

Clearing Assessment Report – CPS 818

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Western Australia.*

Design and Construction of Four Rest Areas on GNH

Great Northern Hwy (H006)
Kimberley Region

EOS No: 3172

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1 PROPOSAL

1.1 Purpose and Justification

The purpose of this project is to design and construct four nominated rest areas along Great Northern Highway (GNH) between Sandfire and Willare in Kimberley Region to improve the productivity and safety of heavy vehicle movement in this section of the highway.

Currently there is no suitably constructed rest area for Road Trains along GNH between Sandfire to Willare. Consequently, the road trains squeeze into existing parking bays not designed for these vehicles. The current number of truck bays on the GNH is also insufficient and the needs have been identified in the Kimberley Region's Rest Area Strategy. As such, a purpose-built facility designed for the size of these vehicles and multiple vehicles at a time will cater for this increase in movements. It will also allow for any Over Size Over Mass (OSOM) vehicles to pull over safely. The provision of suitable rest areas along important Heavy Vehicle routes will improve the safety of heavy vehicle operations and environment by:

- Supporting fatigue management measures by enabling sufficient rest time to be taken.
- Providing designated rest areas designed to enable safer interactions between heavy and light vehicles.
- Facilitates improved exit and re-entry of heavy vehicles and Over Size and Over Mass vehicles to the network.
- Minimise shoulder or verge parking.
- Permits safer checking of load security and vehicle maintenance checks.

Using the Rest Area Strategy, four priority locations have been identified on GNH. Of these four proposed locations, there is an existing unsealed Parking Bay located at SLK 1897, 2139 and 2190.57 and there is no parking bay located on GNH SLK 2199.57. Main Roads recently acquired funding for the design and construction of four Heavy Vehicle Parking Bays at these proposed locations through the Heavy Vehicle Safety and Productivity Program (HVSPP).

1.1.1 Main Roads Approach to Road Safety and the Environment

Main Roads is committed to minimising the environmental impacts of all of its activities, and manages the State road network to achieve balanced economic, social, safety and environmental benefits for the community. Main Roads recognises that Western Australia's environment is significant from a global perspective and the unique conservation values that are contained within its road reserve. Main Roads road network often adjoins natural areas and, in some locations, the reserve itself hosts remnant vegetation with high environmental values. Although the reserves were not established for this purpose, Main Roads recognises that it has a responsibility to conserve the environmental values that occur within the State's road network and minimise the impact its proposals have on the environment. In addition to providing a safe and efficient road network for all people using the roads under its control, Main Roads is also committed to protecting and enhancing the natural environment.

In accordance with National and State Government road safety policies, Main Roads is also committed to substantially reducing road trauma on the road network through Safe System principles. The Safe System approach acknowledges that more than two thirds of all serious crashes are due to human error rather than deliberate risk taking (e.g. speeding or drink driving) and seeks to improve behaviour through education and enforcement while managing the safety of vehicles, speeds and the road and road infrastructure. It is shown that improving sub-optimal road formation will substantially reduce the likelihood and severity of road crashes. For example, according to the

Road Safety Management Guideline, increasing the sealed shoulder from 0.5 m to 2 m will reduce Killed and Seriously Injured numbers by more than 50%.

As the statutory authority responsible for providing and managing a safe and efficient main road network in Western Australia, Main Roads focuses on improving road safety by thoroughly considering all environmental, economic and community benefits and impacts. It operates on a hierarchy of avoiding, minimising, reducing and then, if required, offsetting our environmental impacts. This has been achieved through changes in proposal scope and design. Main Roads regularly reduces its clearing footprint by restricting earthworks limits for proposals, steepening batters, installing barriers, establishing borrow pits in cleared paddocks and avoiding temporary clearing for storage, stockpiles and turn around bays to avoid and minimise its impacts. Further details on measures to avoid, minimise and reduce are provided in Section 1.5.

1.2 Proposal Scope

The proposed works will include the construction of four rest areas along GNH at SLK 1897, 2139, 2190.57 and 2199.57. This includes increasing the size of the existing sealed rest area providing for heavy and light vehicle parking with separation, signage, sealed hardstand, drainage, line marking and road furnishings. The water bore and material locations have not been finalised yet but will be sourced from nearby main roads approved bores and gravel pits.

1.3 Proposal Location

The Project Development Envelope (PDE) is located on Great Northern Hwy (H006) between Sandfire and Willare at SLK 1897, 2139, 2190.57 and 2199.57 in the Shire of Broome as shown in

Figure 1. Project Location & Study Area

. The coordinates of the proposal are:

Parking Bay at SLK 1897

Latitude: -19.6791772

Longitude: 121.2638778

Parking Bay at SLK 2190.57

Latitude: -17.810339

Longitude: 122.771209

Parking Bay at SLK 2139

Latitude: -18.014065

Longitude: 122.594669

Parking Bay at SLK 2199.57

Latitude: -17.779151

Longitude: 122.849898

1.4 Clearing Details

Proposed Clearing to be undertaken using CPS 818: up to 8.2 ha in a 45.4 ha PDE.

Areas of Native Vegetation Clearing:

The areas of native vegetation to be cleared are shown in Figure 2.

Type of Native Vegetation:

The types of vegetation to be cleared under this Proposal are listed below in Table 3.

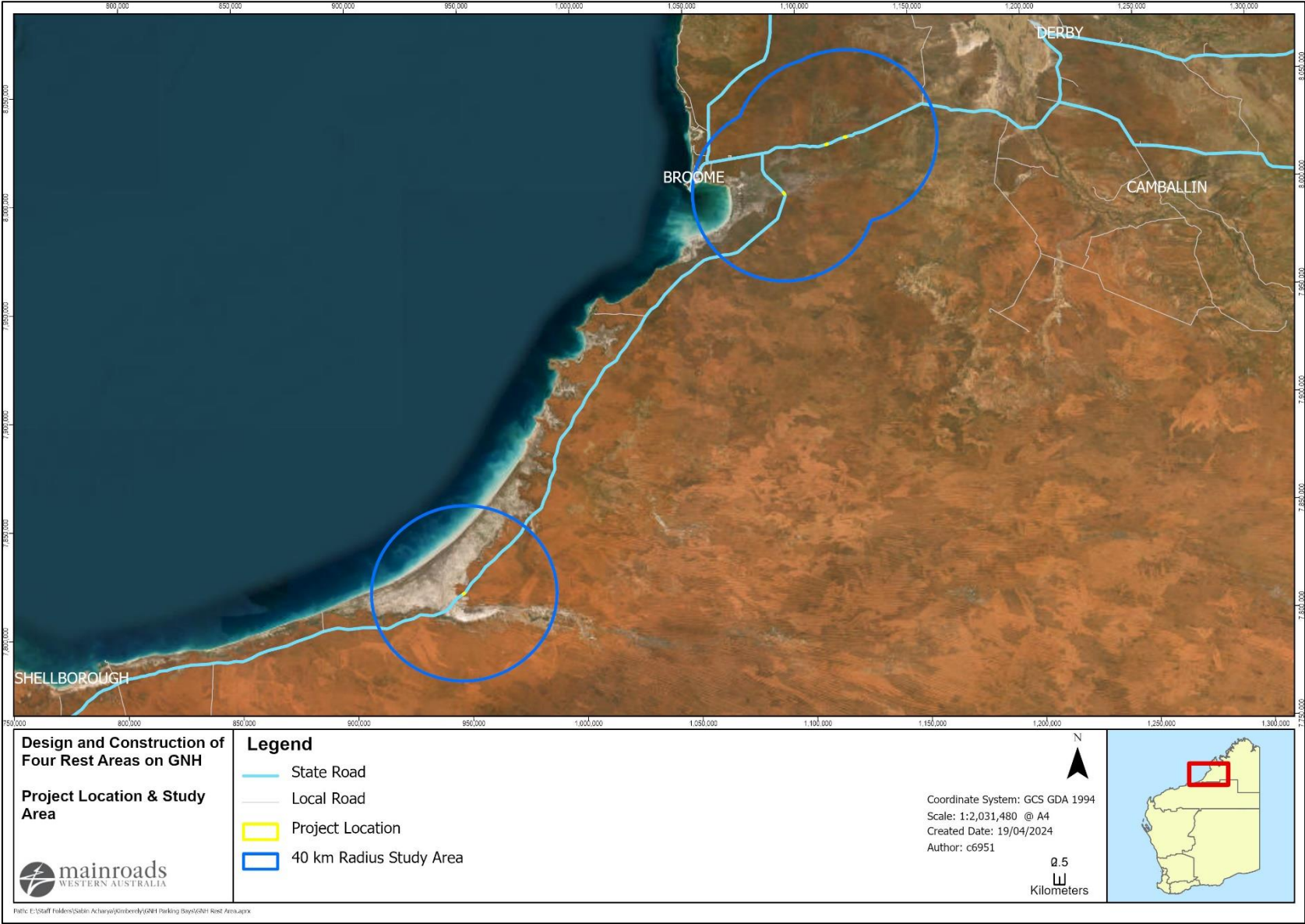


Figure 1. Project Location & Study Area

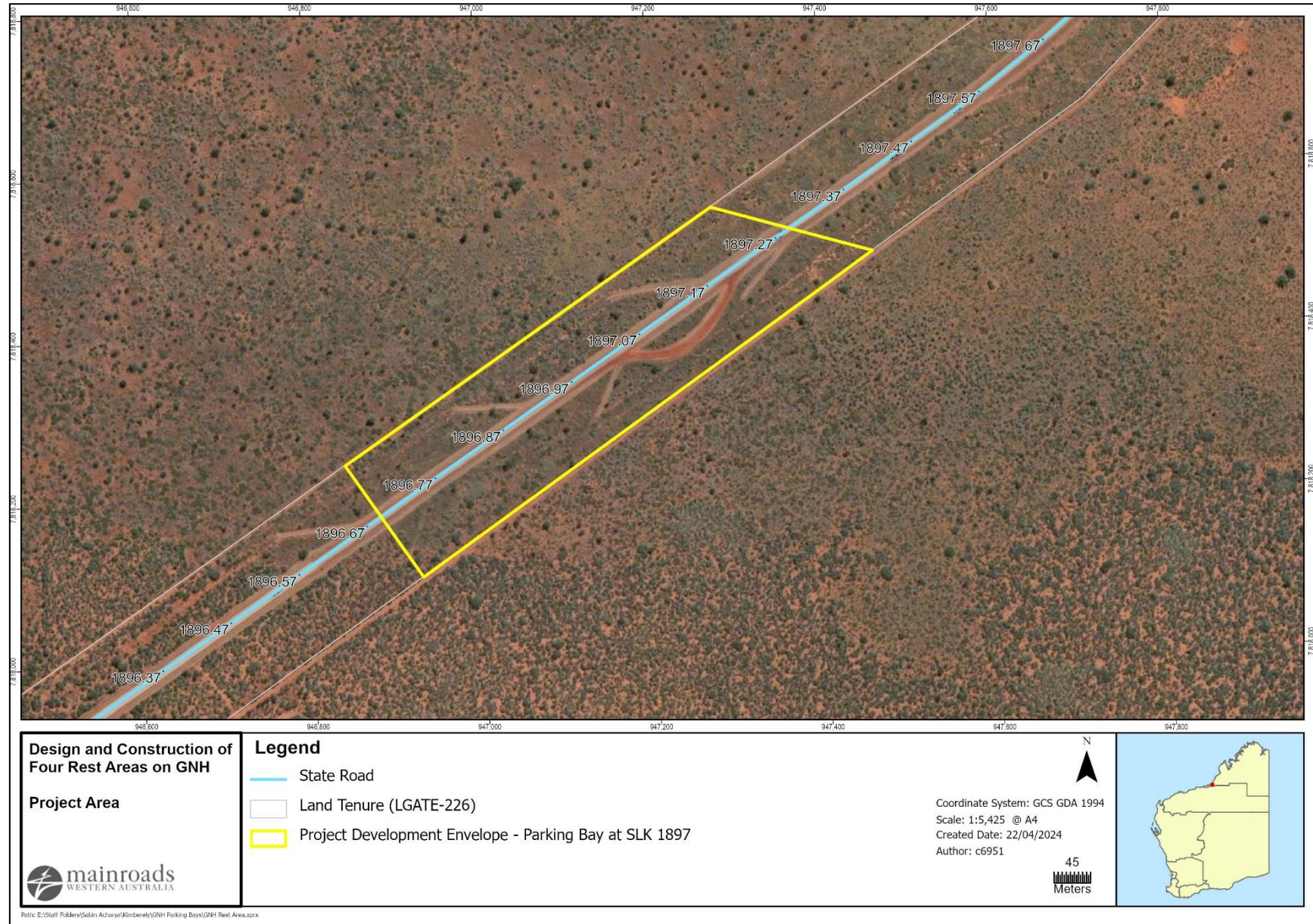


Figure 2a. Project Area – Parking Bay at SLK 1897

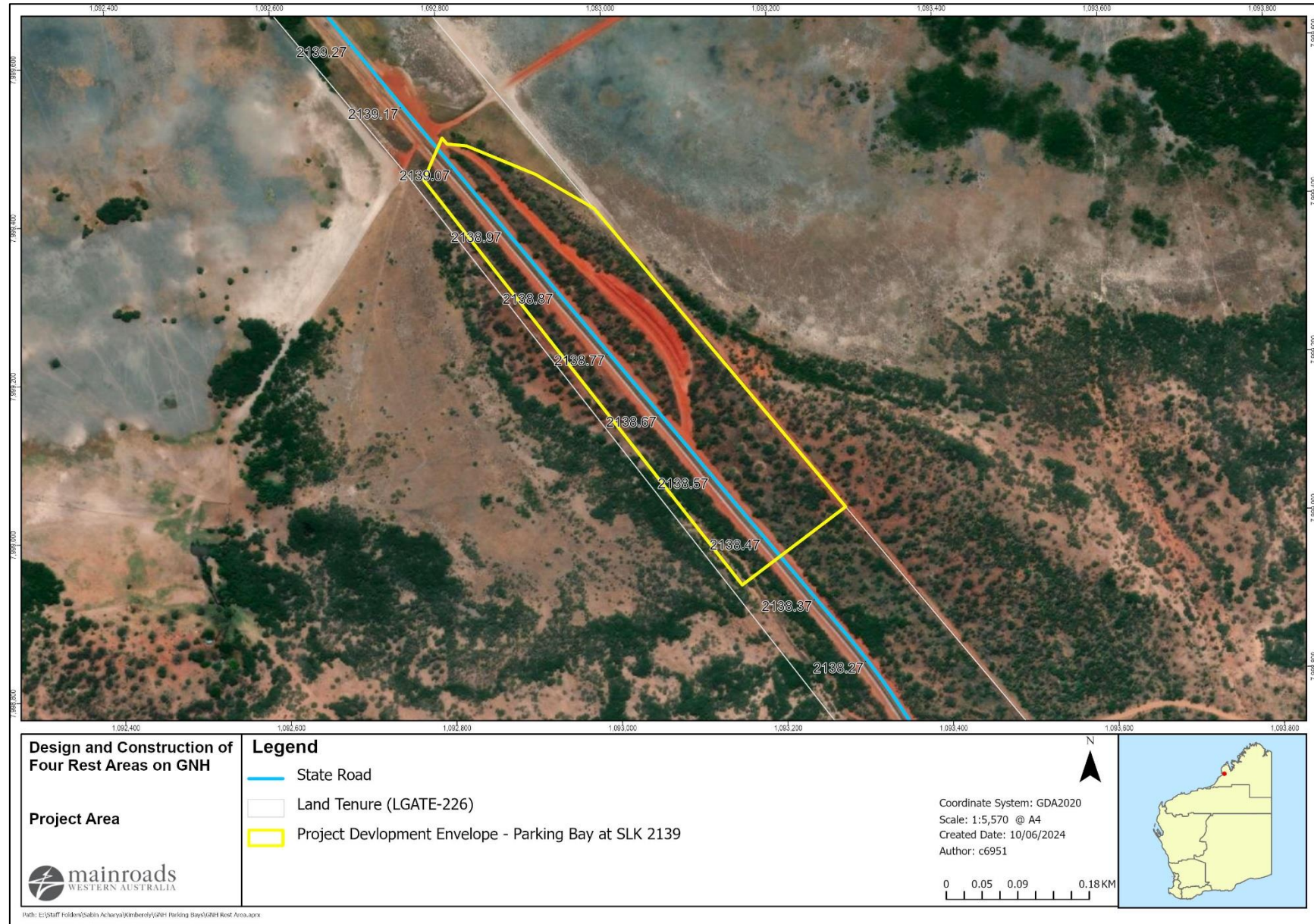


Figure 3b. Project Area – Parking Bay at SLK 2139



Figure 4c. Project Area – Parking Bay at SLK 2190.57



Figure 5d. Project Area – Parking Bay at SLK 2199.57

1.5 Alternatives to Native Vegetation Clearing Considered During Proposal Development

The following alternatives to clearing were considered during the development of the proposal:

- Do not upgrade the road, however this will potentially result in a poorer safety outcome and may result in future fatalities or serious injuries and further degradation of the State road asset.
- Preferentially upgrading the existing parking bays rather than installing new bays, unless absolutely necessary. Three of the four parking bays were proposed over the existing sites to reduce impacts. One new rest area in the Sandfire section was required to provide turn around and shelter for vehicles on both direction in the events of flooding.
- Using existing pre-disturbed areas for stockpiling and laydowns. No new clearing for access tracks and aggregate stockpiling.
- Main Roads retains frangible vegetation where a clear zone is to be established for road projects. For this project, however, clearing will only be required to accommodate the road formation, with no clear zone being established. Accordingly, the retention of frangible vegetation does not apply to this proposal.
- Reducing the speed limit to minimise clearing requirements, while still balancing safety (driver fatigue) and freight efficiency. Speed Limits are an essential mechanism to ensure the safe and efficient operation of road networks. The application of appropriate speed limits and other traffic management measures is a key mechanism in managing vehicle speeds to achieve desired safety, mobility, traffic management, local amenity, and road user expectations. There are several factors involved in road safety, including road conditions, driver behaviour and overall road design. Except in special situations, reducing speed limits below national standards on state and national roads is not typically supported as it has the potential to contribute to driver frustration, impatience, tiredness and recklessness. The environmental values protected by reducing the speed limit, do not justify the impacts on freight efficiencies nor road user safety. Accordingly, the reduction of the speed limits to avoid clearing of native vegetation for this proposal is not proposed.

1.6 Measures to Avoid, Minimise, Reduce and Manage Proposal Clearing Impacts

The design and management measures implemented to avoid and minimise the potential clearing impacts of the Proposal are provided in Table 1.

Table 1. Measures Undertaken to Avoid, Minimise, Reduce and Manage the Proposal Clearing Impacts

Design or Management Measure	Discussion and Justification
Alignment to one side of existing road	Upgrades have been proposed to three existing parking bays to reduce impacts. One new rest area was required to provide turn around and shelter for vehicles on both direction in the events of flooding.
Alternative alignment located within pasture or degraded areas	There are no alternative road alignment options available. Realignment of the road would result in significant environmental impact.
Simplification of design to reduce number of lanes and/or complexity of intersections	Not implemented, the major design was adopted as the rest areas are the only heavy vehicle rest area available in each direction between Port Headland to Broome and Broome to Derby.
Steepen batter slopes	Not implemented due to the road being subject to flooding. Full relieve culverts and drains are required. 6:1 batter slope is preferred as anything less is untraversable for trucks.
Installation of barriers	Not Applicable.
Installation of kerbing	Not Applicable.
Use of existing cleared areas for access tracks, construction storage and stockpiling	No access track required; construction is off main traffic. Stockpiling using existing cleared area for other projects closed by.
Drainage modification	Drainage improvement works will be undertaken at Parking bays SLK 2190.57 & 2199.57 to avoid flooding during winter.
Other	The Project Development Envelope (PDE) at Parking Bay SLK 2139 has been reduced to avoid the mapped boundary of the "Roebuck Plains System", listed on the Directory of Important Wetlands.

1.7 Approved Policies and Planning Instruments

The clearing of native vegetation in Western Australia is regulated under the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act, Main Roads has also had regard to the below instruments where relevant.

Other Legislation potentially relevant for assessment of clearing and planning/other matters:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Country Areas Water Supply Act 1947* (WA) (CAWS Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Planning and Development Act 2005* (WA) (P&D Act)
- *Soil and Land Conservation Act 1945* (WA)
- *Rights in Water and Irrigation Act 1914* (WA) (RIWI Act)
- *Aboriginal Heritage Act 1972* (WA).

Environmental Protection Policies:

- Environmental Protection (Peel Inlet - Harvey Estuary) Policy 1992
- Environmental Protection (Western Swamp Tortoise Habitat) Policy 2011.

Other relevant policies and guidance documents:

- Environmental Offsets Policy (Government of Western Australia, 2011)
- A guide to the assessment of applications to clear native vegetation (Government of WA, December 2014)
- Procedure: Native vegetation clearing permits (Government of WA, October 2021)
- Environmental Offsets Guidelines (Government of Western Australia, 2014)
- Technical guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016)
- Technical guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA, 2020)
- Approved conservation advice under section 266B of the EPBC Act for threatened flora/fauna/vegetation communities.

2 SCOPE AND METHODOLOGY ASSESSMENT OF CLEARING

Native vegetation will be cleared to accommodate this Proposal. This clearing will be undertaken using the Main Roads Statewide Clearing Permit CPS 818.

To comply with CPS 818, Main Roads must prepare a Clearing Assessment Report (CAR).

The CAR outlines the key activities associated with the Proposal, the existing environment and an assessment of native vegetation clearing. This assessment provides an evaluation of the vegetation clearing impacts associated with the Proposal using the ten Clearing Principles listed under s51 of the *Environmental Protection Act 1986* (EP Act) and strategies used to manage vegetation clearing.

2.1 Report Terminology and Sources

The following terms are used in this Clearing Assessment Report:

- **Project Indicative Clearing Footprint** – The maximum amount of native vegetation to be cleared for the Proposal that will accommodate the designed earthworks and, typically, a nominal buffer to allow for the safe movement of machinery during construction.
- **Project Development Envelope (PDE)** – The maximum extent within which the Clearing Footprint will be located. This envelope is larger than the Indicative Clearing Footprint to allow for minor changes to the Proposal footprint as the design process continues, and to account for minor and unexpected changes that may occur during construction, such as working to avoid a large tree or encountering buried boulders or services. This flexibility allows the site personnel to make modifications to the Proposal to avoid areas that may contain better environmental values. The CAR has assessed all environmental values within the Project Development Envelope as though all of these values will be impacted, up to the amount specified within the Clearing Area.
- **Study Area** – Area covered by the Desktop Assessment. The Study Area for the Proposal is confined to a local area of a 40 km radius.
- **Survey Area** – Area covered by the Biological Survey, which is typically larger than the PDE.

2.2 Desktop Assessment

A desktop assessment of the Development Envelope was undertaken by viewing internal datasets and other government agency managed databases, and consulting with relevant stakeholders where necessary. Results from searches can be found in Appendix 3.

GIS layer viewing and mapping is done using ArcMap and/or Main Roads corporate mapping system known as iMaps. Referencing of the GIS layers accessed is done under the relevant methodology section of each clearing principle. Government managed databases were searched to locate additional information, which are found under References in Section 0.

2.3 Surveys and Assessments

The following surveys were undertaken to inform this CAR:

- Phoenix (2024a). Basic Fauna Survey for the Great Northern Highway Parking Bay Project. Prepared for Main Roads Western Australia. Phoenix Environmental Sciences, Osborne Park, WA.

- Phoenix (2024b). Detailed and Targeted Flora Survey for the Great Northern Highway Parking Bay Project. Prepared for Main Roads Western Australia. Phoenix Environmental Sciences, Osborne Park, WA.

Biological surveys conducted for the proposal are outlined in Table 2 and a summary of the findings in these reports are presented in Sections 3.2 and 3.2.

Table 2. Summary of Biological Surveys Relevant to the Proposal

Consultant & Survey Name	Survey Details
Phoenix (2024a). Basic Fauna Survey for the Great Northern Highway Parking Bay Project. Prepared for Main Roads Western Australia. Phoenix Environmental Sciences, Osborne Park, WA.	Survey Area: Main Roads commissioned Phoenix Environmental to undertake a basic vertebrate fauna survey for the Project that consisted of six separate parking bay areas along Great Northern Highway between SLK 1897 – 2232.82 comprising a total of 76.9 ha. Type: A Basic Vertebrate Fauna Survey & Habitat Assessment Timing: 26 - 31 March 2023 Survey Results Shapefile TRIM Ref: D24#609869 Document TRIM Ref: D24#539936
Phoenix (2024b). Detailed and Targeted Flora Survey for the Great Northern Highway Parking Bay Project. Prepared for Main Roads Western Australia. Phoenix Environmental Sciences, Osborne Park, WA.	Survey Area: Main Roads commissioned Phoenix Environmental to undertake a detailed and targeted flora survey for the Project that consisted of six separate parking bay areas along Great Northern Highway between SLK 1897 – 2232.82 comprising a total of 76.9 ha. Type: A Detailed and Targeted Flora Survey Timing: 27 – 31 of March 2023 Survey Results Shapefile TRIM Ref: D24#539946 Document TRIM Ref: D24#609856

3 SURVEY RESULTS

In accordance with CPS 818/17 condition 8 (e) (iii), a copy of the relevant sections of the executive summary and report conclusions from the biological surveys are provided in [Appendix 1](#).

3.1 Summary of A Basic Fauna Survey (Phoenix 2024a)

In February 2023, Phoenix Environmental Sciences Pty Ltd (Phoenix) was commissioned by Main Roads to undertake a basic vertebrate fauna survey for the Project. The scope of work included a desktop assessment and a basic vertebrate fauna field survey which was conducted from 26 – 31 March 2023. Surveys methods included habitat assessments, low intensity fauna sampling and habitat suitability assessments for Bilby (VU), Night Parrot (EN/CR) and Australian Painted Snipe (EN).

The desktop review identified records of 484 vertebrate taxa within the 40 km desktop search extent, of which 91 were conservation significant species. Sixty-two migratory bird species are known to occur within the desktop search area and are associated with the nearby Roebuck Bay and Roebuck tidal plains. Four significant vertebrate species have previously been recorded within the study area:

- Apus pacificus*, Fork-tailed Swift (Mig.)
- Calidris acuminata*, Sharp-tailed Sandpiper (Mig.)
- Falco peregrinus*, Peregrine Falcon (OS)
- Glareola maldivarum*, Oriental Pratincole (Mig.)

Four habitats were identified in the study area: low open woodland (22.4%), woodland (37.2%), samphire shrubland (2.8%) and open shrubland (16.8%). The habitats do not represent critical habitat for any conservation significant species and occur widely within the region.

A total of 42 vertebrate fauna species were recorded during the survey, including 39 birds, 2 lizards and one mammal. Three migratory bird species were recorded opportunistically during the survey at Roebuck Plains:

- *Calidris acuminata*, Sharp-tailed Sandpiper (Mig.)
- *Hydroprogne caspia*, Caspian Tern (Mig.)
- *Plegadis falcinellus*, Glossy Ibis (Mig.)

Although potentially suitable Bilby habitat was identified in the study area, no evidence of Bilby was recorded, and it is unlikely that this species would be restricted to the study area. The samphire shrubland habitat that intersects the study area may be used by Australian Painted Snipe as they have been recorded at the nearby Roebuck Plains. Suitable habitat for Night Parrot was not present in the study area.

The results of the survey indicate that the majority of the study area is of low value for conservation significant fauna. The habitats identified are extensive within the wider region and fauna that may occur are unlikely to be restricted to the relatively small study area components. The large number of migratory shorebirds that were identified in the desktop review are likely to utilise the higher value salt marsh and coastal habitats nearby.

3.2 Summary of A Detailed and Targeted Flora Survey (Phoenix 2024b)

In February 2023, Phoenix Environmental Sciences Pty Ltd (Phoenix) was commissioned to undertake a detailed and targeted flora survey for the Project to delineate key flora values to inform the environmental assessment and approvals process. The Project consists of six separate parking bay areas on the Great Northern Highway that comprise a total of 76.9 ha. The scope of work for the detailed and targeted flora survey was as follows:

- Undertake a desktop assessment to identify biological features and constraints which may be in, or nearby the study area.
- Undertake a detailed and targeted vegetation and flora survey, including;
 - Vegetation unit and condition mapping
 - Targeted searches for Threatened and Priority flora identified in the desktop assessment.

The field survey was undertaken within the primary survey period for the Northern Botanical Province between the 27th and 31st of March 2023.

A total of 139 flora taxa representing 43 families and 99 genera identified to species level were recorded. In addition, a single specimen could not be identified to species level, *Fimbristylis* aff. *macassarensis*. This specimen possesses novel characters and is considered to possibly represent an undescribed taxon. The flora assemblage included 133 native species and seven introduced species. The most prominent families recorded were Fabaceae (23 spp.), Poaceae (20 spp.), Malvaceae (12 spp.) and Cyperaceae (7 spp.).

No Threatened flora were recorded during the field survey, four Priority 3 flora were recorded, *Bonamia oblongifolia*, *Polymeria* sp. Broome (K.F. Kenneally 9759), *Stylidium pindanicum* and *Terminalia kumpaja*. In addition, the specimen *Fimbristylis* aff. *macassarensis*, is considered a locally

significant species. Assessment of the likelihood of occurrence assessment for the remaining significant species identified in the desktop review determined that none were likely to occur in the study area due to either a lack of suitable habitat or it was considered that the study area had been adequately searched to locate the species. One Declared Pest **Calotropis procera* was recorded in the study area, and management of this species is required under the BAM Act (2007).

Four vegetation types were defined for the study area. They comprised an *Acacia* shrubland over *Triodia* grassland, two mixed open woodlands over *Acacia tumida* shrubland over *Sorghum plumosum* dominated grasslands and a low samphire shrubland of *Tecticornia* spp. over a *Sporobolus virginicus* tussock grassland). The mixed woodlands were the most prominent accounting for 59.53% of the study area, followed by the *Acacia* shrubland (16.84%) with the samphire shrubland accounting for just 2.84% of the study area.

Remnant vegetation was recorded to be in Degraded to Excellent condition with the majority in Excellent to Very Good condition. The areas recorded in Degraded condition had a high level of weed infestation with sections of these areas dominated by weed species and there was evidence of large-scale historic clearing and the presence of vehicle tracks and litter.

One vegetation type, TspSv, is considered representative of the P3 PEC, the Roebuck land system. The remaining three vegetation types in the study area may be considered to have local significance as they represent habitat and therefore a role as a refuge for significant flora species. However, all three are broadly representative of vegetation associations that have a wide distribution and subsequently the majority of the vegetation in the study area represents a very small proportion of widespread vegetation associations.

The botanical values identified within the study area comprise Priority 3 flora species recorded in five of the six parking bay study areas and vegetation representative of a P3 PEC in the sixth parking bay study area.

4 VEGETATION DETAILS

4.1 Proposal Site Vegetation Description

The flora survey by Phoenix (2024b) recorded three vegetation types from within the PDE as described below:

- **LcAtWiAh** - Low open woodland to woodland of *Lysiphyllum cunninghamii*, occasionally with *Ehretia saligna* var. *saligna*, and/or *Corymbia flavescens* over a tall open shrubland of *Acacia tumida* var. *tumida* over a low sparse to open shrubland of *Waltheria indica*, *Solanum dioicum*, and *Kennedia prorepens* over low open tussock grassland of *Aristida hygrometrica*, and *Sorghum plumosum*, and *Panicum australiense* var. *australiense*.
- **AcCiTe** - Tall sparse to open shrubland of *Acacia colei* var. *colei*, *A. sericophylla*, and occasionally *A. monticola* over a low sparse to open shrubland of *Corchorus incanus* subsp. *incanus*, *Abutilon otocarpum*, and occasionally *Acacia stellaticeps* over a low open hummock grassland of *Triodia epactia* and *Triodia intermedia*, with *Cenchrus ciliaris*.
- **TspSv** - Low sparse samphire shrubland of mixed *Tecticornia* spp. with *Sesbania cannabina* over a low tussock grassland of *Sporobolus virginicus* occasionally with *Xerchloa imberbis*.

Table 3 below provides the summary of the vegetation types and their condition within the PDE:

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Table 3. Summary of Vegetation Types and their Condition within the PDE

Vegetation Type	Surveyed Area (Parking Bays Location)	Total Mapped Extent (ha)	Extent within the PDE (ha)		Indicative Clearing based on project design/Condition (ha)	
LcAtWiAh	GNH SLK 2190.57 & 2199.57	28.56	27.6	21.6 Excellent	6.1	4.2 Excellent
	GNH SLK 2139			6 Degraded		1.9 Degraded
AcCiTe	GNH SLK 1897	12.94	7.2 (Degraded)		1.56 (Degraded)	
TspSv	GNH SLK 2139	2.18	0.22 (Degraded)		0.045 (Degraded)	

In addition to the above, proposed drainage works at Parking Bays at SLK 2190.57 and 2199.57 extend outside the biological survey area with a total of 0.89 ha of the PDE that is unsurveyed. Both the parking bays were recorded with the single vegetation type – **LcAtWiAh**. As such, the proposed minor extension for drainage works has been assumed to occur within the same vegetation type – **LcAtWiAh**. Of the 0.89 ha of the PDE that represents the area for drainage extension, only 0.44 ha is proposed to be cleared.

An additional 9.4 ha from within the PDE is in a Completely Degraded Condition representing the existing cleared areas for roads, tracks and paddocks.

Table 4 below provides details of the remaining extents of the pre-European vegetation associations:

Table 4. Pre-European Vegetation Representation

Pre-European Vegetation Association	Scale	Pre-European Extent (ha)	Current Extent (ha)	% Remaining	% Current Extent in DBCA Managed Land (proportion of pre-European Extent)
Veg Assoc No. 73 described as "Grasslands, short bunch grass savanna, grass; salt water grassland (<i>Sporobolus virginicus</i>)"	Statewide	259,384.71	258,168.42	99.53	11.52
	IBRA Bioregion <i>Dampierland</i>	240,283.59	239,716.89	99.76	11.55
	IBRA Sub-region <i>Pindanland</i>	240,283.59	239,716.89	99.76	11.55
	Local Government Authority <i>Shire of Broome</i>	231,923.44	230,820.65	99.52	11.94
Veg Assoc No. 699 described as "Shrublands, pindan; <i>Acacia eripoda</i> shrubland with scattered low bloodwood (<i>Eucalyptus dicromophloia</i>) & <i>E. setosa</i> over soft & curly spinifex on sandplain"	Statewide	1,986,450.05	1,984,438.78	99.90	0.47
	IBRA Bioregion <i>Dampierland</i>	1,976,313.50	1,974,958.06	99.93	0.48
	IBRA Sub-region <i>Pindanland</i>	1,796,194.92	1,794,994.17	99.93	0.52
	Local Government Authority <i>Shire of Broome</i>	1,628,642.72	1,626,791.54	99.89	0.58
	Statewide	1,231,155.50	1,225,687.52	99.56	2.77

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Pre-European Vegetation Association	Scale	Pre-European Extent (ha)	Current Extent (ha)	% Remaining	% Current Extent in DBCA Managed Land (proportion of pre-European Extent)
Veg Assoc No. 750 described as "Shrublands, pindan; <i>Acacia tumida</i> shrubland with grey box & cabbage gum medium woodland over ribbon grass & curly spinifex"	IBRA Bioregion <i>Dampierland</i>	1,229,182.16	1,225,280.52	99.68	2.78
	IBRA Sub-region <i>Pindanland</i>	1,221,734.45	1,217,843.72	99.68	2.79
	Local Government Authority <i>Shire of Broome</i>	1,115,559.36	1,110,131.18	99.51	3.06

5 ASSESSMENT AGAINST THE TEN CLEARING PRINCIPLES

In assessing whether the Proposal's proposed clearing is likely to have a significant impact on the environment, the Proposal was assessed against the ten Clearing Principles (EP Act, Schedule 5).

Each principle has been assessed in accordance with the former Department of Environment Regulation (now Department of Water and Environmental Regulation (DWER) '[A Guide to the Assessment of Applications to Clear Native Vegetation](#)' (Department of Environment Regulation, 2014) and other relevant clearing permit application decision reports prepared by DWER.

The proposed clearing is at variance with Principle (f) and is not at variance, or not likely to be at variance, with the remaining Clearing Principles.

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Proposed clearing is not likely to be at variance to this Principle.

Vegetation and Ecological Communities

As detailed in Table 3, three vegetation types were recorded from the PDE, in an excellent to degraded condition as listed below:

- Mixed open woodland of *Lysiphyllum cunninghamii* over *Acacia tumida* shrubland over *Sorghum plumosum* dominated grassland **LcAtWiAh**.
- Low sparse samphire shrubland of mixed *Tecticornia* spp. with *Sesbania cannabina* over a low tussock grassland of *Sporobolus virginicus* occasionally with *Xerchloa imberbis* **TspSv**.
- Acacia* shrubland over *Triodia* grassland **AcCiTe**.

The desktop assessment identified following Threatened or Priority Ecological Communities (TEC/PECs) listed under the EPBC Act or BC Act from the project 40 km radius study area:

- Monsoon (vine) thickets on coastal sand dunes of Dampier Peninsula (EN - EPBC & BC Act)
- Assemblages of the organic springs and mound springs of Mandora Marsh area (EN – BC Act)
- Species-rich faunal community of the intertidal mudflats of Roebuck Bay (VU – BC Act)
- Corymbia paractia* dominated community on dunes (P1 – DBCA)
- Relict dune system dominated by extensive stands of Minyjuru (Mangarr) *Sersalisia* (formerly *Pouteria*) *sericea* (P1 – DBCA)
- Kimberley Vegetation Association 767 (P1 – DBCA)
- Inland Mangroves community of salt creek (P1 – DBCA)
- Eighty Mile Land System (P3 – DBCA)
- Kimberley Vegetation Association 37 (P3- DBCA)

- Kimberley Vegetation Association 67 (P3 – DBCA)
- Kimberley Vegetation Association 73 (P3 – DBCA)
- Mandora Land System (P3 – DBCA)
- Roebuck Land System (P3 – DBCA)

No Threatened Ecological Communities (TECs) listed under the EPBC Act or BC Act were recorded by Phoenix (2024b) within the PDE.

Parking Bay at SLK 1897 – The proposed parking bay at SLK 1897 is located approximately 1.6 km from the mapped Environmentally Sensitive Area (ESA) associated with the Eighty Mile Beach Ramsar Site. A Priority 3 Mandora Land System PEC is approximately 4.6 km south of the PDE. Phoenix (2024b) did not record any vegetation types representing these significant ecological communities. Given the distance, the mapped ESA associated with the Ramsar Site is not likely to be impacted by the proposed clearing.

Parking Bay at SLK 2139 – The desktop assessment shows the parking bay at GNH SLK 2139 is located within the mapped PECs - Kimberley Vegetation Association 73 (P3) and Roebuck Land System (P3). The biological survey by Phoenix (2024b) did not record any vegetation types representing Kimberley Vegetation Association 73 (P3). The Kimberley Vegetation Association 73 (P3) is therefore not considered to be impacted by the proposed clearing. However, the vegetation type **TspSv** was considered representative of the Roebuck land system (P3) as the vegetation described for **TspSv** was congruent with the description of the PEC - "paleo-tidal coastal plains and tidal flats with saline soil supporting salt-water couch grasslands and samphire low shrublands". The Roebuck land system covers a total of 804 km² of which approximately 60% (482.4 km²) consist of saline plains (Schoknecht, N, and Payne, A L. 2011). The **TspSv** vegetation occupied a total of approximately 0.22 ha (0.0022 km²) in the PDE of which only 0.045 ha (0.00045 km²) is proposed to be cleared representing approximately 0.00009% of the saline plains of the Roebuck Land System. In addition, the **TspSv** vegetation in the PDE was recorded to be in a Degraded condition and subsequently represents a small proportion of the Roebuck land system, severely impacted by human disturbance that would require intensive management to bring back to good condition (Phoenix 2024b). Clearing of 0.045 ha of **TspSv** vegetation type in a degraded condition is unlikely to impact the environmental values of the Roebuck Land System PEC.

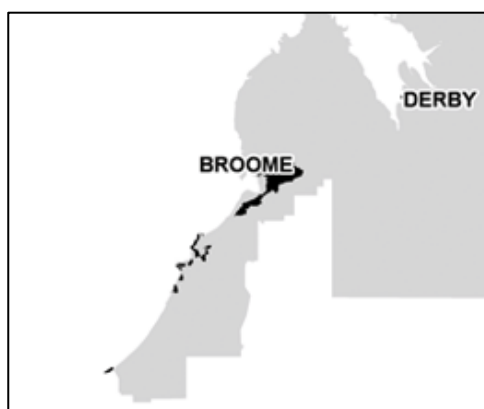


Plate 1: Mapped Roebuck Land System PEC (P3) (Schoknecht, N, and Payne, A L., 2011)

The proposed parking bay is also located in a mapped ESA, according to DWER's Clearing Permit System Map Viewer. The ESA is due to Roebuck Bay being placed on the Register of the National Estate in 1996. The PDE however is located just outside the mapped Roebuck Plains System Directory of Important Wetland, which covers an area of approximately 48,000 ha (DBCA-045; Environment Australia, 2001). The vegetation types recorded within the parking bay were all in a degraded condition. The impacts to the values of the mapped ESA as a result of the proposed small scale clearing of native vegetation in a degraded condition adjacent to the 48,000 ha wetland is not likely to be significant.

Parking Bay at SLK 2190.57 – According to GIS dataset DBCA-045 (Directory of Important Wetlands), the proposed parking bay is located 360 m from a mapped occurrence of the Roebuck Plains System, a wetland listed in the Directory of Important Wetlands in Australia. The parking bay is also located approximately 3.4 km northeast of the mapped Kimberley Vegetation Association 67 (P3). The biological survey by Phoenix (2024b) did not record any vegetation types representing Kimberley Vegetation Association 67 (P3) from this parking bay. Given the small scale clearing and the separation distance, the proposed clearing is not likely to impact the mapped Roebuck Plains System wetland which covers approximately 48,000 hectares.

Parking Bay at SLK 2199.57 – According to DBCA's TEC-PEC GIS data layer, this proposed parking bay is located within the mapped Kimberley Vegetation Association 67 Priority 3 PEC, including 500m buffer. However, the biological survey by Phoenix (2024b) did not record any vegetation types representing Kimberley Vegetation Association 67 (P3) from this parking bay.

Other Significant Vegetation

The two vegetation types from PDE were considered to be locally significant as they represented habitat and refuge for significant flora species as shown in table below:

Vegetation Type	Significance
LcAtWiAh	Represents habitat for the Priority flora species <i>Stylidium pindanicum</i> and the potential new species <i>Fimbristylis</i> aff. <i>Macassarensis</i> .
AcCiTe	Represents habitat for the Priority flora species <i>Bonamia oblongifolia</i> and <i>Terminalia kumpaja</i> .

These two vegetation types are broadly representative of vegetation associations 750 and 699 (Shepherd et al. 2002) which have a wide distribution and in excess of 99% of their pre-European extent remaining. The vegetation types **LcAtWiAh** and **AcCiTe** represent a very small proportion of widespread vegetation associations. Although each of these vegetation types were considered locally significant for representing habitat and refuge for significant flora, there is a substantial amount of suitable habitat for these significant species outside of the PDE (Phoenix 2024b). The clearing of 6.1 ha of **LcAtWiAh** and 1.56 ha of **AcCiTe** is unlikely to impact the availability of habitat for the significant flora species.

Flora

No EPBC Act or BC Act listed Threatened flora species were recorded from the PDE during the Detailed and Targeted Flora survey by Phoenix (2024b).

The desktop database searches (PMST report and Government GIS Shapefiles) identified the EPBC Act listed *Seringia exastia* (CR) near Broome Peninsula, more than 38 km from Parking Bay at GNH SLK 2139. This species was not recorded during the field survey from the PDE, nor was it considered likely to occur in the PDE post-survey by Phoenix (2024b). *Seringia exastia* is currently listed as Threatened (CR) under the Commonwealth EPBC Act 1999. However, it was recently delisted from Threatened status in WA under the BC Act 2016. The listing of this taxon as Threatened was supported by knowledge at the time of listing and was known from a single population within the Port of Broome. Recent taxonomic work has determined that *Seringia exastia* is conspecific with (the same as) *Seringia elliptica*, a taxon widespread across northern and central WA, Northern Territory and extending into South Australia. Consequently, *Seringia elliptica* and *Seringia exastia* were synonymised under *Seringia exastia*. This synonymisation has created an anomalous situation whereby *Seringia exastia* as now circumscribed is a common, widespread species that clearly no longer meets the criteria for Threatened status. It is expected that this taxon will be delisted on a Commonwealth level in the near future given its delisting in WA (Coults, D. 2022).

Three Priority 3 species were recorded from the PDE as discussed below:

***Stylidium pindanicum* (P3)** – *Stylidium pindanicum* was recorded from two Parking Bays within the PDE at GNH SLK 2190.57 & 2199.57 in the vegetation type **LcAtWiAh**. According to Phoenix, (2024b) hundreds of plants were found to occur at GNH SLK 2199.57, and a single plant was observed at GNH SLK 2190.57. A

single plant at GNH SLK 2190.57 was recorded outside the project design area and as such will not be cleared. Individuals of this species were recorded in two patches within the parking bay PDE at SLK 2199.57, on each side of the road as shown in Image 1 below. The southern patch will not be required to be cleared as it is outside the project design. A part of northern patch will be impacted by the project activities. Given that no individual plant numbers were counted for the species at this patch by Phoenix (2024b), quantifying impacts to this species has been estimated based on the percentage area coverage of the species. A total of 42% of the area (i.e., 0.63 ha of the 1.5 ha mapped patch) of the species identified form within the PDE at SLK 2199.57 occurs within the project design area and will be required to be cleared.



Image 1: Parking Bay PDE at SLK 2199.57. Image Left – Extent (blue polygon) of *Stylidium pindanicum* within the PDE; Image Right – Extent of *Stylidium pindanicum* and the project indicative clearing footprint (shaded yellow) within the proposed PDE

This localised impact is not considered significant given that this species has a broad distribution of approximately 300 km (north-south) by 400 km (east-west) from three bioregions (Ecoscape, 2023). Barrett et al. (2015) describes the distribution and habitat of the species as “Restricted to seasonally damp areas over pindan sands on the Dampier Peninsula, east to near Fitzroy Crossing, growing with *Chrysopogon fallax*, *Cleome tetrandra* s.l., *Eucalyptus tectifera*, *Mitrasacme* spp. and *Sorghum plumosum*”. The recorded plants of this species were within the current known distribution for the species (Western Australian Herbarium 1998). The two parking bays at SLK 2190.57 and SLK 2199.57 are located approximately 8.5 km apart and there are known DBCA database records for the species between the current survey records. Given the large amount of suitable habitat that occurs between these records, it is highly likely further populations occur in this area. A biological survey by Ecoscape in 2023 for Main Roads along Logue River section in GNH, approximately 49 km east of the parking bay at SLK 2199.57 recorded 41,168 individuals of *Stylidium pindanicum* (P3) along the roadside. A biological survey by Biota (2018) along Broome Cape Leveque Rd, approximately 60 km west of the parking bay at SLK 2199.57, recorded 147 individuals of this species from along the roadside. Potential impacts on this species are unlikely to be significant given its wide distribution, common frequency and noting the extent of uncleared suitable habitat throughout the Kimberley region.

***Terminalia kumpaja* (P3)** Phoenix (2024b) recorded 12 individuals of this species in and around the Parking Bay at GNH SLK 1897 in vegetation type **AcCiTe** – *Acacia* shrubland over *Triodia* hummock grassland. Of the 12 plants, eight occurred within the PDE and four plants outside the PDE. Of the 8 plants within the PDE, only four were recorded within the project design area and will be required to be cleared. Phoenix (2024c) undertook a flora survey for another project for Main Roads along GNH during same time the proposed project was surveyed. This survey recorded an additional 336 plants of this species along GNH between 42 km to 100km north of the Parking Bay at SLK 1897. The clearing of four individuals of *Terminalia kumpaja* (P3) out of a recorded 348 plants represents the clearing of approximately 1.15% of the surveyed population. Impacts are therefore unlikely to be locally or regionally significant.

***Bonamia oblongifolia* (P3)** – One individual of this species was recorded on the opposite side of the road at the proposed parking bay at GNH SLK 1897 in vegetation type **AcCiTe** – *Acacia* shrubland over *Triodia* hummock grassland. Although this individual plant falls within the PDE, it will not be required to be cleared. As such, this species is unlikely to be impacted by the proposed clearing.

In addition, the specimen ***Fimbristylis* aff. *macassarensis*** was recorded from one location within the PDE at the parking bay at GNH SLK 2190.57 with a cover value of 0.1% indicating a small number of plants present. The specimen was considered to possess novel characters and possibly represent an undescribed

taxon and was subsequently considered locally significant *Fimbristylis* aff. *Macassarensis* is not required to be cleared given it was recorded on the opposite side of the road. The species was recorded from a vegetation type **LcAtWiAh** – “*Lysiphyllum cunninghamii*, woodland over tall open shrubland of *Acacia tumida* over a low sparse to open shrubland of *Waltheria indica* over low open tussock grassland of *Aristida hygrometrica*”. Approximately 6.1 ha of this vegetation type is proposed to be cleared. Given this vegetation type is widespread outside of the PDE, the species is unlikely to be impacted by the proposed clearing.

A likelihood of occurrence assessment undertaken by Phoenix (2024b) for the remaining significant flora species identified in the desktop review determined all were unlikely to occur in the PDE, due to a lack of suitable habitat.

Fauna

Three fauna habitat types were recorded from the PDE: **Woodland, Open Shrubland** and **Samphire Shrubland** that corresponded to the recorded vegetation types. These fauna habitats were considered of low conservation value for significant fauna species given they are extensive within the wider region and fauna that may occur are unlikely to be restricted to the relatively small PDE. The ‘Samphire Shrubland’ was found to be associated with the coastal plains and tidal flats of the Roebuck System and is not restricted to the PDE.

Phoenix (2024a) undertook active searches primarily targeting significant species identified in the desktop assessment, particularly Bilby. The active searches did not record any significant species in the PDE. Similarly, active searches did not record any secondary evidence of Bilby, such as scats, tracks, diggings or burrows. Given the ability of the species to occupy a comparatively large range across the landscape and the abundance of suitable habitat in the region, the relatively minor project clearing is unlikely to significantly impact the availability of habitat for the Bilby. However, as a precautionary measure, a pre-clearance survey will be conducted before the commencement of the clearing. If a burrow is found, a 30 m exclusion zone will be implemented within which no new clearing will be undertaken.

Three migratory bird species were recorded during the survey at the opportunistic site at Roebuck Plains, approximately 6.8 km northwest of the Parking Bay at SLK 2139, where the GNH crosses a large floodway:

- Sharp-tailed Sandpiper *Calidris acuminata* (VU)
- Caspian Tern *Hydroprogne caspia* (MI)
- Glossy Ibis *Plegadis falcinellus* (MI)

All three recorded species have a wide known distribution and extensive areas of suitable habitat are available both locally and regionally. The ‘Samphire Shrubland’ present at the Parking Bay at SLK 2139 occurs at the margins of the tidal system and represents the most preferred habitat for these species. However, only 0.045 ha of this habitat type in a degraded condition is proposed to be cleared and a large extent of high value habitat suitable for the species is available outside the PDE. The impact on these species due to minor project clearing is unlikely to be significant.

Phoenix (2024a) undertook a post-field survey likelihood of occurrence assessment for the remaining significant species identified in the desktop review and determined 31 species as “Possible” to occur in the PDE. Of the ‘Possible’ species, the majority are migratory bird wader species, shorebirds and non-breeding migrants to Australia. These species were considered ‘Possible’ to occur due to presence of potentially suitable habitat in the PDE, recent records in the vicinity of the survey area and the near-coastal location of the project. However, habitat suitable for these species is very limited within the PDE and more preferred habitat occurs outside the PDE in the nearby higher value salt marsh, mudflats, floodplains and coastal habitats. Consequently, none of these species are likely to be significantly impacted by the proposed clearing.

Other conservation significant fauna species assessed as ‘Possible’ to occur in the PDE are described in detail in Principle (b). Whilst there may be suitable habitat for these species within the PDE, their wide known

distribution and habitat requirements means they are unlikely to be dependent on the small extent of potentially suitable habitats within the PDE.

Ecological Linkages

The proposed parking bay at SLK 2139 is located immediately outside the mapped boundary of the Roebuck Plains System, a Directory of Important Wetland spanning more than 48,000 hectares (Environment Australia, 2001). The parking bay at SLK 1897 is 700 m from the mapped boundary of the Mandora Salt Marsh, also listed on the Directory of Important Wetlands and spanning more than 175,000 hectares. There are no mapped watercourses occurring within or adjacent to either of these parking bays. Although close to the important wetlands, most of the vegetation types recorded in the PDE were not riparian or associated with wetlands. One vegetation type; **TspSv** at SLK 2139, represented vegetation associated with depression areas. However, only 0.045 ha of this vegetation type will be required to be cleared and is unlikely to be of significance to these expansive wetland systems.

A Ramsar Site; Eighty Mile Beach, is located approximately 1.6 km and a Class 'C' Walyarta Conservation Park (R 52387) is more than 5.5 km southeast of the proposed parking bay at SLK 1897. This parking bay is an upgrade of an existing bay and consists of a lower quality vegetation in comparison to the native vegetation in the surrounding areas. The vegetation in this parking bay is unlikely to provide a buffer or ecological linkage to the Ramsar Site or the Walyarta Conservation Park. Given the relatively minor project activities, the proposed clearing is unlikely to provide any critical ecological linkages for conservation significant species.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

- Barrett et al. (2015)
- Biota (2018)
- Birdlife Australia (2024)
- DCCEEW (2024a)
- DCCEEW (2024b)
- Ecoscape (2023)
- Environment Australia (2001)
- Government of Western Australia (2019)
- Phoenix (2024a)
- Phoenix (2024b)
- Phoenix (2024c)
- Spectrum Ecology (2020)
- Schoknecht, N, and Payne, A L. (2011)
- Western Australian Herbarium (1998-) (Accessed 2/05/2024)
- Government GIS shapefiles (Accessed 01/05/2024):
 - DBCA Threatened flora and Fauna database search
 - DBCA Threatened Ecological Community database search.
 - Pre-European vegetation
 - DBCA Legislated Lands and Waters
 - Ramsar Wetlands
 - Directory of Important Wetlands in Australia
 - Watercourses

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.

Proposed clearing is not at variance to this Principle.

Fauna Habitat

Three fauna habitat types were recorded from the PDE:

Habitat Type	Corresponding Vegetation Type	Total Mapped Extent (ha)	Extent within the PDE (ha)	Indicative Clearing based on project design (ha/%)
Woodland – Low open woodland to woodland of <i>Lysiphyllum cunninghamii</i> , occasionally with <i>Ehretia saligna</i> var. <i>saligna</i> , and/or <i>Corymbia flavescens</i> over a tall open shrubland of <i>Acacia tumida</i> var. <i>tumida</i> over a low sparse to open shrubland of <i>Waltheria indica</i> , <i>Solanum dioicum</i> , and <i>Kennedia prorepens</i> over low open tussock grassland of <i>Aristida hygrometrica</i> , and <i>Sorghum plumosum</i> , and <i>Panicum australiense</i> var. <i>australiense</i> . Some hollow-bearing trees present.	LcAtWiAh	28.56	27.6	6.1
Open Shrubland – Tall sparse to open shrubland of <i>Acacia colei</i> var. <i>colei</i> , <i>A. sericophylla</i> , and occasionally <i>A. monticola</i> over a low sparse to open shrubland of <i>Corchorus incanus</i> subsp. <i>incanus</i> , <i>Abutilon otocarpum</i> , and occasionally <i>Acacia stellaticeps</i> over a low open hummock grassland of <i>Triodia epactia</i> and <i>Triodia intermedia</i> , with <i>Cenchrus ciliaris</i> . Potential habitat for Bilby.	AcCiTe	12.94	7.2	1.56
Samphire Shrubland – Low sparse samphire shrubland of mixed <i>Tecticornia</i> spp. with <i>Sesbania cannabina</i> over a low tussock grassland of <i>Sporobolus virginicus</i> occasionally with <i>Xerochloa imberbis</i> . Minimal refugia available for fauna.	TspSv	2.18	0.22	0.045

The majority of the fauna habitats were considered of low value for conservation significant fauna species that may occur within the region. The 'Woodland' and 'Open Shrubland' habitat types broadly correspond to the vegetation associations 750 and 699 (Phoenix 2024b). These habitat types are extensive within the wider region and fauna that may occur are unlikely to be restricted to the relatively small PDE. The 'Samphire Shrubland' is located at the margins of the Roebuck Plains. This habitat type is associated with the coastal plains and tidal flats of the Roebuck System and is not restricted to the PDE. There are higher value salt marsh and coastal habitats nearby for fauna species to utilise and the relatively small amount of clearing is unlikely to impact the habitat availability for conservation significant species.

Conservation Significant Fauna

Three migratory bird species were recorded during the survey at the opportunistic site at Roebuck Plains, approximately 6.8 km northwest of the Parking Bay at SLK 2139, where the GNH crosses a large floodway, as described below:

Sharp-tailed Sandpiper *Calidris acuminata* (VU) – The Sharp-tailed Sandpiper is a wader species and a non-breeding migrant to Australia, preferring muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh, or other low vegetation including lagoons, swamps, lakes, dams, waterholes and salt pans. This species forages and roosts at the edge of wetlands or intertidal mudflats, on wet open mud or sand, in shallow water, or in short sparse vegetation (DCCEEW 2024b). The PDE has potential habitat suitable for the species, especially 'Samphire Shrubland'. However, the species has a wide known distribution and clearing of relatively small amount of potentially suitable habitat is unlikely to have a significant impact on the species.

Caspian Tern *Hydroprogne caspia* (MI) – This species is distributed widely in the coastal areas of WA, mostly found in sheltered coastal embayments (harbours, lagoons, inlets, bays, estuaries, and river deltas). It also occurs on near-coastal or inland terrestrial wetlands that are either fresh or saline, especially lakes, waterholes, rivers, and creeks. This species forages in open wetlands, including lakes and rivers and breeds on variable types of sites including low islands, cays, spits, banks, ridges, beaches of sand or shell, terrestrial wetlands and stony or rocky islets or banks. Caspian Tern nests may be in the open, or among low or sparse vegetation, including tussocks, samphire, or other prostrate sand-binding plants (DCCEEW 2024b). The PDE has a habitat suitable for the species mainly the 'Samphire Shrubland'. However, given their wide known distribution, clearing of relatively small amount of potentially suitable habitat is unlikely to have a significant impact on the species.

Glossy Ibis *Plegadis falcinellus* (MI) – This species is generally located east of the Kimberley and known to have a patchy distribution in the rest of WA. The preferred habitat for foraging and breeding are freshwater marshes at the edges of lakes and rivers, lagoons, floodplains, wet meadows, swamps, reservoirs, and cultivated areas under irrigation. The species is occasionally found in coastal locations such as estuaries, deltas, saltmarshes, and coastal lagoons. It roosts in trees or shrubs usually near water bodies (DCCEEW 2024b). The PDE has habitat suitable for the species, mainly the 'Samphire Shrubland'. However, given their wide known distribution, clearing of relatively small amount of potentially suitable habitat is unlikely to have a significant impact on the species.

Phoenix, (2024a) undertook a post-field survey likelihood of occurrence assessment for the remaining significant fauna species identified in the desktop review and determined 31 species as "Possible" to occur in the PDE:

- | | |
|--|--|
| • <i>Calidris ferruginea</i> | Curlew Sandpiper (CR) |
| • <i>Rostratula australis</i> | Australian Painted Snipe (EN) |
| • <i>Falco hypoleucos</i> | Grey Falcon (VU) |
| • <i>Macrotis lagotis</i> | Bilby (VU) |
| • <i>Phascogale tapoatafa kimberleyensis</i> | Kimberley Brush-tailed Phascogale (VU) |
| • <i>Falco peregrinus</i> | Peregrine Falcon (OS) |
| • <i>Varanus sparnus</i> | Dampier Peninsula Goanna (P1) |
| • <i>Ctenotus angusticeps</i> | North-western Coastal Ctenotus (P3) |
| • <i>Erythrura gouldiae</i> | Gouldian Finch (P4) |
| • <i>Actitis hypoleucos</i> | Common Sandpiper (MI) |
| • <i>Anas querquedula</i> | Garganey (MI) |
| • <i>Apus pacificus</i> | Fork-tailed Swift (MI) |
| • <i>Calidris melanotos</i> | Pectoral Sandpiper (MI) |
| • <i>Calidris ruficollis</i> | Red-necked Stint (MI) |
| • <i>Calidris subminuta</i> | Long-toed Stint (MI) |
| • <i>Charadrius dubius</i> | Little Ringed Plover (MI) |
| • <i>Charadrius veredus</i> | Oriental Plover (MI) |

OFFICIAL

• <i>Chlidonias leucopterus</i>	White-winged Black tern (MI)
• <i>Gallinago megala</i>	Swinhoe's Snipe (MI)
• <i>Gallinago stenura</i>	Pin-tailed Snipe (MI)
• <i>Gelochelidon nilotica</i>	Gull-billed Tern (MI)
• <i>Glareola maldivarum</i>	Oriental Pratincole (MI)
• <i>Hirundo rustica</i>	Barn Swallow (MI)
• <i>Pandion haliaetus</i>	Osprey (MI)
• <i>Phalaropus lobatus</i>	Red-necked Phalarope (MI)
• <i>Philomachus pugnax</i>	Ruff (MI)
• <i>Pluvialis squatarola</i>	Grey Plover (MI)
• <i>Tringa glareola</i>	Wood Sandpiper (MI)
• <i>Tringa nebularia</i>	Common Greenshank (MI)
• <i>Tringa stagnatilis</i>	Marsh Sandpiper (MI)
• <i>Tringa totanus</i>	Common Redshank (MI)

Curlew Sandpiper (CR) – This species mainly occurs on intertidal mudflats in sheltered coastal areas, also around non-tidal swamps, lakes and lagoons near the coast. It occurs less often inland around ephemeral and permanent lakes and waterholes, usually with bare edges of mud or sand (DCCEEW 2024b). The 'Samphire Shrubland' habitat within the PDE represents suitable habitat for the species. However, the impact on the species due to clearing of 0.045ha of this habitat type unlikely to be significant.

Australian Painted Snipe (EN) - The Australian Painted Snipe inhabits wetlands and is known to occur on the Roebuck Plains. Suitable wetland habitat is present at Roebuck Bay and the tidal flats that extend approximately 30 km east of the bay. The 'Samphire Shrubland' present at the Parking Bay at SLK 2139 occurs at the margins of this tidal system and represents important habitat for Australian Painted Snipe in the region (Phoenix 2024a). However, only 0.045 ha of degraded condition habitat is proposed to be cleared and a large extent of high value habitat suitable for the species is outside the PDE. The impact on the species due to the proposed clearing is therefore unlikely to be significant.

Grey Falcon (VU) – The Grey Falcon is a widespread but rare species inhabiting much of the hot, semi-arid and arid interior of Australia. It occurs in a wide variety of arid habitats including open woodlands and open Acacia shrubland, hummock and tussock grasslands and low shrublands, particularly where crossed by tree-lined water courses (Phoenix 2024a). Given their wide known distribution and habitat requirements, the species is unlikely to be dependent on the relatively small extent of potentially suitable habitats within the PDE.

Bilby (VU) – The habitat preferences of Bilby include open grassland, woodland and shrubland on sandplain. Bilby is known to occur throughout the Pindanland subregion, predominantly in Acacia shrublands over spinifex. The 'Open Shrubland' and 'Woodland' habitats represent the most prospective habitat for Bilby in the PDE. These habitat types are relatively common in the area, and there is a large extent of suitable Bilby habitat within the region. Active searches for this species by Phoenix (2024a) recorded no primary evidence (sightings) or secondary evidence (scats, tracks, diggings or burrows). The PDE does not represent significant habitat for Bilby due to its small extent, the ability of the species to occupy a comparatively large range across the landscape, and the abundance of suitable similar or better condition habitat in the region (Phoenix 2024a). The impacts on the species as a result of relatively minor project clearing is therefore unlikely to be significant. However, as a precautionary measure, a pre-clearance survey will be conducted before the commencement of the clearing. If a burrow is found, a 30 m exclusion zone will be implemented within which no new clearing will be undertaken.

Kimberley Brush-tailed Phascogale (VU) – This species originally occurred in coastal and near coastal areas in the tropical north from Kalumburu to Broome. Its status in the Kimberley is unclear. It is known to inhabit bunch grasslands with a savanna woodland structure, dominated by *Eucalyptus* and *Corymbia* species with old-growth and dead trees to provide nesting hollows (Phoenix 2024a & DCCEEW 2024b). The PDE doesn't represent their core habitat.

Peregrine Falcon (OS) – 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 prefers coastal and inland cliffs or open woodlands near water and nesting occurs mainly on cliff ledges, granite outcrops, quarries and in trees with old raven or Wedge-tailed Eagle nests (Phoenix 2024a & Birdlife Australia 2024). The preferred habitat for the species does not occur within the PDE and the species may only occur in the PDE in a fly-over nature.

Dampier Peninsula Goanna (P1) –The Dampier Peninsula Goanna is restricted to the Dampier Peninsula and has been found to inhabit *Triodia* and tussock grasses as well as Pindan vegetation on sandy substrate (Spectrum Ecology, 2020). The PDE is on the edge of its known range (Phoenix 2024a). There are seven records of the species in the project 40km radius, with the closest one being six km northeast of the Parking at SLK 2139. The PDE may consist of potentially suitable habitat, however it is unlikely to represent the core habitat for the species.

North-western Coastal Ctenotus (P3) – This species has been recorded inhabiting the landward fringe of salt marsh communities in samphire shrubland or marine couch grassland in the intertidal zone along mangroves (DCCEEW 2024b). The “Samphire Shrubland” present at the Parking Bay at SLK 2139 occurs at the margins of this tidal system and may represent partially suitable habitat for the species. However, only 0.045 ha of this habitat type in a degraded condition is proposed to be cleared and a large extent of high value coastal habitat suitable for the species is outside the PDE. The impact as a result of the minor proposed clearing is unlikely to be significant.

Gouldian Finch (EN & P4) – In Western Australia, this species only occurs in the Kimberley. It inhabits open woodlands with favoured annual and perennial grasses (especially Sorghum), a nearby source of surface water and, in the breeding season, unburnt hollow-bearing Eucalyptus trees (Phoenix 2024a). The potential habitats for the species may occur in the PDE but is very limited. The species may use the area when moving through the landscape but is unlikely to be dependent on the habitats in the PDE.

The migratory bird species assessed ‘Possible’ to occur in the PDE are mostly wader species, shorebirds and non-breeding migrants to Australia. These species were considered ‘Possible’ to occur due to presence of potentially suitable habitat in the PDE, recent records in the vicinity of the survey area and near-coastal location of the project. However, habitat suitable for these species is very limited within the PDE and more preferred habitat for these species occurs outside the PDE in the nearby higher value salt marsh, mudflats, floodplains and coastal habitats. As such, impacts to the migratory species as a result of the relatively minor proposed clearing is unlikely to be significant.

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology

- Birdlife Australia (2024)
- Phoenix (2024a)
- DCCEEW (2024a)
- DCCEEW (2024b)
- Spectrum Ecology (2020)
- Government GIS shapefiles (Accessed 07/05/2024):
 - DBCA Threatened and Priority fauna database search

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.

Proposed clearing is not at variance to this Principle.

No Threatened flora species listed pursuant to the Biodiversity Conservation Act 2016 were recorded during the Detailed and Targeted Flora survey by Phoenix (2024b) and none were considered likely to occur in the proposed clearing area.

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology

- Phoenix (2024b)
- Government GIS shapefiles (Accessed 01/05/2024):
 - DBCA Threatened flora database search

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Proposed clearing is not at variance to this Principle.

The flora survey by Phoenix (2024b) did not record any vegetation communities within the PDE that correspond to any state (DBCA), or Commonwealth (EPBC Act) listed Threatened Ecological Communities (TECs).

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology

- Phoenix (2024b)
- Government GIS shapefiles (Accessed 01/05/2024):
 - DBCA Threatened Ecological Community database search

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Proposed clearing is not at variance to this Principle.

As evident from Table 4 above, the Vegetation Associations 73, 699 and 750 have more than 99% of their pre-European extent remaining intact at all levels (Statewide, IBRA Bioregion and LGA). As such, the project is not located in an area that has been extensively cleared and the vegetation proposed for clearing is not significant as a remnant.

Based on the above, the proposed clearing is not at variance to this Principle.

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Methodology

- Government of Western Australia, (2019).
- Government GIS shapefiles (Accessed 18/04/2024):
 - Pre-European vegetation

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.
Proposed clearing is at variance to this Principle.

According to GIS datasets DWER-031(Hydrography Linear), LGATE-018 (Medium Scale Topo Water) and DBCA-045 (Directory of Important Wetlands), there are no mapped watercourses or wetlands within the proposed clearing area.

The flora survey carried out by Phoenix (2024b) recorded one vegetation type from within the PDE at Parking Bay at SLK 2139 (Roebuck Plains) that may represent wetland or watercourse vegetation:

- **TspSv** – Low sparse samphire shrubland of mixed *Tecticornia* spp. With *Sesbania cannabina* over a low tussock grassland of *Sporobolus virginicus* occasionally with *Xerchloa imberbis*.

A total of approximately 0.22 ha of this vegetation type in a degraded condition occurs within the PDE, of which approximately 0.045 ha will be required to be cleared for the project activities.

Given the **TspSv** vegetation type may represent vegetation growing in association with an unmapped watercourse or wetland, the proposed clearing is at variance to this Principle.

However, the PDE at Parking Bay SLK 2139 occurs outside the mapped extent of the “Roebuck Plains System – WA021”, which is listed on the Directory of Important Wetlands in Australia and covers an area of approximately 48,000 ha (DBCA-045; Environment Australia, 2001). The PDE was reduced to avoid clearing within the mapped wetland and follow-up on-ground measures such as flagging the limits of approved clearing will be implemented to avoid any impacts to the mapped wetland. The impacts to the values of the mapped wetland as a result of the clearing of 0.045 ha of adjacent native vegetation in a degraded condition is not likely to be significant.

Methodology

- Environment Australia (2001)
- Phoenix (2024b)
- Government GIS shapefiles (Accessed 17/04/2024):
 - Watercourses

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.
Proposed clearing is not likely to be at variance to this Principle.

Four soil landscape systems are mapped over the PDE:

- Nita System – described as “Sandplains supporting shrubby spinifex grasslands with occasional trees”.
- Yeeda System – described as “Red sandplains supporting pindan vegetation with dense acacia shrubs, scattered bloodwood and grey box trees and curly spinifex and ribbon grass”.

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- Roebuck System - described as "Paleo-tidal coastal plains and tidal flats with saline soil supporting salt-water couch grasslands, samphire low shrublands, melaleuca thickets and mangroves".
- Wanganut System - described as "Sandplains and linear dunes supporting pindan woodlands with acacias and bloodwoods and curly spinifex- ribbon grass, and broad low-lying swales supporting bloodwood-grey box woodlands with curly spinifex-ribbon grass".

These land systems are generally not prone to degradation or have low susceptibility to erosion if the disturbances such as grazing pressure and frequency of burning are controlled. The Nita System is considered to stabilise rapidly following rain and consequent regeneration of vegetation (Schoknecht, N, and Payne, A L. 2011).

The project is in an area prone to severe rainfall events, which could contribute to land degradation via flooding and heavy runoff. However, the proposed clearing works will be completed in a dry period and interruption of natural surface water flows is not expected.

The DWER/ASRIS ASS risk mapping indicates that the PDE occurs in an area classified as "Cp(p4) and "Cq(p4) – Extremely Low Probability of Occurrence of ASS.

The proposal is in a region where pre-European native vegetation extent remains largely uncleared (~99%). The small extent of proposed clearing at four localised locations, three of which include pre-existing disturbance, is unlikely to cause appreciable land degradation.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

- Schoknecht, N, and Payne, A L. (2011)
- Government GIS Shapefiles (Accessed 17/04/2024):
 - CSIRO Acid Sulphate Soil Risk Map
 - Soil Landscape Mapping Systems DPIRD

(h) 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.

Proposed clearing is not likely to be at variance to this Principle.

According to GIS datasets, none of the proposed clearing areas are located within a conservation area.

According to GIS dataset DBCA-045 (Directory of Important Wetlands), the proposed parking bay at SLK 2139 is located just outside the boundary of the Roebuck Plains System Directory of Important Wetland, which covers approximately 48,000 hectares (Environment Australia, 2001). Roebuck Plains system is considered a good example of a major freshwater floodplain of the bioregion lacking substantial riverine inflow, a major stop-over area for migratory species and a significant drought refuge area (Lake Eda) for waterbirds in the bioregion. Small distinct wetlands on the plains include creeks, claypans and small lakes connected with the floodplain by streams/watercourses (DCCEEW 2019d).

According to GIS dataset DBCA-045 (Directory of Important Wetlands), the parking bay at SLK 1897 is located approximately 700 m from the mapped boundary of the Nationally Important Wetland - Mandora Salt Marsh. Mandora Salt Marsh is an elongate complex of wetland extending more than 100 km eastwards into the Great Sandy Desert from the vicinity of Eighty Mile Beach near Mandora. It is considered a good example of raised peat bog, permanent stream and palaeodrainage system situated in a tropical desert (DCCEEW 2019d).

There are no rivers creeks or other defined watercourses occurring within or adjacent to the proposed the parking bays at SLK 2139 and 1897. Although the parking bays are close to the wetland areas, most of the vegetation types recorded were not riparian or associated with wetlands. One vegetation type - **TspSv** recorded at the Parking Bay at SLK 2139 represented vegetation associated with the depression areas. However only a total of 0.22 ha of this vegetation type falls within the PDE of which only 0.045 ha will be required to be cleared. Given the minor clearing for project activities and a large extension of the wetland areas outside the PDE, it is unlikely that the project will impact the environmental and conservation values of the identified nationally important wetlands.

A Ramsar Site - Eighty Mile Beach, is located approximately 1.6 km and a Class 'C' Walyarta Conservation Park (R 52387) vested under the Conservation and Parks Commission & Nyangumarta Warrarn Aboriginal Corporation RNTBC is more than 5.5 km southeast of the proposed parking bay at SLK 1897.

The Eighty Mile Beach Ramsar Site consists of a 220 km section of coastline and adjacent mudflats, together with two large ephemeral lakes and a series of small permanent mound springs. More than 472,000 migratory waders have been counted on the mudflats during the September to November period. The site is considered to be one of the major arrival and departure areas for migratory shorebirds visiting Australia (DCCEEW 2019c). The proposed parking bay at the SLK 1897 is an upgrade of an existing parking bay and consists of a lower quality vegetation in comparison to the available vegetation in the surrounding areas. The vegetation proposed to be cleared in this parking bay is unlikely to provide a buffer, ecological linkage or act as outlier to the Ramsar Site or the Walyarta Conservation Park. The clearing will be narrow and adjacent to an existing road and as such is unlikely to impact the environmental values of the Ramsar Site or the conservation Park.

Based on the above, the proposed clearing is unlikely to have an impact on the environmental values of the adjacent or nearby conservation areas. The proposed clearing is not likely to be at variance to this Principle.

Methodology

- DCCEEW (2019c)
- DCCEEW (2019d)
- Environment Australia (2001)
- Government GIS Shapefiles (Accessed 17/04/2024):

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- DBCA Legislated Lands and Waters
- Ramsar Wetlands
- Directory of Important Wetlands in Australia
- Watercourses

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Proposed clearing is not likely to be at variance to this Principle.

The project is located in the Canning-Kimberley Groundwater Area, proclaimed under the RIWI Act. The minor extent of clearing is unlikely to deteriorate groundwater quality.

No proclaimed surface water areas are located within or adjacent to the PDE. No mapped watercourses run through the PDE. A minor non-perennial watercourse runs approximately 225 m off the proposed parking bays at SLK 2190.57 and 2199.57. However, the watercourses will not be impacted by the proposed clearing.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

- Government GIS Shapefiles (Accessed 17/04/2024):
 - RIWI Act, Surface Water Areas and Irrigation Districts
 - RIWI Act, Groundwater Areas
 - Acid Sulphate Soil risk mapping
 - Watercourses

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Proposed clearing is not at variance to this Principle.

The subregional climate is described as dry winter and hot semi-arid summer with an average annual rainfall ranging between 360.6 mm (Anna Plains, Site ID - 3028) - 583.5 mm (Roebuck Plains, Site ID - 3023) (BoM, 2024). Extreme weather events are a significant component of the Kimberley climate. Tropical cyclones and tropical storms can bring heavy and sustained rainfall, particularly in the months leading up to and during the wet season. It is common for a large proportion of the region's rainfall to be recorded in one single event, leading to extensive flooding of rivers, creeks and roadways.

The proposed clearing will take place in the dry season with Main Roads standard measures for environmental management in place during on ground works to avoid the potential escalation of flooding, waterlogging or erosion. The proposed clearing is in a region where the remaining native vegetation extent is approximately 99%. No changes to the incidence or intensity of flooding are anticipated given the relatively minor clearing. As noted above, climatic conditions are the main factor influencing flooding and relatively small amount of proposed clearing is unlikely to have measurable influence on flood regimes in the area.

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology

- BoM Website (Accessed 16/04/2024)

6 VEGETATION MANAGEMENT

Main Roads will avoid clearing native vegetation where possible. Where clearing cannot be avoided then this clearing is kept to a minimum.

7 REHABILITATION, REVEGETATION & OFFSETS

7.1 Revegetation and Rehabilitation

No temporary clearing will be undertaken as part of the Proposal activities.

7.2 Offset Proposal

No offset proposal is required as the proposed clearing will not result in significant residual impacts to native vegetation within the region.

8 STAKEHOLDER CONSULTATION

Main Roads will undertake stakeholder consultation in accordance with CPS 818 Condition 8. The LGA, relevant traditional owners will be notified as part of project development activities.

9 COMPLIANCE WITH CPS 818

Table 5 summarises what further pre-clearing impact assessment is required in accordance with CPS 818.

Table 5. Summary of Additional Management Actions Required by CPS 818

Impact of Clearing	Yes/No or NA	Further Action Required
1. The CAR indicates that the clearing is 'At Variance' or 'May be at Variance' with one or more of the Clearing Principles.	Yes	No further action required. In accordance with Conditions of CPS 818, where the clearing is at variance or may be at variance to clearing principle (f) and no other clearing principle, and the area of the proposed clearing is less than 0.5 hectares in size and the clearing principle (f) impacts only relate to: (i) a minor non-perennial watercourse(s); and/or (ii) a wetland that is not a defined wetland stakeholder submissions are not required to be sought and approval of the Assessment Report by the CEO is not required. The 0.22 ha of vegetation type TspSv proposed for clearing in relation to clearing principle (f) does not relate to a defined wetland.

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Impact of Clearing	Yes/No or NA	Further Action Required
2. Clearing is at variance or may be at variance with Clearing Principle (g) land degradation, (i) surface or underground water quality <u>or</u> (j) the incidence of flooding.	No	No further action required.
3. Clearing is at variance with Clearing Principle (g) land degradation, (i) surface or underground water quality <u>and</u> (j) the incidence of flooding.	No	No further action required.
4. The Proposal involves clearing for temporary works (as defined by CPS 818).	No	No further action required.
5a. Proposal is within a Region that: • has rainfall greater than 400mm; and, • is South of the 26th parallel; and, • works are necessary in 'Other than dry conditions'; and, • works have potential for uninfested areas to be impacted.	No	Standard Vehicle and Plant management actions from Annexure 204B (TABLE 204B.9.1), <u>Hygiene Checklists</u> will be applied.
5b. Do the proposed works require clearing within or adjacent to DBCA managed lands in non-dry conditions?	No	No further action required.
6. Main Roads has been notified by DWER or an environmental specialist that the area to be cleared is susceptible to a pathogen other than dieback.	No	No further action required.
7. Weeds are likely to spread to and result in environmental harm to adjacent areas of native vegetation that are in good or better condition.	No	No further action required.
8. Did an environmental specialist conduct the survey or field assessment?	Yes	The Environmental Specialist undertaking the biological assessments was suitably qualified and had more than three years' experience.
9. Did an environmental specialist prepare the Assessment Report and any other associated documentation including the VMP, Dieback Management Plan or Offset Proposal?	Yes	The Environmental Specialist preparing the Assessment Report and any other associated documentation including the VMP, Dieback Management Plan or Offset Proposal was suitably qualified and had more than three years' experience.

10 REFERENCES

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11 APPENDICES

Appendix 1: CPS 818/17 condition 8 (e) (iii) Biological Surveys and Field Assessment Executive Summary

11.1 Summary of A Basic Fauna Survey (Phoenix, 2024)

In February 2023, Phoenix Environmental Sciences Pty Ltd (Phoenix) was commissioned by Main Roads to undertake a basic vertebrate fauna survey for the Project. The scope of work included a desktop assessment and a basic vertebrate fauna field survey which was conducted from 26 – 31 March 2023. Surveys methods included habitat assessments, low intensity fauna sampling and habitat suitability assessments for Bilby (VU), Night Parrot (EN/CR) and Australian Painted Snipe (EN).

The desktop review identified records of 484 vertebrate taxa within the 40 km desktop search extent, of which 91 were conservation significant species. Sixty-two migratory bird species are known to occur within the desktop search area and are associated with the nearby Roebuck Bay and Roebuck tidal plains. Four significant vertebrate species have previously been recorded within the study area:

- *Apus pacificus*, Fork-tailed Swift (Mig.)
- *Calidris acuminata*, Sharp-tailed Sandpiper (Mig.)
- *Falco peregrinus*, Peregrine Falcon (OS)
- *Glareola maldivarum*, Oriental Pratincole (Mig.)

Four habitats were identified in the study area: low open woodland (22.4%), woodland (37.2%), samphire shrubland (2.8%) and open shrubland (16.8%). The habitats do not represent critical habitat for any conservation significant species and occur widely within the region.

A total of 42 vertebrate fauna species were recorded during the survey, including 39 birds, 2 lizards and one mammal. Three migratory bird species were recorded opportunistically during the survey at Roebuck Plains:

- *Calidris acuminata*, Sharp-tailed Sandpiper (Mig.)
- *Hydroprogne caspia*, Caspian Tern (Mig.)
- *Plegadis falcinellus*, Glossy Ibis (Mig.)

Although potentially suitable Bilby habitat was identified in the study area, no evidence of Bilby was recorded, and it is unlikely that this species would be restricted to the study area. The samphire shrubland habitat that intersects the study area may be used by Australian Painted Snipe as they have been recorded at the nearby Roebuck Plains. Suitable habitat for Night Parrot was not present in the study area.

The results of the survey indicate that the majority of the study area is of low value for conservation significant fauna. The habitats identified are extensive within the wider region and fauna that may occur are unlikely to be restricted to the relatively small study area components. The large number of migratory shorebirds that were identified in the desktop review are likely to utilise the higher value salt marsh and coastal habitats nearby.

11.2 Summary of A Detailed and Targeted Flora Survey (Phoenix, 2024)

In February 2023, Phoenix Environmental Sciences Pty Ltd (Phoenix) was commissioned to undertake a detailed and targeted flora survey for the Project to delineate key flora values to inform the environmental assessment and approvals process. The Project consists of six separate parking bay areas on the Great Northern Highway that comprise a total of 76.9 ha. The scope of work for the detailed and targeted flora survey was as follows:

- Undertake a desktop assessment to identify biological features and constraints which may be in, or nearby the study area.
- Undertake a detailed and targeted vegetation and flora survey, including;
 - Vegetation unit and condition mapping
 - Targeted searches for Threatened and Priority flora identified in the desktop assessment.

The field survey was undertaken within the primary survey period for the Northern Botanical Province between the 27th and 31st of March 2023.

A total of 139 flora taxa representing 43 families and 99 genera identified to species level were recorded. In addition, a single specimen could not be identified to species level, *Fimbristylis* aff. *macassarensis*. This specimen possesses novel characters and is considered to possibly represent an undescribed taxon. The flora assemblage included 133 native species and seven introduced species. The most prominent families recorded were Fabaceae (23 spp.), Poaceae (20 spp.), Malvaceae (12 spp.) and Cyperaceae (7 spp.).

No Threatened flora were recorded during the field survey, four Priority 3 flora were recorded, *Bonamia oblongifolia*, *Polymeria* sp. Broome (K.F. Kenneally 9759), *Stylidium pindanicum* and *Terminalia kumpaja*. In addition, the specimen *Fimbristylis* aff. *macassarensis*, is considered a locally significant species. Assessment of the likelihood of occurrence assessment for the remaining significant species identified in the desktop review determined that none were likely to occur in the study area due to either a lack of suitable habitat or it was considered that the study area had been adequately searched to locate the species. One Declared Pest **Calotropis procera* was recorded in the study area, and management of this species is required under the BAM Act (2007).

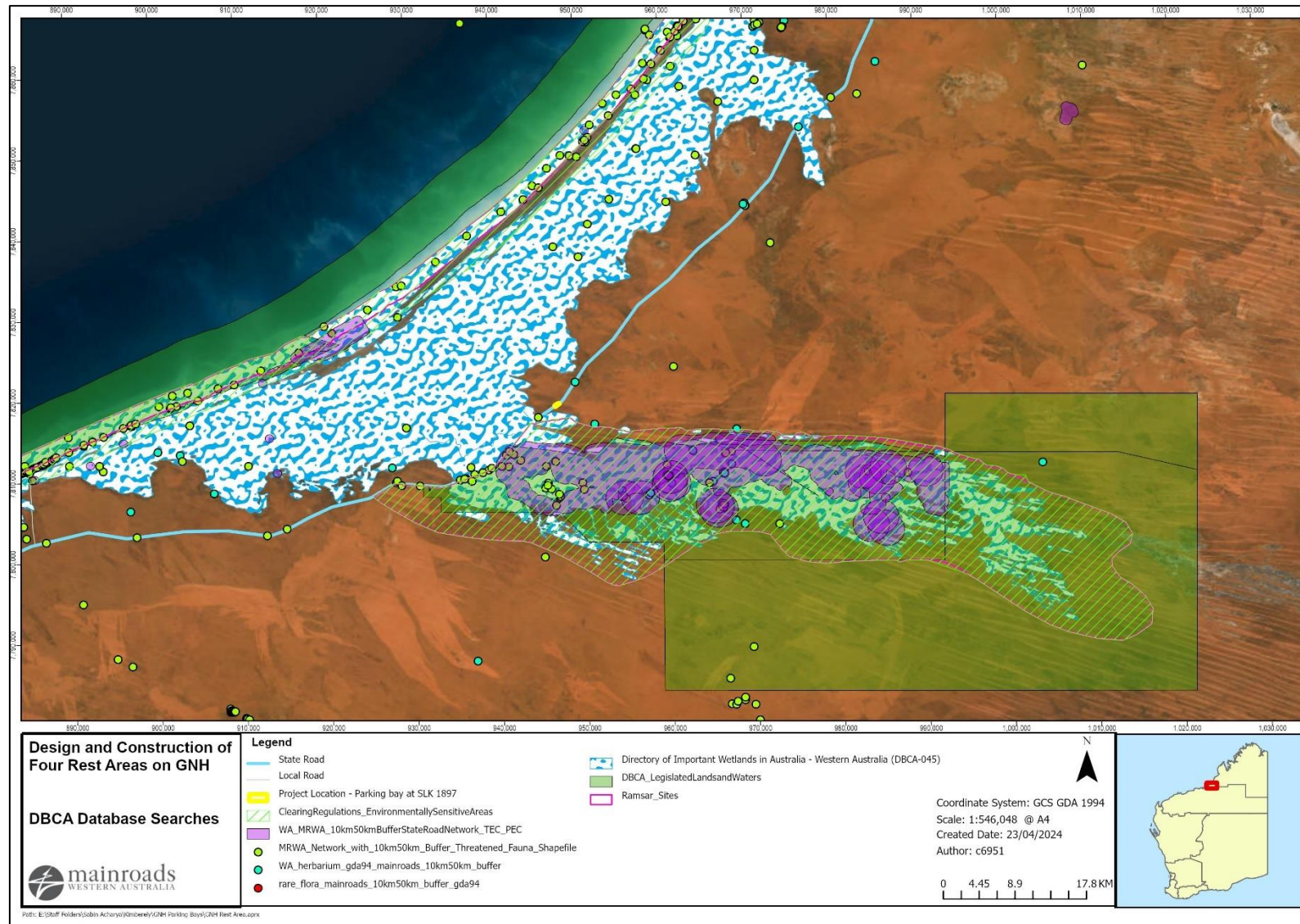
Four vegetation types were defined for the study area. They comprised an *Acacia* shrubland over *Triodia* grassland, two mixed open woodlands over *Acacia tumida* shrubland over *Sorghum plumosum* dominated grasslands and a low samphire shrubland of *Tecticornia* spp. over a *Sporobolus virginicus* tussock grassland). The mixed woodlands were the most prominent accounting for 59.53% of the study area, followed by the *Acacia* shrubland (16.84%) with the samphire shrubland accounting for just 2.84% of the study area.

Remnant vegetation was recorded to be in Degraded to Excellent condition with the majority in Excellent to Very Good condition. The areas recorded in Degraded condition had a high level of weed infestation with sections of these areas dominated by weed species and there was evidence of large-scale historic clearing and the presence of vehicle tracks and litter.

One vegetation type, TspSv, is considered representative of the P3 PEC, the Roebuck land system. The remaining three vegetation types in the study area may be considered to have local significance as they represent habitat and therefore a role as a refuge for significant flora species. However, all three are broadly representative of vegetation associations that have a wide distribution and subsequently the majority of the vegetation in the study area represents a very small proportion of widespread vegetation associations.

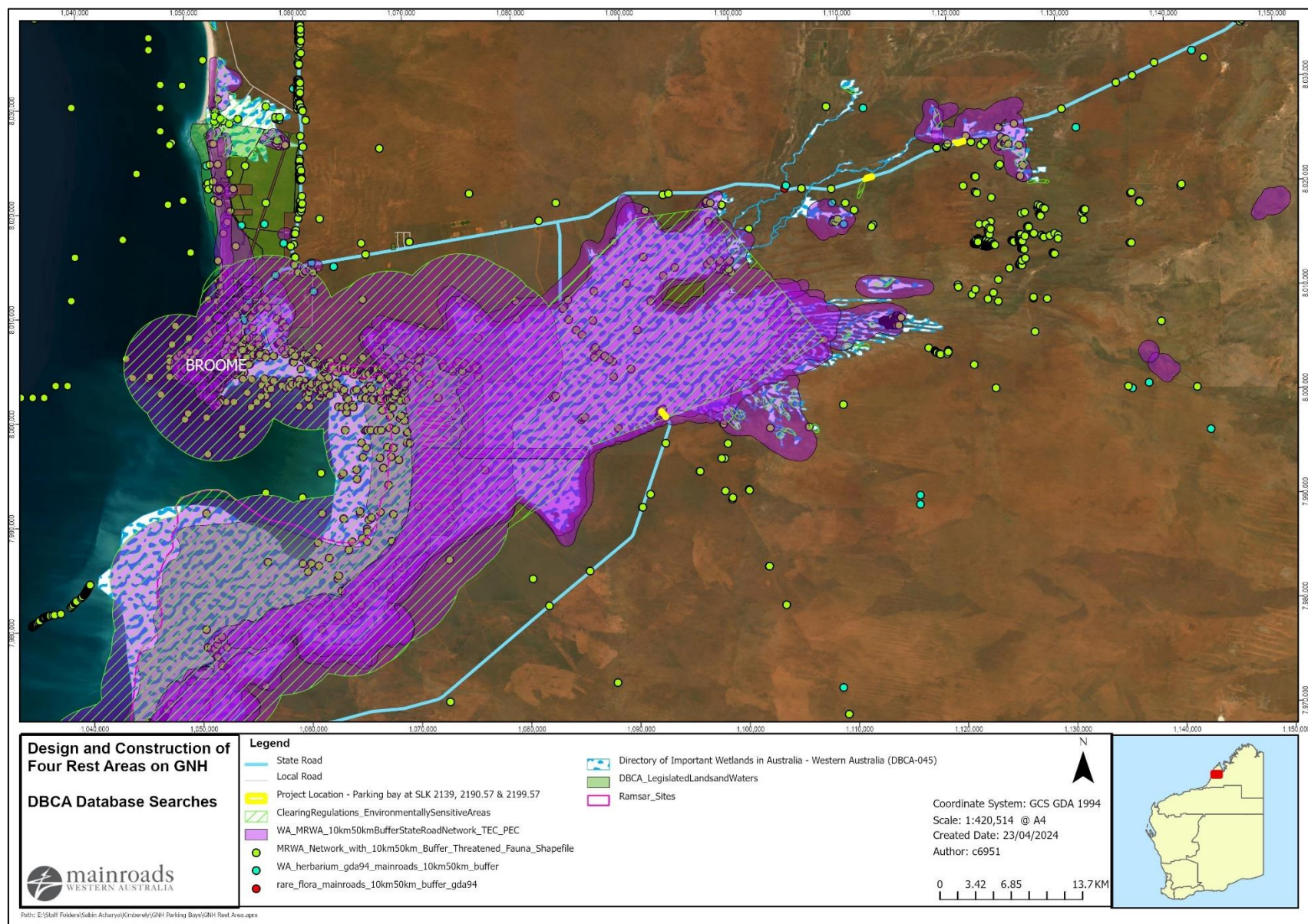
The botanical values identified within the study area comprise Priority 3 flora species recorded in five of the six parking bay study areas and vegetation representative of a P3 PEC in the sixth parking bay study area.

Appendix 2: DBCA Threatened Flora and Fauna Database Searches



Appendix 2A. DBCA Database Searches for Parking Bay at SLK 1897

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Appendix 2B. DBCA Database Searches for Parking Bay at SLK 2139, 2190.57 & 2199.57

Appendix 3: EPBC Act Protected Matters Search Report



Australian Government

Department of Climate Change, Energy,
the Environment and Water

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: 15-Apr-2024

[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)	2
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	1
Listed Threatened Ecological Communities:	1
Listed Threatened Species:	49
Listed Migratory Species:	68

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:	46
Commonwealth Heritage Places:	None
Listed Marine Species:	107
Whales and Other Cetaceans:	12
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	1
Habitat Critical to the Survival of Marine Turtles:	1

Extra Information

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

State and Territory Reserves:	18
Regional Forest Agreements:	None
Nationally Important Wetlands:	3
EPBC Act Referrals:	21
Key Ecological Features (Marine):	None
Biologically Important Areas:	29
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

National Heritage Places		[Resource Information]
Name	State	Legal Status
Natural		
The West Kimberley	WA	Listed place

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	
Eighty-mile beach	Within Ramsar site	
Roebuck bay	Within Ramsar site	

Commonwealth Marine Area		[Resource Information]
Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.		
Feature Name		
Commonwealth Marine Areas (EPBC Act)		

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
Monsoon vine thickets on the coastal sand dunes of Dampier Peninsula	Endangered	Community likely to occur within 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
BIRD		
Arenaria interpres		
Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area

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Scientific Name	Threatened Category	Presence Text
<u>Calidris canutus</u> Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area
<u>Calidris ferruginea</u> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
<u>Calidris tenuirostris</u> Great Knot [862]	Vulnerable	Roosting known to occur within area
<u>Charadrius leschenaultii</u> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
<u>Charadrius mongolus</u> Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
<u>Erythrotriorchis radiatus</u> Red Goshawk [942]	Endangered	Species or species habitat may occur within area
<u>Erythrura gouldiae</u> Gouldian Finch [413]	Endangered	Species or species habitat may occur within area
<u>Falco hypoleucos</u> Grey Falcon [929]	Vulnerable	Species or species habitat known to occur within area
<u>Limnodromus semipalmatus</u> Asian Dowitcher [843]	Vulnerable	Species or species habitat known to occur within area
<u>Limosa lapponica menzbieri</u> Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Endangered	Species or species habitat known to occur within area
<u>Limosa limosa</u> Black-tailed Godwit [845]	Endangered	Roosting known to occur within area
<u>Numenius madagascariensis</u> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area

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Scientific Name	Threatened Category	Presence Text
<u>Papasula abbotti</u> Abbott's Booby [59297]	Endangered	Species or species habitat may occur within area
<u>Pezoporus occidentalis</u> Night Parrot [59350]	Endangered	Species or species habitat may occur within area
<u>Phaethon rubricauda westralis</u> Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird [91824]	Endangered	Species or species habitat likely to occur within area
<u>Pluvialis squatarola</u> Grey Plover [865]	Vulnerable	Roosting known to occur within area
<u>Polytelis alexandrae</u> Princess Parrot, Alexandra's Parrot [758]	Vulnerable	Species or species habitat may occur within area
<u>Rostratula australis</u> Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area
<u>Tringa nebularia</u> Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area
<u>Tyto novaehollandiae kimberli</u> Masked Owl (northern) [26048]	Vulnerable	Species or species habitat may occur within area
<u>Xenus cinereus</u> Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area
FISH		
<u>Thunnus maccoyii</u> Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat likely to occur within area
MAMMAL		
<u>Balaenoptera musculus</u> Blue Whale [36]	Endangered	Species or species habitat likely to occur within area

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Scientific Name	Threatened Category	Presence Text
<u>Dasyurus hallucatus</u> Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat likely to occur within area
<u>Macroderma gigas</u> Ghost Bat [174]	Vulnerable	Species or species habitat likely to occur within area
<u>Macrotis lagotis</u> Greater Bilby [282]	Vulnerable	Species or species habitat known to occur within area
<u>Saccolaimus saccolaimus nudicluniatus</u> Bare-rumped Sheath-tailed Bat, Bare- rumped Sheath-tail Bat [66889]	Vulnerable	Species or species habitat likely to occur within area
<u>Trichosurus vulpecula arnhemensis</u> Northern Brushtail Possum [83091]	Vulnerable	Species or species habitat known to occur within area
<u>Xeromys myoides</u> Water Mouse, False Water Rat, Yirrko [66]	Vulnerable	Species or species habitat may occur within area
PLANT		
<u>Seringia exastia</u> Fringed Fire-bush [88920]	Critically Endangered	Species or species habitat known to occur within area
REPTILE		
<u>Aipysurus apraefrontalis</u> Short-nosed Sea Snake, Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area
<u>Aipysurus foliosquama</u> Leaf-scaled Sea Snake, Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat may occur within area
<u>Caretta caretta</u> Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
<u>Chelonia mydas</u> Green Turtle [1765]	Vulnerable	Breeding known to occur within area

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Scientific Name	Threatened Category	Presence Text
<u>Dermochelys coriacea</u> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
<u>Eretmochelys imbricata</u> Hawksbill Turtle [1766]	Vulnerable	Breeding likely to occur within area
<u>Liopholis kintorei</u> Great Desert Skink, Tjakura, Warrarna, Mulyamiji, Tjalapa, Nampu [83160]	Vulnerable	Species or species habitat may occur within area
<u>Natator depressus</u> Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
<u>Tiliqua scincoides intermedia</u> Northern Blue-tongued Skink [89838]	Critically Endangered	Species or species habitat known to occur within area
<u>Varanus mertensi</u> Mertens' Water Monitor, Mertens's Water Monitor [1568]	Endangered	Species or species habitat may occur within area
<u>Varanus mitchelli</u> Mitchell's Water Monitor [1569]	Critically Endangered	Species or species habitat may occur within area
SHARK		
<u>Carcharodon carcharias</u> White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
<u>Pristis clavata</u> Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Breeding known to occur within area
<u>Pristis pristis</u> Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat known to occur within area
<u>Pristis zijsron</u> Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding known to occur within area
<u>Rhincodon typus</u> Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area

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Scientific Name	Threatened Category	Presence Text
Sphyrna lewini Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely to occur within area
Listed Migratory Species		[Resource Information]
Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat known to occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat likely to occur within area
Sternula albifrons Little Tern [82849]		Breeding known to occur within area
Migratory Marine Species		
Anoxypristis cuspidata Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area

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Scientific Name	Threatened Category	Presence Text
<u>Balaenoptera musculus</u> Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
<u>Carcharhinus longimanus</u> Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area
<u>Carcharodon carcharias</u> White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
<u>Caretta caretta</u> Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
<u>Chelonia mydas</u> Green Turtle [1765]	Vulnerable	Breeding known to occur within area
<u>Crocodylus porosus</u> Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
<u>Dermochelys coriacea</u> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
<u>Dugong dugon</u> Dugong [28]		Foraging, feeding or related behaviour known to occur within area
<u>Eretmochelys imbricata</u> Hawksbill Turtle [1766]	Vulnerable	Breeding likely to occur within area
<u>Megaptera novaeangliae</u> Humpback Whale [38]		Breeding known to occur within area
<u>Mobula alfredi as Manta alfredi</u> Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat may occur within area
<u>Mobula birostris as Manta birostris</u> Giant Manta Ray [90034]		Species or species habitat may occur within area

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Scientific Name	Threatened Category	Presence Text
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]		Breeding known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Breeding known to occur within area
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat known to occur within area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding known to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Sousa sahalensis as Sousa chinensis Australian Humpback Dolphin [87942]		Breeding known to occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
Migratory Terrestrial Species		
Cecropis daurica Red-rumped Swallow [80610]		Species or species habitat known to occur within area
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat known to occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat known to occur within area

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Scientific Name	Threatened Category	Presence Text
Motacilla cinerea Grey Wagtail [642]		Species or species habitat known to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Arenaria interpres Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area
Calidris alba Sanderling [875]		Roosting known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area
Calidris tenuirostris Great Knot [862]	Vulnerable	Roosting known to occur within area
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area

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Scientific Name	Threatened Category	Presence Text
<u>Charadrius leschenaultii</u> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
<u>Charadrius mongolus</u> Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
<u>Charadrius veredus</u> Oriental Plover, Oriental Dotterel [882]		Roosting known to occur within area
<u>Gallinago megala</u> Swinhoe's Snipe [864]		Roosting likely to occur within area
<u>Gallinago stenura</u> Pin-tailed Snipe [841]		Roosting likely to occur within area
<u>Glareola maldivarum</u> Oriental Pratincole [840]		Roosting known to occur within area
<u>Limicola falcinellus</u> Broad-billed Sandpiper [842]		Roosting known to occur within area
<u>Limnodromus semipalmatus</u> Asian Dowitcher [843]	Vulnerable	Species or species habitat known to occur within area
<u>Limosa lapponica</u> Bar-tailed Godwit [844]		Species or species habitat known to occur within area
<u>Limosa limosa</u> Black-tailed Godwit [845]	Endangered	Roosting known to occur within area
<u>Numenius madagascariensis</u> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
<u>Numenius minutus</u> Little Curlew, Little Whimbrel [848]		Roosting known to occur within area
<u>Numenius phaeopus</u> Whimbrel [849]		Roosting known to occur within area

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Scientific Name	Threatened Category	Presence Text
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Philomachus pugnax Ruff (Reeve) [850]		Roosting known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Roosting known to occur within area
Tringa brevipes Grey-tailed Tattler [851]		Roosting known to occur within area
Tringa glareola Wood Sandpiper [829]		Roosting known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area
Tringa totanus Common Redshank, Redshank [835]		Roosting known to occur within area
Xenus cinereus Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within 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
Defence	
Defence - BROOME TRAINING DEPOT [50141]	WA
Unknown	

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Commonwealth Land Name	State
Commonwealth Land - [51806]	WA
Commonwealth Land - [51807]	WA
Commonwealth Land - [51804]	WA
Commonwealth Land - [51818]	WA
Commonwealth Land - [51809]	WA
Commonwealth Land - [51803]	WA
Commonwealth Land - [51073]	WA
Commonwealth Land - [51072]	WA
Commonwealth Land - [51071]	WA
Commonwealth Land - [51070]	WA
Commonwealth Land - [51076]	WA
Commonwealth Land - [51074]	WA
Commonwealth Land - [51077]	WA
Commonwealth Land - [52251]	WA
Commonwealth Land - [51088]	WA
Commonwealth Land - [51079]	WA
Commonwealth Land - [51078]	WA
Commonwealth Land - [51080]	WA
Commonwealth Land - [51082]	WA
Commonwealth Land - [51083]	WA
Commonwealth Land - [51081]	WA
Commonwealth Land - [51815]	WA
Commonwealth Land - [51814]	WA
Commonwealth Land - [51817]	WA
Commonwealth Land - [51816]	WA
Commonwealth Land - [51811]	WA
Commonwealth Land - [51810]	WA

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Commonwealth Land Name	State
Commonwealth Land - [51813]	WA
Commonwealth Land - [51812]	WA
Commonwealth Land - [51826]	WA
Commonwealth Land - [51824]	WA
Commonwealth Land - [51820]	WA
Commonwealth Land - [51805]	WA
Commonwealth Land - [51965]	WA
Commonwealth Land - [51966]	WA
Commonwealth Land - [51819]	WA
Commonwealth Land - [51068]	WA
Commonwealth Land - [51075]	WA
Commonwealth Land - [51069]	WA
Commonwealth Land - [51431]	WA
Commonwealth Land - [51823]	WA
Commonwealth Land - [51822]	WA
Commonwealth Land - [51821]	WA
Commonwealth Land - [51825]	WA
Commonwealth Land - [51808]	WA

Listed Marine Species	[Resource Information]	
Scientific Name	Threatened Category	Presence Text
Bird		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat known to occur within area
Anous stolidus		
Common Noddy [825]		Species or species habitat likely to occur within area

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Scientific Name	Threatened Category	Presence Text
<u>Anseranas semipalmata</u> Magpie Goose [978]		Species or species habitat may occur within area overfly marine area
<u>Apus pacificus</u> Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area
<u>Arenaria interpres</u> Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area
<u>Bubulcus ibis as Ardea ibis</u> Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area
<u>Calidris acuminata</u> Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area
<u>Calidris alba</u> Sanderling [875]		Roosting known to occur within area
<u>Calidris canutus</u> Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine area
<u>Calidris ferruginea</u> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area
<u>Calidris melanotos</u> Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area
<u>Calidris ruficollis</u> Red-necked Stint [860]		Roosting known to occur within area overfly marine area
<u>Calidris tenuirostris</u> Great Knot [862]	Vulnerable	Roosting known to occur within area overfly marine area

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Scientific Name	Threatened Category	Presence Text
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area
Cecropis daurica as Hirundo daurica Red-rumped Swallow [80610]		Species or species habitat known to occur within area overfly marine area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area overfly marine area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Roosting known to occur within area overfly marine area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Roosting known to occur within area overfly marine area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat known to occur within area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area overfly marine area

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Scientific Name	Threatened Category	Presence Text
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area overfly marine area
Glareola maldivarum Oriental Pratincole [840]		Roosting known to occur within area overfly marine area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Roosting known to occur within area overfly marine area
Hirundo rustica Barn Swallow [662]		Species or species habitat known to occur within area overfly marine area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area overfly marine area
Limnodromus semipalmatus Asian Dowitcher [843]	Vulnerable	Species or species habitat known to occur within area overfly marine area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]	Endangered	Roosting known to occur within area overfly marine area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area

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Scientific Name	Threatened Category	Presence Text
Motacilla cinerea Grey Wagtail [642]		Species or species habitat known to occur within area overfly marine area
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to occur within area overfly marine area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting known to occur within area overfly marine area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Papasula abbotti Abbott's Booby [59297]	Endangered	Species or species habitat may occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat likely to occur within area
Philomachus pugnax Ruff (Reeve) [850]		Roosting known to occur within area overfly marine area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area
Pluvialis squatarola Grey Plover [865]	Vulnerable	Roosting known to occur within area overfly marine area

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Scientific Name	Threatened Category	Presence Text
<u>Recurvirostra novaehollandiae</u> Red-necked Avocet [871]		Roosting known to occur within area overfly marine area
<u>Rostratula australis as Rostratula benghalensis (sensu lato)</u> Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area overfly marine area
<u>Sternula albifrons as Sterna albifrons</u> Little Tern [82849]		Breeding known to occur within area
<u>Stiltia isabella</u> Australian Pratincole [818]		Roosting known to occur within area overfly marine area
<u>Tringa brevipes as Heteroscelus brevipes</u> Grey-tailed Tattler [851]		Roosting known to occur within area
<u>Tringa glareola</u> Wood Sandpiper [829]		Roosting known to occur within area overfly marine area
<u>Tringa nebularia</u> Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area overfly marine area
<u>Tringa stagnatilis</u> Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area overfly marine area
<u>Tringa totanus</u> Common Redshank, Redshank [835]		Roosting known to occur within area overfly marine area
<u>Xenus cinereus</u> Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area overfly marine area
Fish		
<u>Campichthys tricarinatus</u> Three-keel Pipefish [66192]		Species or species habitat may occur within area

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Scientific Name	Threatened Category	Presence Text
<u>Choeroichthys brachysoma</u> Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
<u>Choeroichthys suillus</u> Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
<u>Corythoichthys flavofasciatus</u> Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish [66200]		Species or species habitat may occur within area
<u>Cosmocampus banneri</u> Roughridge Pipefish [66206]		Species or species habitat may occur within area
<u>Doryrhamphus excisus</u> Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish [66211]		Species or species habitat may occur within area
<u>Doryrhamphus janssi</u> Cleaner Pipefish, Janss' Pipefish [66212]		Species or species habitat may occur within area
<u>Filicampus tigris</u> Tiger Pipefish [66217]		Species or species habitat may occur within area
<u>Halicampus brocki</u> Brock's Pipefish [66219]		Species or species habitat may occur within area
<u>Halicampus grayi</u> Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
<u>Halicampus nitidus</u> Glittering Pipefish [66224]		Species or species habitat may occur within area
<u>Halicampus spinirostris</u> Spiny-snout Pipefish [66225]		Species or species habitat may occur within area

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Scientific Name	Threatened Category	Presence Text
<u>Hallichthys taeniophorus</u> Ribbioned Pipehorse, Ribbioned Seadragon [66226]		Species or species habitat may occur within area
<u>Hippichthys penicillus</u> Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area
<u>Hippocampus histrix</u> Spiny Seahorse, Thorny Seahorse [66236]		Species or species habitat may occur within area
<u>Hippocampus kuda</u> Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area
<u>Hippocampus planifrons</u> Flat-face Seahorse [66238]		Species or species habitat may occur within area
<u>Hippocampus spinosissimus</u> Hedgehog Seahorse [66239]		Species or species habitat may occur within area
<u>Hippocampus trimaculatus</u> Three-spot Seahorse, Low-crowned Seahorse, Flat-faced Seahorse [66720]		Species or species habitat may occur within area
<u>Micrognathus micronotopterus</u> Tidepool Pipefish [66255]		Species or species habitat may occur within area
<u>Solegnathus hardwickii</u> Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area
<u>Solegnathus lettiensis</u> Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
<u>Solenostomus cyanopterus</u> Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area

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Scientific Name	Threatened Category	Presence Text
<u>Syngnathoides biaculeatus</u> Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
<u>Trachyrhamphus bicoarctatus</u> Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area
<u>Trachyrhamphus longirostris</u> Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281]		Species or species habitat may occur within area
Mammal		
<u>Dugong dugon</u> Dugong [28]		Foraging, feeding or related behaviour known to occur within area
Reptile		
<u>Aipysurus apraefrontalis</u> Short-nosed Sea Snake, Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area
<u>Aipysurus duboisii</u> Dubois' Sea Snake, Dubois' Seasnake, Reef Shallows Sea Snake [1116]		Species or species habitat may occur within area
<u>Aipysurus foliosquama</u> Leaf-scaled Sea Snake, Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat may occur within area
<u>Aipysurus laevis</u> Olive Sea Snake, Olive-brown Sea Snake [1120]		Species or species habitat may occur within area
<u>Aipysurus mosaicus as Aipysurus eydouxii</u> Mosaic Sea Snake [87261]		Species or species habitat may occur within area
<u>Aipysurus tenuis</u> Brown-lined Sea Snake, Mjoberg's Sea Snake [1121]		Species or species habitat may occur within area

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Scientific Name	Threatened Category	Presence Text
<u>Caretta caretta</u> Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
<u>Chelonia mydas</u> Green Turtle [1765]	Vulnerable	Breeding known to occur within area
<u>Crocodylus johnstoni</u> Freshwater Crocodile, Johnston's Crocodile, Johnstone's Crocodile [1773]		Species or species habitat may occur within area
<u>Crocodylus porosus</u> Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
<u>Dermochelys coriacea</u> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
<u>Emydocephalus annulatus</u> Eastern Turtle-headed Sea Snake [1125]		Species or species habitat may occur within area
<u>Ephalophis greyae</u> as <u>Ephalophis greyi</u> Mangrove Sea Snake [93738]		Species or species habitat may occur within area
<u>Eretmochelys imbricata</u> Hawksbill Turtle [1766]	Vulnerable	Breeding likely to occur within area
<u>Hydrelaps darwiniensis</u> Port Darwin Sea Snake, Black-ringed Mangrove Sea Snake [1100]		Species or species habitat may occur within area
<u>Hydrophis elegans</u> Elegant Sea Snake, Bar-bellied Sea Snake [1104]		Species or species habitat may occur within area
<u>Hydrophis hardwickii</u> as <u>Lapemis hardwickii</u> Spine-bellied Sea Snake [93516]		Species or species habitat may occur within area
<u>Hydrophis kingii</u> as <u>Disteira kingii</u> Spectacled Sea Snake [93511]		Species or species habitat may occur within area

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Scientific Name	Threatened Category	Presence Text
Hydrophis macdowelli as Hydrophis mcdowelli MacDowell's Sea Snake, Small-headed Sea Snake, [75601]		Species or species habitat may occur within area
Hydrophis major as Disteira major Olive-headed Sea Snake [93512]		Species or species habitat may occur within area
Hydrophis ornatus Spotted Sea Snake, Ornate Reef Sea Snake [1111]		Species or species habitat may occur within area
Hydrophis peronii as Acalyptophis peronii Horned Sea Snake [93509]		Species or species habitat may occur within area
Hydrophis platura as Pelamis platurus Yellow-bellied Sea Snake [93746]		Species or species habitat may occur within area
Hydrophis stokesii as Astrotia stokesii Stokes' Sea Snake [93510]		Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Whales and Other Cetaceans		[Resource Information]
Current Scientific Name	Status	Type of Presence
Mammal		
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area

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Current Scientific Name	Status	Type of Presence
Megaptera novaeangliae Humpback Whale [38]		Breeding known to occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]		Breeding known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Sousa sahalensis Australian Humpback Dolphin [87942]		Breeding known to occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area
Australian Marine Parks		[Resource Information]
Park Name	Zone & IUCN Categories	
Eighty Mile Beach	Multiple Use Zone (IUCN VI)	
Habitat Critical to the Survival of Marine Turtles		[Resource Information]
Scientific Name	Behaviour	Presence
Aug - Sep		
Natator depressus Flatback Turtle [59257]	Nesting	Known to occur

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Extra Information

State and Territory Reserves		[Resource Information]
Protected Area Name	Reserve Type	State
Broome Bird Observatory	5(1)(h) Reserve	WA
Broome Wildlife Centre	5(1)(h) Reserve	WA
Eighty Mile Beach	Marine Park	WA
Kujungurru Warrarn	Nature Reserve	WA
Nyangumarta Warrarn	Indigenous Protected Area	WA
Nyangumarta Warrarn	Indigenous Protected Area	WA
Unnamed WA51046	5(1)(h) Reserve	WA
Unnamed WA51105	5(1)(h) Reserve	WA
Unnamed WA51497	5(1)(h) Reserve	WA
Unnamed WA51583	5(1)(h) Reserve	WA
Unnamed WA51617	5(1)(h) Reserve	WA
Unnamed WA51932	5(1)(h) Reserve	WA
Unnamed WA52354	5(1)(h) Reserve	WA
Unnamed WA53015	Nature Reserve	WA
Walyarta	Conservation Park	WA
Yawuru	Indigenous Protected Area	WA
Yawuru	Indigenous Protected Area	WA
Yawuru Nagulagun / Roebuck Bay	Marine Park	WA

Nationally Important Wetlands		[Resource Information]
Wetland Name	State	
Mandora Salt Marsh	WA	
Roebuck Bay	WA	
Roebuck Plains System	WA	

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EPBC Act Referrals		[Resource Information]	
Title of referral	Reference	Referral Outcome	Assessment Status
Broome Water Supply Borefield Bushfire Mitigation Program	2023/09597		Referral Decision
Action clearly unacceptable			
Asian Renewable Energy Hub Revised Proposal, WA	2021/8891	Action Clearly Unacceptable	Completed
Controlled action			
Asian Renewable Energy Hub, 220 km east of Port Hedland, Western Australia	2017/8112	Controlled Action	Post-Approval
Broome Boating Facility	2021/9098	Controlled Action	Referral Decision
Broome International Airport Relocation Project	2000/74	Controlled Action	Post-Approval
Derby Tidal Power Project	2010/5544	Controlled Action	Final PER Or EIS
Great Northern Pipeline - 630 km buried gas pipeline	2009/5257	Controlled Action	Completed
Thunderbird Mineral Sands Project, WA	2016/7648	Controlled Action	Post-Approval
Not controlled action			
Broome Borefield Bushfire Mitigation Program	2020/8680	Not Controlled Action	Completed
Broome Motorplex Relocation Project, Lot 591 Broome Road	2017/8117	Not Controlled Action	Completed
Broome Road Industrial Estate	2020/8811	Not Controlled Action	Completed
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed
Kimberley Marine Offloading Facility	2020/8736	Not Controlled Action	Completed
Native Orchard Development, 10km northeast of Broome WA	2019/8501	Not Controlled Action	Completed
Port of Broome Channel Optimisation Project, West Roebuck Bay, WA	2018/8162	Not Controlled Action	Completed
Power Station Upgrade	2001/357	Not Controlled Action	Completed
Power Station Upgrade (South Port Site)	2001/414	Not Controlled Action	Completed

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Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Salt Creek Water Exploration Program	2020/8622	Not Controlled Action	Completed
Thunderbird Mineral Sands Project, minor and preliminary works, WA	2017/7968	Not Controlled Action	Completed
Wastewater Treatment Plant	2008/4545	Not Controlled Action	Completed
Not controlled action (particular manner)			
Construction of a 43km long sealed access road to the Browse LNG precinct	2011/5852	Not Controlled Action (Particular Manner)	Post-Approval
Biologically Important Areas			[Resource Information]
Scientific Name		Behaviour	Presence
Dolphins			
Orcaella heinsohni			
Australian Snubfin Dolphin [81322]		Breeding	Known to occur
Orcaella heinsohni			
Australian Snubfin Dolphin [81322]		Calving	Known to occur
Orcaella heinsohni			
Australian Snubfin Dolphin [81322]		Foraging (high density prey)	Known to occur
Sousa chinensis			
Indo-Pacific Humpback Dolphin [50]		Breeding	Known to occur
Sousa chinensis			
Indo-Pacific Humpback Dolphin [50]		Calving	Known to occur
Sousa chinensis			
Indo-Pacific Humpback Dolphin [50]		Foraging (high density prey)	Known to occur
Tursiops aduncus			
Indo-Pacific/Spotted Bottlenose Dolphin [68418]		Breeding	Known to occur
Tursiops aduncus			
Indo-Pacific/Spotted Bottlenose Dolphin [68418]		Calving	Known to occur

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Scientific Name	Behaviour	Presence
Tursiops aduncus Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Foraging	Known to occur
Dugong		
Dugong dugon Dugong [28]	Foraging	Known to occur
Dugong dugon Dugong [28]	Foraging	Likely to occur
Dugong dugon Dugong [28]	Migration likely	Known to occur
Marine Turtles		
Natator depressus Flatback Turtle [59257]	Internesting buffer	Known to occur
Natator depressus Flatback Turtle [59257]	Nesting	Known to occur
River shark		
Pristis clavata Dwarf Sawfish [68447]	Foraging	Known to occur
Pristis clavata Dwarf Sawfish [68447]	Nursing	Known to occur
Pristis clavata Dwarf Sawfish [68447]	Pupping	Known to occur
Pristis pristis Freshwater Sawfish [60756]	Foraging	Known to occur
Pristis pristis Freshwater Sawfish [60756]	Juvenile	Known to occur
Pristis pristis Freshwater Sawfish [60756]	Pupping	Likely to occur
Pristis pristis Freshwater Sawfish [60756]	Pupping	Known to occur
Pristis zijsron Green Sawfish [68442]	Foraging	Known to occur

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Scientific Name	Behaviour	Presence
Pristis zijsron Green Sawfish [68442]	Nursing	Known to occur
Pristis zijsron Green Sawfish [68442]	Pupping	Known to occur
Seabirds		
Fregata ariel Lesser Frigatebird [1012]	Breeding	Known to occur
Sternula albifrons sinensis Little Tern [82850]	Breeding	Known to occur
Sternula albifrons sinensis Little Tern [82850]	Resting	Known to occur
Whales		
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Distribution	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Migration (north and south)	Known to occur

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 are 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

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

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

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
- 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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