlikely.** The area of occupancy of this species is widespread within Australia (and globally), with breeding occurring in the northern hemisphere (DCCEEW 2024h). Strongholds for this species are found in northern Australia and the species is far less common in South Australia (DCCEEW 2024h). No important populations are known for the Study Area. Given there is minimal potential foraging habitat occurring within proximity of the Project Footprint, no important populations in the Study Area, potential impacts will be limited, and as such, this Project is unlikely to reduce the area of occupancy of an important population this species that is a non-breeding visitor to Australia. **C. Unlikely.** The area of occupancy is widespread in Australia for this migratory species, which breeds outside of Australia (DCCEEW 2024h). There is no breeding habitat and minimal potential foraging habitat within the Project Footprint, which will be avoided by tunnelling. Together with a population distribution that is concentrated in states and territories outside of South Australia (DCCEEW 2024h), and with very few records in proximity of the Project Footprint (BDBSA 2025), this project is unlikely to fragment an important population into two or more populations. **D. Unlikely.** The area of occupancy is widespread within Australia for this migratory species, which breeds outside of Australia (DCCEEW 2024h). Given there is no breeding habitat, minimal potential foraging habitat, and no habitat critical to the survival of the species within the Project Footprint, habitat that is critical to the survival of this species will not be adversely affected. **E. Unlikely.** Given the species does not breed in Australia (DCCEEW 2024h), and key foraging habitat areas are not located within the Project Footprint (e.g. areas in the Gulf St. Vincent and near Ceduna), the breeding cycle of an important population will not be impacted. **F. Unlikely.** There is minimal potential foraging habitat present within the Project Footprint, and the permanent infrastructure associated with the desalination plant which does cross the coastal fringe (intake/outfall pipes) is proposed to be tunnel bored under this environment. There are no recent records of this species in the Study Area, and few in adjacent coastal areas near the Project Footprint (BDBSA 2025). Therefore, quality habitat important to the survival of the species is unlikely to be modified, destroyed or removed to the extent that the species will decline. **G. and H: Unlikely.** The distribution of Great Knot is largely concentrated in states and territories outside of South Australia, with limited records from areas adjacent the Project (BDBSA 2024, DCCEEW 2024h). No known important populations of the species occur in the Study Area, so it is considered unlikely that a significant population of Great Knot exists in the Project Footprint. As such, any introduction of weeds is not considered likely to result in establishment and degradation of preferred habitat. The Project Footprint is also not in a high-risk Phytophthora area. Great Knot are potentially susceptible to avian influenza, which would only be problematic where large numbers of birds congregate and this is unlikely within the Project Footprint. Management measures include weed controls during and post construction as well as vehicle hygiene practices, so establishment of new weed species or diseases in the Project Footprint is not considered likely. Tracks exist within the Project Area and waste will be managed, hence the proposal is not expected to result in an increase in

Species, or Community	EPBC Act[1]	NPW Act[2]	Likelihood of Occurrence[1]	Potential impacts	Mitigations measures	Significant Impact Assessment (impacts following mitigation measures)
						abundance of feral predator species. The action is therefore not expected to result in the introduction of invasive species or disease which are harmful to this species. **I. Unlikely.** There is no specific recovery plan for this species. Conservation actions relate to loss of key habitat breeding, migration and feeding habitats. Key breeding and foraging grounds do not occur within the Project Area, therefore, with mitigation measures, the proposed action is unlikely to interfere with recovery of the species. **Significance Summary** Whilst there are few records for the species within the southern Study Area, and no records in the Project Area, there are nil to limited suitable aquatic habitats in the Project Footprint and no records in the Project Footprint. Given low possibility of occurrence in the Project Footprint and the fact that core habitats will not be impacted, significant impacts to the species are considered unexpected.
Greater Sand Plover (*Charadrius leschenaultia*)	VU, MW	R	PMST output suggests that species or species habitat likely to occur within the EP Project Area (feature area) and the SAAL Study Area (buffer only) (Appendix A). The Great Sand Plover is a migratory wader that is almost entirely coastal, inhabiting littoral and estuarine habitats mainly on sheltered sandy, shelly or muddy beaches with large intertidal mudflats or sandbanks, but has been recorded on a range of coastal and near coastal habitats especially in northern parts of Australia (DCCEEW 2023a, Geering et al. 2008). This species does not breed in Australia, breeding near Turkey through to Mongolia and migrates to East Africa, the Red Sea and Persian Gulf through to Asia, New Guinea and Australia (Geering et al. 2008). Approximately 68% of the flyway population visits Australia during the non-breeding season, with most individuals occurring along the north-west coast (DCCEEW 2023a). Critical habitat includes areas for breeding (which are outside of Australia), foraging, roosting or dispersal. Important habitat in Australia includes those areas listed in the national Directory of Important Migratory Shorebird Habitat (Driessen et al. 2025; DCCEEW 2023a). In South Australia no areas are listed as important habitat in the Shorebird Directory (Driessen et al. 2025) There is 1 recent record for this species within the Study Area (Mt Gullet Beach, 2024) and limited records, restricted to east of the southern extent; e.g. historical records from 1983 from Whyalla Salt fields and USG (which are avoided by the Project Area) (BDBSA 2025). This species has rarely been recorded in or near the Study Area, but is considered **possible in the Project Footprint** in suitable aquatic habitats, although these habitats will not be directly impacted.	Indirect disturbance / short-term loss of small areas of ephemeral habitat; indirect disturbance to small area of coastal habitat. Injury of mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. Injury or mortality from collisions with vehicles traversing access tracks in proximity to the coast.	Refer Table 4.1	**No significant impacts expected** **A. Unlikely.** As a non-breeding visitor to Australia, this project will not interfere with potential breeding of this species. Strongholds for this species outside of breeding season are in northern Australia, although it is noted as being widespread and has been recorded from the Spencer Gulf and Eyre Peninsula (DCCEEW 2023a, DEW 2024). With only occasional and low numbers of this species in the broader region, it is unlikely that the Project Footprint contains an important population of this species. The project will interact with a very small area of coast environment (limited to the desalination plant where intake/outfall pipes are tunnel bored beneath the coastal fringe). General avoidance of coastal and intertidal environments will limit potential impacts to foraging habitat. Together with the proposed mitigation measures no expected impacts to foraging habitat, and lack of a known population in the Study Area or Project Footprint, this project is unlikely to lead to a long-term decrease in the size of an important population. **B. Unlikely.** The area of occupancy of this species is widespread across coastal areas of Australia (and globally), with breeding occurring in the northern hemisphere (DCCEEW 2023a). Strongholds for this species outside of breeding season are in northern Australia (WA, NT, Qld), although it is noted as being widespread in coastal areas and individuals have occasionally been recorded for the Spencer Gulf and Eyre Peninsula (DCCEEW 2023a, DEW 2024). With only occasional and low numbers of this species in the broader region, it is unlikely that the Project Footprint contains an important population of this species. Avoidance of coastal and intertidal environments by the Project means that the Project is unlikely to reduce the area of occupancy of an important population. **C. Unlikely.** This species is a non-breeding visitor to Australia, and with only occasional and low numbers of this species in the broader region, the Project Footprint is unlikely to contain an important population of this species (DCCEEW 2023a, BDBSA 2024). Together with the species being highly mobile and part of a global population, it is unlikely that this Project will fragment an existing important population into two or more populations. **D. Unlikely.** The area of occupancy is widespread across coastal Australia for this migratory species, which breeds outside of Australia (DCCEEW 2023a). Given there is no breeding habitat, minimal potential foraging habitat, and no habitat critical to the survival of the species within the Study Area or Project Footprint, habitat that is critical to the survival of this species will not be adversely affected. **E. Unlikely.** Given the species does not breed in Australia (DCCEEW 2023a), and critical foraging habitat to support breeding does not occur in the Project Footprint, the breeding cycle of an important population will not be impacted. **F. Unlikely.** There is minimal potential foraging habitat present within the Project Footprint. There are only very few recent spatially reliable records of this species within adjacent coastal areas in proximity to the Project Footprint (BDBSA 2025). Therefore,

Species, or Community	EPBC Act[1]	NPW Act[2]	Likelihood of Occurrence[1]	Potential impacts	Mitigations measures	Significant Impact Assessment (impacts following mitigation measures)
						quality habitat important to the survival of the species is unlikely to be modified, destroyed or removed to the extent that the species will decline. **G. and H: Unlikely.** No known important populations of the species occur or are likely to occur in the Project Footprint and there are a limited number of records nearby (Driessen et al. 2025, BDBSA 2025). It is considered unlikely that a significant population of this species exists in the Project Footprint. As such, any introduction of weeds is not considered likely to result in establishment and degradation of preferred habitat. The Project Footprint not in a high-risk Phytophthora area. Greater Sand Plovers are potentially susceptible to avian influenza, which would only be problematic where large numbers of birds congregated, and this is unlikely within the Project Footprint. Management measures include weed controls during and post construction as well as vehicle hygiene practices, hence establishment of new weed species or diseases in the Project Footprint is not considered likely. Tracks exist within the Project Footprint and waste will be managed; hence the proposal is not expected to result in an increase in abundance of feral predator species. The action is therefore not expected to result in the introduction of invasive species or disease which may cause this species to decline. **H. Unlikely.** There is no specific recovery plan for this species. Conservation actions relate to preventing loss of key habitat for breeding, migration and foraging. Core breeding and foraging grounds do not occur within or adjacent the Project Footprint, therefore, with mitigation measures, the proposed action is unlikely to interfere with recovery of the species. **Significance Summary** Whilst there are limited records for the species within the southern Study Area, and no records in the Project Area, there are nil to limited suitable aquatic habitats in the Project Footprint and no records in the Project Footprint. Given low possibility of occurrence in the Project Footprint and the fact that core habitats will not be impacted, significant impacts to the species are considered unexpected.
Grey Plover (*Pluvialis squatarola*)	VU, MW		Not suggested by PMST. Species only recently EPBC listed (Jan 2024). Species records in BDBSA search. The Grey Plover breeds across the high arctic tundra and migrates to all continents, except for Antarctica, and rarely found in Tasmania and New Zealand (Geering et al. 2008). In Australia the species range is strictly coastal, restricted to large tidal flats (Gerring et al. 2008, Menkhorst et al. 2023). There are two subspecies Eastern Grey Plover (*Pluvialis s. squatarola*) and Wrangel Island Grey Plover (*P. s. tomkovichi*) (Garnet and Baker 2021). The Area of Occupancy for the species is 6,300 km^2 (630,000 ha), the Extent of Occurrence 9800000km^2 is (980,000,000 ha) (Garnet and Baker 2021). Important habitats in SA include St. Peter Island, Eyre Island, Barid Bay, Venus Bay, Coffin Bay, Franklin Harbour, Port Victoria, Gulf St. Vincent, and Tourville Bay (Driessen et al. 2025). These areas are not located in the Project Area or Project Footprint.	Indirect disturbance / short-term loss of small areas of ephemeral habitat; indirect disturbance to small area of coastal habitat. Injury of mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. Injury or mortality from collisions with vehicles traversing access tracks.	Refer Table 4.1	**No significant impacts expected** **A. Unlikely.** Whilst the species has potential to occur in the Study Area (e.g. Coorlay Lagoon), there are no tidal flats in the Project Footprint. The nearest important shorebird habitat is at Franklin Harbour within the Franklin Harbour Marine Park boundary and is over 70 km from the Project Footprint. The flyway population for this species in Franklin Harbour is considered nationally important (with a maximum count of 109 individuals in 2021, where the threshold to comprise 0.1% of the population is 80) (Driessen et al. 2025). Given the species or the species habitat do not occur in the Project Footprint and with implementation of the mitigation measures proposed, it is considered unlikely the Project would contribution to long-term decrease in the size of an important population for this species. **B. Unlikely.** As above, there are no key intertidal habitats in the Project Footprint. The nearest important habitat is the intertidal areas of Franklin Harbour (over 70 km from the Project Footprint) as listed in the Shorebird Directory (Driessen et al. 2025). Shorebird habitat will not be disturbed as part of the Project; generic coastal habitat at the Mullaquana Station Desalination site will be avoided by tunnelling. No shorebird habitat occurs in the Project Footprint and known important habitat is over 70 km south of the Project Footprint. Based on this, along with implementation of mitigation measures, it is considered unlikely that the Project will impact the area of occupancy of an important population for this species. **C. Unlikely.** Given the species population has global representation, and the Project avoids Franklin Harbour, it is unlikely that clearance of primarily terrestrial habitat would lead to fragmentation of the existing population known to visit important

Species, or Community	EPBC Act[1]	NPW Act[2]	Likelihood of Occurrence[1]	Potential impacts	Mitigations measures	Significant Impact Assessment (impacts following mitigation measures)
			There are limited Grey Plover records in the Study Area (12 BDBSA records from 1981 to 2000); and 6 Birdlife records (1999 to 2019) nearby at Murninnie Beach / Munyaoo CP (most recent 2009) and Whyalla salt fields (most recent 2019) (BDBSA 2025). Locations include Coorlay Lagoon, Lake Richardson, Whyalla Salt fields, (BDBSA 2025). This species is considered known in the Study Area and **possible in the Project Footprint** in suitable aquatic habitats.			staging habitat at Franklin Harbour (over 70 km away) during migration into two or more populations. **D. Unlikely.** Habitat considered critical to the survival of the Grey Plover is comprised of a mosaic of feeding and roosting habitat. Feeding habitat may be mud, soft wet sand within sandflats, intertidal mudflats, saltmarshes and beaches in coastal bay or estuary settings. Roosting habitat is in sheltered bays, estuaries and lagoons with sandy areas, although they occasionally may roost in other habitats such as on mangrove mudflats, reef-flats and reefs within muddy lagoons on rocky coasts (DCCEEW 2024c). The Project avoids known important habitat for the species at Franklin Harbour (over 70 km away) as defined in the Shorebird Directory (Driessen et al. 2025). Whilst there is limited Project interaction at the coastal interface, at Mullaquana Station (e.g. mangroves, saltmarsh, beach front and low dunes), this is not known to provide habitat considered critical to survival of the Grey Plover as outlined in Approved Conservation Advice. Based on this it is considered unlikely the project will adversely impact habitat critical to the survival of the species. **E. Unlikely.** This species does not breed in Australia, and key stopover sites are not in the Project Footprint, therefore it is unlikely the Project will disrupt the breeding cycle of an important population. **F. Unlikely.** The Project will avoid important habitat for this species, and where habitat clearance is proposed will implement additional mitigation measures as per Table 4.1, including tunnelling for intake / outfall locations. Therefore, the Project is unlikely to modify, destroy, remove, isolate or decreasing the availability or quality of habitat to the extent that the species declines. **G. and H: Unlikely.** Globally, invasion of *Spartina alterniflora* (Cordgrass) in shorebird habitat is considered a threatening process for this species (DCCEEW 2024c). Currently Cordgrass is found in Tasmania and Victoria and has altered coastal habitats, although the effects on fauna in these areas is not well studied (CISS 2021). However, it is thought that the exotic weed species appears to have difficulty growing in the higher temperatures north of a 35°S latitude, failing to establish in WA and SA (CISS 2021). Based on the above and following implementation of project management measures such as weed controls / vehicle hygiene practices during and post construction, it is considered unlikely the Project will result in his invasive species or other weed species detrimental to the Grey Plover becoming established in their habitat. Waste management practices and use of existing tracks where possible are not expected to result in an increase in abundance of feral predator species as a result of the Project. The action is therefore not expected to result in the introduction of invasive species or disease which are harmful to the species' habitat or cause the species to decline. **H. Unlikely.** There is no specific recovery plan for this species, which was only listed as Vulnerable under the EPBC Act in January 2024. Additionally, due to the mitigation measures employed for the Project, important habitat for this species, known to occur at Franklin Harbour (over 70 km away), will be avoided. It is therefore considered unlikely the Project will substantially interfere with the recovery of the species. **Significance Summary** Whilst there are several records for the species within the southern Study Area, and few records in the Project Area, there are nil to limited suitable aquatic habitats in the Project Footprint and no records in the Project Footprint. Given low possibility of occurrence in the Project Footprint and the fact that core habitats will not be impacted, significant impacts to the species are considered unexpected.

Species, or Community	EPBC Act[1]	NPW Act[2]	Likelihood of Occurrence[1]	Potential impacts	Mitigations measures	Significant Impact Assessment (impacts following mitigation measures)
Little Tern (*Sterna albifrons*)	V, MM		Not highlighted in the PMST, but detected in the Project Area (Jacobs 2025b, 2026, Appendix A). Recently listed as Vulnerable 5 March 2025. There are 3 subspecies that occur in Australia, *S. a. sinensis* which includes a northern subpopulation and another population that breeds in north-east Asia and migrates to northern and eastern Australia during the non-breeding season (this species is also SA NPW rated as Endangered); and the subspecies *S. a placens* which breeds in south-eastern Australia and NZ (although not universally agreed). The listing is at the species level (DCCEEW 2025b). The Little Tern is a migratory seabird that is widespread around the coast of northern and eastern Australia. The species forages over sheltered coastal waters and roosts on exposed sand bars, spits or beaches as well as harbours, inlets, estuaries (Menkhorst et al. 2023, DAWE 2020). The global population breeds in Asia and Europe, migrating to Australia October to March and there are also smaller Australian populations in south and eastern Australia that breed October to January (Menkhorst et al. 2023, DAWE 2020). Breeding occurs in nesting colonies on sandy areas close to tidelines. Beach-nesting populations are threatened by human disturbance (Menkhorst et al. 2023). Other threats include storms and cyclones (DAWE 2020). The global population estimate is 190,000-410,000 (DAWE 2020). There are no known important populations for the Study Area. The conservation advice suggests most threats are related to breeding populations within nesting habitat (DCCEEW 2025b). The south-eastern subpopulation has an estimated AOO of 120 km^2 (12,000 ha), the northern subpopulation has an AOO of 200 km^2 (20,000 ha); the entire population has an AOO of 320 km^2 (32,000 ha) within an EOO of 12,250,000 km^2 (1,225,000,000 ha) (DCCEEW 2025b). No critical habitat is registered for the species, however in NSW it is considered that all known breeding sites that have been used for nesting for the last 3 generations should be considered critical. Similarly, nesting habitat may change and future nesting sites may also be considered critical to the survival of the Little Tern (DCCEEW 2025b). There are ALA records in SA, with concentrations closer to the International Bird Sanctuary and the SE of SA. There are no BDBSA and 1 Birdlife record (2023) in the Study Area near Whyalla	Indirect disturbance / short-term loss of small areas of ephemeral habitat; indirect disturbance to small area of coastal habitat. Injury or mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. Injury or mortality from collisions with vehicles traversing access tracks near the coast. Introduction of invasive weed species or disease.	Refer Table 4.1	**No significant impacts expected** **A. Unlikely**. The global population of this species breeds in Asia and Europe, migrating to Australia between October and March. There are also smaller Australian populations in south and eastern Australia that breed October to January. Strongholds for this species in SA, are closer to the International Bird Sanctuary and the SE of SA (ALA 2026, DEW 2026). There are however, recent records in the Project Area (14 birds on the beach at MQ station in February 2025 (Jacobs 2025b). These individuals likely belong to the south-eastern sub-population and are not known to be nesting in the area (refer Jacobs 2025b, 2026). There are no known important populations for the Study Area. The conservation advice suggests most threats are related to breeding populations within nesting habitat (DCCEEW 2025b). With only occasional and low numbers of this species in the region, it is unlikely that the Project Footprint contains an important population of this species. The project will interact with a very small area of coast environment (limited to the desalination plant where intake/outfall pipes are tunnel bored beneath the coastal fringe). General avoidance of coastal and intertidal environments will limit potential impacts to foraging and nesting habitat. Together with the proposed mitigation measures, no expected impacts to foraging /nesting habitat, and lack of a known population in the Study Area or Project Footprint, this project is unlikely to lead to a long-term decrease in the size of an important population. **B. Unlikely.** As above, there are limited suitable habitats in the Project Footprint. There is no listed important population, but the nearest strongholds of records are very distant from the Project Area, being north of Adelaide or along the Coorong (DEW 2026). Shorebird habitat will not be disturbed as part of the Project; generic coastal habitat at the Mullaquana Station Desalination site will be avoided by tunnelling. No important tern habitat occurs in the Project Footprint. Based on this, along with implementation of mitigation measures, it is considered unlikely that the Project will impact the area of occupancy of an important population for this species. **C. Unlikely.** The area of occupancy is widespread in coastal areas of Australia for this migratory species, which breeds outside of Australia (DCCEEW 2024h). There is no known breeding habitat and minimal potential foraging habitat within the Project Footprint, which will be avoided by tunnelling. Together with a population distribution that is concentrated at distance from the Project Area (DEW 2026, ALA 2026), and with very few records in proximity of the Project Footprint (BDBSA 2025), with the exception of small group detected in February 2025 (Jacobs 2025b, 2026), this project is unlikely to fragment an important population into two or more populations. **D. Unlikely.** The area of occupancy is widespread around the coastlines of Australia for this migratory species (DCCEEW 2025, ALA 2026). Given there is no known breeding habitat, minimal potential foraging habitat, and no habitat critical to the survival of the species within the Project Footprint, habitat that is critical to the survival of this species will not be adversely affected. **E. Unlikely.** Given the species does not breed in the Study Area (DCCEEW 2025), an important population is not known for the Study Area and critical nesting and foraging habitat areas are not located within the Project Footprint, the breeding cycle of an important population will not be impacted. **F. Unlikely.** The proposed alignment largely avoids impacts to coastal environments, which may represent foraging or roosting habitat for migratory seabirds. Where the alignment interacts with the coastal interface crossing widths are minimised as much as practicable. This includes avoidance of the Franklin Harbour shorebird area over 70 km away that would provide more suitable habitat for the Little Tern. This migratory seabird breeds on

Species, or Community	EPBC Act[1]	NPW Act[2]	Likelihood of Occurrence[1]	Potential impacts	Mitigations measures	Significant Impact Assessment (impacts following mitigation measures)
			Wetlands (BDBSA 2025). There are however, recent records in the Project Area (14 birds on the beach at MQ station in February 2025) (Jacobs 2025b). These individuals likely belong to the south-eastern sub-population and are not known to be nesting in the area (refer Jacobs 2025b, 2026). Given there are limited records in the Study Area, but records in proximity to the Project Footprint, and limited suitable roosting habitat in the Project Footprint, the species is considered **likely in the Project Footprint,** although these habitats will not be directly impacted.			sandy beaches in areas that will not be influenced by this Project. As such, the action will not substantially modify, destroy or isolate an area of important habitat for this migratory seabird species. **G. and H. Unlikely.** Mitigation measures proposed will control the spread of weed species during construction of the Project and post-construction. Existing service corridors and tracks run through the Project Footprint and waste will be managed, meaning that new invasive flora and fauna species are unlikely. The Project will not impact on important habitat features to this migratory seabird species, such as critical estuarine habitat. The Project will have minimal impact at the coastal interface (Mullaquana Station) (i.e. tunnelling in this area). Regionally important shorebird/seabird habitats such as Franklin Harbour and the BHP / Whyalla Salt fields will be avoided by the Project. As such the Action will not result in an invasive species that are harmful to this migratory species becoming established in an area of important habitat for this migratory species. **I. Unlikely.** This species primarily breeds in Asia and local breeding populations are not known to occur in the Project Area or the Project Footprint (DEW 2025, DCCEEW 2025b), along with the mitigation measures in place, it is considered unlikely the project will seriously disrupt the life cycle of an ecologically significant proportion of the population of this migratory species. Noting significant breeding colonies are not known from the Project Area (DEW 2025, DCCEEW 2025b). **Significance Summary** Whilst there are few records for the species within the southern Study Area, but records in the Project Area, there are nil to limited suitable aquatic habitats in the Project Footprint and no records in the Project Footprint. Given the low possibility of occurrence in the Project Footprint, the fact that core habitats will not be impacted, and mitigation measures that will be implemented, significant impacts to the species are considered unexpected.
Nunivak Bar-tailed Godwit (*Limosa lapponica baueri*)	EN, MW	R	PMST outputs suggests that the species or species habitat is known to occur within the EP Project Area (feature area) and the SAAL Study Area (buffer area only) (Appendix A). Recently listed as threatened (Jan 2024). The Bar-tailed Godwit breeds in the arctic tundra and migrates to Africa, southern Asia and Australasia (Geering et al. 2008). The species mainly occurs in intertidal mudflats and rarely far from the coast, foraging in shallow water and on exposed mudflats. Roosting occurs on large intertidal sandflats, spits and banks and less frequently in mudflats, estuaries and lagoons (DCCEEW 2024j). There are two subspecies; one from eastern Australia (*Limosa lapponica baueri*) and from north-west Australia (*L. l. menzbieri*) (Geering et al. 2008). Both subspecies are EPBC listed as Endangered. There are few records in the Study Area, most recent from 2000 in USG and 2004 in the Whyalla Wetlands) (BDBSA 2025). Locations of the records near the Study Area include Whyalla Salt fields and USG (BDBSA 2025). Critical habitat includes areas for breeding (which are outside of Australia), foraging, roosting or dispersal. Important habitat in Australia includes those areas listed in the national Directory of Important Migratory	Indirect disturbance / short-term loss of small areas of ephemeral habitat; indirect disturbance to small area of coastal habitat. Injury of mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. Injury or mortality from collisions with vehicles traversing access tracks near the coast. Introduction of invasive weed species or disease.	Refer Table 4.1	**No significant impacts expected** **A. Unlikely.** This species is widespread globally, including in coastal regions of northern and eastern Australia and internationally from Alaska, China, New Zealand and Australasia, as it migrates through the East Asian-Australasian Flyway (DCCEEW 2024j). Breeding does not occur in Australia, but rather Alaska. No areas of important habitat are recognised within proximity to the Project Footprint, and coastal habitats which may be utilised by the species are avoided by the Project, with the exception of the Mullaquana Station desalination plant intake and outfall pipes which will be tunnelled underneath a single beach location where there are no historic records of the species. Potential impacts may include temporary noise impacts from construction activities where works are in proximity to potential habitat. Given beach habitats are generally avoided, and a population is not known from the Project Footprint, it is unlikely the Project would lead to a long-term decrease in the size of a population**.** **B. Unlikely.** The area of occupancy of this species is widespread in coastal regions all around northern and eastern Australia (1,300,000 ha). The species also occurs internationally and migrates through the East Asian-Australasian Flyway (DCCEEW 2024j). The species is highly mobile and any non-breeding birds will be able to move away from any temporary disturbance in or adjacent the Project Footprint (e.g. associated with construction noise in areas within proximity to any suitable habitat). Hence the Action is unlikely to reduce the overall area of occupancy of this species. **C. Unlikely.** There are no distinct populations of Bar-tailed Godwit within the Project Footprint, and no areas of important habitat have been identified in the Project Footprint (Driessen et al. 2025). Construction is proposed through any water holding habitats within dry months (where practicable), and this highly mobile species would easily avoid any temporary disturbance in proximity to coastal areas. Hence, it is unlikely the Action will fragment an existing population into two or more populations.

Species, or Community	EPBC Act[1]	NPW Act[2]	Likelihood of Occurrence[1]	Potential impacts	Mitigations measures	Significant Impact Assessment (impacts following mitigation measures)
			Shorebird Habitat (Driessen et al. 2025; DCCEEW 2024j). In South Australia important shorebird habitat for this species occurs in Eyre Island, Gulf St Vincent, St. Peter Island (near Ceduna) (Driessen et al. 2025). These areas are avoided by the Project and distant from the Project Footprint. In addition, the Wetland Directory lists Franklin Harbour (over 70 km away) and Upper Spencer Gulf (over 7-30 km from Project Footprint) as important migration stop over areas for Bar-tailed Godwit (DCCEEW 2021). This species is known to occur in the Study Area and is **possible in the Project Footprint** in suitable aquatic habitats.			**D. Unlikely.** The Project Footprint does not contain beach or wetland habitats, with the exception of the Mullaquana desalination intake and outfall tunnelled coastline crossing (where there have been no historic records of the species), and the inland ephemeral Lake Windabout crossing and construction during dry periods, where practicable, is also proposed). Additionally, no areas of important wetland habitat for the species have been identified in the Shorebird Directory (Driessen et al. 2025). Given the limited interaction with suitable habitat, and the mitigations proposed, it is very unlikely that the Project will affect habitat critical to this species (which has a mosaic of feeding and roosting habitat through coastal and inland Australia). **E. Unlikely.** Given the species breeds outside of Australia, and no important areas of roosting / feeding habitat are present within the Project Footprint (Driessen et al. 2025), the breeding cycle of a population of the species is unlikely to be impacted. **F. Unlikely.** There is no breeding habitat present within the Project Footprint, as the species does not breed in Australia. Although there are historic records of this species along the eastern coast of the Eyre Peninsula in proximity to the Project Area (e.g. Whyalla salt fields), the Construction Footprint does not impact these coastal areas, and there are no identified areas of important habitat for the species within the Project Footprint. Regardless, footprints will be minimised wherever possible, and particularly at the coastal interface, and direction boring of the pipeline under mangrove, saltmarsh, low dune habitats is proposed (if feasible, pending geotechnical investigations) with construction occurring during periods when these environments are driest. Therefore, quality habitat important to the survival of the species is unlikely to be modified, destroyed or removed to the extent that the species will decline. **G. and H: Unlikely**. Key threats include reduction in quality of habitat in East Asian – Australasian Flyway. Important habitat areas do not occur in the Project Footprint. Management measures (e.g. weed controls during and post construction, vehicle hygiene practices, hence avoid establishment of new weed species or diseases in the Project Footprint is not considered likely). Measures such as use of existing tracks and waste management, are expected to control any increase in abundance of feral predator species. The action is therefore not expected to result in the introduction of invasive weed or species or disease which may cause this species to decline as a result of impacts to the species or the species' habitat**.** **I. Unlikely.** There is no species recovery plan for the Bar-tailed Godwit (stated as not required), but conservation strategies within the Conservation Advice are considered sufficient (DCCEEW 2024b, 2024j). Key threats relate to habitat loss, sea level rise and disturbance at feeding and roosting sites. Mitigation measures are proposed to avoid direct and indirect impacts, and no identified important habitat is impacted by the project, so the proposed action is unlikely to interfere substantially with recovery of the species. **Significance Summary** Whilst there are few records for the species within the southern Study Area, and no records in the Project Area, there are nil to limited suitable aquatic habitats in the Project Footprint and no records in the Project Footprint. Given low possibility of occurrence in the Project Footprint and the fact that core habitats will not be impacted, significant impacts to the species are considered unexpected.

Species, or Community	EPBC Act[1]	NPW Act[2]	Likelihood of Occurrence[1]	Potential impacts	Mitigations measures	Significant Impact Assessment (impacts following mitigation measures)
Red Knot (*Calidris canutus*)	VU, MW	-	PMST output suggests that species or species habitat known to occur within the EP Project Area (feature area) and the SAAL Study Area (buffer area only) (Appendix A). Species recently downgraded from Endangered to Vulnerable (Jan 2024). There are two subspecies; New Siberian Islands Red Knot (*Calidris canutus piersmai*) and North-eastern Siberian Red Knot (*Calidris canutus rogersi*) (Garnet and Baker 2021). The Red Knot is migratory wader that is found across all coastal areas of Australia, but more commonly in the northern and eastern parts of Australia (DCCEEW 2024g). This species breeds outside of Australia in the arctic tundra in Eurasia, Northern America and Siberia (Geering et al. 2008, Garnet and Baker 2021)). Preferred habitat is firm intertidal mudflats, sandflats and sandy beaches of sheltered coasts, in estuaries, bays, inlets, lagoons and harbours, and sometimes terrestrial saline wetlands near the coast (Higgins and Davies 1996, Menkhorst et al. 2023). They rarely use inland lakes or swamps, being a specialised bi-valve hunter (Higgins and Davies 1996, Menkhorst et al. 2023). There is potential habitat for the species in coastal regions in proximity to the southern portion of the alignment, and a number of historic records exist from areas north of Whyalla, which are avoided by the Project Area. There are few BDBSA records in the Study Area, and records nearby from locations such as, Whyalla Salt fields, and eastern USG (Ward Spit, Port Davis, Port Germein) (BDBSA 2025). The most recent being from 2004 (from extensive beach areas south of Port Germein) (BDBSA 2025). These areas are avoided by the Project. Critical habitat includes areas for breeding (outside of Australia), foraging, roosting or dispersal. Important habitat includes those listed in the National Directory of Important Migratory Shorebird Habitat (Driessen et al. 2025). Critical habitat primarily includes a mosaic of feeding and roosting habitat; feeding habitats such as intertidal flats and beaches, but also upper tidal flats and roosting also occurs on large tidal flats, spits and banks (DCCEEW 2024g). The species is known to visit the Whyalla Salt fields and Franklin Harbour (over 70 km away), but these are not listed as important for the species in the Shorebird Directory (Driessen et al. 2025). Important areas listed in SA include Gulf St. Vincent, Port Victoria, Port Pirie Coast St.	Indirect disturbance / short-term loss of small areas of ephemeral habitat; indirect disturbance to small area of coastal habitat. Injury of mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. Introduction of invasive weed species or disease	Refer Table 4.1	**No significant impacts expected** **A. Unlikely.** As a non-breeding visitor to Australia, this project will not interfere with potential breeding of this species. In South Australia, this species this species is found mostly in the Coorong, Upper Gulf St. Vincent and western Eyre Peninsula Coast (ALA 2025) (i.e. well outside to the Project Area)), however, there are some records from coastal bays near Franklin Harbour (70 km away), Whyalla salt fields and the eastern USG, which are avoided by the Project. An important population is not known for the Project Footprint. The Project will traverse a very small area of coastal environment at Mullaquana Station, where marine intake/outfall structures will be tunnelled, hence avoiding potential impacts to the species if present. With only occasional and low numbers of this species in the broader region, and with the proposed mitigation measures to further reduce potential mortality or influence on foraging habitat, this project is unlikely to lead to a long-term decrease in the size of an important population. **B. Unlikely.** The area of occupancy of this species is widespread within Australia (and globally), with breeding occurring in the northern hemisphere (DCCEEW 2024g). Records for this species are generally concentrated east of the Project Footprint or on the western side of the Eyre Peninsula (ALA 2025). Given minimal potential foraging habitat occurs within the Project Footprint, impacts to potential foraging habitat will be limited such that the Project is unlikely to reduce the area of occupancy of an important population of this species. **C. Unlikely.** The area of occupancy is widespread in Australia for this migratory species, which breeds outside of Australia (DCCEEW 2024g, Garnet and Baker 2021). There is no breeding habitat and minimal potential foraging habitat within or adjacent the Project Footprint. This together with a population distribution that is generally all around the coast but more so in northern and eastern Australia, the Project is unlikely to fragment an existing important population into two or more populations. **D. Unlikely.** The area of occupancy is widespread within Australia for this migratory species, which breeds outside of Australia (DCCEEW 2024g). Given there is no breeding habitat, minimal potential foraging habitat, and no habitat critical to the survival of the species within the Project Footprint, habitat that is critical to the survival of this species will not be adversely affected. **E. Unlikely.** Given the species does not breed in Australia (DCCEEW 2024g), the breeding cycle of an important population will not be impacted by the Project. **F. Unlikely.** There is minimal potential foraging habitat present within or adjacent the Project Footprint, and the main coastal interaction is at the Mullaquana Station desalination plant location where there are no historic records of the species, and marine intake/outfall pipes will be tunnel bored through the coastal strip. Locations of previous records around Franklin Harbour (over 70 km away), along the eastern USG and Whyalla salt fields are avoided by the Project. Therefore, quality habitat important to the survival of the species is unlikely to be modified, destroyed or removed to the extent that the species will decline. **G. and H: Unlikely.** The distribution of Red Knot in SA is concentrated east of the Project Footprint, with historic records of the species nearest the Study Area limited to the coastal bay around the Whyalla salt fields and the eastern USG, both of which are avoided by the Project (BDBSA 2024, 2024g). No known important populations of the species occur in the Project Footprint, hence it is considered unlikely that a significant population of Red Knot exists in the Project Footprint. Globally, invasion of *Spartina alterniflora* (Cordgrass) in shorebird habitat is considered a threatening process for this species (DCCEEW 2024g). Currently it is found in Tasmania and Victoria and has altered coastal habitats; although the effects on fauna in these areas is not well studied (CISS 2021). However, it is thought that the exotic weed species appears to have difficulty growing in the

Species, or Community	EPBC Act[1]	NPW Act[2]	Likelihood of Occurrence[1]	Potential impacts	Mitigations measures	Significant Impact Assessment (impacts following mitigation measures)
			Peter Island, Tourville Bay, Baird Bay, Coffin Bay, Pt Brown to Acraman Creek and Streaky Bay (Driessen et al. 2025). None of these locations are in the Project Area or Footprint. The estimated Australian population (both subspecies combined) is 68,900 (Garnet and Baker 2021). No important populations are known for the Project Footprint. Very large numbers and strongholds are in north-west Australia (Eighty Mile Beach, Roebuck Bay) (DCCEEW 2024g). The AOO is 420,000 ha, with the North-eastern Siberian Red Knot considered to be more stable (Garnet and Baker 2021). This species is known in the Study Area and considered **possible in the Project Footprint** in suitable aquatic habitats, given the alignment almost entirely avoids coast intertidal sandplains and mudflats.			higher temperatures north of a 35°S latitude, failing to establish in WA and SA (CISS 2021). Based on the above, introduction of weeds is not considered likely to result in establishment and degradation of preferred habitat. The Project Footprint is also not in a high-risk Phytophthora area. Management measures include weed controls during and post construction as well as vehicle hygiene practices, so establishment of new weed species or diseases in the Project Footprint is not considered likely. Tracks exist within the Project Area and waste will be managed, so the proposal is not expected to result in an increase in abundance of feral predator species. The action is therefore not expected to result in the introduction of invasive species or disease which are harmful to this species. **I. Unlikely.** There is no specific recovery plan for this species. Conservation actions relate to loss of key habitat breeding, migration and feeding habitats and protection of important habitat along the flyway. Key breeding, foraging and roosting grounds do not occur within the Project Footprint, therefore, with mitigation measures, the proposed action is unlikely to interfere with recovery of the species. **Significance Summary** Whilst there are few records for the species within the southern Study Area, and no records in the Project Area, there are nil to limited suitable aquatic habitats in the Project Footprint and no records in the Project Footprint. Given low possibility of occurrence in the Project Footprint and the fact that core habitats will not be impacted, significant impacts to the species are considered unexpected.
Ruddy Turnstone (*Arenaria interpres*)	VU, MW	R	PMST outputs suggests species or species habitat are known to occur within the SAAL Study Area (buffer area only) and likely in the EP Study Area (buffer area only) (Appendix A). This species was recently listed as a threatened species (Jan 2024). The Ruddy Turnstone Breeds in Siberia. When in Australia prefers rocky coastlines, coral and sand islands (Geering et al. 2008). The species is also strongly associated with beaches that have large expanses of rotting seaweed and will roost nearby in a range of habitats including low saltmarsh (DCCEEW 2024e, Menkhorst et al. 2023). In southern Australia they prefer rockier coastlines and occur in fewer numbers on extensive mudflats (DCCEEW 2024e). Previous BDBSA records of the species exist within and in and near the Study Area, but are isolated and scattered (noting that each record may represent multiple individuals); 2 records from Murninnie beach east of Munyaroo CP (2017), two records from around the Whyalla salt evaporation ponds (1981, 1983) and a single record from Coorlay Lagoon to the south of Roxby Downs (1993) (BDBSA 2025). There are also Birdlife records (2000-2012) in the Study Area near locations such as Point Lowly and eastern USG (Port Germain, Chinaman's Creek) (BDBSA 2025), these areas are primarily on the eastern side of the Gulf, distant from the Project Footprint, with the exception of Pt Lowly	Indirect disturbance / short-term loss of small areas of ephemeral habitat; indirect disturbance to small area of coastal habitat. Injury of mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. Injury or mortality from collisions with vehicles traversing access tracks near the coast. Introduction of invasive weed species or disease.	Refer Table 4.1	**No significant impacts expected** A. **Unlikely.** Whilst the species is considered known to occur near the Study Area, it is only considered possible in the Project Footprint from scattered and isolated records over many years dating back to the 1980's to 2019 and there are no records within the Study Area or within the Project Footprint. The species may be an infrequent visitor to beaches and inlets around Murninnie Beach and the salt fields around Whyalla. No important populations are known from the Project Footprint (DCCEEW 2024e). Suitable non-core habitat will be avoided by the project and construction works would occur outside of periods when water was present through any inland ephemeral lakes which may temporarily support the species. With only occasional and low numbers of this species in the broader region, and with the proposed mitigation measures to further reduce potential mortality or influence on non-core habitat, this project is unlikely to lead to a long-term decrease in the size of an important population. B. **Unlikely.** The area of occupancy of this species is widespread around coastlines of Australia (and globally), with breeding occurring in the northern hemisphere (Menkhorst et al. 2023). As above, there is no important habitat within the Project Footprint that will be impacted (with the exception of potential temporary construction noise impacts to adjacent habitats). No important population is known to occur in the Project Footprint, with the nearest important habitat at the Port Pirie Coast over 40 km away (DCCEEW 2024e, Driessen et al. 2025), therefore the Action is unlikely to reduce the area of occupancy of an important population of this species. C. **Unlikely.** This species is part of a global population that does not breed in Australia. When in Australia the population distribution spans coastal areas around Australia. The Project avoids saltmarsh areas, salt pans, mudflats and extensive beaches with wrack, and construction outside of water holding periods proposed for any minor crossings is proposed (e.g. at Mullaquana Station desalination plant for intake/outfall pipes. Given no important population is known for the Project Footprint, the Project is unlikely to fragment an existing population into two or more populations. D. **Unlikely.** Habitat critical to the survival of the species includes breeding areas outside of Australia and core foraging areas such as intertidal mudflats, with extensive seagrass wrack. Given there is no breeding habitat, and no habitat critical to the survival of the species within the Project Footprint (e.g. no wetlands identified as important for the

Species, or Community	EPBC Act[1]	NPW Act[2]	Likelihood of Occurrence[1]	Potential impacts	Mitigations measures	Significant Impact Assessment (impacts following mitigation measures)
			Critical habitat for the species includes areas for breeding (outside of Australia), mosaic of foraging, roosting or dispersal. Important habitat includes those listed in the National Directory of Important Migratory Shorebird Habitat (Driessen et al. 2025; DCCEEW 2024e). Feeding habitat critical to the survival of ruddy turnstone is characterised by areas of intertidal habitat which possess large expanses of rotting seaweed (DCCEEW 2024e). Driessen (et al. 2025) lists all known feeding and roosting sites for the Ruddy Turnstone. Sites nearest to the Study Area include the Port Pirie Coast (over 40 km away) and Franklin Harbour, which is over 70 km away from the Project Footprint. This species is considered known to occur in the Study Area, but only **possible in the Project Footprint**, given limited habitat (potentially only near the Desalination Plant Site) and at very low frequencies, given the scattered records of the species.			species, no extensive beaches with seagrass wrack), habitat that is critical to the survival of this species will not be adversely affected. E. **Unlikely.** Given the species does not breed in Australia (DCCEEW 2024e, and the Project Footprint is not considered to be an important stopover / staging site (this occurs in Asia), the breeding cycle of the population will not be impacted by the Project. F. **Unlikely.** No core habitat for the species occurs within the Project Footprint. Therefore, core habitat important to the survival of the species is unlikely to be modified, destroyed or removed to the extent that the species will decline. G. **and H: Unlikely.** Core habitat does not occur in the Project Footprint. As such, any introduction of weeds is unlikely to establish and degrade preferred habitat. The Project Area is not in a high-risk Phytophthora area and there will be management measures such as weed controls / vehicle hygiene practices during and post construction. Therefore, establishment of new weed species or diseases in the Project Area is considered unlikely. Numerous tracks already exist within the Project Footprint, hence an increase in abundance of feral predator species is not expected as a result of the Project. The action is therefore not expected to result in the introduction of invasive species or disease which are harmful to the species' habitat or cause the species to decline. H. **Unlikely.** There is no specific recovery plan for this species, conservation advice is considered sufficient. Conservation actions relate to minimising loss of critical habitat. Key breeding and foraging grounds do not occur within the Project Footprint, therefore, with mitigation measures, the proposed action is unlikely to interfere with recovery of the species. **Significance Summary** Whilst there are several records for the species within the southern Study Area, and limited records in the Project Area, there are nil to limited suitable aquatic habitats in the Project Footprint and no records in the Project Footprint. Given low possibility of occurrence in the Project Footprint and the fact that core habitats will not be impacted, significant impacts to the species are considered unexpected.
Sharp-tailed Sandpiper (*Calidris acuminata*)	VU, MW	-	PMST output suggests species or species habitat known to occur within the Project Area (feature area) (Appendix A). This species was recently listed as a threatened species (Jan 2024). The Sharp-tailed Sandpiper is a migratory shorebird which is widespread in Australian coastal and inland areas, but prefers non-tidal fresh or brackish wetlands, damp grasslands, will also utilise farms dams, wastewater irrigation areas, tidal flats, beaches (Geering et al. 2008, Menkhorst et al. 2023, ALA 2025, DCCEEW 2024f). The species breeds in Siberia and migrates to New Guinea and Australia during our summer months (Geering et al. 2008, DCEEW 2024f). Critical habitat includes areas for breeding (which are outside of Australia), foraging, roosting or dispersal. Important habitat in Australia includes those areas listed in the national Directory of Important Migratory Shorebird Habitat (Driessen et al. 2025; DCCEEW 2024f). Important areas listed for SA include the Coorong, Lake Hawdon, Lake Alexandrina and	Indirect disturbance / short-term loss of small areas of ephemeral habitat; indirect disturbance to small area of coastal habitat. Injury of mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. Injury or mortality from collisions with vehicles traversing access tracks.	Refer Table 4.1	**No significant impacts expected** **A. Unlikely.** Whilst this species is considered known to occur in the Study Area and Project Area but adjacent the Project Footprint, there are limited suitable habitats within the Project Footprint. The main area in vicinity of the Project is the Whyalla salt fields (which are outside of the Project Area). An important population is not currently listed for the Project Footprint, though the nearby Whyalla Salt fields (over5 km) are all considered important shorebird habitat for Sharp-tailed Sandpiper (Driessen et al. 2025, DCCEEW 2024f). Other potentially suitable areas are largely avoided and construction to be undertaken when water is not present at the crossing. Proposed mitigation measures further reduce potential mortality or influence on non-core habitat, so the project is unlikely to lead to a long-term decrease in the size of an important population. **B. Unlikely.** The area of occupancy of this species is widespread around coastlines of Australia (and globally), with breeding occurring in the northern hemisphere (Menkhorst et al. 2023). As above, there is no suitable habitat within the Project Footprint which is recognised as an important area for the species, and potential impacts are likely restricted to only temporary noise in nearby areas. The nearest important habitats are over 1-5 km away (e.g. Lake Mary, Coorlay Lagoon, Whyalla Salt fields), With mitigations in place to avoid construction during times when water is present, impacts are not considered significant. Given the only potentially important populations in vicinity of the Project (the Whyalla Salt fields, Arcoona Lakes) will be avoided, the Project is unlikely to reduce the area of occupancy of an important population of this species. **C. Unlikely.** This species is part of a global population that does not breed in Australia. When in Australia the population distribution spans coastal areas around the country.

Species, or Community	EPBC Act[1]	NPW Act[2]	Likelihood of Occurrence[1]	Potential impacts	Mitigations measures	Significant Impact Assessment (impacts following mitigation measures)
			Lake Albert, Lake George, Bool Lagoon, Gulf St. Vincent, Lake Bonney SE, BHP Salt fields, Point Brown to Acraman Creek, Kangaroo Island, Port MacDonnell, Baird Bay, Franklin Harbour, Eyre Island, East Yorke Peninsula, Streaky Bay, St Peter Island, Lake Newland, Kingston SE, Sceale Bay, Lower Yorke Peninsula, Coorong, Gilg St. Vincent and Coffin Bay (Driessen et al. 2025). Sites are considered nationally important if >85 individuals regularly occur in the area (DCCEEW 2024f). Driessen et al. (2025) indicate that the Whyalla (BHP) Salt fields met the criteria for a nationally important Sharp-tailed Sandpiper site, in the summer of 2023 (1,100 birds recorded). Previous records (61 BDBSA, 58 Birdlife) of the species exist within the Study Area and Project Area, but are at scattered locations where suitable habitat exists (and noting that each record often represents multiple individuals); several records from around the Whyalla coast intertidal areas (2000, 2018) and several records from the Whyalla salt evaporation ponds, Whyalla wetlands (1981-2019), a single record from near Lake Dutton (2007), and isolated records at Coorlay Lagoon (1994), Lake Mary (1993), and Purple Lake (1991), and Lake Richardson (1993) which are in proximity to the Project Area (BDBSA 2025). There are also two recent records (2024) from Cowleds Landing close to the Project Area and Mt Gullet Beach, distant from the Project Area (BDBSA 2025). Within and near the Study Area relevant important shorebird habitats include the Whyalla Salt fields (Driessen et al. 2025). This species is considered known to occur in the Study Area and **likely in the Project Footprint** in suitable aquatic habitats.	Introduction of invasive weed species or disease.		The Project avoids key saltmarsh and intertidal areas of Franklin Harbour (over 70 km away), Arcoona Lakes and the Whyalla Salt fields, and there are few records along the remainder of the alignment. There are two recent records from Cowleds Landing (2024), and suitable habitat within the Project Footprint at Mullaquana Station, however this will be avoided by tunnelling for marine intake/outfall. Therefore, the Project is unlikely to fragment an existing population into two or more populations. **D. Unlikely.** Habitat critical to the survival of the species includes breeding areas outside of Australia and core foraging, roosting areas. Given there is no breeding habitat, and no habitat considered critical to the survival of the species within the Project Area and known habitat which is being monitored as potentially important habitat (Weller et al. 2020) within proximity to the Project Area (Arcoona Lakes, Whyalla Salt fields) will be avoided by approx. 3-7km or more. It is therefore unlikely that habitat critical to the survival of this species will be adversely affected by the Project. **E. Unlikely.** Given the species does not breed in Australia (DCCEEW 2024f), and the Project Footprint is not considered to be an important stopover site, the breeding cycle of the population will not be impacted by the Project. **F. Unlikely.** Suitable habitat is very limited within the Project Footprint to the coastal interface for the Mullaquana Station marine intake/outfall pipes and the short crossings of ephemeral lakes in the northern portions of the pipeline alignment. Tunnelling is proposed at Mullaquana Station, works would occur while dry (where practicable), and these small areas of the Project Footprint represent a very small portion of the available habitat in this area. The crossing of ephemeral lakes is also aligned with existing disturbances along side the existing highway. Known important habitats outside of the Project Footprint (Whyalla Salt fields, over 5 km away) and ephemeral inland lakes will not be impacted. Therefore, core habitat important to the survival of the species is unlikely to be modified, destroyed or removed to the extent that the species will decline as a result of the Project. **G. and H: Unlikely.** Core habitat for the species does not occur in the Project Footprint, as described above. As such, any introduction of weeds is unlikely to establish and degrade preferred habitat for the species. The Project Area is not in a high-risk *Phytophthora* area and there will be management measures such as weed controls / vehicle hygiene practices during and post construction. Therefore, establishment of new weed species or diseases in the Project Footprint is unlikely. Tracks already exist within the Study Area and waste will be managed, hence an increase in abundance of feral predator species is not expected. The action is therefore not expected to result in the introduction of invasive species or disease which are harmful to the species' habitat or cause the species to decline. **I. Unlikely.** There is no specific recovery plan for this species, with the current conservation advice considered sufficient. Conservation actions relate to minimising loss of critical habitat. Key breeding and foraging grounds do not occur within the Project Footprint, therefore, with mitigation measures, the proposed action is unlikely to interfere with recovery of the species. **Significance Summary** Whilst there are many records for the species within the southern Study Area, and several records in the Project Area, there are nil to limited suitable aquatic habitats in the Project Footprint and no spatially reliable / recent records in the Project Footprint. Given low possibility of occurrence in the Project Footprint (i.e. only when water is present, but other suitable habitat would be extensive under such conditions) and the fact that core habitats will not be impacted, significant impacts to the species are considered unexpected.

Species, or Community	EPBC Act[1]	NPW Act[2]	Likelihood of Occurrence[1]	Potential impacts	Mitigations measures	Significant Impact Assessment (impacts following mitigation measures)
Migratory Species with no EPBC threatened status						
Migratory Wetland						
Common Sandpiper (*Actitis hypoleucos*)	MW	R	PMST outputs suggests that the species or species habitat is known to occur in the Project Area (feature area) (Appendix A). The Common Sandpiper breeds in Eurasia and migrates to Africa, southern Asia, New Guinea, Australia and occasionally New Zealand (Geering et al. 2008). Preferred habitats include rocky creeks, channels, dams, mangrove inlets and occasionally piers and jetties, rarely occurs on intertidal mudflats (Geering et al. 2008, Menkhorst et al. 2023). Occurs in coastal areas and parts of inland Australia (Menkhorst et al. 2023, ALA 2025). Species is usually solitary or occurs in very small flocks, more numerous in northern Australia and not particularly common (Menkhorst et al. 2023). There are 8 BDBSA records (1981-2018) and 39 Birdlife records (1998-2023) in the Study Area (BDBSA 2025). In the north of the Study Area records are in artificial inland habitats Coorlay Lagoon and farm dams. To the southern extent there are records around the Whyalla Salt fields and evaporation ponds, near Cowleds Landing, with the majority of records near Whyalla Salt fields (BDBSA 2025). More broadly there are records in the estuary north of Port Augusta and south at Franklin Harbour (over 70 km from the Project Footprint) (BDBSA 2025). There is no conservation advice or recovery plan for this species and important habitat for SA is not listed in the Shorebird Directory (Driessen et al. 2025).This is primarily for the behavioural tendencies of the species not to occur in large congregations (Driessen et al. 2025) This species is considered known to occur in the Study Area and Project Area and is **possible to occur in the Project Footprint** in aquatic habitats, although these habitats will not be directly impacted.	Indirect disturbance / short-term loss of small areas of ephemeral habitat; indirect disturbance to small area of coastal habitat. Injury of mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. Injury or mortality from collisions with vehicles traversing access tracks. Introduction of invasive weed species or disease.	Refer Table 4.1	**No significant impacts expected** **A. Unlikely.** The proposed alignment largely avoids impacts to wetted or ephemeral environments, which may represent foraging habitat for migratory wader species. Where the alignment passes through salt lakes, crossings have either been co-located to align with existing infrastructure (roads and rail) or aligned where crossing widths are minimised as much as practicable. At Mullaquana Station marine intake/outlet pipes will be constructed via tunnelling, avoiding impacts to mangrove inlets and supratidal saltmarsh within the Project Footprint. This species breeds overseas and in areas that will not be influenced by this project. As such, the action will not substantially modify, destroy or isolate an area of important habitat for a migratory wader species. Additionally, the Project Footprint does not impact any habitat identified by the Shorebird Directory or Wetland Directory as important habitat for this species (Driessen et al. 2025). **B. Unlikely.** Mitigation measures proposed will control the spread of weed species during construction of the Project and post-construction. Existing service corridors and tracks run through the Project Footprint and waste will be managed, meaning that new invasive flora and fauna species are unlikely. The Project will not impact on important habitat features to migratory wader species, such as inland ephemeral lakes or wetland areas. The Project will have minimal impact at the coastal interface (Mullaquana Station) i.e. tunnelling in this area. As such the Action will not result in an invasive species that are harmful to this migratory species becoming established in an area of important habitat for this migratory species. **C. Unlikely.** The Project is not located in an area where an ecologically significant proportion of a population of this migratory species exists. Potential foraging and roosting habitat will be avoided wherever possible with micro-siting and co-alignment of infrastructure. Breeding occurs outside Australia. The Project will not seriously disrupt the life cycle of an ecologically significant proportion of the population of this migratory species.
Pectoral Sandpiper (*Calidris melanotos*)	MW	R	PMST outputs suggests that the species or species habitat is known to occur in the Project Area (feature area) (Appendix A). The Pectoral Sandpiper breeds in Siberia and North America and is an uncommon, but regular visitor to Australia and New Zealand (Geering et al. 2008, Menkhorst et al. 2023). The species occurs either singly or in loose flocks in the shallows or grassy edges of freshwater wetlands and will also use brackish wetlands with	Indirect disturbance / short-term loss of small areas of ephemeral habitat; indirect disturbance to small area of coastal habitat. Injury of mortality from collisions with powerline conductors.	Refer Table 4.1	**No significant impacts expected** **A. Unlikely.** The proposed alignment largely avoids impacts to wetted or ephemeral environments, which may represent foraging habitat for migratory wader species. Where the alignment passes through salt lakes, crossings have either been co-located to align with existing infrastructure (roads and rail) or aligned where crossing widths are minimised as much as practicable. At Mullaquana Station marine intake/outlet pipes will be constructed via tunnelling, avoiding impacts to mangrove inlets and supratidal saltmarsh within the Project Footprint. This migratory wader breeds overseas in areas that will not be influenced by this Project. Important habitat for this species is not listed for South Australia in the Shorebird Directory (Driessen et al. 2025). As such, the action

Species, or Community	EPBC Act[1]	NPW Act[2]	Likelihood of Occurrence[1]	Potential impacts	Mitigations measures	Significant Impact Assessment (impacts following mitigation measures)
			saltmarsh. Rarely occurs on intertidal flats (Menkhorst et al. 2023). There are 4 BDBSA records (2002, 2013 near Lake Torrens) and no Birdlife records in the Study Area (BDBSA 2025). There is no conservation advice or recovery plan for this species and important habitat for SA is not listed in the Shorebird Directory (Driessen et al. 2025). This species is considered known to occur in the Study Area in small numbers and is **possible in the Project Footprint** in suitable aquatic habitats, although these habitats will not be directly impacted.	Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. Injury or mortality from collisions with vehicles traversing access tracks. Introduction of invasive weed species or disease.		will not substantially modify, destroy or isolate an area of important habitat for this migratory wader species. **B. Unlikely.** Mitigation measures proposed will control the spread of weed species during construction of the Project and post-construction. Existing service corridors and tracks run through the Project Footprint and waste will be managed, meaning that new invasive flora and fauna species are unlikely. The Project will not impact on important habitat features to this migratory wader species, such as freshwater wetlands or brackish areas with saltmarsh. The Project will have minimal impact at the coastal interface (Mullaquana Station); i.e. tunnelling in this area. hence will be avoided by the Project. As such the Action will not result in an invasive species that are harmful to this migratory species becoming established in an area of important habitat for this migratory species. **C. Unlikely.** The project is not located in an area where an ecologically significant proportion of a population of migratory species exists. Potential foraging habitat will be avoided wherever possible with micro-siting and co-alignment of infrastructure. The Project will not seriously disrupt the life cycle of an ecologically significant proportion of the population of this migratory species.
Red-necked Stint (*Calidris ruficollis*)	MW	-	PMST outputs suggests that the species or species habitat is known to occur in the SAAL Study Area (buffer area only) and likely to occur within the EP Study Area (buffer area only) (Appendix A). The Red-necked Stint breeds in the Arctic Tundra from Siberia to Alaska and migrates to India, Asia, Australia and New Zealand (Geering et al. 2008). The species occurs in a wide range of fresh and saltwater habitats in coastal and inland areas, but most abundant on tidal flats and ocean beaches with seagrass wrack (Geering et al. 2008, Menkhorst et al. 2023). Will use brackish and fresh wetlands that are not densely vegetated and have areas with exposed sand or mud for foraging (Menkhorst et al. 2023). There are 60 BDBSA records (1981-2024) and 140 Birdlife Records (1998-2024) in the Study Area (BDBSA 2025). This includes records in inland lakes (Coorlay Lagoon, Purple Lake, Lake Mary, Lake Richardson, Lake Dutton), Whyalla Salt fields, Murninnie beach east of Munyaroo CP, and in the Port Augusta estuary, USG. There are records all along the coastline of SA, with strongholds on the far west coast, Coorong and the International Bird Sanctuary in Gulf St. Vincent (DEW 2025). The Shorebird Directory lists important habitat for this species in or near the Study Area such as BHP (Whyalla) Salt fields, Port Pirie Coast (over 40 km from Project Area) and Franklin Harbour (over 70 km from the Project Area) (Driessen et al. 2025). Refer Table 3.1. There is no conservation advice or recovery plan for this species DCCEEW 2024b). This species is known to occur in the Study Area and is considered as a **possible occurrence in**	Indirect disturbance / short-term loss of small areas of ephemeral habitat; indirect disturbance to small area of coastal habitat. Injury of mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. Injury or mortality from collisions with vehicles traversing access tracks near the coast. Introduction of invasive weed species or disease.	Refer Table 4.1	**No significant impacts expected** **A. Unlikely.** The proposed alignment largely avoids impacts to wetted or ephemeral environments, which may represent foraging habitat for migratory wader species. Where the alignment passes through salt lakes, crossings have either been co-located to align with existing infrastructure (roads and rail) or aligned where crossing widths are minimised as much as practicable. This includes avoidance of the BHP / Whyalla Salt fields, Port Pirie Coast (over 40 km away) and Franklin Harbour (over 70 km away) shorebird areas, which are considered important habitats for this species (Driessen et al. 2025). This migratory wader breeds overseas and in areas that will not be influenced by this Project. As such, the action will not substantially modify, destroy or isolate an area of important habitat for this migratory wader species. Additionally, the Project area does not impact any habitat listed in the Directory as important habitat for the Red-necked Stint (Weller et al. 2020). **B. Unlikely.** Mitigation measures proposed will control the spread of weed species during construction of the Project and post-construction. Existing service corridors and tracks run through the Project Footprint and waste will be managed, meaning that new invasive flora and fauna species are unlikely. The Project will not impact on important habitat features to this migratory wader species, such as freshwater wetlands. The Project will have minimal impact at the coastal interface ((Mullaquana Station); i.e. tunnelling in this area, hence will be avoided by the Project. The BHP / Whyalla Salt fields, Port Pirie Coast and Franklin Harbour important shorebird habitat will be avoided by the Project. As such the Action will not result in an invasive species that are harmful to this migratory species becoming established in an area of important habitat for this migratory species. **C. Unlikely.** A nationally significant proportion of the Red-necked Stint has been observed at BHP / Whyalla Salt fields (maximum count of 2,000 occurred in 2023), Port Pirie Coast (2,580 in 2019) and Franklin Harbour (1,210 in 2015), when the thresholds comprised >0.1% of the population (> 475) (Driessen et al. 2025). These areas are avoided by the Project and given the mitigation measures in place, it is considered unlikely the project will seriously disrupt the life cycle of an ecologically significant proportion of the population of this migratory species. Noting the most significant populations in SA occurs at Lake Alexandrina and Lake Alber (30,435 summer of 2010) and the Coorong (25,498 birds in the summer of 2018 (Driessen et al. 2025).

Species, or Community	EPBC Act[1]	NPW Act[2]	Likelihood of Occurrence[1]	Potential impacts	Mitigations measures	Significant Impact Assessment (impacts following mitigation measures)
			the Project Footprint in suitable aquatic habitats, when water is present, although these habitats will not be directly impacted.			
Osprey (Eastern Osprey) (*Pandion haliaetus*)	MW		PMST outputs suggests that the species or species habitat is known to occur in the SAAL Project Area (feature area) and may occur in the EP Project Area (feature area) (Appendix A). Large coastal fish-eating raptor. Species distribution includes all coastal areas of Australia, also occurs around the world. Nests on coastal cliffs in SA, but also known to use artificial substrates, transmission line towers, utility poles, boat masts in marinas (Menkhorst et al. 2023, Marchant and Higgins 1993). There are 3 BDBSA records (2016–2022) and 3 Birdlife records (2005-2007) within the Study Area (BDBSA 2025). Locations of records include eastern Upper Spencer Gulf, Whyalla beach, Port Augusta and Murninnie Beach east of Munyaroo CP. No known nests detected in proximity to the Project Footprint to date. Key known breeding areas are largely coastal (cliffs), and in South Australia the species extends from the head of the Bight to Cape Spencer and Kangaroo Island (DCCEEW 2024b) and occurs in small and fragmented locations (Dennis 2007). Records for this species more commonly occur on the west coast and southern portion of EP. Critical habitat does not occur in or adjacent the Project Footprint. Core populations and breeding areas occur well outside the Project Area. This species is known to occur in the Study Area and is considered as a **possible occurrence in the Project Footprint** foraging or roosting in coastal habitats.	Injury of mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. Injury or mortality from collisions with vehicles traversing access tracks.	Refer Table 4.1	**No significant impacts expected** **A. Unlikely.** The proposed alignment largely avoids impacts to wetted or ephemeral environments, which may represent foraging habitat for this migratory raptor. Where the alignment passes through salt lakes, crossings have either been co-located to align with existing infrastructure (roads and rail) or aligned where crossing widths are minimised as much as practicable. At Mullaquana Station marine intake/outlet pipes will be constructed via tunnelling, avoiding impacts to mangrove inlets and supratidal saltmarsh within the Project Footprint, which may serve as foraging or roosting locations when water is present. This migratory raptor breeds on coastal cliffs in areas that will not be influenced by this project. As such, the action will not substantially modify, destroy or isolate an area of important habitat for a migratory raptor. **B. Unlikely.** Mitigation measures proposed will control the spread of weed species during construction of the Project and post-construction. Existing service corridors and tracks run through the Project Area, meaning that new invasive species are unlikely. The project will not impact on important habitat features to migratory raptor species, such as inland ephemeral lakes or wetland areas. **C. Unlikely.** The project is not located in an area where an ecologically significant proportion of a population of migratory raptors exists. Potential foraging habitat will be avoided wherever possible with micro-siting and co-alignment of infrastructure. The project will not seriously disrupt the life cycle of an ecologically significant proportion of the population of this migratory species.
Greater Crested Tern (*Thalasseus bergii*)	MW		PMST report (SAAL) suggests that breeding is known to occur in the SAAL Study Area (buffer area only) (Appendix A). The Greater Crested Tern, a migratory seabird, occurs in large flocks, foraging over coastal seas plunge-diving to snatch prey from the surface. The species roosts on sandy beaches, rocks and man-made structures. Breeding occurs on sparsely vegetated rocky islands. The species is widespread in the Indian and Pacific Oceans (Menkhorst et al. 2024). In SA there are records all along the coastline with strongholds in the Coorong, Adelaide International Bird Sanctuary and Eyre Peninsula (DEW 2024). There are 21 BDBSA records (1998-2024) and 137 Birdlife records (1998-2024) in the Study	Indirect disturbance / short-term loss of small areas of ephemeral habitat; indirect disturbance to small area of coastal habitat. Injury of mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low.	Refer Table 4.1	**No significant impacts expected** **A. Unlikely.** The proposed alignment largely avoids impacts to coastal environments, which may represent foraging or roosting habitat for migratory seabirds. Where the alignment interacts with the coastal interface crossing widths are minimised as much as practicable. This includes avoidance of the BHP / Whyalla Salt fields and Franklin Harbour shorebird area, where there are records for Greater Crested Tern. This migratory seabird breeds on offshore islands in areas that will not be influenced by this Project. As such, the action will not substantially modify, destroy or isolate an area of important habitat for this migratory seabird species. **B. Unlikely.** Mitigation measures proposed will control the spread of weed species during construction of the Project and post-construction. Existing service corridors and tracks run through the Project Footprint and waste will be managed, meaning that new invasive flora and fauna species are unlikely. The Project will not impact on important habitat features to this migratory seabird species, such as beach / ocean habitat. The Project will have minimal impact at the coastal interface. The BHP / Whyalla Salt fields important shorebird habitat will be avoided by the Project. As such the Action will not

Species, or Community	EPBC Act[1]	NPW Act[2]	Likelihood of Occurrence[1]	Potential impacts	Mitigations measures	Significant Impact Assessment (impacts following mitigation measures)
			Area (BDBSA 2025). Locations relevant to the Project include Whyalla Salt fields, Cowleds Landing, beaches east of Munyaroo CP, (BDBSA 2024, DEW 2024). Many populations remain sedentary in their breeding areas, and some are migratory. The global population is estimated to be 150,000-1,100,000 individuals. Significant breeding populations are known to occur in the Great Barrier Reef and Coral Sea Marine Park Islands (DAWE 2020). Key threats include aircraft passage near breeding islands, drone disturbance, human disturbance, gull predation of chicks (DAWE 2020). Given there are numerous records in the Study Area, but no suitable breeding and foraging habitat, but potential roosting habitat in the Project Footprint, the species is considered as a **possible occurrence in the Project Footprint,** although these habitats will not be directly impacted.	Injury or mortality from collisions with vehicles traversing access tracks near the coast. Introduction of invasive weed species or disease.		result in an invasive species that are harmful to this migratory species becoming established in an area of important habitat for this migratory species. **C. Unlikely.** Given this species breeds on offshore islands, which are not located near the Project Footprint, along with the mitigation measures in place, it is considered unlikely the project will seriously disrupt the life cycle of an ecologically significant proportion of the population of this migratory species. Noting significant breeding colonies are not known from the Study Area.
Grey-tailed Tattler (*Tringa brevipes*)	MW		PMST outputs suggests that the species or species habitat is known to occur in the SAAL Study Area (buffer area only) (Appendix A). The Grey-tailed Tattler is a migratory shorebird that breeds in Siberia in stony riverbeds and migrates to southern China, south-east Asia, New Guinea and Australia (Geering et al. 2008, Menkhorst et al. 2023). The species occurs on sheltered coasts with reefs and rock platforms or intertidal mudflats, around the coastline of Australia, primarily in northern areas (Geering et al. 2008, Menkhorst et al. 2023). There are scattered records for this species along the coastline of South Australia, with strongholds in the SE South Australia, Far West Coast, lower Eyre Peninsula and Adelaide International Bird Sanctuary (DEW 2024). There are few records in the Study Area, no records north of Whyalla. There are 2 BDBSA records (2 from 2000 on the eastern USG (BDBSA 2025). The Shorebird Directory does not list important habitat for this species in South Australia or the Study Area (Driessen et al. 2025). Given the few records and limited suitable roosting habitat the species is considered a possible occurrence in the Study Area and also **possible in the Project Footprint** in aquatic areas, although these habitats will not be directly impacted.	Indirect disturbance / short-term loss of small areas of ephemeral habitat; indirect disturbance to small area of coastal habitat. Injury of mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. Injury or mortality from collisions with vehicles traversing access tracks near the coast. Introduction of invasive weed species or disease.	Refer Table 4.1	**No significant impacts expected** **A. Unlikely.** The proposed alignment largely avoids impacts to wetted or ephemeral environments, which may represent foraging habitat for migratory wader species. Where the alignment passes through salt lakes, crossings have either been co-located to align with existing infrastructure (roads and rail) or aligned where crossing widths are minimised as much as practicable. This includes avoidance of the BHP / Whyalla Salt fields, which are considered important habitat for some shorebird species, but not listed as specifically important for the Grey Plover (Driessen et al. 2025). This migratory wader breeds overseas and in areas that will not be influenced by this Project. As such, the action will not substantially modify, destroy or isolate an area of important habitat for this migratory wader species. **B. Unlikely.** Mitigation measures proposed will control the spread of weed species during construction of the Project and post-construction. Existing service corridors and tracks run through the Project Footprint and waste will be managed, meaning that new invasive flora and fauna species are unlikely. The Project will not impact on important habitat features to this migratory wader species, such as sheltered reefs, rock platforms and intertidal mudflats. The Project will have minimal impact at the coastal interface. The BHP / Whyalla Salt fields important shorebird habitat will be avoided by the Project. As such the Action will not result in an invasive species that are harmful to this migratory species becoming established in an area of important habitat for this migratory species. **C. Unlikely.** Given this species breeds on stony riverbeds in Siberia, which are not located near the Project Footprint, along with the mitigation measures in place, it is considered unlikely the project will seriously disrupt the life cycle of an ecologically significant proportion of the population of this migratory species.

[1]Approximate numbers of records are provided where there are multiple records for species as there are likely to be duplicates in the datasets used e.g. BDBSA fauna and Birdlife tabs, 5 km search and the 50 km search buffers near the boundary of the EP and SAAL LMRs.

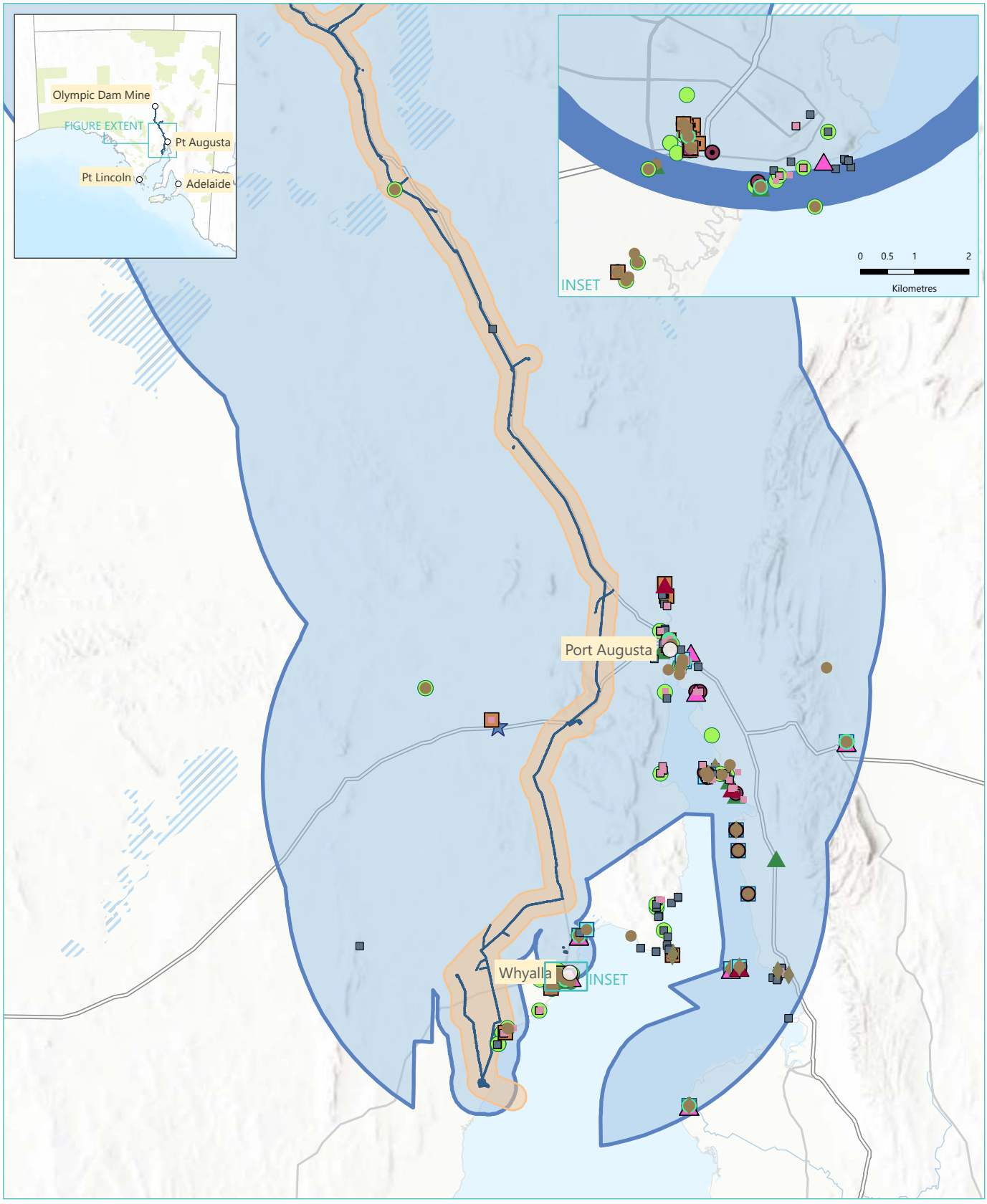


Figure 4.1: Migratory species records – Southern Study Area
Northern Water Project Migratory Birds Impact Assessment

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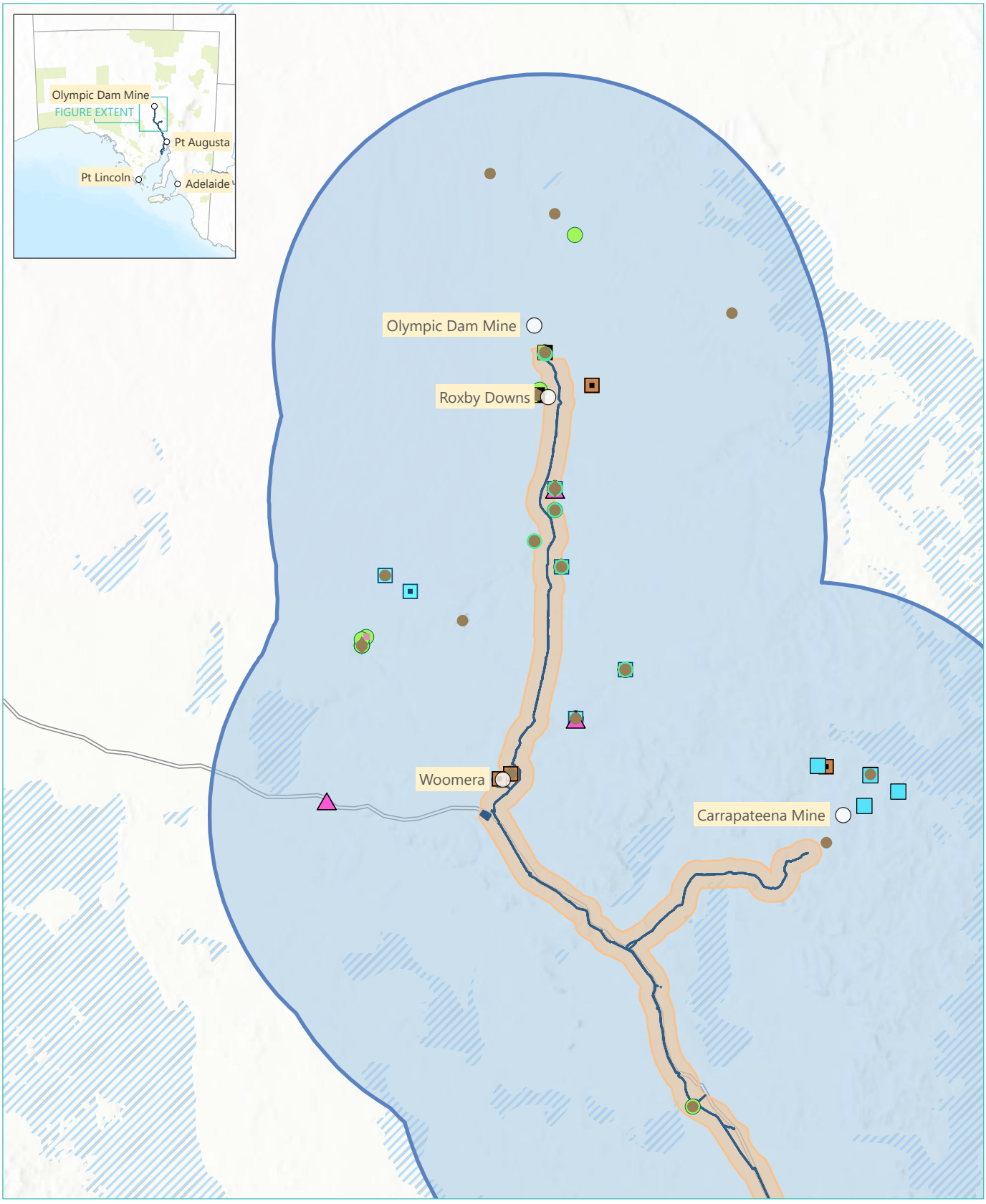


Figure 4.2: Migratory species records – Northern Study Area
Northern Water Project Migratory Birds Impact Assessment

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5 Summary

This report presents an assessment of the potential for significant residual impacts from the Northern Water Project to 39 migratory bird species (primarily shorebirds) which are considered known to occur, likely to occur, or as possible occurrences within the defined Study Area and Project Footprint. The assessment was undertaken against the relevant MNES significant impact criteria (DotE 2013).

The assessment indicates that no significant impacts to any migratory bird species are expected as a result of the Project. This finding is generally consistent with previous significant impact assessments undertaken for 35 of these migratory bird species. Noting, that some species listings for threatened / migratory have changed since previous assessments, and some species were previously assessed as a functional group rather than individually. The outcome is primarily due to the Project avoiding key inland and coastal aquatic habitats which are important to migratory bird species, the limited presence of migratory species or habitat within the Project Footprint, and avoidance of important habitats as identified in the Shorebird Directory.

Habitat types that are known to occur in the Study Area include inland lakes, saltmarsh, bays / beaches / estuaries, artificial aquatic habitats and ephemeral waterways and drainage areas when water is present. Some of these areas are considered important shorebird habitat and are protected as Nationally Important Wetlands (e.g. Upper Spencer Gulf, Inland Saline Lakes and Arcoona Lakes). Of these known important shorebird habitats in the Study Area, those that are closest to the Project Footprint include Whyalla Salt fields and some inland lakes (e.g. Lake Mary and Coorlay Lagoon are within 1 to 2 km). As these areas are typically avoided by the Project, and areas with water present would be avoided during construction, residual Project impacts to these areas are considered unlikely.

Two listed migratory species are considered likely to occur in the Project Footprint; Little Tern, and Sharp-tailed Sandpiper. As important shorebird / seabird aquatic habitats are typically avoided, construction would avoid areas with water present and therefore are avoided when these species are likely to occur (in addition to seasonality), significant residual impacts to these species as a result of the Project are considered unlikely.

Fifteen listed migratory species are considered to possibly occur in the Project Footprint; Common Greenshank, Common Sandpiper, Curlew Sandpiper, Eastern Curlew, Great Knot, Greater Sand Plover, Grey Plover, Nunivak Bar-tailed Godwit, Red Knot, Ruddy Turnstone, Pectoral Sandpiper, Red-necked Stint, Osprey, Greater Crested Tern, and Grey-tailed Tattler. As important shorebird aquatic habitats are typically avoided, construction would avoid areas with water present and the low possibility of occurrence, significant impacts to these species are considered unlikely.

Twenty two listed species do not occur, or are considered unlikely to occur, in the Project Footprint and therefore no significant impacts to these species are expected. Species that do not occur include Antipodean Albatross, Campbell Albatross, Indian Yellow-nosed Albatross, Sooty Shearwater, Southern Royal Albatross and White-capped Albatross. Species that are considered unlikely to occur in the Project Footprint include Black-browed Albatross, Black-tailed Godwit, Latham's Snipe, Lesser Sand Plover, Northern Giant Petrel, Shy Albatross, Sooty Albatross, Southern Giant Petrel, Wandering Albatross, Flesh-footed Shearwater, Marsh Sandpiper, Oriental Plover, Pin-tailed Snipe, Ruff, Sanderling and Fork-tailed Swift (Appendix B).

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Appendices

Appendix A. PMST reports

Appendix A1.

Eyre Peninsula Land Management Region

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 13-Nov-2025

Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	1
Listed Threatened Species:	46
Listed Migratory Species:	42

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	3
Commonwealth Heritage Places:	None
Listed Marine Species:	72
Whales and Other Cetaceans:	8
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	3
Regional Forest Agreements:	None
Nationally Important Wetlands:	1
EPBC Act Referrals:	18
Key Ecological Features (Marine):	None
Biologically Important Areas:	3
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Amytornis textilis myall			
Western Grasswren (Gawler Ranges) [64454]	Vulnerable	Species or species habitat known to occur within area	In feature area
Aphelocephala leucopsis			
Southern Whiteface [529]	Vulnerable	Species or species habitat known to occur within area	In feature area
Ardenna grisea			
Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Arenaria interpres			
Ruddy Turnstone [872]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Calidris acuminata			
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris canutus			
Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat known to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area	In feature area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Endangered	Species or species habitat may occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat may occur within area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat may occur within area	In feature area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Breeding likely to occur within area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche impavida			
Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris			
Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche steadi			
White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Thinornis cucullatus cucullatus			
Eastern Hooded Plover, Eastern Hooded Plover [90381]	Vulnerable	Species or species habitat may occur within area	In feature area
Tringa nebularia			
Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area	In feature area
FISH			
Seriolella brama			
Blue Warehou [69374]	Conservation Dependent	Species or species habitat likely to occur within area	In buffer area only
MAMMAL			
Eubalaena australis			
Southern Right Whale [40]	Endangered	Breeding known to occur within area	In buffer area only
Neophoca cinerea			
Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat may occur within area	In buffer area only
Sminthopsis psammophila			
Sandhill Dunnart [291]	Endangered	Species or species habitat likely to occur within area	In feature area
PLANT			
Frankenia plicata			
[4225]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Pterostylis xerophila](#) Desert Greenhood [7997]	Vulnerable	Species or species habitat may occur within area	In feature area
[Swainsona pyrophila](#) Yellow Swainson-pea [56344]	Vulnerable	Species or species habitat likely to occur within area	In feature area
REPTILE			
[Aprasia pseudopulchella](#) Flinders Ranges Worm-lizard [1666]	Vulnerable	Species or species habitat may occur within area	In feature area
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In feature area
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In feature area
[Dermochelys coriacea](#) Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In feature area
SHARK			
[Carcharodon carcharias](#) White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
[Galeorhinus galeus](#) School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453]	Conservation Dependent	Species or species habitat may occur within area	In buffer area only

Listed Migratory Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
[Apus pacificus](#) Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
[Ardenna carneipes](#) Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Ardenna grisea Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Thalassarche melanophris](#) Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
[Thalassarche steadi](#) White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Migratory Marine Species			
[Balaenoptera edeni](#) Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
[Caperea marginata](#) Pygmy Right Whale [39]		Species or species habitat may occur within area	In buffer area only
[Carcharias taurus](#) Grey Nurse Shark [64469]		Species or species habitat may occur within area	In buffer area only
[Carcharodon carcharias](#) White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In feature area
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In feature area
[Dermochelys coriacea](#) Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In feature area
[Eubalaena australis as Balaena glacialis australis](#) Southern Right Whale [40]	Endangered	Breeding known to occur within area	In buffer area only
[Lagenorhynchus obscurus](#) Dusky Dolphin [43]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat likely to occur within area	In buffer area only
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat likely to occur within area	In buffer area only
Migratory Terrestrial Species			
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris alba Sanderling [875]		Species or species habitat likely to occur within area	In buffer area only
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris ruficollis Red-necked Stint [860]		Species or species habitat likely to occur within area	In buffer area only
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Transport and Regional Services - Australian National Railways Commission		
Commonwealth Land - Australian National Railways Commission [41565]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41425]	SA	In feature area

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian National Railways Commission [40934]	SA	In buffer area only

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Ardenna carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Ardenna grisea as Puffinus griseus Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris alba Sanderling [875]		Species or species habitat likely to occur within area	In buffer area only
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area	In feature area
[Calidris ruficollis](#) Red-necked Stint [860]		Species or species habitat likely to occur within area overfly marine area	In buffer area only
[Chalcites osculans as Chrysococcyx osculans](#) Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area	In feature area
[Charadrius leschenaultii](#) Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Charadrius veredus](#) Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area overfly marine area	In feature area
[Diomedea antipodensis](#) Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
[Diomedea epomophora](#) Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In feature area
[Diomedea exulans](#) Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
[Gallinago hardwickii](#) Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat likely to occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area	In feature area
Phalacrocorax fuscescens Black-faced Cormorant [59660]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Sterna striata White-fronted Tern [799]		Migration route may occur within area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Thinornis cucullatus as Thinornis rubricollis](#)			
Hooded Plover, Hooded Dotterel [87735]		Species or species habitat may occur within area overfly marine area	In feature area
[Thinornis cucullatus cucullatus as Thinornis rubricollis rubricollis](#)			
Eastern Hooded Plover, Eastern Hooded Plover [90381]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
[Tringa nebularia](#)			
Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Fish			
[Acentronura australe](#)			
Southern Pygmy Pipehorse [66185]		Species or species habitat may occur within area	In buffer area only
[Filicampus tigris](#)			
Tiger Pipefish [66217]		Species or species habitat may occur within area	In buffer area only
[Heraldia nocturna](#)			
Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area	In buffer area only
[Hippocampus breviceps](#)			
Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area	In buffer area only
[Histiogamphelus cristatus](#)			
Rhino Pipefish, Macleay's Crested Pipefish, Ring-back Pipefish [66243]		Species or species habitat may occur within area	In buffer area only
[Hypselognathus rostratus](#)			
Knifesnout Pipefish, Knife-snouted Pipefish [66245]		Species or species habitat may occur within area	In buffer area only
[Kaupus costatus](#)			
Deepbody Pipefish, Deep-bodied Pipefish [66246]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Leptoichthys fistularius Brushtail Pipefish [66248]		Species or species habitat may occur within area	In buffer area only
Lissocampus caudalis Australian Smooth Pipefish, Smooth Pipefish [66249]		Species or species habitat may occur within area	In buffer area only
Lissocampus runa Javelin Pipefish [66251]		Species or species habitat may occur within area	In buffer area only
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area	In buffer area only
Notiocampus ruber Red Pipefish [66265]		Species or species habitat may occur within area	In buffer area only
Phycodurus eques Leafy Seadragon [66267]		Species or species habitat may occur within area	In buffer area only
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area	In buffer area only
Pugnaso curtirostris Pugnose Pipefish, Pug-nosed Pipefish [66269]		Species or species habitat may occur within area	In buffer area only
Solegnathus robustus Robust Pipehorse, Robust Spiny Pipehorse [66274]		Species or species habitat may occur within area	In buffer area only
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area	In buffer area only
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Stipecampus cristatus Ringback Pipefish, Ring-backed Pipefish [66278]		Species or species habitat may occur within area	In buffer area only
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area	In buffer area only
Vanacampus margaritifer Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area	In buffer area only
Vanacampus phillipi Port Phillip Pipefish [66284]		Species or species habitat may occur within area	In buffer area only
Vanacampus poecilolaemus Longsnout Pipefish, Australian Long-snout Pipefish, Long-snouted Pipefish [66285]		Species or species habitat may occur within area	In buffer area only
Vanacampus vercoi Verco's Pipefish [66286]		Species or species habitat may occur within area	In buffer area only
Mammal			
Arctocephalus forsteri Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat may occur within area	In buffer area only
Arctocephalus pusillus Australian Fur-seal, Australo-African Fur-seal [21]		Species or species habitat may occur within area	In buffer area only
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat may occur within area	In buffer area only
Reptile			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In feature area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In feature area

Whales and Other Cetaceans [Resource Information]

Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
Caperea marginata Pygmy Right Whale [39]		Species or species habitat may occur within area	In buffer area only
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In buffer area only
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area	In buffer area only
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area	In buffer area only
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat likely to occur within area	In buffer area only
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area	In buffer area only
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In buffer area only

Extra Information

State and Territory Reserves [Resource Information]

Protected Area Name	Reserve Type	State	Buffer Status
Unnamed (No.HA1588)	Heritage Agreement	SA	In buffer area only
Upper Spencer Gulf	Marine Park	SA	In buffer area only
Whyalla	Conservation Park	SA	In buffer area only

Nationally Important Wetlands [Resource Information]

Wetland Name	State	Buffer Status
Upper Spencer Gulf	SA	In buffer area only

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Cultana Solar Farm project	2023/09658		Assessment	In buffer area only
Magnetite Expansion Project Stage 2 / SIMEC Mining	2024/09878		Assessment	In feature area
Mara team testing - Release 37 Wei	2024/09831		Post-Approval	In buffer area only
Northern Water Desalination and Pipeline Infrastructure Project, SA	2023/09717		Assessment	In feature area
Port Bonython Bulk Commodities Export Facility, SA	2012/6336		Completed	In feature area
South Australian Government Renewable Hydrogen Power Station, Electrolysers and Storage Facility	2023/09759		Post-Approval	In feature area
Whyalla Hydrogen Pipeline (WHP)	2024/09873		Approval	In buffer area only
Controlled action				
Arafura Whyalla Rare Earths Complex	2011/5877	Controlled Action	Completed	In buffer area only
Expansion of the Cultana Training Area	2010/5316	Controlled Action	Post-Approval	In feature area
Expansion of the Olympic Dam copper, uranium, gold and silver mine, processing plant and associated	2005/2270	Controlled Action	Post-Approval	In feature area
Pig Iron Smelter	2001/473	Controlled Action	Completed	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Pig Iron Smelter (Cultana)	2001/466	Controlled Action	Completed	In buffer area only
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area
Project Magnet	2004/1724	Not Controlled Action	Completed	In feature area
Whyalla Solar Farm Project, SA	2017/7910	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Small scale uranium In-situ Recovery Field Trial	2010/5751	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Biologically Important Areas			[Resource Information]
Scientific Name	Behaviour	Presence	Buffer Status
Seabirds			
Ardenna tenuirostris			
Short-tailed Shearwater [82652]	Foraging (in high numbers)	Likely to occur	In buffer area only
Phalacrocorax fuscescens			
Black-faced Cormorant [59660]	Foraging	Known to occur	In buffer area only
Sternula nereis			
Fairy Tern [82949]	Foraging	Known to occur	In buffer area only

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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Appendix A2.

South Australia Arid Lands Land Management Region

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 13-Nov-2025

Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	1
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	80
Listed Migratory Species:	50

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	194
Commonwealth Heritage Places:	None
Listed Marine Species:	88
Whales and Other Cetaceans:	8
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	24
Regional Forest Agreements:	None
Nationally Important Wetlands:	2
EPBC Act Referrals:	40
Key Ecological Features (Marine):	None
Biologically Important Areas:	3
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

National Heritage Places [Resource Information]

Name	State	Legal Status	Buffer Status
Natural			
Cuttlefish Coast Sanctuary Zone	SA	Listed place	In buffer area only

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community likely to occur within area	In buffer area only
Peppermint Box (Eucalyptus odorata) Grassy Woodland of South Australia	Critically Endangered	Community likely to occur within area	In buffer area only
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area	In buffer area only

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Amytornis merrotsyi merrotsyi			
Short-tailed Grasswren (Flinders Ranges) [86269]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Amytornis modestus			
Thick-billed Grasswren [84121]	Vulnerable	Species or species habitat known to occur within area	In feature area
Amytornis textilis myall			
Western Grasswren (Gawler Ranges) [64454]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Aphelocephala leucopsis](#) Southern Whiteface [529]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Ardenna grisea](#) Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Arenaria interpres](#) Ruddy Turnstone [872]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Calidris canutus](#) Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
[Calidris tenuirostris](#) Great Knot [862]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
[Charadrius leschenaultii](#) Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
[Charadrius mongolus](#) Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area	In buffer area only
[Diomedea antipodensis](#) Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
[Diomedea epomophora](#) Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat known to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat known to occur within area	In feature area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Endangered	Species or species habitat may occur within area	In buffer area only
Limosa limosa Black-tailed Godwit [845]	Endangered	Species or species habitat known to occur within area	In buffer area only
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Neophema chrysogaster Orange-bellied Parrot [747]	Critically Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat may occur within area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Polytelis alexandrae Princess Parrot, Alexandra's Parrot [758]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche impavida			
Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris			
Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche steadi			
White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Thinornis cucullatus cucullatus			
Eastern Hooded Plover, Eastern Hooded Plover [90381]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Tringa nebularia			
Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area	In feature area
FISH			
Seriolella brama			
Blue Warehou [69374]	Conservation Dependent	Species or species habitat known to occur within area	In buffer area only
MAMMAL			
Bettongia lesueur lesueur			
Burrowing Bettong (Shark Bay), Boodie [66659]	Vulnerable	Translocated population known to occur within area	In buffer area only
Dasyurus geoffroii			
Chuditch, Western Quoll [330]	Vulnerable	Translocated population known to occur within area	In feature area
Eubalaena australis			
Southern Right Whale [40]	Endangered	Breeding known to occur within area	In buffer area only
Leporillus conditor			
Wopilkara, Greater Stick-nest Rat [137]	Vulnerable	Translocated population known to occur within area	In buffer area only
Macrotis lagotis			
Greater Bilby [282]	Vulnerable	Translocated population known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Neophoca cinerea](#) Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat may occur within area	In buffer area only
[Notomys fuscus](#) Dusky Hopping-mouse, Wilkiniti [125]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Perameles bougainville](#) Shark Bay Bandicoot [278]	Endangered	Translocated population known to occur within area	In buffer area only
[Petrogale xanthopus xanthopus](#) Yellow-footed Rock-wallaby (SA and NSW) [66646]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
[Pseudomys australis](#) Plains Rat, Palyoora, Plains Mouse [108]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Sminthopsis psammophila](#) Sandhill Dunnart [291]	Endangered	Species or species habitat likely to occur within area	In feature area
PLANT			
[Acanthocladium dockeri](#) Spiny Everlasting, Spiny Daisy [17632]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
[Brachyscome muelleri](#) Corunna Daisy [18836]	Endangered	Species or species habitat known to occur within area	In buffer area only
[Caladenia gladiolata](#) Bayonet Spider-orchid, Clubbed Spider-orchid [8079]	Endangered	Species or species habitat known to occur within area	In buffer area only
[Caladenia tensa](#) Greencomb Spider-orchid, Rigid Spider-orchid [24390]	Endangered	Species or species habitat known to occur within area	In buffer area only
[Caladenia woolcockiorum](#) Woolcock's Spider-orchid [55023]	Vulnerable	Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Caladenia xantholeuca White Rabbits, Flinders Ranges White Caladenia [55025]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Codonocarpus pyramidalis Slender Bell-fruit, Camel Poison [19507]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Dodonaea subglandulifera Peep Hill Hop-bush [11956]	Endangered	Species or species habitat may occur within area	In buffer area only
Frankenia plicata [4225]	Endangered	Species or species habitat known to occur within area	In feature area
Hibbertia crispula Ooldea Guinea-flower [15222]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Limosella granitica Granite Mudwort [6704]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Olearia pannosa subsp. pannosa Silver Daisy-bush, Silver-leaved Daisy, Velvet Daisy-bush [12348]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Prasophyllum pallidum Pale Leek-orchid [20351]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Prasophyllum validum Sturdy Leek-orchid, Mount Remarkable Leek-orchid [10268]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Pterostylis xerophila Desert Greenhood [7997]	Vulnerable	Species or species habitat may occur within area	In feature area
Senecio macrocarpus Large-fruit Fireweed, Large-fruit Groundsel [16333]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Senecio megaglossus](#) Superb Groundsel [13374]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
[Swainsona pyrophila](#) Yellow Swainson-pea [56344]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Tecticornia flabelliformis](#) Bead Glasswort, Bead Samphire [82664]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
[Veronica parnkalliana](#) Port Lincoln Speedwell [17458]	Endangered	Species or species habitat known to occur within area	In buffer area only
REPTILE			
[Aprasia pseudopulchella](#) Flinders Ranges Worm-lizard [1666]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Dermochelys coriacea](#) Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only
[Notechis scutatus ater](#) Krefft's Tiger Snake (Flinders Ranges) [82287]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
SHARK			
[Carcharodon carcharias](#) White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Galeorhinus galeus School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453]	Conservation Dependent	Species or species habitat may occur within area	In buffer area only

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Ardenna grisea Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche carteri			
Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta			
Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche impavida			
Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris			
Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche steadi			
White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Migratory Marine Species			
Balaenoptera edeni			
Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
Caperea marginata			
Pygmy Right Whale [39]		Species or species habitat may occur within area	In buffer area only
Carcharias taurus			
Grey Nurse Shark [64469]		Species or species habitat may occur within area	In buffer area only
Carcharodon carcharias			
White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Caretta caretta			
Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Dermochelys coriacea](#) Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only
[Eubalaena australis as Balaena glacialis australis](#) Southern Right Whale [40]	Endangered	Breeding known to occur within area	In buffer area only
[Lagenorhynchus obscurus](#) Dusky Dolphin [43]		Species or species habitat may occur within area	In buffer area only
[Lamna nasus](#) Porbeagle, Mackerel Shark [83288]		Species or species habitat likely to occur within area	In buffer area only
[Megaptera novaeangliae](#) Humpback Whale [38]		Species or species habitat likely to occur within area	In buffer area only
Migratory Terrestrial Species			
[Motacilla cinerea](#) Grey Wagtail [642]		Species or species habitat may occur within area	In feature area
[Motacilla flava](#) Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
[Actitis hypoleucos](#) Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
[Arenaria interpres](#) Ruddy Turnstone [872]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris alba Sanderling [875]		Species or species habitat likely to occur within area	In buffer area only
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area	In feature area
Calidris pugnax as Philomachus pugnax Ruff [91256]		Species or species habitat known to occur within area	In buffer area only
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area	In buffer area only
Calidris tenuirostris Great Knot [862]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area	In buffer area only
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Gallinago stenura](#) Pin-tailed Snipe [841]		Species or species habitat known to occur within area	In buffer area only
[Limosa lapponica](#) Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In buffer area only
[Limosa limosa](#) Black-tailed Godwit [845]	Endangered	Species or species habitat known to occur within area	In buffer area only
[Numenius madagascariensis](#) Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
[Pandion haliaetus](#) Osprey [952]		Species or species habitat known to occur within area	In feature area
[Thalasseus bergii](#) Greater Crested Tern [83000]		Breeding known to occur within area	In buffer area only
[Tringa brevipes](#) Grey-tailed Tattler [851]		Species or species habitat known to occur within area	In buffer area only
[Tringa nebularia](#) Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area	In feature area
[Tringa stagnatilis](#) Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area	In buffer area only

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Defence		
Defence - AIRTC WHYALLA [40170]	SA	In buffer area only

Commonwealth Land Name	State	Buffer Status
Defence - CULTANA TRAINING AREA [40104]	SA	In buffer area only
Defence - CULTANA TRAINING AREA [40106]	SA	In buffer area only
Defence - CULTANA TRAINING AREA [40103]	SA	In buffer area only
Defence - CULTANA TRAINING AREA [40102]	SA	In buffer area only
Defence - DEFENCE SUPPORT CENTRE - WOOMERA [40019]	SA	In feature area
Defence - EL ALAMEIN - PORT AUGUSTA [40105]	SA	In buffer area only
Defence - EL ALAMEIN - PORT AUGUSTA [40013]	SA	In buffer area only
Defence - EL ALAMEIN - PORT AUGUSTA [40014]	SA	In buffer area only
Defence - EL ALAMEIN - PORT AUGUSTA [40015]	SA	In buffer area only
Defence - EL ALAMEIN - PORT AUGUSTA [40011]	SA	In buffer area only
Defence - EL ALAMEIN - PORT AUGUSTA [40012]	SA	In buffer area only
Defence - LAUNCHER SITE RANGE - WOOMERA [40023]	SA	In buffer area only
Defence - Range Head (Range E) ; LAUNCHER SITE RANGE - KOOLYMILKA [40021]	SA	In buffer area only
Defence - Range Head (Range E) ; LAUNCHER SITE RANGE - KOOLYMILKA [40022]	SA	In buffer area only
Defence - WHYALLA TRAINING DEPOT [40172]	SA	In buffer area only
Defence - WHYALLA TRAINING DEPOT [40171]	SA	In buffer area only
Defence - WOOMERA AIR WEAPONS RANGE [40059]	SA	In buffer area only
Defence - WOOMERA AIR WEAPONS RANGE [40043]	SA	In buffer area only
Defence - WOOMERA AIR WEAPONS RANGE [40069]	SA	In feature area
Defence - WOOMERA AIR WEAPONS RANGE [40078]	SA	In buffer area only
Defence - WOOMERA AIR WEAPONS RANGE [40036]	SA	In buffer area only
Defence - WOOMERA AIR WEAPONS RANGE [40086]	SA	In buffer area only
Defence - WOOMERA AIR WEAPONS RANGE [40070]	SA	In feature area
Defence - WOOMERA AIR WEAPONS RANGE [40080]	SA	In buffer area only
Defence - WOOMERA AIR WEAPONS RANGE [40081]	SA	In buffer area only
Defence - Defence Housing Authority		

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Defence Housing Authority [40689]	SA	In buffer area only
Commonwealth Land - Defence Housing Authority [41344]	SA	In buffer area only
Commonwealth Land - Defence Housing Authority [41343]	SA	In buffer area only
Commonwealth Land - Defence Housing Authority [41338]	SA	In buffer area only
Commonwealth Land - Defence Housing Authority [41342]	SA	In buffer area only
Immigration and Multicultural and Indigenous Affairs - Aboriginal and Torres Strait Islander Commission		
Commonwealth Land - Aboriginal & Torres Strait Islander Commission [40684]	SA	In buffer area only
Commonwealth Land - Aboriginal & Torres Strait Islander Commission [40686]	SA	In buffer area only
Commonwealth Land - Aboriginal & Torres Strait Islander Commission [40687]	SA	In buffer area only
Commonwealth Land - Aboriginal & Torres Strait Islander Commission [40682]	SA	In buffer area only
Commonwealth Land - Aboriginal & Torres Strait Islander Commission [41341]	SA	In buffer area only
Commonwealth Land - Aboriginal & Torres Strait Islander Commission [41340]	SA	In buffer area only
Commonwealth Land - Aboriginal & Torres Strait Islander Commission [40683]	SA	In buffer area only
Immigration and Multicultural and Indigenous Affairs - Minister of Aboriginal Affairs		
Commonwealth Land - Minister of Aboriginal Affairs [41348]	SA	In buffer area only
Transport and Regional Services		
Commonwealth Land - Minister of Transport [40709]	SA	In buffer area only
Transport and Regional Services - Australian National Railways Commission		
Commonwealth Land - Australian National Railways Commission [41015]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41412]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41133]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41426]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40730]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40688]	SA	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian National Railways Commission [40731]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40720]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41425]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40721]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41014]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40685]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40738]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41134]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41337]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40681]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41013]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40700]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41012]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41429]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41011]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41431]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40703]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41430]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40806]	SA	In feature area

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian National Railways Commission [41432]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40724]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40727]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40726]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41010]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40725]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40801]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40800]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40744]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41008]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40808]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41456]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40694]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40795]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41127]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40695]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40692]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40723]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41451]	SA	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian National Railways Commission [40708]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41533]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41452]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41009]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40704]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41414]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40741]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41535]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41534]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41537]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41536]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41355]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41007]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41612]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40735]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40802]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40732]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41611]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40733]	SA	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian National Railways Commission [40742]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40698]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40699]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40814]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40736]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41402]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41427]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40734]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41411]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40737]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40697]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40722]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40693]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40799]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40702]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41128]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40696]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40701]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40706]	SA	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian National Railways Commission [40707]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40705]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40729]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41336]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41347]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41502]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41544]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41129]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40796]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41543]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41388]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41545]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40728]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40797]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40713]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40714]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40717]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40716]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40718]	SA	In feature area

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian National Railways Commission [40719]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40740]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40798]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40650]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40826]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40821]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40827]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40822]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40820]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40823]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40825]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41565]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41606]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40807]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40805]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41470]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40813]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41449]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40812]	SA	In feature area

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian National Railways Commission [40819]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41579]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41469]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40712]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40711]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40710]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40809]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41578]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [40934]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [40739]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41572]	SA	In feature area
Commonwealth Land - Australian National Railways Commission [41574]	SA	In buffer area only
Commonwealth Land - Australian National Railways Commission [41577]	SA	In feature area
Unknown		
Commonwealth Land - [41349]	SA	In buffer area only
Commonwealth Land - [40833]	SA	In buffer area only
Commonwealth Land - [41494]	SA	In buffer area only
Commonwealth Land - [40834]	SA	In buffer area only
Commonwealth Land - [40811]	SA	In buffer area only
Commonwealth Land - [40691]	SA	In buffer area only
Commonwealth Land - [40690]	SA	In buffer area only
Commonwealth Land - [41339]	SA	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - [41580]	SA	In feature area
Commonwealth Land - [41428]	SA	In feature area
Commonwealth Land - [41346]	SA	In buffer area only
Commonwealth Land - [41345]	SA	In buffer area only
Commonwealth Land - [40829]	SA	In buffer area only
Commonwealth Land - [40828]	SA	In buffer area only
Commonwealth Land - [40715]	SA	In buffer area only
Commonwealth Land - [40824]	SA	In buffer area only
Commonwealth Land - [40927]	SA	In buffer area only
Commonwealth Land - [41604]	SA	In buffer area only
Commonwealth Land - [40804]	SA	In buffer area only
Commonwealth Land - [40810]	SA	In buffer area only
Commonwealth Land - [40803]	SA	In feature area

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Ardenna carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Ardenna grisea as Puffinus griseus Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris alba Sanderling [875]		Species or species habitat likely to occur within area	In buffer area only
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In buffer area only
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area	In feature area
Calidris pugnax as Philomachus pugnax Ruff [91256]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Calidris tenuirostris Great Knot [862]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Chalcites osculans as Chrysococcyx osculans			
Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area	In feature area
Charadrius leschenaultii			
Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Charadrius mongolus			
Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area	In buffer area only
Charadrius ruficapillus			
Red-capped Plover [881]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Charadrius veredus			
Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area overfly marine area	In feature area
Chroicocephalus novaehollandiae as Larus novaehollandiae			
Silver Gull [82326]		Breeding known to occur within area	In buffer area only
Diomedea antipodensis			
Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea epomophora			
Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Diomedea exulans			
Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Gallinago hardwickii			
Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Gallinago stenura Pin-tailed Snipe [841]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In buffer area only
Limosa limosa Black-tailed Godwit [845]	Endangered	Species or species habitat known to occur within area overfly marine area	In buffer area only
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat may occur within area overfly marine area	In buffer area only
Neophema chrysogaster Orange-bellied Parrot [747]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In buffer area only
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Onychoprion fuscatus as Sterna fuscata Sooty Tern [90682]		Breeding known to occur within area	In buffer area only
Pachyptila turtur Fairy Prion [1066]		Species or species habitat likely to occur within area	In buffer area only
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In feature area
Phalacrocorax fuscescens Black-faced Cormorant [59660]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Recurvirostra novaehollandiae Red-necked Avocet [871]		Species or species habitat known to occur within area overfly marine area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Rostratula australis as Rostratula benghalensis (sensu lato)			
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Sterna striata			
White-fronted Tern [799]		Migration route may occur within area	In feature area
Sternula nereis as Sterna nereis			
Fairy Tern [82949]		Breeding known to occur within area	In buffer area only
Thalassarche carteri			
Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta			
Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche impavida			
Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris			
Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche steadi			
White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Thalasseus bergii as Sterna bergii			
Greater Crested Tern [83000]		Breeding known to occur within area	In buffer area only
Thinornis cucullatus as Thinornis rubricollis			
Hooded Plover, Hooded Dotterel [87735]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Thinornis cucullatus cucullatus as Thinornis rubricollis rubricollis			
Eastern Hooded Plover, Eastern Hooded Plover [90381]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Tringa brevipes as Heteroscelus brevipes](#) Grey-tailed Tattler [851]		Species or species habitat known to occur within area	In buffer area only
[Tringa nebularia](#) Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
[Tringa stagnatilis](#) Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Fish			
[Acentronura australe](#) Southern Pygmy Pipehorse [66185]		Species or species habitat may occur within area	In buffer area only
[Filicampus tigris](#) Tiger Pipefish [66217]		Species or species habitat may occur within area	In buffer area only
[Heraldia nocturna](#) Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area	In buffer area only
[Hippocampus breviceps](#) Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area	In buffer area only
[Histiogamphelus cristatus](#) Rhino Pipefish, Macleay's Crested Pipefish, Ring-back Pipefish [66243]		Species or species habitat may occur within area	In buffer area only
[Hypselognathus rostratus](#) Knifesnout Pipefish, Knife-snouted Pipefish [66245]		Species or species habitat may occur within area	In buffer area only
[Kaupus costatus](#) Deepbody Pipefish, Deep-bodied Pipefish [66246]		Species or species habitat may occur within area	In buffer area only
[Leptoichthys fistularius](#) Brushtail Pipefish [66248]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Lissocampus caudalis Australian Smooth Pipefish, Smooth Pipefish [66249]		Species or species habitat may occur within area	In buffer area only
Lissocampus runa Javelin Pipefish [66251]		Species or species habitat may occur within area	In buffer area only
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area	In buffer area only
Notiocampus ruber Red Pipefish [66265]		Species or species habitat may occur within area	In buffer area only
Phycodurus eques Leafy Seadragon [66267]		Species or species habitat may occur within area	In buffer area only
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area	In buffer area only
Pugnaso curtirostris Pugnose Pipefish, Pug-nosed Pipefish [66269]		Species or species habitat may occur within area	In buffer area only
Solegnathus robustus Robust Pipehorse, Robust Spiny Pipehorse [66274]		Species or species habitat may occur within area	In buffer area only
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area	In buffer area only
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area	In buffer area only
Stipecampus cristatus Ringback Pipefish, Ring-backed Pipefish [66278]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Urocampus carinirostris](#) Hairy Pipefish [66282]		Species or species habitat may occur within area	In buffer area only
[Vanacampus margaritifer](#) Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area	In buffer area only
[Vanacampus phillipi](#) Port Phillip Pipefish [66284]		Species or species habitat may occur within area	In buffer area only
[Vanacampus poecilolaemus](#) Longsnout Pipefish, Australian Long-snout Pipefish, Long-snouted Pipefish [66285]		Species or species habitat may occur within area	In buffer area only
[Vanacampus vercoi](#) Verco's Pipefish [66286]		Species or species habitat may occur within area	In buffer area only
Mammal			
[Arctocephalus forsteri](#) Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat may occur within area	In buffer area only
[Arctocephalus pusillus](#) Australian Fur-seal, Australo-African Fur-seal [21]		Species or species habitat may occur within area	In buffer area only
[Neophoca cinerea](#) Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat may occur within area	In buffer area only
Reptile			
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only

Whales and Other Cetaceans [Resource Information]

Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
Caperea marginata Pygmy Right Whale [39]		Species or species habitat may occur within area	In buffer area only
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In buffer area only
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area	In buffer area only
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area	In buffer area only
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat likely to occur within area	In buffer area only
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area	In buffer area only
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In buffer area only

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Buckaringa	Private Nature Reserve	SA	In buffer area only
Franklin Harbor	Marine Park	SA	In buffer area only
Lake Torrens	National Park	SA	In buffer area only
Mount Brown	Conservation Park	SA	In buffer area only
Mount Remarkable	National Park	SA	In buffer area only
Munyaroo	Conservation Park	SA	In buffer area only
The Dutchmans Stern	Conservation Park	SA	In buffer area only
Unnamed (No.HA105)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1135)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1278)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1279)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1280)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1281)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1394)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1462)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1483)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1507)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1523)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1572)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1588)	Heritage Agreement	SA	In buffer area only
Unnamed (No.HA1636)	Heritage Agreement	SA	In buffer area only
Upper Spencer Gulf	Marine Park	SA	In buffer area only
Whyalla	Conservation Park	SA	In buffer area only
Winninowie	Conservation Park	SA	In buffer area only

Nationally Important Wetlands

[Resource Information]

Wetland Name	State	Buffer Status
Inland Saline Lakes	SA	In buffer area only
Upper Spencer Gulf	SA	In feature area

EPBC Act Referrals

[Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Aurora Energy Project (AEP)	2025/10119		Referral Decision	In feature area
BHP Olympic Dam Corporation Pty Ltd - Evaporation Pond 7 Project	2023/09655		Referral Decision	In buffer area only
Cultana Pumped Hydro Energy Scheme, near Port Augusta, SA	2019/8420		Completed	In buffer area only
Cultana Solar Farm project	2023/09658		Assessment	In buffer area only
Magnetite Expansion Project Stage 2 / SIMEC Mining	2024/09878		Assessment	In buffer area only
Mara team testing - Release 37 Wei	2024/09831		Post-Approval	In buffer area only
Morgan Whyalla Pipeline No.1 Renewal ? Stage 1	2022/09438		Post-Approval	In buffer area only
Northern Water Desalination and Pipeline Infrastructure Project, SA	2023/09717		Assessment	In feature area
Oak Dam Underground Access Project, SA	2023/09696		Completed	In feature area
Olympic Dam Resource Development Strategy	2019/8570		Completed	In feature area
Olympic Dam Smelter Refinery Expansion (SRE) Project.	2024/10096		Referral Decision	In feature area
Port Bonython Bulk Commodities Export Facility, SA	2012/6336		Completed	In buffer area only
South Australian Government Renewable Hydrogen Power Station, Electrolysers and Storage Facility	2023/09759		Post-Approval	In buffer area only
Whyalla Hydrogen Pipeline (WHP)	2024/09873		Approval	In buffer area only
Controlled action				
Arafura Whyalla Rare Earths Complex	2011/5877	Controlled Action	Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Carrapateena Project copper -gold mining and ore processing, SA	2017/7895	Controlled Action	Post-Approval	In feature area
Construction and operation of a coal storage facility	2001/463	Controlled Action	Completed	In buffer area only
Expansion of the Cultana Training Area	2010/5316	Controlled Action	Post-Approval	In feature area
Expansion of the Olympic Dam copper, uranium, gold and silver mine, processing plant and associated	2005/2270	Controlled Action	Post-Approval	In feature area
National Low Level Radioactive Waste Repository, Central-North SA	2001/151	Controlled Action	Post-Approval	In buffer area only
Nava-1 Cable System	2001/510	Controlled Action	Completed	In feature area
Pig Iron Smelter	2001/473	Controlled Action	Completed	In buffer area only
Pig Iron Smelter (Cultana)	2001/466	Controlled Action	Completed	In buffer area only
Prominent Hill Copper-Gold Project	2005/2040	Controlled Action	Post-Approval	In feature area
Wilcherry Hill Project	2010/5478	Controlled Action	Post-Approval	In feature area
Not controlled action				
132kV Electricity Transmission Line for the Prominent Hill Copper-Gold Project	2006/3110	Not Controlled Action	Completed	In buffer area only
Carrapateena Deposit - Advanced Exploration Works, SA	2012/6494	Not Controlled Action	Completed	In feature area
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Increasing a wall height of the tailings storage facility (TSF4), Olympic Dam, SA	2015/7416	Not Controlled Action	Completed	In buffer area only
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In buffer area only
Olympic Dam Evaporation Pond 6	2019/8526	Not Controlled Action	Completed	In feature area
Olympic Dam Operations Tailings Storage Facility Six, SA	2019/8465	Not Controlled Action	Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Pilot desalination plant, Olympic Dam Expansion Project	2007/3391	Not Controlled Action	Completed	In buffer area only
Port Augusta Renewal Energy Park, SA	2015/7614	Not Controlled Action	Completed	In buffer area only
Project Magnet	2004/1724	Not Controlled Action	Completed	In buffer area only
Whyalla Solar Farm Project, SA	2017/7910	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
Asteroid sampler re-entry vehicle recovery	2002/544	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Olympic Dam Heap Leach Trial, Roxby Downs, SA	2014/7280	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Small scale uranium In-situ Recovery Field Trial	2010/5751	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only

Biologically Important Areas			[Resource Information]
Scientific Name	Behaviour	Presence	Buffer Status
Seabirds			
Ardenna tenuirostris Short-tailed Shearwater [82652]	Foraging (in high numbers)	Likely to occur	In buffer area only
Phalacrocorax fuscescens Black-faced Cormorant [59660]	Foraging	Known to occur	In buffer area only
Sternula nereis Fairy Tern [82949]	Foraging	Known to occur	In buffer area only

Bioregional Assessments			[Resource Information]
SubRegion	BioRegion	Website	Buffer Status
Arckaringa	Lake Eyre Basin	BA website	In buffer area only

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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Appendix B. Likelihood Assessment and SIA for species considered not to occur, or unlikely to occur

Appendix Table B1: Migratory Bird Species considered to not occur or unlikely to occur in the Project Footprint

Species, or Community	EPBC Act[1]	NPW Act[2]	Likelihood of Occurrence	Potential Impacts	Mitigations Measures	Significant Impact Assessment (impacts following project mitigation measures)
Migratory species also listed as threatened						
Migratory Marine Birds						
Antipodean Albatross / New Zealand Wandering Albatross (*Diomedea antipodensis*)	VU, MM	-	PMST output suggests that foraging, feeding or related behaviour likely to occur within Project Area **(buffer areas only)** (DCCEEW 2025a, provided as Appendix A) The Antipodean Albatross is wide-ranging and marine based (DCCEEW 2024b) and not dependent on habitat present. Breeds on the New Zealand islands of Antipodes Island, Campbell Island, Pitt Island and the Auckland Islands DCCEEW 2024b, Menkhorst et al. 2023). Considered an uncommon visitor to SE Australia, primarily to Tasmania and around follows vessels similar to Wandering Albatross (Menkhorst et al. 2023). These species are primarily marine based and not dependent on habitat present in the NW Project Ecology Assessment Area. There are limited occurrences recorded in South Australia (ALA 2025) and no records in the Study Area (BDBSA 2025). The species **does not occur** in the Study Area or Project Footprint.	No direct or indirect impacts likely.	N/A	**No significant impacts expected** **A, B, C, D, E, F, G, H and I unlikely** as species is does not occur in the Study Area and Project Footprint.
Black-browed Albatross (*Thalassarche melanophris*)	VU, MM	-	PMST output suggests that foraging, feeding or related behaviour likely to occur within Project Area (buffer areas only) (DCCEEW 2025a, provided as Appendix A). The Black-browed Albatross is primarily oceanic and not dependent on habitat present in the Project Footprint. Breeding occurs on offshore islands in higher latitudes (DCCEEW 2024b). There are few records in South Australia, the closest being off Port Neil in 1989 (DEW 2025). There are no BDBSA records in the Study Area (BDBSA 2025). Prefers shallow inland wetlands, especially before wet season rains begin. Prefers sites with muddy substrates and typically feeds by wading to belly-depth (Menkhorst et al. 2023). Given the limited records in the Study Area and lack of suitable habitat in the Project Footprint, the species is considered **unlikely to occur** in the Project Footprint.	No direct or indirect impacts likely. Most of the project work in the marine environment will be carried out underwater and not be a risk to this species (if present) in terms of collision with equipment. Vessel strike is possible if individuals were present but considered extremely unlikely.	N/A	**No significant impacts expected** **A, B, C, D, E, F, G, H and I not likely** as species is not dependent on and not known to visit habitat in the Project Footprint.
Black-tailed Godwit (*Limosa limosa*)	E, MM		PMST output suggests that species or species habitat is known to occur within Project Area (buffer areas only) (DCCEEW 2025a, provided as Appendix A). The Black-tailed Godwit breeds in Siberia, when in Australia it is widespread in coastal areas, most commonly in the north, but also occasionally occurs inland from northern WA, across the NT to Qld and NSW (Menkhorst et al. 2023). There are 9 historical records (1982-1994) from Whyalla Salt fields and Lake Coorlay; 2 recent records (1998) 5 km away from Olympic dam village (BDBSA 2025). Given the limited records in the Study Area and lack of suitable habitat in the Project Area and Project Footprint, the species is considered **unlikely to occur** in the Project Footprint.	No direct or indirect impacts likely.	N/A	**No significant impacts expected** **A, B, C, D, E, F, G, H and I unlikely** as species is unlikely to occur in the Project Area and Project Footprint.
Campbell Albatross (*Thalassarche impavida*)	VU, MM	V	PMST output suggests that species or species habitat may occur within Project Area (buffer areas only) (DCCEEW 2025a, provided as Appendix A). The Campbell Albatross is primarily oceanic and not dependent on habitat present in the Project Area. Breeding occurs on offshore islands in higher latitudes, Campbell Island NZ (DCCEEW 2024b, Menkhorst et al. 2023). There are limited records within the South Australian coastal areas and no records within the Study Area (DEW 2025, BDBSA 2025). Species **does not occur** in the Study Area and Project Footprint.	No direct or indirect impacts likely.	N/A	**No significant impacts expected** **A, B, C, D, E, F, G, H and I unlikely** as species is does not occur in the Study Area and Project Footprint.
Indian Yellow-nosed Albatross (*Thalassarche carteri*)	VU, MM	E	PMST output suggests that species or species habitat likely to occur within Project Area (buffer areas only). (DCCEEW 2025a, provided as Appendix A). Indian Yellow-nosed Albatross is primarily oceanic and not dependent on habitat present in the Project Area. Breeding occurs on offshore islands in higher latitudes (Indian Ocean) (DCCEEW 2024b). Common	No direct or indirect impacts likely.	N/A	**No significant impacts expected** **A, B, C, D, E, F, G, H and I unlikely** as species is unlikely to occur in the Study Area and Project Footprint.

Species, or Community	EPBC Act[1]	NPW Act[2]	Likelihood of Occurrence	Potential Impacts	Mitigations Measures	Significant Impact Assessment (impacts following project mitigation measures)
			inshore to continental slope off WA, less common over pelagic waters. No records within Spencer Gulf or Project Area (DEW 2025, BDBSA 2025). Species **does not occur** in the Study Area and Project Footprint.			
Latham's Snipe (*Gallinago hardwickii*)	VU, MW	R	PMST output suggests may occur in the Project Area (feature area) (DCCEEW 2025a, provided as Appendix A). This species was recently listed as a threatened species (Jan 2024). Latham's Snipe breeds in Japan and Russia and migrates to south-eastern Australia via New Guinea and northern Australia (Geering et al. 2008). In SA, the species' range includes the southeast region, the Adelaide Plains, Mount Lofty Ranges and the lower EP (DCCEEW 2024d, ALA 2025). Latham's Snipe prefers tussock grass and low dense sedges surrounding freshwater wetland, permanent and ephemeral wetlands. It can also occur in habitats with saline or brackish water in modified or artificial wetlands (Menkhorst et al. 2023). The Project Area is generally outside of the known range in Australia, and in SA where the core range includes the South East, not EP (Menkhorst et al. 2023, Davies et al. 2022). There are 3 BirdLife records (from 2000) within the Study Area from the Roxby Sewage Treatment Plant and south of the Olympic Dam village (BDBSA 2025). Critical habitat includes areas for breeding (outside of Australia), foraging, roosting or dispersal. Important habitat includes those listed in the Australian National Directory of Important Migratory Shorebird Habitat (Driessen et al. 2025; DCCEEW 2024d). Critical feeding and roosting habitats are associated with freshwater wetlands with dense low vegetation (DCCEEW 2024d). A site qualifies as nationally important if it regularly supports 18 birds for Latham's Snipe. No important habitats are known for the wider Study Area (Driessen et al. 2025). Given lack of suitable wetland habitat in the Project Footprint and limited reliable records of the species in the Study Area, the species is considered **unlikely to occur** in the Project Footprint.	No direct or indirect impacts likely.	N/A	**No significant impacts expected** **A, B, C, D, E, F, G, H and I unlikely** as species is unlikely to occur in the Study Area and Project Footprint.
Lesser Sand Plover (*Charadrius mongolus*)	EN	E	PMST output suggests known to occur in the Study Area (50 km buffer area only) (DCCEEW 2025a, provided as Appendix A). The coastal section of the Project Area is within the species occasional range, however the species more generally abundant of the east coast of Australia (Menkhorst et al. 2023). The Lesser Sand Plover is a migrant which breeds in Siberia, when within Australia, it is widespread in coastal regions and has been recorded in all states, but mainly occurs in northern and eastern Australia (TSSC 2016a, Menkhorst et al. 2023). In Australia, the species inhabits large intertidal sandflats or mudflats in sheltered bays, harbours, and estuaries, roosting on dry beaches or rocky areas (Geering et al. 2008, Menkhorst et al. 2008, Davies et al. 2022). There are 2 recent and reliable records in the Study Area (from Port Augusta in 1999, and Jarrold Point (eastern USG) in 2000) (BDBSA 2025). Given the limited records in the Study Area and limited suitable habitat in the Project Area and Project Footprint, the species is considered **unlikely** to occur in the Project Footprint	No direct or indirect impacts likely.	N/A	**No significant impacts expected** **A, B, C, D, E, F, G, H and I unlikely** as species is unlikely to occur in the Project Area and Project Footprint.
Northern Giant Petrel (*Macronectes halli*)	VU, MM	-	PMST output suggests foraging, feeding or related behaviour likely to occur within Project Area (buffer areas only) (DCCEEW 2025a, provided as Appendix A). The Northern Giant Petrel is primarily oceanic and not dependent on habitat present in the Project Area. Nearest recorded occurrence is near Port Lincoln, well south of the Project Area (DEW 2025). No BDBSA or Birdlife records in the Study Area (BDBSA 2025). Breeding occurs on offshore islands in higher latitudes (e.g. Chatham Island (DCCEEW 2024b, Menkhorst et al. 2023). Species considered **unlikely to occur** in the Study Area and Project Footprint.	No direct or indirect impacts likely.	N/A	**No significant impacts expected** **A, B, C, D, E, F, G, H and I unlikely** as species is unlikely to occur in the Study Area and Project Footprint.
Shy Albatross (*Thalassarche cauta*)	EN, MM	V	PMST output suggests that foraging, feeding or related behaviour likely to occur within EP Project Area (feature area) and likely in the SAAL Study Area (buffer area only) (DCCEEW 2025a, provided as Appendix A). The Shy Albatross is primarily oceanic and not dependent on habitat present in the Project Area. Breeding occurs on offshore islands of southern Tasmania (DCCEEW 2024b, Menkhorst et al. 2023). The Shy Albatross is the most commonly recorded albatross from land and is common in both inshore and offshore waters to the continental slope of southeastern SA extending to southern WA (Menkhorst et al. 2023). Historical records of the species exist near the entrance to Spencer Gulf, but no records of the species within 50 km of the Project Area (ALA 2025). No BDBSA or Birdlife records in the Study Area (BDBSA 2025).	No direct or indirect impacts likely.	N/A	**No significant impacts expected** **A, B, C, D, E, F, G, H and I unlikely** as species is unlikely to occur in the Study Area and Project Footprint.

Species, or Community	EPBC Act[1]	NPW Act[2]	Likelihood of Occurrence	Potential Impacts	Mitigations Measures	Significant Impact Assessment (impacts following project mitigation measures)
			Species considered **unlikely to occur** in the Study Area and Project Footprint.			
Sooty Albatross (*Phoebetria fusca*)	VU, MM	E	PMST output suggests that species or species habitat may occur within Project Area (buffer areas only) (DCCEEW 2025a, provided as Appendix A). The Sooty Albatross is primarily oceanic and not dependent on habitat present in the Project Area. Breeding occurs on offshore islands in higher latitudes (DCCEEW 2024b). Regular in Autumn off western Victoria / SA mostly beyond the continental shelf, rarely from land. Nearest occurrence record in the last 20 years is almost 200 km away in Investigator Straight (DEW 2025). No Birdlife or BDBSA records in the Project Area (BDBSA 2025). Species considered **unlikely to occur** in the Study Area and Project Footprint	No direct or indirect impacts likely.	N/A	**No significant impacts expected** **A, B, C, D, E, F, G, H and I unlikely as** species is unlikely to occur in the Study Area and Project Footprint.
Sooty Shearwater (*Ardenna grisea*)	VU, MM	-	PMST output suggests that species or species habitat may occur within Project Area (buffer areas only) (DCCEEW 2025a, provide as Appendix A). The Sooty Shearwater is primarily oceanic. The species is an uncommon breeder on islands off NSW and southeast Tasmania. The Australian population is mostly migratory, spending the non-migratory season in Alaska and Japan between June and September (Menkhorst et al. 2023). There are no occurrence records in or around Spencer Gulf or the Study Area (DEW 2025, BDBSA 2025). This species **does not occur** in the Study Area or Project Footprint.	No direct or indirect impacts likely	N/A	**No significant impacts expected** **A, B, C, D, E, F, G, H and I unlikely** as species is does not occur in the Study Area and Project Footprint**.**
Southern Giant Petrel (*Maconectes giganteus*)	EN, MM	V	PMST output suggests that species or species habitat may occur within Project Area (buffer areas only) (DCCEEW 2025a, provided as Appendix A). The Southern Giant Petrel is primarily oceanic and not dependent on habitat present within the Project Area. Breeding occurs on offshore islands in higher latitudes, mostly NZ and Campbell Island (Menkhorst et al. 2023). Regularly occur over continental slope and over pelagic waters, uncommon off SA and Vic (Menkhorst et al. 2023). One Birdlife record (2000) from the Port Augusta bridge (BDBSA 2025). The species is not commonly sighted within Spencer Gulf (ALA 2025) with the nearest of few records over located off western EP. Species is considered **unlikely to occur** in the Study Area and Project Footprint.	No direct or indirect impacts likely.	N/A	**No significant impacts expected** **A, B, C, D, E, F, G, H and I unlikely** as species is unlikely to occur in the Study Area and Project Footprint.
Southern Royal Albatross (*Diomedea epomophora*)	VU, MM	V	PMST output suggests that species or species habitat may occur within EP Project Area (feature area) and within the SAAL Study Area (buffer area only) (DCCEEW 2025a, provided as Appendix A). Southern Royal Albatross is wide-ranging and marine based (DCCEEW 2024b) and not dependent on habitat present. Breed on remote, offshore islands in the higher latitudes (DCCEEW 2024b). Rarely seen from land, follows vessels and alights on ocean water, uncommon off SA and Vic (Menkhorst et al. 2023). These species are primarily marine based and not dependent on habitat present at the NW project action area. There are no occurrence records for the Southern Royal Albatross in Spencer Gulf or the Study Area (DEW 2025, BDBSA 2025). The species **does not occur** in the Study Area or Project Footprint.	No direct or indirect impacts likely. .	N/A	**No significant impacts expected** **A, B, C, D, E, F, G, H and I unlikely** as species is does not occur in the Study Area and Project Footprint.
Wandering Albatross (*Diomedea exulans*)	VU, MM	V	PMST output suggests that foraging, feeding or related behaviour likely to occur within Project Area (buffer areas only) (DCCEEW 2025a, provided as Appendix A). The Wandering Albatross is marine, pelagic and aerial, and in Australia can occur inshore, offshore and in pelagic waters (DCCEEW 2024b). Breeding occurs on offshore islands in higher latitudes, e.g. Indian Ocean, but small occurrence off Macquarie Island (DCCEEW 2024b, Menkhorst et al. 2023). Regularly occurs off the continental slope and pelagic waters of southern Australia (Menkhorst et al. 2023). There are no BDBSA / Birdlife records for the Project Area (BDBSA 2025). There are only two historical records of the species occurring in Spencer Gulf, both near Coffin Bay in 1985 (DEW 2025). The species is considered **unlikely to occur** in the Study Area and Project Footprint.	No direct or indirect impacts likely.	N/A	**No significant impacts expected** **A, B, C, D, E, F, G, H and I unlikely** as species is unlikely to occur in the Study Area and Project Footprint.
White-capped Albatross (*Thalassarche steadi*)	VU, MM	-	PMST output suggests that foraging, feeding or related behaviour known to occur within the EP Project Area (feature are) and the SAAL Study Area (buffer area only) (DCCEEW 2025a, provided as Appendix A). Foraging, feeding or related behaviour known to occur within area (DCCEEW 2024a). The White-capped Albatross is primarily oceanic and not dependent on habitat present in the Project Area. Breeding occurs on offshore islands in higher latitudes, e.g. NZ (DCCEEW 2024b, ALA 2025). Part of same complex as Shy Albatross. No records within Spencer Gulf or Study Area (BDBSA 2025). Species **does not occur** in the Study Area and Project Footprint.	No direct or indirect impacts likely.	N/A	**No significant impacts expected** **A, B, C, D, E, F, G, H and I unlikely** as species does not occur in the Study Area and Project Footprint.

Species, or Community	EPBC Act[1]	NPW Act[2]	Likelihood of Occurrence	Potential Impacts	Mitigations Measures	Significant Impact Assessment (impacts following project mitigation measures)
Migratory Wetland birds not listed as threatened						
Flesh-footed Shearwater (*Ardenna carneipes*)	MM		PMST outputs suggests that the species is likely to have foraging, feeding or related habitat in the Project Area (buffer areas only) (DCCEEW 2025a, provided as Appendix A). The Flesh-footed Shearwater is a trans-equatorial migrant in Indian and Pacific Oceans, largely absent from Australian waters late May to early September and is readily attracted to fishing vessels (Menkhorst et al. 2023). The species breeds in two key colonies; one in the southwest Pacific Ocean (lord Howe Island), the other in northern New Zealand (ALA 2025). There are records around the coastline of Australian from northwestern WA to northeastern Qld (ALA 2025). In SA the records are concentrated offshore, with the closest records to the Study Area off Port Lincoln (DEW 2025). There are no BDBSA or Birdlife records in the Study Area (BDBSA 2025). Whilst there is one record in Franklin Harbor it is outside the Study Area and not within the Project Footprint. Given lack of records in the Study Area and lack of habitat in the Project Footprint, this species is considered **unlikely to occur** in the Project Footprint.	None	N/A	**No significant impacts expected** **A, B and C unlikely** as species is unlikely to occur in the Project Footprint.
Marsh Sandpiper (*Tringa stagnatilis*)	MW		PMST output suggests that the species or species habitat is known to occur in the SAAL Study Area (buffer area only) (DCCEEW 2025a, provided as Appendix A). The Marsh Sandpiper has global distribution and breeds in steppe and boreal wetlands from eastern Europe to eastern Asia, migrating to Africa, southern Asia and Australasia (Geering et al. 2008). The preferred habitat of the species includes coastal and inland fresh or saltwater wetlands, avoiding intertidal mudflats unless they are well protected. Large numbers are known to congregate on the northern Australian coast in the Gulf of Carpentaria and Eighty Mile Beach (Geering et al. 2008). There are widespread records for the species across Australia from coastal and inland locations (ALA 2025). In South Australia there are records from coastal areas, including around Whyalla and small inland salt lakes (DEW 2025). There are 19 BDBSA (1982-2000) and 9 Birdlife records (2001-2017) in the Study Area from Lake Arcoona, Lake Coorlay and Lake Purple, and from Salt fields near Whyalla and Port Augusta and Wilmington Sewage Ponds (BDBSA 2025). The species is not listed in relation to important habitats relevant to the Project in the Directory (Driessen et al. 2025). Whilst there are records in the Study Area, aquatic habitats that would suit the species (natural and artificial) are avoided by the Project, hence the species is considered **unlikely to occur** in the Project Footprint.	None	N/A	**No significant impacts expected** **A, B and C unlikely** as species is unlikely to occur in the Project Footprint.
Oriental Plover (*Charadrius veredus*)	MW		PMST outputs suggests that the species or species habitat may occur in the Project Area (feature area) (DCCEEW 2025a, provided as Appendix A). The Oriental Plover breeds in the arid inland of northern China and Mongolia and migrates to coastal parts of south-east Asia, New Guinea and northern Australia (Geering et al. 2008). The preferred habitat of the species includes dry grasslands, favouring shorter grass, including recently burnt areas, heavily grazed pasture and rarely occurs on wetter habitats (Geering et al. 2008, Menkhorst et al. 2023). Can occur solitarily, in loose flocks or in large flocks, with a notable location being Eighty -mile Beach in WA where large flocks of many 1000s can occur (Menkhorst et al. 2023). South Australia is not in the core or occasional range for the species (Menkhorst et al. 2023). There are 2 records for the species in the Study Area, from 1996 at Pandurra Home Stead, over 10 km west of the Project Footprint (BDBSA 2025). The species is not listed relation to important habitats relevant to the Project in the Shorebird Directory (Driessen et al. 2025). This species is considered **unlikely to occur** in the Project Footprint.	None	N/A	**No significant impacts expected** **A, B and C unlikely** as species is unlikely to occur in the Project Footprint.
Pin-tailed Snipe (*Gallinago stenura*)	MW		PMST outputs suggests that the species or species habitat is known to occur in the SAAL Study Area (buffer area only) (DCCEEW 2025a, provided as Appendix A). The Pin-tailed Snipe breeds on the southern boundary of the Siberian tundra and migrates to southern and south-east Asia. The species is uncommon in Australia, and most records are from the north-west, particularly in the Pilbara (Geering et al. 2008, Menkhorst et al. 2023). Preferred habitats include freshwater	None	N/A	**No significant impacts expected** **A, B and C unlikely** as species is unlikely to occur in the Project Footprint.

Species, or Community	EPBC Act[1]	NPW Act[2]	Likelihood of Occurrence	Potential Impacts	Mitigations Measures	Significant Impact Assessment (impacts following project mitigation measures)
			wetlands, swamps, soaks, floodwaters and sewage ponds (Geering et al. 2008). Saline or intertidal wetlands are rarely used as habitat (DCEEW 2024b) The majority of records for this species are from the coastline of northern Australia (ALA 2025, Driessen et al. 2005). There are no records of the species from the SA coastline or within the Study Area (BDBSA 2025). The species is not listed relation to important habitats relevant to the Project in the Directory (Driessen et al. 2025). This species is considered **unlikely to occur** in the Project Footprint.			
Ruff (*Philomachus pugnax*)	MW	R	PMST outputs suggests that the species or species habitat is known to occur in the SAAL Study Area (buffer area only) (DCCEEW 2025a, provided as Appendix A). The Ruff breeds on the southern tundra from Europe to eastern Siberia and the majority of the population migrates to Africa and the Indian subcontinent, rarely but annually recorded in Australia (Geering et al. 2008). Preferred habitats include muddy margins of freshwater and brackish swamps and lakes, as well as sewage farms and salt-works. (Geering et al. 2008). They often roost with Sharp-tailed Sandpipers (Geering et al. 2008). There are records from all around Australia, including inland areas of the Northern Territory, Victoria and New South Wales (ALA 2025). In South Australia the records and concentrated in the southeast and north of Adelade in the International Bird Sanctuary (ALA 2025). There are also four historical (1978, 1981) records northeast of Whyalla within the Study Area (BDBSA 2025). The species is not listed relation to important habitats relevant to the Project in the Shorebird Directory (Driessen et al. 2025). Whilst the species is considered to possibly occur in the Study Area, given the limited records in the Project Area and lack of habitat in the Project Footprint, the species is considered **unlikely to occur** in the Project Footprint.	None	N/A	**No significant impacts expected** **A, B and C unlikely** as species is unlikely to occur in the Project Footprint.
Sanderling (*Calidris alba*)	MW	R	PMST outputs suggests that the species or species habitat is likely to occur in the Project Area (buffer areas only) (DCCEEW 2025a, provided as Appendix A). The Sanderling breeds in the high arctic tundra of Asia and North America, migrating to Europe, Africa, southern Asia, Australasia and America (Geerling et al. 2008). Preferred habitats whilst in Australia include ocean beaches and occasionally intertidal mudflats. They roost at high tide amongst beach debris (Geering et al. 2008). They occur around the coastline of Australia, in small numbers and roost with other species (Menkhorst et al. 2023). There no records in the Study Area (BDBSA 2025). Records in the broader region are near oceanic beaches or intertidal areas of Franklin Harbour (over 70 km to the south). The species is not listed in relation to the important habitats relevant to the Project in the Directory (Driessen et al. 2025). Based on the above, this species is considered to possibly occur in the Study Area, but **unlikely to occur** in the Project Footprint given lack of records and ocean beaches and intertidal mudflats are avoided.	None	N/A	**No significant impacts expected** **A, B and C unlikely** as species is unlikely to occur in the Project Footprint.
Migratory Marine Birds not listed as threatened						
Fork-tailed Swift (*Apus pacificus*)	MM		PMST outputs states that the species or species habitat is likely to occur in the Project Area (feature area) (DCCEEW 2025a, provided as Appendix A). Highly mobile species, almost entirely aerial, and rarely recorded on the ground. Has a widespread distribution across Australia, in summer (ALA 2025). No previous records within Study Area (BDBSA 2025). However, a flock of approximately 200 were detected during a Lathwida survey near Whyalla (March 2024), the flock was aerial (200m in the air), above coastal vegetation / mallee areas. Whilst this species is possible in the Study Area as an overfly species, given the aerial nature, this species is considered **unlikely to occur** in the Project Footprint.	None	N/A	**No significant impacts expected** **A, B and C unlikely** as species is unlikely to occur in the Project Footprint.



Appendix I-5:

Draft Native Vegetation Clearance Data Report

Native Vegetation Clearance Data Report

Northern Water Project

Department for Infrastructure and Transport

Data Report

Clearance under the *Native Vegetation Regulations 2017*

16/07/2026

Prepared by Shelley Greer (Jacobs) and Stephen Milne (JBS&G) (NVC Accredited Consultants)



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Table of contents

Native Vegetation Clearance Data Report 1
Northern Water Project 1
Department for Infrastructure and Transport 1
Data Report 1
Table of contents 3
Acronyms and Glossary 7
1. Application information 9
2. Purpose of clearance 14
2.1 Description 14
2.2 Background 15
2.3 The construction footprint and landscape setting 15
2.4 General location map 16
2.5 Details of the proposal 18
2.6 Approvals required or obtained 22
2.7 Native Vegetation regulation 23
2.8 Development application information 24
3. Method 25
3.1 Terrestrial desktop assessment 25
3.2 Terrestrial field survey 25
3.2.1 Flora assessment 26
3.2.2 Vegetation numbering and classification 27
3.2.3 Fauna surveys 28
3.2.4 Opportunistic sightings 28
3.2.5 Mapping data sets 28
3.3 Marine desktop assessment 29
3.4 Marine field survey 29
3.5 Limitations 30
4. Assessment outcomes 31
4.1 Terrestrial vegetation assessment 31
4.1.1 Eyre Peninsula LMR 31
4.1.2 South Australian Arid Lands LMR 34
4.1.3 Details of terrestrial VAs proposed to be impacted 40
4.1.4 Site maps showing terrestrial areas of proposed impact 56
4.2 Marine vegetation assessment 74
4.2.1 General description of the vegetation, site and matters of significance 74

DRAFT

4.2.2 Details of marine VAs proposed to be impacted 74
4.2.3 Site maps showing marine areas of proposed impact 76
4.3 Threatened species and communities field results 79
4.3.1 Terrestrial Threatened Ecological Communities 79
4.3.2 Terrestrial threatened flora 79
4.3.3 Terrestrial threatened fauna 79
4.3.4 Marine threatened species 83
4.4 Terrestrial threatened species and ecological communities desktop assessment 83
4.4.1 Threatened species assessment approach 83
4.4.2 EPBC Act threatened species and communities' summary 84
4.4.3 NPW Act threatened species summary 84
4.4.4 Likelihood assessment tables 85
4.5 Marine threatened species desktop assessment 93
4.6 Cumulative impact 96
4.6.1 Direct clearance 96
4.6.2 Indirect Impact 101
4.6.3 Future Stages 101
4.7 Address the Mitigation Hierarchy 102
4.8 Principles of Clearance (Schedule 1, Native Vegetation Act 1991) 104
4.9 Risk Assessment 115
4.10 NVC Guidelines 116
5. Clearance summary 117
6. Significant Environmental Benefit 124
7. References 125
8. Appendices 127
Appendix 1. Terrestrial Ecology Baseline Report (Jacobs 2026) 127
Appendix 2. BAM, RAM and marine scoresheets. 128
Appendix 3. Clearance Summary Tables 129

Figures

Figure 1. Location of the Northern Water Project construction footprint and Project Area. 17
Figure 2. Typical construction layout for pipeline 19
Figure 3. BAM points and vegetation mapping relevant to the construction footprint (map 1 of 17) 57
Figure 4. BAM points and vegetation mapping relevant to the construction footprint (map 2 of 17) 58
Figure 5. BAM points and vegetation mapping relevant to the construction footprint (map 3 of 17) 59
Figure 6. RAM points and vegetation mapping relevant to the construction footprint (map 4 of 17) 60
Figure 7. RAM points and vegetation mapping relevant to the construction footprint (map 5 of 17) 61
Figure 8. RAM points and vegetation mapping relevant to the construction footprint (map 6 of 17) 62
Figure 9. RAM points and vegetation mapping relevant to the construction footprint (map 7 of 17) 63
Figure 10. RAM points and vegetation mapping relevant to the construction footprint (map 8 of 17) 64
Figure 11. RAM points and vegetation mapping relevant to the construction footprint (map 9 of 17) 65

DRAFT

Figure 12. RAM points and vegetation mapping relevant to the construction footprint (map 10 of 17) 66
Figure 13. RAM points and vegetation mapping relevant to the construction footprint (map 11 of 17) 67
Figure 14. RAM points and vegetation mapping relevant to the construction footprint (map 12 of 17) 68
Figure 15. RAM points and vegetation mapping relevant to the construction footprint (map 13 of 17) 69
Figure 16. RAM points and vegetation mapping relevant to the construction footprint (map 14 of 17) 70
Figure 17. RAM points and vegetation mapping relevant to the construction footprint (map 15 of 17) 71
Figure 18. RAM points and vegetation mapping relevant to the construction footprint (map 16 of 17) 72
Figure 19. RAM points and vegetation mapping relevant to the construction footprint (map 17 of 17) 73
Figure 20. Marine vegetation association 1 - Zostera seagrass 75
Figure 21: Discrete seabed disturbance areas associated with the intake and outfall structures (Reference Design) (Bathymetry = mAHD) 77
Figure 22: Seabed disturbance areas for the Float and Sink Pipeline option showing additional disturbance areas (Bathymetry = mAHD) 78
Figure 23. Threatened flora and fauna species observed within the EP LMR. 80
Figure 24. Threatened flora and fauna species observed within the SAAL LMR. 81

Tables

Table 1. Summary of indicative surface disturbance for key Project components (based on GIS Rev5.2 'construction footprint' layer) 20
Table 2. Ecological surveys previously undertaken for the Project 25
Table 3. Vegetation stratified into Major Groups (landform, floristic and structural composition), BVCs (major floristic assemblages relevant to the construction footprint) and BAM Sites (detailed VAs observed in the construction footprint during BAM quadrat surveys and extrapolated to landscape scale). 32
Table 4. Vegetation communities found to occur within the construction footprint within the SAAL LMR (RAM sites). Vegetation stratified into Major Groups (landform, floristic and structural composition), BVCs (major floristic assemblages relevant to the construction footprint) and RAM Sites (detailed VAs observed in the construction footprint during RAM quadrat surveys and extrapolated to landscape scale). 35
Table 5. BVC NW EP 2.1 Low open woodlands of Western Myall with a chenopod shrub understorey. 40
Table 6. BVC NW EP. 2.2 Low open woodlands with Western Myall and Black Oak over chenopod shrub understorey. 41
Table 7. BVC NW EP 2.3 Low open woodlands of Sugarwood with a chenopod shrub understorey. 41
Table 8. BVC NW EP 3.1 Coastal environments with low open chenopod shrublands on stony hills or undulating plains +/- Samphire. 42
Table 9. BVC NW EP 3.3 Chenopod open shrublands +/- emergent trees. 42
Table 10. BVC NW EP 4.1 Inland tall shrublands in drainage lines and on plains. 43
Table 11 . BVC NW SAAL 1.1 Chenopod/Samphire low shrublands on stony plains and tableland. 44
Table 12. BVC NW SAAL 2.1 Chenopod low open shrublands on flat to undulating plains. 45
Table 13. BVC NW SAAL 3.1 Drainage lines with tall shrubs over Maireana pyramidata / chenopod. 46
Table 14. BVC NW SAAL 3.2 Drainage lines with tall shrubs +/- Black Oak. 47
Table 15. BVC NW SAAL 3.3 Ephemeral to permanent waterholes and drainage lines. 47
Table 16. BVC NW SAAL 3.4 Drainage lines with River Red Gum and/or Myall. 48
Table 17. BVC NW SAAL 4.1 Low open Western Myall woodlands with a chenopod shrub understory. 48
Table 18. BVC NW SAAL 4.2 Mulga woodlands and tall shrublands on plains and law dunes in the Gawler Lakes. 49
Table 19. BVC NW SAAL 5.1 Low dune crests with tall shrubland +/- Cypress-pine woodlands. 49
Table 20. BVC NW SAAL 5.2 Cypress-pine woodlands on dune crests. 50
Table 21. BVC NW SAAL 5.3 Blackoak Woodlands on Dunes. 51
Table 22 BVC NW SAAL 5.4 Mulga Woodlands and tall shrublands (dunes). 51
Table 23. BVC NW SAAL 6.1 Chenopod low open shrubland in dune swale +/- emergent trees. 52
Table 24. BVC NW SAAL 6.2 Tussock grassland in dune swales +/- emergent trees. 52
Table 25. BVC NW SAAL 6.3 Open woodlands in dune swales. 53
Table 26. BVC NW SAAL 7.1 Swamp Cane-grass grassland. 53
Table 27. BVC NW SAAL 8.1 Tall shrublands on inland saline depressions. 54

DRAFT

Table 28. BVC NW SAAL 8.2 Inland Samphire depressions and drainage lines. 54
Table 29. BVC NW SAAL 10.1 Non-saline shrublands in clay depressions. 55
Table 30. BVC NW SAAL 11.1 Sandhill Cane-grass Grassland. 55
Table 31. BVC NW SAAL 12. Woodlands of Black Oak on flat and undulating plains. 56
Table 32. Marine vegetation association 1 – Zostera seagrass 75
Table 33: Estimated seabed disturbance for Reference Design and Float and Sink Pipeline Option 76
Table 34. Threatened fauna recorded during field surveys. 79
Table 35. Target species habitat distribution within the construction footprint 82
Table 36. Outcomes of the LoO assessment for EPBC Act listed threatened fauna potentially occurring in the EP LMR construction footprint. Excludes species considered unlikely to occur. 86
Table 37. Outcomes of the LoO assessment for EPBC Act listed threatened fauna potentially occurring in the SAAL LMR construction footprint. Excludes species considered unlikely to occur. 87
Table 38. Outcomes of the LoO assessment for NPW Act listed threatened fauna species potentially occurring in the EP LMR construction footprint. Excludes species also listed under the EPBC Act or considered unlikely to occur. 89
Table 39. Summary of the LoO assessment for NPW Act listed threatened fauna species potentially occurring in the SAAL LMR construction footprint. Excludes species also listed under the EPBC Act or considered unlikely to occur. 90
Table 40. Outcomes of the LoO assessment for NPW Act listed threatened flora species potentially occurring in the EP LMR construction footprint. Excludes species also listed under the EPBC Act or considered unlikely to occur. 92
Table 41. Outcomes of the LoO assessment for NPW Act listed threatened flora species potentially occurring in the SAAL LMR construction footprint. Excludes species also listed under the EPBC Act or considered unlikely to occur. 92
Table 42: Marine species likelihood assessment 94
Table 43. Summary of permanent and temporary clearance by infrastructure or construction component 96
Table 44. Summary of clearance associated with the pipeline component of the Project infrastructure occurring within the EP LMR 97
Table 45. Summary of clearance associated with the pipeline component of the Project infrastructure occurring within the SAAL LMR 97
Table 46. Summary of clearance associated with the access tracks and roads for the Project 97
Table 47. Summary of clearance related to potential laydown and storage area components of the Project by IBRA subregion 98
Table 48. Summary of clearance related to pump stations and storage area components of the Project by IBRA subregion 98
Table 49. Summary of clearance requirements for the desalination plant 99
Table 50. Summary of clearance by infrastructure or construction component 99
Table 51. Principles of Clearance. 104
Table 52. Risk assessment associated with the Project. 115
Table 53. Summary of terrestrial areas proposed for clearance. 118
Table 54: Summary of marine areas proposed for clearance. 122
Table 55. Summary of terrestrial clearance. 123
Table 56: Summary of marine clearance. 123

DRAFT

Acronyms and Glossary

Acronym	Description
ALA	Atlas of Living Australia
ARTC	Australian Rail Track Corporation
BAM	Bushland Assessment Methodology
BCM	Bushland Condition Monitoring
BDBSA	Biological Databases of South Australia
BVC	Broad Vegetation Communities
CEMP	Construction Environmental Management Plan
Construction Footprint	The 'construction footprint' (also referred to in the EIS as the disturbance footprint) has been provided in the GIS Rev 5.2 shapefiles and is the current best estimate of surface disturbance (and is classified as temporary or permanent) and has been used to calculate SEB offset values. The maximum disturbance width for standard pipeline construction specified in the construction footprint shapefile is generally 40 m subject to various construction constraints in some locations (typically due to cultural heritage, environment or design constraints) where narrowing of the disturbance footprint is required. The ultimate disturbance area will be dependent on the outcomes of detailed design and related construction methodology. It may be reduced in some locations, however, there may also be instances where extra workspace is required e.g. adjacent to highly constrained sections.
CP	Conservation Park
CR	Critically Endangered (under the EPBC Act / NPW Act)
CSS	Conservation Significance Score
CUTA	Cultana Training Area
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Commonwealth)
DEW	Department for Environment and Water
DEWHA	Department of the Environment, Water, Heritage and the Arts
DIT	Department for Infrastructure and Transport
DoD	Department of Defence
EIS	Environmental Impact Statement
EN	Endangered under EPBC Act
EN / E	Endangered (under the EPBC Act / NPW Act, respectively)
EP	Eyre Peninsula
EPBC / EPBC Act	*Environment Protection and Biodiversity Conservation Act, 1999* (Commonwealth)
FID	Final Investment Decision
GPS	Global Positioning System
HA	Heritage Agreement
IBRA	Interim Biogeographic Regionalisation for Australia
ISA	Infrastructure SA
LCS	Landscape Context Score (BAM & RAM)
LMR	Land Management Region

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Acronym	Description
LoO	Likelihood of Occurrence
MNES	Matters of National Environmental Significance
MVG	Major Vegetation Groups
NP	National Park
NPW / NPW Act	*National Parks and Wildlife Act, 1972* (SA)
NV Act	*Native Vegetation Act, 1991* (SA)
NVB	Native Vegetation Branch
NVC	Native Vegetation Council
NVCDR	Native Vegetation Clearance Data Report
PDI Act	*Planning, Development and Infrastructure Act 2016* (SA)
PIRSA	Primary Industries and Regions SA
PMST	Protected Matters Search Tool
Project Area	The 'Project Area' is defined based on a 2.5 km buffer surrounding all Project infrastructure including the alignment of linear infrastructure (i.e. a 5 km wide corridor). Linear infrastructure includes pipelines, transmission lines and the desalination plant intake and outfall. The buffer effectively incorporates all Project infrastructure for the purposes of approvals except approximately 2 km of the transfer system which is located within the BHP Special Mining Lease (SML). The Project Area is used as a guide for the assessment of impacts, and final location of infrastructure is expected to remain inside this corridor.
R	Rare (under the EPBC Act / NPW Act)
RAM	Rangeland Assessment Methodology
RoW	Right of Way (construction)
SA	South Australia(n)
SAAL	South Australian Arid Lands
SEB	Significant Environmental Benefit
SPRAT	Species Profile and Threats Database
Study Area	Refer to the 50 km (SAAL) or 5 km (EP) buffer on the construction footprint as applied to the relevant data sources (e.g. PMST / BDBSA).
TBS	Total Biodiversity Score (BAM & RAM)
TEC	Threatened Ecological Communities
the Project	Northern Water Project
TL / TLs	Transmission Line/s
TSSC	Threatened Species Scientific Committee
UBS	Unit Biodiversity Score
VA	Vegetation Associations
VCS	Vegetation Condition Score
VU / V	Vulnerable (under the EPBC Act / NPW Act, respectively)
WoNS	Weeds of National Significance
WPA	Woomera Prohibited Area

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1. Application information

Application Details			
Applicant:	Department for Infrastructure and Transport (DIT)		
Key contact:	Kristy How Senior Environmental Advisor, Northern Water Project Delivery Office (DIT) Ph: 08 7133 2917 Kristy.How@sa.gov.au		
Landowner:	Multiple landholders between Mullaquana Station and Olympic Dam. Refer to Environmental Impact Statement (JBS&G 2026).		
Site Address:	The proposed pipeline and associated infrastructure extends from Mullaquana Station on Eyre Peninsula approximately 25 kilometres (km) south-west of the township of Whyalla to Olympic Dam, including a lateral branch at Carrapateena and several associated transmission lines.		
Local Government Area:	• Whyalla City Council • Port Augusta City Council • Pastoral Unincorporated Area (PUA) • Municipal Council of Roxby Downs	Hundred:	• Castine • Copley • Cultana • Gillen • Handyside • Poynton • Randell Remainder / sections of site occurs outside Hundreds
Title ID:	Refer to EIS (JBS&G 2026) for list of land titles.	Parcel ID	Refer to EIS (JBS&G 2026) for list of parcel IDs.

Summary of proposed clearance	
Purpose of clearance	Clearance required to construct a seawater reverse osmosis desalination plant located at Mullaquana Station in the Upper Spencer Gulf, and associated water transfer system (including pipelines, transfer pump stations, product water storages) and electricity infrastructure.
Native Vegetation Regulation	Part 4, Regulation 12 of the *Native Vegetation Regulations, 2017 (Regulation 12(27) – Major projects)*.
Description of the vegetation under application	**Terrestrial:** Given the large geographical extent, the potential impact covers multiple vegetation types and landforms which are grouped into Major Vegetation Groups (MVGs), Broad Vegetation Communities (BVCs) and detailed Vegetation Associations (VAs) (BAM and RAM sites). A full list of vegetation proposed to be impacted is provided in Table 3 and Table 4. The 'construction footprint' (which is the current best estimate of surface disturbance – refer to Glossary) intersects 1,991.705 ha of terrestrial native vegetation and includes the following: • 458.213 ha in the Eyre Peninsula (EP) Land Management Region (LMR) across three MVGs, six BVCs and 23 VAs (Bushland Assessment Methodology (BAM) sites).

- 1,533.491 ha in the South Australian Arid Lands (SAAL) LMR across 11 MVGs, 21 BVCs and 54 VAs (Rangeland Assessment Methodology (RAM) sites).

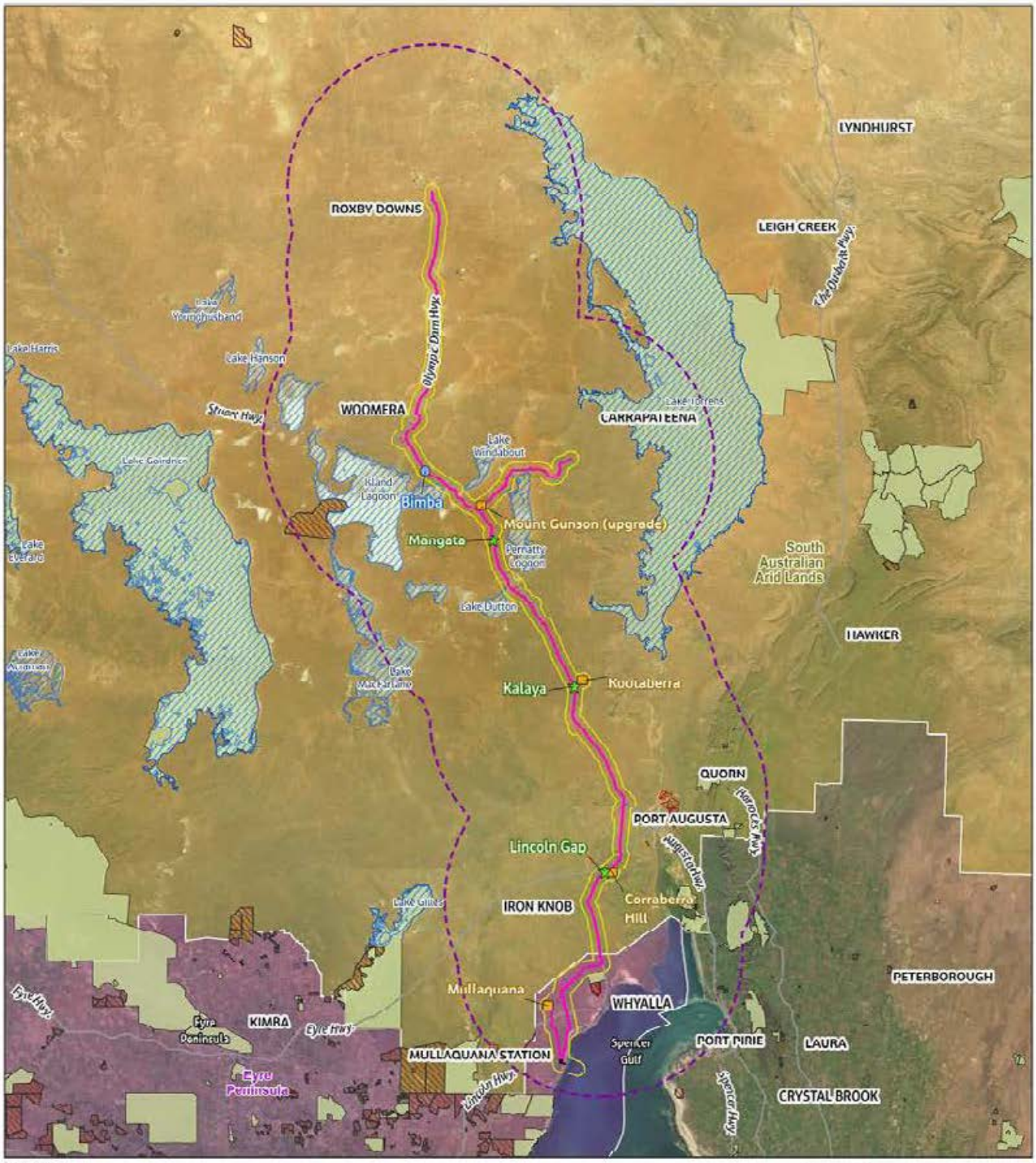
MVG	Description	Hectares
Eyre Peninsula Landscape Management Region (EP LMR)		
EP 2	Open Woodlands of Western Myall / Black Oak /Sugarwood	84.589
EP 3	Chenopod shrublands (including drainage lines)	373.339
EP 4	Tall shrublands in drainage lines and on plains	0.285
South Australian Arid Lands Landscape Management Region (SAAL LMR)		
SAAL 1	Stony plains and tableland with chenopod shrublands	689.171
SAAL 2	Chenopod shrublands on flat to undulating plains	129.016
SAAL 3	Ephemeral and permanent drainage lines and waterholes	29.013
SAAL 4	Open woodlands of Western Myall and Mulga on sand plains and low dunes	397.562
SAAL 5	Woodlands and shrublands on low dunes and dune crests	190.494
SAAL 6	Dune swales with open woodlands, shrublands and tussock grassland	67.321
SAAL 7	Cane-grass run-on areas and depressions	2.393
SAAL 8	Inland Saline depressions and drainage lines	5.836
SAAL 10	Non-saline shrublands in clay depressions	1.426
SAAL 11	Sandhill Cane-grass grassland	5.517
SAAL 12	Woodlands of Black Oak on flat and undulating plains	15.741
	Grand Total	**1,991.705**

Marine:

The Project infrastructure also impacts an area of *Zostera* sp. seagrass in the marine environment.

Total proposed clearance - area (ha) and number of trees	The total clearance of terrestrial native vegetation under application for the Northern Water Project (based on the construction footprint) is 1,991.705 ha, including 458.213 ha in the EP LMR and 1,533.491 ha in the SAAL LMR. Of the 1,991.705 ha under application, it is expected that 375.356 ha will represent permanent clearance, whilst the remaining 1,616.349 ha will represent temporary clearance subject to rehabilitation. However, no reductions for rehabilitation are being applied for at this time. An estimated 2.1 ha of Zostera seagrass (approx. 1.24 ha permanent and 0.86 ha temporary) is also expected to be cleared in the marine environment offshore, subject to final design and construction methodology.
Level of clearance	Level 4
Overlay (Planning and Design Code)	The entire construction footprint occurs within the Native Vegetation Overlay (for applications associated with a development application only). The construction footprint avoids all protected areas including Conservation Parks (CP), National Parks (NP), Heritage Agreements (HA) and Significant Environmental Benefit (SEB) areas (plus a 50 m buffer). As such, the State Significant Native Vegetation overlay does not apply to the Project.

Map of proposed clearance area (*See page below*).



LEGEND

- Storage
- Substation
- Pump Station
- Mullaquana Desalination Plant
- construction footprint
- Project Area
- Study Area
- Major Road
- Eyre Peninsula
- South Australian Arid Lands
- Major Waterbodies
- Conservation & National Parks
- Significant Environmental Benefit Area
- Vegetation Heritage Agreements



N

A3 1:1,300,000

GDA2020 MGA Zone 53

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Kilometers

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Data Sources: SA Gov DIT (2026), DEW (2026), DMyD (2026), JBSG (2026), Jacobs (2026).
Imagery Sources: ESRI Online Imagery Services

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Mitigation hierarchy	***a) Avoidance*** Avoidance of native vegetation has been managed through the following measures: • The mitigation hierarchy was a driving principle throughout the site and alignment selection process to minimise impacts on flora and fauna. The resulting alignment predominantly follows existing disturbance corridors which will minimise potential impacts as a result of clearance and fragmentation. • Areas of high conservation value have been avoided and the disturbance footprint does not intersect any areas protected under the National Parks and Wildlife Act or under Native Vegetation Act heritage agreements. • The desalination plant site has avoided locations where there is higher quality Western Grasswren habitat (e.g. initial locations further to the south). • Ecological surveys identified numerous areas where high quality, preferred habitat for Western Grasswren that have been avoided by the transfer system alignment (e.g. just west of Whyalla and north of Whyalla, near the Whyalla water tanks). • The construction of the intake and outfall pipes avoids impacts to saltmarsh and mangrove vegetation (including the Subtropical and Temperate Coastal Saltmarsh TEC) by tunnelling under the coast. Impact to subtidal *Posidonia* seagrass is also avoided by tunnelling, with impact limited to a small area of *Zostera* seagrass. • Existing roads and tracks will be used for access as far as possible, thus avoiding clearance for new tracks. • Areas for laydowns, camps and associated infrastructure will target previously cleared or degraded areas as far as practicable. ***b) Minimisation*** Vegetation clearance and impacts on biodiversity will be minimised by implementing measures during the detailed design and construction phases, including the following: • Construction footprints will be restricted to the minimum necessary to facilitate safe, efficient construction. • A maximum pipeline alignment construction corridor width for standard installation of 40 m has been specified, which is less than a more typical width of 50-60 m for a pipeline of this nature, in order to minimise impacts to native vegetation and habitat. This will be reduced in detailed design if possible. • Previously cleared or disturbed areas will be utilised where practicable. • A field inspection will be undertaken with an experienced ecologist and construction design specialist in order to further reduce the construction corridor width where possible and to assist with demarcation of no-go zones for particularly sensitive areas. • Transmission line pole / tower locations will be micro-sited to avoid important habitat features where possible. • Weed hygiene, surveillance and control practices will be implemented during construction and operation. • Environmental management field staff will be present during access and clearing activities, with presence of, or access to, trained fauna handlers during construction to assist with removal of, and relocation of, any trapped (and/or injured) fauna caught within trenches, or displaced during habitat clearance. • Routine daily monitoring of open trenches during construction activities to inspect for trapped fauna. • Progressive backfilling of trenches to minimise the length of open trenches at any time during construction. • Progressive rehabilitation of all temporary construction areas where native vegetation clearance has occurred. • Preparation of a Project-specific CEMP including controls on activities, weed hygiene, weed monitoring, dust management, sediment control and progressive rehabilitation.

	• Preparation of a Threatened Species Management Plan. • Operations and Maintenance Environmental Management Plan prepared and implemented prior to commissioning ***c) Rehabilitation or restoration*** Areas of temporary disturbance would be rehabilitated following construction (by respreading cleared and stored topsoil and vegetation to encourage natural regeneration, with additional rehabilitation methods (e.g. direct seeding) implemented where required to supplement natural regeneration). A Restoration and Rehabilitation Management Plan would be prepared outlining rehabilitation methodologies, timing of works, monitoring and contingency planning. Any additional rehabilitation undertaken to supplement natural regeneration (e.g. direct seeding) would utilise local native species. ***d) Offset*** It is intended that the majority of an offset will be achieved via on-ground SEB with payment into the Native Vegetation Fund where on-ground offsets are not feasible. An offset strategy for the Project is currently being developed in consultation with other government agencies. The strategy is summarised in the Preliminary SEB Offset Strategy attached as Appendix I-9 to the EIS. If offsets are achieved by a payment into the Fund, if there are staged payments (or if provision of final SEB calculations to NVC and payment is delayed beyond the 2025/2026 financial year) then any SEB payment proposed would be calculated based on the management costs and SEB payment calculation metrics for the financial year in which the payments are to be made.
SEB Offset proposal	**Terrestrial:** Clearance of **1,991.705 ha** of terrestrial native vegetation results in a total offset requirement of **139,448.6447 SEB points** for on-ground offset or a payment of **$12,373,128.79** (including an administration fee of $645,044.63) into the NV fund. For the EP LMR this requires achievement of 29,776.895 SEB points equating to an offset payment of $3,453,129.84 (including an administration fee of $180,020.99). For the SAAL LMR this requires achievement of 109,671.750 SEB points equating to an offset payment of $8,919,998.95 (including an administration fee of ($465,023.64). Refer to (d) above for discussion of the offset proposal for terrestrial vegetation clearance. **Marine:** Clearance of **2.1 ha** of Zostera seagrass results in a total offset requirement of **170.27 SEB points** for on-ground offset or a payment of **$325,954.15** (including an administration fee of $16,992.87) into the NV fund. The SEB for marine clearance is expected to be achieved via a payment into the Native Vegetation Fund. Note that although over 80% of the surface disturbance for the Project is temporary and will be rehabilitated, no reductions are being applied for at this time and all clearance is being treated as permanent for the purpose of SEB offsets.

2. Purpose of clearance

2.1 Description

The Northern Water Project (the Project) aims to provide a secure, climate resilient water source for industry within South Australia's Upper Spencer Gulf and Far North. The project will involve the construction of a 51 gigalitre per year (GL/y) seawater reverse osmosis desalination plant and an associated water transfer system. Clearance is required for the construction of the desalination plant, associated water transfer system (including pipelines, transfer pump stations, product water storages) and electricity infrastructure.

The Project spans two Landscape Management Regions (LMRs): the Eyre Peninsula (EP) and the South Australian Arid Lands (SAAL). Consequently, vegetation impacts and the calculation of Significant Environmental Benefit (SEB) offset requirements must be assessed using two different methodologies. Vegetation within the EP LMR has been assessed in accordance with the Native Vegetation Council (NVC) Bushland Assessment Methodology (BAM), while vegetation within the SAAL LMR has been assessed using the Rangeland Assessment Methodology (RAM). Vegetation in the marine environment has been assessed using the NVC Marine Assessment Scoresheet.

The desalination plant is proposed to be located at Mullaquana Station, 25 km south-west of central Whyalla and approximately 1.5 km from the coastal waters of the Upper Spencer Gulf on the EP. Marine intake and outfall tunnels are also proposed extending under the seabed to no more than 5 km in length. The associated water transfer pipeline will extend approximately 360 km north into the SAAL, terminating at Olympic Dam in Roxby Downs. Infrastructure is also proposed to include a lateral branch pipeline approximately 46 km long to the Carrapateena Mine. Further clearance is also proposed for other associated infrastructure such as pump stations, lay down areas, temporary camps, water storage, access tracks and electrical infrastructure.

The Project received Ministerial direction pursuant to Section 131(25) of the *Planning, Development and Infrastructure Act 2016* (PDI Act) in January 2026, requiring the preparation of an Environmental Impact Statement (EIS) and processing under Part 7, Subdivision 4 of the PDI Act. The EIS will be referred to the NVC for comment under Section 113 of the PDI Act and Part 4, Regulation 12 of the *Native Vegetation Regulations, 2017 (Regulation 12(27) – Major projects)*. Clearance for the Project will be guided by the NVC Guide (NVC 2024a) and offsets for approved clearance are required as per the SEB Policy (NVC 2024b) and SEB Guide (NVC 2024c).

This report refers to three assessment areas, defined as the following:

Project Area: The 'Project Area' is defined based on a 2.5 km buffer surrounding all Project infrastructure including the alignment of linear infrastructure (i.e. a 5 km wide corridor). Linear infrastructure includes pipelines, transmission lines and the desalination plant intake and outfall. The buffer effectively incorporates all Project infrastructure for the purposes of approvals except for the section of the transfer system which is located within the BHP Special Mining Lease (SML). The Project Area is used as a guide for the assessment of impacts, and final location of infrastructure is expected to remain inside this corridor.

Construction footprint: The 'construction footprint' has been provided in the GIS Rev 5.2 shapefiles and is the current best estimate of surface disturbance (and is classified as temporary or permanent) and has been used to calculate SEB offset values. The maximum disturbance width for standard pipeline construction specified in the construction footprint shapefile is generally 40 m subject to various construction constraints in some locations (typically due to cultural heritage, environment or design constraints) where narrowing of the disturbance footprint is required. The ultimate disturbance footprint will be dependent on the outcomes of detailed design and related construction methodology. It may be reduced in some locations, however, there may also be instances where extra workspace is required (e.g. adjacent to highly constrained sections).

Study Area: Refers to the 5 km (EP) or 50 km (SAAL) buffer on the construction footprint as applied to the relevant data sources (e.g. EPBC PMST / BDBSA).

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2.2 Background

The Northern Water project has been in development since 2021. Multiple ecological desktop assessments and surveys have been undertaken to determine the extent, quality, value, and composition of vegetation and habitat potentially impacted and the utilisation of species of significance. The results form key drivers for impact mitigation through multiple avenues including major alignment changes, minor alignment changes, varying widths of construction footprints in sensitive areas and measures planned to reduce impact during construction. Early surveys were undertaken in 2021 with additional surveys every year since to support existing information, address alignment changes, fill in gaps in information / data and compile a complete picture of the construction footprint features and the potential impacts.

The current document reflects the native vegetation clearance data report (NVCDR) for alignment version 'Rev 5.2', supplied by JBS&G in April 2026. There are no discounts for rehabilitation for the current application, despite the intention that just 19% of the total clearance is permanent. Therefore, the clearance proposal in its current form represents the expected impact at the time of application for the Project (construction footprint). A continuous formed access road or track is not expected to be necessary for the entire alignment. An allowance of 3 m for an access track along the alignment has been included in permanent disturbance estimates to account for unformed tracks that may result from occasional vehicle access along the alignment and for established access tracks to infrastructure such as air valves, scour valves and test points. The remainder of the disturbance corridor for the transfer pipeline will be allowed to naturally regenerate following re-spreading of topsoil and vegetation; and including other intervention such as weed control.

Previous (to Rev 5.2) alignments have been altered due to factors including impact mitigation for threatened species, cultural significance, landholder and tenure negotiations, engineering and design factors and Project feasibility. The current Project design is preliminary and is expected to change through the detailed design process, or in response to cultural heritage matters or other refinements to minimise impacts as design and technical studies continue. As such, the construction footprint will be subject to change as the Project is refined, but it is considered that the current application provides a reasonable representation of the expected clearance and associated level of risk and impact. This application is expected to address the majority of the vegetation clearance currently anticipated for the Project.

Vegetation within the construction footprint provides habitat for threatened species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and as such, an EPBC Act referral was submitted for the Project in December 2025 (EPBC 2025/10397). The Proponent received a decision notification that the Project was deemed a controlled action, with the controlling provisions listed threatened species and ecological communities and listed migratory species. The decision highlighted two terrestrial and one marine mammal species which the Project has the potential to have a significant impact on; Western Grasswren *(Amytornis textilis myall*, VU), Plains Mouse *(Pseudomys australis*, VU*)* and Southern Right Whale (*Eubalaena australis,* EN).

2.3 The construction footprint and landscape setting

The proposed desalination plant is located on Mullaquana Station ~1.5 km inland from the coast of the Upper Spencer Gulf and 25 km south-west of Whyalla. The water transfer system runs north from the desalination plant to Olympic Dam passing Whyalla, Port Augusta, Woomera and Roxby Downs, with a proposed lateral branch from the main trunk pipeline to the operational Carrapateena mine (Figure 1).

The desalination plant and southern sections of the water transfer system along with some other project infrastructure occurs within the EP LMR. The remaining infrastructure, including the northern section of the main transfer pipeline and the ~46 km lateral branch to Carrapateena mine is in the SAAL LMR.

Pastoral livestock grazing is the primary land use in the construction footprint across widespread remnant vegetation. The construction footprint intersects one large Department of Defence area, the Cultana Training Area (CUTA) north of Whyalla. Freehold sheep grazing stations exist between Mullaquana Station and Whyalla, while Pastoral Lease Stations (Crown Land) extend for the majority of the construction footprint, from north and west of Whyalla to Olympic Dam, including the Carrapateena lateral.

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A diverse range of landforms and vegetation communities occur across the extensive construction footprint with mean annual rainfall ranging from 259.5 mm around Whyalla to 147.5 mm near Olympic Dam and with arid communities mostly dominating the landscape for the majority of the construction footprint. The climatic conditions and landforms south of Whyalla within the Myall Plains IBRA Subregion, supports vegetation communities dominated by Western Myall (*Acacia papyrocarpa*) open woodlands and Chenopod shrublands with Sugarwood *(Myoporum platycarpum)* and Black Oak *(Casuarina pauper)*. Beyond the construction footprint, the Project Area also extends into a small area of Coastal Saltmarsh and Mangrove habitats on the coastline east of the desalination plant. These communities transition into mixed Western Myall and Mulga (*Acacia aneura*) woodlands on sandy plains approximately 120 km north of Port Augusta which then extends to widespread tableland country in the Arcoona Plateau IBRA Subregion near Woomera. In this area drainage lines of taller shrubs and Black Oak are present but transition to tall shrublands and native pine woodlands on dunefields further north in the Roxby IBRA Subregion. Vegetation communities within the construction footprint provide habitat for a range of threatened species under the EPBC Act and *National Parks and Wildlife Act 1972* (NPW Act) with some species targeted for extra research, habitat mapping and / or specific survey effort. Whyalla CP is located approximately 2.4 km east of the construction footprint and is not proposed to be impacted by Project infrastructure.

The marine environment at the desalination plant site supports mangroves in the intertidal zone (with areas of bare sand), *Posidonia* seagrasses in the subtidal area to approximately 13 m depth and *Zostera* sp. seagrass out to approximately 15 m depth, whereafter bare sand dominates. Project infrastructure will be installed by tunnel boring under the coastal and intertidal zone and will only impact *Zostera* and bare sand areas where there is no native vegetation.

The construction footprint traverses approximately 400 km over the traditional lands of the Barngarla and Kokatha Peoples, both of whom also hold native title rights over much of the construction footprint, with some exceptions where native title has been determined not to exist (such as on freehold land and within public road reserves). Engagement with traditional owners regarding matters including, but not limited to, works on land subject to native title and the presence of Aboriginal cultural heritage sites, is ongoing, and is expected to continue throughout the project's detailed design.

2.4 General location map

The construction footprint extends from Mullaquana Station on EP to Olympic Dam in Roxby Downs, with a lateral branch to the Carrapateena mine. Other associated infrastructure is distributed throughout the landscape as described in Section 2.5, including pump stations, storages, temporary camps and laydown areas. A location map is provided in Figure 1.

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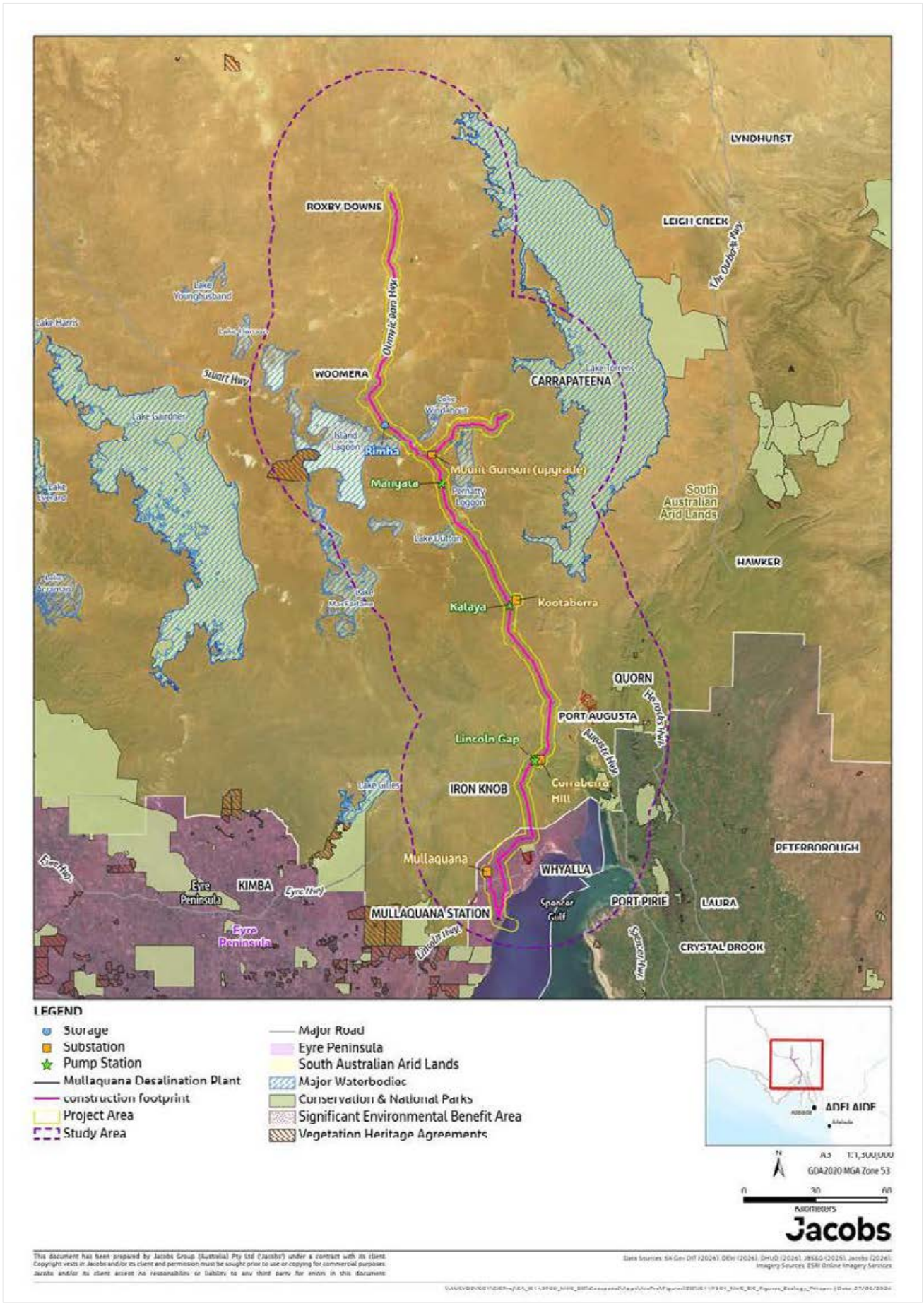


Figure 1. Location of the Northern Water Project construction footprint and Project Area.

2.5 Details of the proposal

This section provides an overview of the Project. Further detail is provided in Chapter 6 of the EIS.

Delivery of the Project will involve the construction and operation of a 51 gigalitre per year (GL/y) seawater reverse osmosis desalination plant and associated marine structures on the Upper Spencer Gulf (USG), a water transfer system and required power supply infrastructure. The proposed desalination plant location is on the western shore of the USG at Mullaquana Station, 25 km south-west of Whyalla, and the transfer system runs generally north from the desalination plant to delivery points at the Olympic Dam and Carrapateena copper-gold mines.

The Project comprises the following key elements:

- a 51 GL/year seawater reverse osmosis desalination plant located at Mullaquana Station approximately 25 km south-west of Whyalla
- marine intake and outfall tunnels extending underneath the seabed and into Spencer Gulf
- diffuser structures for discharge of return water into Spencer Gulf
- a ~406 km transfer system consisting of:
  - a ~360 km main transfer pipeline, largely constructed underground terminating at the delivery point at the Olympic Dam copper-gold mine
  - a ~46 km lateral branch to a delivery point at the Carrapateena copper-gold mine (which may be constructed above or below ground)
  - associated transfer pump stations and product water storage
- high voltage electricity supply including new transmission and distribution lines and new network substations to provide power to the desalination plant and transfer pump stations
- associated temporary construction-related infrastructure (e.g. construction camps, site offices and amenities, yards, storages and laydown areas)
- access tracks including establishing new tracks and upgrading existing tracks
- enabling roadworks and road upgrades.

An overview of the key elements of the Project is provided below. Further details are provided in the detailed project description in the EIS (Chapter 6).

Desalination plant and marine infrastructure

At Mullaquana Station, the Project includes construction of a desalination plant, intake pump station, intake and outfall tunnels extending beneath the seabed into the Spencer Gulf and diffuser structures for discharge of return water into the Spencer Gulf.

The desalination plant site comprises the desalination plant, product water storage, high voltage switchyard, intake and outlet pump station areas, tunnel boring machine launch facility, stormwater management systems ancillary equipment, facilities and power infrastructure at the plant. The site will also incorporate administration buildings, workshops, parking, fencing, entry points, and security. Approximately 200 ha of land would be required for the purposes of construction.

Intake and outfall tunnels and pipes are proposed to extend offshore from the desalination plant into the Spencer Gulf waters to a minimum approximate water depth of 13 m (intake) to 17 m (outfall) from Lowest Astronomical Tide in order to reach suitable intake water quality and adequate depth to ensure the outfall can adequately disperse the return water. Intake and outfall tunnels will be constructed via tunnel boring from shore under the seabed to the intake and outfall structure locations. An alternative construction method involves floating the pipeline into position after tunnelling reaches a suitable depth, then lowering and securing it to the seabed using permanent anchoring methods.

Transfer system

The transfer system consists of a ~360 km main transfer pipeline, a ~46 km Carrapateena lateral branch and associated transfer pump stations and water storage to transfer desalinated water from the desalination plant to the delivery points at the Olympic Dam and Carrapateena mines.

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The pipeline would generally be buried underground and constructed using trench and cover fill for the majority of the alignment. Trenchless installation would be used for rail and for some watercourse crossings. The pipeline may also be located aboveground level for discrete sections where that is the preference of Traditional Owners or where hard rock is encountered.

The construction corridor width required over the length of the transfer system would vary based on topographical, geotechnical, pipe material and jointing method selected, required clearances from other services, and environmental and Aboriginal cultural heritage constraints. The maximum construction corridor width for standard installation would be 40 m, with a typical layout shown in Figure 1.

The transfer system includes a series of pump stations and associated water storages along the pipeline required to move water along the length of the main transfer pipeline, along with one additional water storage site.

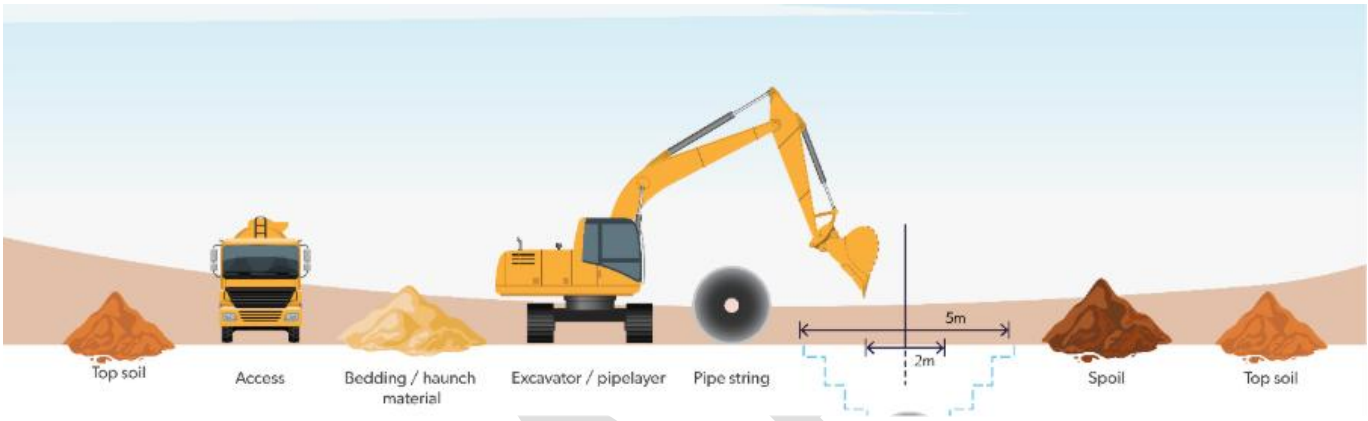


Figure 2. Typical construction layout for pipeline

Electricity infrastructure

Electricity infrastructure includes high voltage electricity supply including powerlines and network substations to provide power to the desalination plant and transfer pump stations.

Four transmission lines will be constructed to provide power to the desalination plant and pump stations. Two new substations will be constructed and two existing substations will be upgraded. Details are provided below.

- Approximately 20 km north of the desalination plant, a new ElectraNet substation, the Mullaquana Substation, will be constructed and operated by ElectraNet. It will connect to the desalination plant via a ~20 km, 132 kV private transmission line, which will be built and operated by the Project.
- At Lincoln Gap, the existing ElectraNet Corraberra Hill Substation will be augmented by ElectraNet. This substation will supply power to the Project's Lincoln Gap transfer pump station through a ~3 km, 275 kV private transmission line built and operated by the Project.
- At Kootaberra Station, a new ElectraNet substation will be constructed and operated by ElectraNet. It will supply power to the Project's Kalaya transfer pump station via a ~4 km, 132 kV private transmission line built and operated by the Project.
- At Oakden Hills, SAPN's Mount Gunson Substation will be augmented by SAPN. A new ~15 km, 33 kV distribution line will likely be constructed and operated by SAPN to connect the substation to the Project's Mangata pump station, noting that final scope of this remains subject to ongoing engagement with, and assessment by, SAPN.
- Power for the Project's Bimba storage will be provided by a solar panel array and battery system.

Other infrastructure

- Associated temporary construction-related infrastructure (e.g. construction camps, site offices and amenities, yards, storages and laydown areas)
- Access tracks including upgrading existing tracks and establishing new tracks
- Enabling roadworks and road upgrades.

Project Area and disturbance footprint

The Project Area for the purposes of approvals is based on a 2.5 km buffer surrounding all Project infrastructure including the alignment of linear infrastructure (i.e. a 5 km wide corridor) with isolated areas identified outside of this buffer for potential laydown locations. Final location of infrastructure is expected to remain inside this corridor.

The disturbance footprint for the Project is the estimated area of direct disturbance to ground surface and seabed due to construction and operation of all Project components and includes:

- indicative areas for all temporary and permanent disturbance
- potential locations of stand-alone construction laydown areas / camps and construction access tracks (noting that these are nominal at this stage of the design, and additional or differing locations may be identified through detailed design).

The Project design is preliminary and is expected to change through the detailed design process, or in response to cultural heritage matters or other refinements to minimise impacts as design and technical studies continue. As such, the disturbance footprint and indicative disturbance estimates will be subject to change as the Project is refined. Any changes are anticipated to be managed within the Project Area.

Disturbance of native vegetation

The majority of the disturbance footprint for land-based infrastructure is located in the pastoral zone which has not been extensively cleared for agriculture. In areas of native vegetation, the disturbance footprint will be constrained to minimise impact on vegetation, however, clearing will be required to enable the construction of the desalination plant, transfer system and electricity infrastructure.

Marine construction methods which require seabed disturbance may lead to clearance of small areas of *Zostera* spp. seagrass, however the disturbance footprint would be designed to be located beyond the extent of the slow-growing *Posidonia* spp. seagrass.

The indicative total disturbance footprint for the Project is estimated at 2,154 ha, of which an estimated 407 ha is permanent and 1,747 ha is temporary and would be rehabilitated following construction. A breakdown of indicative estimates of the total disturbance (including temporary and permanent disturbance) for key Project components (based on the 'construction footprint' layer in the GIS Rev 5.2 shapefiles) is provided in Table 1. Note this is the total surface disturbance footprint and does not differentiate between areas with or without native vegetation (and therefore differs slightly from the total areas of vegetation clearance presented elsewhere in this report).

Table 1. Summary of indicative surface disturbance for key Project components (based on GIS Rev5.2 'construction footprint' layer)

Project component	Estimated total disturbance (ha)	Estimated breakdown (ha)	
		Permanent	Temporary
Desalination plant	187	187	0
Access road to desalination plant	35	35	0
Offshore construction of marine infrastructure, including risers, intake structure and outfall diffusers	7	4	3
Main transfer pipeline and lateral branch (includes construction corridor disturbance and permanent access track)	1,603	122	1,481
Pump stations, water storages	28	14	14
Electricity infrastructure	85	45	40
Other temporary construction areas (camps / laydowns / yards / offices)	209	0	209
TOTAL	**2,154***	**407**	**1,747**

*Note: the total area in the disturbance footprint shapefile includes an additional ~2 ha for underboring, which has no surface disturbance.

A number of assumptions have been made in estimating the Project's disturbance footprint, as described below. As noted above, these will be refined as detailed design progresses, or in response to cultural heritage matters or other refinements as design and technical studies continue:

- The construction footprint for marine infrastructure relates to a preliminary stage in design and is indicative. It has been developed to cover a range of potential construction methodologies as discussed above. It includes a conservative allowance to cover direct and indirect disturbance during construction. Actual clearance for construction is likely to be less. Further explanation of the marine construction footprint used in this assessment is provided in Section 4.2.
- The desalination plant construction footprint has been conservatively classified as permanent clearance due to uncertainty in the design and location of features such as the earth bank storage, construction laydowns, construction water treatment plant and ponds for dewatering, evaporation and stormwater management. However, parts of the construction footprint would be temporary, and the disturbance is also likely to be reduced overall.
- A maximum pipeline alignment construction corridor width of 40 m for standard installation has been specified. This is less than a more typical width of 50-60 m for a pipeline of this nature, in order to minimise impacts to native vegetation and habitat. This corridor width is subject to various construction constraints in some locations (typically due to cultural heritage, environment or design constraints) where narrowing of the disturbance footprint is required. The ultimate construction corridor width will be dependent on the outcomes of detailed design and related construction methodology. It may be reduced in some locations, however, there may also be instances where extra workspace is required e.g. adjacent to highly constrained sections.
- Allowance for a 3 m wide access track along the pipeline alignment has been included in permanent disturbance area estimates to account for an unformed track that may result from occasional vehicle access along the alignment for operational and maintenance services and for established access tracks to infrastructure such as air valves, scour valves and water meters.
- Allowance for a permanent access road from Lincoln Highway to the desalination plant, adjacent to the transfer pipeline, has also been included, as a 20m corridor. This will utilise existing roads and tracks for most of its length.
- Electricity infrastructure disturbance footprints are based on nominal locations of tower/pole structures and stringing pads/tracks, with the exception of the Oakden Hills 33kV transmission line, which uses a nominal 10 m wide corridor immediately adjacent to the Highway.
- Indicative locations of potential laydown areas, camps, new access tracks and access track upgrades to allow heavy vehicle access have been identified and are included in the indicative disturbance footprint. These are nominal at this stage of the design, and additional or differing locations may be identified through detailed design.

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2.6 Approvals required or obtained

Approvals required for the Project are expected to include:

- ***Native Vegetation Act 1991***

Clearance for the project falls under *Native Vegetation Regulations 2017*, Part 4, Regulation 12 (Regulation 12(27) – Major Projects). This report meets the criteria for application to clear native vegetation under the *Native Vegetation Act 1991*.

- ***National Parks and Wildlife Act 1972***

Jacobs is permitted to undertake works under Jacobs Statewide Vegetation Survey and Passive Fauna Scientific Permit (C25361-20). Permit numbers aligning with previous surveys are listed in Table 3-2 in Appendix 1.

- ***Biodiversity Act 2025***

The *Biodiversity Act 2025* (Biodiversity Act) passed through Parliament in June 2025 and is a major legislative reform in South Australia's approach to biodiversity conservation. This new Act aims to consolidate various existing legislation including the NV Act (and NV Regulations) and the NPW Act into a single piece of legislation. The Biodiversity Act also aims to address identified gaps in biodiversity protection in South Australia and will result in significant changes to the frameworks, policies, processes and committees that manage the clearance of native vegetation in South Australia. This new Act may also result in changes to the fauna and flora species protected under state legislation as well as the assessment methodologies required for native vegetation clearance applications. The Act will also recognise the important role Aboriginal knowledge and Aboriginal South Australians play in biodiversity management.

As this new Act has not yet come into effect, the NV and NPW Acts continue to apply and the Project has been assessed in accordance with the legislation and policies in force at the time of preparation.

- ***Planning, Development and Infrastructure Act 2016***

A Crown Development Application (ID 25038619) for the Project was submitted in December 2025. The Project received Ministerial direction pursuant to Section 131(25) of the *Planning, Development and Infrastructure Act 2016* (PDI Act) in December 2025, requiring the preparation of an Environmental Impact Statement (EIS) and processing under Part 7, Subdivision 4 of the PDI Act.

Following the submission of a Planning Report in accordance with the requirements of Practice Direction 17, the Minister issued Assessment Requirements for the project. An EIS has been prepared in accordance with the Assessment Requirements, and this report fulfils the requirement to provide a draft Native Vegetation Clearance Data Report as a component of the EIS.

- ***Pastoral Land Management and Conservation Act, 1989***

The objectives of the *Pastoral Land Management and Conservation Act 1989* (Pastoral Act) are, amongst others, to ensure that pastoral leases are well managed, provide a system of tenure for pastoral purposes, recognise Aboriginal persons' rights to follow traditional pursuits, provide a system of public access to and through pastoral land, and provide for the operation of wind farms.

A pastoral lease allows the occupation and use of Crown (government) land for the use of grazing or raising livestock (pastoralism). There are 323 pastoral leases that cover over 40% of South Australia (DEW 2024).

The Pastoral Board of South Australia is responsible to the Minister for Climate, Environment and Water for the administration of the Pastoral Act.

- ***Environment Protection Act 1993* (SA)**

Licensing under the South Australian *Environment Protection Act 1993* will be required for activities of environmental significance, and relevant Environment Protection Policies will apply, including the Environment Protection (Air Quality) Policy 2016, Environment Protection (Commercial and Industrial Noise) Policy 2023 and the Environment Protection (Water Quality) Policy 2015.

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- ***Environment Protection and Biodiversity Conservation Act 1999* (Cth)**

An EPBC referral was submitted for the Project in December 2025 (EPBC 2025/10397), with the decision being that the Project was deemed a controlled action. The controlling provisions were listed threatened species and ecological communities, and listed migratory species. The decision highlighted Western Grasswren *(Amytornis textilis myall*, VU, Plains Mouse *(Pseudomys australis*, VU*)* and Southern Right Whale (*Eubalaena australis,* EN) as species where the Project had potential to have a significant impact. The Project will be assessed by accredited assessment under the PDI Act.

- ***Landscape South Australia Act 2019***

The LSA Act is the key framework promoting the sustainable and integrated management of the State's natural resources (land, water, biodiversity) and for the management of pest plants and animals.

A permit to transport declared weeds on a public road may be required for the Project. Under the LSA Act, it is the landowner's responsibility to control plants listed as Declared under the LSA Act (including Weeds of National Significance (WoNS)). All permits allowing transport or sale can only be issued by the Chief Executive of DEW (or their delegate) under *Section 197*. A water affecting activity permit is likely to be required from SAAL and EP.

- ***Aboriginal Heritage Act 1988***

Aboriginal sites, objects or remains are protected under the *Aboriginal Heritage Act 1988* and must not be damaged, disturbed or interfered with unless prior approval has been obtained from the Minister for Aboriginal Affairs and Reconciliation.

2.7 Native Vegetation regulation

The Northern Water project falls under Part 3, Division 5, Regulations 12 and 13 of the *Native Vegetation Regulations, 2017* (i.e. *Regulation 12(27) – Major projects*). This Regulation is intended to facilitate interactions between the *Native Vegetation Act, 1991* (the NV Act) and the *Planning, Development and Infrastructure Act, 2016* (the PDI Act) (previously the *Development Act, 1993*).

Regulation 13 states that clearance of native vegetation for the purposes of a development or project of a kind specified in Schedule 1 Part 4 is permitted if undertaken in accordance with the consent granted for the proposed development or project; and, either a management plan approved by the NVC that results in a significant environmental benefit, or a payment is made into the Native Vegetation Fund of an amount considered by the NVC to be sufficient to achieve a significant environmental benefit.

Requirements under Schedule 1 Part 4 (clause 27 – Major Projects) include:

- Clearance is incidental to a proposed development to which Section 48 of the *Development Act 1991* applies;
- The EIS is referred to the NVC for comment by the Minister responsible for the Development Act
- Comments provided by the NVC within eight (8) weeks are included in the relevant Assessment Report.

The EIS will be referred to the NVC for comment under the process in Section 113 of the PDI Act.

Note: The Native Vegetation Regulations currently refer to the *Development Act 1991* which has been superseded by the PDI Act. However, the Regulation content still applies by way of the *Legislation Interpretation Act 2021* as follows:

- Section 33(3) of the *Legislation Interpretation Act 2021* provides that:

  (3) An Act or a legislative instrument, or provision of an Act or a legislative instrument, will be taken to have been replaced if it has been repealed or superseded by a later Act, instrument or provision that deals with the same matter (whether it deals with the matter in the same manner or not and whether it deals only with the matter or with other matters also).

- Regulation clause 27 of Schedule 1 of the NV regulations reads:

  Clearance of vegetation that is incidental to a proposed development to which section 48 of the *Development Act 1993* applies, provided that— (a) an environmental impact statement, public environmental report or development report, and an Assessment Report, relating to the development have been prepared

under the *Development Act 1993*; and (b) the Minister responsible for the administration of the *Development Act 1993* referred the environmental impact statement, public environmental report or development report to the Council for comment and report and—.....

- Given the power in s33 of the Legislation Interpretation Act the reference to Development Act EIS/ PER / DR should be read as referring to an EIS under the PDI Act (advised by Planning and Land Use Services (PLUS) 2024).

2.8 Development application information

On 16 December 2025 the Northern Water Project Delivery Office, within the Department for Infrastructure and Transport (DIT), as an agency of the Crown, lodged a development application under Section 131 of the *Planning, Development and Infrastructure Act 2016* (the PDI Act) for the Northern Water Project (Crown DA 25038619).

On 22 December 2025, pursuant to Section 131(25) of the PDI Act the Minister directed that the development becomes subject to the procedures under the PDI Act with respect to the preparation and consideration of an EIS. The direction notice appeared in the SA Government Gazette on 8 January 2026. The scope of the development is as defined in Crown DA25038619.

The entire construction footprint occurs within the Native Vegetation Overlay (for applications associated with a development application only). The construction footprint avoids all protected areas including Conservation Parks (CP), National Parks (NP), Heritage Agreements (HA) and Significant Environmental Benefit (SEB) areas (plus a 50 m buffer). As such, the State Significant Native Vegetation overlay does not apply to the Project.

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3. Method

3.1 Terrestrial desktop assessment

The desktop assessment for the Project included the following:

- Review of high-level desktop assessment and pre-feasibility survey undertaken by Jacobs and GHD (Jacobs and GHD 2021), including existing vegetation and habitat data already collected for the Project.
- Review of the EPBC Act Protected Matters Search Tool (PMST) (DCCEEW 2025a), Biological Databases of South Australia (BDBSA) records (DEWNRBDBSA250723-3, extracted on 23 July 2025) (DEW 2025a), Atlas of Living Australia (ALA) records (ALA 2026), NatureMaps (DEW 2025b) and literature including the Species Profile and Threats Database (SPRAT) (DCCEEW 2026), species recovery plans and Threatened Species Scientific Committee (TSSC) notes.
- Determine the likelihood of occurrence (LoO) for the listed Threatened Ecological Communities (TECs) and threatened and migratory species listed under the EPBC Act and NPW Act identified in the database searches.
- Liaison with local stakeholders (e.g. DEW) to obtain updated information about the region.

Results of the desktop assessment were also used, in part, to inform field survey preparation and site selection. For details on the methodology used for the desktop assessment, including stratification and descriptions of habitat types and criteria used for the LoO assessment, refer to Section 3.2 of the Terrestrial Ecology Assessment (Jacobs 2026, included as Appendix 1 of this report).

3.2 Terrestrial field survey

Twelve ecological field surveys have been undertaken for the Project, of which ten were undertaken by Jacobs, and two were undertaken by Lathwida Environmental (LE) (Table 2). Each field team comprised two ecologists, including an experienced NVC accredited consultant for the collection of BAM / RAM data and an experienced fauna consultant to undertake habitat assessments and fauna surveys.

The surveys covered areas relevant to the current construction footprint, as well as previous alignment revisions. Only data applicable to the current construction footprint is presented in this report. As such, some of the threatened species targeted in surveys are not discussed as they are no longer relevant.

Table 2. Ecological surveys previously undertaken for the Project

Survey number.	Timing	Description of survey
Survey 1 – Spring	5 – 7 October 2021	A vehicular and foot survey undertaken as part of Project pre-feasibility planning (Jacobs and GHD 2021). The survey was undertaken in spring to highlight ecological constraints and provide data for broad mapping of vegetation groups, potential threatened species habitat and potential land management issues.
Survey 2 – Spring	5 – 13 October 2022	Vegetation survey (Bushland / Rangeland Assessment Method, BAM / RAM) and assessment against TEC listing criteria where required. Targeted EPBC Act Vulnerable species (Western Grasswren (*Amytornis textilis myall*), Thick-billed Grasswren (*Amytornis modestus indulkanna*), Malleefowl (*Leipoa ocellata*) and Plains Mouse (*Pseudomys australis*) habitat survey, bird surveys and song meter deployment.
Survey 3 – Summer	5 – 9 December 2022	Follow-up gap fill vegetation and habitat survey restricted to Whyalla surrounds, bird surveys and song meter deployment.

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Survey number.	Timing	Description of survey
Survey 4 – Summer	21 – 22 February 2023	Follow-up gap fill vegetation and habitat survey, particularly around revised alignments and revised (but now superseded) desalination plant site location (Cape Hardy). This survey included targeted survey for Bead Glasswort (*Tecticornia flabelliformis*) (EPBC Act VU) in areas of suitable habitat between Mullaquana Station and Whyalla during assessment for a previous alignment.
Survey 5 – Winter	20 July 2023	Survey of the northern section of Munyaroo CP to a point approximately 6.5 km south-west of the northern sections of the Munyaroo CP (now outside the Project Area).
Survey 6 – Spring	25 – 26 September 2023	Survey of revised alignment from Cowell to Lincoln Highway north of Whyalla excluding previously surveyed areas.
Survey 7 – Spring	5 – 8 November 2023	Survey of alignment from Cape Hardy to Cowell (now outside the Project Area) including proposed desalination plant location and western TL (Ungarra to Cape Hardy).
Survey 8 – Summer	3 – 6 February 2025	Vegetation (BAM) and habitat survey restricted to the Mullaquana Station desalination plant and surrounds, targeted searches for Bead Glasswort, general and targeted bird surveys and song meter deployment.
Survey 9 – Autumn	7 – 9 May 2025	Gap-fill vegetation (BAM and RAM) and habitat survey (target species only) for revised pipeline alignment and surrounds for a large section between the Mullaquana Station desalination plant and Woomera township.
Survey 10 – Winter	25 – 28 August 2025	Targeted Western Grasswren timed area searches and song meter deployment at the Mullaquana Station desalination plant and surrounds, as well as vegetation and habitat surveys and general bird surveys along the Mullaquana TL. Gap-fill vegetation and habitat survey for revised pipeline alignment and surrounds within the Cultana Training Area (Department of Defence (DoD) land), as well as general bird surveys, song meter deployment and call-playback for Western Grasswren.
Additional surveys conducted by Lathwida Environmental (LE) which are relevant to the Northern Water project and included in this report		
LE 1 - Autumn	17 - 19 March 2024	Vegetation (RAM) surveys, ground-truthing existing vegetation mapping layers, and allocating existing Project RAM data where relevant to the Project Area around the Carrapateena lateral. RAM data from nearby sites has also been incorporated from previous surveys undertaken between 26 and 30 April 2023 (Northern Wellfield Expansion), the most recent annual flora and fauna survey at the Carrapateena site (May 2023) and a survey near the Stuart Highway.
LE 2 - Autumn	18 - 22 March 2024	Ground-truth and / or implementation of RAM/BAM sites to describe the vegetation associations, broad vegetation communities and major vegetation groups present, rapid vegetation assessments (RVA) were also used to inform mapping and vegetation descriptions for Lake Dempsey, Kootaberra and several sites south of Mullaquana Station. Fauna was recorded opportunistically throughout the sites.

3.2.1 Flora assessment

Flora assessments were conducted in accordance with the relevant NVC methodology, using the BAM for sections of the Project Area within the EP LMR and RAM for sections of the Project Area within the SAAL LMR (NVC 2024d, 2024e). BAM and RAM sample point locations (sites) were based on the construction footprint and information at the time of the survey. As such, numerous sites became redundant with subsequent changes to the alignment of the construction footprint. Some reference is made to these (now redundant) BAM / RAM sites within this report as appropriate, however detailed results on redundant sites are generally excluded from this report.

Within the construction footprint, 23 BAM sites and 54 RAM sites are relevant to this report (Map series presented Section 4.1.4 and scoresheets are provided in Appendix 2). The following information was assessed or recorded at each site:

- Vegetation description of overstorey and understorey;
- Observation of flora species (exotic and native) and cover / abundance representative of each site;
- Photos taken north, south, east and west (minimum one image captured);
- Consideration of faunal habitat characteristics (e.g. hollows, litter level, presence of preferred vegetation as habitat and gilgai) with particular reference to target EPBC Act listed species;
- Consideration of the presence of the Subtropical and Temperate Coastal Saltmarsh TEC in coastal areas;
- Opportunistic recording of the presence of threatened EPBC Act or NPW Act flora and / or suitable habitat through the extent of the survey area;
- Opportunistic collection of key weed species present and areas of disturbance throughout the Study Area; and
- Spatial data (point or polygon 'stop-start' mapping points) collection using a handheld global positioning system (GPS) and iPad with spatial software (ArcGIS Field Maps).

The BAM and RAM ultimately inform offset calculation as per the SEB Guide and Policy (NVC 2024b, 2024c). The description of a BAM or RAM association was determined largely at the time of survey based on structural features, floristic composition, condition and value at that location (a sample point) and then extrapolated to the broader landscape (e.g. a mappable polygon unit). Often, more than one BAM or RAM quadrat was assessed for each vegetation association to enable more accurate valuation across a large scale. However, it was often difficult to allocate vegetation to one BAM or RAM type (already set at previous surveys) across multiple surveys (particularly with multiple surveyors). Therefore, new BAM / RAM sites were often installed during a subsequent survey and are used as the basis for the SEB calculation.

Rainfall for BAM and RAM sites was determined by averaging rainfall values on NatureMaps at 2 km intervals for the EP LMR, and 20 km intervals for the SAAL LMR (DEW 2025b).

Vegetation in the Project Area was mapped initially in the field using 'stop-start' mapping points and finalised via desktop. Rapid mapping points marked 'start and end' points between vegetation communities which as a minimum included dominant overstorey species, but often also included compositional details of understorey (e.g. chenopod, sclerophyll) and consideration of any threatened communities that occur or may occur. In these areas, BAM / RAM quadrats were not assessed to obtain a list of species occurring, determine condition and specific features, nor provide a metric value (Unit Biodiversity Score) for the various vegetation types to calculate an SEB should any clearance be required. However, BAM sites are considered a reasonable representation to cover areas of rapid mapping and to provide SEB offset calculations.

3.2.2 Vegetation numbering and classification

Due to the large scale of the Project, additional vegetation classification and stratification was required to enable manageable descriptions for reporting and mapping presentation of the existing environment.

To enable vegetation and habitat descriptions to be representative at a broader scale, and for other Project purposes, a project specific vegetation community hierarchy was created. The hierarchy is represented by Major Vegetation Groups (MVGs) and Broad Vegetation Communities (BVCs) comprised of the Vegetation Associations (VAs) detected at BAM / RAM sites. MVGs were also used to assist in describing major landforms, major vegetation categories, and habitat for threatened species across the construction footprint. For the EP LMR, BVCs were aligned with existing BCM categories to correspond with the benchmarking of the electronic BAM scoresheets (Milne et al. 2008, NVC 2024d). Stratification was undertaken for the EP and SAAL LMRs as practicable for the scale to broadly represent landform, major floristic composition and key habitats. Pastoral land systems were not specifically used to stratify vegetation. However, knowledge of land system features and changes based on the extensive experience of surveyors in pastoral environments was anecdotally applied during stratification of the landscape. MVG and BVC categories are specific to the Project Area and are not intended to classify communities across the broader EP or SAAL LMRs.

A full list of BAM sites, RAM sites and their corresponding communities is within the construction footprint is provided in Table 3 and Table 4 in Section 4.1.

3.2.3 Fauna surveys

3.2.3.1 Targeted threatened fauna survey

Targeted threatened fauna assessments relevant to the construction footprint focused on three EPBC Act listed threatened species (all listed as Vulnerable) and several migratory species (order Charadriiformes) identified as potentially occurring in the construction footprint through the desktop assessment:

- Western Grasswren (Gawler Ranges ssp.)
- Southern Whiteface
- Plains Mouse
- Internationally listed migratory shorebirds (in Order: Charadriiformes) (only targeted around the coastline of the Mullaquana Station desalination plant site) (some are also considered threatened under the EPBC and / or NPW Act).

These species were selected as targets for more rigorous investigation due to their greater likelihood of presence and potential for clearance of known suitable habitat within the construction footprint, as identified through the initial desktop LoO assessment.

Targeted assessments involved one or more of the following methods, depending on suitability for each species:

- Broad high-level habitat suitability assessment and mapping aligned with vegetation mapping (all target species)
- Surveys for individuals and / or signs of presence (bird surveys only), and song meter deployment for bird species detection.

For detailed methodologies of the survey methods used and target species criteria, refer to Section 3.3.2 of the Terrestrial Ecology Assessment (Jacobs 2026, Appendix 1).

3.2.4 Opportunistic sightings

Opportunistic sightings of threatened species (flora and fauna) including species listed under the EPBC Act and / or the NPW Act, common native fauna species, pest weeds of note (e.g. Declared weeds or WoNS) and primarily pest fauna (e.g. Fox (*Vulpes vulpes*) den / European Rabbit (*Oryctolagus cuniculus*) warren) within (or nearby) the Project Area were also noted.

3.2.5 Mapping data sets

A range of mapping data sets have been developed as part of the Project. These include:

- Northern Water vegetation mapping (polygon data);
- BAM and RAM sample points (point data);
- Threatened species observations (point data);
- Habitat mapping for key EPBC Act listed species;
- Bird survey sites (point data);
- Song meter deployment sites (point data); and
- Threatened species habitat mapping.

Call playback was used selectively to assist in the detection of target bird species where considered appropriate and ethical, at timed area / bird survey sites. However, the specific locations where this technique was applied were not recorded.

For details of methods used to produce mapping data sets for the Project, refer to the Terrestrial Ecology Assessment (Jacobs 2026, Appendix 1).

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3.3 Marine desktop assessment

A desktop assessment was undertaken for the proposed clearance site and included use of the following sources of data:

- EPBC Act Protected Matters Search Tool (PMST) within a 5 km buffer zone of the Project Area (accessed 10 November 2025)
- A Biological Database of South Australia (BDBSA) search was obtained from NatureMaps on 12 May 2025 within a 5 km buffer zone of the proposed clearance site.
- Atlas of Living Australia (ALA) accessed in May 2026.

The species profile and threats database (SPRAT), approved conservation advice, recovery plans and other published information were also used to obtain further information for individual species.

3.4 Marine field survey

Marine field survey techniques are described in the EIS Chapter 11 Marine Environment and Appendix G-3 Marine Ecology Impact Assessment and are summarised below.

There is no detailed methodology prescribed by the NVC for marine field assessments. The marine habitat surveys used remote survey methods used by the SA Environment Protection Authority (EPA), utilising diver transects and quadrat surveys, towed underwater video and baited remote underwater video systems (BRUVS) within the marine survey area (MSA). The marine ecology surveys were conducted by J Diversity over a full year with sampling occurring across all four seasons.

Transect surveys were undertaken by scuba along a 50 m transect at each of the sites representing the four major and three minor seagrass habitats. The surveys were conducted on 17–18 and 25–26 February (summer), 28–30 April and 1 May (autumn), 22–24 and 28 July (winter), and 20-21 and 23–24 October (spring) 2025. The following was undertaken on each transect:

- Landscape oriented photoquadrats perpendicular to the transect line were undertaken at 2.5 m intervals, each encompassing 30–50 cm of tape (a total of 21 images).
- For sites with Posidonia or *Amphibolis*, at each of five randomly selected points along the transect line:
    - Five measurements were made of canopy height
    - For *Posidonia australis* and *P. sinuosa* habitats, a corer of diameter 110 mm and depth 300 mm was used to extract all seagrass material.
- Search for invertebrates and cryptic fish within one metre to one side of the transect line

Towed camera surveys were undertaken across several surveys including 27 February (summer), 2 May (autumn), 1 August (winter) and 29 October (spring). A 50 m transect was undertaken using a towed camera system at each of the representative sites in Sand/bioturbation, Sand/invertebrates and Bryozoan habitats. The camera system comprised a standard definition camera with a live feed to the vessel and a Go Pro Hero 4 used to capture high definition, wide screen video footage. Both cameras were aimed 45° below horizontal. The camera system was deployed at a depth of about 1 m above the seafloor from a vessel drifting with the current, occasionally using engine bursts to maintain a speed of approximately 0.5–1 knots. Vessel position was recorded throughout each transect using a handheld, non-differential GPS unit.

Baited Remote Underwater Video (BRUV) units were deployed at five representative sites for each of the six primary habitats, i.e. 30 sites in total. BRUV units were deployed on 27 February (summer), 1-2 May (autumn), 28-29 July (winter), 29-30 October (spring). Each BRUVS unit consisted of a high-definition GoPro Hero 4 Silver video camera mounted on a metallic frame. The camera was directed parallel to the seafloor along a 1.5 m pole terminated by a meshed bait basket with 500 g of Australian sardine *Sardinops sagax*, previously minced, frozen then defrosted. Sites were surveyed in an order that ensured that concurrent BRUVS deployments were spaced at least 200 m apart to avoid bait plume overlap and animals moving between cameras, consistent with state and national guidelines. Each BRUVS unit was deployed for at least one hour during the window between one hour after sunrise and one hour before sunset, consistent with national guidelines.

A full description of the methodology is presented in the Marine Ecology Impact Assessment in Appendix G-3 of the EIS (J Diversity, 2026).

NVC Marine Assessment Scoresheets were jointly completed by JBS&G with James Brook (accredited consultant) who undertook the marine ecology assessment.

3.5 Limitations

As noted in Section 2.5, the Project design and the estimated disturbance footprint are preliminary and are expected to change through the detailed design process, or in response to cultural heritage matters or other refinements to minimise impacts as design and technical studies continue. As such, the disturbance footprint and indicative disturbance estimates will be subject to change as the Project is refined.

Consequently, this native vegetation clearance data report is a draft document, based on the Project's Reference Design and associated shapefiles at the time of EIS preparation. A final version of the clearance calculations based on the detailed design would be resubmitted after PDI Act approval, for approval of the final proposed SEB.

The BAM and RAM scoresheets have been entered into the September 2025 version (which is current at the time this report was drafted), regardless of the year the data was collected. The master Clearance Summary Table (Appendix 3) uses the SEB formula current at the time of preparation of this document in September 2025, including a management fee of $25,408 and using SEB multiplication factors current at that time (and as agreed with the Native Vegetation Branch (NVB)). As discussed with NVB, and given the long-term nature of the Project, the formula and management fee applied to the Northern Water project will be reviewed by NVB and discussed with the proponent prior to finalisation.

Additional limitations related to the desktop assessment and field surveys are as follows:

- Vegetation was surveyed on ground where feasible. However, given the very large scale and linear nature of the construction footprint and inaccessibility to some areas, a range of techniques were applied to vegetation and habitat mapping including on-ground vegetation survey (RAM / BAM), rapid point sampling, review of DEW vegetation mapping, review of aerial imagery and knowledge of species occurrence. In addition, where gaps in recent survey data were present, historical survey data from nearby projects has been used.
- Field surveys covered key focus areas and target species based on the construction footprint alignment applicable at the time of survey. The entire construction footprint has not been surveyed, due to factors including time constraints, access limitations and safety considerations and alignment changes / inclusion of new Project infrastructure post field survey.
- Vegetation communities were broadly mapped, based on IBRA Subregions, vegetation community composition and broad changes in condition. It was not feasible to capture changes in condition at small scales such as near water points or across paddocks (as per RAM assessment across smaller scales).
- Due to design changes, some aspects of data collection outside the Project Area, such as threatened species points, survey effort points and habitat mapping to show avoidance of ecological constraints, are displayed where relevant.
- Fauna survey methods were adapted (i.e. survey timings) from the DSEWPaC (DSEWPaC 2011) and DEWHA (DEWHA 2017) guidelines to suit the linear nature of the Project.
- Fauna trapping was not undertaken given the large-scale linear nature of the Project and the absence of any species of concern where targeted trapping was warranted (e.g. due to a high conservation significance or limited distribution).

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4. Assessment outcomes

4.1 Terrestrial vegetation assessment

4.1.1 Eyre Peninsula LMR

The vegetation in the EP LMR is predominantly characterised by chenopod shrublands and open woodlands, which are generally in good condition with weed cover increasing around existing infrastructure. Coastal shrublands occur around the Mullaquana Station desalination plant. Remnant vegetation is widespread across this area particularly where conditions are too dry for cropping and land use is dominated by sheep grazing and DoD activities.

Vegetation communities in the EP LMR include low coastal chenopod shrublands in the intertidal areas near Mullaquana Station and Whyalla. One area near the proposed Mullaquana Station site has been classified as the Subtropical and Temperate Coastal Saltmarsh TEC. Whilst this TEC was not formally mapped on NatureMaps, it was confirmed during field surveys, occurring on the edge of the Project Area. However, this area falls outside of the construction footprint as the intake / outfall pipes will be tunneled underground and are not anticipated to impact the TEC. Vegetation communities also include flat undulating plains of Western Myall / Black Oak / Sugarwood open woodlands over chenopod shrublands in the areas north of Whyalla up until the SAAL boundary.

As discussed in Section 4.4, the LoO assessment showed that the vegetation within the EP LMR could provide potential habitat for EPBC Act listed fauna including; Western Grasswren (*Amytornis textilis myall*), Southern Whiteface (*Aphelocephala leucopsis*), Blue-winged Parrot (*Neophema chrysostoma*), Little Tern (*Sternula albifrons*), all of which were observed during surveys. The EP LMR was also determined to provide likely habitat for Australian Fairy Tern (*Sternula nereis nereis*), Common Greenshank (*Tringa nebularia*), and Grey-headed Flying Fox (*Pteropus poliocephalus)* although these species were not observed during field surveys.

Within the EP LMR of the construction footprint, 458.213 ha of native vegetation is proposed for impact, across, 23 BAM sites (Vegetation Associations), which have been further grouped into six Broad Vegetation Groups (BVCs) three Major Vegetation Groups (MVGs) (Table 3).

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Table 3. Vegetation stratified into Major Groups (landform, floristic and structural composition), BVCs (major floristic assemblages relevant to the construction footprint) and BAM Sites (detailed VAs observed in the construction footprint during BAM quadrat surveys and extrapolated to landscape scale).

Major Vegetation Group	Broad Vegetation Community	BAM no.	Vegetation Association	IBRA Association	Area within construction footprint*
EP 2. Open woodlands of Western Myall / Black Oak / Sugarwood	NW EP 2.1 Low open woodlands of Western Myall with a Chenopod shrub understorey	BAM 62	*Acacia papyrocarpa* low very open woodland over *Maireana sedifolia* / *Atriplex vesicaria* +/- *Maireana pyramidata*	Red Rock	*11.321*
				Tregolana	*3.446*
				Whyalla	*20.002*
		BAM 67	*Acacia papyrocarpa* low woodland over *Maireana sedifolia* / *Rhagodia ulicina*	Whyalla	*18.479*
	NW EP 2.2 Low open woodlands of Western Myall / Blackoak / Sugarwood over a Chenopod shrub understorey	BAM 250	*Casuarina pauper* / *Acacia papyrocarpa* low open woodland over chenopods (drainage line)	Whyalla	*1.028*
		BAM 61	*Acacia papyrocarpa* low woodland over *Maireana pyramidata* / *Atriplex vesicaria* with sparse *Maireana sedifolia* +/- *Casuarina pauper*	Red Rock	*5.516*
				Tregolana	*0.014*
		BAM 7	*Acacia papyrocarpa* / *Casuarina pauper* low open woodland over chenopods (*Maireana sedifolia* / *Maireana pyramidata* / *Atriplex vesicaria*) +/- *Myoporum platycarpum*	Tregolana	15.220
				Whyalla	8.286
	NW EP 2.3 Low open woodlands of Sugarwood with a Chenopod shrub understorey	BAM 144	*Myoporum platycarpum* low open woodland over Chenopod shrubs (low dune)	Whyalla	*1.277*
EP 3. Chenopod Shrublands (including drainage lines)	NW EP 3.1 Coastal environments with low open chenopod shrublands on stony hills or undulating plains +/- Samphire	BAM 11	*Atriplex vesicaria* / *Tecticornia halocnemoides* ssp. aff. *longispicata* low shrubland	Whyalla	56.113
		BAM 142	*Atriplex vesicaria* / *Tecticornia disarticulata* low shrubland	Whyalla	188.859
		BAM 34	*Maireana sedifolia* / *Atriplex vesicaria* low shrubland	Whyalla	4.717
	NW EP 3.3 Chenopod open shrublands +/- emergent trees	BAM 103	*Maireana pyramidata* / *Atriplex vesicaria* open shrubland +/- *Maireana sedifolia*	Whyalla	9.588
		BAM 111	*Maireana sedifolia* / *Atriplex* low open Shrubland +/- emergent tall mixed shrubs (*Alectryon oleifolius* / *Eremophila spp.* / *Senna* spp.) +/- *Acacia papyrocarpa*	Whyalla	3.429

Major Vegetation Group	Broad Vegetation Community	BAM no.	Vegetation Association	IBRA Association	Area within construction footprint*
		BAM 17	*Maireana sedifolia* / *Atriplex vesicaria* low open shrubland with emergent shrubs (*Senna* spp. / *Eremophila* spp.) +/- *Acacia papyrocarpa*	Whyalla	4.303
		BAM 21	*Maireana sedifolia* low open shrubland on calcrete +/- emergent low shrubs / *Myoporum platycarpum* / *Acacia papyrocarpa*	Tregolana	17.666
		BAM 24	*Maireana sedifolia* / *Atriplex vesicaria* low open shrubland +/- emergent shrubs / *Myoporum platycarpum*	Whyalla	6.704
		BAM 51	*Maireana sedifolia* open shrubland +/- isolated *Acacia papyrocarpa*	Red Rock	0.898
				Tregolana	0.965
				Whyalla	23.127
		BAM 53	*Maireana sedifolia* low shrubland with clusters of *Acacia papyrocarpa*	Whyalla	6.609
		BAM 54	*Maireana sedifolia* / *Atriplex vesicaria* low open shrubland	Whyalla	4.432
		BAM 59	*Scaevola spinescens* open shrubland with emergent *Acacia papyrocarpa, Myoporum platycarpum*	Tregolana	3.816
		BAM 63	*Maireana sedifolia* / *Rhagodia ulicina* low shrubland with emergent *Acacia papyrocarpa* / *Myoporum platycarpum* on calcrete rise	Red Rock	2.702
				Whyalla	2.879
		BAM 64	*Atriplex vesicaria* / *Maireana sedifolia* low Shrubland with isolated *Acacia papyrocarpa* / *Myoporum platycarpum*	Whyalla	12.285
		BAM 65	Broad drainage line with *Maireana pyramidata* / *Atriplex vesicaria* low Shrubland with *Acacia papyrocarpa*	Whyalla	2.254
		BAM 9	*Maireana sedifolia* / *Atriplex vesicaria* low open shrubland with emergent *Myoporum platycarpum*	Whyalla	21.994
EP 4. Tall shrublands in drainage lines and on plains	NW EP 4.1 Inland tall shrublands in drainage lines and on plains	BAM 66	Broad drainage line with *Eremophila longifolia* tall Shrubland over *Senna artemisioides* with sparse *Maireana sedifolia*	Whyalla	0.285

IBRA Associations based on Version 6.
*All impact areas are based on Rev 5.2 and are presented in hectares (ha).

4.1.2 South Australian Arid Lands LMR

Overall vegetation in the SAAL LMR was found to be in moderate to good condition with extensive intact native vegetation throughout the Project Area. Minimal weeds were present throughout much of the Project Area within the SAAL LMR, which increased near roads, tracks and easements where the pipeline will be positioned where feasible. Biotic disturbance indicators were evident in grazed areas (majority of site) and increased close to water points and fence lines.

In the southern areas of the Project Area within the SAAL LMR, from Whyalla to Port Augusta, vegetation communities range from stony tableland with Low Bluebush in the Arcoona Plateau, mixed chenopod shrublands of Black Bluebush, Pearl Bluebush and Bladder Saltbush to flat undulating plains of open woodlands of Western Myall, Black Oak and Sugarwood. Many communities containing Black Bluebush were determined to potentially provide suitable habitat for Western Grasswren.

The northern distribution of the Project Area within the SAAL LMR extends north of Port Augusta to Olympic Dam. Vegetation communities closer to Port Augusta include areas of stony tableland of Low Bluebush, Samphire and Bladder Saltbush with drainage networks of *Senna* spp. and Elegant Wattle with some areas of Western Myall and mixed Western Myall and Mulga open woodlands closer to Port Augusta. Further north, the Arcoona Plateau is dominated by stony tablelands with gilgai communities of Bladder Saltbush, Low Bluebush, *Tecticornia medullosa* and Bindyi run-on areas of Swamp Cane-grass which may provide habitat for Plains Mouse. The far northern extent of the Project Area comprised vast dunefields with low sand dunes of Slender Mulga (*Acacia aptaneura*), native cypress-pine (*Callitris* spp.) and Umbrella Bush with swales varying from woodlands of Western Myall and Slender Mulga to perennial grassland and Low Bluebush chenopod shrubland. As per Section 4.4, the LoO assessment showed that the vegetation within the SAAL LMR could provide potential habitat for EPBC Act listed fauna including; Western Grasswren (southern portion only) and Southern Whiteface which were both observed during surveys. The SAAL LMR was also determined to provide likely habitat for Blue-winged Parrot, Grey-headed Flying Fox and Plains Mouse, although these species were not observed during field surveys.

Within the SAAL LMR portion of the construction footprint, 1,533.491 ha of native vegetation is proposed for impact, across 54 RAM sites (Vegetation Associations), which have been further grouped into 11 MVGs and 21 BVCs (Table 4).

Note: Given the large extent of the Construction Footprint, it traverses IBRA Associations updated to Version 7 from Version 6 and areas not updated. As IBRA is an essential component in data sheets for calculating offsets using BAM in the EP LMR (IBRA Association) and RAM in the SAAL LMR (IBRA Sub-region), Jacobs consulted with the Native Vegetation Management Unit in the Department for Environment and Water (DEW) in March 2026 with regard to which version to use and were instructed to use only Version 6 rather than a mix of Versions, in order to avoid spatial mismatch and gaps between datasets. The key difference between Version 6 and the current Version 7 IBRA Sub-regions is that the section of the Kingoonya subregion in Version 6 that crossed by the northern end of the transfer system has been split out as the Roxby subregion in Version 7. This subregion has been referred to as Kingoonya throughout this report for consistency. There have been multiple changes to the Version 7 IBRA Associations including a widespread gap in the Whyalla area with no association allocated, requiring Version 6 to be used.

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Table 4. Vegetation communities found to occur within the construction footprint within the SAAL LMR (RAM sites). Vegetation stratified into Major Groups (landform, floristic and structural composition), BVCs (major floristic assemblages relevant to the construction footprint) and RAM Sites (detailed VAs observed in the construction footprint during RAM quadrat surveys and extrapolated to landscape scale).

Major Vegetation Group	Broad Vegetation Community number and description	RAM no.	Vegetation Association	IBRA Subregion	Area within construction footprint*
SAAL 1. Stony plains and tableland with chenopod shrublands	NW SAAL 1.1 Chenopod / Samphire low shrublands on stony plains and tableland	LERAM 204	Bladder Saltbush (*Atriplex vesicaria*), Samphire (*Tecticornia medullosa*), Black Bluebush (*Maireana pyramidata*) with or without Low Bluebush (*M. astrotricha*) and/or Woolly Bluebush (*M. eriantha*) low chenopod shrubland (stony tableland)	Arcoona Plateau	9.368
		LERAM 211	*Atriplex vesicaria* / *Tecticornia medullosa* +/- *Maireana eriantha* chenopod shrubland	Arcoona Plateau	1.320
		LERAM 213	Bladder Saltbush (*Atriplex vesicaria*), Samphire (*Tecticornia medullosa*), Black Bluebush (*Maireana pyramidata*) with or without Low Bluebush (*M. astrotricha*) and/or Woolly Bluebush (*M. eriantha*) low chenopod shrubland (stony tableland)	Arcoona Plateau	25.673
		LERAM 59	*Atriplex vesicaria* / *Tecticornia medullosa* low open shrubland (stony tableland)	Arcoona Plateau	55.462
				Gawler Lakes	19.427
		LERAM 64	*Atriplex vesicaria* / *Maireana pyramidata* low open shrubland on stony soils with sand veneer	Arcoona Plateau	2.729
		RAM 30	*Atriplex vesicaria* / *Tecticornia medullosa* low open shrubland (Tableland)	Arcoona Plateau	22.592
		RAM 301	*Maireana sedifolia* / *Atriplex vesicaria* low open shrubland with emergent *Acacia papyrocarpa*	Gawler Lakes	17.320
		RAM 36	*Tecticornia medullosa* / *Atriplex vesicaria* / *Astrebla pectinata* low very open shrubland	Kingoonya	21.116
		RAM 40	*Maireana astrotricha* low open shrubland with emergent Senna spp.	Kingoonya	3.285

Major Vegetation Group	Broad Vegetation Community number and description	RAM no.	Vegetation Association	IBRA Subregion	Area within construction footprint*
		RAM 8	Stony tableland with *Atriplex vesicaria / Tecticornia medullosa / Maireana aphylla / Maireana astrotricha* low open shrubland	Arcoona Plateau	487.391
				Gawler Lakes	6.126
				Kingoonya	17.361
SAAL 2. Chenopod shrublands on flat to undulating plains	SAAL 2.1 Chenopod low open shrublands +/- emergent trees	LERAM 209	Cotton-bush (*Maireana aphylla*), Black Bluebush and Bladder Saltbush (*Atriplex vesicaria*) chenopod shrubland with emergent Elegant Wattle	Arcoona Plateau	0.491
		RAM 18	*Maireana pyramidata* low open shrubland +/- *Maireana sedifolia / Atriplex vesicaria*	Arcoona Plateau	50.468
				Myall Plains	28.898
		RAM 23	*Maireana astrotricha* low shrubland +/- *Tecticornia medullosa / Atriplex vesicaria*	Arcoona Plateau	15.540
				Gawler Lakes	0.703
		RAM 25	*Maireana sedifolia* open shrubland with emergent sparse *Acacia papyrocarpa*	Gawler Lakes	19.712
		RAM 27	Mixed chenopod low open shrubland (*Maireana sedifolia / astrotricha / Maireana pyramidata / Atriplex vesicaria*) +/- emergent *Acacia aptaneura / Acacia papyrocarpa*	Gawler Lakes	2.888
		RAM 350	*Maireana pyramidata / M. sedifolia* low open shrubland with emergent *Acacia burkittii*	Arcoona Plateau	10.316
SAAL 3. Ephemeral and permanent drainage lines and waterholes	SAAL 3.1 Drainage lines with tall shrubs over Maireana pyramidata / chenopod	LERAM 203	*Acacia victoriae* open tall shrubland in broad drainage lines over chenopods +/- exotic species	Arcoona Plateau	2.687
		LERAM 205	Drainage line with *Acacia papyrocarpa* + *Acacia oswaldii* + *Pittosporum* open woodland over chenopod shrubland in drainage line	Arcoona Plateau	0.138
		LERAM 210	Elegant Wattle tall open shrubland over Black Bluebush low chenopod shrubland	Arcoona Plateau	0.220
		RAM 2	Broad drainage line with *Maireana pyramidata / Atriplex vesicaria* low open shrubland with emergent *Acacia victoriae*	Arcoona Plateau	2.155
		RAM 31	*Acacia victoriae* tall open shrubland over *Maireana pyramidata* low shrubland	Arcoona Plateau	0.748

Major Vegetation Group	Broad Vegetation Community number and description	RAM no.	Vegetation Association	IBRA Subregion	Area within construction footprint*
		RAM 35	Drainage line with *Myoporum montanum* / *Acacia victoriae* closed shrubland +/- *Maireana pyramidata*	Arcoona Plateau	1.594
		RAM 300	*Casuarina pauper* tall shrubs over *Duma florulenta* shrubland	Arcoona Plateau	0.638
	SAAL 3.2 Drainage lines with tall shrubs +/- Black Oak	RAM 1	*Melaleuca xerophila* / *Acacia burkittii* tall shrubland (drainage line)	Myall Plains	2.072
		RAM 14	Minor drainage line with *Acacia tetragonophylla* / *Pittosporum angustifolium* tall shrubland	Kingoonya	0.128
		RAM 28	Drainage line with *Casuarina pauper* open woodland over Tussock Grasses *(Eragrostis setifolia* / *Enteropogon acicularis) +/- Acacia victoriae*	Arcoona Plateau	1.289
		RAM 44	Sandy drainage line with *Acacia papyrocarpa* / *Casuarina pauper* / open woodland over *Maireana pyramidata* and tall shrubland (*Acacia ligulata* / *Acacia burkittii* / *Senna* spp.*) +/- Callitris gracilis*	Arcoona Plateau	9.538
	SAAL 3.3 Ephemeral to permanent waterholes and drainage lines	RAM 16	*Typha domingensis* waterhole with *Eucalyptus camaldulensis* ssp. *arida* open woodland	Arcoona Plateau	1.759
	SAAL 3.4 Drainage lines with River Red Gum and/or Myall	LERAM 50	*Acacia papyrocarpa* low woodland over *Atriplex vesicaria* (minor drainage line)	Arcoona Plateau	1.530
				Gawler Lakes	0.168
		LERAM 65	*Eucalyptus camaldulensis* ssp. *arida* low woodland (in major drainage line)	Gawler Lakes	4.350
SAAL 4. Open woodlands of Western Myall and Mulga on sand plains and low dunes	SAAL 4.1 Low open Western Myall woodlands with a Chenopod shrub understorey	LERAM 202	Western Myall (*Acacia papyrocarpa*) open woodland over Black Bluebush (*Maireana pyramidata*) / Pearl Bluebush (*M. sedifolia*) / Bladder Saltbush (*Atriplex vesicaria*)	Gawler Lakes	13.011
		LERAM 53	*Acacia papyrocarpa* low woodland over *Maireana pyramidata* +/- *Maireana sedifolia*	Arcoona Plateau	1.367
				Gawler Lakes	12.037
		LERAM 55	*Acacia aneura* low woodland over *Maireana turbinata, Maireana pyramidata*	Gawler Lakes	1.472
		RAM 3	*Acacia papyrocarpa* / *Myoporum platycarpum* low open woodland over chenopods (*Maireana pyramidata* / *Maireana sedifolia* / *Atriplex vesicaria*)	Arcoona Plateau	2.158
				Gawler Lakes	270.404

Major Vegetation Group	Broad Vegetation Community number and description	RAM no.	Vegetation Association	IBRA Subregion	Area within construction footprint*
				Myall Plains	40.609
		RAM 42	*Acacia papyrocarpa* open woodland over *Maireana pyramidata* / *Maireana sedifolia*	Arcoona Plateau	18.529
				Myall Plains	12.971
	SAAL 4.2 Mulga woodlands and tall shrublands on plains and low dunes in the Gawler Lakes	RAM 7	Low dunes with *Acacia aptaneura* tall open shrubland +/- *Acacia ligulata* / *Acacia burkittii*	Arcoona Plateau	0.151
				Gawler Lakes	24.854
SAAL 5. Woodlands and shrublands on low dunes and dune crests	SAAL 5.1 Low dune crests with tall shrubland +/- Cypress-pine woodlands	LERAM 62	Dune crest with *Acacia ligulata* / *Dodonaea viscosa* ssp. *angustissima* tall open shrubland +/- *Zygochloa paradoxa*	Arcoona Plateau	6.308
				Gawler Lakes	17.675
		RAM 10	Dune crest with *Acacia ligulata* / *Dodonaea viscosa* +/- *Callitris glaucophylla* tall open shrubland	Kingoonya	85.058
		RAM 15	Low dunes with *Dodonaea viscosa* / *Acacia ligulata* / *Acacia burkittii* tall open shrubland +/- *Aristida holathera*	Arcoona Plateau	1.408
		RAM 29	Low dunes with *Dodonaea viscosa* / *Acacia ligulata* / *Acacia burkittii* tall open shrubland	Kingoonya	0.007
	SAAL 5.2 Cypress-pine woodlands on dune crests	RAM 12	Dune crest with *Callitris glaucophylla* open woodland +/- tall shrubs (*Acacia ligulata* / *Dodonaea viscosa* ssp.)	Kingoonya	47.117
	SAAL 5.3 Blackoak Woodlands on dunes	LERAM 57	*Casuarina pauper* low open woodland over *Maireana pyramidata* on dune crest	Arcoona Plateau	0.508
				Gawler Lakes	0.119
	SAAL 5.4 Mulga woodlands and tall shrublands (dunes)	LERAM 58	*Acacia aneura* low woodland over Senna sp. / *Dodonaea viscosa* ssp. *angustissima* and *Acacia ligulata* +/- *Acacia burkittii*	Arcoona Plateau	1.209
				Gawler Lakes	31.085
SAAL 6. Dune swales with open woodlands / shrublands and tussock grassland	SAAL 6.1 Chenopod low open shrubland in dune swale +/- emergent trees	RAM 11	Swale with *Atriplex vesicaria* / *Maireana astrotricha* low open shrubland	Arcoona Plateau	8.937
				Gawler Lakes	1.386
				Kingoonya	7.743

Major Vegetation Group	Broad Vegetation Community number and description	RAM no.	Vegetation Association	IBRA Subregion	Area within construction footprint*
	SAAL 6.2 Tussock grassland in dune swales +/- emergent trees	RAM 41	Swales of mixed tussock grassland (*Enneapogon avenaceous / Enneapogon cylindricus / Aristida contorta / Eragrostis setifolia*) +/- emergent *Acacia aptaneura / Acacia papyrocarpa*	Kingoonya	15.263
	SAAL 6.3 Open woodlands in dune swales	LERAM 52	*Acacia aneura* low woodland over *Aristida contorta* on dune swales	Arcoona Plateau	1.013
				Gawler Lakes	24.213
		RAM 13	Dune swale with *Acacia papyrocarpa / Acacia aptaneura* open woodland +/- Tussock Grasses	Kingoonya	8.766
SAAL 7. Cane-grass run-on areas and depressions	SAAL 7.1 Swamp Cane-grass grassland	RAM 17	Run-on depression with *Eragrostis australasica* tall grassland and Chenopod shrubs	Arcoona Plateau	0.357
				Gawler Lakes	2.037
SAAL 8. Inland Saline depressions and drainage lines	SAAL 8.1 Tall shrublands on inland saline depressions	RAM 39	*Melaleuca xerophila* tall closed shrubland fringing saltpan (*Tecticornia* spp.)	Kingoonya	0.673
	SAAL 8.2 Inland Samphire depressions and drainage lines	LERAM 63	*Tecticornia indica, Tecticornia pergranulata +/- Duma florulenta* open shrubland	Gawler Lakes	0.461
		RAM 34	*Tecticornia* spp. *(indica* ssp. *leiostachya / halocnemoides*) low open shrubland on salt lake margin	Arcoona Plateau	4.651
				Kingoonya	0.051
SAAL 10. Non-saline shrublands in clay depressions	SAAL 10.1 Non-saline shrublands in clay depressions	LERAM 54	*Maireana aphylla* shrubland (clay depression)	Arcoona Plateau	0.087
				Gawler Lakes	1.340
SAAL 11. Sandhill Cane-grass grassland	SAAL 11.1 Sandhill Cane-grass grassland	LERAM 51	*Zygochloa paradoxa* grassland with emergent *Acacia ligulata* and *Alectryon oleifolius* on red sand dune	Arcoona Plateau	0.933
				Gawler Lakes	4.584
SAAL 12. Woodlands of Black Oak on flat and undulating plains	SAAL 12.1 Black Oak woodland on undulating plains with rocky outcrops	LERAM 207	Black Oak (*Casuarina pauper*) woodland over chenopod shrubland (sandy drainage line)	Arcoona Plateau	15.741

IBRA Subregions based on Version 6.
*All impact areas are based on Rev 5.2 and are presented in hectares (ha).

4.1.3 Details of terrestrial VAs proposed to be impacted

A summary of the vegetation proposed for impact are presented in the sections below. For detailed descriptions and figures of each site, refer to Section 4.3 of the Terrestrial Ecology Baseline Report (Jacobs 2026, Appendix 1).

Note, as many of the mapped vegetation association polygons spanned more than one IBRA association, BAM scoresheets were duplicated to represent each IBRA association, with the appropriate area proposed to be impacted by the construction footprint in each.

MVG EP 2 – Open woodlands of Western Myall / Black Oak / Sugarwood

MVG EP 2 (Open woodlands of Western Myall / Black Oak / Sugarwood) is represented by three BVCs within the Project Area. In addition, each BVC is represented by several VAs (BAM sites) as summarised below in Table 5 to Table 7.

Table 5. BVC NW EP 2.1 Low open woodlands of Western Myall with a chenopod shrub understorey.

BVC NW EP 2.1 **Low open woodlands of Western Myall with a chenopod shrub understorey**								
General description Broad Vegetation Community NW EP 2.1 represents flat to gently undulating plains of Western Myall open woodland over a chenopod shrubland with dominant species including Black Bluebush, Pearl Bluebush, Bladder Saltbush and less often Intricate Saltbush. Other species include Spiny Fanflower, Australian Boxthorn, Thorny Lawrencia (*Lawrencia squamata*) and emergent tall shrubs including Emubush spp., Sheep Bush and Sennas. The community varies in condition but is generally found to be in moderate to good condition, retaining palatable species and with low to moderate grazing pressure. The community often contains emergent Sugarwood. Similar communities containing Black Oak are separated into BVC NW EP 2.2 whilst communities comprised of Sugarwood without Western Myall are separated into BVC NW EP 2.3. In addition, larger drainage lines are separated into MVG EP 3 and 4. This community is mapped predominantly west of Whyalla and occurs across the Myall Plains Subregion and crosses three IBRA Associations.								
Threatened species or community This BVC contains atypical, but still highly suitable habitat for Western Grasswren due to the high cover of dense spiny shrubs utilised by this species as well as some previous database records, however this BVC rarely contained preferred species such as Black Bluebush and / or Australian Boxthorn as dominant vegetation. Suitable habitat for the Southern Whiteface is also present across this BVC. Suitable habitat for this species includes a wide range of open woodlands and shrublands with an understorey of grasses or shrubs often where Acacias or Eucalypts dominate. This species has also been found to utilise Australian Boxthorn and African Boxthorn, hence the presence of these species makes the habitat more suitable for the Southern Whiteface.								
Site	**IBRA Ass**	**LCS**	**VCS**	**CSS**	**UBS**	**Area**	**HA, SEB, CP, NP**	**TBS**
BAM 62	Red Rock	1.06	48.16	1.1	56.16	3.446	None	193.53
BAM 62	Whyalla	1.06	48.16	1.1	56.16	11.321	None	635.79
BAM 62	Tregolana	1.06	48.16	1.1	56.16	20.002	None	1123.31
BAM 67	Whyalla	1.06	38.03	1.18	47.57	18.479	None	879.05

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Table 6. BVC NW EP. 2.2 Low open woodlands with Western Myall and Black Oak over chenopod shrub understorey.

BVC NW EP 2.2 **Low open woodlands with Western Myall and Black Oak over chenopod shrub understorey**								
General description Broad Vegetation Community NW EP 2.2 represents open woodlands similar to community NW EP 2.1, but with Western Myall and Black Oak varying in their dominance with or without Sugarwood. Black Oak increases in frequency of occurrence north of Whyalla near Whyalla CP and is dominant in smaller patches or as scattered individuals. In roadside areas, the community often supports dense regeneration of Western Myall whilst young specimens are often grazed out, where the community extends into pastoral land. The understorey occurs predominantly over chenopod shrublands including Black Bluebush, Pearl Bluebush, Bladder saltbush and less often Intricate Saltbush. Tall shrubs are also common including Emubush spp., Sheep Bush and Sennas. Whilst the community varies in condition it is generally found to be in moderate to good condition and of better quality on roadsides. This BVC is represented by three BAMs across three IBRA Associations and was mapped exclusively north of Whyalla along the Lincoln Highway. The community occurs only in the Myall Plains Subregion. Similar BVCs without Black Oak are described in community NW EP 2.1 whilst communities comprised of Sugarwood without Western Myall are separated into BVC NW EP 2.3.								
Threatened species or community This BVC contains atypical and preferred habitat for the Western Grasswren. Some of this community contains a high cover of Black Bluebush, Australian Boxthorn and other spiny shrubs creating ideal habitat for this species. Other parts of this community did not contain Black Bluebush and / or Australian Boxthorn as dominant vegetation but included shrub species occupying the same niche, as well as previous Western Grasswren records in the area and is therefore considered atypical, but still highly suitable habitat. This community contains open woodlands and shrublands dominated by Acacias or Eucalypts with an understorey of shrubs making it also highly suitable habitat for Southern Whiteface.								
Site	**IBRA Ass**	**LCS**	**VCS**	**CSS**	**UBS**	**Area**	**HA, SEB, CP, NP**	**TBS**
BAM 7	Tregolana	1.06	34.01	1.1	39.66	15.220	None	603.59
BAM 7	Whyalla	1.06	34.01	1.1	39.66	8.286	None	328.60
BAM 61	Red Rock	1.06	61.43	1.1	71.63	5.516	None	395.11
BAM 61	Tregolana	1.06	61.43	1.1	71.63	0.014	None	1.0
BAM 250	Whyalla	1.06	43.59	1.1	43.59	1.028	None	44.81

Table 7. BVC NW EP 2.3 Low open woodlands of Sugarwood with a chenopod shrub understorey.

Broad community NW EP 2.3 **Low open woodlands of Sugarwood with a chenopod shrub understorey**
General description Broad Vegetation Community NW EP 2.3 occurs on flat to gently undulating sandy plains and low coastal dunes with an overstorey comprised of Sugarwood without Western Myall (or if present very sparse). The understorey comprises chenopods including Black Bluebush, Pearl Bluebush, Bladder Saltbush, Spiny Goosefoot and emergent shrubs (Emubush spp., Senna, Sheep Bush). This community is in good condition with reasonable diversity and presence of taller chenopod specimens. This community is represented entirely by BAM 144 located within the Whyalla IBRA Association.
Threatened species or community This community contains open woodlands and shrublands dominated by Acacias or Eucalypts with an understorey of shrubs making it a highly suitable habitat for the Southern Whiteface.

Broad community NW EP 2.3 Low open woodlands of Sugarwood with a chenopod shrub understorey								
Site	**IBRA Ass**	**LCS**	**VCS**	**CSS**	**UBS**	**Area**	**HA, SEB, CP, NP**	**TBS**
BAM 144	Whyalla	1.06	55.09	1.1	64.23	1.277	None	82.02

MVG EP 3 – Chenopod shrublands (including drainage lines)

MVG EP 3 (Chenopod shrublands (including drainage lines)) is represented by two BVCs within the Project Area. In addition, each BVC is represented by a number of VAs (BAM sites) summarised below in Table 8 to

Table 9.

Table 8. BVC NW EP 3.1 Coastal environments with low open chenopod shrublands on stony hills or undulating plains +/- Samphire.

BVC NW EP 3.1 Coastal environments with low open chenopod shrublands on stony hills or undulating plains +/- Samphire								
General description Broad Vegetation Community EP 3.1 comprises gently undulating to steep rock slopes of chenopod shrubland in coastal areas with species dominated by Pearl Bluebush and Bladder Saltbush, with occasional patches of Black Bluebush. This community is restricted to coastal areas and excludes vast areas of chenopod shrublands in the Myall Plains Subregion, which are described as BVC NW EP 3.3. The community has scattered emergent shrubs particularly Sheep Bush and Sennas. The community is considered in moderate to good condition, becoming more degraded near infrastructure and roadsides. This community is represented by three BAMs and is exclusive to coastal areas occurring around Mullaquana Station and north-west of Cowleds Landing. It occurs within one IBRA Association and the Myall Plains Subregion.								
Threatened species or community This BVC contains atypical, low potential and some not-suitable habitat for Western Grasswren. Areas within BAM 142 and BAM 34 are considered to provide atypical habitat for this species. The remainder of this community is considered to have low potential to not suitable for Western Grasswren as there are limited preferred flora species / coverage present. This community contains low open shrublands on undulating plains and hills, making it a highly suitable habitat for the wide-ranging Southern Whiteface.								
Site	**IBRA Ass**	**LCS**	**VCS**	**CSS**	**UBS**	**Area**	**HA, SEB, CP, NP**	**TBS**
BAM 11	Whyalla	1.06	69.0	1.1	80.393	56.113	None	4511.111
BAM 34	Whyalla	1.06	46.44	1.1	54.15	4.717	None	255.43
BAM 142	Whyalla	1.06	41.60	1.1	48.51	188.859	None	9161.55

Table 9. BVC NW EP 3.3 Chenopod open shrublands +/- emergent trees.

BVC NW EP 3.3 Chenopod open shrublands +/- emergent trees
General description Broad Vegetation Community NW EP 3.3 represents chenopod open shrublands on flat and gently undulating loam and calcareous plains. Dominant chenopods are Pearl Bluebush and Black Bluebush. The species vary in their dominance and often form a mosaic with Black Bluebush dominating in lower lying heavier soils and near water points (given its lower palatability) and Pearl Bluebush dominating on higher slopes particularly on calcareous rises. Bladder Saltbush is often co-dominant. Less frequently patches of Spiny Goosefoot, Samphire and Spiny Fanflower were also

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BVC NW EP 3.3 Chenopod open shrublands +/- emergent trees
observed. The community supports scattered emergent shrubs and trees including Sugarwood, Sheep Bush, Emubush spp. and Senna in addition to occasional Western Myall, Dead Finish (*Acacia tetragonophylla*) and Umbrella Wattle (*A. oswaldii*). However, where the community tends to woodland structure it is described under BVC NW EP 2.1, EP 2.2 or EP 2.3. This BVC occurs in three IBRA Associations and across the Myall Plains Subregion and is represented by 12 BAMs. Predominantly mapped around Whyalla, the community is interspersed with low open woodlands of Western Myall / Black Oak with a Chenopod shrub understorey (NW EP 2.1 and EP 2.2) and within an area of inland tall shrubs in drainage lines (NW EP 4.1) west of Mullaquana Station.
Threatened species or community Preferred habitat for Western Grasswren is present within this BVC where spiny shrub species such as Black Bluebush and Australian Boxthorn are dominant. A few Western Grasswren were also observed in this community within BAM 51 and BAM 111. The majority of this community is considered to contain atypical (but highly suitable) habitat for this species, with one area having low potential (BAM 9). This community contains open shrublands with some Acacias or Eucalypts making it highly suitable habitat for the Southern Whiteface. Several individuals of this species were also observed during field surveys within this community, specifically within BAM 51, BAM 111 and BAM 103.

Site	IBRA Ass	LCS	VCS	CSS	UBS	Area	HA, SEB, CP, NP	TBS
BAM 9	Whyalla	1.06	79.98	1.1	93.26	21.994	None	2051.16
BAM 17	Whyalla	1.06	57.86	1.1	67.46	4.303	None	290.28
BAM 21	Tregolana	1.09	56.53	1.1	67.78	17.666	None	1197.40
BAM 24	Whyalla	1.06	78.98	1.1	92.09	6.704	None	617.37
BAM 51	Red Rock	1.06	57.82	1.1	67.413	0.898	None	60.54
BAM 51	Tregolana	1.06	57.82	1.1	67.413	0.965	None	65.05
BAM 51	Whyalla	1.06	57.82	1.1	67.413	23.127	None	1559.07
BAM 53	Red Rock	1.06	59.96	1.1	69.92	6.609	None	462.10
BAM 54	Whyalla	1.06	45.96	1.1	53.59	4.432	None	237.51
BAM 59	Tregolana	1.06	46.80	1.1	54.57	3.816	None	208.24
BAM 63	Whyalla	1.06	59.16	1.1	69.565	2.879	None	200.28
BAM 63	Red Rock	1.06	59.16	1.1	69.565	2.702	None	187.96
BAM 64	Whyalla	1.06	50.43	1.1	58.81	12.285	None	722.48
BAM 103	Whyalla	1.06	54.83	1.1	63.93	9.588	None	612.96
BAM 111	Whyalla	1.06	52.363	1.1	61.0533	3.429	None	209.35

MVG EP 4 – Tall shrublands in drainage lines and on plains

MVG EP 4 (Tall shrublands in drainage lines and on plains) is represented by one BVC within the Project Area. The community is represented by a single VA (BAM site) as summarised below in Table 10.

Table 10. BVC NW EP 4.1 Inland tall shrublands in drainage lines and on plains.

BVC NW EP 4.1 Inland tall shrublands in drainage lines and on plains
General description Broad Vegetation Community NW EP 4.1 represents tall shrublands often over chenopod shrublands in minor or broad drainage lines. Shrublands are dominated by Elegant Wattle, Emubush spp. (*Eremophila alternifolia, E. longifolia*), Native Apricot (*Pittosporum angustifolium*), Leafless Cherry (*Exocarpos aphyllus*), Sheep Bush and Sennas. The community occurs around Whyalla. The community is difficult to access except on foot, therefore the BAM sample point was established in an accessible area then aerial photography and site knowledge was applied to

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BVC NW EP 4.1 Inland tall shrublands in drainage lines and on plains
extend mapping where it could not be reached on ground. The community is represented by one BAM occurring in one IBRA Association in the Myall Plains Subregion. The community is represented by BAM 66 north of Lincoln Highway, west of Mullaquana Station.
Threatened species or community Preferred habitat for Western Grasswren is present within this BVC where spiny shrub species such as Black Bluebush and Australian Boxthorn are dominant. The majority of this community is considered to contain atypical, but still suitable, habitat for this species. This community contains open woodlands dominated by Acacias or Eucalypts with an understorey of shrubs making it a highly suitable habitat for the Southern Whiteface.

Site	IBRA Ass	LCS	VCS	CSS	UBS	Area	HA, SEB, CP, NP	TBS
BAM 66	Whyalla	1.06	56.18	1.1	65.51	0.285	None	18.670

MVG SAAL 1 – Stony plains tableland with chenopod shrublands

MVG SAAL 1 (Stony plains tableland with chenopod shrublands) is represented by one BVC within the Project Area. The community is represented by a number of VAs (RAM sites) as summarised in Table 11.

Table 11 . BVC NW SAAL 1.1 Chenopod/Samphire low shrublands on stony plains and tableland.

BVC NW SAAL 1.1 Chenopod/Samphire low shrublands on stony plains and tableland
General description Broad Vegetation Community NW SAAL 1.1 represents low open chenopod shrublands on stony tableland country characteristic of the Arcoona Plateau tableland IBRA Subregion. Plant communities are dominated by Bladder Saltbush, *Tecticornia medullosa* and *Bindyi* spp., particularly Tangled Copperburr (*Sclerolaena divaricata),* Poverty-bush *(S. intricata)* and Short-wing Saltbush (*S. brachyptera)*. Tussock grasses also form a dominant part of this community including Mitchell Grass (*Astrebla pectinata*) and Neverfail Grass (*Aristida Eragrostis setifolia*). Low Bluebush occurs in patches or across large areas noting that where it occurs on sandy loam plains it is described under BVC NW SAAL 2.1. Drainage lines with tall shrubs, woodlands and taller chenopods occur in low lying areas, but are described separately where possible. This community fringes salt lakes and saltpans, particularly near Woomera. The community occasionally supports emergent shrubs and trees but is generally characterised by low treeless plains. The community covers a large portion of the Project Area, predominantly in the Arcoona Plateau but also occurring in the Kingoonya and Gawler Lakes Subregions. It is represented by 10 RAM sites, including RAM 30 west of Port Augusta, RAM 36 in the Kingoonya Subregion, RAM 40 which occurs north of Woomera in a stretch of the Arcoona Plateau Subregion that intersects the Kingoonya Subregion and several more RAM further south. This community occurs across the Arcoona Plateau, Kingoonya and Gawler Lakes Subregions.
Threatened species or community Preferred habitat for Western Grasswren is present within some of this BVC within LERAM 213, where spiny shrub species such as Black Bluebush and Australian Boxthorn are dominant. This community is also considered to contain atypical and low potential habitat for this species. However, most of this BVC is considered outside the known range of Western Grasswren. LERAM 213 contains open woodlands and shrublands dominated by Acacias or Eucalypts with an understorey of shrubs making it highly suitable habitat for Southern Whiteface. However, most of this BVC contains habitat which is considered not suitable for the Southern Whiteface. Areas with drainage lines and open woodlands, Cane-grass swampland, or tussock grassland, particularly those with gilgais and deep cracking clay make highly suitable habitat for Plains Mouse. Suitable habitat for the Plains Mouse is present within some of this community, in areas where there are drainage lines and grasses. Although the majority

BVC NW SAAL 1.1

Chenopod/Samphire low shrublands on stony plains and tableland

of this BVC is located outside the known range of this species, and may only represent generic boom or irruption habitat rather than critical refuge habitat

Site	IBRA Sub	LCS	VCS	CSS	UBS	Area	HA, SEB, CP, NP	TBS
RAM 8	Arcoona Plateau	1.105	54.15	1.1	65.83	487.391	None	32084.57
RAM 8	Gawler Lakes	1.105	54.15	1.1	65.83	6.126	None	403.30
RAM 8	Kingoonya	1.105	54.15	1.1	65.83	17.361	None	1142.88
RAM 30	Arcoona Plateau	1.09	48.68	1.1	58.04	22.592	None	1311.24
RAM 36	Kingoonya	1.09	41.43	1.1	49.67	21.116	None	1048.84
RAM 40	Kingoonya	1.09	57.33	1.1	68.74	3.285	None	225.78
LERAM 59	Arcoona Plateau	1.11	45.9	1.1	56.04	55.462	None	3108.09
LERAM 59	Gawler Lakes	1.11	45.9	1.1	56.04	19.427	None	1088.69
LERAM 64	Arcoona Plateau	1.11	60.96	1.1	74.43	2.729	None	203.09
LERAM 204	Arcoona Plateau	1.16	36.44	1.1	46.5	9.368	None	435.61
LERAM 211	Arcoona Plateau	1.16	43.71	1.1	55.77	1.320	None	73.62
LERAM 213	Arcoona Plateau	1.06	48.26	1.1	56.27	25.673	None	1444.62
RAM 301	Gawler Lakes	1.06	58.08	1.1	67.72	17.320	None	1172.91

MVG SAAL 2 – Chenopod shrublands on flat to undulating plains

MVG SAAL 2 (Chenopod shrublands on flat to undulating plains) is represented by one BVC within the Project Area. The community is represented by a number of vegetation associations (RAM sites) as summarised in Table 12.

Table 12. BVC NW SAAL 2.1 Chenopod low open shrublands on flat to undulating plains.

BVC NW SAAL 2.1

Chenopod low open shrublands on flat to undulating plains

General description

Broad Vegetation Community NW SAAL 2.1 represents chenopod open shrublands on flat and undulating sandy loam plains and occurs in patches throughout the Project Area predominantly in the Arcoona Plateau Subregion.

Communities are dominated by Pearl Bluebush, Black Bluebush (southern areas) or occasionally Low Bluebush although this species is more often associated with tableland. Co-dominant perennial species are generally Bladder Saltbush and short-lived perennial Bindyi (*Sclerolaena* spp.). Spear Grasses (*Austrostipa* spp.) are common and emergent shrubs and trees include Western Myall, Mulga (*Acacia anuera)*, Sennas and Emubush species.

This community crosses the Arcoona Plateau, Myall Plains and Gawler lakes Subregions and is represented by six RAM sites. It predominantly occurs in the southern areas of the alignment West of Blanche Harbor continuing north of Port Augusta. A few single patches also occur east of Lake Dutton, near Kootaberra and north of Pernatty Lagoon.

Threatened species or community

Most of this BVC is considered to contain preferred habitat for the Western Grasswren, where spiny shrub species such as Black Bluebush and Australian Boxthorn are dominant. This community is also considered to contain atypical habitat in some areas for this species. The remainder of this BVC is considered low potential habitat or outside the known range (RAM 23 and RAM 27) of Western Grasswren.

This community contains low open shrublands on flat and undulating plains making it a highly suitable habitat for Southern Whiteface. Several individuals of this species were also observed during field surveys within this community, specifically within RAM 350.

Suitable boom habitat for Plains Mouse is also present within this BVC in areas where there are drainage lines and grasses specifically within RAM 23 and RAM 27. Although most of this BVC is considered not suitable or outside the known range of this species.

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BVC NW SAAL 2.1 Chenopod low open shrublands on flat to undulating plains								
Site	**IBRA Sub**	**LCS**	**VCS**	**CSS**	**UBS**	**Area**	**HA, SEB, CP, NP**	**TBS**
RAM 18	Arcoona Plateau	1.11	53.05	1.1	64.92	50.468	None	3276.38
RAM 18	Myall Plains	1.11	53.05	1.1	64.92	28.898	None	1876.08
RAM 23	Arcoona Plateau	1.11	37.71	1.1	46.04	15.540	None	715.46
RAM 23	Gawler Lakes	1.11	37.71	1.1	46.04	0.703	None	32.37
RAM 25	Gawler Lakes	1.11	61.64	1.1	75.26	19.712	None	1483.52
RAM 27	Gawler Lakes	1.11	53.19	1.1	64.94	2.888	None	187.56
LERAM 209	Arcoona Plateau	1.16	35.39	1.1	45.16	0.491	None	22.17
RAM 350	Arcoona Plateau	1.06	42.80	1.1	49.90	10.316	None	514.79

MVG SAAL 3 – Ephemeral and permanent drainage lines and waterholes

MVG SAAL 3 (Ephemeral and permanent drainage lines and waterholes) is represented by four BVCs within the Project Area. In addition, each BVC is represented by a number of VAs (RAM sites) as summarised in Table 13 to Table 16.

Table 13. BVC NW SAAL 3.1 Drainage lines with tall shrubs over Maireana pyramidata / chenopod.

BVC NW SAAL 3.1

Drainage lines with tall shrubs over *Maireana pyramidata* / chenopod

General description

Broad Vegetation Community NW SAAL 3.1 comprises broad drainage lines with tall shrubs over chenopods in the SAAL LMR. This BVC was mapped, given its increased habitat potential for threatened and common species. BVC NW SAAL 3.1 includes VAs with a tall chenopod composition west of Port Augusta dominated by Black Bluebush with emergent shrubs such as Elegant Wattle and *Senna* spp.

The community is represented by seven RAM sites all occurring in the Arcoona Plateau Subregion. RAM 35 forms part of a large drainage line bound by cliffs to the west and an old ruin.

Threatened species or community

Most of this BVC is considered to contain preferred habitat for the Western Grasswren, where spiny shrub species such as Black Bluebush and Australian Boxthorn are dominant. This community is also considered to contain atypical, but suitable, habitat for this species, particularly within LERAM 210, LERAM 205 and RAM 203. However, the remainder of this BVC is considered outside the known range (RAM 35 and RAM 300) of Western Grasswren.

This BVC contains chenopod shrublands with emergent Acacia species making it a highly suitable habitat for the wide-ranging Southern Whiteface.

Site	IBRA Sub	LCS	VCS	CSS	UBS	Area	HA, SEB, CP, NP	TBS
RAM 2	Arcoona Plateau	1.17	57.30	1.1	73.75	2.155	None	158.91
RAM 31	Arcoona Plateau	1.17	48.73	1.1	62.72	0.748	None	46.90
RAM 35	Arcoona Plateau	1.13	42.28	1.1	52.55	1.594	None	83.76
LERAM 203	Arcoona Plateau	1.16	43.24	1.1	55.17	2.687	None	148.24
LERAM 205	Arcoona Plateau	1.16	46.59	1.1	59.45	0.138	None	8.20
LERAM 210	Arcoona Plateau	1.16	47.39	1.1	60.47	0.220	None	13.30
RAM 300	Arcoona Plateau	1.13	51.63	1.1	64.18	0.638	None	40.94

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Table 14. BVC NW SAAL 3.2 Drainage lines with tall shrubs +/- Black Oak.

BVC NW SAAL 3.2

Drainage lines with tall shrubs +/- Black Oak

General description

Broad Vegetation Community NW SAAL 3.2 occurs in drainage lines with mixed tall shrubs, sometimes with emergent Black Oak. Common shrubs include Elegant Wattle, *Senna* spp., Native Apricot and Umbrella Bush (*Acacia ligulata).* Chenopods such as Spiny Goosefoot, Fragrant Saltbush (*Rhagodia parabolica)* and Black Bluebush are occasionally present, and tussock grasses occur frequently.

The community is represented by four RAM and occurs across three IBRA Subregions (Myall Plains, Arcoona Plateau, and Kingoonya) but could potentially occur in drainage lines throughout the SAAL LMR.

Threatened species or community

Preferred habitat for the Western Grasswren is present within some of this BVC within RAM 44, where spiny shrub species such as Black Bluebush and Australian Boxthorn are dominant. This BVC is also considered to contain atypical, but suitable, habitat for this species, particularly within RAM 44 and RAM 1. However, most of this community is considered to contain low potential habitat or is outside the known range of the Western Grasswren.

This community contains open woodlands dominated by Acacias or Eucalypts with an understorey of shrubs making it a highly suitable habitat for the Southern Whiteface.

The presence of drainage lines makes most of this community suitable for Plains Mouse during boom periods. However, some areas within this BVC are outside the known range of Plains Mouse.

Site	IBRA Sub	LCS	VCS	CSS	UBS	Area	HA, SEB, CP, NP	TBS
RAM 1	Myall Plains	1.06	65.46	1.1	76.33	2.072	None	158.14
RAM 14	Kingoonya	1.15	69.63	1.1	88.08	0.128	None	11.26
RAM 28	Arcoona Plateau	1.17	56.98	1.1	73.33	1.289	None	94.51
RAM 44	Arcoona Plateau	1.19	49.53	1.1	64.83	9.538	None	618.34

Table 15. BVC NW SAAL 3.3 Ephemeral to permanent waterholes and drainage lines.

BVC NW SAAL 3.3

Ephemeral to permanent waterholes and drainage lines

General description

Broad Vegetation Community NW SAAL 3.3 occurs in the Woomera area where major drainage lines appear to contain permanent water, potentially from artificial drainage systems from the townships. The community supports species evident of permanent or regular inundation including Narrow-leaf Bulrush (*Typha domingensis*), Spiny Flat-sedge (*Cyperus gymnocaulos)* and Lignum (*Duma florenta*). Other species include emergent Northern River Red Gum (*Eucalyptus camaldulensis* ssp. *arida*), Western Boobialla *(Myoporum montanum*) and Elegant Wattle.

The community was represented by RAM 16 in the Arcoona Plateau Subregion north of Woomera.

Threatened species or community

Waterholes and drainage lines present within this BVC make it a highly suitable habitat for the Southern Whiteface which often move into these habitats during drought.

The presence of drainage lines makes some of this community suitable for Plains Mouse, during boom periods. However, most of the habitat within this BVC is considered not suitable for this species.

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BVC NW SAAL 3.3 Ephemeral to permanent waterholes and drainage lines								
Site	**IBRA Sub**	**LCS**	**VCS**	**CSS**	**UBS**	**Area**	**HA, SEB, CP, NP**	**TBS**
RAM 16	Arcoona Plateau	1.17	61.50	1.1	79.15	1.759	None	139.19

Table 16. BVC NW SAAL 3.4 Drainage lines with River Red Gum and/or Myall.

BVC NW SAAL 3.4 Drainage lines with River Red Gum and/or Myall								
General description Broad Vegetation Community NW SAAL 3.4 occurs along the Carrapateena lateral where minor drainage lines and sandy / rocky floodplains are present. The vegetation comprises an overstory of Northern River Red Gum (*Eucalyptus camaldulensis* ssp. *arida)* and / or Western Myall with a moderately dense tall shrubland understorey of Slender Mulga (*Acacia aptaneura*) and Bullock Bush and low shrubs such as Spiny Saltbush, Bladder Saltbush, Desert Lantern-bush (*Abutilon otocarpum*), Ruby Saltbush (*Enchylaena tomentosa*), Samphire and a grass, Knotty-butt Paspalidium (*Setaria constricta*). The community is represented by two VAs across the Arcoona Plateau and Gawler Lakes Subregions.								
Threatened species or community This community provides suitable habitat for the Southern Whiteface, and potentially Grey Falcon (nesting and roosting) and Blue-winged Parrot (migratory roosting / foraging). The rocky / sandy / clay substrate may provide suitable Plains Mouse habitat (foraging), and the shallow sand over rocky soils may provide suitable foraging habitat during irruptive phases where this community adjoins tablelands (however would be unsuitable burrowing habitat).								
Site	**IBRA Sub**	**LCS**	**VCS**	**CSS**	**UBS**	**Area**	**HA, SEB, CP, NP**	**TBS**
LERAM 50	Arcoona Plateau	1.16	63.34	1.1	80.82	1.530	None	123.65
LERAM 50	Gawler Lakes	1.16	63.34	1.1	80.82	0.169	None	13.66
LERAM 65	Gawler Lakes	1.20	64.71	1.1	85.42	4.350	None	371.57

MVG SAAL 4 – Open woodlands of Western Myall and Mulga on sand plains and low dunes

MVG SAAL 4 (Open woodlands of Western Myall and Mulga on sand plains and low dunes) is represented by two BVCs within the Project Area. Each BVC is represented by several VAs (RAM sites) as summarised in Table 17 and

Table 18.

Table 17. BVC NW SAAL 4.1 Low open Western Myall woodlands with a chenopod shrub understory.

BVC NW SAAL 4.1 Low open Western Myall woodlands with a chenopod shrub understorey
General description Broad Vegetation Community NW SAAL 4.1 comprises Western Myall woodlands over chenopods and mixed shrubs on sandy loam plains predominantly in the Gawler Lakes Subregion. The overstorey is dominated by Western Myall and scattered Sugarwood with Mulga and Horse Mulga scattered in patches in deeper sands. Understorey is dominated by chenopods predominantly Pearl Bluebush with Black Bluebush in low lying areas and near waterpoints, Bladder Saltbush and *Bindyi* sp. The community covers vast areas in the Gawler Lakes Subregion where it is represented by RAM 3 on the Stuart Highway but also occurs north of Whyalla and south of Port Augusta within the Myall Plains, Gawler Lakes and Arcoona Plateau Subregions with additional areas north of Lake Dutton.
Threatened species or community

BVC NW SAAL 4.1

Low open Western Myall woodlands with a chenopod shrub understorey

Almost all of this BVC is outside the known range of the Western Grasswren, however there are some sections of atypical and preferred habitat. Atypical and preferred habitat is present within RAM 42 and RAM 3 where there are high densities of spiny shrub species such as Black Bluebush and Australian Boxthorn and where drainage lines are present.

This community contains open woodlands dominated by Acacias or Eucalypts with an understorey of shrubs making it a highly suitable habitat for Southern Whiteface. This habitat would also suit Blue-winged Parrot when it is occasionally overwintering in the region.

The presence of deep sands and tall shrubs makes RAM 3, within this community suitable for Plains Mouse as boom only habitat. However, some areas of this BVC are not suitable or outside the known range of Plains Mouse.

Site	IBRA Sub	LCS	VCS	CSS	UBS	Area	HA, SEB, CP, NP	TBS
RAM 3	Arcoona Plateau	1.11	57.98	1.1	70.46	2.158	None	152.06
RAM 3	Gawler Lakes	1.11	57.98	1.1	70.46	270.404	None	19053.31
RAM 3	Myall Plains	1.11	57.98	1.1	70.46	40.609	None	2861.38
RAM 42	Arcoona Plateau	1.11	56.44	1.1	68.91	18.529	None	18.53
RAM 42	Myall Plains	1.09	56.44	1.1	67.67	12.971	None	12.97
LERAM 53	Gawler Lakes	1.11	54.41	1.1	66.43	12.037	None	799.61
LERAM 53	Arcoona Plateau	1.11	54.41	1.1	66.43	1.367	None	90.78
LERAM 55	Gawler Lakes	1.11	65.69	1.1	80.21	1.472	None	118.08
LERAM 202	Gawler Lakes	1.16	53.66	1.1	68.47	13.011	None	890.86

Table 18. BVC NW SAAL 4.2 Mulga woodlands and tall shrublands on plains and law dunes in the Gawler Lakes.

BVC NW SAAL 4.2

Mulga woodlands and tall shrublands on plains and low dunes in the Gawler Lakes

General description

Broad Vegetation Community NW SAAL 4.2 represents Slender Mulga open woodland on plains and tending to low sand dunes in the north. Slender Mulga often co-occurs with Western Myall and other Wattle species (*A. burkittii* and *A. ramulosa*) in addition to tall shrubs including Sticky Hop-bush (*Dodonaea viscosa* ssp.). The understorey is dominated by chenopods including *Maireana* spp. and grasses, predominantly Kerosene Grass (*Aristida holathera*).

The community is represented by RAM 7 and occurs within the Gawler Lakes and Arcoona Plateau Subregions west of Pernatty Lagoon.

Threatened species or community

This community contains open woodlands dominated by Acacias or Eucalypts with an understorey of shrubs and grasses making it a highly suitable habitat for the Southern Whiteface and the Blue-winged Parrot when it is occasionally present during winter.

Site	IBRA Sub	LCS	VCS	CSS	UBS	Area	HA, SEB, CP, NP	TBS
RAM 7	Arcoona Plateau	1.15	62.64	1.1	79.24	0.151	None	11.94
RAM 7	Gawler Lakes	1.15	62.64	1.1	79.24	24.854	None	1969.42

MVG SAAL 5 – Woodlands and shrublands on low dunes and dune crests

MVG SAAL 5 (Woodlands and shrublands on low dunes and dune crests) is represented by two BVCs within the Project Area. In addition, these BVCs were represented by a number of VAs (RAM sites) as summarised in Table 19 to

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Table 22.

Table 19. BVC NW SAAL 5.1 Low dune crests with tall shrubland +/- Cypress-pine woodlands.

BVC NW SAAL 5.1

Low dune crests with tall shrubland +/- Cypress-pine woodlands

General description

Broad Vegetation Community NW SAAL 5.1 describes tall shrublands on low dunes in the northern part of the Project Area predominantly Wattle spp. (*A. ligulat*a and *A. burkittii*) and Sticky Hopbush with scattered emergent White Cypress-pine (*Callitris glaucophylla)*. Understorey comprises tussock grasses including Kerosene Grass, Common Bottle-washers *(Enneapogon avenaceous),* Silver Mulla Mulla (*Ptilotus obovatus)*, scattered chenopods (Black Bluebush), Plumbush (*Santalum lanceolatum)* and Bladder Saltbush.

This community occurs in the Kingoonya, Arcoona Plateau and Gawler Lakes Subregions, extending into the Arcoona Plateau in transition zones and was represented by three RAM.

Threatened species or community

The tall Acacia species and understorey of chenopod shrublands present within this community make it a highly suitable habitat for the Southern Whiteface. This species was also observed during two timed area surveys in this BVC within RAM 10.

Most of this BVC does not contain suitable habitat for the Plains Mouse however one small area does have potential habits. The dune crests and tall shrublands within RAM 29 make this area suitable habitat for Plains Mouse.

Site	IBRA Sub	LCS	VCS	CSS	UBS	Area	HA, SEB, CP, NP	TBS
RAM 10	Kingoonya	1.09	55.59	1.1	66.65	85.058	None	5668.69
RAM 15	Arcoona Plateau	1.11	65.42	1.1	79.88	1.408	None	112.49
RAM 29	Kingoonya	1.09	54.25	1.1	65.05	0.007	None	0.45
LERAM 62	Arcoona Plateau	1.11	47.50	1.1	58.00	6.308	None	365.85
LERAM 62	Gawler Lakes	1.11	47.50	1.1	58.00	17.675	None	1025.16

Table 20. BVC NW SAAL 5.2 Cypress-pine woodlands on dune crests.

BVC NW SAAL 5.2

Cypress-pine woodlands on dune crests

General description

Broad Vegetation Community NW SAAL 5.2 comprises White Cypress-Pine (*Callitris glaucophylla)* woodlands on dune crests in deep sands in the Roxby Subregion. The overstorey is dominated by White Cypress-Pine, whilst the understorey comprises tall shrubs predominantly wattles (*Acacia ligulata* and *A. burkittii*) and Hope-bush (*Dodonaea viscosa* ssp.). Ground level species include tussock grasses (*Aristida holathera, Enneapogon avenaceous*), Silver Mulla Mulla, scattered chenopods (Black Bluebush and Bladder Saltbush).

This community occurs within the Kingoonya Subregion and was represented by one RAM (RAM 12) with two sample points (RAM 12a and RAM 12b).

Threatened species or community

The tall Acacia species and understorey of chenopod shrublands present within this community make it a highly suitable habitat for the Southern Whiteface.

Site	IBRA Sub	LCS	VCS	CSS	UBS	Area	HA, SEB, CP, NP	TBS
RAM 12	Kingoonya	1.09	62.55	1.1	75.0	47.117	None	3533.53

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Table 21. BVC NW SAAL 5.3 Blackoak Woodlands on Dunes.

BVC NW SAAL 5.3 **Blackoak Woodlands on Dunes**								
General description Broad Vegetation Community NW SAAL 5.3 is represented entirely by LERAM 57 and has a dominant overstory of Black Oak with tall shrubs such as Umbrella Bush. Black Bluebush is the most dominant species in the understory but other shrubs such as Sandhill Saltbush (*Acacia velutinella*), Desert Lantern-bush (*Abutilon otocarpum*), Curly Wire-grass, Ruby Saltbush, Sand Sida (*Sida ammophila*) and Tar-vine (*Boerhavia domini*) are also present. Sparsely present species include Velvet-leaf Hibiscus (*Hibiscus krichauffianus*), Brown-head Samphire (*Tecticornia indica* ssp. *leiostachya*), Shrubby Riceflower (*Pimelea microcephala* ssp. *microcephala*) and *Osteocarpum dipterocarpum* (Lathwida 2024a). This community occurred across two IBRA Subregions (the Gawler lakes and Arcoona Plateau).								
Threatened species or community The tall Acacia species and understorey of chenopod shrublands present within this community make it a highly suitable habitat for Southern Whiteface.								
Site	**IBRA Sub**	**LCS**	**VCS**	**CSS**	**UBS**	**Area**	**HA, SEB, CP, NP**	**TBS**
LERAM 57	Arcoona Plateau	1.11	44.70	1.1	54.58	0.508	None	27.70
LERAM 57	Gawler Lakes	1.11	44.70	1.1	54.58	0.119	None	6.52

Table 22 BVC NW SAAL 5.4 Mulga Woodlands and tall shrublands (dunes).

BVC NW SAAL 5.4 **Mulga Woodlands and tall shrublands (dunes)**								
General description Broad vegetation community SAAL 5.4 comprises a dominant overstorey of Mulga trees with a few areas of deeper sandy rises supporting species such as Horse Mulga (*Acacia ramulosa*). Some other taller shrubs are also present including Umbrella Bush and Senna (*Senna artemisioides* ssp. *petiolaris*) with patches of Narrow-leaf Hop-bush (*Dodonaea viscosa* ssp. *angustissima*). In areas of this BVC which are located close to highways, some annual exotic species are sparsely present (Lathwida 2024a). This BVC is represented by LERAM 58 and occurs across two IBRA Subregions, Gawler Lakes and Arcoona Plateau.								
Threatened species or community The tall Acacia species and understorey of chenopod shrublands present within this community make it a highly suitable habitat for the Southern Whiteface.								
Site	**IBRA Sub**	**LCS**	**VCS**	**CSS**	**UBS**	**Area**	**HA, SEB, CP, NP**	**TBS**
LERAM 58	Arcoona Plateau	1.15	58.93	1.1	74.55	1.209	None	90.16
LERAM 58	Gawler Lakes	1.15	58.93	1.1	74.55	31.085	None	2317.39

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MVG SAAL 6 – Dune swales with open woodlands, shrublands and tussock grassland

MVG SAAL 6 (Dune swales with open woodlands, shrublands and tussock grassland) is represented by three BVCs within the Project Area. Each BVC is represented by one or two VAs (RAM site) as summarised in Table 23 to Table 25.

Table 23. BVC NW SAAL 6.1 Chenopod low open shrubland in dune swale +/- emergent trees.

BVC NW SAAL 6.1 **Chenopod low open shrubland in dune swale +/- emergent trees**								
General description Broad vegetation community NW SAAL 6.1 comprises chenopod shrublands of Bladder Saltbush and Low Bluebush in dune swales in the Roxby Subregion. Emergent trees Western Myall and Mulga are scattered sparsely throughout the Project Area, but the community is largely treeless. The community is represented by RAM 11 but occurs frequently in dune swales throughout the Gawler Lakes, Kingoonya and Arcoona Plateau Subregions.								
Threatened species or community The low open shrubland with some Acacia species within this community make it a highly suitable habitat for Southern Whiteface. Dune swales with tall shrubs occur across this community, which are suitable foraging habitat for Plains Mouse during boom times, but does not contain critical refuge habitat (e.g. major gilgais on stony plains).								
Site	**IBRA Sub**	**LCS**	**VCS**	**CSS**	**UBS**	**Area**	**HA, SEB, CP, NP**	**TBS**
RAM 11	Kingoonya	1.09	61.50	1.1	73.74	7.743	None	570.97
RAM 11	Arcoona Plateau	1.11	61.50	1.1	75.09	8.937	None	671.08
RAM 11	Gawler Lakes	1.11	61.50	1.1	75.09	1.386	None	104.07

Table 24. BVC NW SAAL 6.2 Tussock grassland in dune swales +/- emergent trees.

BVC NW SAAL 6.2 **Tussock grassland in dune swales +/- emergent trees**								
General description Broad vegetation community NW SAAL 6.2 comprises tussock grasslands in sand dune swales in the Roxby Subregion. Vegetation communities are dominated by mixed grass species (*Enneapogon avenaceus / E. cylindricus / Aristida contorta / Eragrostis setifolia*) and saltbush species with occasional emergent trees of Western Myall. The community is represented by RAM 41 and occurs frequently in dune swales throughout the Kingoonya Subregion.								
Threatened species or community The grasslands with some chenopod species, make it a highly suitable habitat for Southern Whiteface. This species was also observed during two timed area surveys in this community within RAM 41. Dune swales with tall shrubs occur across this community, may provide suitable foraging habitat for Plains Mouse during boom / irruption periods, no critical refuge habitat is present.								
Site	**IBRA Sub**	**LCS**	**VCS**	**CSS**	**UBS**	**Area**	**HA, SEB, CP, NP**	**TBS**
RAM 41	Kingoonya	1.09	50.28	1.1	60.29	15.263	None	920.21

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Table 25. BVC NW SAAL 6.3 Open woodlands in dune swales.

BVC NW SAAL 6.3 **Open woodlands in dune swales**								
General description Broad vegetation community NW SAAL 6.3 comprises open to very open woodlands of Western Myall and Slender Mulga in the Roxby Subregion on sandy plains and occasionally cracking clays. Woodlands occur predominantly over tussock grasses (*Enneapogon avenaceous / E. cylindricus / Aristida contorta / Eragrostis setifolia)* and chenopods (*Sclerolaena* spp., *Maireana* spp., *Atriplex* spp.). This community is represented by RAM 13 and LERAM 52 and occurs within the Kingoonya, Gawler Lakes, Arcoona Plateau Subregions.								
Threatened species or community The open woodlands with chenopod and grass understorey, make it a highly suitable habitat for Southern Whiteface. Dune swales with tall shrubs occur across this community, may provide suitable foraging habitat for Plains Mouse during boom / irruption periods, limited critical refuge habitat is present (occasional cracking clays).								
Site	**IBRA Sub**	**LCS**	**VCS**	**CSS**	**UBS**	**Area**	**HA, SEB, CP, NP**	**TBS**
RAM 13	Kingoonya	1.09	62.17	1.1	74.54	8.766	None	653.38
LERAM 52	Arcoona Plateau	1.11	56.44	1.1	68.91	1.013	None	69.81
LERAM 52	Gawler Lakes	1.11	55.71	1.1	68.02	24.213	None	1646.97

MVG SAAL 7 – Cane-grass run-on and depressions

MVG SAAL 7 (Cane-grass run-on and depressions) is represented by one BVC within the Project Area. The community is represented by a single VA (RAM site) as summarised in Table 26.

Table 26. BVC NW SAAL 7.1 Swamp Cane-grass grassland.

BVC NW SAAL 7.1 **Swamp Cane-grass grassland**								
General description Broad vegetation community NW SAAL 7.1 comprises low-lying swamps of Swamp Cane-grass observed in the Roxby Subregion in dune swales and in the Arcoona Plateau Subregion on cracking clays. Where observed in the Roxby Subregion cracking clays were minor and lacking deep crevices. This community is of low diversity with co-occurring species including Bristly Love-grass (*Eragrostis setifolia*) and Thyme Sea-Heath (*Frankenia serpyllifolia)* in dune swales and Bladder Saltbush and Black Bluebush in tableland depressions. The community was represented by RAM 17 only but occurs in the Gawler Lakes and Arcoona Plateau Subregions.								
Threatened species or community The grasslands with some chenopod species, make it a suitable foraging habitat for Southern Whiteface, but no nesting habitat is present. Cane-grass grassland with cracking clays is considered preferred critical refuge habitat (nesting and foraging) for Plains Mouse and occurs across this community.								
Site	**IBRA Sub**	**LCS**	**VCS**	**CSS**	**UBS**	**Area**	**HA, SEB, CP, NP**	**TBS**
RAM 17	Arcoona Plateau	1.13	51.30	1.1	63.77	0.357	None	22.77
RAM 17	Gawler Lakes	1.13	51.30	1.1	63.77	2.037	None	129.87

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MVG SAAL 8 – Inland saline depressions and drainage lines

MVG SAAL 8 (Inland saline depressions and drainage lines) is represented by two BVCs within the Project Area. Each BVC is represented by one or two VAs (RAM sites) as summarised below in Table 27 and

Table 28**.**

Table 27. BVC NW SAAL 8.1 Tall shrublands on inland saline depressions.

BVC NW SAAL 8.1 **Tall shrublands on inland saline depressions**								
General description Broad vegetation community NW SAAL 8.1 comprises tall shrublands occurring on inland saline depressions. Within the Project Area the community is dominated by Boree (*Melaleuca xerophila*) tall closed shrubland fringing samphire dominated saltpan. Ground level species include Mulga, Ruby Saltbush and Spiny Saltbush. This community is represented by RAM 39 and occurs exclusively in saline depressions within the Kingoonya Subregion.								
Threatened species or community The tall shrublands with chenopod and grass species, make it a highly suitable habitat for Southern Whiteface which often move into these habitats during drought.								
Site	**IBRA Sub**	**LCS**	**VCS**	**CSS**	**UBS**	**Area**	**HA, SEB, CP, NP**	**TBS**
RAM 39	Kingoonya	1.11	55.81	1.1	68.14	0.673	None	45.88

Table 28. BVC NW SAAL 8.2 Inland Samphire depressions and drainage lines.

BVC NW SAAL 8.2 **Inland Samphire depressions and drainage lines**								
General description Broad vegetation community NW SAAL 8.2 comprises samphire species dominated depressions and drainage lines. Within the Project Area the community comprises a *Tecticornia* spp. low shrubland with ground level species including Bladder Saltbush, Bush Minuria (*Minuria cunninghamii)* and Western Boobialla (*Myoporum monathanum)* and occurs west of Port Augusta (RAM 33). Sections occurring in the north of the alignment are also inclusive of Grey Glasswort (*T. halocnemoides)* with a similar ground layer. This community is represented by two RAM and occurs throughout the region within the Arcoona Plateau, Gawler Lakes and Kingoonya Subregions.								
Threatened species or community Drainage lines and chenopod species present within this community make it a highly suitable foraging habitat for Southern Whiteface which often move into these habitats during drought. Drainage lines within part of this vegetation community create potentially suitable boom habitat for the Plains Mouse. However, the habitat across most of this community is considered not suitable for Plains Mouse.								
Site	**IBRA Sub**	**LCS**	**VCS**	**CSS**	**UBS**	**Area**	**HA, SEB, CP, NP**	**TBS**
RAM 34	Arcoona Plateau	1.16	50.90	1.1	64.95	4.651	None	302.08
RAM 34	Kingoonya	1.14	50.90	1.1	63.83	0.051	None	3.26
LERAM 63	Gawler Lakes	1.16	50.88	1.1	64.92	0.461	None	29.91

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MVG SAAL 10 – Non-saline shrublands in clay depressions

MVG SAAL 10 (Non-saline shrublands in clay depressions) is represented by one BVC within the Project Area. The community was represented by a single vegetation association (RAM site) as summarised in Table 29.

Table 29. BVC NW SAAL 10.1 Non-saline shrublands in clay depressions.

BVC NW SAAL 10.1

Non-saline shrublands in clay depressions

General description

Broad vegetation community NW SAAL 10.1 consists of Cottonbush (*Maireana aphylla*) and/or Lignum and/or Nitre Goosefoot (*Chenopodium nitrariaceum*) shrubland (clay depression). The main vegetation association represented in the construction footprint for this BVC was Cottonbush shrubland in clay depression being represented by LERAM 54. Other low shrubs that are present include Bluerod (*Stemodia florulenta*), Bristly Love-grass (*Eragrostis setifolia*), Grey Germander (*Teucrium racemosum*) and Desert Sneezeweed *(Centipeda thespidioides*) (Lathwida 2024a).

This community is represented by one LERAM and occurs within the Gawler Lakes and Arcoona Plateau Subregions.

Threatened species or community

Depressions and chenopod shrublands present within this community make it a suitable foraging habitat for Southern Whiteface which often move into these habitats during drought.

Clay depressions with friable soils, and tall shrubs create suitable habitat for Plains Mouse and occur across this community. However, the scattered nature of these small patches, particularly along the Western Access Road (of the Carrapateena Lateral) and where grazing occurs, would only provide low suitable refuge habitat or habitat for the species during boom periods (Lathwida 2025).

Site	IBRA Sub	LCS	VCS	CSS	UBS	Area	HA, SEB, CP, NP	TBS
LERAM 54	Arcoona Plateau	1.20	58.20	1.1	76.82	0.087	None	6.65
LERAM 54	Gawler Lakes	1.20	58.20	1.1	76.82	1.340	None	102.93

MVG SAAL 11 – Sandhill Cane-grass grassland

MVG SAAL 11 (Sandhill Cane-grass grassland) is represented by one BVC within the Project Area. The community is represented by a single VA (RAM site) as summarised in Table 30.

Table 30. BVC NW SAAL 11.1 Sandhill Cane-grass Grassland.

BVC NW SAAL 11.1

Sandhill Cane-grass Grassland

General description

Broad vegetation community NW SAAL 11.1 is represented by LERAM 51. Sandhill Cane-grass is the dominant overstorey on this sand dune vegetation, with emergent Umbrella Bush and Bullock Bush. Other species that are moderately present include Black Bluebush, Loose-flowered Rattlepod (*Crotalaria eremaea* ssp. *eremaea*), Tar-vine, Velvet Tobacco (*Nicotiana velutina*), Silky Glycine (*Glycine canescens*) and Poached-egg Daisy (*Polycalymma stuartii*). Two exotic species are moderate to sparsely present; Bitter Melon (*Citrullus* sp.) and Mustard (*Sisymbrium erysimoides*) (Lathwida 2024a).

This community occurs across the Gawler Lakes and Arcoona Plateau Subregions.

Threatened species or community

The grasslands with some chenopod species, make it a highly suitable habitat for Southern Whiteface.

Sandhill Cane-grass grassland is considered suitable as a boom only foraging habitat for Plains Mouse and occurs across this community.

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BVC NW SAAL 11.1 Sandhill Cane-grass Grassland								
Site	**IBRA Sub**	**LCS**	**VCS**	**CSS**	**UBS**	**Area**	**HA, SEB, CP, NP**	**TBS**
LERAM 51	Arcoona Plateau	1.11	46.25	1.1	56.47	0.933	None	52.69
LERAM 51	Gawler Lakes	1.11	46.25	1.1	56.47	4.583	None	258.80

MVG SAAL 12 – Woodlands of Black Oak on flat and undulating plains

MVG SAAL 12 (Woodlands of Black Oak on flat and undulating plains) is represented by one BVC within the Project Area. The community is represented by a single VA (LERAM 207) as summarised in Table 31.

Table 31. BVC NW SAAL 12. Woodlands of Black Oak on flat and undulating plains.

BVC NW SAAL 12.1 Woodlands of Black Oak on flat and undulating plains								
General description Broad vegetation community NW SAAL 11.1 is represented by LERAM 207. Black Oak (*Casuarina pauper*) is the dominant overstorey, over chenopod shrubland. Additional flora species that were recorded as present included Bullock Bush, Australian Boxthorn, Samphire, Bladder Saltbush, Spiny Saltbush, Ruby Saltbush, Black Bluebush and Pearl Bluebush. Sparse to nil exotic species were recorded at the in this BVC. This community occurs exclusively within the Arcoona Plateau Subregion.								
Threatened species or community Almost all of this BVC is considered atypical, but suitable habitat for the Western Grasswren, however there is one section of preferred habitat where there are high densities of spiny shrub species such as Black Bluebush and Australian Boxthorn and where drainage lines are present. This area (west of Lake Dempsey) is on the cusp of the species known range. The grasslands with taller trees and chenopod species, make it a highly suitable habitat (foraging, nesting and roosting) for Southern Whiteface.								
Site	**IBRA Sub**	**LCS**	**VCS**	**CSS**	**UBS**	**Area**	**HA, SEB, CP, NP**	**TBS**
LERAM 207	Arcoona Plateau	1.06	60.0	1.1	69.96	15.741	None	1101.24

4.1.4 Site maps showing terrestrial areas of proposed impact

The map series presented in Figure 3- Figure 18 illustrates the location and extent of the VAs across the construction footprint. BAM and RAM assessment points which are associated with VAs impacted by the construction footprint are presented in blue, while BAM and RAM assessment points which are not impacted by the construction footprint are presented in orange (for contextual survey effort).

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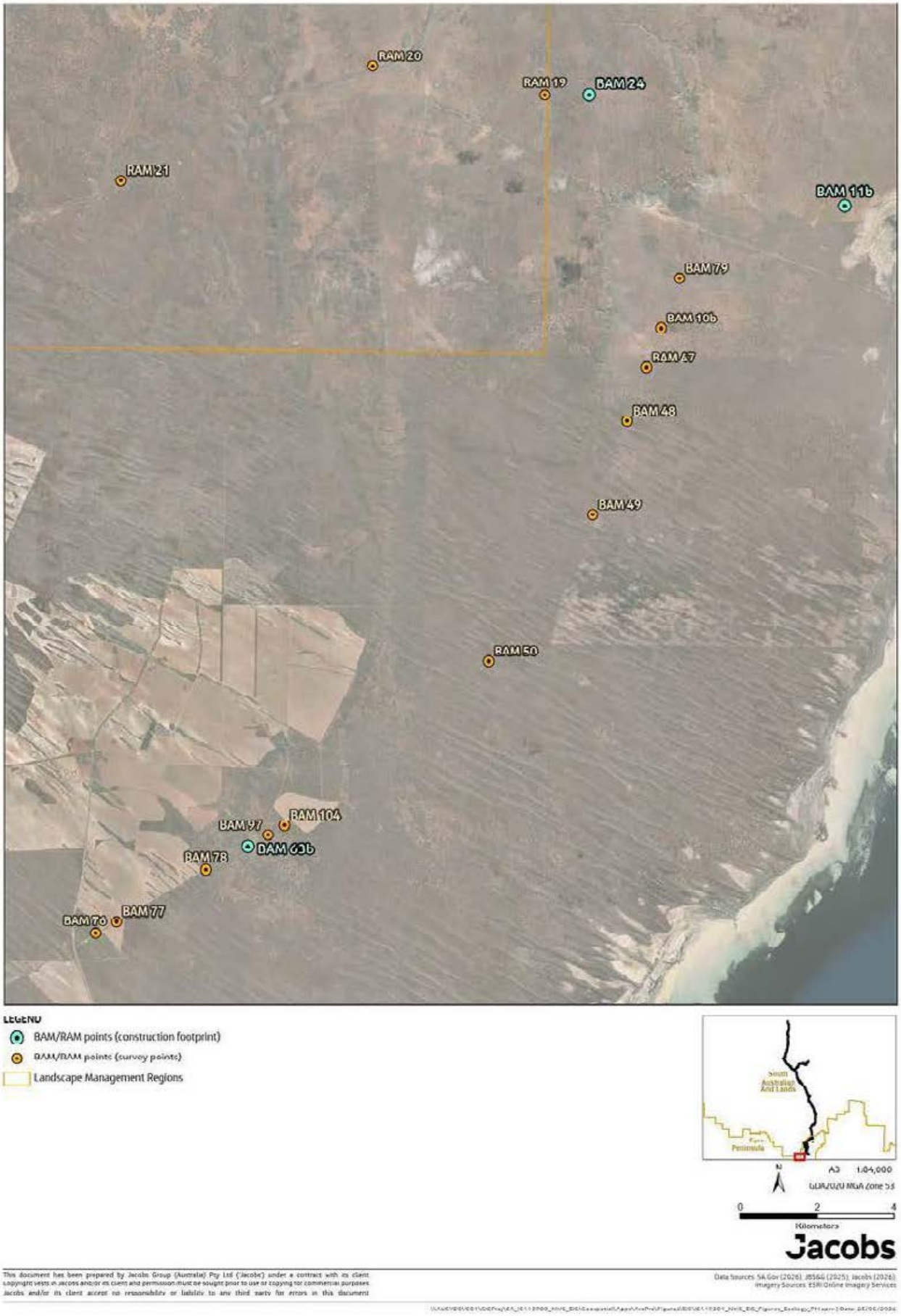


Figure 3. BAM points and vegetation mapping relevant to the construction footprint (map 1 of 17)

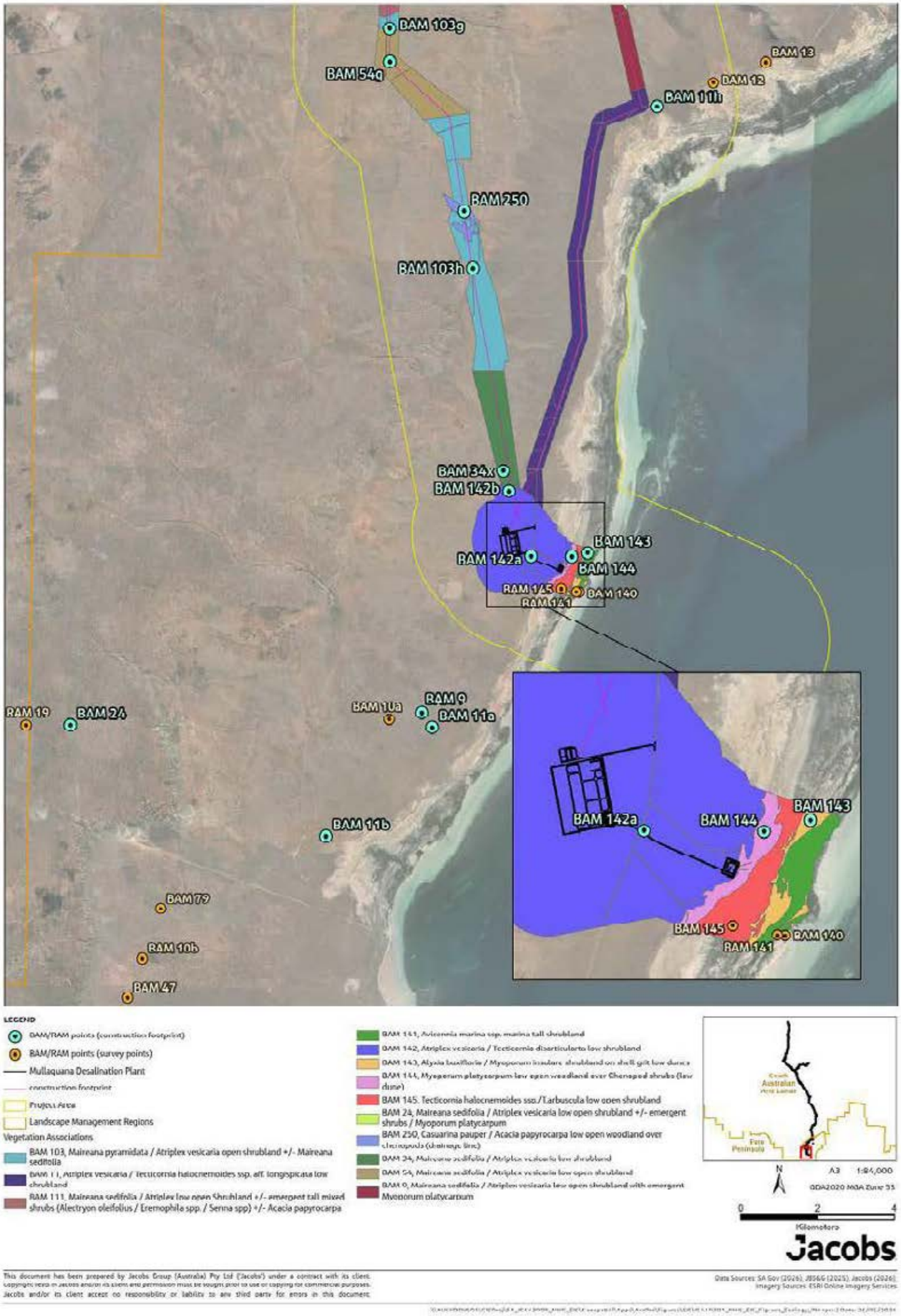


Figure 4. BAM points and vegetation mapping relevant to the construction footprint (map 2 of 17)

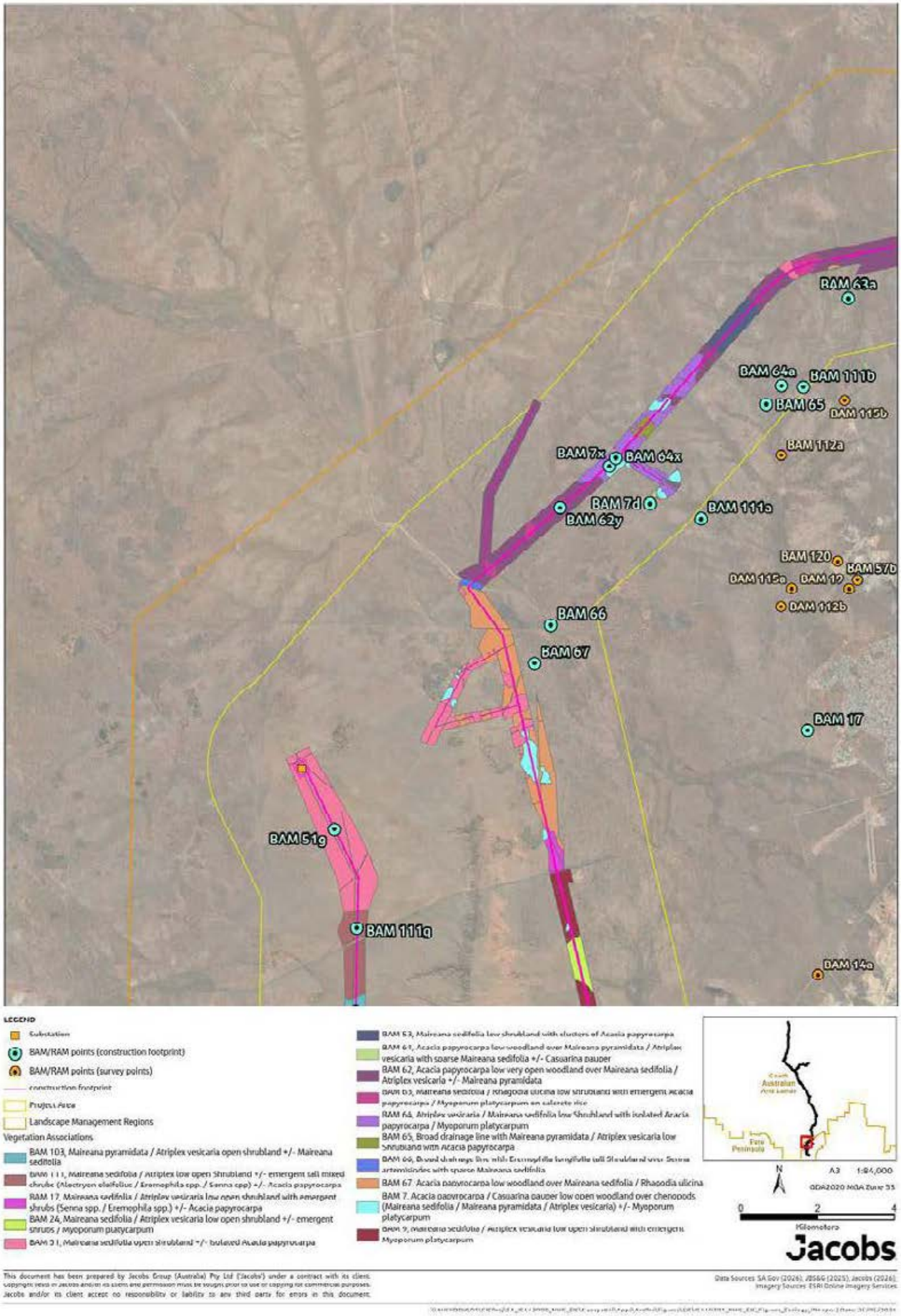


Figure 5. BAM points and vegetation mapping relevant to the construction footprint (map 3 of 17)

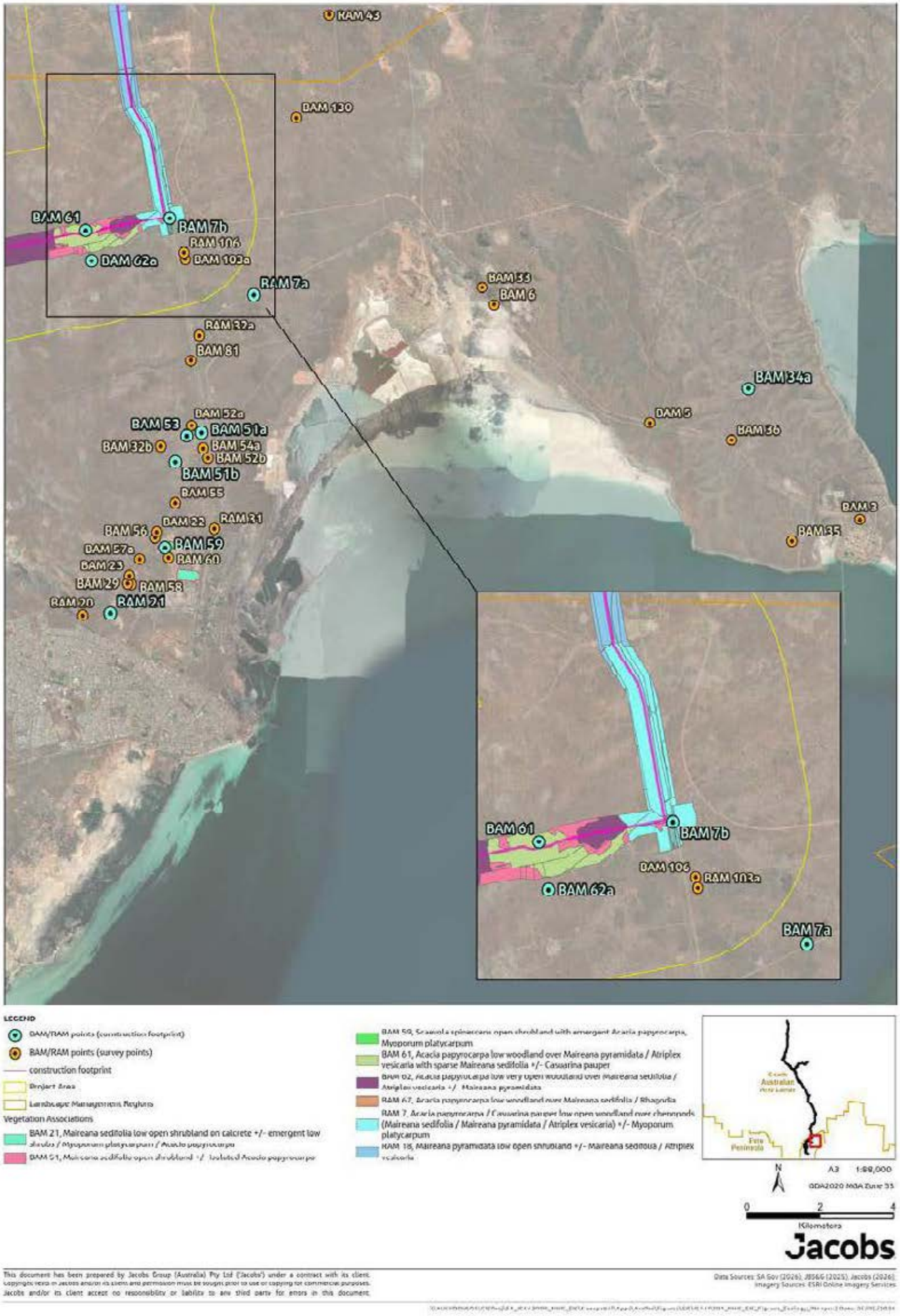


Figure 6. RAM points and vegetation mapping relevant to the construction footprint (map 4 of 17)

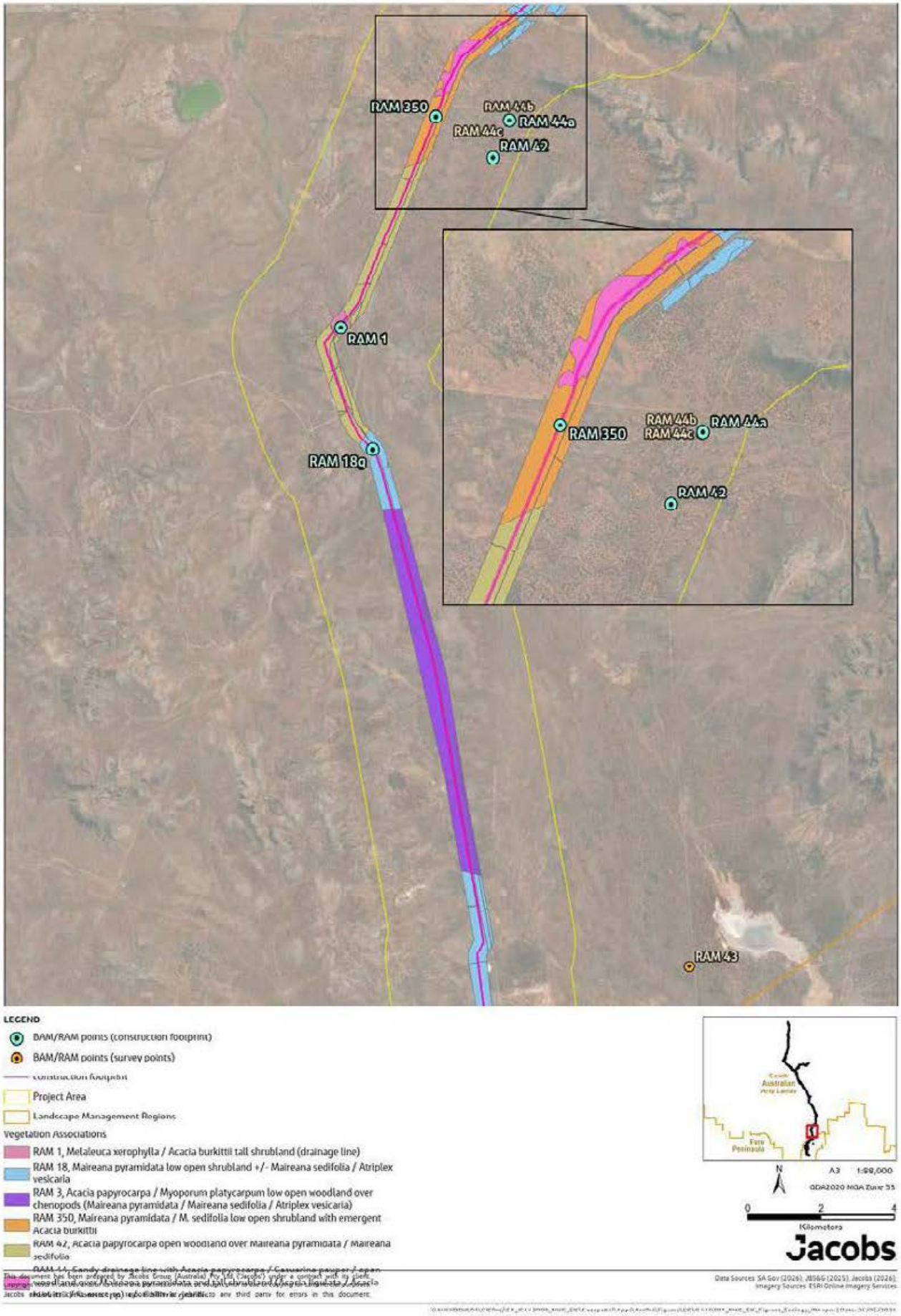


Figure 7. RAM points and vegetation mapping relevant to the construction footprint (map 5 of 17)

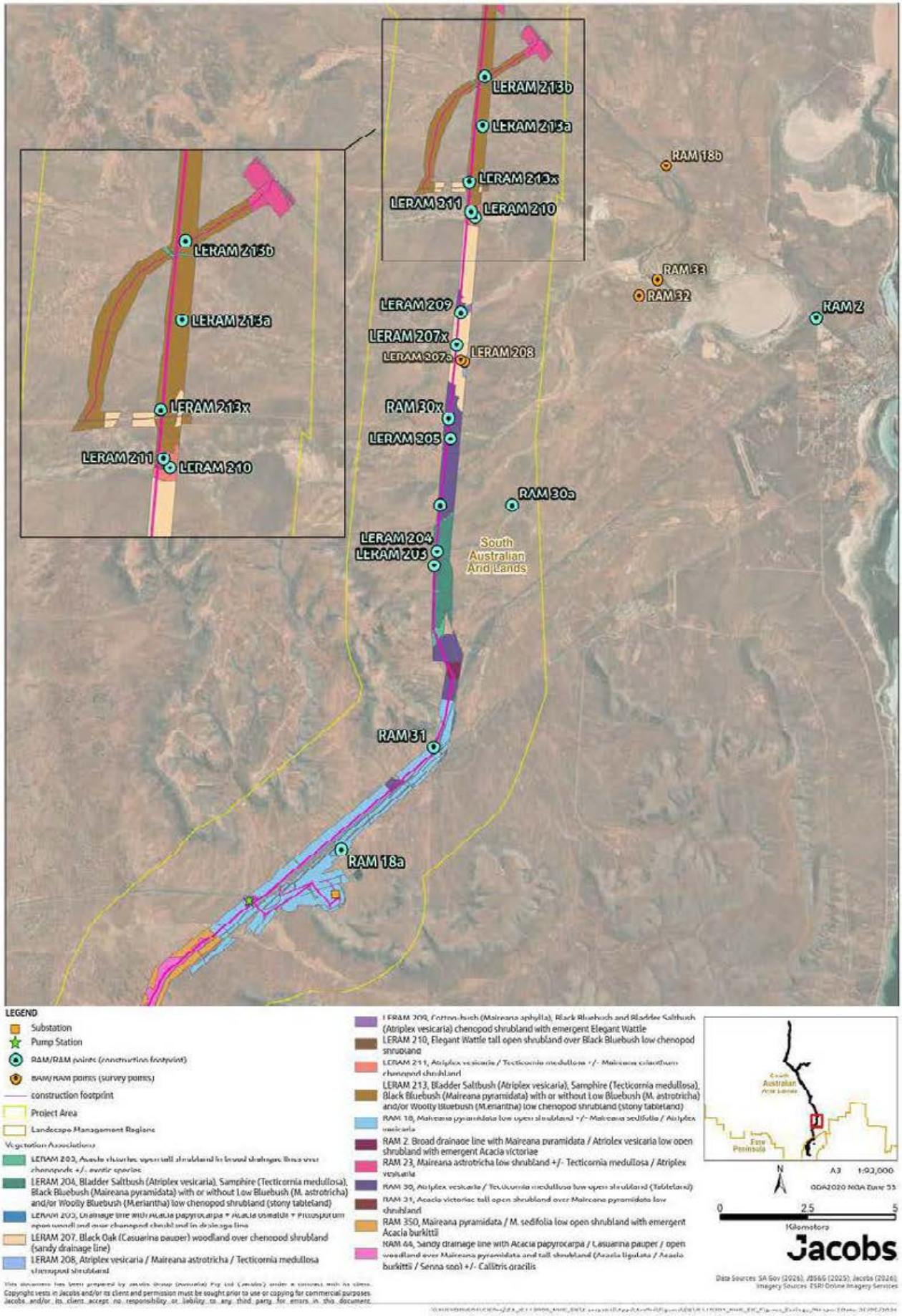


Figure 8. RAM points and vegetation mapping relevant to the construction footprint (map 6 of 17)

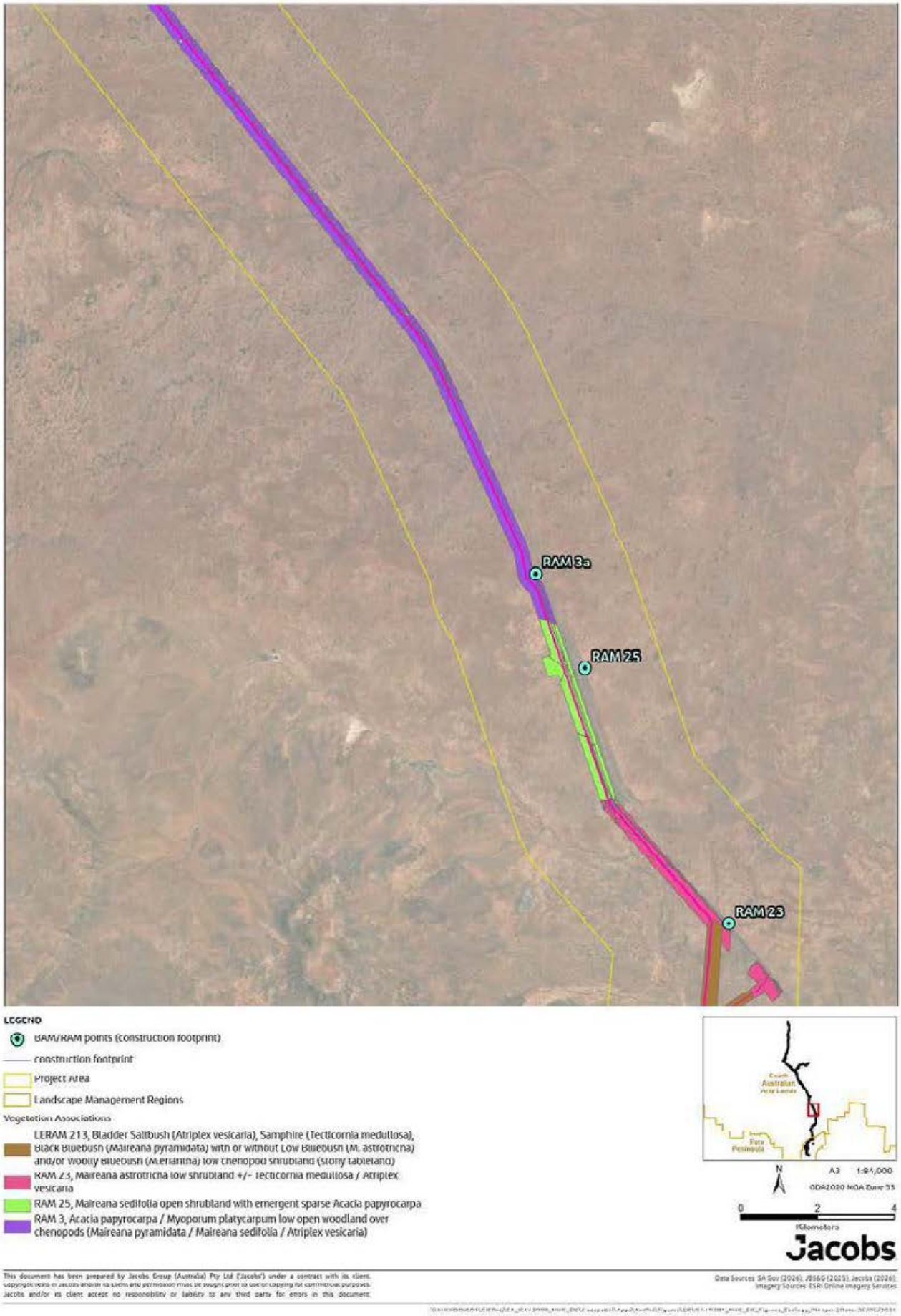


Figure 9. RAM points and vegetation mapping relevant to the construction footprint (map 7 of 17)

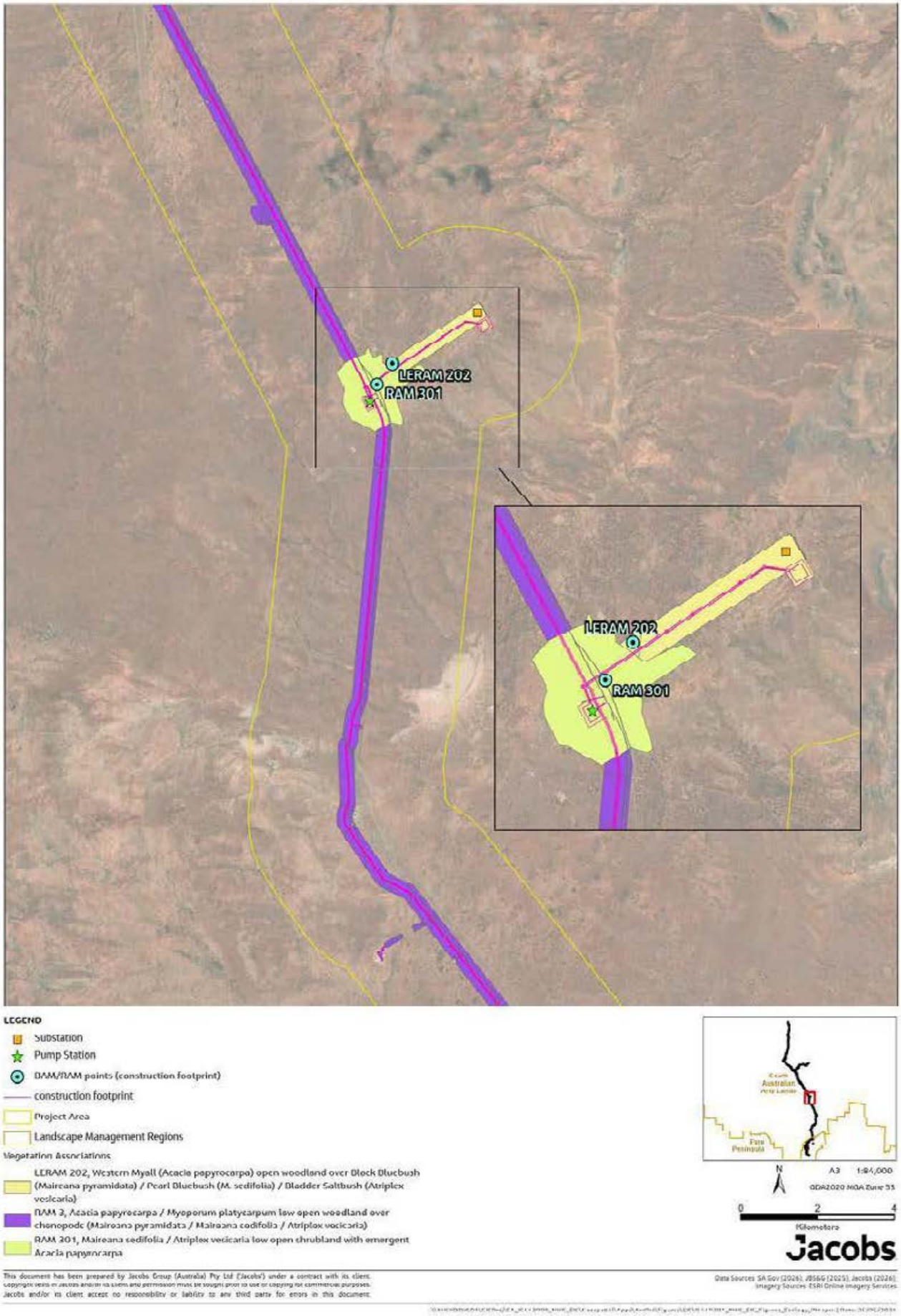


Figure 10. RAM points and vegetation mapping relevant to the construction footprint (map 8 of 17)

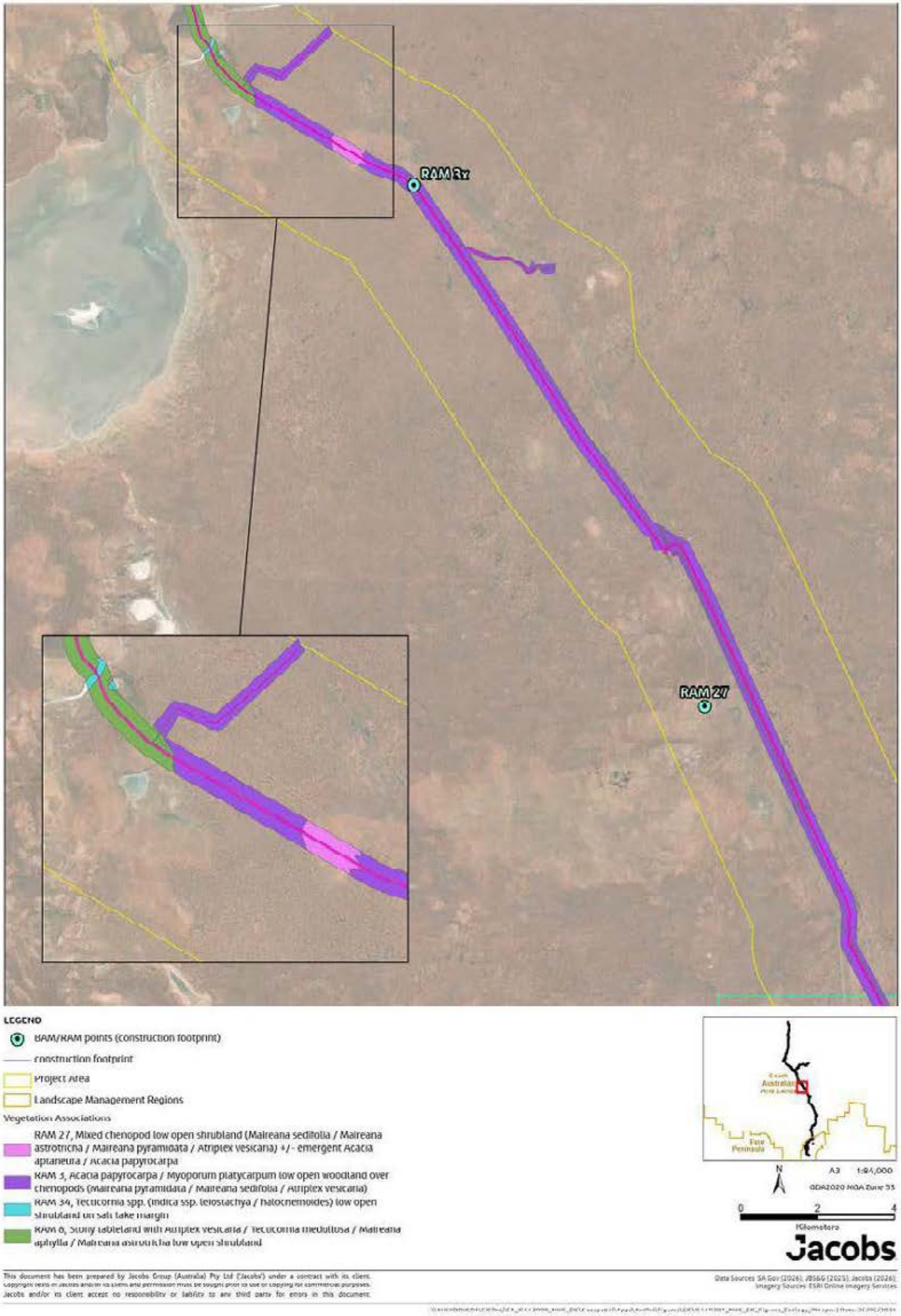


Figure 11. RAM points and vegetation mapping relevant to the construction footprint (map 9 of 17)

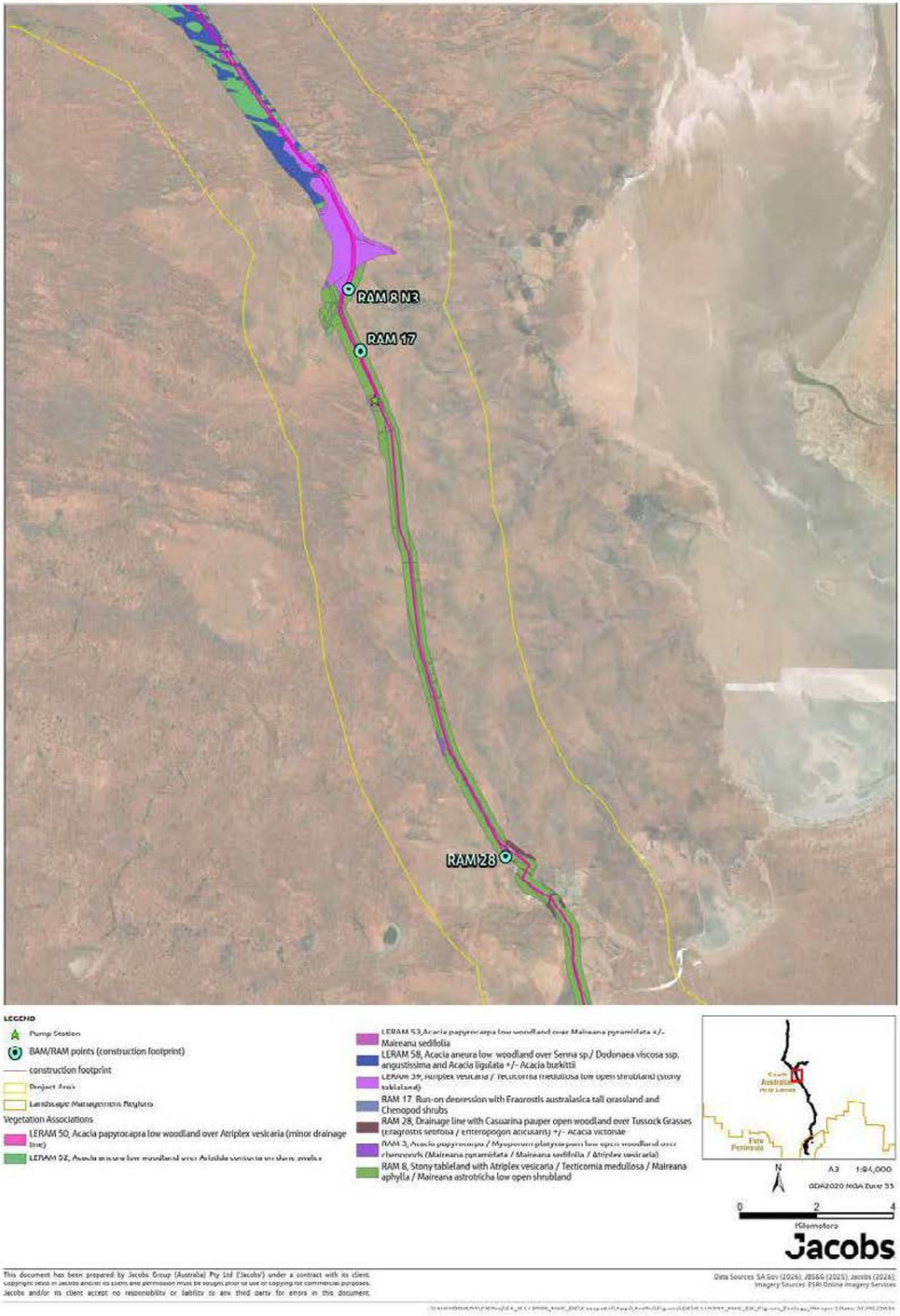


Figure 12. RAM points and vegetation mapping relevant to the construction footprint (map 10 of 17)

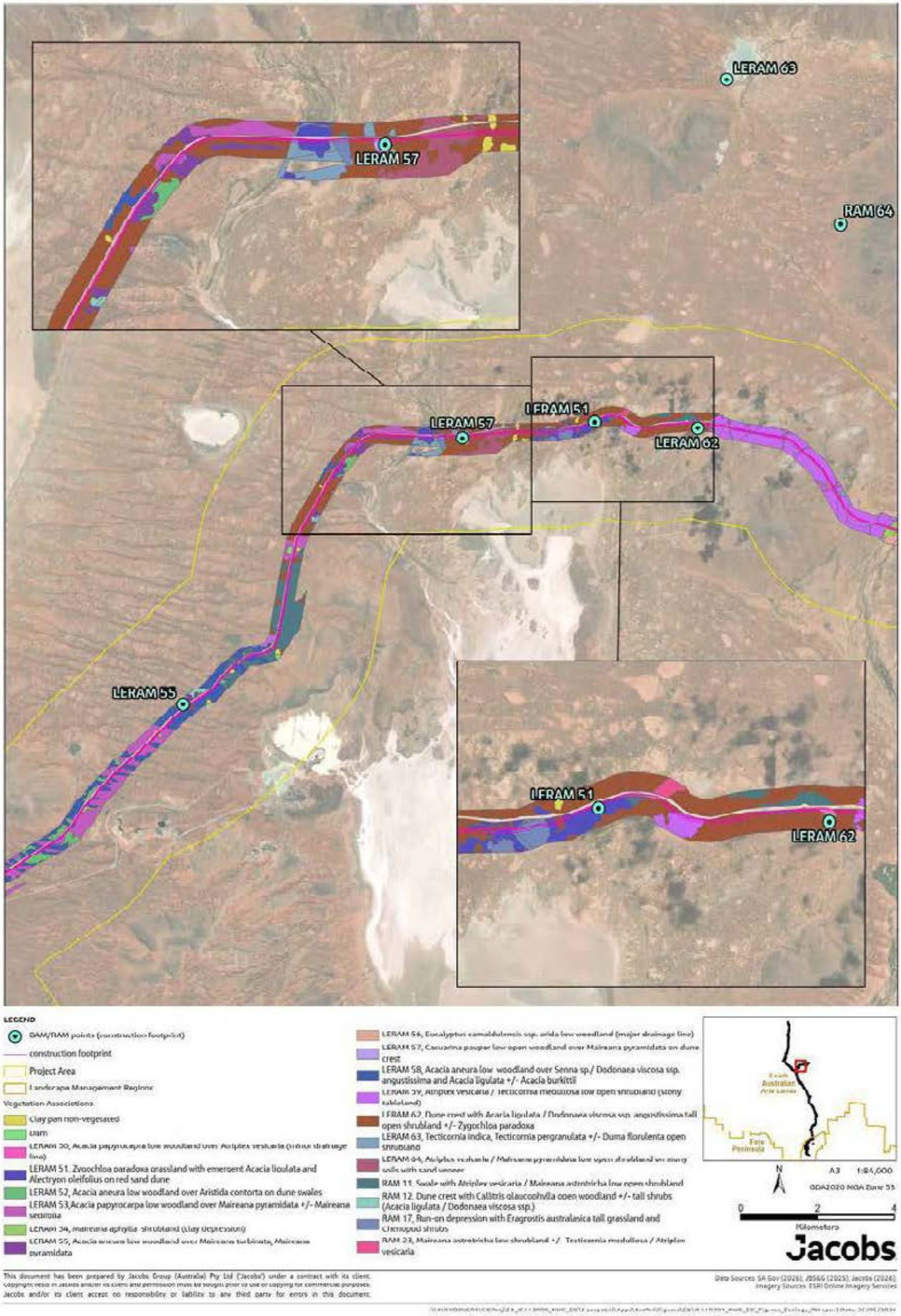


Figure 13. RAM points and vegetation mapping relevant to the construction footprint (map 11 of 17)

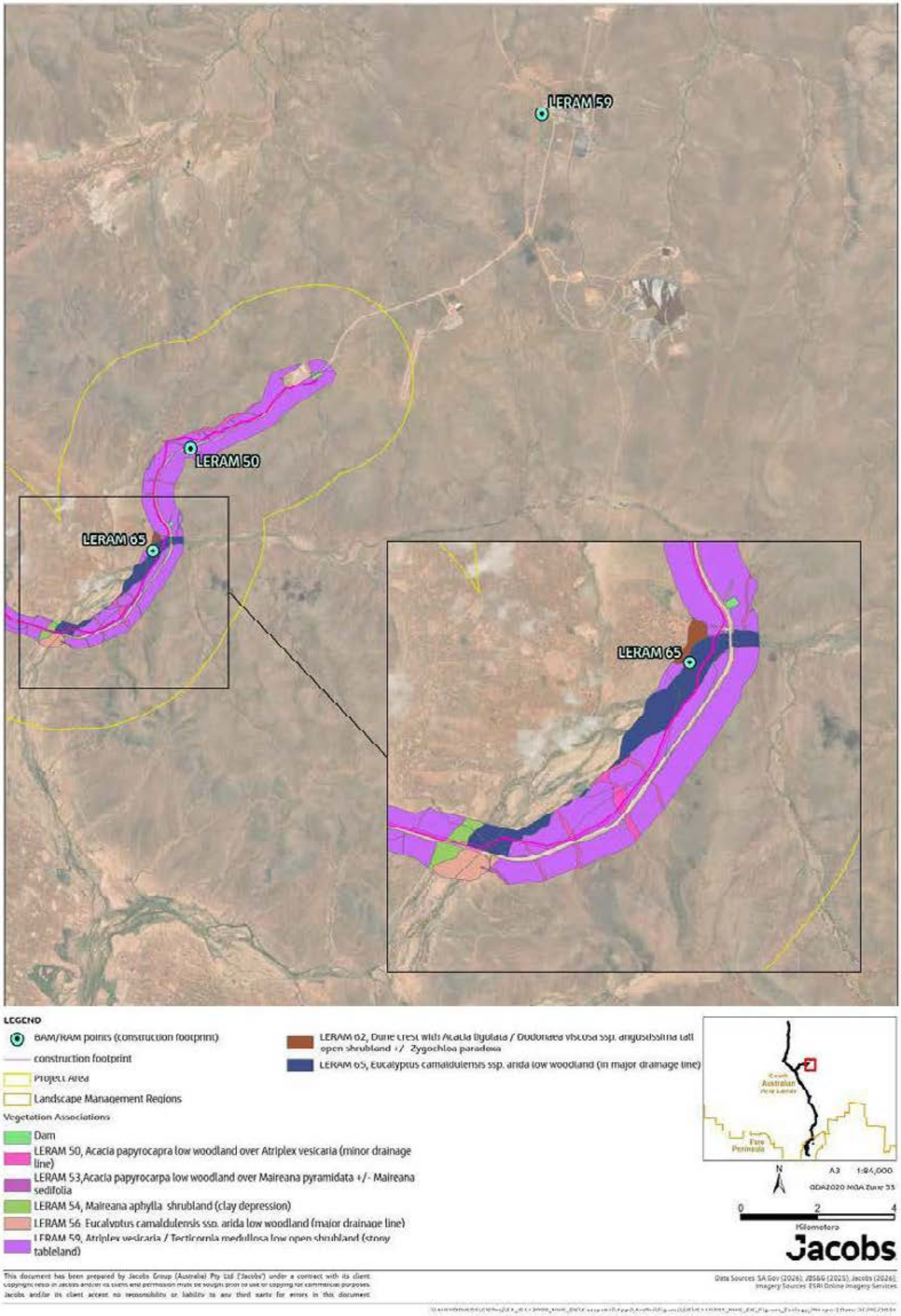


Figure 14. RAM points and vegetation mapping relevant to the construction footprint (map 12 of 17)

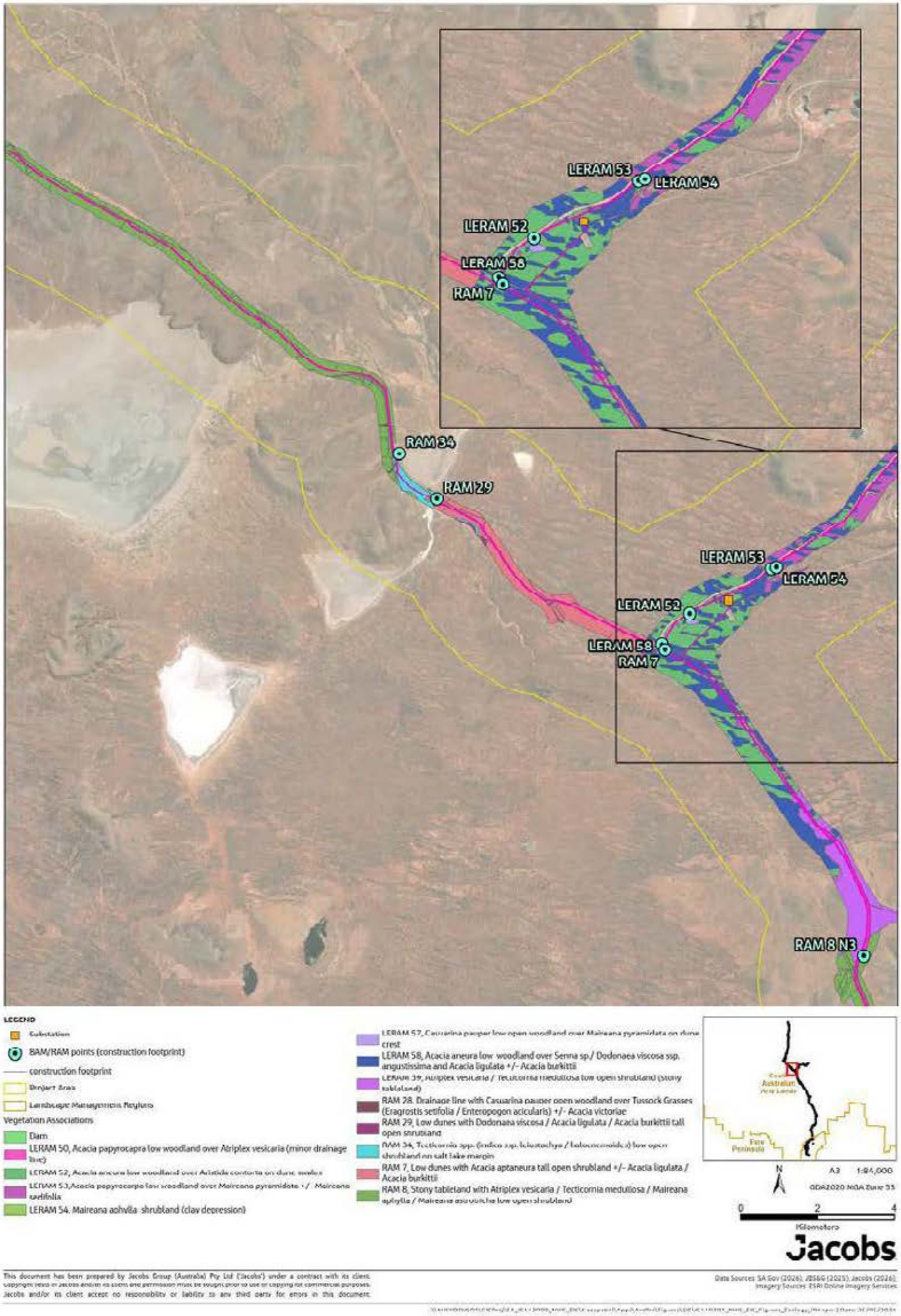


Figure 15. RAM points and vegetation mapping relevant to the construction footprint (map 13 of 17)

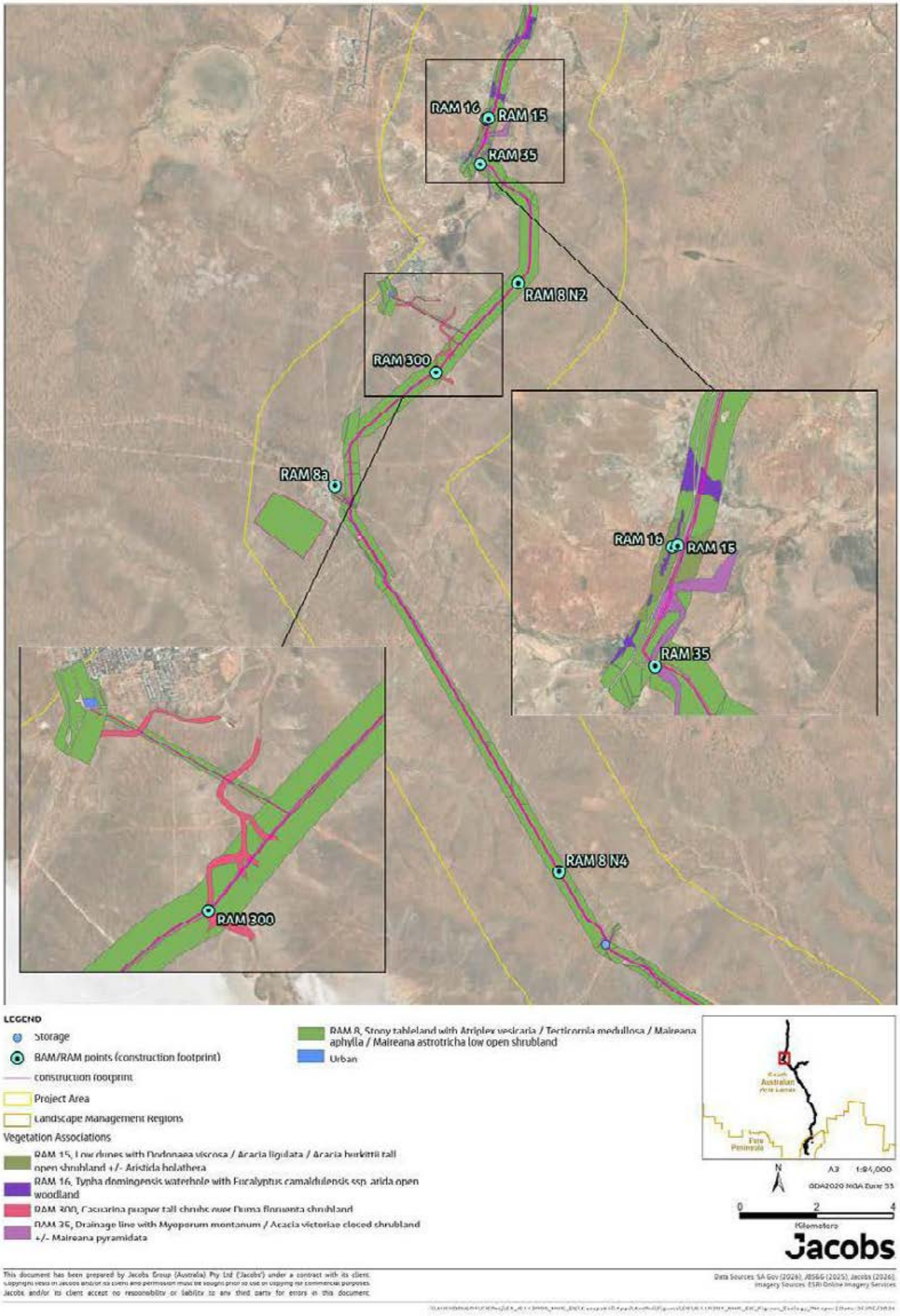


Figure 16. RAM points and vegetation mapping relevant to the construction footprint (map 14 of 17)

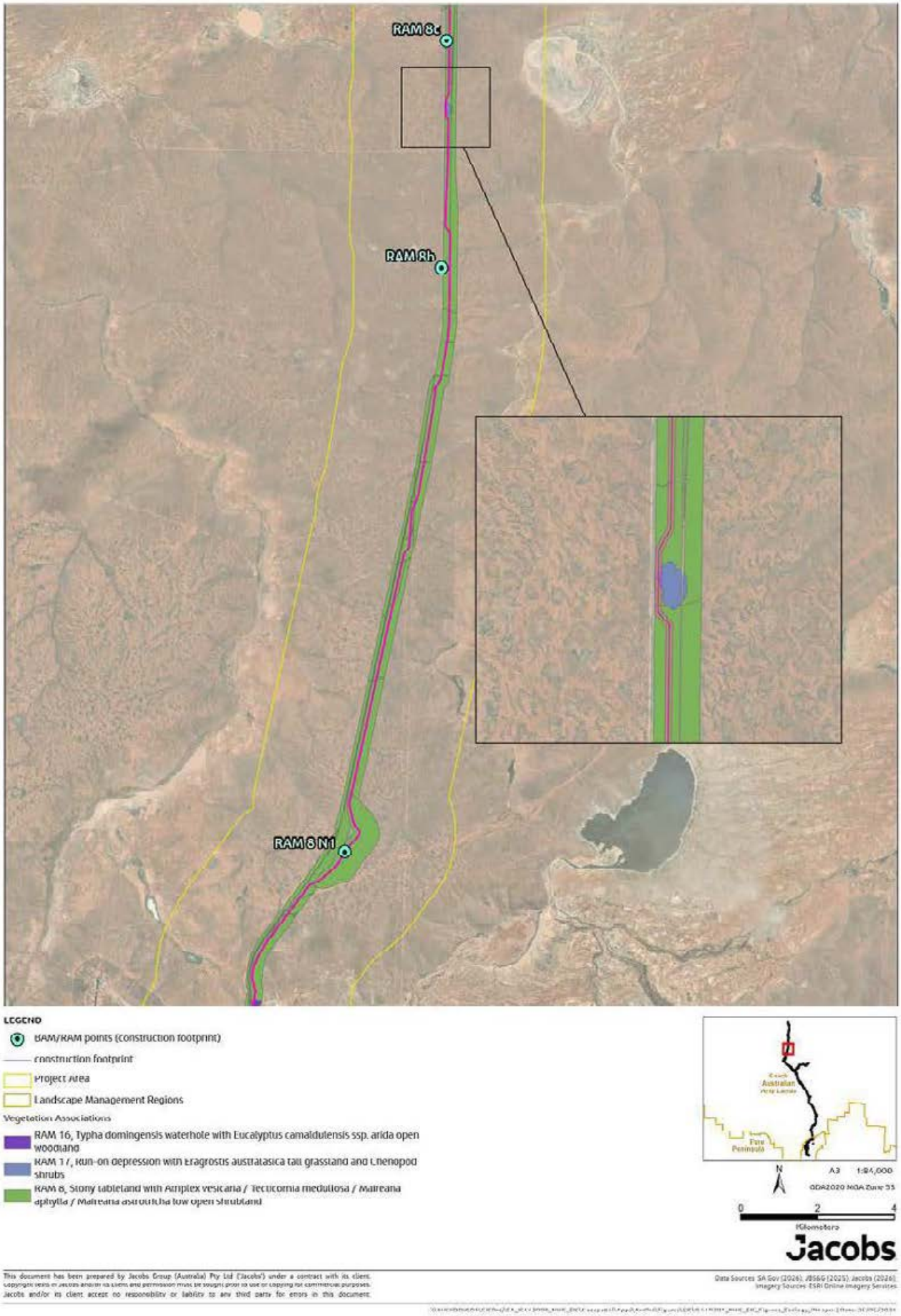


Figure 17. RAM points and vegetation mapping relevant to the construction footprint (map 15 of 17)

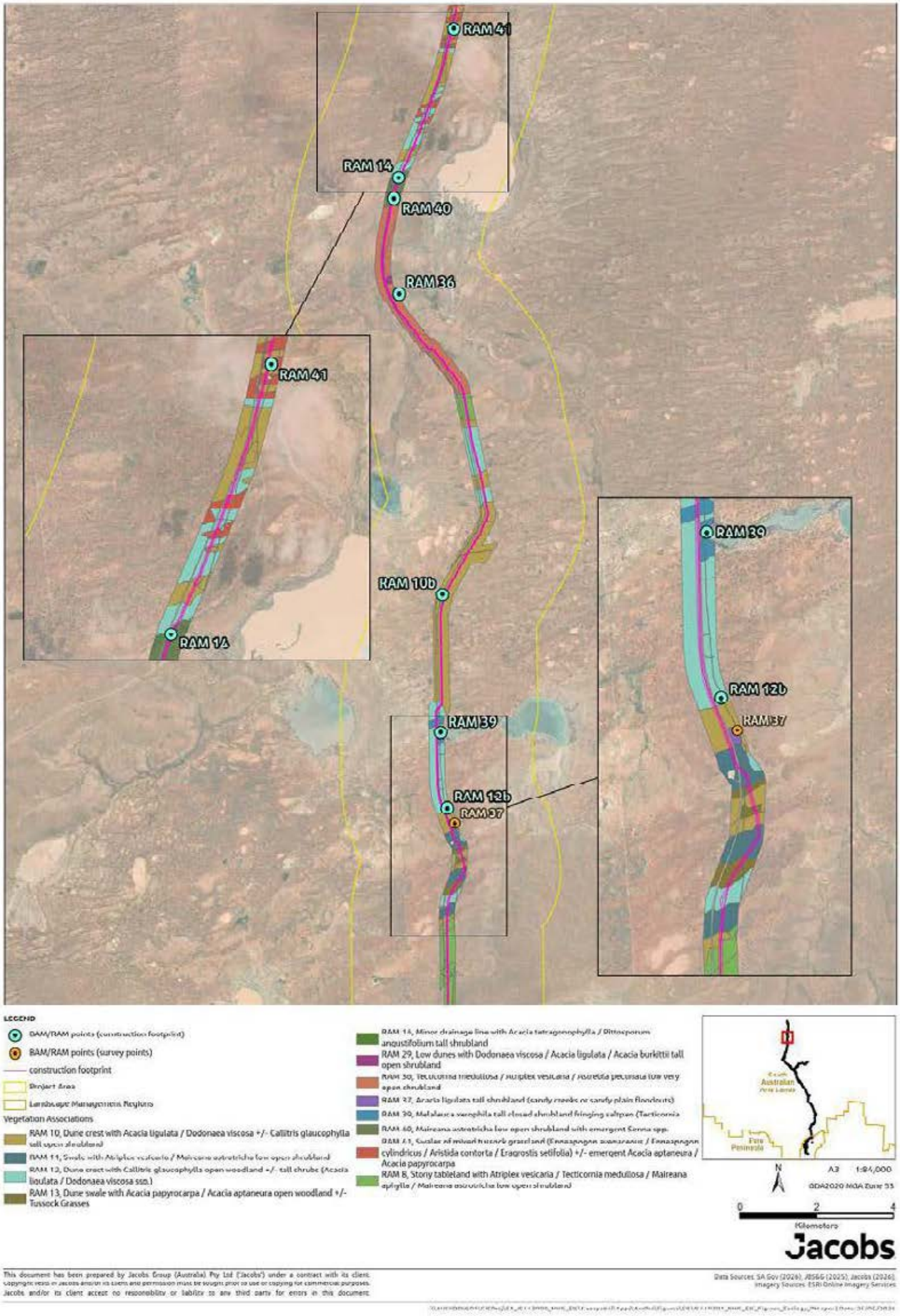


Figure 18. RAM points and vegetation mapping relevant to the construction footprint (map 16 of 17)

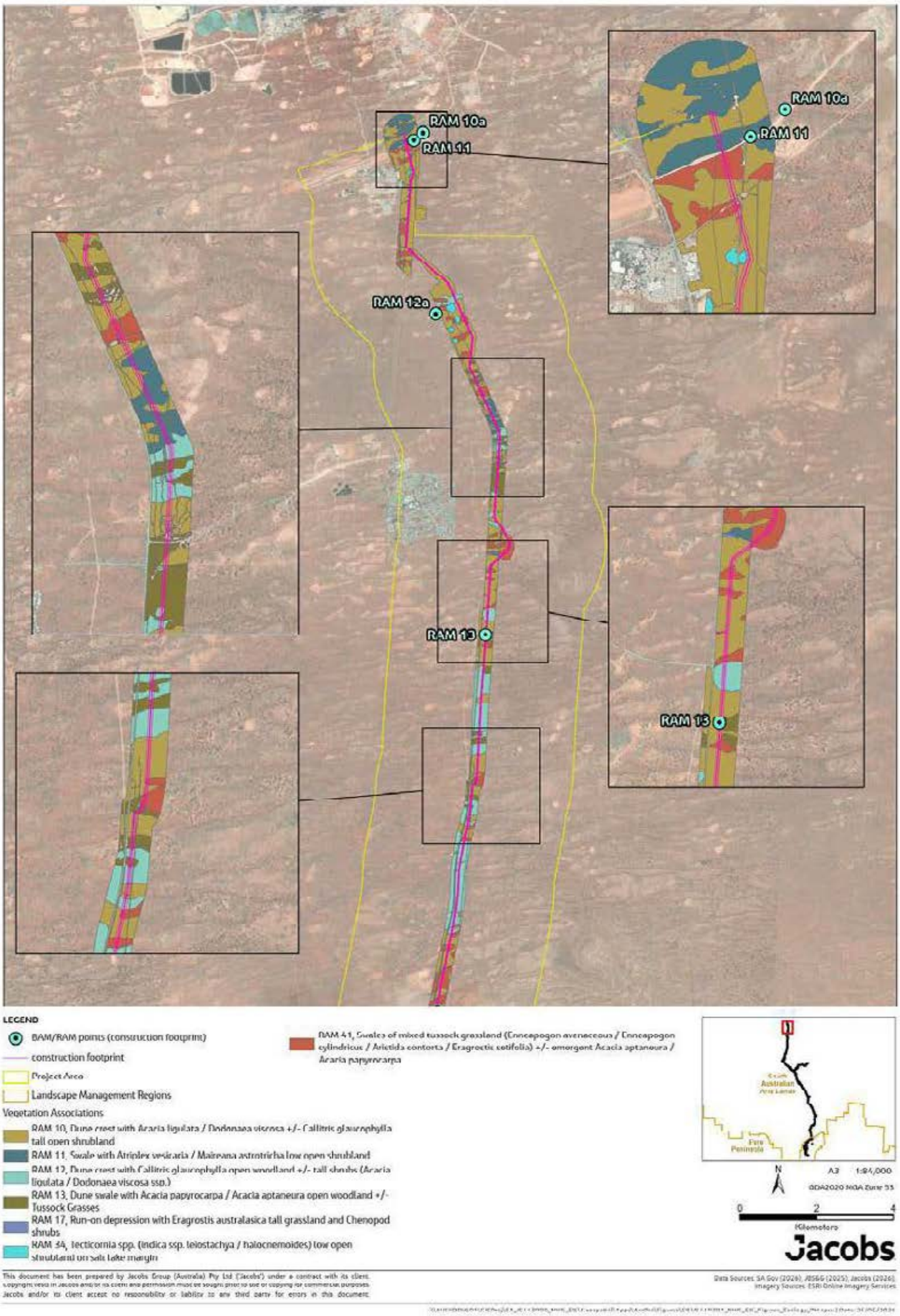


Figure 19. RAM points and vegetation mapping relevant to the construction footprint (map 17 of 17)

4.2 Marine vegetation assessment

4.2.1 General description of the vegetation, site and matters of significance

The marine component of the Project Area has a relatively shallow foreshore with the 15 m depth contour approximately 3 km from shore. The area is relatively sheltered with low to moderate wave energy, primarily driven by tidal currents. Benthic habitats at the site are generally sandy and flat with extensive seagrass beds and intertidal mangroves.

The marine environment at the desalination plant site supports:

- Mangroves in the intertidal zone with areas of bare sand.
- *Posidonia* seagrasses which dominate the subtidal area to approximately 13 m depth where the seagrass then transitions to seasonally driven cover of *Zostera* sp. out to approximately 15 m depth, whereafter bare sand dominates.
- Bryozoans, algae and other invertebrates within sandy areas at deeper depths.

The following key habitat types were identified at the site:

- Intertidal mangrove *(Avicennia marina)*
- *Posidonia australis* seagrass
- *Posidonia sinuosa* seagrass
- Mixed *Amphibolis / Posidonia* seagrass
- *Zostera* seagrass
- Silty sand with sparse invertebrates and/or macroalgae
- Silty sand with bioturbation.

Small areas comprising Bryozoan beds, mixed *Posidonia australis* and *Zostera* seagrass, and *Amphibolis* seagrass were also present in the study area.

Benthic habitats at the site are shown in Figure 21 and Figure 22.

There are no marine parks or sanctuary zones at the location of the desalination plant intake and outfall pipelines. The Upper Spencer Gulf Marine Park is located approximately 8 km north and the Franklin Harbour Marine Park is located approximately 11 km south.

4.2.2 Details of marine VAs proposed to be impacted

The only native vegetation that will be impacted by the project in the marine environment is *Zostera* seagrass.

Zostera is a shallow rooted, shorter-lived species compared to other species mentioned above. It is an opportunistic coloniser and plays an important role in rapid sediment stabilisation and is often the first to colonise disturbed areas. *Zostera* is easily disturbed, including by natural disturbance such as storms, but has the ability to build up a seed bank from which they can recover rapidly (Edgar 2008). *Zostera* varies in coverage over shorter timescales than the longer-lived, slower growing *Posidonia* and *Amphibolis* beds.

Within the study area, this habitat comprised a monoculture of *Zostera nigricaulis* with coverage variable across the sites surveyed. There were distinct seasonal differences in cover, which was generally low in autumn, increased in winter and spring, then reduced again in summer. Shallow *Zostera* habitat is likely to provide nursery or juvenile habitat for species such as King George Whiting and Garfish, and also supports smaller mobile invertebrates and other fauna that rely on sheltered, shallow seagrass beds.

Zostera extends from approximately 2.8 to 3.6 km from the high tide mark at approximately 13 m to 15 m depth (up to 16 m depth in some areas).

Monitoring has shown high seasonal variation in *Zostera* cover. *Zostera* was sparse at all sites in both summer and autumn and generally masked by epiphytes, which were generally greatest in summer (refer EIS Appendix G-3). *Zostera* became more prominent in winter with a further increase in spring. When *Zostera* cover beneath epiphytes was accounted for, cover ranged from about 7–34% in summer, 2-18% in autumn, 29–55% in winter and 65–90% in spring. The upper range of cover values across survey sites was used as a conservative approach in the marine assessment scoresheet. Further detail is provided in in Table 32.

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Marine VA 1 – *Zostera* seagrass

Table 32. Marine vegetation association 1 – Zostera seagrass

Vegetation Association	**Marine vegetation association 1: *Zostera* seagrass**				
					
Figure 20. Marine vegetation association 1 - Zostera seagrass					
General description	*Zostera* seagrass. Within the study area, this habitat comprised a monoculture of *Zostera nigricaulis* with coverage variable across the sites surveyed.				
Threatened species or community	No threatened flora, fauna or community recorded during field surveys.				
Landscape context score	1.14	**Vegetation Condition Score**	58.78	**Conservation significance score**	1.10
Unit biodiversity Score	73.71	**Area (ha)**	2.1	**Total biodiversity Score**	154.79

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4.2.3 Site maps showing marine areas of proposed impact

As discussed in Section 2.5, The construction footprint for marine infrastructure relates to a preliminary stage in design and is indicative. It has been developed to cover a range of potential construction methodologies as discussed above.

The proposed methodology for installation of the intake and outfall pipelines using tunnel boring machines means that there are no seabed impacts shoreward of the intake (i.e. intertidal mangroves, tidal flats and *Posidonia* dominated seagrass beds are avoided). Underground tunnelling for the intake and outfall will be a sufficient distance beneath the seabed to meet engineering design requirements and this distance is not expected to impact the marine environment (including being deep enough to not affect the root zone of seagrasses or other marine flora).

The EIS and this report address two potential methodologies for construction at and beyond the intake structure:

- The Reference Design, where the intake structure is located within the *Zostera* seagrass and the footprint would require a small area of permanent seagrass clearance. The Reference Design outfall structures (including the diffuser manifold) are located in sandy habitat where there is no native vegetation.
- A Float and Sink Pipeline Option, which employs the float and sink construction methodology for the sections of outfall pipeline beyond the intake. The option assumes the intake and outfall structures are in the same location as the Reference Design, and the ~1 km outfall pipe between the intake and outfall structures is laid on the seabed and secured with pipe collars. Key departures from the Reference Design in terms of seabed disturbance in relation to the Float and Sink Pipeline Option include:
    - The extent of dredging (between intake and outfall) to partially house the pipe on the seabed and to ensure hydraulic performance and asset protection requirements are met (subject to detailed design)
    - Construction footprint area to accommodate jack-up barge/s and install the ~1,000 m of pipeline and pipe collars
    - The presence of the pipe on the seabed would create a larger permanent footprint than the Reference Design with 1,000 m of pipeline and collars on the seabed.

The Reference Design requires an estimated 0.25 ha clearance in *Zostera* (0.15 ha permanent and 0.10 temporary). The Float and Sink Pipeline Option includes an additional 1.85 ha of *Zostera* clearance (1.09 ha permanent and 0.76 ha temporary).

This report uses the higher clearance required for the Float and Sink Pipeline Option to estimate expected worst case clearance that may be required for the Project. The **total clearance** in *Zostera* (for the Float and Sink Pipeline Option) is therefore **2.1 ha** (estimated 1.24 ha permanent and 0.86 ha temporary).

The estimated seabed disturbance and extent of clearance for these options is detailed in Table 33 and shown in Figure 21 and Figure 22.

Table 33: Estimated seabed disturbance for Reference Design and Float and Sink Pipeline Option

Seabed infrastructure component	Estimated total disturbance (ha)	Estimated breakdown (ha)	
		Permanent	Temporary
Zostera habitat			
Intake structure – in *Zostera* habitat (as per Reference Design)	0.25	0.15	0.10
Pipeline and collars (float and sink) in *Zostera* habitat	1.85	1.09	0.76
TOTAL in *Zostera* habitat	**2.10**	**1.24**	**0.86**
Sandy habitat (no native vegetation)			
Outfall riser and diffuser array in sandy habitat (as per Reference Design)	0.92	0.50	0.42
Pipeline and collars (float and sink) in sandy habitat	2.43	1.47	0.96
TOTAL (all habitats)	**5.45**	**3.21**	**2.24**

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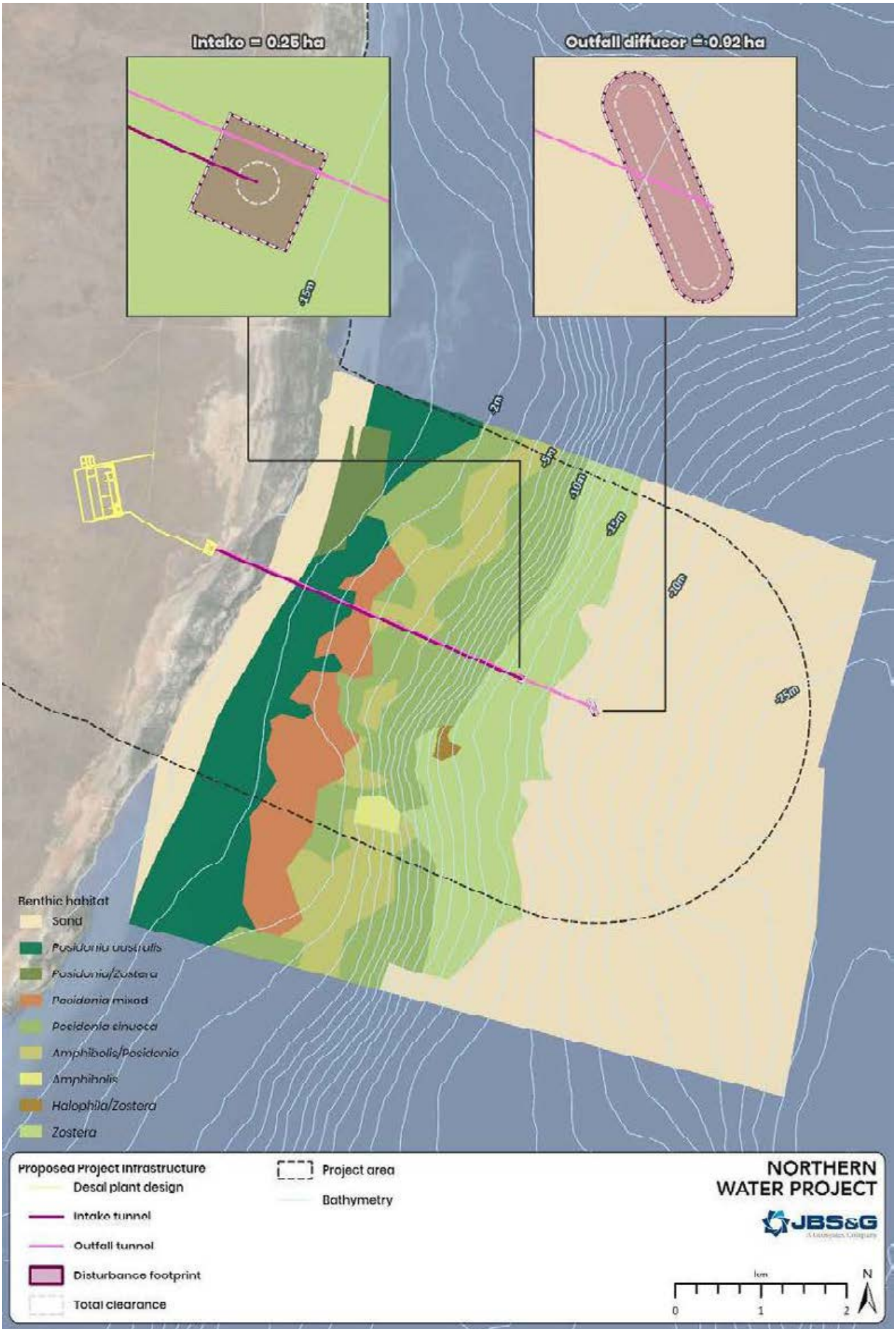


Figure 21: Discrete seabed disturbance areas associated with the intake and outfall structures (Reference Design) (Bathymetry = mAHD)

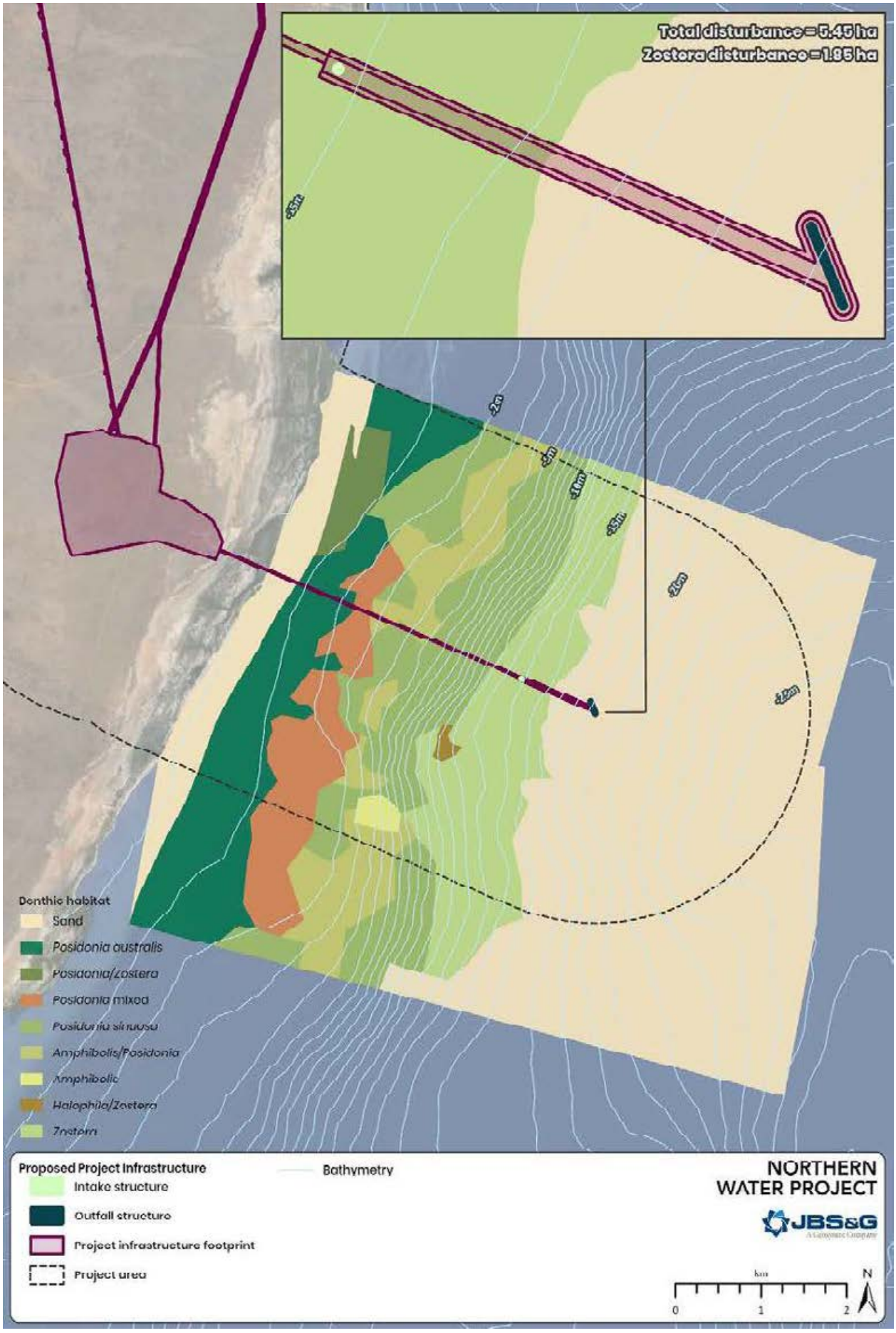


Figure 22: Seabed disturbance areas for the Float and Sink Pipeline option showing additional disturbance areas (Bathymetry = mAHD)

4.3 Threatened species and communities field results

4.3.1 Terrestrial Threatened Ecological Communities

One EPBC Act listed TEC was observed within the Project Area during the field survey:

- The Subtropical and Temperate Coastal Saltmarsh (EPBC Act: VU).

The field survey confirmed that Subtropical and Temperate Coastal Saltmarsh TEC is intersected by the project infrastructure footprint at a single location near Mullaquana Station in BAM 145 (230 m of the intake / outfall pipe). However, construction is not anticipated to impact the TEC due to the tunnelling construction method for the intake and outfall pipe infrastructure within this location.

For further details on the TEC observed and field results, refer to the Northern Water Ecological Technical Report (Jacobs 2026, Appendix 1).

4.3.2 Terrestrial threatened flora

No EPBC Act listed flora species were observed during the survey. One NPW Act listed flora species was observed during the survey:

- Sandalwood (*Santalum spicatum*) (NPW Act: V).

Three specimens of Sandalwood were observed during field survey. While none of these individuals occur within the construction footprint, all three occur within vegetation associations impacted by the Project. One individual was observed during the BAM 67 survey and is therefore included in the scoresheet. The additional individuals were observed on Nonowie Station and the Carrapateena lateral branch. However, the construction footprint currently avoids all Sandalwood individuals observed in the field. These specimens were in areas difficult to access with dense / variable vegetation, so additional specimens may have also been present but not observed. The species is widespread throughout its range and may occur in other locations in the construction footprint with similar habitat.

4.3.3 Terrestrial threatened fauna

A total of six threatened fauna species were recorded within the Project Area during the field surveys (Table 34, Figure 23, Figure 24). However, it should be noted that locations of some opportunistic species observations were not recorded and are therefore not displayed in figures.

Table 34. Threatened fauna recorded during field surveys.

Common name	Scientific name	EPBC Act rating	NPW Act rating	Observation method	No. of individuals	Location
Australian Bustard	*Ardeotis australis*	-	V	O	1	BAM 11 in Mullaquana Station
Blue -winged Parrot*	*Neophema chrysostoma*	VU	V	H	1	Mullaquana Station
Sooty Oystercatcher	*Haematopus fuliginosus fuliginosus*	-	R	O	3	Beach near Mullaquana Station
Little Tern	*Sternula albifrons*	MW, VU	-	O	14	Beach near Mullaquana Station
Southern Whiteface	*Aphelocephala leucopsis*	VU	-	O + H	>29	Various locations in EP and SAAL LMR
Western Grasswren	*Amytornis textilis myall*	VU	V	O + H	>37	Various locations around Whyalla, and Port Augusta

H = acoustic detection; O = observed during field survey

**Blue-winged Parrot has also been recorded at Carrapateena (heard and seen) at some sites adjacent the Carrapateena Lateral (e.g. site 16, 2023 annual survey in Autumn Jacobs 2023).*

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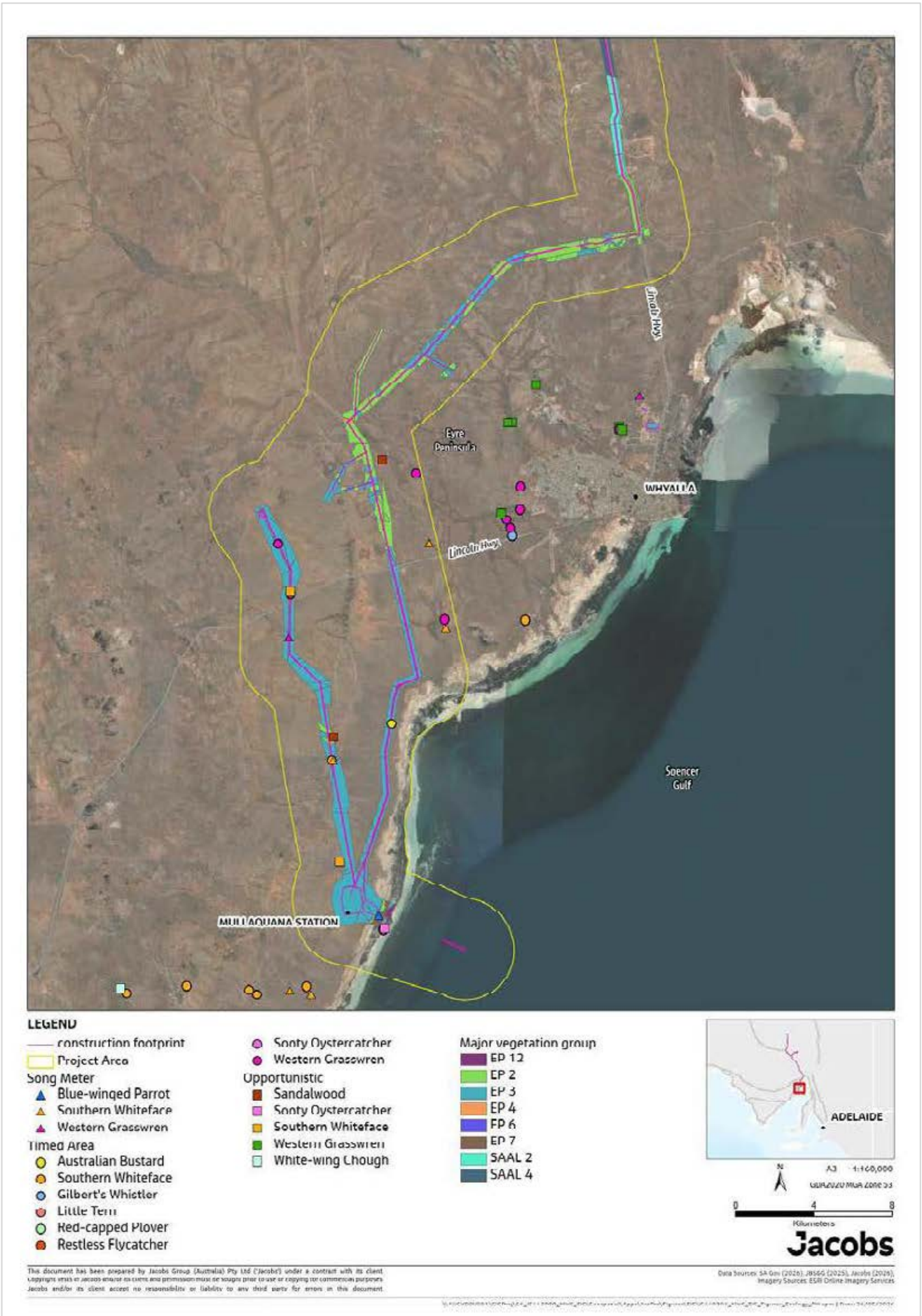


Figure 23. Threatened flora and fauna species observed within the EP LMR.

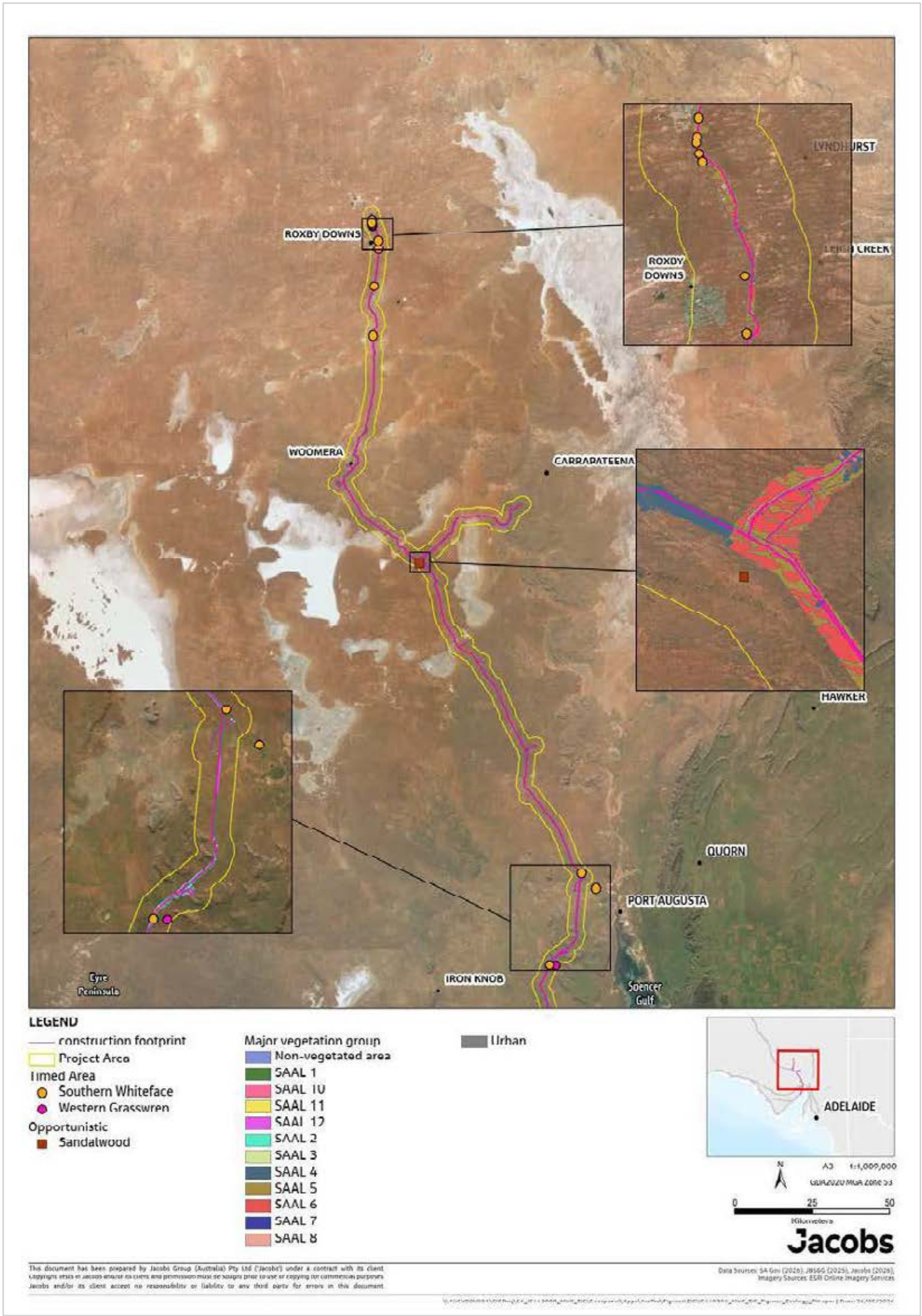


Figure 24. Threatened flora and fauna species observed within the SAAL LMR.

4.3.3.1 Target Threatened fauna habitat suitability

Habitat mapping was undertaken for the three target species and one key order; Western Grasswren, Southern Whiteface, Plains Mouse and migratory shorebirds in the order Charadriiformes. Habitat suitability criteria for each species, along with detailed habitat mapping is provided in the baseline report (Jacobs 2026, Appendix 1). A summary of these results is presented below (Table 35). Note that as no coastal habitat is proposed for clearance under this application, shorebird habitat has been omitted from the table.

Table 35. Target species habitat distribution within the construction footprint

Target species and habitat description		Habitat suitability category	EP LMR	SAAL LMR	Total
Western Grasswren	In the EP LMR, habitat for the Western Grasswren is predominantly present around Whyalla CP and north of the Whyalla township approaching the Whyalla water tanks. More fragmented patches are also located west of Whyalla and to the west of Cowleds Landing, nearby Mullaquana Station. Preferred habitat extends from the EP LMR through to the SAAL LMR, where it mosaics around atypical and low potential habitat extending to the west of Port Augusta near Lincoln Gap. Other potential habitat (atypical, low potential) occurs relatively continuously, aside from patches of preferred habitat, from north of Carriewerloo in the SAAL LMR to Mullaquana Station in the EP LMR. Construction of the desalination plant would require clearance of 189 ha of marginal habitat which is unlikely to support core populations, while construction of the transfer system and transmission lines involves clearance of approximately 136 ha of preferred habitat and 266 ha of atypical habitat, along a length of approximately 100 km.	Preferred	13.58	122.12	135.70
		Atypical	381.55	73.47	455.01
		Low potential	61.81	94.90	156.71
		Not suitable	1.28	-	1.28
		Outside known range	-	1,243.02	1,243.02
Plains Mouse	Suitable Plains Mouse habitat mapping was based on broad VAs against the species habitat criteria. A more detailed Plains Mouse study was undertaken separately to inform the EIS (Lathwida 2026). Suitable habitat occurs in the SAAL LMR in vast patches spanning from Kootaberra north to Olympic Dam, becoming more fragmented approaching Roxby Downs. These patches are broken by larger areas of unsuitable habitat near Purple Downs and north of Pernatty Lagoon both along the Stuart Highway and Carrapateena Lateral branch. Following periods of high rainfall, areas currently mapped as not suitable may become heavily vegetated and cause population booms of Plains Mouse (Moseby 2012). Some dune swales containing Swamp Cane-grass and other swale communities in the Roxby IBRA Subregion may also provide limited potential habitat during favourable periods. However, cracking clays were observed to be limited through these areas.	Suitable	-	809.16	809.16
		Not suitable	-	242.39	242.39
		Outside known range	458.21	481.96	940.17
Southern Whiteface	Suitable habitat for Southern Whiteface is widespread throughout the Project Area in both the SAAL and EP LMRs, noting that the species also has a widespread distribution throughout the Project Area. Throughout the Woomera IBRA association, suitable habitat becomes sparser as treeless plains become more dominant, however ephemeral creeks	Suitable	458.21	876.96	1,335.17

Target species and habitat description		Habitat suitability category	EP LMR	SAAL LMR	Total
	may provide habitat throughout the area. Other small but notable areas of unsuitable habitat occur north of Purple Downs, north of Pernatty Lagoon, and west of Port Augusta. Besides the small mangrove coastal saltmarsh patches at Mullaquana Station, the entire EP LMR is mapped as suitable for the Southern Whiteface.	Not suitable	-	656.55	656.55
Area in hectares (ha)					

4.3.4 Marine threatened species

No marine threatened species were recorded during field surveys.

4.4 Terrestrial threatened species and ecological communities desktop assessment

4.4.1 Threatened species assessment approach

Due to the large scale and diversity of habitat across the Project, the LoO assessment for threatened species was undertaken across broad habitat categories. These broad habitat categories were selected based on the MVGs identified in the Project Area with consideration of key habitat and key threatened species relevant to the construction footprint.

The habitat categories within the EP LMR which were considered include:

- Coastal dunes / beaches
- Coastal saltmarsh / coastal samphire / mangrove
- Open woodlands over chenopod / chenopod shrublands / tall chenopod shrublands.

The habitat categories within the SAAL LMR which were considered include:

- Ephemeral creeks / drainage lines
- Low dunes and dune crests of *Acacia* and *Callitris*
- Open woodlands over chenopod / chenopod shrublands / tall shrublands of Senna, Mulga on plains
- Tableland and inland saline depressions, inland samphire.

The LoO assessments integrate the results of field surveys to refine and validate the initial desktop analysis. The finalised LoOs have been used to populate the RAM and BAM datasheets within each habitat category they have been grouped into.

The detailed LoO assessments, which include habitat information, record details and a likelihood assessment against key habitat types in the Project Area for all threatened species identified as potentially occurring within the Project Area (5 km in the EP, 50 km in the SAAL), as well as maps of database records, are provided in Appendix C of the Terrestrial Ecology Assessment (Jacobs 2026, Appendix 1). Summaries for possible, likely or known species are provided in Section 4.4.4.

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4.4.2 EPBC Act threatened species and communities' summary

4.4.2.1 EPBC Act TECs

The EPBC Act PMST output highlighted three TECs with potential to occur within the construction footprint and / or the Study Area:

- Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of SA (Critically Endangered)
- Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia (Endangered), and
- Subtropical and Temperate Coastal Saltmarsh (Vulnerable).

Of the three identified TECs, the likelihood of occurrence (LoO) assessment determined that two are considered unlikely to occur in the construction footprint and one, Subtropical and Temperate Coastal Saltmarsh, is known to occur within the construction footprint. The detailed outcomes of the LoO assessment for all three TECs is presented in the Terrestrial Ecology Assessment (Jacobs 2026, Appendix 1).

4.4.2.2 EPBC Act Fauna

The EPBC Act PMST output for the EP LMR highlighted 46 threatened fauna species as potentially occurring within the Study Area, and an additional three species were included in assessments as they were previously recorded (DEW 2025a). Eight species were removed from further assessment as they are marine and occurred only within the buffer area for the database search. Of the 41 EPBC Act listed species assessed, 15 were considered possible, likely, or known to occur within the construction footprint in the EP LMR (Table 36). Four of these species were observed during the field surveys; Western Grasswren, Southern Whiteface, Blue-winged Parrot and Little Tern.

The EPBC Act PMST output for the SAAL LMR highlighted 60 threatened fauna species as potentially occurring within the Study Area, and an additional three species were included in assessments as they were previously recorded (DEW 2025a). Eight species were removed from further assessment as they are marine and occurred only within the buffer area for the database search. Of the 55 EPBC Act listed species assessed, 12 were considered possible, likely, or known to occur within the construction footprint in the SAAL LMR (Table 37). Two of these species were observed during the field surveys; Western Grasswren and Southern Whiteface.

The EPBC Act PMST outputs highlighted 39 migratory bird species as potentially occurring within the Study Area across both LMRs. Species with EPBC Act threat ratings as well as migratory status were assessed under the EPBC Act threatened fauna LoOs outlined above and were therefore not re-assessed as migratory species. Of the 16 migratory bird species assessed, five species were considered as potentially occurring within the construction footprint across the EP and SAAL LMRs (Jacobs 2026, Appendix 1).

4.4.2.3 EPBC Act Flora

Within the EP LMR, the PMST output highlighted four EPBC threatened flora species as potentially occurring within the Study Area. All of these species were considered unlikely to occur within the construction footprint.

The PMST output for the SAAL LMR identified 21 EPBC Act listed threatened flora species and potentially occurring within the Study Area. Three species had recent and reliable records (DEW 2025b). However, all 21 of the flora species included in the LoO assessment are considered unlikely to occur in the construction footprint.

4.4.3 NPW Act threatened species summary

4.4.3.1 NPW Act Fauna

The BDBSA output for the EP LMR highlighted 57 NPW Act listed fauna species with recent and reliable records within the Study Area. Of these, 32 species were not assessed further following exclusions for species found only within the Flinders-Lofty Block (in the buffer area), subspecies occurring beyond the Study Area, or assessment under EPBC migratory LoO. Of the 25 NPW Act listed species assessed, 20 are considered possible, likely, or known to occur within the construction footprint in the EP LMR (Table 38). Two of these species were detected during surveys; Australian Bustard (*Ardeotis australis*) and Sooty Oystercatcher (*Haematopus fuliginosus fuliginosus*).

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The BDBSA output for the SAAL LMR highlighted 104 NPW Act listed fauna species with previous records in the Study Area. Of these, 57 were not assessed further following exclusions outlined above. Of the 47 NPW Act listed species assessed, 27 are considered possible, likely, or known to occur within the construction footprint in the SAAL LMR (Table 39). Pernatty Knob-tailed Gecko (*Nephrurus deleani)* is known in low dunes and dune crests of Acacia and Callitris restricted to Pernatty Lagoon near the Carrapateena area based on baseline survey outcomes for the Carrapateena Mine access route prior to construction of the mine (e.g. spotlighting in sand dune habitat) (EBS Ecology 2013). No individuals were found for this scope of works (Jacobs 2026) but this species has been assessed as known to occur in the LoO due to anecdotal records in the aforementioned studies.

4.4.3.2 NPW Act Flora

The BDBSA output for the EP LMR highlighted there are recent and reliable records for 16 NPW Act listed flora species within the construction footprint and / or Study Area. Of these, 13 species were not considered further in the LoO assessment (as above). Two NPW Act listed flora species were considered possible and known to occur within the construction footprint in the EP LMR (Table 40). Of these, Sandalwood (*Santalum spicatum*) was observed during the field survey.

The BDBSA output for the SAAL LMR highlighted there are recent and reliable records for 53 NPW Act listed flora species within the Study Area. Of these, 41 species were not considered further in the LoO assessment (as above)**.** Eight NPW Act listed flora species were considered known or possible to occur within the construction footprint in the SAAL LMR (Table 41). Of these, Sandalwood (*Santalum spicatum*) was observed during the field survey.

4.4.4 Likelihood assessment tables

LoO assessment summary tables for the construction footprint are presented on Sections 4.4.4.1 to 4.4.4.6 below. Further detail regarding the data source, date of last record and unlikely species that have potential to occur in the relevant Study Areas (5 km / 50 km buffer) is provided in Appendix C of Appendix 1 (Jacobs 2026).

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4.4.4.1 EP LMR EPBC Act Fauna

Table 36. Outcomes of the LoO assessment for EPBC Act listed threatened fauna potentially occurring in the EP LMR construction footprint. Excludes species considered unlikely to occur.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Coastal saltmarsh/ mangrove	Open woodlands over chenopod/ chenopod shrublands/ tall chenopod shrublands	Coastal dunes/ beaches
AVES						
Amytornis textilis myall	Western Grasswren	VU	V	-	**Known**	-
Aphelocephala leucopsis	Southern Whiteface	VU	-	-	**Known**	-
Calidris acuminata	Sharp-tailed Sandpiper	VU, MW	-	**Possible**	-	**Possible**
Calidris ferruginea	Curlew Sandpiper	CR, MW	E	**Possible**	-	**Possible**
Falco hypoleucos	Grey Falcon	VU	R	-	**Possible**	-
Limosa lapponica	Bar-tailed Godwit	EN, MW	R	**Possible**	-	**Possible**
Limosa limosa melanuroides	Black-tailed Godwit	EN, MW	R	**Possible**	-	-
Neophema chrysostoma	Blue-winged Parrot	VU	V	**Likely**	**Known**	**Possible**
Numenius madagascariensis	Far Eastern Curlew	CR, MW	E	**Possible**	-	**Possible**
Pluvialis squatarola	Grey Plover	VU	-	**Possible**	-	**Possible**
Sternula albifrons	Little Tern	VU, MW	-	**Possible**	-	**Known**
Sternula nereis nereis	Australian Fairy Tern	VU	E	-	-	**Likely**
Thinornis cucullatus cucullatus	Hooded Plover	VU	V	**Possible**	-	**Possible**
Tringa nebularia	Common Greenshank	EN, MW	-	**Possible**	-	**Likely**
MAMMALS						
Pteropus poliocephalus	Grey-headed Flying Fox	VU	**R**	-	**Likely**	-

[1] EPBC Act status: Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Migratory Wetland (MW); Migratory Terrestrial (MT); Migratory Marine (MM)

[2] NPW Act status: Endangered (E); Vulnerable (V); Rare (R).

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Coastal saltmarsh/ mangrove	Open woodlands over chenopod/ chenopod shrublands/ tall chenopod shrublands	Coastal dunes/ beaches
Note, many coastal bird species have been retained in this LoO out of precaution of potential future changes to the construction footprint. However, coastal habitat and inland salt lakes / drainage lines are not proposed for clearance under this application.						

4.4.4.2 SAAL LMR EPBC Act Fauna

Table 37. Outcomes of the LoO assessment for EPBC Act listed threatened fauna potentially occurring in the SAAL LMR construction footprint. Excludes species considered unlikely to occur.

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Ephemeral creeks/ drainage lines	Tableland and inland saline depressions, inland samphire	Open woodlands over chenopod/ chenopod shrublands/ tall shrublands of *Senna*, Mulga on Plains	Low dunes and dune crests of Acacia & Callitris	Grasslands/ woodlands in dune swales
AVES								
Amytornis modestus	Thick-billed Grasswren	VU	-	**Possible**	**Possible**	-	-	-
Amytornis textilis myall	Western Grasswren	VU	V	**Known**	**Possible**	**Known**	**Likely**	**Possible**
Aphelocephala	Southern Whiteface	VU	-	**Likely**	**Likely**	**Known**	**Known**	**Known**
Calidris acuminata	Sharp-tailed Sandpiper	VU,	-	**Possible**	**Possible**	-	-	-
Calidris ferruginea	Curlew Sandpiper	CR,	E	**Possible**	-	-	-	-
Falco hypoleucos	Grey Falcon	VU	R	**Possible (for hunting)**	**Possible (for hunting)**	**Possible**	**Possible**	**Possible**
Limosa limosa	Black-tailed Godwit	EN,	R	**Possible**	-	-	-	-
Neophema chrysostoma	Blue-winged Parrot	VU	V	**Possible**	**Likely**	**Likely**	**Possible**	**Possible**
Tringa nebularia	Common Greenshank	EN,	-	**Possible**	**Possible**	-	-	-
MAMMALS								
Notomys fuscus	Dusky Hopping-mouse, Wilkiniti	VU	V	**Possible**	-	-	**Possible**	**Possible**
Pseudomys australis	Plains Mouse	VU	V	-	**Likely**	-	-	**Possible**
Pteropus poliocephalus	Grey-headed Flying Fox	VU	R	**Likely**	-	**Likely**	-	-

Species	Common name	EPBC Act status[1]	NPW Act status[2]	Ephemeral creeks/ drainage lines	Tableland and inland saline depressions, inland samphire	Open woodlands over chenopod/ chenopod shrublands/ tall shrublands of *Senna*, Mulga on Plains	Low dunes and dune crests of Acacia & Callitris	Grasslands/ woodlands in dune swales
[1] EPBC Act status: Critically Endangered (CR); Endangered (EN); Vulnerable (VU); Migratory Wetland (MW); Migratory Terrestrial (MT); Migratory Marine (MM). [2] NPW Act status: Endangered (E); Vulnerable (V); Rare (R)								

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4.4.4.3 EP LMR NPW Act Fauna

Table 38. Outcomes of the LoO assessment for NPW Act listed threatened fauna species potentially occurring in the EP LMR construction footprint. Excludes species also listed under the EPBC Act or considered unlikely to occur.

Species	Common name	NPW Act status[1]	Coastal Saltmarsh/ Mangrove	Open Woodlands over Chenopod/ chenopod shrublands/ tall chenopod shrublands	Coastal Dunes/ Beaches
AVES					
Acanthiza iredalei iredalei	Slender-billed Thornbill (western)	R	-	**Possible**	-
Anhinga novaehollandiae	Australian Darter	R	-	-	**Possible**
Ardea intermedia plumifera	Plumed Egret	R	-	-	**Possible**
Ardeotis australis	Australian Bustard	V	-	**Known**	
Bubulcus ibis coromandus	Eastern Cattle Egret	R	-		**Possible**
Cinclosoma castanotum	Chestnut quail-thrush	R	-	**Possible**	-
Cladorhynchus leucocephalus	Banded Stilt	V	**Likely**	-	**Likely**
Corcorax melanorhamphos	White-winged Chough	R	-	**Possible**	-
Egretta garzetta nigripes	Little Egret	R	**Possible**	-	**Likely**
Falco peregrinus macropus	Peregrine Falcon	R	**Possible**	**Possible**	**Possible**
Haematopus fuliginosus fuliginosus	Sooty Oystercatcher	R	**Likely**	-	**Known**
Haematopus longirostris	Pied Oystercatcher	R	**Likely**	-	**Likely**
Haliaeetus leucogaster	White-bellied Sea Eagle	E	**Possible**	-	**Possible**
Hylacola pyrrhopygia	Chestnut-rumped Heathwren	E	-	**Likely**	-
Myiagra inquieta	Restless Flycatcher	R	-	**Possible**	-
Pachycephala inornata	Gilbert's Whistler	R	-	**Likely**	-
Podiceps cristatus australis	Great Crested Grebe	R	**Possible**	-	-
Spatula rhychotis	Australian Shoveler	R	**Possible**	-	**Possible**
Sterna Hirundo longipennis	Common Tern	R	-	-	**Possible**
Zapornia tabuensis tabuensis	Spotless Crake	R	**Possible**	-	-

[1] NPW Act status: Endangered (E); Vulnerable (V); Rare (R).

Note, many coastal bird species have been retained in this LoO out of precaution of potential future changes to the construction footprint. However, coastal habitat is not proposed for clearance and inland salt lakes will be avoided under this application.

4.4.4.4 SAAL LMR NPW Act Fauna

Table 39. Summary of the LoO assessment for NPW Act listed threatened fauna species potentially occurring in the SAAL LMR construction footprint. Excludes species also listed under the EPBC Act or considered unlikely to occur.

Species	Common name	NPW Act status[1]	Ephemeral Creeks/ Drainage Lines	Tableland and inland saline depressions, inland samphire	Open Woodlands over chenopod/ chenopod shrublands/ tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of *Acacia* & Callitris	Grasslands/ Woodlands in Dune Swales
AVES							
Acanthiza iredalei iredalei	Slender-billed Thornbill (western)	R	-	**Likely**	**Likely**	-	-
Ardeotis australis	Australian Bustard	V	-	**Likely**	**Likely**	-	**Likely**
Biziura lobata menziesi	Musk Duck	R	**Likely**	**Possible**	-	-	-
Cladorhynchus	Banded Stilt	V	**Possible**	-	-	-	-
Climacteris affins	White-browned Treecreeper	R	-	-	**Possible**	-	-
Egretta garzetta nigripes	Little Egret	R	**Possible**	-	-	-	-
Falco peregrinus macropus	Peregrine Falcon	R	**Possible**	**Possible (as flyover)**	**Possible**	-	**Possible**
Falco subniger	Black Falcon	R	-	-	**Possible (for hunting)**	-	**Possible (for hunting)**
Gerygone fusca	Western Gerygone	R	**Possible**	-	**Possible**	-	-
Gerygone olivacea olivacea	White-throated Gerygone	R	-	-	**Possible**	-	-
Haliaeetus leucogaster	White-bellied Sea Eagle	E	**Possible**	-	-	-	-
Hamirostra melanosternon	Black-breasted Buzzard	R	**Possible**	-	**Possible**	-	-
Hieraaetus morphnoides	Little Eagle	V	-	-	**Possible**	-	**Possible**
Hylacola cauta	Shy Heathwren	R	-	-	**Possible**	-	-
Hylacola pyrrhopygia	Chestnut-rumped Heathwren	E	-	-	**Possible**	-	-
Lophochroa leadbeateri mollis	Major Mitchell's Cockatoo / Pink Cockatoo	R	-	-	**Likely**	**Possible**	**Possible**
Neophema elegans elegans	Elegant Parrot	R	-	**Possible**	**Likely**	**Possible**	-
Neophema splendida	Scarlet-chested Parrot	R	-	-	**Likely**	**Possible**	**Possible**
Oxyura australis	Blue-billed Duck	R	**Possible**	-	-	-	-

Species	Common name	NPW Act status[1]	Ephemeral Creeks/ Drainage Lines	Tableland and inland saline depressions, inland samphire	Open Woodlands over chenopod/ chenopod shrublands/ tall Shrublands of Senna, Mulga on Plains	Low Dunes and Dune Crests of *Acacia* & Callitris	Grasslands/ Woodlands in Dune Swales
Pachycephala inornata	Gilbert's Whistler	R	-	-	**Possible**	-	-
Phaps histrionica	Flock Bronzewing	R	-	**Possible**	**Possible**	-	**Possible**
Podiceps cristatus australis	Great Crested Grebe	R	**Possible**	-	-	-	-
Spatula rhychotis	Australasian Shoveler	R	**Possible**	-	-	-	-
Stictonetta naevosa	Freckled Duck	V	**Possible**	-	-	-	-
Tringa glareola	Wood Sandpiper	R	**Possible**	**Possible**	-	**Possible**	-
Zapornia tabuensis	Spotless Crake	R	**Possible**	**Possible**	-	-	-
REPTILES							
Nephrurus deleani	Pernatty Knob-tailed Gecko	R	-	-	-	**Known (restricted to N and W of Pernatty Lagoon)**	-

[1] NPW Act status: Endangered (E); Vulnerable (V); Rare (R).

Note, some species have been retained in this LoO out of precaution of potential future changes to the construction footprint. However, inland salt lakes will be avoided under this application.

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4.4.4.5 EP NPW Act Flora

Table 40. Outcomes of the LoO assessment for NPW Act listed threatened flora species potentially occurring in the EP LMR construction footprint. Excludes species also listed under the EPBC Act or considered unlikely to occur.

Species	Common name	NPW Act status[1]	Coastal saltmarsh/ mangrove	Open woodlands over chenopod/ chenopod shrublands/ tall chenopod shrublands	Coastal dunes/ beaches
Orobanche cernua var. australiana	Australian Broomrape / Native Broomrape	R	**Possible**	-	-
Santalum spicatum	Sandalwood	V	-	**Known**	-
[1] NPW Act status: Endangered (E); Vulnerable (V); Rare (R).					

4.4.4.6 SAAL NPW Act Flora

Table 41. Outcomes of the LoO assessment for NPW Act listed threatened flora species potentially occurring in the SAAL LMR construction footprint. Excludes species also listed under the EPBC Act or considered unlikely to occur.

Species	Common name	NPW Act status[1]	Ephemeral creeks/ drainage lines	Tableland and inland saline depressions, inland samphire	Open woodlands over chenopod/ chenopod shrublands/ tall shrublands of *Senna*, Mulga on plains	Low dunes and dune crests of *Acacia* & *Callitris*	Grasslands/ woodlands in dune swales
Austrostipa breviglumis	Cane Spear-grass	R	-	-	-	-	**Possible**
Citrus glauca	Desert Lime	V	-	-	**Possible**	-	-
Frankenia subteres	Round Sea-heath	R	-	**Possible**	-	-	-
Gilesia biniflora	Western Tar-vine	R	**Possible**	**Possible**	-	-	-
Gratwickia monochaeta	One-bristle Everlasting	R	-	-	-	**Possible**	-
Roepera humillima	Small-fruit Twinleaf	R	-	**Possible**	-	-	-
Santalum spicatum	Sandalwood	V	**Possible**	-	**Known**	**Possible**	**Possible**
Wurmbea stellata	Star Nancy	R	-	**Possible**	-	-	-
[1] NPW Act status: Endangered (E); Vulnerable (V); Rare (R).							

4.5 Marine threatened species desktop assessment

A total of 100 taxa, comprising six crustaceans, seven echinoderms, 19 molluscs, 53 sessiles (including 32 sponge morphologies) and 15 fishes were observed during scuba surveys. None of these species are listed as threatened under the NP&W Act or EPBC Act or are introduced species of concern.

Searches of the PMST, BDBSA and ALA databases within a 5 km radius of the proposed clearance (search area) returned a number of species listed as Endangered, Vulnerable or Rare under the NP&W Act or Critically Endangered, Endangered or Vulnerable under the EPBC Act.

Marine species potentially relevant to the site of proposed clearance are listed in the table below. Species assessed as likely or known to occur have been included in the marine assessment scoresheet (Southern Right Whale and White Shark). As there are no database records in close proximity for species assessed as possible occurrences, they were not included in the scoresheet (Australian Sea Lion, Loggerhead Sea Turtle, Leatherback Turtle and Humpback Whale). The exclusion of the possible species has no impact on the final conservation significance score.

It is noted that some of the known/likely species could potentially be excluded from the scoresheets (subject to agreement with the Native Vegetation Branch) due to their unlikely occurrence and/or very limited dependence on seagrass habitats, however they have not been excluded in this case.

Terrestrial, wetland and shorebird species predicted by the PMST or previously recorded in the search area, that do not use subtidal seagrass habitat, were excluded from this threatened species assessment and are not included in the table below.

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Table 42: Marine species likelihood assessment

Species (common name)	NP&W Act	EPBC Act	Data source	Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
Southern Right Whale	V	EN	5	-	Feeding habitat is poorly known but is thought to occur in deeper offshore waters. Breeding habitat occurs in near-shore, shallow water depths with the species displaying a high degree of breeding site fidelity.	**Known to occasionally occur** - There are 34 ALA records in Upper Spencer Gulf. This species is known to occasionally occur in/near the Project Area. May be present between April and November (most likely in July and August).
Australian Sea-lion	V	EN	5	-	Australian Sea Lions inhabit various coastal environments and primarily forage in continental shelf waters, feeding on a diverse diet of benthic prey. Breeding colonies occur on islands or remote sections of coastline. Lone or small numbers of animals will regularly visit known haul-out sites and occasionally visit other locations.	**Possible** - The nearest breeding sites are approximately 180 km south of Mullaquana on the offshore islands of Sir Joseph Banks Group, and there are no additional documented haul out sites north of this. Important foraging habitat spans much of the continental shelf. Preferred depth for foraging is over 20 m depth, and outside the Project footprint. The Australian Sea-lion exhibits high site fidelity, and there is little movement of females between breeding colonies. There are two previous ALA records in the vicinity of Whyalla, more than 5 km from the Project Area.
Loggerhead Turtle	E	EN	5	-	Carnivorous species that feeds on predominantly benthic invertebrates in nearshore habitats to 55 m depth. Although Loggerhead Turtles are known to forage in all states and territories, the species is uncommon in South Australia.	**Possible** - The few records in Spencer Gulf are of dead turtles washed up onshore (ALA, 2025). Although not likely, the species is a possible occurrence in the Project Area.
Green Turtle	V	VU	5	-	Mostly herbivorous, with coastal feeding grounds of algae, seagrass and Mangroves. Mostly present around northern Australian coast, with limited historical records in South Australia.	**Unlikely** - There has been just one potential sighting recorded in the last thirty years, more than 5 km from the Project Area.
Leatherback Turtle	V	EN	5	-	Preferred foraging habitat is open ocean where the Leatherback Turtle feeds on soft-bodied invertebrates. Preferred breeding habitat consists of sandy beaches used for nesting. No	**Possible** - There are seven Spencer Gulf occurrences recorded in the last twenty years, with the last live sighting in 2008. All records are more than 5 km from the Project Area.

Species (common name)	NP&W Act	EPBC Act	Data source	Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
					known breeding grounds/clutches have been identified in South Australia.	
White Shark	-	VU	5	-	Most recorded movements occur between the coast and the 100 m depth contour. In South Australia observations are more frequent in and around some Fur Seal and Sea Lion colonies (e.g. the Neptune Islands), the Great Australian Bight, and regions with high prey densities (e.g. pinniped colonies).	**Likely** - Within the Spencer Gulf, the species has been recorded once near Cowell, while all other records are from the south of the Gulf, with most records around the Neptune Islands. Seagrass does provide habitat for some prey, although it is not preferred habitat for Great White Shark.
Pygmy Right Whale	R	-	5	-	Little known species that inhabits the Southern hemisphere between about 30° S and 47° S. Pygmy Right Whales have primarily been recorded in areas associated with upwellings and with high zooplankton abundance.	**Unlikely** - The area around the Project Area is not preferred habitat and they have not been recorded in the area.
Humpback Whale	V	-	5	-	Species present in Southern Australian waters as they move between summer Antarctic feeding grounds and winter tropical breeding grounds.	**Possible** - Spencer Gulf is not part of the species core range, though may be an occasional visitor. This species has been recorded 31 times within the Upper Spencer Gulf, with all records further than 5 km from the Project Area.

Source; 1- BDBSA, 2 - AoLA, 3 – NatureMaps 4 – Observed/recorded in the field, 5 - Protected matters search tool, 6 – others
NP&W Act; E= Endangered, V = Vulnerable, R= Rare
EPBC Act; Ex = Extinct, CR = Critically endangered, EN = Endangered; VU = Vulnerable

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4.6 Cumulative impact

When exercising a power or making a decision under Division 5 of the Native Vegetation Regulations 2017, the NVC must consider the potential cumulative impact, both direct and indirect, that is reasonably likely to result from a proposed clearance activity.

4.6.1 Direct clearance

Terrestrial clearance

The total clearance of native vegetation under application for the Northern Water project is 1,991.705 ha, including 458.213 ha in the EP LMR and 1,533.491 ha in the SAAL LMR. Of the 1,991.705 ha under application, it is expected that 375.356 ha will represent permanent clearance, whilst the remaining 1,616.349 ha will represent temporary clearance subject to rehabilitation (but with no discounts applied for at this stage). However, as noted in Section 2.5, the Project design is preliminary and is expected to change through the detailed design process, or in response to cultural heritage matters or other refinements to minimise impacts as design and technical studies continue. As such, the disturbance footprint and indicative clearance estimates will be subject to change as the Project is refined.

Assumptions made in estimating the Project's disturbance footprint are summarised in Section 2.5.

A summary of the native vegetation clearance for each infrastructure and construction component based on infrastructure categories in the GIS Rev5.2 shapefiles is provided in Table 43. Further breakdown is provided in Table 44 - Table 50.

Table 43. Summary of permanent and temporary clearance by infrastructure or construction component

Component	Permanent Clearance (ha)	Temporary (ha)	Total (ha)
Access Road (Lincoln Highway to Eight Mile Creek Road)	11.593	-	11.593
Access Road (Eight Mile Creek Road to Desalination Plant)	12.012	-	12.012
ARTC Level Crossing	0.300	-	0.300
Desalination Plant	185.088	-	185.088
Permanent Access Track	109.777	-	109.777
Pipeline (Underbore)[1]	1.554	-	1.554
Pump Station	13.916	12.766	26.682
Substation	11.326	14.089	25.415
Transmission Line	29.789	25.181	54.97
HV Access Track Upgrade	-	6.184	6.184
Laydown Area	-	198.002	198.002
Pipeline	-	1,344.781	1,344.781
Pipeline (Conditional Requirements)[2]	-	15.344	15.344
Grand Total (ha)	**375.356**	**1,616.349**	**1,991.705**

[1] Clearance not expected but has been conservatively included due to further refinement required for cultural heritage and constructability.
[2] Conditional requirements vary and are subject to confirmation based on client conversations with technical advisors and relevant stakeholders.

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Construction of transfer pipeline

A summary of the native vegetation clearance proposed for the transfer pipeline corridor, stratified into IBRA associations (all within the Myall Plains subregion) in the EP presented in Table 44 and IBRA Subregions for the SAAL in

Table 45. Refer to Section 2.5 for assumptions regarding the pipeline construction footprint.

Table 44. Summary of clearance associated with the pipeline component of the Project infrastructure occurring within the EP LMR

Pipeline Corridor Width	IBRA Association	Permanent Clearance (ha)	Temporary (ha)	Total (ha)
40m	Red Rock	-	18.904	18.904
40m	Tregolana	-	18.168	18.168
40m	Whyalla	-	131.628	131.628
25m	Whyalla	-	0.105	0.105
Grand Total (ha)		**-**	**168.806**	**168.806**

Table 45. Summary of clearance associated with the pipeline component of the Project infrastructure occurring within the SAAL LMR

Pipeline Corridor Width	IBRA Subregion	Permanent Clearance (ha)	Temporary (ha)	Total (ha)
25m	Arcoona Plateau	-	10.244	10.244
25m	Gawler Lakes	-	2.940	2.940
25m	Kingoonya	0.194	0.992	1.186
40m	Arcoona Plateau	0.328	506.805	507.133
40m	Gawler Lakes	1.032	402.424	403.456
40m	Kingoonya	-	189.697	189.697
40m	Myall Plains	-	78.205	78.205
Grand Total (ha)		**1.554**	**1191.307**	**1192.861**

Access Tracks and Roads

A summary of the native vegetation clearance proposed for access tracks and roads is presented in Table 46. Refer to Section 2.5 for assumptions regarding the construction footprint for access tracks and roads.

Table 46. Summary of clearance associated with the access tracks and roads for the Project

Track / Road Type	IBRA Subregion	Permanent Clearance (ha)	Temporary Clearance (ha)	Total (ha)
Access Road (Lincoln Highway to Eight Mile Creek Road)	Myall Plains	11.593	-	11.593
Access Road (Eight Mile Creek Road to Desalination Plant)	Myall Plains	12.012	-	12.012
HV Access Track Upgrade	Myall Plains	-	1.846	1.846
	Arcoona Plateau	-	2.375	2.375

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Track / Road Type	IBRA Subregion	Permanent Clearance (ha)	Temporary Clearance (ha)	Total (ha)
	Gawler Lakes	-	1.883	1.883
	Kingoonya	-	0.079	0.079
Permanent Access Track	Arcoona Plateau	40.770	-	40.770
	Gawler Lakes	32.996	-	32.996
	Kingoonya	15.606	-	15.606
	Myall Plains	20.406	-	20.406
ARTC Level Crossing	Arcoona Plateau	0.144	-	0.144
	Gawler Lakes	0.157	-	0.157
Grand Total (ha)		**133.684**	**6.183**	**139.868**

Laydown and storage areas

A summary of indicative native vegetation clearance proposed for potential laydown and storage areas is presented in Table 47. These areas are nominal at this stage of the design, and additional or differing locations may be identified through detailed design, as discussed in Section 2.5.

Table 47. Summary of clearance related to potential laydown and storage area components of the Project by IBRA subregion

Component	Major Vegetation Group	Arcoona Plateau (ha)	Myall Plains (ha)	Gawler Lakes (ha)	Total (ha)
Laydown south-west of Pimba	Stony plains and tableland with chenopod shrublands	173.474	-	-	173.474
Kootaberra DIT Laydown	Open woodlands of Western Myall and Mulga on sand plains and low dunes	-	-	2.376	2.376
Oakden Hills Laydown Area A	Stony plains and tableland with chenopod shrublands	0.664	-	-	0.664
South Pimba A	Stony plains and tableland with chenopod shrublands	0.007	-	-	0.007
Whyalla Laydown Site 3	Chenopod shrublands (including drainage lines)	-	17.666	-	17.666
Whyalla North Laydown	Chenopod shrublands (including drainage lines)	-	3.816	-	3.816
Grand Total (ha)		**174.145**	**21.482**	**2.376**	**198.002**

Pump stations and storages

A summary of the native vegetation clearance proposed for pump stations and water storages is presented in Table 48. Refer to Section 2.5 for assumptions regarding the pipeline construction footprint.

Table 48. Summary of clearance related to pump stations and storage area components of the Project by IBRA subregion

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Component	Major Vegetation Group	IBRA Subregion	Permanent Clearance (ha)	Temporary Clearance (ha)	Total (ha)
Bimba Storage	Stony plains and tableland with chenopod shrublands	Arcoona Plateau	1.898	1.836	3.734
Kalaya pump station footprint	Stony plains and tableland with chenopod shrublands	Gawler Lakes	4.528	3.544	8.073
Lincoln Gap pump station & storage	Chenopod shrublands on flat to undulating plains	Arcoona Plateau	2.845	4.158	7.003
Mangata pump station footprint	Stony plains and tableland with chenopod shrublands	Arcoona Plateau	4.646	3.227	7.873
Grand Total (ha)			**13.916**	**12.766**	**26.682**

Desalination Plant

A summary of the native vegetation clearance proposed for the desalination plant is provided in Table 49. As discussed in Section 2.5, this has been conservatively classified as permanent clearance due to uncertainty in the design and location of features such as the earth bank storage, construction laydowns, construction water treatment plant and ponds for dewatering, evaporation and stormwater management. However, parts of the construction footprint would be temporary, and the disturbance is also likely to be reduced overall.

Table 49. Summary of clearance requirements for the desalination plant

Component	Major Vegetation Group	Vegetation Association	Impact area (ha)
Mullaquana Station Desalination Plant	Chenopod shrublands (including drainage lines)	*Atriplex vesicaria / Tecticornia disarticularta* low shrubland	183.810
	Open woodlands of Western Myall / Black Oak / Sugarwood	*Myoporum platycarpum* low open woodland over Chenopod shrubs (low dune)	1.277
Grand Total (ha)			**185.088**

Transmission Lines

A summary of the native vegetation clearance proposed for TLs and substations by IBRA Subregion is provided in Table 50. Refer to Section 2.5 for assumptions regarding transmission line footprints.

Table 50. Summary of clearance by infrastructure or construction component

Component	Major Vegetation Group	IBRA Subregion	Permanent Clearance (ha)	Temporary Clearance (ha)	Total (ha)
Bookaloo 132kV Transmission Line	Open woodlands of Western Myall and Mulga on sand plains and low dunes	Gawler Lakes	1.449	2.543	3.992
	Stony plains and tableland with chenopod shrublands		0.620	0.874	1.495
Mullaquana 132kV Transmission Line	Chenopod shrublands (including drainage lines)	Myall Plains	11.827	17.418	29.245
	Open woodlands of Western Myall / Black Oak / Sugarwood		0.407	0.621	1.028
Oakden Hills 33kv Transmission Line	Cane-grass run-on areas and depressions	Arcoona Plateau	0.088	-	0.088

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Component	Major Vegetation Group	IBRA Subregion	Permanent Clearance (ha)	Temporary Clearance (ha)	Total (ha)
	Dune swales with open woodlands / shrublands and tussock grassland	Gawler Lakes	2.461	-	2.461
	Open woodlands of Western Myall and Mulga on sand plains and low dunes	Gawler Lakes	0.092	-	0.092
	Stony plains and tableland with chenopod shrublands	Arcoona Plateau	5.886	-	5.886
		Gawler Lakes	1.482	-	1.482
	Woodlands and shrublands on low dunes and dune crests	Arcoona Plateau	0.001	-	0.001
		Gawler Lakes	3.611	-	3.611
Pandurra 275kV Transmission Line	Chenopod shrublands on flat to undulating plains	Arcoona Plateau	1.866	3.724	5.590
Substation	Chenopod shrublands (including drainage lines)	Myall Plains	6.864	6.187	13.052
Substation	Chenopod shrublands on flat to undulating plains	Arcoona Plateau	0.306	1.699	2.004
Substation	Dune swales with open woodlands / shrublands and tussock grassland	Gawler Lakes		0.083	0.083
Substation	Open woodlands of Western Myall and Mulga on sand plains and low dunes	Gawler Lakes	4.035	4.984	9.020
Substation	Woodlands and shrublands on low dunes and dune crests	Gawler Lakes	0.121	1.136	1.257
Grand Total (ha)			**41.115**	**39.271**	**80.386**

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Marine clearance

As noted in Sections 2.5 and 4.2, the marine clearance footprint includes conservative disturbance estimates (50 m by 50 m for the intake and a 50 m corridor for the float and sink pipeline option) to cover direct disturbance and potential indirect disturbance during construction (e.g. short-term sedimentation impacts). Actual clearance for construction is likely to be less.

As noted in Section 4.2, the total clearance in *Zostera* (based on the Float and Sink Pipeline Option) is estimated to be 2.1 ha (estimated 1.24 ha permanent and 0.86 ha temporary).

4.6.2 Indirect Impact

The potential for indirect native vegetation clearance impact is very limited and largely restricted to the construction phase.

The risk of weed spread during construction and operation phases will be managed through appropriate weed hygiene controls. Noxious weeds (e.g. WoNs and Declared species) were recorded opportunistically during the survey and will be included in construction management plans as priority weeds for control and spread mitigation. From Mullaquana Station to Port Augusta this includes Prickly Pear, African Boxthorn, Carrion Flower, Salvation Jane, and Bathurst Burr whilst further north includes Buffel Grass and Bathurst Burr. More widespread weeds such as Wards Weed and Saffron Thistle are difficult to control and tend to regenerate rapidly following disturbance. However, efforts will be made to avoid spread of these weeds into adjacent areas / weed free areas.

There is the potential for altered hydrology, erosion and sedimentation during rain and wind events during the construction phase which could potentially impact surrounding vegetation, but the risk is considered low following mitigation such as dust suppression and appropriate drainage management. There are no material changes in hydrology expected that would impact vegetation outside the construction footprint.

There is not expected to be any additional clearance required for fire protection, nor regulations that will become applicable that allow the clearance of additional vegetation. Facility footprints include buffers around buildings such that additional vegetation is not expected to be at risk from clearance under *Regulation 8 (1) – Vegetation within 10m of a building* of the Native Vegetation Regulations.

As noted above and in Section 2.5, the marine clearance footprint includes a highly conservative estimate to cover direct disturbance and potential indirect disturbance and it is not expected there would be any additional indirect impacts that would have a material impact on native vegetation. A suite of controls would be implemented to protect the marine environment, including measures to prevent the introduction of marine invasive species.

4.6.3 Future Stages

This application represents the current estimate of the maximum clearance expected for the Northern Water Project. It is considered that the current application provides a reasonable representation of the expected clearance and associated level of risk and impact. Future stages with additional clearance are not contemplated.

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4.7 Address the Mitigation Hierarchy

When exercising a power or making a decision under Division 5 of the Native Vegetation Regulations 2017, the NVC must have regard to the mitigation hierarchy. The NVC will also consider, with the aim to minimize, impacts on biological diversity, soil, water and other natural resources, threatened species or ecological communities under the EPBC Act or listed species under the NP&W Act.

a) Avoidance – outline measures taken to avoid clearance of native vegetation

As the Project Area is almost completely vegetated with native vegetation, the ability to avoid clearance is very limited. The following measures have been undertaken to avoid clearance where possible, and to avoid impacts to threatened species and ecological communities and biological diversity, soil, water and other natural resources as far as possible.

- The Project has used the mitigation hierarchy as a driving principle throughout the site and alignment selection process to minimise impacts on flora and fauna. The resulting alignment predominantly follows existing disturbance corridors which will minimise potential impacts as a result of clearance and fragmentation.
- Areas of high conservation value have been avoided and the disturbance footprint does not intersect any areas protected under the National Parks and Wildlife Act or under Native Vegetation Act heritage agreements.
- The desalination plant site has avoided locations where there is higher quality Western Grasswren habitat (e.g. initial locations further to the south).
- Ecological surveys identified numerous areas where high quality, preferred habitat for Western Grasswren that have been avoided by the transfer system alignment (e.g. just west of Whyalla and north of Whyalla, near the Whyalla water tanks).
- The construction of the intake and outfall pipes avoids impacts to saltmarsh and mangrove vegetation (including the Subtropical and Temperate Coastal Saltmarsh TEC) by tunnelling under the coast. Impact to subtidal *Posidonia* seagrass is also avoided by tunnelling, with impact limited to a small area of *Zostera* seagrass.
- Existing roads and tracks will be used for access as far as possible, thus avoiding clearance for new tracks.
- Areas for laydowns, camps and associated infrastructure will target previously cleared or degraded areas as far as practicable.

b) Minimisation – if clearance cannot be avoided, outline measures taken to minimise the extent, duration and intensity of impacts of the clearance on biodiversity to the fullest possible extent (whether the impact is direct, indirect or cumulative).

Vegetation clearance and impacts on biodiversity will be minimised by implementing measures during the detailed design and construction phases, including the following:

- Construction footprints will be restricted to the minimum necessary to facilitate safe, efficient construction.
- A maximum pipeline alignment construction corridor width of 40 m for standard installation has been specified, which is less than a more typical width of 50-60 m for a pipeline of this nature, in order to minimise impacts to native vegetation and habitat. This will be reduced in detailed design if possible.
- Previously cleared or disturbed areas will be utilised where practicable.
- A field inspection will be undertaken with an experienced ecologist and construction design specialist in order to further reduce the construction corridor width where possible and to assist with demarcation of no-go zones for particularly sensitive areas.
- Transmission line pole / tower locations will be micro-sited to avoid important habitat features where possible.
- Weed hygiene, surveillance and control practices will be implemented during construction and operation.
- Environmental management field staff will be present during access and clearing activities, with presence of, or access to, trained fauna handlers during construction to assist with removal of, and relocation of, any trapped (and/or injured) fauna caught within trenches, or displaced during habitat clearance.

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- Routine daily monitoring of open trenches during construction activities to inspect for trapped fauna.
- Progressive backfilling of trenches to minimise the length of open trenches at any time during construction.
- Progressive rehabilitation of all temporary construction areas where native vegetation clearance has occurred.
- Preparation of a Project-specific CEMP including controls on activities, weed hygiene, weed monitoring, dust management, sediment control and progressive rehabilitation.
- Preparation of a Threatened Species Management Plan.
- Preparation of an Operations and Maintenance Environmental Management Plan prior to commissioning.

c) Rehabilitation or restoration – outline measures taken to rehabilitate ecosystems that have been degraded, and to restore ecosystems that have been degraded, or destroyed by the impact of clearance that cannot be avoided or further minimized, such as allowing for the re-establishment of the vegetation.

Areas of temporary disturbance would be rehabilitated following construction (by respreading cleared topsoil and vegetation to encourage natural regeneration, with additional rehabilitation methods (e.g. direct seeding) implemented where required to supplement natural regeneration).

A Restoration and Rehabilitation Plan would be prepared outlining rehabilitation methodologies, timing of works, monitoring and contingency planning. Any additional rehabilitation undertaken to supplement natural regeneration (e.g. direct seeding) would utilise local native species.

d) Offset – any adverse impact on native vegetation that cannot be avoided or further minimized should be offset by the achievement of a significant environmental benefit that outweighs that impact.

The NVC will only consider an offset once avoidance, minimisation and restoration have been documented and fulfilled. The SEB Policy explains the biodiversity offsetting principles that must be met.

It is intended that the majority of an offset will be achieved via on-ground SEB with payment into the Native Vegetation Fund, where on-ground offsets are not feasible. An offset strategy for the Project is currently being developed in consultation with other government agencies. If offsets are achieved by a payment into the Fund, if there are staged payments (or if provision of final SEB calculations to NVC and payment is delayed beyond the 2025/2026 financial year) then any SEB payment proposed would be calculated based on the management costs and SEB payment calculation metrics for the financial year in which the payments are to be made.

The SEB for marine clearance is expected to be achieved via a payment into the Native Vegetation Fund.

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4.8 Principles of Clearance (Schedule 1, Native Vegetation Act 1991)

The Native Vegetation Council will consider Principles 1(b), 1(c) and 1(d) when assigning a level of Risk under Regulation 16 of the Native Vegetation Regulations. The Native Vegetation Council will consider all the Principles of clearance of the Act as relevant, when considering an application referred under the *Planning, Development and Infrastructure Act 2016*. Principles of clearance are presented in Table 51.

Table 51. Principles of Clearance.

<table>
<tr><th>Principle of clearance</th><th>Considerations</th></tr>
<tr><td>Principle 1a - it comprises a high level of diversity of plant species</td><td>
<u>Relevant information</u>
A summary of the number of plant species recorded (native and introduced) and the Species Diversity Score for each vegetation association (BAM) within the construction footprint within the EP LMR is provided in the Table below. As RAM does not use a plant diversity score, Principle 1a is not used for rangelands assessments. Therefore, this Principle is not addressed for the component of the construction footprint that occurs within the SAAL LMR.
<table>
<tr><th>BAM Site</th><th># native flora species</th><th># introduced flora species</th><th>Total # flora species</th><th>Species diversity score</th><th>Rating</th></tr>
<tr><td>BAM 7</td><td>7a – 10
7b – 23
7d – 8
7x – 8
Average: 12.25</td><td>7a – 1
7b – 5
7d – 2
7x – 0
Average: 2</td><td>7a – 11
7b – 28
7d – 10
7x – 8
Average: 14.25</td><td>7a – 8
7b – 18
7d – 8
7x – 8
Average: 10.5</td><td>At variance</td></tr>
<tr><td>BAM 9</td><td>28</td><td>0</td><td>28</td><td>30</td><td>Seriously at variance</td></tr>
<tr><td>BAM 11</td><td>21</td><td>4</td><td>25</td><td>30</td><td>Seriously at variance</td></tr>
<tr><td>BAM 17</td><td>15</td><td>2</td><td>17</td><td>26</td><td>Seriously at variance</td></tr>
<tr><td>BAM 21</td><td>25</td><td>3</td><td>28</td><td>30</td><td>Seriously at variance</td></tr>
<tr><td>BAM 24</td><td>24</td><td>2</td><td>26</td><td>30</td><td>Seriously at variance</td></tr>
<tr><td>BAM 34</td><td>9</td><td>0</td><td>9</td><td>16</td><td>At variance</td></tr>
<tr><td>BAM 51</td><td>51a – 21
51b – 23
51g – 12
Average: 18.67</td><td>51a – 5
51b – 5
51g – 2
Average: 4</td><td>51a – 26
51b – 28
51g – 14
Average: 22.67</td><td>51a – 30
51b – 30
51g – 22
Average: 27.33</td><td>Seriously at variance</td></tr>
<tr><td>BAM 53</td><td>18</td><td>3</td><td>21</td><td>28</td><td>Seriously at variance</td></tr>
<tr><td>BAM 54</td><td>9</td><td>2</td><td>11</td><td>16</td><td>At variance</td></tr>
<tr><td>BAM 59</td><td>19</td><td>0</td><td>19</td><td>26</td><td>Seriously at variance</td></tr>
<tr><td>BAM 61</td><td>19</td><td>2</td><td>21</td><td>26</td><td>Seriously at variance</td></tr>
<tr><td>BAM 62</td><td>62a – 20
62y – 11
Average:15.5</td><td>62a – 4
62y – 0
Average: 2</td><td>62a – 24
62y – 11
Average: 17.5</td><td>62a – 28
62y – 18
Average: 23</td><td>Seriously at variance</td></tr>
<tr><td>BAM 63</td><td>63a – 18
63b – 11
Average: 14.5</td><td>63a – 1
63b – 10
Average: 0.5</td><td>63a – 19
63b – 11
Average: 15</td><td>63a – 20
63b – 28
Average: 24</td><td>Seriously at variance</td></tr>
<tr><td>BAM 64</td><td>64a – 14
64x – 11
Average: 12.5</td><td>64a – 0
64x – 1
Average: 0.5</td><td>64a – 14
64x – 12
Average: 13</td><td>64a – 24
64x – 18
Average: 21</td><td>Seriously at variance</td></tr>
<tr><td>BAM 65</td><td>14</td><td>3</td><td>17</td><td>24</td><td>Seriously at variance</td></tr>
<tr><td>BAM 66</td><td>16</td><td>6</td><td>22</td><td>24</td><td>Seriously at variance</td></tr>
</table>
</td></tr>
</table>

BAM 67	18	0	18	24	Seriously at variance
BAM 103	103g – 5 103h – 16 Average:10.5	103g – 2 103h – 2 Average: 2	103g – 7 103h – 18 Average: 12.5	103g – 8 103h – 26 Average: 17	At variance
BAM 111	111a – 27 111b – 23 111g – 9 Average: 19.67	111a – 1 111b – 1 111g – 2 Average: 1.33	111a – 28 111b – 24 111g – 11 Average: 21	111a – 30 111b – 30 111g – 16 Average: 25.33	Seriously at variance
BAM 142	142a – 8 142b – 9 Average: 8.5	142a – 0 142b – 0 Average: 0	142a – 8 142b – 9 Average: 8.5	142a – 14 142b – 16 Average: 15	At variance
BAM 144	17	0	17	18	At variance
BAM 250	18	4	22	16	At variance

Assessment against the principles

Seriously at Variance

Clearance of vegetation at 16 BAM sites – 9, 11, 17, 21, 24, 51, 53, 59, 61-67, 111 - is considered Seriously at Variance to Principal 1(a).

Marine clearance is considered Seriously at Variance (species diversity score is 30).

At Variance

Clearance of vegetation at seven BAM sites – 7, 34, 54, 103, 142, 144, 250 - is considered at Variance to Principal 1(a).

Moderating factors that may be considered by the NVC

Vegetation associations which are typical of semi-arid climates occur in the construction footprint within the EP LMR (e.g. chenopod shrublands, Western Myall woodlands). Large areas of similar high-quality habitat occur adjacent to the construction footprint. As such the clearance of vegetation in the construction footprint is considered small and linear at the landscape scale, reducing the overall impact. Additionally, through deliberate design in applying the mitigation hierarchy, the alignment in this region is preferentially located within previously cleared land, along existing easements, tracks, infrastructure corridors, or within areas of lower quality vegetation and habitat wherever possible.

Marine clearance involves clearance of a very small proportion of *Zostera* habitat which is widespread in the adjacent area. In addition, this has been conservatively scored at the maximum species diversity score.

Principle 1b - significance as a habitat for wildlife

Relevant information

Six threatened fauna species were recorded within the Project Area during the field surveys (Table 34).

Suitable habitat mapped within the construction footprint for the target species are as summarised:

- Western Grasswren: Occurs in chenopod shrublands, open woodlands and some dune/creek habitats, with most suitable habitat in the southern Project Area (notably around Whyalla and Mullaquana). Approximately 747.42 ha of suitable habitat is within the construction footprint, and the species was recorded at multiple sites, mainly in preferred Black Bluebush habitat.
- Southern Whiteface: A widespread generalist present across woodland and chenopod habitats throughout the Project Area, with approximately 1,335 ha of suitable habitat in the construction footprint. Frequently recorded during surveys and expected to occur broadly.
- Migratory and / or threatened Shorebirds/waterbirds: Suitable coastal habitat is limited to a small area near the Mullaquana desalination plant and is not directly impacted by the construction footprint; only minor observations (e.g. Little Tern, Sooty Oystercatcher).

- Plains Mouse: Likely in inland saline plains and cracking clay systems in the SAAL LMR, especially during "boom" periods. Approximately 809 ha of suitable habitat occurs in the construction footprint, but the species was not detected during Jacobs surveys.

Further detail on suitable habitat is provided in Table 35 and threatened species observations (including species which were not targeted for habitat mapping) are discussed in Appendix 1.

Additional species (per the summaries in Section 4.4), include eight EPBC Act and nine additional NPW Act listed fauna species which are considered known or likely to occur within at least one habitat type within the construction footprint across the two LMRs. This includes 14 birds, one reptile and two mammals. An additional EPBC Act listed migratory bird species is considered likely (in the EP LMR only).

A summary of these species is provided below. Additional threatened (and / or migratory) fauna species that are considered to possibly occur are not discussed here, but are presented in the LoO assessment summaries presented in Section 4.4.4.

EP LMR

EPBC Act threatened and / or migratory fauna species:

- Western Grasswren, Southern Whiteface, and Blue-winged Parrot are considered known to occur within the construction footprint as they were detected during field surveys.
- Migratory and / or threatened shorebirds: Little Tern is considered known to occur (observed during surveys); Australian Fairy Tern, Common Greenshank and Red-necked Stint are considered likely to occur.
- Grey-headed Flying Fox is considered likely to occur.

NPW Act threatened fauna species:

- Australian Bustard and Sooty Oystercatcher are considered known to occur within the construction footprint as they were detected during field surveys.
- Banded Stilt, Pied Oystercatcher, Chestnut-rumped Heathwren and Gilbert's Whistler are considered likely to occur.

SAAL LMR

EPBC Act threatened fauna species:

- Western Grasswren and Southern Whiteface are considered known to occur within the construction footprint as they were detected during field surveys
- Blue-winged Parrot, Grey-headed Flying Fox and Plains Mouse are considered likely to occur based on previous record distribution and the presence of potentially suitable habitat.

NPW Act threatened fauna species:

- Pernatty Knob-tailed Gecko: Although not observed during surveys it is considered known to occur in 'Low dunes and dune crests of Acacia and Callitris' in the vicinity of the construction footprint along the Carrapateena lateral, near Carrapateena Mine in sand dune habitats (EBS Ecology 2013). The construction footprint intersects the known range of the species.
- Australian Bustard, Slender-billed Thornbill (western) and Musk Duck are considered likely to occur based on previous record distribution and the presence of potentially suitable habitat.

BAM and RAM scoresheets are provided in Appendix 2 and include threatened fauna species observed or determined known or likely to occur through the LoO assessment.

EP LMR

BAM Site	Threatened fauna score	UBS	Area (ha)
BAM 7	0.1	39.66	23.506
BAM 9	0.1	93.26	21.994
BAM 11	0.1	80.39	56.113
BAM 17	0.1	67.46	4.303
BAM 21	0.1	67.78	17.666
BAM 24	0.1	92.09	6.704
BAM 34	0.1	54.15	4.717
BAM 51	0.1	67.413	24.99
BAM 53	0.1	69.92	6.609
BAM 54	0.1	53.59	4.432
BAM 59	0.1	54.57	3.816
BAM 61	0.1	71.63	5.530

BAM Site	Threatened fauna score	UBS	Area (ha)
BAM 62	0.1	56.16	34.769
BAM 63	0.1	69.565	5.581
BAM 64	0.1	58.81	12.285
BAM 65	0.1	68.58	2.254
BAM 66	0.1	65.51	0.285
BAM 67	0.1	44.34	18.479
BAM 103	0.1	63.93	9.588
BAM 111	0.1	61.053	3.429
BAM 142	0.1	48.51	188.859
BAM 144	0.1	64.23	1.277
BAM 250	0.1	43.59	1.028

SAAL LMR

RAM Site	Threatened flora score	UBS	Area (ha)
RAM 1	0.1	76.33	2.072
RAM 2	0.1	73.75	2.155
***RAM 3**	0.1	70.46	313.170
***RAM 7**	0.1	79.24	25.005
***RAM 8**	0.1	65.83	510.879
RAM 10	0.1	66.65	85.058
***RAM 11**	0.1	74.64	18.066
RAM 12	0.1	75.00	47.117
RAM 13	0.1	74.54	8.766
RAM 14	0.1	88.08	0.128
RAM 15	0.1	79.88	1.408
RAM 16	0.1	79.15	1.759
***RAM 17**	0.1	63.77	2.394
***RAM 18**	0.1	64.92	79.366
***RAM 23**	0.1	46.04	16.243
RAM 25	0.1	75.26	19.712
RAM 27	0.1	64.94	2.888
RAM 28	0.1	73.33	1.289
RAM 29	0.1	65.05	0.007
RAM 30	0.1	58.04	22.592
RAM 31	0.1	62.72	0.748
RAM 34	0.1	64.39	4.702
RAM 35	0.1	52.55	1.594
RAM 36	0.1	49.67	21.116
RAM 39	0.1	68.14	0.673
RAM 40	0.1	68.74	3.285

RAM Site	Threatened flora score	UBS	Area (ha)
*RAM 42	0.1	68.29	31.500
RAM 44	0.1	64.83	9.538
RAM 300	0.1	64.18	0.638
RAM 301	0.1	67.72	17.320
RAM 350	0.1	49.90	10.316
*LERAM 50	0.1	80.82	1.699
*LERAM 51	0.1	56.47	5.516
*LERAM 52	0.1	68.47	25.226
*LERAM 53	0.1	66.43	13.403
*LERAM 54	0.1	76.82	1.426
LERAM 55	0.1	80.21	1.472
*LERAM 57	0.1	54.58	0.627
*LERAM 58	0.1	74.55	32.294
*LERAM 59	0.1	56.04	74.889
*LERAM 62	0.1	58.00	23.983
LERAM 63	0.1	64.92	0.461
LERAM 64	0.1	74.43	2.729
LERAM 65	0.1	85.42	4.350
LERAM 202	0.1	68.47	13.011
LERAM 203	0.1	55.17	2.687
LERAM 204	0.1	46.50	9.368
LERAM 205	0.1	59.45	0.138
LERAM 207	0.1	69.96	15.741
LERAM 209	0.1	45.16	0.491
LERAM 210	0.1	60.47	0.220
LERAM 211	0.1	55.77	1.320

RAM 41	0.1	60.29	15.263		LERAM 213	0.1	56.27	25.673

*UBS is averaged over multiple IBRA Subregions for the RAM Sites

As noted in Section 4.5, no marine threatened species have been recorded in field surveys. Species assessed as likely or known to occur have conservatively been included in the marine assessment scoresheet (Southern Right Whale and White Shark). It is noted that these species could potentially be excluded from the scoresheets (subject to agreement with the Native Vegetation Branch) due to their unlikely occurrence and/or very limited dependence on seagrass habitats, however they have not been excluded in this case.

Assessment against the principles

Seriously at Variance

All BAM and RAM sites have a Threatened Fauna Score of 0.1 and therefore clearance is considered Seriously at Variance to Principle 1(b) for these sites.

Marine clearance is considered Seriously at Variance (Threatened Fauna Score of 0.1).

Moderating factors that may be considered by the NVC

An EPBC Act significant impact assessment (SIA) has been developed by JBS&G (2025), which concluded that significant impact is unlikely for all listed threatened species and ecological communities included in the assessment, except for Western Grasswren, where significant impacts are considered possible. EPBC referral was submitted for the Project on 11 December 2025 (Application Number 03264), with the decision being that the Project was deemed a controlled action. Relevant findings from the SIA are highlighted throughout the moderating factors below.

In the EP LMR, large areas of high-quality habitat occur adjacent to the construction footprint. The alignment in this region is preferentially located within previously cleared land, along existing easements, tracks, infrastructure corridors, or within areas of lower quality vegetation and habitat wherever possible. Similarly, in the SAAL LMR, vast expanses of native vegetation and available habitat occur surrounding the footprint. Here, the construction footprint represents a narrow corridor within a much broader landscape of continuous similar vegetation and habitat, again aligned to rail, road and infrastructure corridors where practicable. As such where a habitat present within the construction footprint is of value for a threatened species it was often widespread in the broader landscape, particularly for species that do not exhibit strong dependence on niche habitat types such as Plains Mouse and Southern Whiteface.

The desktop and field ecological assessments have fed into design process to avoid and minimise interaction with important habitat as far as reasonably practicable. Survey data has directly informed project design revisions, resulting in the minimisation of impacts to MNES as far as reasonably practicable, including for species with niche habitat requirements such as Western Grasswren. Habitat for threatened species has been protected through redesign measures, including narrowing infrastructure in areas of highly suitable habitat where feasible or micro-siting infrastructure to avoid clearance of trees, as well as the placement of construction footprint in areas containing no native vegetation or low-quality habitat wherever possible.

Marine clearance: The Threatened Fauna Score is conservative as it results from inclusion of two species (Southern Right Whale and White Shark) that could potentially be excluded from the scoresheets (subject to agreement with the Native Vegetation Branch) due to their unlikely occurrence and/or very limited dependence on seagrass habitats. The clearance is unlikely to have any impact on these species.

Principle 1c - plants of a rare, vulnerable or

Relevant information

The PMST outputs highlighted four EPBC Act listed flora species as potentially occurring within the Study Area within the EP LMR and 21 flora species in the SAAL LMR. The LoO assessment determines that all species are unlikely to occur within the construction footprint.

However, previous records (DEW 2025) showed a population of Bead Glasswort in the Arno Bay area within the EP LMR (but south of the construction footprint). Key habitat for Bead Glasswort is

endangered species

typically located in saline wetlands on coastal clay flats (sabkha) over gypsum deposits (fragipans) or on the margins of inland salt lakes (DCCEEW 2024a). Habitat meeting this description was detected during field surveys, occurring in the Project Area adjacent to the Mullaquana Station. Targeted surveys for Bead Glasswort were conducted in these areas of key habitat during February of 2023, however no individuals were observed.

The LoO assessment for NPW Act listed flora species identified:

- Sandalwood is considered known to occur in the construction footprint (EP and SAAL LMR)
- Australian Brooomrape is considered to possibly occur within the construction footprint (EP LMR).
- Additional seven species are considered to possibly occur within the SAAL LMR construction footprint; Cane Spear-grass, Desert Lime, Round Sea-heath, Western Tar-vine, One-bristle Everlasting, Small-fruit Twinleaf and Star Nancy.

Sandalwood: considered known to occur in 'open woodlands over chenopod / chenopod shrublands / tall chenopod shrublands' habitat type in the construction footprint within both the EP and SAAL LMR, and possible to occur in 'ephemeral creeks / drainage lines, low dunes / dune crests of Acacia & Callitris' and 'grasslands / woodlands in dune swales' within the SAAL LMR.

Three specimens of Sandalwood were observed within the Project Area during surveys. This included one adjacent the Carrapateena lateral branch, one west of Whyalla in a broad drainage line (BAM 67), and another at Nonowie Station. The specimen west of Whyalla was in an area difficult to access with dense variable vegetation, so other specimens may have also been present but could not be observed. The species is widespread throughout its range in SA and therefore may occur in other locations in the construction footprint with similar habitat.

The tables below summarise for each of the LMR, the threatened flora score, Unit Biodiversity Score (UBS) and Area (ha) for each BAM and RAM.

BAM and RAM scoresheets are provided in Appendix 2 and include threatened flora species observed or determined known or likely to occur within the construction footprint through the LoO assessment.

EP LMR

BAM Site	Threatened flora score	UBS	Area (ha)
BAM 7	0	39.66	23.506
BAM 9	0	93.26	21.994
BAM 11	0	80.39	56.113
BAM 17	0	67.46	4.303
BAM 21	0	67.78	17.666
BAM 24	0	92.09	6.704
BAM 34	0	54.15	4.717
BAM 51	0	67.413	24.99
BAM 53	0	69.92	6.609
BAM 54	0	53.59	4.432
BAM 59	0	54.57	3.816
BAM 61	0	71.63	5.530

BAM Site	Threatened flora score	UBS	Area (ha)
BAM 62	0	56.16	34.769
BAM 63	0	69.565	5.581
BAM 64	0	58.81	12.285
BAM 65	0	68.58	2.254
BAM 66	0	65.51	0.285
BAM 67	0.08	44.34	18.479
BAM 103	0	63.93	9.588
BAM 111	0	61.053	3.429
BAM 142	0	48.51	188.859
BAM 144	0	64.23	1.277
BAM 250	0	43.59	1.028

SAAL LMR

RAM Site	Threatened flora score	UBS	Area (ha)
RAM 1	0	76.33	2.072
RAM 2	0	73.75	2.155
***RAM 3**	0	70.46	313.170
***RAM 7**	0	79.24	25.005
***RAM 8**	0	65.83	510.879
RAM 10	0	66.65	85.058
***RAM 11**	0	74.64	18.066
RAM 12	0	75.00	47.117
RAM 13	0	74.54	8.766
RAM 14	0	88.08	0.128
RAM 15	0	79.88	1.408
RAM 16	0	79.15	1.759
***RAM 17**	0	63.77	2.394
***RAM 18**	0	64.92	79.366
***RAM 23**	0	46.04	16.243
RAM 25	0	75.26	19.712
RAM 27	0	64.94	2.888
RAM 28	0	73.33	1.289
RAM 29	0	65.05	0.007
RAM 30	0	58.04	22.592
RAM 31	0	62.72	0.748
RAM 34	0	64.39	4.702
RAM 35	0	52.55	1.594
RAM 36	0	49.67	21.116
RAM 39	0	68.14	0.673
RAM 40	0	68.74	3.285
RAM 41	0	60.29	15.263

RAM Site	Threatened flora score	UBS	Area (ha)
*RAM 42	0	68.29	31.500
RAM 44	0	64.83	9.538
RAM 300	0	64.18	0.638
RAM 301	0	67.72	17.320
RAM 350	0	49.90	10.316
*LERAM 50	0	80.82	1.699
*LERAM 51	0	56.47	5.516
*LERAM 52	0	68.47	25.226
*LERAM 53	0	66.43	13.403
*LERAM 54	0	76.82	1.426
LERAM 55	0	80.21	1.472
*LERAM 57	0	54.58	0.627
*LERAM 58	0	74.55	32.294
*LERAM 59	0	56.04	74.889
*LERAM 62	0	58.00	23.983
LERAM 63	0	64.92	0.461
LERAM 64	0	74.43	2.729
LERAM 65	0	85.42	4.350
LERAM 202	0	68.47	13.011
LERAM 203	0	55.17	2.687
LERAM 204	0	46.50	9.368
LERAM 205	0	59.45	0.138
LERAM 207	0	69.96	15.741
LERAM 209	0	45.16	0.491
LERAM 210	0	60.47	0.220
LERAM 211	0	55.77	1.320
LERAM 213	0	56.27	25.673

*UBS is averaged over multiple IBRA Subregions for the RAM Sites

Assessment against the principles

Seriously at Variance

Clearance of vegetation in any of the BAM or RAM is **not considered** Seriously at Variance to Principal 1(c).

At Variance

Clearance of vegetation in BAM 67 is considered at Variance to Principle 1(c) due to a Threatened Flora Score of 0.08. This is due to the observation of Sandalwood at the BAM site.

Not at Variance

Marine clearance is Not at Variance.

Moderating factors that may be considered by the NVC

Implementation of the Action is only likely to impact one State listed flora species, Sandalwood. Whilst no individuals were observed within the construction footprint, some areas were difficult to access and others may occur elsewhere in the construction footprint in similar habitat. As such

implementation of the construction works is likely to only impact at most a few individuals of this species.

Principle 1d - the vegetation comprises the whole or part of a plant community that is Rare, Vulnerable or endangered:

Relevant information

The Subtropical and Temperate Coastal Saltmarsh TEC (EPBC Act: Vulnerable) was observed in the EP LMR during field surveys, represented by BAM145. The intake and outfall pipeline are proposed to be located within this area at the Mullaquana Station desalination plant site. The intake and outfall infrastructure will be installed by tunnel boring underneath the near shore coastal environments and as such there will be no direct impact to the TEC.

Threatened community	Rating	Relevant BAM	Area (ha) in construction footprint	Threatened Community Score
Subtropical and Temperate Coastal Saltmarsh	EPBC Act - Vulnerable	BAM 145	0	1.35

Assessment against the principles

Not at Variance

Clearance of vegetation within BAM 145 would be considered Seriously at Variance with Principle 1(d). However, it is proposed that clearance will not be required due to the underground tunnelling methodologies for the installation of the intake and outfall tunnels.

Marine clearance is Not at Variance.

Moderating factors that may be considered by the NVC

It is not anticipated that the Project will have any impact on the Subtropical and Temperate Coastal Saltmarsh TEC present in BAM145. Project design has adopted underground tunnelling methodologies for the installation of the intake and outfall pipeline, avoiding the need to clear native vegetation.

Principle 1e - it is significant as a remnant of vegetation in an area which has been extensively cleared.

Relevant information

The below tables outline the remnancy figures for IBRA subregions (EP and SAAL LMRs) and IBRA Associations (EP LMR only) (DEW 2025b), the area of the construction footprint that occur in each and the Total Biodiversity Score (TBS).

EP LMR

IBRA Subregion	Remnancy Rating (%)	IBRA Association	Remnancy Rating (%)	Relevant BAM	Area of Construction Footprint (Ha)	TBS
Myall Plains	97	Red Rock	100	51, 61, 62, 63	20.437	1,279.40
		Tregolana	96	7, 21, 51, 59, 61, 62	41.127	2,268.81
		Whyalla	95	7, 9, 10, 11, 17, 24, 34, 51, 53, 54, 62, 63, 64, 65, 66, 67, 111, 142, 144, 250	396.650	23,521.69
Total considered At Variance (based on IBRA subregion and IBRA Association remnancy)					458.214	27,069.90

SAAL LMR

IBRA Subregion	Remnancy Rating (%)	Relevant RAM	Area of Construction Footprint (Ha)	TBS
Arcoona Plateau	99	LERAM 50, 51, 52, 53, 54, 57, 58, 59, 62, 64m 203, 204, 205, 207, 209, 210, 211, 213 RAM 2, 3, 7, 811, 15, 16, 17, 18, 23, 28, 30, 31, 34, 35, 42, 44, 300, 350	767.001	47,761.44
Gawler Lakes	62	LERAM 50, 51, 52, 53, 54, 55, 57, 58, 59, 62, 63, 65, 202 RAM 3, 7, 8, 11, 17, 23, 25, 27, 301	475.372	33,206.47
Kingoonya	99	RAM 8, 10, 11, 12, 13, 14, 29, 34, 36, 39, 40, 41	206.567	13,825.11
Myall Plains	97	RAM 1, 3, 18, 42	84.550	4,908.57
Total considered At Variance (based on IBRA subregion remnancy)			1,533.49	99,701.59

Assessment against the principles

Seriously at Variance

None of the clearance of native vegetation is considered Seriously at Variance with Principle 1e.

At Variance

Clearance of native vegetation within all of the BAM and RAM Sites is considered At Variance with Principle 1e.

All BAM and RAM sites occur in an IBRA Subregion (as well as an IBRA Associations for BAM Sites) with a remnancy rating greater than 30%, and a TBS greater than 500.

Marine clearance is At Variance (remnancy in the marine environment is >30%).

Moderating factors that may be considered by the NVC

Given the span of the construction footprint across a significant part of the SA landscape, vegetation types within the construction footprint are often widespread in the broader landscape. The Project predominantly requires linear clearance over a long distance but only across a width of 25-40 m.

All but one of the IBRA Associations and IBRA Subregions across which the construction footprint occurs have very high remnancy (95-100%).

Marine clearance involves clearance of a very small proportion of *Zostera* habitat which is widespread in the adjacent area and has not been subject to extensive clearance.

Principle 1f - it is growing in, or in association with, a wetland environment

Relevant information

A single RAM site (44) is associated with wetland or riparian habitat considered permanent or semi-permanent (first column). Eleven RAM sites are considered to occasionally contain water (approximately once every 5 years) and a further 11 RAM sites to very occasionally contain water (approximately once every 20 years).

None of the BAM sites are considered associated with a wetland and / or riparian habitat.

SAAL LMR

RAM Site	Wetland or Riparian Habitat present		
	Permanent or semi-permanent (Contains water for at least 6 months of the year)	Occasionally contains water (Contains water approximately once every 5 years)	Very occasionally contains water (Contains water approximately once every 20 years)
Ephemeral Creeks, Drainage Lines			
LERAM 50	-	Yes	-
LERAM 54	-	Yes	-
LERAM 65	-	Yes	-
LERAM 203	-	Yes	-
LERAM 205	-	Yes	-
LERAM 209	-	Yes	-
LERAM 210	-	Yes	-
RAM 1	-	-	Yes
RAM 2	-	-	Yes
RAM 14	-	-	Yes
RAM 16	-	-	Yes
RAM 28	-	-	Yes
RAM 31	-	-	Yes
RAM 35	-	-	Yes
RAM 44	Yes	-	-
Inland saline depression and samphire			
LERAM 63	-	Yes	-
RAM 34	-	Yes	-
RAM 39	-	-	Yes
Grasslands and woodland in dune swales			
RAM 17	-	-	Yes
Low dunes and dune crests			
LERAM 202	-	-	Yes
LERAM 204	-	-	Yes
Open woodlands and shrublands on plains			
RAM 211	-	Yes	-
RAM 300	-	Yes	-
TOTAL number of RAM sites	1	11	11

Assessment against the principles

Seriously at Variance

LERAM 50, LERAM 54, LERAM 56, LERAM 65, RAM 2, RAM 14, RAM 16, RAM 28, RAM 31, RAM 35, RAM 37, RAM 44, RAM 63, RAM 33, RAM 39, RAM 17, LERAM 202, LERAM 200, LERAM 201 and RAM18 have been cautiously assessed as Seriously at Variance.

Marine clearance: principle is not applicable.

Moderating factors that may be considered by the NVC

Areas of the wetland will not be completely destroyed or substantially modified. The reinstatement of surface levels and topsoil post construction is intended to minimise any significant impact on wetlands caused by the Project. Construction works would occur outside of periods when water is

	present through any inland ephemeral lakes and directional drilling (subject to geotechnical investigations) and construction outside of water holding periods proposed for any minor drainage lines/crossings. The Action is not likely to have a substantial and measurable change in the hydrological regime of the wetland (e.g. a change in the volume, timing, duration and frequency of ground and surface water flows to and within the wetland). All areas recorded as potentially containing water were dry at the time of survey and riparian species were not present. The habitat or lifecycle of native species dependent upon the wetland are therefore unlikely to be seriously affected. The Action is unlikely to have a substantial and measurable change in the physio-chemical status of the wetland (e.g. change in the level of salinity, pollutants or nutrients in the wetland, change in water temperature which may adversely impact on biodiversity). The introduction of invasive species is a risk during the construction phase (as to a lesser extent, during routine maintenance). A CEMP will address hygiene protocols to minimise the risk of introducing invasive species as far as reasonability practicable.
Principle 1g - it contributes significantly to the amenity of the area in which it is growing or is situated.	Relevant information For the most part, the vegetation under application is considered to have a high amenity and community value being located adjacent a major highway (Lincoln Highway) near a coastal town (Whyalla) as well as other towns, and in some locations in an area visibly accessed by community for recreation such as dog walking and running. The desalination plant is located adjacent the coast. Post construction, it is not expected that the pipeline will have a significant negative impact on amenity value as it is for the most part to be buried and the area allowed to regenerate (except for a 4 m wide permanent clearance access track). It is expected that other infrastructure associated with the project such as the desalination plant, will have some visual impact on the immediate surrounds at eye level and from the air (transmission lines). However, it is expected to mostly impact the view from the Lincoln Highway along which vehicles are driven at 110 km per hour and would be less likely to notice the new infrastructure. The overhead transmission lines will impact visual amenity more prominently from the highway, but it is noted there are already existing transmission lines in the north of the construction footprint.
	Assessment against the principles N/A
	Moderating factors that may be considered by the NVC N/A

Principles of Clearance (h-m) will be considered by comments provided by the local NRM Board or relevant Minister. The Data Report should contain information on these principles where relevant and where sufficient information or expertise is available.

4.9 Risk Assessment

Determine the level of risk associated with the application

Table 52. Risk assessment associated with the Project.

Total clearance	**No. of trees**	0
	Area (ha)	Terrestrial: 1,991.705 ha (458.213 ha in the EP LMR and 1,533.491 ha in the SAAL LMR). Of the 1,991.705 ha under application, it is expected that 375.356 ha will represent permanent clearance, whilst the remaining 1,616.349 ha will represent temporary clearance subject to rehabilitation. However, no reductions are being applied for at this time and all clearance is being treating as permanent for the purpose of SEB offsets. Marine: 2.1 ha of *Zostera* seagrass
	Total biodiversity Score	Terrestrial: 126,771.495 (27,069.905 BAM, 99,701.591 RAM). Marine: 154.79
Seriously at variance with principle 1(b), 1(c) or 1 (d)		***Principle 1(b)*** Terrestrial: All 23 BAM and 54 RAM/LERAM sites have a Threatened Fauna Score of 0.1 and therefore clearance **is considered** Seriously at Variance to Principle 1(b). Marine: Threatened Fauna Score is 0.1 and therefore clearance **is considered** Seriously at Variance to Principle 1(b) (noting this score is highly conservative). ***Principle 1(c)*** Terrestrial: Clearance of vegetation in any of the BAM or RAM sites is **not considered** Seriously at Variance to Principle 1(c). Marine: Clearance is **not considered** Seriously at Variance to Principle 1(c). ***Principle 1(d)*** Terrestrial: Clearance of vegetation is **not considered** Seriously at Variance to Principal 1(d). Marine: Clearance of vegetation is **not considered** Seriously at Variance to Principal 1(d).
Risk assessment outcome		**Level 4**

4.10 NVC Guidelines

Provide any other information that demonstrates that the clearance complies with any relevant NVC guidelines related to the activity.

If applicable

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5. Clearance summary

Clearance Area(s) Summary table

Terrestrial

The total clearance of native vegetation under application for the Northern Water Project is 1,991.705 ha, including 458.213 ha in the EP LMR and 1,533.491 ha in the SAAL LMR. Of the 1,991.705 ha under application, it is expected that 375.356 ha will represent permanent clearance, whilst 1,616.349 ha will represent temporary disturbance that will be rehabilitated. However, no reductions are being applied for at this time and all clearance is being treated as permanent for the purpose of SEB offset calculations.

Clearance of 1,991.705 ha, of native vegetation results in a total offset requirement of $12,373,128.79 including an administration fee of $645,044.63. For the EP LMR this requires achievement of 29,776.9 SEB points equating to an offset payment of $3,273,108.85 (including an administration fee of $180,020.99). For the SAAL LMR this requires achievement of 109,671.750 SEB points equating to an offset payment of $8,919,998.95 (including an administration fee of $465,023.64) (Table 53). Note, as many of the mapped vegetation association polygons spanned more than one IBRA association, BAM scoresheets were duplicated to represent each IBRA association, with the appropriate area proposed to be impacted by the construction footprint in each.

Marine

The estimated clearance of 2.1 ha of Zostera seagrass (estimated 1.24 ha permanent and 0.86 ha temporary) results in a total offset requirement of 170.27 SEB points for on-ground offset or a payment of $325,954.15 (including an administration fee of $16,992.87) into the NV fund. No reductions are being applied for at this time and all clearance is being treated as permanent for the purpose of SEB offset calculations.

SEB

This application represents the current estimate of the maximum clearance expected for the Northern Water Project. Although the disturbance footprint is expected to change as it is refined in detailed design, it is considered that the current application provides a reasonable representation of the expected clearance and associated level of risk and impact. Future stages with additional clearance are not contemplated.

It is intended that the majority of offset will be achieved via on-ground SEB, with payment into the Native Vegetation Fund where on-ground offsets are not feasible. For offsets made into the fund, if there are staged payments (or if provision of final SEB calculations to NVC and payment is delayed beyond the 2025/2026 financial year) then any SEB payment proposed would be calculated based on the management costs and SEB payment calculation metrics for the financial year in which the payments are to be made.

The SEB for marine clearance is expected to be achieved via a payment into the Native Vegetation Fund.

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Table 53. Summary of terrestrial areas proposed for clearance.

Site	IBRA Sub.	IBRA Ass.	LCS	VCS	CSS	Species diversity	TEC Score	Threatened plant score	Threatened fauna score	UBS	Area (ha)	TBS	Loss factor	Loading	Reductions	SEB points	SEB Payment	Admin payment	Total payment
BAM 103	Myall Plains	Whyalla	1.06	54.83	1.1	17.00	1	0	0.1	63.93	9.588	612.96	1	0	0	674.26	7,4113.13	4,076.22	78,189.36
BAM 11	Myall Plains	Whyalla	1.06	68.95	1.1	30.00	1	0	0.1	80.39	56.113	4511.11	1	0	0	4,962.22	545,438.70	29,999.13	575,437.83
BAM 111	Myall Plains	Whyalla	1.06	52.36	1.1	25.33	1	0	0.1	61.05	3.429	209.35	1	0	0	230.29	2,5312.75	1,392.20	26,704.95
BAM 142	Myall Plains	Whyalla	1.06	41.61	1.1	15.00	1	0	0.1	48.51	188.859	9161.55	1	0	0	10,077.71	1,107,723.59	60,924.80	1,168,648.39
BAM 144	Myall Plains	Whyalla	1.06	55.09	1.1	18.00	1	0	0.1	64.23	1.277	82.02	1	0	0	90.22	9,917.25	545.45	1,0462.70
BAM 17	Myall Plains	Whyalla	1.06	57.86	1.1	26.00	1	0	0.1	67.46	4.303	290.28	1	0	0	319.31	35,097.82	1,930.38	37,028.20
BAM 21	Myall Plains	Tregolana	1.09	56.53	1.1	30.00	1	0	0.1	67.78	17.666	1197.40	1	0	0	1,317.14	144,777.89	7,962.78	152,740.67
BAM 24	Myall Plains	Whyalla	1.06	78.98	1.1	30.00	1	0	0.1	92.09	6.704	617.37	1	0	0	679.11	74,646.41	4,105.55	78,751.96
BAM 250	Myall Plains	Whyalla	1.06	43.59	1.1	16.00	1	0	0.1	43.59	1.028	44.81	1	0	0	49.29	5,418.04	297.99	5,716.04
BAM 34	Myall Plains	Whyalla	1.06	46.44	1.1	16.00	1	0	0.1	54.15	4.717	255.43	1	0	0	280.97	30,883.52	1,698.59	32,582.11
BAM 51	Myall Plains	Red Rock	1.06	57.82	1.1	27.33	1	0	0.1	67.41	0.898	60.54	1	0	0	66.59	7,319.55	402.58	7,722.13
BAM 51	Myall Plains	Tregolana	1.06	57.82	1.1	27.33	1	0	0.1	67.41	0.965	65.05	1	0	0	71.56	7,865.67	432.61	8,298.28
BAM 51	Myall Plains	Whyalla	1.06	57.82	1.1	27.33	1	0	0.1	67.41	23.127	1559.07	1	0	0	1,714.97	188,507.03	10,367.89	198,874.91
BAM 53	Myall Plains	Whyalla	1.06	59.97	1.1	28.00	1	0	0.1	69.92	6.609	462.10	1	0	0	508.31	55,872.69	3,073.00	58,945.69
BAM 54	Myall Plains	Whyalla	1.06	45.96	1.1	16.00	1	0	0.1	53.59	4.432	237.51	1	0	0	261.26	28,717.46	1,579.46	30,296.92
BAM 59	Myall Plains	Tregolana	1.06	46.80	1.1	26.00	1	0	0.1	54.57	3.816	208.24	1	0	0	229.06	25,178.20	1,384.80	26,563.01
BAM 61	Myall Plains	Red Rock	1.06	61.43	1.1	26.00	1	0	0.1	71.63	5.516	395.11	1	0	0	434.62	47,772.91	2,627.51	50,400.42
BAM 61	Myall Plains	Tregolana	1.06	61.43	1.1	26.00	1	0	0.1	71.63	0.014	1.00	1	0	0	1.10	121.25	6.67	127.92
BAM 62	Myall Plains	Tregolana	1.06	48.17	1.1	23.00	1	0	0.1	56.16	3.446	193.53	1	0	0	212.88	23,484.40	1,291.64	24,776.04
BAM 62	Myall Plains	Red Rock	1.06	48.17	1.1	23.00	1	0	0.1	56.16	11.321	635.79	1	0	0	699.37	76,873.09	4,228.02	81,101.11
BAM 62	Myall Plains	Whyalla	1.06	48.17	1.1	23.00	1	0	0.1	56.16	20.002	1123.31	1	0	0	1,235.64	1,35819.76	7,470.09	143,289.85
BAM 63	Myall Plains	Whyalla	1.06	59.17	1.1	24.00	1	0	0.1	69.57	2.879	200.28	1	0	0	220.31	24,215.58	1,331.86	25,547.44
BAM 63	Myall Plains	Red Rock	1.06	59.17	1.1	24.00	1	0	0.1	69.57	2.702	187.96	1	0	0	206.76	2,2726.82	1,249.97	23,976.79
BAM 64	Myall Plains	Whyalla	1.06	50.44	1.1	21.00	1	0	0.1	58.81	12.285	722.48	1	0	0	794.73	87,355.20	4,804.54	92,159.74
BAM 65	Myall Plains	Whyalla	1.06	58.82	1.1	24.00	1	0	0.1	68.58	2.254	154.58	1	0	0	170.04	18,690.20	1,027.96	19,718.16
BAM 66	Myall Plains	Whyalla	1.06	56.18	1.1	24.00	1	0	0.1	65.51	0.285	18.67	1	0	0	20.54	2,257.43	124.16	2,381.59
BAM 67	Myall Plains	Whyalla	1.06	38.03	1.18	24.00	1	0.08	0.1	47.57	18.479	879.05	1	0	0	966.95	106,285.51	5,845.70	112,131.21

Site	IBRA Sub.	IBRA Ass.	LCS	VCS	CSS	Species diversity	TEC Score	Threatened plant score	Threatened fauna score	UBS	Area (ha)	TBS	Loss factor	Loading	Reductions	SEB points	SEB Payment	Admin payment	Total payment
BAM 7	Myall Plains	Tregolana	1.06	34.01	1.1	10.50	1	0	0.1	39.66	15.22	603.59	1	0	0	663.95	7,2979.76	4,013.89	76,993.65
BAM 7	Myall Plains	Whyalla	1.06	34.01	1.1	10.50	1	0	0.1	39.66	8.286	328.60	1	0	0	361.46	39,731.29	2,185.22	4,1916.51
BAM 9	Myall Plains	Whyalla	1.06	79.98	1.1	30.00	1	0	0.1	93.26	21.994	2051.16	1	0	0	2,256.28	248,005.94	13,640.33	261,646.26
EP Total										1,887.42	458.214	27,069.90				29,776.90	$3,273,108.85	$180,020.99	$3,453,129.84
LERAM 202	Gawler Lakes	na	1.16	53.66	1.1	na	1	0	0.1	68.47	13.011	890.86	1	0	0	979.95	75534.50	4154.40	79688.90
LERAM 203	Arcoona Plateau	na	1.16	43.24	1.1	na	1	0	0.1	55.17	2.687	148.24	1	0	0	163.07	12569.12	691.30	13260.43
LERAM 204	Arcoona Plateau	na	1.16	36.44	1.1	na	1	0	0.1	46.50	9.368	435.61	1	0	0	479.17	36934.67	2031.41	38966.07
LERAM 205	Arcoona Plateau	na	1.16	46.59	1.1	na	1	0	0.1	59.45	0.138	8.20	1	0	0	9.02	695.61	38.26	733.87
LERAM 207	Arcoona Plateau	na	1.06	60.00	1.1	na	1	0	0.1	69.96	15.741	1101.24	1	0	0	1211.36	93371.96	5135.46	98507.42
LERAM 209	Arcoona Plateau	na	1.16	35.39	1.1	na	1	0	0.1	45.16	0.491	22.17	1	0	0	24.39	1880.05	103.40	1983.45
LERAM 210	Arcoona Plateau	na	1.16	47.39	1.1	na	1	0	0.1	60.47	0.220	13.30	1	0	0	14.63	1127.97	62.04	1190.01
LERAM 211	Arcoona Plateau	na	1.16	43.71	1.1	na	1	0	0.1	55.77	1.320	73.62	1	0	0	80.98	6241.79	343.30	6585.09
LERAM 213	Arcoona Plateau	na	1.06	48.26	1.1	na	1	0	0.1	56.27	25.673	1444.62	1	0	0	1589.08	122486.41	6736.75	129223.16
LERAM 50	Arcoona Plateau	na	1.16	63.34	1.1	na	1	0	0.1	80.82	1.530	123.65	1	0	0	136.02	10484.43	576.64	11061.07
LERAM 50	Gawler Lakes	na	1.16	63.34	1.1	na	1	0	0.1	80.82	0.169	13.66	1	0	0	15.02	1158.08	63.69	1221.78
LERAM 51	Arcoona Plateau	na	1.11	46.25	1.1	na	1	0	0.1	56.47	0.933	52.69	1	0	0	57.96	4467.18	245.70	4712.88
LERAM 51	Gawler Lakes	na	1.11	46.25	1.1	na	1	0	0.1	56.47	4.583	258.80	1	0	0	284.68	21943.30	1206.88	23150.19
LERAM 52	Arcoona Plateau	na	1.11	56.44	1.1	na	1	0	0.1	68.91	1.013	69.81	1	0	0	76.79	5949.35	327.21	6276.57
LERAM 52	Gawler Lakes	na	1.11	55.71	1.1	na	1	0	0.1	68.02	24.213	1646.97	1	0	0	1811.67	141089.82	7759.94	148849.76
LERAM 53	Gawler Lakes	na	1.11	54.41	1.1	na	1	0	0.1	66.43	12.037	799.61	1	0	0	879.57	67797.10	3728.84	71525.94
LERAM 53	Arcoona Plateau	na	1.11	54.41	1.1	na	1	0	0.1	66.43	1.367	90.78	1	0	0	99.86	7697.29	423.35	8120.64
LERAM 54	Arcoona Plateau	na	1.2	58.20	1.1	na	1	0	0.1	76.82	0.087	6.65	1	0	0	7.32	563.96	31.02	594.98
LERAM 54	Gawler Lakes	na	1.2	58.20	1.1	na	1	0	0.1	76.82	1.340	102.93	1	0	0	113.22	8726.86	479.98	9206.84
LERAM 55	Gawler Lakes	na	1.11	65.69	1.1	na	1	0	0.1	80.21	1.472	118.08	1	0	0	129.89	10011.75	550.65	10562.40
LERAM 57	Arcoona Plateau	na	1.11	44.70	1.1	na	1	0	0.1	54.58	0.508	27.70	1	0	0	30.47	2348.81	129.18	2477.99
LERAM 57	Gawler Lakes	na	1.11	44.70	1.1	na	1	0	0.1	54.58	0.119	6.52	1	0	0	7.17	552.46	30.39	582.85
LERAM 58	Arcoona Plateau	na	1.15	58.93	1.1	na	1	0	0.1	74.55	1.209	90.16	1	0	0	99.18	7644.88	420.47	8065.35
LERAM 58	Gawler Lakes	na	1.15	58.93	1.1	na	1	0	0.1	74.55	31.085	2317.39	1	0	0	2549.13	196486.58	10806.76	207293.34

Site	IBRA Sub.	IBRA Ass.	LCS	VCS	CSS	Species diversity	TEC Score	Threatened plant score	Threatened fauna score	UBS	Area (ha)	TBS	Loss factor	Loading	Reductions	SEB points	SEB Payment	Admin payment	Total payment
LERAM 59	Arcoona Plateau	na	1.11	45.90	1.1	na	1	0	0.1	56.04	55.462	3108.09	1	0	0	3418.90	263528.76	14494.08	278022.84
LERAM 59	Gawler Lakes	na	1.11	45.90	1.1	na	1	0	0.1	56.04	19.427	1088.69	1	0	0	1197.56	92307.76	5076.93	97384.69
LERAM 62	Arcoona Plateau	na	1.11	47.50	1.1	na	1	0	0.1	58.00	6.308	365.85	1	0	0	402.43	31019.59	1706.08	32725.67
LERAM 62	Gawler Lakes	na	1.11	47.50	1.1	na	1	0	0.1	58.00	17.675	1025.16	1	0	0	1127.67	86920.90	4780.65	91701.55
LERAM 63	Gawler Lakes	na	1.16	50.88	1.1	na	1	0	0.1	64.92	0.461	29.91	1	0	0	32.90	2536.31	139.50	2675.80
LERAM 64	Arcoona Plateau	na	1.11	60.96	1.1	na	1	0	0.1	74.43	2.729	203.09	1	0	0	223.40	17219.36	947.06	18166.43
LERAM 65	Gawler Lakes	na	1.2	64.71	1.1	na	1	0	0.1	85.42	4.350	371.57	1	0	0	408.73	31505.03	1732.78	33237.81
RAM 1	Myall Plains	na	1.06	65.46	1.1	na	1	0	0.1	76.33	2.072	158.14	1	0	0	173.96	13408.48	737.47	14145.95
RAM 10	Kingoonya	na	1.09	55.59	1.1	na	1	0	0.1	66.65	85.058	5668.69	1	0	0	6235.56	480636.89	26435.03	507071.92
RAM 11	Kingoonya	na	1.09	61.50	1.1	na	1	0	0.1	73.74	7.743	570.97	1	0	0	628.07	48411.30	2662.62	51073.92
RAM 11	Arcoona Plateau	na	1.11	61.50	1.1	na	1	0	0.1	75.09	8.937	671.08	1	0	0	738.19	56899.47	3129.47	60028.94
RAM 11	Gawler Lakes	na	1.11	61.50	1.1	na	1	0	0.1	75.09	1.386	104.07	1	0	0	114.48	8824.29	485.34	9309.62
RAM 12	Kingoonya	na	1.09	62.55	1.1	na	1	0	0.1	75.00	47.117	3533.53	1	0	0	3886.89	299601.30	16478.07	316079.37
RAM 13	Kingoonya	na	1.09	62.17	1.1	na	1	0	0.1	74.54	8.766	653.38	1	0	0	718.72	55398.97	3046.94	58445.92
RAM 14	Kingoonya	na	1.15	69.63	1.1	na	1	0	0.1	88.08	0.128	11.26	1	0	0	12.39	954.68	52.51	1007.19
RAM 15	Arcoona Plateau	na	1.11	65.42	1.1	na	1	0	0.1	79.88	1.408	112.49	1	0	0	123.74	9538.14	524.60	10062.74
RAM 16	Arcoona Plateau	na	1.17	61.50	1.1	na	1	0	0.1	79.15	1.759	139.19	1	0	0	153.10	11801.30	649.07	12450.37
RAM 17	Arcoona Plateau	na	1.13	51.30	1.1	na	1	0	0.1	63.77	0.357	22.77	1	0	0	25.04	1930.27	106.17	2036.44
RAM 17	Gawler Lakes	na	1.13	51.30	1.1	na	1	0	0.1	63.77	2.037	129.87	1	0	0	142.86	11011.27	605.62	11616.89
RAM 18	Arcoona Plateau	na	1.11	53.05	1.1	na	1	0	0.1	64.92	50.468	3276.38	1	0	0	3604.02	277797.91	15278.88	293076.79
RAM 18	Myall Plains	na	1.11	53.05	1.1	na	1	0	0.1	64.92	28.898	1876.08	1	0	0	2063.68	159068.71	8748.78	167817.49
RAM 2	Arcoona Plateau	na	1.17	57.30	1.1	na	1	0	0.1	73.75	2.155	158.91	1	0	0	174.80	13473.61	741.05	14214.66
RAM 23	Arcoona Plateau	na	1.11	37.71	1.1	na	1	0	0.1	46.04	15.540	715.46	1	0	0	787.01	60662.76	3336.45	63999.21
RAM 23	Gawler Lakes	na	1.11	37.71	1.1	na	1	0	0.1	46.04	0.703	32.37	1	0	0	35.61	2744.60	150.95	2895.55
RAM 25	Gawler Lakes	na	1.11	61.64	1.1	na	1	0	0.1	75.26	19.712	1483.52	1	0	0	1631.87	125784.74	6918.16	132702.90
RAM 27	Gawler Lakes	na	1.11	53.19	1.1	na	1	0	0.1	64.94	2.888	187.56	1	0	0	206.31	15902.41	874.63	16777.05
RAM 28	Arcoona Plateau	na	1.17	56.98	1.1	na	1	0	0.1	73.33	1.289	94.51	1	0	0	103.96	8013.42	440.74	8454.15
RAM 29	Kingoonya	na	1.09	54.25	1.1	na	1	0	0.1	65.05	0.007	0.45	1	0	0	0.49	37.81	2.08	39.89

Site	IBRA Sub.	IBRA Ass.	LCS	VCS	CSS	Species diversity	TEC Score	Threatened plant score	Threatened fauna score	UBS	Area (ha)	TBS	Loss factor	Loading	Reductions	SEB points	SEB Payment	Admin payment	Total payment
RAM 3	Arcoona Plateau	na	1.11	57.98	1.1	na	1	0	0.1	70.46	2.158	152.06	1	0	0	167.27	12893.06	709.12	13602.18
RAM 3	Gawler Lakes	na	1.11	57.98	1.1	na	1	0	0.1	70.46	270.404	19053.31	1	0	0	20958.64	1615491.89	88852.05	1704343.94
RAM 3	Myall Plains	na	1.11	57.98	1.1	na	1	0	0.1	70.46	40.609	2861.38	1	0	0	3147.52	242610.58	13343.58	255954.16
RAM 30	Arcoona Plateau	na	1.09	48.68	1.1	na	1	0	0.1	58.04	22.592	1311.24	1	0	0	1442.37	111177.54	6114.76	117292.30
RAM 300	Arcoona Plateau	na	1.13	51.63	1.1	na	1	0	0.1	64.18	0.638	40.94	1	0	0	45.04	3471.38	190.93	3662.31
RAM 301	Gawler Lakes	na	1.06	58.08	1.1	na	1	0	0.1	67.72	17.320	1172.91	1	0	0	1290.20	99448.72	5469.68	104918.40
RAM 31	Arcoona Plateau	na	1.17	48.73	1.1	na	1	0	0.1	62.72	0.748	46.90	1	0	0	51.59	3976.45	218.70	4195.16
RAM 34	Arcoona Plateau	na	1.16	50.90	1.1	na	1	0	0.1	64.95	4.651	302.08	1	0	0	332.29	25612.76	1408.70	27021.46
RAM 34	Kingoonya	na	1.14	50.90	1.1	na	1	0	0.1	63.83	0.051	3.26	1	0	0	3.58	276.01	15.18	291.19
RAM 35	Arcoona Plateau	na	1.13	42.28	1.1	na	1	0	0.1	52.55	1.594	83.76	1	0	0	92.14	7102.24	390.62	7492.87
RAM 350	Arcoona Plateau	na	1.06	42.80	1.1	na	1	0	0.1	49.90	10.316	514.79	1	0	0	566.27	43647.81	2400.63	46048.44
RAM 36	Kingoonya	na	1.09	41.43	1.1	na	1	0	0.1	49.67	21.116	1048.84	1	0	0	1153.72	88928.86	4891.09	93819.95
RAM 39	Kingoonya	na	1.11	55.81	1.1	na	1	0	0.1	68.14	0.673	45.88	1	0	0	50.46	3889.69	213.93	4103.62
RAM 40	Kingoonya	na	1.09	57.33	1.1	na	1	0	0.1	68.74	3.285	225.78	1	0	0	248.36	19143.33	1052.88	20196.22
RAM 41	Kingoonya	na	1.09	50.28	1.1	na	1	0	0.1	60.29	15.263	920.21	1	0	0	1012.23	78022.44	4291.23	82313.68
RAM 42	Arcoona Plateau	na	1.11	56.44	1.1	na	1	0	0.1	68.91	18.529	18.53	1	0	0	20.38	1571.04	86.41	1657.44
RAM 42	Myall Plains	na	1.09	56.44	1.1	na	1	0	0.1	67.67	12.971	12.97	1	0	0	14.27	1099.79	60.49	1160.27
RAM 44	Arcoona Plateau	na	1.19	49.53	1.1	na	1	0	0.1	64.83	9.538	618.34	1	0	0	680.17	52427.53	2883.51	55311.05
RAM 7	Arcoona Plateau	na	1.15	62.64	1.1	na	1	0	0.1	79.24	0.151	11.94	1	0	0	13.14	1012.73	55.70	1068.43
RAM 7	Gawler Lakes	na	1.15	62.64	1.1	na	1	0	0.1	79.24	24.854	1969.42	1	0	0	2166.36	166983.31	9184.08	176167.39
RAM 8	Arcoona Plateau	na	1.11	54.15	1.1	na	1	0	0.1	65.83	487.391	32084.57	1	0	0	35293.03	2720386.75	149621.27	2870008.03
RAM 8	Gawler Lakes	na	1.11	54.15	1.1	na	1	0	0.1	65.83	6.126	403.30	1	0	0	443.63	34195.07	1880.73	36075.80
RAM 8	Kingoonya	na	1.11	54.15	1.1	na	1	0	0.1	65.83	17.361	1142.88	1	0	0	1257.17	96902.30	5329.63	102231.92
SAAL Total										4971.38	1533.489	99701.59				109671.75	$8,454,975.31	$465,023.64	$8,919,998.95
GRAND TOTAL										6858.797	1991.703	126771.495				139448.6447	$11,728,084.16	$645,044.63	$12,373,128.79

Table 54: Summary of marine areas proposed for clearance.

Block	Site	LCS	VCS	CSS	Species diversity score	Threatened Ecological community Score	Threatened plant score	Threatened fauna score	UBS	Area (ha)	TBS	Loss factor	Loadings	Reductions	SEB Points required	SEB payment	Admin Fee	Total payment
1	VA1- *Zostera*	1.14	58.78	1.10	30	1	0	0.1	73.71	2.1	154.79	1	0	0	170.27	$308.961.28	$16,992.87	$325,954.15
									Total		154.79				170.27	$308.961.28	$16,992.87	$325,954.15

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Totals summary tables

Table 55. Summary of terrestrial clearance.

	Total Biodiversity score	Total SEB points required	SEB Payment	Admin Fee	Total Payment
BAM (EP)	27,069.905	29,776.895	$3,273,108.85	$180,020.99	$3,453,129.84
RAM (SAAL)	99,701.591	109,671.750	$8,454,975.31	$465,023.64	$8,919,998.95
Total	126,771.495	139,448.645	$11,728,084.16	$645,044.63	$12,373,128.79
Item				**BAM (EP)**	**RAM (SAAL)**
Economies of Scale Factors				0.11	0.11
Rainfall (mm)				275.299	193.053

Table 56: Summary of marine clearance.

	Total Biodiversity score	Total SEB points required	SEB Payment	Admin Fee	Total Payment
Marine	154.79	170.27	$308.961.28	$16,992.87	$325,954.15

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6. Significant Environmental Benefit

A Significant Environmental Benefit (SEB) is required for approval to clear under Division 5 of the *Native Vegetation Regulations 2017*. The NVC must be satisfied that as a result of the loss of vegetation from the clearance that an SEB will result in a positive impact on the environment that is over and above the negative impact of the clearance.

ACHIEVING AN SEB

Indicate how the SEB will be achieved by ticking the appropriate box and providing the associated information:

☐ Establish a new SEB Area on land owned by the proponent.

☐ Use SEB Credit that the proponent has established. Provide the SEB Credit Ref. No. _____

☐ Apply to have SEB Credit assigned from another person or body. The application form needs to be submitted with this Data Report.

☐ Apply to have an SEB to be delivered by a Third Party. The application form needs to be submitted with this Data Report.

☒ Pay into the Native Vegetation Fund.

PAYMENT SEB

If a proponent proposes to achieve the SEB by paying into the Native Vegetation Fund, summary information must be provided on the amount required to be paid and the manner of payment.

It is intended that the majority of the offset will be achieved by means of on-ground SEB (as discussed below) with payment into the Native Vegetation Fund where on-ground offsets are not feasible.

However, payment into the Native Vegetation Fund has been selected above as this would be implemented in whole in part or if satisfactory on-ground SEB is not developed.

Relevant payment amounts are summarised in Section 5 (noting that the clearance footprint and these calculations are subject to revision in detailed design and it is expected that the Project will supply revised calculations for the detailed design disturbance footprint).

ON-GROUND SEB

A Preliminary SEB Offset Strategy is provided as Appendix I-9 in the EIS. Details of the proposed SEB offset strategy will be provided to satisfy requirements under Division 5 of the *Native Vegetation Regulations 2017*.

SEB MANAGEMENT PLAN

A Management Plan for any proposed SEB areas will be developed and submitted to NVC during the detailed design phase.

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8. Appendices

Appendix 1. Terrestrial Ecology Baseline Report (Jacobs 2026)

Note: The Terrestrial Ecology Baseline is provided as Appendix I-1 to the Environmental Impact Statement (EIS) and has not been re-attached to this document.

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Appendix 2. BAM, RAM and marine scoresheets.

Note: The scoresheets will be provided electronically in .xls format.

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Appendix 3. Clearance Summary Tables

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Unique	Project	BAM Site	BAM Vegetation Association Description Grouping 3 (lowest/3rd tier)	Broad community number Grouping 2 (middle/2nd tier)	Broad community name Grouping 2 (middle/2nd tier)	Major Vegetation Group number Grouping 1 (highest 1st tier)	Major Vegetation Group name Grouping 1 (highest 1st tier)	BCM Affinity	New BCM	General Location	IBRA Subregion	IBRA Association (Version 6)	NP / CP / HA / SFB	Landscape context score	Vegetation Condition Score (V)	Conservation significance score	Species (plant) diversity score	Threatened ecological community Score	Threatened plant score	Threatened fauna score	IBRA Association (Version 6)	NP / CP / HA / SFB	Economies of scale. Add from spreadsheet .	BAM Site	LBS	Area (ha)	TBS (LBS x ha)	Loss factor	SEB Points of loss (TBS x 1) + total loss	Loading factor for protected areas (NP, HA). Add "1" for CP and HA unless exempt	Loading (SEB points x loading factor)	Reductions factor. Leave as "0" for all reductions may apply in the future	Reduction loading (SEB points x reduction factor	Adjusted SEB points (sum of loss + loading - reduction)	SEB Uplift Factor	SEB points required	SEB requires replacement of the SEB plus a 10% loading per year since the SEB was established. Formula example for five years	Adjusted SEB points required (with SEB loading)	SEB points of gain (factor)	SEB points of gain (hectares)	Management Cost per Ha	Total Management Cost	Rainfall (average point method)	Rainfall factor	Economies of scale. Add from spreadsheet.	Payment	Admin	Total
1	NW Project	BAM 103	Mairnera pycnantaa / Atriplex vesicaria open shrubland +/- Mairnera sedifolia	NW EF 3.1	Chenopod open shrublands +/- emergent trees	EF 3	Chenopod shrublands (including drainage lines)	EF 9.2	9.2	Eyre Peninsula	Myall Plains	Whyalla	na	1.06	54.83	1.1	17.00	1	0	0.1	Whyalla		0.11	BAM 103	63.89	9.088	612.96		612.96	0	0	0.0	0.00	612.96	1.50	674.26	0.00	674.26	0	96.33	$25,408	$2,447,359.99	275.299	2.275295	0.11	$74,113.11	$4,079.22	$78,189.36
2	NW Project	BAM 11	Atriplex vesicaria / Tecticornia halocnemoides ssp. aff. Longispicata low shrubland	NW EF 3.1	Coastal environments with low open chenopod shrublands on stony hills or undulating plains +/- Samphire	EF 3	Chenopod shrublands (including drainage lines)	EF 9.2	9.2	Eyre Peninsula	Myall Plains	Whyalla	na	1.06	68.03	1.1	30.00	1	0	0.1	Whyalla		0.11	BAM 11	80.39	56.113	4511.11		4511.11	0	0	0.0	0.00	4511.11	1.50	4962.22	0.00	4962.22	0	708.89	$25,408	$18,011,448.35	275.299	2.275295	0.11	$545,438.70	$29,999.13	$575,437.83
3	NW Project	BAM 111	Maireana sedifolia / Atriplex low open Shrubland +/- emergent tall mixed shrubs (Allocasuarina oleifolius / Eremophila spp. / Senna spp) +/- Acacia papyrocarpa	NW EF 3.1	Chenopod open shrublands +/- emergent trees	EF 3	Chenopod shrublands (including drainage lines)	EF 9.2	9.2	Eyre Peninsula	Myall Plains	Whyalla	na	1.06	52.36	1.1	25.33	1	0	0.1	Whyalla		0.11	BAM 111	61.01	3.459	209.15		209.15	0	0	0.0	0.00	209.15	1.50	230.29	0.00	230.29	0	32.86	$25,408	$835,176.19	275.299	2.275295	0.11	$25,112.71	$1,392.20	$26,704.91
4	NW Project	BAM 142	Atriplex vesicaria / Tecticornia disarticulata low shrubland	NW EF 3.1	Coastal environments with low open chenopod shrublands on stony hills or undulating plains +/- Samphire	EF 3	Chenopod shrublands (including drainage lines)	EF 9.2	9.2	Eyre Peninsula	Myall Plains	Whyalla	na	1.04	41.61	1.1	15.00	1	0	0.1	Whyalla		0.11	BAM 142	48.51	188.859	9161.55		9161.55	0	0	0.0	0.00	9161.55	1.50	10077.71	0.00	10077.71	0	1439.67	$25,408	$36,579,190.17	275.299	2.275295	0.11	$1,107,723.59	$60,924.80	$1,168,648.39
5	NW Project	BAM 144	Myoporum platycarpum low open woodland over Chenopods shrubs (low dune)	NW EF 2.3	Low open woodlands of Sugarwood with a Chenopod shrub understorey	EF 2	Open woodlands of Western Myall / Black Oak / Sugarwood	EF 8.1	8.1	Eyre Peninsula	Myall Plains	Whyalla	na	1.06	55.09	1.1	18.00	1	0	0.1	Whyalla		0.11	BAM 144	64.23	1.277	82.00		82.00	0	0	0.0	0.00	82.00	1.50	90.22	0.00	90.22	0	12.89	$25,408	$327,486.91	275.299	2.275295	0.11	$9,917.25	$545.45	$10,462.70
6	NW Project	BAM 17	Maireana sedifolia / Atriplex vesicaria low open shrubland with emergent shrubs (Senna spp., Eremophila spp.) +/- Acacia papyrocarpa	NW EF 3.3	Chenopod open shrublands +/- emergent trees	EF 3	Chenopod shrublands (including drainage lines)	EF 9.2	9.2	Eyre Peninsula	Myall Plains	Whyalla	na	1.06	57.85	1.1	26.00	1	0	0.1	Whyalla		0.11	BAM 17	67.46	4.301	290.28		290.28	0	0	0.0	0.00	290.28	1.50	319.31	0.00	319.31	0	45.62	$25,408	$1,158,998.33	275.299	2.275295	0.11	$35,097.82	$1,930.38	$37,028.20
7	NW Project	BAM 21	Maireana sedifolia low open shrubland on calcrete +/- emergent low shrubs / Myoporum platycarpum / Acacia papyrocarpa	NW EF 3.3	Chenopod open shrublands +/- emergent trees	EF 3	Chenopod shrublands (including drainage lines)	EF 9.1	9.1	Eyre Peninsula	Myall Plains	Tregolana	na	1.05	56.53	1.1	30.00	1	0	0.1	Tregolana		0.11	BAM 21	67.28	17.886	1337.40		1337.40	0	0	0.0	0.00	1337.40	1.50	1317.14	0.00	1317.14	0	188.16	$25,408	$4,780,847.78	275.299	2.275295	0.11	$144,727.89	$7,962.78	$152,690.67
8	NW Project	BAM 24	Maireana sedifolia / Atriplex vesicaria low open shrubland +/- emergent shrubs / Myoporum platycarpum	NW EF 3.3	Chenopod open shrublands +/- emergent trees	EF 3	Chenopod shrublands (including drainage lines)	EF 9.2	9.2	Eyre Peninsula	Myall Plains	Whyalla	na	1.05	78.99	1.1	30.00	1	0	0.1	Whyalla		0.11	BAM 24	92.09	6.704	617.37		617.37	0	0	0.0	0.00	617.37	1.50	679.11	0.00	679.11	0	97.02	$25,408	$2,464,960.81	275.299	2.275295	0.11	$74,646.41	$4,103.55	$78,751.96
9	NW Project	BAM 200	Casuarina pauper / Acacia papyrocarpa low open woodland over chenopods (Maireana sedifolia) shrubland	NW EF 2.2	Low open woodlands of Western Myall / Blackoak / Sugarwood over a Chenopod shrub understorey	EF 2	Open woodlands of Western Myall / Black Oak / Sugarwood	EF 9.1	9.1	Eyre Peninsula	Myall Plains	Whyalla	na	1.06	55.55	1.1	16.00	1	0	0.1	Whyalla		0.11	BAM 200	43.99	1.018	44.81		44.81	0	0	0.0	0.00	44.81	1.50	49.29	0.00	49.29	0	7.04	$25,408	$178,934.32	275.299	2.275295	0.11	$5,418.04	$297.95	$5,715.99
10	NW Project	BAM 34	Maireana sedifolia / Atriplex vesicaria low shrubland	NW EF 3.1	Coastal environments with low open chenopod shrublands on stony hills or undulating plains +/- Samphire	EF 3	Chenopod shrublands (including drainage lines)	EF 9.2	9.2	Eyre Peninsula	Myall Plains	Whyalla	na	1.06	46.44	1.1	16.00	1	0	0.1	Whyalla		0.11	BAM 34	54.15	4.717	255.43		255.43	0	0	0.0	0.00	255.43	1.50	280.97	0.00	280.97	0	40.14	$25,408	$1,019,833.94	275.299	2.275295	0.11	$30,883.52	$1,698.59	$32,582.11
11	NW Project	BAM 51	Maireana sedifolia open shrubland +/- isolated Acacia papyrocarpa	NW EF 3.3	Chenopod open shrublands +/- emergent trees	EF 3	Chenopod shrublands (including drainage lines)	EF 9.2	9.2	Eyre Peninsula	Myall Plains	Red Rock	na	1.06	57.82	1.1	27.33	1	0	0.1	Red Rock		0.11	BAM 51	67.41	0.898	60.54		60.54	0	0	0.0	0.00	60.54	1.50	66.59	0.00	66.59	0	9.51	$25,408	$241,705.91	275.299	2.275295	0.11	$7,318.55	$402.58	$7,721.13
12	NW Project	BAM 51	Maireana sedifolia open shrubland +/- isolated Acacia papyrocarpa	NW EF 3.3	Chenopod open shrublands +/- emergent trees	EF 3	Chenopod shrublands (including drainage lines)	EF 9.2	9.2	Eyre Peninsula	Myall Plains	Tregolana	na	1.06	57.82	1.1	27.33	1	0	0.1	Tregolana		0.11	BAM 51	67.41	0.965	65.05		65.05	0	0	0.0	0.00	65.05	1.50	71.56	0.00	71.56	0	10.22	$25,408	$259,739.64	275.299	2.275295	0.11	$7,865.67	$432.61	$8,298.28
13	NW Project	BAM 51	Maireana sedifolia open shrubland +/- isolated Acacia papyrocarpa	NW EF 3.3	Chenopod open shrublands +/- emergent trees	EF 3	Chenopod shrublands (including drainage lines)	EF 9.2	9.2	Eyre Peninsula	Myall Plains	Whyalla	na	1.06	57.82	1.1	27.33	1	0	0.1	Whyalla		0.11	BAM 51	67.41	23.127	1559.07		1559.07	0	0	0.0	0.00	1559.07	1.50	1714.97	0.00	1714.97	0	245.00	$25,408	$6,224,869.17	275.299	2.275295	0.11	$188,507.03	$10,367.89	$198,874.91
14	NW Project	BAM 53	Maireana sedifolia low shrubland with clusters of Acacia papyrocarpa	NW EF 3.3	Chenopod open shrublands +/- emergent trees	EF 3	Chenopod shrublands (including drainage lines)	EF 9.2	9.2	Eyre Peninsula	Myall Plains	Whyalla	na	1.06	59.97	1.1	28.00	1	0	0.1	Whyalla		0.11	BAM 53	69.92	6.609	462.10		462.10	0	0	0.0	0.00	462.10	1.50	508.31	0.00	508.31	0	72.62	$25,408	$1,845,025.18	275.299	2.275295	0.11	$55,872.69	$3,073.00	$58,945.69
15	NW Project	BAM 54	Maireana sedifolia / Atriplex vesicaria low open shrubland	NW EF 3.3	Chenopod open shrublands +/- emergent trees	EF 3	Chenopod shrublands (including drainage lines)	EF 9.2	9.2	Eyre Peninsula	Myall Plains	Whyalla	na	1.06	45.99	1.1	16.00	1	0	0.1	Whyalla		0.11	BAM 54g	53.59	4.432	237.51		237.51	0	0	0.0	0.00	237.51	1.50	261.26	0.00	261.26	0	37.32	$25,408	$948,306.10	275.299	2.275295	0.11	$26,718.46	$1,579.46	$28,296.91
16	NW Project	BAM 59	Scaevola spinescens open shrubland with emergent Acacia papyrocarpa, Myoporum platycarpum	NW EF 3.3	Chenopod open shrublands +/- emergent trees	EF 3	Chenopod shrublands (including drainage lines)	EF 9.3	9.3	Eyre Peninsula	Myall Plains	Tregolana	na	1.06	46.80	1.1	26.00	1	0	0.1	Tregolana		0.11	BAM 59	54.57	3.816	208.24		208.24	0	0	0.0	0.00	208.24	1.50	229.08	0.00	229.08	0	32.72	$25,408	$831,433.36	275.299	2.275295	0.11	$25,178.20	$1,384.80	$26,563.02
17	NW Project	BAM 61	Acacia papyrocarpa low woodland over Maireana pyramidata / Atriplex vesicaria with sparse Maireana sedifolia +/- Casuarina pauper	NW EF 2.2	Low open woodlands of Western Myall / Blackoak / Sugarwood over a Chenopod shrub understorey	EF 2	Open woodlands of Western Myall / Black Oak / Sugarwood	EF 9.1	9.1	Eyre Peninsula	Myall Plains	Red Rock	na	1.06	61.43	1.1	26.00	1	0	0.1	Red Rock		0.11	BAM 61	71.63	5.516	395.13		395.13	0	0	0.0	0.00	395.13	1.50	434.62	0.00	434.62	0	62.11	$25,408	$1,577,554.38	275.299	2.275295	0.11	$47,772.51	$2,627.51	$50,400.41
18	NW Project	BAM 61	Acacia papyrocarpa low woodland over Maireana pyramidata / Atriplex vesicaria with sparse Maireana sedifolia +/- Casuarina pauper	NW EF 2.2	Low open woodlands of Western Myall / Blackoak / Sugarwood over a Chenopod shrub understorey	EF 2	Open woodlands of Western Myall / Black Oak / Sugarwood	EF 9.1	9.1	Eyre Peninsula	Myall Plains	Tregolana	na	1.06	61.43	1.1	26.00	1	0	0.1	Tregolana		0.11	BAM 61	71.63	0.014	1.00		1.00	0	0	0.0	0.00	1.00	1.50	1.10	0.00	1.10	0	0.16	$25,408	$4,003.95	275.299	2.275295	0.11	$122.25	$6.67	$128.92
19	NW Project	BAM 62	Acacia papyrocarpa low very open woodland over Maireana sedifolia / Atriplex vesicaria +/- Maireana pyramidata	NW EF 2.1	Low open woodlands of Western Myall with a Chenopod shrub understorey	EF 2	Open woodlands of Western Myall / Black Oak / Sugarwood	EF 9.1	9.1	Eyre Peninsula	Myall Plains	Tregolana	na	1.06	48.17	1.1	23.00	1	0	0.1	Tregolana		0.11	BAM 62	56.16	3.446	193.53		193.53	0	0	0.0	0.00	193.53	1.50	212.88	0.00	212.88	0	30.43	$25,408	$772,893.93	275.299	2.275295	0.11	$23,404.42	$1,291.64	$24,776.04
20	NW Project	BAM 62	Acacia papyrocarpa low very open woodland over Maireana sedifolia / Atriplex vesicaria +/- Maireana pyramidata	NW EF 2.1	Low open woodlands of Western Myall with a Chenopod shrub understorey	EF 2	Open woodlands of Western Myall / Black Oak / Sugarwood	EF 9.1	9.1	Eyre Peninsula	Myall Plains	Red Rock	na	1.06	48.17	1.1	23.00	1	0	0.1	Red Rock		0.11	BAM 62	56.16	11.921	635.79		635.79	0	0	0.0	0.00	635.79	1.50	699.37	0.00	699.37	0	99.91	$25,408	$2,538,499.11	275.299	2.275295	0.11	$76,873.09	$4,228.02	$81,101.11
21	NW Project	BAM 62	Acacia papyrocarpa low very open woodland over Maireana sedifolia / Atriplex vesicaria +/- Maireana pyramidata	NW EF 2.1	Low open woodlands of Western Myall with a Chenopod shrub understorey	EF 2	Open woodlands of Western Myall / Black Oak / Sugarwood	EF 9.1	9.1	Eyre Peninsula	Myall Plains	Whyalla	na	1.06	48.17	1.1	23.00	1	0	0.1	Whyalla		0.11	BAM 62	56.16	20.602	1123.51		1123.51	0	0	0.0	0.00	1123.51	1.50	1235.64	0.00	1235.64	0	176.52	$25,408	$4,485,033.05	275.299	2.275295	0.11	$135,819.76	$7,470.03	$143,289.80
22	NW Project	BAM 63	Maireana sedifolia / Rhagodia ulicina low shrubland with emergent Acacia papyrocarpa / Myoporum platycarpum on calcrete rise	NW EF 3.3	Chenopod open shrublands +/- emergent trees	EF 3	Chenopod shrublands (including drainage lines)	EF 9.2	9.2	Eyre Peninsula	Myall Plains	Whyalla	na	1.06	59.17	1.1	24.00	1	0	0.1	Whyalla		0.11	BAM 63	69.57	2.870	200.28		200.28	0	0	0.0	0.00	200.28	1.50	220.31	0.00	220.31	0	31.47	$25,408	$799,645.01	275.299	2.275295	0.11	$34,215.58	$1,331.86	$35,547.44
23	NW Project	BAM 63	Maireana sedifolia / Rhagodia ulicina low shrubland with emergent Acacia papyrocarpa / Myoporum platycarpum on calcrete rise	NW EF 3.3	Chenopod open shrublands +/- emergent trees	EF 3	Chenopod shrublands (including drainage lines)	EF 9.2	9.2	Eyre Peninsula	Myall Plains	Red Rock	na	1.06	59.17	1.1	24.00	1	0	0.1	Red Rock		0.11	BAM 63	69.57	2.701	187.96		187.96	0	0	0.0	0.00	187.96	1.50	206.76	0.00	206.76	0	29.54	$25,408	$750,483.69	275.299	2.275295	0.11	$32,726.82	$1,249.97	$33,976.79
24	NW Project	BAM 64	Atriplex vesicaria / Maireana sedifolia low shrubland with isolated Acacia papyrocarpa / Myoporum platycarpum	NW EF 3.3	Chenopod open shrublands +/- emergent trees	EF 3	Chenopod shrublands (including drainage lines)	EF 9.1	9.1	Eyre Peninsula	Myall Plains	Whyalla	na	1.06	50.44	1.1	21.00	1	0	0.1	Whyalla		0.11	BAM 64	58.81	12.285	722.48		722.48	0	0	0.0	0.00	722.48	1.50	794.73	0.00	794.73	0	113.53	$25,408	$2,884,638.97	275.299	2.275295	0.11	$87,355.20	$4,804.54	$92,159.74
25	NW Project	BAM 65	Broad drainage line with Maireana pyramidata / Atriplex vesicaria low Shrubland with Acacia papyrocarpa	NW EF 3.3	Chenopod open shrublands +/- emergent trees	EF 3	Chenopod shrublands (including drainage lines)	EF 9.2	9.2	Eyre Peninsula	Myall Plains	Whyalla	na	1.06	58.82	1.1	24.00	1	0	0.1	Whyalla		0.11	BAM 65	68.58	2.254	154.58		154.58	0	0	0.0	0.00	154.58	1.50	170.04	0.00	170.04	0	24.29	$25,408	$617,186.64	275.299	2.275295	0.11	$18,690.20	$1,027.96	$19,718.16
26	NW Project	BAM 66	Broad drainage line with Eremophila longifolia tall Shrubland over Senna artemisioides with sparse Maireana sedifolia	NW EF 4.1	Inland tall shrublands in drainage lines and on plains	EF 4	Tall shrublands in drainage lines and on plains	EF 10.1	10.1	Eyre Peninsula	Myall Plains	Whyalla	na	1.06	56.18	1.1	24.00	1	0	0.1	Whyalla		0.11	BAM 66	65.51	0.285	18.67		18.67	0	0	0.0	0.00	18.67	1.50	20.54	0.00	20.54	0	2.93	$25,408	$74,544.80	275.299	2.275295	0.11	$2,257.43	$124.16	$2,381.59
27	NW Project	BAM 67	Acacia papyrocarpa low woodland over Maireana sedifolia / Rhagodia ulicina	NW EF 2.3	Low open woodlands of Western Myall with a Chenopod shrub understorey	EF 2	Open woodlands of Western Myall / Black Oak / Sugarwood	EF 9.1	9.1	Eyre Peninsula	Myall Plains	Whyalla	na	1.08	38.07	1.18	24.00	1	0.08	0	Whyalla		0.11	BAM 67	47.67	18.479	879.05		879.05	0	0	0.0	0.00	879.05	1.50	966.95	0.00	966.95	0	138.14	$25,408	$3,500,754.53	275.299	2.275295	0.11	$106,385.51	$5,845.76	$112,231.25
28	NW Project	BAM 7	Acacia papyrocarpa / Casuarina pauper low open woodland over chenopods (Maireana sedifolia / M. pyramidata / A. vesicaria) +/- Myoporum platycarpum	NW EF 2.2	Low open woodlands of Western Myall / Blackoak / Sugarwood over a Chenopod shrub understorey	EF 2	Open woodlands of Western Myall / Black Oak / Sugarwood	EF 2	2	Eyre Peninsula	Myall Plains	Tregolana	na	1.05	34.01	1.1	10.50	1	0	0.1	Tregolana		0.11	BAM 7	38.40	3.122	659.59		659.59	0	0	0.0	0.00	659.59	1.50	663.95	0.00	663.95	0	94.85	$25,408	$2,409,333.79	275.299	2.275295	0.11	$72,379.75	$4,011.83	$76,391.58
29	NW Project	BAM 7	Acacia papyrocarpa / Casuarina pauper low open woodland over chenopods (Maireana sedifolia / M. pyramidata / A. vesicaria) +/- Myoporum platycarpum	NW EF 2.2	Low open woodlands of Western Myall / Blackoak / Sugarwood over a Chenopod shrub understorey	EF 2	Open woodlands of Western Myall / Black Oak / Sugarwood	EF 2	2	Eyre Peninsula	Myall Plains	Whyalla	na	1.06	34.01	1.1	10.50	1	0	0.1	Whyalla		0.11	BAM 7	39.06	8.286	328.60		328.60	0	0	0.0	0.00	328.60	1.50	361.46	0.00	361.46	0	51.64	$25,408	$1,312,004.69	275.299	2.275295	0.11	$39,731.29	$2,185.22	$41,916.51
30	NW Project	BAM 9	Maireana sedifolia / Atriplex vesicaria low open shrubland with emergent Myoporum platycarpum	NW EF 3.3	Chenopod open shrublands +/- emergent trees	EF 3	Chenopod shrublands (including drainage lines)	EF 9.2	9.2	Eyre Peninsula	Myall Plains	Whyalla	na	1.06	79.98	1.1	30.00	1	0	0.1	Whyalla		0.11	BAM 9	93.26	23.994	2051.16		2051.16	0	0	0.0	0.00	2051.16	1.50	2256.28	0.00	2256.28	0	322.33	$25,408	$8,189,038.99	275.299	2.275295	0.11	$244,005.54	$13,640.33	$261,645.86
																									1887.42	458.214	27060.90		27060.90	0	0	0.0	0.00	27060.90		29776.99	0.00	29776.99		4253.84		$108,081,621.41				$1,771,108.85	$180,020.99	$1,951,129.84

Unique	RAM Site	RAM Vegetation Association	BVC no.	BVC description	MVG no.	MVG description	Condition Category	General Location	IBRA Subregion	General Location	IBRA Association (Version 6)	Landscape context score	Vegetation Condition Score (V1)	Conservation significance score	Species (plant) diversity score	Threatened Ecological community Score	Threatened plant score	Threatened fauna score	UBS
	BAM 142a	Atriplex vesicaria / Tecticornia disarticularta low shrubland	NW EP 3.1	Coastal environments with low open chenopod shrublands on stony hills or undulating plains +/- Samphire	EP 3	Chenopod Shrub, Samphire and Forbland	EP 9.2 Chenopod Open Shrublands	38.7		Eyre Peninsula	Whyalla	1.06	38.7	1.1	14	1	0	0.1	45.12
	BAM 142b	Atriplex vesicaria / Tecticornia disarticularta low shrubland	NW EP 3.1	Coastal environments with low open chenopod shrublands on stony hills or undulating plains +/- Samphire	EP 3	Chenopod Shrub, Samphire and Forbland	EP 9.2 Chenopod Open Shrublands	44.51		Eyre Peninsula	Whyalla	1.06	44.51	1.1	16	1	0	0.1	51.9
												1.06	41.605	1.1	15	1	0	0.1	48.51
	BAM 111a	Maireana sedifolia / Atriplex low open Shrubland +/- emergent tall mixed shrubs (Alectryon oleifolius / Eremophila spp. / Senna spp) +/- Acacia papyrocarpa	NW EP 3.3	Chenopod open shrublands +/- emergent trees	EP 3	Chenopod Shrub, Samphire and Forbland	EP 9.2 Chenopod Open Shrublands	73.88		Eyre Peninsula	Whyalla	1.06	73.88	1.1	30	1	0	0.1	86.14
	BAM 111b	Maireana sedifolia / Atriplex low open Shrubland +/- emergent tall mixed shrubs (Alectryon oleifolius / Eremophila spp. / Senna spp) +/- Acacia papyrocarpa	NW EP 3.3	Chenopod open shrublands +/- emergent trees	EP 3	Chenopod Shrub, Samphire and Forbland	EP 9.2 Chenopod Open Shrublands	44.51		Eyre Peninsula	Whyalla	1.06	44.51	1.1	30	1	0	0.1	51.9
	BAM 111g	Maireana sedifolia / Atriplex low open Shrubland +/- emergent tall mixed shrubs (Alectryon oleifolius / Eremophila spp. / Senna spp) +/- Acacia papyrocarpa	NW EP 3.3	Chenopod open shrublands +/- emergent trees	EP 3	Chenopod Shrub, Samphire and Forbland	EP 9.2 Chenopod Open Shrublands	38.7		Eyre Peninsula	Whyalla	1.06	38.7	1.1	16	1	0	0.1	45.12
												1.06	52.36333	1.1	25.33333	1	0	0.1	61.05333
	BAM 103g	Maireana pyramidata / Atriplex vesicaria open shrubland +/- Maireana sedifolia	NW EP 3.3	Chenopod open shrublands +/- emergent trees	EP 3	Chenopod Shrub, Samphire and Forbland	EP 9.2 Chenopod Open Shrublands	44.51		Eyre Peninsula	Whyalla	1.06	44.51	1.1	8	1	0	0.1	51.9
	BAM 103h	Maireana pyramidata / Atriplex vesicaria open shrubland +/- Maireana sedifolia	NW EP 3.3	Chenopod open shrublands +/- emergent trees	EP 3	Chenopod Shrub, Samphire and Forbland	EP 9.2 Chenopod Open Shrublands	65.15		Eyre Peninsula	Whyalla	1.06	65.15	1.1	26	1	0	0.1	75.96
												1.06	54.83	1.1	17	1	0	0.1	63.93
	BAM 64x	Atriplex vesicaria / Maireana sedifolia low Shrubland with isolated Acacia papyrocarpa / Myoporum platycarpum	NW EP 3.3	Chenopod open shrublands +/- emergent trees	EP 3	Chenopod Shrub, Samphire and Forbland	EP 9.1 Open Mallee & Low Open Woodlands with a Chenopod Shrub Understorey	32.5		Eyre Peninsula	Whyalla	1.06	32.5	1.1	18	1	0	0.1	37.9
	BAM 64a	Atriplex vesicaria / Maireana sedifolia low Shrubland with isolated Acacia papyrocarpa / Myoporum platycarpum	NW EP 3.3	Chenopod open shrublands +/- emergent trees	EP 3	Chenopod Shrub, Samphire and Forbland	EP 9.1 Open Mallee & Low Open Woodlands with a Chenopod Shrub Understorey	68.37		Eyre Peninsula	Whyalla	1.06	68.37	1.1	24	1	0	0.1	79.72
												1.06	50.435	1.1	21	1	0	0.1	58.81
	BAM 63b	Maireana sedifolia / Rhagodia ulicina low shrubland with emergent Acacia papyrocarpa / Myoporum platycarpum on calcrete rise	NW EP 3.3	Chenopod open shrublands +/- emergent trees	EP 3	Chenopod Shrub, Samphire and Forbland	EP 9.2 Chenopod Open Shrublands	54.18		Eyre Peninsula	Whyalla and Red Rock	1.06	54.18	1.1	20	1	0	0.1	63.17
	BAM 63a	Maireana sedifolia / Rhagodia ulicina low shrubland with emergent Acacia papyrocarpa / Myoporum platycarpum on calcrete rise	NW EP 3.3	Chenopod open shrublands +/- emergent trees	EP 3	Chenopod Shrub, Samphire and Forbland	EP 9.2 Chenopod Open Shrublands	64.15		Eyre Peninsula	Red Rock	1.06	64.15	1.1	28	1	0	0.1	75.96
												1.06	59.165	1.1	24	1	0	0.1	69.565
	BAM 62a	Acacia papyrocarpa low very open woodland over Maireana sedifolia / Atriplex vesicaria +/- Maireana pyramidata	NW EP 2.1	Low open woodlands of Western Myall with a Chenopod shrub understorey	EP 2	Open woodlands of Western Myall / Black Oak / Sugarwood	EP 9.1 Open Mallee & Low Open Woodlands with a Chenopod Shrub Understorey	55.41		Eyre Peninsula	Tregolana and Red Rock	1.06	55.41	1.1	28	1	0	0.1	64.61
	BAM 62y	Acacia papyrocarpa low very open woodland over Maireana sedifolia / Atriplex vesicaria +/- Maireana pyramidata	NW EP 2.1	Low open woodlands of Western Myall with a Chenopod shrub understorey	EP 2	Open woodlands of Western Myall / Black Oak / Sugarwood	EP 9.1 Open Mallee & Low Open Woodlands with a Chenopod Shrub Understorey	40.92		Eyre Peninsula	Whyalla	1.06	40.92	1.1	18	1	0	0.1	47.71
												1.06	48.165	1.1	23	1	0	0.1	56.16
	BAM 7a	Acacia papyrocarpa / Casuarina pauper low open woodland over chenopods (Maireana sedifolia / M. pyramidata / A. vesicaria) +/- Myoporum platycarpum	NW EP 2.2	Low open woodlands of Western Myall / Blackoak / Sugarwood over a Chenopod shrub understorey	EP 2	Open woodlands of Western Myall / Black Oak / Sugarwood	EP 2	33.29		Eyre Peninsula	Tregolana and Whyalla	1.06	33.29	1.1	8	1	0	0.1	38.82
	BAM 7b	Acacia papyrocarpa / Casuarina pauper low open woodland over chenopods (Maireana sedifolia / M. pyramidata / A. vesicaria) +/- Myoporum platycarpum	NW EP 2.2	Low open woodlands of Western Myall / Blackoak / Sugarwood over a Chenopod shrub understorey	EP 2	Open woodlands of Western Myall / Black Oak / Sugarwood	EP 2	39.77		Eyre Peninsula	Tregolana and Whyalla	1.06	39.77	1.1	18	1	0	0.1	46.37
	BAM 7d	Acacia papyrocarpa / Casuarina pauper low open woodland over chenopods (Maireana sedifolia / M. pyramidata / A. vesicaria) +/- Myoporum platycarpum	NW EP 2.2	Low open woodlands of Western Myall / Blackoak / Sugarwood over a Chenopod shrub understorey	EP 2	Open woodlands of Western Myall / Black Oak / Sugarwood	EP 2	30.81		Eyre Peninsula	Whyalla	1.06	30.81	1.1	8	1	0	0.1	35.92
	BAM 7x	Acacia papyrocarpa / Casuarina pauper low open woodland over chenopods (Maireana sedifolia / M. pyramidata / A. vesicaria) +/- Myoporum platycarpum	NW EP 2.2	Low open woodlands of Western Myall / Blackoak / Sugarwood over a Chenopod shrub understorey	EP 2	Open woodlands of Western Myall / Black Oak / Sugarwood	EP 2	32.18		Eyre Peninsula	Whyalla	1.06	32.18	1.1	8	1	0	0.1	37.52
												1.06	34.0125	1.1	10.5	1	0	0.1	39.6575
	BAM 11a	Atriplex vesicaria / Tecticornia halocnemoides ssp. aff. Longispicata low shrubland	NW EP 3.1	Coastal environments with low open chenopod shrublands on stony hills or undulating plains +/- Samphire	EP 3	Chenopod Shrub, Samphire and Forbland	EP 9.2	75.98		Eyre Peninsula	Whyalla	1.06	75.98	1.1	30	1	0	0.1	88.59
	BAM 11b	Atriplex vesicaria / Tecticornia halocnemoides ssp. aff. Longispicata low shrubland	NW EP 3.1	Coastal environments with low open chenopod shrublands on stony hills or undulating plains +/- Samphire	EP 3	Chenopod Shrub, Samphire and Forbland	EP 9.2	75.98		Eyre Peninsula	Whyalla	1.06	75.98	1.1	30	1	0	0.1	88.59
	BAM 11h	Atriplex vesicaria / Tecticornia halocnemoides ssp. aff. Longispicata low shrubland	NW EP 3.1	Coastal environments with low open chenopod shrublands on stony hills or undulating plains +/- Samphire	EP 3	Chenopod Shrub, Samphire and Forbland	EP 9.2	54.89		Eyre Peninsula	Whyalla	1.06	54.89	1.1	30	1	0	0.1	64
												1.06	68.95	1.1	30	1	0	0.1	80.39333
	BAM 51a	Maireana sedifolia open shrubland +/- isolated Acacia papyrocarpa	NW EP 3.3	Chenopod open shrublands +/- emergent trees	EP 3	Chenopod Shrub, Samphire and Forbland	EP 9.2	66.4		Eyre Peninsula	Red Rock and Tregolana	1.06	66.4	1.1	30	1	0	0.1	77.42
	BAM 51b	Maireana sedifolia open shrubland +/- isolated Acacia papyrocarpa	NW EP 3.3	Chenopod open shrublands +/- emergent trees	EP 3	Chenopod Shrub, Samphire and Forbland	EP 9.2	58.64		Eyre Peninsula	Red Rock and Tregolana	1.06	58.64	1.1	30	1	0	0.1	68.37
	BAM 51g	Maireana sedifolia open shrubland +/- isolated Acacia papyrocarpa	NW EP 3.3	Chenopod open shrublands +/- emergent trees	EP 3	Chenopod Shrub, Samphire and Forbland	EP 9.2	48.41		Eyre Peninsula	Whyalla	1.06	48.41	1.1	22	1	0	0.1	56.45
												1.06	57.81667	1.1	27.33333	1	0	0.1	67.41333
	BAM 53a	Maireana sedifolia low shrubland with clusters of Acacia papyrocarpa	NW EP 3.3	Chenopod open shrublands +/- emergent trees	EP 3	Chenopod Shrub, Samphire and Forbland	EP 9.2	62.65		Eyre Peninsula	Whyalla	1.06	62.65	1.1	28	1	0	0.1	73.05
	BAM 53b	Maireana sedifolia low shrubland with clusters of Acacia papyrocarpa	NW EP 3.3	Chenopod open shrublands +/- emergent trees	EP 3	Chenopod Shrub, Samphire and Forbland	EP 9.2	57.28		Eyre Peninsula	Whyalla	1.06	57.28	1.1	28	1	0	0.1	66.79
												1.06	59.965	1.1	28	1	0	0.1	69.92

Unique	Project	RAM Site	RAM Vegetation Asociation Description Grouping 3 (lowest/3rd tier)	Broad RAM community number Grouping 2 (middle/2nd tier)	Broad RAM community name Grouping 2 (middle/2nd tier)	Major RAM Vegetation Group number Grouping 1 (highest 1st tier)	Major RAM Vegetation Group name Grouping 1 (highest 1st tier)	General Location	IBRA Subregion	NP / CP / HA / SEB
1	NW Project	**LERAM 202**	Western Myall (Acacia papyrocarpa) open woodland over Black Bluebush (Maireana pyramidata) / Pearl Bluebush (M. sedifolia) / Bladder Saltbush (Atriplex vesicaria)	NW SAAL 4.1	Low open Western Myall woodlands with a Chenopod shrub understorey	SAAL 4	Open woodlands of Western Myall and Mulga on sand plains and low dunes	SAAL	Gawler Lakes	na
2	NW Project	**LERAM 203**	Acacia victoriae open tall shrubland in broad draingae lines over chenopods +/- exotic species	NW SAAL 3.1	Drainage lines with tall shrubs over Maireana pyramidata / chenopod	SAAL 3	Ephemeral and permanent drainage lines and waterholes	SAAL	Arcoona Plateau	na
3	NW Project	**LERAM 204**	Bladder Saltbush (Atriplex vesicaria), Samphire (Tecticornia medullosa), Black Bluebush (Maireana pyramidata) with or without Low Bluebush (M. astrotricha) and/or Woolly Bluebush (M.eriantha) low chenopod shrubland (stony tableland)	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands	SAAL	Arcoona Plateau	na
4	NW Project	**LERAM 205**	Drainage line with Acacia papyrocarpa + Acacia oswaldii + Pittosporum open woodland over chenopod shrubland in drainage line	NW SAAL 3.1	Drainage lines with tall shrubs over Maireana pyramidata / chenopod	SAAL 3	Ephemeral and permanent drainage lines and waterholes	SAAL	Arcoona Plateau	na
5	NW Project	**LERAM 207**	Black Oak (Casuarina pauper) woodland over chenopod shrubland (sandy drainage line)	NW SAAL 12.1	Black Oak woodland on undulating plains with rocky outcrops	SAAL 12	Woodlands of Black Oak on flat and undulating plains	SAAL	Arcoona Plateau	na
6	NW Project	**LERAM 209**	Cotton-bush (Maireana aphylla), Black Bluebush and Bladder Saltbush (Atriplex vesicaria) chenopod shrubland with emergent Elegant Wattle	NW SAAL 2.1	Chenopod low open shrublands +/- emergent trees	SAAL 2	Chenopod shrublands on flat to undulating plains	SAAL	Arcoona Plateau	na
7	NW Project	**LERAM 210**	Elegant Wattle tall open shrubland over Black Bluebush low chenopod shrubland	NW SAAL 3.1	Drainage lines with tall shrubs over Maireana pyramidata / chenopod	SAAL 3	Ephemeral and permanent drainage lines and waterholes	SAAL	Arcoona Plateau	na
8	NW Project	**LERAM 211**	Atriplex vesicaria / Tecticornia medullosa +/- Maireana erianthum chenopod shrubland	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands	SAAL	Arcoona Plateau	na
9	NW Project	**LERAM 213**	Bladder Saltbush (Atriplex vesicaria), Samphire (Tecticornia medullosa), Black Bluebush (Maireana pyramidata) with or without Low Bluebush (M. astrotricha) and/or Woolly Bluebush (M.eriantha) low chenopod shrubland (stony tableland)	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands	SAAL	Arcoona Plateau	na
10	NW Project	**LERAM 50**	Acacia papyrocapra low woodland over Atriplex vesicaria (minor drainage line)	NW SAAL 3.4	Drainage lines with River Red Gum and/or Myall	SAAL 3	Ephemeral and permanent drainage lines and waterholes	SAAL	Arcoona Plateau	na
11	NW Project	**LERAM 50**	Acacia papyrocapra low woodland over Atriplex vesicaria (minor drainage line)	NW SAAL 3.4	Drainage lines with River Red Gum and/or Myall	SAAL 3	Ephemeral and permanent drainage lines and waterholes	SAAL	Gawler Lakes	na
12	NW Project	**LERAM 51**	Zygochloa paradoxa grassland with emergent Acacia ligulata and Alectryon oleifolius on red sand dune	NW SAAL 11.1	Sandhill Cane-grass grassland	SAAL 11	Sandhill Cane-grass grassland	SAAL	Arcoona Plateau	na
13	NW Project	**LERAM 51**	Zygochloa paradoxa grassland with emergent Acacia ligulata and Alectryon oleifolius on red sand dune	NW SAAL 11.1	Sandhill Cane-grass grassland	SAAL 11	Sandhill Cane-grass grassland	SAAL	Gawler Lakes	na
14	NW Project	**LERAM 52**	Acacia aneura low woodland over Aristida contorta on dune swales	NW SAAL 6.3	Open woodlands in dune swales	SAAL 6	Dune swales with open woodlands / shrublands and tussock grassland	SAAL	Arcoona Plateau	na
15	NW Project	**LERAM 52**	Acacia aneura low woodland over Aristida contorta on dune swales	NW SAAL 6.3	Open woodlands in dune swales	SAAL 6	Dune swales with open woodlands / shrublands and tussock grassland	SAAL	Gawler Lakes	na
16	NW Project	**LERAM 53**	Acacia papyrocarpa low woodland over Maireana pyramidata +/- Maireana sedifolia	NW SAAL 4.1	Low open Western Myall woodlands with a Chenopod shrub understorey	SAAL 4	Open woodlands of Western Myall and Mulga on sand plains and low dunes	SAAL	Gawler Lakes	na
17	NW Project	**LERAM 53**	Acacia papyrocarpa low woodland over Maireana pyramidata +/- Maireana sedifolia	NW SAAL 4.1	Low open Western Myall woodlands with a Chenopod shrub understorey	SAAL 4	Open woodlands of Western Myall and Mulga on sand plains and low dunes	SAAL	Arcoona Plateau	na
18	NW Project	**LERAM 54**	Maireana aphylla shrubland (clay depression)	NW SAAL 10.1	Non-saline shrublands in clay depressions	SAAL 10	Non-saline shrublands in clay depressions	SAAL	Arcoona Plateau	na
19	NW Project	**LERAM 54**	Maireana aphylla shrubland (clay depression)	NW SAAL 10.1	Non-saline shrublands in clay depressions	SAAL 10	Non-saline shrublands in clay depressions	SAAL	Gawler Lakes	na
20	NW Project	**LERAM 55**	Acacia aneura low woodland over Maireana turbinata, Maireana pyramidata	NW SAAL 4.1	Low open Western Myall woodlands with a Chenopod shrub understorey	SAAL 4	Open woodlands of Western Myall and Mulga on sand plains and low dunes	SAAL	Gawler Lakes	na
21	NW Project	**LERAM 57**	Casuarina pauper low open woodland over Maireana pyramidata on dune crest	NW SAAL 5.3	Blackoak Woodlands on dunes	SAAL 5	Woodlands and shrublands on low dunes and dune crests	SAAL	Arcoona Plateau	na
22	NW Project	**LERAM 57**	Casuarina pauper low open woodland over Maireana pyramidata on dune crest	NW SAAL 5.3	Blackoak Woodlands on dunes	SAAL 5	Woodlands and shrublands on low dunes and dune crests	SAAL	Gawler Lakes	na
23	NW Project	**LERAM 58**	Acacia aneura low woodland over Senna sp./ Dodonaea viscosa ssp. angustissima and Acacia ligulata +/- Acacia burkittii	NW SAAL 5.4	Mulga woodlands and tall shrublands (dunes)	SAAL 5	Woodlands and shrublands on low dunes and dune crests	SAAL	Arcoona Plateau	na
24	NW Project	**LERAM 58**	Acacia aneura low woodland over Senna sp./ Dodonaea viscosa ssp. angustissima and Acacia ligulata +/- Acacia burkittii	NW SAAL 5.4	Mulga woodlands and tall shrublands (dunes)	SAAL 5	Woodlands and shrublands on low dunes and dune crests	SAAL	Gawler Lakes	na
25	NW Project	**LERAM 59**	Atriplex vesicaria / Tecticornia medullosa low open shrubland (stony tableland)	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands	SAAL	Arcoona Plateau	na
26	NW Project	**LERAM 59**	Atriplex vesicaria / Tecticornia medullosa low open shrubland (stony tableland)	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands	SAAL	Gawler Lakes	na
27	NW Project	**LERAM 62**	Dune crest with Acacia ligulata / Dodonaea viscosa ssp. angustissima tall open shrubland +/- Zygochloa paradoxa	NW SAAL 5.1	Low dune crests with tall shrubland +/- Cypress-pine woodlands	SAAL 5	Woodlands and shrublands on low dunes and dune crests	SAAL	Arcoona Plateau	na
28	NW Project	**LERAM 62**	Dune crest with Acacia ligulata / Dodonaea viscosa ssp. angustissima tall open shrubland +/- Zygochloa paradoxa	NW SAAL 5.1	Low dune crests with tall shrubland +/- Cypress-pine woodlands	SAAL 5	Woodlands and shrublands on low dunes and dune crests	SAAL	Gawler Lakes	na
29	NW Project	**LERAM 63**	Tecticornia indica, Tecticornia pergranulata +/- Duma florulenta open shrubland	NW SAAL 8.2	Inland Samphire depressions and drainage lines	SAAL 8	Inland Saline depressions and drainage lines	SAAL	Gawler Lakes	na
30	NW Project	**LERAM 64**	Atriplex vesicaria / Maireana pyramidata low open shrubland on stony soils with sand veneer	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands	SAAL	Arcoona Plateau	na
31	NW Project	**LERAM 65**	Eucalyptus camaldulensis ssp. arida low woodland (in major drainage line)	NW SAAL 3.4	Drainage lines with River Red Gum and/or Myall	SAAL 3	Ephemeral and permanent drainage lines and waterholes	SAAL	Gawler Lakes	na
32	NW Project	**RAM 1**	Melaleuca xerophylla / Acacia burkittii tall shrubland (drainage line)	NW SAAL 3.2	Drainage lines with tall shrubs +/- Black Oak	SAAL 3	Ephemeral and permanent drainage lines and waterholes	SAAL	Myall Plains	na
33	NW Project	**RAM 10**	Dune crest with Acacia ligulata / Dodonaea viscosa +/- Callitris glaucophylla tall open shrubland	NW SAAL 5.1	Low dune crests with tall shrubland +/- Cypress-pine woodlands	SAAL 5	Woodlands and shrublands on low dunes and dune crests	SAAL	Kingoonya	na
34	NW Project	**RAM 11**	Swale with Atriplex vesicaria / Maireana astrotricha low open shrubland	NW SAAL 6.1	Chenopod low open shrubland in dune swale +/- emergent trees	SAAL 6	Dune swales with open woodlands / shrublands and tussock grassland	SAAL	Kingoonya	na
35	NW Project	**RAM 11**	Swale with Atriplex vesicaria / Maireana astrotricha low open shrubland	NW SAAL 6.1	Chenopod low open shrubland in dune swale +/- emergent trees	SAAL 6	Dune swales with open woodlands / shrublands and tussock grassland	SAAL	Arcoona Plateau	na
36	NW Project	**RAM 11**	Swale with Atriplex vesicaria / Maireana astrotricha low open shrubland	NW SAAL 6.1	Chenopod low open shrubland in dune swale +/- emergent trees	SAAL 6	Dune swales with open woodlands / shrublands and tussock grassland	SAAL	Gawler Lakes	na
37	NW Project	**RAM 12**	Dune crest with Callitris glaucophylla open woodland +/- tall shrubs (Acacia ligulata / Dodonaea viscosa ssp.)	NW SAAL 5.2	Cypress-pine woodlands on dune crests	SAAL 5	Woodlands and shrublands on low dunes and dune crests	SAAL	Kingoonya	na
38	NW Project	**RAM 13**	Dune swale with Acacia papyrocarpa / Acacia aptaneura open woodland +/- Tussock Grasses	NW SAAL 6.3	Open woodlands in dune swales	SAAL 6	Dune swales with open woodlands / shrublands and tussock grassland	SAAL	Kingoonya	na
39	NW Project	**RAM 14**	Minor drainage line with Acacia tetragonophylla / Pittosporum angustifolium tall shrubland	NW SAAL 3.2	Drainage lines with tall shrubs +/- Black Oak	SAAL 3	Ephemeral and permanent drainage lines and waterholes	SAAL	Kingoonya	na
40	NW Project	**RAM 15**	Low dunes with Dodonaea viscosa / Acacia ligulata / Acacia burkittii tall open shrubland +/- Aristida holathera	NW SAAL 5.1	Low dune crests with tall shrubland +/- Cypress-pine woodlands	SAAL 5	Woodlands and shrublands on low dunes and dune crests	SAAL	Arcoona Plateau	na
41	NW Project	**RAM 16**	Typha domingensis waterhole with Eucalyptus camaldulensis ssp. arida open woodland	NW SAAL 3.3	Ephemeral to permanent waterholes and drainage lines	SAAL 3	Ephemeral and permanent drainage lines and waterholes	SAAL	Arcoona Plateau	na
42	NW Project	**RAM 17**	Run-on depression with Eragrostis australasica tall grassland and Chenopod shrubs	NW SAAL 7.1	Swamp Cane-grass grassland	SAAL 7	Cane-grass run-on areas and depressions	SAAL	Arcoona Plateau	na
43	NW Project	**RAM 17**	Run-on depression with Eragrostis australasica tall grassland and Chenopod shrubs	NW SAAL 7.1	Swamp Cane-grass grassland	SAAL 7	Cane-grass run-on areas and depressions	SAAL	Gawler Lakes	na
44	NW Project	**RAM 18**	Maireana pyramidata low open shrubland +/- Maireana sedifolia / Atriplex vesicaria	NW SAAL 2.1	Chenopod low open shrublands +/- emergent trees	SAAL 2	Chenopod shrublands on flat to undulating plains	SAAL	Arcoona Plateau	na
45	NW Project	**RAM 18**	Maireana pyramidata low open shrubland +/- Maireana sedifolia / Atriplex vesicaria	NW SAAL 2.1	Chenopod low open shrublands +/- emergent trees	SAAL 2	Chenopod shrublands on flat to undulating plains	SAAL	Myall Plains	na
46	NW Project	**RAM 2**	Broad drainage line with Maireana pyramidata / Atriplex vesicaria low open shrubland with emergent Acacia victoriae	NW SAAL 3.1	Drainage lines with tall shrubs over Maireana pyramidata / chenopod	SAAL 3	Ephemeral and permanent drainage lines and waterholes	SAAL	Arcoona Plateau	na
47	NW Project	**RAM 23**	Maireana astrotricha low shrubland +/- Tecticornia medullosa / Atriplex vesicaria	NW SAAL 2.1	Chenopod low open shrublands +/- emergent trees	SAAL 2	Chenopod shrublands on flat to undulating plains	SAAL	Arcoona Plateau	na
48	NW Project	**RAM 23**	Maireana astrotricha low shrubland +/- Tecticornia medullosa / Atriplex vesicaria	NW SAAL 2.1	Chenopod low open shrublands +/- emergent trees	SAAL 2	Chenopod shrublands on flat to undulating plains	SAAL	Gawler Lakes	na
49	NW Project	**RAM 25**	Maireana sedifolia open shrubland with emergent sparse Acacia papyrocarpa	NW SAAL 2.1	Chenopod low open shrublands +/- emergent trees	SAAL 2	Chenopod shrublands on flat to undulating plains	SAAL	Gawler Lakes	na
50	NW Project	**RAM 27**	Mixed chenopod low open shrubland (Maireana sedifolia / Maireana astrotricha / Maireana pyramidata / Atriplex vesicaria) +/- emergent Acacia aptaneura / Acacia papyrocarpa	NW SAAL 2.1	Chenopod low open shrublands +/- emergent trees	SAAL 2	Chenopod shrublands on flat to undulating plains	SAAL	Gawler Lakes	na
51	NW Project	**RAM 28**	Drainage line with Casuarina pauper open woodland over Tussock Grasses (Eragrostis setifolia / Enteropogon acicularis) +/- Acacia victoriae	NW SAAL 3.2	Drainage lines with tall shrubs +/- Black Oak	SAAL 3	Ephemeral and permanent drainage lines and waterholes	SAAL	Arcoona Plateau	na
52	NW Project	**RAM 29**	Low dunes with Dodonaea viscosa / Acacia ligulata / Acacia burkittii tall open shrubland	NW SAAL 5.1	Low dune crests with tall shrubland +/- Cypress-pine woodlands	SAAL 5	Woodlands and shrublands on low dunes and dune crests	SAAL	Kingoonya	na
53	NW Project	**RAM 3**	Acacia papyrocarpa / Myoporum platycarpum low open woodland over chenopods (Maireana pyramidata / Maireana sedifolia / Atriplex vesicaria)	NW SAAL 4.1	Low open Western Myall woodlands with a Chenopod shrub understorey	SAAL 4	Open woodlands of Western Myall and Mulga on sand plains and low dunes	SAAL	Arcoona Plateau	na
54	NW Project	**RAM 3**	Acacia papyrocarpa / Myoporum platycarpum low open woodland over chenopods (Maireana pyramidata / Maireana sedifolia / Atriplex vesicaria)	NW SAAL 4.1	Low open Western Myall woodlands with a Chenopod shrub understorey	SAAL 4	Open woodlands of Western Myall and Mulga on sand plains and low dunes	SAAL	Gawler Lakes	na
55	NW Project	**RAM 3**	Acacia papyrocarpa / Myoporum platycarpum low open woodland over chenopods (Maireana pyramidata / Maireana sedifolia / Atriplex vesicaria)	NW SAAL 4.1	Low open Western Myall woodlands with a Chenopod shrub understorey	SAAL 4	Open woodlands of Western Myall and Mulga on sand plains and low dunes	SAAL	Myall Plains	na
56	NW Project	**RAM 30**	Atriplex vesicaria / Tecticornia medullosa low open shrubland (Tableland)	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands	SAAL	Arcoona Plateau	na
57	NW Project	**RAM 300**	Casuarina puaper tall shrubs over Duma florulenta shrubland	NW SAAL 3.1	Drainage lines with tall shrubs over Maireana pyramidata / chenopod	SAAL 3.1	Ephemeral and permanent drainage lines and waterholes	SAAL	Arcoona Plateau	na
58	NW Project	**RAM 301**	Maireana sedifolia / Atriplex vesicaria low open shrubland with emergent Acacia papyrocarpa	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands	SAAL	Gawler Lakes	na
59	NW Project	**RAM 31**	Acacia victoriae tall open shrubland over Maireana pyramidata low shrubland	NW SAAL 3.1	Drainage lines with tall shrubs over Maireana pyramidata / chenopod	SAAL 3	Ephemeral and permanent drainage lines and waterholes	SAAL	Arcoona Plateau	na
60	NW Project	**RAM 34**	Tecticornia spp. (indica ssp. leiostachya / halocnemoides) low open shrubland on salt lake margin	NW SAAL 8.2	Inland Samphire depressions and drainage lines	SAAL 8	Inland Saline depressions and drainage lines	SAAL	Arcoona Plateau	na
61	NW Project	**RAM 34**	Tecticornia spp. (indica ssp. leiostachya / halocnemoides) low open shrubland on salt lake margin	NW SAAL 8.2	Inland Samphire depressions and drainage lines	SAAL 8	Inland Saline depressions and drainage lines	SAAL	Kingoonya	na
62	NW Project	**RAM 35**	Drainage line with Myoporum montanum / Acacia victoriae closed shrubland +/- Maireana pyramidata	NW SAAL 3.1	Drainage lines with tall shrubs over Maireana pyramidata / chenopod	SAAL 3	Ephemeral and permanent drainage lines and waterholes	SAAL	Arcoona Plateau	na
63	NW Project	**RAM 350**	Maireana pyramidata / M. sedifolia low open shrubland with emergent Acacia burkittii	NW SAAL 2.1	Chenopod low open shrublands +/- emergent trees	SAAL 2	Chenopod shrublands on flat to undulating plains	SAAL	Arcoona Plateau	na
64	NW Project	**RAM 36**	Tecticornia medullosa / Atriplex vesicaria / Astrebla pectinata low very open shrubland	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands	SAAL	Kingoonya	na
65	NW Project	**RAM 39**	Melaleuca xerophila tall closed shrubland fringing saltpan (Tecticornia spp.)	NW SAAL 8.1	Tall shrublands on inland saline depressions	SAAL 8	Inland Saline depressions and drainage lines	SAAL	Kingoonya	na
66	NW Project	**RAM 40**	Maireana astrotricha low open shrubland with emergent Senna spp.	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands	SAAL	Kingoonya	na
67	NW Project	**RAM 41**	Swales of mixed tussock grassland (Enneapogon avenaceous / Enneapogon cylindricus / Aristida contorta / Eragrostis setifolia) +/- emergent Acacia aptaneura / Acacia papyrocarpa	NW SAAL 6.2	Tussock grassland in dune swales +/- emergent trees	SAAL 6	Dune swales with open woodlands / shrublands and tussock grassland	SAAL	Kingoonya	na
68	NW Project	**RAM 42**	Acacia papyrocarpa open woodland over Maireana pyramidata / Maireana sedifolia	NW SAAL 4.1	Low open Western Myall woodlands with a Chenopod shrub understorey	SAAL 4	Open woodlands of Western Myall and Mulga on sand plains and low dunes	SAAL	Arcoona Plateau	na
69	NW Project	**RAM 42**	Acacia papyrocarpa open woodland over Maireana pyramidata / Maireana sedifolia	NW SAAL 4.1	Low open Western Myall woodlands with a Chenopod shrub understorey	SAAL 4	Open woodlands of Western Myall and Mulga on sand plains and low dunes	SAAL	Myall Plains	na
70	NW Project	**RAM 44**	Sandy drainage line with Acacia papyrocarpa / Casuarina pauper / open woodland over Maireana pyramidata and tall shrubland (Acacia ligulata / Acacia burkittii / Senna spp) +/- Callitris gracilis	NW SAAL 3.2	Drainage lines with tall shrubs +/- Black Oak	SAAL 3	Ephemeral and permanent drainage lines and waterholes	SAAL	Arcoona Plateau	na
71	NW Project	**RAM 7**	Low dunes with Acacia aptaneura tall open shrubland +/- Acacia ligulata / Acacia burkittii	NW SAAL 4.2	Mulga woodlands and tall shrublands on plains and low dunes in the Gawler Lakes	SAAL 4	Open woodlands of Western Myall and Mulga on sand plains and low dunes	SAAL	Arcoona Plateau	na
72	NW Project	**RAM 7**	Low dunes with Acacia aptaneura tall open shrubland +/- Acacia ligulata / Acacia burkittii	NW SAAL 4.2	Mulga woodlands and tall shrublands on plains and low dunes in the Gawler Lakes	SAAL 4	Open woodlands of Western Myall and Mulga on sand plains and low dunes	SAAL	Gawler Lakes	na
73	NW Project	**RAM 8**	Stony tableland with Atriplex vesicaria / Tecticornia medullosa / Maireana aphylla / Maireana astrotricha low open shrubland	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands	SAAL	Arcoona Plateau	na
74	NW Project	**RAM 8**	Stony tableland with Atriplex vesicaria / Tecticornia medullosa / Maireana aphylla / Maireana astrotricha low open shrubland	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands	SAAL	Gawler Lakes	na
75	NW Project	**RAM 8**	Stony tableland with Atriplex vesicaria / Tecticornia medullosa / Maireana aphylla / Maireana astrotricha low open shrubland	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands	SAAL	Kingoonya	na

Unique	Biotic disturbance score	Physical disturbance score	Vegetation stratum score	Introduced plant species score	Vegetation utilisation score	Landscape context score	Vegetation Condition Score (V1)	Conservation significance score	Threatened Ecological community Score	Threatened plant score	Threatened fauna score	IBRA Subregion	RAM Site	UBS	Area of RAM	TBS (UBS x ha)	Loss factor	SEB Points of loss (TBS x 1) 1 = total loss
1	7.50	9.00	16.00	10.00	11.16	1.16	53.66	1.1	1	0	0.1	Gawler Lakes	LERAM 202	68.47	**13.011**	890.86	1	890.86
2	7.50	12.00	10.00	0.00	13.74	1.16	43.24	1.1	1	0	0.1	Arcoona Platea	LERAM 203	55.17	**2.687**	148.24	1	148.24
3	0.00	9.00	2.00	10.00	15.44	1.16	36.44	1.1	1	0	0.1	Arcoona Platea	LERAM 204	46.50	**9.368**	435.61	1	435.61
4	7.50	12.00	12.00	2.50	12.59	1.16	46.59	1.1	1	0	0.1	Arcoona Platea	LERAM 205	59.45	**0.138**	8.20	1	8.20
5	7.50	15.00	16.00	10.00	11.50	1.06	60.00	1.1	1	0	0.1	Arcoona Platea	LERAM 207x	69.96	**15.741**	1101.24	1	1101.24
6	5.00	9.00	6.00	2.50	12.89	1.16	35.39	1.1	1	0	0.1	Arcoona Platea	LERAM 209	45.16	**0.491**	22.17	1	22.17
7	7.50	9.00	16.00	2.50	12.39	1.16	47.39	1.1	1	0	0.1	Arcoona Platea	LERAM 210	60.47	**0.220**	13.30	1	13.30
8	5.00	9.00	4.00	10.00	15.71	1.16	43.71	1.1	1	0	0.1	Arcoona Platea	LERAM 211	55.77	**1.320**	73.62	1	73.62
9	7.50	15.00	4.00	10.00	11.76	1.06	48.26	1.1	1	0	0.1	Arcoona Platea	LERAM 213	56.27	**25.673**	1444.62	1	1444.62
10	7.50	15.00	16.00	10.00	14.84	1.16	63.34	1.1	1	0	0.1	Arcoona Platea	LERAM 50	80.82	**1.530**	123.65	1	123.65
11	7.50	15.00	16.00	10.00	14.84	1.16	63.34	1.1	1	0	0.1	Gawler Lakes	LERAM 50	80.82	**0.169**	13.66	1	13.66
12	5.00	15.00	10.00	7.50	8.75	1.11	46.25	1.1	1	0	0.1	Arcoona Platea	LERAM 51	56.47	**0.933**	52.69	1	52.69
13	5.00	15.00	10.00	7.50	8.75	1.11	46.25	1.1	1	0	0.1	Gawler Lakes	LERAM 51	56.47	**4.583**	258.80	1	258.80
14	7.50	12.00	16.00	10.00	10.94	1.11	56.44	1.1	1	0	0.1	Arcoona Platea	LERAM 52	68.91	**1.013**	69.81	1	69.81
15	7.50	18.00	10.00	10.00	10.21	1.11	55.71	1.1	1	0	0.1	Gawler Lakes	LERAM 52	68.02	**24.213**	1646.97	1	1646.97
16	10.00	12.00	10.00	10.00	12.41	1.11	54.41	1.1	1	0	0.1	Gawler Lakes	LERAM 53	66.43	**12.037**	799.61	1	799.61
17	10.00	12.00	10.00	10.00	12.41	1.11	54.41	1.1	1	0	0.1	Arcoona Platea	LERAM 53	66.43	**1.367**	90.78	1	90.78
18	5.00	15.00	16.00	10.00	12.20	1.20	58.20	1.1	1	0	0.1	Arcoona Platea	LERAM 54	76.82	**0.087**	6.65	1	6.65
19	5.00	15.00	16.00	10.00	12.20	1.20	58.20	1.1	1	0	0.1	Gawler Lakes	LERAM 54	76.82	**1.340**	102.93	1	102.93
20	10.00	18.00	16.00	10.00	11.69	1.11	65.69	1.1	1	0	0.1	Gawler Lakes	LERAM 55	80.21	**1.472**	118.08	1	118.08
21	5.00	12.00	10.00	7.50	10.20	1.11	44.70	1.1	1	0	0.1	Arcoona Platea	LERAM 57	54.58	**0.508**	27.70	1	27.70
22	5.00	12.00	10.00	7.50	10.20	1.11	44.70	1.1	1	0	0.1	Gawler Lakes	LERAM 57	54.58	**0.119**	6.52	1	6.52
23	10.00	12.00	16.00	10.00	10.93	1.15	58.93	1.1	1	0	0.1	Arcoona Platea	LERAM 58	74.55	**1.209**	90.16	1	90.16
24	10.00	12.00	16.00	10.00	10.93	1.15	58.93	1.1	1	0	0.1	Gawler Lakes	LERAM 58	74.55	**31.085**	2317.39	1	2317.39
25	0.00	12.00	8.00	10.00	15.90	1.11	45.90	1.1	1	0	0.1	Arcoona Platea	LERAM 59	56.04	**55.462**	3108.09	1	3108.09
26	0.00	12.00	8.00	10.00	15.90	1.11	45.90	1.1	1	0	0.1	Gawler Lakes	LERAM 59	56.04	**19.427**	1088.69	1	1088.69
27	5.00	12.00	12.00	10.00	8.50	1.11	47.50	1.1	1	0	0.1	Arcoona Platea	LERAM 62	58.00	**6.308**	365.85	1	365.85
28	5.00	12.00	12.00	10.00	8.50	1.11	47.50	1.1	1	0	0.1	Gawler Lakes	LERAM 62	58.00	**17.675**	1025.16	1	1025.16
29	0.00	15.00	8.00	10.00	17.88	1.16	50.88	1.1	1	0	0.1	Gawler Lakes	LERAM 63	64.92	**0.461**	29.91	1	29.91
30	5.00	15.00	12.00	10.00	18.96	1.11	60.96	1.1	1	0	0.1	Arcoona Platea	LERAM 64	74.43	**2.729**	203.09	1	203.09
31	10.00	12.00	16.00	10.00	16.71	1.20	64.71	1.1	1	0	0.1	Gawler Lakes	LERAM 65	85.42	**4.350**	371.57	1	371.57
32	10.00	15.00	16.00	7.50	16.96	1.06	65.46	1.1	1	0	0.1	Myall Plains	RAM 1b	76.33	**2.072**	158.14	1	158.14
33	10.00	13.50	13.00	10.00	9.09	1.09	55.59	1.1	1	0	0.1	Kingoonya	RAM 10	66.65	**85.058**	5668.69	1	5668.69
34	5.00	15.00	12.00	10.00	19.50	1.09	61.50	1.1	1	0	0.1	Kingoonya	RAM 11	73.74	**7.743**	570.97	1	570.97
35	5.00	15.00	12.00	10.00	19.50	1.11	61.50	1.1	1	0	0.1	Arcoona Platea	RAM 11	75.09	**8.937**	671.08	1	671.08
36	5.00	15.00	12.00	10.00	19.50	1.11	61.50	1.1	1	0	0.1	Gawler Lakes	RAM 11	75.09	**1.386**	104.07	1	104.07
37	7.50	15.00	16.00	10.00	14.05	1.09	62.55	1.1	1	0	0.1	Kingoonya	RAM 12	75.00	**47.117**	3533.53	1	3533.53
38	7.50	15.00	16.00	10.00	13.67	1.09	62.17	1.1	1	0	0.1	Kingoonya	RAM 13	74.54	**8.766**	653.38	1	653.38
39	7.50	15.00	16.00	10.00	21.13	1.15	69.63	1.1	1	0	0.1	Kingoonya	RAM 14	88.08	**0.128**	11.26	1	11.26
40	7.50	15.00	16.00	10.00	16.92	1.11	65.42	1.1	1	0	0.1	Arcoona Platea	RAM 15	79.88	**1.408**	112.49	1	112.49
41	7.50	15.00	16.00	10.00	13.00	1.17	61.50	1.1	1	0	0.1	Arcoona Platea	RAM 16	79.15	**1.759**	139.19	1	139.19
42	5.00	15.00	8.00	10.00	13.30	1.13	51.30	1.1	1	0	0.1	Arcoona Platea	RAM 17	63.77	**0.357**	22.77	1	22.77
43	5.00	15.00	8.00	10.00	13.30	1.13	51.30	1.1	1	0	0.1	Gawler Lakes	RAM 17	63.77	**2.037**	129.87	1	129.87
44	8.33	15.00	9.33	5.83	14.55	1.11	53.05	1.1	1	0	0.1	Arcoona Platea	RAM 18	64.92	**50.468**	3276.38	1	3276.38
45	8.33	15.00	9.33	5.83	14.55	1.11	53.05	1.1	1	0	0.1	Myall Plains	RAM 18	64.92	**28.898**	1876.08	1	1876.08
46	7.50	12.00	12.00	7.50	18.30	1.17	57.30	1.1	1	0	0.1	Arcoona Platea	RAM 2	73.75	**2.155**	158.91	1	158.91
47	5.00	12.00	10.00	2.50	8.21	1.11	37.71	1.1	1	0	0.1	Arcoona Platea	RAM 23	46.04	**15.540**	715.46	1	715.46
48	5.00	12.00	10.00	2.50	8.21	1.11	37.71	1.1	1	0	0.1	Gawler Lakes	RAM 23	46.04	**0.703**	32.37	1	32.37
49	7.50	15.00	16.00	10.00	13.14	1.11	61.64	1.1	1	0	0.1	Gawler Lakes	RAM 25	75.26	**19.712**	1483.52	1	1483.52
50	5.00	15.00	10.00	10.00	13.19	1.11	53.19	1.1	1	0	0.1	Gawler Lakes	RAM 27	64.94	**2.888**	187.56	1	187.56
51	7.50	15.00	16.00	10.00	8.48	1.17	56.98	1.1	1	0	0.1	Arcoona Platea	RAM 28	73.33	**1.289**	94.51	1	94.51
52	7.50	15.00	10.00	10.00	11.75	1.09	54.25	1.1	1	0	0.1	Kingoonya	RAM 29	65.05	**0.007**	0.45	1	0.45
53	7.50	13.50	16.00	10.00	10.98	1.11	57.98	1.1	1	0	0.1	Arcoona Platea	RAM 3	70.46	**2.158**	152.06	1	152.06
54	7.50	13.50	16.00	10.00	10.98	1.11	57.98	1.1	1	0	0.1	Gawler Lakes	RAM 3	70.46	**270.404**	19053.31	1	19053.31
55	7.50	13.50	16.00	10.00	10.98	1.11	57.98	1.1	1	0	0.1	Myall Plains	RAM 3	70.46	**40.609**	2861.38	1	2861.38
56	6.25	13.50	5.00	10.00	13.93	1.09	48.68	1.1	1	0	0.1	Arcoona Platea	RAM 30	58.04	**22.592**	1311.24	1	1311.24
57	5.00	15.00	16.00	10.00	5.63	1.13	51.63	1.1	1	0	0.1	Arcoona Platea	RAM 300	64.18	**0.638**	40.94	1	40.94
58	7.50	15.00	16.00	10.00	9.58	1.06	58.08	1.1	1	0	0.1	Gawler Lakes	RAM 301	67.72	**17.320**	1172.91	1	1172.91
59	5.00	9.00	12.00	10.00	12.73	1.17	48.73	1.1	1	0	0.1	Arcoona Platea	RAM 31	62.72	**0.748**	46.90	1	46.90
60	5.00	15.00	10.00	10.00	10.90	1.16	50.90	1.1	1	0	0.1	Arcoona Platea	RAM 34	64.95	**4.651**	302.08	1	302.08
61	5.00	15.00	10.00	10.00	10.90	1.14	50.90	1.1	1	0	0.1	Kingoonya	RAM 34	63.83	**0.051**	3.26	1	3.26
62	5.00	15.00	4.00	7.50	10.78	1.13	42.28	1.1	1	0	0.1	Arcoona Platea	RAM 35	52.55	**1.594**	83.76	1	83.76
63	7.50	12.00	6.00	7.50	9.80	1.06	42.80	1.1	1	0	0.1	Arcoona Platea	RAM 350	49.90	**10.316**	514.79	1	514.79
64	5.00	15.00	4.00	5.00	12.43	1.09	41.43	1.1	1	0	0.1	Kingoonya	RAM 36	49.67	**21.116**	1048.84	1	1048.84
65	5.00	15.00	10.00	10.00	15.81	1.11	55.81	1.1	1	0	0.1	Kingoonya	RAM 39	68.14	**0.673**	45.88	1	45.88
66	10.00	9.00	16.00	10.00	12.33	1.09	57.33	1.1	1	0	0.1	Kingoonya	RAM 40	68.74	**3.285**	225.78	1	225.78
67	7.50	18.00	4.00	10.00	10.78	1.09	50.28	1.1	1	0	0.1	Kingoonya	RAM 41	60.29	**15.263**	920.21	1	920.21
68	7.50	12.00	16.00	10.00	10.94	1.11	56.44	1.1	1	0	0.1	Arcoona Platea	RAM 42	68.91	**18.529**	18.53	1	18.53
69	7.50	12.00	16.00	10.00	10.94	1.09	56.44	1.1	1	0	0.1	Myall Plains	RAM 42	67.67	**12.971**	12.97	1	12.97
70	5.00	9.00	16.00	10.00	9.53	1.19	49.53	1.1	1	0	0.1	Arcoona Platea	RAM 44	64.83	**9.538**	618.34	1	618.34
71	7.50	15.00	16.00	10.00	14.14	1.15	62.64	1.1	1	0	0.1	Arcoona Platea	RAM 7	79.24	**0.151**	11.94	1	11.94
72	7.50	15.00	16.00	10.00	14.14	1.15	62.64	1.1	1	0	0.1	Gawler Lakes	RAM 7	79.24	**24.854**	1969.42	1	1969.42
73	5.00	15.00	7.23	10.00	16.92	1.11	54.15	1.1	1	0	0.1	Arcoona Platea	RAM 8	65.83	**487.391**	32084.57	1	32084.57
74	5.00	15.00	7.23	10.00	16.92	1.11	54.15	1.1	1	0	0.1	Gawler Lakes	RAM 8	65.83	**6.126**	403.30	1	403.30
75	5.00	15.00	7.23	10.00	16.92	1.11	54.15	1.1	1	0	0.1	Kingoonya	RAM 8	65.83	**17.361**	1142.88	1	1142.88
														4971.375192	**1533.489**	**99701.59**		**99701.59**

Unique	Loading factor for protected areas (NP, HA). Add "1" for CP and HA unless the HA is an SEB then leave as "0". All others are	Loading (SEB points x loading factor)	Reductions factor Leave as "0" for all (reductions may apply in the future)	Reduction loading (SEB points x reduction factor	Adjusted SEB points of loss (point of loss + loading - reduction)	SEB Uplift Factor	SEB points required	SEB requires replacement of the SEB plus a 10% loading per year since the SEB was established. Formula	SEB points of gain (factor)	SEB points of gain (Hectares)	Management Cost per Ha	Total Management Cost	Rainfall (average 2km method)	Rainfall factor	Economies of scale	Payment	Admin	Total
1	0	0	0.0	0.000	890.86	1.10	979.95	0.000	7	139.99	$25,408	$3,556,936.65	193.053	0.193053	0.11	$75,534.50	$4,154.40	$79,688.90
2	0	0	0.0	0.000	148.24	1.10	163.07	0.000	7	23.30	$25,408	$591,882.88	193.053	0.193053	0.11	$12,569.12	$691.30	$13,260.43
3	0	0	0.0	0.000	435.61	1.10	479.17	0.000	7	68.45	$25,408	$1,739,261.81	193.053	0.193053	0.11	$36,934.67	$2,031.41	$38,966.07
4	0	0	0.0	0.000	8.20	1.10	9.02	0.000	7	1.29	$25,408	$32,756.39	193.053	0.193053	0.11	$695.61	$38.26	$733.87
5	0	0	0.0	0.000	1101.24	1.10	1211.36	0.000	7	173.05	$25,408	$4,396,906.65	193.053	0.193053	0.11	$93,371.96	$5,135.46	$98,507.42
6	0	0	0.0	0.000	22.17	1.10	24.39	0.000	7	3.48	$25,408	$88,532.06	193.053	0.193053	0.11	$1,880.05	$103.40	$1,983.45
7	0	0	0.0	0.000	13.30	1.10	14.63	0.000	7	2.09	$25,408	$53,116.30	193.053	0.193053	0.11	$1,127.97	$62.04	$1,190.01
8	0	0	0.0	0.000	73.62	1.10	80.98	0.000	7	11.57	$25,408	$293,927.15	193.053	0.193053	0.11	$6,241.79	$343.30	$6,585.09
9	0	0	0.0	0.000	1444.62	1.10	1589.08	0.000	7	227.01	$25,408	$5,767,912.48	193.053	0.193053	0.11	$122,486.41	$6,736.75	$129,223.16
10	0	0	0.0	0.000	123.65	1.10	136.02	0.000	7	19.43	$25,408	$493,713.95	193.053	0.193053	0.11	$10,484.43	$576.64	$11,061.07
11	0	0	0.0	0.000	13.66	1.10	15.02	0.000	7	2.15	$25,408	$54,534.42	193.053	0.193053	0.11	$1,158.08	$63.69	$1,221.78
12	0	0	0.0	0.000	52.69	1.10	57.96	0.000	7	8.28	$25,408	$210,360.68	193.053	0.193053	0.11	$4,467.18	$245.70	$4,712.88
13	0	0	0.0	0.000	258.80	1.10	284.68	0.000	7	40.67	$25,408	$1,033,315.09	193.053	0.193053	0.11	$21,943.30	$1,206.88	$23,150.19
14	0	0	0.0	0.000	69.81	1.10	76.79	0.000	7	10.97	$25,408	$278,712.74	194.053	0.194053	0.11	$5,949.35	$327.21	$6,276.57
15	0	0	0.0	0.000	1646.97	1.10	1811.67	0.000	7	258.81	$25,408	$6,575,826.64	195.053	0.195053	0.11	$141,089.82	$7,759.94	$148,849.76
16	0	0	0.0	0.000	799.61	1.10	879.57	0.000	7	125.65	$25,408	$3,192,580.61	193.053	0.193053	0.11	$67,797.10	$3,728.84	$71,525.94
17	0	0	0.0	0.000	90.78	1.10	99.86	0.000	7	14.27	$25,408	$362,467.06	193.053	0.193053	0.11	$7,697.29	$423.35	$8,120.64
18	0	0	0.0	0.000	6.65	1.10	7.32	0.000	7	1.05	$25,408	$26,557.09	193.053	0.193053	0.11	$563.96	$31.02	$594.98
19	0	0	0.0	0.000	102.93	1.10	113.22	0.000	7	16.17	$25,408	$410,949.76	193.053	0.193053	0.11	$8,726.86	$479.98	$9,206.84
20	0	0	0.0	0.000	118.08	1.10	129.89	0.000	7	18.56	$25,408	$471,455.61	193.053	0.193053	0.11	$10,011.75	$550.65	$10,562.40
21	0	0	0.0	0.000	27.70	1.10	30.47	0.000	7	4.35	$25,408	$110,605.86	193.053	0.193053	0.11	$2,348.81	$129.18	$2,477.99
22	0	0	0.0	0.000	6.52	1.10	7.17	0.000	7	1.02	$25,408	$26,015.49	193.053	0.193053	0.11	$552.46	$30.39	$582.85
23	0	0	0.0	0.000	90.16	1.10	99.18	0.000	7	14.17	$25,408	$359,999.32	193.053	0.193053	0.11	$7,644.88	$420.47	$8,065.35
24	0	0	0.0	0.000	2317.39	1.10	2549.13	0.000	7	364.16	$25,408	$9,252,596.97	193.053	0.193053	0.11	$196,486.58	$10,806.76	$207,293.34
25	0	0	0.0	0.000	3108.09	1.10	3418.90	0.000	7	488.41	$25,408	$12,409,628.46	193.053	0.193053	0.11	$263,528.76	$14,494.08	$278,022.84
26	0	0	0.0	0.000	1088.69	1.10	1197.56	0.000	7	171.08	$25,408	$4,346,793.34	193.053	0.193053	0.11	$92,307.76	$5,076.93	$97,384.69
27	0	0	0.0	0.000	365.85	1.10	402.43	0.000	7	57.49	$25,408	$1,460,719.67	193.053	0.193053	0.11	$31,019.59	$1,706.08	$32,725.67
28	0	0	0.0	0.000	1025.16	1.10	1127.67	0.000	7	161.10	$25,408	$4,093,124.92	193.053	0.193053	0.11	$86,920.90	$4,780.65	$91,701.55
29	0	0	0.0	0.000	29.91	1.10	32.90	0.000	7	4.70	$25,408	$119,435.31	193.053	0.193053	0.11	$2,536.31	$139.50	$2,675.80
30	0	0	0.0	0.000	203.09	1.10	223.40	0.000	7	31.91	$25,408	$810,863.67	193.053	0.193053	0.11	$17,219.36	$947.06	$18,166.43
31	0	0	0.0	0.000	371.57	1.10	408.73	0.000	7	58.39	$25,408	$1,483,578.91	193.053	0.193053	0.11	$31,505.03	$1,732.78	$33,237.81
32	0	0	0.0	0.000	158.14	1.10	173.96	0.000	7	24.85	$25,408	$631,408.41	193.053	0.193053	0.11	$13,408.48	$737.47	$14,145.95
33	0	0	0.0	0.000	5668.69	1.10	6235.56	0.000	7	890.79	$25,408	$22,633,299.22	193.053	0.193053	0.11	$480,636.89	$26,435.03	$507,071.92
34	0	0	0.0	0.000	570.97	1.10	628.07	0.000	7	89.72	$25,408	$2,279,699.05	193.053	0.193053	0.11	$48,411.30	$2,662.62	$51,073.92
35	0	0	0.0	0.000	671.08	1.10	738.19	0.000	7	105.46	$25,408	$2,679,408.85	193.053	0.193053	0.11	$56,899.47	$3,129.47	$60,028.94
36	0	0	0.0	0.000	104.07	1.10	114.48	0.000	7	16.35	$25,408	$415,537.73	193.053	0.193053	0.11	$8,824.29	$485.34	$9,309.62
37	0	0	0.0	0.000	3533.53	1.10	3886.89	0.000	7	555.27	$25,408	$14,108,292.37	193.053	0.193053	0.11	$299,601.30	$16,478.07	$316,079.37
38	0	0	0.0	0.000	653.38	1.10	718.72	0.000	7	102.67	$25,408	$2,608,750.12	193.053	0.193053	0.11	$55,398.97	$3,046.94	$58,445.92
39	0	0	0.0	0.000	11.26	1.10	12.39	0.000	7	1.77	$25,408	$44,956.31	193.053	0.193053	0.11	$954.68	$52.51	$1,007.19
40	0	0	0.0	0.000	112.49	1.10	123.74	0.000	7	17.68	$25,408	$449,153.29	193.053	0.193053	0.11	$9,538.14	$524.60	$10,062.74
41	0	0	0.0	0.000	139.19	1.10	153.10	0.000	7	21.87	$25,408	$555,725.94	193.053	0.193053	0.11	$11,801.30	$649.07	$12,450.37
42	0	0	0.0	0.000	22.77	1.10	25.04	0.000	7	3.58	$25,408	$90,897.04	193.053	0.193053	0.11	$1,930.27	$106.17	$2,036.44
43	0	0	0.0	0.000	129.87	1.10	142.86	0.000	7	20.41	$25,408	$518,523.02	193.053	0.193053	0.11	$11,011.27	$605.62	$11,616.89
44	0	0	0.0	0.000	3276.38	1.10	3604.02	0.000	7	514.86	$25,408	$13,081,565.84	193.053	0.193053	0.11	$277,797.91	$15,278.88	$293,076.79
45	0	0	0.0	0.000	1876.08	1.10	2063.68	0.000	7	294.81	$25,408	$7,490,581.10	193.053	0.193053	0.11	$159,068.71	$8,748.78	$167,817.49
46	0	0	0.0	0.000	158.91	1.10	174.80	0.000	7	24.97	$25,408	$634,475.32	193.053	0.193053	0.11	$13,473.61	$741.05	$14,214.66
47	0	0	0.0	0.000	715.46	1.10	787.01	0.000	7	112.43	$25,408	$2,856,623.04	193.053	0.193053	0.11	$60,662.76	$3,336.45	$63,999.21
48	0	0	0.0	0.000	32.37	1.10	35.61	0.000	7	5.09	$25,408	$129,243.81	193.053	0.193053	0.11	$2,744.60	$150.95	$2,895.55
49	0	0	0.0	0.000	1483.52	1.10	1631.87	0.000	7	233.12	$25,408	$5,923,231.63	193.053	0.193053	0.11	$125,784.74	$6,918.16	$132,702.90
50	0	0	0.0	0.000	187.56	1.10	206.31	0.000	7	29.47	$25,408	$748,848.24	193.053	0.193053	0.11	$15,902.41	$874.63	$16,777.05
51	0	0	0.0	0.000	94.51	1.10	103.96	0.000	7	14.85	$25,408	$377,353.60	193.053	0.193053	0.11	$8,013.42	$440.74	$8,454.15
52	0	0	0.0	0.000	0.45	1.10	0.49	0.000	7	0.07	$25,408	$1,780.57	193.053	0.193053	0.11	$37.81	$2.08	$39.89
53	0	0	0.0	0.000	152.06	1.10	167.27	0.000	7	23.90	$25,408	$607,137.21	193.053	0.193053	0.11	$12,893.06	$709.12	$13,602.18
54	0	0	0.0	0.000	19053.31	1.10	20958.64	0.000	7	2994.09	$25,408	$76,073,875.62	193.053	0.193053	0.11	$1,615,491.89	$88,852.05	$1,704,343.94
55	0	0	0.0	0.000	2861.38	1.10	3147.52	0.000	7	449.65	$25,408	$11,424,586.70	193.053	0.193053	0.11	$242,610.58	$13,343.58	$255,954.16
56	0	0	0.0	0.000	1311.24	1.10	1442.37	0.000	7	206.05	$25,408	$5,235,375.11	193.053	0.193053	0.11	$111,177.54	$6,114.76	$117,292.30
57	0	0	0.0	0.000	40.94	1.10	45.04	0.000	7	6.43	$25,408	$163,468.15	193.053	0.193053	0.11	$3,471.38	$190.93	$3,662.31
58	0	0	0.0	0.000	1172.91	1.10	1290.20	0.000	7	184.31	$25,408	$4,683,062.60	193.053	0.193053	0.11	$99,448.72	$5,469.68	$104,918.40
59	0	0	0.0	0.000	46.90	1.10	51.59	0.000	7	7.37	$25,408	$187,252.10	193.053	0.193053	0.11	$3,976.45	$218.70	$4,195.16
60	0	0	0.0	0.000	302.08	1.10	332.29	0.000	7	47.47	$25,408	$1,206,110.59	193.053	0.193053	0.11	$25,612.76	$1,408.70	$27,021.46
61	0	0	0.0	0.000	3.26	1.10	3.58	0.000	7	0.51	$25,408	$12,997.51	193.053	0.193053	0.11	$276.01	$15.18	$291.19
62	0	0	0.0	0.000	83.76	1.10	92.14	0.000	7	13.16	$25,408	$334,446.20	193.053	0.193053	0.11	$7,102.24	$390.62	$7,492.87
63	0	0	0.0	0.000	514.79	1.10	566.27	0.000	7	80.90	$25,408	$2,055,385.07	193.053	0.193053	0.11	$43,647.81	$2,400.63	$46,048.44
64	0	0	0.0	0.000	1048.84	1.10	1153.72	0.000	7	164.82	$25,408	$4,187,680.14	193.053	0.193053	0.11	$88,928.86	$4,891.09	$93,819.95
65	0	0	0.0	0.000	45.88	1.10	50.46	0.000	7	7.21	$25,408	$183,166.41	193.053	0.193053	0.11	$3,889.69	$213.93	$4,103.62
66	0	0	0.0	0.000	225.78	1.10	248.36	0.000	7	35.48	$25,408	$901,463.85	193.053	0.193053	0.11	$19,143.33	$1,052.88	$20,196.22
67	0	0	0.0	0.000	920.21	1.10	1012.23	0.000	7	144.60	$25,408	$3,674,094.43	193.053	0.193053	0.11	$78,022.44	$4,291.23	$82,313.68
68	0	0	0.0	0.000	18.53	1.10	20.38	0.000	7	2.91	$25,408	$73,980.47	193.053	0.193053	0.11	$1,571.04	$86.41	$1,657.44
69	0	0	0.0	0.000	12.97	1.10	14.27	0.000	7	2.04	$25,408	$51,789.13	193.053	0.193053	0.11	$1,099.79	$60.49	$1,160.27
70	0	0	0.0	0.000	618.34	1.10	680.17	0.000	7	97.17	$25,408	$2,468,824.36	193.053	0.193053	0.11	$52,427.53	$2,883.51	$55,311.05
71	0	0	0.0	0.000	11.94	1.10	13.14	0.000	7	1.88	$25,408	$47,689.52	193.053	0.193053	0.11	$1,012.73	$55.70	$1,068.43
72	0	0	0.0	0.000	1969.42	1.10	2166.36	0.000	7	309.48	$25,408	$7,863,281.64	193.053	0.193053	0.11	$166,983.31	$9,184.08	$176,167.39
73	0	0	0.0	0.000	32084.57	1.10	35293.03	0.000	7	5041.86	$25,408	$128,103,622.71	193.053	0.193053	0.11	$2,720,386.75	$149,621.27	$2,870,008.03
74	0	0	0.0	0.000	403.30	1.10	443.63	0.000	7	63.38	$25,408	$1,610,253.42	193.053	0.193053	0.11	$34,195.07	$1,880.73	$36,075.80
75	0	0	0.0	0.000	1142.88	1.10	1257.17	0.000	7	179.60	$25,408	$4,563,150.95	193.053	0.193053	0.11	$96,902.30	$5,329.63	$102,231.92
					99701.59		**109671.75**	**0**		**15667.39**		**$398,077,116.31**	**14481.975**			**$8,454,975.31**	**$465,023.64**	**$8,919,998.95**

RAM Site	RAM Vegetation Association	BVC no.	BVC description	MVG no.	MVG description	Condition Category	General Location	IBRA Subregion	Biotic disturbance score	Physical disturbance score	Vegetation stratum score	Introduced plant species score	Vegetation utilisation score	Landscape context score	Vegetation Condition Score (V1)	Conservation significance score	Threatened Ecological community Score	Threatened plant score	Threatened fauna score	UBS
RAM 30a	Atriplex vesicaria / Tecticornia medullosa low open shrubland (Tableland)	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands		SAAL	Arcoona Plateau	7.5	12	2	10	15.19	1.11	46.69	1.1	1	0	0.1	57.01
RAM30x	Atriplex vesicaria / Tecticornia medullosa low open shrubland (Tableland)	**NW SAAL 1.1**	Chenopod / Samphire low shrublands on stony plains and tableland	**SAAL 1**	Stony plains and tableland with chenopod shrublands		SAAL	Arcoona Plateau	5	15	8	10	12.66	1.06	50.66	1.1	1	0	0.1	59.07
									6.25	13.50	5.00	10.00	13.93	1.09	48.68	1.1	1	0	0.1	58.04
RAM 8N1	Stony tableland with Atriplex vesicaria / Tecticornia medullosa / Maireana aphylla / Maireana astrotricha low open shrubland	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands			Arcoona Plateau	5	15	8	10	15.93	1.11	53.93	1.1	1	0	0.1	65.85
RAM 8N2	Stony tableland with Atriplex vesicaria / Tecticornia medullosa / Maireana aphylla / Maireana astrotricha low open shrubland	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands			Arcoona Plateau	**5**	**15**	**8**	**10**	**11.1**	**1.11**	**49.1**	**1.1**	**1**	**0**	**0.1**	**59.95**
RAM 8N3	Stony tableland with Atriplex vesicaria / Tecticornia medullosa / Maireana aphylla / Maireana astrotricha low open shrubland	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands			Arcoona Plateau	5	15	8	10	6.16	1.11	44.16	1.1	1	0	0.1	53.92
RAM 8N4	Stony tableland with Atriplex vesicaria / Tecticornia medullosa / Maireana aphylla / Maireana astrotricha low open shrubland	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands			Arcoona Plateau	5	15	-2	10	13	1.11	41	1.1	1	0	0.1	50.06
RAM8a	Stony tableland with Atriplex vesicaria / Tecticornia medullosa / Maireana aphylla / Maireana astrotricha low open shrubland	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands			Arcoona Plateau	10	15	8	10	22.75	1.11	65.75	1.1	1	0	0.1	80.28
RAM8a	Stony tableland with Atriplex vesicaria / Tecticornia medullosa / Maireana aphylla / Maireana astrotricha low open shrubland	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands			Gawler Lakes	10	15	8	10	22.75	1.11	65.75	1.1	1	0	0.1	80.28
RAM8a	Stony tableland with Atriplex vesicaria / Tecticornia medullosa / Maireana aphylla / Maireana astrotricha low open shrubland	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands			Kingoonya	10	15	8	10	22.75	1.09	65.75	1.1	1	0	0.1	78.83
RAM8b	Stony tableland with Atriplex vesicaria / Tecticornia medullosa / Maireana aphylla / Maireana astrotricha low open shrubland	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands			Arcoona Plateau	0	15	8	10	22.75	1.11	55.75	1.1	1	0	0.1	68.07
RAM8b	Stony tableland with Atriplex vesicaria / Tecticornia medullosa / Maireana aphylla / Maireana astrotricha low open shrubland	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands			Gawler Lakes	0	15	8	10	22.75	1.11	55.75	1.1	1	0	0.1	68.07
RAM8b	Stony tableland with Atriplex vesicaria / Tecticornia medullosa / Maireana aphylla / Maireana astrotricha low open shrubland	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands			Kingoonya	0	15	8	10	22.75	1.09	55.75	1.1	1	0	0.1	66.84
RAM8c	Stony tableland with Atriplex vesicaria / Tecticornia medullosa / Maireana aphylla / Maireana astrotricha low open shrubland	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands			Arcoona Plateau	5	15	8	10	12.43	1.11	50.43	1.1	1	0	0.1	61.58
RAM8c	Stony tableland with Atriplex vesicaria / Tecticornia medullosa / Maireana aphylla / Maireana astrotricha low open shrubland	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands			Gawler Lakes	5	15	8	10	12.43	1.11	50.43	1.1	1	0	0.1	61.58
RAM8c	Stony tableland with Atriplex vesicaria / Tecticornia medullosa / Maireana aphylla / Maireana astrotricha low open shrubland	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands			Kingoonya	5	15	8	10	12.43	1.09	50.43	1.1	1	0	0.1	60.47
									5	15	7.23	10.00	16.92	1.11	54.15	1.1	1	0	0.1	65.83
RAM 18g	Maireana pyramidata low open shrubland +/- Maireana sedifolia / Atriplex vesicaria	NW SAAL 2.1	Chenopod low open shrublands +/- emergent trees	SAAL 2	Chenopod shrublands on flat to undulating plains			Arcoona Plateau	10	15	8	5	13.53	1.11	51.53	1.1	1	0	0.1	62.92
RAM 18a	Maireana pyramidata low open shrubland +/- Maireana sedifolia / Atriplex vesicaria	NW SAAL 2.1	Chenopod low open shrublands +/- emergent trees	SAAL 2	Chenopod shrublands on flat to undulating plains			Myall Plains	10	15	8	5	13.53	1.15	51.53	1.1	1	0	0.1	65.19
									8.33	15	9.33	5.83	14.55	1.11	53.05	1.1	1	0	0.1	64.92
RAM 03	Acacia papyrocarpa / Myoporum platycarpum low open woodland over chenopods (Maireana pyramidata / Maireana sedifolia / Atriplex vesicaria)	NW SAAL 4.1	Low open Western Myall woodlands with a Chenopod shrub understorey	SAAL 4	Open woodlands of Western Myall and Mulga on sand plains and low dunes			Gawler Lakes	7.5	12	16	10	14.06	1.11	59.56	1.1	1	0	0.1	72.72
RAM 03	Acacia papyrocarpa / Myoporum platycarpum low open woodland over chenopods (Maireana pyramidata / Maireana sedifolia / Atriplex vesicaria)	NW SAAL 4.1	Low open Western Myall woodlands with a Chenopod shrub understorey	SAAL 4	Open woodlands of Western Myall and Mulga on sand plains and low dunes			Myall Plains	7.5	12	16	10	14.06	1.09	59.56	1.1	1	0	0.1	71.41
RAM 3x	Acacia papyrocarpa / Myoporum platycarpum low open woodland over chenopods (Maireana pyramidata / Maireana sedifolia / Atriplex vesicaria)	NW SAAL 4.1	Low open Western Myall woodlands with a Chenopod shrub understorey	SAAL 4	Open woodlands of Western Myall and Mulga on sand plains and low dunes			Gawler Lakes	7.5	15	16	10	7.9	1.11	56.4	1.1	1	0	0.1	68.86
RAM 3x	Acacia papyrocarpa / Myoporum platycarpum low open woodland over chenopods (Maireana pyramidata / Maireana sedifolia / Atriplex vesicaria)	NW SAAL 4.1	Low open Western Myall woodlands with a Chenopod shrub understorey	SAAL 4	Open woodlands of Western Myall and Mulga on sand plains and low dunes			Arcoona Plateau	7.5	15	16	10	7.9	1.11	56.4	1.1	1	0	0.1	68.86
									7.5	13.5	16	10	10.98	1.11	57.98	1.1	1	0	0.1	70.46
RAM 10a	Dune crest with Acacia ligulata / Dodonaea viscosa +/- Callitris glaucophylla tall open shrubland	**NW SAAL 5.1**	Low dune crests with tall shrubland +/- Cypress-pine woodlands	**SAAL 5**	Woodlands and shrublands on low dunes and dune crests			Kingoonya	10	15	16	10	9.25	1.09	60.25	1.1	1	0	0.1	72.24
RAM 10b	Dune crest with Acacia ligulata / Dodonaea viscosa +/- Callitris glaucophylla tall open shrubland	**NW SAAL 5.1**	Low dune crests with tall shrubland +/- Cypress-pine woodlands	**SAAL 5**	Woodlands and shrublands on low dunes and dune crests			Kingoonya	10	12	10	10	8.92	1.09	50.92	1.1	1	0	0.1	61.05
									10	13.5	13	10	9.09	1.09	55.59	1.1	1	0	0.1	66.65
RAM 12a	Dune crest with Callitris glaucophylla open woodland +/- tall shrubs (Acacia ligulata / Dodonaea viscosa ssp.)	NW SAAL 5.2	Cypress-pine woodlands on dune crests	**SAAL 5**	Woodlands and shrublands on low dunes and dune crests			Kingoonya	7.5	15	16	10	14.63	1.09	63.13	1.1	1	0	0.1	75.69
RAM 12b	Dune crest with Callitris glaucophylla open woodland +/- tall shrubs (Acacia ligulata / Dodonaea viscosa ssp.)	NW SAAL 5.2	Cypress-pine woodlands on dune crests	**SAAL 5**	Woodlands and shrublands on low dunes and dune crests			Kingoonya	7.5	15	16	10	13.47	1.09	61.97	1.1	1	0	0.1	74.3
									7.5	15	16	10	14.05	1.09	62.55	1.1	1	0	0.1	75.00
LERAM 213a	Bladder Saltbush (Atriplex vesicaria), Samphire (Tecticornia medullosa), Black Bluebush (Maireana pyramidata) with or without Low Bluebush (M. astrotricha) and/or Woolly Bluebush (M.eriantha) low chenopod shrubland (stony tableland)	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands				7.5	15	2	10	12.11	1.06	46.61	1.1	1	0	0.1	54.35
LERAM 213b	Bladder Saltbush (Atriplex vesicaria), Samphire (Tecticornia medullosa), Black Bluebush (Maireana pyramidata) with or without Low Bluebush (M. astrotricha) and/or Woolly Bluebush (M.eriantha) low chenopod shrubland (stony tableland)	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands				7.5	15	2	10	9.41	1.06	43.91	1.1	1	0	0.1	51.2
LERAM 213x	Bladder Saltbush (Atriplex vesicaria), Samphire (Tecticornia medullosa), Black Bluebush (Maireana pyramidata) with or without Low Bluebush (M. astrotricha) and/or Woolly Bluebush (M.eriantha) low chenopod shrubland (stony tableland)	NW SAAL 1.1	Chenopod / Samphire low shrublands on stony plains and tableland	SAAL 1	Stony plains and tableland with chenopod shrublands				7.5	15	8	10	13.75	1.06	54.25	1.1	1	0	0.1	63.26
									7.5	15	4	10	11.76	1.06	48.26	1.1	1	0	0.1	56.27

Appendix I-6:
Significant Impact Assessment

NORTHERN WATER PROJECT
EPBC ACT SIGNIFICANT IMPACT ASSESSMENT

TABLE OF CONTENTS

1 INTRODUCTION 1
2 METHODS 1
2.1 Ecological Assessments 1
2.2 Likelihood of Occurrence 2
2.3 Significant Impact Criteria 5
3 ASSESSMENT OF IMPACT SIGNIFICANCE 7
3.1 Listed threatened ecological communities 9
3.2 Listed threatened species 9
3.2.1 Known or likely threatened species 9
3.2.2 Possible or unlikely threatened species 21
3.3 Migratory species (not listed as threatened) 33
4 LIMITATIONS 37
5 REFERENCES 38

LIST OF TABLES

Table 2-1: Likelihood of occurrence criteria 2
Table 2-2: Significant impact criteria for Critically Endangered or Endangered Ecological Communities 5
Table 2-3: Significant impact criteria for Critically Endangered or Endangered Species 5
Table 2-4: Significant impact criteria for Vulnerable Species 6
Table 2-5: Significant impact criteria for Migratory Species 6
Table 3-1: Significant impact assessment – Threatened Ecological Communities 9
Table 3-2: Significant impact assessment – known or likely threatened species 9
Table 3-3: Significant Impact Assessment – Possible or unlikely threatened species 21
Table 3-4: Significant impact assessment – migratory species (not listed as threatened species) 33

1 INTRODUCTION

This document presents an assessment of the significance of residual impacts of the Northern Water project (the Project) on the following Matters of National Environmental Significance (MNES) protected under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act):

- Listed threatened species and ecological communities
- Listed migratory species.

This assessment addresses all terrestrial species that have been recorded in the Study Area or predicted as occurring in the Study Area by the EPBC Act Protected Matters Search Tool (refer to Section 15.3 in the EIS for explanation of Study Areas and details of desktop assessments).

This assessment also addresses marine species (both listed threatened and listed migratory species) in support of Chapter 11 Marine Environment. All marine species listed in a Protected Matters Search on the Project Area (plus a 5 km buffer) (accessed 10 November 2025) that was included with the Project's EPBC referral have been addressed.

Note that species listed only as 'Marine' are not considered in this assessment, as there is no controlling provision (e.g. Commonwealth marine areas) that would make them relevant to a MNES.

The information in the tables presented in this document is based on the Significant Impact Assessment that was submitted with the Project's EPBC referral (Referral 2025/10397).

2 METHODS

2.1 Ecological Assessments

The assessment for terrestrial species is based on ecological assessments undertaken for the Project as detailed in Section 15.3 of Chapter 15 in the EIS and contained in Appendices I-1 to I-6, and the data sources outlined below.

The assessment for marine species utilises information contained in Chapter 11 and Appendix G-3 (Marine Ecology Assessment) in the EIS and the data sources outlined below.

The following data sources were used to support assessments:

- EPBC Act Protected Matters Search Tool (PMST) searches: The PMST search was undertaken within 5 km of the Project footprint (i.e. the disturbance footprint) that falls in the Eyre Peninsula (EP) Landscape Management Region (LMR), and within 50 km of the Project footprint that falls in the South Australian Arid Lands (SAAL) LMR. (This is consistent with the requirements of the South Australian Native Vegetation Council's vegetation assessment methodology).
- Biological Database of South Australia (BDBSA): Searches of the BDBSA were undertaken, focussing on the area within 5 km of the sections of the Project footprint

within the EP LMR, and within 50 km of the sections of the Project footprint within the SAAL LMR.

- Atlas of Living Australia (ALA) (ALA, 2025)
- Species Profile and Threats (SPRAT) Database (DCCEEW, 2025)
- Nature Maps tool (DEW, 2025)
- Information provided by local stakeholders
- Other published information on individual species.

2.2 Likelihood of Occurrence

This assessment presents the likelihood of occurrence for all EPBC-listed species predicted by the PMST or recorded within 5 km of the Project Area. It also covers a number of species that have been predicted or recorded at a greater distance from the Project Area, as the methodology used for assessments for the Project uses database search results for a 50 km buffer in the South Australian Arid Lands LMR (as described in Section 15.3 of Chapter 15 in the EIS). This ensures a thorough coverage of all potentially occurring species.

The likelihood of occurrence has been derived directly from the following sources:

- The Terrestrial Ecology Assessment (EIS Appendix I-1) has been used to derive the likelihood of occurrence of threatened ecological communities and threatened and migratory terrestrial species (other than migratory birds).

  All species identified in Appendix I-1 have been addressed in this significant impact assessment, other than a number of species that were excluded as they were clearly not relevant to the Project (i.e. they were not predicted by the PMST within 5 km of the Project Area, were identified as only occurring close to the limits of the 50 km buffer of the Project (principally in the southern Flinders Ranges), do not have suitable habitat in the Project Area and were considered unlikely to occur).
- The Migratory Birds Impact Assessment (EIS Appendix I-4) has been used to derive the likelihood of occurrence of migratory bird species. All species identified in Appendix I-4 have been addressed in this significant impact assessment.
- The likelihood assessment presented in Appendix A of this document has been used to derive the likelihood of occurrence of threatened and migratory marine mammals, sharks and turtles.

The assessments used the criteria in Table 2-1 to categorise the likelihood of occurrence. These criteria are based on standard criteria defined by the South Australian Native Vegetation Council's methodology for use in vegetation and habitat assessments and vegetation clearance applications.

Table 2-1: Likelihood of occurrence criteria

Likelihood status	Definition
Does not occur[1]	• No records of the species in the Study Area (5 km EP LMR or 50 km SAAL LMR); and • No suitable habitat for the species within the Project Area; and

[1] The 'does not occur' category is only used in the migratory birds impact assessment (Appendix I-4)

Likelihood status	Definition
	• Known species distribution (literature) does not overlap with the Project Area.
Unlikely	• Recorded recently (since 1995), but the area provides no habitat or feeding resources for the species, including perching, roosting or nesting opportunities, corridor for movement or shelter; and / or • Recorded historically (prior to 1995); however, suitable habitat does not occur, and species of similar habitat requirements have not been recorded in the area; or • No records despite adequate survey effort
Possible	• Recorded recently (since 1995), the area falls inside the known distribution of the species, but the area provides only limited habitat or feeding resources for the species; or • Species is only represented by historical records (prior to 1995) but suitable habitat and feeding resources are present in the area, and species of similar habitat needs have been recorded in the area.
Likely	• Recorded recently (since 1995) in the Study Area, the area falls within the known distribution of the species and the area provides habitat or feeding resources for the species.
Known	• Recorded in the last 10 years within the Project footprint or multiple records within ~1 km of the Project footprint; and the species does not have highly specific habitat requirements and/or suitable niche habitat is present, and the area falls within the known range of the species distribution; or • The species was recorded as part of field surveys for the Project.

The search buffer used in the South Australian Native Vegetation Council's vegetation assessment methodology (used to determine likelihood in EIS Appendix I-1 Terrestrial ecology assessment) is different for the Eyre Peninsula (5 km) and South Australian Arid Lands (50 km) Landscape Management Regions. Consequently, likelihood determinations for both Landscape Management Regions are presented in this significant impact assessment. Where the species has not been recorded or predicted by the PMST in the Landscape Management Region, likelihood is presented as N/A.

Landscape Management Regions are shown in Figure 2-1.

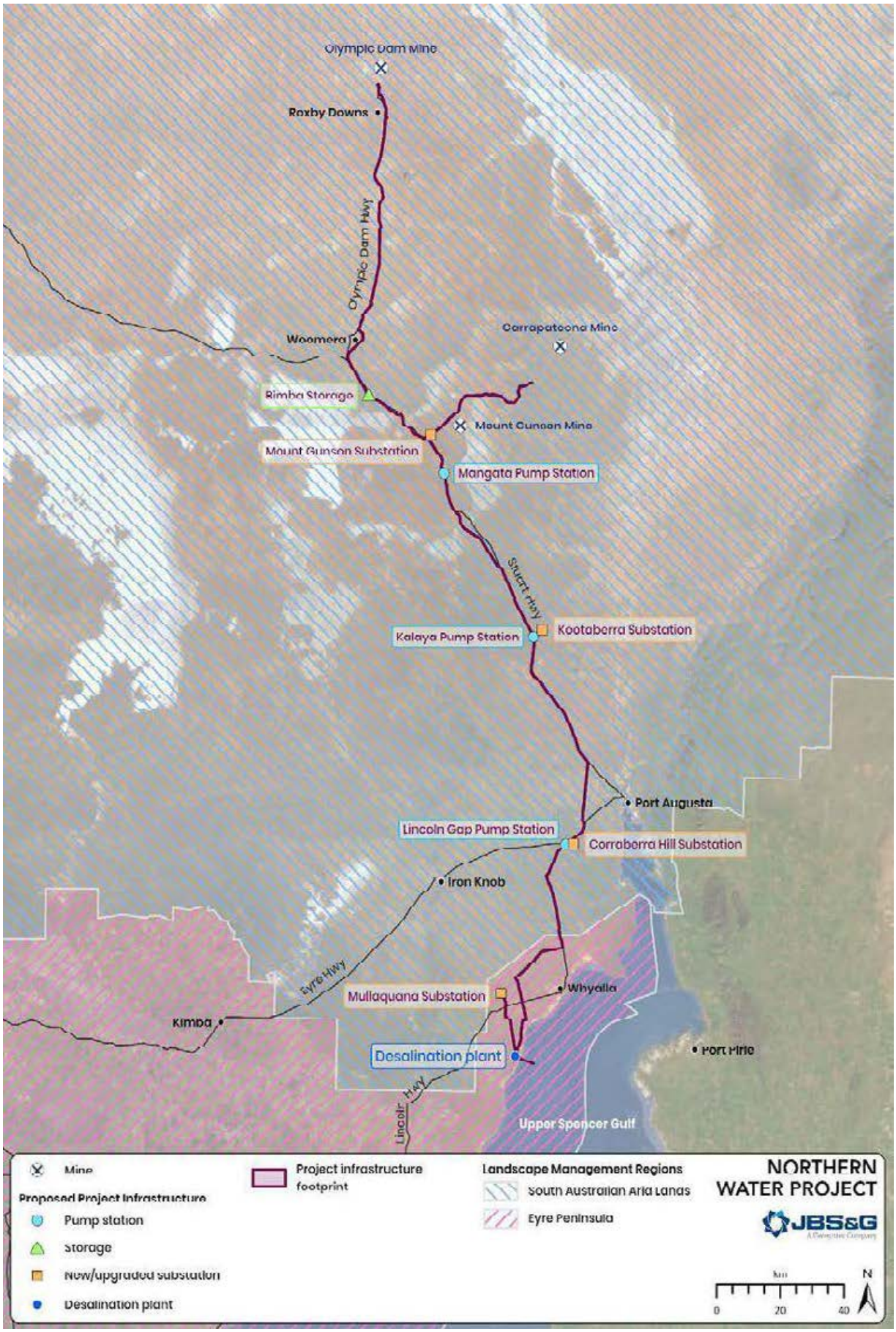


Figure 2-1: Landscape Management Regions

2.3 Significant Impact Criteria

The likelihood of significant impact to species that may occur in the Project Area was assessed using the criteria outlined in EPBC Act *Significant Impact Guidelines 1.1 - Matters of National Environmental Significance* (DotE, 2013) criteria. These are summarised in Table 2-2 to Table 2-5.

A detailed assessment against these criteria has been undertaken for all species that were considered possible, likely or known. This detailed assessment is provided in Section 4 of this report, with the exception of migratory shorebirds, which are assessed in detail in Appendix I-4 (with the outcome summarised in Section 3 of this report).

Table 2-2: Significant impact criteria for Critically Endangered or Endangered Ecological Communities

Criteria	Criteria reference used in assessment
Reduce the extent of an ecological community	Extent
Fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines	Fragmentation
Adversely affect habitat critical to the survival of an ecological community	Habitat critical
Modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns	Abiotic factors
Cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting	Species composition
Cause a substantial reduction in the quality or integrity of an ecological community, including but not limited: • assisting invasive species, that are harmful to the listed ecological community, to become established, or • causing regular mobilisation of fertilizers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community	Quality / integrity
Interfere with the recovery of an ecological community	Recovery

Table 2-3: Significant impact criteria for Critically Endangered or Endangered Species

Criteria	Criteria reference used in assessment
Lead to a long-term decrease in the size of a population	Population size
Reduce the area of occupancy of the species	AOO
Fragment an existing population into two or more populations	Fragmentation
Adversely affect habitat critical to the survival of a species	Habitat critical

Criteria	Criteria reference used in assessment
Disrupt the breeding cycle of a population	Breeding cycle
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Habitat quality / availability
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	Invasive species
Introduce disease that may cause the species to decline	Disease
Interfere with the recovery of the species	Recovery

Table 2-4: Significant impact criteria for Vulnerable Species

Criteria	Criteria reference used in assessment
Lead to a long-term decrease in the size of an important population of a species	Important population size
Reduce the area of occupancy of an important population	AOO
Fragment an existing important population into two or more populations	Fragmentation
Adversely affect habitat critical to the survival of a species	habitat critical
Disrupt the breeding cycle of an important population	Breeding cycle
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Habitat quality/availability
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	Invasive species
Introduce disease that may cause the species to decline	Disease
Interfere substantially with the recovery of the species	Recovery

Table 2-5: Significant impact criteria for Migratory Species

Criteria	Criteria reference used in assessment
Substantially modify (including by fragmenting, altering fire regimes, nutrient cycles or hydrological cycles), destroy or isolate an area of important habitat for a migratory species	Habitat modification
Result in an invasive species that is harmful to a migratory species becoming established in an area of important habitat for migratory species	Invasive species
Seriously disrupt the life cycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of a population of a migratory species	Life cycle

3 ASSESSMENT OF IMPACT SIGNIFICANCE

The assessment of whether the Project is likely to result in significant impacts to listed threatened species and ecological communities or listed migratory species is presented in Table 3-1 to Table 3-4. The assessment has been undertaken on the basis that the avoidance and mitigation measures detailed in Section 15.6 of Chapter 15 in the EIS are in place.

The assessment concludes that significant impact is **unlikely for all listed threatened species and ecological communities, except** for Western Grasswren (Gawler Ranges) (*Amytornis textilis myall*) (Vulnerable), where significant impacts are considered possible. Although disturbance will largely be temporary and represents a very small proportion of available habitat for Western Grasswren in the region, impacts from the Project could be considered to trigger the criteria *adversely affect habitat critical to the survival of a species* (in the short term).

Other threatened species that are known or likely to occur are not considered likely to be significantly impacted, as follows:

- Southern Whiteface (*Aphelocephala leucopsis*) (Vulnerable) – Although suitable habitat for this widely distributed habitat generalist occurs in patches throughout the full length of the Project Area, any impact from the Project is considered proportionately very small compared with the overall size of the population and extent of habitat in the bioregion and across southern Australia, and is not considered important, notable, or of consequence with regards to its context or intensity.
- Blue-winged Parrot (*Neophema chrysostoma*) (Vulnerable) – The Project Area is unlikely to support a specific important population of this species, and the species does not breed in the region. Disturbance as a result of the Project is likely to represent a loss of occasional foraging habitat only, representing a very small fraction of total available foraging habitat for this species across much of Australia.
- Sharp-tailed Sandpiper (*Calidris acuminata*) (Vulnerable) – There are nil to limited suitable aquatic habitats in the Project footprint and no spatially reliable / recent records in the Project footprint. The Sharp-tailed Sandpiper has a low possibility of occurrence in the Project footprint (i.e. only when water is present, but other suitable habitat would be extensive under such conditions). The Project will not impact core habitats.
- Australian Fairy Tern (*Sternula nereis nereis*) (Vulnerable) and Little Tern (*Sterna albifrons*) (Vulnerable) – The Project will not directly impact any coastal habitat and no impacts to any population are likely to occur.
- Southern Right Whale (*Eubalaena australis*) (Endangered) – Southern Right Whales are occasionally present in Spencer Gulf between April and November. Potential impacts of noise from piling during construction (if required) if a whale is present in the vicinity would be short term and can be mitigated through implementing standard mitigation measures for underwater noise. Salinity beyond the immediate vicinity of the diffusers would remain within the range of natural seasonal variability, with no anticipated impact on highly mobile, transient Southern Right Whale individuals that may occur in the Project Area.

- Plains Mouse (*Pseudomys australis*) (Vulnerable) – The species has not been detected during surveys for the Project. With only very low numbers of Plains Mouse potentially present within the Project footprint (an assumed presence only), potential impacts to the species as a result of temporary disturbance for installation of the water transfer system followed by site rehabilitation are not considered to be significant, given the very broad range across which the species persists, and the species' ability to recover during boom periods, and to spread into adjacent habitats.
- Grey-headed Flying-fox (*Pteropus poliocephalus*) (Vulnerable) – The nearest recognised important population is located in the Adelaide Botanic Gardens, approximately 275 km from the Project footprint. While there are two records in the vicinity of the study area and camp has been reported as occurring in Port Augusta, the Project does not impact suitable roosting and foraging habitat and is not likely to have any impact on the species if it is present.
- White Shark (*Carcharodon carcharias*) (Vulnerable) – There are few records in Upper Spencer Gulf, with most records and mapped biologically important foraging areas located further south, however individuals could occur in the area. The Project is not likely to have any impact on highly mobile White Shark individuals that may occur in the Project Area.

All other threatened species that are possibly or unlikely occurrences are also not likely to be significantly impacted.

The assessment also concludes that a significant impact is **unlikely for all listed migratory species.** The Project avoids key inland and coastal aquatic habitats which are important to migratory bird species, there is limited presence of migratory species or habitat within the Project footprint and important habitats (as identified in the National Shorebird Directory Driessen, et al., 2025) are avoided.

The intake and outfall tunnel infrastructure will be installed by tunnel boring underneath the nearshore coastal environments at the Mullaquana Station site, and as such there will be no direct impact to intertidal migratory shorebird habitats. The desalination plant site is also a significant distance from the shoreline (e.g. the closest component, the intake pump station, is approximately 700 m west of the intertidal habitats at the seaward edge of the mangroves) and is separated from intertidal areas by low dunes. Consequently, there is very limited potential for indirect impact to any migratory shorebirds that may be present in the area during construction or operation.

One marine migratory species (Humpback Whale *Megaptera novaeangliae*) is a possible occurrence as an occasional visitor, but is also not likely to be impacted.

3.1 Listed threatened ecological communities

The PMST identified one threatened ecological community (as shown in Table 3-1) – Subtropical and Temperate Coastal Saltmarsh (Vulnerable). This community is not likely to be impacted to any extent, and as it is listed in the Vulnerable category, it is not a matter of national environmental significance for the purposes of Part 3 of the EPBC Act (requirements for environmental approvals). Consequently, it is not considered further in this assessment.

Table 3-1: Significant impact assessment – Threatened Ecological Communities

Community	Likelihood of occurrence	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
Subtropical and Temperate Coastal Saltmarsh (VU)	Known (EP), Unlikely (SAAL)	N/A - This TEC does not constitute a MNES. The significant impact guidelines (DotE, 2013) state that listed ecological communities in the Vulnerable category are not MNES for the purposes of Part 3 of the EPBC Act (requirements for environmental approvals).		

3.2 Listed threatened species

Fifty-four terrestrial threatened species (including migratory birds and oceanic birds) and six exclusively marine threatened species were identified as potentially occurring in the Project Area[2]. Of these, eight terrestrial and two marine species were considered known or likely to occur, with the remainder considered possible or unlikely.

A significant impact assessment for the species that were considered likely or known to occur is presented in Table 3-2 in Section 3.2.1. The significant impact assessment for species that were considered as possible or unlikely occurrences is presented in Table 3-3 in Section 3.2.2.

3.2.1 Known or likely threatened species

Table 3-2: Significant impact assessment – known or likely threatened species

Species[3]	Likelihood of occurrence[4]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
Birds				
Western Grasswren (Gawler Ranges) ***Amytornis textilis myall*** (VU, V)	Known (EP), Known (SAAL)*	• Standard mitigation measures as detailed in Section 15.6 of the EIS. • Minimise construction corridor width in areas of preferred habitat where possible. • Avoid vegetation clearance in preferred habitat during breeding season.	• Clearance of approximately 136 ha of potential preferred habitat and 266 ha of atypical habitat for construction of the water transfer system and electricity infrastructure, the majority of which will be rehabilitated. • Clearance of approximately 189 ha of atypical habitat (which is considered only marginally suitable) for construction at the desalination plant site.	**Significant impacts are considered possible** **Important population size: Unlikely** All populations of the species are considered to have high conservation value (DotE, 2014). The portion of the Project Area adjacent to the south, north and west of Whyalla (including in the Department of Defence's Cultana training Area) overlaps with the known distribution of Western Grasswren (Black, et al., 2011; Black & Gower, 2017), and the species was detected during surveys for the Project (Appendix I-1). The action involves clearance of approximately 136 ha of preferred habitat and 266 ha of atypical habitat for the water transfer system and electricity infrastructure, of which the majority can be rehabilitated. This temporary disturbance will be spread over approximately 100 km of the alignment and represents a very small proportion of available habitat in the region. It is not considered likely to lead to a long term decrease in the size of an important population of the species. The low chenopod shrubland at the desalination plant site has been conservatively categorised as 'atypical habitat' for Western Grasswren, however, extensive survey efforts have not recorded any Western Grasswren within the proposed site, despite targeted and intensive search methods. The habitat present is considered marginal and unlikely to support core populations or serve as important breeding habitat for the species. While it is possible that Western Grasswren may opportunistically use the area during periods of high abundance or favourable conditions,

[2] Two conservation dependent species (*Galeorhinus galeus* and *Seriolella brama*) were also predicted to occur by the PMST. Conservation dependent species are not a MNES and are not considered further in this report.
[3] **EPBC Act status**: Critically Endangered (CE); Endangered (EN); Vulnerable (VU); Migratory Wetland (MW); Migratory Terrestrial (MT); Migratory Marine (MM). **SA NPW status**: Endangered (E); Vulnerable (V); Rare (R).
[4] Likelihood of occurrence source:
* Jacobs (2026) (Refer Appendix I-1). Note EP refers to Eyre Peninsula Landscape Management Region and SAAL refers to South Australian Arid Lands Landscape Management Region
** Lathwida (2026) (Refer Appendix I-4)
*** This report (Refer Appendix A)

Species[3]	Likelihood of occurrence[4]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
			• Disturbance of individuals in the vicinity of the Project during construction • Low potential for individuals to be impacted by collisions with vehicles or earth moving equipment. • Low potential for increase in feral animal predation as existing tracks occur in the Project Area. • Low potential for habitat degradation due to invasive species and disease introduction with proposed weed controls and hygiene practices.	the site does not appear to provide the structural characteristics typically associated with key breeding or foraging habitat. Consequently, clearance of approximately 189 ha of this marginal habitat at the desalination plant site is not likely to reduce the size of an important population. **AOO: Unlikely** The majority of the Project Area is outside of the known area of occupation of this species (Black, et al., 2009), however the portion of the Project Area adjacent to and north and south of Whyalla overlaps with the known historic records of Western Grasswren and field surveys identified the species north and west of Whyalla. Although design changes have been implemented to avoid and minimise impacts to this species, the action still requires an estimated 136 ha of preferred habitat and 266 ha of atypical habitat to be disturbed for construction of the water transfer system and electricity infrastructure, of which the majority can be rehabilitated. Post construction and rehabilitation, the infrastructure in place is unlikely to prevent local movements of this species. Although the clearance may result in a temporary reduction in available habitat, the action is unlikely to result in a reduced area of occupancy over the longer term. **Fragmentation: Not Likely** The area of the Project around Whyalla (and immediately north and south) is within the range of the Western Grasswren population. Existing access tracks will be utilised wherever possible, with permanent disturbance for new informal access tracks limited to an approximately 3 m width for low traffic volume access. The majority of the pipeline will be buried with the construction disturbance rehabilitated. Transmission towers can be micro-sited to minimise potential impact to high-quality habitats. The narrow, linear cleared construction corridor could discourage direct movement of individuals across the cleared area during construction, however it is not expected to present a complete barrier to Western Grasswren. Although Western Grasswren are predominantly terrestrial and do not fly high above the ground, grasswrens are known to cross open areas by flying at a low height (Black & Gower, 2017). It is therefore expected that individuals could cross the cleared construction right of way if necessary. In addition, the alignment of the Project's linear infrastructure is generally close to existing cleared corridors for most of its length (e.g. highways, train line). These do not appear to present a barrier to Western Grasswren movement, based on the apparent dispersion of the species to the east of Lincoln Highway near Whyalla in recent years. Post construction, the infrastructure in place is unlikely to prevent local movements of this species. Hence the Project is unlikely to lead to fragmentation of an important population of this species. **Habitat critical: Possible** Minimal clearance of suitable preferred habitat will occur adjacent to and north and south of Whyalla (including the Cultana Training Area). There are extensive areas of preferred and atypical (but highly suitable) habitats and numerous records for the species in this area. As noted above, the vegetation at the desalination plant site is considered marginal and unlikely to support core populations or serve as important breeding habitat for the species, and does not appear to provide the structural characteristics typically associated with key breeding or foraging habitat. Construction of the water transfer system and electricity infrastructure requires an estimated 136 ha of preferred habitat to be disturbed, of which 120 ha can be rehabilitated. In addition, approximately 266 ha of atypical habitat would be disturbed, of which 227 ha can be rehabilitated. Habitat considered important for the survival of the species primarily includes Blackbush/Australian Boxthorn low shrublands along drainage lines, low rocky hills and in semi-arid woodlands, with habitat of secondary importance including low woodlands of Western Myall (DotE, 2014). The Project Area avoids drainage lines where possible, and such areas that contain the majority of the preferred/critical habitat for the species. Being on the eastern extent of the area of occupancy (Black, et al., 2009), the loss of potential quality habitat has been mitigated with route selection (to avoid critical habitat wherever possible and align with existing disturbance). Weed, hygiene controls and rehabilitation will seek to maintain the quality of habitat immediately adjacent the Project. Given the mitigation measures proposed it is considered unlikely that critical habitat will be adversely affected, however some habitat utilised by the species will be temporarily cleared. Given the pipeline will be buried, in the longer term this habitat is

Species[3]	Likelihood of occurrence[4]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
				likely to rehabilitate, hence, it is considered possible that some habitat critical to the survival of the species may be adversely affected, but only in the short-term and the area of impact will be minimised as much as possible. **Breeding cycle: Not Likely** A contiguous well documented population with numerous records occurs in the study area and extends significantly to the north and west throughout extensive and interconnected habitat. Vegetation clearance in areas of preferred habitat during the breeding season will be avoided. Vegetation clearance in areas of atypical habitat during the breeding season could potentially impact breeding success of a small number of individuals. Any impacts would be restricted to the immediate vicinity of the pipeline and transmission lines and would not impact the breeding cycle at the population level, as the population is widely distributed throughout its range. Once constructed, the transmission lines, pipeline and access tracks or low traffic volume maintenance access are not expected to disrupt movement across the landscape for this species, so impacts to breeding are not anticipated. **Habitat quality / availability: Not Likely** There are extensive areas of preferred and atypical (but highly suitable) habitats and numerous records for the species in the vicinity of the Project. The Project Area avoids drainage lines where possible, and such areas contain the majority of the preferred/critical habitat for the species. The loss of potential quality habitat has been mitigated with route selection (to avoid critical habitat wherever possible and align with existing disturbance). Weed and hygiene controls will seek to maintain the quality of habitat immediately adjacent the Project (and bordering critical habitat centred within the area of occupancy). Given the mitigation measures proposed it is considered unlikely that critical habitat will be modified, destroyed, isolated or decreased to the extent that the species is likely to decline. Given the pipeline will be buried, in the longer term this habitat is likely to rehabilitate, and will continue to be contiguous with extensive areas of suitable preferred and atypical habitats that occur across the Eyre Peninsula. **Invasive species and disease: Not Likely** Standard controls are proposed during construction and operation phases to address the potential for impact from invasive species or diseases. As such, any introduction of weeds would not result in establishment and degradation of preferred habitat. The Project Area is not in a high-risk Phytophthora area (DIT, 2021). Similarly, predation from cats and foxes already exists in the region, along with grazing pressure from native, domestic and feral animals (e.g. kangaroos, sheep, goats and rabbits). Management measures include weed and pest controls during and post construction as well as vehicle hygiene practices, so establishment of new weed and pest species or diseases in the Project Area is not considered likely. The action is therefore not expected to result in the introduction of invasive species or disease which may cause this threatened species to decline. **Recovery: Not Likely** There is no recovery plan for the species but key objectives of recovery of this species involve conserving extant populations (DotE, 2014). The key populations/records of this species occur west of the majority of the Project Area (Black, et al., 2009; Black, et al., 2011; ALA, 2025). Key recovery actions include protecting preferred habitat, locating additional populations, research into grazing and impacts into impacts of grazing and predation (DotE, 2014). As such, the proposed action will not substantially interfere with the recovery of the species.
Southern Whiteface ***Aphelocephala leucopsis*** (VU, -)	Known (EP), Known (SAAL)*	• Standard mitigation measures as detailed in Section 15.6 of the EIS.	• Clearance of habitat for construction of water transfer system and electricity infrastructure, the majority of which will be rehabilitated. • Disturbance of individuals in the vicinity of the Project during construction	**No significant impacts expected** **Important population size: Not Likely** No important populations of Southern Whiteface are identified in the Conservation Advice for the species (DCCEEW, 2023). The species occurs across much of Australia (excluding the tropics) favouring a broad range of habitats including open woodlands and shrublands with grassy or shrub understorey and an intact litter layer. Suitable habitat for this widely distributed habitat generally occurs in patches throughout the full length of the Project Area. There are abundant, regular, and recent records of the species from Mullaquana Station, around Whyalla and Port Augusta through to the Woomera and Olympic Dam regions. Individuals present within the Project would be part of the continuous population across the majority of Australia, rather than part of a specifically identified important population.

Species[3]	Likelihood of occurrence[4]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
			• Low potential for individuals to be impacted by collisions with vehicles. • Low potential for increase in feral animal predation as existing tracks occur in the Project Area. • Low potential for habitat degradation due to invasive species and disease introduction with proposed weed controls and hygiene practices.	Declines in Southern Whiteface numbers are linked to broadscale agriculture removing habitat (Ehkme et al., 2021), studies on the impact of agriculture on Southern Whiteface has found no effect of habitat fragment area, isolation, fragmentation, quality or vegetation complexity (Maron & Lill, 2005). The Project falls within the Gawler IBRA Region, which has retained 88% of remnant native vegetation, noting some modification from rangeland grazing. As noted in Maron & Lill (2005) the loss of complexity or quality from grazing is not expected to impact this species. The project clearance within this region is predominantly temporary with generally only minor access tracks remaining away from the small number of surface facilities, which is not expected to alter habitat suitability for Southern Whiteface. Any impact from the Project is considered proportionately very small compared with the overall size of the species population in the bioregion and across southern Australia, and is not considered important, notable, or of consequence with regards to its context or intensity. **AOO: Not Likely** No important populations are defined for the Southern Whiteface in the recent Conservation Advice, and the species is broadly distributed as a continuous population across much of Australia south of the tropics. Numerous areas of potentially suitable habitat for the species occur within the Project Area. These areas align with numerous historic records of the species across the majority of the alignment. As such, if the individuals present are considered to be part of an important population, the Project may be considered to trigger this significant impact criteria as a result of the potential to incur a small reduction (proportionately) in the area of occupancy of this species through habitat clearance. However, the impacts are considered proportionately very small compared with the overall area of occupancy of the species across much of southern Australia, and are not considered important, notable, or of consequence with regards to its context or intensity. **Fragmentation: Not Likely** Whilst the Project Area may be considered to be within the extent of occurrence of the species, no important populations are defined in the Conservation Advice, and the species is mapped as a single continuous population across much of Australia south of the tropics. The disturbance footprint for the Project represents a fraction of the overall distribution of the species across much of Australia, and does not cut any known population in two. Although the Project will result in removal of suitable habitat for the species, once constructed, the Project will not stop movement of the species, or restrict gene flow. Potential impacts as a result of the Project are the clearance of habitat for the pipeline which will be predominantly rehabilitated following construction, and represent only very small areas compared to the much broader species distribution across much of Australia. Studies on the impact of agriculture on Southern Whiteface has found no effect of habitat fragment area, isolation, fragmentation, quality or vegetation complexity (Maron & Lill, 2005). The Project is considered unlikely to cause fragmentation of any population (or an important population) into two or more populations. **Habitat critical: Not Likely** Habitat deemed critical to the survival of the species is documented in the conservation advice for the species (DCCEEW, 2023) and includes areas of relatively undisturbed open woodland and shrublands with an understorey of grasses of shrubs, habitat with low tree densities and an herbaceous understorey litter over which provides essential foraging habitat, and living and dead trees with hollows and crevices which are essential for roosting and nesting. This habitat is widespread along the Project Area, as described above. As such, the Project could potentially be considered to trigger this significant impact criteria as a result of the potential to adversely affect habitat which is documented (DCCEEW, 2023) as critical to the survival of the species, despite being widespread across large portions of Australia. However, the impacts are considered proportionately very small compared with the overall presence of available habitat, and are not considered important, notable, or of consequence with regards to its context or intensity. **Breeding cycle: Not Likely** As above, no important populations of the species are identified in the recent conservation advice for the species (DCCEEW, 2023), and the species has a very broad distribution across mainland Australia. Habitat deemed critical for roosting and nesting includes open woodland and shrubland supporting hollows and crevices, and the species is known to nest in fence posts and other artificial structures with cervices. Impacts to this type of habitat within the

Species[3]	Likelihood of occurrence[4]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
				Project Area are limited compared to the broader availability of similar habitat adjacent the proposed Project Area. Once constructed, Southern Whiteface will move freely across the Project Area. Isolated clearance of suitable breeding habitat is not expected to disrupt the breeding cycle of an important population of this species. **Habitat quality / availability: Not Likely** As above, the Project is expected to impact upon preferred open woodland or shrubland habitat preferred by the species, however this is only a small proportion of habitat compared with what is available across the species distribution across large parts of Australia. The species occurs broadly across much of mainland Australia, and therefore any impacts resulting to preferred habitat from the Project are unlikely to significantly impact on habitat availability or quality to an extent which would lead to a decline in the overall species. **Invasive species and disease: Not Likely** The Project Area is not within a high-risk or moderate risk Phytophthora area (DIT, 2021). Management measures include weed controls during and post construction as well as vehicle hygiene practices, so establishment of new weed species or diseases in the Project Area or along access routes is not considered likely. Tracks exist throughout the Project alignment within pastoral stations or agricultural land, so the proposal is not expected to result in an increase in abundance of feral predator species. The action is therefore not expected to result in the introduction of invasive species or disease which are harmful to this species' habitat. **Recovery: Not Likely** There is no recovery plan in place for this species. There are no adopted recovery plans or threat abatement plans nominated for this species. The proposed Project will not interfere with the recovery of the species.
Sharp-tailed Sandpiper ***Calidris acuminata*** (VU / MW, -)	Likely**	• Standard mitigation measures as detailed in Section 15.6 of the EIS.	• Low potential for disturbance / indirect impact. • Possible loss of small areas of ephemeral habitat. • Injury or mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. • Injury or mortality from collisions with vehicles traversing access track. • Introduction of invasive weed species or disease.	**No significant impacts expected** Refer to Migratory Bird Impact Assessment (Appendix I-4) for detailed assessment. The Project avoids key inland and coastal aquatic habitats which are important to migratory bird species, there is limited presence of migratory species or habitat within the Project footprint and important habitats (as identified in the Australian National Directory of Important Migratory Shorebird Habitat (Driessen, et al., 2025)) are avoided.
Blue-winged Parrot ***Neophema chrysostoma*** (VU, V)	Known (EP), Known (SAAL)*	• Standard mitigation measures as detailed in Section 15.6 of the EIS.	• Clearance of potential foraging habitat for construction of water transfer system and electricity infrastructure, the majority of which will be rehabilitated. No nesting	**No Significant Impacts Expected** **Important population size: Not Likely** The Blue-winged Parrot prefers open grassy woodlands and is predominantly found in the south-eastern portions of Australia, occasionally extending into arid and semi-arid Australia during non-breeding periods. As such, no important populations of the species are considered to occur in the Project Area. The total disturbance as a result of the Project is likely to represent a loss of occasional foraging habitat only (predominantly low open chenopod shrublands), representing a very small fraction of total available habitat for this species across much of Australia. The action is considered unlikely to lead to a long-term decrease in size of an important population of this species.

Species[3]	Likelihood of occurrence[4]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
			habitat occurs within the alignment. • Low potential for individuals to be impacted by collisions with vehicles. • Low potential for increase in feral animal predation as existing tracks occur in the Project Area. • Low potential for habitat degradation due to invasive species and disease introduction with proposed weed controls and hygiene practices.	**AOO: Not Likely** The Project Area is unlikely to support a specific important population of this species, and the species does not breed in the semi-arid and arid regions of South Australia. Minor clearing of habitat potentially supporting taller trees which are used by the species may be required within ephemeral drainage lines crossed by the pipeline alignment, but will be managed to reduce tree clearance wherever practicable. Regionally insignificant clearance of predominantly low open chenopod shrublands which could be considered general foraging habitat for the species, and the ability of the species to move around and above the development once construction is complete, indicates that the action is unlikely to lead to a reduction to the area of occupancy of an important population of this species. **Fragmentation: Not Likely** The Project Area is unlikely to support any particular population of note, with the species breeding in south-eastern mainland Australia and on Tasmania. As such, any disturbance of predominantly low vegetation on the alignment could not be deemed to fragment an existing population into two or more populations. Once constructed, the species will be able to continue to move freely above and around the development and the Project is therefore unlikely to inhibit movement nor restrict gene flow of this highly mobile species across the landscape. An absence of larger areas of open grassy woodland which are preferred by the species is also noted. The action is considered unlikely to cause fragmentation of any population into two or more populations, with no specific important populations documented for the species or Project Area. **Habitat critical: Not Likely** The Blue-winged Parrot prefers open grassy woodlands and is predominantly found in the south-eastern portions of Australia, occasionally extending into arid and semi-arid Australia during non-breeding periods. Surveys note an absence of open grassy woodlands within the Project Area (Appendix I-1). As such, the Project Area is unlikely to support an important population of this species or any breeding activity. Minor clearance of potentially present taller trees within some ephemeral drainage lines may be required, however, the majority of the project disturbance is low open chenopod shrubland or taller shrubland, which is unlikely to adversely affect habitat critical to the survival of this species, particularly given the species is predominantly located in South-eastern Australia and does not breed in the Project Area or along the access routes. **Breeding cycle: Not Likely** The Blue-winged Parrot breeds in localised areas restricted to the south-east of mainland Australia and Tasmania. As such, the Project will not disrupt the breeding cycle of the species. **Habitat quality / availability: Not Likely** The Blue-winged Parrot is largely distributed across the south-east of mainland Australia and into Tasmania. It does not breed in the Project Area and prefers open grassy woodland, only occasionally extending into arid and semi-arid areas traversed by the Project. The action is unlikely to significantly impact on habitat extent and quality which would lead to a decline in the species. **Invasive species and disease: Not Likely** It is considered unlikely that a significant population of Blue-winged Parrot exists in the Project Area and breeding does not occur in the Project Area. As such, any introduction of weeds is not considered likely to result in establishment and degradation of preferred habitat for the Blue-winged Parrot which would be detrimental to the species. The Project Area is not in a high-risk (or medium risk) Phytophthora area (DIT, 2021). Management measures include weed controls during and post construction as well as vehicle hygiene practices, so establishment of new weed species or diseases in the Project Area is not considered likely. Existing tracks traverse the Project Area in numerous locations, so the proposal is not expected to result in an increase in abundance of feral predator species. The action is therefore not expected to result in the introduction of invasive species or disease which are harmful to this threatened species or the species' habitat. **Recovery: Not Likely**

Species[3]	Likelihood of occurrence[4]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
				There is currently no recovery plan in place for this recently listed species, though it is recommended that one be produced. There are no adopted recovery plans or threat abatement plans nominated for this species. The proposed Project will not interfere with the recovery of the species.
Little Tern ***Sterna albifrons*** **(VU / MM, -)**	Likely**	• Standard mitigation measures as detailed in Section 15.6 of the EIS.	• Low potential for disturbance / indirect impact	**No significant impacts expected** Refer to Migratory Bird Impact Assessment (Appendix I-4) for detailed assessment. The Project avoids key inland and coastal aquatic habitats which are important to migratory bird species, there is limited presence of migratory species or habitat within the Project footprint and important habitats (as identified in the Australian National Directory of Important Migratory Shorebird Habitat (Driessen, et al., 2025)) are avoided.
Australian Fairy Tern ***Sternula nereis nereis*** **(VU, E)**	Likely (EP), Unlikely (SAAL)*	• Standard mitigation measures as detailed in Section 15.6 of the EIS.	• Low potential for disturbance / indirect impact.	**No significant impacts expected** **Important population size: Not Likely** This species is found along the coast of the southern two thirds of Australia and is documented at several sites along the coastline of the Eyre Peninsula (DAWE, 2022; ALA, 2025), where it forages offshore, in estuaries and wetlands. Breeding occurs in nests on sheltered sandy beaches, spits and banks above the high tide line and below vegetation. No important populations are defined for the species. As tunnel boring will be used to install the intake and outfall, the only above-ground Project component near the coastline is the proposed desalination plant site at Mullaquana Station, the closest component of which (the intake pump station) is 700 m west of the seaward edge of the mangroves and will not impact any potential habitat. No impacts to any population are likely to occur. **AOO: Not Likely** The area of occupancy of this species is widespread along the southern two thirds of Australia's coastline. The Project will not impact suitable habitat and will not reduce the area of occupancy. **Fragmentation: Not Likely** As above, there are no important populations defined for the species, and this highly mobile species can easily avoid any minor disturbance occurring during construction. **Habitat critical: Not Likely** Given the minimal area of coastline adjacent to the Project footprint and the absence of direct impacts on coastal habitats, it is not likely that the Project will affect habitat critical to this mainly coastal species which breeds on sandy beaches and forages offshore or in estuaries and wetlands near the coast. **Breeding cycle: Not Likely** Given the species breeds on sandy beaches, a habitat which will not be impacted by the Project and no important populations have been defined for the species (DAWE, 2022), the breeding cycle of an important population is unlikely to be impacted. **Habitat quality / availability: Not Likely** There is minimal potential breeding habitat present within the Project Area due to the absence of sandy beaches. Project infrastructure will be tunnelled under the coastal interface. Therefore, quality habitat important to the survival of the species is unlikely to be modified, destroyed or removed to the extent that the species will decline. **Invasive species and disease: Not Likely** No known colonies of this beach-nesting species occur near the Project Area and there is no suitable nesting habitat in the Project footprint. Management measures include weed controls during and post construction as well as vehicle hygiene practices, so establishment of new weed species or diseases in the Project Area is not considered likely. The action is therefore not expected to result in the introduction of invasive weed or species or disease which may cause this species to decline as a result of impacts to the species or the species' habitat. **Recovery: Not Likely** There is no specific recovery plan for this species. Conservation actions relate to preventing loss of key habitat for breeding and foraging. Core breeding and foraging grounds do not occur within the Project Area, therefore, with mitigation measures, the proposed action is unlikely to interfere with recovery of the species.

Species[3]	Likelihood of occurrence[4]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
Mammals				
Southern Right Whale *Eubalaena australis* **(EN / MM, V)**	Known to occasionally occur***	• Standard mitigation measures as detailed in Section 11.7 of the EIS.	• During construction, the risk of adverse underwater noise or vibration impacts from construction is limited to piling, if required. • Potential vessel strike during construction (highly unlikely).	**No significant impacts expected** **Population size: Not likely** Southern Right Whales are occasionally present in Spencer Gulf between April and November as they move between Southern Ocean feeding grounds and breeding areas. Potential impacts during construction as a result of noise from piling (if required) in the unlikely event that whales are present would be short term and can be mitigated through implementing standard mitigation measures for underwater noise. During operations, noise is expected to be limited to water-borne noise from intake pumps propagating up the intake pipe and riser structures. Studies from previous desalination plants indicate the risk of adverse underwater noise impacts is low and confined to the immediate vicinity of the source. The return water from the desalination plant is unlikely to have any impact on whales. Preliminary hydrodynamic plume modelling suggests a small highly localised zone of potential ecological effect at the diffusers. The mid-field hydrodynamic modelling indicates that 95% of species would be protected from impacts associated with the return water within ~500 m from the diffusers. Salinity beyond the immediate vicinity of the diffusers would remain within the range of natural seasonal variability, with no anticipated impact on highly mobile, transient Southern Right Whale individuals that may occur in the Project Area. No direct or indirect impacts are expected and operation would not lead to a long-term decrease in the size of the population. **AOO: Not likely** Southern Right Whales rarely occur in Spencer Gulf, the Project will not reduce the area of occupancy of the species. Short term and highly localised impacts in the vicinity of the outfall may occur but would not reduce the area of occupancy of the species. **Fragmentation: Not likely** The proposed project will not fragment an existing population into two or more populations. The Project will not create a barrier to movement. **Habitat critical: Not likely** Critical habitat is not defined for the species. Habitat critical for the survival of the species is identified as all reproductive biologically important areas, and in South Australia includes Fowlers Bay, Head of Bight and Encounter Bay. Biologically important seasonal habitat is present along the whole southern Australian coastline between Perth and Encounter Bay. This represents an area that may be used for whale movement between regions that support biologically important behaviours such as the movement of whales along the coast with their calves, and movement between offshore feeding and nearshore breeding grounds. The Project will not adversely affect habitat critical to the survival of the species, nor will it materially affect the extensive biologically important seasonal habitat. **Breeding cycle: Not likely** Reproductive areas occur at Head of Bight west of Eyre Peninsula, Encounter Bay and Fowlers Bay. Breeding will not be interrupted by the Project. **Habitat quality / availability: Not likely** Depending on the construction methodology, piling may have temporary and localised noise impacts, though this is not expected to modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline. **Invasive species: Not likely** The coastal habitat traversed by the species is extensive, and it is highly unlikely that the Project construction or operation would result in harmful invasive species becoming established in the habitat to the extent that any negative impact to Southern Right Whales would occur. **Disease: Not likely**

Species[3]	Likelihood of occurrence[4]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
				Similarly, the Project is not expected to introduce disease that could cause the species to decline. **Recovery: Not likely** The Project is not expected to interfere with the recovery of the species in any way. The Draft National Recovery Plan for the Southern Right Whale (DCCEEW, 2022) identifies habitat degradation, underwater noise, and vessel collision as key threats to the survival of the species. Minor construction disturbance to the rarely used habitat present along the coast will be temporary and localised and is not expected to have any effect on species recovery. Noise disturbance will be conservatively managed in accordance with Underwater Noise Guidelines (DIT, 2023) such that Project related noise will not prevent Southern Right Whales utilising the surrounding area, cause injury (temporary or permanent threshold shift) or lead to behavioural disturbance. The risk of vessel collision increases with vessel size and speed (Izzo & Gillanders, 2015). Construction vessels are not expected to be large or and extensive shipping movements are not likely to be required, and vessel speed restrictions will be implemented. Awareness and detection campaigns will be included in contractor inductions. Although the risk of vessel collision is low, effective vessel management will further minimise the potential impact to whales. The proposed mitigation and management measures will ensure that Project related activities do not result in mortality, injury, or disturbance to biologically important behaviours, and the recovery of the species will not be affected.
Plains Mouse ***Pseudomys australis*** (VU, V)	N/A (EP), Likely (SAAL)*	• Standard mitigation measures as detailed in Section 15.6 of the EIS. • Minimise construction width in areas of refuge habitat where possible. • Restrict travel on access tracks during construction and operation to daylight hours, as far as practicable, to avoid potential impacts to this nocturnally active species.	• Disturbance of approximately 151 ha of potential Plains Mouse refuge habitat, the majority of which will be rehabilitated. • Potential for individuals to be impacted by trenching if present. • Low potential for increase in feral animal predation as existing tracks occur in the Project Area. • Low potential for habitat degradation due to invasive species and disease introduction with proposed weed controls and hygiene practices.	**Significant impacts are considered unlikely** **Important population size: Not likely** This species has a highly irruptive life cycle and uses a broad range of habitat types during 'boom' years in the population cycles. The potential habitat for this species during these periods is widespread across the stony tablelands traversed by the northern portion of the Project, including portions of the Carrapateena lateral branch, as the Project Area supports numerous gilgai depressions on cracking clays within stony plains with characteristic Canegrass swamps. The Project footprint overlaps with small areas characterised as *Eragrostis australasica* tall grassland with run-on depressions (e.g. likely supporting cracking clays and numerous gilgai with Swamp Canegrass) which is key refuge habitat for Plains Mouse. In addition, there are broad areas of *Atriplex vesicaria/Tecticornia medullosa +/- Maireana eriantha* low open shrubland which also supports numerous smaller gilgai within stony plains country, and which are characteristic of the low open shrublands utilised by the Plains Mouse, particularly during irruption years. The Plains Mouse habitat assessment undertaken for the Project identified 123.1 ha of suitable refuge habitat and 10.4 ha of low suitability refuge habitat within the disturbance footprint of the main transfer pipeline alignment (Appendix I-2). Similarly, within the disturbance footprint along the Carrapateena lateral branch, 17.1 ha of suitable refuge habitat and 0.5 ha of low suitability refuge habitat have been defined. A total of approximately 151 ha of Plains Mouse refuge habitat was mapped within the disturbance footprint for the Project, the majority of which will be rehabilitated following construction. This represents a very small proportion of habitat available in the region. The species has not been detected during surveys for the Project (refer Appendix I-1, and Appendix I-3), however it is possible that small groups of Plains mouse could be present in the landscape in a few secluded refuge habitat sites, from where they can spread to the surrounding habitat following the next period of prolonged rainfall and resultant seed production (Appendix I-3). The Plains mouse targeted survey (Appendix I-3) concludes that with only very low numbers of Plains Mouse potentially present within the Project's Disturbance Footprint (an assumed presence only), potential impacts to the species as a result of temporary disturbance for installation of the water transfer system followed by site rehabilitation are not considered to be significant, given the very broad range across which the species persists, and the species' ability to recover during boom periods, and to spread into adjacent habitats. Consequently, the Project is unlikely to reduce the size of an important population of the species. **AOO: Not likely** Portions of the Project alignment (e.g. the Carrapateena lateral) overlap with stony tablelands country which supports suitable habitat as well as potential refuge habitat for Plains Mouse. An estimated 151 ha of potential refuge habitat is within the Project footprint, of which much can be rehabilitated. These areas are within proximity to historic

Species[3]	Likelihood of occurrence[4]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
				records of the species, noting that this species has a highly irruptive life cycle and that during boom years, records can be collected well outside of refuge habitats or important population strongholds. The species is therefore considered likely to occur in the Project Area, and if present, the population in this region is considered important in that any population which persists through drought conditions are considered likely to be important, including those on the Arcoona Tableland (Moseby, 2012). General habitat use during irruptive cycles is broad spread across large areas in the region and not confined to the Project Area. The Area of Occupancy is estimated to be 2,000,000 ha (Moseby, 2012). Disturbance of refuge habitat for the Project represents a very small proportion of this (0.008%) and is considered regionally insignificant. The majority of disturbance area will be rehabilitated over time. Given the large area of occupancy, irruptive nature of the species, low numbers potentially present in the Project footprint and temporary nature of disturbance, the Project is not likely to reduce the Area of Occupancy of the species. **Fragmentation: Not Likely** An informal permanent access track (with very low traffic volumes) and temporary disturbance for pipeline installation followed by burial and rehabilitation, are considered unlikely to restrict movement nor restrict gene flow of this species across the landscape. Therefore, the action is considered unlikely to cause fragmentation of an important population of the species into two or more populations. **Habitat critical: Not Likely** Potential stony tablelands habitat is widespread for this species regionally, and with mitigation measures proposed to minimise clearance and avoid impacts to important refuge habitat (drainage channels and depressions with deep cracking clays) wherever possible, the action is considered unlikely to significantly impact habitat considered critical for survival of the species. **Breeding cycle: Not Likely** An informal permanent access track (with very low traffic volumes) and temporary disturbance for pipeline installation followed by burial and rehabilitation are considered unlikely to restrict movement of individuals nor restrict gene flow of this species across the landscape. As such, the development is considered unlikely to interrupt the breeding cycle of an important population. **Habitat quality / availability: Not Likely** Minimal clearance of suitable habitat important for the species (i.e. refuge habitat) is anticipated with implementation of proposed control measures, and the action is therefore unlikely to significantly impact on habitat extent and quality which would lead to a broader decline in the species population. **Invasive species and disease: Not Likely** The Project Area is not in a high-risk Phytophthora area in the vicinity of potential Plains Mouse habitat (DIT, 2021). Management measures include weed controls during and post construction as well as vehicle hygiene practices, so establishment of new weed species or diseases in the Project Area is not considered likely. Existing tracks exist within the Project Area, so the proposal is not expected to result in an increase in abundance of feral predator species. The action is therefore not expected to result in the introduction of invasive species or disease which are harmful to this threatened species. **Recovery: Not Likely** Recovery actions for this species include better understanding of locations and distributions of important populations and critical habitat, and to better understand threats to current populations (Moseby, 2012). The proposed action will not interfere with the recovery of the species.
Grey-headed Flying-fox ***Pteropus poliocephalus*** **(VU, R)**	Likely (EP), Likely (SAAL)*	• Standard mitigation measures as detailed in Section 15.6 of the EIS.	• Disturbance of potential foraging habitat outside the foraging range of	**No significant impacts expected** **Important population size: Not Likely** Important populations are defined in the Recovery Plan (DAWE, 2021). The nearest important population is located in the Adelaide Botanic Gardens, approximately 275 km from the nearest section of the Project footprint (DAWE, 2021).

Species[3]	Likelihood of occurrence[4]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
			nearest important population. • Injury or mortality from collisions with powerline conductors if present.	While two records were identified in the vicinity of the study area and camp has been reported as occurring in Port Augusta (DEW, 2025), it is well outside the standard foraging range of 30 – 40 km from the important population (DAWE, 2021). The action will not impact suitable foraging or roosting habitat and is unlikely to lead to a long-term decrease in an important population of this species. **AOO: Not Likely** The nearest recognised important population is located approximately 275 km from the nearest section of the Project footprint. The Project will not impact suitable foraging or roosting habitat. The action is therefore unlikely to lead to a significant reduction to the area of occupation of an important population of this species. **Fragmentation: Not Likely** The informal access track, and temporary disturbance for pipeline installation followed by burial and rehabilitation, and clearance for tower pads, is considered unlikely to inhibit movement nor restrict gene flow of this species across the landscape. The action is thus considered unlikely to cause fragmentation of any population, or an important population which is not documented from the Project Area. **Habitat critical: Not Likely** Habitat critical to the survival of the species is defined as vegetation communities containing winter and early spring flowering plants, foraging habitat within 10 km of nationally important populations or roosting nests. Given the distance to the nearest nationally important population (Adelaide) and absence of impact to foraging or roosting habitat in the Project footprint, the action is considered unlikely to significantly impact habitat critical for survival of the species. **Breeding cycle: Not Likely** Given the distance to the nearest important population (Adelaide) the Project is unlikely to disrupt the breeding cycle of an important population. **Habitat quality / availability: Not Likely** Minimal clearance of potentially usable habitat is anticipated. With implementation of proposed control measures, and the action is therefore unlikely to significantly impact on habitat extent and quality which would lead to a decline in the species population. **Invasive species and disease: Not Likely** Not identified as a risk to this species in the national recovery plan (DAWE, 2021). **Recovery: Not Likely** Recovery actions for this species include habitat identification, protection, restoration and monitoring and stakeholder education. The proposed action will not interfere with the recovery of the species.
Sharks				
White Shark ***Carcharodon carcharias*** **(VU, MM)**	Likely***	• Standard mitigation measures as detailed in Section 11.7 of the EIS.	• Construction impacts not anticipated, however potential for localised underwater noise impacts if piling.	**No significant impacts expected** **Important population size: Not likely** In Australia the White Shark population is widely dispersed between North West Cape in WA, across southern Australia and to central Queensland. White sharks are largely solitary and are known to travel long distances, and aggregate in certain areas, such as offshore islands associated with seal colonies (DSEWPaC, 2013). The population throughout its Australian range is addressed as requiring protection by the Recovery Plan (DSEWPaC, 2013). Although considered an important population, it is dispersed across a very vast area and in low density. Individuals may occur in the Project Area, however are not likely to be impacted by construction activities. Preliminary hydrodynamic plume modelling suggests a small highly localised zone of potential ecological effect at the diffusers. The mid-field hydrodynamic modelling indicates that 95% of species would be protected from impacts associated with the return water within ~500 m from the diffusers. Salinity beyond the immediate vicinity of the diffusers would remain within the range of natural seasonal variability, with no anticipated impact on highly mobile White Shark individuals that may occur in the Project Area. The Project will not lead to a long-term decrease in the population size.

Species[3]	Likelihood of occurrence[4]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
				AOO and fragmentation: Not likely The project will not reduce the area of occupancy for this transient species, nor will it fragment a population. The Project will not have a material marine footprint in the context of the species range and will not create a barrier to movement of the species. **Habitat critical: Not likely** Critical habitat is not defined for the species. Areas where high density foraging has been observed are considered biologically important and may represent habitat critical for the survival of the species (DSEWPaC, 2013). Biologically important foraging areas are spread along much of the southern and western coast in SA and are mapped within Spencer Gulf approximately 50 km south of the site. Infrastructure will be situated well outside these mapped foraging areas and the Project will not affect important habitat during construction or operation. **Breeding cycle: Not likely** Breeding areas are not well understood for the species (DSEWPaC, 2013) but due to the transient nature of the species and the fact that the Mullaquana Station site is not known to provide important habitat, breeding is not thought to occur at the site and reproductive behaviour will not be interrupted by the Project. **Habitat quality / availability: Not likely** Minor impacts to a small area which represents a negligible proportion of potential area of the extensive available habitat (continental shelf and beyond) may occur in the vicinity of the outfall, though this would not modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline. **Invasive species: Not likely** The White Shark habitat is very extensive, and it is highly unlikely that the Project construction or operation would result in harmful invasive species becoming established in the habitat to the extent that any negative impact to White Sharks would occur. **Disease: Not likely** Similarly, the Project is not expected to introduce disease that could cause the species to decline. **Recovery: Not likely** The Project is not expected to interfere with the recovery of the species in any way. The primary threats to recovery of the species as identified in the Recovery Plan for the White Shark (DSEWPaC, 2013), are mortality as result of accidental or targeted capture by commercial and recreational fishers, and shark control activities. The Recovery Plan also considers habitat modification and degradation in near coast areas as a potential threat to the species. Any potential disturbance is not expected to affect biologically important habitats over 50 km away. Potential noise disturbance will be managed in accordance with Underwater Noise Guidelines (DIT, 2023) such that Project related noise will not cause disturbance to the species. When exposed to low frequency and higher levels of sounds, Great White Sharks tend to withdraw from the sound source. Consequently, individuals (if present) would only be minimally impacted (temporarily displaced) by any underwater construction noise as they are highly mobile and can be expected to move away from the noise source.

3.2.2 Possible or unlikely threatened species

Table 3-3: Significant Impact Assessment – Possible or unlikely threatened species

Species[5]	Likelihood of occurrence[6]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
Flora				
Corunna Daisy *Brachyscome muelleri* (EN, E)	N/A[7] (EP), Unlikely (SAAL)*	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur
Greencomb Spider-orchid *Caladenia tensa* (EN, -)	N/A (EP), Unlikely (SAAL)*	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur
Frankenia plicata (EN, V)	Unlikely (EP), Unlikely (SAAL)*	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Desert Greenhood *Pterostylis xerophila* (VU, V)	Unlikely (EP), Unlikely (SAAL)*	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Yellow Swainson-pea *Swainsona pyrophila* (VU, R)	Unlikely (EP), Unlikely (SAAL)*	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Birds				
Thick-billed Grasswren *Amytornis modestus* (VU, -)	N/A (EP), Possible (SAAL)*	• Standard mitigation measures as detailed in Section 15.6 of the EIS.	• Clearance of potentially suitable habitat • Low potential for habitat degradation due to invasive species and disease introduction with proposed weed controls and hygiene practices. • Low potential for increased feral animal predation and or competition if present.	**No significant impacts expected** **Important population size: Not Likely** The Project will require clearance of potentially suitable habitat, however the Project is located south and east of the range/extent of recent records of this species. There are recent records (from 2014) located approximately 20 km from the Project Area, which is considered the southern extent of the widely dispersed 'North West' population (subspecies *A. m. indulkanna*) (Garnett & Baker, 2021). Targeted surveys in the area over the last several years have not identified this species (Appendix I-1). Clearance of preferred habitat within the Project Area will be regionally insignificant when compared with habitat regionally and the species distribution, with the key threat being widespread habitat degradation through pastoral grazing (i.e. outside of the control of the Project). It is therefore considered unlikely that the action would lead to a long-term decrease in the size of a known important population. **AOO: Not Likely** As discussed above the Project will involve minimal clearance of potentially suitable habitat noting minimal recent records in the area and no individuals identified over multiple targeted surveys in the area. Therefore, the area of occupancy areas of the 'North West' population/subspecies will not be reduced. **Fragmentation: Not Likely** Once constructed, the proposed action is not expected to hinder movement of the species across the landscape, as the pipeline will be buried. Whilst the northern end of the Project occurs in proximity to the southern extent of the

[5] **EPBC Act status:** Critically Endangered (CE); Endangered (EN); Vulnerable (VU); Migratory Wetland (MW); Migratory Terrestrial (MT); Migratory Marine (MM) **SA NPW status:** Endangered (E); Vulnerable (V); Rare (R).
[6] Likelihood of occurrence source:
* Jacobs (2026) (Refer Appendix I-1). Note EP refers to Eyre Peninsula Landscape Management Region and SAAL refers to South Australian Arid Lands Landscape Management Region
** Lathwida (2026) (Refer Appendix I-4)
*** This report (Refer Appendix A)
[7] N/A indicates species was not predicted or recorded in the search area in this Landscape Management Region

Species[5]	Likelihood of occurrence[6]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
				'North West' population (subspecies *A. m. indulkanna*), given the limited records, limited preferred habitat and alignment of Project footprint with existing Olympic Dam Highway, it is considered unlikely the action would result in fragmentation of the North West population. **Habitat critical: Not Likely** Whilst the northern portion of the alignment is within the southern extent of the most widely distributed subspecies of the species and includes isolated sections of potentially suitable habitat, the preferred Oodnadatta Saltbush/Cottonbush low shrubland on gibber was not detected (Black & Gower, 2017). The majority of the proposed alignment is not within the preferred habitat for this species. Stronghold populations of the species are well documented (Black & Gower, 2017; Black, et al., 2011; ALA, 2025) and occur mostly north, but there are also several records 25–45km north-east and east of the northern end of the Project Area (10 km from Lake Torrens). Environmental management measures will further limit the potential for weed and pest incursion that may impact on habitat quality or rates of predation. Once constructed, the proposal is not expected to impact movement across the landscape or impact breeding activity. As such, no adverse impacts are expected to habitat which is considered critical for the survival of the species as a whole. **Breeding cycle: Not Likely** Whilst the northern end of the Project Area occurs in proximity to the southern extent of the 'North West' population (as defined in Black et al. 2011 and Black and Gower 2017), there are few records close to the Project Area, limited preferred habitat and the species has not been detected in recent surveys for the Project and nearby projects. Any clearance of potential habitat (adjacent an existing highway) associated with the infrastructure is considered unlikely to disrupt the breeding cycle of this species. Once constructed the pipeline, which is predominantly buried, is not expected to hamper movement. As such, the action is not expected to impact the breeding cycle of an important population. **Habitat quality / availability: Not Likely** As above, records and preferred habitat are limited in proximity to the Project Area, and the species has not been detected to date. With mitigation measures in place to limit potential clearance and/or degradation of current potentially utilised habitat, it is not expected that there will a decrease in the quality or availability of habitat that would lead to a decline of this species. **Invasive species and disease: Not Likely** Mitigation measures address the potential risk of weed incursions and pest incursions during operations and maintenance phases of the Project. It is noted that the Project Area is not in a high-risk Phytophthora area. Similarly, predation from cats and foxes already exists in the region, along with grazing pressure from native, domestic and feral animals (e.g. kangaroos, sheep, goats and rabbits). As such, the establishment of new weed species or diseases, or increases in predation or grazing pressure in the Project Area is not considered likely as a result of the action. The action is therefore not expected to result in the introduction of invasive species or disease which are harmful to the species of the species' habitat. **Recovery: Not Likely** The key objectives of recovery for this species involve managing feral predators (cats, foxes) and control of grazing impacts from introduced species which cause broad-scale habitat degradation (the latter of which is out of the control of the Project). With the mitigation measures proposed, it is considered the proposed action will not substantially interfere with the recovery of the species.
Sooty Shearwater ***Ardenna grisea*** **(VU / MM, -)**	Does not occur**	Does not occur- N/A	Does not occur- N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Ruddy Turnstone ***Arenaria interpres*** **(VU / MW, R)**	Possible**	• Standard mitigation measures as	• Low potential for disturbance / indirect impact.	**No significant impacts expected** Refer to Migratory Bird Impact Assessment (Appendix I-4) for detailed assessment.

Species[5]	Likelihood of occurrence[6]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
		detailed in Section 15.6 of the EIS.	• Injury or mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. • Injury or mortality from collisions with vehicles traversing access tracks • Introduction of invasive weed species or disease	The Project avoids key inland and coastal aquatic habitats which are important to migratory bird species, there is limited presence of migratory species or habitat within the Project footprint and important habitats (as identified in the Australian National Directory of Important Migratory Shorebird Habitat (Driessen, et al., 2025)) are avoided.
Red Knot ***Calidris canutus*** **(VU / MW, -)**	Possible**	• Standard mitigation measures as detailed in Section 15.6 of the EIS.	• Low potential for disturbance / indirect impact. • Injury or mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. • Introduction of invasive weed species or disease	**No significant impacts expected** Refer to Migratory Bird Impact Assessment (Appendix I-4) for detailed assessment. The Project avoids key inland and coastal aquatic habitats which are important to migratory bird species, there is limited presence of migratory species or habitat within the Project footprint and important habitats (as identified in the Australian National Directory of Important Migratory Shorebird Habitat (Driessen, et al., 2025)) are avoided.
Curlew Sandpiper ***Calidris ferruginea*** **(CE / MW, E)**	Possible**	• Standard mitigation measures as detailed in Section 15.6 of the EIS.	• Low potential for disturbance / indirect impact. • Injury or mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. • Introduction of invasive weed species or disease.	**No significant impacts expected** Refer to Migratory Bird Impact Assessment (Appendix I-4) for detailed assessment. The Project avoids key inland and coastal aquatic habitats which are important to migratory bird species, there is limited presence of migratory species or habitat within the Project footprint and important habitats (as identified in the Australian National Directory of Important Migratory Shorebird Habitat (Driessen, et al., 2025)) are avoided.
Great Knot ***Calidris tenuirostris*** **(VU / MW, E)**	Possible**	• Standard mitigation measures as detailed in Section 15.6 of the EIS.	• Low potential for disturbance / indirect impact • Injury or mortality from collisions with powerline	**No significant impacts expected** Refer to Migratory Bird Impact Assessment (Appendix I-4) for detailed assessment.

Species[5]	Likelihood of occurrence[6]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
			conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. • Introduction of invasive weed species or disease	The Project avoids key inland and coastal aquatic habitats which are important to migratory bird species, there is limited presence of migratory species or habitat within the Project footprint and important habitats (as identified in the Australian National Directory of Important Migratory Shorebird Habitat (Driessen, et al., 2025)) are avoided.
Greater Sand Plover *Charadrius leschenaultia* (VU / MW, R)	Possible**	• Standard mitigation measures as detailed in Section 15.6 of the EIS.	• Low potential for disturbance / indirect impact • Injury or mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. • Introduction of invasive weed species or disease	**No significant impacts expected** Refer to Migratory Bird Impact Assessment (Appendix I-4) for detailed assessment. The Project avoids key inland and coastal aquatic habitats which are important to migratory bird species, there is limited presence of migratory species or habitat within the Project footprint and important habitats (as identified in the Australian National Directory of Important Migratory Shorebird Habitat (Driessen, et al., 2025)) are avoided.
Antipodean Albatross *Diomedea antipodensis* (VU / MM, -)	Does not occur**	Does not occur - N/A	Does not occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Southern Royal Albatross *Diomedea epomophora* (VU / MM, V)	Does not occur**	Does not occur - N/A	Does not occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Wandering Albatross *Diomedea exulans* (VU / MM, V)	Unlikely**	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Grey Falcon *Falco hypoleucos* VU, R)	Possible (EP), Possible (SAAL)*	• Standard mitigation measures as detailed in Section 15.6 of the EIS.	• Loss of potential general foraging habitat, and or temporary roosting habitat. • Injury or mortality from collisions with vehicles traversing access track or with powerlines. • Introduction of invasive weed species or disease.	**No significant impacts expected** **Important population size: Not Likely** The Grey Falcon occurs in low densities across much of arid and semi-arid Australia. A habitat generalist, there is little known about important populations with the exception of their preference to nest in tall trees adjacent watercourses where whilst breeding, they feed almost exclusively on other birds (TSSC, 2020). Surveys undertaken note an absence of large, treed watercourses in the Project Area, and hence the Project Area is unlikely to support an important population of this species. The total disturbance of the Project is likely further to represent a loss of general foraging habitat only, representing a very small fraction of total available habitat for this species. Mitigation measures including identification and avoidance of any larger trees lining major watercourses (noted to be negligible by survey to date) thorough micro-aligning pipelines, towers and access. **AOO: Not Likely** The Project Area is unlikely to support an important population of this species, with an absence of larger tree lined watercourses surrounded by low-land timbered plains. Given the limited presence of preferred habitat, lack of

Species[5]	Likelihood of occurrence[6]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
				important population and measures to limit clearance of general foraging habitat required for pipeline construction, wherever possible, the action is unlikely to lead to a significant reduction in the area of occupation of an important population of this species. **Fragmentation: Not Likely** The Project Area is unlikely to support an important population of this species which could be fragmented into two or more populations, with an absence of larger tree lined watercourses surrounded by low-land timbered plains. The Project's permanent infrastructure will not inhibit movement nor restrict gene flow of this highly mobile, aerial species across the landscape. Therefore, the action is considered unlikely to cause fragmentation of any population, with no important population documented for the Project Area or identifiable from species records. **Habitat critical: Not Likely** The Grey Falcon is a habitat generalist that occurs in low densities across much of arid and semi-arid Australia. Surveys note an absence of preferred large, treed watercourses in the Project Area used for hunting and breeding, and hence the Project Area is unlikely to support habitat that is critical to the survival of this species. With mitigation measures that seek to minimise footprints and avoid any larger trees adjacent watercourses, this project is unlikely to adversely affect habitat critical to the survival of this species. **Breeding cycle: Not Likely** The Project Area is unlikely to support an important population of this species. Minimal clearance of potential general habitat will occur and with the implementation of proposed mitigation measures, and once constructed, the Project is unlikely to prevent movement across the landscape. Therefore, interruption to the species breeding cycle (preferred breeding habitat noted as unlikely to occur in the Project Area) is not expected. **Habitat quality / availability: Not Likely** The Project will result in regionally insignificant clearance of likely general habitat, with an absence of large, treed watercourses which are preferred by this species. Together with minimisation and micro-alignment of project footprints wherever possible, the action is unlikely to significantly impact on habitat extent and quality which would lead to a decline in the species population. **Invasive species and disease: Not Likely** It is considered unlikely that a significant population of Grey Falcon exists in the Project Area and preferred habitat is limited or not present. As such, any introduction of weeds and pests is not considered likely to result in establishment and degradation of preferred habitat. The Project Area not in a high-risk Phytophthora area. Management measures include weed controls during and post construction as well as vehicle hygiene practices, hence establishment of new weed species or diseases in the Project Area is not considered likely. Tracks exist within the Project Area, so the proposal is not expected to result in an increase in abundance of feral predator species. The action is therefore not expected to result in the introduction of invasive species or disease which are harmful to this threatened species or the species habitat. **Recovery: Not Likely** It is noted that a recovery plan is not required for this species (TSSC, 2020). Recovery actions for this species are likely to include better understanding of locations and distributions of important populations and critical habitat. The proposed action will not interfere with the recovery of the species.
Latham's Snipe *Gallinago hardwickii* **(VU, R)**	Unlikely**	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Lesser Sand Plover *Charadrius mongolus* **(EN, E)**	Unlikely**	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.

Species[5]	Likelihood of occurrence[6]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
Painted Honeyeater ***Grantiella picta*** **VU, R)**	Unlikely (EP), Unlikely (SAAL)*	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Malleefowl ***Leipoa ocellata*** **(VU, V)**	Unlikely (EP), Unlikely (SAAL)*	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Nunivak Bar-tailed Godwit ***Limosa lapponica baueri*** **(EN / MW, R)**	Possible**	• Standard mitigation measures as detailed in Section 15.6 of the EIS.	• Low potential for disturbance / indirect impact. • Injury or mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. • Injury or mortality from collisions with vehicles traversing access track. • Introduction of invasive weed species or disease	**No significant impacts expected** Refer to Migratory Bird Impact Assessment (Appendix I-4) for detailed assessment. The Project avoids key inland and coastal aquatic habitats which are important to migratory bird species, there is limited presence of migratory species or habitat within the Project footprint and important habitats (as identified in the Australian National Directory of Important Migratory Shorebird Habitat (Driessen, et al., 2025)) are avoided.
Southern Giant-Petrel ***Macronectes giganteus*** **(EN / MM, V)**	Unlikely**	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Northern Giant Petrel ***Macronectes halli*** **(VU / MM, -)**	Unlikely**	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
South-eastern Hooded Robin ***Melanodryas cucullata cucullata*** **(EN, R)**	Unlikely (EP), Unlikely (SAAL)*	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Eastern Curlew ***Numenius madagascariensis*** **(CE / MW, E)**	Possible**	• Standard mitigation measures as detailed in Section 15.6 of the EIS.	• Low potential for disturbance / indirect impact • Injury or mortality from collisions with powerline conductors in proximity to the coast. Noting powerlines are not expected to be near important coastal / foraging habitat and	**No significant impacts expected** Refer to Migratory Bird Impact Assessment (Appendix I-4) for detailed assessment. The Project avoids key inland and coastal aquatic habitats which are important to migratory bird species, there is limited presence of migratory species or habitat within the Project footprint and important habitats (as identified in the Australian National Directory of Important Migratory Shorebird Habitat (Driessen, et al., 2025)) are avoided.

Species[5]	Likelihood of occurrence[6]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
			therefore risk of collisions is expected to be low. • Injury or mortality from collisions with vehicles traversing access track in proximity to the coast. • Introduction of invasive weed species or disease	
Fairy Prion (southern) ***Pachyptila turtur subantarctica*** **(VU, -)**	Unlikely (EP), Unlikely (SAAL)*	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Plains-wanderer ***Pedionomus torquatus*** **(CE, E)**	Unlikely (EP), Unlikely (SAAL)*	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Sooty Albatross ***Phoebetria fusca*** **(VU / MM, E)**	Unlikely**	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Grey Plover ***Pluvialis squatarola*** **(VU / MM, -)**	Possible**	• Standard mitigation measures as detailed in Section 15.6 of the EIS.	• Low potential for disturbance / indirect impact Injury or mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. • Injury or mortality from collisions with vehicles traversing access track.	**No significant impacts expected** Refer to Migratory Bird Impact Assessment (Appendix I-4) for detailed assessment. The Project avoids key inland and coastal aquatic habitats which are important to migratory bird species, there is limited presence of migratory species or habitat within the Project footprint and important habitats (as identified in the Australian National Directory of Important Migratory Shorebird Habitat (Driessen, et al., 2025)) are avoided.
Australian Painted Snipe ***Rostratula australis*** **(EN, -)**	Unlikely (EP), Unlikely (SAAL)*	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Diamond Firetail ***Stagonopleura guttata*** **(VU, V)**	Unlikely (EP), Unlikely (SAAL)*	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Indian Yellow-nosed Albatross ***Thalassarche carteri*** **(VU / MM, E)**	Does not occur**	Does not occur - N/A	Does not occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.

Species[5]	Likelihood of occurrence[6]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
Shy Albatross *Thalassarche cauta* (EN / MM, V)	Unlikely**	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Campbell Albatross *Thalassarche impavida* (VU / MM, V)	Does not occur**	Does not occur - N/A	Does not occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Black-browed Albatross *Thalassarche melanophris* (VU / MM, -)	Unlikely**	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Black-tailed Godwit *Limosa limosa* (E / MM, -)	Unlikely**	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
White-capped Albatross *Thalassarche steadi* (VU / MM, -)	Does not occur**	Does not occur - N/A	Does not occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Eastern Hooded Plover *Thinornis cucullatus cucullatus* (VU, V)	Possible (EP), Unlikely (SAAL)*	• Standard mitigation measures as detailed in Section 15.6 of the EIS.	• Low potential for disturbance / indirect impact.	**No significant impacts expected** **Important population size: Not Likely** Eastern Hooded Plover can be found from Jervis Bay in New South Wales to Fowlers Bay in South Australia, as well as Tasmania and various offshore islands. It is documented at several sites along the coastline of the Eyre Peninsula (DCCEEW, 2025). Eastern Hooded Plover inhabits ocean beaches, particularly wide beaches backed by dunes with large amounts of seaweed, creek mouths and inlet entrances. It may also occur on near-coastal saline and freshwater lakes and lagoons, tidal bays and estuaries, on rock platforms, or on rocky or sandy reefs close to shore. Breeding occurs in nests on or near beaches, with nests located on flat beaches above the high tide mark, on stony terraces adjacent to beaches, or on the sides of sparsely vegetated dunes (DCCEEW, 2025). There are no specific areas of coastline considered important to the Eastern Hooded Plover within the Project Area and no records within 5 km of the site. As tunnel boring will be used to install the intake and outfall, the only above-ground Project component near the coastline is the proposed desalination plant site at Mullaquana Station, the closest component of which (the intake pump station) is located approximately 700 m from the seaward edge of the mangroves and will not impact any potential habitat. No impacts to any population are likely to occur. The action is unlikely to lead to a long-term decrease in the size of an important population. **AOO: Not Likely** The area of occupancy of this species is widespread along coastline of southeast Australia and there are no areas considered significant to the species within the Project Area. The Project will not impact suitable habitat and will not reduce the area of occupancy. **Fragmentation: Not Likely** As above, there are no areas of coastline considered significant to the species within the Project Area, and this mobile species can easily avoid any minor disturbance occurring during construction. **Habitat critical: Not Likely** Given that there is no coastline with significance to this species within the Project Area and the and the absence of direct impacts on coastal habitat, it is not likely that the Project will affect habitat critical to the survival of the species. **Breeding cycle: Not Likely**

Species[5]	Likelihood of occurrence[6]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
				The species breeds on beaches, a habitat which will not be impacted by the Project. There is no area of coastline of significance to the species within the Project Area (DCCEEW, 2025). Therefore, is unlikely the breeding cycle of an important population will be impacted. **Habitat quality / availability: Not Likely** There is minimal potential breeding habitat present within the Project Area. Project infrastructure will be tunnelled under the coastal interface. Therefore, quality habitat important to the survival of the species is unlikely to be modified, destroyed or removed to the extent that the species will decline. **Invasive species and disease: Not Likely** There is no area of coastline of significance to the species within the Project Area (DCCEEW, 2025). Management measures include weed controls during and post construction as well as vehicle hygiene practices, so establishment of new weed species or diseases in the Project Area is not considered likely. The action is therefore not expected to result in the introduction of invasive weed or pest species or disease which may cause this species to decline or impact the species habitat. **Recovery: Not Likely** There is no specific recovery plan for this species. Conservation actions relate to preventing loss of key habitat for breeding and foraging. The Project will not impact key habitat for breeding and foraging.
Common Greenshank ***Tringa nebularia*** **(EN / MW, -)**	Possible**	• Standard mitigation measures as detailed in Section 15.6 of the EIS.	• Low potential for disturbance / indirect impact • Injury or mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. • Injury or mortality from collisions with vehicles traversing access track. • Introduction of invasive weed species or disease.	**No significant impacts expected** Refer to Migratory Bird Impact Assessment (Appendix I-4) for detailed assessment. The Project avoids key inland and coastal aquatic habitats which are important to migratory bird species, there is limited presence of migratory species or habitat within the Project footprint and important habitats (as identified in the Australian National Directory of Important Migratory Shorebird Habitat (Driessen, et al., 2025)) are avoided.
Mammals				
Burrowing Bettong (Shark Bay) ***Bettongia lesueur lesueur*** **(VU, E)**	N/A (EP), Unlikely (SAAL)*	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Western Quoll ***Dasyurus geoffroii*** **(VU, E)**	N/A (EP), Unlikely (SAAL)*	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Greater Stick-nest Rat ***Leporillus conditor*** **(VU, V)**	N/A (EP), Unlikely (SAAL)*	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.

Species[5]	Likelihood of occurrence[6]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
Greater Bilby ***Macrotis lagotis*** **(VU, V)**	N/A (EP), Unlikely (SAAL)*	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Australian Sea-lion ***Neophoca cinerea*** **(EN, V)**	Possible***	• Standard mitigation measures as detailed in Section 11.7 of the EIS.	• During construction, the risk of underwater noise or vibration impacts from construction is limited to piling activity, if required. Potential impacts would be short term and localised	**No significant impact expected** **Population size: Not likely** Australian Sea-lion could possibly occur in the Project Area, however preferred depth for foraging is over 20 m depth, (outside the Project footprint) and nearest breeding sites occurring approximately 180 km south. Potential impacts during construction as a result of noise from piling (if required) can be mitigated through implementing standard mitigation strategies for underwater noise. Sea-lions are known to be less sensitive to noise than other marine mammal species (Southall, et al., 2019). The return water from the desalination plant is unlikely to have any impact on the species. Preliminary hydrodynamic plume modelling suggests a small highly localised zone of potential ecological effect at the diffusers. The mid-field hydrodynamic modelling indicates that 95% of species would be protected from impacts associated with the return water within ~500 m from the diffusers. Salinity beyond the immediate vicinity of the diffusers would remain within the range of natural seasonal variability, with no anticipated impact on Australian Sea-lion individuals that may occur in the Project Area. Any potential impacts from operation of the Project would be short term and very localised and would not lead to a long-term decrease in the size of the population. **AOO: Not likely** The project infrastructure will be situated in waters shallower than the preferred foraging depths (greater than 20 m). The species is highly mobile and able to move away from minor disturbance. The project will not reduce the area of occupancy of the species. Short term and highly localised impacts within coastal habitat may occur but would not reduce the area of occupancy of the species. **Fragmentation: Not likely** The proposed project will not fragment an existing population into two or more populations. The Project will not create a barrier to movement. **Habitat critical: Not likely** Habitat critical for the survival of the species is identified as breeding colonies, the closest of which is 180 km south of Mullaquana Station on the offshore islands of Sir Joseph Banks Group. The Project will not impact this area and it will not adversely affect habitat critical to the survival of the species during construction or operation. **Breeding cycle: Not likely** Breeding occurs over 180 km south at Sir Joseph Banks Group of islands. Breeding will not be impacted by the Project. **Habitat quality / availability: Not likely** Important foraging habitat spans much of the continental shelf. Preferred depth is over 20 m depth. Construction footprint will extend to a maximum of 20 m deep, which is shallower than preferred foraging depths. Minor impacts to a small area which represents a negligible proportion of potential foraging habitat may occur in the vicinity of the outfall, though this would not modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline. **Invasive species: Not likely** The coastal foraging habitat is extensive, and it is highly unlikely that the Project construction or operation would result in harmful invasive species becoming established in the habitat to the extent that any negative impact to Australian Sea-lion would occur. **Disease: Not likely** Similarly, the Project is not expected to introduce disease that could cause the species to decline. **Recovery: Not likely**

Species[5]	Likelihood of occurrence[6]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
				The Project is not expected to interfere with the recovery of the species in any way. The primary threats to recovery of the species as identified in the Recovery Plan for the Australian Sea-lion (DSEWPaC, 2013), are fisheries related. Noise disturbance will be conservatively managed in accordance with Underwater Noise Guidelines (DIT, 2023) such that project related noise will not prevent Australian Sea-lions utilising the surrounding area, cause injury (temporary or permanent threshold shift) or lead to behavioural disturbance.
Dusky Hopping-mouse ***Notomys fuscus*** (VU, V)	N/A (EP), Possible (SAAL)*	• Standard mitigation measures as detailed in Section 15.6 of the EIS.	If the species is present during irruptive periods (outside known range): • Clearance of potential habitat outside known range for transfer system. • Direct mortality or injury during habitat clearance if present. • Animals falling into open trenches or other construction excavations if present. • Increased vehicle strike along access tracks if present. • Low potential for habitat degradation due to invasive species and disease introduction with proposed weed controls and hygiene practices.	**No significant impacts expected** **Important population size: Not Likely** There are no records of this species within 50 km and the Project is outside its currently known range. This species has an irruptive demography and uses a broader range of habitat types during irruptive cycles. Important populations are not defined as such, but populations are known in South Australia for the Strzelecki RR (Regional Reserve), Innamincka RR and Lake Eyre NP (DEWHA, 2008). The Project Area is located at the most south-westerly extent of this species distribution (DCCEEW, 2025). It is extremely unlikely that an important population of Dusky Hopping-Mouse occurs in the Project Area. The total disturbance of potentially suitable habitat important represents only a very small portion of available habitat regionally. Hence, the action is unlikely to lead to a long-term decrease in an important population of this species. **AOO: Not Likely** The clearance of a regionally small amount of potentially important habitat outside the known range of this irruptive species is not likely to result in a significant reduction to the area of occupation of an important population. **Fragmentation: Not Likely** If this species is present (e.g. in irruptive periods), an informal access track and temporary disturbance for pipeline installation followed by burial and rehabilitation is considered unlikely to inhibit movement or restrict gene flow of this species across the landscape. The action is considered unlikely to cause fragmentation of any population, or an important population (which is not documented from the Project Area or identifiable from historic records). **Habitat critical: Not Likely** This species occurs in a variety of soft sand habitats, which are common in the very northern segments of the Project Area and more broadly in the region surrounding the Project Area. Important populations are not mapped for this species, although strongholds in Strzelecki RR, Innamincka RR and Lake Eyre NP are noted (and are likely to contain habitat critical to the survival of the species). These areas of critical habitat are located well outside of the Project Area. Hence, the action is unlikely to significantly impact habitat critical for survival of the species. **Breeding cycle: Not Likely** Important populations are not mapped for this species, although strongholds in Strzelecki RR, Innamincka RR and Lake Eyre NP are noted (and are likely to contain habitat critical to the survival of the species). These areas of critical habitat are located well outside of the Project Area. Minimal clearance of potentially important habitat will occur in a region surrounded by vast quantities of soft sand dune country with mixed shrub and grassland. Once constructed and rehabilitated, the development is unlikely to stop movement across the landscape or interrupt the species breeding cycle, and so the Project is unlikely to disrupt the breeding cycle of an important population. **Habitat quality/availability: Not Likely** Minimal clearance of potentially suitable habitat that is widespread throughout the region is unlikely to significantly impact on habitat extent and quality which would lead to a decline in the species population. **Invasive species and disease: Not Likely** No known important populations of the species occur in the Project Area, and it is considered unlikely that a significant population of Dusky Hopping-Mouse exists in the Project Area. As such, any introduction of weeds is not considered likely to result in establishment and degradation of preferred habitat. Management measures include weed controls during and post construction as well as vehicle hygiene practices, so establishment of new weed species or diseases in the Project Area is not considered likely. Existing tracks exist within the Project Area, so the

Species[5]	Likelihood of occurrence[6]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
				proposal is not expected to result in an increase in abundance of feral predator species. The action is therefore not expected to result in the introduction of invasive species or disease which are harmful to this threatened species. **Recovery: Not Likely** Recovery actions for this species include better understanding of locations and distributions of important populations and critical habitat, the management of feral animal predation and competition and trampling, browsing and grazing of potentially important habitats. The proposed action will not interfere with the recovery of the species.
Shark Bay Bandicoot *Perameles bougainville* (EN, E)	N/A (EP), Unlikely (SAAL)*	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Sandhill Dunnart *Sminthopsis psammophila* (EN, V)	Unlikely (EP), Unlikely (SAAL)*	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Reptile				
Flinders Ranges Worm-lizard *Aprasia pseudopulchella* (VU, -)	Unlikely (EP), Unlikely (SAAL)*	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Loggerhead Turtle *Caretta caretta* (EN/MM, E)	Possible***	• Standard mitigation measures as detailed in Section 11.7 of the EIS.	No likely direct or indirect impacts	**No significant impacts expected** **All criteria: Not Likely** Highly mobile species, very unlikely to be encountered. There is no real chance or possibility of significant impacts when considering criteria for Endangered species.
Green Turtle *Chelonia mydas* (VU/MM, V)	Unlikely***	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Leatherback Turtle *Dermochelys coriacea* (EN/MM, V)	Possible***	Standard mitigation measures as detailed in Section 11.7 of the EIS.	No likely direct or indirect impacts	**No significant impacts expected** **All criteria: Not Likely** Highly mobile species, very unlikely to be encountered. There is no real chance or possibility of significant impacts when considering criteria for Endangered species.

3.3 Migratory species (not listed as threatened)

A significant impact assessment for listed migratory species (not listed as threatened) that were identified as potentially occurring in the Project Area, is presented in Table 3-4. Migratory species that are listed as threatened have been assessed in preceding sections under the more sensitive threatened species criteria.

Table 3-4: Significant impact assessment – migratory species (not listed as threatened species)

Species	Likelihood of occurrence[8]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
Birds				
Fork-tailed Swift ***Apus pacificus***	Unlikely**	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Flesh-footed Shearwater ***Ardenna carneipes***	Unlikely**	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Grey Wagtail ***Motacilla cinerea***	Unlikely (EP), Unlikely (SAAL)*	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Yellow Wagtail ***Motacilla flava***	Unlikely (EP), Unlikely (SAAL)*	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Common Sandpiper ***Actitis hypoleucos***	Possible**	• Standard mitigation measures as detailed in Section 15.6 of the EIS.	• Low potential for disturbance / indirect impact • Possible indirect disturbance / short-term loss of small areas of ephemeral habitat • Injury or mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. • Injury or mortality from collisions with vehicles traversing access track. • Introduction of invasive weed species or disease.	**No significant impacts expected** Refer to Migratory Bird Impact Assessment (Appendix I-4) for detailed assessment. The Project avoids key inland and coastal aquatic habitats which are important to migratory bird species, there is limited presence of migratory species or habitat within the Project footprint and important habitats (as identified in the Australian National Directory of Important Migratory Shorebird Habitat (Driessen, et al., 2025)) are avoided.
Sanderling ***Calidris alba***	Unlikely**	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.

[8] Likelihood of occurrence source:
* Jacobs (2026) (Refer Appendix I-1). Note EP refers to Eyre Peninsula Landscape Management Region and SAAL refers to South Australian Arid Lands Landscape Management Region
** Lathwida (2026) (Refer Appendix I-4)
*** This report (Refer Appendix A)

Species	Likelihood of occurrence[8]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
Pectoral Sandpiper ***Calidris melanotos***	Possible**	• Standard mitigation measures as detailed in Section 15.6 of the EIS.	• Low potential for disturbance / indirect impact. • Possible short-term loss of small areas of ephemeral habitat. • Injury or mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. • Injury or mortality from collisions with vehicles traversing access track. • Introduction of invasive weed species or disease.	**No significant impacts expected** Refer to Migratory Bird Impact Assessment (Appendix I-4) for detailed assessment. The Project avoids key inland and coastal aquatic habitats which are important to migratory bird species, there is limited presence of migratory species or habitat within the Project footprint and important habitats (as identified in the Australian National Directory of Important Migratory Shorebird Habitat (Driessen, et al., 2025)) are avoided.
Ruff ***Calidris pugnax***	Unlikely**	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Red-necked Stint ***Calidris ruficollis***	Possible**	• Standard mitigation measures as detailed in Section 15.6 of the EIS.	• Low potential for disturbance / indirect impact • Injury or mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. • Injury or mortality from collisions with vehicles traversing access track. • Introduction of invasive weed species or disease.	**No significant impacts expected** Refer to Migratory Bird Impact Assessment (Appendix I-4) for detailed assessment. The Project avoids key inland and coastal aquatic habitats which are important to migratory bird species, there is limited presence of migratory species or habitat within the Project footprint and important habitats (as identified in the Australian National Directory of Important Migratory Shorebird Habitat (Driessen, et al., 2025)) are avoided.
Oriental Plover ***Charadrius veredus***	Unlikely**	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Pin-tailed Snipe ***Gallinago stenura***	Unlikely**	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Osprey ***Pandion haliaetus***	Possible**	• Standard mitigation measures as	• Injury or mortality from collisions with powerline	**No significant impacts expected** Refer to Migratory Bird Impact Assessment (Appendix I-4) for detailed assessment.

Species	Likelihood of occurrence[8]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
		detailed in Section 15.6 of the EIS.	conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. • Injury or mortality from collisions with vehicles traversing access track. • Introduction of invasive weed species or disease.	The Project avoids key inland and coastal aquatic habitats which are important to migratory bird species, there is limited presence of migratory species or habitat within the Project footprint and important habitats (as identified in the Australian National Directory of Important Migratory Shorebird Habitat (Driessen, et al., 2025)) are avoided.
Greater Crested Tern *Thalasseus bergii*	Possible**	• Standard mitigation measures as detailed in Section 15.6 of the EIS.	• Low potential for disturbance / indirect impact • Injury or mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. • Injury or mortality from collisions with vehicles traversing access track. • Introduction of invasive weed species or disease.	**No significant impacts expected** Refer to Migratory Bird Impact Assessment (Appendix I-4) for detailed assessment. The Project avoids key inland and coastal aquatic habitats which are important to migratory bird species, there is limited presence of migratory species or habitat within the Project footprint and important habitats (as identified in the Australian National Directory of Important Migratory Shorebird Habitat (Driessen, et al., 2025)) are avoided.
Grey-tailed Tattler *Tringa brevipes*	Possible**	• Standard mitigation measures as detailed in Section 15.6 of the EIS.	• Low potential for disturbance / indirect impact • Injury or mortality from collisions with powerline conductors. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low. • Injury or mortality from collisions with vehicles traversing access track. • Introduction of invasive weed species or disease.	**No significant impacts expected** Refer to Migratory Bird Impact Assessment (Appendix I-4) for detailed assessment. The Project avoids key inland and coastal aquatic habitats which are important to migratory bird species, there is limited presence of migratory species or habitat within the Project footprint and important habitats (as identified in the Australian National Directory of Important Migratory Shorebird Habitat (Driessen, et al., 2025)) are avoided.

Species	Likelihood of occurrence[8]	Mitigation measures	Potential impacts	Significant impact assessment (impacts following project mitigation measures)
Marsh Sandpiper ***Tringa stagnatilis***	Unlikely**	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Mammals				
Bryde's Whale ***Balaenoptera edeni***	Unlikely**	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Pygmy Right Whale ***Caperea marginata***	Unlikely**	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Dusky Dolphin ***Lagenorhynchus obscurus***	Unlikely**	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Humpback Whale ***Megaptera novaeangliae***	Possible***	• Standard mitigation measures as detailed in Section 11.7 of the EIS.	• Potential impact during construction could include ship strike, underwater noise from piling. • No impacts expected during operation.	**No significant impacts expected** Spencer Gulf is not part of the species core range, though it may be an occasional visitor. At its closest, the species core range lies more than 1000 km away off the coast of Victoria (DCCEEW, 2025). The species does not rely on habitat provided within Spencer Gulf. The Project is not expected to impact the species as the Humpback Whale does not commonly utilise habitat in the area. **Habitat modification: Not likely** The Project is not likely to substantially modify, destroy or isolate an area of important habitat, given Spencer Gulf is not part of the species' core range. **Invasive species: Not likely** The Project is not likely to result in an invasive species becoming established in an area of important habitat for the species, given the Spencer Gulf is not part of the species core range and the species may only be an occasional visitor. **Life cycle: Not likely** The Project is not likely to seriously disrupt the life cycle of the species, as the Spencer Gulf is not part of the species' core range.
Sharks				
Grey Nurse Shark ***Carcharias taurus***	Unlikely**	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.
Porbeagle, Mackerel Shark ***Lamna nasus***	Unlikely**	Unlikely to occur - N/A	Unlikely to occur - N/A	**No significant impacts expected** **All criteria:** Not Likely as species is considered unlikely to occur.

4 LIMITATIONS

Scope of services

This report ("the report") has been prepared by JBS&G in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and JBS&G. In some circumstances, a range of factors such as time, budget, access and/or site disturbance constraints may have limited the scope of services. This report is strictly limited to the matters stated in it and is not to be read as extending, by implication, to any other matter in connection with the matters addressed in it.

Reliance on data

In preparing the report, JBS&G has relied upon data and other information provided by the Client and other individuals and organisations, most of which are referred to in the report ("the data"). Except as otherwise expressly stated in the report, JBS&G has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report ("conclusions") are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. JBS&G has also not attempted to determine whether any material matter has been omitted from the data. JBS&G will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to JBS&G. The making of any assumption does not imply that JBS&G has made any enquiry to verify the correctness of that assumption.

The report is based on conditions encountered and information received at the time of preparation of this report or the time that site investigations were carried out. JBS&G disclaims responsibility for any changes that may have occurred after this time. This report and any legal issues arising from it are governed by and construed in accordance with the law as at the date of this report.

Environmental conclusions

Within the limitations imposed by the scope of services, the preparation of this report has been undertaken and performed in a professional manner, in accordance with generally accepted environmental consulting practices. No other warranty, whether express or implied, is made, including to any third parties, and no liability will be accepted for use or interpretation of this report by any third party.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

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APPENDIX A - LIKELIHOOD OF OCCURRENCE FOR MARINE MAMMALS, SHARKS AND TURTLES

The following table presents a likelihood of occurrence assessment for EPBC-listed threatened and migratory mammals, sharks and turtles that are predicted to occur by the PMST (or have been recorded in the BDBSA) within 5 km of the Project Area. The assessment methodology is outlined in Section 2 of the significant impact assessment.

Table A1: Likelihood of occurrence assessment for EPBC-listed threatened and migratory mammals, sharks and turtles

Species	EPBC Act[9]	NPW Act[10]	Likelihood of occurrence
Threatened species			
Eubalaena australis **Southern Right Whale**	EN, MM	V	PMST output states that breeding is known to occur. The nearest breeding ground is at the Head of Bight, on the western side of Eyre Peninsula. Species is seasonally present along the South Australian coast between late April and early November, with peak abundances in July and August (Charlton et al., 2019). Biologically important seasonal habitat is mapped as being present along the entire southern Australian coastline between Perth and Encounter Bay. Occasionally present in Spencer Gulf as whales move between Southern Ocean feeding grounds and breeding areas (Izzo and Gillanders, 2015). There are 34 records in Upper Spencer Gulf (ALA, 2025). This species is **known to occasionally occur** in / near the Project Area. May be present between April and November (most likely in July and August).
Neophoca cinerea **Australian Sea-lion**	EN	V	PMST output states that species or species habitat may occur. The Australian Sea-lion forages on the sea floor of the continental shelf, typically at depths of 20 - 100 m. Prey includes fish, cephalopods, sharks, rays, rock lobsters and penguins. The Australian Sea-lion does not rely on habitat in the Project Area. The nearest breeding sites are approximately 180 km south of Mullaquana on the offshore islands of Sir Joseph Banks Group, and there are no additional documented haul out sites north of this (DSEWPaC, 2013). Important foraging habitat spans much of the continental shelf. Preferred depth for foraging is over 20 m depth, and outside the Project footprint. The Australian Sea-lion exhibits high site fidelity, and there is little movement of females between breeding colonies (DSEWPaC, 2013). There are two previous records in the vicinity of Whyalla (ALA, 2025). The species is a **possible** occurrence in the Project Area.

[9] EPBC Act status: Critically Endangered (CE); Endangered (EN); Vulnerable (VU); Migratory Wetland (MW); Migratory Terrestrial (MT); Migratory Marine (MM)
[10] SA NPW status: Endangered (E); Vulnerable (V); Rare (R).

Species	EPBC Act[9]	NPW Act[10]	Likelihood of occurrence
Caretta caretta **Loggerhead Turtle**	EN, MM	E	PMST output states that foraging, feeding or related behaviour known to occur. Carnivorous species that feeds on predominantly benthic invertebrates in nearshore habitats to 55 m depth (DoEE, 2017). Although Loggerhead Turtles are known to forage in all states and territories, the species is uncommon in South Australia (DoEE, 2017). The few records in Spencer Gulf are of dead turtles washed up onshore (ALA, 2025). Although not likely, the species is a **possible** occurrence in the Project Area.
Chelonia mydas **Green Turtle**	VU, MM	V	PMST output states that species or species habitat may occur. Mostly herbivorous, with coastal feeding grounds of algae, seagrass and mangroves (DoEE, 2017). Mostly present around northern Australian coast, with limited historical records in South Australia. There has been just one potential sighting recorded in the last thirty years (ALA, 2025). This species is considered **unlikely** to occur in the Project Area.
Dermochelys coriacea **Leatherback Turtle**	EN, MM	V	PMST output states that species or species habitat known to occur. Predominantly occurs in the open ocean travelling vast distances whilst foraging (DoEE, 2017). There are 7 Spencer Gulf occurrences recorded in the last twenty years, with the last live sighting in 2008 (ALA, 2025). Although not likely to be encountered, the species is a **possible** occurrence in the Project Area.
Carcharodon carcharias **White Shark**	VU, MM	-	PMST output states that species or species habitat known to occur. Great White Sharks are found throughout temperate and subtropical regions in the northern and southern hemispheres and occur close inshore around rocky reefs, surf beaches and shallow coastal bays to outer continental shelf and slope areas. Within the Spencer Gulf, the species has been recorded once near Cowell, while all other records are from the south of the Gulf, with most records around the Neptune Islands (ALA, 2025). This species is considered **likely** to occur in the Project Area.
Migratory (non-threatened) species			
Balaenoptera edeni **Bryde's Whale**	MM	-	PMST output states that species or species habitat may occur within area. Bryde's Whale is found in tropical and warm temperate waters exceeding 16.3 °C, but generally in the 20 °C isotherm, between 40° N and 40° S. The current extent of occurrence for Bryde's Whales is estimated to be greater than 20, 000 km² (DCCEEW, 2024). There are no Bryde's Whale occurrence records in Spencer Gulf in the last 20 years (ALA, 2025). This species is considered **unlikely** to occur in the Project Area.
Caperea marginata **Pygmy Right Whale**	MM	R	PMST output states that species or species habitat may occur. The Pygmy Right Whale is a little-known species that inhabits the Southern hemisphere between about 30° S and 47 ° S (DCCEEW, 2024). These whales are rarely seen at sea, with most knowledge obtained from strandings. Concentrations of

Species	EPBC Act[9]	NPW Act[10]	Likelihood of occurrence
			stranded animals have occurred at the entrance of the gulfs in South Australia and around Tasmania (DCCEEW, 2024). Pygmy Right Whales have primarily been recorded in areas associated with upwellings and with high zooplankton abundance. The area around the Project Area is not preferred habitat and they have not been recorded in the area (ALA, 2025). This species is considered **unlikely** to occur in the Project Area.
Carcharias taurus **Grey Nurse Shark**	MM	-	PMST output states that species or species habitat may occur within area. The Grey Nurse Shark is found across a wide range of inshore areas, predominantly in sub-tropical to cool temperate waters along the continental coastlines. It is frequently observed near the seabed, often above deep sandy-bottomed gutters or rocky caves close to inshore reefs or islands. There are no records in South Australia (ALA, 2025). This species is considered **unlikely** to occur in the Project Area.
Lagenorhynchus obscurus **Dusky Dolphin**	MM	-	PMST output states that species or species habitat may occur within area. Considered uncommon in Australia with only 13 reports since 1828, with two sightings in the early 1980s. The nearest record of the Dusky Dolphin was in 1986, over 250 km away from the Project Area (ALA, 2025). This species is considered **unlikely** to occur in the Project Area.
Lamna nasus **Porbeagle, Mackerel Shark**	MM	-	PMST output states that species or species habitat likely to occur within area. Occurs mostly in temperate, off-shore waters near continental shelves and unlikely to be present in Spencer Gulf as there are no Porbeagle occurrence records within the gulf (ALA, 2025). Species is considered highly **unlikely** to occur in the Project Area.
Megaptera novaeangliae **Humpback Whale**	MM	V	PMST output states that species or species habitat likely to occur within area. Present in Southern Australian waters as they move between summer Antarctic feeding grounds and winter tropical breeding grounds. Spencer Gulf is not part of the species core range (DCCEEW, 2024), though may be an occasional visitor. This species has been recorded 31 times within the Upper Spencer Gulf (ALA, 2025). It is possible that Humpback Whales may come within the area that will be impacted by noise associated with the proposed action. The species is a **possible** occurrence in the Project Area.

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Appendix I-7:

Draft EPBC Act Offset Strategy

Northern Water Project

Draft Offset Strategy under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) – EPBC 2025/10397

LATHWIDA ENVIRONMENTAL

Department for Infrastructure and Transport



July 2026
Final Report

Document status

Revision	Doc Type	Reviewed By	Approved By	Date Issued
Rev 0	Final Report	N. Bull, R. Farrugia	N. Bull	17 July 2026

Version control

Version	Date Issued	Comments
Rev 0	17 July 2026	Final Report for DIT

Project details

Client	Department for Infrastructure and Transport
Project	Northern Water Project
Project Number	LE25016
Report Subject	Offset Strategy under the *Environment Protection and Biodiversity Conservation Act 1999*
Project Manager	N. Bull
Project Director	N. Bull
Authors	K. Pelgrim
File Reference	DIT_NWP Offset Strategy_Rev 0

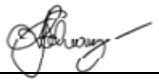
Suggested citation

Lathwida (Lathwida Environmental Pty Ltd) (2026) Northern Water Project Offset Strategy under the *Environment Protection and Biodiversity Conservation Act 1999*. Report developed for the Department for Infrastructure and Transport. Revision 0. July 2026. Project number LE25016.

Declaration of accuracy

In making this declaration, I am aware that section 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the Environment Protection and Biodiversity Conservation Regulations 2025 (Cth). The offence is punishable on conviction by imprisonment or a fine, or both.

I am authorised to bind the approval holder, Department for Infrastructure and Transport, ABN 92 366 288 135, to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

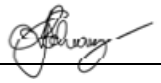
Signed	
Full name (please print)	Alexandra (Lexi) Schwarz
Organisation	Department for Infrastructure and Transport
Role (please print)	Manager, Environment
Date	17 July 2026

Proponent conflict of interest declaration

I declare that to the best of my knowledge I do not have any actual, potential or perceived conflicts of interest that may affect the assessment of this Draft Offset Strategy, except as set out below.

I undertake to make a further declaration detailing any actual, potential or perceived conflict of interest that may arise during the assessment period.

I agree to comply with any mitigation steps required to address any declared conflict.

Signed	
Full name (please print)	Alexandra (Lexi) Schwarz
Date	17 July 2026

Consultant conflict of interest declaration

I declare that to the best of my knowledge I do not have any actual, potential or perceived conflicts of interest that may affect the assessment of this Draft Offset Strategy, except as set out below.

I undertake to make a further declaration detailing any actual, potential or perceived conflict of interest that may arise during the assessment period.

I agree to comply with any mitigation steps required to address any declared conflict.

Signed	
Full name (please print)	Kelly Pelgrim
Date	16 July 2026

Disclaimer

This report has been prepared on behalf of, and for the exclusive use of Lathwida Environmental Pty Ltd (Lathwida) and Lathwida's client **the Department for Infrastructure and Transport (DIT)**, and is subject to, and issued in accordance with, the provisions of the contract between **DIT** and Lathwida.

Lathwida accepts no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this report by any third party.

This report should be read in full, and no excerpts are to be taken as representative of the findings. No responsibility is accepted by Lathwida for use of any part of this report in any other context. This report has been prepared for informational and technical purposes only and should not be interpreted as legal advice or relied upon as a substitute for independent legal counsel.

The sole purpose of this report and the associated services performed by Lathwida is to document the proposed offset strategy in accordance with requirements set out under the Environment Protection for Biodiversity Conservation Act 1999 (EPBC Act) for the Northern Water Project. This document and associated data will support the development of primary approval documentation required for the **Northern Water Project** in **South Australia**. The report is based on a review of available data and reports outlining survey findings within the survey area and buffers, impact assessments related to Matters of National Environmental Significance, and other technical documentation developed for **DIT**.

In preparing this report, Lathwida has relied upon, and presumed accurate, any information (or confirmation of the absence thereof) provided by the Client and/or from other sources. Except as otherwise stated in the report, Lathwida has not attempted to verify the accuracy or completeness of any such information. If the information is subsequently determined to be false, inaccurate or incomplete then it is possible that our observations and conclusions as expressed in this report may change.

This report has been developed based on information received during its preparation and conditions encountered at the time that related investigations were carried out. As such, the information within this report, and related conclusions, are valid as at date stated in the note on currency. Lathwida disclaims responsibility for any changes that may have occurred after this time.

Lathwida collected and reviewed data and information available in the public domain at the time or times outlined in this report. The passage of time, manifestation of latent conditions or impacts of future events may require further examination of the project and subsequent data analysis, and re-evaluation of the data, findings, observations and conclusions expressed in this report. Lathwida has prepared this report in accordance with the usual care and thoroughness of the consulting profession, for the sole purpose described above and by reference to applicable standards, guidelines, procedures and practices at the date of issue of this report. For the reasons outlined above, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this report, to the extent permitted by law.

Note on currency

Where possible, information contained in this Document is up to date as at July 2026. This was not possible for supporting appendices, and information based on those appendices, which were prepared by third parties (as discussed in the Disclaimer above) prior to the Document being finalised. This report and any legal issues arising from it are governed by and construed in accordance with the law as at the date of this report.

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Executive summary

The Northern Water Project (the Project) aims to provide a secure climate-resilient water source for industry in South Australia's Upper Spencer Gulf and Far North. Delivery of the Project will involve the construction and operation of a 51 gigalitre per year (GL/y) seawater reverse osmosis desalination plant located at Mullaquana Station on the Upper Spencer Gulf, and associated water transfer system (including pipelines, transfer pump stations and water storage) and associated electricity infrastructure. The proposed desalination plant site at Mullaquana Station is located approximately 25 km south-west from the centre of Whyalla, a major regional city in the Upper Spencer Gulf.

Ecological studies undertaken for the Project, principally between 2021 and 2026, have provided a rigorous baseline assessment for native vegetation, threatened species (flora and fauna), and other biodiversity values such as threatened species habitat assessments and environmentally sensitive areas such as creek lines.

As part of the development of the Project and approval process (including referral of the Project under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth)) (EPBC Act), an assessment of the significance of impacts arising from the Project was undertaken for Matters of National Environmental Significance (MNES), in accordance with the Matters of National Environmental Significance: Significant Impact Guidelines 1.1. Whilst almost all MNES were assessed as not being significantly impacted by the Project, the assessment determined that residual significant impacts are considered possible for Western Grasswren (*Amytornis textilis myall*). Whilst Plains Mouse (*Pseudomys australis*) was not assessed as being significantly impacted, there remains the possibility that impacts are considered significant by the Department of Climate Change, Energy, the Environment and Water (DCCEEW), and therefore provisions for potential residual significant impacts to Plains Mouse habitat have been included.

As residual significant impacts to these protected matters cannot be fully avoided or mitigated, environmental offsets for each protected matter, in accordance with requirements set out under the EPBC Act, EPBC Regulations, and Commonwealth's Offset Policy will be required.

This Draft Offset Strategy outlines the Project's broad strategy for achieving net conservation gains to offset residual significant impacts to Western Grasswren (*Amytornis textilis myall*), and if required, to Plains Mouse (*Pseudomys australis*) (noting no residual significant impacts to Plains Mouse are expected, as cited in the Project's Significant Impact Assessment and Environmental Impact Assessment). However, it is acknowledged that the Commonwealth Minister's decision may differ. Consequently, an offset strategy has been developed for Plains Mouse, in the event that an offset should be required.

Table of contents

1 Project description 1
1.1 Summary of the Project 1
1.2 Key terms 2
1.3 Assessment approach and scope of this document 4
1.4 Project infrastructure 7
1.5 Summary of Project infrastructure 9
1.6 Expected duration of impact 14
1.7 Environmental impact 14
1.8 Other relevant legislation 16
1.9 Design optionality and scope change 16
2 Western Grasswren (background, context and project impact) 17
2.1 Background and context 17
2.2 Survey methodology 17
2.3 Western Grasswren in the Project Area 19
2.4 Summary of direct and potential indirect impacts to Western Grasswren 22
2.5 Application of the mitigation hierarchy 24
2.6 Residual significant impact 26
3 Plains Mouse (background, context and project impact) 31
3.1 Background and context 31
3.2 Survey Methodology 32
3.3 Plains Mouse habitat in the Project Area 32
3.4 Summary of direct and potential indirect impacts to Plains Mouse 35
3.5 Application of the mitigation hierarchy 37
3.6 Residual significant impact 38
4 Statement of expected outcomes 43
5 Offset Strategy 45
5.1 Offset Site Identification and Acquisition Approach 45
5.2 Western Grasswren 46
5.3 Plains Mouse 48
5.4 Offset Tenure 49
6 Risk assessment 50
7 Relevant documents 53
7.1 Statutory documents 53
7.2 Other relevant documents 55
8 References 56
9 Definitions and abbreviations 58

List of tables

Table 1.1: Summary of Project components and specifications 10
Table 1.2: Summary of indicative disturbance estimates for key Project components 16
Table 2.1: Statutory Documents relevant to Western Grasswren 17
Table 2.2: Western Grasswren Habitat suitability definitions and criteria 18
Table 2.3: Summary of direct impacts to Western Grasswren habitat within the Disturbance Footprint 20
Table 2.4: Direct and indirect impacts to Western Grasswren (WGW) 22
Table 2.5: Avoidance and mitigation measures relevant to and proposed for Western Grasswren 24
Table 2.6: Summary of likely direct impacts/significant residual impacts to Western Grasswren 26
Table 2.7: Assessment of key ecological attributes of Western Grasswren habitat 27
Table 2.8: Determining the habitat quality score for impacts to WGW (based on site characteristics) 29
Table 3.1: Statutory Documents relevant to Plains Mouse 31
Table 3.2: Summary of impacts to potential Plains Mouse habitat within the Disturbance Footprint 33
Table 3.3: Direct and indirect impacts to Plains Mouse 35
Table 3.4: Avoidance and mitigation measures relevant to and proposed for Plains Mouse 37
Table 3.5: Summary of likely direct impacts/significant residual impacts to Plains Mouse 39
Table 3.6: Assessment of key ecological attributes of Plains Mouse habitat 39
Table 3.7: Determining the habitat quality score for impacts to Plains Mouse (based on site characteristics) 41
Table 6.1: Likelihood 50
Table 6.2: Consequence 51
Table 6.3: Risk Rating Matrix 51
Table 6.4: Offset Risk Assessment 52
Table 7.1: Statutory Documents relevant to Western Grasswren and Plains Mouse 53
Table 7.2: Other relevant documents relied upon within the Draft Offset Strategy 55

List of figures

Figure 1.1: Project infrastructure components and locations 3
Figure 1.2: Project Location 6
Figure 2.1: Western Grasswren habitat mapping within Project Area and Disturbance Footprint 21
Figure 3.1: Plains Mouse habitat mapping within Project Area and Disturbance Footprint 34

1 Project description

1.1 Summary of the Project

The Government of South Australia's Department for Infrastructure and Transport (DIT) is developing the Northern Water Project (the Project, the action) which aims to provide a secure, climate resilient water source for industry located in South Australia's Upper Spencer Gulf and Far North. Delivery of the Project will involve the construction and operation of a 51 gigalitre per year (GL/year) seawater reverse osmosis desalination plant located at Mullaquana Station on the Upper Spencer Gulf, and associated water transfer system (including pipelines, transfer pump stations and, product water storages) and electricity infrastructure.

The proposed action includes the construction of a desalination plant, intake pump station, intake and outfall tunnels extending beneath the seabed into the Spencer Gulf, and diffuser structures for discharge of return water into the Spencer Gulf (i.e. return water).

The proposed desalination plant site at Mullaquana Station is located approximately 25 km south-west from the centre of Whyalla, a major regional city in the Upper Spencer Gulf.

The transfer system consists of a main transfer pipeline of approximately 360 km in length, an approximately 46 km Carrapateena lateral branch to service the Carrapateena mine, and associated transfer pump stations and storage to transfer desalination water to the delivery point at the Olympic Dam mine, with both mines located in the Far North, as presented in Figure 1.2.

A Reference Design for the Project has been used for the description of the key Project components for the purposes of State and Commonwealth assessments and impact assessment presented in the EIS. The Reference Design is preliminary and is expected to change through the detailed design process, or in response to cultural heritage matters or other refinements to minimise impacts as design and technical studies continue.

Final decisions on a range of matters including construction methodologies, materials, site locations and alignments will be subject to the outcomes of ongoing design and engineering, stakeholder engagement, technical studies and further environmental and economic assessment. As a result, matters such as the overall disturbance footprint and native vegetation clearance and disturbance footprints are subject to change; however, changes are anticipated to be managed within the Project Area.

1.2 Key terms

Key Project terms and definitions used herein include:

Project: Defined as all infrastructure components to be developed for the Northern Water Project including pipelines, transmission lines, substations, the desalination plant, and the desalination plant intake and outfall pipelines.

Project Area: Based on a 2.5 km buffer surrounding all Project infrastructure including the alignment of linear infrastructure (i.e. a 5 km wide corridor). Linear infrastructure includes pipelines, transmission lines, and the desalination plant intake and outfall. The buffer effectively incorporates all Project infrastructure for the purposes of approvals. The defined Project Area does not include the section of transfer system which is located within the BHP SML.

Disturbance Footprint (also referred to as the Construction Footprint): The best estimate of surface disturbance (including both temporary clearance and permanent clearance) required for the safe and efficient development of the Project, as presented in Figure 1.2 (Revision 5.2, received in June 2026). The Construction Footprint is generally 40 m for construction of water transfer pipelines, but may vary in width along the alignment depending on various construction constraints in some locations. The ultimate construction corridor width will be dependent on the outcomes of detailed design and related construction methodology. It may be reduced in some locations, however, there may also be instances where extra workspace is required e.g. adjacent to highly constrained sections.

Native Vegetation Disturbance Footprint: The best estimate of removal (including both temporary clearance and permanent clearance) of native vegetation protected under the *Native Vegetation Act 1991* (SA).

Study Area: Refers to the Disturbance Footprint plus a 5 km buffer area within the Eyre Peninsula (EP) Land Management Region (LMR), or the Disturbance Footprint plus a 50 km buffer area in the South Australian Arid Lands (SAAL) LMR, applied to the database searches.

Reference Design: A Reference Design (GHD 2025) for the desalination plant and transfer system from Mullaquana Station to Olympic Dam has been completed for the Project. The Project design is preliminary and is expected to change through the detailed design process, or in response to cultural heritage matters or other refinements to minimise impacts as design and technical studies continue (GHD 2025).

Permanent clearance: the best estimate of surface disturbance for areas permanently impacted by the Project (e.g. for life of the asset).

Temporary clearance: the best estimate of surface disturbance for areas which will be temporarily impacted during construction works (i.e. areas that will be rehabilitated following construction activities).

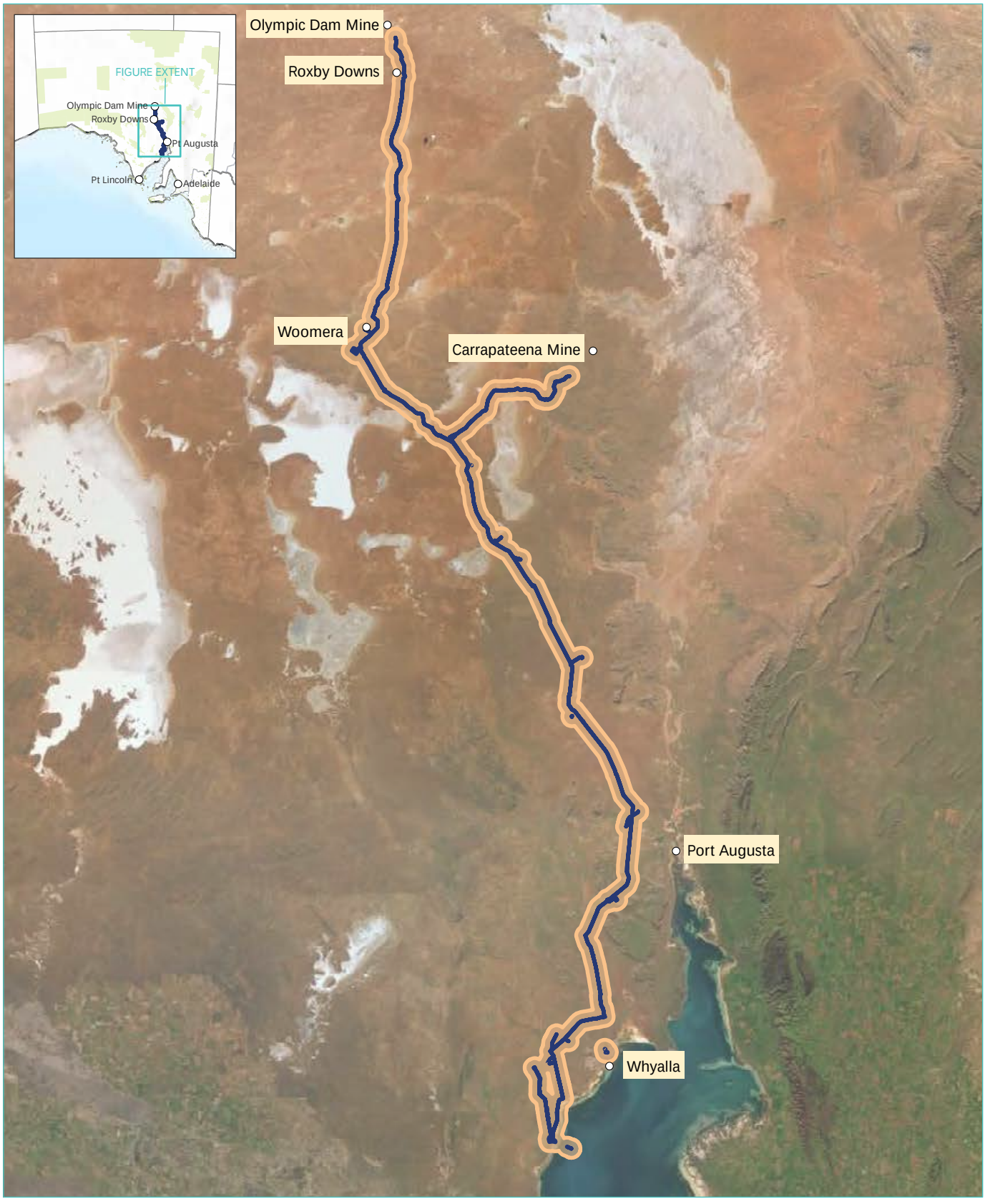


Figure 1.1: Project Location
Northern Water Project Offset Strategy

LATHWIDA

1.3 Assessment approach and scope of this document

Development of the Project is being sought under both state and Commonwealth approval.

With regards to the state approval, on 16 December 2025 the Northern Water Project Delivery Office, within DIT, as an agency of the Crown, lodged a development application under Section 131 of the *Planning, Development and Infrastructure Act 2016* (SA) (PDI Act) for the Northern Water Project (Crown DA 25038619).

On 22 December 2025, pursuant to Section 131(25) of the PDI Act the Minister directed that an Environmental Impact Statement (EIS) be prepared, subject to the procedures and requirements of being an 'impact assessed' development, as if the development had been declared under s.108(1)(c) of the Act.

With regards to Commonwealth approval, on 12 December 2025 the Project was referred to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) (reference EPBC 2025/10397).

As part of the EPBC Act referral process, a Significant Impact Assessment (SIA) was undertaken for threatened and migratory MNES (i.e. threatened ecological communities, flora and fauna) that were considered potentially impacted by the Project (JBS&G 2025), in accordance with the Commonwealth's Significant Impact Assessment Guidelines 1.1 Matters of National Environmental Significance (MNES) (DotE 2013).

In February 2026, the Commonwealth determined the Project to be a controlled action, and that the assessment approach would be via an Accredited Assessment (AA) under the PDI Act, with relevant controlling provisions for:

- listed threatened species and communities (sections 18 and 18A)
- listed migratory species (sections 20 and 20A).

On 19 March 2026, DIT lodged a scoping application under Section 111(2)(d) of the PDI Act in accordance with the requirements of Practice Direction 17 – Impact Assessment Development (State Planning Commission). Consequently, the State Planning Commission, in consultation with a range of stakeholders, prepared the Assessment Requirements (ARs) specific to the Project (DHUD 2026). The ARs address both state and Commonwealth matters, including impacts to protected matters. Final Assessment Requirements were published on 30 June 2026.

As part of the Project's ARs, and in accordance with requirements set out under the EPBC Act, Environment Protection and Biodiversity Conservation Regulations 2025 (EPBC Regulations), and EPBC Act Environmental Offsets Policy (DSEWPaC 2012a), where residual significant impacts are unable to be avoided or mitigated, impacts must be offset.

Environmental Offsets are measures that compensate for the residual impacts of an action on the environment, after avoidance and mitigation measures are taken (DSEWPaC 2012a). Where significant residual impacts cannot be avoided or mitigated, an appropriate (and approved by the Commonwealth) environmental offset must be assessed and enacted prior to development of the Project.

The EIS and SIA identified that significant residual impacts are considered possible for one MNES: Western Grasswren (*Amytornis textilis myall*) (WGW) listed under the EPBC Act as: Vulnerable.

Additionally, whilst the EIS or SIA did not identify significant residual impacts to Plains Mouse (*Pseudomys australis*), also Vulnerable, this species has been conservatively included within this Offset Strategy, to offset potential impacts to critical refuge habitat as listed in the species Conservation Advice (Moseby 2012) in the event the Minister deems that impacts are significant.

Accordingly, through describing the offset strategy, this document addresses the ARs (specifically, *"Proposed Offsets"* described in AR MNES1 and AR MNES2) for the Project in regard to potential residual significant impact(s) to Western Grasswren (*Amytornis textilis myall*) and includes consideration to potential impacts to critical refuge habitat for Plains Mouse (*Pseudomys australis*).

This Northern Water Project Draft Offset Strategy has been prepared to outline the broad offset strategies currently being pursued by DIT for Western Grasswren and Plains Mouse (as presented in Section 2 and Section 3, respectively).

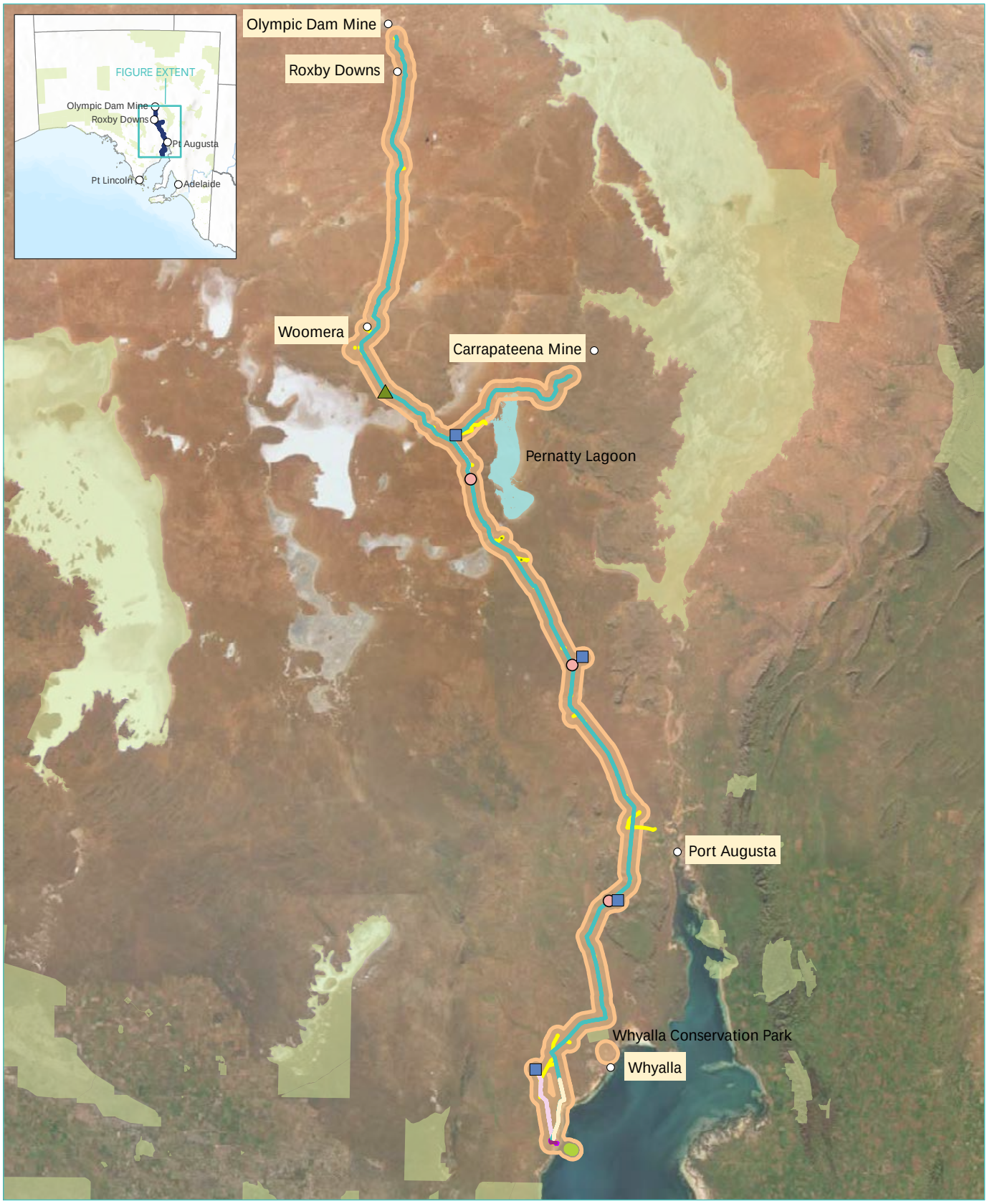


Figure 1.2: Project infrastructure components and locations
Northern Water Project Offset Strategy

LATHWIDA

1.4 Project infrastructure

Key infrastructure required for the delivery of the Project is outlined below. A summary of Project elements and the associated specifications and descriptions are provided in Table 1.1.

1.4.1 Desalination plant

The desalination plant will be located at Mullaquana Station (Figure 1.2), and will comprise an intake pump station, desalination treatment process (using ultrafiltration and reverse osmosis membranes), product water storage and ancillary equipment, and other supporting facilities and power infrastructure at the plant. The site will also incorporate administration buildings, workshops, parking, fencing, entry points, and security.

1.4.2 Marine infrastructure

Intake and outfall tunnels and pipes are proposed to extend offshore from the desalination plant into Spencer Gulf waters to a minimum approximate water depth of 13 m (intake) to a maximum of approximately 17 m (outfall) from Lowest Astronomical Tide. These depths are required in order to reach suitable intake water quality, ensure there is navigable depth of water above structures and to ensure adequate dispersion of the return water.

The exact length of the tunnels and location of the intake and outfall structures will be refined with inputs from the hydrodynamic modelling and detailed engineering design, but as a minimum the intake structure is expected to be no less than 3 km from the intake pump station, and the outfall structure is expected to be no more than 5 km from the intake pump station. The outfall and intake structures will also be sufficient distance apart to avoid recirculation of return water back into the plant, so as to not affect plant performance.

An alternate option for the marine outfall construction methodology also forms part of the EIS assessment: The marine outfall tunnel would extend offshore to a suitable tunnelling distance, from which point approximately 1000 m of additional outlet conduit on the seafloor connects to the outfall diffuser manifold at the appropriate water depth.

1.4.3 Transfer system

The Transfer system consists of the following key components:

- a main transfer pipeline extending approximately 360 km north from the desalination plant at Mullaquana Station to the Olympic Dam mine delivery point
- a lateral branch approximately 46 km in length to the Carrapateena mine delivery point
- a transfer pump station at the desalination plant
- additional transfer pump stations at three locations along the pipeline
- storage at transfer pump station locations and one at the transfer system high point.

The pipeline would be buried underground and constructed using trench cover fill for the majority of the alignment, including road crossings. Trenchless installation (e.g. tunnel boring) would be used for rail and some watercourse crossings. In particular locations, the pipeline may be required to be located above ground level for discrete sections where that is the preference of Traditional Owners, or where rock is encountered, or for the Carrapateena lateral branch (which may be constructed above or below ground).

Four transfer pump stations and associated water storages are proposed along the pipeline to move water along the length of the transfer system, along with one additional water storage site:

- Pump Station 1: Mullaquana Station pump station and storage (part of the desalination plant footprint)
- Pump Station 2: Lincoln Gap pump station and storage
- Pump Station 3: Kalaya pump station and storage
- Pump Station 4: Mangata pump station and storage
- Water Storage Site: Bimba storage.

The length of the transfer system and location of the pump stations is presented in Figure 1.1.

1.4.4 Power infrastructure

Power infrastructure required for the Project includes two new substations, augmentation of two existing substations to accommodate increased power demand as a result of the Project, and new transmission lines as outlined below and as presented in Figure 1.1.

A new substation, named the Mullaquana Substation, will be constructed approximately 20 km north of the desalination plant, and will be owned and operated by ElectraNet. The substation will connect the desalination plant via an approximate 20 km, 132 kilovolt (kV) private transmission line, which will be built and operated by the Project.

At Lincoln Gap, the existing ElectraNet Corraberra Hill Substation will be augmented by ElectraNet. This substation will supply power to the Project's Lincoln Gap transfer pump station through an approximate 3 km, 275 kV private transmission line, built and operated by the Project.

At Kootaberra Station, a new ElectraNet substation will be constructed and operated by ElectraNet. This substation will supply power to the Project's Kalaya transfer pump station via an approximate 4 km, 132 kV private transmission line, built and operated by the Project.

At Oakden Hill's, South Australia Power Networks (SAPN) Mount Gunson Substation will be augmented by SAPN. A new approximate 15 km, 33 kV distribution line will likely be constructed and operated by SAPN to connect the substation to the Project's Mangata pump station, noting that the final scope of this remains subject to ongoing engagement with, and assessment by, SAPN.

Power for the Project's Bimba storage will be provided by solar panel array and battery system.

The Project will also include four new facility substations, one dedicated to the desalination plant and located within the site at Mullaquana Station, and three dedicated to the transfer pump stations. These facility substations will be located within the facility sites, are expected to be smaller in size, may be enclosed, and will be constructed by the Project.

1.4.5 Other supporting infrastructure

Other supporting infrastructure will be required for the Project, as presented in Figure 1.1, and includes:

- Associated temporary construction-related infrastructure (such as construction camps, site offices and amenities, yards, and storages and laydown areas)
- access tracks including upgrading existing tracks and establishing new tracks
- enabling roadworks and road upgrades.

1.5 Summary of Project infrastructure

A summary of the Project infrastructure associated with the Project is presented in Table 1.1. An overview of the expected duration of impact is provided in Section 1.6.

Table 1.1: Summary of Project components and specifications

Project component	Project specifications/description
Desalination plant	
Location	Mullaquana Station located 25 km south-west of Whyalla Proposed site located ~14 km east of the Lincoln Highway. Currently accessed by unsealed local roads and private station tracks. Site is approximately 200 ha for the purposes of construction Desalination plant site is ~1.5 km from the coastal waters of the Upper Spencer Gulf
Access	Construction and operational access proposed from Lincoln Highway via Eight Mile Creek Road south of Whyalla
Desalination plant	• Seawater reverse osmosis desalination plant o sized for up to 51/GL year capacity o one pass RO system operating at 45% RO system recovery and 40% overall plant recovery (GHD 2025) o the Project will not be a registered asset under the *Safe Drinking Water Act 2011* (SA) and product water quality will not be potable but will be capable of meeting Australian Drinking Water Guidelines (ADWG) with additional treatment, if required in the future.
Intake and outfall tunnels and pipe	• A water intake pump station construction footprint is located approximately 400 m west of the mean high-water mark. • Reference Design contemplates construction of separate intake and outfall tunnels via tunnel boring from shore under the seabed to the intake and outfall locations. • Intake pipeline tunnel extends under the seabed from the intake pump station to approximately 13 m water depth (relative to Lowest Astronomical Tide, LAT) into Spencer Gulf with associated pumps and intake head (overall length of 3.9 km). • Outfall): Reference design – a separate outfall pipeline tunnel extends under the seabed from the intake pump station and terminating at the tunnel riser/outfall diffuser and a location that meets the relevant performance requirements below (approximate length likely 4.8 km). • No above ground infrastructure to be constructed in the intertidal zone. • Outfall and intake structures will be sufficient distance apart to avoid recirculation of return water back into the plant. Outfall structure will be designed and/or located in sufficient depth of water to ensure no 'break through' of the surface of the water, likely to equate to approximately 17 m depth of water, and at a distance from the mapped dense seagrass zone that results in acceptable impact to the seagrass.
Intake and outfall construction	• Marine intake and outfall pipelines sized based on, and constructed using tunnel boring machines (TBMs) • TBMs to be launched from a temporary box cut and decline constructed in south-east corner of the desalination plant construction site • A portion of the launch box will not be backfilled post tunnel completion but rather retained and constructed as the intake/outlet pump station Outfall diffuser structure is comprised of nozzles and the structure to be attached to the end of the outfall pipe using a float and sink methodology.
Operating hours	Desalination plant is expected to be staffed twenty-four hours per day/7 days per week with most maintenance activities being undertaken during daylight hours or from 7:30 am to 4:00 pm, or as negotiated by the Operator.

Project component	Project specifications/description
Construction hours	Standard construction hours will be 7am-7pm Monday to Saturday. Depending on construction scheduling, some work may need to occasionally be undertaken outside these hours in accordance with regulatory requirements.
Transfer system	
Water transfer pipeline	• Total length ~406 km o ~360 km main transfer pipeline extending north from the desalination plant to Olympic Dam o ~46 km Carrapateena lateral branch o Note that the final ~1.9 km of the transfer system is located within the BHP Special Mining Lease (SML) and is outside the scope of approvals being sought by the Northern Water Project applicant. Provision for future additional delivery points (i.e. blank interface flanges).
Pipeline materials and sizing	• PN35 mild steel cement lined (MSCL) pipeline • Pipe diameters will vary along the length of the pipeline alignment. Nominal size leaving the desalination plant of DN1200, reducing to DN1000 at Olympic Dam (noting some sections of DN1100). Carrapateena lateral branch nominal diameter DN450 ductile iron cement lined (DICL) pipeline
Pipeline construction	• Main transfer and Carrapateena lateral branch pipelines are proposed to be buried, constructed using trench and cover fill for the majority of the alignment including road crossings • Average construction 500 linear m /day (spread length ~200 m) depending on the location and complexity of each pipeline section. Two pipeline installation crews assumed on concurrent work fronts • Trenchless installation (e.g. micro-tunnelling/auger boring) will be used for rail and some watercourse crossings. There may also be locations where the pipeline is required to be located above ground level for discrete sections where crossing of environments sensitive to excavation (e.g. preference of Traditional Owners or where rock is encountered). • Above ground sections of pipeline (where the pipeline will be constructed on supports) may be designed. o Current estimates for trenchless crossings: - nine for no go zones - six under railway crossings. o Proposed trenchless methodologies: - 10 auger boring (crossings <60 m) - five micro-tunnelling (crossings >60 m) - Note: Exact numbers of crossings may change through detailed design and further constructability optimisation. • Depth of the buried pipeline will depend on the pipe diameter for the various sections of the pipeline., Minimum depth of cover will also vary with prevailing land use, with a minimum of 600 mm depth of cover provided in pastoral areas. Where pipeline crosses major roads, cover will be minimum of 1,000 mm.

Project component	Project specifications/description
Pipeline construction corridor	• Construction corridor width required over the length of the transfer system will vary based on topographical, geotechnical, pipe material and jointing method selected, required clearances from other services, and environmental and Aboriginal cultural heritage constraints. • Maximum width for construction corridor = 40 m which can be constrained in areas of high sensitivity (generally 25 m) This allows for trench, pipeline installation, stockpiles, main and secondary vehicle access, and pipe laydown
Transfer pump stations (PS) and product water storage	• Four new transfer pump stations o PS 1 – Mullaquana Station pump station (desalination plant site) o PS 2 – Lincoln Gap pump station and 6 ML storage o PS 3 – Kalaya pump station and 6 ML storage o PS 4 – Mangata pump station and 6 ML storage • One new storage o Bimba storage at overall high point on the main transfer pipeline. Individual pump station and product water storage sites (excluding that located within the desalination plant site) are likely to be no more than 4 ha in size.
Access tracks	• New temporary access tracks for light and heavy vehicles from existing major and other roads would be required for the pipeline • Maintenance and widening of existing access tracks, and upgrade or augmentation of road traffic infrastructure to accommodate movement of project materials will also be required. A continuous formed access road or track for future inspection or maintenance purposes once the pipeline is operational is not expected to be necessary for the entire alignment.
Electricity supply	
Transmission lines	• Four new transmission lines (connections to desalination plant and pump stations) o Mullaquana Station 132 kV (approx. 20 km) o Pandurra 275 kV (approx. 3 km) o Bookaloo 132 kV (approx. 4 km) o Oakden Hills 33 kV (approx. 14.5 km) Standard width for construction corridor = an average of 20 m per linear metre of transmission line, subject to any constraints.
Network substations	Two new network substations and two upgraded network substations are proposed to provide power to the desalination plant and the pump stations. • new network substations o Mullaquana Station substation (serves the new Mullaquana Station 132kV line, desalination plant, intake and transfer pump stations) o Kootaberra substation (serves the new Bookaloo 275kV line and Kalaya transfer pump station) • upgraded network substations o Corraberra Hill substation (ElectraNet) (275kV) (serves the Lincoln Gap transfer pump station and the new Pandurra 275 kV line) Mount Gunson substation (SAPN) (33 kV) (serves the Mangata transfer pump station and new Oakden Hills 33 kV line)

Project component	Project specifications/description
Pump station (facility) substations	Four facility substations will also be constructed within the transfer pump station compounds: • Mullaquana Station desalination plant • Lincoln Gap • Kalaya • Mangata
Power supply to product water storage	• Bimba storage – solar panels array Carrapateena and Olympic Dam storage will utilise existing power sources
Construction water and power	
Water	• Potable and non-potable water for the construction workforce (drinking and bathing), concrete batching, tunnelling, hydrotesting of water containing structures, earthworks compaction and dust suppression is proposed to be primarily sourced via existing infrastructure in particular from SA Water and the Port Augusta to Woomera Pipeline (PAWP). • Some wastewater from construction of marine infrastructure may potentially be captured, treated (if necessary) and reused. • In the northern section, use of the standpipe at Roxby Downs and the BHP bore at Mount Gunson are still to be explored. Water will be transferred via road tanker (assuming 30 kL per semi-trailer load). Temporary tank farms will be established at pipe laydown yards and trenchless crossing sites for further distribution using construction vehicles.
Power	Temporary construction power will be required at all camps, pipe and general laydown areas, stack sites, tank farms, ARTC rail sidings, transfer system work fronts, transfer pump stations and storage tanks. All construction power would be via diesel generators.
Laydowns	
Laydowns	An estimated six laydown areas are proposed for the length of the Project alignment. Locations are yet to be determined, with locations expected to utilise existing disturbance (where possible). The laydown areas will vary in size to meet constructability requirements and space limitations within the Disturbance Footprint.
Camps/accommodation	
Camps/ accommodation	A number of transportable construction camps are proposed during construction but remain the subject of ongoing assessment. As per EIS Chapter 6 section 6.4.3, any accommodation camps outside the Disturbance Footprint will be the subject of separate approvals and/or self-assessments.

1.6 Expected duration of impact

The expected construction timing and staging (as per EIS Chapter 6) is outlined below.

Construction stages include:

- Site preparation – surveys, clearance, geotechnical investigations, set up temporary construction laydowns, plant, equipment and facilities
- Construction of infrastructure – the transfer system will involve multiple work fronts working from Mullaquana Station up to Olympic Dam. The desalination plant site will include construction work groups at the desalination plant site, the TBM tunnels as well as offshore on the JUB.
- Clean up – following construction of infrastructure, all plant, equipment and excess materials will be removed, site levelled, ripped and scarified.
- Commissioning, including hydrotesting of pipe, will be conducted to ensure all equipment is operating as expected.

It is anticipated that subject to the grant of necessary environmental and development approvals and the finalisation of land access arrangements, construction of the Project may commence in Q1-Q2 2028, with a construction period of approximately 4 years, noting that this will occur progressively along the alignment. The Project is expected to be operational by 2032.

1.7 Environmental impact

The Project's Disturbance Footprint was used to calculate areas of impact to vegetation (i.e. vegetation associations) and preferred habitat (for Western Grasswren) (Jacobs 2026), or critical refuge habitat (for Plains Mouse) (Jacobs 2026; Lathwida 2025a; Lathwida 2025b).

Land at Mullaquana Station and the adjoining station properties is currently utilised for sheep grazing and has not been cleared for agricultural cropping. Transfer system infrastructure, including pipelines, transfer pump stations and storage facilities, has been located parallel to and/or utilising existing and previously disturbed areas where possible, largely within land subject to livestock grazing over native vegetation.

The proposed action will have a direct and/or indirect impact on the existing terrestrial environment principally through the clearing of native vegetation/habitat to enable the construction of the desalination plant, transfer system and electricity infrastructure.

Potential environmental impacts from operational activities are more limited in extent and include direct and indirect impacts on marine flora and fauna from desalination plant return water to the marine environment. However, these impacts are not considered significant nor have any significant residual impacts (JBS&G 2025) and thus have not been accounted for within this report.

1.7.1 Disturbance Footprint/Construction Footprint

The Project Area is based on a 2.5 km buffer of the alignment of linear infrastructure (with isolated areas identified outside of this buffer for potential laydown locations).

The indicative total Disturbance Footprint for the Project is estimated at 2,156 hectares (ha), of which approximately 1,992 ha is located in native vegetation (Native Vegetation Disturbance Footprint). The remaining disturbance occurs within land previously cleared of native vegetation, or land which is already disturbed (e.g. by existing roads, tracks, or clearance) and will not result in impacts to native vegetation.

Of the 1,992 ha Native Vegetation Disturbance Footprint an estimated 376 ha is considered permanent clearance, and 1,616 ha is considered to be temporary clearance and would be rehabilitated following construction (by respreading cleared and stored topsoil and vegetation to encourage natural regeneration, with additional rehabilitation methods (e.g. direct seeding using locally collected seed stock) implemented where required to supplement natural regeneration). Some vegetation within the Disturbance Footprint represents habitat which supports EPBC listed species.

It should be noted that not all of the Native Vegetation Disturbance Footprint represents habitat that could support threatened fauna or flora species.

Within the Project Area, an indicative Disturbance Footprint (also referred to as the Construction Footprint) for the Project has been developed, based on the Reference Design and anticipated construction methodologies. The indicative Disturbance Footprint relative to Western Grasswren is presented in Figure 2.1, the indicative Disturbance Footprint relative to Plains Mouse is presented in Figure 3.1. The Construction Footprint incorporates estimated areas required for permanent clearance and temporary clearance for all Project components.

The overall disturbance required for the entire Project, and each of the individual Project elements, is described in Table 1.2.

The Project design is preliminary and is expected to be refined through the detailed design process, or in response to cultural heritage matters or other refinements to minimise environmental impacts as design and technical studies continue. As such, the Disturbance Footprint and indicative disturbance estimates will be subject to change as the Project is refined and continues with the iterative process to increase efficiencies in the design of the Project, and to further reduce actual or potential impacts to the environment.

Permanent clearance and temporary clearance requirements (ha) (inclusive of areas of native vegetation and areas of existing disturbance) required for the construction and operation of the Project are provided in Table 1.2. The clearance areas specified are considered an upper limit and are intended to provide for flexibility for future potential improvements in the design of the Project between now and the time of the detailed design and construction.

Specific impacts to Western Grasswren and Plains Mouse are discussed further below in Section 2.6 and Section 3.6 respectively.

Table 1.2: Summary of indicative disturbance estimates for key Project components

Project Component	Permanent clearance (ha)	Temporary clearance (ha)	Total clearance[1] (ha)
Desalination plant	189	0	189
Access road to desalination plant	35	0	35
Offshore construction of marine infrastructure, including risers, intake structure and outfall diffusers	4	3	7
Main transfer pipeline and lateral branch (includes construction corridor disturbance and allowance for access track)	122	1,481	1,603
Pump stations and water storages	14	14	28
Electricity infrastructure	45	40	85
Other temporary construction areas (camps/laydowns/yards/offices/access tracks)	0	209	209
TOTAL	409	1,747	2,156

[1] The total Disturbance Footprint within this table does not differentiate between areas with or without native vegetation, as such the actual impact to native vegetation is less.

1.8 Other relevant legislation

Other environmental legislation relevant to the Project which has been considered and referenced within this document includes the following:

- *Environment Protection Act 1993* (SA) (EP Act)
- *Landscape South Australia Act 2019* (SA) (Landscape SA Act)
- *National Parks and Wildlife Act 1972* (SA) (NPW Act)
- *Native Vegetation Act 1991* (SA) (NV Act)
- *Pastoral Land Management and Conservation Act 1989* (SA) (PLMC Act).

1.9 Design optionality and scope change

There remains some optionality and ongoing potential for refinement of the engineering design. As such, the final impact area of potential significant residual impacts to MNES may be further reduced during this process.

2 Western Grasswren (background, context and project impact)

2.1 Background and context

Western Grasswren (*Amytornis textilis myall*) is listed as Vulnerable under the EPBC Act, and Vulnerable under the NPW Act. The species is listed as Least Concern (however this includes both subspecies *A. t. textilis* and *A. t. myall*) under the International Union for Conservation of Nature and Natural Resources (IUCN) Red List, having been last assessed in 2024 (IUCN 2026a).

The EPBC Act legal status and documents for Western Grasswren (as available on DCCEEW's Species Profile and Threats (SPRAT) Database) is presented in Table 2.1 and includes the following:

Table 2.1: Statutory Documents relevant to Western Grasswren

Document Name	Where and how the Strategy addresses the document
EPBC Act Listing Status	Listed as Vulnerable (Date effective 06-Nov-2014)
Approved Conservation Advice	Department of the Environment (DotE 2014). Conservation Advice *Amytornis textilis myall* western grasswren (Gawler Ranges). Canberra: Department of the Environment. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/64454-conservation-advice.pdf. In effect under the EPBC Act from 06-Nov-2014.
Listing Advice	Listing assessment information may be available in the approved Conservation Advice
Recovery Plan Decision	Recovery Plan not required, given the small number of locations occupied by the subspecies (around 10) and the fact that at least some of the locations are in a Conservation Park, conservation advice for the subspecies should provide sufficient direction to implement priority actions and mitigate against key threats (27/10/2014).
Adopted/Made Recovery Plans	There is no adopted or made Recovery Plan for this species
Adopted/Made Threat Abatement Plans	Department of Climate Change, Energy, the Environment and Water (DCCEEW 2024a). *Threat abatement plan for predation by feral cats 2024*. Canberra: Commonwealth of Australia. Available from: http://www.dcceew.gov.au/environment/biodiversity/threatened/publications/tap/threat-abatement-plan-feral-cats. In effect under the EPBC Act from 24-Dec-2024.

2.2 Survey methodology

The ecology assessment included a desktop ecological assessment, likelihood of occurrence assessment, and a review of available databases and literature relevant to Western Grasswren (Jacobs 2026). The assessment included information gathered during twelve ecological field surveys undertaken for the Project between 2021 and 2025 (inclusive), with a number of these surveys extending specifically to detect Western Grasswren and identify suitable habitat, as outlined in Jacobs (2026).

The ecology assessment informed search areas for baseline and targeted surveys, which were undertaken for Western Grasswren where the Project intersects with the species' Extent of Occurrence (EOO) and Area of Occupancy (AOO). Western Grasswren surveys involved the assessment of vegetation for habitat

suitability. Surveys were undertaken during known periods of activity through observation of individuals and detection of calls (through song meter recordings and acoustic analysis, call playback and timed area searches) (Jacobs 2026), and in accordance with the Survey Guidelines for Australia's Threatened Birds (DEWHA 2017).

The total timed area search time for the Project was over 50 hours (survey effort supplemented by song meter recordings), which exceeded the requirements as outlined in the guidelines (DEWHA 2017).

Classifications of habitat suitability for the species were applied were based on the criteria listed in the species' Conservation Advice (DotE 2014) and as per the criteria outlined presented in Table 2.2 (Jacobs 2026).

Table 2.2: Western Grasswren Habitat suitability definitions and criteria

Habitat suitability	Criteria	Rationale
Preferred	Total shrub cover 0 – 1 m, 25 – 60%; Cover of spiny shrub >0.5 m, or other dense tall chenopod shrubs (0.5 – 1 m) represents a high proportion of the total shrub cover; Dominant shrub species include Black Bluebush, Australian Boxthorn (*Lycium austral*), Spiny Saltbush (*Rhagodia spinescens*) and Bladder Saltbush (*Atriplex vesicaria*); Can occur with Western Myall (*Acacia papyrocarpa*), Bullock Bush (*Alectryon oleifolius*) low woodlands (less typically including Spiny Fan Flower (*Scaevola spinescens*)).	Mean shrub cover of sites surveyed by Black et al. (2009) which had Grasswren was 30.6%. Sites with Grasswren recorded historically have a high cover of shrubs to ground level, provided by dense chenopod shrubs and/or spiny shrubs. The majority of sites with Grasswren recorded by Black et al. (2009) "*were generally confined to drainage lines*" and had dense Black Bluebush and/or Australian Boxthorn with Spiny Saltbush or Spiny Goosefoot (*Rhagodia ulicina*) and Bladder Saltbush commonly recorded. From Black and Gower (2017) Table 4 – Black Bluebush (*Maireana pyramidata*) and Australian Boxthorn (*Lycium australe*) low shrublands or open Western Myall and Bullock Bush low woodlands, less commonly Nitre Goosefoot (*Chenopodium nitrariaceum*) or other shrublands, rarely mallee; Spiny Saltbush common.
Atypical	Total shrub cover 0 – 1 m 15 – 25%; Cover of spiny shrub > 0.5 m, or other dense tall chenopod shrubs (0.5 – 1 m) represents a high to moderate proportion of the total shrub cover; Dominant shrub species include Pearl Bluebush (*Maireana sedifolia*), Spiny Fan Flower, Lobed-leaved Hop Bush (*Dodonaea lobulata*), Pin Bush (*Acacia nyssophylla*); Bladder Saltbush +/- dense shrubs (e.g. Senna spp.); Can occur with Western Myall, Bullock Bush +/- Sugarwood (*Myoporum platycarpum*) low woodlands; May include Black Oak (*Casuarina pauper*) with spiny shrubs present.	Black et al. (2009) recorded Grasswren at a lesser number of sites, described as "atypical", which displayed these characteristics. These sites were generally not in drainage lines but may be subject to artificial water and did not contain Black Bluebush and/or Australian Boxthorn as dominants (i.e. can occur, but not dominant), but did have a "high cover" of dense spiny shrubs. Whilst this vegetation is atypical it is considered a highly suitable for Western Grasswren, particularly within the species known range.

Habitat suitability	Criteria	Rationale
	Biological Databases of South Australia (BDBSA)/Jacobs) records and/or habitat connectivity to known areas of preferred habitat within the landscape.	
Atypical (marginal)	Spiny shrubs and/or dense chenopod shrubs present, but at 5 – 15% cover or < 0.5 m tall. Some records (BDBSA/Jacobs) within 20 km and limited habitat connectivity to known areas of preferred habitat within the landscape.	Black et al. (2009) found that habitats in which Grasswrens were recorded had a high cover of dense shrubs 0 – 1 m tall.
Low Suitability	Total shrub cover 0 – 1 m is very low; spiny shrubs are not present or <1% cover. No records (BDBSA/Jacobs) within 20 km and no habitat connectivity within the landscape.	Lack key shrub cover, species mixes and densities of preferred/atypical habitats.

Source: Jacobs (2026).

2.3 Western Grasswren in the Project Area

Western Grasswren habitat suitability is considered to vary across the landscape and is dependent on site-specific characteristics, such as density and cover of dominant species, presence and height of cover of spiny shrubs. (Jacobs 2026). In summary:

- Within the Project Area in the Eyre Peninsula Land Management Region, habitat for Western Grasswren is considered present predominantly surrounding Whyalla Conservation Park and north of the township of Whyalla (Jacobs 2026). Fragmented patches were also located west of Whyalla and to the west of Cowleds Landing near Mullaquana Station (Figure 2.1).
- Preferred Western Grasswren habitat extends from the EP LMR into the southern portion of the South Australian Arid Lands Landscape Management Region, where preferred habitat patches exist in and around atypical and low potential habitat to the west of Port Augusta (Figure 2.1).

More specifically in relation to the Project Area, Western Grasswren habitat is considered known to occur in 'open woodlands over chenopod/chenopod shrublands/tall chenopod shrublands' in the EP LMR, and known to occur in 'open woodlands over chenopod/chenopod shrublands/tall shrublands of Senna, Mulga on plains, and ephemeral creeks/drainage lines' (Jacobs 2026).

A summary of the extent of each habitat category for Western Grasswren is presented in Table 2.2 and Figure 2.1.

Table 2.3: Summary of direct impacts to Western Grasswren habitat within the Disturbance Footprint

Habitat suitability category	Area in EP LMR Disturbance Footprint (ha)	Area in SAAL LMR Disturbance Footprint (ha)	Total area in Disturbance Footprint (ha)*
Preferred	13.58	122.12	135.70
Atypical	192.69	73.47	266.16
Atypical marginal (no individuals detected within Mullaquana/Desalination Plant Disturbance Footprint)	188.86**	-	188.6**
Low potential	61.81	94.90	156.71
Not suitable	1.28	-	1.28
Outside of known range	-	1,243.02	1,243.02

* Note: these values have been rounded to the nearest hectare elsewhere within this report.

Source: Jacobs (2026); JBS&G (2026)

As such, the Project has been determined to intersect with the following Western Grasswren habitat, with the former two impacts occurring along a length of the water transfer system of approximately 100 km:

- Approximately 136 ha of potential 'preferred habitat' (of which 120 ha can be rehabilitated).
- Approximately 266 ha of 'atypical (but suitable) habitat' (of which 227 ha can be rehabilitated).
- Approximately 189 ha of 'atypical habitat' which is considered marginally suitable within the Disturbance Footprint at the desalination plant located near Mullaquana, and unlikely to support core populations.

Regarding the Disturbance Footprint at the desalination plant, it should be noted that the species has not been recorded during ecological surveys associated with this area, and there are no records within the Mullaquana Study Area (i.e. the location of the desalination plant plus a buffer ranging from 500 m (in the south-west) to 880 m (in the north)) (Appendix B of JBS&G 2025). Further, while the desalination plant site was conservative assessed as providing atypical habitat for the species, targeted and extensive surveys did not detect Western Grasswren at the desalination plant site within the Project Area (Jacobs 2026). Jacobs noted that this area lacks taller spiny shrubs, which are often considered a prerequisite habitat feature for Western Grasswren. While it is possible that Western Grasswren may opportunistically use the area during periods of high abundance or favourable conditions, the site does not appear to provide the structural characteristics typically associated with key breeding or foraging habitat (JBS&G 2025).

Whilst offsets under the EPBC Act do not take into consideration post-construction rehabilitation works to areas of temporary impacts, it should be noted that 347 ha of Western Grasswren habitat (comprised of approximately 120 ha of preferred habitat and approximately 227 ha of atypical (but suitable) habitat) will be rehabilitated progressively during construction of the Project (noting this does not include any temporary disturbance associated with the desalination plant).

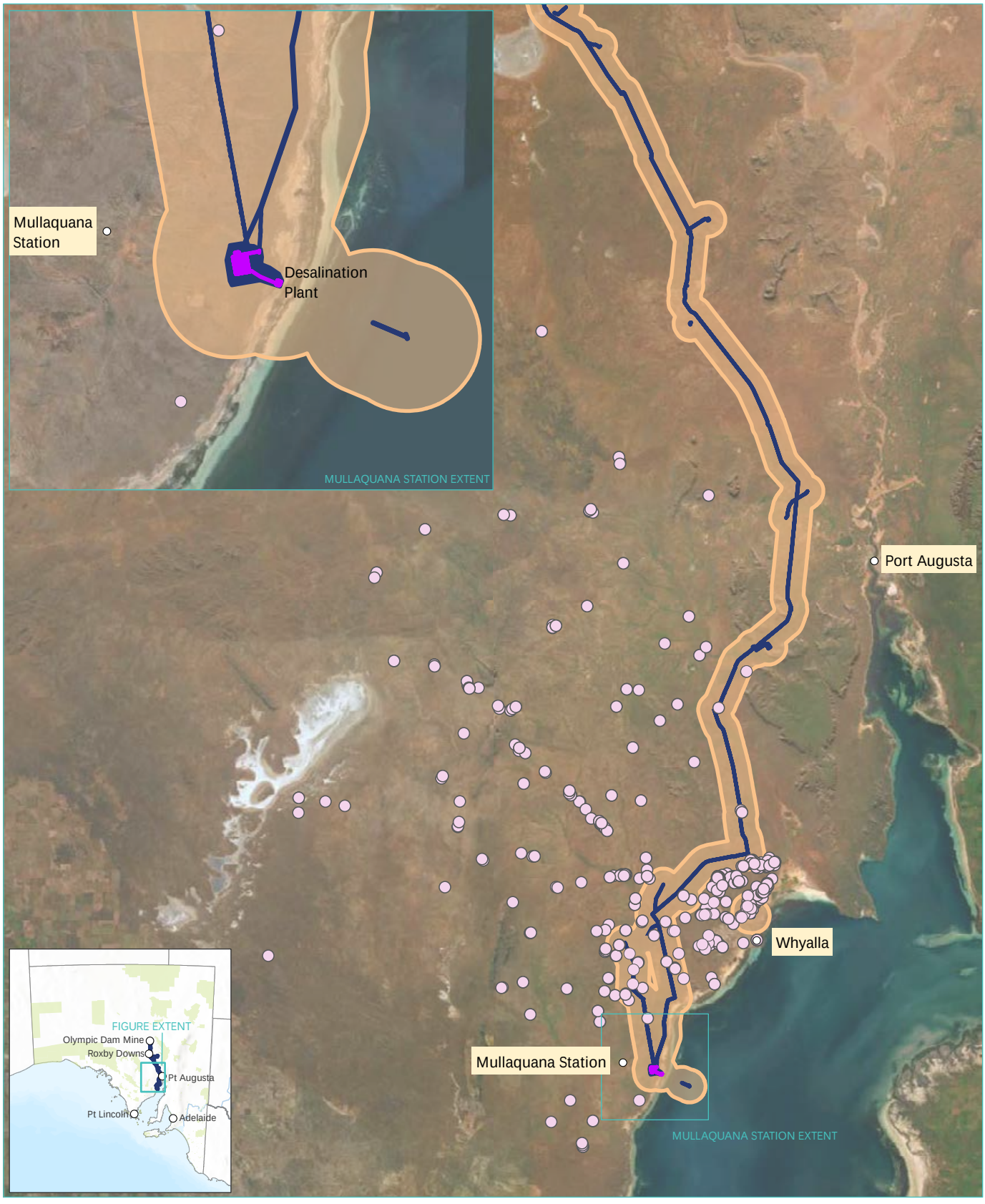


Figure 2.1: Western Grasswren habitat mapping within Project Area and Disturbance Footprint
Northern Water Project Offset Strategy

LATHWIDA

2.4 Summary of direct and potential indirect impacts to Western Grasswren

Table 2.4: Direct and indirect impacts to Western Grasswren (WGW)

Construction Impacts	Operation (and Maintenance) Impacts	Comment
Direct Impacts		
Direct loss of approximately of 136 ha of preferred habitat and 266 ha of atypical habitat (during construction of water transfer system and electrical infrastructure).	Nil expected.	Unavoidable. Project design measures have been implemented to minimise impacts to WGW habitat to the greatest extent possible prior to construction. Further micro-siting may occur during construction, which may further reduce impacts to WGW and WGW habitat. No recent detection of WGW within the Disturbance Footprint (Jacobs 2026).
Direct loss of 189 ha of marginal atypical habitat (during construction of the desalination plant).	Nil expected.	Unavoidable impacts to marginal atypical habitat which is noted as lacking spiny shrubs and considered unlikely to support core populations. No recent detection of WGW within the Disturbance Footprint of the desalination plant footprint (Jacobs 2026).
Disturbance of individuals in the vicinity of the Project during construction.	Nil expected.	Unavoidable. Project design measures have been implemented to minimise impacts to WGW habitat to the greatest extent possible prior to construction. Further micro-siting may occur during construction, which may further reduce impacts to WGW and WGW habitat.
Individuals impacted by collisions with vehicles or earth moving equipment.	Nil expected.	Unavoidable, although low potential to be impacted by collisions with vehicles or earth moving equipment. Project alignment has been through iterative process to avoid impacts to known records WGW (Jacobs 2026). Individual WGW would be expected to disperse into adjacent available habitat during construction activities.
Noise and vibration	Noise and vibration	Displacement of individuals during construction phase due to vehicles, machinery and other equipment. Any potential noise disturbance during operation and maintenance is expected to be negligible, localised, with any potential impacts minimised and managed through specific controls and management measures to be defined in the OEMP and CEMP.
Chemical/water spills	Chemical/water spills	Avoidable through specific controls and management measures

Construction Impacts	Operation (and Maintenance) Impacts	Comment
Indirect Impacts		
Accidental clearance of WGW habitat (preferred, atypical or other) outside of Disturbance Footprint.	Nil expected	Avoidable through specific controls and management measures[1]
Increase in feral animal predation as existing tracks occur in the Project Area.	Increase in feral animal predation as existing tracks occur in the Project Area.	Low potential for increase in feral animal predation as existing tracks occur in the Project Area. Avoidable through specific controls and management measures[1]
Habitat degradation due to invasive species and disease introduced with proposed weed controls and hygiene practices.	Habitat degradation due to invasive species and disease introduced with proposed weed controls and hygiene practices.	Low potential for habitat degradation due to invasive species and disease introduced with proposed weed controls and hygiene practices. Avoidable through specific controls and management measures[1]
Dust	Nil expected.	Potential impacts to vegetation/WGW habitat (e.g. smothering vegetation, reducing habitat quality).
Alteration to natural surface water movements	Alteration to natural surface water movements	Potential changes to surface water flow as a consequence of construction work which may temporarily impact WGW habitat.
Fire	Fire	Sparks caused by construction, operation or maintenance work have the potential to start bushfires which may: • cause fatalities to significant numbers of EPBC listed threatened species in one incident • destroy EPBC listed threatened species nests • destroy large areas of EPBC listed threatened species habitat.

Sources: JBS&G 2025 and Lathwida 2026.

[1] specific controls and management measures include reference to and implementation of the Construction Environmental Management Plan (CEMP) and Operational Management Plan (OEMP), Threatened Species Management Plan (TSMP), and other relevant management practices and plans developed specifically for the Northern Water Project.

2.5 Application of the mitigation hierarchy

2.5.1 Avoidance and mitigation measures

The Offsets mitigation hierarchy, as outlined in the Environmental Offsets Policy (DSEWPaC 2012a) and on the Commonwealth's Offsets mitigation hierarchy webpage (DCCEEW 2026), has been applied to the Project throughout the Project's early multi-criteria assessment phase, and development of the more recent detailed design. Early ecological studies with a particular focus on early identification of MNES and other potential impacts on the environment have been incorporated into the design process to ensure that all reasonable measures have been taken to avoid and mitigate impacts on protected matters but specifically in terms of Western Grasswren as documented herein.

A range of standard Project-specific avoidance and mitigation measures have been applied and will continue to be employed during the design and construction phase, operation, and maintenance phases to continue to review and reduce potential impacts of the Project. Additionally, a number of avoidance and mitigation measures specific to Western Grasswren, are presented in Table 2.5.

Table 2.5: Avoidance and mitigation measures relevant to and proposed for Western Grasswren

Avoidance/mitigation measure	Design and construction	Operation and maintenance
Design and Construction (general measures)		
Desktop and field surveys carried out to identify key ecological constraints, feeding into iterative design process to avoid and minimise interaction with important habitat as far as reasonably practicable.	x	-
Minimise construction footprint and utilise previously cleared or disturbed areas where practicable.	x	-
Restrict construction width to the minimum necessary to allow safe and efficient pipeline installation.	x	-
A field inspection will be undertaken with an experienced ecologist and construction design specialist in order to further reduce the construction corridor width where possible and to assist with demarcation of no-go zones for particularly sensitive areas.	x	-
During construction, implement weed hygiene practices including vehicle checks and washdowns as required on vehicles or plant entering the construction site.	x	-
During construction, undertake monthly weed surveillance monitoring targeting Weeds of National Significance (WoNS) and Declared Weed species, with follow up controls as required for any identified weed outbreaks.	x	-
During operation, implement weed surveillance and control programs targeting WoNS and Declared Weed species (if weeds identified).	-	x
Micro-site transmission line tower locations where possible to avoid important habitat features.	x	-
Develop and implement protocols for management of waste during construction to avoid an increase in, or attraction of, feral pest animals to the project area.	x	-

Avoidance/mitigation measure	Design and construction	Operation and maintenance
Avoid construction works associated with crossings of ephemeral lakes and watercourses when water is present where practicable.	x	-
Presence of experienced environmental management field staff during access and clearing activities.	x	-
Presence of, or access to, trained fauna handlers during construction to assist with removal of, and relocation of, any trapped (and/or injured) fauna caught within trenches, or displaced during habitat clearance.	x	-
Routine monitoring of open trenches during construction activities to inspect for trapped fauna.	x	-
Progressive backfilling of trenches to minimise the length of open trenches at any time during construction.	x	-
Inclusion of fauna ladders in open trenches to enable egress of any trapped fauna.	x	-
Speed restrictions in place within construction corridor and along access tracks	x	x
Progressive rehabilitation of all temporary construction areas where native vegetation clearance has occurred.	x	-
Preparation of a Threatened Species Management Plan with monitoring and reporting requirements.	x	x
Operations and Maintenance Environmental Management Plan prepared and implemented prior to commissioning.	-	x
Western Grasswren specific avoidance and mitigation measures		
Redesign measures to avoid and minimise impacts to WGW to include: • Narrowing infrastructure in areas of highly suitable habitat • Disturbance Footprint within the EP LMR preferentially located within previously cleared land, along existing easements, tracks, infrastructure corridors, or within areas of lower quality vegetation and habitat • Disturbance Footprint within the SAAL LMR preferentially located and aligned to rail, road and infrastructure corridors.	x	-
Permanent disturbance for new informal access tracks limited to an approximately 3 m width for low traffic volume access	x	-
The majority of the pipeline will be buried, with the construction disturbance rehabilitated. As such, this habitat is likely to rehabilitate and will continue to be contiguous with extensive areas of suitable preferred and atypical habitats that occur across the Eyre Peninsula.	x	-
Transmission towers can be micro-sited to minimise potential impact to high-quality habitats.	x	-
Minimal clearance of suitable preferred habitat will occur adjacent to and north and south of Whyalla (including the Cultana Training Area).	x	-
Avoidance of preferred habitat where possible, with approximately 120 ha (of a total of 136 ha) considered temporary disturbance and amenable to rehabilitation, i.e. approximately 88.2% of all disturbance to preferred habitat for WGW.	x	-

Avoidance/mitigation measure	Design and construction	Operation and maintenance
Avoidance of atypical habitat where possible, with approximately 227 ha (of a total of 266 ha) considered temporary disturbance and amenable to rehabilitation (i.e. approximately 88% of all disturbance to atypical habitat for WGW (not including the atypical habitat associated with the desalination plant).	x	-
Siting of desalination plant in atypical marginal habitat which is considered unlikely to support core populations or serve as important breeding habitat for the species, and does not appear to provide the structural characteristics typically associated with key breeding or foraging habitat.	x	-
Avoidance of drainage lines where possible, and such areas that contain the majority of the preferred/critical habitat for WGW.	x	-

Source: Jacobs (2026); JBS&G (2025).

2.6 Residual significant impact

Whilst Project infrastructure, including the water transfer system alignment, has been designed to avoid impacts to Western Grasswren to the greatest extent possible, the Project has been assessed as directly impacting linear patches of Western Grasswren habitat, with the Disturbance Footprint intersecting approximately 136 ha of preferred habitat and approximately 266 ha of atypical habitat. Linear patches are generally confined to an area between Mullaquana Station and Whyalla, where a number of Western Grasswren have been recorded within the broader Study Area (i.e. within the buffer area adjacent to the Disturbance Footprint) between 2021 and 2025 (Jacobs 2026). Publicly available data for the species suggest Western Grasswren occur at highest density within approximately 10 km to the north (including Whyalla Conservation Park), and within approximately 10 km to the west of Whyalla (DEW 2026). Of note, the Project water transfer system alignment has avoided this area to avoid impacts to locations considered to support the higher population density for Western Grasswren.

With the application of the mitigation hierarchy, as outlined in Section 2.5, direct impacts to individuals are likely to be avoided, with any individuals within the Disturbance Footprint capable of temporarily dispersing into adjacent, available and suitable habitat. Pre-clearance surveys by a suitably qualified ecologist would be undertaken prior to any clearance activities (i.e. vegetation clearance).

Beyond direct significant residual impacts (i.e. vegetation clearance activities), no indirect significant residual impacts are expected for the Western Grasswren. All indirect impacts are expected to be effectively avoided or mitigated through implementation of the CEMP and TSMP.

A summary of likely direct impacts to Western Grasswren as a result of the Project is outlined in Table 2.6

Table 2.6: Summary of likely direct impacts/significant residual impacts to Western Grasswren

	Direct impact to WGW preferred habitat (ha)	Direct impact to WGW atypical habitat (ha)	Total area of direct impact to WGW (ha)
Disturbance Footprint	136	266	402

Source: JBS&G (2025).

The significant impact assessment (JBS&G 2025) did not identify any significant residual impacts as a result of direct impacts (clearance) to 189 ha of atypical marginal habitat within the Disturbance Footprint of the desalination plant, and thus any impact to this area is not discussed further.

2.6.1 Habitat quality/detailed description of the impact area

In order to understand the offset requirements arising from residual impacts, the habitat quality for Western Grasswren has been assessed in accordance with the Commonwealth's Environmental Offset Policy (DSEWPaC 2012a) and the Offsets assessment guide (DSEWPaC 2012b; DSEWPaC undated), and with consideration to the species' Conservation Advice (DotE 2014), habitat descriptions as utilised in Jacobs (2026), and other relevant literature. Supplementary literature based upon studies undertaken for the Western Grasswren (WA subspecies *Amytornis textilis textilis*) has been referenced where data gaps exist for Western Grasswren (Gawler Ranges).

An evaluation of the key ecological attributes, as outlined in the Offsets assessment guide (DSEWPaC undated), for Western Grasswren habitat are summarised in Table 2.7.

Table 2.7: Assessment of key ecological attributes of Western Grasswren habitat

Ecological Attribute	Description
Habitat requirements and variability: What are the nesting, breeding, foraging, dispersal, migration and/or roosting requirements of the species? What are the various ecological components and occurrence states for the ecological community?	Western Grasswren (*Amytornis textilis myall*) is endemic to South Australia and occurs only in the north-eastern Eyre Peninsula extending to the eastern Gawler Ranges in South Australia, with a substantial portion of the population occurring surrounding the township of Whyalla (DotE 2014). The species is known to occupy chenopod shrublands across the Gawler Ranges and North Eyre Peninsula, most commonly in low shrublands comprising of Blackbush (*Marieana pyramidata*) and Australian Boxthorn (*Lycium australe*) and spiny shrubs (DotE 2014), however, also prefers semi-arid low open woodlands, mostly comprising Western Myall (*Acacia papyrocarpa*) and Senna shrublands (Black et al. 2009; Menkhorst et al. 2021). Preferred habitats for the species typically occur in association with drainage lines, but other habitats such as low rocky hills and semi-arid low woodlands may also be suitable (DotE 2014). Core habitats are known to occur in the Whyalla to Iron Knob corridor as documented in the Action Plan for Australian Birds 2020 (Garnett and Baker 2021). The species is considered omnivorous, with its diet primarily consisting of seeds, fruits, insects and other invertebrates (Higgins et al. 2011 cited in DotE 2014). The species is known to forage on the ground, under and around the bases of shrubs, in leaf litter and occasionally in open areas, with temporal activity occurring through early and mid-morning, and sometimes in the late afternoon (Higgins et al. cited in DotE 2014). Western Grasswren usually forage in pairs (Higgins et al. 2001 cited in DotE 2014).
Lifecycle and population dynamics: What are the key life cycle stages of the species/community? How do these impact its population viability or ecosystem integrity?	Most studies of Western Grasswren have focussed on the species' habitat requirements, area of occurrence, and ecology, with the species' breeding behaviour remaining somewhat poorly understood (DotE 2014). However, the species is thought to be socially monogamous, and considered likely to engage in cooperative breeding with additional adults (though there is no data on this) (Higgins et al. 2001 cited in DotE 2014). A recent paper assessing the social organisation and breeding biology of the Western Grasswren (Western Australian ssp. restricted to Shark Bay) (*Amytornis textilis textilis*), indicated that WGW territories were occupied and maintained by a breeding pair, and in some cases by small cooperatively-breeding groups, often

Ecological Attribute	Description
	with one subordinate (Gibson Vega 2022). The WA ssp. was noted as maintaining long-term bonds with their breeding pair. Breeding of *A. t. myall* occurs from late June to September, with territory size for breeding pairs considered to be approximately 1 ha in good seasons Higgins et al. 2001). Breeding pairs generally produce two to three eggs (Higgins et al. 2001), and similarly for *A. t. textilis* (Gibson Vega 2022). Nests designs vary from open cups, to partly or fully dome-shaped structures. Nests are thought to be typically constructed from dry grass, saltbush twigs and narrow strips of bark and lined with downy plant material, or occasionally fur and feathers (Higgins et al. 2001). The life expectancy of Western Grasswrens is uncertain, however, some species of Grasswren are known to live for at least three years (Bush Heritage 2026). An estimated generation time of 9.7 years (BirdLife International 2011 cited in DotE 2014) is derived from an age at first breeding of 2.3 years and a maximum longevity of 17.0 years, both extrapolated from fairy-wrens (*Malurus* spp.) (DotE 2014).
Movement and distribution patterns: How does the species population or ecological community function across the landscape/ seascape?	Limited information in available regarding movement and distribution patterns, however, reports suggest that the species is mainly sedentary, with pairs appearing to remain within the same 4 to 5 ha patch throughout the year (Higgins et al. 2001 cited in DotE 2014). Densities of the Western Grasswren are estimated at 10-15 mature individuals/km^2 within the species' AOO, giving a population estimate of 8,000-24,000 (Black unpublished cited in Garnett and Baker 2021). The species' range appears to be severely fragmented, with a continuing decline purportedly based on extirpation of some historical sites (DotE 2014, Garnett and Baker 2021). However, as this species continues to be researched, knowledge of the species AOO and EOO will improve. As such, the best indication of the species' current AOO is through the review of known records, as presented in Figure 2.1.
Threatening processes: What are the threatening processes contributing to the loss of the species or ecological community?	The threat assessment listed in the Action Plan for Australian Birds 2020 (Garnett and Baker 2021) cite the following threats: • Habitat degradation caused by large-scale over-grazing (e.g. impacts to shrub height and thus suitability) • Tank training exercises within the Commonwealth Government Cultana Training Area (e.g. direct impacts to WGW habitat, and potential indirect impacts such as impacts resulting from noise and other military-related impacts) • Feral goat browsing • Cat predation • Fox predation • Kangaroo grazing • Increased frequency or length of droughts • Rising temperatures and heat waves. These threats often occur in conjunction with one another: the degradation of soil structure and composition, and loss of understory vegetation caused by overgrazing of livestock, coupled with further land degradation due to uncontrolled rabbits and feral goats has been demonstrated to adversely affect the species (Higgins et al. 2001; Garnett 1993, both cited in DotE 2014). It is worth noting that the extinction of a number of other Grasswren species (including all Western Australian subspecies other than *A. t. textilis*, *A. modestus modestus* from the Northern Territory, and *A. modestus inexpectatus* from central eastern NSW) is attributed by the destruction of habitat by livestock and feral herbivores, particularly during times of drought (DotE 2014).

Key ecological attributes outlined above for Western Grasswren, combined with information outlined in the Ecological Assessment (Jacobs 2026) have been used to determine the overall habitat quality score of the impact areas, in relation to the three key habitat quality components listed in the guide (DSEWPaC undated), namely:

- site condition
- site context
- species stocking rate.

A detailed description of the impact area to Western Grasswren is provided in Table 2.8. This includes threatened species habitat scores, with habitat scores rated from 0-10, with 10 representing the best quality habitat, along with justifications with how the scores were derived. These scores have subsequently been applied to the offset calculator.

Survey methodology is as outlined in Section 2.2 and was undertaken in accordance with habitat criteria outlined in the species' Conservation Advice (DotE 2014) and other literature (Black et al. 2009) for habitat assessments.

Table 2.8: Determining the habitat quality score for impacts to WGW (based on site characteristics)

Criterion	Score	Justification
Site Condition		
What is the structure and condition of the vegetation on the site? What is the diversity of relevant habitat species present (including both endemic and non-endemic)? What relevant habitat features are on the site?	7	Jacobs describe the condition of the impacted area in detail within both the Ecology Assessment (Jacobs 2026)) (a requirement for clearance under the SA *Native Vegetation Act 1991* (SA). JBS&G (2025) cite minimal clearance of suitable preferred habitat will occur adjacent to and north and south of Whyalla (including the Cultana Training Area). It is noted that there are extensive areas of preferred and atypical (but highly suitable) patches of habitat within this location. The Project Area has been designed to avoid drainage lines where possible, and areas that contain the majority of the preferred habitat for the species.
Site Context		
What is the connectivity with other suitable/known habitat or remnants? What is the importance of the site in relation to the overall species population or the occurrence of the community? What threats occur on or near site?	7	While the water supply alignment and other infrastructure associated with the Project traverses the species' EOO, existing access tracks will be utilised wherever possible, with permanent disturbance for new informal access tracks limited to an approximately 3 m width for low traffic volume access. The majority of the pipeline will be buried with the construction disturbance rehabilitated. Transmission towers can be micro-sited to minimise potential impact to high-quality habitats. Post construction, the infrastructure in place is unlikely to prevent local movements of this species. The species is a mobile species and is capable of dispersing between patches of suitable shrubs and across small areas such as the pipeline corridor. As such, the Project is unlikely to lead to fragmentation of an important population of this species. The loss of potential quality habitat has been mitigated with route selection (i.e. to avoid preferred habitat wherever possible and align with existing disturbance).

Criterion	Score	Justification
		As described in Table 2.7, the species' range appears to be severely fragmented, with a continuing decline purportedly based on extirpation of some historical sites (DotE 2014, Garnett and Baker 2021). Existing threats to WGW within the Project Area include those as listed in in Table 2.7, predominantly habitat degradation caused by large-scale over-grazing, predation by feral animals, and military training activities.
Species Stocking Rate		
What is the presence of the species on the site? (i.e. confirmed/modelled). What is the density of species known to utilise the site? What is the role of the site population in regards to the overall species population?	7	For sites where WGW were detected, a range from one individual and up to five-six individuals were cited as being observed/heard at each site surveyed within the species EOO across the Project Area. A number of observations were also made opportunistically. Based on the suggested density of 10-15 mature individuals/km^2 (Black unpublished cited in Garnett and Baker 2021), it is estimated that WGW individuals within the Project Area may occur at a similar density.
Average score	**7**	

3 Plains Mouse (background, context and project impact)

3.1 Background and context

As noted above, whilst the EIS or SIA did not identify significant residual impacts to Plains Mouse (*Pseudomys australis*), also Vulnerable, this species has been conservatively included within this Offset Strategy, to offset potential impacts to critical refuge habitat as listed in the species Conservation Advice (Moseby 2012) in the event the Minister deems that impacts are significant.

Plains Mouse is listed as Vulnerable under the EPBC Act, and Vulnerable under the NPW Act. The species is listed as Vulnerable under the IUCN Red List, having been last assessed in 2015 (2017 errata version, IUCN 2026b).

The EPBC Act legal status and related species documents for Plains Mouse (as available on DCCEEW's Species Profile and Threats (SPRAT) Database) is presented Table 3.1 and includes the following:

Table 3.1: Statutory Documents relevant to Plains Mouse

Document Name	Where and how the Strategy addresses the document
EPBC Act Listing Status	Listed as Vulnerable (Date effective 16-Jul-2000)
Approved Conservation Advice	There is no approved Conservation Advice for this species
Listing Advice	There is no Listing Advice for this species
Recovery Plan Decision	Recovery Plan required, included on the Commenced List (1/11/2009).
Adopted/Made Recovery Plans	Moseby K (2012). National Recovery Plan for the Plains Mouse *Pseudomys australis*. Department of Environment, Water and Natural Resources, South Australia. Available from: http://www.environment.gov.au/resource/national-recovery-plan-plains-mouse-pseudomys-australis. In effect under the EPBC Act from 19-Sep-2012.
Adopted/Made Threat Abatement Plans	Department of Climate Change, Energy, the Environment and Water (DCCEEW 2024a). Threat abatement plan for predation by feral cats 2024. Canberra: Commonwealth of Australia. Available from: http://www.dcceew.gov.au/environment/biodiversity/threatened/publications/tap/threat-abatement-plan-feral-cats. In effect under the EPBC Act from 24-Dec-2024. Department of the Environment and Energy (DotEE 2016). Threat abatement plan for competition and land degradation by rabbits. Canberra, ACT: Commonwealth of Australia. Available from: http://www.environment.gov.au/biodiversity/threatened/publications/tap/competition-and-land-degradation-rabbits-2016. In effect under the EPBC Act from 07-Jan-2017. Department of the Environment, Water, Heritage and the Arts (DEWHA 2008). Threat abatement plan for predation by the European red fox. DEWHA, Canberra. Available from: http://www.environment.gov.au/biodiversity/threatened/publications/tap/predation-european-red-fox. In effect under the EPBC Act from 01-Oct-2008.

3.2 Survey Methodology

The ecology assessment included a desktop ecological assessment, likelihood of occurrence assessment, and review of available literature relevant to Plains Mouse (Jacobs 2026). Plains Mouse survey habitat included consideration of vegetation and landform suitability obtained during Rangeland Assessment Methodology (RAM) assessments within the species' EOO. Suitable habitat included areas with gibber and cracking clays and associated drainage features, major drainage lines with riparian vegetation (but not trees) and a sandy clay creek bed or minor drainage lines with little vegetation, and cracking clays and less friable gibber plains with low chenopods (Jacobs 2026). Broad habitat mapping was undertaken using the Project's vegetation mapping (polygon data) and applying relevant criteria as listed in Jacobs (2026). Detailed habitat mapping was undertaken to determine suitable habitat (i.e. critical refuge habitat) and low suitability habitat (i.e. sub optimal critical refuge habitat) (Lathwida 2025a), with the following habitat characterisations:

- suitable (large clusters of gilgais, aligning with known vegetation associations over clay substrates)
- low suitability (smaller isolated gilgais or clay depressions, Cane-grass Swamps distant from larger clusters).

Observations for signs of Plains Mouse (such as burrows, tracks, and scats) were undertaken as part of RAM assessments, timed area searches within representative habitats, and targeted surveys (which included camera trapping (Lathwida 2025a; Lathwida 2025b), and with consideration to the species' Recovery Plan (Moseby 2012), and Survey Guidelines for Australia's Threatened Mammals (DSEWPaC 2011).

3.3 Plains Mouse habitat in the Project Area

Plains Mouse distribution is primarily restricted to the Stony Plains Bioregion in South Australia (Moseby 2012). Portions of the Project's alignment intersect with potential Plains Mouse habitat in the northern portion of the Project Area, from Pernatty Lagoon northwards terminating at Olympic Dam mine (Jacobs 2026; Lathwida 2025a).

Whilst areas of potentially suitable habitat have been identified and mapped, no Plains Mouse have been detected within the Project Area during targeted surveys (including extended camera trapping efforts) for the Project (Jacobs 2026, Lathwida 2025a, Lathwida 2025b). A total of approximately 151 ha of habitat identified as potential Plains Mouse refuge habitat will be impacted by the Project, the majority of which will be rehabilitated following construction.

A summary of the extent of each habitat category for Plains Mouse is presented in Figure 3.1 and Table 3.2.

Table 3.2: Summary of impacts to potential Plains Mouse habitat within the Disturbance Footprint

Habitat suitability category	Area in EP LMR Disturbance Footprint (ha)	Area in SAAL LMR Disturbance Footprint (ha)		Total area in Disturbance Footprint (ha)
		Main transfer pipeline alignment	Carrapateena mine lateral branch	
Critical refuge habitat/Suitable habitat	N/A	123.1	17.1	140.2
Potentially suitable habitat during irruptive periods/Low suitability habitat	N/A	10.4	0.5	10.9
Total	**N/A**	**133.5**	**17.6**	**151.1**

Source: Lathwida (2025a)

N/A = Not Applicable in this LMR.

Whilst offsets under the EPBC Act do not take into consideration post-construction rehabilitation works to areas of temporary impacts, it should be noted that the majority of this disturbance will be progressively rehabilitated during construction of the Project.

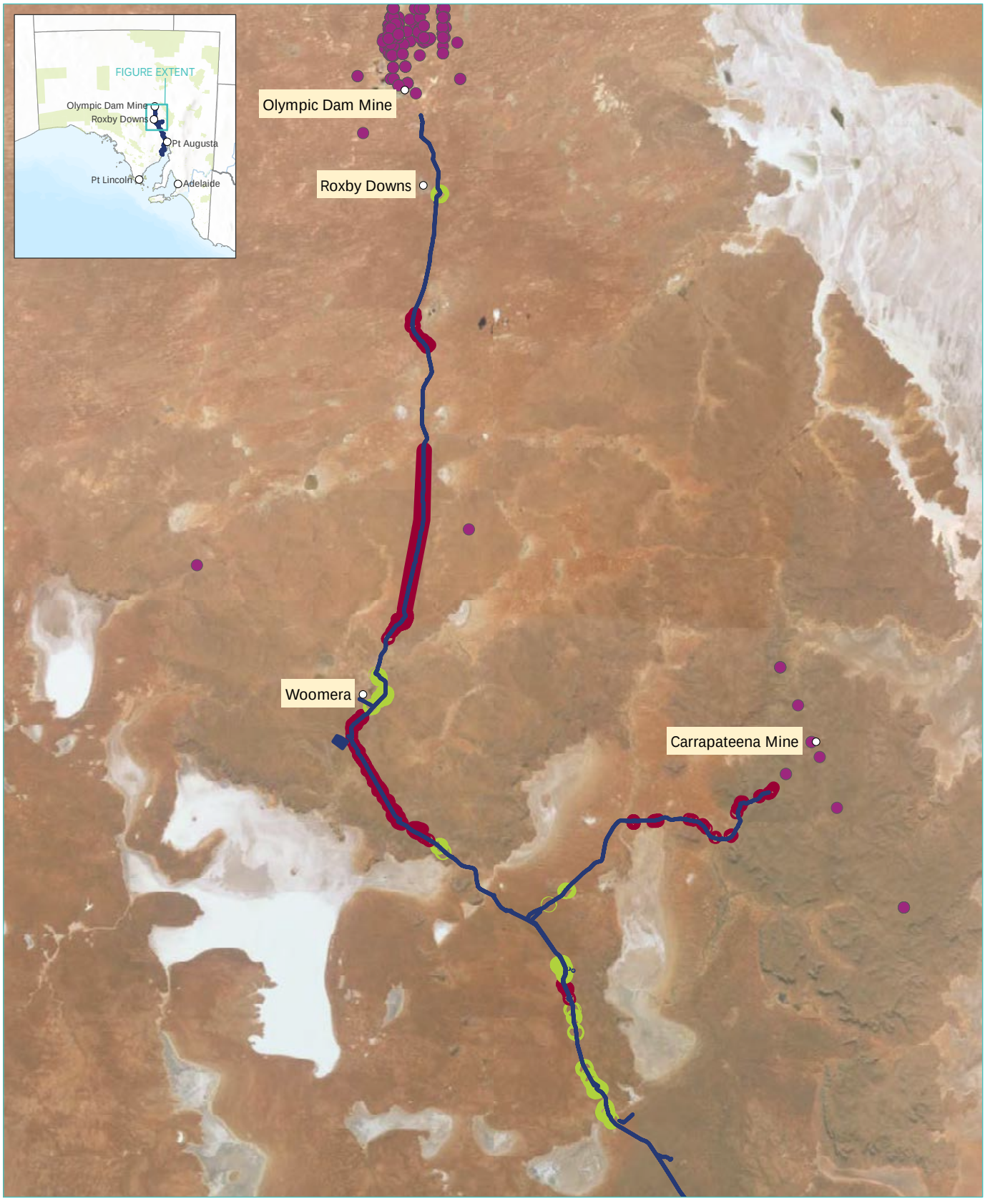


Figure 3.1: Plains Mouse habitat mapping within Project Area and Disturbance Footprint
Northern Water Project Offset Strategy

LATHWIDA

3.4 Summary of direct and potential indirect impacts to Plains Mouse

Table 3.3: Direct and indirect impacts to Plains Mouse

Construction Impacts	Operation (and Maintenance) Impacts	Comment
Direct Impacts		
Direct loss of approximately of 151 ha of suitable refuge habitat and low suitability refuge habitat (during construction of water transfer system and electrical infrastructure).	Nil expected.	Unavoidable. Project design measures have been implemented to minimise impacts to Plains Mouse habitat to the greatest extent possible prior to construction.
Disturbance of individuals in the vicinity of the Project during construction.	Nil expected.	Unavoidable. Project design measures have been implemented to minimise impacts to Plains Mouse habitat to the greatest extent possible prior to construction. The species has not been detected during surveys for the Project (Jacobs 2026; Lathwida 2025a). However, it is considered possible that small groups of Plains Mouse could be present in the landscape in a few secluded refuge habitat sites, from which individuals may spread to the surrounding habitat following periods of prolonged rainfall and resultant seed production.
Individuals impacted by collisions with vehicles or earth moving equipment.	Nil expected.	Low potential for individuals to be impacted by collisions with vehicles or earth moving equipment. During construction, construction noise (and vibration) is likely to result in any nearby Plains Mouse dispersing into the landscape outside of the Project's Disturbance Footprint, however, there remains some low potential for individuals to be impacted by collisions with vehicles or earthmoving equipment.
Noise and vibration	Noise and vibration	Displacement of individuals during construction phase due to vehicles, machinery and other equipment. Any potential noise disturbance during operation and maintenance is expected to be negligible and localised.
Chemical/water spills	Chemical/water spills	Avoidable through specific controls and management measures.
Indirect Impacts		
Accidental clearance of Plains Mouse habitat (critical refuge habitat or other) outside of Disturbance Footprint.	Accidental clearance of Plains Mouse habitat (critical refuge habitat or other) outside of Disturbance Footprint.	Avoidable through specific controls and management measures[1]
Increase in feral animal predation as existing tracks occur in the Project Area.	Increase in feral animal predation as existing tracks occur in the Project Area.	Low potential for increase in feral animal predation as existing tracks occur in the Project Area. Avoidable through specific controls and management measures[1]

Construction Impacts	Operation (and Maintenance) Impacts	Comment
Habitat degradation due to invasive species and disease introduced with proposed weed controls and hygiene practices.	Habitat degradation due to invasive species and disease introduced with proposed weed controls and hygiene practices.	Low potential for habitat degradation due to invasive species and disease introduced with proposed weed controls and hygiene practices. Avoidable through specific controls and management measures[1]
Dust	Nil expected.	Potential impacts to vegetation/Plains Mouse habitat (e.g. smothering vegetation, reducing habitat quality).
Alteration to natural surface water movements	Alteration to natural surface water movements	Potential changes to surface water flow as a consequence of construction work which may temporarily impact Plains Mouse habitat.
Fire	Fire	Sparks caused by construction, operation or maintenance work have the potential to start bushfires which may: • cause fatalities to significant numbers of EPBC listed threatened species in one incident • destroy EPBC listed threatened species nests • destroy large areas of EPBC listed threatened species habitat.

Sources: JBS&G 2025 and Lathwida 2026.

[1] specific controls and management measures include reference to and implementation of the Construction Environmental Management Plan (CEMP) and Operational Management Plan (OEMP), Threatened Species Management Plan (TSMP), and other relevant management practices and plans developed specifically for the Northern Water Project.

3.5 Application of the mitigation hierarchy

3.5.1 Avoidance and mitigation measures

The Offsets mitigation hierarchy, as outlined in the Environmental Offsets Policy (DSEWPaC 2012a) and on the Commonwealth's Offsets mitigation hierarchy webpage (DCCEEW 2026), has been applied to the Project throughout the Project's early multi-criteria assessment phase, and development of the more recent detailed design. Early ecological studies with a particular focus on early identification of MNES and other potential impacts on the environment have been incorporated into the design process to ensure that all reasonable measures have been taken to avoid and mitigate impacts on protected matters. Specifically in terms of Plains Mouse (PM) as documented herein.

A range of standard Project-specific avoidance and mitigation measures have been applied and will continue to be employed during the design and construction phase, operation, and maintenance phases to continue to review and reduce potential impacts of the Project. Additionally, a number of avoidance and mitigation measures specific to Plains Mouse, as presented in Table 3.4.

Table 3.4: Avoidance and mitigation measures relevant to and proposed for Plains Mouse

Avoidance/mitigation measure	Design and construction	Operation and maintenance
Design and Construction (general measures)		
Desktop and field surveys carried out to identify key ecological constraints, feeding into iterative design process to avoid and minimise interaction with important habitat as far as reasonably practicable.	x	-
Minimise construction footprint and utilise previously cleared or disturbed areas where practicable.	x	-
Restrict construction width to the minimum necessary to allow safe and efficient pipeline installation.	x	-
A field inspection will be undertaken with an experienced ecologist and construction design specialist in order to further reduce the construction corridor width where possible and to assist with demarcation of no-go zones for particularly sensitive areas.	x	-
During construction, implement weed hygiene practices including vehicle checks and washdowns as required on vehicles or plant entering the construction site.	x	-
During construction, undertake monthly weed surveillance monitoring targeting WoNS and Declared Weed species, with follow up controls as required for any identified weed outbreaks.	x	-
During operation, implement weed surveillance and control programs targeting WoNS and Declared Weed species (if weeds identified).	-	x
Micro-site transmission line tower locations where possible to avoid important habitat features.	x	-
Develop and implement protocols for management of waste during construction to avoid an increase in, or attraction of, feral pest animals to the project area.	x	-
Presence of experienced environmental management field staff during access and clearing activities.	x	-

Avoidance/mitigation measure	Design and construction	Operation and maintenance
Presence of, or access to, trained fauna handlers during construction to assist with removal of, and relocation of, any trapped (and/or injured) fauna caught within trenches, or displaced during habitat clearance.	x	-
Routine monitoring of open trenches during construction activities to inspect for trapped fauna.	x	-
Progressive backfilling of trenches to minimise the length of open trenches at any time during construction.	x	-
Inclusion of fauna ladders in open trenches to enable egress of any trapped fauna.	x	-
Speed restrictions in place within construction corridor and along access tracks	x	x
Progressive rehabilitation of all temporary construction areas where native vegetation clearance has occurred.	x	-
Preparation of a Threatened Species Management Plan.	x	x
Operations and Maintenance Environmental Management Plan prepared and implemented prior to commissioning.	-	x
Plains Mouse specific avoidance and mitigation measures		
• Minimise construction width in areas of refuge habitat where possible. • Restrict travel on access tracks during construction and operation to daylight hours, as far as practicable, to avoid potential impacts to this nocturnally active species.	x	x

Source: JBS&G 2025.

3.6 Residual significant impact

The species has not been detected during surveys for the Project. With only very low numbers of Plains Mouse potentially present within the Project Footprint (an assumed presence only), potential impacts to the species as a result of temporary disturbance for installation of the water transfer system followed by site rehabilitation are not considered to be significant, given the very broad range across which the species persists, and the species' ability to recover during boom periods, and to spread into adjacent habitats.

Project infrastructure, particularly the water transfer system alignment, has been designed to utilise existing disturbance (e.g. existing two-wheel tracks and graded tracks), to avoid impacts to Plains Mouse habitat. Plains Mouse habitat is considered to potentially overlap with the Project Area adjacent to the southern end of Pernatty Lagoon, up to Olympic Dam (Figure 1.2). While no individual Plains Mouse have been detected during surveys for the Project (Jacobs 2026; Lathwida 2025b), potentially suitable critical refuge habitat has been mapped in this area. The Project's Disturbance Footprint overlaps with approximately 151 ha suitable to low suitability critical refuge habitat in this section of the water transfer alignment. Inclusion of this habitat may be considered a conservative approach, noting that the closest Plains Mouse record to the Project's water supply transfer system alignment is approximately 6.5 km to the east (between Woomera and Purple Downs Homestead) (DEW 2026).

With the application of the mitigation hierarchy, as outlined in Section 2.5, the likelihood of direct impacts to individual Plains Mouse are considered to be low. Should any individuals be present during construction works, it's expected they would be able to freely disperse into adjacent, suitable habitat. Pre-clearance surveys by a suitably qualified ecologist to identify Plains Mouse (if present), and oversight of the Project during construction works, including checking of pits and pipes for fauna, will ensure any potential impacts resulting from the construction of the Project are controlled undertaken in accordance with best practice for small mammals.

A summary of likely direct impacts to Plains Mouse as a result of the Project is outlined in Table 3.5.

Table 3.5: Summary of likely direct impacts/significant residual impacts to Plains Mouse

	Direct impact to Plains Mouse Suitable habitat/Critical refuge habitat (ha)	Direct impact to Plains Mouse low suitability habitat/Critical refuge habitat (ha)	Total area of direct impact to Plains Mouse habitat (ha)
Disturbance Footprint	133.5	17.6	151.1

Source: Lathwida (2025a).

3.6.1 Habitat quality/detailed description of the impact area

In order to assess the offset requirements arising from residual impacts, the habitat quality for Plains Mouse has been assessed in accordance with the Commonwealth's Environmental Offset Policy (DSEWPaC 2012a) and the Offsets Assessment Guide (DSEWPaC 2012b; DSEWPaC undated), and in line with key habitat attributes described in the species' Recovery Plan (Moseby 2012) and other relevant literature.

An evaluation of the key ecological attributes, as outlined in the Offsets Assessment Guide (DSEWPaC undated) for Plains Mouse habitat are summarised in Table 3.6.

Table 3.6: Assessment of key ecological attributes of Plains Mouse habitat

Ecological Attribute	Description
Habitat requirements and variability: What are the nesting, breeding, foraging, dispersal, migration and/or roosting requirements of the species? What are the various ecological components and occurrence states for the ecological community?	Plains Mouse is considered typically restricted to the Stony Plains Bioregion. The Stony Plains Bioregion includes tablelands and low gibber plains, which occur from the top of Lake Torrens National Park northwards towards the South Australian/Northern Territory border, with a small area (~1%) of the Stony Plains Bioregion extending into the Northern Territory (Moseby 2012). Outside of this Bioregion, there are a cluster of records of the species occurring near Olympic Dam mine, predominantly associated with the Arid Recovery Reserve (ARR), and a small number of records in the vicinity of Carrapateena mine (i.e. the Arcoona Tableland including Pernatty Station) (DEW 2026; Moseby 2012). Habitat critical to the survival of the species includes: • large open gypseous cracking clay areas associated with minor drainage features, and • depressions within gibber stony plains. Whilst these types of habitats are patchy across the landscape, they are considered the most productive patches in their respective environments as they form run-on areas, receiving water and nutrients (Brandle et al. 1999 cited in Moseby 2012). The

Ecological Attribute	Description
	presence of cracking clay soils is considered a more critical habitat feature than the type or vegetation structure (Moseby 2012). The species is nocturnal and lives in burrows located at the base of bushes or within cracks in the soil. Nest chambers are built from dried grasses and other types of vegetation which are dug into cracks or within warrens (Moseby 2012). Plains Mouse are herbivorous, feeding mostly on seeds and some green plant material, however, may also forage on insects (Moseby 2012).
Lifecycle and population dynamics: What are the key life cycle stages of the species/community? How do these impact its population viability or ecosystem integrity?	Plains Mouse is a small, social rodent, living in colonies that are usually small in size (Moseby 2012). Burrows in breeding populations typically contain one male and one or more females, however, in non-breeding areas/during non-irruptive periods burrows may contain up to 20 individuals of both sexes (Moseby 2012). Individuals range over areas of up to 1.6 ha in size (Moseby 2012). The species breeds continuously in captivity, however, in the wild breeds in response to rainfall. The species is considered a highly irruptive species, with extreme boom and bust cycles. Due to marked fluctuations in the species' EOO and abundance it is difficult to define the relative importance of different populations. However, it is noted that any larger population that persists in drought conditions are likely to be important source populations (Moseby 2012).
Movement and distribution patterns: How does the species population or ecological community function across the landscape/ seascape?	As above, the species movement and distribution patterns are intrinsically linked to environmental conditions, and as such the species can be highly irruptive in response to good rainfall. The species has a marked range contraction during non-irruptive periods, where critical refuge habitat becomes important.
Threatening processes: What are the threatening processes contributing to the loss of the species or ecological community?	While threatening processes have not been clearly identified, the following threats/threatening processes are outlined in the species Recovery Plan: • habitat degradation from introduced livestock, typically through the removal of vegetation cover, soil compaction and trampling of burrows, and siltation of cracks • habitat degradation from introduced small herbivores/competitors • predation by introduced cats and foxes, particularly during range contraction/drought conditions • impact of climate change potentially leading to increased temperatures of shallow burrows, potentially increasing the effects of habitat fragmentation. Conversely, an increase in the incidence and variability of flooding would also affect this species as Plains Mouse occupy drainage areas within the landscape.

Key ecological attributes outlined above for Plains Mouse, combined with habitat information described in the Ecological Assessment (Jacobs 2026) and the Plains Mouse habitat mapping (Lathwida 2025a) have been used as a basis to determine the overall habitat quality score of the impact areas, in relation to the three key habitat quality components listed in the Offset Assessment Guide (DSEWPaC undated), namely:

- site condition
- site context
- species stocking rate.

A detailed description of the potential impact areas to Plains Mouse habitat is provided in Table 3.7. This includes threatened species habitat scores, with habitat scores rated from 0-10, with 10 representing the best quality habitat, along with justifications with how the scores were derived. These scores have subsequently been applied to the offset calculator

Table 3.7: Determining the habitat quality score for impacts to Plains Mouse (based on site characteristics)

Criterion	Score	Justification
Site Condition		
What is the structure and condition of the vegetation on the site? What is the diversity of relevant habitat species present (including both endemic and non-endemic)? What relevant habitat features are on the site?	7	As outlined in the Plains Mouse Habitat Assessment (Lathwida 2025a), habitat suitability for Plains Mouse along the northern extent of the Project alignment was assessed in accordance with habitat descriptions outlined in the species' Recovery Plan (Moseby 2012), this included the incorporation of vegetation mapping (Jacobs 2026), spatial mapping, and in-field ground-truthing survey (Lathwida 2025a). A total of 133.5 ha was assessed as meeting the criteria for suitable habitat (i.e. critical refuge habitat), which included meeting the following criteria: • aligned with appropriate vegetation association (e.g. Tablelands on clay, Cane-grass Swamp, clay-depressions) • evidence of larger gilgais or clusters of gilgais • cracks in clay present • clay substrate with bare areas (e.g. visible under/between large rocks) • linear stretches based on alignment of mapping clusters with visible in-field extent of matching habitat. A total of 17.6 ha met the criteria for low suitability habitat (i.e. still considered critical refuge habitat, however, lacking some critical attributes), which included meeting the following criteria: • aligned with appropriate vegetation association, but slightly higher elevation • greater distance between clusters or smaller individual gilgais • clay substrate with bare areas, opportunities to form cracks following sufficient rainfall • landscape connectivity to areas mapped as suitable. At the time of the in-field ground truthing surveys, conditions may be considered favourable for assessing Plains Mouse habitat, noting that at the time of the survey, grasses such as Mitchell Grass (*Astrebla pectinata*) were abundant and thus allowed for easy detection from a distance (Lathwida 2025a).

Criterion	Score	Justification
Site Context		
What is the connectivity with other suitable/known habitat or remnants? What is the importance of the site in relation to the overall species population or the occurrence of the community? What threats occur on or near site?	7	Plains Mouse distribution is cited as having declined by 50-90% since European settlement (Lee 1995 cited in Moseby 2012), leading to a restricted distribution primarily within the Stony Plains Bioregion in South Australia (Moseby 2012). Further, the primary extant population distribution can be divided into five broad, contiguous geographic zones within this Bioregion, with the species largely restricted to small patches of suitable cracking clay ang gilgai stony plains (Moseby 2012). No Plains Mouse were detected during the in-field ground-truthing survey (Lathwida 2025a), nor during the extensive camera trapping survey (Lathwida 2025b) which notably exceeded the requirements recommended by DSEWPaC (2011) and Paull et al. (2011). The mapped suitable, and low suitable habitat within the Project's alignment is based on an assumed presence of Plains Mouse only (Lathwida 2025b), with habitat divided into patches which have been considered suitable habitat, low suitability habitat, or areas of habitat considered not suitable, as presented in Figure 3.1. Impacts to these patches of suitable habitat and low suitability habitat are not considered to impact the species AOO, nor cause fragmentation of habitat (JBS&G 2025). Potential stony tablelands habitat is considered widespread for the species regionally, and with the avoidance and mitigation measures listed in Section 3.5.1, the Project is considered unlikely to significantly impact habitat critical to the survival of the species (JBS&G 2025). Existing threats which are assumed present within these areas of suitable and low suitability habitat would include habitat degradation from introduced livestock (sheep and/or cattle), introduced small herbivores/competitors, predation by introduced foxes and cats, and impacts of climate change (including potentially increased temperatures as well as increased incidence and variability of flooding) (Moseby 2012).
Species Stocking Rate		
What is the presence of the species on the site? (i.e. confirmed/modelled). What is the density of species known to utilise the site? What is the role of the site population in regards to the overall species population?	7	As described above, there are no records for Plains Mouse within the Project's alignment (DEW 2026; Lathwida 2025a; Lathwida 2025b), and the presence of Plains Mouse within the Project Area has been estimated to be at very low numbers only (as assumed presence only). Whilst the species has not been detected during surveys for the Project (Lathwida 2025a; Lathwida 2025b), it may be considered possible that small groups of Plains Mouse could be present in the landscape in a few secluded refuge sites, from where the species may spread to the surrounding habitat following the next period of prolonged rainfall and resultant vegetation and seed production (JBS&G 2025).
Average score	**7**	

4 Statement of expected outcomes

Western Grasswren and Plains Mouse occur in two distinct locations within South Australia and in terms of where the Project Area intersects with each protected matter, it should be noted that the species' extent of occurrences do not overlap. As such, multiple offset areas are being considered to meet the respective offset conditions for each species, on the assumption that impacts are considered significant to one or both species.

DIT is committed to achieving the following environmental outcomes for the proposed offsets. These outcomes align with the conservation and management actions cited in the species' Conservation Advice and Recovery Plan for the target species; Western Grasswren and Plains Mouse, respectively. Timeframes and measurement criteria for the outcomes for each protected matter will be detailed within the Offset Proposal and respective Management Plans.

Broad outcomes for Western Grasswren include:

- protection of habitat zoned or available for industrial development(s) and/or securing existing patches of habitat already occupied by Western Grasswren by applying a conservation protection mechanism (such as a Native Vegetation Heritage Agreement (HA) between the landholder and the Minister for Climate, Environment and Water, which would secure the offset property in perpetuity);
- securing an offset area that has existing patches of low-lying areas which are subjected to ephemeral surface water flows, where dense and diverse shrub cover is established/able to be established to provide preferred habitat for Western Grasswren;
- no further degradation in condition of habitat within the offset area beyond what is considered 'normal' as a result of seasonal and climatic variation (e.g. the offset(s) must show a net gain for the species); and
- robust environmental management of the offset area, which would assist in achieving the following outcomes:
    - regeneration of critical habitat plants (particularly Blackbush (*Marieana pyramidata*) and Australian Boxthorn (*Lycium australe*) within the offset area;
    - measurable increase in observations of Western Grasswren within the offset area (whilst acknowledging seasonal variation);
    - effective management of introduced predators (such as cats and foxes), other pest species (such as rabbits and goats), and diseases (including no introduction of new pests or disease);
    - a measurable decrease in weed abundance and diversity (including no introduction of new weed or disease); and
    - ensure grazing by stock is kept at low levels, or stock is removed from the offset area and stock grazing is permanently halted, including consideration of fencing to exclude stock; and
    - no recreational vehicle access resulting in reduced disturbance within the offset area.

Broad outcomes for Plains Mouse include:

- securing parcels of critical refuge habitat (including areas of cracking clay soils/gilgai), preferably already occupied by the species during drought years (i.e. important populations) by applying a protection mechanism (such as a Native Vegetation Heritage Agreement (HA) between the landholder and the Minister for Climate, Environment and Water, which would secure the offset property in perpetuity);
- securing an offset area that has perennial vegetation in low-lying areas which is important for the species during times of drought;
- no further degradation in condition of habitat within the offset area beyond what is considered 'normal' as a result of seasonal and climatic variation (e.g. the offset(s) must show a net gain for the species); and
- sound environmental management of the offset area, which would include provisions for:
    - management of introduced predators (such as cats and foxes and potentially wild dogs), other pest species (such as rabbits and goats), and diseases including no introduction of new pests or disease);
    - a measurable decrease in weed abundance and diversity (including no introduction of new weed or disease); and
    - maintain and/or enhance the condition of Plains Mouse habitat, through the management of grazing pressure (e.g. sheep and cattle), including consideration of fencing to exclude stock.

Additional expected outcomes as a result of improved management actions within the offset areas is likely to broadly benefit other species, as identified in the species' Recovery Plan (Moseby 2012).

5 Offset Strategy

An offset package under the EPBC Act refers to a suite of actions that a proponent takes to compensate for the residual significant impact of a project on a protected matter (DSEWPaC 2012a). The offset package must comprise a direct 'on ground' offset but may also include provisions for the use of other compensatory measures, which is typically undertaken as a research component with specific objectives targeted towards the protected matter which is being impacted.

Direct offsets refer to actions that provide a measurable conservation gain for an impacted protected matter. In most situations, a minimum 90% of the offset requirement for any given offset must be met through direct offsets.

Other compensatory measures refer to those actions that do not directly offset the impacts on the protected matter but are anticipated to lead to benefits to the protected matter, for example through funding for research or educational programs which may result in better understanding of the ecology of the species, of potential impacts to the species, or of the effectiveness of mitigation strategies to minimise impacts to the species. Other compensatory measures are typically a maximum of 10% of the proposed offset.

To determine at a high level the offset areas required to provide commensurate benefits for significant residual impacts to MNES, the offset assessment includes inputting specific data associated with the MNES, combined with Project impacts, into the Commonwealth's offset assessment (colloquially known as the offset calculator). The offset calculator is a template with a number of pre-populated fields, to determine the impact to the MNES in question, which requires a number of assumptions to be input, for the areas of impact and with regards to any given proposed offset property (DCCEEW 2026, DSEWPaC undated). Given the specific offset properties for EPBC offsets are not yet known, high level assumptions only could be entered at this time.

This Draft Offset Strategy seeks to provide precautionary and conservative net conservation gains to offset potential residual significant impacts to Western Grasswren (*Amytornis textilis myall*) and Plains Mouse (*Pseudomys australis*) (noting the SIA and EIS have indicated no residual significant impacts to Plains Mouse).

Accordingly, the Offset Strategy has been developed in two sections: Section 5.2 is in relation to the Offset Strategy specific to Western Grasswren, and Section 5.3 is specific to Plains Mouse.

5.1 Offset Site Identification and Acquisition Approach

At the time of preparing this Offset Strategy, specific offset sites have not yet been secured. However, a structured process will be implemented to identify, assess, acquire and manage suitable offset sites capable of delivering the required offset outcomes for Matters of National Environmental Significance (MNES) impacted by the Project.

Potential offset sites will be sourced through:

- Existing conservation properties owned or managed by government agencies, conservation organisations or private landholders.
- Voluntary agreements with private landholders.
- Purchase of suitable properties for long-term conservation management.
- Existing or proposed offset sites held by third party offset providers, where available.

Candidate offset sites will be assessed against the following criteria:

- Presence, or demonstrated capacity to support, the relevant MNES and habitat attributes affected by the Project.
- Ability to deliver ecological outcomes equivalent to, or greater than, those impacted by the Project.
- Sufficient size and condition to achieve long-term conservation gains.
- Landscape connectivity and contribution to broader conservation objectives.
- Feasibility of implementing effective management actions to improve or maintain habitat quality.
- Capacity to be legally protected and managed in perpetuity.
- Low risk of future land use conflicts or activities that could compromise offset outcomes.

Once potential sites have been identified, detailed ecological assessments will be undertaken to:

- Confirm the presence and condition of relevant ecological values.
- Quantify offset requirements using the applicable EPBC assessment methodology.
- Assess risks to achieving long-term offset outcomes.
- Determine appropriate management actions and monitoring requirements.

The final selected offset site(s) will be demonstrated to satisfy the EPBC Act Environmental Offsets Policy (or any replacement policy and applicable approval conditions) and any species-specific offset requirements.

5.2 Western Grasswren

Broadly, the Offset Strategy for the Western Grasswren component of the Project is to provide a direct on ground offset which achieves 100% of the offset requirements for this protected matter.

DIT is identifying and reviewing potential on-ground offset options which would meet the criteria for a suitable Western Grasswren offset, in terms of appropriate size and habitat suitability to enable a 'like-for-like' offset. DIT's offset strategy for Western Grasswren involves ongoing conversations with organisations including the South Australian Department for Environment and Water (DEW), the South Australian Department for Energy and Mining (DEM), the South Australian Native Vegetation Council (NVC), Whyalla City Council, the Eyre Peninsula Landscape Board, and accredited third party providers. It is important to note that a number of infrastructure projects are currently proposed within the Western

Grasswren EOO, predominantly within the Eyre Peninsula LMR and Whyalla region, and other projects may also require Western Grasswren offsets.

Opportunities being considered for Western Grasswren offsets include the potential to purchase land adjacent to existing DEW conservation reserves (e.g. National Parks, Conservation Parks, or other protected areas) to expand the state's overall conservation portfolio to include (more) areas specifically supporting and protecting Western Grasswren habitat. DIT is also engaging with accredited Third party offset providers and exploring opportunities to partner to identify and secure suitable parcels of land to offset Western Grasswren habitat. However, formal agreements are unable to be finalised until such time as a final investment decision has been made for the Project, and firm commitments from the South Australian Government to financially support the purchase of land are able to be made.

Key threats and threatening processes to the recovery of this species, as cited in the species' conservation advice (DotE 2014) and in Section 2.6.1 (specifically Table 2.7), include:

- Habitat degradation caused by large-scale over-grazing (e.g. impacts to shrub height and thus suitability)
- Tank training exercises within the Commonwealth Government Cultana Training Area (e.g. direct impacts to WGW habitat, and potential indirect impacts such as impacts resulting from noise and other military-related impacts)
- Feral goat browsing
- Cat predation
- Fox predation
- Kangaroo grazing
- Increased frequency or length of droughts
- Rising temperatures and heat waves.

These threats often occur in conjunction with one another: the degradation of soil structure and composition, and loss of understory vegetation caused by overgrazing of livestock, coupled with further land degradation due to uncontrolled rabbits and feral goats has been demonstrated to adversely affect the species (Higgins et al. 2001; Garnett 1993, both cited in DotE 2014).

Therefore, offsets for Western Grasswren would look to, where possible, eliminate these threats.

5.2.1 Offset requirements for Western Grasswren

The offset requirements for Western Grasswren have been derived by using the requirements described in the offset calculator and guide (DSEWPaC 2012b; DSEWPaC undated), the areas of impacts to Western Grasswren as described in Section 2.3, and the assessment of habitat quality scores as presented in 2.6.1 (Table 2.8).

Preliminary offset strategy calculations indicate an offset area of up to approximately 470 ha, calculated from significant residual impacts arising from direct impacts (i.e. habitat loss, which are predominantly temporary impacts) to achieve approximately 101% of the offset area required to offset impact to Western Grasswren preferred habitat.

Alternatively, if considering the combined impacts to preferred *and* atypical (but suitable) habitat (excluding any impacts associated with the desalination plant footprint at Mullaquana) approximately 1,350 ha is required to offset impacts to preferred and atypical habitats combined.

A more detailed Offset Proposal and Offset Management Plan (OMP) will be developed in future once an offset option is close to being secured, and a Financial Investment Decision (FID) is made for the Project.

5.3 Plains Mouse

The offset strategy for impacts to Plains Mouse potential habitat, should it be required, is to secure an offset(s) which achieves 100% of the offset requirements for this protected matter.

DIT are in the process of identifying potential offset options which would meet a like-for-like offset. DIT's Offset Strategy for Plains Mouse involves ongoing engagement with representatives from DEW, DEM, NVC, and Nature Foundation.

Key threats and threatening processes to the recovery of this species, as cited in the species' recovery plan (Moseby 2012) and in Section 3.6.1 (Table 3.6), include:

- habitat degradation from introduced livestock, typically through the removal of vegetation cover, soil compaction and trampling of burrows, and siltation of cracks
- habitat degradation from introduced small herbivores/competitors
- predation by introduced cats and foxes, particularly during range contraction/drought conditions
- impact of climate change potentially leading to increased temperatures of shallow burrows, potentially increasing the effects of habitat fragmentation. Conversely, an increase in the incidence and variability of flooding would also affect this species as Plains Mouse occupy drainage areas within the landscape

Therefore, offsets for Plains Mouse would look to, where possible, eliminate these threats.

Current offset options for Plains Mouse are focused on negotiating the use of existing established offset areas on land which is suitable for Plains Mouse, and which is being managed by a third party offset provider. An example is an opportunity on a parcel of land Witchelina Nature Reserve, a 4,200 km^2 property located in the Far North of South Australia, which could support an appropriate offset for Project-related impacts to Plains Mouse habitat.

5.3.1 Offset requirements for Plains Mouse

The offset requirements for Western Grasswren have been derived by using the requirements described in the offset calculator and guide (DSEWPaC 2012b; DSEWPaC undated), the areas of impacts to Plains Mouse as described in Section 3.3, and the assessment of habitat quality scores as presented in 3.6.1 (Table 3.7).

Preliminary Offset Strategy calculations indicate an offset area of approximately 575 ha, calculated from the potential significant residual impacts arising from direct impacts (i.e. habitat loss, which are predominantly temporary impacts) to achieve approximately 100% of the offset area required to offset impacts to potential Plains Mouse habitat.

A more detailed Offset Proposal and OMP will be developed once the offset requirements for Plains Mouse are known, and once an offset option is agreed upon with Nature Foundation. Enactment of the final offset agreement with Nature Foundation is contingent on a positive FID for the Project.

5.4 Offset Tenure

The EPBC Offsets Policy requires that the tenure of the offset should be secured for at least the same duration as the impact on the protected matter arising from the action, and that the legal mechanisms for protecting land are required to be:

- permanent (lasting forever), and
- secure (difficult to change or alter).

For a private land offset option DIT will secure the offset area through a Heritage Agreement under the *Native Vegetation Act 1991* (SA). A Heritage Agreement is an agreement between a land owner and the Minister responsible for the Act for the permanent protection of native plants and animals on private land. A Heritage Agreement is established in perpetuity to protect and enhance the natural character of the site's flora and fauna. Each Heritage Agreement, while bound by standard conditions, is unique and can include clauses specific to the management of the native vegetation within the conservation area and will generally prohibit activities likely to disturb or cause harm.

For a third party provider offset option DIT will enter into a Management Agreement, which is an agreement between the Minister and an assignor of Credit or Accredited Third Party Provider and which is binding on any current or future owners or occupiers of the land and may only be varied or terminated with the approval of the Minister and the Native Vegetation Council.

Both Heritage Agreements and Management Agreements are binding on the property Title holder, regardless of lease, transfer of ownership or sale.

6 Risk assessment

This Draft Offset Strategy has identified and considered risks which may pose a threat to the proposed Offsets achieving the expected environmental outcomes listed in Section 4.

Risks relating to the Offset(s) have been assessed in accordance with the Likelihood and Consequence definitions (Table 6.1, Table 6.2), and the Risk Rating Matrix (Table 6.3), and are presented within the Risk Assessment in Table 6.4.

In accordance with the Offset Strategy Guidelines, the Risk Assessment:

- identifies events and threats that will, may, or are likely to impact the achievement of the expected environmental outcomes
- assesses threat levels both before (initial risk rating) and after (residual risk rating) risk mitigation strategies are applied
- identifies appropriate risk mitigation strategies, with trigger criteria for corrective actions should risks eventuate.

Table 6.1: Likelihood

Likelihood (L): A qualitative measure of likelihood: how likely is it that this event/circumstances will occur both before and after an offset is secured?	
Highly likely	Is expected to occur in most circumstances
Likely	Will probably occur during the life of the project
Possible	Might occur during the life of the project
Unlikely	Could occur but considered unlikely or doubtful
Rare	May occur in exceptional circumstances

Source: Draft Offset Strategy Template (DCCEEW 2024b).

Table 6.2: Consequence

Consequence (C): Qualitative measure of what will be the consequence/result if the event/circumstances does occur	
Minor	Failure to identify or secure suitable offsets causes minor impact to achieving positive outcome (e.g. short-term delays to achieving strategy objectives, implementing low-cost, well-characterised corrective actions)
Moderate	Failure to identify or secure suitable offsets causes moderate substantial impact to achieving positive outcome (e.g. short-term delays to achieving strategy objectives, implementing well-characterised, high cost/effort corrective actions)
High	Failure to identify or secure suitable offsets causes substantial impact to achieving positive outcome (e.g. medium-long term delays to achieving strategy objectives, implementing uncertain, high-cost/effort corrective actions)
Major	Failure to identify or secure suitable offsets causes major impact to achieving positive outcome (e.g. strategy objectives are unlikely to be achieved, with significant legislative, technical, ecological and/or administrative barriers to attainment that have no evidenced mitigation strategies)
Critical	Failure to identify or secure suitable offsets causes severe unrecoverable impact to achieving positive outcome (e.g. strategy objectives are unable to be achieved, with no evidenced mitigation strategies)

Source: Draft Offset Strategy Template (DCCEEW 2024b).

Table 6.3: Risk Rating Matrix

Final Risk Rating (R): A function of multiplying Likelihood (L) and Consequence (C)						
		Consequence				
Likelihood		Minor	Moderate	High	Major	Critical
	Highly Likely	Medium	High	High	Severe	Severe
	Likely	Low	Medium	High	High	Severe
	Possible	Low	Medium	Medium	High	Severe
	Unlikely	Low	Low	Medium	High	High
	Rare	Low	Low	Low	Medium	High

Source: Draft Offset Strategy Template (DCCEEW 2024b).

Table 6.4: Offset Risk Assessment

Risk Event of Circumstance	Risk Description (e.g. cause and effect)	Initial Risk Rating[1]			Risk mitigation strategy(ies)	Residual Risk Rating			Management Trigger(s)	Monitoring Mechanism(s)	Corrective Action(s)
		L	C	R		L	C	R			
Force Majeure Events											
Climate change/natural disasters	Extended, prolonged or extreme unfavourable climatic conditions (such as drought, flooding, or other natural disasters) reducing habitat quality for WGW and/or PM.	Possible	High	Medium	Ongoing/regular monitoring of offset condition and adaptive management (in accordance with Offset Management Plan (OMP)). For example, reduce grazing pressure (if appropriate), increase flood management/mitigation measures and/or implement other adaptive management measures. Establish fire breaks and other mitigation measures as required to minimise potential for external impacts.	Possible	Moderate	Medium	Known occurrence of predicted extreme weather event(s). Decrease in Offset condition observed during monitoring.	Monitoring in accordance with OMP.	Implementation of adaptive management (in accordance with OMP).
Sale of property	Land holder sells property containing WGW/PM Offset, threatening achievement of environmental outcomes.	Possible	Major	High	A legal agreement will be in place, which will include appropriate measures to ensure long-term protection of the WGW/PM Offset, should a proposed change of land ownership occur, if the proposed Offset is not held under DEW.	Possible	Minor	Low	Sale of property	Land holder is required to inform DIT/Project Owner of the sale of the property.	Project Owner to ensure new land holder is aware of legal agreement/obligations.
Standard Risks											
Failure to adequately implement the OMP	Land manager does not implement the OMP as required/lacks sufficient resources to implement OMP.	Possible	Moderate	Medium	DIT will ensure a legal agreement is in place with the land manager to ensure the Offset is managed in accordance with the OMP.	Unlikely	Minor	Low	Land holders management actions not undertaken in accordance with the OMP – either as observed or via a DCCEEW Offset audit.	Monitoring program in accordance with OMP.	DIT to remind land holder of responsibilities under legal agreement. Adaptive management Implementation of adaptive management, if required (in accordance with OMP).
Decrease in condition of Offset/Offset fails to achieve performance targets	Decrease in the condition of the Offset observed during monitoring/Offset fails to meet performance targets	Possible	Moderate	Medium	Baseline assessment of Offset condition undertaken prior to implementation of management actions in OMP. Monitoring program implemented to quantify and qualify changes in Offset condition over time. Implementation of adaptive management (in accordance with OMP), where required.	Possible	Minor	Low	Decrease in Offset condition over time. Performance targets not achieved.	Monitoring program (in accordance with OMP).	Investigate potential causes of decrease in condition of Offset. Implementation of adaptive management strategies (in accordance with OMP).
Destruction of habitat (accidental or otherwise), habitat modification, disturbance or loss	Unplanned or illegal clearing, vehicle movement off of designated tracks	Possible	Moderate	Medium	No unapproved and/or intentional clearing of vegetation within the Offset, except for clearing required for fencing/maintenance, access, fire breaks, or public safety. The offset area will be appropriately fenced and have signage indicating its ecological importance.	Possible	Minor	Low	Any activities/detection of activities that are not in accordance with those outlined in the OMP.	Monitoring program (in accordance with OMP).	Investigate potential/likely cause(s) of habitat destruction, modification, disturbance or loss. Implement adaptive management strategies (in accordance with OMP).

[1] L = Likelihood, C = Consequence, R = Risk.

7 Relevant documents

7.1 Statutory documents

Statutory documents relevant to the protected matters addressed in this Draft Offset Strategy, namely Western Grasswren (*Amytornis textilis myall*) and Plains Mouse (*Pseudomys australis*) are provided in Table 7.1.

Table 7.1: Statutory Documents relevant to Western Grasswren and Plains Mouse

Document Name	Where and how the Strategy addresses the document	
Matters of National Environmental Significance Significant impact guidelines 1.1 *Environment Protection and Biodiversity Conservation Act 1999* (DotE 2013). Available from: www.dcceew.gov.au/sites/default/files/documents/nes-guidelines_1.pdf	Section 1.2	The protected matters addressed herein, specifically those which are likely to have residual significant impacts (namely Western Grasswren and Plains Mouse) have been assessed in accordance with the guidelines.
Environment Protection and Biodiversity Conservation Regulations 2025 dated 18 December 2025 (EPBC Regulations). Available from: Environment Protection and Biodiversity Conservation Regulations 2025 - Federal Register of Legislation	Section 1.2	This Draft Offset Strategy has been prepared in accordance with the Regulations.
Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy (DSEWPaC 2012a). Available from: www.dcceew.gov.au/sites/default/files/documents/offsets-policy_2.pdf	Section 1.2	This Draft Offset Strategy has been prepared in accordance with the Environmental Offsets Policy. Application of the mitigation hierarchy.
Offsets assessment guide (DSEWPaC 2012b). Available from: www.dcceew.gov.au/environment/epbc/publications/epbc-act-environmental-offsets-policy	Section 3.5 and Section 3.6	Assessment of habitat quality, calculations using the offset calculator/assessment including a detailed description of the impact area.
How to use the Offsets assessment guide (DSEWPaC undated). Available from: www.dcceew.gov.au/environment/epbc/publications/epbc-act-environmental-offsets-policy	Section 3.5 and Section 3.6	Assessment of habitat quality, including a detailed description of the impact area.

Document Name	Where and how the Strategy addresses the document	
Survey guidelines for Australia's threatened birds, Guidelines for detecting birds listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (DEWHA 2017). Available from: www.dcceew.gov.au/sites/default/files/documents/survey-guidelines-birds-april-2017.pdf	Section 2.2	Survey methodology used for detecting Western Grasswren was consistent with methodology outlined in the Guidelines.
Conservation Advice *Amytornis textilis myall* western Grasswren (Gawler Ranges) (DotE 2014). Available from: www.environment.gov.au/biodiversity/threatened/species/pubs/64454-conservation-advice.pdf	Section 2.6.1	The Draft Offset Strategy has assessed key ecological attributes of habitat and habitat quality scores, and threating processes for Western Grasswren with consideration to the species' Conservation Advice.
National Recovery Plan for the Plains Mouse *Pseudomys australis* (Moseby 2012). Available from: www.dcceew.gov.au/sites/default/files/documents/pseudomys-australis.pdf	Section 3.6.1	The Draft Offset Strategy has assessed key ecological attributes of habitat and habitat quality scores, and threating processes for Western Grasswren with consideration to the species' Conservation Advice.
Survey guidelines for Australia's threatened mammals, Guidelines for detecting mammals listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (DSEWPaC 2011). Available from: www.dcceew.gov.au/sites/default/files/documents/survey-guidelines-mammals.pdf	Section 2.2	Survey methodology used for detecting Plains Mouse and Plains Mouse habitat was consistent with methodology outlined in the Guidelines.
Threat abatement plan for predation by feral cats 2024 (DCCEEW 2024a). Available from: www.dcceew.gov.au/sites/default/files/documents/tap-for-predation-feral-cats-2024.pdf	Section 2.1 and Section 3.1	Threat abatement plan relevant for threats to WGW and Plains Mouse.
Threat abatement plan for competition and land degradation by rabbits (DotEE 2016). Available from: www.dcceew.gov.au/sites/default/files/documents/tap-rabbit-2016.pdf	Section 3.1	Threat abatement plan relevant for threats to Plains Mouse.
Threat abatement plan for predation by the European red fox (DEWHA 2008). Available from: www.dcceew.gov.au/sites/default/files/documents/tap-fox-report.pdf	Section 3.1	Threat abatement plan relevant for threats to Plains Mouse.

7.2 Other relevant documents

Other relevant documents addressed and/or referenced within this Draft Offset Strategy are provided in Table 7.2.

Table 7.2: Other relevant documents relied upon within the Draft Offset Strategy

Document Name	Where and how the Strategy addresses the document	
Action Plan for Australian Birds 2020 (Garnett and Baker 2021).	Section 2.6.1 (Table 2.7 and Table 2.8)	WGW population information, AOO and EOO, threat assessment for WGW.
There's no accounting for taste: bait attractants and infrared digital cameras for detecting small to medium ground-dwelling mammals (Paull et al. 2011).	Section 3.6.1 (Table 3.7)	Camera trapping survey guidelines used during surveys for detecting Plains Mouse.

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9 Definitions and abbreviations

Acronym/abbreviation	Expansion
AA	Accredited Assessment
ADWG	Australian Drinking Water Guidelines
AOO	Area of Occupancy
AR	Assessment Requirements
BDBSA	Biological Databases of South Australia
CEMP	Construction Environmental Management Plan
Cth	Commonwealth
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DEM	Department for Energy and Mining
DEW	Department for Environment and Water
DICL	ductile iron cement lined
DIT	Department for Infrastructure and Transport
EIS	Environmental Impact Statement
EOO	Extent of Occurrence
EP	Eyre Peninsula
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
EPBC Regulations	Environment Protection and Biodiversity Conservation Regulations 2025
GL	gigalitre
HA	Native Vegetation Heritage Agreement
ha	hectare
km	kilometre
kV	kilovolt
LMR	Landscape Management Region
MNES	Matters of National Environmental Significance
MSCL	mild steel cement lined
NVC	Native Vegetation Council
OEMP	Operational Environmental Management Plan
PAWP	Port Augusta to Woomera Pipeline
PDI Act	*Planning, Development and Infrastructure Act 2016* (SA)
PM	Plains Mouse

Acronym/abbreviation	Expansion
RAM	Rangeland Assessment Methodology
SA	South Australia
SAAL	South Australian Arid Lands
SAPN	SA Power Networks
SIA	Significant Impact Assessment
SML	Olympic Dam Special Mining Lease
TBM	tunnel boring machine
TSMP	Threatened Species Management Plan
WGW	Western Grasswren
WoNS	Weeds of National Significance



Appendix I-8:

Threatened Species Management Strategy

Northern Water Project

Threatened Species Management Strategy

LATHWIDA ENVIRONMENTAL

Department for Infrastructure and Transport



September 2026
Final Report

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The sole purpose of this report and the associated services performed by Lathwida is to document and provide a management framework for flora and fauna protected matters under the *Environment Protection and Biodiversity Conservation Act 1999* which are considered known or likely to occur within the Project's Construction Footprint. The Management Strategy is based on the Project's Construction Footprint as of June 2026 (Rev 5 v2), which is also specified and mapped within this report. This document and associated data will support the development of primary approval documentation required for the Northern Water Project in South Australia. The report is based on a desktop review of available data and reports outlining survey findings within the survey area and buffers for DIT. The scope of services, as described in this report, was developed with DIT.

In preparing this report, Lathwida has relied upon, and presumed accurate, any information (or confirmation of the absence thereof) provided by DIT and/or from other sources. Except as otherwise stated in the report, Lathwida has not attempted to verify the accuracy or completeness of any such information. If the information is subsequently determined to be false, inaccurate or incomplete then it is possible that our observations and conclusions as expressed in this report may change.

This report has been developed based on information received during its preparation and conditions encountered at the time that related investigations were carried out. As such, the information within this report, and related conclusions, are valid as at date stated in the note on currency. Lathwida disclaims responsibility for any changes that may have occurred after this time.

Lathwida collected and reviewed data and information available in the public domain at the time or times outlined in this report. The passage of time, manifestation of latent conditions or impacts of future events may require further examination of the Project and subsequent data analysis, and re-evaluation of the data, findings, observations and conclusions expressed in this report. Lathwida has prepared this report in accordance with the usual care and thoroughness of the consulting profession, for the sole purpose described above and by reference to applicable standards, guidelines, procedures and practices at the date of issue of this report. For the reasons outlined above, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this report, to the extent permitted by law.

Note on currency

Where possible, information contained in this Document is up to date as at July 2026. This was not possible for supporting appendices, and information based on those appendices, which were prepared by third parties (as discussed in the Disclaimer above) prior to the Document being finalised. This report and any legal issues arising from it are governed by and construed in accordance with the law as at the date of this report.

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Table of contents

1 **Introduction** **1**
1.1 The Northern Water Project 1
1.2 Scope and objectives 3
1.3 Limitations 4
2 **Regulatory framework** **7**
2.1 Commonwealth 7
2.2 South Australia 11
3 **Environmental roles and responsibilities** **14**
3.1 Department for Infrastructure and Transport 14
3.2 Design-Build-Operate-Maintain Contractor 14
3.3 Roles and responsibilities 15
3.4 Training and environmental awareness 16
3.5 Emergency contacts and procedures 17
3.6 Associated management plans 17
4 **Existing environment** **19**
4.1 Bioregion descriptions and site context 19
5 **Threatened species impact assessment** **24**
5.1 Conservation significant species considered relevant to the Project 28
5.2 EPBC listed threatened flora 30
5.3 EPBC listed threatened fauna 30
6 **Project Impacts, risk assessment and management** **47**
6.1 Potential impacts to threatened species 47
6.2 Mitigation measures to avoid and/or minimise potential impacts 48
6.3 Risks to threatened species 52
7 **Implementation of this TSMS** **63**
7.1 Implementation of construction and operational management measures 63
8 **Monitoring, audit and review** **66**
8.1 Monitoring and adaptive management 66
8.2 Reporting requirements 66
8.3 Corrective actions 67
8.4 Review of the TSMP 68
9 **References** **69**
10 **Definitions and abbreviations** **73**
10.1 Definition of acronyms 73
10.2 Units of measure 74

List of tables

Table 2.1: Environmental attributes addressed within this Threatened Species Management Strategy 9
Table 3.1: Roles and responsibilities associated with the Project's environmental management 15
Table 3.2: Associated management plans in development for the Northern Water Project 17
Table 4.1: IBRA bioregions and subregions associated with the Construction Footprint 19
Table 5.1: Habitat categories across the EP and SAAL LMRs 25
Table 5.2: Summary of EPBC listed threatened fauna species and likelihood of occurrence assessment 29
Table 6.1: Mitigation measures to be implemented for the Project 50
Table 6.2: Species-specific mitigation measures 52
Table 6.3: Potential Project-related impacts to EPBC listed threatened and/or migratory species 54
Table 6.4: Threatened species risk assessment likelihood criteria 55
Table 6.5: Threatened species risk assessment consequence criteria 55
Table 6.6: Risk rating matrix 55
Table 6.7: Threatened species risk assessment 57
Table 7.1: Hierarchy of control measures 63
Table 7.2: Sample implementation framework for the TSMP 64

List of figures

Figure 1.1: Project location 5
Figure 1.2: Key Project Areas 6
Figure 4.1: Topography, IBRA bioregions and IBRA subregions 21
Figure 4.2: Major Vegetation Groups: Mullaquana Station to Port Augusta 22
Figure 4.3: Major Vegetation Groups: Port Augusta to Olympic Dam Mine 23
Figure 5.1: Relevant EPBC listed fauna species records within the Eyre Peninsula LMR 45
Figure 5.2: Relevant EPBC listed fauna species records within the South Australian Arid Lands LMR 46

1 Introduction

1.1 The Northern Water Project

The Northern Water Project (the Project) aims to provide a secure climate resilient water source for industry in South Australia's Upper Spencer Gulf and Far North. Delivery of the Project will involve the construction and operation of a 51 gigalitre per year (GL/year) seawater reverse osmosis desalination plant located at Mullaquana Station on the Upper Spencer Gulf, and associated water transfer system (including pipelines, transfer pump stations and product water storages) and electricity infrastructure (Figure 1.1).

Development of the Project is being sought under both Commonwealth and state approval, with the Project being referred under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and being assessed under the *Planning, Development and Infrastructure Act 2016* (PDI Act). It has been agreed with the Commonwealth Department for Climate Change, Energy, the Environment and Water (DCCEEW) that the assessment approach for EPBC Act related issues would be via an Accredited Assessment (AA) under the South Australian PDI Act.

1.1.1 Project infrastructure

The Project comprises the following key elements:

- a 51 GL/year seawater reverse osmosis desalination plant located at Mullaquana Station approximately 25 km south-west of central Whyalla
- marine intake and outfall tunnels extending underneath the seabed and into Spencer Gulf
- diffuser structures for discharge of return water into Spencer Gulf
- a transfer system consisting of:
    - an approximately 360 km of main transfer pipeline, largely constructed underground, terminating at the delivery point at the Olympic Dam copper-gold mine
    - an approximately 46 km lateral branch to a delivery point at the Carrapateena copper-gold mine (which may be constructed above or below ground)
    - associated transfer pump stations and product water storage
- high voltage electricity supply including powerlines and new network substations to provide power to the desalination plant and transfer pump stations
- associated temporary construction-related infrastructure (e.g. construction camps, site offices and amenities, yards, storages and laydown areas)
- access tracks including upgrading existing tracks and establishing new tracks
- enabling roadworks and road upgrades.

1.1.2 Project staging and schedule

Based on current planning, DIT anticipates that, following detailed design, land acquisition, cultural heritage assessments, finalisation of Native Title Agreements, and progression and receipt of regulatory approvals, construction of the Project would commence in Q3 2027. First water is anticipated to be produced in 2032. Indicative project staging is described in the following sections.

1.1.2.1 Pre-construction

The Project is currently in the pre-construction phase which includes activities such as:

- planning
- stakeholder engagement
- securing land access
- initial mobilisation for pre-construction surveys and site investigations
- development of regulatory and internal approvals documentation.

1.1.2.2 Construction

Once approved, the construction phase of the Project will include the following:

- vegetation and soil clearing and stockpiling for use during the rehabilitation
- establishment of temporary accommodation and laydown facilities
- construction of access roads
- construction of stormwater infrastructure
- waste management activities
- construction of Project-related infrastructure including the desalination plant, marine intake and outfall tunnels, water transfer pipelines, transfer pump stations, electrical infrastructure water storage and associated infrastructure
- rehabilitation of temporary disturbed areas.

1.1.2.3 Operation

Once approved, the operational phase of the Project will include activities such as:

- the operation of Project infrastructure to support the delivery of water
- infrastructure maintenance and inspection activities
- regulatory and internal compliance surveys
- operational environmental management activities.

1.1.3 Key terms

The Project: Defined as all infrastructure components to be developed for the Northern Water Project including pipelines, transmission lines, substations, the desalination plant, and the desalination plant intake and outfall pipelines.

The Project Area: Based on a 2.5 km buffer surrounding all Project infrastructure including the alignment of linear infrastructure (i.e. a 5 km wide corridor). Linear infrastructure includes pipelines, transmission lines and the desalination plant intake and outfall. The buffer effectively incorporates all Project infrastructure for the purposes of approvals. The defined Project Area does not include the section of the transfer system which is located within the BHP Special Mining Lease (SML).

Reference Design: A Reference Design (GHD 2025) for the desalination plant and transfer system from Mullaquana Station to Olympic Dam has been completed for the Project. The Project design is preliminary and is expected to change through the detailed design process, or in response to cultural heritage matters or other refinements to minimise impacts as design and technical studies continue.

Construction Footprint: The best estimate of surface disturbance (including both temporary clearance and permanent clearance) required for the safe and efficient development of the Project. The Construction Footprint is generally 40 m for construction of water transfer pipelines but may vary in width along the alignment depending on various construction constraints in some locations. The ultimate construction corridor width will be dependent on the outcomes of detailed design and related construction methodology. It may be reduced in some locations, however, there may also be instances where extra workspace is required e.g. adjacent to highly constrained sections.

Study Area: Refers to the Construction Footprint plus a 5 km buffer area within the Eyre Peninsula (EP) Land Management Region (LMR), or the Construction Footprint plus a 50 km buffer area in the South Australian Arid Lands (SAAL) LMR, applied to the database searches.

The project areas as defined above are provided in Figure 1.2.

No-go zones: Areas that have been identified as relevant to EPBC listed threatened species and/or migratory species and cultural heritage locations within or adjacent to the Construction Footprint which have been determined by a suitably qualified environmental management staff or ecologist as requiring exclusion from clearance activities or other Project-related impacts.

1.2 Scope and objectives

This Threatened Species Management Strategy (the TSMS, the Strategy) has been developed to address components of the Assessment Requirements (ARs) which were developed for the Project by the Department for Housing and Urban Development (DHUD 2026) under the AA, specifically in relation to the protection of ecological Matters of National Environmental Significance (MNES). This Strategy has been developed as a foundation for the Design-Build-Operate-Maintain (DBOM) contractor to draw upon for the development of environmental management plans (EMPs) that will be developed for the Project, once a Financial Investment Decision (FID) has been reached. This Strategy will be relevant to DIT, and the DBOM contractor (and sub-contractors) during the Project's pre-construction, construction, and operation and maintenance of the Project.

The TSMS provides a framework for the management of key threatened species listed under the EPBC Act that are known to occur or have been assessed as likely to occur within the Construction Footprint, and which may be at risk of impacts arising from the Project's activities. This TSMS has been prepared to fulfil some of the requirements set out under the Project's ARs specific to the protection of MNES. The Strategy has been developed in accordance with the Environmental Impact Assessment (EIS) requirements (DHUD 2026), and with consideration to DCCEEW's EMP guidelines (DCCEEW 2024a). The TSMS draws on ecological information from baseline ecological assessments and targeted threatened species surveys (e.g. Jacobs 2026; Lathwida 2025a; Lathwida 2025b; Lathwida 2025c).

The Strategy describes the identification of potential risks, mitigation strategies and procedures that will be implemented to ensure that potential impacts as a result of the Project's activities are avoided, reduced, and/or mitigated to as far as reasonably practicable.

The key objectives of this Strategy are to:

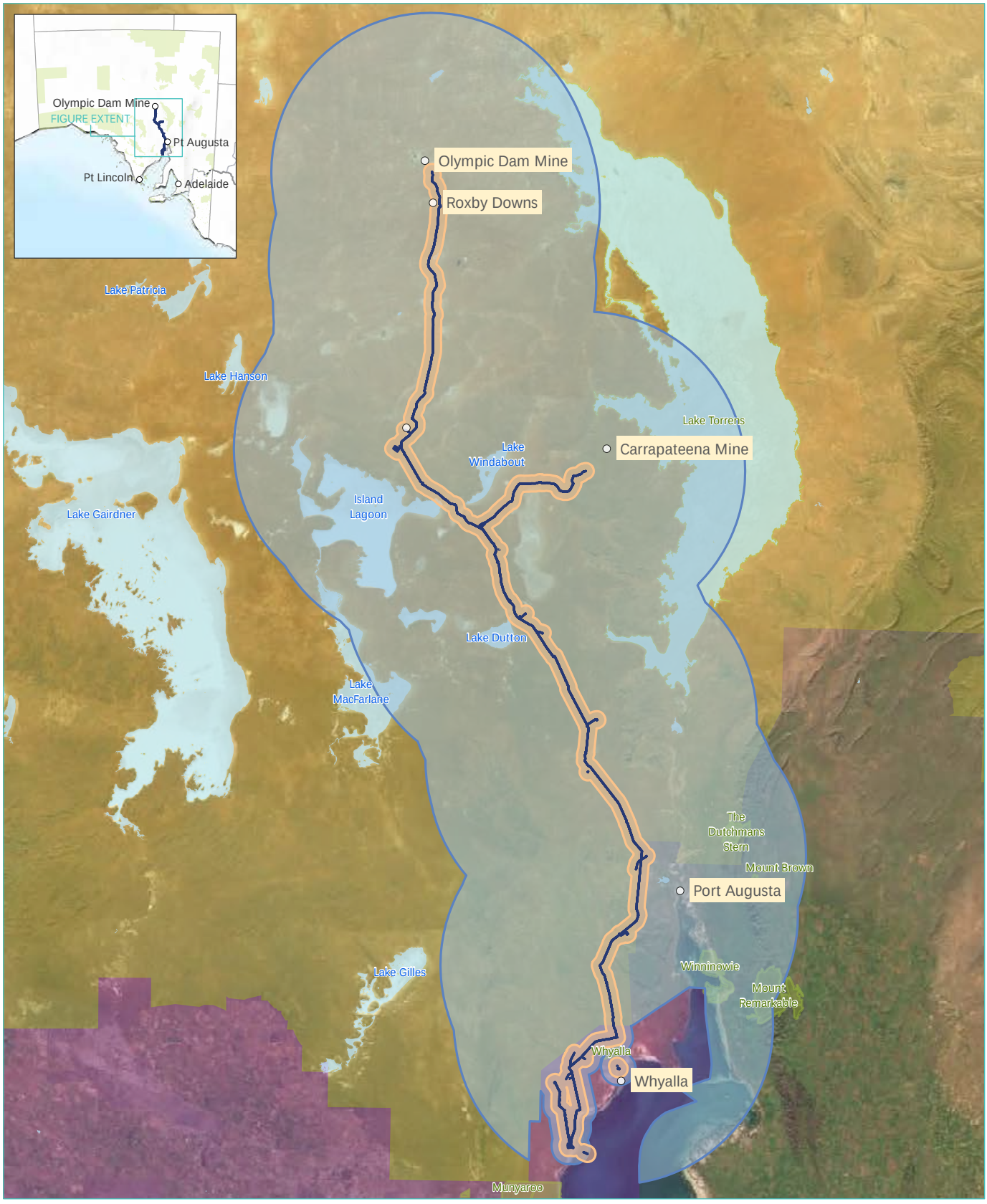
- identify species and critical habitats that may be at risk from the Project's activities
- provide species information for those species considered key species listed under the EPBC Act, including their biology, ecology, and habitat requirements
- provide an overview of likely direct, indirect, and cumulative (where relevant) impacts to relevant key species as a result of Project activities
- provide a risk assessment and management strategies for each likely direct or indirect impact to key threatened species listed under the EPBC Act, considered to be relevant to the Project.

1.3 Limitations

Every effort has been made to ensure the most up-to-date and accurate information, including species records, have been utilised during the production of this TSMS, and the relevant appropriateness and validity of identified potential impacts, mitigation strategies, and control measures. However, it should be noted that outcomes of approvals processes and ongoing works, including pre-clearance surveys may further inform future risk identification, mitigation strategies and adaptive management to ensure ongoing protection of EPBC listed threatened species and communities.



Figure 1.1: Project location
Northern Water Project Threatened Species Management Strategy



Construction Footprint
Project Area
Study Area
Conservation Areas
Waterbodies
Land Management Regions
Eyre Peninsula
South Australian Arid Lands

N

0 12.5 25 50
Kilometres

GDA2020 MGA Zone 53
A4 1:1,700,000

Figure 1.2: Key Project Areas
Northern Water Project Threatened Species Management Strategy

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2 Regulatory framework

This TSMS has been developed with consideration to the following regulatory instruments and guidance.

2.1 Commonwealth

2.1.1 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act is the Australian Government's central piece of environmental legislation. It provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities, and heritage places defined in the EPBC Act as MNES. Under the environmental provisions of the EPBC Act, actions that are likely to have a significant impact on MNES are identified as 'controlled actions' and cannot be undertaken without referral to the DCCEEW for consideration and approval under the EPBC Act. If an action has the potential to have a significant impact on MNES, the proposed action is referred to DCCEEW to determine the requirement for formal assessment and approval under the EPBC Act.

2.1.1.1 Background to the Project's referral under the EPBC Act

The Project was referred to DCCEEW on 11 December 2025 (EPBC 2025/10397). On 5 February 2026 the Project received a Controlled Action decision under section 75 and section 87 of the EPBC Act for the following relevant controlling provisions:

- Listed threatened species and communities (sections 18 and 18A)
- Listed migratory species (sections 20 and 20A).

In the Decision on referral assessment approach letter (5 February 2026), DCCEEW considered that, based on the information available in the referral, the proposed action was considered likely to have a significant impact on the following MNES:

- Western Grasswren (*Amytornis textilis myall*) – Vulnerable (clearance of approximately 136 ha of preferred habitat and 266 ha of atypical habitat for the species)
- Plains Mouse (*Pseudomys australis*) – Vulnerable (disturbance of approximately 151 ha of refuge habitat for the species)
- Southern Right Whale (*Eubalaena australis*) – Endangered (uncertain possible impacts).

The Decision Notification stipulates that due to the preliminary nature of the marine based assessments associated with the Project, there is uncertainty that avoidance and mitigation measures proposed would rule out significant impacts and further evidence/assessment is necessary to fully understand the significance of the impacts to marine species.

With consideration to the clearance of suitable habitat, unsurveyed areas of the project area, preliminary nature of the hydrodynamic modelling and relevant statutory documents, it was also determined that the proposed action may have a significant impact on, but not be limited to, the following listed threatened and migratory species:

Listed threatened species and ecological communities (section 18 & section 18A)

- Australian Sea-lion (*Neophoca cinerea*) – Endangered
- White Shark, Great White Shark (*Carcharodon carcharias*) - Vulnerable, Migratory
- Loggerhead Turtle (*Caretta caretta*) - Endangered, Migratory
- Leatherback Turtle, Leathery Turtle (*Dermochelys coriacea*) - Endangered, Migratory
- Thick-billed Grasswren (*Amytornis modestus*) – Vulnerable
- Malleefowl (*Leipoa ocellata*) – Vulnerable
- Sandhill Dunnart (*Sminthopsis psammophila*) – Endangered
- Curlew Sandpiper (*Calidris ferruginea*) - Critically Endangered, Migratory
- Eastern Curlew, Far Eastern Curlew (*Numenius madagascariensis*) - Critically Endangered, Migratory
- Common Greenshank, Greenshank (*Tringa nebularia*) - Endangered, Migratory
- Eastern Hooded Plover (*Thinornis cucullatus cucullatus*) - Vulnerable
- Ruddy Turnstone (*Arenaria interpres*) - Vulnerable
- Sharp-tailed Sandpiper (*Calidris acuminata*) - Vulnerable
- Red Knot, Knot (*Calidris canutus*) - Vulnerable, Migratory
- Australian Fairy Tern (*Sternula nereis nereis*) - Vulnerable
- Greater Sand Plover, Large Sand Plover (*Charadrius leschenaultii*) - Vulnerable, Migratory.

Listed migratory species (section 20 & section 20A)

- Common Sandpiper (*Actitis hypoleucos*)
- Sanderling (*Calidris alba*)
- Pectoral Sandpiper (*Calidris melanotos*)
- Red-necked Stint (*Calidris ruficollis*)
- Bar-tailed Godwit (*Limosa lapponica*)
- Fork-tailed Swift (*Apus pacificus*).

2.1.1.2 Assessment Requirements

The Project is being assessed under an AA process in accordance with the EPBC Act and the PDI Act. As a result, ARs for the Project have been prepared to meet the requirements of both State and Commonwealth government jurisdictions and legislative requirements.

The ARs set out the environmental attributes relevant to the development which are to be assessed (e.g. soil, water, heritage, threatened and migratory species) (DHUD 2026). The key environmental, social, and economic impacts to these environmental attributes will be addressed in the EIS. The level of assessment required is determined by the State Planning Commission based on consideration of key factors to determine whether a standard level of assessment will be sufficient or whether more detailed assessment is required.

Environmental objectives, environmental attributes, and methods of investigations(s) outlined in the Project's ARs relevant to the management of threatened species listed under the EPBC Act, are presented in Table 2.1.

Table 2.1: Environmental attributes addressed within this Threatened Species Management Strategy

Objective	Method of Investigation
MNES-1 Listed Threatened Species and Communities (Section 18 and 18A – EPBC Act) controlling provision	
To ensure the proposed action does not have unacceptable adverse impacts to the survival of the species.	An analysis is required for each listed threatened species and ecological communities that are known or likely to occur within the proposal site according to PMST (using a buffer of 5 km for the search), which may include, but is not limited to, (those identified in section 5.8 of the ARs), and is based on the likelihood of significant impacts and should follow the below structure:
	Avoidance, mitigation and Management: Present specific measures for impacted protected matters including the environmental objectives, performance criteria, monitoring, reporting, corrective action, responsibility and timing for each environmental issue as stated in DCCEW's Environmental Management Plan Guidelines.
MNES-2 Listed Migratory Species (Sections 20 and 20A – EPBC Act) controlling provision	
To ensure the proposed action does not have unacceptable adverse impacts to the survival of the species.	An analysis is required for each listed migratory species that are known or likely to occur within the proposal site according to PMST (using a buffer of 5km for the search), which may include, but is not limited to, (those identified in section 5.8 of the ARs), and is based on the likelihood of significant impacts and should follow the below structure:
	Avoidance, mitigation and Management: Present specific measures for impacted protected matters including the environmental objectives, performance criteria, monitoring, reporting, corrective action, responsibility, and timing for each environmental issue as stated in DCCEEW's Environmental Management Plan Guidelines.

Source: Assessment Requirements, Environmental Impact Statement, Northen Water Project (DHUD 2026).

2.1.2 Environmental management plan guidelines

The Commonwealth's EMP Guidelines (DCCEEW 2024a) provide general guidance to stakeholders preparing EMPs for environmental impact assessments and approvals under Chapter 4 of the EPBC Act.

The EMP guidelines (DCCEEW 2024a) outline a number of key principles and components that should be incorporated into the EMP, each of which has been included within this TSMS, inclusive of:

- administrative requirements (e.g. declaration of accuracy, document control)
- project description
- objectives
- environmental management roles and responsibilities
- reporting requirements
- environmental training requirements
- emergency contacts and procedures
- potential environmental impacts and risks (including assessment against likelihood and consequence, and risk rating)
- environmental management measures
- audit and review requirements.

2.1.3 Conservation advice, recovery plans, and threat abatement plans

The EPBC Act protects Australia's native species and ecological communities through the identification and listing of species and ecological communities as threatened, as well as providing provisions for the development of species and community specific conservation advices and recovery plans. In addition, under the EPBC Act, a range of supporting documents have been developed, including a register of critical habitats, recognition of key threatening processes, and where appropriate, reducing the impacts of such processes through the development of threat abatement plans and non-statutory threat abatement advices. Each document is produced by the Australian Government, in partnership with state, territory, and local governments, non-government organisations, tertiary institutions, and community groups (DCCEEW 2026b).

2.1.3.1 Conservation advice

Conservation Advice documents are developed and enforced under the EPBC Act with any new listing of a threatened species or ecological community. These documents guide recovery planning and identify actions required for conservation and recovery. Used to inform the Australian Government in regulatory decision-making, the Conservation Advice documents can be prepared and updated relatively quickly in circumstances where a more flexible and responsive approach is required.

2.1.3.2 Recovery plans

The Australian Government Minister for the Environment and Water may adopt and implement Recovery Plans for threatened fauna, flora (other than conservation dependent species), and threatened ecological communities (TECs). These plans set out research and management actions to reduce rate of decline and support recovery for long term survival.

2.1.3.3 Threat abatement plans

Threat abatement plans provide for the research, management, and any other actions necessary to reduce the impact of a listed key threatening process on native species and ecological communities. Implementing the plan should assist the long-term survival in the wild of affected native species or ecological communities.

A range of conservation advices, recovery plans, and threat abatement plans have been considered within this TSMS to provide species-specific information for the key species relevant to the Project Area and Construction Footprint, in relation to biology, ecology, and conservation management of those species.

2.2 South Australia

2.2.1 Planning, Development and Infrastructure Act 2016

The PDI Act, and the associated Planning, Development and Infrastructure (General) Regulations 2017, govern the planning system in South Australia. The PDI Act and PDI (General) Regulations provide a framework for matters that are relevant to the use, development, and management of land and buildings (including the provision of planning systems) to define and regulate the requirements, processes, and pathways for granting development approvals within the state, including the oversight of approvals for major state developments.

As outlined in Section 2.1.1, approval of the Project will be sought via an accredited assessment under the PDI Act, whereby ecological matters will be considered under the PDI Act assessment framework (i.e. within the Project's Environmental Impact Statement (EIS)), in accordance with the Project's Development Application (No 25038619), lodged with the State Planning Commission on 16 December 2025.

State and Commonwealth conditions relevant to the management of threatened species will be captured in a Threatened Species Management Plan (TSMP), once developed, which the Assessment Requirements indicate is expected to be required as a reserved matter or condition of approval.

2.2.2 Native Vegetation Act 1991

In South Australia, clearance of native vegetation requires approval from the Native Vegetation Council (NVC) (or Delegate within the South Australian Department for Environment and Water (DEW)) under the *Native Vegetation Act 1991* (SA) (NV Act), Native Vegetation Regulations 2017 (the Regulations) and associated guidelines related to assessments and offsets for approved vegetation clearance (NVC 2024a, 2024b, 2024c, 2024d, 2024e).

The NV Act and the Regulations outline incentives, education measures, and assistance to landowners in relation to the preservation and enhancement of native vegetation and acts to control the clearance of native vegetation. Under the SA NV Act, legal clearance of native vegetation may be permissible through one of two mechanisms: either by an application to the NVC under the NV Act, or under exemptions contained within the Regulations and Guide to the Native Vegetation Regulations (NVC 2017).

The Project Disturbance Area occurs within the Eyre Peninsula (EP) Landscape Management Region (LMR) (the southern portion of the Project, from the desalination plant at Mullaquana Station to the area surrounding Whyalla), and the South Australian Arid Lands (SAAL) LMR (the northern portion of the Project, north of Whyalla to Olympic Dam).

The Project will require clearance or disturbance of native vegetation across a range of habitats and vegetation communities within the Construction Footprint. All areas within the Construction Footprint will be subject to vegetation clearance requirements under the NV Act (i.e. there are no exceptions within the Construction Footprint).

It should be noted that an application to clear native vegetation is required for all naturally occurring native vegetation on public and private land throughout South Australia (with the exception of the majority of metropolitan Adelaide) (DEW 2024a).

2.2.3 National Parks and Wildlife Act 1972

The *National Parks and Wildlife Act 1972* (SA) (NPW Act) allows for the protection of habitat and wildlife through the establishment of parks and reserves (both on land and in State waters) and provides for the use of wildlife through a system of permits allowing certain actions, i.e. keeping, selling, trading, harvesting, farming, hunting and the destruction of native species. The NPW Act assigns species to state conservation categories; Endangered (as listed under Schedule 7), Vulnerable (Schedule 8), and Rare (Schedule 9). Habitats that support conservation-listed species represent elevated ecological value, the potential impacts to which should be avoided, mitigated and or appropriately managed.

The NPW Act and the associated National Parks and Wildlife Regulations 2019 are administered by DEW. Where a project includes vegetation clearance, impacts to state threatened species (flora and fauna) are incorporated into vegetation condition scores and offset calculations for approved clearance as per BAM/RAM assessment, SEB guidelines and SEB Policy (NVC 2024b, 2024c, 2024d, 2024e).

Species listed under the NPW Act are not considered further within the TSMS, however, when EPBC listed species also have a listing under the NPW Act, these are noted with the relevant species subsections, however, broad mitigation measures would also mitigate impacts to state-listed species.

2.2.4 Biodiversity Act 2025

The NV Act will be repealed and replaced with South Australia's new Biodiversity Act 2025 (SA) (Biodiversity Act) once the Biodiversity Act is enacted. Additionally, the Biodiversity Act will take precedence over a number of other relevant Acts (i.e. PDI Act, NPW Act, *Landscape South Australia Act 2019* (LSA Act), and the *Environment Protection Act 1993* (SA)), with other such Acts consequently requiring amendments.

The Biodiversity Act is to provide for the conservation, restoration and enhancement of biodiversity in the State of South Australia for the benefit of current and future generations, to make related amendments to various Acts, and to repeal the *Native Vegetation Act 1991* (SA) and for other purposes.

Whilst the Biodiversity Act has been passed through Parliament, the Act is has not yet come into operation. The Biodiversity Act is anticipated to be delivered and implemented in stages.

2.2.5 Landscape South Australia Act 2019

The *Landscape South Australia Act 2019* (SA) is the key framework promoting the sustainable and integrated management of the state's natural resources (land, water, biodiversity), and for the management of pest plants and animals, and diseases.

Under the LSA Act, South Australia is divided into eight regional Landscape Management Regions and one metropolitan LMR, with each region having its own Landscape Management Board (LMB). All LMBs are managed locally within their respective regions by the Government of South Australia. Each LMB develops its own Regional Plan designed to meet the needs of that particular region, which subsequently contribute to state level planning. As mentioned in Section 2.2.2, the Project occurs within the EP LMR and the SAAL LMR.

In the context of the proposed Project, the LSA Act guides biodiversity management (including management of pests, exotic flora and fauna).

2.2.6 Other relevant state legislation

Other legislation that may be relevant to aspects of the Project and should be taken into consideration includes:

- *Environment Protection Act 1993* (SA) and associated policies and guidelines
- *Pastoral Land Management and Conservation Act 1989* (SA).

3 Environmental roles and responsibilities

Environmental roles and responsibilities have been broadly categorised for the purpose of this Strategy, and would be further developed within the Threatened Species Management Plan.

3.1 Department for Infrastructure and Transport

DIT is committed to the safe and efficient delivery of the Project, which includes provisions for the safe and efficient delivery of the Project with respect to environmental management, by operating under relevant Commonwealth and South Australian statutory requirements (legislation and policies), guidelines, and codes of practice. Environmental Management of the Project would be managed and documented under DIT's Contract Documents, Environment and Heritage Technical Manual (EHTM) (DIT 2021), Sustainability Manual, Master Specification Documents (DIT 2024), Standards and Guidelines, and other relevant DIT Manuals and framework.

The EHTM (DIT 2021) identifies environmental impacts (e.g. environment and heritage, Aboriginal heritage and Native Title, air quality, vegetation, fauna, water, noise, non-Aboriginal heritage, contamination, construction/maintenance environmental management) and ensures relevant and practicable measures are in place to avoid, mitigate, or offset environmental impacts. In addition, the EHTM (DIT 2021) states the requirement for regularly measuring and reviewing impacts, and overall environmental performance associated with the Project.

Embedded within the Environmental Management framework specific to the Project is a suite of environmental management subplans, specific to key environmental impacts (as described above). Other environmental subplans (e.g. Flora and Fauna Management Plan), where relevant, are referred to within the mitigation strategies section of the risk assessment in Section 6.3.2.

A stand-alone Construction Environmental Management Plan (CEMP) including sub-plans, and Operational Environmental Management Plan (OEMP) (to be prepared by the DBOM Contractor) will document methodologies and actions required during pre-construction, construction, and operational and maintenance activities for the Project.

DIT is responsible for ensuring all personnel and contractors comply with the Projects specifications, specific requirements for threatened species as documented within this management strategy, and to ensure reporting requirements occur in accordance with the EPBC Approval Notice (once approved). All on-site personnel are required to exercise due diligence in all matters relating to Health, Safety, and Environmental Management.

3.2 Design-Build-Operate-Maintain Contractor

The DBOM Contractor for the delivery of the Project will be responsible for the implementation, management and reporting of the TSMP. This includes ensuring both general Project responsibilities and site-specific environmental responsibilities are clearly defined within the TSMP, and that all personnel understand their individual responsibilities prior to commencing on-ground works associated with the Project.

3.3 Roles and responsibilities

All personnel (DIT and contractors) are responsible for ensuring the Project conforms to both Commonwealth and South Australian statutory laws, regulations and policies, relevant guidelines, and codes of practice. This includes working to Project-specific approvals, such as Commonwealth and State approvals in relation to threatened species.

All workers have a duty of care to ensure that all activities undertaken in association with the Project (including pre-construction, construction, operation and maintenance) occur in accordance with the requirements as set out in this plan and in accordance with regulatory and legislative requirements. Broadly, consequences of not meeting environmental and legislative responsibilities may include state or Commonwealth penalties (such as fines), public opposition to the Project, legal action, or potentially reform of legislation. Enforcement options for contraventions under the EPBC Act may include a range of criminal and civil penalties, and civil and administrative remedies (DCCEEW 2024a), as outlined in DCCEEW's Compliance Policy (DCCEEW 2024b).

An overview of the roles and responsibilities of DIT and DBOM Contractor are summarised in Table 3.1. Detailed descriptions of roles and environmental responsibilities will be provided in the Contractor's CEMP.

Table 3.1: Roles and responsibilities associated with the Project's environmental management

Role	Responsibility
DCCEEW / National Environmental Protection Agency (National EPA)	• Responsible for administering the EPBC Act and associated matters specific to the Project, including the approval of Commonwealth offset requirement for the Project, and auditing requirements.
DEW	• Responsible for administering the NPW Act, LSA Act, and other relevant environmental legislation and policies.
NVC	• Responsible for administering the NV Act and other relevant environmental legislation, including the approval of state offset requirements for the Project.
DIT	• Seek statutory approvals (Commonwealth and State) • Compliance with conditions of statutory approvals o Compliance with Commonwealth and state offset obligations • Maintenance of DIT documentation and compliance systems, including compliance with Commonwealth and state approvals (as described within this TSMS), contracts with the DBOM Contractor and other contractors, and the CEMP • Ensuring all contractors operate in accordance with relevant agreements/contracts • Ensuring all personnel are competent to perform their assigned duties • Ensuring all personnel have received appropriate training and inductions • Execution of environmental audits.
DBOM Contractor	• Responsible for environmental compliance in accordance with relevant Commonwealth and state statutory approvals, including monitoring, data collection and reporting • Preparation and implementation of the CEMP, OEMP, and relevant subplans, including Threatened Species Management Plan • Inclusion and implementation of management measures outlined within this management plan in the CEMP/OEMP and relevant subplans o Responsible for management actions specific to Western Grasswren and Plains Mouse

Role	Responsibility
	• Identification and management of risks associated with the Contractor and subcontractors prior to commencing works. • Ensuring all site activities are undertaken in accordance with the CEMP/OEMP and subplans • Provision of adequate resources to manage environmental obligations and management activities • Ensuring all contractor personnel are adequately supervised and managed • Ensuring all contractor personnel are competent to perform their assigned duties, and have relevant licenses/tickets, where required • Ensuring all contractor personnel have received appropriate training and inductions • Ensuring the Superintendent (or representative) is immediately notified of any near-misses, incidents and non-compliance • Execution of environmental monitoring and audits • Ensuring all personnel have receive appropriate training and inductions.
DBOM Contractor - Environmental Management Representative (EMR)	• Responsible for the implementation of the TSMS, including identification and maintenance of no-go zones, implementation of subplans, where required, as outlined in the mitigation strategies section of the risk assessment in Section 6.3.2. o Responsible for management actions specific to Western Grasswren and Plains Mouse.
Independent Certifier	• Responsible for undertaking the independent construction verification for construction activities, i.e. that construction has been undertaken in accordance with the approved engineered design (Reference Design) for the Project.
Suitably qualified ecologist / contractor	• Responsible for providing expert ecological advice to DIT, DBOM Contractor and other relevant on-site personnel, including information regarding: o Pre-clearance surveys o Implementing no-go zones in areas identified as important for threatened species listed under the EPBC Act (including but not limited to those within this TSMS).
Suitably qualified environmental contractor(s)	• Responsible for the implementation of monitoring requirements as outlined in the mitigation strategies section of the risk assessment in Section 6.3.2, including: o Pre-construction vegetation clearance assessment(s), including post-construction audit and report(s) o Routine auditing of vegetation clearance activities and reporting o Monitoring of threatened species listed under the EPBC Act during clearing activities.

3.4 Training and environmental awareness

Training and environmental awareness in relation to the Project will occur through inductions, and relevant Project-specific environmental training for on-site personnel, with maps of the Construction Footprint and sensitive environmental locations/no-go areas to be avoided readily displayed on-site.

To ensure that the TSMS is effectively implemented, key personnel will be responsible for ensuring that all personnel reporting to them are aware of the requirements as set out in the TSMP. In addition, all personnel on-site must ensure that they understand their responsibilities when implementing the TSMP. This includes (but is not limited to) contractors, subcontractors and visitors.

Where training is required for site personnel to address Project-specific environmental aspects as described within this TSMS, relevant and adequate training will be undertaken and records kept, including the following details:

- the person receiving the training
- the date the training was received
- the name of the person conducting the training
- a summary of the training.

3.5 Emergency contacts and procedures

The Emergency Response Management Plan is the overarching document for emergency procedures on-site and includes provisions for stop-work procedures in the event of a safety incident or environmental incident (which includes unplanned impacts to threatened species listed under the EPBC Act).

Should an unplanned environmental incident occur, such as an unplanned impact to threatened species as a result of impacts from the Project, work will immediately cease in the vicinity of the incident, and the superintendent and DIT would be notified immediately.

Forward works following a safety incident or environmental incident will be documented in the Emergency Response Management Plan, and appropriate outcomes, corrective actions and mitigations, where required, will occur following a post-incident review.

Procedures / management plans for safety incidents and environmental incidents are to be maintained and reviewed every six months or as per specified in the appropriate management plan or subplan to ensure they are still relevant and fit for purpose as the Project progresses.

3.6 Associated management plans

In addition to this document, a number of associated management plans are being developed to support the delivery of the Northern Water Project, as provided in Table 3.2. Associated management plans should be referred to for specific and more detailed information (where required, and/or as cited throughout this document). This list is indicative only and more plans may be developed.

Table 3.2: Associated management plans in development for the Northern Water Project

Management plan title
Construction Environmental Management Plan (CEMP)
Traffic Management Plan (TMP)
Coastal and Marine Management Plan
Hazard and Emergency Management Plan(s)
Flora and Fauna Management Plan(s)
Native Vegetation Clearance Data Report (final) including a Significant Environmental Benefit (SEB) Management Plan

Management plan title
Threatened Species Management Plan (TSMP)
Offset Strategy and Offset Management Plans for MNES
Cultural Heritage Management Plan (CHMP)
Greenhouse Gas Emissions Mitigation Plan
Operational Environmental Management Plan (OEMP)
Decommissioning and Rehabilitation Plan (DRP)

4 Existing environment

4.1 Bioregion descriptions and site context

The Interim Biogeographic Regionalisation for Australia (IBRA) describes land for conservation under Australia's Strategy for the National Reserve System (Thackway and Creswell 1995; Environment Australia 2000). The IBRA classifies Australia into 89 bioregions (regions) and 419 subregions (DCCEEW 2024c). Each bioregion is a distinct area characterised by geology, landform pattern, climate, ecological features, and plant and animal communities. According to the IBRA, the Construction Footprint is situated entirely within the Gawler bioregion.

The Gawler bioregion is characterised by semi-arid to arid, flat topped to broadly rounded hills of the Gawler Range Volcanics and Proterozoic sediments, low plateaux on sandstone and quartzite with an undulating surface of aeolian sand or gibbers and rocky quartzite hills with colluvial footslopes, erosional and depositional plains and salt encrusted lake beds, with black oak (belah) and myall low open woodlands, open mallee scrub, bluebush/saltbush open chenopod shrublands, and tall mulga shrublands on shallow loams, calcareous earths, and hard red duplex soils (Environment Australia 2000).

The water transfer system alignment extends across the Gawler bioregion, traversing four subregions:

- Myall Plains (commencing from the desalination plant currently sited in Mullaquana Station to south of Port Augusta)
- Arcoona Plateau (north of Whyalla to south of Port Augusta, the area surrounding Pernatty Lagoon, and the area surrounding Pimba and Woomera)
- Gawler Lakes (largely between Port Augusta and Pernatty Lagoon)
- Roxby (the northern extent of the alignment, terminating at Olympic Dam Mine).

Further subdivisions within these regions, in terms of vegetation and other landscape context factors are used in calculating offset areas (where applicable) for clearance activities approved under the NV Act (NVC 2024a, 2024d, 2024c).

A summary of the Gawler bioregion and its associated relevant subregions that will be included in the Construction Footprint are presented in Table 4.1.

Table 4.1: IBRA bioregions and subregions associated with the Construction Footprint

IBRA bioregion	IBRA subregion	Approximate area (ha)
Gawler	Myall Plains (GAW01)	601.49
	Arcoona Plateau (GAW04)	804.45
	Gawler Lakes (GAW03)	564.76
	Roxby (GAW07)	174.22

Source: IBRA version 7.1

IBRA bioregions and IBRA subregions relevant to the Construction Footprint are presented in Figure 4.1.

For information on existing vegetation within the Construction Footprint (including existing land use, remnant vegetation, and TECs), including documented habitats within the Construction Footprint that are significant or critical to threatened species (as defined in relevant conservation advice for the species), refer to Jacobs (2026).

Major Vegetation Groups (as defined by Jacobs (2026) based upon the National Vegetation Information System (NVIS 2026) within the Construction Footprint are presented in Figure 4.2 and Figure 4.3.

Information relating to occurrence records of relevant EPBC listed species are presented in Section 5.



Figure 4-1 Topography, IBRA bioregions and IBRA subregions
Northern Water Project Threatened Species Management Strategy

LATHWIDA

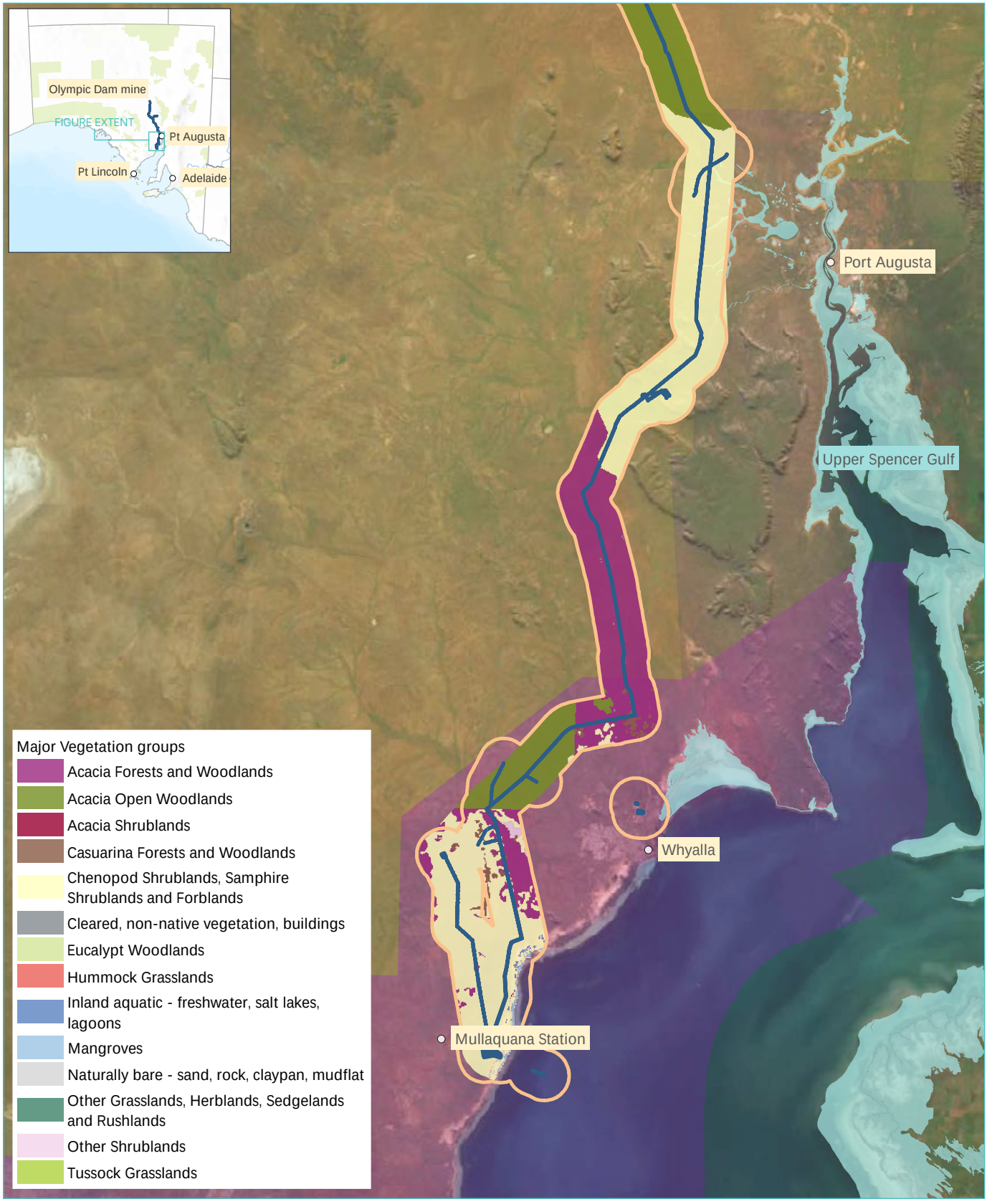


Figure 4.2: Major Vegetation Groups: Mullaquana Station to Port Augusta

Northern Water Project Threatened Species Management Strategy

LATHWIDA

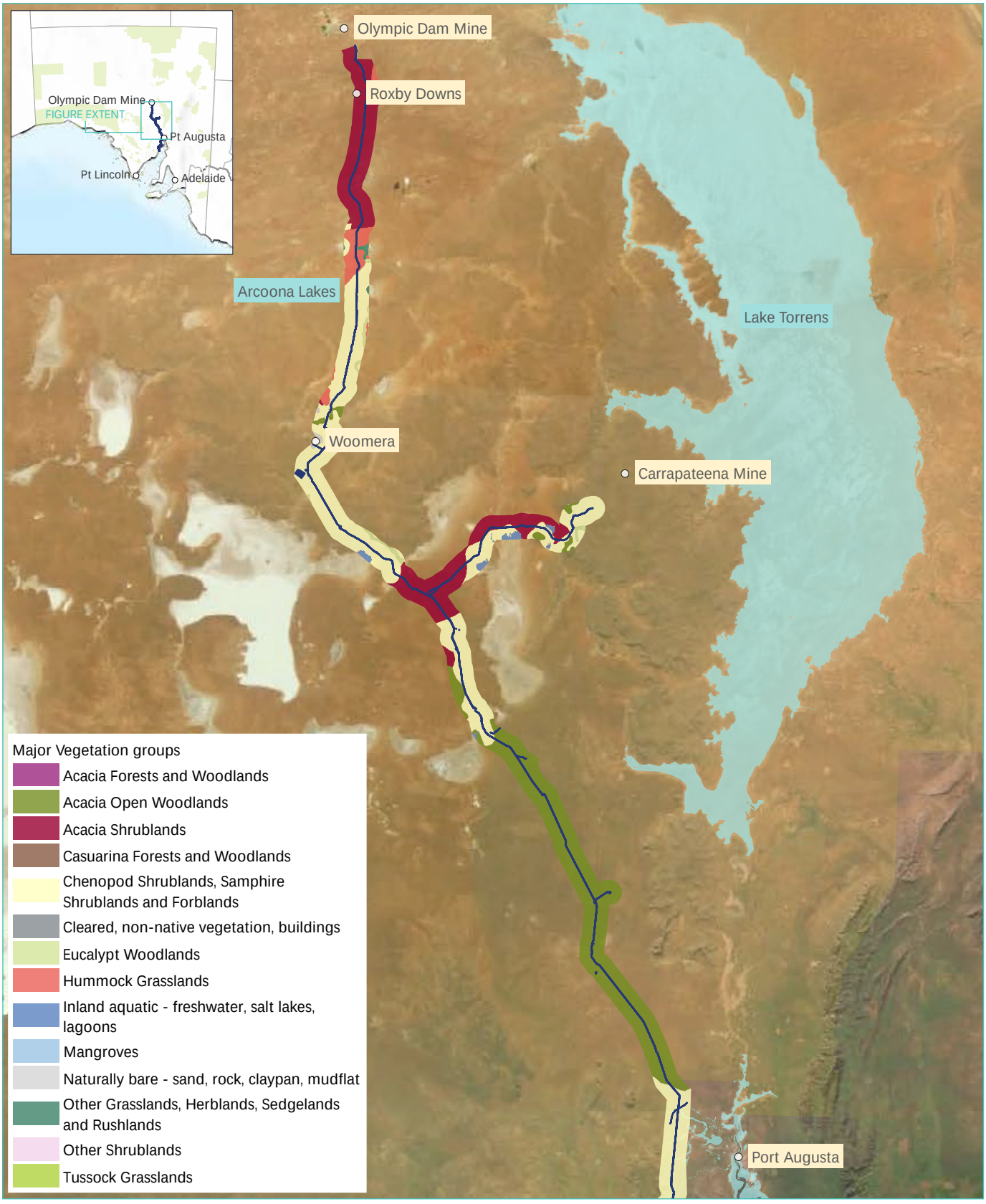


Figure 4.3: Major Vegetation Groups: Port Augusta to Olympic Dam mine
Northern Water Project Threatened Species Management Strategy

LATHWIDA

5 Threatened species impact assessment

An environmental impact assessment (EIA) is a component of the broader Environmental Impact Statement for the Project. To determine which, if any, protected matters were potentially relevant to the Project, a suite of ecological desktop assessments, and extensive on-ground ecological assessments (including targeted surveys, and camera trapping) were undertaken across the Project's Study Area. A summary of the Project's survey effort and assessment methodology relevant to threatened species is provided in the EIS (JBS&G 2026).

To determine the likelihood of occurrence of species listed under the EPBC Act within the Construction Footprint, major vegetation and landform groups were categorised in terms of their occurrence within each LMR (Jacobs 2026), and relevant habitat categories for EPBC listed species were reviewed with the outcomes presented in Table 5.1.

Conservation significant species considered relevant to the Project are provided in Section 5.1.

Table 5.1: Habitat categories across the EP and SAAL LMRs

Habitat category	Description	General note / relevance to EPBC listed species
Eyre Peninsula (EP) landscape management region (LMR)		
Coastal dunes/ beaches	Well vegetated coastal dunes aid in the control of coastal erosion and wind damage to native flora and infrastructure further inland. With several different zones (i.e. terrestrial, aquatic, tidal) this habitat type provides key habitat for many fauna and flora species.	Threatened and/or migratory bird species rely on this habitat for breeding and foraging (refer to Section 5.3) including the following species which are known to occur or considered likely to occur in this habitat (e.g. migratory waders): • Australian Fairy-tern • Little Tern
Coastal saltmarsh/coastal samphire/mangrove	Historically, these habitats have been overlooked, causing them to become threatened in many regions. Flora associated with the habitats are often endemic to restricted areas, and others, such as Bead Samphire (*Tecticornia flabelliformis*), are nationally threatened due to the removal and degradation of key coastal habitats. Such habitats are critical for maintaining water quality and controlling coastal erosion, as well as providing suitable breeding and foraging habitat for both aquatic and terrestrial fauna.	Several bird species utilise these saline environments to forage for specific invertebrates (refer to Section 5.3) including the following species which are known to occur or considered likely to occur in this habitat: • Blue-winged Parrot
Open woodlands over chenopod/ chenopod shrublands/ tall chenopod shrublands	A major habitat type along the construction footprint and surrounding region. Chenopods are typically slow-growing and long-lived. They provide rich nutrients for both native fauna and livestock, which can result in fragmented patches and allow for invasive species to infiltrate. Often incredibly diverse, these habitats have multiple strata which can be utilised by a wide range of flora, fauna and fungi. Birds of prey may utilise tree canopies to hunt and construct large nests, while shrubby strata can provide shelter, nesting, and foraging opportunities for birds, mammals, and reptiles. Insect/pollinator diversity also thrives in diverse chenopod shrublands, which aids in a range of ecological processes.	Birds of prey may utilise tree canopies to hunt and construct large nests, while shrubby strata can provide shelter, nesting, and foraging opportunities for birds, mammals, and reptiles. Insect/pollinator diversity also thrives in diverse chenopod shrublands, which aids in a range of ecological processes. Other species known to occur or considered likely to occur in this habitat include: • Western Grasswren (Gawler Ranges) • Southern Whiteface • Blue-winged Parrot • Grey-headed Flying-fox

Habitat category	Description	General note / relevance to EPBC listed species
South Australian Arid Lands (SAAL) landscape management region		
Ephemeral creeks/drainage lines	Habitats which are largely dry except during and after major rain events. They provide valuable inland habitat for many threatened and/or rare fauna including migratory birds such as the nationally threatened Curlew Sandpiper (*Calidris ferruginea*). When not inundated, cracks in clay soils can still offer habitat for fauna such as frogs. Drainage lines can support a range of vegetation types including open-to-closed shrubland and woodland. Wetland associated flora such as sedges and rushes can further increase the diversity of flora/fauna seen within this habitat.	Key species that use these habitats and are known to occur or considered likely to occur in this habitat include: • Southern Whiteface • Grey-headed Flying-fox
Low dunes and dune crests of *Acacia* and *Callitris*	These habitats are formed and changed by accreting sand and succumbing to wind erosion. Many native mammals in the critical weight range (the most at-risk group) are supported by dunes with sufficient vegetation. They are able to burrow into the well-stabilised soils and forage for a wide range of invertebrates. Many reptiles and bird species also occur in this habitat type.	The PMST and Biological Database of South Australia (BDBSA) results highlighted several bird species and some mammals which can occur in this habitat. Key species that use these habitats and are known to occur or considered likely to occur in this habitat include: • Western Grasswren (Gawler Ranges) • Southern Whiteface
Open woodlands over chenopod/chenopod shrublands/tall shrublands of *Senna*, Mulga on plains	A major habitat type within the Project Area and surrounding region. Chenopods are typically slow-growing and long-lived. They provide rich nutrients for both native fauna and livestock, which can result in fragmented patches and allow invasive species to infiltrate.	Often incredibly diverse, these habitats have multiple strata which can be utilised by a wide range of flora, fauna and fungi. Birds of prey may utilise tree canopies to hunt and construct large nests, while shrubby strata can provide shelter, nesting, and foraging opportunities for birds, mammals, and reptiles. Insect/pollinator diversity also thrives in diverse chenopod shrublands, which aids in a range of ecological processes. Key species that use these habitats and are known to occur or considered likely to occur in this habitat include: • Western Grasswren (Gawler Ranges) • Southern Whiteface • Blue-winged Parrot • Grey-headed Flying-fox

Habitat category	Description	General note / relevance to EPBC listed species
Tableland and inland saline depressions, inland samphire	A major habitat type within the Project Area and surrounding region. Flat, stony (gibber plain) tablelands with scattered low-open chenopod shrubland. Often includes cracking clay habitat. This tableland is considered hostile due to extreme conditions, including high temperatures and limited resources. As such, many inhabitant species are moderately to highly specialised. Many avian species are likely to occur in this habitat within the Project Footprint including several threatened species. Gibber plains and depressions with Swamp Cane-grass, such as those occurring west of Pernatty Lagoon, provide critical habitat for fauna such as the nationally threatened Plains Mouse. Gibber plains (from "kibba", meaning "stone") also hold major cultural significance.	Gibber plains (from "kibba", meaning "stone") and depressions with Swamp Cane-grass, such as those occurring west of Pernatty Lagoon, provide critical habitat for threatened fauna such as the Plains Mouse (*Pseudomys australis*). Many inhabitant species are moderately to highly specialised. Threatened avian species that are known to occur or considered likely to occur include: • Southern Whiteface • Blue-winged Parrot
Grasslands/ woodlands in dune swales	The environment between sand dunes where the soil is more structured. Temperatures in these areas get hotter than surrounding dunes. Swales are typically more impermeable than dunes and hold surface water at higher rates creating ponds after rains. As seeds remain in the soil during drought induced die-back, many herbaceous plants emerge following large rain events.	A number of species are considered to possible occurrences within this habitat, however, key species considered likely to occur within this habitat include: • Southern Whiteface • Blue-winged Parrot.

Source: Jacobs 2026.

5.1 Conservation significant species considered relevant to the Project

Species considered relevant to the Project and included within this TSMS include the following:

- EPBC listed species (flora and fauna) considered known to occur or likely to occur within the Construction Footprint
- EPBC listed migratory species considered known to occur or likely to occur within the Construction Footprint
- further EPBC listed species where considered relevant.

Following detailed assessments, a total of six bird species, two terrestrial mammal species, and two marine species have been identified as known to occur or likely to occur within the Construction Footprint (Jacobs 2026; JBS&G 2026; JBS&G 2025).

The EIA (as part of the EIS; JBS&G 2026) and Significant Impact Assessment (SIA) undertaken for the Project (JBS&G 2025) identified one EPBC listed species; Western Grasswren, where residual significant impacts are considered possible. For all other listed threatened species, residual significant impacts are considered unlikely following mitigation measures.

A summary of the methodology and outcomes of the likelihood of occurrence assessment used to input into the EIS and EPBC referral is provided in EIS and the SIA (JBS&G 2026; JBS&G 2025 respectively).

5.1.1 Note on threatened ecological communities

Three TECs were highlighted in the PMST as potentially occurring within the Study Area, however, only one TEC was considered known to occur within the Project Area and Construction Footprint within the EP LMR; Subtropical and Temperate Coastal Saltmarsh TEC (listed as Vulnerable).

Coastal Saltmarsh, qualifying as the Subtropical and Temperate Coastal Saltmarsh TEC, occurs in a narrow margin along the EP coast, and accounts for approximately 20% of the extent of the TEC within South Australia. To qualify as this TEC, coastal saltmarsh requires a tidal connection including inter-tidal and rarely inundated supra-tidal zones. Such zones have been mapped around the coastline along Mullaquana Station (DEW 2026 cited in Jacobs 2026). As this TEC is listed as Vulnerable, it does not qualify as a MNES for the purposes of Part 3 of the EPBC Act (requirements for environmental approvals), thus referral and approval under the EPBC Act is not required for impacts to this TEC. Regardless, design revisions to avoid or reduce impacts to this TEC were considered throughout Project phases, and this community is therefore not likely to be impacted to any extent (JBS&G 2025).

Further detail about TECs considered in the EIS are provided in Jacobs (2026) and the EIS (JBS&G 2026).

5.1.2 EPBC listed flora

Following detailed assessments, the EIS (JBS&G 2026) did not consider any relevant EPBC listed flora species as known to occur or considered likely to occur within the Construction Footprint (EP LMR or SAAL LMR) (Jacobs 2026; JBS&G 2026; JBS&G 2025).

5.1.3 EPBC listed fauna

A total of terrestrial threatened fauna species are considered relevant (known to occur or considered likely to occur) for the EP LMR Construction Footprint, and two marine fauna species potentially along the coastal area near Mullaquana (JBS&G 2025; JBS&G 2026).

A total of seven terrestrial threatened fauna species are considered relevant (known to occur or considered likely to occur) for the SAAL LMR Construction Footprint (JBS&G 2025; JBS&G 2026).

A summary of the relevant species and likelihood status (known and / or likely only), as per the EIS, is provided below in Table 5.2.

Records of relevant EPBC listed fauna species within the EP LMR and SAAL LMR are provided in Figure 5.1 and Figure 5.2, respectively.

Table 5.2: Summary of EPBC listed threatened fauna species and likelihood of occurrence assessment

EPBC listed fauna species	Conservation status[1]	Likelihood of occurrence within EP LMR	Likelihood of occurrence within SAAL LMR
Threatened fauna species			
Birds			
Amytornis textilis myall (Western Grasswren (Gawler Ranges))	VU	**Known**	**Known***
Aphelocephala leucopsis leucopsis (Southern Whiteface)	VU	**Known**	**Known***
Calidris acuminata (Sharp-tailed Sandpiper)	VU/MW	**Likely****	**Likely****
Neophema chrysostoma (Blue-winged Parrot)	VU	**Known**	**Likely***
Sterna albifrons (Little Tern)	VU/MM	**Likely****	**Likely****
Sternula nereis nereis (Australian Fairy Tern)	VU	**Likely**	Unlikely*
Terrestrial Mammals			
Pseudomys australis (Plains Mouse)	VU	N/A	**Likely***
Pteropus poliocephalus (Grey-headed Flying-fox)	VU	**Likely**	**Likely***
Marine fauna			
*Carcharodon carcharias** (White Shark)	VU/MM	**Likely*****	N/A
*Eubalaena australis** (Southern Right Whale)	EN/MM	Known to occur occasionally***	N/A

[1] EPBC Act status: Vulnerable (VU); Endangered (EN); Critically Endangered (CR); Migratory Marine (MM); Migratory Wetland (MW).
Likelihood of occurrence Sources:
* Jacobs 2026.
** Lathwida 2025c (in suitable aquatic habitats / aquatic habitats when water is present)
*** JBS&G 2025
N/A indicates this species was not predicted or recorded in the search area in the LMR.

5.1.4 Migratory species

A total of 16 EPBC migratory shorebird/wetland bird species are considered to possibly occur within particular habitat areas in both the EP and SAAL LMR. However, the Construction Footprint is considered to contain very little suitable habitat for these species, and if they were to occur, those species would be considered only occasional visitors to the area (Jacobs 2026; Lathwida 2025c). No significant impacts are expected for species with a migratory only EPBC listing (JBS&G 2025).

Further detailed information regarding other potentially relevant EPBC listed migratory bird species within the Construction Footprint is provided in a separate Migratory Birds Impact Assessment (Lathwida 2025c).

Many migratory species share similar habitats across the Study Area with similar ecology and threatening processes affecting their status throughout their distribution. Where similar species requirements occur, comparable management actions have been identified and implemented to avoid, reduce, and/or mitigate potential impacts. This TSMS addresses the management of similar species within common sections in the document. Specifically, the species described in this TSMS have been based on the following:

- EPBC listed threatened species described are those that are considered known or likely to occur within the Study Area
- EPBC listed migratory species described are those that are considered known or likely to occur within the Study Area.

5.2 EPBC listed threatened flora

No EPBC listed flora species considered to be relevant (known to occur or considered likely to occur) were identified as present within the Construction Footprint (EP LMR or SAAL LMR) (Jacobs 2026, JBS&G 2026).

5.3 EPBC listed threatened fauna

5.3.1 Western Grasswren (Gawler Ranges) (*Amytornis textilis myall*)

5.3.1.1 Conservation Status

Vulnerable (EPBC Act)

5.3.1.2 Species Description

Western Grasswren (Gawler Ranges) (referred to as Western Grasswren herein) is a medium-sized, thick grasswren with a long bill, long tail, and dark, coarsely streaked colouration. The upperparts are dark brown to rufous with paler streaks, while the underparts are pale grey-buff with fine streaking from the chin to the breast and a white patch on the centre of the belly (Higgins et al. 2001). Females are differentiated by chestnut patches on the flanks and a slightly shorter tail length. Western Grasswren are usually seen in pairs or small groups but sometimes occur individually. Western Grasswren have a quiet but clear silvery song and an alarm call consisting of high-pitched squeaks (DotE 2014).

Western Grasswren breeding behaviour is somewhat poorly known; however, as in other subspecies, the Gawler Ranges subspecies is thought to be socially monogamous and engage in cooperative breeding with additional adults assisting in the raising of young (Black et al. 2009). Breeding is understood to occur from late June to September annually, although clutches have been found in late October, with territory size for breeding pairs or groups of approximately 1 ha in good seasons (Black et al. 2009, DotE 2014). Recently fledged young have been recorded in early November (Matthew and Carpenter 1993; Matthew 2002, pers. comm. cited in DCCEEW 2026). Nest designs vary from open cups, to partly or fully dome-shaped structures. Nests are thought to be typically constructed from dry grass, saltbush twigs and narrow strips of bark and lined with downy plant material, or occasionally fur and feathers (Higgins et al. 2001 cited in DotE 2014).

The species is considered omnivorous, with its diet primarily consisting of seeds, fruits, insects and other invertebrates (Higgins et al. 2001 cited in DotE 2014). The species is known to forage on the ground, under and around the bases of shrubs, in leaf litter and occasionally in open areas, with temporal activity occurring through early and mid-morning, and sometimes in the late afternoon (Higgins et al. cited in DotE 2014). Western Grasswren usually forage in pairs (Higgins et al. 2001 cited in DotE 2014).

5.3.1.3 Species Habitat and Distribution

The Western Grasswren is scattered and widespread on the north-eastern Eyre Peninsula, north-west through the Gawler Ranges, and north towards Lake MacFarlane and eastern Lake Gairdner (DotE 2014).

Western Grasswren are known to occupy chenopod shrublands scattered across the North Eyre Peninsula and the Gawler Ranges. The subspecies is most commonly found in low shrublands comprised of Black Bluebush (*Maireana pyramidata*) and Australian boxthorn (*Lycium australe*); however, they are also known to inhabit low woodlands comprised of Western Myall (*Acacia papyrocarpa*) (Black et al. 2009). Most of the subspecies' habitat is found along drainage lines, but occasionally habitat may also include low rocky hills and semi-arid low woodlands.

Western Grasswren are mainly sedentary, and pairs appear to remain within the same 4 to 5 ha patch throughout the year (Higgins et al. 2001). Given the fractured distribution and the limited dispersal capabilities of the Western Grasswren, it can be inferred that the subspecies is severely fragmented.

5.3.1.4 Occurrence in Study Area

This species is known to occur in the Study Area in localised preferred habitat areas with spiny *Atriplex* spp., *Maireana pyramidata*, *Scaevola spinescens*, *Lycium australe*, and *Acacia papyrocarpa* as well as atypical habitats of Senna shrublands over spiny chenopods/shrubs in drainage lines.

There are numerous recent BDBSA records for this species within and in close proximity to the portions of the Construction Footprint adjacent to, north of, west of and to the south of Whyalla (Jacobs 2025). Suitable habitat occurs along the water transfer system alignment around Whyalla, and individuals or groups were detected at two locations, however, these locations are avoided by the Construction Footprint (Jacobs 2026). Many of these locations have now been avoided by changes in route selection; however, 136 ha of preferred habitat and 266 ha of atypical habitat (the majority of which can be rehabilitated) will be utilised by the Project for the water transfer system and electricity infrastructure.

Suitable habitat for the species, and historic records are present immediately west, north-west, and south of Whyalla. The current proposed Project alignment to the west of Whyalla (through portion of the land owned by Department of Defence and operated as the Cultana Training Area) is located in areas of potentially suitable habitat where historic records of the species exist. Therefore, the Western Grasswren is considered known to occur within the EP LMR and SAAL LMR.

5.3.1.5 Threats

Western Grasswren are threatened by over-grazing, land use change, and/or introduced predators. The degradation of soils and loss of understorey vegetation caused by overstocking of livestock such as sheep and possibly cattle, in addition to further degradation caused by rabbits and feral goats, has been shown to adversely affect the subspecies (Higgins et al. 2001). Western Grasswren are believed to be particularly susceptible to habitat degradation caused by over-grazing during periods of drought. Large areas of Black Bluebush are also believed to have succumbed to recent extended drought conditions, independent of grazing activity (DotE 2014). Western Grasswren have become locally extinct from several locations due to habitat destruction by stock, sand quarrying, and recreational activities.

Clearance of potential Western Grasswren habitat for construction of the water transfer system, transmission line towers, access tracks, and desalination plant may result in a threat to the species. Introduction of invasive weed species resulting in further habitat degradation and increased feral animal predation and or competition may also result in additional pressures to the remaining populations.

5.3.2 Southern Whiteface (Aphelocephala leucopsis leucopsis)

5.3.2.1 Conservation Status

Vulnerable (EPBC Act)

5.3.2.2 Species Description

The Southern Whiteface is a small, stocky thornbill-like bird with a brown dorsum, white belly, dark brown wings, and a black tail with narrow white tip (Schodde and Mason 1999). A grey wash on the belly is sometimes present, along with a grey or rufous tinge to the flanks. The species displays the characteristic facial markings of the genus: a white band across the forehead, with a darker streak along the top edge. Adult birds are approximately 11.5 cm in length with a cream-coloured eye, grey legs, and a stubby dark grey bill of finch-like appearance (Schodde and Mason 1999). Adults are sexually monomorphic, while juveniles are distinguishable by the absence of the black rear band on the face.

Breeding occurs from July to October throughout most of the species' range; however, it is noted that the timing of breeding can be affected by rainfall in the arid regions (i.e. birds may breed outside of their usual season following sufficient rainfall, or alternatively not breed at all during drought events (Higgins and Peter 2002 cited in DCCEEW 2023a). Nesting is often in pairs (or may be cooperative), with nests consisting of large domed nests consisting of grass, bark, and roots, usually in a tree hollow or crevice or occasionally in low bushes (DCCEEW 2023a).

5.3.2.3 Species Habitat and Distribution

Southern Whiteface is known to occur in a wide range of open woodland and shrubland habitats where there is an understorey of grasses, shrubs, or both. These areas are usually dominated by acacias or eucalypts on ranges, foothills and lowlands, and plains (Higgins and Peter 2002). Southern Whiteface is considered sedentary; however, records indicate that individuals may move into wetter areas outside of their normal range during drought years (Higgins and Peter 2002). Southern Whiteface forage almost exclusively on the ground, favouring habitat with low tree densities and an herbaceous understorey litter cover. Birds mainly feed on insects, spiders, and seeds, largely gleaned from the bare ground or leaf litter (Higgins and Peter 2002).

5.3.2.4 Occurrence in Study Area

Historic records of Southern Whiteface exist from across the southern (approximately) two-thirds of Australia, excluding south-west Western Australia. Records of the species occur within proximity of the entire Construction Footprint.

Suitable habitat for this widely distributed habitat generalist occurs in patches throughout the full length of the Construction Footprint. There are abundant, regular, and recent records of the species from Munyaroo CP and around Whyalla and Port Augusta through to the Woomera and Olympic Dam regions. Several individuals were observed across the entire Construction Footprint across both the EP LMR and SAAL LMR (Jacobs 2026).

Given the extremely broad distribution of Southern Whiteface across much of southern Australia, the species is considered known to occur within the EP LMR and SAAL LMR.

5.3.2.5 Threats

Habitat loss and fragmentation is the likely cause of Southern Whiteface population declines, especially in the parts of the species' range where there has been complete removal of habitat for intensive agriculture (DCCEEW 2023a). Droughts may have local impacts and are likely to become more frequent and severe. Modelling suggests optimal climatic conditions for the species will retract to the south because of rainfall reductions (DCCEEW 2023a); however, Southern Whiteface is known to live in some of the driest and hottest parts of the country but have declined in places that are generally far wetter (DCCEEW 2023a).

Clearance of potential Southern Whiteface habitat for construction of water transfer system, transmission line towers, access tracks, and desalination plant may result in a threat to the species. Introduction of invasive weed species resulting in further habitat degradation and increased feral animal predation and or competition may also result in additional pressures to the remaining populations.

5.3.3 Blue-winged Parrot (*Neophema chrysostoma*)

5.3.3.1 Conservation Status

Vulnerable (EPBC Act)

5.3.3.2 Species Description

The Blue-winged Parrot is a slender parrot, measuring 24 cm in length with a weight of less than 50 g, with an olive-green head and upper body, grading to light green on the fore-neck. The upper tail is green-blue, with yellow sides. The underparts are yellow, and there may be orange in the centre of the belly. A yellow facial patch extends back to the eye. A narrow, dark blue band runs from eye to eye across the forehead. The Blue-winged Parrot gets its name from the large, dark blue patch on the wings. The female is similar to the male, but with slightly duller colours (Higgins 1999).

Blue-winged Parrot breeds in Tasmania and along the coastal areas of south-eastern South Australia and southern Victoria during spring and summer where the species occupies eucalyptus forests and woodlands. The species does not breed in or near the Study Area. The species forms monogamous pairs, with nests occurring in hollows (typically those with a vertical opening) of live trees, dead trees, or stumps (DCCEEW 2023b).

5.3.3.3 Species Habitat and Distribution

Blue-winged Parrot primarily resides in Tasmania, with many birds congregating on saltmarshes and agricultural land prior to dispersing north during the non-breeding season. The species breeds in both Tasmania and on mainland Australia (south of the Great Dividing Range in southern Victoria and sometimes in the far south-east of South Australia) (DCCEEW 2023b). During non-breeding periods (from Autumn to early Spring), the species will occur from northern Victoria, eastern South Australia, south-western Queensland and western New South Wales (Higgins 1999). They inhabit a range of coastal, sub-coastal, and inland areas through to semi-arid zones, favouring grassy woodlands and areas near wetlands. During the non-breeding season, the species is known to move more than 100 km inland during the winter, where they feed in semi-arid chenopod shrubland and sparse grassland (Holdsworth et al. 2021 cited in DCCEEW 2023b).

5.3.3.4 Occurrence in Study Area

There are numerous historic records of the species from Whyalla and northwards along the alignment to Olympic Dam (e.g. recorded at Carrapateena and Oak Dam in 2023, Z Bull and G Smith pers. comm). Targeted survey efforts recorded one individual via song meter near Mullaquana Station (Jacobs 2026).

Given the extremely broad distribution of this species through a range of different habitat types through their non-breeding period, and the occurrence of numerous historic records of the species, the species is considered known to occur in the EP LMR and likely to occur in the SAAL LMR.

5.3.3.5 Threats

No threats have been identified as causative of the decline of the Blue-winged Parrot, though several are thought to compound against the species. Habitat loss and degradation is considered the most consequential threat along with invasive weeds, inappropriate fire regimes, sea-level rise, and increased extreme climatic events (e.g. drought, wildfire). Coastal and inland grasslands, grassy woodlands, semi-arid chenopod shrublands, and wetlands are considered critical for the survival of the species.

Impacts as a result of the Project include loss of potential general foraging habitat, injury, or mortality from collisions with powerline conductors in proximity to the coast; injury or mortality from collisions with vehicles traversing access tracks; and introduction of predators, invasive weed species, or disease. The Project is not anticipated to impact nesting or breeding events.

5.3.4 Australian Fairy Tern (*Sternula nereis nereis*)

5.3.4.1 Conservation Status

Vulnerable (EPBC Act)

5.3.4.2 Species Description

A small piscivorous (fish-eating) bird, the Australian Fairy Tern is approximately 22–27 cm in body length, 70 g in mass, and has a wingspan of 44–53 cm. The species is very similar to Little Tern (*S. albifrons*) which in breeding plumage can be distinguished from the Australian Fairy Tern by the yellow, black tipped bill and black line through the eye reaching the bill. Little Terns are overall slimmer than Australian Fairy Terns with darker upperparts and outer primaries. The breeding plumage of both sexes is pale grey-white, with a black crown, nape, ear coverts and patch in front of the eyes (square to round in shape). The forehead is white and the bill is orange-yellow (Higgins and Davies 1996). Legs are dull yellow and the iris is dark brown in adults while immature birds have blackish legs and bills. There is also little sexual dimorphism in non-breeding plumage, with a black bill and a more mottled appearance to the crown (Higgins and Davies 1996).

In Australia, the subspecies occurs in colonies of various sizes, with breeding occurring from October to February on continental islands, sandy islands, and beaches inside estuaries (DCCEEW 2026a). Colonies typically occupy areas rather than specific sites. Nesting occurs in clear view of the water, and on sandy substrate with sparse vegetation, with nests consisting of a shallow scrape in the sand, lined with small shells and vegetation (DCCEEW 2026a).

5.3.4.3 Species Habitat and Distribution

The Australian Fairy Tern is distributed in a large geographic range between Australia, New Zealand (NZ), and New Caledonia. In Australia, the species occurs in coastal areas across the lower two thirds of the country (DAWE 2020). Australian Fairy Tern typically nests on sheltered sandy beaches, spits and banks above the high tide line and below vegetation, but has also been recorded in environments including offshore, estuarine or lacustrine islands, wetlands, and the mainland coastline (Higgins and Davies, 1996).

Populations in South Australia and Tasmania are estimated at only a few hundred pairs in each location (IUCN 2010 cited in DCCEEW 2026a).

5.3.4.4 Occurrence in Study Area

There are limited recent records of the species occurring along the eastern coast of the Eyre Peninsula, between Whyalla and Arno Bay, in saltpans near Point Lowly, and numerous records of the species along the southern portion of the Eyre Peninsula (Jacobs 2026; DEW 2024). Potential suitable habitat for this species exists adjacent the southern portions of the Project Construction which are in proximity to coastal areas. As a result, Australian Fairy Tern is considered likely to occur within the EP LMR (but is considered unlikely to occur in the SAAL LMR).

5.3.4.5 Threats

Threats in relation to the Project include clearance of potential habitat for intake, outfall, and tunnel boring works, water transfer system, towers and access; injury or mortality from collisions with powerline conductors in proximity to the coast; injury or mortality from collisions with vehicles traversing access track, and introduction of predators, invasive weed species, or disease.

5.3.5 Sharp-tailed Sandpiper (*Calidris acuminata*)

5.3.5.1 Conservation Status

Vulnerable and Migratory (Wetland) (EPBC Act)

5.3.5.2 Species Description

The Sharp-tailed Sandpiper is a small-medium wader. The bird has a length of 17–22 cm, a wingspan of 36–43 cm, and a weight of 65 g. It is a portly sandpiper with a flat back, pot belly and somewhat drawn-out rear end. It has a small flat head on a short neck with a short and slightly decurved bill. The sexes are similar and there is marked seasonal variation in plumage (DCCEEW 2024d).

Sharp-tailed Sandpipers have a rufous coloured forehead and crown, both of which are streaked black. A broad, clean white eye-ring contrasts with the off-white supercilium, dark brown loral stripe, and dark patch on the ear-coverts. The rest of the head and neck is brown, grading to off-white on the cheeks, chin, and throat. The head is covered with fine black streaks, which grade to a fine spotting on the cheeks and sides of chin and throat. The mantle, back, scapulars and tertials are all black, densely streaked by broad rufous edges, and with dull greyish-brown or white tips on the scapulars. The fore neck, centre of upper breast, sides of breast, and fore-flanks are all rufous-brown, grading to buff on the mid-flanks. These areas are overlaid with black spots and streaks. The rest of the underbody is white with bold black chevrons on the lower breast and rear flanks. There are spear-shaped markings on the vent and undertail coverts. The bill is black with a paler grey, yellow-brown, or pink tinge at the base. The legs and feet are olive-grey. Non-breeding sharp-tailed sandpipers are duller than breeding adults (DCCEEW 2024d).

5.3.5.3 Species Habitat and Distribution

The Sharp-tailed Sandpiper breeds in northern Siberia, from the delta of the Lena River, east to Chaun Gulf and east of the Kolyma River delta.

During the non-breeding season, approximately 91 percent of the East Asian - Australasian population occurs in Australia and New Zealand. Sharp-tailed sandpipers occur within all states of Australia. They are found mostly in the south-east and are widespread in both inland and coastal locations. The species also occurs in both freshwater and saline habitats.

In South Australia, they are widespread in the eastern half of the state from Streaky Bay, north-east to Pandiburra Bore and Coonchera Waterhole. They may also be found north of Lake Eyre, north-west to Oolgawa Waterhole, south-west to Mintabie and south-east to Nunn's Bore. Further west, they are recorded at Twin Rocks and Cook, east Nullarbor Plain (DCCEEW 2024d).

5.3.5.4 Occurrence in Study Area

The Whyalla Saltfields are listed as a known shorebird area. Sites are considered nationally important if >85 individuals regularly occur in the area (Weller et al. 2020).

Previous records of the species exist within the Study Area, but are at scattered locations where suitable habitat exists (and noting that each record often represents multiple individuals): several records south of the Construction Footprint from in and around the bay and estuary at Cowell (between 2000-2017), several records from around the Whyalla coast intertidal areas (2000, 2018), several records from the Whyalla salt evaporation ponds (1981-2017), a single record from near Lake Dutton (2007), and isolated individual records at Coorlay Lagoon (1992), Lake Mary (1993), and Purple Lake (1991) which are in proximity to the Construction Footprint (DEW 2024).

Due to its wide range across South Australia and records of observations in proximity to the Construction Footprint, Sharp-tailed Sandpiper is considered likely to occur within the EP LMR (and a possible occurrence in the SAAL LMR).

5.3.5.5 Threats

Threats in relation to this Project include loss of small areas of ephemeral habitat, injury or mortality from collisions with powerline conductors, injury or mortality from collisions with vehicles traversing access track and introduction of predators, invasive weed species or disease.

5.3.6 Little Tern (Sternula albifrons)

5.3.6.1 Conservation Status

Vulnerable and Migratory (Marine) (EPBC Act)

5.3.6.2 Species Description

The Little Tern has a body length of 20 – 28 cm, wingspan of 45 – 55 cm, and weighs around 42 – 65 g. It is a small, slender tern, with the bill measuring about as long as the head. The Little Tern is very similar in size and shape to the Fairy Tern (*Sterna nereis*). Breeding adults have a black cap covering their crown, nape, upper ear coverts and tapering line from eye to bill, with a triangular white patch on the forehead tapering to point above rear of eye. Non-breeding adults have a black bill, with the cap mainly white contrasting with black band from front of eye around to the back of crown and nape. Juveniles have subtly darker grey colour and weak black scalloping on the upper parts (DCCEEW 2026a).

In Australia, Little Tern is primarily a non-breeding migrant from Asia; however, the south and eastern Australian population breeds from October to January (and may migrate north during non-breeding) while the northern Australian population breeds across summer, autumn, and winter (Menkhorst et al. 2019). Nesting occurs in colonies on open sandy settings close to the tide line (Menkhorst et al. 2019).

5.3.6.3 Species Habitat and Distribution

The Little Tern is widely but patchily spread across Europe, southern, eastern and south-eastern Asia, Indonesia, and Australasia. Breeding occurs from the British Isles south to the Mediterranean Sea (including northern Africa), through the Middle East to the Indian Subcontinent, south-eastern Asia and the Malay Archipelago, and south to New Guinea and northern and eastern Australia (DCCEEW 2026a).

In Australia, Little Tern inhabits sheltered coastal environments, including lagoons, estuaries, river mouths and deltas, lakes, bays, harbours and inlets, especially those with exposed sandbanks or sand-spits, and also occur on exposed ocean beaches. The Australian breeding population can be divided into two major subpopulations: (1) a northern subpopulation that breeds across northern Australia, from about Broome in north-western Western Australia (where first recorded only in December 1995), through coastal Northern Territory (mainly from just west of Darwin to the Queensland border) to the Gulf of Carpentaria and eastern Cape York Peninsula (with an extended breeding season covering most of the year); and (2) an eastern subpopulation that breeds on the eastern and south-eastern coast of the mainland and northern and eastern Tasmania, occasionally extending as far west as western Victoria and south-eastern South Australia (and breeding in the austral spring-summer).

Non-breeding birds of the Australian subpopulations and of extralimital populations extend farther around the Australian coast than known breeding colonies, as well as overlapping extensively with the Australian breeding range. In south-eastern Australia, the species is generally rare west of Corner Inlet in Victoria, straggling as far west as south-eastern South Australia (where the species occasionally breeds) (DCCEEW 2026a).

5.3.6.4 Occurrence in Study Area

No records of Little Tern have been recorded within the Construction Footprint. The species is known to utilise beach habitats and was detected outside of the Construction Footprint but within the Study Area during assessments for this Project. As a result, Little Tern is considered likely to occur in the EP LMR (but unlikely to occur in the SAAL LMR). However, the extent of suitable habitats within the Construction Footprint for the Little Tern is considered negligible and impacts are not expected to occur due to underground tunnelling methods being implemented in the only area of coastal habitat within the Construction Footprint.

5.3.6.5 Threats

Threats in relation to this Project include clearance of potential habitat for intake/outfall pipes, desalination plant and associated infrastructure; injury or mortality from collisions with powerline conductors in proximity to the coast; injury or mortality from collisions with vehicles traversing access track and introduction of predators, invasive weed species or disease.

5.3.7 Southern Right Whale (*Eubalaena australis*)

5.3.7.1 Conservation Status

Endangered and Migratory (Marine) (EPBC Act)

5.3.7.2 Species Description

The Southern Right Whale is a large, baleen whale characterised by their lack of dorsal fin, rotund body shape, and the presence of cornified skin growths on the head known as callosities. The Southern Right Whale reaches a maximum length of approximately 17.5 m and a weight of around 80 tonnes, with mature females slightly larger than males (DSEWPaC 2012).

Southern Right Whale only occurs in the southern hemisphere with two populations (western and eastern) found in Australian waters. The two populations are defined by differences in mitochondrial DNA, geographical ranges, historic whaling pressures, and varying rates of population increase (DCCEEW 2024e).

5.3.7.3 Species Habitat and Distribution

The Southern Right Whale occurs seasonally in all state coastal waters, with sightings ranging from Hervey Bay in Queensland on the east coast, along the entire southern coastline and including Tasmania, to Exmouth Gulf in Western Australia. While the geographical boundary between the eastern and western Australian populations is unclear, for management purposes the western population includes Western Australia and South Australia waters west of Ceduna, whereas the eastern population comprises the coastal waters east of Ceduna in South Australia, Victoria, Tasmania, New South Wales, and Queensland (DSEWPaC 2012).

Foraging/feeding is coastal or offshore, depending on oceanographic features, although most is probably offshore associated with large-scale features such as the Sub-Tropical and Polar Fronts (DCCEEW 2024e).

Calving takes place very close to the coast in Australia, usually in waters less than 10 metres deep. Nursery grounds are occupied from May to October. Female-calf pairs generally stay within the calving ground for 2–3 months. On average, Southern Right Whales have a single calf every three years. Gestation lasts 12 months, lactation at least 7–8 months and weaning complete within 12 months. Female Southern Right Whales show calving site fidelity, generally returning to the same location to give birth and nurse offspring (DSEWPaC 2012).

Considerable latitudinal overlap of calving/nursing and foraging/feeding areas indicates that migration between the two regions is not as extensive as once thought. An offshore distribution is expected throughout the year for the component of the population that does not migrate to the coast in winter (DCCEEW 2024e).

5.3.7.4 Occurrence in Study Area

The coastal habitat traversed by the species is extensive. Biologically Important Areas (BIAs) for the Southern Right Whale includes migration BIA along the entire coast of South Australia, including the Spencer Gulf, between approximately April to October, as the species moves between Southern Ocean feeding grounds and breeding areas (DCCEEW 2024e). There are no records of the species within the Spencer Gulf on NatureMaps (DEW 2026); however, ALA cites approximately 35 records in Upper Spencer Gulf (ALA 2026).

The Southern Right Whale is considered likely to occur within marine habitat of the EP LMR (suitable habitat for this species is not present within the SAAL LMR).

5.3.7.5 Threats

The primary threats to the Southern Right Whale are underwater noise and vibration, habitat degradation, and vessel collision (DCCEEW 2024e).

Underwater noise sources associated with the Project with the potential to impact Southern Right Whales include noise generated by piling, drilling and dredging during construction. In the unlikely event that whales are present during these activities, effects would be short term and can be mitigated through implementing standard mitigation measures for underwater noise (DIT 2023, JBS&G 2025).

Minor construction disturbance to the rarely used habitat present along the coast will be temporary and localised and is not expected to have any effect on species recovery (JBS&G 2025).

Construction vessels are not expected to be large and extensive shipping movements are not likely to be required. Vessel speed restrictions will be implemented. Awareness and detection campaigns will be included in contractor inductions. Although the risk of vessel collision is low, effective vessel management will further minimise the potential impact to whales (JBS&G 2025).

5.3.8 Plains Mouse (Pseudomys australis)

5.3.8.1 Conservation Status

Vulnerable (EPBC Act)

5.3.8.2 Species Description

The Plains Mouse is an Australian native murid rodent weighing between 30 and 50 g (Brandle and Moseby 1999). The species is one of the largest rodents still inhabiting the arid zone and is grey to grey-brown above and white or cream below. The tail is shorter than, or equal with, the head and body length. The tail is also bicoloured with brown/grey markings dorsally and white markings ventrally. In some specimens the entire tail and hind feet are white.

The Plains Mouse constructs shallow, complex burrows, dug into cracks in the gibber, where nests are maintained by breeding females. In secondary habitat areas, burrows may also be dug into softer, more friable soils typically around the base of chenopod shrubs (Brandle and Moseby 1999 cited in DCCEEW 2026a). Breeding is not seasonal, but rather appears to be associated with increased resources and food availability following significant rainfall events. The Plains Mouse is a social rodent and lives in colonies that are usually small in size but increase dramatically after good rains. Litter size is usually 3 to 4 offspring, through occasionally up to seven (DCCEEW 2026a).

5.3.8.3 Species Habitat and Distribution

Plains Mouse is restricted to the Stony Plains Bioregion in SA and the NT and persists where large open gypseous cracking clay depressions occur within stony gibber country, which are common to the northern portion of the Construction Footprint, and along the Carrapateena lateral spur. Any large populations which persist through drought conditions are considered likely to be important, including those of the Arcoona Tablelands and within the Arid Recovery Reserve in South Australia (two of five key geographic zones) (Moseby 2012a, Moseby 2012b).

5.3.8.4 Occurrence in Study Area

The Carrapateena Mine lateral pipeline alignment is located on stony tablelands country with gilgai habitat within the known area of occupancy of Plains Mouse. Plains Mouse were detected at the Carrapateena Mine in adjoining habitat in 2017 and more recently a single Plains Mouse was detected in 2024 between the Olympic Dam Highway and Arcoona Homestead (approximately 25 km north-east of Woomera) (DEW 2026). The species has been assumed as likely to be present within the Construction Footprint around the Carrapateena lateral pipeline and along the main trunk line where stony tablelands habitat exists based on presence of suitable tablelands stony country with gilgai depressions.

There are 492 recent records of Plains Mouse located within 50 km of the most northern third of the Construction Footprint (Jacobs 2024). The number of records is reflective of the irruptive nature of this species, which is abundant in good years but reduces to numbers that are difficult to detect outside of these conditions. The closest record occurs within the Study Area just outside of the proposed Carrapateena spur pipeline easement, immediately south-west of the Carrapateena Mine.

Plains Mouse is considered likely to occur in the SAAL LMR with the population(s) present representing important populations. The species is not considered to occur in the EP LMR.

5.3.8.5 Threats

Clearance of areas of gilgai refuge habitat and of broader opportunistic and foraging habitat across the Construction Footprint may result in a reduction in the area of occupancy of an important population (if confirmed as present) as well as a result in a long-term decrease in the size of an important population of the species (if present). Potential threats to this species include clearance of potential habitat for the water transfer system, transmission towers and access track; increased vehicle strike along access tracks; animals becoming trapped in open trenches or other construction excavations; introduction of invasive weed species resulting in habitat degradation; and increased feral animal predation and or competition.

5.3.9 Grey-headed Flying-fox (*Pteropus poliocephalus*)

5.3.9.1 Conservation Status

Vulnerable (EPBC Act)

5.3.9.2 Species Description

The Grey-headed Flying-fox is one of the largest bats in the world and is Australia's only endemic flying-fox. Body fur is typically medium to dark grey, with many light-tipped hairs. Fur on the head is also grey but varies in shade from near black to silver. An orange or russet-coloured mantle or collar encircles the neck, which is unique to this species. Leg fur extends to the ankle, distinguishing this species from the similarly sized Black Flying-fox, which has bare legs below the knee. The wing membranes of the Grey-headed Flying-fox are black (DAWE 2021).

Following mating in early Autumn, camps segregate into smaller colonies over winter when resources are limited. Colonies further divide in October, segregating into male and female groups around the time females typically give birth, with females bearing a single young each year (DCCEEW 2026a). Colonies then reform in late spring/early summer. A slow growth rate is noted for the species, and the species is known to abort or abandon their young in response to environmental stress (Dukelow et al. 1990 and Tidemann 1998 cited in DCCEEW 2026a).

5.3.9.3 Species Habitat and Distribution

The species is found from Ingham in north Queensland to Adelaide in South Australia, where it is considered a relatively new arrival. While permanent camps are known (e.g. the Adelaide colony near the Botanic Gardens of South Australia), these flying-foxes typically move in mass between seasons to areas where food sources are abundant. Exposed branches of trees support camps during the day before they travel in search of food from dusk to dawn. Camps are extremely variable in size but often exceed 50,000 individuals (DAWE 2021).

5.3.9.4 Occurrence in Study Area

Two BDBSA records of the Grey-headed Flying-fox occur in the Study Area (Jacobs 2026). There are also several recent records (2018, 2022, 2024) of occurrence surrounding Port Augusta (2018, 2022, 2024) and Whyalla (2024) on NatureMaps (DEW 2024a) (Noting two records are associated with deceased individuals caught in fences). NatureMaps (DEW 2024a) also highlights records of several flora species which the Grey-headed Flying-fox feeds on within the SAAL LMR, including species from genera *Eucalyptus*, *Melaleuca*, and *Hakea*.

Grey-headed Flying-fox were not observed during field surveys (Jacobs 2026). The Construction Footprint provides no core habitat and limited useable habitat therefore any usage would be expected to be occasional, opportunistic and infrequent, with little to no habitat available for establishing new colonies. As a result, Grey-headed Flying-fox are considered likely to occur within the EP LMR and SAAL LMR.

5.3.9.5 Threats

The primary threat to this species from the Project is loss of potential foraging habitat. Further threats include potential entanglement in fencing, heat stress, and electrocution on power lines. As this species exhibits low fecundity combined with slow sexual maturity and a proneness for mass abortions when environmental stress is high, any stressors have a potential to negatively impact populations (DAWE 2021).

5.3.10 White Shark (Carcharodon carcharias)

5.3.10.1 Conservation Status

Vulnerable and Migratory (Marine) (EPBC Act)

5.3.10.2 Species Description

The White Shark is a large, long-lived shark species that is found throughout temperate and sub-tropical regions on the northern and southern hemispheres. White Shark is primarily an inhabitant of continental and insular shelf waters but is also known to inhabit the open ocean. It often occurs close inshore near the surf-line and may move into shallow bays.

The White Shark is not known to form and defend territories and is only a temporary resident in areas it inhabits. However, the species does seem to show a degree site fidelity as it exhibits philopatry (returning to its birthplace for breeding purposes) (DSEWPaC 2013).

5.3.10.3 Species Habitat and Distribution

White Shark is found throughout temperate and subtropical regions in the northern and southern hemispheres and occur close inshore around rocky reefs, surf beaches and shallow coastal bays to outer continental shelf and slope areas (DSEWPaC 2013).

In Australia, White Shark is widely (but not evenly) dispersed between North West Cape in WA, across southern Australia and to central Queensland. The White Shark is largely solitary and is known to travel long distances, and aggregate in certain areas, such as offshore islands associated with seal colonies. Although considered an important population, it is dispersed across a very vast area and in low density (DSEWPaC 2013).

5.3.10.4 Occurrence in Study Area

Within the Spencer Gulf, the species has been recorded once near Cowell, while all other records are from the south of the Gulf, with most records around the Neptune Islands (ALA 2026). While the species has the potential to utilise habitat within portions of the Study Area, it is a highly mobile species that would likely relocate to more suitable habitat if disturbed.

The White Shark is considered likely to occur within marine habitat of the EP LMR (suitable habitat for this species is not present within the SAAL LMR).

5.3.10.5 Threats

The primary threat to White Shark populations is mortality related to being caught accidentally (bycatch) or illegally (targeted) by commercial and recreational fisheries, and mortality related to shark control activities such as beach-meshing or drum-lining (DSEWPaC 2013).

Threats to this species as a result of the Project include noise during construction from piling (if required). In the event that sharks are present during these events, effects would be short term and can be mitigated through implementing standard mitigation measures for underwater noise (DIT 2023). Additionally, individuals (if present) would be minimally impacted (temporarily displaced) by any underwater construction noise as White Sharks are highly mobile and when exposed to low frequency and higher levels of sounds would be expected to move away from the noise source (DSEWPaC 2013).

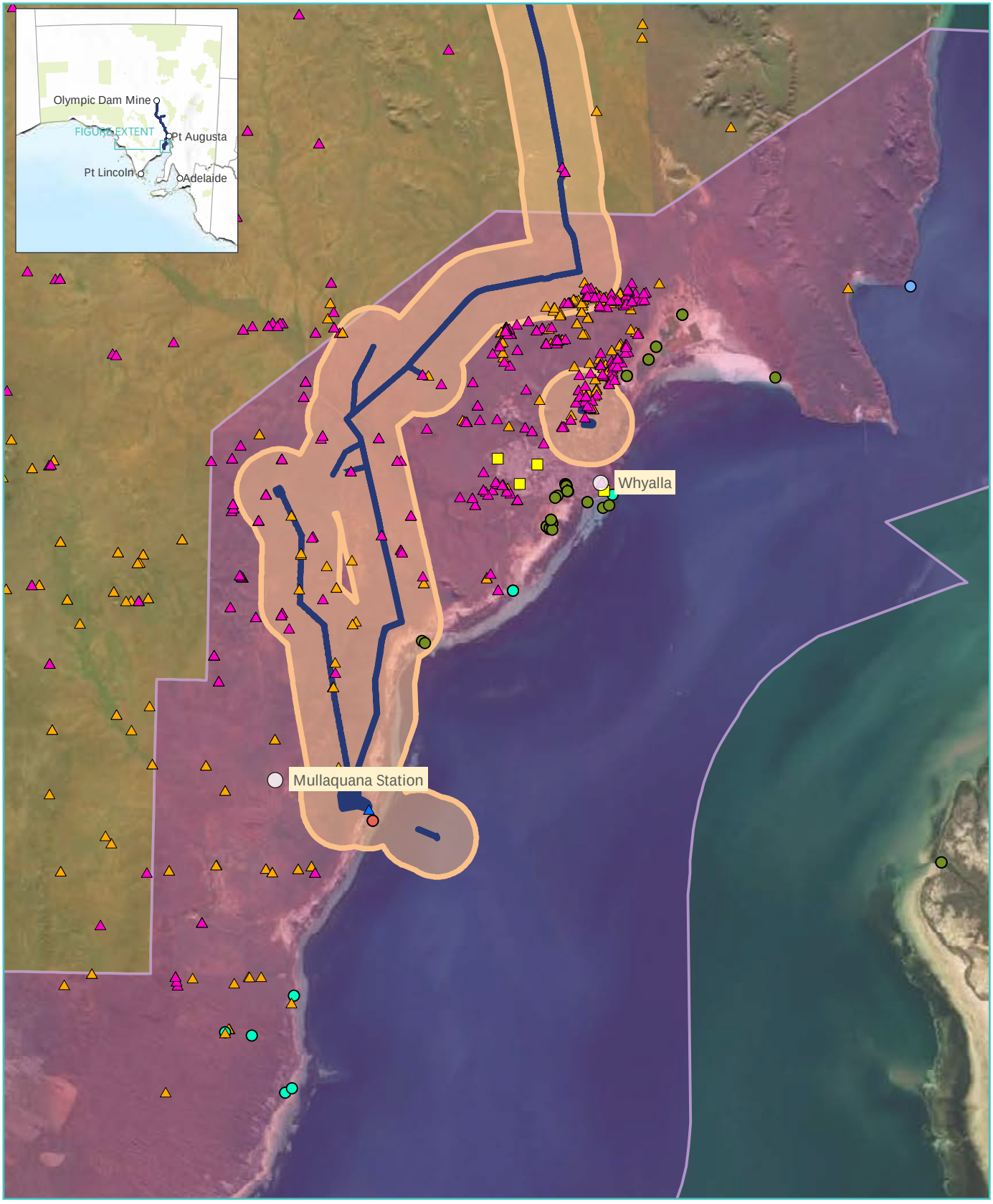


Figure 5.1: Relevant EPBC listed fauna species records within the Eyre Peninsula LMR

Northern Water Project Threatened Species Management Strategy

LATHWIDA

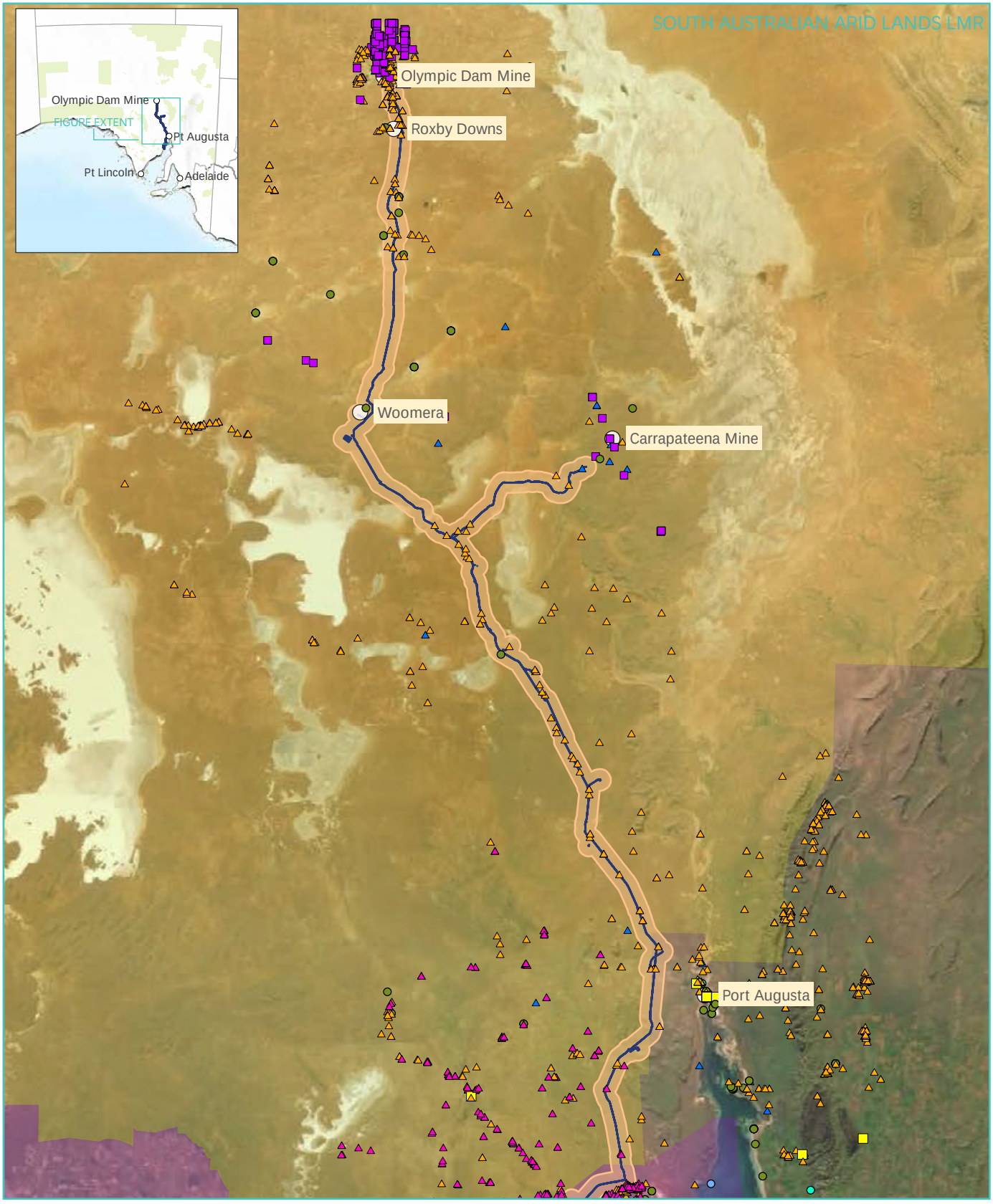


Figure 5.2: Relevant EPBC listed fauna species records within the South Australian Arid Lands LMR

Northern Water Project Threatened Species Management Strategy

LATHWIDA

6 Project Impacts, risk assessment and management

6.1 Potential impacts to threatened species

Potential Project-related impacts to listed threatened species under the EPBC Act may be either direct (i.e. an immediate and tangible effect resulting from an action or decision) or indirect (i.e. impacts caused by an action or decision but that occur later in time or are further removed in distance but are reasonably foreseeable).

Potential direct and indirect impacts to threatened species are described in the following sections.

6.1.1 Direct impacts

The proposed activities potentially directly impacting flora and habitat include:

- clearing of native vegetation
- clearing of some locally significant vegetation communities and riparian vegetation.

The proposed activities potentially directly impacting fauna include:

- habitat loss through vegetation clearing, where the Project will result in the direct loss of native, plantation and rehabilitated vegetation, and hence fauna habitat, through clearing associated with Project operations and supporting infrastructure
- temporary noise disturbance to marine species associated with piling during construction (if required).

The Construction Footprint for the Project is currently estimated to be 2,154 ha of which approximately 1,992 ha is located in terrestrial native vegetation (Native Vegetation Disturbance Footprint). The remaining disturbance occurs within agricultural land previously cleared of native vegetation (e.g. cropping land) or land which is already disturbed (e.g. by existing roads, tracks, or clearance) and will not result in impacts to native vegetation.

It should be noted that not all of the Native Vegetation Disturbance Footprint represents habitat that could support threatened fauna or flora species and further detailed assessment of native vegetation impacts are planned or underway to more specifically map species habitat and/or species presence.

Of the 1,992 ha of Native Vegetation Disturbance Footprint, 376 ha is Permanent Native Vegetation Clearance, and 1,616 ha is Temporary Native Vegetation Clearance which will be rehabilitated following construction (i.e. approximately 82.6% of native vegetation clearance is proposed to be rehabilitated).

6.1.2 Indirect impacts

Indirect impacts to threatened species as a result of the Project may occur in areas adjacent to construction activities. These will be temporary and localised and are expected to have a very low level of overall impact due to the implementation of Project design measures and management controls (see Table 6.7).

No EPBC Act listed threatened flora have been recorded within the Construction Footprint, and the available habitat is considered unlikely to support any of the threatened species highlighted in the respective PMST reports (Jacobs 2026). As such, it is unlikely indirect impacts will impact any EPBC Act listed flora species.

Potential indirect impacts on threatened fauna include:

- fragmentation of habitat in the local area through partial or complete clearing and associated habitat loss
- injury, mortality, or displacement of fauna from construction and operations (including vehicle strikes)
- indirect impacts from dust during construction and operations
- increased competition or predation by introduced (feral) species
- cumulative impacts in relation to the direct loss and fragmentation of habitat for fauna.

6.2 Mitigation measures to avoid and/or minimise potential impacts

The Construction Footprint for the Project is approximately 2,154 ha.

Mitigation measures will be employed during the design and construction phases, and operation and maintenance phases to continue to reduce potential impacts of the Project.

The design of the current proposed Project layout, including locations of desalination plant, pump stations and water storage areas, along with alignments for transmission lines and water transfer system, has been an iterative approach which has considered Project objectives, engineering constraints and requirements, stakeholder concerns, as well as environmental and cultural sensitivities. There have been numerous changes and refinement of the overall Project alignment.

A number of key project alternatives were considered during development of the Project, and which have been used as the basis for initial ecological and environmental constraints assessments. As the Project has progressed, options were introduced to avoid or minimise impacts to identified values, or as a result of design feasibility. The design requirements for the Project have gone through multiple iterations as the Project has evolved since its design inception in late 2023, resulting in the current Reference Design (GHD 2025). Site selection, alignment selection and Project design have been sought to avoid or minimise impacts to EPBC listed species as far as possible. The detailed design process will continue to involve ongoing refinement to further minimise impacts as design and technical studies continue.

A nominal Construction Footprint of 40 m would be required to allow for the pipeline excavation, trench working area, access road, pipe string laydown, excavation and fill stockpiles and a secondary passing access road. While the pipeline would generally be buried underground and constructed using trench and cover fill for the majority of the alignment, including road crossings, trenchless installation (tunnel boring, pipe jack or directional drilling) would be used for rail and for some waterway / waterbody crossings.

Additional key refinement provisions for reducing potential impacts of the pipeline installation includes:

- micro-siting of infrastructure, access tracks, and other activities to avoid EPBC listed threatened species or migratory shorebirds (or other sensitive environmental features)
- using existing access tracks for access along the easement as far as possible
- avoidance and delineation of key coastal and inland ephemeral swamps and salt lake habitats supporting EPBC listed threatened or migratory shorebird species
- employment of field inspections undertaken with an experienced ecologist and construction design specialist to further reduce the construction corridor width where possible and to assist with demarcation of no-go zones for particularly sensitive species.

Where impacts are unable to be avoided, DIT and the DBOM Contractor will develop a CEMP and OEMP and subplans, including a Threatened Species Management Plan, which will address potential impacts and key risks outlined in this TSMS (as described in Section 6.3.2). By implementing appropriate mitigations and management strategies, avoidable impacts and foreseeable risks will be minimised.

Throughout the construction and operation of the Project, it is possible that despite the best efforts to consider all threats and impacts to threatened species, unforeseen impacts could occur. For this reason, DIT, the DBOM Contractor (and associated sub-contractors) will take an adaptive management approach through continual monitoring and improvement, as documented in the CEMP, OEMP, and its sub-plans.

Key mitigation and management measures to be implemented by the Project to avoid or reduce impacts to threatened species is provided in Table 6.1. Additional species-specific mitigation and management measures, including responsibilities for implementation and timing and frequency may be further developed for some species. These have been identified in the significant impact assessment (JBS&G 2025) and are summarised in Table 6.2.

Table 6.1: Mitigation measures to be implemented for the Project

Mitigation measure	Design and construction	Operation and maintenance
Terrestrial impact mitigation		
Desktop and field surveys carried out to identify key ecological constraints, feeding into iterative design process to avoid and minimise interaction with important habitat as far as reasonably practicable.	x	-
Minimise construction footprint and utilise previously cleared or disturbed areas where practicable.	x	-
Restrict construction width to the minimum necessary to allow safe and efficient pipeline installation.	x	-
Where the construction footprint intersects with, or comes within proximity of, key coastal and inland ephemeral swamps and salt lake habitats supporting EPBC listed threatened or migratory shorebird species, the construction footprint boundary will be defined to avoid unintentional disturbance outside of defined construction areas. Identification of key habitats to be identified by suitably qualified ecologist prior to disturbance.	x	-
A field inspection will be undertaken with an experienced ecologist and construction design specialist in order to further reduce the construction corridor width where possible and to assist with demarcation of no-go zones for particularly sensitive areas.	x	-
During construction, implement weed hygiene practices including vehicle checks and washdowns as required on vehicles or plant entering the construction site.	x	-
During construction, undertake monthly weed surveillance monitoring targeting WoNS and Declared Weed species, with follow up controls as required for any identified weed outbreaks.	x	-
During operation, implement weed surveillance and control programs targeting WoNS and Declared Weed species (if weeds identified).	-	x
Micro-site transmission line tower locations where possible to avoid important habitat features.	x	-
Develop and implement protocols for management of waste during construction to avoid an increase in, or attraction of, feral pest animals to the project area.	x	-
Avoid construction works associated with crossings of ephemeral lakes and watercourses when water is present where practicable	x	-
Presence of experienced environmental management field staff during access and clearing activities.	x	-
Presence of, or access to, trained fauna handlers during construction to assist with removal of, and relocation of, any trapped (and/or injured) fauna caught within trenches, or displaced during habitat clearance.	x	-
Routine monitoring of open trenches during construction activities to inspect for trapped fauna.	x	-
Progressive backfilling of trenches to minimise the length of open trenches at any time during construction.	x	-
Inclusion of fauna ladders (such as earthen ramps) in open trenches to enable egress of any trapped fauna.	x	-

Mitigation measure	Design and construction	Operation and maintenance
Speed restrictions in place within construction corridor and along access tracks.	x	x
Maximise on-ground environmental offset (Significant Environmental Benefit) for native vegetation removal where opportunities are available.	x	-
Progressive rehabilitation of all temporary construction areas where native vegetation clearance has occurred.	x	-
Preparation of a project-specific CEMP including controls on activities near salt pans and clay pans, weed hygiene, weed monitoring and progressive rehabilitation.	x	-
Preparation of a Threatened Species Management Plan.	x	x
Operations (and Maintenance) Environmental Management Plan (OEMP) prepared and implemented prior to commissioning.	-	x
Marine impact mitigation		
Standard marine environmental management practices will be implemented	x	x
Implementation of vessel speed limits / awareness campaigns.	x	-
If piling is required, detailed underwater noise modelling will be undertaken to establish noise management measures in accordance with Underwater Piling and Dredging Noise Guidelines (DIT, 2023), which would typically include: • Shut-down zones based on predicted potential for temporary threshold shift for hearing impact for the species. • Observation zone nominally 250 m from the outer edge of the shut-down zone, with marine fauna observers as required to identify any relevant species at risk of entering the shut-down zone. • Standard Operating Procedures (SOP) in accordance with Underwater noise guidelines (DIT 2023), which must be observed by piling contractors, including pre-start, soft start, normal operation, stand-by operation, and shut-down procedures.	x	-
Soft start procedures will be used if piling is required.	x	-

Source: JBS&G 2025.

Whilst almost all MNES were assessed as not being significantly impacted by the Project, the assessment determined that residual significant impacts are considered possible for Western Grasswren (*Amytornis textilis myall*). Whilst Plains Mouse (*Pseudomys australis*) was not assessed as being significantly impacted, there remains the possibility that impacts are considered significant by DCCEEW. As such, additional species-specific mitigation measures have been proposed for Western Grasswren and Plains Mouse, as outlined in Table 6.2, and as described in the EIS (JBS&G 2026).

Table 6.2: Species-specific mitigation measures

Species	Mitigation measure	Responsibility
Western Grasswren (Gawler Ranges) *Amytornis textilis myall* (Vulnerable)	• Minimise construction width in areas of preferred habitat where possible.	DBOM Contractor and EMR: Responsible for species-specific management actions.
Plains Mouse *Pseudomys australis* (Vulnerable)	• Minimise construction width in areas of refuge habitat where possible. • Restrict travel on access tracks during construction and operation to daylight hours, as far as practicable, to avoid potential impacts to this nocturnally active species.	DBOM Contractor and EMR: Responsible for species-specific management actions.

6.3 Risks to threatened species

A risk assessment was undertaken to identify potential Project-related impacts resulting from the development of the Project to those threatened and/or migratory species listed under the EPBC Act considered relevant to the Project, as summarised in Table 6.3. The risk assessment was undertaken with consideration to the DCCEEW (2024a) guidelines for the development of environmental management plans, which included consideration to the risk assessment likelihood criteria, consequence criteria, and risk rating matrix (as presented in Table 6.4, Table 6.5, and Table 6.6).

To address the level of uncertainty associated with each of the management measures proposed or the Project, risk ratings have been applied, and the outcome measurement criteria, monitoring actions, and corrective actions (where required), are presented in Table 6.7.

Management measures included within this Strategy are considered standard best practice for construction and operation activities. As such, it is considered that there is a low level of uncertainty associated with the risk ratings applied, which have been undertaken conservatively. Where a single risk rating is applicable to risks to more than one species, the most conservative / worst case approach has been taken.

As such, the risk of potential impacts resulting from the Project have been used to determine appropriate management actions to achieve environmental management objectives. To this end, the risk assessment within this Strategy is consistent DCCEEW's Environmental Management Guidelines (Evaluating Risk) (DCCEEW 2024a), and includes:

- a qualitative assessment of the likelihood and consequence of impacts, and the residual risk of failure to achieve management objectives due to identified events or circumstances (*assuming mitigation measures will be implemented*)
- characterises risk as low, medium, high, or severe, and derived from likelihood (highly likely, likely, possible, unlikely, rare) and consequence (minor, moderate, high, major, and critical), and
- outlines how consequence, likelihood and risk level for each risk have been determined.

The summary of potential Project-related impacts resulting from the Project is summarised in Table 6.3.

Risk assessment methodology, in accordance with DCCEEW's Environmental Management Guidelines is provided in Section 6.3.1.

The risk assessment, including outcome measurement criteria, monitoring actions, and corrective actions is presented in Table 6.7.

Table 6.3: Potential Project-related impacts to EPBC listed threatened and/or migratory species

Action or activity	Summary of potential impact	Phase	Duration
Direct impacts			
Clearance of native vegetation / habitat loss	Clearance of native vegetation is required to facilitate development of the Project and all associated infrastructure. Clearance of native vegetation within the Construction Footprint will result in a reduction of potentially suitable habitat for EPBC listed species.	Construction and operation	Short term (2-3 years) Long term (life of asset)
Human and vehicle disturbance	Increase in human and vehicle activity within and adjacent to the Construction Footprint may result in impacts to EPBC listed species and/or suitable habitat for these species.	Construction and operation	Short term (2-3 years) Long term (life of asset)
Noise, lighting and vibration	Increase in ambient noise, lighting, and vibration have the potential to disrupt EPBC listed species within and adjacent to the Construction Footprint.	Construction	Short term (2-3 years)
Weeds, plant pathogens, and pest animals	Increase in weeds, plant pathogens, and/or pest animals within and adjacent to the Construction Footprint may impact habitat that is utilised by EPBC listed species.	Construction and operation	Short term (2-3 years) Long term (life of asset)
Indirect impacts			
Dust	Increased dust in the Construction Footprint may impact habitat that is utilised by EPBC listed species.	Construction	Short term (2-3 years)
Surface water management	Changes to surface water flows within the Construction Footprint have the potential to impact suitable habitat of EPBC listed species.	Construction	Short term (2-3 years)
Fire / bushfire	Vehicles and equipment associated with construction and maintenance activities have the potential to generate sparks that may ignite fires within and adjacent to the Construction Footprint resulting in reductions to suitable habitat for EPBC listed species.	Construction and operation	Short term (2-3 years) Long term (life of asset)

6.3.1 Risk assessment methodology

Each risk was evaluated using the likelihood and consequence criteria shown in Table 6.4 and Table 6.5 respectively, leading to the overall risk rating determined via the risk matrix presented in Table 6.6.

Table 6.4: Threatened species risk assessment likelihood criteria

Qualitative measure of likelihood	How likely is it that this event/issue will occur after control strategies have been put in place?
Highly likely	Is expected to occur in most circumstances
Likely	Will probably occur during the life of the project
Possible	Might occur during the life of the project
Unlikely	Could occur but considered unlikely or doubtful
Rare	May occur in exceptional circumstances

Source: DCCEEW 2024a

Table 6.5: Threatened species risk assessment consequence criteria

Qualitative measure of consequence	What will be the consequence/result if this issue does occur?
Minor	Minor incident of environmental damage that can be reversed
Moderate	Isolated but substantial instances of environmental damage that could be reversed with intensive efforts
High	Substantial instances of environmental damage that could be reversed with intensive efforts
Major	Major loss of environmental amenity and real danger of continuing
Critical	Severe widespread loss of environmental amenity and irrecoverable environmental damage

Source: DCCEEW 2024a

Table 6.6: Risk rating matrix

Final Risk Rating (R): A function of multiplying Likelihood (L) and Consequence (C)						
	Consequence					
Likelihood		Minor	Moderate	High	Major	Critical
	Highly Likely	Medium	High	High	Severe	Severe
	Likely	Low	Medium	High	High	Severe
	Possible	Low	Medium	Medium	High	Severe
	Unlikely	Low	Low	Medium	High	High
	Rare	Low	Low	Low	Medium	High

Source: Draft Offset Strategy Template (DCCEEW 2024b).

6.3.2 Risk assessment

The risk assessment outcomes associated with threatened species considered listed under the EPBC Act as known to occur or likely to occur, and their associated habitat requirements, are presented in Table 6.7.

Table 6.7: Threatened species risk assessment

Outcome	Risk event	Mitigation Measures	Project phase(s)	Risk			Outcome measurement criteria	Monitoring	Corrective action
				Likelihood	Consequence	Residual Risk			
Native vegetation clearance and habitat loss									
Habitat loss for EPBC listed species is minimised to the greatest extent reasonably practicable for the design and construction phase of the Project	Impacts to approved areas of native vegetation and critical habitat clearance.	• Desktop and field surveys carried out to identify key ecological constraints, feeding into iterative design process to avoid and minimise interaction with important habitat as far as reasonably practicable. • Minimise construction footprint and utilise previously cleared or disturbed areas where practicable. • Micro-site transmission line tower locations where possible to avoid important habitat features. • Restrict construction width to the minimum necessary to allow safe and efficient pipeline installation. • A field inspection will be undertaken with an experienced ecologist and construction design specialist in order to further reduce the construction corridor width where possible and to assist with demarcation of no-go zones for particularly sensitive areas. • Presence of experienced environmental management field staff during access and clearing activities. • Maximise on-ground environmental offset (Significant Environmental Benefit) for native vegetation removal where opportunities are available.	• Design and construction	Possible	Moderate	Medium	GIS used to confirm that only approved areas of native vegetation have been cleared.	Environmental contractor must monitor and record the total area of MNES habitat cleared during construction and assess against the disturbance limits (once approved). During construction, field monitoring to occur during construction to report on any evidence of unauthorised access and/or vegetation clearance.	Clearing of non-approved native vegetation must be reported to DIT immediately. The incident will be recorded in the Project's environmental and incident reporting system register Approved rehabilitation measures developed in consultation with DEW and DCCEEW.
	Construction equipment or vehicles move outside approved Construction Footprint / accidental clearance of native vegetation outside of the approved footprint.		• Design and construction	Unlikely	Moderate	Low			
	Poorly planned access tracks result in unnecessary vegetation clearance.	• Desktop and field surveys carried out to identify key ecological constraints, feeding into iterative design process to avoid and minimise interaction with important habitat as far as reasonably practicable. • Operations (and Maintenance) Environmental Management Plan (OEMP) prepared and implemented prior to commissioning. • Minimise construction footprint and utilise previously cleared or disturbed areas where practicable. • Presence of experienced environmental management field staff during access and clearing activities.	• Design and construction	Unlikely	Moderate	Low	Track locations to be reviewed by a suitably qualified consultant to ensure impacts are as low as reasonably practicable while continuing to meet functional and safety requirements.	Post-construction audit report by suitably qualified ecologist/contractor.	Unnecessary tracks must be rehabilitated by approved rehabilitation measures developed in consultation with DEW and DCCEEW.
	Unsuccessful rehabilitation of temporarily cleared areas.	• Desktop and field surveys carried out to identify key ecological constraints, feeding into iterative design process to avoid and minimise interaction with important habitat as far as reasonably practicable. • Operations (and Maintenance) Environmental Management Plan (OEMP) prepared and implemented prior to commissioning. • Minimise construction footprint and utilise previously cleared or disturbed areas where practicable. • Presence of experienced environmental management field staff during access and clearing activities. • Progressive rehabilitation of all temporary construction areas where native vegetation clearance has occurred.	• Design and construction	Possible	Moderate	Medium	Construction contractor must have a Rehabilitation Management Plan (likely part of the CEMP / OEMP) approved by DIT including recommendations for vegetation types and provide rehabilitation targets.	Post-construction audit report by suitably qualified ecologist/contractor.	Corrective action must be developed by appropriately qualified ecologist/contractor and could include seeding with locally indigenous species.

Outcome	Risk event	Mitigation Measures	Project phase(s)	Risk			Outcome measurement criteria	Monitoring	Corrective action
				Likelihood	Consequence	Residual Risk			
Vegetation clearance does not result in permanent or long-lasting significant impacts to Plains Mouse habitat	Permanent or long-lasting significant impacts to Stony tablelands and low gibber areas (SAAL LMR only).	• Desktop and field surveys carried out to identify key ecological constraints, feeding into iterative design process to avoid and minimise interaction with important habitat as far as reasonably practicable. • Preparation of a Threatened Species Management Plan. • Minimise construction footprint and utilise previously cleared or disturbed areas where practicable. • Restrict construction width to the minimum necessary to allow safe and efficient pipeline installation. • A field inspection will be undertaken with an experienced ecologist and construction design specialist in order to further reduce the construction corridor width where possible and to assist with demarcation of no-go zones for particularly sensitive areas. • Micro-site transmission line tower locations where possible to avoid important habitat features. • Presence of experienced environmental management field staff during access and clearing activities. • Progressive rehabilitation of all temporary construction areas where native vegetation clearance has occurred.	• Design and construction • Operation and maintenance	Possible	Moderate	Medium	GIS used to confirm that only approved areas of native vegetation have been cleared. Confirm soil and vegetation in rehabilitated areas is self-sustaining and comparable with that in areas directly adjacent to the initial Project disturbance.	Environmental contractor must monitor and record the total area of MNES habitat cleared during construction and assess against the disturbance limits (once approved). Field monitoring to occur during construction to report on any evidence of unauthorised access and/or vegetation clearance. Rehabilitation success to be assessed by an experienced ecologist using an appropriate method (e.g. landscape function analysis) comparing rehabilitated areas to areas directly adjacent to the initial Project disturbance.	Clearing of non-approved native vegetation must immediately cease and be reported to DIT. The incident will be recorded in the Project's environmental and incident reporting system register. Approved rehabilitation measures developed in consultation with DEW and DCCEEW.
Vegetation clearance does not result in adverse effects to EPBC listed species that utilise wetland and inland saline depression habitats during the design and construction or operation and maintenance phases of the Project	Permanent or long-lasting significant impacts to wetlands and inland saline depressions during inundation events.	• Desktop and field surveys carried out to identify key ecological constraints, feeding into iterative design process to avoid and minimise interaction with important habitat as far as reasonably practicable. • Preparation of a Threatened Species Management Plan. • Minimise construction footprint and utilise previously cleared or disturbed areas where practicable. • Restrict construction width to the minimum necessary to allow safe and efficient pipeline installation. • A field inspection will be undertaken with an experienced ecologist and construction design specialist in order to further reduce the construction corridor width where possible and to assist with demarcation of no-go zones for particularly sensitive areas. • Micro-site transmission line tower locations where possible to avoid important habitat features. • Presence of experienced environmental management field staff during access and clearing activities. • Progressive rehabilitation of all temporary construction areas where native vegetation clearance has occurred. • Where the construction footprint intersects with, or comes within proximity of, key coastal and inland ephemeral swamps and salt lake habitats supporting EPBC listed threatened or migratory shorebird species, the construction footprint boundary will be defined to avoid unintentional disturbance outside of defined construction areas. Identification of key habitats to be identified by suitably qualified ecologist prior to disturbance.	• Design and construction • Operation and maintenance	Unlikely	Moderate	Low			

Outcome	Risk event	Mitigation Measures	Project phase(s)	Risk			Outcome measurement criteria	Monitoring	Corrective action
				Likelihood	Consequence	Residual Risk			
Human and vehicle disturbance									
No significant adverse impact on EPBC listed species within and adjacent to the Construction Footprint due to an increased presence of human or vehicle activity associated with the design and construction or operation and maintenance phases of the Project	Injury or mortality of EPBC listed species as a result of construction related activities and/or vehicle movement.	• Presence of, or access to, trained fauna handlers during construction to assist with removal of, and relocation of, any trapped (and/or injured) fauna caught within trenches, or displaced during habitat clearance. • Routine monitoring of open trenches during construction activities to inspect for trapped fauna. • Progressive backfilling of trenches to minimise the length of open trenches at any time during construction. • Inclusion of fauna ladders (such as earthen ramps) in open trenches to enable egress of any trapped fauna. • Speed restrictions in place within construction corridor and along access tracks	• Design and construction • Operation and maintenance	Rare	High	Low	No injury or mortality of EPBC listed species that could have been reasonably prevented.	Monitored by contractor with training in wildlife handling, during vegetation clearance activities.	Any injuries or deaths must be recorded and reported to DEW annually (or as required) and DCCEEW, followed by a review of procedures and management plan by a qualified environmental contractor. Injured wildlife must be attended to according to current rules and regulations.
Noise, Lighting, and Vibration									
No significant adverse impact on EPBC listed species within and adjacent to the Construction Footprint due to noise, lighting or vibration from the design and construction or operation and maintenance phases of the Project	Excessive noise, lighting and vibration displaces EPBC listed fauna.	• Operations (and Maintenance) Environmental Management Plan (OEMP) prepared and implemented prior to commissioning. • Standard marine environmental management practices will be implemented. • Implementation of vessel speed limits / awareness campaigns. • If piling is required, detailed underwater noise modelling will be undertaken to establish noise management measures in accordance with Underwater Piling and Dredging Noise Guidelines (DIT, 2023). • Soft start procedures will be used if piling is required.	• Design and construction • Operation and maintenance	Unlikely	Moderate	Low	Noise, lighting, and vibration levels measured by a qualified contractor are undertaken in accordance with the requirements outlined in the CEMP (including management measures and auditing)	Monitoring undertaken by a suitably qualified environmental contractor at the commencement of operations to confirm compliance under all operating conditions. Additional monitoring to occur, if required/when required.	Any non-compliance must be investigated, and rectified, where practicable.
Weeds, plant pathogens, and pest animals									
No introduction of new weeds or plant pathogens, nor sustained increase in abundance of existing weeds or plant pathogens, in areas adjoining the Construction Footprint due to the design and construction or operation and maintenance phases of the Project	Weed species and plant pathogens introduced on vehicles, equipment or with fill material causes die back and reduces quality of EPBC listed flora and fauna habitat.	• During construction, implement weed hygiene practices including vehicle checks and washdowns as required on vehicles or plant entering the construction site. • During construction, undertake monthly weed surveillance monitoring targeting WoNS and Declared Weed species, with follow up controls as required for any identified weed outbreaks. • During operation, implement weed surveillance and control programs targeting WoNS and Declared Weed species (if weeds identified). • Preparation of a Project-specific CEMP including controls on activities near salt pans and clay pans, weed hygiene, weed monitoring and progressive rehabilitation.	• Design and construction • Operation and maintenance	Unlikely	Moderate	Low	A survey by a suitably qualified ecologist confirms no introduction of new weeds or pathogens, nor sustained increase in abundance of existing weeds or pathogens, in areas adjoining the Construction Footprint. Records show that all fill material is appropriately certified as weed and pathogen free.	Survey undertaken during construction and operation by a suitably qualified ecologist during construction and annually during operation until a stable state can be demonstrated. Verification of records by a suitably qualified environmental contractor during construction confirms all fill brought to site has the appropriate certification.	Weed and pathogen controls to be developed and implemented by a suitably qualified environmental contractor as needed.

Outcome	Risk event	Mitigation Measures	Project phase(s)	Risk			Outcome measurement criteria	Monitoring	Corrective action
				Likelihood	Consequence	Residual Risk			
Weed densities and the current fuel load will be maintained thereby maintaining the extent and severity of bushfires.	Increased density of weeds will increase fuel load and thereby the extent and severity of bushfires.	• During construction, implement weed hygiene practices including vehicle checks and washdowns as required on vehicles or plant entering the construction site. • During construction, undertake monthly weed surveillance monitoring targeting WoNS and Declared Weed species, with follow up controls as required for any identified weed outbreaks. • During operation, implement weed surveillance and control programs targeting WoNS and Declared Weed species (if weeds identified). • Preparation of a Project-specific CEMP including controls on activities near salt pans and clay pans, weed hygiene, weed monitoring and progressive rehabilitation.	• Design and construction • Operation and maintenance	Rare	Major	Medium	A survey by a suitably qualified ecologist confirms there has been no introduction of new weeds, nor sustained increase in abundance of existing weeds, in areas adjoining the Construction Footprint.	Survey undertaken during construction and operation by a suitably qualified ecologist during construction and annually during operation until a stable state can be demonstrated.	Weed controls must be developed and implemented by a suitably qualified environmental contractor as needed.
No introduction of pest animals in areas adjoining the Construction Footprint due to the design and construction or operation and maintenance phases of the Project.	Waste or spillage will attract or increase the abundance of feral pest animals, thereby increasing the grazing pressure and/or predation on EPBC listed flora and fauna.	• Develop and implement protocols for management of waste during construction to avoid an increase in, or attraction of, feral pest animals to the Project area. • Minimise construction footprint and utilise previously cleared or disturbed areas where practicable. • Restrict construction width to the minimum necessary to allow safe and efficient pipeline installation. • Presence of experienced environmental management field staff during access and clearing activities. • Progressive rehabilitation of all temporary construction areas where native vegetation clearance has occurred. • Operations (and Maintenance) Environmental Management Plan (OEMP) prepared and implemented prior to commissioning.	• Design and construction • Operation and maintenance	Possible	Minor	Low	Survey by a suitably qualified ecologist confirms there has been no introduction of new pest animals, nor sustained increase in abundance of existing pest animal populations in the Construction Footprint, compared with areas adjacent to the Construction Footprint.	Surveys must be undertaken pre- and post-construction, and during operation by a suitably qualified ecologist, until a stable state can be demonstrated.	Pest animal controls must be developed by a suitably qualified environmental contractor and implemented as required to ensure pest animal levels within the Construction Footprint are not higher than adjacent areas.
	Vegetation clearance enables increased access for introduced fauna, thereby increasing the grazing pressure and/or predations on EPBC listed flora and fauna.		• Design and construction	Unlikely	Moderate	Low			
Dust									
No decline in habitat quality for the EPBC listed species adjacent to the Construction Footprint due to smothering of vegetation in dust from construction associated with the Project	Excessive dust smothers vegetation and causes a reduction of EPBC listed species habitat quality.	• Preparation of a Project-specific CEMP including controls on activities near salt pans and clay pans, weed hygiene, weed monitoring and progressive rehabilitation. • Operations (and Maintenance) Environmental Management Plan (OEMP) prepared and implemented prior to commissioning. • Presence of experienced environmental management field staff during access and clearing activities.	• Design and construction	Possible	Minor	Low	Inspection of vegetation adjoining Construction Footprint by a suitably qualified environmental contractor identified no evidence of dust smothering.	Implement a trigger action response plan (TARP), if required. Monthly inspection during the construction phase by a suitably qualified environmental contractor.	Additional dust mitigation measures applied as necessary.

Outcome	Risk event	Mitigation Measures	Project phase(s)	Risk			Outcome measurement criteria	Monitoring	Corrective action
				Likelihood	Consequence	Residual Risk			
Surface water management									
No adverse impact on habitat for EPBC listed species adjacent to the Construction Footprint due to changes in surface water flows or quality during the design and construction phase of the Project	Construction work causes a change to natural surface water flow (including ephemeral creeks / drainage lines).	• Desktop and field surveys carried out to identify key ecological constraints, feeding into iterative design process to avoid and minimise interaction with important habitat as far as reasonably practicable. • Avoid construction works associated with crossings of ephemeral lakes and watercourses when water is present where practicable. • Micro-site transmission line tower locations where possible to avoid important habitat features. • Presence of experienced environmental management field staff during access and clearing activities.	• Design and construction	Unlikely	Moderate	Low	Audit by suitably qualified environmental contractor confirms all works meet the design specifications.	Post-construction audit by suitably qualified environmental contractor.	Remedial action as recommended by a suitably qualified environmental contractor.
	Soil disturbance during construction results in erosion and sedimentation.	• Progressive rehabilitation of all temporary construction areas where native vegetation clearance has occurred. • Preparation of a Project-specific CEMP including controls on activities near salt pans and clay pans, weed hygiene, weed monitoring and progressive rehabilitation. • Operations (and Maintenance) Environmental Management Plan (OEMP) prepared and implemented prior to commissioning. • Presence of experienced environmental management field staff during access and clearing activities.	• Design and construction	Unlikely	Moderate	Low	Audits during construction confirm compliance with the approved CEMP/OEMP.	Audits during construction by suitably qualified environmental contractor.	Corrective actions to be identified by a suitably qualified environmental contractor, if needed, by the audit.
	Uncontrolled release of water including raw water (saline), potable water and stormwater impacting EPBC listed species habitat (breeding / foraging).	• Preparation of a Project-specific CEMP including controls on activities near salt pans and clay pans, weed hygiene, weed monitoring and progressive rehabilitation. • Operations (and Maintenance) Environmental Management Plan (OEMP) prepared and implemented prior to commissioning. • Presence of experienced environmental management field staff during access and clearing activities.	• Design and construction • Operation and maintenance	Unlikely	Moderate	Low	No flooding of identified EPBC listed flora and fauna key/critical habitat(s).	If flooding of EPBC listed flora and fauna key/critical habitat(s) occurs, the need for any monitoring to be determined by a suitably qualified environmental contractor.	If required, monitoring / remediation / rehabilitation to be determined by a suitably qualified environmental contractor.
	Unexpected findings of contaminated soils resulting in mobilisation of contaminants in soils and/or water.		• Design and construction	Unlikely	Moderate	Low	Audit by a suitably qualified environmental contractor confirms no pre-existing site contamination occurs within the Project alignment. Should contaminated soils be identified during construction, ensure these areas have been appropriately managed to reduce risk to fauna habitat to as low risk as reasonably practicable.	If contaminated soils are found, the requirement for monitoring to be determined by a suitably qualified environmental contractor.	If required, monitoring / remediation / rehabilitation to be determined by a suitably qualified environmental contractor.

Outcome	Risk event	Mitigation Measures	Project phase(s)	Risk			Outcome measurement criteria	Monitoring	Corrective action
				Likelihood	Consequence	Residual Risk			
Fire / bushfire									
No adverse impacts on habitat for EPBC listed species due to fires caused by design and construction phase of the Project that could have been reasonably prevented.	Construction and/or maintenance activities cause fire ignition.	• CEMP and Operations (and Maintenance) Environmental Management Plan (OEMP) prepared and implemented prior to commissioning. • Presence of experienced environmental management field staff during access and clearing activities. • Progressive rehabilitation of all temporary construction areas where native vegetation clearance has occurred.	• Design and construction	Unlikely	Major	Medium	An investigation by a suitably qualified contractor confirms that the fire could not have been reasonably prevented.	Incident investigation by a suitably qualified contractor to be completed.	Additional fire prevention measures implemented, if recommended by the incident investigation, by a suitably qualified contractor.

7 Implementation of this TSMS

This TSMS has been developed to meet specific ARs regarding avoidance, mitigation and management of threatened and migratory species listed under the EPBC Act, and to support the development of the EIS. The TSMS is proposed to guide the development and implementation of a TSMP in conjunction with the Project's CEMP and OEMP. It is envisaged that implementation of the TSMP will avoid and mitigate potential adverse impacts resulting from the construction and operation of the Project to EPBC listed species and their habitat(s) as far as reasonably practicable. This TSMS will assist in the development of the TSMP, which will satisfy regulatory requirements, once approved through the Project's Accredited Assessment.

Potential risk events and their respective outcome measurement criteria, trigger detection/monitoring activity, and corrective actions have been outlined in Table 6.7, and are entrenched in the construction and operational management measures to be implemented for the Project.

The types of construction and operational management measures are based on six categories (in accordance with standard hierarchy of controls) (SWA 2024), as outlined in Table 7.1.

Table 7.1: Hierarchy of control measures

Type	Description
Elimination	Elimination of the hazard and associated risk. Most elimination measures to eliminate impacts to EPBC listed species have been undertaken (and continue to be undertaken) during the Project's ongoing design phase since 2023.
Substitution	Substitute the hazard / impact with something safer / something that results in less impact to the environment, such as using low impact methods of construction.
Isolation	Physically separating the source of harm from the environment by distance or barriers, such as storing chemicals in a cabinet.
Engineering	A physical control measure that avoids environmental harm, such as erosion control, dust suppression, and waste management controls.
Administrative	If risks remain, they must be minimised by implementing administrative controls, so far as reasonably possible. Administrative controls include work methods or procedures, as well as information, training and instruction. Some administrative measures are necessary to ensure substitution and engineering controls are implemented effectively.
Personal Protective Equipment	N/A.

7.1 Implementation of construction and operational management measures

When the TSMP is being developed by the DBOM Contractor, construction and operational management measures, including the type, location, timing/frequency, and responsible persons/departments for each activity, will be considered. A sample framework designed to guide implementation of these measures within the TSMP is provided in Table 7.2 below. Standard best practice management measures for construction and operation are provided as an example. More specific management measures to address potential risks (e.g. noise, lighting and vibration) and additional criteria, including timing and responsible person(s) are expected to be added to the TSMP as it is developed.

Table 7.2: Sample implementation framework for the TSMP

Construction Management Measures	Type	Location	Timing / Frequency	Activity	Responsibility	Management Trigger	Corrective Action
General Management Measures targeting threatened species							
Inductions: All staff and contractors will complete a detailed, site-specific induction which provides an overview of any potential threatened species in the Construction Footprint as well as management measures associated with protection of said species.	Administrative	Site Office	Prior to commencing any work on site Once (for each staff member and/or contractor)	Daily checks to ensure that all new staff and contractors have completed site inductions prior to commencing any works on site.	DBOM Contractor	Staff or contractor working onsite without having completed the required inductions.	Any staff member or contractor who has not completed the required site inductions must immediately stop work and cannot recommence until the induction has been fully completed.
Fact Sheets: Display a fact sheet on known and likely EPBC listed threatened species and migratory shorebirds (including species images, and habitat mapping for threatened), and weed species (including Buffel Grass) at all Site Offices.	Administrative	On site notice boards and in lunchrooms	During construction Duration of the Project	Regular checks of noticeboards.	DBOM Contractor	No factsheets or information available about threatened species on main noticeboards and/ or common areas.	Provide factsheets and information about threatened species for all noticeboards and common areas.
Toolbox and Pre-start Meetings: Hold toolbox and pre-start meetings to assist in identification and highlight the importance of EPBC listed threatened and migratory shorebird species), and weed species (including Buffel Grass). During the meetings, highlight threatened species habitat included in the Construction Footprint ensure that all staff and contractors are aware of control measures to avoid, minimise and mitigate impacts to EPBC listed threatened species and their habitat.	Administrative	Site Office (and other relevant / suitable locations)	Prior to commencing any construction works within known or likely EPBC listed threatened or migratory species habitat Weekly reminders of threatened species management requirements during morning pre-start meetings	The DBOM Contractor will complete a compliance checklist to ensure all management commitments are being implemented.	DBOM Contractor	Information regarding threatened species is not included in toolbox meetings and/ or no reminders are provided in pre-start meetings.	Hold a pre-start meeting to provide information on threatened species management requirements and species identification. Ensure reminders to include threatened species management requirements in all subsequent toolbox meetings.
Toolbox Meetings: Ensure all staff and contractors are vigilant when driving, remain on designated access tracks, and to look out for and record any sightings of EPBC listed threatened species. Records of threatened species sightings should be reported to the Construction manager and/or Environmental Contractor immediately, and reports should include accurate location data (preferably GPS coordinates) to support understanding of the species' presence and distribution across the Project Area.	Administrative	Construction Footprint	Regularly during daily pre-start meetings or during toolbox meetings (as required) Duration of the Project, particularly during breeding and migratory periods for EPBC listed known and likely threatened and migratory species.	The DBOM Contractor will complete a compliance checklist on a regular basis (at least monthly) to ensure all management commitments are being implemented.	DBOM Contractor	Sightings/records of EPBC listed species, or lack of reminders in toolbox meetings.	Hold a pre-start meeting which specifically addresses information on EPBC listed threatened species and migratory shorebird management requirements, including species identification. Ensure reminders to include EPBC listed threatened species management requirements in all subsequent toolbox meetings.
Access Road Development: Roads and tracks to be designed to take the shortest route (short spur tracks off existing roads / tracks) and with as little impact as possible to native vegetation, existing land uses and landholders including following existing boundaries where possible. Vehicle and Construction Equipment Access: Apart from initial earthworks to construct access tracks and hardstand areas, ensure all vehicles and construction equipment always utilise existing tracks and dedicated access tracks and hardstands and avoid travel outside of these areas.	Engineering	Project Area	During construction Duration of the Project	During construction, weekly/daily site inspections will be conducted by the Construction manager and/or Environmental Contractor to identify any unauthorised vehicle or machinery movements outside approved areas. The Construction manager (and/or with assistance/oversight of a suitably qualified environmental management staff / ecologist) will complete a compliance checklist on a regular basis to ensure all management commitments regarding clearance activities are being implemented.	DBOM Contractor / All site personnel	Unauthorised vehicle/machinery movements outside of approved areas. Vehicles observed breaching signed/designated speed limits/restrictions.	Investigate vehicle or machinery movements which occur without authorisation or those which occur outside of designated clearance areas, and assess any environmental damage that may have occurred. Hold a pre-start or toolbox meeting to ensure all personnel understand the requirement to stay on designated access tracks and within approved clearance areas. If the unauthorised movement occurred within areas of native vegetation or impacted areas with EPBC listed threatened or migratory shorebird species, an incident report must be submitted.

Construction Management Measures	Type	Location	Timing / Frequency	Activity	Responsibility	Management Trigger	Corrective Action
Reporting: Report any EPBC listed threatened species or migratory shorebird sightings in the path of construction/clearance activities, including those perceived to be in danger (i.e. such as in trenches or pits). Reports should including information such as number of individuals alive, injured or killed, to the Construction Manager. For individuals found injured or killed, collect information such as location and cause of death if known (i.e. vehicle strike). The Construction Manager shall report it as an environmental incident and undertake an environmental incident investigation.	Administrative	Construction Footprint	During construction For the duration of the Project as required	The Construction manager (and/or with assistance/oversight of a suitably qualified environmental management staff / ecologist) shall prepare an environmental incident report and undertake an environmental incident investigation.	DBOM Contractor (with assistance of a suitably qualified environmental management staff / ecologist) / All site personnel	Sightings/records of EPBC listed species, or lack of reminders in toolbox meetings.	Hold a pre-start meeting which specifically addresses information on EPBC listed threatened species and migratory shorebird management requirements and species identification. Ensure reminders to include EPBC listed threatened species and migratory shorebird management requirements in all subsequent toolbox meetings.
Site clean-up: Removal of all flagging, bunting, pegs and other temporary delineation markers once no longer required for construction activities.	Engineering	Construction Footprint and selected sites adjacent to Construction Footprint	Following site rehabilitation activities, once no longer required for construction activities.	At the conclusion of construction, removal of all flagging, bunting, pegs and other temporary delineation markers (once no longer required for construction activities) to ensure all rubbish is removed from the Construction Footprint.	DBOM Contractor.	Completion of construction activities.	Progressive rehabilitation, including removal of all flagging, bunting, pegs and other temporary delineation markers in both temporary and permanent construction areas where native vegetation clearance, no-go zones or other areas have been delineated.

8 Monitoring, audit and review

8.1 Monitoring and adaptive management

Ongoing monitoring is required to ensure the commitments and mitigation measures described in the TSMP (once developed by the DBOM Contractor), are met and that objectives of the TSMP are realised, (such as those described in Table 6.7).

The monitoring program is expected to be further developed, implemented, and refined over time and as development of the Project progresses, but in general would include:

- pre-clearance inspections for EPBC listed threatened species immediately prior to land disturbance activities.
- reconciliation and review of land disturbance data to ensure land clearance values do not exceed approved conditions/limitations for land disturbance and/or habitat loss.
- weed monitoring (likely part of a separate weed management plan), including audits of vehicle wash down processes and outcomes.
- monitoring of the application of controls required as a component of broader Threat Abatement Plans, including pest species control and monitoring programs.
- monitoring and auditing of waste management processes.

The results of the monitoring program will be used to inform operational management decisions, including adaptive management of the TSMP to ensure the objectives are met. The monitoring results will also be used to assess when corrective actions are required to be implemented. The results will be compared to those from previous monitoring events to assess change over time and to inform the ongoing implementation of the TSMP.

8.2 Reporting requirements

8.2.1 Internal reporting requirements

Internal report(s) will be produced by DIT (or an authorised consultant) to ensure DIT's environmental compliance monitoring activities are undertaken in accordance with DIT environmental standards and guidelines, specifically for environmental management and sustainability this refers to DIT's EHTM (DIT 2021), Sustainability Manual, Master Specification (DIT 2024), Standards and Guidelines, and other Manuals where required.

8.2.2 External reporting requirements

A report detailing compliance and auditing requirements, monitoring actions and audit results, will be prepared by DIT (or an authorised independent consultant) as required under the EPBC Conditions of Approval (if required). The report will be prepared in the form of a Compliance Report which may provide some/all of the following information:

- a description of the monitoring conducted, when it was conducted, and by whom
- results of any photo monitoring
- site data including site description and location and results for all site-based conditions, including a discussion of the prevailing climate in the lead up to and during the monitoring
- an overview of the management actions that were implemented since the last report (e.g. pest and weed control, grazing, prescribed burns)
- details of any triggers that have been exceeded and the corrective actions that were implemented or will be implemented
- an overview of the progress of the TSMP areas in achieving its objectives, and how any risks or threats have impacted on the effectiveness of the TSMP
- an analysis of any risks or potential threats that have become apparent related to threatened species since the development of the TSMP, and activities to be undertaken to manage these threats and/or risks.

8.3 Corrective actions

Where performance monitoring of controls have been undertaken (such as assessments and audits as defined in Section 6.3.2), and it has been identified that performance criteria/criterion are not being met (or are trending towards not being met), corrective actions will be implemented.

Corrective actions may be relevant to all phases of the Project, or discrete phases of the Project, including pre-construction, construction, and operation and maintenance. Corrective actions may include the necessity of adaptive management strategies in order to ensure the protection of MNES and other environmental values. An assessment should be made as to whether the results of corrective actions require inclusion into revisions of the TSMP, and if so, the commitments must be specific and auditable, with measurable outcomes and clear timeframes (DCCEEW 2024a).

8.4 Review of the TSMP

In accordance with DIT's Master Specification Environmental Management requirements (Section 2.1 of PC-ENV1, DIT 2024), the TSMP will be reviewed every 6 months from the time of first submission until Project Completion, or sooner (in accordance with DCCEEW 2024a) following these environmental triggers:

- Following a significant and/or reportable environmental incident (including those where corrective actions may be required).
- When there is a need to improve performance in an area of environmental impact.

It should be noted that if the person taking the action wishes to carry out any activity other than in accordance with the approved management plan specified in the approval conditions, the person taking the action is usually required to submit to us for the Minister's written approval a revised management plan. In these cases, the varied activity should not commence until the Minister has approved the varied management plan in writing. As a guiding principle, the Minister will not approve a varied management plan unless the revised management plan would result in an equivalent or improved environmental outcome over time (DCCEEW 2024a).

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10 Definitions and abbreviations

10.1 Definition of acronyms

Acronym	Definition
AA	Accredited Assessment
AR's	Assessment Requirements
BAM	Bushland Assessment Method
BDBSA	Biological Database of South Australia
BIAs	Biologically Important Areas
CEMP	Construction Environmental Management Plan
CHMP	Cultural Heritage Management Plan
CP	Conservation Park
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DEW	Department for Environment and Water
DIT	Department for Infrastructure and Transport
DRP	Decommissioning and Rehabilitation Plan
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EP	Eyre Peninsula
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
IBRA	Interim Biogeographic Regionalisation for Australia
LMB	Landscape Management Board
LMR	Land Management Region
MNES	Matters of National Environmental Significance
National EPA	National Environmental Protection Agency
NPW Act	*National Parks and Wildlife Act 1972* (SA)
NV Act	*Native Vegetation Act 1991* (SA)
NVC	Native Vegetation Council
OEMP	Operational Environmental Management Plan
PDI Act	*Planning, Development and Infrastructure Act 2016* (SA)
PMST	Protected Matters Search Tool
RAM	Rangeland Assessment Method
SAAL	South Australian Arid Lands
SEB	Significant Environmental Benefit
SML	Special Mining Lease (specific to Olympic Dam Mine)
sp./ spp./ ssp.	Species / several species / subspecies
TEC	Threatened ecological community
TSMP	Threatened Species Management Plan
TSMS	Threatened Species Management Strategy

Acronym	Definition
TMP	Traffic Management Plan

10.2 Units of measure

Abbreviation	Expansion of Unit
GL	gigalitre
ha	hectare
km	kilometre
m	metre
%	percent



Appendix I-9:

Preliminary SEB Offset Strategy

Significant Environmental Benefit (SEB) Offset Strategy

Northern Water Project

Government of South Australia
Department for Infrastructure and Transport

Build.
Move.
Connect.

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Contents

Contents.....3

1 Scope and Objectives.....4

2 Regulatory Framework.....4

3 Proposed Vegetation Impacts.....7

4 Offset Requirements.....9

5 SEB Offset Strategy.....10

6 Offset Delivery.....13

7 References.....20

Table 1: NV Act biodiversity offsetting principles and considerations.....5

Table 2: Requirements for establishing on-ground SEB Areas.....6

Table 3: Summary of native vegetation impacts across vegetation associations. 9

Table 4: Summary of native vegetation significant environmental benefit offset requirement, by region. 10

Table 5: Conceptual management measures.....15

Table 6: Conceptual on-ground offset monitoring program.....18

1 Scope and Objectives

The Northern Water Project (the Project), described in EIS Chapter 6 “Project Description”, requires the clearance of native vegetation to establish the works. The clearance of native vegetation requires offsetting under the *Native Vegetation Act 1991* (SA) (NV Act) and associated Native Vegetation Regulations 2017 (the NV Regulations).

The purpose of this Significant Environmental Benefit (SEB) Offset Strategy (the Offset Strategy) is to document the overarching high-level strategy to be applied by the Department for Infrastructure and Transport (DIT) for delivery of the potential environmental offsets required under the NV Act.

2 Regulatory Framework

2.1 Native Vegetation Act 1991 (SA) and Native Vegetation Regulations 2017

The NV Act provides for the management, enhancement and protection of native vegetation in South Australia. Native vegetation must not be cleared unless approval is granted by the Native Vegetation Council (NVC) under the NV Act, or it is permitted under the NV Regulations.

Pursuant to s.131(25) of the *Planning, Development and Infrastructure Act 2016* (PDI Act), the Minister for Planning has directed that an Environmental Impact Statement (EIS) be prepared for the Project, subject to the procedures and requirements of being an ‘impact assessed’ development, as if the development had been declared under s.108(1)(c) of the Act.

Under Regulations 12 and 13 of the NV Regulations, clearance associated with a major development (now referred to as an impact assessed development under the PDI Act 2016) may be undertaken where the development has been assessed through an EIS, Public Environment Report (PER) or Development Report process, has been referred to the NVC for comment, and development approval has been granted under the PDI Act. Native vegetation clearance may then occur in accordance with the development approval, provided the required Significant Environmental Benefit (SEB) has been secured through either an NVC-approved Offset Management Plan or payment into the Native Vegetation Fund. The NVC's assessment determines the SEB requirements associated with the proposed clearance.

2.1.1 Policy for a Significant Environmental Benefit (2024)

An on-ground SEB involves the establishment, management or protection of an area of native vegetation for conservation. If a proponent chooses to provide an on-ground SEB, it may be delivered through one of the following means:

- provision of a new SEB Area – proponents may establish a new SEB Area on land they own, or which is under otherwise under their tenure;
- apply to use SEB Credit – proponents may apply to use SEB Credit that they have previously established. SEB Credit may be achieved by establishing an SEB Area that is either greater than required as a condition of a clearance consent, or that is not required in relation to a clearance consent;
- apply to have SEB Credit assigned from another person or body – proponents may apply to use SEB Credit that is owned by another person or body; or
- engage an Accredited Third-Party Provider – a proponent may engage an Accredited Third-Party Provider to achieve the SEB obligations on their behalf.

2.1.2 Biodiversity offsetting principles

The establishment of an SEB under the NV Act is a form of biodiversity offsetting, in that it allows negative impacts in one place to be offset by undertaking positive actions elsewhere. To mitigate against the risks of failure, offsets under the Policy for a Significant Environmental Benefit Under the NV Act and NV Regulations (SEB Policy) (NVC 2024) must be implemented in accordance with the offsetting principles described in Table 1:.

Table 1: NV Act biodiversity offsetting principles and considerations

Offset Principle	Consideration
Adherence to the Mitigation Hierarchy	Offsetting should only be considered when the other elements of mitigation hierarchy have been fully adopted and considered.
Limits to what can be offset	Biodiversity offsets must never be used to circumvent responsibilities to avoid and minimise damage to biodiversity, nor to justify projects that would otherwise not happen.
Net environmental gain	The explicit goal for the design and implementation of the SEB program is to achieve an overall environmental gain over and above the scale of the impact. This must involve measurable conservation outcomes resulting from specific actions.
Like-for-like, or better	To compensate for the impacts of the Project, offsets should be tailored to the attributes of the vegetation or habitat being impacted. This should occur wherever possible to achieve the right type and amount of gain to offset the impact – referred to as 'like-for-like'.
Additional conservation outcomes	It is important that offsets meet the criteria of 'additionality' as they are required to compensate for a certain and known loss of biodiversity at a site, often with a delay occurring before any gain in vegetation condition at an offset site is delivered.
Landscape context	Biodiversity offsetting provides an opportunity to ensure that the environmental gains generated by offsets complement and contribute to biodiversity conservation priorities identified at landscape and regional scales.
Long-term outcomes	Offsets need to secure outcomes for at least as long as the Project's impact. The impacts of most projects are permanent and therefore offsets usually need to be secured in perpetuity.
Transparency	The design and implementation of biodiversity offsets, and communication of results to stakeholders and the community, should be: • undertaken in a transparent and timely manner. Emphasis should be placed on ensuring that the decision-making process (including quantity of offset required and acceptance of suitable sites for offsets) is clear. • governance arrangements should support rigorous and consistent decision-making. • performance of offsets is critical and should be reviewed as part of monitoring and compliance activities
Stakeholder participation	Successful offset delivery requires that all parties involved in or with an interest in biodiversity offsetting to understand and apply offsetting principles and underpinning procedures consistently and transparently
Science and traditional knowledge	Offsets should be determined by using the best available scientific data and knowledge. Information sources should include relevant conservation plans

	(threatened species and community recovery plans), other management plans and literature, expert knowledge and South Australia's biological databases.

2.1.3 Requirements for establishing on-ground SEB Areas

In order to achieve the principles for biodiversity offsetting in Table 1, the establishment of an on-ground SEB Area must occur in accordance with a clear set of criteria. Accordingly, the establishment of a SEB Area by a proponent must meet the requirements set out in Table 2:, whether associated with a clearance application or Regulation approval, the establishment of SEB Credit, or achievement of a Third-Party SEB.

Table 2: Requirements for establishing on-ground SEB Areas

Requirement	Consideration
Like-for-like, or better	The SEB Area must achieve the principle of 'like-for-like', or better. This requires that the vegetation to be protected and managed within the SEB Area must be of the same vegetation type (structure and dominant species) as that to be cleared (like-for-like). A variation to the rule of 'like-for-like' is permitted if the vegetation within the SEB Area is of a higher conservation value than the vegetation/species to be cleared (like-for-like or better).
Location of an SEB	The SEB Area should be located as close as practical to the site of impact. The SEB Area must be located, relative to the site of impact, within the following order of preference: 1. same Interim Biogeographic Regionalisation for Australia (IBRA) Association, or 2. same IBRA Subregion, or 3. only where it has been demonstrated that it is not possible to achieve the SEB within the same IBRA Association or IBRA Subregion, then the same IBRA Region.
SEB area required	The SEB Area must directly improve the condition, protection and/or extent of native vegetation over an area of land. The biodiversity value gained at the SEB Area must exceed the biodiversity value lost through clearance, with gains and losses determined in accordance with the SEB Guide.
Additionality	In order to comply with the additionality principle, areas of land or vegetation that are already protected and managed for conservation purposes will generally not be considered suitable as SEB Areas.
SEB Protection	The SEB Area must be conserved in perpetuity for the growth of native vegetation and must not be used in a way that is inconsistent with that dedication. It may be subject to additional protection through a Heritage Agreement or Management Agreement where required by the NVC.
SEB management	A SEB Area must be managed in accordance with a NVC approved management plan. The management plan will stipulate the management actions that must be undertaken over the initial 10 years from the establishment of the SEB Area, plus on going monitoring and maintenance activities. SEB Areas must be managed to exclude stock, control pest species, protect native vegetation and natural ecological processes, and prevent development, cropping, dumping and other activities that may degrade biodiversity values.

Establishing an SEB	The SEB Area must be, as a single connected block, of a minimum size and dimension (an SEB may consist of more than one area, but any one area must comply with the following parameters). The SEB must be a minimum of 30 m wide for at least 90% of the length and: • one (1) hectare or greater for an SEB Area containing a listed community under the EPBC Act; and • three (3) hectares or greater for any other SEB Area. The SEB Area should not be located in areas likely to be subject to future disturbance, including: • subject to an easement; • located under electricity transmission lines; • within a built asset protection zone for bushfire management (e.g. near houses or buildings) or any other area likely to present an unacceptable bushfire risk; • required or highly likely to be used for future infrastructure, development or mining related activities; and • subject to direct or indirect impacts of a development (such as water drawdown or contamination or dust or chemical plumes). Where revegetation is proposed, it should be designed to establish a functional ecosystem and contribute to defined conservation objectives.
Revegetation or reconstruction	Where clearance of native vegetation: • requires greater than 250 SEB Points, and • receives Unit Biodiversity Score of greater than 30, and • is of remnant vegetation (not regrowth vegetation less than 10 years old), and • is to occur in an IBRA Association or IBRA Subregion with equal to or less than 30% native vegetation cover, then the SEB should incorporate an area of revegetation or habitat reconstruction (the rehabilitation of an area of native vegetation containing highly reduced native flora species and structural diversity) of an equivalent area to that being cleared.

3 Proposed Vegetation Impacts

Based on the Project native vegetation clearance footprint of the reference design the total terrestrial native vegetation clearance is calculated to be 1,991.705 ha, of which 375.358 ha is considered permanent clearance (i.e., is associated with permanent infrastructure and associated areas that are not expected to be rehabilitated) and 1,616.332 ha will represent temporary clearance subject to rehabilitation following the completion of construction (but with no discounts applied for at this stage). In addition to the terrestrial area, 2.1 ha of marine vegetation (*Zostera* sp. seagrass) will be subject to clearance (estimated 1.24 ha permanent and 0.86 ha temporary).

The Project is a large-scale linear infrastructure development extending approximately 360 km from the Eyre Peninsula to Olympic Dam. As a result, the Project traverses multiple bioregions, IBRA subregions and landscape management regions, intersecting a diverse range of vegetation communities and habitat types. The extent and diversity of vegetation affected reflects the broad geographic footprint of the Project and the range of environmental settings through which the infrastructure corridor passes.

Native vegetation assessments were undertaken using the Bushland Assessment Method (BAM) within the Eyre Peninsula Landscape Management Region (EP LMR) and the Rangelands Assessment Method (RAM) within the South Australian Arid Lands Landscape Management Region (SAAL LMR), and vegetation impacts have been presented aligned with these methods.

Vegetation within the Project Area has been classified using Vegetation Associations (VAs), which represent the primary unit used for biodiversity assessment and offset calculations. For broader reporting

purposes, vegetation associations may be grouped into Broad Vegetation Communities (BVCs) and Major Vegetation Groups (MVGs), reflecting similarities in vegetation structure, dominant species composition and ecological function.

The Project will impact vegetation associations within the following MVGs:

Eyre Peninsula Landscape Management Region (EP LMR)

- Open Woodlands of Western Myall / Black Oak / Sugarwood
- Chenopod shrublands (including drainage lines)
- Tall shrublands in drainage lines and on plains
- Zostera seagrass

South Australian Arid Lands Landscape Management Region (SAAL LMR)

- Stony plains and tableland with chenopod shrublands
- Chenopod shrublands on flat to undulating plains
- Ephemeral and permanent drainage lines and waterholes
- Open woodlands of Western Myall and Mulga on sand plains and low dunes
- Woodlands and shrublands on low dunes and dune crests
- Dune swales with open woodlands, shrublands and tussock grassland
- Cane-grass run-on areas and depressions
- Inland saline depressions and drainage lines
- Non-saline shrublands in clay depressions
- Sandhill Cane-grass grassland
- Woodlands of Black Oak on flat and undulating plains

For the purpose of understanding the requirements for like-for-like offsetting (see the like-for-like principle in Table 1:), native vegetation clearance has been summarised by major vegetation groups (Table 3) and by bioregion and subregion in accordance with the IBRA categories (Table 4). Detailed vegetation association descriptions, biodiversity assessment results and vegetation mapping are presented in the Native Vegetation Data Report provided with the EIS (EIS Appendix I-5).

The biodiversity values associated with these vegetation associations form the basis for determining the SEB requirements for the Project. The SEB offset requirements and proposed approach to delivering those offsets are outlined in the following sections of this Strategy.

Table 3: Summary of native vegetation impacts across vegetation associations.

MVG	Description	Hectares
Eyre Peninsula Landscape Management Region (EP LMR)		
EP 2	Open Woodlands of Western Myall / Black Oak /Sugarwood	84.589
EP 3	Chenopod shrublands (including drainage lines)	373.339
EP 4	Tall shrublands in drainage lines and on plains	0.285
N/A	*Zostera* sp. seagrass	2.1
South Australian Arid Lands Landscape Management Region (SAAL LMR)		
SAAL 1	Stony plains and tableland with chenopod shrublands	689.171
SAAL 2	Chenopod shrublands on flat to undulating plains	129.016
SAAL 3	Ephemeral and permanent drainage lines and waterholes	29.013
SAAL 4	Open woodlands of Western Myall and Mulga on sand plains and low dunes	397.562
SAAL 5	Woodlands and shrublands on low dunes and dune crests	190.494
SAAL 6	Dune swales with open woodlands, shrublands and tussock grassland	67.321
SAAL 7	Cane-grass run-on areas and depressions	2.393
SAAL 8	Inland Saline depressions and drainage lines	5.836
SAAL 10	Non-saline shrublands in clay depressions	1.426
SAAL 11	Sandhill Cane-grass grassland	5.517
SAAL 12	Woodlands of Black Oak on flat and undulating plains	15.741
Grand Total*		1,993.805

**this area is inclusive of permanent and temporary clearance, for both marine and terrestrial impacts.*

4 Offset Requirements

An estimate of the SEB requirement has been developed for the Project in accordance with the Guide for calculating a Significant Environmental Benefit (the SEB Guide) (NVC 2024). It is noted that the SEB Guide was recently updated by the NVC (September 2024), however all SEB calculations up to September 2024 are based on the previous version of the SEB Guide (2020).

The SEB liability in terms of SEB points required, and corresponding SEB value should payment to the fund be progressed, are described in Table 4.

As described in Section 3, the Project impacts a diverse range of vegetation associations across multiple IBRA subregions. While the Native Vegetation Clearance Data Report (EIS Appendix I-5) identifies and quantifies impacts at the vegetation association level, it is unlikely that a like-for-like by vegetation association replacement can be achieved for all impacted communities. Accordingly, the Offset Strategy seeks to achieve an equivalent or greater biodiversity outcome through the protection and management of strategically selected offset areas that satisfy the principles of the SEB framework, including regional representation, biodiversity value and ecological function.

Where practicable, on-ground offset areas will be selected to provide biodiversity outcomes that are representative of the vegetation associations and ecological values impacted by the Project. However, consideration will also be given to opportunities that deliver broader landscape-scale conservation outcomes and support the long-term persistence of native vegetation communities and threatened species habitat.

Consolidation of offset requirements into a single, or a small number of larger SEB offset areas may provide greater ecological benefits compared with numerous smaller and fragmented offset sites. Larger contiguous areas of native vegetation can reduce edge effects, improve landscape connectivity, support ecosystem resilience, and provide more effective long-term management outcomes for biodiversity values.

Table 4: Summary of native vegetation significant environmental benefit offset requirement, by region.

IBRA Region	IBRA Subregion	Temporary (ha)	Permanent (ha)	Total (ha)	Total SEB Points required	Total value required*
Gawler	Arcoona Plateau	58.778	708.213	767.003	52,537.58	$ 4,049,627.36
	Gawler Lakes	52.584	422.787	475.372	36,527.12	$ 2,816,956.75
	Kingoonya (Roxby)	15.800	190.768	206.568	15,207.64	$ 1,172,203.58
	Myall Plains	248.196	294.564	542.764	35,176.33	$ 3,689,296.40
Spencer Gulf Shelf Province*		0.86	1.24	2.1	170.27	$ 325,954.15
TOTAL		**376.218**	**1,617.589**	**1,993.805**	**139,618.94**	**$ 12,054,038.24**

**this fee is inclusive of administration fees.*
***seagrass impacts are outside of the IBRA boundaries, and are instead covered by the Integrated Marine and Coastal Regionalisation of Australia (IMCRA).*

5 SEB Offset Strategy

5.1 Offset Delivery Approach

5.1.1 Roadmap to implementation

To ensure delivery of the required SEB, the Offset Strategy will be implemented through the following key steps:

1) Site identification and due diligence: identify potential offset sites and undertake initial assessment to confirm suitability, including consideration of location, vegetation type and potential to meet SEB requirements.
2) Landholder / provider engagement: engage with landholders and/or accredited Third-Party providers to confirm availability, commercial arrangements and feasibility of establishing an SEB Area.

3) Ecological assessment: undertake detailed ecological surveys of shortlisted sites by an NVC-accredited consultant using an approved method (e.g. BAM or RAM) to assess vegetation condition and biodiversity values.
4) SEB points quantification: calculate the biodiversity gain and determine the SEB points that can be achieved at each offset site in accordance with the SEB Guide.
5) Management plan preparation: develop site-specific management plans outlining actions required to achieve and maintain the SEB, consistent with policy requirements.
6) Regulatory approval: submit the proposed SEB management plan(s) to the NVC for review and approval.
7) Tenure and protection: finalise appropriate tenure and protection mechanisms (e.g. Heritage Agreement or Management Agreement) to secure the SEB Area in perpetuity.
8) Implementation and management: implement the approved management actions and undertake ongoing management, monitoring and reporting to ensure delivery of a significant environmental benefit over the life of the Project.

5.1.2 Delivery Options

For SEB offsets the Offset Strategy will utilise one, or a combination, of the following offset delivery options where DIT:

- purchases a parcel of land to establish a new on-ground SEB offset area(s) which would be protected and managed by an accredited third party provider engaged by DIT for this purpose;
- will work with local landholders to establish new on-ground SEB offset areas which would subsequently be protected and managed by the landholders (i.e., the landholder will maintain tenure over the offset area). DIT will purchase SEB credits (i.e., have SEB credits assigned to it) from the landholders under a commercial agreement to meet the Project's SEB obligations;
- will engage with established or potential SEB credit owners listed in the Native Vegetation Credit Register managed by DEW;
- would engage Accredited third party provider/s under the NV Act to achieve the SEB obligations on their behalf; or
- may offset some native vegetation clearance (for example marine vegetation clearance) via a payment to the Native Vegetation Fund where such cleared areas are small and the administrative burden of establishing new or varying existing like-for-like on-ground offset areas makes this pathway undesirable.

DIT has also prepared a Draft EPBC Offset Strategy (Appendix I-7 of the EIS) to address impacts to Matters of National Environmental Significance (MNES) in accordance with EPBC Act requirements. Acknowledging that the Project will not be able to achieve all required project offsets via one offset option, the MNES Offset Package (inclusive of an offset strategy and offset management plans) may incidentally provide potential for the MNES offsets to fulfil some or all of the NV Act offset requirements. The focus for the MNES Offset Package however, is the EPBC Act offset requirements.

5.2 Proposed SEB Offsets

The preferred approach for the Project is to achieve the required SEB through the establishment and management of on-ground offset areas. This approach is intended to maximise ecological outcomes by protecting and enhancing native vegetation communities within strategically located offset sites.

Consistent with the principles of the SEB framework, the Project will seek to identify offset areas that provide biodiversity values representative of those impacted by native vegetation clearance. While complete vegetation association-by-vegetation association replacement may not be achievable across all impacted areas, the Offset Strategy will aim to deliver equivalent or greater biodiversity outcomes through the protection and active management of native vegetation within relevant IBRA regions and subregions.

Discussions with prospective landholders, conservation organisations and other offset providers are currently underway to identify suitable offset opportunities. The opportunity presented below is indicative only and does not represent a final commitment to any particular offset location. Final offset site selection will be informed by detailed ecological assessment, commercial negotiations and approval by the NVC.

5.2.1 Witchelina Nature Reserve

Witchelina Nature Reserve has been identified as a potential offset area due to its large scale, ecological condition and location within the Gawler IBRA Region and adjoining landscapes. The reserve is a former pastoral property that spans the Flinders Lofty Block, Stony Plains and Gawler bioregions and contains a broad range of arid and semi-arid vegetation communities.

The reserve supports extensive chenopod shrublands, Bluebush shrublands, River Red Gum and Coolibah woodlands, and habitats suitable for a range of conservation-significant fauna species, including Thick-billed Grasswren, Plains Mouse, Spinifex Hopping Mouse and Stripe-faced Dunnart. Ephemeral creeks and waterholes also provide important refuge habitat for waterbirds during favourable seasonal conditions.

Nature Foundation SA has undertaken extensive land restoration and conservation management activities across the reserve, including removal of domestic livestock, management of feral herbivores, predator control programs targeting foxes and cats, and ongoing control of Buffel Grass. These activities have contributed to improved vegetation condition and ecological resilience across the reserve.

At the time of preparing this Strategy, the biodiversity values and potential SEB credits associated with Witchelina Nature Reserve have not been quantified for the purposes of the Project. Any assessment of available SEB credits would be undertaken by an NVC accredited consultant and remain subject to agreement with the land manager and approval by the NVC.

5.2.2 Future Investigations

Detailed ecological assessment of the candidate offset areas has not yet been completed due to ongoing commercial discussions regarding access to, and potential use of offset properties; and the need to undertake ecological surveys during an appropriate seasonal survey period, including spring surveys, to maximise detection of flora, fauna and vegetation attributes relevant to offset assessment.

Future ecological investigations will be undertaken by NVC-accredited consultants and are expected to include:

- assessment of vegetation associations within proposed offset areas using an approved methodology, being either the BAM or RAM, as appropriate;
- quantification of potential protection and management gains associated with each offset area;
- confirmation of biodiversity values and calculation of available SEB credits;
- identification of threatened flora, fauna and ecological communities that occur, or are likely to occur, within candidate offset areas;
- assessment of any potential impacts associated with implementation of offset management activities; and
- development of management, monitoring and reporting requirements necessary to ensure the long-term delivery of the offset outcomes.

The outcomes of these investigations will inform final offset site selection, preparation of site-specific Offset Management Plans, and confirmation that the Project's SEB obligations can be achieved through the proposed offset delivery pathway.

5.2.3 SEB Offset Tenure

Depending on the delivery pathway ultimately adopted, offset areas may remain under private ownership, be owned by conservation organisations, be established by accredited Third-Party providers or be acquired directly by DIT. Regardless of ownership arrangements, offset areas will be secured through mechanisms approved by the NVC and managed in perpetuity in accordance with an approved management plan.

Security of tenure over the offset areas will be provided through state-level Heritage Agreements or Management Agreements to provide for the conservation of the offset areas in perpetuity where:

- a Heritage Agreement is a conservation area on private land, established between the landholder and the Minister for Climate, Environment and Water (SA) on recommendation of the NVC, that contributes to protecting and/or restoring indigenous biodiversity; and

- a Management Agreement is an agreement between the Minister and an assignor of Credit or Accredited Consultant (third party provider), is binding on any current or future owners or occupiers of the land and may only be varied or terminated with the approval of the Minister and NVC.

5.2.4 SEB Payment into the Native Vegetation Fund

Marine impacts to native vegetation may not be able to be currently offset through an on-ground SEB. In this case, achieving an SEB offset may be through a payment into the Native Vegetation Fund. Similarly, where on-ground offsets cannot be achieved for terrestrial impacts, an option may be that SEB offset requirements will be achieved through a payment into the Native Vegetation Fund.

6 Offset Delivery

6.1 Offset Management

The management of offset areas established for the Project will be aligned with the requirements of the NVC, the Policy for a Significant Environmental Benefit, and any approved Offset Management Plans. The specific management arrangements adopted for each offset area will depend on the offset delivery pathway selected and the characteristics of the individual offset site. Responsibility for implementation of management actions may rest with landholders, conservation organisations, accredited Third-Party providers or other approved offset providers, as outlined in Section 6.2.

Management of offset areas will focus on maintaining and improving biodiversity values within the site and achieving the SEB outcomes. The management approach will be tailored to the ecological values and management requirements of each offset area and may include actions such as pest plant and animal control, consolidation of watering points, management of grazing pressure, fire management, rehabilitation or revegetation activities, and protection of native vegetation from incompatible land uses.

Site-specific management requirements will be determined following detailed ecological assessment of selected offset areas and documented within Offset Management Plans. These plans will establish management objectives, performance indicators, monitoring requirements and adaptive management measures necessary to achieve and maintain the required offset outcomes over the long term.

6.1.1 Management Measures

Agreed management measures for the offset areas would align to the minimum commitments outlined in the SEB Policy.

The general management measures proposed for the Project are described in **Error! Reference source not found.**, noting that some measures may be less relevant to some offset areas.

Management actions within the offset areas would be reviewed regularly to ensure objectives related to the success of the offset are being realised.

Table 5: Conceptual management measures

Management action	Description	Location	Responsibility	Reporting	Corrective actions
Weed and pest flora management	The control of weeds is fundamental to improving biodiversity and the ecological condition of the offset areas. A suitably qualified contractor will be engaged to undertake the necessary weed control, which would be undertaken in accordance with regulatory advice. Control of infestations will utilise techniques that avoid disturbance to surrounding areas.	Whole of the offset areas.	Offset Area Land Manager	Reporting of weed management activities, including observations of new weeds, to be reported in the Offset Annual Compliance Report	If weed control is unsuccessful, alternative weed control methods would be applied in consultation with the Regulators.
Pest and feral fauna management	Minimise introducing pest animals and controlling existing populations of pest animals (e.g. rabbits, foxes, cats) within the offset areas in accordance with the relevant regulatory advice. A suitably qualified pest animal contractor will be engaged to undertake the necessary control.	Whole of the offset areas.	Offset Area Land Manager	Incidents of feral animal observations and control measures taken are to be noted in the Offset Annual Compliance Report.	If an increase in feral animal numbers is observed, the landholder will implement a formal pest animal management program to control the feral animal population.
Grazing management	Nominally, domestic grazing stock would be excluded from the offset areas with stock-proof fencing however there may be occasions (to be advised by suitably qualified persons) where stock will be grazed in the offset area for fuel reduction purposes, ecological purposes or where such exclusion is impractical (such as larger pastoral areas).	Whole of the offset areas, as required during the summer season when the soil is dry and less erosion is likely to result from the movement of stock.	Offset Area Land Manager	The Landowners, in consultation with ecologists and the offset area land manager, may graze stock during the summer season, at rates and times necessary to reduce the fuel load in the offset areas without lowering the total ground cover should this be determined to be required. Grazing activities area to be reported in the Offset Annual Compliance Report.	Grazing will be excluded from the offset area if it results in a deterioration of vegetation or habitat condition.
Fire management	Fire is to be, where possible, excluded from the offset areas except for ecological or prescribed fuel reduction burns that may be required to facilitate the regeneration of some species, by maintaining firebreaks relative to the offset area (this may include the greater land parcel, not specifically the offset area where this is considered more applicable). Firebreaks are to be co-located with existing roads and fence lines on the property where possible and be kept clear and accessible.	Throughout the offset areas.	Offset Area Land Manager. The adjacent landowners and the CFS.	Fire activities to be reported in the Offset Annual Compliance Report.	Fire to be excluded from the offset area should the proportion of groundcover not be sufficient to ensure regeneration.
Vegetation clearing	Vegetation clearing on the offset area is restricted to that necessary for the removal of non-native weeds or declared pests; establishing and maintaining fencing around the boundary of the declared area; establishing and maintaining fire breaks; and ensuring public safety.	Throughout the offset areas	Offset Area Land Manager	Any clearance is to be reported in the Offset Annual Compliance Report. Any breach of Heritage Agreement conditions is to be reported to the relevant Government Department as soon as possible.	If illegal clearing has occurred, access protocols and site access is to be reviewed.

Revegetation activities	Rehabilitation and regeneration is a key action that will improve existing vegetation and habitat values within the offset areas, while also expanding habitat values in areas that have been subject to weed infestation and grazing issues. Management measures for rehabilitation and regeneration include: • natural regeneration is the preferred management approach, and the rehabilitation plan will focus on creating conditions to allow this; • all rehabilitation activities are to be carried out by a suitably qualified bush regeneration contractor; and • the species revegetated in any particular location must be consistent with the mapped regional ecosystem or pre-clearance regional ecosystem over that area.	Throughout the offset areas	Offset Area Land Manager	A summary of the rehabilitation and regeneration plan, and the results of the implementation of the plan, to be presented in the Offset Annual Compliance Report.	Where natural regeneration is the preferred approach, revegetation may be implemented where regeneration has been unsuccessful.
Management of development	As required under the SEB Policy, structures and dwellings are not to be erected, placed or permitted to be placed within the offset areas. The removal, introduction or disturbance of any soil, rocks, or other minerals, or the construction of dams other than those already existing on the SEB Area is not to be permitted. No soil disturbance (beyond that which is necessary for agreed management actions), including cropping or agricultural activities will be permitted within the offset areas, and no dumping of rubbish, unwanted machinery or plant material is permitted within the offset area.	Throughout the offset areas	Offset Area Land Manager	Development activities to be reported in the Offset Annual Compliance Report.	Should development activities in contravention of these requirements are undertaken, the area is rehabilitated to a condition equivalent to the pre-development condition.

6.2 Governance

DIT will retain overall responsibility for ensuring that Project offset obligations are satisfied in accordance with the NV Act and any approval conditions. Depending on the delivery pathway adopted, implementation and day-to-day management of offset areas may be undertaken by landholders, accredited third-party providers, conservation organisations or other entities operating under approved management agreements. DIT will maintain oversight of offset delivery and ensure that appropriate commercial arrangements, management plans, monitoring programs and reporting mechanisms are established and maintained.

6.3 Timing

Timing for the establishment of the offsets will be dependent on the conditions of approval associated with the Project. This would typically have consideration to implementation of this Strategy within the time period nominated in the conditions of approval for the Project, following approval in writing of the EIS by the Minister.

Clearance of vegetation for the purposes of the Northern Water Project will not commence until consent is granted under the *Planning, Development and Infrastructure Act 2016* and the provision of an SEB (on-ground or payment) is approved by the NVC. For an on-ground SEB, this includes approval of a Management Plan by the NVC.

Once approved and established, DIT will ensure that the offset(s) are maintained in accordance with the approved offset arrangements, relevant management plans and any approval conditions for the period required by those approvals.

6.4 Costs

DIT is currently engaged in commercial-in-confidence discussions with landholders and offset providers and no costs have been determined with certainty at this time.

Once commercial arrangements are agreed, DIT will ensure that the appropriate funds and resources are allocated to ensure the offset and offset actions are fully funded for the duration of offset.

6.5 Performance and review

Ongoing monitoring is required to ensure the offsets are providing an environmental benefit. The monitoring program will be developed by qualified ecologists in consultation with land management experts and will be included in the SEB Offset Management Plan(s). The types of monitoring likely to be undertaken are detailed in **Error! Reference source not found.**.

The monitoring, evaluation and reporting framework requires a baseline condition against which future data collection can be compared. The baseline condition within the offset area will be established through collection of the following data:

- baseline Unit Biodiversity Scores within each vegetation association present across the offset area, measured using the repeatable Bushland Assessment Method (BAM) or Rangeland Assessment Method (RAM) surveys at established locations within the offset area; and
- assessment of the diversity of pest fauna that are present within the offset area, through review of existing survey data for the area, historic records for the area, and through visual observation whilst conducting other baseline survey work within the offset area.

The results of the ongoing monitoring program will be used to inform operational management decisions, including adaptive implementation of the Offset Strategy to ensure the objectives are met. The monitoring results will also be used to assess when corrective actions are required to be implemented. The results

will be compared to those from previous monitoring events to assess change over time and to inform the ongoing implementation of the Offset Strategy.

Table 6: Conceptual on-ground offset monitoring program

Type of monitoring	Description	Location	Frequency
Offset area inspections	The aim of offset area inspections is to enable a general assessment of the offset area to identify any potential issues that may require remedial action to be undertaken. Inspections would include assessment of the following: • condition of fencing, gates and signs; • condition of access tracks; • compliance with restrictions for vegetation clearing associated with maintenance and establishment of access tracks, fencing and firebreaks; • incidence of erosion within offset area, particularly around permanent and semi-permanent water bodies or areas subject to inundation, waterlogging or grazing activity; • damage/degradation resulting from pest animal activity within the offset area; • presence of weed/invasive species; • exclusion of livestock.	Whole of the offset areas	Annual
Weed monitoring	The offset areas will be monitored for weeds annually to determine the species and abundance, for the duration of the management period. The results of this monitoring will indicate the success of weed management and inform the future methods for weed treatment and control.	Whole of the offset areas	Annual
Pest animal monitoring	The offset areas will be monitored for pest animals to determine the species diversity and abundance, for the duration of the management period. The results of this monitoring will indicate the success of feral animal management and inform the future methods for pest animal management, treatment and control.	Whole of the offset areas	Annual
Habitat quality assessments (flora and fauna surveys)	An ecological survey, consistent in format to the baseline ecological survey, will be undertaken to assess the overall performance of the offset areas and quantify the success of rehabilitation and regeneration methods, and identify areas of improvement that may become the focus for future management actions.	Whole of the offset areas	Year 1 Year 3 Every 5 years after (unless triggered by inspections)

6.6 Reporting

A report detailing the progress against the Offset Management Plan(s) will be prepared as required by conditions of approval, with input from the qualified ecologists responsible for conducting the monitoring, and the third party providers and / or land managers of the offset areas. The report may contain:

- a description of the monitoring conducted, when it was conducted, and by whom;
- a discussion of the prevailing climate in the lead up to and during the monitoring;

- results of photo monitoring;
- site data including site description and location and results for all site-based conditions;
- an overview of the management actions that were implemented since the last report (e.g. pest and weed control, grazing);
- details of any triggers that have been exceeded and the corrective actions that were implemented or will be implemented;
- an overview of the progress of the offset areas in achieving an environmental benefit, and how any risks or threats have impacted on the area; and
- an analysis of any risks or potential threats that have become apparent related to the offset areas since the development of this Strategy, and activities to be undertaken to manage these threats and/or risks.

7 References

Native Vegetation Council (NVC). (2024). *Guide for Calculating a Significant Environmental Benefit Under the Native Vegetation Act 1991 and Native Vegetation Regulations 2017*. Government of South Australia. September 2024, Adelaide.

Native Vegetation Council (NVC). (2024). *Policy for a Significant Environmental Benefit Under the Native Vegetation Act 1991 and Native Vegetation Regulations 2017*. Government of South Australia. September 2024, Adelaide.

Appendix I-10:

Western Grasswren and Plains Mouse Database Records

1 WESTERN GRASSWREN

Table 1-1 shows database records of Western Grasswren (Gawler Ranges) (*Amytornis textilis myall*) within the Study Area (which is defined as the disturbance footprint plus a 5 km buffer for sections of the project that fall within the Eyre Peninsula Landscape Management Region and a 50 km buffer for sections of the project that fall within the South Australian Arid Lands Landscape Management Region).

Database records are from the search of the Biological Database of South Australia (BDBSA) extracted 23 July 2025 (refer to Appendix I-1 Terrestrial Ecology Assessment for details). The BDBSA search returned data from two sources: the BDBSA Fauna Supertable (identified as BDBSA in Table 1-1) and Birdlife Australia (indicated as BL in Table 1-1).

Table 1-1: Database records of Western Grasswren in the Study Area

ID	Source	Easting	Northing	Siting Date	Reliability	Number observed	Location	Habitat
7236	BL	728279	6337694	19/03/2024	101-250m	not counted		
9115	BL	716613	6360256	4/09/2000	51-100m	not counted	2.4 km NNW of South Point (summit)	
11500	BL	695824	6382045	10/08/2004	51-100m	not counted	3.4 km WNW of Corunna (homestead)	
11621	BL	716717	6360254	30/11/2000	51-100m	not counted	2.4 km NNW of South Point (summit)	
12941	BL	720026	6352352	12/11/2007	51-100m	not counted	3.5 km WNW of Middleback (homestead)	
19236	BL	713633	6351106	12/11/2007	51-100m	not counted	8 km ENE of Myola Station	
32361	BL	703848	6371775	4/11/1999	51-100m	not counted	2.6 km ESE of Katunga (homestead)	
35522	BL	737063	6351864	19/11/2012	51-100m	not counted	0.6 km ESE of Crux Rock (summit)	
37373	BL	737063	6351864	17/10/2012	51-100m	not counted	0.6 km ESE of Crux Rock (summit)	
38881	BL	738369	6351030	24/09/1999	51-100m	not counted	3 km NNW of Whyalla Barson (suburb centre)	
39216	BL	737431	6352010	16/02/2014	51-100m	not counted	0.9 km ENE of Crux Rock (summit)	
42735	BL	703243	6372744	15/10/2006	51-100m	not counted	1.7 km ESE of Katunga (homestead)	
42913	BL	738483	6351210	5/03/2023	0-5m	not counted		
48473	BL	737431	6352010	16/11/2014	51-100m	not counted	0.9 km ENE of Crux Rock (summit)	
48776	BL	734958	6351852	21/08/2006	51-100m	not counted	0.2 km WSW of Wild Dog Hill (summit)	
51152	BL	713335	6363779	27/07/2005	51-100m	not counted	3.9 km WSW of Mallee Rise (summit)	
51907	BL	735119	6352017	28/05/2024	0-5m	not counted		
52154	BL	735126	6351982	7/06/2024	0-5m	not counted		

ID	Source	Easting	Northing	Siting Date	Reliability	Number observed	Location	Habitat
55197	BL	724351	6351699	12/11/2007	251-500m	not counted	0.9 km ESE of Middleback (homestead)	
56438	BL	735786	6352249	4/05/2022	101-250m	not counted		
56523	BL	722679	6381325	17/09/1999	251-500m	not counted	0.5 km NNW of Tank Hill (summit)	
58585	BL	735126	6351982	4/09/2022	0-5m	not counted		
60334	BL	709693	6350358	12/11/2007	51-100m	not counted	5 km NNE of Myola Station	
67542	BL	717098	6359844	4/09/2000	51-100m	not counted	1.9 km NNW of South Point (summit)	
68369	BL	737431	6352010	11/09/2014	51-100m	not counted	0.9 km ENE of Crux Rock (summit)	
71508	BL	726754	6388629	29/10/2001	251-500m	not counted	1.7 km NNW of Pandurra (homestead)	
72559	BL	718722	6352135	12/11/2007	51-100m	not counted	4.8 km W of Middleback (homestead)	
75430	BL	714350	6362585	15/10/2006	51-100m	not counted	3.5 km WSW of Mallee Rise (summit)	
79238	BL	717200	6359718	1/11/2000	51-100m	not counted	1.8 km NNW of South Point (summit)	
81716	BL	738399	6351213	28/05/2024	0-5m	not counted		
81818	BL	737063	6351864	14/04/2013	51-100m	not counted	0.6 km ESE of Crux Rock (summit)	
82400	BL	695181	6374507	30/04/2011	51-100m	not counted	4 km NNW of Katunga Station	
83533	BL	709122	6391079	10/12/2000	51-100m	not counted	8.3 km WSW of Pandurra	
84957	BL	737063	6351864	30/06/2012	51-100m	not counted	0.6 km ESE of Crux Rock (summit)	
85278	BL	737063	6351864	13/05/2013	51-100m	not counted	0.6 km ESE of Crux Rock (summit)	
90352	BL	734985	6351883	5/09/2000	51-100m	not counted	0.2 km WNW of Wild Dog Hill (summit)	
2	BDBSA	733650	6411890	31/08/2006	501-1000m	1	Myall	
16	BDBSA	736330	6345600	2/08/2006	501-1000m	1	Myall	
20	BDBSA	714560	6394500	30/08/2006	501-1000m	1	Myall	
205	BDBSA	730915	6348399	9/12/2017	501-1000m	1	Iron Knob Road near Whyalla	Shrubland (>1m)
361	BDBSA	716245	6330881	14/02/2024	101-250m	2	12km southwest of Whyalla; EBS Survey Site No. = BS13	
362	BDBSA	720584	6333475	14/02/2024	101-250m	2	12km southwest of Whyalla; EBS Survey Site No. = BS20	
452	BDBSA	735370	6341338	1/08/2019	501-1000m	1		Shrubland (>1m); Mainly Bluebush and some scattered Broom Emubush in area
1159	BDBSA	715130	6409720	31/08/2007	501-1000m	not counted	Myall	
1465	BDBSA	691860	6367800	28/08/2007	501-1000m	not counted	Myall	
1665	BDBSA	742565	6349797	7/12/2023	5-50m	not counted	SM1	
1677	BDBSA	741080	6354064	16/08/2024	51-100m	1		

ID	Source	Easting	Northing	Siting Date	Reliability	Number observed	Location	Habitat
2461	BDBSA	734095	6336149	15/11/2016	501-1000m	2	Mullaquana Rd, Eight Mile Creek area	Shrubland (>1m)
2615	BDBSA	734853	6341884	30/07/2019	501-1000m	2		Shrubland (>1m); plants Broom Emubush, Bluebush, and Bladder Saltbush present at site
2641	BDBSA	735090	6351870	4/02/2017	501-1000m	1	Whyalla Conservation Park, Wild Dog Hill	Shrubland (<1m)
2668	BDBSA	741200	6349633	9/07/2024	51-100m	1	Ground	
3619	BDBSA	720670	6352320	3/08/2007	501-1000m	not counted	Myall	
3737	BDBSA	738719	6362412	15/01/2017	501-1000m	1		Shrubland (<1m)
3738	BDBSA	735118	6351956	4/02/2017	501-1000m	3		Shrubland (>1m)
3953	BDBSA	722760	6316844	4/12/2022	51-100m	2	Mullaquana, SA; Project specfic site ID = BS61	
4103	BDBSA	742279	6350089	11/07/2024	51-100m	1		
4115	BDBSA	743603	6351646	12/07/2024	51-100m	1		
4116	BDBSA	741903	6349922	4/07/2024	51-100m	1		
4117	BDBSA	733100	6340596	6/10/2022	51-100m	2	Whyalla, SA; Project specfic site ID = BS9	
4333	BDBSA	743557	6353943	19/08/2024	51-100m	1		
4621	BDBSA	734556	6341961	3/08/2019	501-1000m	2		Shrubland (>1m)
5309	BDBSA	728338	6337654	1/12/2022	101-250m	3	A2f. Nonowie Station. Whyalla.	A2f. *Acacia papyrocarpa* Low Woodland over *Maireana sedifolia* and *Atriplex vesicaria.*
5317	BDBSA	705590	6343148	19/05/2023	51-100m	4		
5370	BDBSA	741203	6353380	20/08/2024	51-100m	1		
5371	BDBSA	741898	6354209	15/08/2024	51-100m	2		
5372	BDBSA	743203	6353736	13/08/2024	51-100m	3		
5595	BDBSA	701450	6408860	31/08/2007	501-1000m	not counted	Myall	
5814	BDBSA	732945	6348523	28/02/2016	501-1000m	4	Koloroo Dam	Shrubland (>1m)
5839	BDBSA	701279	6334596	11/05/2014	501-1000m	3		Shrubland (<1m)
6000	BDBSA	706300	6355200	3/08/2006	501-1000m	1	Myall	
6709	BDBSA	714560	6394500	30/08/2007	501-1000m	not counted	Myall	
6714	BDBSA	723020	6363940	3/08/2007	501-1000m	not counted	Myall	
6715	BDBSA	703350	6378680	28/08/2007	501-1000m	not counted	Myall	
7977	BDBSA	691670	6367440	16/04/2008	5-50m	4	Cooyerdoo HS - gate	
8411	BDBSA	735790	6340893	4/08/2019	501-1000m	1		Shrubland (>1m); Bluebush, and mixed native shrubs
8821	BDBSA	742308	6350075	3/07/2024	51-100m	1	Shrub	
9360	BDBSA	733250	6388070	3/08/2007	501-1000m	not counted	Myall	
9532	BDBSA	740180	6347298	12/07/2024	51-100m	4	Shrub	
9569	BDBSA	742024	6353758	14/08/2024	51-100m	2		
9782	BDBSA	714922	6409529	18/06/2023	501-1000m	2	Carriewerloo Station, South Four Mile Dam	
9965	BDBSA	733405	6346087	26/01/2016	501-1000m	1		Shrubland (>1m)
9971	BDBSA	735402	6351642	24/04/2015	501-1000m	4	Whyalla Conservation Park, area with Myall,	

ID	Source	Easting	Northing	Siting Date	Reliability	Number observed	Location	Habitat
							Bluebush, Acacia and some saltbush	
10206	BDBSA	720250	6401230	30/08/2006	501-1000m	1	Myall	
10589	BDBSA	740570	6346841	12/07/2024	51-100m	1		
11541	BDBSA	734580	6335100	2/08/2007	501-1000m	not counted	Myall	
11549	BDBSA	736330	6345600	2/08/2007	501-1000m	not counted	Myall	
12036	BDBSA	741950	6349183	11/07/2024	51-100m	3	Ground	
12300	BDBSA	740526	6354550	14/08/2024	51-100m	3		
12351	BDBSA	740285	6354497	14/08/2024	51-100m	2		
12352	BDBSA	742706	6353482	13/08/2024	51-100m	2		
12397	BDBSA	698236	6354555	15/11/2018	51-100m	2	EBS Site Survey No. = , Bark Hills, NNW of Iron Baron	
12586	BDBSA	734853	6341884	1/08/2019	501-1000m	1		Shrubland (>1m); Bluebush, Saltbush and Broom Emubush present in area
12643	BDBSA	733792	6341446	31/07/2019	501-1000m	1		Woodland; Woodland, Shrubland area Bluebush, Acacia and Myall
12962	BDBSA	702520	6408760	31/08/2006	501-1000m	1	Myall	
12969	BDBSA	719700	6416850	1/09/2006	501-1000m	3	Myall	
12970	BDBSA	719560	6417900	1/09/2006	501-1000m	1	Myall	
13239	BDBSA	722625	6338550	28/11/2022	101-250m	1	A1a. Nonowie Station. Whyalla.	A1a. *Maireana sedifolia* / *Maireana pyramidata* Shrubland over *Atriplex vesicaria*, *Sclerolaena* spp. and *Austrostipa* spp.
13247	BDBSA	718943	6333350	8/02/2023	51-100m	3	EBS Survey Site No. = BS12	
13264	BDBSA	740352	6354029	20/08/2024	51-100m	2		
13356	BDBSA	733628	6341566	6/10/2022	51-100m	3	Whyalla, SA; Project specfic site ID = BS11	
13526	BDBSA	721730	6372280	3/08/2007	501-1000m	not counted	Myall	
13551	BDBSA	717360	6359670	31/07/2007	501-1000m	not counted	Myall	
13610	BDBSA	738461	6351217	5/06/2016	501-1000m	1	Whyalla Conservation Park	Shrubland (>1m)
13730	BDBSA	735351	6349597	17/07/2016	501-1000m	1		Shrubland (>1m)
13731	BDBSA	711402	6334393	14/10/2016	501-1000m	1	birds seen along Middleback road	Shrubland (>1m)
13883	BDBSA	694549	6363815	16/04/2008	5-50m	2	N of Cooyerdoo HS	
13908	BDBSA	721730	6372280	3/08/2006	501-1000m	1	Myall	
14158	BDBSA	729981	6345524	7/02/2016	501-1000m	3		Woodland
14183	BDBSA	739586	6384211	1/12/2022	51-100m	1	North of Whyalla, SA; Project specfic site ID = BS65	
14286	BDBSA	734920	6341884	9/12/2018	501-1000m	2		Shrubland (<1m)
14599	BDBSA	719560	6417900	1/09/2007	501-1000m	not counted	Myall	
14608	BDBSA	720350	6352150	3/08/2007	501-1000m	not counted	Myall	
14609	BDBSA	703910	6372230	31/07/2007	501-1000m	not counted	Myall	
15900	BDBSA	720670	6352320	3/08/2006	501-1000m	1	Myall	
16415	BDBSA	717371	6340200	9/02/2023	51-100m	5	EBS Survey Site No. = BS4	
17351	BDBSA	735200	6351900	2/08/2007	501-1000m	not counted	Myall	

ID	Source	Easting	Northing	Siting Date	Reliability	Number observed	Location	Habitat
17514	BDBSA	717371	6340199	15/02/2024	101-250m	2	12km southwest of Whyalla; EBS Survey Site No. = BS4	
17515	BDBSA	740941	6347718	5/07/2024	51-100m	1		
17516	BDBSA	741200	6349634	3/07/2024	51-100m	1	Ground	
17540	BDBSA	740562	6354201	19/08/2024	51-100m	2		
17541	BDBSA	741611	6353373	16/08/2024	51-100m	3		
17578	BDBSA	742871	6354138	15/08/2024	51-100m	1		
17590	BDBSA	740574	6354614	19/08/2024	51-100m	1		
17742	BDBSA	733929	6341254	18/12/2018	501-1000m	2	birds observed in bush area nearJenkins Avenue, Whyalla	Shrubland (>1m)
18159	BDBSA	734580	6335100	2/08/2006	501-1000m	1	Myall	
18510	BDBSA	741942	6348795	11/07/2024	51-100m	1		
18549	BDBSA	743443	6354287	16/08/2024	51-100m	2		
19799	BDBSA	741987	6349718	11/07/2024	51-100m	1		
19827	BDBSA	718943	6333350	14/02/2024	101-250m	1	12km southwest of Whyalla; EBS Survey Site No. = BS12	
20200	BDBSA	742853	6353601	13/08/2024	51-100m	1		
20213	BDBSA	738887	6353620	16/08/2024	51-100m	2		
20462	BDBSA	734853	6341884	29/07/2019	501-1000m	2		Shrubland (>1m); Bluebush, Bladder Saltbush and Broom Emubush in area
20857	BDBSA	717710	6359200	31/07/2006	501-1000m	1	Myall	
20866	BDBSA	732220	6386780	27/08/2006	501-1000m	1	Myall	
21088	BDBSA	719112	6339557	28/11/2022	101-250m	3	A1b. Nonowie Station. Whyalla.	A1b. *Maireana sedifolia* / *Maireana pyramidata* Shrubland over *Atriplex vesicaria*, *Sclerolaena* spp. and *Austrostipa* spp.
21105	BDBSA	719115	6339587	10/02/2023	51-100m	2	EBS Survey Site No. = BS2	
21370	BDBSA	723800	6354950	3/08/2007	501-1000m	not counted	Myall	
21387	BDBSA	702520	6408760	31/08/2007	501-1000m	not counted	Myall	
21598	BDBSA	735300	6351976	22/01/2016	501-1000m	3	Wild Dog Hill	Shrubland (>1m)
21704	BDBSA	691860	6367800	28/08/2006	501-1000m	1	Myall	
21775	BDBSA	690550	6385300	22/09/2006	501-1000m	1	Myall	
22143	BDBSA	738822	6345649	9/10/2022	51-100m	3	Whyalla, SA; Project specfic site ID = BS26	
22144	BDBSA	727058	6338629	15/02/2024	101-250m	2	12km southwest of Whyalla; EBS Survey Site No. = BS15	
22200	BDBSA	742817	6350973	29/03/2023	5-50m	1	HAB3	
23772	BDBSA	723020	6363940	3/08/2006	501-1000m	1	Myall	
23774	BDBSA	719160	6378720	28/08/2006	501-1000m	1	Myall	
23841	BDBSA	735200	6351900	2/08/2006	501-1000m	1	Myall	
23846	BDBSA	720780	6381440	28/08/2006	501-1000m	1	Myall	
23847	BDBSA	695670	6382700	30/08/2006	501-1000m	1	Myall	
24273	BDBSA	735833	6340928	1/08/2019	501-1000m	2		Shrubland (>1m); Mainly Black

ID	Source	Easting	Northing	Siting Date	Reliability	Number observed	Location	Habitat
								Bluebush an Myall in area
24951	BDBSA	711750	6365100	30/07/2007	501-1000m	not counted	Myall	
25182	BDBSA	735100	6351950	2/08/2007	501-1000m	not counted	Myall	
25183	BDBSA	719750	6352150	3/08/2007	501-1000m	not counted	Myall	
25233	BDBSA	728760	6379080	3/08/2007	501-1000m	not counted	Myall	
25386	BDBSA	720611	6343558	15/02/2024	101-250m	2	12km southwest of Whyalla; EBS Survey Site No. = BS3	
25387	BDBSA	729719	6335975	5/12/2022	51-100m	2	South-west of Whyalla, SA; Project specfic site ID = BS69	
25388	BDBSA	740653	6347332	5/07/2024	51-100m	1	Shrub	
25415	BDBSA	719115	6339587	15/02/2024	101-250m	3	12km southwest of Whyalla; EBS Survey Site No. = BS2	
25416	BDBSA	732918	6341048	6/10/2022	51-100m	3	Whyalla, SA; Project specfic site ID = BS10	
25440	BDBSA	744037	6354259	13/08/2024	51-100m	2		
25835	BDBSA	734516	6346138	13/08/2016	501-1000m	2		Shrubland (>1m)
26034	BDBSA	722030	6347580	31/07/2006	501-1000m	1	Myall	
26084	BDBSA	712000	6364800	30/07/2006	501-1000m	6	Myall	
26253	BDBSA	718036	6335933	25/09/2016	501-1000m	3		Shrubland (>1m)
26426	BDBSA	741752	6348397	7/12/2023	501-1000m	1	Opportunistic closest to SM3	
27343	BDBSA	742867	6350948	29/03/2023	5-50m	1	HAB3	
27730	BDBSA	738923	6351305	4/02/2017	501-1000m	1	Whyalla Conservation Park	Shrubland (<1m)
27740	BDBSA	720611	6343558	16/11/2023	101-250m	3	12km southwest of Whyalla; EBS Survey Site No. = BS3	
27741	BDBSA	723269	6334506	13/02/2024	101-250m	1	12km southwest of Whyalla; EBS Survey Site No. = BS29	
27752	BDBSA	741198	6350410	10/07/2024	51-100m	1		
27756	BDBSA	741361	6348960	11/07/2024	51-100m	4	Ground	
27757	BDBSA	738822	6345649	9/10/2022	51-100m	3	Whyalla, SA; Project specfic site ID = BS26	
27758	BDBSA	716245	6330881	15/11/2023	101-250m	2	12km southwest of Whyalla; EBS Survey Site No. = BS13	
27759	BDBSA	728314	6343452	6/12/2022	51-100m	not counted	West of Whyalla, SA; Project specfic site ID = BS68	
27971	BDBSA	727058	6338629	15/11/2023	101-250m	2	12km southwest of Whyalla; EBS Survey Site No. = BS15	
27972	BDBSA	728388	6337523	14/02/2024	101-250m	1	12km southwest of Whyalla; EBS Survey Site No. = BS24	

ID	Source	Easting	Northing	Siting Date	Reliability	Number observed	Location	Habitat
27976	BDBSA	723145	6344873	16/11/2023	101-250m	2	12km southwest of Whyalla; EBS Survey Site No. = BS11	
28155	BDBSA	732113	6341096	4/01/2018	501-1000m	3	Sightings along bush track, north of Whyalla Kart Club, Lincoln Hwy	Shrubland (>1m)
28161	BDBSA	735825	6350609	27/03/2018	101-250m	1	Whyalla Conservation Park	
28170	BDBSA	738862	6353628	14/08/2024	51-100m	3		
28171	BDBSA	740378	6354578	20/08/2024	51-100m	1		
28178	BDBSA	743053	6354386	13/08/2024	51-100m	2		
28179	BDBSA	740235	6354569	15/08/2024	51-100m	1		
28317	BDBSA	736770	6345370	2/08/2007	501-1000m	not counted	Myall	
28318	BDBSA	716480	6360720	31/07/2007	501-1000m	not counted	Myall	
28426	BDBSA	738442	6351213	8/06/2019	501-1000m	1	Whyalla Conservation Park, near Dam	Shrubland (>1m)
28427	BDBSA	735133	6341468	9/08/2019	501-1000m	2		Shrubland (>1m); Mainly Bluebush habitat
28873	BDBSA	707420	6437680	1/09/2006	501-1000m	1	Myall	
28875	BDBSA	703910	6372230	31/07/2006	501-1000m	1	Myall	
28879	BDBSA	735100	6351950	2/08/2006	501-1000m	1	Myall	
28906	BDBSA	701450	6408860	31/08/2006	501-1000m	1	Myall	
29169	BDBSA	720611	6343558	10/02/2023	51-100m	2	EBS Survey Site No. = BS3	
29182	BDBSA	716547	6329201	8/02/2023	51-100m	1	EBS Survey Site No. = BS14	
29254	BDBSA	742104	6348680	7/12/2023	5-50m	not counted	SM2	
29260	BDBSA	741462	6353954	20/08/2024	51-100m	2		
29284	BDBSA	741327	6349056	9/07/2024	51-100m	3	Ground	
29691	BDBSA	717951	6336021	14/10/2016	501-1000m	1		Shrubland (>1m)
29715	BDBSA	734686	6350833	7/06/2016	501-1000m	1	Whyalla Conservation Park	Shrubland (>1m)
29795	BDBSA	717360	6359670	31/07/2006	501-1000m	1	Myall	
29925	BDBSA	716547	6329201	14/02/2024	101-250m	2	12km southwest of Whyalla; EBS Survey Site No. = BS14	
30544	BDBSA	742984	6350494	11/07/2024	51-100m	1		
30545	BDBSA	705589	6343148	19/05/2023	51-100m	4		
31799	BDBSA	735100	6351950	2/08/2006	501-1000m	1	Myall	
31802	BDBSA	720500	6352330	3/08/2006	501-1000m	1	Myall	
31803	BDBSA	690580	6385050	30/08/2006	501-1000m	1	Myall	
31869	BDBSA	705630	6330340	1/08/2006	501-1000m	1	Myall	
31952	BDBSA	735210	6351628	28/05/2016	501-1000m	1	Whyalla Conservation Park	Shrubland (>1m)
32287	BDBSA	734897	6341878	7/08/2019	501-1000m	1		Shrubland (>1m); Emu Broombush and Bluebush habitat.
32288	BDBSA	734853	6341884	27/07/2019	501-1000m	2		Shrubland (>1m); Mainly Bluebush and Bladder Saltbush in area
32303	BDBSA	717405	6343601	9/02/2023	51-100m	not counted	EBS Survey Site No. = BS5	
33195	BDBSA	717710	6359200	31/07/2007	501-1000m	not counted	Myall	
33196	BDBSA	696050	6381560	30/08/2007	501-1000m	not counted	Myall	
33460	BDBSA	743829	6353784	19/08/2024	51-100m	2		

ID	Source	Easting	Northing	Siting Date	Reliability	Number observed	Location	Habitat
34022	BDBSA	716480	6360720	31/07/2006	501-1000m	1	Myall	
34096	BDBSA	719590	6341260	1/08/2006	501-1000m	1	Myall	
34097	BDBSA	738890	6362100	2/08/2006	501-1000m	1	Myall	
34311	BDBSA	720642	6333615	30/11/2022	101-250m	4	A1h. Nonowie Station. Whyalla.	A1h. *Maireana sedifolia* / *Maireana pyramidata* Shrubland over *Atriplex vesicaria, Sclerolaena* spp. and *Austrostipa* spp.
34312	BDBSA	717484	6340370	29/11/2022	101-250m	3	A2a. Nonowie Station. Whyalla.	A2a. *Acacia papyrocarpa* Low Woodland over *Maireana sedifolia* and *Atriplex vesicaria.*
34367	BDBSA	740333	6354040	15/08/2024	51-100m	2		
35257	BDBSA	718120	6351920	3/08/2007	501-1000m	not counted	Myall	
35261	BDBSA	722030	6347580	31/07/2007	501-1000m	not counted	Myall	
35262	BDBSA	733650	6411890	31/08/2007	501-1000m	not counted	Myall	
35343	BDBSA	732220	6386780	3/08/2007	501-1000m	not counted	Myall	
35475	BDBSA	695980	6381682	14/04/2017	501-1000m	4	Near White Dam, Corunna	Shrubland (<1m)
35609	BDBSA	733100	6340596	6/10/2022	51-100m	2	Whyalla, SA; Project specfic site ID = BS9	
35641	BDBSA	734428	6342085	29/01/2017	501-1000m	2		Shrubland (>1m)
35746	BDBSA	741963	6349480	9/07/2024	51-100m	4	Ground	
35754	BDBSA	728953	6339904	5/12/2022	51-100m	1	West of Whyalla, SA; Project specfic site ID = BS63	
35824	BDBSA	723249	6345068	16/11/2023	101-250m	2	12km southwest of Whyalla; EBS Survey Site No. = BS7	
36006	BDBSA	737524	6344572	25/10/2017	501-1000m	2	Just off Iron Knob Road Whyalla	Shrubland (>1m)
36087	BDBSA	734225	6350375	9/12/2017	501-1000m	3	along track west of Whyalla Conservation Park	Shrubland (>1m)
36098	BDBSA	743206	6354930	20/08/2024	51-100m	1		
36116	BDBSA	741402	6353985	16/08/2024	51-100m	2		
36983	BDBSA	720629	6343560	28/11/2022	101-250m	3	A1c. Nonowie Station. Whyalla.	A1c. *Maireana sedifolia* / *Maireana pyramidata* Shrubland over *Atriplex vesicaria, Sclerolaena* spp. and *Austrostipa* spp.
37034	BDBSA	739211	6353675	16/08/2024	51-100m	3		
37062	BDBSA	728065	6343447	16/11/2023	101-250m	3	12km southwest of Whyalla; EBS Survey Site No. = BS9	
37244	BDBSA	717460	6340650	1/08/2007	501-1000m	not counted	Myall	
37671	BDBSA	704590	6366620	31/07/2006	501-1000m	1	Myall	
37711	BDBSA	740249	6347628	12/07/2024	51-100m	3		

ID	Source	Easting	Northing	Siting Date	Reliability	Number observed	Location	Habitat
38016	BDBSA	726877	6344912	14/02/2024	101-250m	5	12km southwest of Whyalla; EBS Survey Site No. = BS8	
38024	BDBSA	719115	6339587	15/02/2024	101-250m	2	12km southwest of Whyalla; EBS Survey Site No. = BS2	
38025	BDBSA	733636	6342719	6/10/2022	51-100m	2	Whyalla, SA; Project specfic site ID = BS12	
38397	BDBSA	712000	6364800	30/07/2007	501-1000m	not counted	Myall	
38451	BDBSA	719700	6416850	1/09/2007	501-1000m	not counted	Myall	
38574	BDBSA	698040	6354770	16/11/2018	51-100m	2	EBS Site Survey No. = , Bark Hills, NNW of Iron Baron	
39854	BDBSA	702873	6347974	1/02/2011	5-50m	3	Middleback Ranges	chenopod shrublands
40235	BDBSA	734897	6341878	3/08/2019	501-1000m	1		Shrubland (>1m)
41299	BDBSA	732918	6341048	6/10/2022	51-100m	1	Whyalla, SA; Project specfic site ID = BS10	
41351	BDBSA	743030	6354417	20/08/2024	51-100m	1		
41463	BDBSA	734977	6349842	21/11/2017	501-1000m	1	Speedway road near Whyalla Con Park	Shrubland (>1m)
41703	BDBSA	701102	6334535	8/10/2016	501-1000m	2		Shrubland (>1m)
41895	BDBSA	738300	6351250	2/08/2006	501-1000m	1	Myall	
41995	BDBSA	728760	6379080	3/08/2006	501-1000m	1	Myall	
42222	BDBSA	705708	6343194	18/05/2023	51-100m	1		
42317	BDBSA	744024	6353837	21/08/2024	51-100m	2		
42382	BDBSA	739214	6353639	14/08/2024	51-100m	3		
42676	BDBSA	702812	6378360	19/01/2004	501-1000m	1	Iron Knob, 2km NE	
43244	BDBSA	738890	6362100	2/08/2007	501-1000m	not counted	Myall	
43569	BDBSA	717294	6333990	14/11/2023	101-250m	2	12km southwest of Whyalla; EBS Survey Site No. = BS21	
43910	BDBSA	744121	6354335	19/08/2024	51-100m	2		
43911	BDBSA	739159	6353626	21/08/2024	51-100m	2		
44075	BDBSA	720780	6381440	28/08/2007	501-1000m	not counted	Myall	
44587	BDBSA	711750	6365100	30/07/2006	501-1000m	1	Myall	
44588	BDBSA	719750	6352150	3/08/2006	501-1000m	1	Myall	
44813	BDBSA	725080	6342764	28/02/2022	0-5m	not counted	West of Whyalla, SMR; SITE ID = PIBAM09	
44895	BDBSA	741139	6353456	16/08/2024	51-100m	2		
44964	BDBSA	719601	6341266	15/11/2023	101-250m	1	12km southwest of Whyalla; EBS Survey Site No. = BS26	
45103	BDBSA	716820	6360420	31/07/2007	501-1000m	not counted	Myall	
45108	BDBSA	695670	6382700	30/08/2007	501-1000m	not counted	Myall	
45165	BDBSA	709660	6391420	29/08/2007	501-1000m	not counted	Myall	
45360	BDBSA	709925	6350270	20/03/2016	501-1000m	2		Shrubland (>1m)
45485	BDBSA	730560	6392880	27/08/2006	501-1000m	1	Myall	
45881	BDBSA	742279	6350061	9/07/2024	51-100m	1	Ground	
46325	BDBSA	720500	6352330	3/08/2007	501-1000m	not counted	Myall	
47636	BDBSA	725990	6376500	3/08/2006	501-1000m	1	Myall	
47638	BDBSA	716820	6360420	31/07/2006	501-1000m	1	Myall	
47711	BDBSA	715130	6409720	31/08/2006	501-1000m	2	Myall	
47769	BDBSA	736390	6348045	8/04/2016	501-1000m	1		Shrubland (>1m)

ID	Source	Easting	Northing	Siting Date	Reliability	Number observed	Location	Habitat
48107	BDBSA	734853	6341884	31/07/2019	501-1000m	2		Shrubland (>1m); Bluebush, Saltbush and Broom Emubush in area
48179	BDBSA	719601	6341266	9/02/2023	51-100m	1-2	EBS Survey Site No. = BS26	
48824	BDBSA	738300	6351250	2/08/2007	501-1000m	not counted	Myall	
49109	BDBSA	706300	6355200	3/08/2007	501-1000m	not counted	Myall	
49323	BDBSA	742302	6353823	14/08/2024	51-100m	1		
49887	BDBSA	694221	6359810	16/04/2008	5-50m	1	S of Cooyerdoo HS	
50080	BDBSA	732424	6345995	21/01/2016	501-1000m	1		Shrubland (>1m)
50113	BDBSA	735230	6378524	26/08/2016	501-1000m	1	Myall Creek	Shrubland (>1m)
50179	BDBSA	716055	6343437	30/11/2022	101-250m	not counted	A2c. Nonowie Station. Whyalla.	A2c. *Acacia papyrocarpa* Low Woodland over *Maireana sedifolia* and *Atriplex vesicaria*.
50252	BDBSA	742946	6354493	15/08/2024	51-100m	2		
51140	BDBSA	719590	6341260	1/08/2007	501-1000m	not counted	Myall	
51142	BDBSA	730560	6392880	3/08/2007	501-1000m	not counted	Myall	
51143	BDBSA	725990	6376500	3/08/2007	501-1000m	not counted	Myall	
51516	BDBSA	740511	6346823	5/07/2024	51-100m	2	Ground	
51522	BDBSA	740570	6346859	8/07/2024	51-100m	2		
51661	BDBSA	742786	6350434	11/07/2024	51-100m	1	Ground	
51662	BDBSA	724073	6329750	15/11/2023	101-250m	1	12km southwest of Whyalla; EBS Survey Site No. = BS22	
51874	BDBSA	738030	6352083	21/04/2018	501-1000m	3	Wild Dog Hill. Whyalla Conservation Park	Shrubland (>1m)
51955	BDBSA	704480	6335420	1/08/2007	501-1000m	not counted	Myall	
51989	BDBSA	743211	6353784	15/08/2024	51-100m	1		
52627	BDBSA	722150	6348560	31/07/2006	501-1000m	1	Myall	
53113	BDBSA	735047	6351820	2/08/2007	251-500m	not counted	Whyalla C.P. - Site M27	
53114	BDBSA	707420	6437680	1/09/2007	501-1000m	not counted	Myall	
53119	BDBSA	719160	6378720	28/08/2007	501-1000m	not counted	Myall	
53294	BDBSA	738410	6351249	28/02/2016	501-1000m	2	Whyalla Conservation Park	Shrubland (>1m)
53488	BDBSA	717294	6333990	14/02/2024	101-250m	3	12km southwest of Whyalla; EBS Survey Site No. = BS21	
53489	BDBSA	722551	6338475	15/11/2023	101-250m	2	12km southwest of Whyalla; EBS Survey Site No. = BS1	
53495	BDBSA	711780	6365500	30/07/2006	501-1000m	1	Myall	
53771	BDBSA	742033	6349595	10/07/2024	51-100m	1		
53772	BDBSA	716547	6329201	15/11/2023	101-250m	4	12km southwest of Whyalla; EBS Survey Site No. = BS14	
53780	BDBSA	733628	6341566	6/10/2022	51-100m	2	Whyalla, SA; Project specfic site ID = BS11	
53934	BDBSA	740186	6346245	30/03/2023	5-50m	1		
54194	BDBSA	690550	6385300	22/09/2007	501-1000m	not counted	Myall	
55513	BDBSA	733250	6388070	27/08/2006	501-1000m	1	Myall	

ID	Source	Easting	Northing	Siting Date	Reliability	Number observed	Location	Habitat
55905	BDBSA	742831	6350794	4/07/2024	51-100m	1		
55952	BDBSA	735825	6350609	24/08/2019	101-250m	1	Whyalla Conservation Park	Shrubland (>1m); habitat mainly Chenopod with scattered Myall and Acacia
56396	BDBSA	742274	6349542	10/07/2024	51-100m	2	Ground	
56877	BDBSA	722150	6348560	31/07/2007	501-1000m	not counted	Myall	
56880	BDBSA	694270	6359919	16/01/2012	251-500m	not counted	Cooyerdoo HS - S of	
57086	BDBSA	741864	6353820	15/08/2024	51-100m	3		
57464	BDBSA	723972	6353055	20/03/2016	501-1000m	2		Shrubland (>1m)
57689	BDBSA	723800	6354950	3/08/2006	501-1000m	1	Myall	
57690	BDBSA	703350	6378680	28/08/2006	501-1000m	4	Myall	
57693	BDBSA	718120	6351920	3/08/2006	501-1000m	1	Myall	
57788	BDBSA	736770	6345370	2/08/2006	501-1000m	1	Myall	
57796	BDBSA	709660	6391420	29/08/2006	501-1000m	1	Myall	
57873	BDBSA	732564	6345954	26/01/2016	501-1000m	1		Shrubland (>1m)
57881	BDBSA	711369	6334395	9/04/2016	501-1000m	1		Shrubland (>1m)
58082	BDBSA	735833	6340928	4/08/2019	501-1000m	1		Shrubland (>1m); Bluebush and Myall habitat
59785	BDBSA	743219	6353754	19/08/2024	51-100m	2		
59793	BDBSA	740823	6354021	20/08/2024	51-100m	1		
59844	BDBSA	711780	6365500	30/07/2007	501-1000m	not counted	Myall	
59931	BDBSA	692211	6350346	16/01/2012	251-500m	not counted	Cooyerdoo HS - S of	
59940	BDBSA	720250	6401230	30/08/2007	501-1000m	not counted	Myall	
60400	BDBSA	717460	6340650	1/08/2006	501-1000m	1	Myall	
60405	BDBSA	720350	6352150	3/08/2006	501-1000m	1	Myall	
60410	BDBSA	694423	6360582	16/04/2008	5-50m	1	S of Cooyerdoo HS	
60669	BDBSA	717897	6336051	30/11/2022	101-250m	2	A1g. Nonowie Station. Whyalla.	A1g. *Maireana sedifolia* / *Maireana pyramidata* Shrubland over *Atriplex vesicaria, Sclerolaena* spp. and *Austrostipa* spp.
60674	BDBSA	721092	6332613	8/02/2023	51-100m	not counted	EBS Survey Site No. = B27	
60680	BDBSA	720584	6333475	8/02/2023	51-100m	2	EBS Survey Site No. = BS20	
60707	BDBSA	743980	6354272	14/08/2024	51-100m	2		
60708	BDBSA	739100	6353651	16/08/2024	51-100m	2		
60736	BDBSA	716245	6330881	8/02/2023	51-100m	2	EBS Survey Site No. = BS13	
60774	BDBSA	705708	6343194	18/05/2023	51-100m	1		
60782	BDBSA	740345	6346981	12/07/2024	51-100m	4	Shrub	
60939	BDBSA	723990	6352060	31/07/2007	501-1000m	not counted	Myall	
60940	BDBSA	690580	6385050	30/08/2007	501-1000m	not counted	Myall	
60986	BDBSA	704590	6366620	31/07/2007	501-1000m	not counted	Myall	
61059	BDBSA	732528	6345945	21/01/2016	501-1000m	2		Shrubland (>1m)
61183	BDBSA	695980	6381682	27/03/2016	501-1000m	2	Near White Dam, Corunna	Shrubland (<1m)
61335	BDBSA	723990	6352060	31/07/2006	501-1000m	1	Myall	
61336	BDBSA	704480	6335420	1/08/2006	501-1000m	1	Myall	
61337	BDBSA	696050	6381560	30/08/2006	501-1000m	1	Myall	
61438	BDBSA	738729	6345620	9/10/2022	51-100m	1	Whyalla, SA; Project specfic site ID = BS76	

ID	Source	Easting	Northing	Siting Date	Reliability	Number observed	Location	Habitat
61723	BDBSA	742300	6350042	9/07/2024	51-100m	1	Shrub	
62068	BDBSA	705630	6330340	1/08/2007	501-1000m	not counted	Myall	

2 PLAINS MOUSE

Table 2-1 shows database records of Plains Mouse (*Pseudomys australis*) within the Study Area (which is defined as the disturbance footprint plus a 5 km buffer for sections of the project that fall within the Eyre Peninsula Landscape Management Region and a 50 km buffer for sections of the project that fall within the South Australian Arid Lands Landscape Management Region).

Database records are from the search of the Biological Database of South Australia (BDBSA) extracted 23 July 2025 (refer to Appendix I-1 Terrestrial Ecology Assessment for details).

Table 2-1: Database records of Plains Mouse in the Study Area

ID	Easting	Northing	Sighting Date	Reliability	Number observed	Location	Habitat
531	679452	6636936	23/08/2016	5-50m	1	Main Exclosure MT136	
547	684856	6639326	7/03/2016	5-50m	1	20km north of Roxby Downs	
564	678358	6635707	7/03/2023	5-50m	1	20km north of Roxby Downs	
715	677678	6640690	8/03/2017	5-50m	1	2nd Expansion	
716	681712	6641925	6/03/2017	5-50m	1	Main Exclosure	
717	678080	6643703	6/03/2017	5-50m	1	20km north of Roxby Downs	
726	678052	6639061	6/03/2017	5-50m	1	Northern Expansion	
727	678358	6639773	7/03/2017	5-50m	1	Main Exclosure	
728	678080	6641925	8/03/2017	5-50m	1	Northern Expansion	
729	678052	6636372	7/03/2017	5-50m	1	Northern Expansion	
730	682285	6641935	8/03/2017	5-50m	1	Main Exclosure	
740	677678	6640718	9/03/2017	5-50m	1	2nd Expansion	
1122	678069	6636099	3/03/2024	5-50m	1	20km north of Roxby Downs	
1141	679927	6638721	3/03/2024	5-50m	1	20km north of Roxby Downs	
1407	678054	6640437	21/02/2012	5-50m	1	20km north of Roxby Downs	
2294	678358	6635707	8/03/2023	5-50m	1	20km north of Roxby Downs	
2295	677672	6643565	9/03/2023	5-50m	1	20km north of Roxby Downs	
2296	678052	6641935	9/03/2023	5-50m	1	20km north of Roxby Downs	
2297	678052	6641935	10/03/2023	5-50m	1	20km north of Roxby Downs	
2298	678358	6635707	9/03/2023	5-50m	1	20km north of Roxby Downs	
2817	678358	6635707	10/03/2023	5-50m	1	20km north of Roxby Downs	
2818	684925	6640690	7/03/2023	5-50m	1	20km north of Roxby Downs	
2871	736023	6540234	22/04/2017	5-50m	1	Carrapateena mine.	
3066	678056	6641936	13/03/2021	5-50m	1		
3067	678077	6643710	10/03/2021	5-50m	1		
3073	682265	6639526	21/04/2022	51-100m	1	Arid Recovery	
3075	681501	6638652	21/04/2022	51-100m	1	Arid Recovery	

ID	Easting	Northing	Sighting Date	Reliability	Number observed	Location	Habitat
3305	678056	6641936	12/03/2021	5-50m	1		
3447	678703	6638415	7/03/2019	5-50m	1	20km north of Roxby Downs	
4076	678080	6638336	7/03/2017	5-50m	1	Northern Expansion	
4077	684925	6638415	7/03/2017	5-50m	1	1st Expansion	
4078	677678	6643703	6/03/2017	5-50m	1	2nd Expansion	
4079	681712	6641935	8/03/2017	5-50m	1	Main Exclosure	
4515	677396	6637738	11/02/2014	5-50m	1	20km north of Roxby Downs	
4966	678703	6638415	12/02/2013	5-50m	1	20km north of Roxby Downs	
5078	684745	6641506	13/06/2012	5-50m	2	20km north of Roxby Downs	
5086	677396	6637738	22/02/2012	5-50m	1	20km north of Roxby Downs	
5467	678754	6638336	8/03/2023	5-50m	1	20km north of Roxby Downs	
5468	677672	6643565	7/03/2023	5-50m	1	20km north of Roxby Downs	
5469	678080	6643703	8/03/2023	5-50m	1	20km north of Roxby Downs	
6554	681053	6643703	6/03/2017	5-50m	1	2nd Expansion	
6555	681712	6643703	8/03/2017	5-50m	1	Main Exclosure	
6556	678754	6639773	7/03/2017	5-50m	1	Main Exclosure	
6557	681712	6641935	6/03/2017	5-50m	1	Main Exclosure	
6792	678363	6635733	13/03/2021	5-50m	1		
6920	732481	6535801	2/05/2013	5-50m	1	Carrapateena mine.	
6955	678077	6643710	11/03/2021	5-50m	1		
6956	678056	6641936	11/03/2021	5-50m	1		
6986	678754	6639773	6/03/2017	5-50m	1	Main Exclosure	
6987	678080	6636727	6/03/2017	5-50m	1	Northern Expansion	
6988	678080	6640718	6/03/2017	5-50m	1	Northern Expansion	
6994	678080	6640718	8/03/2017	5-50m	1	Northern Expansion	
6995	677678	6640690	8/03/2017	5-50m	1	2nd Expansion	
6996	678080	6638336	9/03/2017	5-50m	1	Northern Expansion	
6997	678358	6639773	7/03/2017	5-50m	1	Main Exclosure	
7077	678754	6638336	7/03/2023	5-50m	1	20km north of Roxby Downs	
7078	677672	6643565	9/03/2023	5-50m	1	20km north of Roxby Downs	
7079	678754	6638336	9/03/2023	5-50m	1	20km north of Roxby Downs	
7080	678052	6641935	9/03/2023	5-50m	1	20km north of Roxby Downs	
7125	681712	6643703	7/03/2017	5-50m	1	Main Exclosure	
7126	684925	6638415	9/03/2017	5-50m	1	1st Expansion	
7127	678080	6636372	6/03/2017	5-50m	1	Northern Expansion	
7143	681712	6643703	7/03/2017	5-50m	1	Main Exclosure	
7434	678754	6638336	7/03/2023	5-50m	1	20km north of Roxby Downs	
7465	678703	6638415	10/03/2023	5-50m	1	20km north of Roxby Downs	
7466	678052	6641935	7/03/2023	5-50m	1	20km north of Roxby Downs	
7669	679452	6636936	24/08/2016	5-50m	1	Main Exclosure MT136	
8108	684923	6640689	10/03/2021	5-50m	1		
8109	677667	6636722	10/03/2021	5-50m	1		
8110	678363	6635733	11/03/2021	5-50m	1		
8527	678052	6641935	10/03/2023	5-50m	1	20km north of Roxby Downs	
8528	677614	6636727	8/03/2023	5-50m	1	20km north of Roxby Downs	

ID	Easting	Northing	Sighting Date	Reliability	Number observed	Location	Habitat
8529	678080	6643703	10/03/2023	5-50m	1	20km north of Roxby Downs	
8530	677672	6643565	9/03/2023	5-50m	1	20km north of Roxby Downs	
8531	681712	6639061	8/03/2023	5-50m	1	20km north of Roxby Downs	
8609	678703	6639061	9/03/2017	5-50m	1	2nd Expansion	
8610	678754	6639773	6/03/2017	5-50m	1	Main Exclosure	
8611	681712	6641935	6/03/2017	5-50m	1	Main Exclosure	
8615	678052	6635707	5/03/2017	5-50m	1	Northern Expansion	
8616	678080	6639773	6/03/2017	5-50m	1	Northern Expansion	
8617	678754	6639773	6/03/2017	5-50m	1	Main Exclosure	
8618	678080	6632163	6/03/2017	5-50m	1	Northern Expansion	
8681	678358	6639773	9/03/2017	5-50m	1	Main Exclosure	
8682	678703	6638415	6/03/2017	5-50m	1	20km north of Roxby Downs	
8683	681712	6643703	8/03/2017	5-50m	1	Main Exclosure	
9017	677608	6637006	4/03/2024	5-50m	1	20km north of Roxby Downs	
9020	678069	6636099	5/03/2024	5-50m	1	20km north of Roxby Downs	
9318	677384	6639651	21/02/2012	5-50m	1	20km north of Roxby Downs	
9319	682327	6637260	24/02/2012	5-50m	1	20km north of Roxby Downs	
9374	748837	6517295	29/05/1995	101-250m	not counted	11km E from Pernatty Homestesd.	
9740	677660	6637029	7/03/2016	5-50m	1	20km north of Roxby Downs	
9831	677396	6637738	7/03/2016	5-50m	1	20km north of Roxby Downs	
10085	684923	6640689	11/03/2021	5-50m	1		
10086	677878	6635424	11/03/2021	5-50m	1		
10213	677672	6643565	7/03/2023	5-50m	1	20km north of Roxby Downs	
10214	678080	6643703	7/03/2023	5-50m	1	20km north of Roxby Downs	
10778	678358	6635707	10/03/2023	5-50m	1	20km north of Roxby Downs	
10779	677955	6641925	8/03/2023	5-50m	1	20km north of Roxby Downs	
10780	678754	6638336	8/03/2023	5-50m	1	20km north of Roxby Downs	
10781	677955	6641925	7/03/2023	5-50m	1	20km north of Roxby Downs	
10782	678080	6643703	10/03/2023	5-50m	1	20km north of Roxby Downs	
10966	677878	6635424	10/03/2021	5-50m	1		
10967	678077	6643710	12/03/2021	5-50m	1		
10968	678056	6641936	10/03/2021	5-50m	1		
10970	681501	6638652	22/04/2022	51-100m	1	Arid Recovery	
11244	678777	6638284	11/03/2021	5-50m	1		
11260	677895	6635425	8/03/2023	5-50m	1	20km north of Roxby Downs	
11361	732481	6535801	5/05/2013	5-50m	1	Carrapateena mine.	
11481	684856	6639326	5/03/2016	5-50m	1	20km north of Roxby Downs	
11973	677678	6637271	9/03/2017	5-50m	1	2nd Expansion	
11978	681712	6643703	8/03/2017	5-50m	1	Main Exclosure	
12024	678080	6637271	8/03/2017	5-50m	1	Northern Expansion	
12025	681712	6641935	6/03/2017	5-50m	1	Main Exclosure	
12521	677396	6637738	14/02/2014	5-50m	1	20km north of Roxby Downs	

ID	Easting	Northing	Sighting Date	Reliability	Number observed	Location	Habitat
12535	731691	6550590	12/10/2013	5-50m	1	Carrapateena mine.	
12800	678056	6641936	12/03/2021	5-50m	1		
12869	677669	6643569	11/03/2021	5-50m	1		
12926	678754	6638336	14/02/2013	5-50m	2	20km north of Roxby Downs	
12927	678080	6643703	13/02/2013	5-50m	2	20km north of Roxby Downs	
13427	681712	6639061	10/03/2023	5-50m	1	20km north of Roxby Downs	
13455	682265	6639526	14/04/2021	51-100m	2	Arid Recovery	
13745	682142	6637308	29/07/2024	5-50m	1		
14423	678080	6635425	6/03/2017	5-50m	1	Northern Expansion	
14424	678358	6639773	6/03/2017	5-50m	1	Main Exclosure	
14425	684925	6639108	6/03/2017	5-50m	1	1st Expansion	
14426	682285	6641935	9/03/2017	5-50m	1	Main Exclosure	
14427	682265	6639526	19/04/2017	51-100m	4	Arid Recovery	
14657	677667	6636722	10/03/2021	5-50m	1		
14658	678077	6643710	12/03/2021	5-50m	1		
14826	677669	6643569	11/03/2021	5-50m	1		
14827	678777	6638284	11/03/2021	5-50m	1		
14845	678080	6639773	8/03/2017	5-50m	1	Northern Expansion	
14846	684925	6637907	6/03/2017	5-50m	1	1st Expansion	
14847	678703	6639061	8/03/2017	5-50m	1	2nd Expansion	
14848	677955	6639061	6/03/2017	5-50m	1	Outside	
14849	678080	6635425	6/03/2017	5-50m	1	Northern Expansion	
14861	681712	6643703	8/03/2017	5-50m	1	Main Exclosure	
14862	678080	6638336	7/03/2017	5-50m	1	Northern Expansion	
14863	677672	6639061	6/03/2017	5-50m	1	Northern Expansion	
14950	677678	6639108	9/03/2023	5-50m	1	20km north of Roxby Downs	
14997	678080	6637885	9/03/2017	5-50m	1	Northern Expansion	
14998	678052	6635707	9/03/2017	5-50m	1	Northern Expansion	
14999	678358	6639773	9/03/2017	5-50m	1	Main Exclosure	
15008	681712	6643703	7/03/2017	5-50m	1	Main Exclosure	
15009	681712	6641935	6/03/2017	5-50m	1	Main Exclosure	
15010	677407	6635707	7/03/2017	5-50m	1	2nd Expansion	
15011	678754	6640690	8/03/2017	5-50m	1	Main Exclosure	
15012	678080	6640690	7/03/2017	5-50m	1	Northern Expansion	
15013	678080	6641935	7/03/2017	5-50m	1	Northern Expansion	
15314	677672	6643565	8/03/2023	5-50m	1	20km north of Roxby Downs	
15315	677614	6636727	7/03/2023	5-50m	1	20km north of Roxby Downs	
15316	677955	6641925	9/03/2023	5-50m	1	20km north of Roxby Downs	
15317	685157	6640718	8/03/2023	5-50m	1	20km north of Roxby Downs	
15357	678080	6643703	9/03/2023	5-50m	1	20km north of Roxby Downs	
15358	678754	6638336	7/03/2023	5-50m	1	20km north of Roxby Downs	
15359	677678	6639108	7/03/2023	5-50m	1	20km north of Roxby Downs	
15493	679923	6638720	24/02/2012	5-50m	1	20km north of Roxby Downs	
16052	678077	6643710	10/03/2021	5-50m	1		
16462	678703	6638415	9/03/2023	5-50m	1	20km north of Roxby Downs	
16463	678052	6641935	8/03/2023	5-50m	1	20km north of Roxby Downs	
16542	734160	6545320	12/10/2013	5-50m	1	Carrapateena mine.	

ID	Easting	Northing	Sighting Date	Reliability	Number observed	Location	Habitat
16543	679712	6633871	8/12/2013	5-50m	1	Olympic Dam northern special mine lease	
16609	678754	6639773	6/03/2017	5-50m	1	Main Exclosure	
16610	678080	6637885	9/03/2017	5-50m	1	Northern Expansion	
16614	678080	6640690	8/03/2017	5-50m	1	Northern Expansion	
16629	684925	6638415	7/03/2017	5-50m	1	1st Expansion	
16630	684925	6635707	6/03/2017	5-50m	1	1st Expansion	
16631	677678	6637271	9/03/2017	5-50m	1	2nd Expansion	
16635	677678	6635425	9/03/2017	5-50m	1	2nd Expansion	
17024	678069	6636099	6/03/2024	5-50m	1	20km north of Roxby Downs	
17275	678098	6636127	22/02/2012	5-50m	1	20km north of Roxby Downs	
17276	684927	6642248	22/02/2012	5-50m	1	20km north of Roxby Downs	
18110	678077	6643710	11/03/2021	5-50m	1		
18111	678056	6641936	11/03/2021	5-50m	1		
18181	678080	6643703	10/03/2023	5-50m	1	20km north of Roxby Downs	
18190	684925	6640690	7/03/2023	5-50m	1	20km north of Roxby Downs	
18191	677614	6636727	8/03/2023	5-50m	1	20km north of Roxby Downs	
18192	684925	6640690	8/03/2023	5-50m	1	20km north of Roxby Downs	
18193	684925	6640690	8/03/2023	5-50m	1	20km north of Roxby Downs	
18663	678358	6635707	7/03/2023	5-50m	1	20km north of Roxby Downs	
18715	678080	6643703	9/03/2023	5-50m	1	20km north of Roxby Downs	
18716	684925	6640690	9/03/2023	5-50m	1	20km north of Roxby Downs	
18717	678754	6638336	7/03/2023	5-50m	1	20km north of Roxby Downs	
18779	682265	6639526	13/04/2018	51-100m	2	Arid Recovery	
18906	677384	6639651	21/02/2012	5-50m	1	20km north of Roxby Downs	
19162	677667	6636722	11/03/2021	5-50m	1		
19188	678052	6641935	10/03/2023	5-50m	1	20km north of Roxby Downs	
19865	678080	6639061	9/03/2017	5-50m	1	Northern Expansion	
19866	681712	6643703	7/03/2017	5-50m	1	Main Exclosure	
19934	678052	6635425	7/03/2017	5-50m	1	Northern Expansion	
19935	678754	6639773	7/03/2017	5-50m	1	Main Exclosure	
19936	678080	6637271	8/03/2017	5-50m	1	Northern Expansion	
19937	681712	6641935	6/03/2017	5-50m	1	Main Exclosure	
19946	678080	6637885	9/03/2017	5-50m	1	Northern Expansion	
20577	682265	6639526	12/04/2018	51-100m	1	Arid Recovery	
20578	683124	6637781	13/04/2018	51-100m	2	Arid Recovery	
20752	678056	6641936	10/03/2021	5-50m	1		
20753	684923	6640689	11/03/2021	5-50m	1		
20754	681736	6639065	11/03/2021	5-50m	1		
20755	684923	6640689	11/03/2021	5-50m	1		
20810	684925	6640690	14/02/2013	5-50m	1	20km north of Roxby Downs	
20819	681712	6639061	12/02/2013	5-50m	1	20km north of Roxby Downs	
20920	677384	6639651	23/02/2012	5-50m	1	20km north of Roxby Downs	
20927	684745	6641506	15/06/2012	5-50m	1	20km north of Roxby Downs	

ID	Easting	Northing	Sighting Date	Reliability	Number observed	Location	Habitat
21257	678754	6638336	7/03/2023	5-50m	1	20km north of Roxby Downs	
21258	677407	6637907	9/03/2023	5-50m	1	20km north of Roxby Downs	
21259	677407	6637907	8/03/2023	5-50m	1	20km north of Roxby Downs	
21260	677672	6643565	7/03/2023	5-50m	1	20km north of Roxby Downs	
21295	678056	6641936	10/03/2021	5-50m	1		
21296	677667	6636722	11/03/2021	5-50m	1		
21881	678772	6631263	10/12/2013	5-50m	1	South of the processing plant, Olympic Dam Mine.	
22347	678052	6635707	9/03/2017	5-50m	1	Northern Expansion	
22348	678358	6639773	7/03/2017	5-50m	1	Main Exclosure	
22349	681712	6643703	7/03/2017	5-50m	1	Main Exclosure	
22350	678754	6639773	6/03/2017	5-50m	1	Main Exclosure	
22351	678080	6639061	9/03/2017	5-50m	1	Northern Expansion	
22352	682265	6639526	21/04/2017	51-100m	6	Arid Recovery	
22375	736023	6540234	20/04/2017	5-50m	1	Carrapateena mine.	
22377	739555	6531108	21/04/2017	5-50m	1	Carrapateena mine.	
22523	679660	6634685	15/02/1999	251-500m	1	NNPlace=9 km N, Olympic Dam; SAM Coords=30 24 23 S, 136 52 13 E	saltbush swale
22607	677667	6636722	10/03/2021	5-50m	1		
22608	677667	6636722	10/03/2021	5-50m	1		
22609	677667	6636722	11/03/2021	5-50m	1		
22610	678077	6643710	10/03/2021	5-50m	1		
22778	678080	6637907	6/03/2017	5-50m	1	Northern Expansion	
22779	678052	6635707	9/03/2017	5-50m	1	Northern Expansion	
22786	678052	6639773	8/03/2017	5-50m	1	Northern Expansion	
22787	678080	6639061	9/03/2017	5-50m	1	Northern Expansion	
22814	682285	6641935	8/03/2017	5-50m	1	Main Exclosure	
22815	678080	6635707	9/03/2017	5-50m	1	Northern Expansion	
22821	678080	6639773	9/03/2017	5-50m	1	Northern Expansion	
22822	678358	6639773	6/03/2017	5-50m	1	Main Exclosure	
22900	678052	6635707	9/03/2017	5-50m	1	Northern Expansion	
22917	678358	6635707	9/03/2023	5-50m	1	20km north of Roxby Downs	
22958	678080	6638336	9/03/2017	5-50m	1	Northern Expansion	
22959	678052	6637885	6/03/2017	5-50m	1	Northern Expansion	
22960	678080	6643703	7/03/2017	5-50m	1	20km north of Roxby Downs	
22961	678754	6639773	6/03/2017	5-50m	1	Main Exclosure	
22962	678080	6636727	7/03/2017	5-50m	1	Northern Expansion	
22963	678080	6635707	6/03/2017	5-50m	1	Northern Expansion	
22964	678358	6637885	6/03/2017	5-50m	1	Main Exclosure	
22965	678080	6639773	8/03/2017	5-50m	1	Northern Expansion	
23176	678080	6643703	6/03/2019	5-50m	1	20km north of Roxby Downs	
23224	678080	6643703	7/03/2023	5-50m	1	20km north of Roxby Downs	
23225	677407	6637907	7/03/2023	5-50m	1	20km north of Roxby Downs	
23286	678358	6635707	7/03/2023	5-50m	1	20km north of Roxby Downs	
23287	678358	6635707	7/03/2023	5-50m	1	20km north of Roxby Downs	
23288	677614	6636727	9/03/2023	5-50m	1	20km north of Roxby Downs	
23301	678754	6638336	9/03/2023	5-50m	1	20km north of Roxby Downs	

ID	Easting	Northing	Sighting Date	Reliability	Number observed	Location	Habitat
23326	677672	6643565	8/03/2023	5-50m	1	20km north of Roxby Downs	
23327	678080	6643703	8/03/2023	5-50m	1	20km north of Roxby Downs	
23328	677678	6639108	7/03/2023	5-50m	1	20km north of Roxby Downs	
23455	678036	6641079	5/03/2016	5-50m	1	20km north of Roxby Downs	
23977	678363	6635733	11/03/2021	5-50m	1		
23987	678056	6641936	11/03/2021	5-50m	1		
24345	681501	6638652	8/03/2016	5-50m	1	20km north of Roxby Downs	
24358	681712	6639061	7/03/2023	5-50m	1	20km north of Roxby Downs	
24359	677407	6637907	10/03/2023	5-50m	1	20km north of Roxby Downs	
24360	678080	6643703	8/03/2023	5-50m	1	20km north of Roxby Downs	
24468	684925	6638415	9/03/2017	5-50m	1	1st Expansion	
24469	681053	6643703	6/03/2017	5-50m	1	2nd Expansion	
24470	678052	6638336	7/03/2017	5-50m	1	Northern Expansion	
24471	681712	6641935	9/03/2017	5-50m	1	Main Exclosure	
24475	678358	6639773	8/03/2017	5-50m	1	Main Exclosure	
24476	678080	6643565	8/03/2017	5-50m	1	Northern Expansion	
24477	678052	6639773	8/03/2017	5-50m	1	Northern Expansion	
24478	682285	6643703	6/03/2017	5-50m	1	Main Exclosure	
24479	678052	6635707	7/03/2017	5-50m	1	Northern Expansion	
24480	677678	6643565	6/03/2017	5-50m	1	2nd Expansion	
24481	677678	6635425	9/03/2017	5-50m	1	2nd Expansion	
24871	681499	6638648	3/03/2024	5-50m	1	20km north of Roxby Downs	
24872	678069	6636099	4/03/2024	5-50m	1	20km north of Roxby Downs	
24873	684867	6639305	3/03/2024	5-50m	1	Arid Recovery, 1st Expansion	
25199	684856	6639326	22/02/2012	5-50m	2	20km north of Roxby Downs	
25258	748837	6517295	29/05/1995	101-250m	not counted	11km E from Pernatty Homestesd.	
25909	678056	6641936	12/03/2021	5-50m	1		
25910	678363	6635733	11/03/2021	5-50m	1		
26040	684925	6640690	9/03/2023	5-50m	1	20km north of Roxby Downs	
26041	678052	6641935	7/03/2023	5-50m	1	20km north of Roxby Downs	
26042	678080	6643703	8/03/2023	5-50m	1	20km north of Roxby Downs	
26096	678754	6638336	7/03/2023	5-50m	1	20km north of Roxby Downs	
26097	678754	6638336	10/03/2023	5-50m	1	20km north of Roxby Downs	
26098	678080	6643703	10/03/2023	5-50m	1	20km north of Roxby Downs	
26546	677678	6639108	10/03/2023	5-50m	1	20km north of Roxby Downs	
26547	678754	6638336	9/03/2023	5-50m	1	20km north of Roxby Downs	
26645	683124	6637781	12/04/2018	51-100m	1	Arid Recovery	
26790	678056	6641936	10/03/2021	5-50m	1		
26791	678077	6643710	11/03/2021	5-50m	1		
26792	678056	6641936	13/03/2021	5-50m	1		
27076	678080	6643703	10/03/2023	5-50m	1	20km north of Roxby Downs	

ID	Easting	Northing	Sighting Date	Reliability	Number observed	Location	Habitat
27077	678754	6638336	9/03/2023	5-50m	1	20km north of Roxby Downs	
27114	678077	6643710	10/03/2021	5-50m	1		
27118	678052	6641935	8/03/2023	5-50m	1	20km north of Roxby Downs	
27119	684925	6640690	8/03/2023	5-50m	1	20km north of Roxby Downs	
27891	678052	6635707	7/03/2017	5-50m	1	Northern Expansion	
27892	678080	6639061	9/03/2017	5-50m	1	Northern Expansion	
27893	681712	6643703	8/03/2017	5-50m	1	Main Exclosure	
27894	685157	6637885	6/03/2017	5-50m	1	Outside	
27965	681712	6643703	7/03/2017	5-50m	1	Main Exclosure	
27966	678358	6639773	7/03/2017	5-50m	1	Main Exclosure	
27967	681053	6643703	6/03/2017	5-50m	1	2nd Expansion	
27968	678754	6639773	7/03/2017	5-50m	1	Main Exclosure	
28631	683124	6637781	11/04/2018	51-100m	1	Arid Recovery	
28635	681501	6638652	11/04/2018	51-100m	1	Arid Recovery	
28824	681712	6639061	15/02/2013	5-50m	1	20km north of Roxby Downs	
28830	678754	6638336	15/02/2013	5-50m	2	20km north of Roxby Downs	
28831	682285	6637885	14/02/2013	5-50m	1	20km north of Roxby Downs	
29298	677672	6643565	7/03/2023	5-50m	1	20km north of Roxby Downs	
29299	677407	6637907	10/03/2023	5-50m	1	20km north of Roxby Downs	
29300	677955	6641925	7/03/2023	5-50m	1	20km north of Roxby Downs	
29301	677678	6639108	7/03/2023	5-50m	1	20km north of Roxby Downs	
29348	678358	6635707	9/03/2023	5-50m	1	20km north of Roxby Downs	
29377	678077	6643710	11/03/2021	5-50m	1		
29378	676896	6636399	10/03/2021	5-50m	1		
29379	677406	6637896	11/03/2021	5-50m	1		
30016	677384	6639651	5/03/2016	5-50m	1	20km north of Roxby Downs	
30434	677678	6640690	7/03/2017	5-50m	1	2nd Expansion	
30587	677691	6639146	10/03/2021	5-50m	1		
30794	678056	6641936	11/03/2021	5-50m	1		
30795	684923	6640689	10/03/2021	5-50m	1		
30796	678056	6641936	11/03/2021	5-50m	1		
30797	678056	6641936	13/03/2021	5-50m	1		
30808	678754	6639773	6/03/2017	5-50m	1	Main Exclosure	
30809	678080	6637885	6/03/2017	5-50m	1	Northern Expansion	
30810	678754	6639773	6/03/2017	5-50m	1	Main Exclosure	
30821	685157	6640718	7/03/2017	5-50m	1	20km north of Roxby Downs	
30822	678080	6639108	6/03/2017	5-50m	1	Northern Expansion	
30823	682285	6643703	6/03/2017	5-50m	1	Main Exclosure	
30824	684925	6638415	9/03/2017	5-50m	1	1st Expansion	
30907	678358	6635707	10/03/2023	5-50m	1	20km north of Roxby Downs	
30908	678754	6638336	7/03/2023	5-50m	1	20km north of Roxby Downs	
30948	677614	6636727	7/03/2023	5-50m	1	20km north of Roxby Downs	
30949	677407	6637907	7/03/2023	5-50m	1	20km north of Roxby Downs	
30950	677672	6643565	7/03/2023	5-50m	1	20km north of Roxby Downs	
30971	677407	6635707	7/03/2017	5-50m	1	2nd Expansion	

ID	Easting	Northing	Sighting Date	Reliability	Number observed	Location	Habitat
30972	678080	6640718	8/03/2017	5-50m	1	Northern Expansion	
30981	678080	6637885	9/03/2017	5-50m	1	Northern Expansion	
30982	678358	6639773	6/03/2017	5-50m	1	Main Exclosure	
31276	678754	6638336	10/03/2023	5-50m	1	20km north of Roxby Downs	
31277	678754	6638336	9/03/2023	5-50m	1	20km north of Roxby Downs	
31278	678080	6643703	10/03/2023	5-50m	1	20km north of Roxby Downs	
31279	677614	6636727	7/03/2023	5-50m	1	20km north of Roxby Downs	
31285	677678	6639108	10/03/2023	5-50m	1	20km north of Roxby Downs	
31286	678754	6638336	8/03/2023	5-50m	1	20km north of Roxby Downs	
32005	684923	6640689	13/03/2021	5-50m	1		
32006	678077	6643710	11/03/2021	5-50m	1		
32007	677878	6635424	11/03/2021	5-50m	1		
32008	678777	6638284	11/03/2021	5-50m	1		
32346	678754	6638336	10/03/2023	5-50m	1	20km north of Roxby Downs	
32347	677678	6639108	9/03/2023	5-50m	1	20km north of Roxby Downs	
32348	678358	6635707	10/03/2023	5-50m	1	20km north of Roxby Downs	
32476	684925	6637907	6/03/2017	5-50m	1	1st Expansion	
32477	678754	6639773	6/03/2017	5-50m	1	Main Exclosure	
32486	684925	6638415	7/03/2017	5-50m	1	1st Expansion	
32487	677672	6639061	6/03/2017	5-50m	1	Northern Expansion	
32488	678080	6637885	9/03/2017	5-50m	1	Northern Expansion	
32489	678080	6641935	6/03/2017	5-50m	1	Northern Expansion	
32499	678080	6643565	6/03/2017	5-50m	1	Northern Expansion	
33169	680349	6640403	8/06/2012	5-50m	1	20km north of Roxby Downs	
33766	682327	6637260	12/04/2018	51-100m	1	Arid Recovery	
33952	686917	6637191	11/03/2021	5-50m	1		
33953	678056	6641936	13/03/2021	5-50m	1		
34026	678052	6641935	10/03/2023	5-50m	1	20km north of Roxby Downs	
34027	677614	6636727	8/03/2023	5-50m	1	20km north of Roxby Downs	
34504	678358	6635707	8/03/2023	5-50m	1	20km north of Roxby Downs	
34505	678052	6641935	7/03/2023	5-50m	1	20km north of Roxby Downs	
34506	677614	6636727	7/03/2023	5-50m	1	20km north of Roxby Downs	
34507	678358	6635707	7/03/2023	5-50m	1	20km north of Roxby Downs	
34988	677667	6636722	11/03/2021	5-50m	1		
35015	681712	6639061	7/03/2023	5-50m	1	20km north of Roxby Downs	
35016	678080	6643703	9/03/2023	5-50m	1	20km north of Roxby Downs	
35017	678754	6638336	10/03/2023	5-50m	1	20km north of Roxby Downs	
35018	678052	6641935	8/03/2023	5-50m	1	20km north of Roxby Downs	
35019	677678	6639108	9/03/2023	5-50m	1	20km north of Roxby Downs	
35020	678754	6638336	7/03/2023	5-50m	1	20km north of Roxby Downs	

ID	Easting	Northing	Sighting Date	Reliability	Number observed	Location	Habitat
35021	678052	6641935	7/03/2023	5-50m	1	20km north of Roxby Downs	
35058	678052	6641935	8/03/2023	5-50m	1	20km north of Roxby Downs	
35059	678754	6638336	8/03/2023	5-50m	1	20km north of Roxby Downs	
35728	677407	6636727	6/03/2017	5-50m	1	2nd Expansion	
35729	677678	6639108	9/03/2017	5-50m	1	20km north of Roxby Downs	
35730	678754	6639773	6/03/2017	5-50m	1	Main Exclosure	
35731	682265	6639526	20/04/2017	51-100m	1	Arid Recovery	
35732	678080	6643565	6/03/2017	5-50m	1	Northern Expansion	
35744	678080	6632163	8/03/2017	5-50m	1	Northern Expansion	
35932	682634	6637426	12/01/2012	5-50m	175	20km north of Roxby Downs	
36384	731691	6550590	11/10/2013	5-50m	1	Carrapateena mine.	
36649	678754	6638336	13/02/2013	5-50m	1	20km north of Roxby Downs	
36715	684856	6639326	24/02/2012	5-50m	1	20km north of Roxby Downs	
36773	684856	6639326	24/02/2012	5-50m	1	20km north of Roxby Downs	
37138	678754	6638336	9/03/2023	5-50m	1	20km north of Roxby Downs	
37139	678080	6643703	7/03/2023	5-50m	1	20km north of Roxby Downs	
37140	678754	6638336	8/03/2023	5-50m	1	20km north of Roxby Downs	
37141	678754	6638336	8/03/2023	5-50m	1	20km north of Roxby Downs	
37142	678754	6638336	7/03/2023	5-50m	1	20km north of Roxby Downs	
37143	677614	6636727	7/03/2023	5-50m	1	20km north of Roxby Downs	
37167	678363	6635733	10/03/2021	5-50m	1		
38037	677608	6637006	4/03/2024	5-50m	1	20km north of Roxby Downs	
38260	678754	6639773	7/03/2017	5-50m	1	Main Exclosure	
38261	677678	6640690	8/03/2017	5-50m	1	2nd Expansion	
38262	681712	6640690	6/03/2017	5-50m	1	Main Exclosure	
38263	685157	6641935	6/03/2017	5-50m	1	Outside	
38264	677678	6640690	7/03/2017	5-50m	1	2nd Expansion	
38265	678080	6640718	8/03/2017	5-50m	1	Northern Expansion	
38413	678077	6643710	10/03/2021	5-50m	1		
38648	678056	6641936	12/03/2021	5-50m	1		
38649	678363	6635733	10/03/2021	5-50m	1		
38650	681048	6639784	10/03/2021	5-50m	1		
38661	677678	6640690	7/03/2017	5-50m	1	2nd Expansion	
38662	683124	6637781	20/04/2017	51-100m	2	Arid Recovery	
38663	678703	6638415	6/03/2017	5-50m	1	20km north of Roxby Downs	
38664	681053	6643703	9/03/2017	5-50m	1	2nd Expansion	
38677	678358	6639773	6/03/2017	5-50m	1	Main Exclosure	
38678	678052	6640718	6/03/2017	5-50m	1	Northern Expansion	
38679	681712	6635425	6/03/2017	5-50m	1	Main Exclosure	
38680	681501	6638652	21/04/2017	51-100m	4	Arid Recovery	
38681	678080	6639773	6/03/2017	5-50m	1	Northern Expansion	
38682	678052	6639061	6/03/2017	5-50m	1	Northern Expansion	
38693	684856	6639326	21/02/2012	5-50m	2	20km north of Roxby Downs	
38789	678080	6643703	8/03/2023	5-50m	1	20km north of Roxby Downs	
38857	678080	6638336	9/03/2017	5-50m	1	Northern Expansion	

ID	Easting	Northing	Sighting Date	Reliability	Number observed	Location	Habitat
38858	678080	6641925	8/03/2017	5-50m	1	Northern Expansion	
38859	677614	6637885	8/03/2017	5-50m	1	Main Exclosure	
38867	677407	6639108	6/03/2017	5-50m	1	2nd Expansion	
38868	678080	6632163	6/03/2017	5-50m	1	Northern Expansion	
38869	684925	6638415	7/03/2017	5-50m	1	1st Expansion	
38870	677407	6639108	6/03/2017	5-50m	1	2nd Expansion	
38948	678080	6640690	7/03/2017	5-50m	1	Northern Expansion	
38949	678080	6639773	6/03/2017	5-50m	1	Northern Expansion	
39214	684925	6640690	10/03/2023	5-50m	1	20km north of Roxby Downs	
39215	678080	6643703	10/03/2023	5-50m	1	20km north of Roxby Downs	
39216	678080	6643703	9/03/2023	5-50m	1	20km north of Roxby Downs	
39217	678080	6643703	8/03/2023	5-50m	1	20km north of Roxby Downs	
39218	678080	6643703	7/03/2023	5-50m	1	20km north of Roxby Downs	
39233	678052	6641935	7/03/2023	5-50m	1	20km north of Roxby Downs	
39234	677672	6643565	8/03/2023	5-50m	1	20km north of Roxby Downs	
39235	677614	6636727	7/03/2023	5-50m	1	20km north of Roxby Downs	
39236	678754	6638336	9/03/2023	5-50m	1	20km north of Roxby Downs	
39237	678358	6635707	10/03/2023	5-50m	1	20km north of Roxby Downs	
39238	678052	6641935	9/03/2023	5-50m	1	20km north of Roxby Downs	
39239	678080	6643703	8/03/2023	5-50m	1	20km north of Roxby Downs	
39573	677929	6641098	23/02/2012	5-50m	1	20km north of Roxby Downs	
39594	677396	6637738	5/03/2016	5-50m	1	20km north of Roxby Downs	
39946	678695	6638428	10/03/2021	5-50m	1		
40154	748837	6517295	28/05/1995	101-250m	not counted	11km E from Pernatty Homestesd.	
40274	678036	6641079	8/03/2016	5-50m	1	20km north of Roxby Downs	
40275	678098	6636127	5/03/2016	5-50m	1	20km north of Roxby Downs	
40331	678052	6641935	10/03/2023	5-50m	1	20km north of Roxby Downs	
40332	678754	6638336	9/03/2023	5-50m	1	20km north of Roxby Downs	
40333	682285	6637885	9/03/2023	5-50m	1	20km north of Roxby Downs	
40420	678052	6641935	7/03/2023	5-50m	1	20km north of Roxby Downs	
40421	678754	6638336	7/03/2023	5-50m	1	20km north of Roxby Downs	
40471	678052	6639061	6/03/2017	5-50m	1	Northern Expansion	
40472	678358	6639773	7/03/2017	5-50m	1	Main Exclosure	
40473	677407	6638336	7/03/2017	5-50m	1	2nd Expansion	
40474	678358	6639773	7/03/2017	5-50m	1	Main Exclosure	
40488	677407	6636727	6/03/2017	5-50m	1	2nd Expansion	
40489	677614	6637885	6/03/2017	5-50m	1	Main Exclosure	
40490	681712	6643703	6/03/2017	5-50m	1	Main Exclosure	
40491	678080	6639061	7/03/2017	5-50m	1	Northern Expansion	
40492	678080	6639773	8/03/2017	5-50m	1	Northern Expansion	
40493	684925	6638415	8/03/2017	5-50m	1	1st Expansion	

ID	Easting	Northing	Sighting Date	Reliability	Number observed	Location	Habitat
40521	681499	6638648	1/01/2010	5-50m	1	20km north of Roxby Downs	
41010	676815	6637546	4/07/2012	5-50m	2	20km north of Roxby Downs	
41011	731691	6550590	2/05/2013	5-50m	1	Carrapateena mine.	
41411	685328	6639303	18/03/2022	5-50m	1	Outside Arid Recovery	
41572	684856	6639326	6/03/2016	5-50m	1	20km north of Roxby Downs	
41826	677667	6636722	10/03/2021	5-50m	1		
41901	678052	6641935	9/03/2023	5-50m	1	20km north of Roxby Downs	
41902	678358	6635707	9/03/2023	5-50m	1	20km north of Roxby Downs	
41903	678754	6638336	9/03/2023	5-50m	1	20km north of Roxby Downs	
41904	677407	6637907	9/03/2023	5-50m	1	20km north of Roxby Downs	
41905	678358	6635707	8/03/2023	5-50m	1	20km north of Roxby Downs	
41906	677678	6639108	8/03/2023	5-50m	1	20km north of Roxby Downs	
41907	678080	6643703	10/03/2023	5-50m	1	20km north of Roxby Downs	
42440	677396	6637738	12/02/2014	5-50m	1	20km north of Roxby Downs	
42464	684925	6640690	8/03/2023	5-50m	1	20km north of Roxby Downs	
42465	684925	6640690	7/03/2023	5-50m	1	20km north of Roxby Downs	
42466	678358	6635707	8/03/2023	5-50m	1	20km north of Roxby Downs	
42547	677672	6643565	7/03/2023	5-50m	1	20km north of Roxby Downs	
42548	677678	6639108	10/03/2023	5-50m	1	20km north of Roxby Downs	
42549	678358	6635707	10/03/2023	5-50m	1	20km north of Roxby Downs	
42700	677691	6639146	10/03/2021	5-50m	1		
42701	678077	6643710	13/03/2021	5-50m	1		
42744	677929	6641098	22/02/2012	5-50m	1	20km north of Roxby Downs	
42872	678077	6643710	10/03/2021	5-50m	1		
42902	684925	6640690	7/03/2023	5-50m	1	20km north of Roxby Downs	
42903	677614	6636727	9/03/2023	5-50m	1	20km north of Roxby Downs	
43122	677678	6639108	6/03/2019	5-50m	1	20km north of Roxby Downs	
43124	737163	6538153	4/05/2013	5-50m	1	Carrapateena mine.	
43628	681712	6640690	6/03/2017	5-50m	1	Main Exclosure	
43629	681053	6641935	7/03/2017	5-50m	1	2nd Expansion	
43630	678080	6639108	7/03/2017	5-50m	1	Northern Expansion	
43631	678080	6638415	7/03/2017	5-50m	1	Northern Expansion	
43644	678754	6639773	6/03/2017	5-50m	1	Main Exclosure	
44515	678358	6635707	15/02/2013	5-50m	1	20km north of Roxby Downs	
44525	678080	6643703	15/02/2013	5-50m	3	20km north of Roxby Downs	
44541	684925	6640690	15/02/2013	5-50m	2	20km north of Roxby Downs	
44543	682285	6637885	15/02/2013	5-50m	1	20km north of Roxby Downs	

ID	Easting	Northing	Sighting Date	Reliability	Number observed	Location	Habitat
44547	678080	6643703	12/02/2013	5-50m	2	20km north of Roxby Downs	
44548	684925	6640690	13/02/2013	5-50m	2	20km north of Roxby Downs	
44549	678080	6643703	14/02/2013	5-50m	1	20km north of Roxby Downs	
44672	684856	6639326	22/02/2012	5-50m	1	20km north of Roxby Downs	
44996	677614	6636727	9/03/2023	5-50m	1	20km north of Roxby Downs	
44997	681712	6639061	9/03/2023	5-50m	1	20km north of Roxby Downs	
44998	678052	6641935	10/03/2023	5-50m	1	20km north of Roxby Downs	
44999	678080	6643703	7/03/2023	5-50m	1	20km north of Roxby Downs	
45000	677678	6639108	8/03/2023	5-50m	1	20km north of Roxby Downs	
45001	678754	6638336	9/03/2023	5-50m	1	20km north of Roxby Downs	
45002	677614	6636727	9/03/2023	5-50m	1	20km north of Roxby Downs	
45034	678056	6641936	13/03/2021	5-50m	1		
45035	678077	6643710	10/03/2021	5-50m	1		
45645	676573	6637341	5/12/2013	5-50m	1	Northern boundary of Olympic Dam special mine lease	
45737	678054	6640437	5/03/2016	5-50m	1	20km north of Roxby Downs	
46124	678080	6639061	9/03/2017	5-50m	1	Northern Expansion	
46125	684925	6638415	7/03/2017	5-50m	1	1st Expansion	
46126	677672	6632163	6/03/2017	5-50m	1	Outside	
46127	678052	6639773	8/03/2017	5-50m	1	Northern Expansion	
46128	678080	6639061	9/03/2017	5-50m	1	Northern Expansion	
46552	678077	6643710	13/03/2021	5-50m	1		
46568	678080	6632163	8/03/2017	5-50m	1	Northern Expansion	
46580	684925	6635707	6/03/2017	5-50m	1	1st Expansion	
46581	678080	6638336	9/03/2017	5-50m	1	Northern Expansion	
46582	681712	6643703	8/03/2017	5-50m	1	Main Exclosure	
46583	678754	6639773	6/03/2017	5-50m	1	Main Exclosure	
46717	678358	6639773	6/03/2017	5-50m	1	Main Exclosure	
46718	678358	6639773	6/03/2017	5-50m	1	Main Exclosure	
46719	677678	6640690	7/03/2017	5-50m	1	2nd Expansion	
46728	678703	6637885	9/03/2017	5-50m	1	2nd Expansion	
46729	681712	6641925	6/03/2017	5-50m	1	Main Exclosure	
46730	678080	6643703	7/03/2017	5-50m	1	20km north of Roxby Downs	
47113	678052	6641935	10/03/2023	5-50m	1	20km north of Roxby Downs	
47114	678052	6641935	7/03/2023	5-50m	1	20km north of Roxby Downs	
47115	681712	6639061	7/03/2023	5-50m	1	20km north of Roxby Downs	
47116	678358	6635707	8/03/2023	5-50m	1	20km north of Roxby Downs	
47117	678052	6641935	8/03/2023	5-50m	1	20km north of Roxby Downs	
47128	677895	6635425	7/03/2023	5-50m	1	20km north of Roxby Downs	
47129	678080	6643703	10/03/2023	5-50m	1	20km north of Roxby Downs	
47130	678080	6643703	8/03/2023	5-50m	1	20km north of Roxby Downs	

ID	Easting	Northing	Sighting Date	Reliability	Number observed	Location	Habitat
47131	677614	6636727	9/03/2023	5-50m	1	20km north of Roxby Downs	
47132	678754	6638336	9/03/2023	5-50m	1	20km north of Roxby Downs	
48185	677929	6641098	5/03/2016	5-50m	1	20km north of Roxby Downs	
48186	677384	6639651	8/03/2016	5-50m	1	20km north of Roxby Downs	
48252	678754	6638336	7/03/2023	5-50m	1	20km north of Roxby Downs	
48253	677672	6643565	7/03/2023	5-50m	1	20km north of Roxby Downs	
48254	677678	6639108	7/03/2023	5-50m	1	20km north of Roxby Downs	
48255	678754	6638336	8/03/2023	5-50m	1	20km north of Roxby Downs	
48256	678754	6638336	7/03/2023	5-50m	1	20km north of Roxby Downs	
48257	682285	6637885	7/03/2023	5-50m	1	20km north of Roxby Downs	
48353	678080	6636372	6/03/2017	5-50m	1	Northern Expansion	
48354	678080	6639108	6/03/2017	5-50m	1	Northern Expansion	
48355	683124	6637781	19/04/2017	51-100m	1	Arid Recovery	
48356	677678	6643703	6/03/2017	5-50m	1	2nd Expansion	
48368	681712	6640690	6/03/2017	5-50m	1	Main Exclosure	
48369	678080	6643565	6/03/2017	5-50m	1	Northern Expansion	
48370	678052	6635707	9/03/2017	5-50m	1	Northern Expansion	
48371	678080	6632163	6/03/2017	5-50m	1	Northern Expansion	
48799	684867	6639305	3/03/2024	5-50m	1	Arid Recovery, 1st Expansion	
48815	677608	6637006	3/03/2024	5-50m	1	20km north of Roxby Downs	
49068	650813	6564750	24/04/2007	5-50m	1	South-east of Koolymilka Lake.	Broad drainage line in gibber plain / chenopod and grass.
49177	748837	6517295	29/05/1995	101-250m	not counted	11km E from Pernatty Homestesd.	
49898	678080	6643703	7/03/2023	5-50m	1	20km north of Roxby Downs	
49899	677678	6639108	10/03/2023	5-50m	1	20km north of Roxby Downs	
49900	677672	6643565	7/03/2023	5-50m	1	20km north of Roxby Downs	
50390	678754	6638336	10/03/2023	5-50m	1	20km north of Roxby Downs	
50391	677614	6636727	7/03/2023	5-50m	1	20km north of Roxby Downs	
50392	678754	6638336	7/03/2023	5-50m	1	20km north of Roxby Downs	
50393	678080	6643703	9/03/2023	5-50m	1	20km north of Roxby Downs	
50394	678080	6643703	10/03/2023	5-50m	1	20km north of Roxby Downs	
50395	677407	6637907	9/03/2023	5-50m	1	20km north of Roxby Downs	
50396	678052	6641935	10/03/2023	5-50m	1	20km north of Roxby Downs	
50741	677589	6637032	2/08/2024	5-50m	1		
50809	677669	6643569	11/03/2021	5-50m	1		

ID	Easting	Northing	Sighting Date	Reliability	Number observed	Location	Habitat
50841	677678	6639108	7/03/2023	5-50m	1	20km north of Roxby Downs	
50842	681712	6639061	8/03/2023	5-50m	1	20km north of Roxby Downs	
50843	678703	6638415	10/03/2023	5-50m	1	20km north of Roxby Downs	
50844	678754	6638336	9/03/2023	5-50m	1	20km north of Roxby Downs	
50845	677614	6636727	9/03/2023	5-50m	1	20km north of Roxby Downs	
50846	677895	6635425	9/03/2023	5-50m	1	20km north of Roxby Downs	
50847	678080	6643703	9/03/2023	5-50m	1	20km north of Roxby Downs	
51574	677678	6637271	9/03/2017	5-50m	1	2nd Expansion	
51575	681712	6639061	6/03/2017	5-50m	1	20km north of Roxby Downs	
51576	678080	6639773	8/03/2017	5-50m	1	Northern Expansion	
51577	678080	6640718	6/03/2017	5-50m	1	Northern Expansion	
51578	684925	6637907	6/03/2017	5-50m	1	1st Expansion	
52145	731691	6550590	10/10/2013	5-50m	1	Carrapateena mine.	
52488	678754	6638336	13/02/2013	5-50m	1	20km north of Roxby Downs	
52494	678754	6638336	14/02/2013	5-50m	1	20km north of Roxby Downs	
52968	677678	6639108	10/03/2023	5-50m	1	20km north of Roxby Downs	
52969	678754	6638336	10/03/2023	5-50m	1	20km north of Roxby Downs	
52970	677895	6635425	7/03/2023	5-50m	1	20km north of Roxby Downs	
54081	678052	6635425	7/03/2017	5-50m	1	Northern Expansion	
54082	678754	6640690	8/03/2017	5-50m	1	Main Exclosure	
54083	677955	6639061	6/03/2017	5-50m	1	Outside	
54292	684923	6640689	11/03/2021	5-50m	1		
54293	678056	6641936	10/03/2021	5-50m	1		
54294	684923	6640689	11/03/2021	5-50m	1		
54295	678363	6635733	11/03/2021	5-50m	1		
54448	678077	6643710	10/03/2021	5-50m	1		
54449	678056	6641936	13/03/2021	5-50m	1		
54450	677669	6643569	10/03/2021	5-50m	1		
54466	677678	6637271	9/03/2017	5-50m	1	2nd Expansion	
54467	678358	6639773	6/03/2017	5-50m	1	Main Exclosure	
54468	681712	6641935	6/03/2017	5-50m	1	Main Exclosure	
54469	682285	6643703	7/03/2017	5-50m	1	Main Exclosure	
54470	678703	6637885	9/03/2017	5-50m	1	2nd Expansion	
54471	678358	6639773	6/03/2017	5-50m	1	Main Exclosure	
54482	677614	6637885	6/03/2017	5-50m	1	Main Exclosure	
54483	678080	6639061	9/03/2017	5-50m	1	Northern Expansion	
54484	681712	6637885	6/03/2017	5-50m	1	Main Exclosure	
54485	678080	6632163	8/03/2017	5-50m	1	Northern Expansion	
54486	681712	6641935	9/03/2017	5-50m	1	Main Exclosure	
54487	678080	6637885	6/03/2017	5-50m	1	Northern Expansion	
54488	678080	6643565	6/03/2017	5-50m	1	Northern Expansion	
54596	678080	6643703	10/03/2023	5-50m	1	20km north of Roxby Downs	
54597	678080	6643703	9/03/2023	5-50m	1	20km north of Roxby Downs	
54598	678080	6643703	9/03/2023	5-50m	1	20km north of Roxby Downs	
54599	678080	6643703	10/03/2023	5-50m	1	20km north of Roxby Downs	
54612	681712	6643703	8/03/2017	5-50m	1	Main Exclosure	

ID	Easting	Northing	Sighting Date	Reliability	Number observed	Location	Habitat
54613	678358	6639773	7/03/2017	5-50m	1	Main Exclosure	
54614	678080	6641935	6/03/2017	5-50m	1	Northern Expansion	
54624	681712	6640690	6/03/2017	5-50m	1	Main Exclosure	
54944	678080	6643703	7/03/2023	5-50m	1	20km north of Roxby Downs	
54945	681712	6639061	7/03/2023	5-50m	1	20km north of Roxby Downs	
55014	677407	6637907	10/03/2023	5-50m	1	20km north of Roxby Downs	
55015	678080	6643703	7/03/2023	5-50m	1	20km north of Roxby Downs	
55016	678052	6641935	9/03/2023	5-50m	1	20km north of Roxby Downs	
55675	678056	6641936	13/03/2021	5-50m	1		
56042	681501	6638652	5/03/2016	5-50m	1	20km north of Roxby Downs	
56043	679923	6638720	7/03/2016	5-50m	1	20km north of Roxby Downs	
56197	684925	6636727	6/03/2017	5-50m	1	1st Expansion	
56198	681712	6643703	7/03/2017	5-50m	1	Main Exclosure	
56199	678052	6635707	7/03/2017	5-50m	1	Northern Expansion	
56200	678052	6636727	5/03/2017	5-50m	1	Northern Expansion	
56201	681053	6641935	6/03/2017	5-50m	1	2nd Expansion	
56213	682327	6637260	21/04/2017	51-100m	1	Arid Recovery	
56214	677407	6639108	6/03/2017	5-50m	1	2nd Expansion	
56215	678080	6643565	6/03/2017	5-50m	1	Northern Expansion	
56216	682285	6643703	6/03/2017	5-50m	1	Main Exclosure	
56679	678069	6636099	6/03/2024	5-50m	1	20km north of Roxby Downs	
57139	677526	6637759	18/03/2022	5-50m	1	20km north of Roxby Downs	
57320	684856	6639326	7/03/2016	5-50m	1	20km north of Roxby Downs	
57614	678056	6641936	13/03/2021	5-50m	1		
57615	677667	6636722	10/03/2021	5-50m	1		
57699	677407	6637907	9/03/2023	5-50m	1	20km north of Roxby Downs	
57700	678358	6635707	7/03/2023	5-50m	1	20km north of Roxby Downs	
58184	678754	6638336	9/03/2023	5-50m	1	20km north of Roxby Downs	
58185	678754	6638336	10/03/2023	5-50m	1	20km north of Roxby Downs	
58186	678080	6643703	8/03/2023	5-50m	1	20km north of Roxby Downs	
58187	678358	6635707	7/03/2023	5-50m	1	20km north of Roxby Downs	
58188	678703	6638415	9/03/2023	5-50m	1	20km north of Roxby Downs	
58499	677878	6635424	10/03/2021	5-50m	1		
58500	678077	6643710	10/03/2021	5-50m	1		
58730	678077	6643710	13/03/2021	5-50m	1		
58756	678080	6643703	9/03/2023	5-50m	1	20km north of Roxby Downs	
58883	678703	6638415	8/03/2019	5-50m	1	20km north of Roxby Downs	
58891	676662	6637724	24/02/2012	5-50m	1	20km north of Roxby Downs	
59483	678703	6638415	6/03/2017	5-50m	1	20km north of Roxby Downs	
59484	678052	6635707	9/03/2017	5-50m	1	Northern Expansion	
59485	682285	6643703	6/03/2017	5-50m	1	Main Exclosure	
59486	678358	6637885	6/03/2017	5-50m	1	Main Exclosure	

ID	Easting	Northing	Sighting Date	Reliability	Number observed	Location	Habitat
59487	678052	6639061	6/03/2017	5-50m	1	Northern Expansion	
59497	677678	6640690	8/03/2017	5-50m	1	2nd Expansion	
59498	678703	6637885	9/03/2017	5-50m	1	2nd Expansion	
59499	678080	6638336	7/03/2017	5-50m	1	Northern Expansion	
59971	677396	6637738	12/02/2014	5-50m	1	20km north of Roxby Downs	
60111	682327	6637260	13/04/2018	51-100m	2	Arid Recovery	
60112	682327	6637260	11/04/2018	51-100m	1	Arid Recovery	
60218	650809	6564737	24/04/2007	251-500m	1	Expedition Name= Woomera Protected Area Survey (BS573) (opportune): NNP from SAM = 9.3 km NW Ashton Hill ,SA	
60297	684923	6640689	10/03/2021	5-50m	1		
60298	677667	6636722	10/03/2021	5-50m	1		
60476	678036	6641079	23/02/2012	5-50m	2	20km north of Roxby Downs	
60531	678069	6636099	17/03/2022	5-50m	1	20km north of Roxby Downs	
60832	682285	6637885	8/03/2023	5-50m	1	20km north of Roxby Downs	
60833	678080	6643703	10/03/2023	5-50m	1	20km north of Roxby Downs	
60834	678754	6638336	8/03/2023	5-50m	1	20km north of Roxby Downs	
60835	677614	6636727	7/03/2023	5-50m	1	20km north of Roxby Downs	
60864	678777	6638284	12/03/2021	5-50m	1		
61101	682990	6637580	15/08/2024	5-50m	1		
61964	678080	6641935	8/03/2017	5-50m	1	Northern Expansion	
61965	678080	6643703	7/03/2017	5-50m	1	20km north of Roxby Downs	
61966	678080	6643703	6/03/2017	5-50m	1	20km north of Roxby Downs	
62164	684923	6640689	10/03/2021	5-50m	1		
62327	678036	6641079	21/02/2012	5-50m	2	20km north of Roxby Downs	
62328	684856	6639326	23/02/2012	5-50m	1	20km north of Roxby Downs	
62352	678077	6643710	13/03/2021	5-50m	1		
62379	678703	6637885	9/03/2017	5-50m	1	2nd Expansion	
62380	677407	6638336	7/03/2017	5-50m	1	2nd Expansion	
62381	678358	6639773	6/03/2017	5-50m	1	Main Exclosure	
62382	681501	6638652	19/04/2017	51-100m	2	Arid Recovery	
62383	678052	6639061	6/03/2017	5-50m	1	Northern Expansion	
62391	678080	6632163	6/03/2017	5-50m	1	Northern Expansion	
62392	678080	6641925	6/03/2017	5-50m	1	Northern Expansion	
62393	678080	6638336	9/03/2017	5-50m	1	Northern Expansion	
62394	678080	6637885	9/03/2017	5-50m	1	Northern Expansion	
62395	677678	6640690	8/03/2017	5-50m	1	2nd Expansion	
62496	681712	6639061	8/03/2023	5-50m	1	20km north of Roxby Downs	
62497	677955	6641925	7/03/2023	5-50m	1	20km north of Roxby Downs	
62498	678754	6638336	7/03/2023	5-50m	1	20km north of Roxby Downs	
62499	678052	6641935	7/03/2023	5-50m	1	20km north of Roxby Downs	
62500	681712	6639061	9/03/2023	5-50m	1	20km north of Roxby Downs	
62501	677614	6636727	8/03/2023	5-50m	1	20km north of Roxby Downs	

ID	Easting	Northing	Sighting Date	Reliability	Number observed	Location	Habitat
62502	678052	6641935	9/03/2023	5-50m	1	20km north of Roxby Downs	
62520	678080	6643703	7/03/2017	5-50m	1	20km north of Roxby Downs	
62521	677672	6632163	6/03/2017	5-50m	1	Outside	
62522	681712	6643703	8/03/2017	5-50m	1	Main Exclosure	
62534	678754	6639773	8/03/2017	5-50m	1	Main Exclosure	
62535	681712	6643703	9/03/2017	5-50m	1	Main Exclosure	
62536	678754	6639773	7/03/2017	5-50m	1	Main Exclosure	
62537	684925	6635707	6/03/2017	5-50m	1	1st Expansion	
62807	677614	6636727	5/03/2019	5-50m	1	20km north of Roxby Downs	
62875	678052	6641935	8/03/2023	5-50m	1	20km north of Roxby Downs	
62876	678080	6643703	7/03/2023	5-50m	1	20km north of Roxby Downs	
62877	677614	6636727	10/03/2023	5-50m	1	20km north of Roxby Downs	
62955	678080	6643703	8/03/2023	5-50m	1	20km north of Roxby Downs	
62956	678754	6638336	9/03/2023	5-50m	1	20km north of Roxby Downs	
62957	678358	6635707	7/03/2023	5-50m	1	20km north of Roxby Downs	
62958	678080	6643703	8/03/2023	5-50m	1	20km north of Roxby Downs	
62959	677678	6639108	10/03/2023	5-50m	1	20km north of Roxby Downs	
63026	678036	6641079	24/02/2012	5-50m	1	20km north of Roxby Downs	
63027	678580	6640466	29/05/2012	5-50m	1	20km north of Roxby Downs	