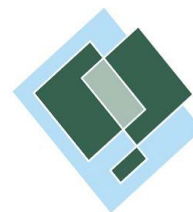




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Preston
Consulting

AUSTRALIA GREEN STEEL PROJECT

NATIVE VEGETATION CLEARING PERMIT APPLICATION
SUPPORTING INFORMATION

30 March 2023

PREPARED FOR POSCO WA PTY LTD
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ACKNOWLEDGEMENT OF COUNTRY

In the spirit of reconciliation, Preston Consulting acknowledges the traditional lands of the Kariyarra People on which the Project is proposed. We recognise their rich culture and their continuing connection to land and waters, and pay our respects to their Elders past, present and emerging.



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Attachment 1: Boodarie Strategic Industrial Area Land Allocation



1 INTRODUCTION

1.1 PROJECT BACKGROUND

The Australia Green Steel Project is a joint venture between POSCO Holdings Inc, Marubeni Corporation and China Steel Corporation (jointly referred to as the JV Parties). The JV Parties are evaluating the feasibility of developing a large-scale downstream processing capability at the Boodarie Strategic Industrial Area (SIA) in Port Hedland, Western Australia (WA), sourcing magnetite concentrate from iron ore operations in the Pilbara to produce HBI for export (Project) to customers who will convert the HBI into a low carbon emission steel overseas.

The Project will be developed in stages. Stage 1 of the Project will develop the Iron Ore Processing Facility (IOPF) consisting of a Pellet Plant which will consume approximately 3 - 3.5 million tonnes per annum (Mtpa) of iron ore (trucked in from iron ore operations in the Pilbara) and a Hot Briquette Iron (HBI) Plant which will further process approximately 2 Mtpa of the pellets into HBI (Stage 1). HBI export volume will be relatively small (2 Mtpa for Stage 1 to 10-13 Mtpa for Stage 6) compared to total iron ore exports through Port Hedland. The disturbance footprint for Stage 1 of the Project will likely be around 300 – 400 ha within the Boodarie SIA.

Geotechnical investigations are required to determine soil structure, composition and stability of the Project area as it will be required to support significant infrastructure, including pellet and HBI plants. The geotechnical information will be used to assess Project feasibility and inform the design and construction of the Project. The investigations do not represent implementation of the Project, they are required to support the feasibility investigations to determine the viability of the Project. POSCO WA Pty Ltd (POSCO) is responsible for obtaining this clearing permit to support the investigations. Clearing for the whole Project is to be carried out under a separate clearing permit or under Part IV of the *Environmental Protection Act 1986*.

1.2 PURPOSE

The purpose of this Native Vegetation Clearing Permit (NVCP) application is to seek permission to clear up to 25 hectares (ha) of native vegetation within a proposed 1,263 ha Permit Area (Figure 1).



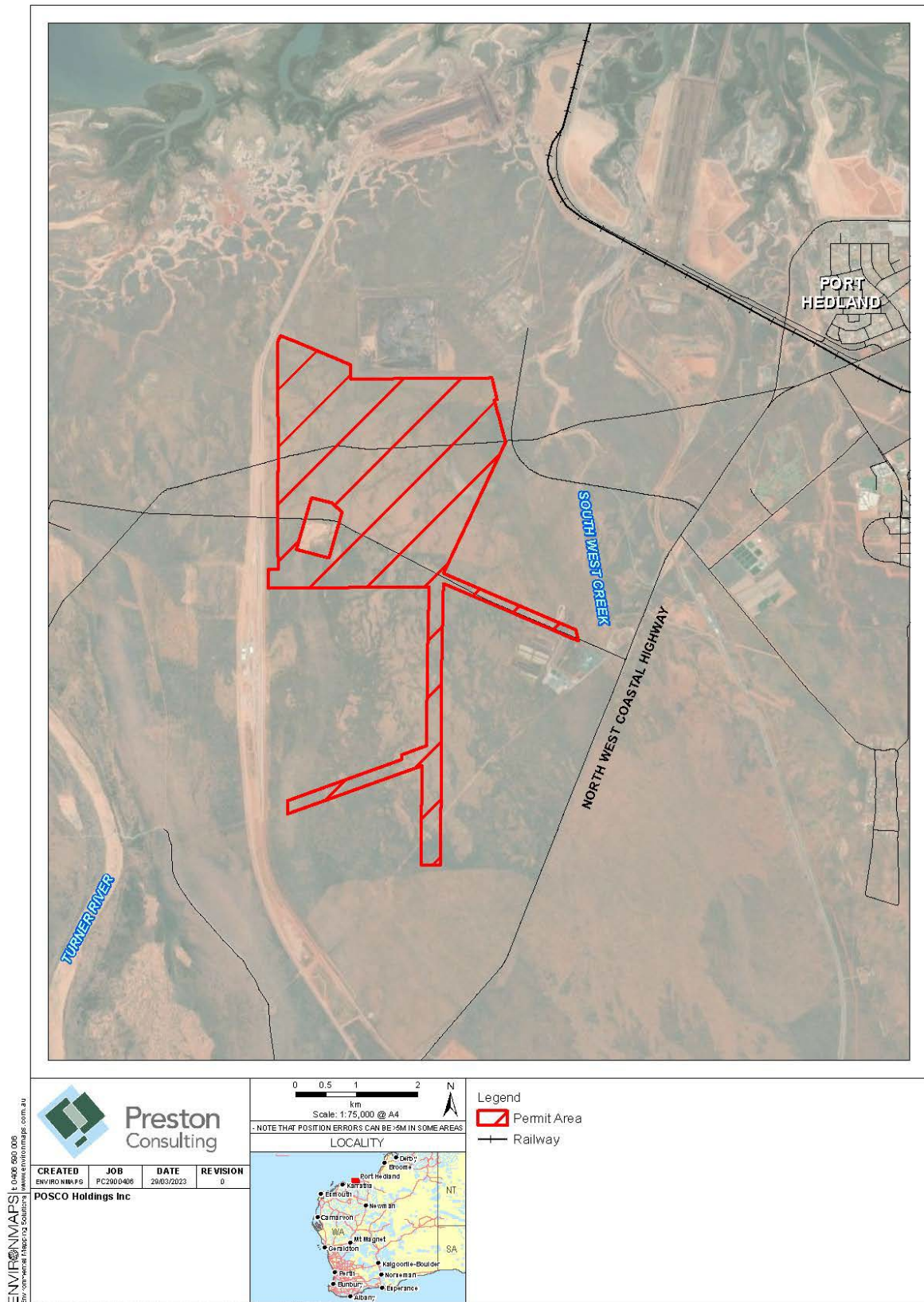


Figure 1: Permit Area



2 PERMIT AREA

A Purpose Permit is requested for the Permit Area to provide flexibility for test pit and drilling locations and access during the geotechnical investigation program to ensure that any Heritage sites can be avoided. The Boodarie SIA has been the subject of significant investigations (see <https://www.porthedland.wa.gov.au/planning-building-and-environment/planning/proposed-development-plans/boodarie-strategic-industrial-area-structure-plan.aspx>). In addition, previous environmental surveys undertaken for projects within and in the vicinity of the Permit Area have been used to inform this application.

2.1 BOUNDARY

Clearing is to be conducted entirely within the boundaries of the Permit Area as shown in Figure 1. Investigations will focus on the areas required to support significant infrastructure within the Boodarie SIA. Key environmental values were identified in the baseline studies as outlined in Section 4.

2.2 TENURE AND LAND ACCESS

The Boodarie SIA, located approximately 10 km south-west of Port Hedland, is zoned for strategic and downstream processing industries and has been planned by the WA Government to accommodate a range of mineral, gas processing and other strategic industries. The BSIA is connected to roads, gas, power and water infrastructure networks.

On 30th December 2022, the WA Government allocated approximately 960 ha of land at the BSIA (Attachment 1) for the purpose of constructing and operating the Project to the JV Parties. Following the land allocation the JV Parties need to negotiate an Option to Lease and a Lease with DevelopmentWA. This negotiation has commenced.

In advance of the Option to Lease, an application for a Section 91 (s91) Licence under the *Land Administration Act 1977* was submitted to Department of Planning, Lands and Heritage in May 2021. The s91 Licence is required to enable early land access for investigations on the land associated with the Project. The Permit Area lies entirely within the s91 Boundary.

The Permit Area is covered by a File Notation Area (16658 and 16673) for the purposes of the Pilbara SIA (Boodarie Core Strategic Industry Zone).

2.3 NATIVE TITLE

All vegetation disturbance will occur within the Determined Claim Area WAD 6169/1998 of the Kariyarra People. POSCO is currently undertaking consultation, including Native Title negotiations with the Kariyarra People. Additionally, POSCO intends to undertake site avoidance Heritage surveys and utilise monitors during clearing, as part of its ground disturbance procedure.



3 PROPOSED ACTIVITIES

Clearing is required to facilitate geotechnical work to inform the design of the Project. The clearing is proposed to be conducted by track rolling rather than blade clearing. Only areas where a safe working area for excavations will be cleared entirely of above ground vegetation components.

Geotechnical work will involve the following clearing activities:

- Clearing of drill pads (typically 20 m x 20 m) to allow boreholes to be drilled with a geotechnical site investigation drilling rig;
- Clearing to allow the excavation of test pits across the site to depths of up to 3 m (or shallower if restricted by refusal or collapsing);
- Clearing to allow pile testing (typically 10 m x 10 m). Pile test locations to be determined by POSCO / contractor. The pile test shall be carried out in accordance with AS2159; and
- Access tracks associated with the site activities outlined above.



4 ENVIRONMENTAL CHARACTERISTICS

Environmental characteristics of the Permit Area relevant to this NVCP are detailed in the following sections.

4.1 SURVEY DETAILS

Historical vegetation mapping (Beard, 1976; Shepherd *et al.*, 2002), land systems mapping (Schoknecht & Payne, 2011), and the Interim Biogeographic Regionalisation for Australia (IBRA) classification system (Kendrick & Stanley, 2001) were reviewed to provide broad contextual knowledge of the vegetation units and habitat likely to be encountered within the Permit Area (G. Wells Pers. Comm.). Additionally, numerous environmental surveys have been undertaken within, and in the vicinity of, the Permit Area. The details of the surveys used to characterise the environmental values of the Permit Area are described below.

4.1.1 PORT HEDLAND REGIONAL FLORA AND VEGETATION ASSESSMENT (ENV AUSTRALIA, 2011A)

A regional flora and vegetation assessment was undertaken by ENV Australia Pty Ltd (ENV Australia) in 2011 for BHP Billiton Iron Ore Pty Ltd (BHP). The survey included the Permit Area and involved a Level Two (now 'Detailed') regional flora and vegetation assessment of the Port Hedland area, located adjacent and surrounding the town of Port Hedland in the coastal Pilbara region of WA. The total survey area was 80,874 ha (Figure 2).

4.1.2 PORT HEDLAND REGIONAL FAUNA ASSESSMENT (ENV AUSTRALIA, 2011B)

A regional fauna assessment was undertaken by ENV Australia in 2011 for BHP. The survey included the Permit Area and involved a Level One (now 'Basic') regional fauna assessment of the Port Hedland area. This survey was undertaken in parallel with the flora and vegetation assessment described in Section 4.1.1 (ENV Australia, 2011b) (Figure 2).

4.1.3 KARRATHA AND BOODARIE BIOLOGICAL SURVEYS (360 ENVIRONMENTAL 2021).

360 Environmental were commissioned by Horizon Power in 2021 to undertake a reconnaissance and targeted flora and vegetation survey and a basic terrestrial vertebrate fauna survey across two survey areas (Karratha and Boodarie). The survey area in Boodarie covered an area of 175 ha and is located near the Port Hedland Power Station and on the Great Northern Highway (Figure 3)



4.1.4 BASELINE FLORA AND VEGETATION SURVEY FOR THE PORT HEDLAND SOLAR FARM PROJECT (PHOENIX, 2022A);

A detailed flora and vegetation assessment was undertaken by Phoenix Environmental Sciences Pty Ltd (Phoenix) in 2021 for Alinta Energy Development Pty Ltd (Alinta). The survey was undertaken approximately 4 km east of the Permit Area and involved a detailed flora and vegetation assessment. The total survey area was 670 ha (Figure 4).

4.1.5 DETAILED TERRESTRIAL FAUNA AND TARGETED BILBY SURVEY FOR THE PORT HEDLAND SOLAR FARM PROJECT (PHOENIX, 2022B).

A detailed terrestrial fauna and targeted Greater Bilby (Bilby; *Macrotis lagotis*) survey was undertaken by Phoenix in 2021 for Alinta. The detailed survey was undertaken in a 670 ha survey area 4 km east of the Permit Area. The targeted bilby survey was undertaken within and around the 670 ha survey area with two transects expanding into the Permit Area (Figure 5).





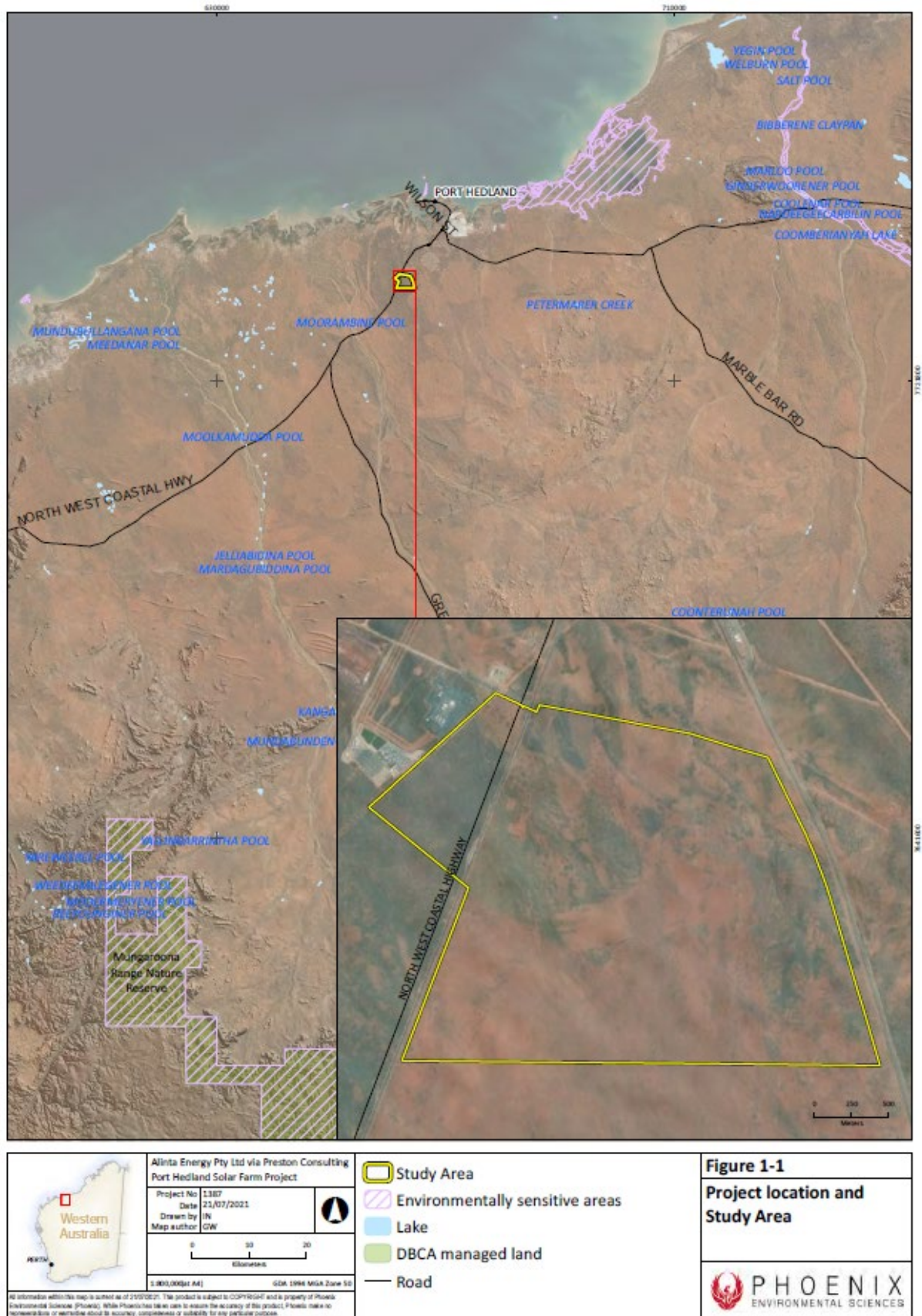
Figure 2: Regional survey area (ENV Australia, 2011a &b)





Figure 3: Boodarie survey area (360 Environmental, 2021)







4.2 BIOGEOGRAPHIC REGIONS

The Permit Area lies entirely within the Pilbara Bioregion, specifically within the Roebourne IBRA Subregion, bordered by the Chichester IBRA subregion (Figure 6). Subregions have been described in the *Biodiversity Audit of Western Australia's 53 Biogeographical Subregions* (Kendrick & Stanley, 2001). The Roebourne subregion covers 2,008,983 ha, and is characterised as:

- Quaternary alluvial and older colluvial coastal and sub-coastal plains with a grass savannah of mixed bunch and hummock grasses, and dwarf shrub steppe of *Acacia stellaticeps* or *A. pyrifolia* and *A. inaequilatera*. Uplands are dominated by *Triodia* hummock grasslands. Ephemeral drainage lines support *Eucalyptus victrix* or *Corymbia hamersleyana* woodlands. Samphire, *Sporobolus* and mangal occur on marine alluvial flats and river deltas;
- Resistant linear ranges of basalts occur across the coastal plains, with minor exposures of granite. Islands are either Quaternary sand accumulations, or composed of basalt or limestone, or combinations of any of these three; and
- Climate is arid (semi-desert) tropical with highly variable rainfall, falling mainly in summer. Cyclonic activity is significant, with several systems affecting the coast and hinterland annually (May & McKenzie 2003).

4.3 LAND SYSTEMS

The Permit Area lies entirely within the Uaroo System (Figure 7). The Permit Area represents less than 1% of the Uaroo System mapped within the Pilbara Bioregion. The Uaroo System is characterised by broad sandy plains, pebbly plains and drainage tracts supporting hard and soft spinifex hummock grasslands with scattered *Acacia* shrubs (Schoknecht & Payne 2011).

4.4 PRE-EUROPEAN VEGETATION

Regional scale vegetation mapping by Shepherd *et al.* (2002) mapped two vegetation associations within the Permit Area (Table 1; Figure 8). The majority of the Permit Area is made up of vegetation association 589, with smaller sections of the Permit Area intersecting vegetation association 647.

The remaining pre-European extent of vegetation association 589 and 647 exceeds 99% and is therefore considered of Least Concern (DBCA, 2018). Table 1 describes the pre-European and current extent of vegetation association 589 and 647.



Table 1: State-wide extent of pre-European vegetation associations present in the Permit Area

| Vegetation association | Pre-European extent (ha) | Current extent (ha) | Remaining (%) | Current extent in DBCA lands (%) | % of Permit Area |
|---|--------------------------|---------------------|---------------|----------------------------------|------------------|
| 589 – Short bunch grassland - savanna / grass plain (Pilbara) / Hummock grasslands, grass steppe; soft spinifex | 728,768.20 | 724,695.82 | 99.44 | 2.11 % | 94% |
| 647 – Hummock grasslands, dwarf shrub steppe; <i>Acacia translucens</i> over soft Spinifex. . | 189,414.08 | 189414.08 | 100 | 0 | 6% |





Figure 6: IBRA subregions



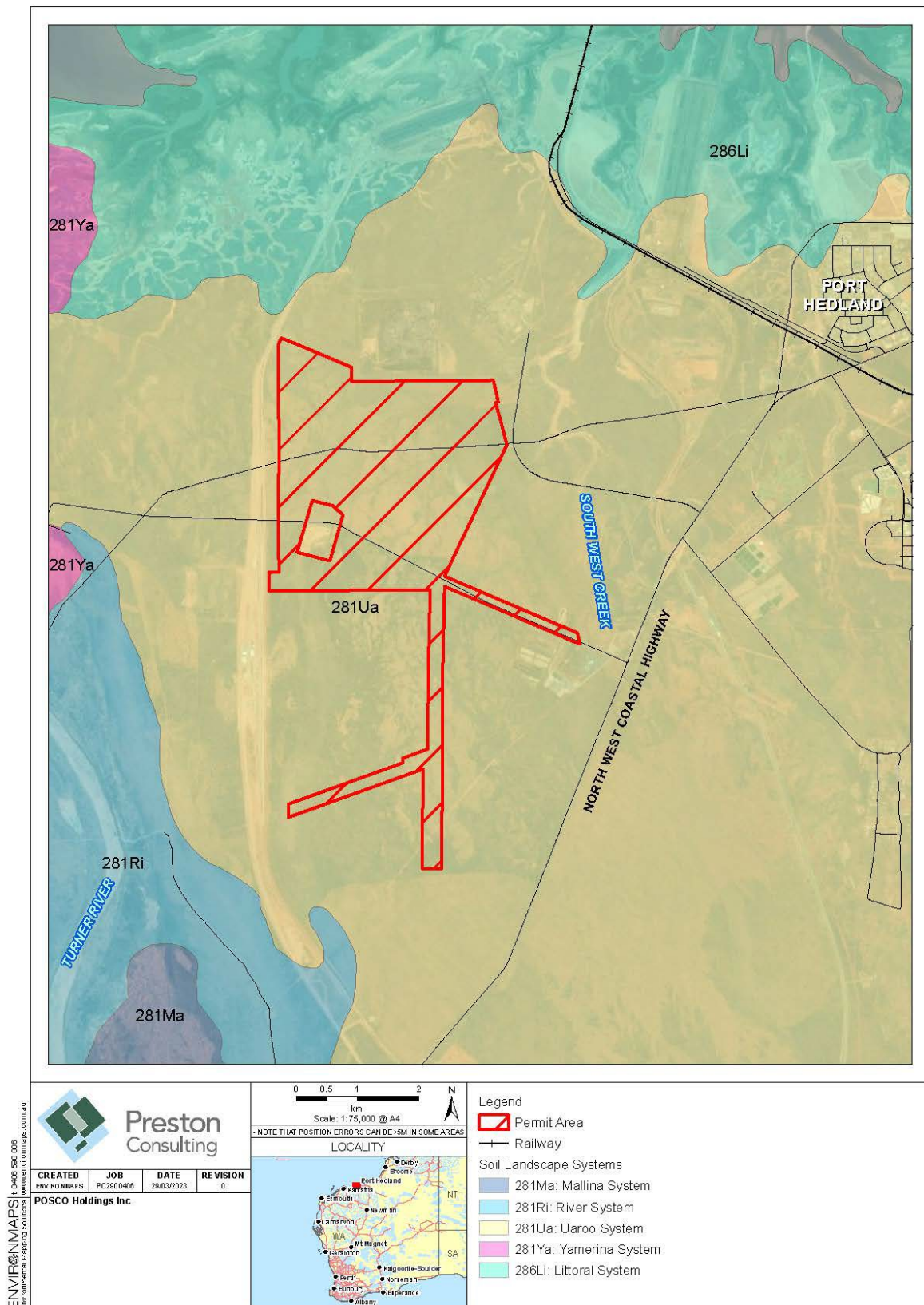


Figure 7: Land systems and surface geology



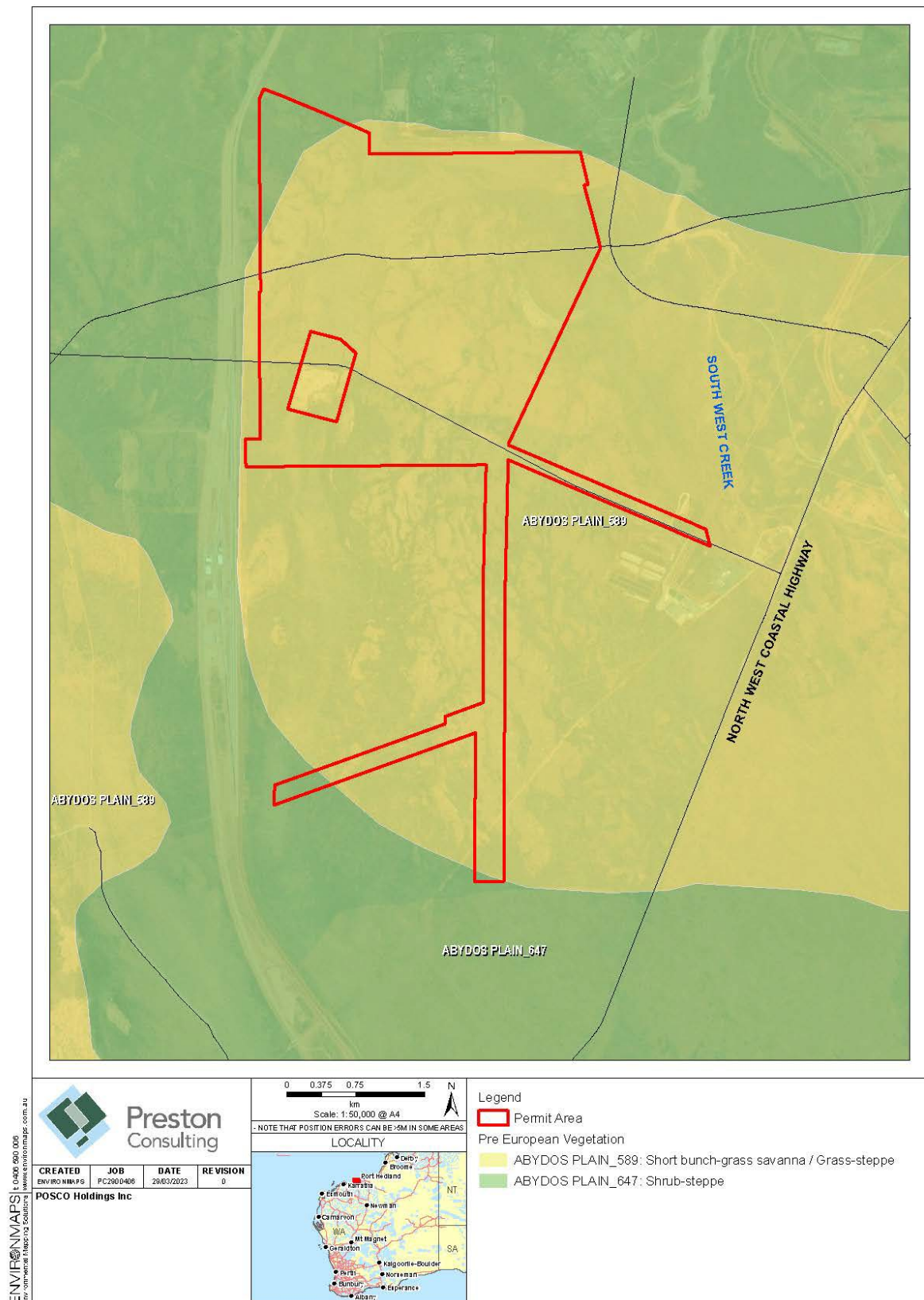


Figure 8: Pre-European vegetation



4.5 FLORA AND VEGETATION

4.5.1 SIGNIFICANT FLORA

Significant flora species are defined as species listed under the *Biodiversity Conservation Act 2016* (WA) and/or the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). Based on a literature review of studies identified in Section 4.2, the following species are considered Likely or Possible to occur within the Permit Area:

- *Atriplex eremitis* – Priority 3 (ENV Australia, 2011a);
- *Euphorbia clementii* – Priority 3 (ENV Australia, 2011a);
- *Gomphrena cucullata* – Priority 3 (ENV Australia, 2011a);
- *Polymeria distigma* – Priority 3 (ENV Australia, 2011a);
- *Tephrosia rosea* var. Port Hedland (A.S. George 1114) – Priority 1 (Phoenix, 2022a);
- *Abutilon* sp. *Pritzelianum* (S. van Leeuwen 5095) – Priority 3 (Phoenix, 2022a);
- *Eragrostis crateriformis* – Priority 3 (Phoenix, 2022a);
- *Gomphrena leptophylla* – Priority 3 (Phoenix, 2022a);
- *Heliotropium muticum* – Priority 3 (Phoenix, 2022a; 360 Environmental, 2021);
- *Heliotropium parviantrum* – Priority 1 (360 Environmental, 2021);
- *Bonamia oblongifolia* – Priority 3 (360 Environmental, 2021); and
- *Rothia indica* subsp. *australis* – Priority 3 (360 Environmental, 2021).

No records of significant flora were located within the boundary of the Permit Area (Figure 9) (G. Wells, Pers. Comm).





Figure 9: Significant flora records in the vicinity of the Permit Area



4.5.2 RECORDED SIGNIFICANT FLORA

No significant flora species have previously been recorded within the Permit Area. The following significant flora have been identified in the vicinity of the Permit Area (ENV Australia, 2011a):

- *Abutilon* sp. *Pritzelianum* (S. van Leeuwen 5095) – Priority 3;
- *Heliotropium muticum* – Priority 3;
- *Tephrosia rosea* var. Port Hedland (A.S. George 1114) – Priority 1;
- *Bulbostylis burbridgeae* – Priority 4;
- *Eragrostis crateriformis* – Priority 3;
- *Gomphrena leptophylla* – Priority 3;
- *Gomphrena pusilla* – Priority 2;
- *Gymnanthera cunninghamii* – Priority 3; and
- *Euploca mutica* – Priority 3.

4.5.3 INTRODUCED FLORA SPECIES

The following introduced flora (Weed) species are considered Likely or Possible to occur based on previous surveys within, and in the vicinity of, the Permit Area:

- *Aerva javanica* (Phoenix, 2022a; ENV Australia. 2011a);
- *Cenchrus ciliaris* (Phoenix, 2022a; 360 Environmental, 2021; ENV Australia. 2011a);
- *Cenchrus setiger* (360 Environmental, 2021)
- *Chloris virgata* (Phoenix, 2022a);
- *Citrullus colocynthis* (ENV Australia. 2011a);
- *Cucumis melo* subsp. *agrestis* (ENV Australia. 2011a);
- *Cynodon dactylon* (Phoenix, 2022a);
- *Echinochloa colona* (Phoenix, 2022a);
- *Eragrostis curvula* (ENV Australia. 2011a);
- *Flaveria trinervia* (ENV Australia. 2011a);
- *Indigofera oblongifolia* (ENV Australia. 2011a);
- *Physalis angulate* (ENV Australia. 2011a);
- *Portulaca oleracea* (ENV Australia. 2011a);
- *Stylosanthes hamata* (Phoenix, 2022a; ENV Australia. 2011a);
- *Vaccaria hispanica* (ENV Australia. 2011a); and
- *Vachellia farnesiana* (ENV Australia. 2011a).

Three of these species were identified within the Permit Area (ENV Australia, 2011a), *Aerva javanica*, *Cenchrus ciliaris* and *Portulaca oleracea*. Of the Weed species identified, none are declared or listed as Weeds of National Significance (DPIRD, 2023).

4.5.4 VEGETATION TYPE

ENV Australia (2011a) identified 40 vegetation types, seven of which were identified within the Permit Area (excl. Disturbed/Infrastructure). Vegetation types and their relative extents across the Permit Area are presented in Table 2 and shown in Figure 10. The majority of vegetation (52%) in the Permit Area consisted of Sandplain C.



Table 2: Vegetation types recorded within the Permit Area

| Vegetation type | Description | Within Permit Area (ha) |
|------------------------------|--|-------------------------|
| Low Hill | An <i>Acacia tumida</i> var. <i>pilbarensis</i> shrubland over a low <i>Acacia stellaticeps</i> shrubland over a <i>Triodia epactia</i> hummock grassland. | 74.2 |
| Sandplain B | An open <i>Acacia colei</i> var. <i>colei</i> shrublands over low <i>Acacia stellaticeps</i> shrublands over <i>Triodia epactia</i> and <i>Triodia secunda</i> hummock grasslands/low <i>Acacia stellaticeps</i> shrublands over <i>Triodia epactia</i> and <i>Triodia secunda</i> hummock grasslands mosaic. | 202.6 |
| Sandplain C | Low open <i>Corymbia flavescens</i> woodland over an open <i>Acacia colei</i> var. <i>colei</i> shrubland over a low <i>Acacia stellaticeps</i> shrubland over a <i>Triodia epactia</i> hummock grassland/ low <i>Acacia stellaticeps</i> shrublands over <i>Triodia epactia</i> and <i>Triodia secunda</i> hummock grasslands/ <i>Triodia epactia</i> and <i>Triodia secunda</i> hummock grasslands mosaic. | 655.1 |
| Sandplain E | Low open <i>Corymbia flavescens</i> and <i>Eucalyptus victrix</i> woodland over an <i>Acacia colei</i> var. <i>colei</i> and <i>Acacia sericophylla</i> shrubland over a low open <i>Acacia stellaticeps</i> shrubland over a <i>Triodia epactia</i> hummock grassland. | 7.4 |
| Sandplain H | <i>Acacia tumida</i> var. <i>pilbarensis</i> and <i>Acacia colei</i> var. <i>colei</i> shrubland over a low <i>Acacia stellaticeps</i> shrubland over a <i>Triodia epactia</i> hummock grassland/ low <i>Acacia stellaticeps</i> shrubland over a <i>Triodia epactia</i> hummock grassland mosaic. | 99.2 |
| Sandplain I | <i>Acacia tumida</i> var. <i>pilbarensis</i> shrubland over a low <i>Acacia stellaticeps</i> shrubland over a <i>Triodia epactia</i> hummock grassland/ low <i>Acacia stellaticeps</i> shrubland over a <i>Triodia epactia</i> hummock grassland/ <i>Triodia epactia</i> hummock grassland mosaic. | 12.9 |
| Sandplain J | Scattered low <i>Corymbia flavescens</i> trees over an open <i>Acacia tumida</i> var. <i>pilbarensis</i> shrubland over a low open <i>Acacia stellaticeps</i> shrubland over a <i>Triodia epactia</i> and <i>Triodia secunda</i> hummock grassland/ <i>Triodia secunda</i> and <i>Triodia epactia</i> hummock grassland mosaic. | 200.8 |
| Disturbed/ Infrastructure | N/A | 11.0 |
| TOTAL | | 1,263.2 |

*Note that there is a minor discrepancy between the vegetation mapping and fauna habitat mapping from the ENV 2011 reports which has resulted in an approximately two hectare difference in area mapped.

4.5.5 VEGETATION CONDITION

Regional vegetation condition mapping was undertaken by ENV Australia (2011a) based on the appropriate condition scale for the Eremaean Botanical Province (Keighery, 1994). Vegetation in the Permit Area was recorded to be in Completely Degraded or Excellent condition, with the majority (99%) in Excellent condition (Figure 11; Table 3).



Table 3: Vegetation condition recorded within the Permit Area

| Condition Rating | Within Permit Area (ha) |
|---------------------|-------------------------|
| Excellent | 1,251.3 |
| Very Good | - |
| Good | - |
| Poor | - |
| Completely Degraded | 11.0 |
| TOTAL | 1,262.3 |

4.5.6 THREATENED AND PRIORITY ECOLOGICAL COMMUNITIES

No Threatened or Priority Ecological Communities (TECs or PECs) are known to occur within the Permit Area (DBCA, 2022).



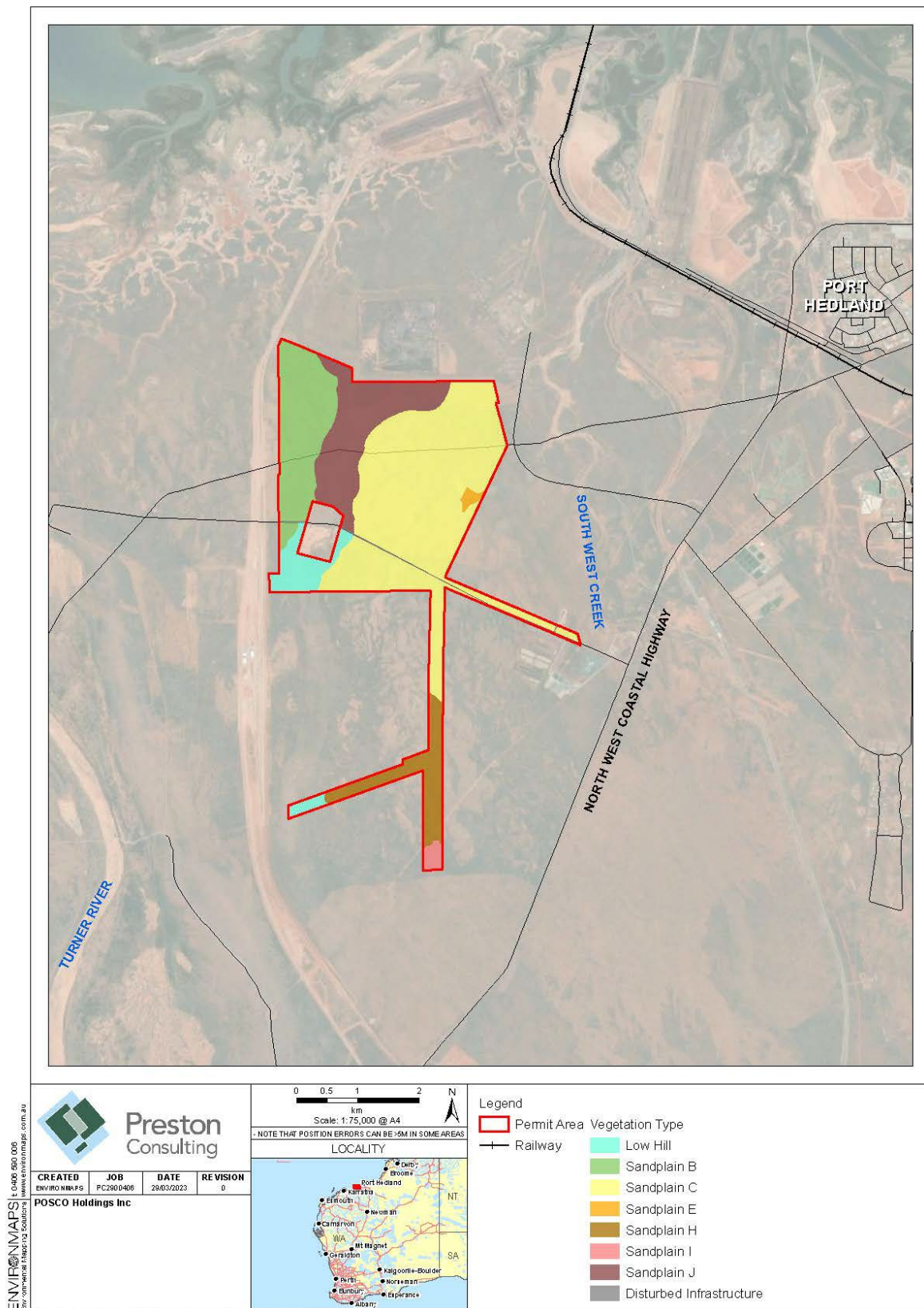


Figure 10: Vegetation types



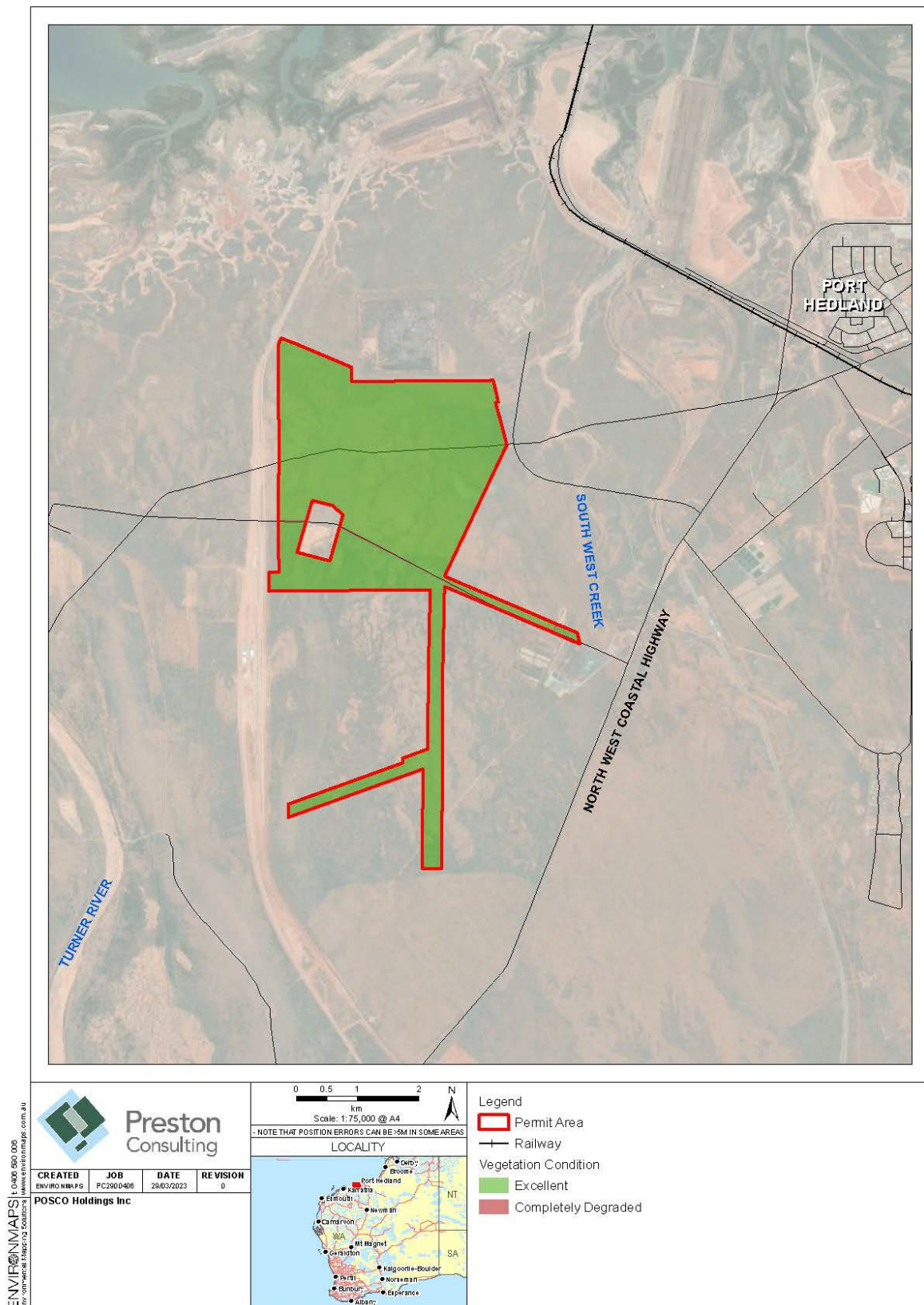


Figure 11: Vegetation condition



4.6 FAUNA

4.6.1 FAUNA HABITAT

ENV Australia (2011b) identified ten fauna habitats across a regional study area, two of which were identified within the Permit Area (Figure 12). The majority of the Permit Area (98%) is comprised of Sandplain habitat.

Table 4: Fauna habitat recorded within the Permit Area (ENV Australia, 2011b)

| Vegetation type | Description | Within Permit Area (ha) |
|----------------------------|--|-------------------------|
| Sandplain | The Sandplain habitat type dominates the majority of the Permit Area. The vegetation structure consists of a low <i>Acacia</i> shrublands over <i>Triodia</i> hummock grasslands. A moderate diversity of microhabitats was present and includes shrubs, grass hummocks and leaf litter. In addition, the soils were suitable for digging and burrowing animals. | 1,246.1 |
| Disturbed / Infrastructure | N/A | 14.8 |
| TOTAL | | 1,260.9 |

* Note that there is a minor discrepancy between the vegetation mapping and fauna habitat mapping from the ENV 2011 reports which has resulted in an approximately two hectare difference in area mapped.

4.6.2 SIGNIFICANT FAUNA

Twenty-three significant fauna species have been identified in previous surveys in the vicinity of the Permit Area as having a high or medium likelihood of occurring. This includes six mammals and 17 birds (Table 5).

Table 5: Listed fauna species which may occur within the Permit Area

| Species | Status | Survey Report |
|--|------------------------------|--|
| BIRDS | | |
| Fork-tailed Swift (<i>Apus pacificus</i>) | Migratory (EPBC & BC Acts) | ENV Australia (2011b) 360 Environmental (2021) Phoenix (2022b) |
| Grey Falcon (<i>Falco hypoleucos</i>) | Vulnerable (EPBC & BC Acts) | ENV Australia (2011b) 360 Environmental (2021) Phoenix (2022b) |
| Peregrine Falcon (<i>Falco peregrinus</i>) | Specially Protected (BC Act) | ENV Australia (2011b) 360 Environmental (2021) Phoenix (2022b) |
| Pacific Golden Plover (<i>Pluvialis fulva</i>) | Migratory (EPBC & BC Acts) | ENV Australia (2011b) |
| Sharp-tailed Sandpiper (<i>Calidris acuminata</i>) | Migratory (EPBC & BC Acts) | ENV Australia (2011b) |
| Sanderling (<i>Calidris alba</i>) | Migratory (EPBC & BC Acts) | ENV Australia (2011b) |
| Long-toed Stint (<i>Calidris subminuta</i>) | Migratory (EPBC & BC Acts) | ENV Australia (2011b) |
| Pin-tailed Snipe (<i>Gallinago stenura</i>) | Migratory (EPBC & BC Acts) | ENV Australia (2011b) |
| Oriental Pratincole (<i>Glareola maldivarum</i>) | Migratory (EPBC & BC Acts) | ENV Australia (2011b) |



| Species | Status | Survey Report |
|--|-----------------------------|--|
| | | 360 Environmental (2021) Phoenix (2022b) |
| Oriental Plover (<i>Charadrius veredus</i>) | Migratory (EPBC & BC Acts) | 360 Environmental (2021) Phoenix (2022b) |
| Asian Dowitcher (<i>Limnodromus semipalmatus</i>) | Migratory (EPBC & BC Acts) | ENV Australia (2011b) |
| Broad-billed Sandpiper (<i>Limicola falcinellus</i>) | Migratory (BC Act) | ENV Australia (2011b) |
| Black-tailed Godwit (<i>Limosa limosa</i>) | Migratory (BC Act) | ENV Australia (2011b) |
| Ruff (<i>Philomachus pugnax</i>) | Migratory (EPBC & BC Acts) | ENV Australia (2011b) |
| Common Tern (<i>Sterna hirundo</i>) | Migratory (EPBC & BC Acts) | ENV Australia (2011b) |
| White-winged Black Tern (<i>Chlidonias leucoptera</i>) | Migratory (EPBC & BC Acts) | ENV Australia (2011b) |
| Barn Swallow (<i>Hirundo rustica</i>) | Migratory (EPBC & BC Acts) | ENV Australia (2011b) 360 Environmental (2021) |
| MAMMALS | | |
| Brush-tailed Mulgara (<i>Dasycercus blythi</i>) | Priority 4 (BC Act) | ENV Australia (2011b) 360 Environmental (2021) Phoenix (2022b) |
| Crest-tailed Mulgara (<i>Dasycercus cristicauda</i>) | Priority 4 (BC Act) | ENV Australia (2011b) |
| Ghost Bat (<i>Macroderma gigas</i>) | Vulnerable (EPBC & BC Acts) | ENV Australia (2011b) 360 Environmental (2021) Phoenix (2022b) |
| Pilbara Leaf-nosed Bat (<i>Rhinonictis aurantia</i>) | Vulnerable (EPBC & BC Acts) | ENV Australia (2011b) 360 Environmental (2021) |
| Bilby (<i>Macrotis lagotis</i>) | Vulnerable (EPBC & BC Acts) | 360 Environmental (2021) Phoenix (2022b) |
| Northern Quoll (<i>Dasyurus hallucatus</i>) | Endangered (EPBC & BC Acts) | 360 Environmental (2021) Phoenix (2022b) |

4.6.3 RECORDED SIGNIFICANT FAUNA

Initial desktop studies conducted by Phoenix identified 32 unique records, consisting of two significant fauna species within the Permit Area (Figure 13):

- Bilby (*Macrotis lagotis*) – Vulnerable (EPBC Act & BC Act); and
- Brush-tailed Mulgara (*Dasycercus blythi*) – Priority 4 (BC Act).

Bilby (*Macrotis lagotis*)

The Bilby has been previously identified from 29 records at 10 locations within the Permit Area (Figure 13), all records were identified within the Sandplain Habitat. The majority of these records were associated with Sandplain habitat, with the exception of one Bilby record in the east in Disturbed/Infrastructure.



Brush-tailed Mulgara (Dasycercus blythi)

The Brush-tailed Mulgara has previously been identified from three records at three locations within the Permit Area (Figure 13), all records were identified within the Sandplain habitat.

Suitable habitat for the species is abundant both locally (within the Roebourne subregion and Uaroo land system) and throughout the Pilbara bioregion (Phoenix, 2022b). Brush-tailed Mulgara are well documented from sandplain habitat in the Pilbara, predominantly in spinifex hummock grasslands and shrublands on sandy soils (Menkhorst & Knight, 2011). Sandplain habitat is well represented in the Pilbara bioregion with approximately 99% of the pre-European vegetation currently remaining (Phoenix, 2022b). As such, the relatively small area of suitable habitat present within the Permit Area is not regarded as high value to the species.



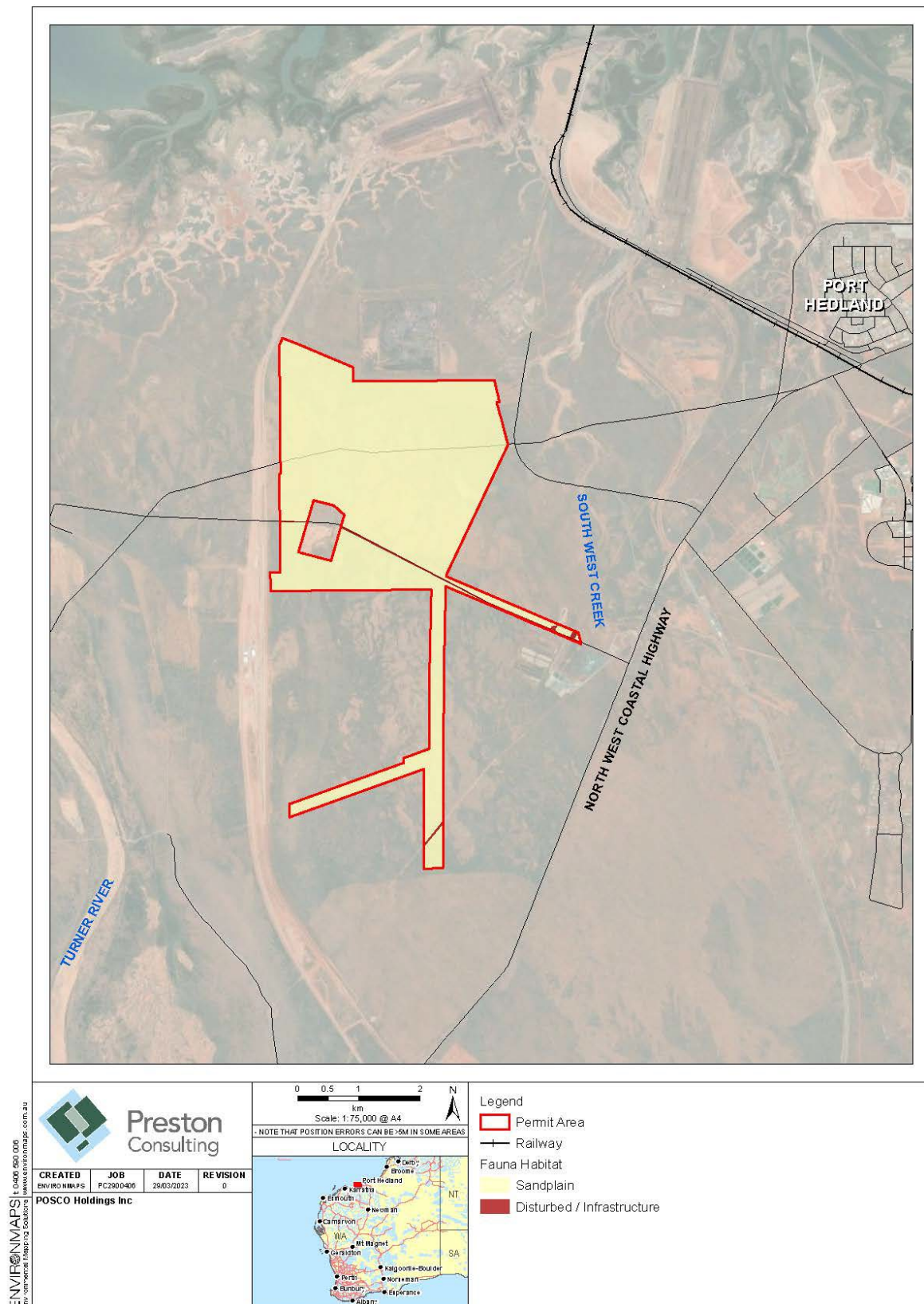


Figure 12: Fauna habitat (ENV Australia, 2011b)





Figure 13: Significant fauna records (ENV Australia, 2011b)



4.7 WATER AND DRAINAGE

GHD were engaged by LandCorp and the Department of State Development to conduct a hydrology study for the Boodarie SIA (GHD, 2013). The following hydrological information is based on the information from this study.

South West Creek, a minor ephemeral watercourse / tidal creek line, runs approximately north-south to the east of the Permit Area. The Turner River runs north-south adjacent to the western border of the Boodarie SIA (GHD, 2013).

The Boodarie SIA is located within the catchment of South West Creek, a minor ephemeral stream with a total catchment area of around 49,000 ha. The Boodarie SIA itself has an upstream catchment area of around 9,400 ha. The bulk of the Boodarie SIA is protected from the Turner River floodway by a sand ridge running north south within the western boundary of the site. The Turner River is a major floodway with a total catchment area of around 500,000 ha. The sand ridge reaches 31.5 m Australian Height Datum (AHD) at Great Northern Highway, south of the Boodarie SIA, and drops to a minimum of 10.5 m AHD at the north of the GHD study area. West of this ridge the land falls west towards the Turner River. East of the ridge the land falls north east towards South West Creek and drops to a minimum elevation within the GHD study area of 7.5 m AHD. A path of low lying landforms a natural drainage and flood way between the southern boundary and the north eastern corner of the site.

4.8 CURRENT LAND USE

The Permit Area is located within the Boodarie SIA in the Town of Port Hedland. The Boodarie SIA comprises 4,000 ha of 'Strategic Industry' zoned land. The Boodarie SIA is situated 4 km west of South Hedland town site and approximately 12 km south of Port Hedland town-site in Western Australia.

The land is generally flat, devoid of permanent physical infrastructure and consists of low-lying native vegetation.



5 STAKEHOLDER CONSULTATION

POSCO has consulted with the following key stakeholders regarding the Project:

- Department of Jobs, Tourism, Science and Innovation;
- Department of Planning, Lands and Heritage;
- DevelopmentWA;
- Town of Port Hedland; and
- Kariyarra People (Prescribed Body Corporate - Kariyarra Aboriginal Corporation).

POSCO will continue to consult with key stakeholders throughout the life of the Project.



6 ASSESSMENT OF CLEARING AGAINST THE TEN CLEARING PRINCIPLES

The proposed vegetation disturbance has been assessed against the ten clearing principles described within *A Guide to the Assessment of Applications to Clear Native Vegetation* (DER, 2014; Table 6).



Table 6: Assessment of proposed vegetation disturbance against the ten clearing principles

| Relevant Information | Assessment of Potential Impacts | Proposed Control Measures | Outcome – Assessment of Variance with Clearing Principle |
|---|--|--|---|
| 1. Native Vegetation should not be cleared if it comprises a high level of biological diversity | | | |
| <p>No significant flora species, including Threatened or Priority, were identified within the Permit Area during desktop studies and review of past surveys.</p> <p>The vegetation in the Permit Area is identified as Vegetation Association 589 and 647. Vegetation Association 589 and 647 have over 99% of pre-European extent remaining and are classed as Least Concern.</p> | <p>The survey area is not located within a known biodiversity hotspot in WA.</p> <p>Previous studies have not recorded high counts of native flora species in and around the Permit Area. No Threatened or Priority flora species are known to occur within the boundary of the Permit Area</p> <p>The proposed clearing will result in the removal of up to 25 ha of native vegetation, this clearing represents:</p> <ul style="list-style-type: none"> • <0.01% of the remaining extent of Vegetation Association 589 and 647; • Less than 2% Excellent vegetation within the Permit Area (if all 25 ha of disturbance occurred within Excellent vegetation) • Less than 2% of the Sandplain habitat type within the Permit Area (assumes all 25 ha of disturbance will be within Sandplain habitat). | <p>To minimise the impact of clearing on the environment, POSCO proposes the following control measures:</p> <ul style="list-style-type: none"> • All clearing will be managed under a clearing contractor's Ground Disturbance Permit (or similar); • Locate clearing areas such that they can be utilised for the future Project if it proceeds (i.e., access roads, laydown); • The total extent of vegetation clearing is limited to 25 ha; • The clearing areas will be identified using GPS coordinates; • All clearing kept to a minimum within the proposed Permit Area and completed only when required; and • All vehicles, equipment and personnel will be inspected and cleaned as required to prevent the incidental spread of weeds. | <p>The proposed clearing is not likely to be at variance with this principle.</p> |
| 2. Native vegetation should not be cleared if it comprises the whole, or part of, or is necessary for the maintenance of a significant habitat for fauna indigenous to WA | | | |
| <p>Sandplain habitat was the primary fauna habitat identified within the Permit Area (Figure 12).</p> <p>The Permit Area has been identified as suitable habitat for Bilby and Brush-tailed Mulgara. Both species have previously been recorded within the Permit Area.</p> <p>Survey work undertaken by Phoenix for Alinta's Port Hedland Solar Project indicates that the core range of the Bilby population was west of Great Northern Highway given the widespread locations of old scats recorded in the targeted survey (Phoenix, 2022b).</p> | <p>The proposed clearing will occur within habitat that has shown to be utilised by significant fauna in the past. This clearing represents less than 2% of mapped extent within the Permit Area and is unlikely to significantly impact the re-colonisation of the area.</p> | <p>Implement control measures described above. Monitors will also look for bilby and mulgara burrows during clearing. Burrows will be avoided where they are identified.</p> | <p>The proposed clearing may be at variance with this principle.</p> |



| Relevant Information | Assessment of Potential Impacts | Proposed Control Measures | Outcome – Assessment of Variance with Clearing Principle |
|--|---|---|--|
| 3. Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora | | | |
| No Threatened or Priority flora were recorded in the Permit Area based on desktop searches (Figure 9). | No known records of Threatened or Priority Flora will be impacted by the clearing. While it is possible that significant flora may occur within the Permit Area, the clearing of 25 ha of habitat for these species is unlikely to affect the continued existence of any significant flora. | Implement control measures described above. | The proposed clearing is not likely to be at variance with this principle. |
| 4. Native vegetation should not be cleared if it comprises the whole or part of, or is necessary for the maintenance of, a Threatened Ecological Community | | | |
| None of the vegetation previously recorded within the Permit Area was considered to represent a TEC. | Not applicable | Not applicable | The proposed clearing is not at variance with this principle. |
| 5. Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared | | | |
| The Permit Area lies entirely within the Pilbara Bioregion, specifically located on the Roebourne IBRA Subregion. The Roebourne subregion covers 2,008,983 ha. The vegetation in the Permit Area is identified as Vegetation Association 589 and 647. Vegetation Association 589 and 647 have over 99% of pre-European extent remaining and are classed as Least Concern. | The Permit Area does not represent a significant remnant of native vegetation in an extensively cleared area. The proposed clearing will result in the removal of up to 25 ha of native vegetation, this clearing represents: <ul style="list-style-type: none"> • <0.01% of the remaining extent of Vegetation Association 589 and 647. • Less than 2% of Excellent vegetation within the Permit Area. | Implement control measures described above. | The proposed clearing is not at variance with this principle. |
| 6. Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland | | | |
| The Permit Area is located within the Pilbara Surface Water Area. The main drainage feature is the Turner River and South West Creek which run along, but outside, the western and eastern boundary of the Permit Area, respectively. | No watercourses or permanent wetlands are present within the Permit Area. | Not applicable | The proposed clearing is not at variance with this principle |
| 7. Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation | | | |
| The area within and surrounding the Permit Area remains mostly uncleared with disturbance limited to that caused by Great Northern Highway Boodarie Power Station. | Land degradation will be limited to the 25 ha of proposed land clearing required for geotechnical investigations. This represents | Implement control measures described above | The proposed clearing is not likely to be at variance with this principle. |



| Relevant Information | Assessment of Potential Impacts | Proposed Control Measures | Outcome – Assessment of Variance with Clearing Principle |
|--|---|--|--|
| No declared pests or Weeds of National Significance were recorded within the Permit Area (ENV Australia, 2011a). | clearing of less than 2% of Excellent vegetation within the Permit Area. The proposed clearing will impact a relatively small area of Excellent vegetation and is not likely to cause significant land degradation. | | |
| 8. Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area | | | |
| The proposed clearing area does not occur within or adjacent to any conservation areas. The nearest conservation reserve is Mungaroona Range Nature Reserve, located approximately 95 km southwest of the Permit Area. | Not applicable | Not applicable | The proposed clearing is not at variance with this principle. |
| 9. Native vegetation should not be cleared if the clearing is likely to cause deterioration in the quality of surface or underground water | | | |
| The Permit Area is located within the Pilbara Surface Water Area. South West Creek runs to the east of the Permit Area and continues north to discharge into the Port Hedland Harbour. South West Creek does not intersect the Permit Area. No vegetation associated with any drainage will be cleared. | The proposed clearing represents a small area of clearing in an otherwise relatively uncleared landscape. The proposed clearing is not expected to cause deterioration in the quality of surface or underground water. Geotechnical investigations will not intersect the water table or occur in any drainage lines. | Implement the control measures described above | The proposed clearing is not likely to be at variance with this principle. |
| 10. Native vegetation should not be cleared if the clearing is likely to cause, or exacerbate, the incidence or intensity of flooding | | | |
| The region is generally dry, with occasional significant rainfall events often associated with cyclones. | The proposed vegetation clearing is small in scale and is not expected to cause, or exacerbate, the incidence or intensity of flooding within the Permit Area or surrounding landscape. | Implement the control measures described above | The proposed clearing is not likely to be at variance with this principle. |



7 SUMMARY AND CONCLUSIONS

The purpose of this NVCP Application is to allow the clearing of up to 25 ha of native vegetation within a 1,263 ha Permit Area for geotechnical investigations as described in Section 3.

The following key points are noted:

- The area has been extensively surveyed for a number of different projects within the region and the results of these surveys have been used to assess the impacts of clearing; and
- The proposed clearing will not result any significant impacts to the following:
 - Threatened and Priority Flora;
 - TECs or PECs;
 - Wetlands / surface water; or
 - Conservation areas.

POSCO has also identified a number of control measures to minimise the impacts to native vegetation. These measures include the following:

- All clearing to be managed under a clearing contractor's Ground Disturbance Permit (or similar);
- The total extent of vegetation clearing is limited to up to 25 ha of disturbance;
- The clearing areas will be identified using GPS coordinates;
- All clearing kept to a minimum within the Permit Area and completed only when required; and
- All vehicles, equipment and personnel will be inspected and cleaned as required to prevent the incidental spread of weeds.

This NVCP application assessed the proposed vegetation clearing against the ten clearing principles described in *A Guide to the Assessment of Applications to Clear Native Vegetation* (DER. 2014). Based on this assessment, the clearing may be at variance with one principle; is not likely to be at variance with five of the principles and is not at variance with four of the principles. Noting the proposed clearing is within an area zoned as a Strategic Industrial Area.



8 GLOSSARY

| Term | Meaning |
|-------------------------|--|
| AHD | Australia Height Datum |
| Alinta | Alinta Energy Development Pty Ltd |
| BC Act | <i>Biodiversity Conservation Act 2016</i> |
| BHP | BHP Billiton Iron Ore Pty Ltd |
| Bilby | Greater Bilby (<i>Macrotis lagotis</i>) |
| DBCA | Department of Biodiversity, Conservation and Attractions |
| ENV Australia | ENV Australia Pty Ltd |
| EPBC Act | <i>Environmental Protection and Biodiversity Conservation Act 1999</i> (Commonwealth) |
| ha | Hectares |
| IBRA | Interim Biographical Regionalisation for Australia |
| IOPF | Iron Ore Processing Facility |
| | |
| km | Kilometres |
| m | Metre |
| Mine | Ridley iron ore mine |
| NVCP | Native Vegetation Clearing Permit |
| PEC | Priority Ecological Community |
| Permit Area | Boundary for clearing proposed in this NVCP Figure 1 |
| Phoenix | Phoenix Environmental Sciences Pty Ltd |
| POSCO | POSCO WA Pty Ltd |
| s91 | Section 91 |
| SIA | Strategic Industrial Area |
| Significant Flora/Fauna | Species listed under the <i>Biodiversity Conservation Act 2016</i> and/or <i>Environmental Protection and Biodiversity Conservation Act 1999</i> or listed as Priority species by the Department of Biodiversity, Conservation and Attraction. |
| TEC | Threatened Ecological Community |
| The Project | Australia Green Steel Project |
| WA | Western Australia |



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ATTACHMENTS

