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# **Kimberley Communities Renewable Infrastructure Project - Native Vegetation Clearing Permit**

**Warmun, Beagle Bay, Ardyaloon and Bidyadanga**

**Supporting Document**



**HORIZON**  
POWER

## Contents

1	Introduction .....	4
1.1	Project Context.....	4
1.2	Scope and Purpose .....	4
2	Description of the Activity .....	4
2.1	Project Location.....	4
2.2	Activity Overview and Timelines .....	10
2.3	Land Access .....	10
3	Description of Proposed Clearing .....	10
3.1	Proposed Clearing Area.....	10
3.2	Proposed Clearing Method .....	11
4	Ecological Survey .....	11
5	Existing Environment.....	15
6	Avoidance, Mitigation and Management Measures.....	19
6.1	Avoidance .....	19
6.2	Mitigation and Management .....	19
6.2.1	Geotechnical works.....	19
6.2.2	Project infrastructure.....	19
7	Stakeholder Engagement .....	20
8	Assessment Against the 10 Clearing Principles .....	20
9	Other matters .....	45
9.1	Land Planning .....	45
9.1.1	Approvals required under the Planning and Development Act 2005.....	45
9.2	Other approvals	45
10	References .....	47
	Appendix A: Warmun Solar Area Assessment (GHD 2019) .....	50
	Appendix B: West Kimberley Solar Flora and fauna assessment (GHD, 2021) .....	51
	Appendix C: Future Energy Systems: Dampier Peninsula and Warmun Biological survey (GHD, 2023).....	52
	Appendix D: Construction Environmental Management Plan .....	53
Figure 1	Development Envelope Warmun .....	6
Figure 2	Development Envelope Beagle Bay.....	7
Figure 3	Development Envelope Ardyaloon.....	8

## PROTECTED

Figure 4	Development Envelope Bidyadanga.....	9
Figure 5	Warmun Vegetation Type, Vegetation Condition and Significant Flora .....	37
Figure 6	Warmun Fauna Habitat .....	38
Figure 7	Beagle Bay Vegetation Type, Vegetation Condition and PEC .....	39
Figure 8	Environmental Constraints at Beagle Bay (Fauna Habitat) .....	40
Figure 9	Ardyaloon Vegetation Type, Vegetation Condition and Significant Flora.....	41
Figure 10	Ardyaloon Fauna Habitat .....	42
Figure 11	Bidyadanga Vegetation Type, Vegetation Condition and Significant Flora.....	43
Figure 12	Bidyadanga Fauna Habitat .....	44

# 1 Introduction

## 1.1 Project Context

Regional Power Corporation, trading as (T/A) Horizon Power, is a Western Australian (WA) Government Trading Enterprise (GTE) and the state's regional and remote energy provider. Horizon Power operates under the *Electricity Corporations Act 2005* and is governed by a Board of Directors accountable to the Minister for Energy.

Horizon Power is proposing to construct a future energy system including renewable energy facilities together with batteries and backup firming diesel generation, to supply electricity to four towns in the Kimberley Region of Western Australia, including 900kW renewable infrastructure in Warmun, Beagle Bay, Ardyaloon and Bidyadanga (Table 1) (the Project). The electricity networks in these towns are non-interconnected systems, as such the proposed energy facility and existing power station would be the primary supply source for residential and business customers in the towns and surrounding areas. Low emissions electricity was identified as a key pillar of decarbonisation in the State's *Shaping Western Australia's low-carbon future* program of work which provides guidance on the development of the sectoral emissions reduction strategies (SERS) to transition the economy to net zero. The Project aligns with the *Western Australian Climate Policy* and presents an opportunity for cost-effective carbon abatement. The Project is expected to reduce emissions between 2332 tonnes and 5734 tonnes of carbon.

The final design and footprint required for the Project will be determined once geotechnical and Aboriginal heritage survey are undertaken. The geotechnical survey will require the clearing of up to 5.8 ha of native vegetation at one site in Ardyaloon, Beagle Bay and Bidyadanga, and two sites in Warmun, to allow for geotechnical testing, including incidental clearing (driving over and parking on native vegetation) for vehicle / machinery access to test sites for the geotechnical survey works.

The construction of the project will require the permanent clearing of up to 21.2 ha in total, for four remote communities to generate approximately 900 kVA of installed DC, backup thermal generation, battery, laydown area, fire breaks and access tracks. Specific detail of the proposed clearing is provided in Section 3 of this document. A Native Vegetation Clearing Permit (NVCP) will be required from the Department of Water and Environmental Regulation (DWER). Horizon Power met with DWER in early 2023 and identified that the sites can be assessed together under a single clearing permit application.

## 1.2 Scope and Purpose

This document has been prepared to support a NVCP application form for the Project. Specifically, this document provides further detail regarding the proposed activities and related clearing (including application of the mitigation hierarchy), and ecological surveys undertaken within and near to the clearing footprint.

An assessment of the 10 Clearing Principles as outlined in '*A guide to the assessment of applications to clear native vegetation*' (DER 2014) has also been undertaken and is presented Section 8.

A Construction Environment Management Plan (CEMP) has also been prepared in support of the NVCP Application and is provided in Appendix D.

# 2 Description of the Activity

## 2.1 Project Location

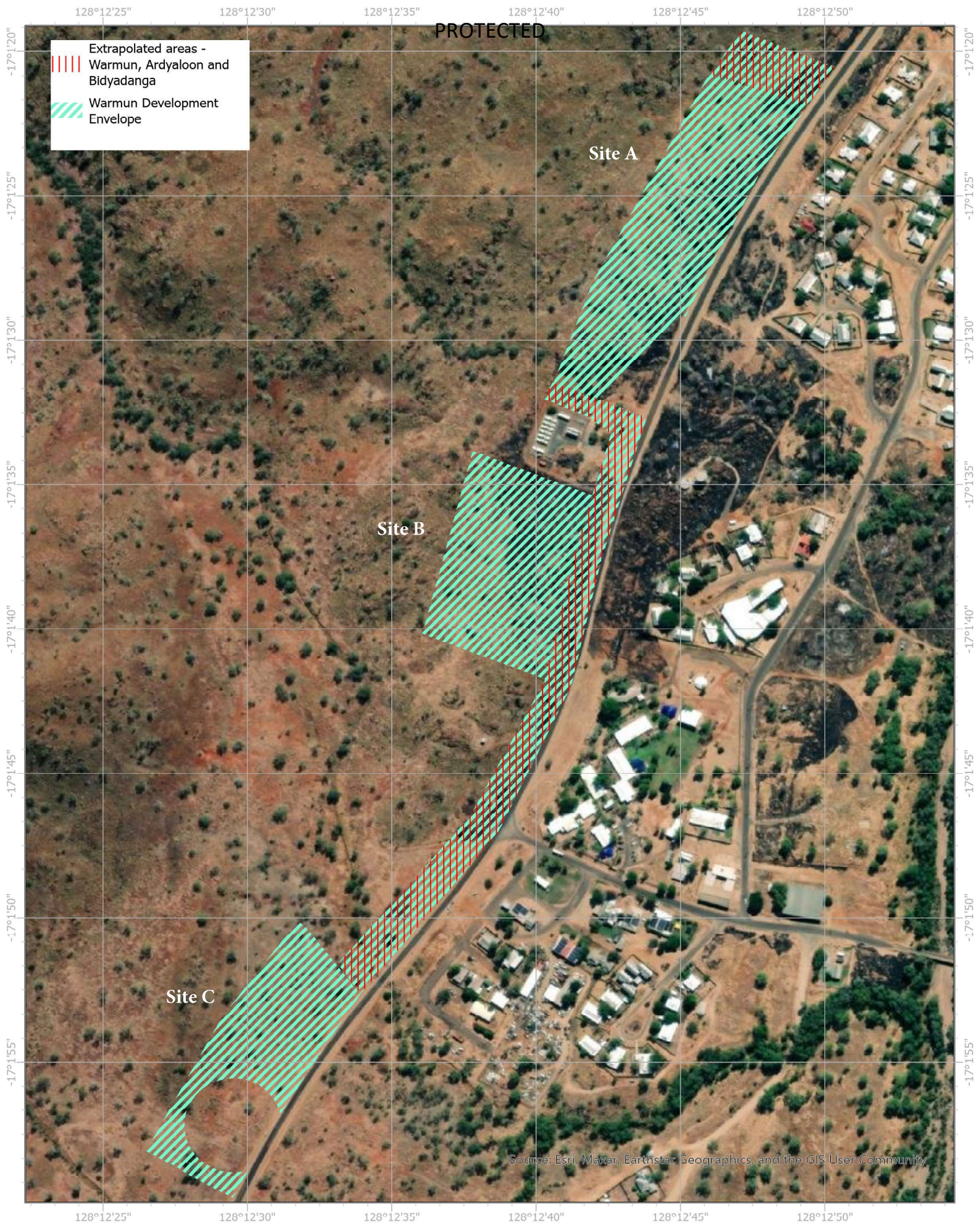
The site locations and neighbouring land uses are detailed below in Table 1. Several sites are being considered for both Warmun and Ardyaloon to allow for flexibility in site selection following the Aboriginal heritage survey and geotechnical survey. The Project will be subject to ongoing discussions with Ardyaloon Incorporated, Djarindjin Aboriginal Corporation, Bardi and Jawi Traditional Owners, Beagle Bay Futures Aboriginal Corporation, Nyul Nyul Traditional Owners, Bidyadanga Aboriginal Community, La Grange Incorporated, Karajarri Traditional Owners, Warmun Community Incorporated and Yurriyangen Taam.

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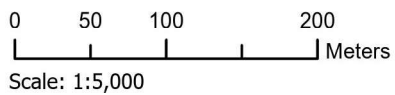
Site B will proceed at Warmun, and either Site A or C. Note, Warmun Site C is the backup option, pending heritage survey, as it is further from existing infrastructure. The preferred site for Ardyaloon remote community is Ardyaloon A. Site B is the backup option for this community.

*Table 1 Site locations and land uses*

Community	Number of sites	Site location	Shire	Neighbouring land uses
Warmun	3	<p><b>Warmun Site A (preferred):</b>                      Portion Lot 504 on Deposited Plan 52633 (Crown Land Title Volume 3139 Folio 427)                      Portion Dedicated Main Road PIN 11598590                      Portion dedicated public utility 3345003</p> <p><b>Warmun Site B (preferred):</b>                      Portion Lot 114 on Deposited Plan 219259 (Crown Land Title Volume 3127 Folio 846)                      Portion Lot 504 on Deposited Plan 52633 (Crown Land Title Volume 3139 Folio 427)</p> <p><b>Warmun Site C (backup):</b>                      Portion Dedicated Main Road PIN 11603657</p>	Shire of Halls Creek	Road Existing power plant
Beagle Bay	1	Volume LR3055 Folio 241 Lot 246 on Deposited Plan 91725	Shire of Broome	Existing power plant Rural Aboriginal traditional purposes
Ardyaloon	2	<p><b>Ardyaloon Site A (preferred):</b>                      LR3128 Folio 867 Lot 89 on Deposited Plan 91011</p> <p><b>Ardyaloon Site B (backup):</b>                      Volume 2959 Folio 704 Lot 100 on Deposited Plan 415243</p>	Shire of Broome	Rural Aboriginal traditional purposes
Bidyadanga	1	Volume LR 3127, Folio 124 Lot 278 on Deposited Plan 240321 Reserve 9697	Shire of Broome	Rural De Grey Stock Route



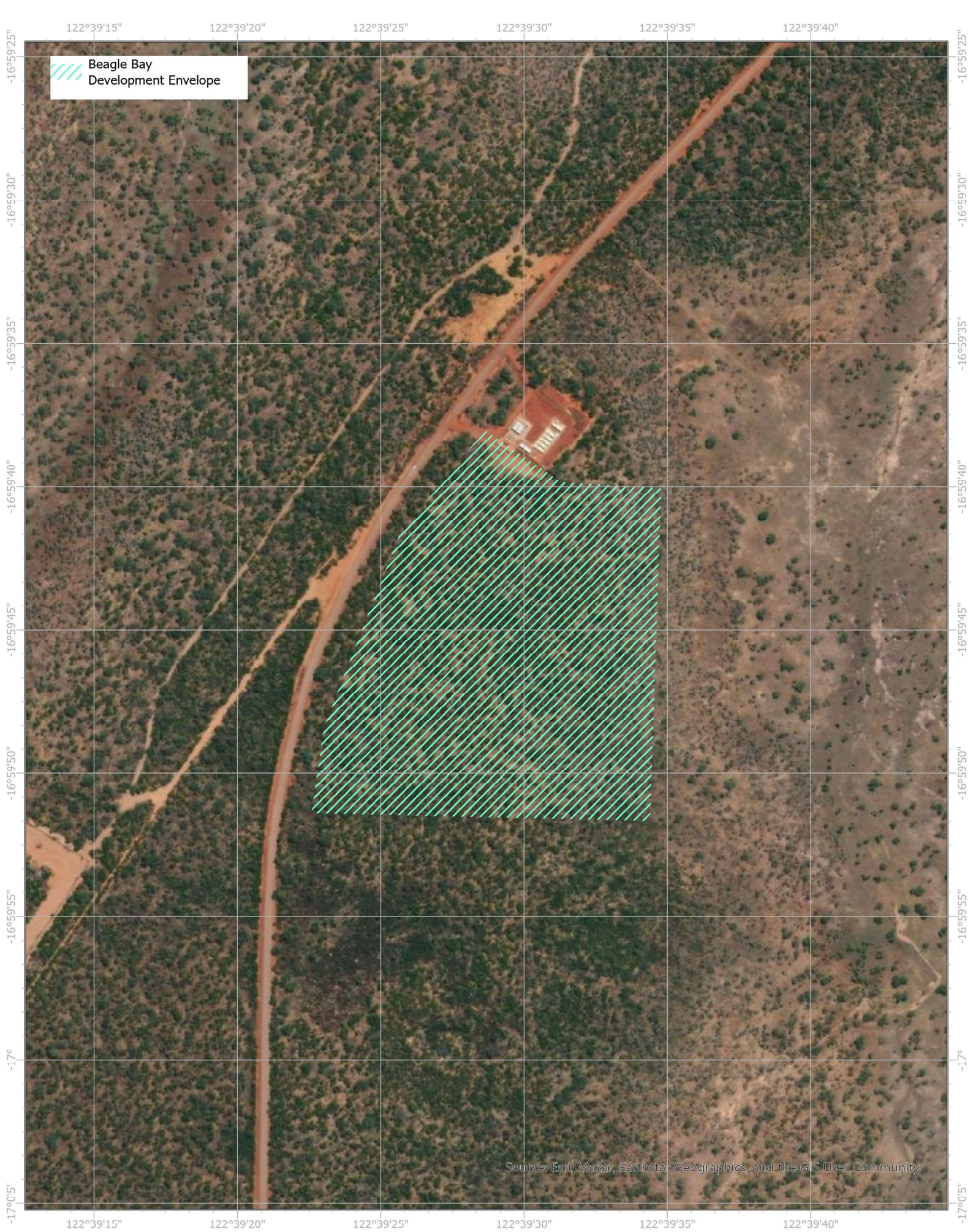
**Figure 1 | Development Envelope Warmun**



△ For reference only

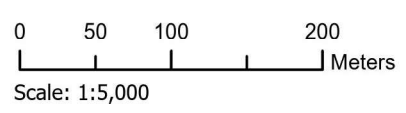
Last updated on 1/09/2023 by H188085





Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

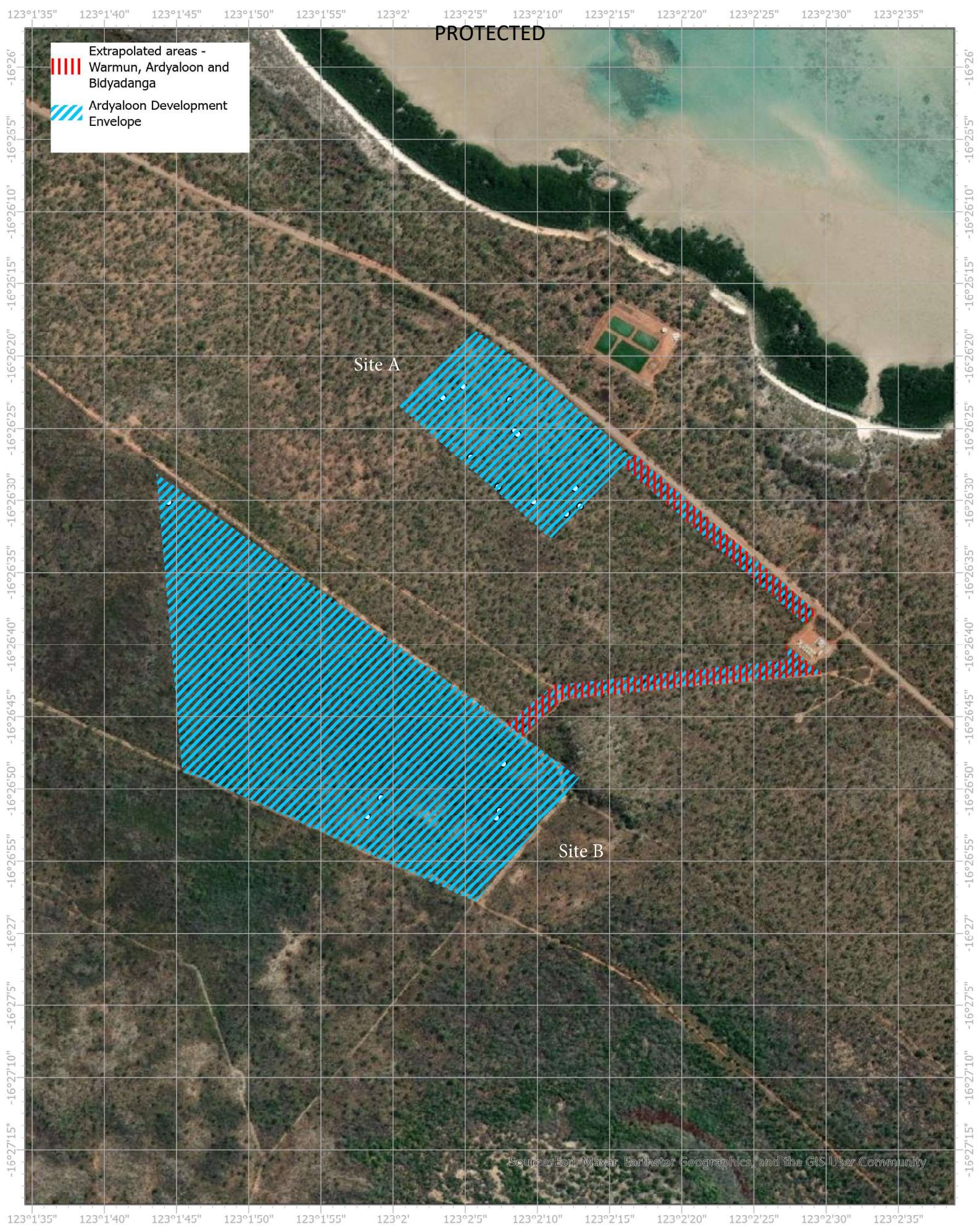
Figure 2 | Development Envelope Beagle Bay



△ For reference only

Last updated on 1/09/2023 by H188085





**Figure 3 | Development Envelope Ardyaloon**



0 50 100 200  
 Meters  
 Scale: 1:10,000

△ For reference only

Last updated on 1/09/2023 by H188085



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



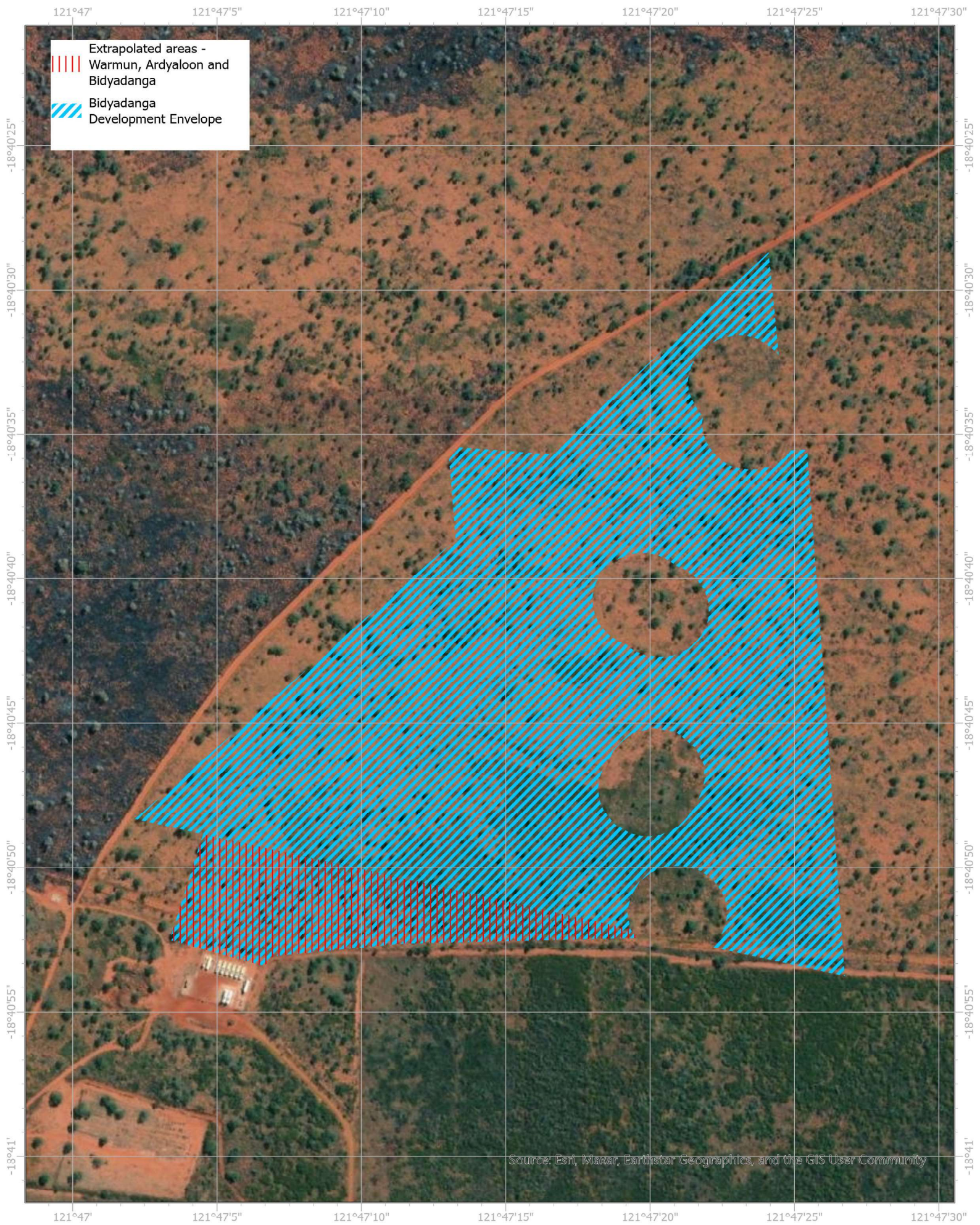
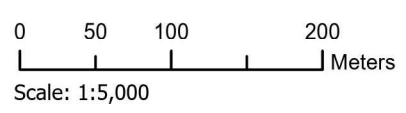


Figure 4 | Development Envelope Bidyadanga



△ For reference only

Last updated on 1/09/2023 by H188085



## 2.2 Activity Overview and Timelines

The geotechnical works will consist of mainly incidental clearing (driving over and parking on native vegetation) for vehicle / machinery access to test sites for the geotechnical survey works.

The Project will consist of the construction of several future energy systems including renewable infrastructure generating approximately 900 kVA of installed DC, battery energy storage system, backup thermal generation, laydown and construction areas, access tracks and associated supporting infrastructure.

The geotechnical works is proposed for 2024. Construction is expected to start in 2025 and 2026, delivered as a program of work, with commissioning to follow. A five-year clearing permit is requested to accommodate supplier readiness, procurement of batteries and renewables technology with clearing undertaken 3 months before construction.

## 2.3 Land Access

Horizon will utilise the access conferred by Sections 46 and 49 of the *Energy Operators (Powers) Act 1979* (the Act) for geotechnical investigations. Leases for the proposed sites are undergoing negotiation, and construction activities for the Project will not commence until the appropriate legal arrangements for tenure are executed.

# 3 Description of Proposed Clearing

## 3.1 Proposed Clearing Area

The final design and footprint required for the Project will be determined once geotechnical survey works and heritage surveys are undertaken. A Development Envelope (DE) has been identified for this clearing permit application, with all clearing to be undertaken within this 100.49 ha area.

The geotechnical survey will require the temporary clearing of up to 5.8 ha of native vegetation in total (Table 3). The proposed clearing will be mainly incidental clearing (driving over and parking on native vegetation) for vehicle / machinery access to test sites for the geotechnical survey works.

The construction of the Project will require the permanent clearing of up to 21.2 ha; 16 ha for infrastructure, laydown area, fire breaks and access tracks at the four communities; and up to 5.2 ha for connecting infrastructure.

It is assumed that all geotechnical investigations will be located within the permanent clearing footprint, any geotechnical investigations outside the permanent clearing footprint will be rehabilitated in accordance with Section 6.2.1.

*Table 2 Clearing estimated per remote community*

Community	Proposed clearing	Clearing breakdown
Warmun	5.6 ha	<ul style="list-style-type: none"> <li>– Geotechnical Survey: 1.12 ha</li> <li>– Infrastructure and connections: 5.6 ha</li> </ul>
Beagle Bay	4.0 ha	<ul style="list-style-type: none"> <li>– Geotechnical Survey: 1.56 ha.</li> <li>– Infrastructure and connections: 4 ha</li> </ul>
Ardyaloon	5.4 ha	<ul style="list-style-type: none"> <li>– Geotechnical Survey: 1.56 ha.</li> <li>– Infrastructure and connections: 5.4 ha</li> </ul>
Bidyadanga	6.2 ha	<ul style="list-style-type: none"> <li>– Geotechnical Survey: 1.56 ha</li> <li>– Infrastructure and connections: 6.2 ha</li> </ul>

### 3.2 Proposed Clearing Method

Temporary clearing is proposed for the geotechnical surveys, including mechanical removal and driving over vegetation.

Mechanical removal will be undertaken for the infrastructure construction.

## 4 Ecological Survey

Warmun was originally considered in 2019 for a small solar project. A targeted flora survey was undertaken in February 2019 for the chosen site, now referred to as Site B (GHD 2019) (Appendix A). Project modelling identified that this site would be too small to meet renewables penetration targets for Warmun, therefore an additional two sites are under consideration in addition to Site B, referred to as Sites A and C.

GHD (2021) undertook a detailed and targeted flora and vegetation survey and basic and targeted fauna survey for Ardyaloon, Beagle Bay, Bidyadanga and Djarindjin (Appendix B) in 2021 to support the environmental approvals for these projects. Due to changes to the proposed project footprint resulting from land negotiations, a follow up survey was undertaken in 2023 (Appendix C), including the addition of Warmun sites A and C, and Ardyaloon sites A and B.

Connection corridors for three of the locations (Ardyaloon, Bidyadanga and Warmun) and one area 0.5 ha in size to the north of Warmun have not been surveyed due to access restrictions. Data for these locations have been extrapolated in Section 5 and is represented in Figure 1, Figure 3 and Figure 4.

The survey work undertaken to date is detailed below in Table 3. The results of the surveys are summarised in Table 4.

*Table 3 Survey details for all sites*

Survey title	Survey Year	Survey type	Purpose	Sites surveyed
Warmun Solar Area Assessment memo (GHD 2019)	2019	Targeted flora survey	Identification of environmental constraints for Warmun Site B adjacent to existing power station	Warmun Site B
West Kimberley Solar Flora and Fauna assessment (GHD 2021)	2021	Detailed and targeted flora and vegetation survey, and basic and targeted fauna survey.	Identification of environmental constraints at Ardyaloon, Beagle Bay, Bidyadanga and Djarindjin	Ardyaloon (near current site) Beagle Bay (overlapping current site) Bidyadanga (near current site) Djarindjin (not included in this clearing permit)
Future Energy Systems: Dampier Peninsula and Warmun Biological survey (GHD 2023)	2023	A detailed and targeted flora and vegetation survey, and basic and targeted fauna survey.	Identification of environmental constraints at Ardyaloon, Beagle Bay, Bidyadanga, Djarindjin, Warmun	Ardyaloon Site A and B Beagle Bay Bidyadanga Djarindjin (not included in this clearing permit) Warmun Site A and C

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Table 4 Summary of Ecological Surveys

Survey	Summary of Findings
<p>GHD (2019). Warmun Solar Assessment, unpublished memo prepared for Horizon Power, Western Australia</p> <p>IBSA number: IBSA-2023-0270</p>	<p><b>Survey Dates:</b> 14 February 2019</p> <p><b>Survey Area:</b> Part of Lot 504 on Plan 52633 and part of Lot 114 on Deposited Plan 219259, area: 2.74 ha</p> <p><b>Flora / Vegetation Findings (across the entire Survey Area):</b> The targeted flora survey did not record any Threatened or Priority listed flora in the study area. Furthermore, based on the survey effort, timing, habitats present and conditions observed during the survey, all species identified in the desktop searches were considered unlikely to occur within the study area.</p>
<p>GHD (2021). Horizon Power 283 West Kimberley Solar Flora and Fauna Assessment, unpublished report prepared for Horizon Power, Western Australia.</p> <p>IBSA number: IBSA-2023-0001</p>	<p><b>Survey Dates:</b> 1 – 5 March 2021</p> <p><b>Survey Area:</b></p> <ul style="list-style-type: none"> <li>– Ardyaloon – Part of Lot 89 on Plan 91011, C/T: LR3128/867), area: 8.1 ha</li> <li>– Beagle Bay – Part of Lot 246 on Plan 91725, C/T: LR3055/241), area: 8.2 ha</li> <li>– Bidyadanga – Part of Lot 500 on Plan 52629, C/T: LR3139/426), area: 2.04 Ha</li> <li>– Djarindjin – Part of Lot 297 on Plan 93256, C/T: LR3123/260), area: 6.5 Ha.</li> </ul> <p><b>Flora / Vegetation Findings (across the entire Survey Area):</b></p> <ul style="list-style-type: none"> <li>– 137 flora taxa were recorded during the survey representing 38 families and 90 genera.</li> <li>– No Threatened flora species listed under the <i>Environmental Protection and Biodiversity Conservation Act 1999</i> (EPBC Act), or <i>Biodiversity Conservation Act 2016</i> (BC Act) were recorded during the survey. A tentative record of the Priority three (P3) <i>taxa Triodia ?acutispicula</i> was recorded within the Ardyaloon impact area within VT01. This taxon could not be confidently confirmed as no fruiting material was available to correctly separate this species from other similar <i>Triodia</i> taxa, so the precautionary principle was applied given the nearby records of <i>Triodia acutispicula</i>. This species was recorded with a cover of 20%. The Priority three taxa <i>Tephrosia andrewii</i> was recorded within the Bidyadanga survey area. A total of two individuals were recorded from one location.</li> <li>– Nine introduced taxa were recorded, no Declared Pests or Weeds of National Significance were recorded.</li> <li>– Three vegetation types aligning with broad landforms were identified and described in the survey areas, not including cleared tracks. The vegetation has been mapped as: <i>Eucalyptus miniata</i> and <i>Corymbia greeniana</i> woodland to isolated clumps of trees on Pindan red sand loam on low plain (VT01), <i>Corymbia greeniana</i> and <i>Corymbia bella</i> isolated clumps of trees over <i>Melaleuca nervosa</i> subsp <i>crosslandiana</i> open woodland on silty loam over clay on drainage flats/floodplain (VT02), and <i>Corymbia hamersleyana</i> and <i>Corymbia flavescens</i> open woodland on red brown sandplain (VT03).</li> <li>– No Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) listed under EPBC Act, or BC Act were identified within the impact areas during the field survey. VT02 within the Beagle Bay impact area represents the PEC Kimberley Vegetation Association 67, with this pre-European association previously mapped within the impact area. VT02 is analogous with the Vegetation Association based on species present, type and landform.</li> <li>– Vegetation condition was mapped as 'Excellent' to 'Good'.</li> </ul> <p><b>Fauna / Fauna Habitat Findings (across the entire Survey Area):</b></p>

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Survey	Summary of Findings
<p>GHD (2023). Future Energy Systems: Dampier Peninsula and Warmun Biological Survey unpublished report prepared for Horizon Power, Western Australia.</p> <p>IBSA number: IBSA-2023-0271</p>	<ul style="list-style-type: none"> <li>- Three fauna habitat types were identified, Eucalyptus and Corymbia on Pindan red sand, Corymbia over Melaleuca on silty loam over clay on drainage flats/floodplain and Corymbia over Acacia over tussock grasses over hummock grassland on red brown sandplain. These fauna habitats align with the mapped vegetation types.</li> <li>- 47 fauna species were recorded including 33 birds, five mammals and nine reptiles.</li> <li>- No Threatened or Priority listed fauna were recorded during the survey. No Bilby burrows were identified.</li> <li>- Five species were considered likely to occur at Ardyaloon; Gouldian Finch (<i>Erythrura gouldiae</i>) (Endangered, Priority 4), Peregrine Falcon (<i>Falco peregrinus</i>) (Other specially protected fauna (OS)), Dampierland Burrowing snake (<i>Simoselaps minimus</i>) (Priority (P) 2), Dampierland plain slider (<i>Lerista separanda</i>) (P2) and Greater Bilby (<i>Macrotis lagotis</i>) (Vulnerable at State and Commonwealth level).</li> <li>- Three species were considered likely to occur at Beagle Bay: Gouldian Finch (<i>Erythrura gouldiae</i>) (P4), Peregrine Falcon (<i>Falco peregrinus</i>) (OS) and Greater Bilby (<i>Macrotis lagotis</i>) (Vulnerable).</li> <li>- Five species were considered likely to occur at Djarindjin: Gouldian Finch (<i>Erythrura gouldiae</i>) (P4), Peregrine Falcon (<i>Falco peregrinus</i>) (OS), Dampierland Burrowing snake (<i>Simoselaps minimus</i>) (P4), Dampierland plain slider (<i>Lerista separanda</i>) (P2) and Greater Bilby (<i>Macrotis lagotis</i>) (VU).</li> <li>- No conservation listed fauna species are considered likely to occur at Bidyadanga</li> </ul> <p><b>Survey Dates:</b> 20 - 24 February 2023 (Ardyaloon, Beagle Bay, Bidyadanga and Djarindjin survey areas) and 20 - 22 February 2023 (Warmun survey areas)</p> <p><b>Survey Area:</b></p> <ul style="list-style-type: none"> <li>- Ardyaloon Site A – Part of Lot 89 on Plan 91011, C/T: LR3128/867, area: 10.08 ha</li> <li>- Ardyaloon Site B – Part Lot 278 on Deposited Plan 240324, C/T: LR 3127/124, area: 37.17 ha</li> <li>- Beagle Bay – Part of Lot 246 on Plan 91725, C/T: LR3055/241), area: 11.49 ha</li> <li>- Bidyadanga – Lot 500 on Plan 52629, C/T: LR3139/426), area: 28.19 ha</li> <li>- Djarindjin – Part Crown Lease I26915 (being part of Lot 297 on Plan 93256, C/T: LR3123/260), area: 10.32 ha.</li> <li>- Warmun Site A – Portion Lot 114 on Deposited Plan 219259 (C/T: 3127/846), Portion Lot 504 on Deposited Plan 52633 (C/T: 3139/ 427), Portion Dedicated Main Road PIN 11598590, area: 5 ha.</li> <li>- Warmun Site C – Portion Lot 114 on Deposited Plan 219259 (C/T: 3127/846), Portion Dedicated Main Road PIN 11603657, area: 4.25 ha.</li> </ul> <p><b>Flora / Vegetation Findings (across the entire Survey Area):</b></p> <ul style="list-style-type: none"> <li>- One hundred and thirty-one flora taxa (including subspecies and varieties) representing 37 families and 97 genera were recorded from the Ardyaloon, Beagle Bay, Djarindjin and Bidyadanga survey areas during the field survey.</li> <li>- One hundred and twenty flora taxa (including subspecies and varieties) representing 33 families and 87 genera were recorded from the Warmun survey areas during the field survey.</li> <li>- Seven vegetation types aligning with broad landforms were identified and described in the survey areas.</li> <li>- No Threatened flora species listed under the EPBC Act, or BC Act were recorded during the survey.</li> <li>- 5 individuals of <i>Goodenia bynesii</i> (P3) were identified in the Warmun south survey area, this represents a range extension for this species.</li> <li>- 17 locations (149 individuals) of <i>Triodia acutispicula</i> (P3) were identified in the Ardyaloon survey area.</li> </ul>

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Survey	Summary of Findings
	<ul style="list-style-type: none"> <li>- 10 locations (121 individuals) of <i>Tephrosia andrewii</i> (P3) were identified in the Bidyadanga survey area.</li> <li>- None of the introduced/naturalised flora taxa identified during the survey are listed as a Declared Pest under the <i>Biosecurity and Management Act 2007</i> or a Weed of National Significance.</li> <li>- No TEC's listed under the <i>Environment Protection and Biodiversity Conservation Act 1999</i>, or <i>Biodiversity Conservation Act 2016</i> were identified within the survey areas during the field survey. VT05 within the Beagle Bay survey area represents the Priority Ecological Community Kimberley Vegetation Association 67</li> <li>- Vegetation condition was mapped as 'Excellent' to 'Good'.</li> </ul> <p><b>Fauna / Fauna Habitat Findings (across the entire Survey Area):</b></p> <ul style="list-style-type: none"> <li>- Six broad fauna habitat types (not including cleared) were identified within the survey area based on the predominant landforms, soil and vegetation structure in the area.</li> <li>- In total across all sites/regions 47 fauna species were identified, which included 24 birds, 10 reptiles, three mammals and two amphibians. Two of the species are introduced (dog and donkey).</li> <li>- One Marine listed species under the <i>Environment Protection and Biodiversity Conservation Act 1999</i>, the Rainbow Bee-eater (<i>Merops ornatus</i>), was recorded at the Ardyaloon site. This species is widespread across Australia and WA and occupies a wide variety of habitats. It is likely this species would be present across all the survey sites on the Dampier Peninsula and at Warmun.</li> <li>- No Threatened or Priority listed fauna were recorded during the survey. No Bilby burrows were identified.</li> <li>- Five fauna species are considered likely to occur at Beagle Bay due to potentially suitable foraging and/or breeding habitat in the survey area and close proximity of previous records. These include Gouldian Finch (<i>Erythrura gouldiae</i>) (P4, VU), Grey Falcon (<i>Falco hypoleucos</i>) (OS), Peregrine Falcon (<i>Falco peregrinus</i>) (OS), Oriental pratincole (<i>Glareola maldivarum</i>) (MI) and Greater Bilby (<i>Macrotis lagotis</i>) (VU).</li> <li>- Four fauna taxa are considered Likely to occur at Bidyadanga due to potentially suitable foraging and/or breeding habitat in the survey area and close proximity of previous records. These include Oriental Pratincole (<i>Glareola maldivarum</i>) (MI), Grey Falcon (<i>Falco hypoleucos</i>) (VU), Rainbow Bee-eater (<i>Merops ornatus</i>) (Migratory, Marine (MA)) and Greater Bilby (<i>Macrotis lagotis</i>) (VU)</li> <li>- Six fauna are considered likely to occur at Ardyaloon due to potentially suitable foraging and/or breeding habitat in the survey area and close proximity of previous records. These include Gouldian Finch (<i>Erythrura gouldiae</i>) (P4), Grey Falcon (<i>Falco hypoleucos</i>) (VU), Peregrine Falcon (<i>Falco peregrinus</i>) (OS), Greater Bilby (<i>Macrotis lagotis</i>) (VU), Dampierland Burrowing snake (<i>Simoselaps minimus</i>) (P2), and Dampierland plain slider (<i>Lerista separamda</i>) (P2)</li> <li>- Three species are Likely to occur at Warmun: Gouldian Finch (<i>Erythrura gouldiae</i>) (P4, VU), Peregrine Falcon (<i>Falco peregrinus</i>) (OS) and Grey Falcon (<i>Falco hypoleucos</i>) (VU).</li> </ul>

## 5 Existing Environment

The existing environment is summarised in Table 5.

Table 5 Existing environment

Environmental value	Assessment	Beagle Bay	Ardayaloon	Bidyadanga																																																																																																																																																							
Vegetation associations, types and condition	<p><b>Warmun</b></p> <p>The project is located within Pre-European Vegetation Association 834. More than 99% of this vegetation association remains, with approximately 16% in Department of Biodiversity, Conservation and Attractions (DBCA) managed lands on a State level.</p> <table border="1"> <thead> <tr> <th>Vegetation association</th> <th>Scale</th> <th>Pre-European extent (ha)</th> <th>Current extent (ha)</th> <th>% Remaining</th> <th>% of current extent in land (proportion of all DBCA managed current extent)</th> </tr> </thead> <tbody> <tr> <td>834</td> <td>State: Western Australia</td> <td>32,597.17</td> <td>32,588.83</td> <td>99.97</td> <td>16.70</td> </tr> <tr> <td></td> <td>IBRA bioregion: Dampierland</td> <td>24,391.01</td> <td>24,382.67</td> <td>99.97</td> <td></td> </tr> <tr> <td></td> <td>IBRA sub-region: Central Kimberley</td> <td>24,391.01</td> <td>24,382.67</td> <td>99.97</td> <td></td> </tr> <tr> <td></td> <td>IBRA Subregion: Hart (CEK02)</td> <td>27,748.71</td> <td>27,740.37</td> <td>99.97</td> <td>19.62</td> </tr> <tr> <td></td> <td>LGA: Shire of Halls Creek</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Three vegetation types were identified in the DE:</p> <ul style="list-style-type: none"> <li>VT01 – <i>Corymbia</i> Open Woodland on stony undulating plains</li> <li>VT02 – <i>Corymbia/Terminalia</i> Open Woodland on rocky hills and ridges</li> <li>VT03 – <i>Lophostemon</i> Open Woodland on minor drainage areas</li> </ul> <p>Vegetation condition varied from Good to Excellent. The Warmun survey area recorded some signs of previous clearing, edge effects, rubbish, fire and weeds.</p> <p>Vegetation type and condition were not recorded for Warmun Site B, however, it is considered to be commensurate with the other adjacent sites. This location is more disturbed, so condition is likely to be worse than the nearby Warmun Site A.</p> <p>The vegetation type and condition within the connection corridors and within the northern 0.5 ha of Warmun Site A have not been surveyed. It is considered that these areas are also commensurate with the adjacent sites.</p>	Vegetation association	Scale	Pre-European extent (ha)	Current extent (ha)	% Remaining	% of current extent in land (proportion of all DBCA managed current extent)	834	State: Western Australia	32,597.17	32,588.83	99.97	16.70		IBRA bioregion: Dampierland	24,391.01	24,382.67	99.97			IBRA sub-region: Central Kimberley	24,391.01	24,382.67	99.97			IBRA Subregion: Hart (CEK02)	27,748.71	27,740.37	99.97	19.62		LGA: Shire of Halls Creek					<p>The project is located within Pre-European Vegetation Association 750 and 67. More than 99% of these vegetation associations remain.</p> <table border="1"> <thead> <tr> <th>Vegetation association</th> <th>Scale</th> <th>Pre-European extent (ha)</th> <th>Current extent (ha)</th> <th>% Remaining</th> <th>% of current extent in land (proportion of all DBCA managed current extent)</th> </tr> </thead> <tbody> <tr> <td>750</td> <td>State: Western Australia</td> <td>1,231,155.50</td> <td>1,225,687.52</td> <td>99.56</td> <td></td> </tr> <tr> <td></td> <td>IBRA bioregion: Dampierland</td> <td>1,229,182.16</td> <td>1,225,280.52</td> <td>99.68</td> <td>2.78</td> </tr> <tr> <td></td> <td>IBRA sub-region: Pindarland</td> <td>1,221,734.45</td> <td>1,217,843.72</td> <td>99.68</td> <td>2.80</td> </tr> <tr> <td></td> <td>LGA: Shire of Broome</td> <td>1,115,559.36</td> <td>1,110,131.18</td> <td>99.51</td> <td>3.07</td> </tr> <tr> <td>67</td> <td>State: Western Australia</td> <td>27,285.40</td> <td>27,240.50</td> <td>99.84</td> <td></td> </tr> <tr> <td></td> <td>IBRA bioregion: Dampierland</td> <td>27,285.40</td> <td>27,240.50</td> <td>99.84</td> <td></td> </tr> <tr> <td></td> <td>IBRA sub-region: Pindarland</td> <td>27,285.40</td> <td>27,240.50</td> <td>99.84</td> <td></td> </tr> <tr> <td></td> <td>LGA: Shire of Broome</td> <td>23,775.29</td> <td>23,730.39</td> <td>99.81</td> <td></td> </tr> </tbody> </table> <p>Two vegetation types were identified in the Beagle Bay DE:</p> <ul style="list-style-type: none"> <li>VT04 – <i>Eucalyptus miniata</i> and <i>Corymbia greeniana</i> woodland to isolated clumps of trees on Pindar red sand loam on low plain</li> <li>VT05 – <i>Corymbia greeniana</i> and <i>Corymbia bella</i> isolated clumps of trees over <i>Melaleuca nervosa</i> subsp <i>rossianiana</i> open woodland on silty loam over clay on drainage flats/floodplain</li> </ul> <p>Vegetation was recorded in Very Good to Good condition.</p>	Vegetation association	Scale	Pre-European extent (ha)	Current extent (ha)	% Remaining	% of current extent in land (proportion of all DBCA managed current extent)	750	State: Western Australia	1,231,155.50	1,225,687.52	99.56			IBRA bioregion: Dampierland	1,229,182.16	1,225,280.52	99.68	2.78		IBRA sub-region: Pindarland	1,221,734.45	1,217,843.72	99.68	2.80		LGA: Shire of Broome	1,115,559.36	1,110,131.18	99.51	3.07	67	State: Western Australia	27,285.40	27,240.50	99.84			IBRA bioregion: Dampierland	27,285.40	27,240.50	99.84			IBRA sub-region: Pindarland	27,285.40	27,240.50	99.84			LGA: Shire of Broome	23,775.29	23,730.39	99.81		<p>The project is located within Pre-European Vegetation Association 771. 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The vegetation type and condition within the connection corridors have not been surveyed. It is considered that these areas are commensurate with the adjacent sites that have been surveyed.</p>	Vegetation association	Scale	Pre-European extent (ha)	Current extent (ha)	% Remaining	% of current extent in land (proportion of all DBCA managed current extent)	771	State: Western Australia	35,671.30	34,884.39	97.79			IBRA bioregion: Dampierland	34,907.23	34,672.53	99.33			IBRA sub-region: Pindarland	34,907.23	34,672.53	99.33			LGA: Shire of Broome	35,671.30	34,884.39	97.79		<p>The project is located within Pre-European Vegetation Association 699. 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It is considered likely this area is VT07 and in Excellent condition.</p>	Vegetation association	Scale	Pre-European extent (ha)	Current extent (ha)	% Remaining	% of current extent in land (proportion of all DBCA managed current extent)	699	State: Western Australia	1,986,450.05	1,984,438.78	99.90	0.47		IBRA bioregion: Dampierland	1,976,313.50	1,974,958.06	99.93	0.48		IBRA sub-region: Pindarland	1,796,194.92	1,794,994.17	99.93	0.52		LGA: Shire of Broome	1,628,642.72	1,626,791.54	99.89	0.58	<p>One fauna habitat type was identified in the Bidyadanga DE:</p> <ul style="list-style-type: none"> <li><i>Corymbia</i> over <i>Acacia</i> over tussock grasses over hummock grassland on red brown sandplain</li> </ul> <p>The fauna habitat within the connection corridor has not been surveyed. It is considered that this site is commensurate with the adjacent site that has been surveyed.</p>
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Fauna habitat	<p>Three fauna habitat types were identified in the Warmun DE:</p> <ul style="list-style-type: none"> <li>Open woodlands on stony plains</li> <li>Mixed woodlands on rocky hills</li> <li>Minor drainage</li> </ul> <p>While no fauna mapping was undertaken for Warmun Site B, it is considered that vegetation would be commensurate with the surrounding region with similar fauna habitat features.</p> <p>The fauna habitat within the connection corridors and within the northern 0.5 ha of Warmun Site A have also not been surveyed. It is considered that these sites are also commensurate with the adjacent sites.</p>	<p>Two fauna habitat types were identified in the Beagle Bay DE:</p> <ul style="list-style-type: none"> <li><i>Eucalyptus</i> and <i>Corymbia</i> on Pindar red sand</li> <li><i>Corymbia</i> over <i>Melaleuca</i> on silty clay loam on drainage flats/floodplain</li> </ul>	<p>One fauna habitat type was identified in the Ardayaloon DE:</p> <ul style="list-style-type: none"> <li><i>Eucalyptus</i> and <i>Corymbia</i> on Pindar red sand</li> </ul> <p>The fauna habitat within the connection corridors have not been surveyed. It is considered that these sites are commensurate with the adjacent sites that have been surveyed.</p>	<p>One fauna habitat type was identified in the Bidyadanga DE:</p> <ul style="list-style-type: none"> <li><i>Corymbia</i> over <i>Acacia</i> over tussock grasses over hummock grassland on red brown sandplain</li> </ul> <p>The fauna habitat within the connection corridor has not been surveyed. It is considered that this site is commensurate with the adjacent site that has been surveyed.</p>																																																																																																																																																							
Significant fauna	<p>No significant fauna were recorded in the biological surveys. While no fauna mapping was undertaken for Warmun Site B, it is considered that these sites are also commensurate with the adjacent sites.</p>	<p>No significant fauna were recorded in the GHD biological surveys. Five fauna species are considered likely to occur due to potentially suitable foraging and/or breeding habitat in the survey area and close</p>	<p>No significant fauna were recorded in the GHD biological surveys.</p>	<p>No significant fauna were recorded in the GHD biological surveys.</p>																																																																																																																																																							



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Environmental value	Assessment	Beagle Bay	Ardyaloon	Bidyadanga
	<p><b>Warmun</b></p> <p>considered that vegetation would be commensurate with the surrounding region with similar fauna habitat features.</p> <p>Fauna mapping within the connection corridors and within the northern 0.5 ha of Warmun Site A has also not been undertaken. It is considered that these sites are also commensurate with the adjacent sites.</p> <p>Three fauna species are considered likely to occur at Warmun: Gouldian Finch (<i>Erythrura gouldiae</i>), Peregrine Falcon (<i>Falco peregrinus</i>) and Grey Falcon (<i>Falco hypoleucos</i>).</p>	<p>proximity of previous records. These include Gouldian Finch (<i>Erythrura gouldiae</i>), Grey Falcon (<i>Falco hypoleucos</i>), Peregrine Falcon (<i>Falco peregrinus</i>), Oriental pratincole (<i>Glareola maldivarum</i>) and Greater Bilby (<i>Macrotis lagotis</i>).</p> <p>No evidence of Greater Bilby (<i>Macrotis lagotis</i>) activity (footprints, foraging holes, burrows or scats) was recorded within the survey area.</p>	<p>While no fauna mapping has been undertaken for the connection corridors, it is considered that vegetation would be commensurate with the surrounding region with similar fauna habitat features.</p> <p>Six fauna are considered likely to occur at Ardyaloon, due to potentially suitable foraging and/or breeding habitat in the survey area and close proximity of previous records. These include Gouldian Finch (<i>Erythrura gouldiae</i>), Grey Falcon (<i>Falco hypoleucos</i>), Peregrine Falcon (<i>Falco peregrinus</i>), Greater Bilby (<i>Macrotis lagotis</i>), Dampierland Burrowing snake (<i>Simoseps minimus</i>), and Dampierland plain slider (<i>Lerista separanda</i>).</p> <p>No evidence of Greater Bilby (<i>Macrotis lagotis</i>) (Vulnerable) activity (footprints, foraging holes, burrows or scats) was recorded within the survey area.</p>	<p>While no fauna mapping has been undertaken for the connection corridor, it is considered that vegetation would be commensurate with the surrounding region with similar fauna habitat features.</p> <p>Four fauna taxa are considered likely to occur at Bidyadanga, due to potentially suitable foraging and/or breeding habitat in the survey area and close proximity of previous records. These include Oriental Pratincole (<i>Glareola maldivarum</i>), Grey Falcon (<i>Falco hypoleucos</i>), Rainbow Bee-eater (<i>Merops ornatus</i>) and Greater Bilby (<i>Macrotis lagotis</i>).</p> <p>No evidence of Greater Bilby (<i>Macrotis lagotis</i>) activity (footprints, foraging holes, burrows or scats) was recorded within the survey area.</p>
Significant ecological linkages	No significant ecological linkages were identified.	No significant ecological linkages were identified.	No significant ecological linkages were identified.	No significant ecological linkages were identified.
Ecological communities	<p>The EPBC Act Protected Matters Search Tool (PMST) (DCCEE, 2023a) did not identify any EPBC Act listed TECs within 20 km of the survey area. The DBCA TEC and PEC database identified two Priority 3 PECs occurring within 20 km of the survey area. The Warmun DE is located within the area mapped as the Kimberley Vegetation Association 834 PEC.</p> <p>Neither of the P3 ecological communities were recorded in the Warmun DE. The vegetation types recorded at the Warmun survey area did not represent the PEC Vegetation Association 834 as the dominant species that represent this PEC, such as Mitchell grass (<i>Astrelba</i> sp.) and Blue grass (<i>Bothriochloa</i> sp.), were not recorded in the survey area.</p> <p>It is considered that the vegetation within Warmun Site B, the connection corridors and the northern 0.5 ha of Warmun Site A would be commensurate within the adjacent sites and the P3 ecological communities are not expected to be present.</p>	<p>The DBCA TEC and PEC database identified one TEC and three State-listed PECs within 20 km of the Beagle Bay DE. The DE is located within the buffer of the P3 Kimberley Vegetation Association 67 PEC.</p> <p>A 1.61 ha area of Kimberley Vegetation Association 67 PEC was identified in the Southeast of the Beagle Bay survey area. Up to 1 ha of this PEC will be impacted by the project.</p>	<p>The DBCA TEC and PEC database identified one TEC within the Ardyaloon DE. The DE is within the buffer of the TEC Monsoon (vine) thickets on coastal sand dunes of Dampier Peninsula. The landform (within or near coastal sand dunes) did not occur and many of the dominant species that represent the TEC Monsoon (vine) thickets did not occur.</p> <p>One PEC was identified within the DE, P3 Vegetation Association 37. This PEC was not identified in the Ardyaloon DE.</p> <p>It is considered that the vegetation within the connection corridors would be commensurate within the adjacent sites and no TECs or PECs are expected to be present.</p>	<p>The DBCA TEC and PEC database identified no TECs within the Bidyadanga DE. Three state listed PECs were identified as potentially occurring. None were recorded in the survey. It is considered that the vegetation within the connection corridor would be commensurate within the adjacent site and no TECs or PECs are expected to be present.</p>
Significant flora	<p>The Priority 3 species <i>Goodenia byrnesii</i> was recorded from the Warmun Site C survey area. This species was recorded opportunistically from five individuals in the southern survey area. This species was not identified in the desktop searches. The closest known record of this species is from the Argyle Downs Station (over 70 km north-east of Warmun) with this record representing a range extension. <i>Goodenia byrnesii</i> was identified in Warmun south only, and the DE has been modified to prevent impacts to this flora.</p> <p>It is considered that the flora within the connection corridors and the northern 0.5 ha of Warmun Site A would be commensurate within the adjacent sites and <i>Goodenia byrnesii</i> may occur.</p> <p>All other taxa identified in the desktop assessment are considered unlikely to occur (GHD 2023).</p>	<p>No Threatened or Priority flora were identified in the Beagle Bay DE. A likelihood of occurrence assessment (GHD 2022) identified no Threatened or Priority species likely to occur.</p>	<p>The Priority 3 species <i>Triodia acutispicula</i> was recorded in the Ardyaloon DE. This species was recorded from 17 locations with a total of 149 individuals and ranged in percentage cover between 1 – 60% within VT06. 11 populations (134 individuals) were recorded in Ardyaloon Site A and 6 populations (15 individuals) in Ardyaloon Site B. 29 populations (15 individuals) are known to occur in WA, based on WA Herbarium records.</p> <p>It is considered that the flora within the connection corridors would be commensurate within the adjacent sites and it is considered that <i>Triodia acutispicula</i> may occur. This species is likely to be abundant throughout the region.</p> <p>No more than 8 populations of <i>Triodia acutispicula</i> will be impacted in the Project area.</p> <p>All other taxa identified in the desktop assessment are considered unlikely to occur (GHD 2023).</p>	<p>The Priority 3 species <i>Tephrosia andrewii</i> was recorded from the Bidyadanga DE. This species was recorded from 10 locations with a total of 121 individuals.</p> <p>Eight known populations occur in Western Australia based on the WA Herbarium records with a further two recorded in the Threatened and Priority Flora (TPFL) database.</p> <p>It is considered that the flora within the connection corridor would be commensurate within the adjacent site and it is considered that <i>Tephrosia andrewii</i> may occur.</p> <p>The DE has been modified to minimise impacts to this species, and no more than 2 locations of 38 individuals total will be impacted within the Project area.</p> <p>All other taxa identified in the desktop assessment are considered unlikely to occur (GHD 2023).</p>
Wetlands and/or waterways	<p>No rivers, wetlands or waterways management areas are present. The closest significant wetlands are Lakes Argyle and Kununurra which are listed Wetlands of International Importance (Ramsar Wetlands). Both lakes are located more than 50 km downstream.</p>	<p>No rivers, wetlands or waterways management areas are present in the Beagle Bay DE.</p>	<p>No rivers, wetlands or waterways management areas are present in the Ardyaloon DE.</p>	<p>No rivers, wetlands or waterways management areas are present in the Bidyadanga DE.</p>

Environmental value		Assessment		Beagle Bay		Ardyaloon		Bidjadyanga	
		Warmun							
Water resources	The Warmun DE is within the Ord River and Tributaries Proclaimed surface water area under the <i>Rights in Water and Irrigation Act 1914</i> (RIWI Act). No Public Drinking Water Source areas are located in the DE. A tributary of the Bow River (Turkey Creek) and associated drainage lines are located immediately adjacent to both Warmun Site B and Warmun Site C. The DE is within the Canning- Kimberley groundwater area; however, no impacts are expected with digging being to 4 m depth or less. Depth to groundwater is varies from 7.38 m to 90 m according to nearby bores (BoM 2023).	No Public Drinking Water- Source Areas (PDWSA) are present. The Beagle Bay DE is within the Canning- Kimberley groundwater area. Depth to groundwater is shallow based on nearby Bureau of Meteorology records (BOM 2023) with records indicating depth of 0.3 m to 3.27 m.	No PDWSA are present. The Ardyaloon DE is within the Canning- Kimberley groundwater area. Bores on One Arm Point identify depth to groundwater at 2m to 10m (GoWA 2012). Nearby Bore data from Bureau of Meteorology identified bores as 8.5 -21 m (BOM 2023).	No PDWSA are present. The Bidjadyanga DE is within the Canning- Kimberley groundwater area. Depth to groundwater is approximately 4.5 – 8 m depth (BOM, 2023).					
Conservation Reserves	No DBCA managed conservation areas occur within the DE. The closest DBCA managed area is the Purnululu National Park, located approximately 30 km south/south-east.	No DBCA managed conservation area occur within the DE or within 20 km.	No DBCA managed conservation areas occur within the Ardyaloon DE. The closest is the Bardi Jawi Gaarra Marine Park, located approximately 320 m north-east of the DE at its closest point. The DE is located within the Bardi Jawi Indigenous Protected Area. Swan Island Nature Reserve (Class A R 34257) is also located approximately 9 km north.	No DBCA managed conservation area occur within the DE or within 20 km.					
Environmentally Sensitive Areas (ESAs)	No ESAs are located within the Warmun DE. The closest ESA is located approximately 5 km south-east of the DE, which is likely to be associated with Purnululu National Park.	No ESAs are located within the Beagle Bay DE. The closest ESA is located approximately 10 km north west; no.7278 and is associated with the buffer for Monsoon thickets on coastal sand dunes TEC.	Ardyaloon Sites A and B are located within ESA no. 7286, within the buffer for Monsoon thickets on coastal sand dunes TEC.	No ESAs are located within the Bidjadyanga DE or within 20 km.					
Land and soil quality	The Warmun DE intersects two land systems, predominantly the O'Donnell Land System, with a small area intersecting the Richenda Land System. Soils in the O'Donnell Land System are described as loamy skeletal soils. A review of the Australian Soil Resource Information System (ASRIS 2023) and Acid Sulphate Soil (ASS) risk mapping (spatial dataset DWER-048; GoWA 2022) indicates the soil under the nearby surveyed area has a low risk of ASS occurrence. The Warmun DE does not intersect any contaminated sites (spatial dataset DWER-059; GoWA 2022). No known contaminated sites are recorded within 20 km of the proposed works.	The Beagle Bay DE intersects the Wanganut land System, described as low-lying sandplains and dune fields. A review of the ASS risk mapping indicates an extremely low probability of ASS occurrence within the upper 1 m in wet riparian areas with Kandosols, Ferrosols, Tenosols and Podosols (Fitzpatrick 2011). A review of the Australian Soil Resource Information System (ASRIS 2023) identified a low risk with low confidence. The proposed impact area does not intersect any contaminated sites (spatial dataset DWER-059; GoWA 2022).	The DE intersects the Reeves' land system, described as sand plain with scattered hills and minor plateaux, reddish sandy soils, pindan. A review of the Atlas of Australian ASS risk mapping and DWER ASS risk mapping (spatial dataset DWER-048; GoWA 2022) (GHD 2022) indicates the soil under the nearby DE has a high probability of ASS occurrence. ASS investigations will be undertaken as part of geotechnical works and an ASS management plan will be developed if more than 100m <sup>3</sup> of soil is expected to be excavated for the works in an ASS soil type. The Ardyaloon DE does not intersect any contaminated sites (spatial dataset DWER-059; GoWA, 2022). The nearest known contaminated site is 73 km north-east.	A review of the Atlas of Australian ASS risk mapping and DWER ASS risk mapping (spatial dataset DWER-048; GoWA 2022) (GHD 2022) indicates the soil under the survey area has an extremely low probability of ASS occurrence within the upper 1 m in wet riparian areas with Kandosols, Ferrosols, Tenosols, Rudosols and Podosols (Fitzpatrick 2011). A review of the Australian Soil Resource Information System (ASRIS 2023) identified a low risk with low confidence. The proposed impact area does not intersect any contaminated sites (spatial dataset DWER-059; GoWA, 2022). No known contaminated sites are recorded within 20 km of the DE.					
Environmental heritage	There are no National or World Heritage Areas mapped as overlapping the Warmun DE.	There are no World Heritage Areas mapped as overlapping the Beagle Bay DE. The Beagle Bay DE is within the West Kimberley Natural Heritage area (DCCEEW 2023b).	There are no World Heritage Areas mapped as overlapping the Ardyaloon DE. Both sites are within the West Kimberley Natural Heritage area (DCCEEW 2023b).	There are no World Heritage Areas mapped as overlapping the Bidjadyanga DE. The Bidjadyanga DE is within the West Kimberley Natural Heritage area (DCCEEW 2023b).					

## 6 Avoidance, Mitigation and Management Measures

### 6.1 Avoidance

Initial avoidance and minimisation was undertaken during site selection, including placement of the proposed infrastructure adjacent to the existing assets to reduce the clearing associated with additional transmission infrastructure.

The following avoidance measures have also been applied to each site:

- A 50 m buffer has been applied around the Priority flora at Warmun Site C and this area has been excluded from the DE.
- A 50 m buffer has been applied around some populations of *Tephrosia andrewsii* where these can be avoided, and these areas have been excluded from the DE.
- No more than 1 ha of the PEC will be cleared for the proposed Beagle Bay works. It is anticipated this PEC will be avoided entirely; however, this is pending the outcomes of the Aboriginal heritage survey.

### 6.2 Mitigation and Management

#### 6.2.1 Geotechnical works

A CEMP has been developed for the project (Appendix D), this lists the specific mitigation and management measures to be applied. Key management measures include:

- Where possible, pre-existing access tracks will be used and vehicles and machinery will exit the DE along the same route used for access.
- Mechanical clearing for the development of formal access tracks is not proposed during geotechnical works.
- Areas of degraded, sparsely vegetated and/or previously cleared areas will be preferentially selected for the location of test pit and laydown areas.
- Works will be undertaken systematically to minimise re-run and compaction of access tracks.
- Standard weed and hygiene management practices which will be applied to these works.
- Mechanical clearing will be undertaken slowly and in a one-way direction to allow fauna to move offsite if present.

##### 6.2.1.1 Restoration of Cleared Areas

Restoration of the site will be limited to management of excavated fill and compaction (where applicable), as follows:

- Topsoil will be stockpiled separately to other excavated materials.
- On completion of test pit works, excavated materials will be placed back into the test pits. Topsoil from the test pit will then be respread over the surface.
- Recontouring of soil within the test pit and laydown areas will be undertaken.

#### 6.2.2 Project infrastructure

Key management measures detailed in the CEMP for the Project include:

- No clearing is permitted outside the DE.
- Clearing will be minimised where possible through placement of assets and access tracks in existing cleared locations where possible.
- The clearing locations are to be demarcated prior to clearing activities.
- Clearing areas are to be checked by an Environmental Specialist or Site Supervisor prior to clearing to ensure no more than 21.2 ha of clearing is undertaken for the Project.
- A pre-clearing toolbox will be held so all staff are aware of their responsibilities under the permit.
- No more than 1 ha of the PEC will be cleared for the proposed Beagle Bay works.

- Clearing of native vegetation will be undertaken in a slow, progressive manner in one direction to allow fauna to move away from the clearing area.

## 7 Stakeholder Engagement

Horizon Power has engaged with the Traditional Owners, local community, local Shires and Department of Planning and Heritage to date.

## 8 Assessment Against the 10 Clearing Principles

An assessment against the 10 Clearing Principles has been undertaken to support the NVCP application for the Project, as presented in Table 6. The assessment found that the proposed clearing of native vegetation for the Project is unlikely to be at variance with any clearing principles.

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Table 6 Assessment Against the 10 Clearing Principles

Principle	Assessment	Outcome
<p>(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.</p>	<p><i>Warmun</i></p> <p>As reported by GHD (2023), vegetation condition within the DE varied from Good to Excellent and it is assumed that the unsurveyed sections are commensurate with the adjacent sites. Three vegetation types were recorded within the DE; <i>Corymbia</i> Open Woodland on stony undulating plains; <i>Corymbia/Terminalia</i> Open Woodland on rocky hills and ridges; and <i>Lophostemon</i> Open Woodland on minor drainage areas.</p> <p>The DBCA PEC database identified two Priority 3 PECs occurring within 20 km of the DE, and the Warmun DE is located within the area mapped as Kimberley Vegetation Association 834 PEC. Neither of the P3 ecological communities were recorded in the Warmun DE, and the vegetation types recorded at the Warmun DE did not represent the PEC. It is considered that the vegetation within unsurveyed areas would be commensurate within the adjacent sites and the P3 ecological communities are not expected to be present.</p> <p>The NatureMap database identified 449 flora taxa previously recorded within 20 km of Warmun Site A and Warmun Site C (GHD 2023). GHD (2019) also conducted a NatureMap search, which identified 427 species within a 40 km buffer of Warmun Site B.</p> <p>The EPBC Act PMST and DBCA NatureMap, WAHERB and TPFL databases identified the presence/potential presence of 24 significant taxa within a 20 km buffer of Warmun Site A and Warmun Site C (GHD 2023). It is considered that the unsurveyed areas would be commensurate with these findings.</p> <p>A Priority 3 species <i>Goodenia byrnesii</i> was recorded in the Warmun Site C DE. This species was recorded opportunistically from five individuals in the southern DE and was not identified in the desktop searches. The closest known record of this species is from the Argyle Downs Station (over 70 km north-east of Warmun) with this record representing a range extension. <i>Goodenia byrnesii</i> was identified in Warmun Site C only, and the DE has been modified to prevent impacts to this flora. It is considered that the flora within the unsurveyed area would be commensurate within the adjacent sites and <i>Goodenia byrnesii</i> may occur. All other taxa identified in the desktop assessment are considered unlikely to occur (GHD 2023).</p> <p>None of the introduced/naturalised flora taxa identified during the survey are listed as a Declared Pest under the <i>Biosecurity and Management Act 2007</i> or a Weed of National Significance.</p> <p>Three fauna habitat types were identified in the Warmun DE by GHD (2023); open woodlands on stony plains; mixed woodlands on rocky hills; and minor drainage. It is considered that the unsurveyed areas of the DE would be commensurate with these findings. The open woodlands on stony plains habitat is of high value and is widespread in the region. The mixed woodlands on rocky hills is also of high value and the minor drainage habitat type is of medium fauna habitat value.</p> <p>The NatureMap database identified 280 fauna species previously recorded within 20 km of the Warmun Site A and Warmun Site C DE. This total comprised 172 birds, 75 reptiles, 22 mammals and 11 amphibians. EPBC Act PMST and NatureMap database searches identified the presence/potential presence of 26 conservation significant fauna within 20 km of the Warmun Site A and Warmun Site C DE. It is considered that the unsurveyed areas of the DE would be commensurate with these findings.</p> <p>A total of 30 fauna species were identified in the Warmun Site A and Warmun Site C DE by GHD (2023). This total comprised 23 birds, 3 mammals, 3 reptiles and one amphibian. Two species are introduced (Dog and Feral Cat).</p> <p>No significant fauna were recorded in the biological surveys. Three fauna species are considered likely to occur: Gouldian Finch (<i>Erythrura gouldiae</i>), Peregrine Falcon (<i>Falco peregrinus</i>) and Grey Falcon (<i>Falco hypoleucos</i>). It is considered that vegetation would be commensurate with the surrounding region and similar fauna habitat features are expected in the unsurveyed areas.</p>	<p>Unlikely to be at variance.</p>

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Principle	Assessment	Outcome
	<p>Up to 5.6 ha of native vegetation is proposed to be cleared for the Project at Warmun.</p> <p><i>Beagle Bay</i></p> <p>As reported by GHD (2023), vegetation condition within the DE varied from Good to Very Good. Two vegetation types were recorded within the DE; <i>Eucalyptus miniata</i> and <i>Corymbia greeniana</i> woodland to isolated clumps of trees on Pindan red sand loam on low plain; and <i>Corymbia greeniana</i> and <i>Corymbia bella</i> isolated clumps of trees over <i>Melaleuca nervosa</i> subsp <i>crosslandiana</i> open woodland on silty loam over clay on drainage flats/floodplain.</p> <p>The DBCA PEC database identified three State-listed PECs within 20 km of the Beagle Bay DE. The DE is located within the buffer of the P3 Kimberley Vegetation Association 67 PEC. A 1.61 ha area of Kimberley Vegetation Association 67 PEC was identified in the southeast of the Beagle Bay DE. Up to 1 ha of this PEC may be impacted by the project, however it is expected that this can be significantly reduced following the Aboriginal heritage survey.</p> <p>The NatureMap database identified 220 flora taxa, representing 156 genera, previously recorded within 20 km of the Beagle Bay DE (GHD 2023). The most common genus's include <i>Melaleuca</i> (seven species), <i>Acacia</i> (six species), <i>Cyperus</i> (five species) and <i>Fimbristylis</i> (five species).</p> <p>The EPBC Act PMST and DBCA NatureMap databases identified the presence/potential presence of 14 significant taxa within a 20 km buffer of the Beagle Bay DE (GHD 2023).</p> <p>No Priority flora were identified in the Beagle Bay DE. A likelihood of occurrence assessment (GHD 2022) identified no Priority species likely to occur.</p> <p>None of the introduced/naturalised flora taxa identified during the survey are listed as a Declared Pest under the <i>Biosecurity and Management Act 2007</i> or a Weed of National Significance.</p> <p>Two fauna habitat types were identified in the Beagle Bay DE by GHD (2023); <i>Eucalyptus</i> and <i>Corymbia</i> on Pindan red sand; and <i>Corymbia</i> over <i>Melaleuca</i> on silty clay loam on drainage flats/floodplain. The <i>Eucalyptus</i> and <i>Corymbia</i> on Pindan red sand habitat type is of high value and is extensive and widespread within the Pindanland bioregion of the Dampier Peninsula. The <i>Corymbia</i> over <i>Melaleuca</i> on silty clay loam on drainage flats/ floodplain habitat type is of high value and does not occur in any of the other DEs.</p> <p>The NatureMap database identified 307 fauna species previously recorded within 20 km of the Beagle Bay DE. This total comprised 132 birds, 36 reptiles, 10 mammals, seven amphibians, 55 invertebrates and 67 fish. EPBC Act PMST, DBCA database and NatureMap database searches identified the presence/potential presence of 29 conservation significant fauna within 20 km of the Beagle Bay DE.</p> <p>A total of 12 fauna species were identified in the Beagle Bay DE by GHD (2023). This total comprised 10 birds, one mammal, and one amphibian. No significant fauna were recorded in the biological survey. Five fauna species are considered likely to occur due to potentially suitable foraging and/or breeding habitat in the DE and close proximity of previous records. These include Gouldian Finch (<i>Erythrura gouldiae</i>), Grey Falcon (<i>Falco hypoleucos</i>), Peregrine Falcon (<i>Falco peregrinus</i>), Oriental pratincole (<i>Glareola maldivarum</i>) and Greater Bilby (<i>Macrotis lagotis</i>).</p> <p>Up to 4 ha of native vegetation is proposed to be cleared at Beagle Bay.</p> <p><i>Ardyaloon</i></p> <p>As reported by GHD (2023), vegetation condition within the DE varied from Very Good to Excellent and it is assumed that the unsurveyed sections are commensurate with the adjacent sites. Two vegetation types were recorded within the DE; <i>Eucalyptus miniata</i> and <i>Corymbia greeniana</i> woodland to isolated clumps of trees on Pindan red sand loam on low plain (Ardyaloon Site A); and <i>Corymbia greeniana</i> and <i>Corymbia</i> sp open woodland on sandy Pindan plain with occasional rocky outcrops (Ardyaloon Site B).</p>	

# PROTECTED

Principle	Assessment	Outcome
	<p>The DBCA PEC database identified one PEC within the DE, P3 Vegetation Association 37. This PEC was not identified in the Ardyaloon DE during surveys. It is considered that the vegetation within the connection corridors would be commensurate within the adjacent sites and no PECs are expected to be present.</p> <p>The NatureMap database identified 82 flora taxa previously recorded within 20 km of the Ardyaloon DE (GHD 2023). The most common genus's include <i>Acacia</i> (12 species), <i>Heliotropium</i> (three species) and <i>Philotus</i> (three species).</p> <p>The EPBC Act PMST and DBCA NatureMap databases identified the presence/potential presence of four significant taxa within a 20 km buffer of the Ardyaloon DE (GHD 2023). It is considered that the unsurveyed areas of the DE would be commensurate with these findings.</p> <p>The Priority 3 species <i>Triodia acutispicula</i> was recorded in the Ardyaloon DE. This species was recorded from 17 locations with a total of 149 individuals and ranged in percentage cover between 1 – 60% within VT06. 11 populations (134 individuals) were recorded in Ardyaloon Site A and 6 populations (15 individuals) in Ardyaloon Site B. 29 populations of this species are known to occur in WA, based on WA Herbarium records. It is considered that the flora within the connection corridors would be commensurate within the adjacent sites and it is considered that <i>Triodia acutispicula</i> may occur. No more than 8 populations of <i>Triodia acutispicula</i> will be impacted by the project (excluding the connection corridors as it is currently unknown if this species is present in these locations). All other taxa identified in the desktop assessment are considered unlikely to occur (GHD 2023).</p> <p>None of the introduced/naturalised flora taxa identified during the survey are listed as a Declared Pest under the <i>Biosecurity and Management Act 2007</i> or a Weed of National Significance.</p> <p>One fauna habitat type was identified in the Ardyaloon DE by GHD (2023); <i>Eucalyptus</i> and <i>Corymbia</i> on Pindan red sand. It is considered that the unsurveyed areas of the DE would be commensurate with these findings. This habitat is of high value and is extensive and widespread within the Pindanland bioregion of the Dampier Peninsula.</p> <p>The NatureMap database identified 391 fauna species previously recorded within 20 km of the Ardyaloon DE. This total comprised 225 birds, 41 reptiles, 29 mammals, two amphibians, one invertebrate and 93 fish. EPBC Act PMST and NatureMap database searches identified the presence/potential presence of 52 conservation significant fauna within 20 km of the Ardyaloon DE. It is considered that the unsurveyed areas of the DE would be commensurate with these findings.</p> <p>A total of 23 fauna species were identified in the Ardyaloon DE by GHD (2023). This total comprised 18 birds, 2 mammals, 2 reptiles and one amphibian. Two introduced species (Donkey and Dog) were recorded and are included in this total.</p> <p>No significant fauna were recorded in the biological survey. Six fauna are considered likely to occur due to potentially suitable foraging and/or breeding habitat in the DE and close proximity of previous records. These include Gouldian Finch (<i>Erythrura gouldiae</i>), Grey Falcon (<i>Falco hypoleucos</i>), Peregrine Falcon (<i>Falco peregrinus</i>), Greater Bibby (<i>Macrotis lagotis</i>), Dampierland Burrowing snake (<i>Simoselops minimus</i>), and Dampierland plain slider (<i>Lerista separanda</i>). It is considered that vegetation would be commensurate with the surrounding region and similar fauna habitat features are expected in the unsurveyed areas.</p> <p>Up to 6.4 ha of native vegetation is proposed to be cleared at Ardyaloon.</p> <p><i>Bidyadanga</i></p> <p>As reported by GHD (2023), vegetation condition within the DE was Excellent and it is assumed that the unsurveyed section is commensurate with the adjacent site. One vegetation type was recorded within the DE: <i>Corymbia hamersleyana</i> and <i>Corymbia flavescens</i> open woodland on red brown sandplain.</p>	

## PROTECTED

Principle	Assessment	Outcome
	<p>The DBCA PEC database identified three state listed PECs as potentially occurring, however none were recorded in the survey by GHD (2023). It is considered that the vegetation within the connection corridor would be commensurate within the adjacent site and no PECs are expected to be present.</p> <p>The NatureMap database identified 82 flora taxa previously recorded within 20 km of the Bidyadanga DE (GHD 2023). The most common genus include <i>Acacia</i> (12 species), <i>Heliotropium</i> (three species) and <i>Philotus</i> (three species).</p> <p>The EPBC Act PMST and DBCA NatureMap databases identified the presence/potential presence of four significant taxa within a 20 km buffer of the Bidyadanga DE (GHD 2023). It is considered that the unsurveyed area of the DE would be commensurate with these findings.</p> <p>The Priority 3 species <i>Tephrosia andrewii</i> was recorded from the Bidyadanga DE. This species was recorded from 10 locations with a total of 121 individuals. Eight known populations occur in WA based on the WA Herbarium records with a further two recorded in the TPFL database. It is considered that the flora within the connection corridor would be commensurate within the adjacent site and it is considered that <i>Tephrosia andrewii</i> may occur. The DE has been modified to minimise impacts to this species, and no more than 2 locations of 38 individuals total will be impacted for the Project. This excludes the connection corridor as it is currently unknown if this species is present at this location. All other taxa identified in the desktop assessment are considered unlikely to occur (GHD 2023).</p> <p>None of the introduced/naturalised flora taxa identified during the survey are listed as a Declared Pest under the <i>Biosecurity and Management Act 2007</i> or a Weed of National Significance.</p> <p>One fauna habitat type was identified in the Bidyadanga DE by GHD (2023); <i>Corymbia</i> over tussock grasses over hummock grassland on red brown sandplain. It is considered that the unsurveyed areas of the DE would be commensurate with these findings. This habitat type is of moderate value and extends throughout the DE.</p> <p>The NatureMap database identified 267 fauna species previously recorded within 20 km of the Bidyadanga DE. This total comprised 177 birds, 34 reptiles, 23 mammals, 3 amphibians, one invertebrate and 29 fish. EPBC Act PMST, DBCA database and NatureMap database searches identified the presence/potential presence of 62 conservation significant fauna within 20 km of the Bidyadanga DE. It is considered that the unsurveyed area of the DE would be commensurate with these findings.</p> <p>A total of 20 fauna species were identified in the Bidyadanga DE by GHD (2023). This total comprised 14 birds, 2 mammals and 4 reptiles. One introduced species (Dog) was recorded and is included in this total.</p> <p>No significant fauna were recorded in the biological surveys. Four fauna taxa are considered Likely to occur due to potentially suitable foraging and/or breeding habitat in the DE and close proximity of previous records. These include Oriental Pratincole (<i>Glareola maldivarum</i>), Grey Falcon (<i>Falco hypoleucos</i>), Rainbow Bee-eater (<i>Merops ornatus</i>) and Greater Bilby (<i>Macrotis lagotis</i>). It is considered that vegetation would be commensurate with the surrounding region and similar fauna habitat features are expected in the unsurveyed area.</p> <p>Up to 6.2 ha of native vegetation is proposed to be cleared at Bidyadanga.</p> <p>Overall, the flora, vegetation and fauna values of the Warmun, Beagle Bay, Ardyaloon and Bidyadanga DEs are highly represented outside the DEs on a local and regional scale (GHD 2023) with a high degree of habitat connectivity. Surrounding vegetation typically has similar or better condition vegetation (GHD 2023). The native vegetation within the Warmun, Beagle Bay, Ardyaloon and Bidyadanga DEs is not considered to comprise high levels of biological diversity compared to the surrounding region, and as such, the proposed clearing is not considered to be at variance with this principle.</p>	



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Principle	Assessment	Outcome
<p>(b) Native vegetation should not be cleared if it comprises the whole or part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous Western Australia.</p>	<p><u>Warmun</u></p> <p>Three fauna habitat types were identified in the Warmun DE by GHD (2023): open woodlands on stony plains; mixed woodlands on rocky hills; and minor drainage. It is considered that the unsurveyed areas of the DE would be commensurate with these findings. The open woodlands on stony plains habitat is of high habitat value and is widespread in the region. The mixed woodlands on rocky hills is also of high value, and the minor drainage habitat type is of medium fauna habitat value.</p> <p>The NatureMap database identified 280 fauna species previously recorded within 20 km of the Warmun Site A and Warmun Site C DE. EPBC Act PMST and NatureMap database searches identified the presence/potential presence of 26 conservation significant fauna within 20 km of the Warmun Site A and Warmun Site C DE. It is considered that the unsurveyed areas of the DE would be commensurate with these findings.</p> <p>A total of 30 fauna species were identified in the Warmun Site A and Warmun Site C DE by GHD (2023). No significant fauna were recorded in the biological surveys. Three fauna species are considered likely to occur: Gouldian Finch (<i>Erythrura gouldiae</i>), Peregrine Falcon (<i>Falco peregrinus</i>) and Grey Falcon (<i>Falco hypoleucos</i>) in the Warmun DE. These species are described below. It is considered that vegetation would be commensurate with the surrounding region and similar fauna habitat features are expected in the unsurveyed areas.</p> <p><u>Gouldian Finch</u></p> <p>A combination of rocky hills in proximity to flatter country supporting patches of key wet season grasses is important to remnant Gouldian Finch populations. The Gouldian Finch inhabits open woodlands that are dominated by Eucalyptus trees and support a ground cover of Sorghum and other grasses (Boekel 1980). The critical components of suitable core habitat for the Gouldian Finch appear to be the presence of favoured annual and perennial grasses (especially Sorghum), a nearby source of surface water and, in the breeding season, unburnt hollow-bearing Eucalyptus trees (especially <i>E. tintinnans</i>, <i>E. brevifolia</i> and <i>E. leucophloia</i>) (Higgins et al. 2006).</p> <p>The habitat types mapped within the Warmun DE are considered to be suitable for the Gouldian Finch (GHD 2023). This species prefers open woodlands and grassland, not far from water and they may forage on seed of grasses when seasonally suitable within the DE. Based on aerial imagery and the Soil Landscape Mapping (spatial dataset DPIRD-027, GoWA 2022) and Pre-European Vegetation (spatial dataset DPIRD-006, GoWA 2022) datasets, habitat for the Gouldian Finch is widespread within a 10 km radius of the Warmun DE. Clearing of up to 5.6 ha of potential habitat represents approximately 0.016% of habitat available within 10 km of the Warmun DE. Due to the widespread availability of habitat, no significant impact is expected.</p> <p><u>Peregrine Falcon</u></p> <p>The Peregrine Falcon is uncommon but wide ranging across Australia. The species is found everywhere from woodlands to open grasslands and coastal cliffs – though less frequently in desert regions – it feeds almost entirely on other birds. It also eats rabbits and other moderate sized mammals, bats and reptiles. The Peregrine Falcon is very territorial during breeding season (Morcombe 2004).</p> <p>There is suitable habitat within the Warmun DE for the Peregrine Falcon. The species is known to persist in the region, however use of the DE would be foraging only with no breeding habitat present, such as tall structures or steep topography. The habitat types mapped within the Warmun DE are considered to be suitable for the Peregrine Falcon (GHD 2023). Based on aerial imagery and the Soil Landscape Mapping (spatial dataset DPIRD-027, GoWA 2022) and Pre-European Vegetation (spatial dataset DPIRD-006, GoWA 2022) datasets, habitat for the Peregrine Falcon is widespread within a 10 km radius of the Warmun DE. Clearing of up to 5.6 ha of potential habitat represents approximately 0.016% of habitat available within 10 km of the Warmun DE. Due to the widespread availability of habitat, no significant impact is expected.</p> <p><u>Grey Falcon</u></p>	<p>Unlikely to be at variance.</p>

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Principle	Assessment	Outcome
	<p>The Grey Falcon is an Australian endemic, usually confined to the arid inland. It inhabits <i>Triodia</i> grassland, <i>Acacia</i> shrubland, and lightly timbered arid woodland especially stony, inland plains, gibber deserts, sandridges, pastoral lands, and timbered watercourses, but seldom in driest deserts (Morcombe 2004). The DE is within the known distribution of this species and provides suitable foraging habitat. This species is therefore likely to occur at least on an occasional/opportunistic basis. The habitat types mapped within the Warmun DE is considered suitable for the Grey Falcon (GHD 2023). Based on aerial imagery and the Soil Landscape Mapping (spatial dataset DPIRD-027, GoWA 2022) and Pre-European Vegetation (spatial dataset DPIRD-006, GoWA 2022) datasets, habitat for the Grey Falcon is widespread within a 10 km radius of the Warmun DE. Clearing of up to 5.8 ha of potential habitat represents approximately 0.016% of habitat available within 10 km of the Warmun DE. Due to the widespread availability of habitat, no significant impact is expected.</p> <p><u>Beagle Bay</u></p> <p>Two fauna habitat types were identified in the Beagle Bay DE by GHD (2023): <i>Eucalyptus</i> and <i>Corymbia</i> on Pindan red sand; and <i>Corymbia</i> over <i>Melaleuca</i> on silty clay loam on drainage flats/ floodplain. The <i>Eucalyptus</i> and <i>Corymbia</i> on Pindan red sand habitat type is of high value and is extensive and widespread within the Pindanland bioregion of the Dampier Peninsula. The <i>Corymbia</i> over <i>Melaleuca</i> on silty clay loam on drainage flats/ floodplain habitat type is of high habitat value.</p> <p>The NatureMap database identified 307 fauna species previously recorded within 20 km of the Beagle Bay DE. EPBC Act PMST, DBCA database and NatureMap database identified the presence/potential presence of 29 conservation significant fauna within 20 km of the Beagle Bay DE.</p> <p>A total of 12 fauna species were identified in the Beagle Bay DE by GHD (2023). No significant fauna were recorded in the biological survey. Five fauna species are considered likely to occur due to potentially suitable foraging and/or breeding habitat in the DE and close proximity of previous records. These include Gouldian Finch (<i>Erythrura gouldiae</i>), Grey Falcon (<i>Falco hypoleucos</i>), Peregrine Falcon (<i>Falco peregrinus</i>), Oriental pratincole (<i>Glareola maldivarum</i>) and Greater Bilby (<i>Macrotis lagotis</i>). These species are described below.</p> <p><u>Gouldian Finch</u></p> <p>The preferred habitat for the Gouldian Finch is described above in regards to Warmun. The habitat types mapped within the Beagle Bay DE are considered to be suitable for the Gouldian Finch and the species may forage on seed of a range of locally occurring grasses when seasonally suitable within the DE (GHD, 2023). Based on aerial imagery and the Soil Landscape Mapping (spatial dataset DPIRD-027, GoWA 2022) and Pre-European Vegetation (spatial dataset DPIRD-006, GoWA 2022) datasets, the majority of habitat within a 10 km radius of the Beagle Bay DE is suitable for the Gouldian Finch, except for an area of bare coastal mudflats. Clearing of up to 4 ha of potential habitat represents approximately 0.013% of habitat available within 10 km of the Beagle Bay DE. Due to the widespread availability of habitat, no significant impact is expected.</p> <p><u>Peregrine Falcon</u></p> <p>The preferred habitat for the Peregrine Falcon is described above in the Warmun section. The habitat types mapped within the Beagle Bay DE are considered to be suitable for the Peregrine Falcon, however the species would only forage as there is no breeding habitat present (GHD 2023). Based on aerial imagery and the Soil Landscape Mapping (spatial dataset DPIRD-027, GoWA 2022) and Pre-European Vegetation (spatial dataset DPIRD-006, GoWA 2022) datasets, the majority of habitat within a 10 km radius of the Beagle Bay DE is suitable for the Peregrine Falcon. Clearing of up to 4 ha of potential habitat represents approximately 0.012% of habitat available within 10 km of the Beagle Bay DE. Due to the widespread availability of habitat, no significant impact is expected.</p> <p><u>Grey Falcon</u></p> <p>The preferred habitat for the Grey Falcon is described above. The habitat types mapped within the Beagle Bay DE are considered to be suitable for Grey Falcon foraging (GHD 2023). Based on aerial imagery and the Soil Landscape Mapping (spatial dataset DPIRD-027, GoWA 2022) and Pre-</p>	

# PROTECTED

Principle	Assessment	Outcome
	<p>European Vegetation (spatial dataset DPIRD-006, GoWA 2022) datasets, the majority of habitat within a 10 km radius of the Beagle Bay DE is suitable for the Grey Falcon, except for an area of bare coastal mudflats. Clearing of up to 4 ha of potential habitat represents approximately 0.013% of habitat available within 10 km of the Beagle Bay DE. Due to the widespread availability of habitat, no significant impact is expected.</p> <p><u>Oriental Pratincole</u></p> <p>In non-breeding grounds in Australia, the Oriental Pratincole usually inhabits open plains, floodplains or short grassland (including farmland or airstrips), often with extensive bare areas. They often occur near terrestrial wetlands, such as billabongs, lakes or creeks, and artificial wetlands such as reservoirs, saltworks and sewage farms, especially around the margins. The species also occurs along the coast, inhabiting beaches, mudflats and islands, or around coastal lagoons (Lloyd and Lloyd 1991).</p> <p>The Oriental Pratincole is likely to occur in the Beagle Bay DE as the nearest record is approximately 1 km north east. The DE is considered marginal habitat, as it lacks coastal or wetland areas and the species may occasionally hawk over DE or in proximity (GHD 2023). Based on aerial imagery and the Soil Landscape Mapping (spatial dataset DPIRD-027, GoWA 2022) and Pre-European Vegetation (spatial dataset DPIRD-006, GoWA 2022) datasets, the majority of habitat within a 10 km radius of the Beagle Bay DE is suitable for the Oriental Pratincole, except for an area of thicket. Clearing of up to 4 ha of potential habitat represents approximately 0.012% of habitat available within 10 km of the Beagle Bay DE. Due to the widespread availability of habitat, no significant impact is expected.</p> <p><u>Greater Bilby</u></p> <p>The Greater Bilby usually spends the daytime in burrows, often built against termite mounds, spinifex hummock or shrubs (Van Dyck and Strahan 2008). Extant population occur in a variety of habitats, usually on landforms with level to low slope topography and light to medium soils. It occupies three major vegetation types; open tussock grassland on uplands and hills, mulga woodland/shrubland growing on ridges and rises, and hummock grassland in plains and alluvial areas. Laterite and rock feature substrates are an important part of the species' habitat. These habitat support shrub species, such as <i>Acacia kempeana</i>, <i>A. hilliana</i> and <i>A. rhodophloia</i>, which have root-dwelling larvae that provide a constant food source. The current occurrence of this species is strongly associated with higher rainfall and temperatures, which promote areas of higher plant and food production.</p> <p>The Greater Bilby is likely to occur in the Beagle Bay DE as it is known to occur locally based on previous records (nearest 0.05 km north). Based on close proximity of records, habitat characteristics, and transient, nomadic behaviour, this species is likely to forage or move through the DE, and the DE habitat is potential burrowing habitat. Based on aerial imagery and the Soil Landscape Mapping (spatial dataset DPIRD-027, GoWA 2022) and Pre-European Vegetation (spatial dataset DPIRD-006, GoWA 2022) datasets, the majority of habitat within a 10 km radius of the Beagle Bay DE is suitable for the Greater Bilby, except for an area of bare coastal mudflats. Clearing of up to 4 ha of potential habitat represents approximately 0.013% of habitat available within 10 km of the Beagle Bay DE. Due to the widespread availability of habitat, no significant impact is expected.</p> <p><i>Ardyaloon</i></p> <p>One fauna habitat type was identified in the Ardyaloon DE by GHD (2023); <i>Eucalyptus</i> and <i>Corymbia</i> on Pindan red sand. It is considered that the unsurveyed areas of the DE would be commensurate with these findings. This habitat is of high value and is extensive and widespread within the Pindanland bioregion of the Dampier Peninsula.</p> <p>The NatureMap database identified 391 fauna species previously recorded within 20 km of the Ardyaloon DE. EPBC Act PMST and NatureMap database searches identified the presence/potential presence of 52 conservation significant fauna within 20 km of the Ardyaloon DE.</p>	

# PROTECTED

Principle	Assessment	Outcome
	<p>A total of 23 fauna species were identified in the Ardyaloon DE by GHD (2023). No significant fauna were recorded in the biological survey. Six fauna are considered likely to occur due to potentially suitable foraging and/or breeding habitat in the DE and close proximity of previous records. These include Gouldian Finch (<i>Erythrura gouldiae</i>), Grey Falcon (<i>Falco hypoleucos</i>), Peregrine Falcon (<i>Falco peregrinus</i>), Greater Bilby (<i>Macrotis lagotis</i>), Dampierland Burrowing snake (<i>Simoselops minimus</i>), and Dampierland plain slider (<i>Lerista separanda</i>). These species are described below. It is considered that vegetation would be commensurate with the surrounding region and similar fauna habitat features are expected in the unsurveyed areas.</p> <p>One Marine listed species under the EPBC Act, the Rainbow Bee-eater (<i>Merops ornatus</i>), was recorded at the Ardyaloon site. This species is widespread across Australia and WA, and occupies a wide variety of habitats. It is likely this species would be present across all the survey sites on the Dampier Peninsula.</p> <p><u>Gouldian Finch</u></p> <p>Habitat in the Ardyaloon DE is considered to be suitable for the Gouldian Finch which may forage on seed of a range of locally occurring grasses when seasonally suitable (GHD 2023). Based on aerial imagery and the Soil Landscape Mapping (spatial dataset DPIRD-027, GoWA 2022) and Pre-European Vegetation (spatial dataset DPIRD-006, GoWA 2022) datasets, there is habitat available for the Gouldian Finch within a 10 km radius of the Ardyaloon DE, except for areas of water and bare coastal mudflats which are not suitable. Clearing of up to 5.4 ha of potential habitat represents approximately 0.05% of habitat available within 10 km of the Ardyaloon DE. Due to the widespread availability of habitat on land, no significant impact is expected.</p> <p><u>Peregrine Falcon</u></p> <p>Habitat in the Ardyaloon DE is considered to be suitable for the Gouldian Finch, however the species would use it foraging only with no breeding habitat present (GHD 2023). Based on aerial imagery and the Soil Landscape Mapping (spatial dataset DPIRD-027, GoWA 2022) and Pre-European Vegetation (spatial dataset DPIRD-006, GoWA 2022) datasets, there is extensive habitat available for the Peregrine Falcon within a 10 km radius of the Ardyaloon DE. Clearing of up to 5.4 ha of potential habitat represents approximately 0.04% of habitat available within 10 km of the Ardyaloon DE. Due to the widespread availability of habitat, no significant impact is expected.</p> <p><u>Grey Falcon</u></p> <p>The Grey Falcon is known to persist in the region, however use of the DE would be foraging only with no breeding habitat present such as tall structures or trees. Based on aerial imagery and the Soil Landscape Mapping (spatial dataset DPIRD-027, GoWA 2022) and Pre-European Vegetation (spatial dataset DPIRD-006, GoWA 2022) datasets, there is habitat available for the Grey Falcon within a 10 km radius of the Ardyaloon DE. Clearing of up to 5.4 ha of potential habitat represents approximately 0.04% of habitat available within 10 km of the Ardyaloon DE. Due to the widespread availability of habitat, no significant impact is expected.</p> <p><u>Greater Bilby</u></p> <p>Habitat in the Ardyaloon DE is considered to be suitable for the Greater Bilby (GHD 2023), however this species was not recorded and no burrows are present. Based on close proximity of records, habitat characteristics, and transient nomadic behaviour, this species is likely to forage or move through the DE, and the surrounding habitat is potential burrowing habitat (GHD 2023). Based on aerial imagery and the Soil Landscape Mapping (spatial dataset DPIRD-027, GoWA 2022) and Pre-European Vegetation (spatial dataset DPIRD-006, GoWA 2022) datasets, there is habitat available for the Greater Bilby within a 10 km radius of the Ardyaloon DE. Clearing of up to 5.4 ha of potential habitat represents approximately 0.05% of habitat available within 10 km of the Ardyaloon DE. Due to the widespread availability of habitat on land, no significant impact is expected.</p>	

# PROTECTED

Principle	Assessment	Outcome
	<p><u>Dampierland Burrowing Snake</u></p> <p>The Dampierland Burrowing Snake is known to occur in coastal dunes and sandy junction between dunes and adjacent <i>Acacia</i> shrublands. Occasional records occur from near-coastal Pindan. This species is poorly known but presumed to be similar to other <i>Simoselaps</i>; a sand-swimmer feeding largely or wholly on skinks of the genus <i>Lerista</i> (Wilson and Swan 2017). The species is likely to occur in the Ardyaloon DE due to potentially suitable habitat (near-coastal Pindan shrubland on sandy soil). Based on aerial imagery and the Soil Landscape Mapping (spatial dataset DPIRD-027, GoWA 2022) and Pre-European Vegetation (spatial dataset DPIRD-006, GoWA 2022) datasets, there is habitat available for the species within a 10 km radius of the Ardyaloon DE. Clearing of up to 5.4 ha of potential habitat represents approximately 0.04% of habitat available within 10 km of the Ardyaloon DE. Due to the widespread availability of habitat on land, no significant impact is expected.</p> <p><u>Dampierland Plain Slider</u></p> <p>The Dampierland Plain Slider prefers near-coastal Pindan shrubland on sandy soil. The habitat type of the Ardyaloon DE is considered to be suitable for the Dampierland Plain Slider (GHD 2023). Based on aerial imagery and the Soil Landscape Mapping (spatial dataset DPIRD-027, GoWA 2022) and Pre-European Vegetation (spatial dataset DPIRD-006, GoWA 2022) datasets, there is habitat available for the species within a 10 km radius of the Ardyaloon DE. Clearing of up to 5.4 ha of potential habitat represents approximately 0.04% of habitat available within 10 km of the Ardyaloon DE. Due to the widespread availability of habitat on land, no significant impact is expected.</p> <p><u>Rainbow Bee-eater</u></p> <p>The Rainbow Bee-eater is distributed across much of mainland Australia and occurs on several near-shore islands. The species occurs in a range of diverse habitats, including inland and coastal sand dune systems, mangroves in northern Australia, and has been recorded in various other habitat types including heathland, sedge/land, vine forest and vine thicket, and on beaches (Higgins 1999).</p> <p>The habitat type of the Ardyaloon DE is considered to be suitable for the Rainbow Bee-eater (GHD 2023). Based on aerial imagery and the Soil Landscape Mapping (spatial dataset DPIRD-027, GoWA 2022) and Pre-European Vegetation (spatial dataset DPIRD-006, GoWA 2022) datasets, there is habitat available for the Rainbow Bee-eater within a 10 km radius of the Ardyaloon DE. Clearing of up to 5.4 ha of potential habitat represents approximately 0.04% of habitat available within 10 km of the Ardyaloon DE. Due to the widespread availability of habitat on land, no significant impact is expected.</p> <p><u>Bidyadanga</u></p> <p>One fauna habitat type was identified in the Bidyadanga DE by GHD (2023); <i>Corymbia</i> over tussock grasses over hummock grassland on red brown sandplain. It is considered that the unsurveyed areas of the DE would be commensurate with these findings. This habitat type is of moderate value and extends throughout the DE.</p> <p>The NatureMap database identified 267 fauna species previously recorded within 20 km of the Bidyadanga DE. EPBC Act PMST, DBCA database and NatureMap database searches identified the presence/potential presence of 62 conservation significant fauna within 20 km of the Bidyadanga DE. It is considered that the unsurveyed area of the DE would be commensurate with these findings.</p> <p>A total of 20 fauna species were identified in the Bidyadanga DE by GHD (2023). No significant fauna were recorded in the biological surveys. Four fauna taxa are considered likely to occur due to potentially suitable foraging and/or breeding habitat in the DE and close proximity of previous records. These include Oriental Pratincole (<i>Glareola maldivarum</i>), Grey Falcon (<i>Falco hypoleucos</i>), Rainbow Bee-eater (<i>Merops ornatus</i>) and Greater Bilby (<i>Macrotis lagotis</i>). These species are described below. It is considered that vegetation would be commensurate with the surrounding region and similar fauna habitat features are expected in the unsurveyed area.</p> <p><u>Oriental Pratincole</u></p>	

# PROTECTED

Principle	Assessment	Outcome
<p>(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.</p>	<p>The Oriental Pratincole is likely to occur in the Bidyadanga DE as the nearest record is approximately 2.5 km north of the DE. The DE is considered marginal habitat, as it lacks coastal or wetland areas (GHD 2023). Based on aerial imagery and the Soil Landscape Mapping (spatial dataset DPIRD-027, GoWA 2022) and Pre-European Vegetation (spatial dataset DPIRD-006, GoWA 2022) datasets, the majority of habitat within a 10 km radius of the Bidyadanga DE is suitable for the Oriental Pratincole. Clearing of up to 6.2 ha of potential habitat represents approximately 0.02% of habitat available within 10 km of the Bidyadanga DE. Due to the widespread availability of habitat, no significant impact is expected.</p> <p><u>Grey Falcon</u></p> <p>Grey Falcon is likely to occur in the Bidyadanga DE as they are known to persist in the region, however would only use the DE for foraging as no breeding habitat is present such as tall structures or trees. Based on aerial imagery and the Soil Landscape Mapping (spatial dataset DPIRD-027, GoWA 2022) and Pre-European Vegetation (spatial dataset DPIRD-006, GoWA 2022) datasets, the majority of habitat within a 10 km radius of the Bidyadanga DE is suitable for the Grey Falcon. Clearing of up to 6.2 ha of potential habitat represents approximately 0.02% of habitat available within 10 km of the Bidyadanga DE. Due to the widespread availability of habitat, no significant impact is expected.</p> <p><u>Rainbow Bee-eater</u></p> <p>Rainbow Bee-eater is likely to occur in the Bidyadanga DE as it is a common and widespread species and suitable habitat exists in the DE. Based on aerial imagery and the Soil Landscape Mapping (spatial dataset DPIRD-027, GoWA 2022) and Pre-European Vegetation (spatial dataset DPIRD-006, GoWA 2022) datasets, the majority of habitat within a 10 km radius of the Bidyadanga DE is suitable for the Rainbow Bee-eater. Clearing of up to 6.2 ha of potential habitat represents approximately 0.02% of habitat available within 10 km of the Bidyadanga DE. Due to the widespread availability of habitat, no significant impact is expected.</p> <p><u>Greater Bilby</u></p> <p>Greater Bilby is likely to occur in the Bidyadanga DE as the species is known to occur locally based on previous records (nearest 1 km southwest). Based on close proximity of records, habitat characteristics, and transient nomadic behaviour, this species is likely to forage or move through the DE, and the DE habitat is potential burrowing habitat, although no burrows were recorded. Based on aerial imagery and the Soil Landscape Mapping (spatial dataset DPIRD-027, GoWA 2022) and Pre-European Vegetation (spatial dataset DPIRD-006, GoWA 2022) datasets, there is suitable habitat for the Greater Bilby within a 10 km radius of the Bidyadanga DE. Clearing of up to 6.2 ha of potential habitat represents approximately 0.03% of habitat available within 10 km of the Bidyadanga DE. Due to the widespread availability of habitat, no significant impact is expected.</p> <p>Overall, the fauna values of the Warmun, Beagle Bay, Ardyaloon and Bidyadanga DEs are highly represented on a local and regional scale (GHD 2023). The DEs are part of a larger continuous area of tall shrubland plain, rocky and drainage system habitats throughout the surrounding area as it has a high degree of habitat connectivity with surrounding vegetation having similar or better condition vegetation (GHD 2023). No significant ecological linkages were identified in the DEs. The removal of native vegetation within the DEs is not anticipated to significantly impact on a significant habitat for fauna indigenous to Western Australia.</p> <p>The proposed clearing of native vegetation for the Project is therefore not considered to be at variance with this principle.</p>	<p>Unlikely to be at variance.</p>

## PROTECTED

Principle	Assessment	Outcome
<p>(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.</p>	<p><i>Warmun</i></p> <p>The DBCA TEC database did not identify any TECs within 20 km of the Warmun DE. Additionally, no TEC's were identified within the DE during the GHD (2023) field survey. It is considered that the vegetation within the connection corridors would be commensurate within the adjacent sites and no TECs are expected to be present. The proposed clearing of native vegetation for the Project at Warmun is therefore unlikely to be at variance with this principle.</p> <p><i>Beagle Bay</i></p> <p>The DBCA TEC database identified the TEC Monsoon (vine) thickets on coastal sand dunes of Dampier Peninsula within 20 km of the Beagle Bay DE. This TEC was not recorded during the GHD (2023) survey. The proposed clearing of native vegetation at Beagle Bay is therefore unlikely to be at variance with this principle as no TECs are expected to be present.</p> <p><i>Ardyaloon</i></p> <p>The DBCA TEC database identified one TEC within the Ardyaloon DE. The DE is within the buffer of the TEC Monsoon (vine) thickets on coastal sand dunes of Dampier Peninsula. GHD (2023) found that the landform (within or near coastal sand dunes) did not occur and many of the dominant species that represent the TEC Monsoon (vine) thickets did not occur. It is considered that the vegetation within the connection corridors would be commensurate within the adjacent sites and no TECs are expected to be present. The proposed clearing of native vegetation for the Project at Ardyaloon is therefore unlikely to be at variance with this principle.</p> <p><i>Bidyadanga</i></p> <p>The DBCA TEC database identified no TECs within 20 km of the Bidyadanga DE. Additionally, no TECs were identified within the DE during the GHD (2023) field survey. It is considered that the vegetation within the connection corridor would be commensurate within the adjacent site and no TECs are expected to be present. The proposed clearing of native vegetation for the Project at Bidyadanga is therefore unlikely to be at variance with this principle.</p>	<p>Unlikely to be at variance.</p>
<p>(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.</p>	<p><i>Warmun</i></p> <p>Three vegetation types were recorded within the Warmun DE; <i>Corymbia</i> Open Woodland on stony undulating plains; <i>Corymbia/Terminalia</i> Open Woodland on rocky hills and ridges; and <i>Lophostemon</i> Open Woodland on minor drainage areas. The unsurveyed areas are considered to be commensurate with the other adjacent sites. The vegetation values of the Warmun DE are highly represented outside the DE on a local and regional scale (GHD 2023).</p> <p>One pre-European vegetation association was mapped in the Warmun DE; Grasslands, tall bunch-grass savanna, Mitchell (<i>Astrelbia</i> spp.) and blue grass (<i>Bothriochloa</i> spp.) (Vegetation Association 834). The current extent remaining of the vegetation association is greater than 99% of its calculated pre-European extents at all scales (i.e., State, IBRA bioregion, IBRA subregion and Local Government Area (LGA)). The Native Vegetation Extent data layer indicates that there has been no previous clearing within the Warmun DE (GHD 2023).</p> <p>It is considered that the native vegetation proposed to be cleared for the Project is not significant as a remnant of native vegetation within an area that has been extensively cleared. Aerial imagery identifies that the majority of the region is existing native vegetation. The proposed clearing of native vegetation for the Project at Warmun is therefore unlikely to be at variance with this principle.</p> <p><i>Beagle Bay</i></p> <p>Two vegetation types were recorded within the DE; <i>Eucalyptus miniata</i> and <i>Corymbia greeniana</i> woodland to isolated clumps of trees on Pindan red sand loam on low plain; and <i>Corymbia greeniana</i> and <i>Corymbia bella</i> isolated clumps of trees over <i>Metaleuca nervosa</i> subsp <i>crosslandiana</i></p>	<p>Unlikely to be at variance.</p>

# PROTECTED

Principle	Assessment	Outcome
	<p>open woodland on silty loam over clay on drainage flats/floodplain. The vegetation values of the Beagle Bay DE are highly represented outside the DE on a local and regional scale (GHD 2023).</p> <p>Two pre-European vegetation associations were mapped in the Beagle Bay DE: Shrublands, pindan; <i>Acacia tumida</i> shrubland with grey box &amp; cabbage gum medium woodland over ribbon grass &amp; curly spinifex (Vegetation Association 750); and Grasslands, tall bunch grass savanna, sparse low tree; ribbon grass &amp; paperbarks (Vegetation Association 67). The current extents remaining of both of the vegetation association are greater than 99% of their calculated pre-European extents at all scales (i.e., State, IBRA bioregion, IBRA subregion and LGA). The Native Vegetation Extent data layer indicates that there has been no previous clearing within the Beagle Bay DE (GHD 2023).</p> <p>It is considered that the native vegetation proposed to be cleared for the Project is not significant as a remnant of native vegetation within an area that has been extensively cleared. Aerial imagery identifies that the majority of the region is existing native vegetation. The proposed clearing of native vegetation for the Project at Beagle Bay is therefore unlikely to be at variance with this principle.</p> <p><i>Ardyaloon</i></p> <p>Two vegetation types were recorded within the DE; <i>Eucalyptus miniata</i> and <i>Corymbia greeniana</i> woodland to isolated clumps of trees on Pindan red sand loam on low plain (Ardyaloon Site A); and <i>Corymbia greeniana</i> and <i>Corymbia</i> sp open woodland on sandy Pindan plain with occasional rocky outcrops (Ardyaloon Site B). The unsurveyed areas are considered to be commensurate with the other adjacent sites. The vegetation values of the Ardyaloon DE are highly represented outside the DE on a local and regional scale (GHD 2023).</p> <p>One pre-European vegetation association was mapped in the Ardyaloon DE: Shrublands, pindan; <i>Acacia tumida</i> shrubland with ghost gum (<i>Eucalyptus papuana</i>) &amp; <i>E. setosa</i> medium woodland over curly spinifex (Vegetation Association 771). The current extent remaining of the vegetation association is greater than 97% of its calculated pre-European extents at all scales (i.e., State, IBRA bioregion, IBRA subregion and LGA). The Native Vegetation Extent data layer indicates that there has been no previous clearing within the Ardyaloon DE (GHD 2023).</p> <p>It is considered that the native vegetation proposed to be cleared for the Project is not significant as a remnant of native vegetation within an area that has been extensively cleared. Aerial imagery identifies that the majority of the region is existing native vegetation. The proposed clearing of native vegetation for the Project at Ardyaloon is therefore unlikely to be at variance with this principle.</p> <p><i>Bidyadanga</i></p> <p>One vegetation type was recorded within the DE; <i>Corymbia hamersleyana</i> and <i>Corymbia flavescens</i> open woodland on red brown sandplain. The unsurveyed area is considered to be commensurate with the other adjacent sites. The vegetation values of the Bidyadanga DE are highly represented outside the DE on a local and regional scale (GHD 2023).</p> <p>One pre-European vegetation association was mapped in the Bidyadanga DE: Shrublands, pindan; <i>Acacia eripoda</i> shrubland with scattered low bloodwood (<i>Eucalyptus dicromophloia</i>) &amp; <i>E.setosa</i> over soft &amp; curly spinifex on sandplain (Vegetation Association 699). The current extent remaining of the vegetation association is greater than 99% of its calculated pre-European extents at all scales (i.e., State, IBRA bioregion, IBRA subregion and LGA). The Native Vegetation Extent data layer indicates that there has been no previous clearing within the Bidyadanga DE (GHD 2023).</p> <p>It is considered that the native vegetation proposed to be cleared for the Project is not significant as a remnant of native vegetation within an area that has been extensively cleared. Aerial imagery identifies that the majority of the region is existing native vegetation. The proposed clearing of native vegetation for the Project at Bidyadanga is therefore unlikely to be at variance with this principle.</p>	



# PROTECTED

Principle	Assessment	Outcome
<p>(f) Native vegetation should not be cleared if it is growing in or in association with a watercourse or wetland.</p>	<p>There are no wetlands, watercourses, rivers or marshes within the Warmun, Beagle Bay, Ardyaloon or Bidyadanga DEs and no riparian vegetation was recorded (GHD 2023). The proposed clearing of native vegetation for the Project is therefore not considered to be at variance with this principle.</p>	<p>Unlikely to be at variance.</p>
<p>(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.</p>	<p><i>Warmun</i></p> <p>The Warmun DE intersects two land systems, predominantly the O'Donnell system, with a small area of the northern DE intersecting the Richenda land system (GHD 2023). The O'Donnell land system is characterised as 'Stony undulating country with scattered hills, loamy skeletal soils, open woodlands with short grasses and restricted cracking clay plains'. The Richenda land system is characterised as 'Inaccessible mountainous country, open stunted woodlands with curly spinifex, and grassy woodlands'. The loamy skeletal soils of the O'Donnell land system are not considered likely to produce significant impacts to air including dust emissions during construction.</p> <p>The soil landscape land quality mapping (spatial dataset DPIRD-017, GoWA 2022) indicates that the DE is within the Springvale Foothills soil landscape zone. This zone is described as hills and plateaux (with some undulating plains) on granitic, volcanic and sedimentary rocks of the Halls Creek Orogen (western Lamboo Complex) with stony soils, red shallow loams and deep sands. The soil types recorded in the flora and vegetation survey were silty loam, sandy loam, skeletal and sandy/stony plain (GHD 2023).</p> <p>A review of the ASRIS and ASS risk mapping (spatial dataset DWER-048; GoWA 2022) indicates the soil under the nearby surveyed area has a low risk of ASS occurrence.</p> <p>The Warmun DE does not intersect any contaminated sites (spatial dataset DWER-059; GoWA 2022) and no known contaminated sites are recorded within 20 km of the proposed works.</p> <p><i>Beagle Bay</i></p> <p>The Beagle Bay DE intersects the Wanganut land system, which is described as low-lying sandplains and dune fields with through flowing drainage supporting pindan <i>Acacia</i> shrublands with emergent eucalypt trees. The low-lying sandplains and dune fields are considered likely to produce dust during construction, which will be managed through the implementation of a CEMP.</p> <p>The soil landscape land quality mapping (spatial dataset DPIRD-017, GoWA 2022) indicates that the DE is within the Dampier Peninsula Sandplain Zone. This zone is described as sandplains and dunes (with some sandy plateaux and coastal mudflats) on sedimentary rocks of the Canning Basin with Red deep sands and some Yellow sandy earths and Tidal soils. The soil type recorded in the flora and vegetation survey was sandy loam (GHD, 2023).</p> <p>A review of the ASS risk mapping indicates an extremely low probability of ASS occurrence within the upper 1 m in wet riparian areas with Kandosols, Ferrosols, Tenosols, Rudosols and Podosols (Fitzpatrick 2011). A review of the Australian Soil Resource Information System (ASRIS 2023) identified a low risk with low confidence.</p> <p>The proposed impact area does not intersect any contaminated sites (spatial dataset DWER-059; GoWA 2022).</p> <p><i>Ardyaloon</i></p>	<p>Unlikely to be at variance.</p>

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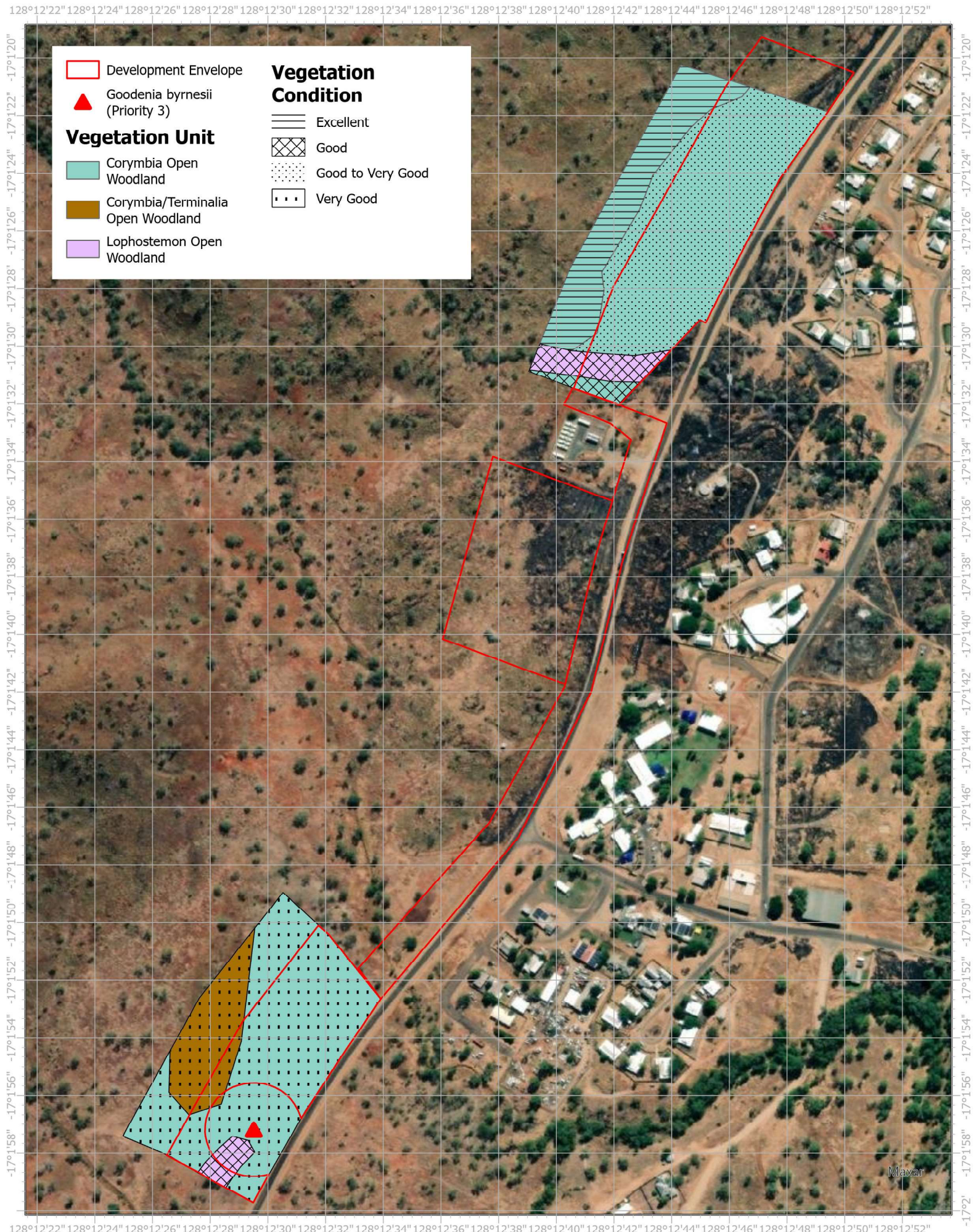
Principle	Assessment	Outcome
<p>(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.</p>	<p>The Ardyaloon DE intersects the Reeves land system, which is described as sand plain with scattered hills and minor plateaux, reddish sandy soils and pindan. Sand plains and reddish sandy soils are considered likely to produce dust during construction, which will be managed through the implementation of a CEMP.</p> <p>The soil landscape land quality mapping (spatial dataset DPIRD-017, GoWA 2022) indicates that the DE is within the Dampier Peninsula Sandplain Zone. This zone is described as sandplains and dunes (with some sandy plateaux and coastal mudflats) on sedimentary rocks of the Canning Basin with Red deep sands and some Yellow sandy earths and Tidal soils. The soil type recorded in the flora and vegetation survey was sand (GHD 2023).</p> <p>A review of the ASS risk mapping indicates the soil under the nearby DE has a high probability of ASS occurrence. ASS investigations will be undertaken as part of geotechnical works.</p> <p>The Ardyaloon DE does not intersect any contaminated sites (spatial dataset DWER-059; GoWA 2022) and the nearest known contaminated site is 73 km north-east.</p> <p><i>Bidyadanga</i></p> <p>The Bidyadanga DE intersects the Yeeda land system, which is described as sandplains with red and yellow sands supporting pindan <i>Acacia</i> shrublands with emergent eucalypt trees. Dust during construction from sandplains with red and yellow sands will be managed through the implementation of a CEMP.</p> <p>The soil landscape land quality mapping (spatial dataset DPIRD-017, GoWA 2022) indicates that the DE is within the Nita Sandplain Zone. This zone is described as sandplains and dunes on Cretaceous Canning Basin sedimentary rocks with red deep sands and some red sandy earths. The soil type recorded in the flora and vegetation survey was silty loam (GHD 2023).</p> <p>A review of ASS risk mapping indicates the soil under the DE has an extremely low probability of ASS occurrence within the upper 1 m in wet riparian areas with Kandosols, Ferrosols, Tenosols and Podosols (Fitzpatrick 2011). A review of the Australian Soil Resource Information System (ASRIS 2023) identified a low risk with low confidence.</p> <p>The proposed impact area does not intersect any contaminated sites (spatial dataset DWER-059; GoWA 2022) and no known contaminated sites are recorded within 20 km of the DE.</p> <p>The Project will incorporate standard construction management measures to reduce the risk of soil erosion and sedimentation as a result of ground disturbance and clearing at all locations (Appendix D). The clearing is not expected to cause appreciable land degradation at any of the locations and based on the above, the proposed clearing of native vegetation for the Project is not considered to be at variance with this principle.</p> <p><i>Warmun</i></p> <p>There are no DBCA managed conservation areas within the Warmun DE. The closest DBCA managed area is the Purnululu National Park, located approximately 30 km south/south-east of the DE. There are no National or World Heritage Areas mapped as overlapping the Warmun DE.</p> <p>The Warmun DE does not overlap any significant wetlands, it is approximately 50 km south-west of Lake Argyle, which is a Ramsar Wetland. The DE is within the Ord River and Tributaries surface water area and Sub-Area 2 of the Ord Irrigation District which are both proclaimed areas under the RIWI Act.</p> <p><i>Beagle Bay</i></p>	<p>Unlikely to be at variance.</p>

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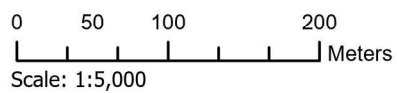
Principle	Assessment	Outcome
	<p>There are no DBCA managed conservation areas within the Beagle Bay DE or within 20 km. The closest protected areas are the Bardi Jawi Gaarra Marine Park and the Bardi Jawi Indigenous Protected Area, both of which are located approximately 30 km north-east of the DE. Additionally, Coulomb Point Nature Reserve is located approximately 38 km south-west of the DE. There are no World Heritage Areas mapped as overlapping the Beagle Bay DE. The Beagle Bay DE is within the West Kimberley Natural Heritage area (DCCEEW 2023b).</p> <p>The Beagle Bay DE does not overlap any significant wetlands, surface water areas or irrigation districts.</p> <p><i>Ardyaloon</i></p> <p>No DBCA managed conservation areas occur within the Ardyaloon DE. The closest is the Bardi Jawi Gaarra Marine Park, located approximately 320 m north-east of the DE at its closest point. The DE is located within the Bardi Jawi Indigenous Protected Area. Swan Island Nature Reserve (Class A R 34257) is also located approximately 9 km north. There are no World Heritage Areas mapped as overlapping the Ardyaloon DE, however the DE is within the West Kimberley Natural Heritage area (DCCEEW 2023b).</p> <p>The Ardyaloon DE does not overlap any significant wetlands, it is approximately 40 km west of Yampi Sound Training Area wetland. The DE does not overlap any surface water areas or irrigation districts.</p> <p><i>Bidyadanga</i></p> <p>No DBCA managed conservation areas occur within the Bidyadanga DE or within 20 km. The closest DBCA managed area is the Yawuru Nagulagun / Roebuck Bay Marine Park, located approximately 45 km north-east of the DE. There are no World Heritage Areas mapped as overlapping the Bidyadanga DE, however the DE is within the West Kimberley Natural Heritage area (DCCEEW 2023b). The Karajarri Indigenous Protected Area is approximately 700 m west of the DE at its closest point.</p> <p>The Bidyadanga DE does not overlap any significant wetlands, it is approximately 45 km north-east of Eighty Mile Beach System, which is a Ramsar Wetland. The DE does not overlap any surface water areas or irrigation districts.</p> <p>No off-site impacts are anticipated as a result of the proposed clearing of native vegetation within the DEs. It is noted that management measures regarding weeds and disease will be implemented as part of the standard CEMP to ensure that weeds are not spread as a result of clearing activities (Appendix D). The proposed clearing is not expected to impact any conservation areas. Based on the above, the proposed clearing of native vegetation for the Project is not considered to be at variance with this principle.</p>	
<p>(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.</p>	<p><i>Warmun</i></p> <p>No rivers, wetlands or waterways management areas are present within the Warmun DE. The closest significant wetlands are Lakes Argyle and Kununurra which are listed Wetlands of International Importance (Ramsar Wetlands). Both lakes are located more than 50 km downstream. The DE is within the Ord River and Tributaries surface water area and Sub-Area 2 of the Ord Irrigation District which are both proclaimed areas under the RIWI Act. No Public Drinking Water-Source areas are located in the DE. A distributary of the Bow River (Turkey Creek) and associated drainage lines are located immediately adjacent to both Warmun Site B and Warmun Site C.</p> <p>The DE is within the Canning- Kimberley groundwater area; however, no impacts are expected with digging being to 4 m depth or less. Depth to groundwater is varies from 7.38 m to 90 m according to nearby bores (BoM 2023).</p> <p>A review of the ASS risk mapping indicates the soil under the nearby surveyed area has a low risk of ASS occurrence.</p> <p><i>Beagle Bay</i></p> <p>No rivers, wetlands, waterways management areas, surface water areas, irrigation districts or PDWSAs are present in the Beagle Bay DE.</p>	<p>Unlikely to be at variance.</p>

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Principle	Assessment	Outcome
	<p>The DE is within the Canning- Kimberley groundwater area and depth to groundwater is shallow based on nearby Bureau of Meteorology records (BOM 2023) with records indicating depth of 0.3 m to 3.27 m.</p> <p>A review of ASS risk mapping indicates an extremely low probability of ASS occurrence within the upper 1 m in wet riparian areas with Kandosols, Ferrosols, Tenosols, Rudosols and Podosols (Fitzpatrick 2011). A review of the Australian Soil Resource Information System (ASRIS 2023) identified a low risk with low confidence.</p> <p><i>Ardyaloon</i></p> <p>No rivers, wetlands, waterways management areas, surface water areas, irrigation districts or PDWSAs are present in the Ardyaloon DE. The Ardyaloon DE is within the Canning- Kimberley groundwater area. Bores on One Arm Point identify depth to groundwater at 2 m to 10 m (GoWA 2012). Nearby Bore data from Bureau of Meteorology identified bores as 8.5 m to 21 m.</p> <p>A review of ASS risk mapping indicates the soil under the nearby DE has a high probability of ASS occurrence. ASS investigations will be undertaken as part of geotechnical works.</p> <p><i>Bidyadanga</i></p> <p>No rivers, wetlands, waterways management areas, surface water areas, irrigation districts or PDWSAs are present in the Bidyadanga DE. The Bidyadanga DE is within the Canning- Kimberley groundwater area and depth to groundwater is approximately 4.5 m to 8 m (BOM 2023).</p> <p>A review of ASS risk mapping indicates the soil under the DE has an extremely low probability of ASS occurrence within the upper 1 m in wet riparian areas with Kandosols, Ferrosols, Tenosols, Rudosols and Podosols (Fitzpatrick 2011). A review of the Australian Soil Resource Information System (ASRIS 2023) identified a low risk with low confidence.</p> <p>No significant impacts to quality of surface or underground water are expected at any of the DEs. Given the abundance of vegetation within the surrounding region, with over 97% pre-European vegetation remaining at all locations, the proposed clearing is not expected to impact surface or groundwater quality. Therefore, the proposed clearing of native vegetation for the Project is not considered to be at variance with this principle.</p>	
(j) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the intensity of flooding.	<p>The closest BoM weather station to the Warrmun DE with sufficient historical data is in Warrmun (site number 002032). Mean annual rainfall is 721.5 mm, with approximately 42.3 rain days a year (BoM 2023). The closest BoM weather station to the Beagle Bay, Ardyaloon and Bidyadanga DEs with sufficient historical data is Cygnet Bay (site number 003057). The mean annual rainfall at this weather station is 794.0 mm (BoM 2023).</p> <p>Rainfall in all DEs is generally received during the summer as a result of unpredictable tropical downpours and cyclonic low-pressure systems (GHD 2023) and all DEs are prone to flooding.</p> <p>Given the abundance of vegetation within the surrounding regions, with over 97% pre-European vegetation remaining at all locations, the proposed clearing is not expected to increase the risk of flooding.</p> <p>Standard management measures for construction will be in place to mitigate against / manage erosion and associated environmental aspects. Therefore, the proposed clearing of native vegetation for the Project is not considered to be at variance with this principle.</p>	Unlikely to be at variance.



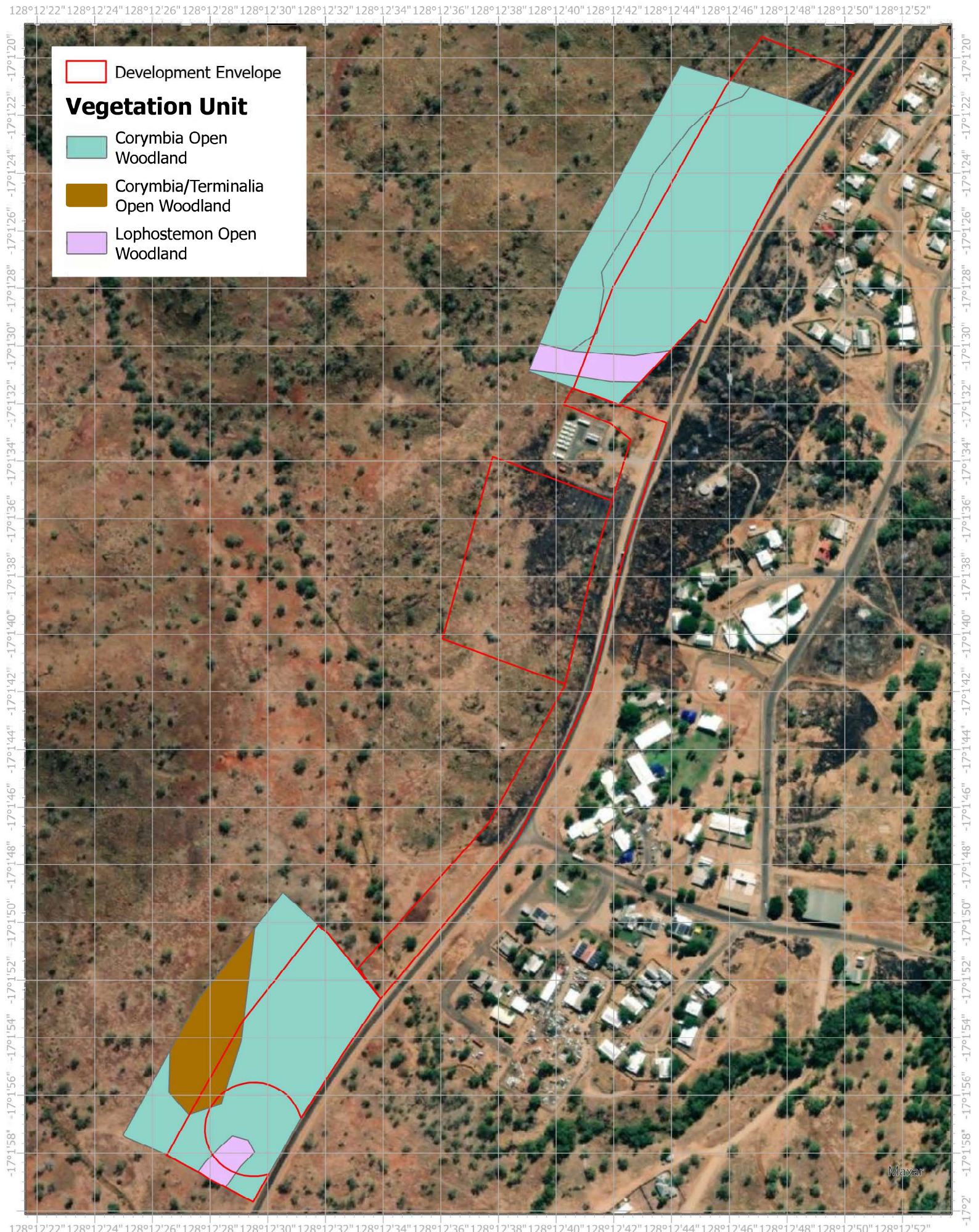
**Figure 5 | Warmun Vegetation Type, Vegetation Condition and Significant Flora**



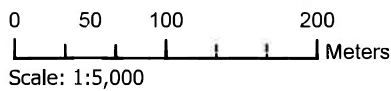
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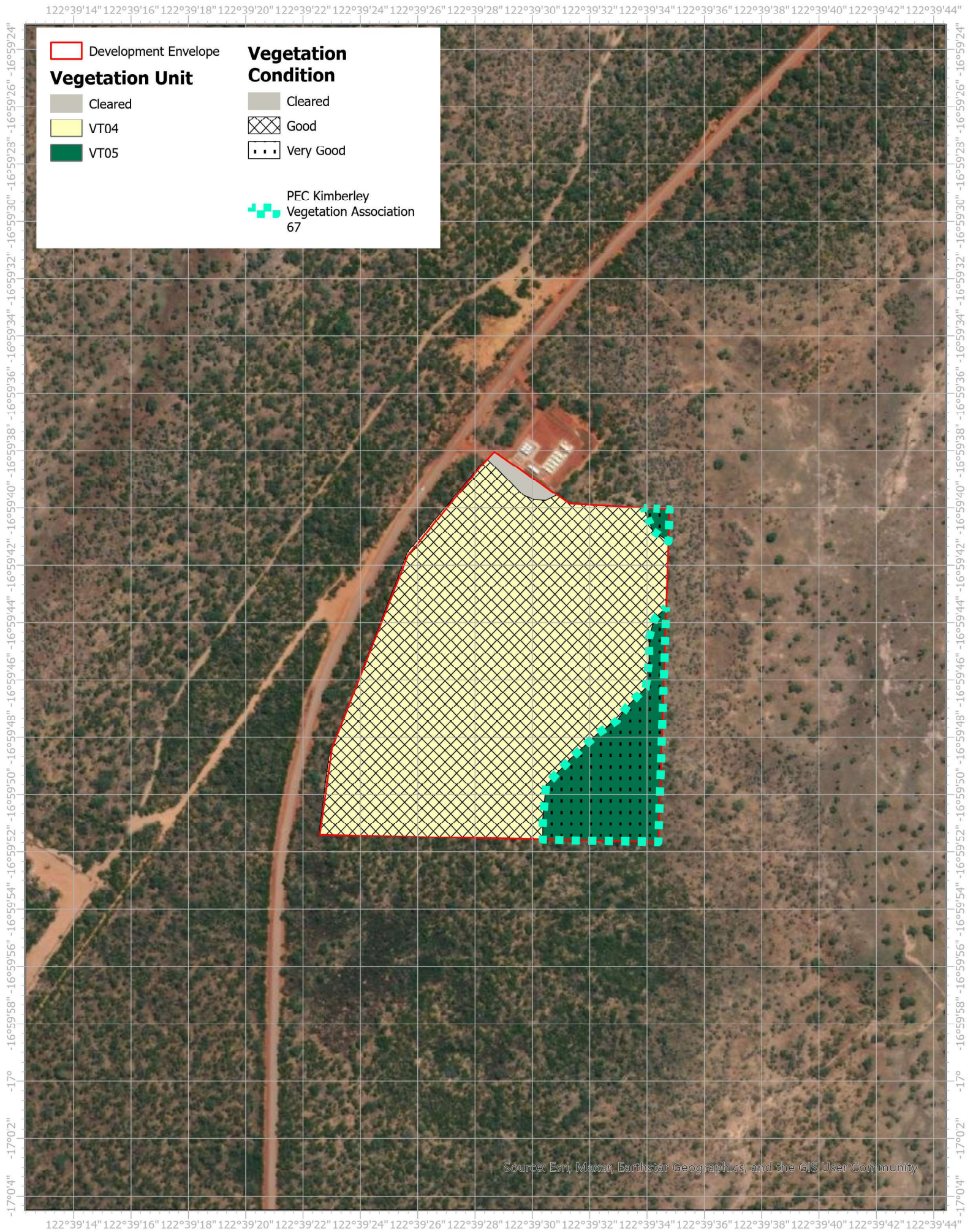
**Figure 6** Warmun Fauna Habitat



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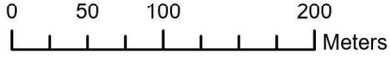
Last updated on 1/09/2023 by H188085





Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

**Figure 7** | Beagle Bay Vegetation Type, Vegetation Condition and PEC

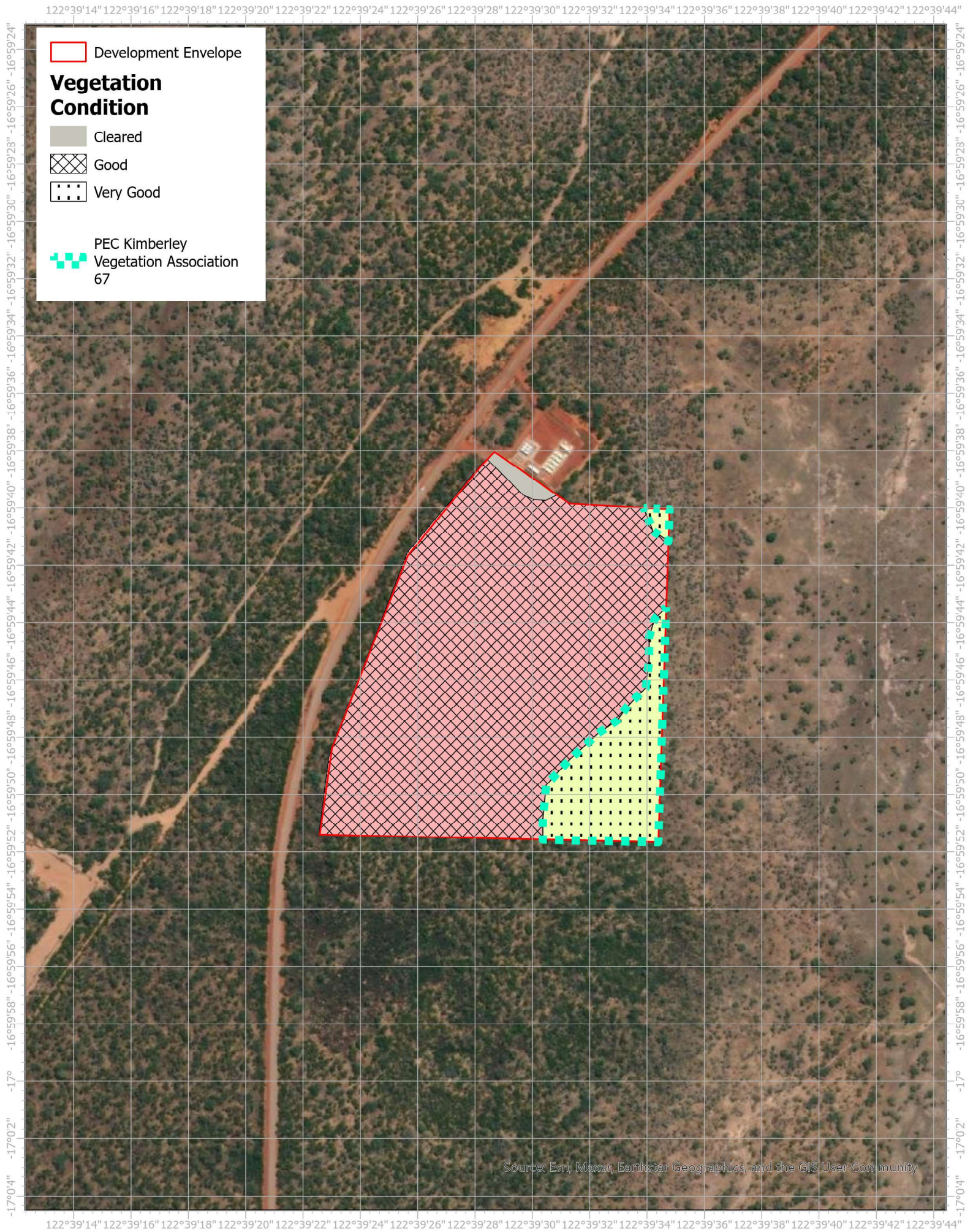


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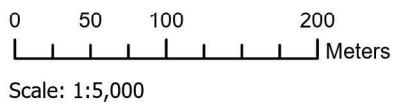
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**Figure 8** | Beagle Bay Fauna Habitat

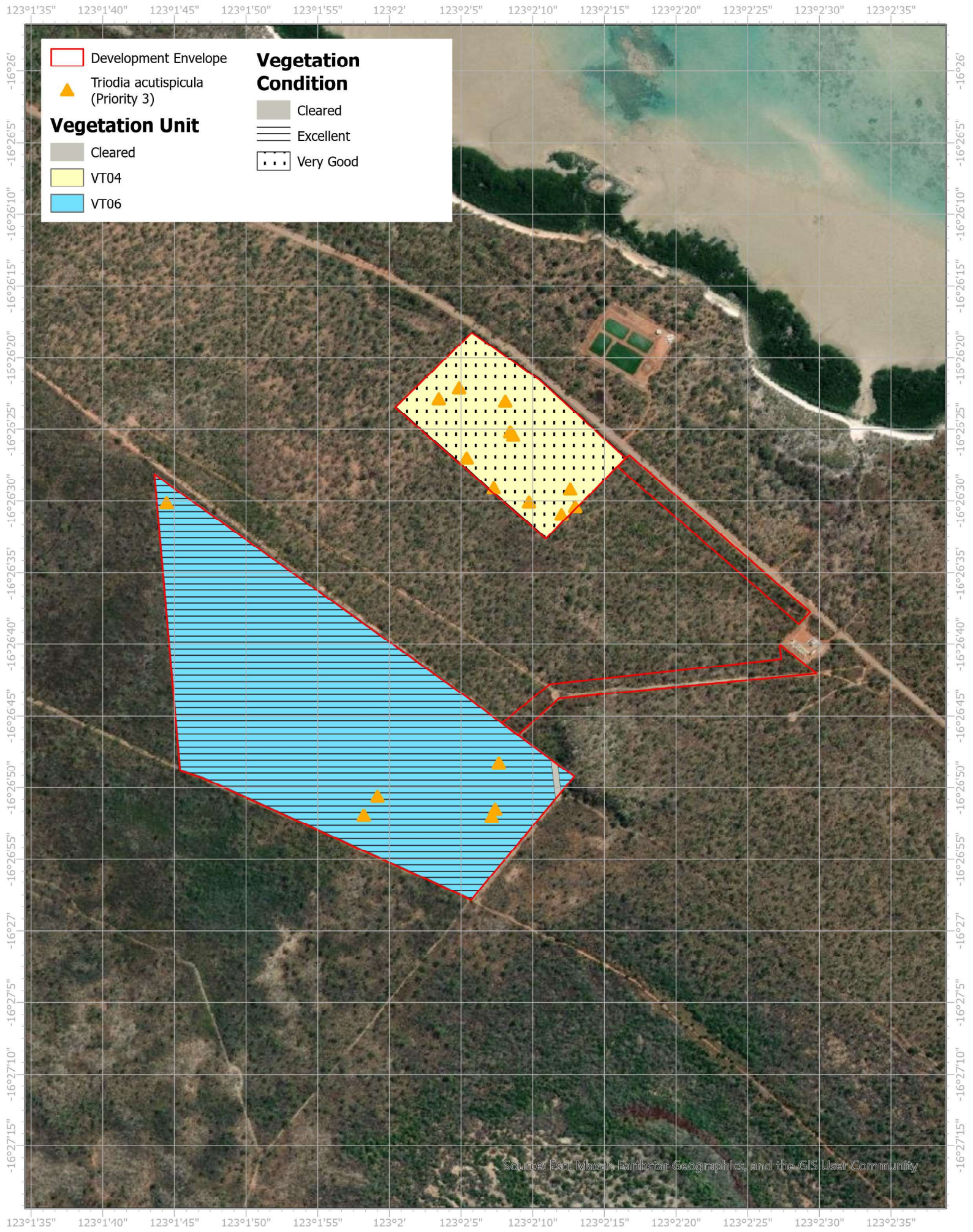


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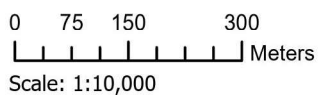
Last updated on 1/09/2023 by H188085







**Figure 9** | Ardyaloon Vegetation Type, Vegetation Condition and Significant Flora



△ For reference only

Last updated on 1/09/2023 by H188085



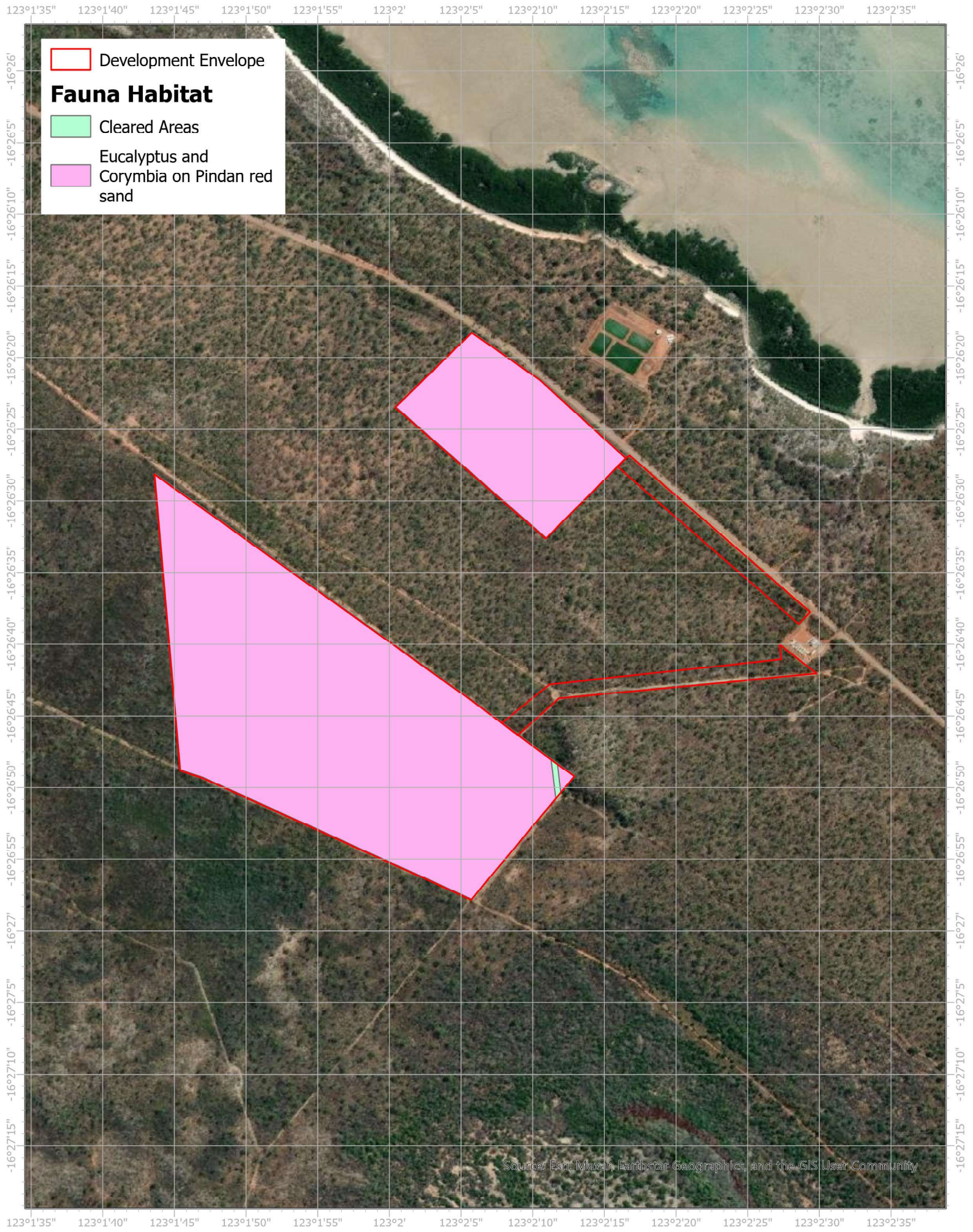


Figure 10 | Ardyaloon Fauna Habitat



0 75 150 300  
Meters  
Scale: 1:10,000

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Last updated on 1/09/2023 by H188085



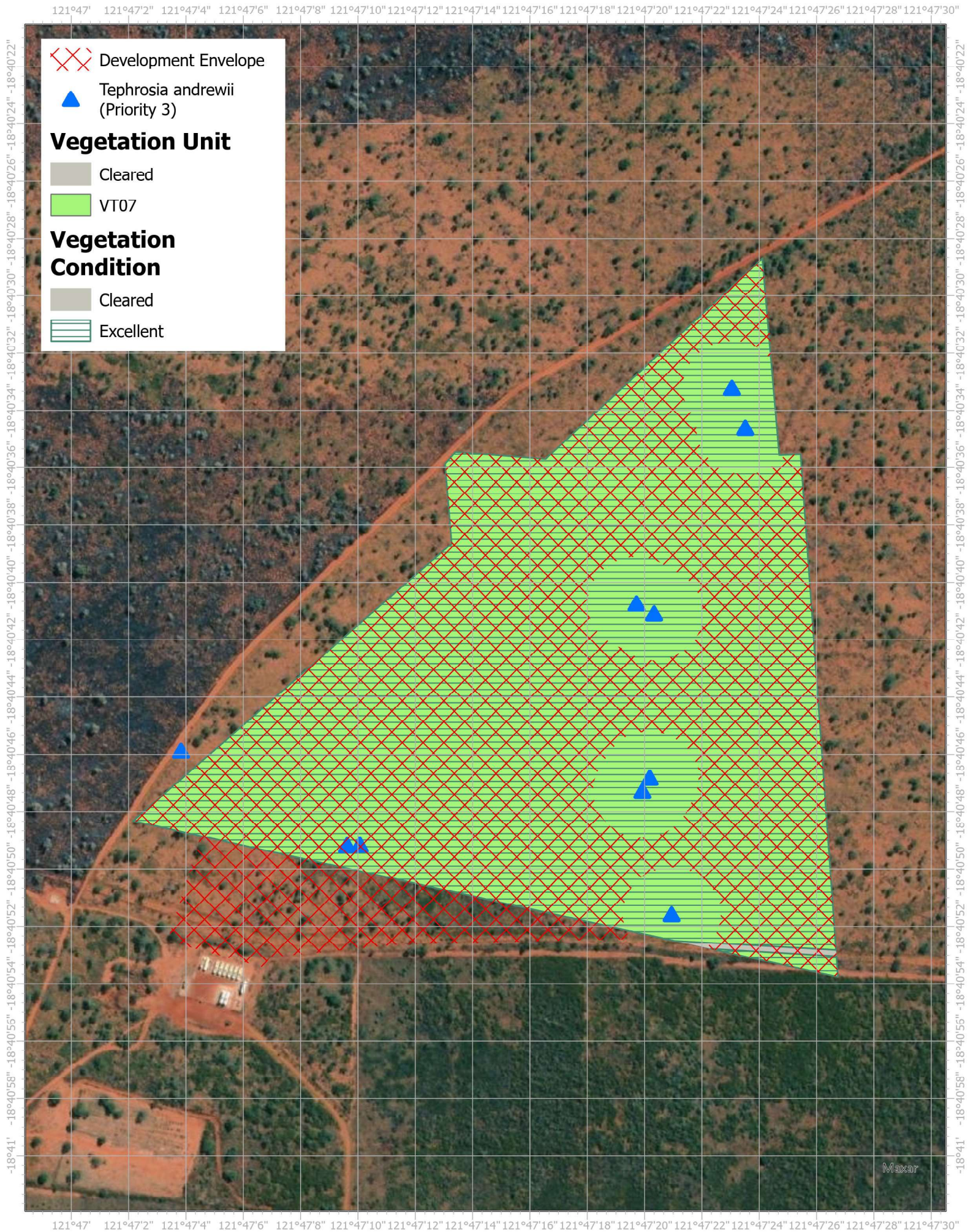
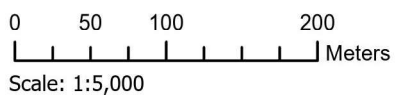


Figure 11 | Bidyadanga Vegetation Types, Vegetation Condition and Significant Flora



△ For reference only

Last updated on 1/09/2023 by H188085



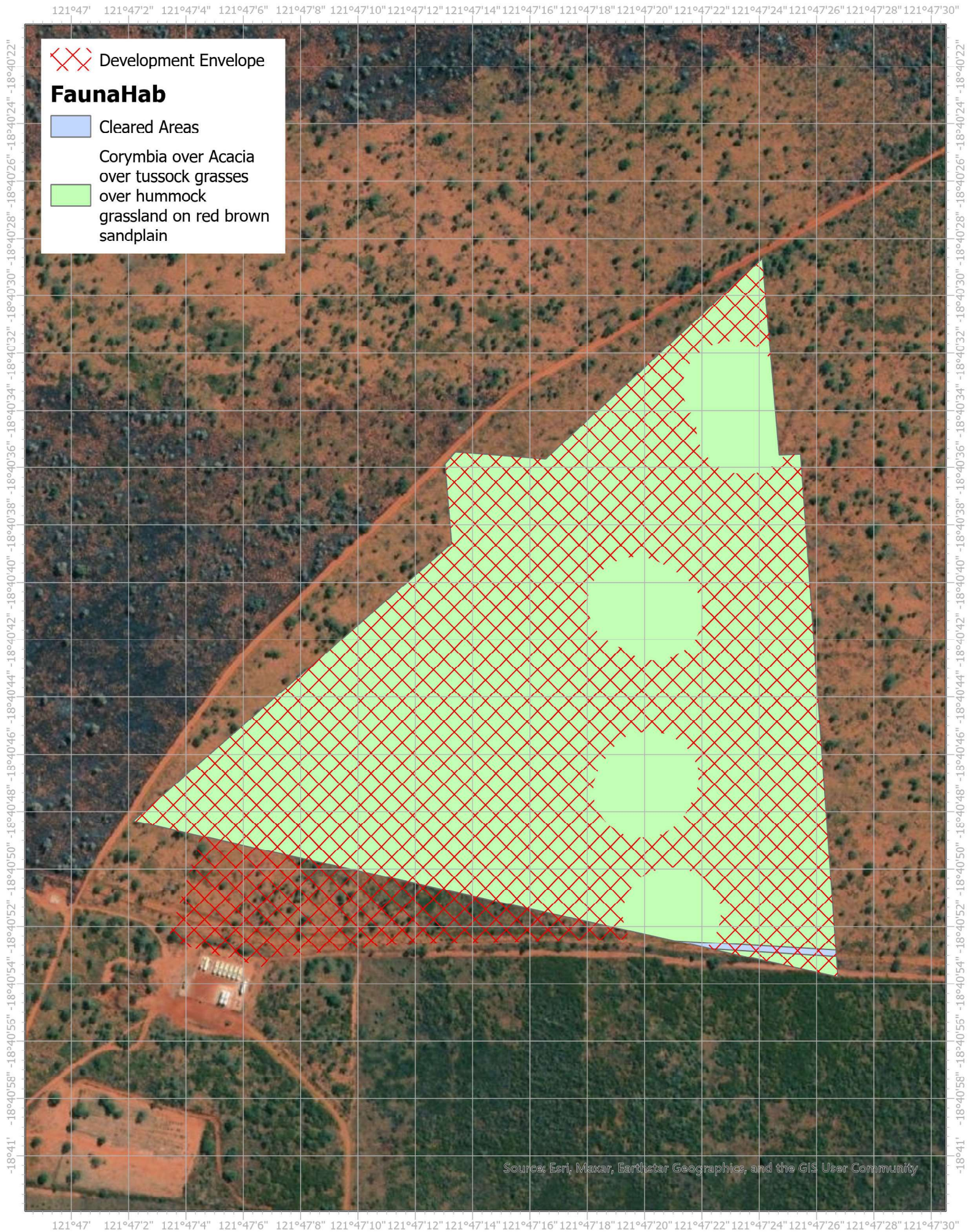
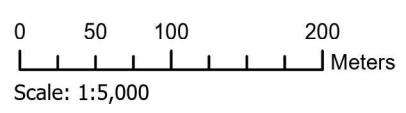


Figure 12 | Bidyadanga Fauna Habitat



▲ For reference only

Last updated on 1/09/2023 by H188085



## 9 Other matters

### 9.1 Land Planning

#### 9.1.1 Approvals required under the Planning and Development Act 2005

The project will be considered Public Works and is expected to be exempt from development approval under Section 6 of the Public Development 2005, however, due regard is required with respect to:

- The purpose and intent of any planning scheme that has effect in the locality where, and at the time when, the right is exercised;
- The orderly and proper planning, and the preservation of the amenity, of that locality at that time; and
- Any advice provided by the responsible authority in the course of the consultation required.

### 9.2 Other approvals

In considering a clearing matter under section 51O of the Environmental Protection Act 1986 (EP Act), the DWER CEO shall have regard to any planning instrument and other relevant matters when making decisions as to clearing permits. 'Other matters' are not defined in the EP Act, and consequently are any matters the CEO considers relevant. Other matters are generally environmental issues not directly within the scope of the clearing principles, but within the object and principles of the Act. Other approvals that may apply to this Project are detailed below.

Table 7 Other approvals

Other approvals	Assessment
Referral to Environmental Protection Authority	Due to the small scale of the project in remote locations, it is considered that all environmental impacts can be managed under Part V of the <i>Environmental Protection Act 1986</i> (EP Act) and referral to the EPA is not considered necessary.
Referral to Department of Climate Change, Energy, the Environment and Water (DCCEEW)	<p><i>Threatened flora, fauna and ecological communities</i></p> <ul style="list-style-type: none"> <li>– Fourteen Threatened fauna species were identified within 20 km of the Warmun DE. Habitat for Grey Falcon and Gouldian Finch is present in the DE. No TECs were recorded in the Warmun DE.</li> <li>– Thirty-three Threatened fauna species were identified within 20 km of the Beagle Bay DE. Habitat for Gouldian Finch (<i>Erythrura gouldiae</i>) and Greater Bilby (<i>Macrotis lagotis</i>) was recorded in the DE. No Bilby burrows were recorded. One TEC was present within 20 km, the Monsoon vine thickets. This TEC was not identified in the biological survey.</li> <li>– Thirty-four Threatened fauna species were identified within 20 km of the Ardyaloon DE. Habitat for Gouldian Finch (<i>Erythrura gouldiae</i>), Grey Falcon (<i>Falco hypoleucos</i>) and Greater Bilby (<i>Macrotis lagotis</i>) was recorded in the DE. No Bilby burrows were recorded. One TEC was present within 20 km, the Monsoon vine thickets. This TEC was not identified in the biological survey.</li> <li>– Thirty-one Threatened fauna species were identified within 20 km of the Bidadanga DE. Habitat for Grey Falcon (<i>Falco hypoleucos</i>) and Greater Bilby (<i>Macrotis lagotis</i>) was recorded in the DE. No Bilby burrows were recorded. One TEC was present within 20 km, the Monsoon vine thickets. This TEC was not identified in the biological survey.</li> </ul> <p>Given the abundance of alternative habitat, no significant impacts are expected to Threatened fauna, and referral to DCCEEW is not considered to be required.</p> <p><i>Migratory fauna</i></p> <ul style="list-style-type: none"> <li>– 15 Migratory species were recorded within 20 km of the Warmun DE. No significant habitat for these species is likely to be removed.</li> <li>– 49 Migratory species were recorded within 20 km of the Beagle Bay DE. Habitat for Oriental Pratincole (<i>Glareola maldivarum</i>) was recorded in the Beagle Bay DE. Oriental Pratincole have a wide-ranging habitat, no significant habitat for Oriental Pratincole or other Migratory species is likely to be removed.</li> <li>– 53 Migratory species were recorded within 20 km of the Ardyaloon DE. No significant habitat for these species is likely to be removed.</li> <li>– 47 Migratory species were recorded within 20 km of Bidadanga. The Oriental Pratincole (<i>Glareola maldivarum</i>) was recorded in the Bidadanga DE. Oriental Pratincole have a wide-</li> </ul>

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Other approvals	Assessment
	<p>ranging habitat, no significant habitat for Oriental Pratincole or other Migratory species is likely to be removed.</p> <ul style="list-style-type: none"> <li>– One Marine listed species under the EPBC Act, the Rainbow Bee-eater (<i>Merops ornatus</i>), was recorded at the Ardyaloon site. This species is widespread across Australia and WA and occupies a wide variety of habitats. It is likely this species would be present across all the survey sites on the Dampier Peninsula and at Warmun.</li> </ul> <p><i>National heritage</i></p> <p>Ardyaloon, Beagle Bay and Bidyadanga are all within the West Kimberley National Heritage Area. The West Kimberley National Heritage Area is characterised by unique geological features, coastal geography, vine thickets TEC, fossils, reefs, rock art and significant Aboriginal history. No unique features were identified in the biological survey, no reefs, fossils, rock art or Vine thicket TEC will be disturbed by the works. All sites are subject to Aboriginal heritage survey and ongoing consultant is being undertaken with the Aboriginal people.</p> <p>No impacts to national heritage values are expected from the proposed works.</p> <p><i>Wetlands of international importance</i></p> <p>The Warmun DE is upstream of two Ramsar wetlands, the nearest is Lakes Argyle and Kununurra, which will not be impacted by the proposed works. The remaining DEs do not overlap Ramsar wetlands.</p>
Works Approval or Licence under EP Act	No works approvals or licences are required for this project.
Groundwater or surface water licence under the Rights in Water and Irrigation Act 1914	Horizon Power is permitted to access water under Section 42 and 49 of <i>the Electricity Operator (Powers) Act 1979</i> . No approvals under the RIWI Act will be required for the project.
Notice of Intent to Clear system under the <i>Soil and Land Conservation Act 1945</i>	Not Applicable.
State and municipal heritage	No State heritage sites are within Warmun, Ardyaloon, Beagle Bay or Bidyadanga (spatial dataset DPLH-006; DPLH-008, GoWA 2023).
Native title	<p><i>Warmun</i></p> <p>Warmun is subject to the Yurriyangem Taam determination. Native Title does not exist on Lot 504 on Deposited Plan 5263. Non-Exclusive Native Title rights and interests exist on Lot 411 on Deposited Plan 219259.</p> <p><i>Beagle Bay</i></p> <p>Beagle Bay is subject to the Bindunbur (Nyul Nyul Area) determined exclusive native title rights and interests. Reserve 1834 is subject to exclusive native title rights and interests, and s47A of the <i>Native Title Act 1993</i> has been determined to apply.</p> <p>An Indigenous Land Use Agreement is being negotiated.</p> <p><i>Ardyaloon</i></p> <p>Ardyaloon is subject to the Bardi and Jawi People determined exclusive native title rights and interests. The existing Power Station site is being leased.</p> <p>Portion Lot 89 on Plan 91011, LR3128/867, is part of Reserve 20927 for the purpose of “Use &amp; Benefit of Aborigines”, managed by the Aboriginal Lands Trust WPL on behalf of The Aboriginal Affairs Planning Authority. Reserve 20927 is proclaimed under Part III of the <i>Aboriginal Affairs Planning Authority Act 1972</i>.</p> <p>Reserve 20927 is subject to exclusive native title rights and interests.</p> <p>Lease J966232 is a subleased to Lease I499093 held by Aryaloon Inc. Horizon Power is seeking to negotiate sublease with Ardyaloon Inc.</p> <p><i>Bidyadanga</i></p> <p>Bidyadanga is subject to the Karajarri People Area B determined non-exclusive native title rights and interests. Horizon Power is negotiating an Indigenous Land Use Agreement.</p>

Other approvals	Assessment
<p>Aboriginal Sites of Significance under the <i>Aboriginal Heritage Act 1972</i></p> <p>Pop the new / yet to be repealed act in here as well?</p>	<p><i>Warmun</i></p> <p>No known Aboriginal Heritage Sites are within the Warmun DE (GoWA 2022).</p> <p><i>Beagle Bay</i></p> <p>No known Aboriginal Heritage Sites are within the Beagle Bay DE (spatial dataset DPLH-001; GoWA, 2023). The nearest site is Bobby Creek, 3.8 km south and east.</p> <p><i>Ardyaloon</i></p> <p>Six Lodged Aboriginal Heritage Sites are within Ardyaloon DE (spatial dataset DPLH-001; GoWA 2022):</p> <ul style="list-style-type: none"> <li>– Malumbu, Dampierland (Place ID 14646)</li> <li>– Marildjinon Dampierland (Place ID 14639)</li> <li>– Mwarngun (Place ID 13888)</li> <li>– Djugogun (Place ID 13889)</li> <li>– Nimamara (Place ID 13938)</li> <li>– Gundalmara (Place ID 13939)</li> </ul> <p><i>Bidyadanga</i></p> <p>There are no known Aboriginal Heritage Sites within the Bidyadanga DE (spatial dataset DPLH-001; GoWA, 2022).</p> <p><i>Management and avoidance</i></p> <p>Horizon Power has an external <a href="#">Aboriginal Cultural Heritage Management Policy</a>, that details our commitment to <i>avoid impacting on Aboriginal Cultural Heritage whenever and wherever possible</i>.</p> <p>Aboriginal cultural heritage avoidance surveys will be undertaken on all sites and a heritage protection plan developed if required, in consultation with the knowledge holders.</p> <p>As appropriate, management measures will be implemented during activities, such as the engagement of cultural heritage monitors during ground disturbing works.</p>

## 10 References

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