

Clearing Assessment Report – CPS 818

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Western Australia.*

Minilya Exmouth Road (H048) – [REDACTED] SLK Material Pit
– Off [REDACTED] SLK LHS
Road Name: [REDACTED] SLK LHS
Region: Mid West Gascoyne
EOS: 2830

Contents

1	PROPOSAL	5
1.1	Purpose and Justification.....	5
1.1.1	Main Roads Approach to Road Safety and the Environment	5
1.2	Proposal Scope.....	6
1.3	Proposal Location	6
1.4	Clearing Details.....	6
1.5	Alternatives to Native Vegetation Clearing Considered During Proposal Development.....	12
1.6	Measures to Avoid, Minimise, Reduce and Manage Proposal Clearing Impacts	12
1.7	Approved Policies and Planning Instruments	14
2	SCOPE AND METHODOLOGY ASSESSMENT OF CLEARING.....	15
2.1	Report Terminology and Sources.....	15
2.2	Desktop Assessment	16
2.3	Surveys and Assessments	16
3	SURVEY RESULTS	17
3.1	Summary of Flora and Vegetation Surveys.....	17
3.2	Summary of Fauna Surveys.....	18
4	VEGETATION DETAILS	19
4.1	Proposal Site Vegetation Description	19
5	ASSESSMENT AGAINST THE TEN CLEARING PRINCIPLES	20
6	COMPLIANCE WITH CPS 818.....	34
7	REFERENCES	36
8	APPENDICES	38
	Appendix 1: CPS 818 condition 8 (e) (iii) Biological Surveys and Field Assessment Executive Summary and Report Conclusions.....	38
	Appendix 2: Vegetation within Clearing Area/Development Envelope	41
	Appendix 3: DBCA Threatened Flora and Fauna Database Searches	42

List of Figures

Figure 1: Development Envelope and Clearing Area	7
Figure 2: Development Envelope and Clearing Area in reference to the 20 km Study Area.....	9
Figure 3: Vegetation Types within the Clearing Area	10
Figure 4: Vegetation Condition within the Clearing Area	11

List of Tables

Table 1. Measures Undertaken to Avoid, Minimise, Reduce and Manage the Proposal Clearing Impacts	13
Table 2. Summary of Biological and Targeted Surveys Relevant to the Proposal	16
Table 3. Summary of Vegetation Types within Clearing Area	19
Table 4. Pre-European Vegetation Representation	19
Table 5: Vegetation Types and Descriptions and extents in hectares and percentage cover (GHD, 2022).....	20
Table 6: Pre-European Vegetation Association and extents in hectares and percentage cover.....	20
Table 7: Vegetation Condition and extents in hectares and percentage cover (GHD, 2022)	20
Table 8: Clearing impact on priority species within the Development Envelope.....	21
Table 9: Fauna Habitat Descriptions and extents within the DE (GHD, 2022)	21
Table 10: Clearing impact on species within the Development Envelope.....	22
Table 11: Summary of Proposal Area Mapped Pre-European Vegetation Associations	28
Table 12: Pre-European Vegetation Representation.....	28
Table 13: Soil Landscape System Description (DPIRD, 2024).....	30
Table 14. Summary of Additional Management Actions Required by CPS 818	34

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1 PROPOSAL

1.1 Purpose and Justification

Main Roads Western Australia has proposed to clear 11.94 hectares (ha) of land for locating and extracting natural road-building materials for borrow/base course. The potential Material Pit Area is situated on [REDACTED] Straight Line Kilometre (SLK) mark, located off Minilya Exmouth Road (H048) at [REDACTED] SLK, about 10.41 km northwest of Learmonth in the Shire of Exmouth. This proposal is necessary to support the sourcing and stockpiling of suitable road building materials for the Minilya Exmouth Road aiming to improve users' road safety and road conditions.

1.1.1 Main Roads Approach to Road Safety and the Environment

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

In accordance with National and State Government road safety policies, Main Roads is also committed to substantially reducing road trauma on the road network through Safe System principles. The Safe System approach acknowledges that more than two thirds of all serious crashes are due to human error rather than deliberate risk taking (e.g. speeding or drink driving) and seeks to improve behaviour through education and enforcement while managing the safety of vehicles, speeds and the road and road infrastructure. It is shown that improving sub-optimal road formation will substantially reduce the likelihood and severity of road crashes. For example, according to the Road Safety Management Guideline, increasing the sealed shoulder from 0.5 m to 2 m will reduce Killed and Seriously Injured numbers by more than 50%.

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

Further details on measures to avoid, minimise and reduce are provided in Section 1.5.

1.2 Proposal Scope

Main Roads WA proposes to clear 11.94 ha for a material pit on [REDACTED] SLK mark, located off Minilya Exmouth Road (H048) [REDACTED] SLK, about 10.41 km northwest of Learmonth, in the Shire of Exmouth. Following the clearing works, the material pit area will be used to undertake the sourcing and stockpiling of suitable road building materials for the Minilya Exmouth Road and surrounding Main Roads assets.

The extraction of the material at SLK [REDACTED] will involve following activities:

- natural gravel to be pushed with a dozer to an estimated depth of 2 m, potentially 3 m, depending on the geotechnical results;
- loaders, excavator and trucks will be utilised to cart material; and
- overburden, topsoil and vegetation will be separately managed.

1.3 Proposal Location

The Development Envelope (DE) and Clearing Area is located [REDACTED] SLK mark, located off Minilya Exmouth Road (H048) [REDACTED] SLK in the Shire of Exmouth. **Figure 1** displays the DE in reference to Minilya Exmouth Road, and Figure 2 displays the DE in reference to the 20 km Study Area.

The central coordinate of the proposal is:

Latitude: -[REDACTED]

Longitude: [REDACTED]

1.4 Clearing Details

Proposed Clearing to be undertaken using CPS 818:

11.94 ha

Areas of Native Vegetation Clearing:

The areas of native vegetation to be cleared are shown in **Figure 1**

Type of Native Vegetation:

The Clearing Area covers 11.94 hectares and consists of one type of vegetation, VT09, which is described as isolated shrubs of *Acacia* spp. and *Melaleuca cardiophylla* over *Triodia epactia* closed tussock grassland (Figure 3). The vegetation within the clearing area ranges from Good to Excellent Condition (Figure 4) (GHD Pty Ltd (GHD), 2022).

[REDACTED]

Figure 1: Development Envelope and Clearing Area

[REDACTED]

Figure 2: Development Envelope and Clearing Area in reference to the 20 km Study Area

[REDACTED]

Figure 3: Vegetation Types within the Clearing Area

[REDACTED]

Figure 4: Vegetation Condition within the Clearing Area

1.5 Alternatives to Native Vegetation Clearing Considered During Proposal Development

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

- Outsourcing material from a commercial provider, which would be significantly more expensive for materials, haulage, and labour hours to provide.

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

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

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

Design or Management Measure	Discussion and Justification
Use of existing cleared areas for access tracks, construction storage and stockpiling	The proposal will utilise existing cleared and disturbed areas within the proposed DE where practicable. This includes utilising access tracks and cleared sections as vehicle resting areas.
Pre-clearance surveys and avoidance of significant environmental features	- A pre-clearing Western Pebble Mouse survey will be conducted before ground disturbance activities commence, and any located mounds will be avoided, including a 50m buffer around the mound being flagged for avoidance. - Pre-clearance surveys will be conducted to avoid features which may facilitate flow of nutrients to subterranean communities including caves, sinkholes and fissures within the karst environment.
Revise clearing area footprint	- The original DE and Clearing Area was 15.31 ha, these areas were revised to avoid potential environmental sensitivities to a: - DE of 14.06 ha (1.25 ha reduction) - Clearing Area of 11.94 ha (3.37 ha reduction) - The Clearing Area was revised to avoid the identified western pebble mouse mounds with a 50-meter buffer area. - The DE was revised to avoid trees the non-perennial watercourse and associated vegetation including larger rooted trees.

1.7 Approved Policies and Planning Instruments

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

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

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

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

Environmental Protection Policies:

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

Other relevant policies and guidance documents:

- Environmental Offsets Policy (Government of Western Australia, 2011)
- A guide to the assessment of applications to clear native vegetation (Government of WA, December 2014)
- Procedure: Native vegetation clearing permits (Government of WA, October 2019)
- Environmental Offsets Guidelines (Government of Western Australia, 2014)
- Technical guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016)
- Technical guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA, 2020)
- Approved conservation advice under section 266B of the EPBC Act for threatened flora/fauna/vegetation communities.

2 SCOPE AND METHODOLOGY ASSESSMENT OF CLEARING

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

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

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

2.1 Report Terminology and Sources

The following terms are used in this Clearing Report:

- **Biological Survey** – Fauna and Flora field survey of the Survey Area to obtain onsite environmental information of the area.
- **Clearing Area** – The maximum amount of native vegetation to be cleared for the Proposal under CPS818/17. The Native Vegetation Clearing Area will accommodate the designed earthworks and, typically, a nominal buffer to allow for the safe movement of machinery during construction.
- **Development Envelope (DE)** – The maximum extent within which the Clearing Area (11.94 ha) will be located. This envelope larger than the Clearing Area to allow for minor changes to the Proposal footprint as the design process continues, and to account for minor and unexpected changes that may occur during construction, such as working to avoid a large tree or encountering buried boulders or services. This flexibility allows the site personnel to make modifications to the Proposal to avoid areas that may contain better environmental values. The CAR has assessed all environmental values within the DE as though all of these values will be impacted, up to the amount specified within the Clearing Area.
- **Survey Area** – The Area covered by the Biological Survey. This involves six locations which constitute a combined survey area of 930.05 ha.
- **Survey Area 3:** The Area comprises 15.31 ha for material pit investigations, located 2 km west of Minilya – Exmouth Road [REDACTED] SLK on [REDACTED]. This survey area overlies the DE.
- **Study Area** – Area covered by the Desktop Assessment. The Study Area for the Proposal is confined to a local area of a 20km radius.

2.2 Desktop Assessment

A desktop assessment of the DE was undertaken by viewing internal datasets and other government agency managed databases, and consulting with relevant stakeholders where necessary.

GIS layer viewing and mapping is done using ArcMap and/or Main Roads corporate mapping system known as iMaps. Referencing of the GIS layers accessed is done under the relevant methodology section of each clearing principle. Government managed databases were searched to locate additional information, which are found under References in Section 7.

2.3 Surveys and Assessments

The following surveys/assessments (presented within the same report) were undertaken to inform this CAR:

- Detailed flora and vegetation and Targeted Flora surveys (2022) - (GHD, 2022)
- Basic fauna survey (2022) - (GHD, 2022).

Biological and targeted surveys conducted for the proposal are outlined in Table 2 and a summary of the findings in these reports are presented in Sections 3.1 to 3.2.

Table 2. Summary of Biological and Targeted Surveys Relevant to the Proposal

Consultant & Survey Name	Survey Details
GHD (2022) Minilya-Exmouth Road Biological Survey Technical Report.	Survey Area: The Survey Area comprised approximately 930.05 hectare (ha). This included sections of the Minilya – Exmouth Road, and five potential basic raw material extraction areas with associated tracks and bore locations. One of the material Pit locations included the proposed material pit at [REDACTED] SLK. Type: Three main assessments were carried out: 1. Desktop assessment; 2. Flora and Vegetation surveys – This included a combination of Detailed, Targeted, and Opportunistic sampling techniques. Including the assessment of vegetation types, vegetation condition and a significant ecological communities assessment. Assessments were undertaken in accordance with the Environmental Protection Authority (EPA) Guidelines (Environmental Protection Authority (EPA), 2016); 3. Basic Fauna Survey – This included Opportunistic fauna searches and fauna habitat assessment documenting the type, value and connectivity). Mapping was produced based upon vegetation units in accordance with EPA (EPA, 2020) Timing: The field work component for both the Flora and Vegetation and Basic Fauna Surveys were conducted from 23rd – 30th of May and 27th – 29th of July 2022. Survey Results Shapefile TRIM Ref: D22#1323152 Document TRIM Ref: D22#1323156

3 SURVEY RESULTS

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

3.1 Summary of Flora and Vegetation Surveys

The Biological Survey was undertaken by GHD (2022) between 23 to 30 May and 27 to 29 July 2022. The Biological Survey consisted of six locations which constitute a combined survey area of 930.05 ha.

The Survey Area 1, 2, 4, 5 and 6 consisted of a linear strip either side of the Minilya-Exmouth Road to several proposed material pits that extended from Exmouth to ~67 km southeast of Coral Bay.

The location of the Material Pit at [REDACTED] SLK is Survey Area 3. This Survey Area comprised of a total area 15.31 ha for material pit investigations (extension of an existing pit) 2 km west of Minilya – Exmouth Road [REDACTED] SLK on [REDACTED].

The key findings of the Biological field survey for the Survey Area, and specifically Survey Area 3 (containing the DE) are detailed below:

- Nine Vegetation Types were identified within the Survey Area, and One Vegetation Type was identified within Survey Area 3:
 - VT09: Isolated shrubs over *Triodia epactia* closed tussock grassland.
- Vegetation Condition of Survey Area ranged from Excellent to Completely Degraded (representing Road or Historically Cleared areas). Specifically, within Survey Area 3, the Vegetation Condition consisted of Excellent (6.67 ha), Very Good (5.28 ha) and Good (2.83 ha). The remaining area was mapped as Road or Historically Cleared areas (0.53 ha).
- No Threatened Ecological Communities listed under the EPBC Act or BC Act or Priority Ecological Communities listed by DBCA were identified within Survey Area during the field survey;
- No Ramsar Wetlands of International Importance are located within the Survey Area.
- Two hundred and one flora taxa (including subspecies and varieties) representing 45 families and 119 genera were recorded from the Survey Area during the field survey. This total comprised of 192 native taxa and nine introduced flora taxa.
- Nine introduced flora taxa were recorded in the survey area. One is listed as a Declared Pests under the *Biosecurity and Management Act 2007*, **Prosopis pallida* (Mesquite) (Plate 11). No Weeds of National Significance (WoNS) were recorded during the survey. The remaining eight introduced flora have been recorded in the study area before. No species listed as a Declared Pest or WoNS were identified within Survey Area 3.
- No EPBC Act or BC Act listed Threatened flora were recorded within the Survey Area. Seven DBCA Priority listed flora species were identified within the Survey Area during the field survey.
 - One listed DBCA Priority species was recorded *Eremophila forrestii* subsp. *capensis* (P3) during the survey period with a total of 11 individuals identified in the Survey Area, with five of these individuals identified within Survey Area 3 (six individuals outside of the Clearing Area)

3.2 Summary of Fauna Surveys

- Nine broad Fauna Habitat types (including cleared and disturbed areas) were identified during field investigations in the Survey Area, One of the nine Fauna Habitats was identified within Survey Area 3:
 - *Triodia* Hummock Grasslands on Low Rocky Rises (VT09).
- One hundred and twenty-three fauna species, including 75 birds, 33 reptiles, 12 mammals and three frogs were recorded in the Survey Area. Of these, four species are introduced: dingo/dog, cow, cat and rabbit. The species recorded during the survey are typical for the habitats they were found in and are generally well represented in the region.
- Five significant fauna listed under the EPBC Act and/or BC Act or Priority fauna listed by the DBCA was recorded within the Survey Area. One of the five species was located within Survey Area 3:
 - Western Pebble-mound Mouse (*Pseudomys chapmani*), listed P4 by DBCA.
- Western Pebble-mound Mouse (*Pseudomys chapmani*) were identified within Survey Area 3 via the identification of two mounds, comprising of one Active and one non-Active mound.

4 VEGETATION DETAILS

4.1 Proposal Site Vegetation Description

One vegetation type (VT09) was recorded within the Clearing Area, with the majority of the vegetation being mapped as Excellent Condition (5.18 ha, 42%), with 0.49 ha (4%) being historically cleared for roads or existing material pits areas (GHD, 2022). The full vegetation condition extents can be seen in Principle (a).

One Beard (1979) vegetation associations (663) occur within the Clearing Area (DBCA, 2019). The National Objectives and Targets for Biodiversity Conservation recognise that it is important that ecological communities are maintained above the threshold level of 30% of pre-European extent for each community and therefore ecological communities with levels below 30% should be fully retained (Commonwealth of Australia, 2001). Vegetation associations all exceed the 30% retention threshold at State, Regional and Local contexts.

Table 3 and Table 4 provide details of the vegetation types and their condition within the Proposal and the remaining extents of these associations.

For a full description of the existing vegetation, refer to the Biological Report found at D22#1323152.

Table 3. Summary of Vegetation Types within Clearing Area

Vegetation Type	Extent within Clearing Area (ha)	Total Extent Mapped (ha) within Survey Area 3
VT09 - Isolated shrubs over <i>Triodia epactia</i> closed tussock grassland	11.94 ha	15.31 ha

Table 4. Pre-European Vegetation Representation

Pre-European Vegetation Association	Scale	Pre-European Extent (ha)	Current Extent (ha)	% Remaining	% Current Extent in DBCA Managed Land (proportion of pre-European Extent)
Veg Assoc No. 663	Statewide	~30, 474	~25,976	85.24	28.93
	IBRA Bioregion <i>Carnarvon</i>	~29, 068	~25, 866	88.98	26.66
	IBRA Sub-region <i>Cape Range</i>	~29, 068	~25, 866	88.98	26.66
	Local Government Authority <i>Shire of Exmouth</i>	~30, 474	~25, 976	85.24	28.93

5 ASSESSMENT AGAINST THE TEN CLEARING PRINCIPLES

The proposed clearing is not at variance with one or more of the ten Clearing Principles.

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

Proposed clearing is not at variance to this Principle.

Assessment

The Material Pit works proposal requires the clearing of up to 11.94 ha of native vegetation. The clearing of the native vegetation is for the purpose of investigating and stockpiling Road Building Materials.

The clearing will be progressively rehabilitated after each area is exhausted. The clearing will occur within the confines of a larger 14.07 ha DE.

According to GHD (2022), the Clearing Area is composed of one vegetation type (VT09) and historically cleared areas (Table 5).

Table 5: Vegetation Types and Descriptions and extents in hectares and percentage cover (GHD, 2022)

Vegetation Type	Description	Clearing Area (ha) and (%)
VT09	<i>Acacia</i> spp. and <i>Melaleuca cardiophylla</i> isolated shrubs over <i>Triodia epactia</i> closed tussock grassland	11.94 ha (96 %)
Cleared	Bitumen roads, road shoulders and cleared dirt tracks	0.49 ha (4 %)
Total Clearing Area		12.43 ha (100 %)

The Desktop study by GHD (2022) has categorised the Vegetation Association (VA) in the DE as VA 663: Hummock grassland with scattered shrubs or mallee *Triodia* spp. *Acacia* spp., *Grevillea* spp. *Eucalyptus* spp. (Department of Primary Industries and Regional Development (DPIRD)-006). This vegetation association remains well represented, with over 88% of its pre-European extent remaining at the state and LGA levels (Shire of Exmouth) (Table 6).

Table 6: Pre-European Vegetation Association and extents in hectares and percentage cover

Pre-European Vegetation Association	Pre-European Extent (ha)	Remaining in State (ha)	Remaining in State (%)	Remaining in the LGA (ha)	Remaining in the LGA (%)
Veg Assoc No. 663 Hummock grassland with scattered shrubs or mallee <i>Triodia</i> spp. <i>Acacia</i> spp., <i>Grevillea</i> spp. <i>Eucalyptus</i> spp	~30,474	~25,976	85.24	~30,474	85.24

GHD (2022) conducted a vegetation condition assessment of the Clearing Area. Based on the assessment, VT09 Vegetation Type within the DE ranged from Excellent to Good Condition. Full details are shown in Table 7.

Table 7: Vegetation Condition and extents in hectares and percentage cover (GHD, 2022)

Vegetation Condition	Clearing Area (ha) and (%)
Excellent	5.18 ha (42%)
Very Good	4.00 ha (32%)
Good	2.76 ha (22%)
Cleared	0.49 ha (4%)
Total Clearing Area	12.43 ha (100%)

Based on a search of DBCA spatial data (DBCA-036), 18 conservation significant flora species were identified within the 20 km Desktop Study Area. This included one Priority 1 species, eight Priority 2 species, eight Priority 3 species and one Priority 4 species. No species were listed in the EPBC Act Protected Matters (PMST) Report (Department of Climate Change, Energy, the Environment and Water (DCCEEW), 2024)

One species was identified within the DE during the survey (GHD, 2022): *Eremophila forrestii* subsp. *capensis* (P3). This species is addressed in Table 8.

Table 8: Clearing impact on priority species within the Development Envelope.

Species	Information
<i>Cape Range poverty bush</i> <i>Eremophila forrestii</i> subsp. <i>capensis</i> (P3)	<i>Eremophila forrestii</i> subsp. <i>capensis</i> (P3) is a sparsely multi-branched shrub. The species is known to inhabit brown rocky soils, limestone and along ridges (WAH, 1998 -), the distribution is currently restricted to the Cape Range peninsula, equalling approximately 65km in length (WAH, 1998 -) GHD (2022), identified six individuals within the VT09 vegetation unit of the Clearing Area, with an additional seven individuals recorded in the wider Survey Area outside then DE. According to DBCA (DBCA-036), WA Herbarium and the Main Roads Flora location spatial data records a further 511 individuals of the species have been recorded in the 20 km Study Area Given the vegetation and soil type where this species is located is relatively common throughout the region, and historical records show there are a further 518 located with a 20 km Study Area outside the Clearing Area, the removal of six individuals from within the DE (1.16%) is unlikely to significantly impact the species' overall population.

The DBCA spatial data (DBCA-038) and the EPBC Act PMST Report (DCCEEW, 2024) indicate that no listed Threatened Ecological Communities (TEC) or Priority Ecological Communities (PEC) occurs within 20 km of the DE.

According to GHD (2022), there are no Threatened Ecological Communities listed under the EPBC Act or *Biodiversity Conservation Act 2016* (BC Act) or Priority Ecological Communities (PEC) listed by Department of Biodiversity Conservation and Attractions (DBCA) were identified from the desktop searches as occurring within the 20 km Study Area and no occurrences of significant ecological communities were recorded during the field survey (GHD, 2022).

GHD (2022) conducted a Basic Fauna Survey of the Clearing Area, which consisted of a single fauna habitat, including historically cleared areas (Table 9).

Table 9: Fauna Habitat Descriptions and extents within the DE (GHD, 2022)

Fauna Habitat	Description	Clearing Area (ha) and (%)
Triodia Hummock Grasslands on low rocky rises	Low rocky rises with isolated mixed shrubs (mainly mixed <i>Acacia</i> spp.) over a dominant grassland of hummock <i>Triodia</i> species. The vegetation is generally very open with little leaf and wood litter. The dense <i>Triodia</i> hummocks provide good habitat for small mammals, reptiles, ground dwelling birds as well as shrubs providing shelter and foraging opportunities for birds, mammals, and reptiles. Significant fauna: Western Pebble-mound Mouse mounds were present in this habitat type. This habitat may also support the Cape Range Gecko and provide suitable foraging habitat for the Peregrine Falcon; however, these species were not located in the survey.	11.94 ha (96.13%)
Cleared	Bitumen roads, road shoulders and cleared dirt tracks	0.49 ha (3.46%)
Total Clearing Area		12.43 ha (100%)

Based on the DBCA Threatened and Priority Fauna spatial data (DBCA-037) the EPBC Act Protected Matters Report (DCCEEW, 2024), 68 conservation significant fauna species were identified within the 20 km Desktop Study Area.

Following the Basic Fauna Survey, GHD (2022) conducted a post-survey Likelihood-of-Occurrence assessment and concluded twenty significant fauna species are considered likely or known present within the Survey Area.

Sixteen of the 20 species identified in the Likelihood-of-Occurrence assessment were Birds. Given these species can easily fly over the terrain and egress from disturbance areas, they are unlikely to be impacted by the clearing works undertaken within the DE. The remaining four species are addressed in Table 10.

Table 10: Clearing impact on species within the Development Envelope.

Fauna Species	Information
Ningaloo Worm Lizard (<i>Aprasia rostrata</i>) (P3)	This species is a pale brown reptile growing approximately 9.5 cm in length. The species preferred habitat is a variety of sandy habitats including white coastal dunes and red dunes vegetated with <i>Triodia</i> from Northwest Cape to Yardie Creek and Learmonth and inland to Bullara Station (Wilson & Swan, 2017). This habitat type is widespread throughout the Exmouth range extension. The species was not located during the DE survey (GHD Pty Ltd (GHD), 2022). According to DBCA records, the species closest known record is over 20 km from the DE. Given the habitat type with the DE does not match the preferred habitat type of <i>Aprasia rostrata</i>, the species was not identified during the Basic Fauna Survey or recorded based on DBCA records. the progressive clearing of 11.94 ha within the DE for material extraction is unlikely to significantly impact habitat availability for the species, given the abundance of similar uncleared habitat in the Cape Range area.
Brush-tailed mulgara (<i>Dasycercus blythi</i>) (P4)	The Brush-tailed Mulgara is a primarily nocturnal species which shelters in burrows and feeds on insects, other arthropods, and small vertebrates. This species inhabits spinifex grasslands and, in central Australia, lives in burrows that it digs on the flats between low sand dunes (van Dyck & Strahan, 2008). This habitat type is quite widespread throughout the region, According to Atlas of Living Australia (ALA, 2024), the species is widely distributed, having been observed during different expeditions in the north-western, central, and south-western areas of the arid zone of Australia. During the DE survey, the species was not located (GHD Pty Ltd (GHD), 2022). According to DBCA records, the species closest known record is over 20 km from the DE. The preferred habitat type of <i>Dasycercus blythi</i>, is not consistent with habitat within the DE, furthermore no species was not identified in the DE during the Basic Fauna Survey, nor has the species been recorded based on historic DBCA records. Therefore, the proposal is unlikely to significantly impact this species.
Cape Range Stone Gecko (<i>Diplodactylus capensis</i>) (P2)	The Cape Range Stone gecko is restricted to the rocky northern end of Northwest Cape (Wilson & Swan, 2017). This terrestrial species is found under debris, logs and rocks on limestone hills with spinifex and low shrubs and trees (ALA, 2024). The species was not recorded within the DE during the Basic Fauna Survey (GHD Pty Ltd (GHD), 2022). According to the DBCA database, the closest known record is 7.50 km west of the DE (2019). Although suitable habitat for the species exists within the DE, characterized by low rocky rises with isolated mixed shrubs (primarily mixed <i>Acacia</i> species) over a dominant grassland of hummock <i>Triodia</i> species, there was no evidence of the species being present within the DE. Therefore, the progressive clearing of 11.94 hectares for material extraction is unlikely to significantly impact habitat availability (39.93 ha within the survey area). However, the extent of this habitat type is likely to extend well beyond these mapped areas.
Western pebble-mound mouse (<i>Pseudomys chapmani</i>) (P4)	The Western pebble-mound mouse is restricted to the Pilbara region, with a preferred habitat consisting of stony hillsides with hummocky grasslands and little or no soil (van Dyck & Strahan, 2008). Start (2000) states that the status of the Western Pebble-mound Mouse is unclear on Cape Range. Numerous reports have documented their presence, fossil records (Baynes and Jones 1993) and potentially active and old mounds (Muir Environmental 1995). Prior to GHD's survey within the study area, this species was presumed locally extinct. The Basic Fauna Survey identified one active and one non-active pebble mound within the DE in Low undulating hill habitat (GHD Pty Ltd (GHD), 2022). In the wider Survey Area, an additional 10 pebble mounds (two Active, eight inactive) have been identified approximately 7.00 km

	north of the DE, thus confirming a broader species occurrence in the area (GHD Pty Ltd (GHD), 2022). According to the Department of Primary Industries and Regional Development Rangelands spatial data (DPIRD-063) the location of the mounds lies within Learmouth Land System (RGELEA - Sandy outwash plains marginal to the Cape Range, supporting mainly soft spinifex hummock grasslands with scattered acacia shrubs). However, based on the preferred habitat type of the marsupial the species habitat preference more consistent with Range Land System (RGERNG - Dissected limestone plateaux, hills and ridges with gorges and steep stony slopes supporting hard spinifex, sparse shrubs and eucalypts). This rangeland is located ~185 m west of the marsupial mound. The total rangeland area of the Range Land System is ~122,620 ha. DBCA historical records have not identified the species within the 20 km Study Area. GHD notes that these records are significant for the Cape Range region as the species is only known from historical evidence and/or suspected of being present. The recording in this survey confirms the species presence in the region. DWER (2023) conditionally approved a clearing permit for Horizon Power in the Shire of Exmouth, approximately 20 km northeast of DE. The clearing permit (CPS 100621) required pre-clearance surveys for the Western pebble Mound Mouse with any identified mounds to be flagged and a 50 m clearing exclusion zone imposed. Based on the DWER (2023) Clearing Permit requirements for Horizon Power, Main Roads proposes to follow the same fauna management methodology by clearly identifying any Western Pebble Mouse mounds within 50 m of the DE and demarcating the area to ensure the species mound is not compromised. Provided Main Roads follows the above requirements it is unlikely the project will impact individuals of the species or significantly reduce the availability of the species preferred habitat.
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Based on the provided information from the available Government Spatial Data and the Biological Survey Report, it can be concluded the proposed clearing works **are not** at variance of Principle (a) of the Ten Clearing Principles.

Methodology

- A complete guide to Reptiles of Australia (Wilson & Swan, 2017)
- 2021 Annual interpretive report (Cardno, 2021)
- Biological Survey (GHD, 2022)
- Statewide Vegetation Statistics (DBCA, 2019)
- DCCEEW Protected Matters Search Tool Report (DCCEEW, 2024)
- Horizon Power Clearing Permit (DWER, 2023)
- Government GIS Shapefiles:
 - DBCA Threatened and Priority flora database search (DBCA-036, Accessed: October 2024)
 - DBCA Threatened and Priority fauna database search (DBCA-037, Accessed: October 2024)
 - DBCA TEC and PEC database search (DBCA-038, Accessed: October 2024)
 - DPIRD Pre-European Vegetation spatial data (DPIRD-006, Accessed: October 2024)
 - DPIRD Rangelands spatial data (DPIRD-063, Accessed: October 2024)
- The mammals of Australia (van Dyck & Strahan, 2008)
- A complete guide to Reptiles of Australia (Wilson & Swan, 2017)

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

Proposed clearing is not at variance to this Principle.

Assessment

GHD (2022) conducted a Basic Fauna Survey of the Clearing Area, in which a single fauna habitat was mapped, including historically cleared areas (Table 9).

Based on the DBCA Threatened and Priority Fauna spatial data (DBCA-037) and the EPBC Act Protected Matters Report (DCCEEW, 2024), 68 conservation significant fauna species were identified within the 20 km Desktop Study Area.

GHD (2022) conducted a post-survey Likelihood-of-Occurrence assessment following the Basic Fauna Survey assessment and concluded twenty significant fauna species listed are considered likely or known present within the Survey Area.

Sixteen of the 20 species identified in the Likelihood-of-Occurrence assessment were Birds. Given these species can easily fly over the terrain and egress from disturbance areas, they are unlikely to be impacted by the clearing works undertaken within the DE. The remaining three of the four remaining species (Ningaloo Worm Lizard, Brush-tailed mulgara, Cape Range Stone Geko) were also assessed and are unlikely to occur based on the clearing area not displaying the species preferred habitat type. The Western Pebble Mouse species was recognised as present within the DE; however, Main Roads will follow similar requirements outline by DWER (2023) with a 50 m exclusion zone demarcating around each mound to avoid any disturbance to the species. Furthermore, the extensive areas of habitat available within the region suggest that habitat availability will not be impacted. The full Likelihood-of-Occurrence are addressed in Table 10.

The DE intersects the nationally important wetland 'Cape Range Subterranean Waterways'. This wetland was listed because of its known or potential value for subterranean fauna. Subterranean fauna species can live in the groundwater (stygo fauna), or in rock voids above the water table (troglotauna). The presence of subterranean fauna is strongly linked to geology and hydrology and the availability of suitable micro-habitats such as air-filled voids or caves for troglotauna, and aquifers that are not hypersaline for stygo fauna (Humphreys W. F., 2011). Species such as spinifex grasses, acacia shrubs and other shallow rooted species (which comprises the vegetation in the Clearing Area) are unlikely to influence the movement of nutrients from the root zone to these underground communities. Additionally, correspondence with William Humphreys (personal communications, 2024) from the Western Australian museum and a Professor at the School of Biological Sciences (University of Western Australia) confirmed that the proposed development of the material pit area will not have an impact on the subterranean fauna community within the area.

The proposed clearing does not comprise the whole or a part of or is not considered necessary for the maintenance of significant habitat for fauna indigenous to Western Australia.

Based on the provided information from the available Government Spatial Data and the Biological Survey Report, it can be concluded the proposed clearing works **are not** at variance of Principle (b) of the Ten Clearing Principles.

Methodology

- Biological Survey (GHD, 2022)
- DCCEEW Protected Matters Search Tool Report (DCCEEW, 2024)
- Government GIS Shapefiles:
 - DBCA Threatened and Priority fauna database search (DBCA-037, Accessed: October 2024)

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

Proposal is not at variance to this Principle.

Assessment

Based on the DBCA Threatened and Priority Flora spatial data (DBCA-036) and the EPBC Act Protected Matters Report (DCCEEW, 2024), no Threatened flora taxa from within a 20 km radius of the DE

No Threatened Flora species were recorded within the DE during the Biological Survey (GHD, 2022)

Based on the provided information from the available Government Spatial Data and the Biological Survey Report, it can be concluded the proposed clearing works **are not** at variance of Principle (c) of the Ten Clearing Principles.

Methodology

- Biological Survey (GHD, 2022)
- DCCEEW Protected Matters Search Tool Report (DCCEEW, 2024)
- Government GIS Shapefiles:
 - DBCA Threatened and Priority flora database search (DBCA-036, Accessed: October 2024)

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

Proposed clearing is not at variance to this Principle.

Assessment

According to GHD (2002), there are no Threatened Ecological Communities listed under the EPBC Act or *Biodiversity Conservation Act 2016* (BC Act) or Priority Ecological Communities (PEC) listed by Department of Biodiversity Conservation and Attractions (DBCA) were identified from the desktop searches as occurring within the 20 km Study Area and no occurrences of significant ecological communities were recorded during the field survey (GHD Pty Ltd (GHD), 2022).

Based on the provided information from the available Government Spatial Data and the Biological Survey Report, it can be concluded the proposed clearing works **are not** at variance of Principle (d) of the Ten Clearing Principles.

Methodology

- Biological Survey (GHD, 2022)
- DCCEEW Protected Matters Search Tool Report (DCCEEW, 2024)
- Government GIS Shapefiles:
 - DBCA Threatened and Priority Ecological Community database search (DBCA-038, Accessed: October 2024)

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

Proposed clearing is not at variance to this Principle.

Assessment

The National Objectives and Targets for Biodiversity Conservation recognise that the retention of 30% or more of the pre-clearing extent of each ecological community is necessary if Australia's biological diversity is to be protected (Commonwealth of Australia, 2001).

The DE involves the clearing of 11.94 ha of vegetation consisting of Vegetation Association 663 (DPIRD-006) (Table 11). The Vegetation Association is greater than 85% of their pre-European representation remaining at all scales and therefore exceeds the 30% retention national objectives and targets for biodiversity conservation in Australia (Table 12)

Table 11: Summary of Proposal Area Mapped Pre-European Vegetation Associations

Pre-European Vegetation Association	Clearing Area (ha) and (%)	Vegetation Condition
VA 663: Hummock grassland with scattered shrubs or mallee <i>Triodia</i> spp. <i>Acacia</i> spp., <i>Grevillea</i> spp. <i>Eucalyptus</i> spp	5.18 ha (42 %)	Excellent
	4.00 ha (32 %)	Very Good
	2.76 ha (22 %)	Good

Table 12: Pre-European Vegetation Representation

Pre-European Vegetation Association	Scale	Pre-European Extent (ha)	Current Extent (ha)	% Remaining	% Remaining in DBCA Reserves
Veg Assoc No. 663	Statewide	~30, 474	~25,976	85.24	28.93
	IBRA Bioregion <i>Carnarvon</i>	~29, 068	~25, 866	88.98	28.66
	IBRA Sub-region <i>Cape Range</i>	~29, 068	~25, 866	88.98	28.66
	Local Government Authority <i>Shire of Exmouth</i>	~30, 474	~25,976	85.24	28.93

The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area and is contained within a broad landscape of relatively undisturbed vegetation within the IBRA region. Given that the vegetation association is widespread throughout the area and is well-represented locally and regionally, impacts due to the proposed clearing are not likely to be significant.

Based on the provided information from the available DBCA Vegetation statistics and the Government Spatial Data, it can be concluded the proposed clearing works **are not** at variance of Principle (e) of the Ten Clearing Principles.

Methodology

- National Objective Targets for Biodiversity Conservation (Commonwealth of Australia, 2001)
- Biological Survey (GHD, 2022)
- Government GIS shapefiles:
 - DPIRD Pre-European Vegetation spatial data (DPIRD-006, Accessed: October 2024)
- Statewide Vegetation Statistics (DBCA, 2019)

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Proposed clearing is not at variance to this Principle.

Assessment

GHD (2022) identified one vegetation type (VT09) within the DE. Based on vegetation type description (Table 5), VT09 is not growing in an environment associated with a watercourse or wetland.

According to the Geosciences Australia Surface HydroLines spatial data indicates a mapped non-perennial watercourse intersects the entry of the DE, located 15m north of the proposed excavation area. However, no clearing is proposed in this area.

The DE intersects the nationally important wetland 'Cape Range Subterranean Waterways'. This wetland was listed because of its known or potential value for subterranean fauna. Subterranean fauna species can live in the groundwater (stygo fauna), or in rock voids above the water table (troglo fauna). The presence of subterranean fauna is strongly linked to geology and hydrology and the availability of suitable micro-habitats such as air-filled voids or caves for troglo fauna, and aquifers that are not hypersaline for stygo fauna (Humphreys W. F., 2011). Species such as spinifex grasses, acacia shrubs and other shallow rooted species (which represent the species found within the Clearing Area) are unlikely to influence the movement of nutrients from the root zone to these underground communities. Therefore, the vegetation proposed to be cleared is not associated with the mapped subterranean wetland.

Additionally, correspondence with William Humphreys (personal communications, 2024) from the Western Australian museum and a Professor at the School of Biological Sciences (University of Western Australia) confirmed that the proposed development of the material pit area will not have an impact on the subterranean fauna community within the area.

Given the above, the clearing proposed **is not** at variance of Principle (f) of the Ten Clearing Principles.

Methodology

- Biological Survey (GHD, 2022)
- Government GIS shapefiles:
 - Important Wetlands (DBCA-045, Accessed October 2024)
 - Geosciences Australia Surface HydroLines (Accessed October 2024)

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

Proposed clearing is not at variance to this Principle.

Assessment

Based on the DPIRD Soil landscape spatial data (DPIRD-017), the DE is located within Zone 204 (Cape Giralia Coastal Zone). The area is described as Sandy plains, alluvial plains and hills and ranges on Cainozoic deposits and marine limestone over sedimentary rocks of the Carnarvon Basin with Red deep sands and Red loamy earths.

The land zone has been further classified as the Learmonth System (204Le), described as Sandy outwash plains marginal to the Cape Range, supporting mainly soft spinifex hummock grasslands with scattered acacia shrubs (DPIRD-064).

DPIRD (2024), mapping indicates the land degradation risk in the DE (Table 13):

Table 13: Soil Landscape System Description (DPIRD, 2024)

Risk Percentage	Information
1 %	Very poor to poor drainage potential
1 %	Very high to extreme water erosion hazard
1 %	High to extreme wind erosion hazard
1 %	Moderate salinity hazard
0 %	Has pHCa <4.5 surface acidity
1 %	Moderate to very high waterlogging risk
1 %	Moderate to high flood hazard

The CSIRO Australian Soil Resource System (ASRIS) has been used to determine the Proposal area is in an area of 'extremely low probability of occurrence' of Acid Sulfate Soil (ASS) occurring. Accordingly, ASS is unlikely to be an issue. As works will excavate to a proposed depth of approximately three metres (maximum), it is highly unlikely that groundwater will be intercepted or that ASS will be an issue.

Based on the above, the Proposal Area is in an area at low risk of land degradation. Clearing will be conducted in dry conditions and in accordance with the Main Roads Standard Construction Environment Management Plan (CEMP). The quarry will be managed in accordance with Main Roads Pit Management Plan to ensure any land degradation issues are appropriately managed.

Therefore, the proposed clearing **is not** at variance to this principle.

Methodology

- Government GIS Shapefiles:
 - Acid Sulphate Soil Risk Map (Accessed: 12/11/2024)
 - Soil landscape land quality – Water Erosion Risk (DPIRD-013) (Accessed: 12/11/2024)
 - Soil landscape land quality – Wind Erosion Risk (DPIRD-016) (Accessed: 12/11/2024)
 - Soil landscape land quality – Salinity Risk (DPIRD-009) (Accessed: 12/11/2024)
 - Soil landscape land quality – Waterlogging Risk (DPIRD-015) (Accessed: 12/11/2024)
 - Soil landscape land quality – Flood Risk (DPIRD-007) (Accessed: 12/11/2024)
- Department of Primary Industries and Regional Development Natural Resource Management System maps (DPIRD, 2024)

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

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

Assessment

Based on the DBCA Legislated Lands and Waters spatial data (DBCA-011) and the EPBC Act Protected Matters Report (DCCEEW, 2024), the DE does not lie within any conservation areas.

The closest known conservation area is Cape Range Conservation Park, located 350 m west of the DE. As such, the project clearing of 11.94 ha it is unlikely to impact values of the conservation area.

The Directory of Important Wetlands in Australia (DBCA-045) indicates the DE lies within the Cape Range Subterranean Waterways. This waterway is a

The “Cape Range Subterranean Waterways” is part of the Nationally Important Wetlands, is an Environmentally Sensitive Area and includes a wide variety of naturally occurring caves and artificial wells found across the entire Cape Range. This ecosystem contains numerous species that have either been newly discovered or had their known range extended through the drilling of artificial wells and bores where the absence of natural cave entrances has previously precluded the sampling of subterranean fauna.

The clearing of 11.94 ha of vegetation for material extraction is unlikely to impact the ecosystem values of the Cape Range Subterranean Waterways. There is no site-specific groundwater depth information available for public access for the proposed material pit. Based on a literature review, the reported depth to groundwater west of the tidal interface (<5 km from the Exmouth coast) is generally > 100 m and slightly shallower adjacent to drainage lines and waterways (Sutton & Shaw, 2021; Oceanica Consulting Pty Ltd, 2011; TME Town Planning Management Pty. Ltd., 2013). The approximate depth at which the proposed material pit will be developed will be between 3m and 5m deep. Therefore, given that the overall depth of extraction within the DE is between 3-5m and the depth to groundwater is approximately 100 m, this will provide a buffer of approximately 95 m and thus is not expected to impact the Cape Range Subterranean Waterways or its assemblage of troglofaunal and stygofauna.

The proposed clearing is **not likely** to be at variance to this Principle.

Methodology

- Government GIS Shapefiles:
 - DBCA Legislated Lands and Waters & Lands of Interest (Accessed 12/11/2024)
 - Important Wetlands (Accessed 12/11/2024)
 - Exmouth Limestone Pty Ltd Limestone Production Mining Lease (Oceanica Consulting Pty Ltd, 2011)
 - Cumulative pressures on the Distive values of the Exmouth Gulf (Sutton & Shaw, 2021)
 - Exmouth South Structure Plan (TME Town Planning Management Pty. Ltd., 2013)

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

Proposed clearing is not at variance to this Principle.

Assessment

The DWER spatial data indicates the DE is located within the Gascoyne Groundwater Area (DWER-034), , both proclaimed under the RIWI Act. There currently is no site-specific groundwater depth information available for public access for the proposed material pit. Based on a literature review, the reported depth to groundwater west of the tidal interface (<5 km from the Exmouth coast) is generally >100 m and slightly shallower adjacent to drainage lines and waterways (Sutton & Shaw, 2021; Oceanica Consulting Pty Ltd, 2011; TME Town Planning Management Pty. Ltd., 2013). The approximate depth at which the proposed material pit will be developed will be between 3m and 5m deep. Therefore, given that the overall depth of extraction within the DE is between 3-5m and the depth to groundwater is approximately 100 m, this will provide a buffer of approximately 95 m and no impacts are anticipated.

The DWER spatial data also recognises the DE lies within the Pilbara Surface Water Area (DWER-037). No clearing will occur within drainage lines and no impacts to surface water are anticipated.

The clearing of species at surface such as spinifex grasses, acacia shrubs and other shallow rooted species are unlikely to influence the movement of nutrients and other contaminants from the root zone to the underground water system and therefore no impacts are anticipated.

The DE does not intersect with any *Country Areas Water Supply Act 1947* (CAWS) water catchment (DWER-004) or Public Drinking Water Source Areas (DWER-033).

Given that the proposed material extraction area requires no water extraction or no interference with the "Cape Range Subterranean Waterways" will be undertaken, the works are unlikely to significantly impact surface or groundwater drainage.

The proposed clearing is **not at** variance to this Principle.

Methodology

- Government GIS Shapefiles:
 - RIWI Act, Surface Water Areas and Irrigation Districts (Accessed 12/11/2024)
 - CAWSA Part 2A Clearing Control Catchments (Accessed 12/11/2024)
 - RIWI Act, Groundwater Areas (Accessed 12/11/2024)

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

Proposed clearing is not at variance to this Principle.

Assessment

According to the Bureau of Meteorology (BoM, 2024), the average annual rainfall in Learmonth, located approximately 14 km southeast of the DE, is 251 mm. The topography for the land system area (204Le) is described as Sandy outwash plains marginal to the Cape Range, supporting mainly soft spinifex hummock grasslands with scattered acacia shrubs.

An ephemeral watercourse crosses the access to the proposed impact area. The width and condition of the entry track off [REDACTED] is suitable for all future machinery / equipment to enter and undertake the investigation works. No clearing is proposed in this area and it is unlikely that the clearing within the DE will change the hydrological regimes of the watercourse.

Given the low rainfall rate and the low flood potential, the minor clearing proposed is not likely to cause or exacerbate the incidence or intensity of flooding.

The proposed clearing is **not at** variance to this Principle.

Methodology

- BoM Website (Accessed 12/11/2024)
- Government GIS Shapefiles:
 - Soil Mapping (Accessed 12/11/2024)
 - Soil landscape land quality - Waterlogging Risk (Accessed 12/11/2024)
 - Soil landscape land quality - Flood Risk (Accessed 12/11/2024)

6 COMPLIANCE WITH CPS 818

Table 14 summarises what further pre-clearing impact assessment is required in accordance with CPS 818.

Table 14. Summary of Additional Management Actions Required by CPS 818

Impact of Clearing	Yes/No or NA	Further Action Required
1. The CAR indicates that the clearing is 'At Variance' or 'May be at Variance' with one or more of the Clearing Principles.	No	No further action required.
2. Clearing is at variance or may be at variance with Clearing Principle (g) land degradation, (i) surface or underground water quality or (j) the incidence of flooding.	No	No further action required.
3. Clearing is at variance with Clearing Principle (g) land degradation, (i) surface or underground water quality and (j) the incidence of flooding.	No	No further action required.
4. The Proposal involves clearing for temporary works (as defined by CPS 818).	No	No further action required.
5a. Proposal is within a Region that: - has rainfall greater than 400mm; and, - is South of the 26th parallel; and, - works are necessary in 'Other than dry conditions'; and, - works have potential for uninfested areas to be impacted.	No	Standard Vehicle and Plant management actions from Annexure 204B (TABLE 204B.9.1), <u>Hygiene Checklists (D17#859669)</u> and <u>Vehicle, Plant and Machinery Hygiene Register Template (D23#179551)</u> will be applied.
5b. Do the proposed works require clearing within or adjacent to DBCA managed lands in non-dry conditions?	No	No further action required.
6. Main Roads has been notified by DWER or an environmental specialist that the area to be cleared is susceptible to a pathogen other than dieback.	No	No further action required.
7. Weeds are likely to spread to and result in environmental harm to	No	No further action required.

Impact of Clearing	Yes/No or NA	Further Action Required
adjacent areas of native vegetation that are in good or better condition.		
8. Did an environmental specialist conduct the survey or field assessment?	Yes	The Environmental Specialist undertaking the biological assessments was suitably qualified and had more than three years' experience.
9. Did an environmental specialist prepare the Assessment Report and any other associated documentation including the VMP, Dieback Management Plan or Offset Proposal?	Yes	The Environmental Specialist preparing the Assessment Report and any other associated documentation including the VMP, Dieback Management Plan or Offset Proposal was suitably qualified and had more than three years' experience.

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8 APPENDICES

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

Executive Summary (GHD, 2022)

Main Roads Western Australia (Main Roads) is proposing to widen sections of the Minilya – Exmouth Road and undertake mineral extraction areas and other works. The survey areas include sections of the Minilya – Exmouth Road, and five mineral extraction areas with associated tracks and bore locations. GHD Pty Ltd (GHD) was engaged by Main Roads to undertake biological surveys across six locations, including a single season Detailed flora and vegetation survey, Targeted flora survey and a Basic fauna assessment. The six locations constitute a combined survey area of 930.05 hectares (ha). The Detailed flora and vegetation and Targeted Flora surveys were undertaken from 23 to 30 May and 27 to 29 July 2022. The Basic fauna survey was conducted from 23 to 30 May. The outcome of the survey and information supplied in this biological survey report will be used to inform the environmental assessment and approvals process, and the results will be used to assist in the preparation of Environmental Impact Assessment documentation. The survey findings may also assist in developing appropriate environmental management strategies to avoid and minimise environmental impacts.

This report is subject to, and must be read in conjunction with, the limitations set out in section 1.6 and the assumptions and qualifications contained throughout the Report.

Flora and Vegetation Surveys (GHD, 2022)

The northern section of Area 1A, 2 and 3 are mapped within an Environmental Sensitive Area. This section of the survey area falls within a National Heritage Place (The Ningaloo Coast) and is protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The vegetation within the survey area ranged from a linear strip either side of the Minilya-Exmouth Road to several proposed material pits that extended from Exmouth to ~67 km southeast of Coral Bay. Nine vegetation types not including cleared areas associated with roads and tracks were mapped within the survey area. These vegetation types were associated with sandy/ stony limestone flats, silty sand drainage lines, saline clay flats, sandy dunes, swales and flats and rocky limestone low undulating hills. The dominant vegetation type was VT05 - *Acacia* spp. low shrubland on undulating dunes/swales (228.20 ha) recorded within the southern section of Area 1A and in 1B. The most restrictive vegetation type was VT04 - *Acacia* spp. and *Rhagodia preissii* subsp. *obovata* on sand dunes (5.70 ha) recorded just north of Learmonth airport.

No Threatened Ecological Communities listed under the EPBC Act or *Biodiversity Conservation Act 2016* (BC Act) or Priority Ecological Communities (PEC) listed by Department of Biodiversity Conservation and Attractions (DBCA) were identified from the desktop searches as occurring within the survey area and no occurrences of significant ecological communities were recorded during the field survey.

The vegetation within the survey area was rated as Excellent to Completely Degraded. Vegetation in Good or better condition made up 74% of the survey area. The vegetation structure within these areas was intact with limited signs of cattle activity and/or anthropogenic disturbances.

Two hundred and one flora taxa (including subspecies and varieties) representing 45 families and 119 genera were recorded from the survey area during the field survey. This total comprised 192 native taxa and nine introduced flora taxa; one of which (* *Prosopis pallida*) is listed as a Declared

Pest under the *Biosecurity and Management Act* 2007. No Weeds of National Significance (WoNS) were recorded during the survey.

No EPBC Act or BC Act listed flora were recorded within the survey area. Seven DBCA Priority listed flora species were identified within the survey area during the field survey. Two are Priority (P)2 species (*Tephrosia* sp. Northwest Cape (G. Marsh 81) and *Tinospora esiangkara*) and five are P3 species (*Acacia startii*, *Corchorus congener*, *Eremophila forrestii* subsp. *capensis*, *Gymnanthera cunninghamii* and *Stackhousia umbellata*). Desktop results identified the potential presence of 27 significant flora species. The likelihood of occurrence assessment concluded that seven were known to occur and one species is considered likely occur, *Acacia alexandri* (P3). Of the remaining significant flora, five were considered possibly to occur and the remaining 14 were considered unlikely to occur within the survey area.

Fauna Surveys (GHD, 2022)

Nine broad fauna habitat types (including cleared areas) were identified within the survey areas based on the predominant landforms, soil and vegetation structure in the area. The fauna habitats of the survey area are part of a contiguous, largely intact area of remnant vegetation within road reserve and agricultural lands that lay south of Exmouth town site, nearby DBCA managed areas (Cape Range National Park) and pastoral areas. All creeks and drainage lines traversed only carry seasonal flow.

The value of the habitats within the survey area was considered to range in value from medium to high depending on the amount of previous disturbance identified. Medium importance was identified where previous clearing had occurred and where, in some cases, the area held water or had regenerated. The high significance areas were because of the large area, diversity and quality of habitat types (e.g. good to excellent structural and floristic diversity within each habitat type and its proximity to existing habitat feature like Rocky rises), good connectivity and for supporting known and potential habitat values for significant fauna. The habitats within the survey area are considered to be well represented within the local area and are probably well represented within the greater study area, given the extent of the corresponding native vegetation associations remaining.

The vertebrate fauna assessment identified 123 fauna species, including 75 species of birds, 33 reptile, three amphibian and 12 mammals during the survey. Of these species, four species are considered introduced and include the dingo/ dog, cow, rabbit and cat. The species recorded during the survey are typical for the habitat they were found in and are generally (other than significant species recorded) well represented in the region in similar habitats.

Five significant fauna species were recorded during the field surveys:

- Peregrine Falcon (*Falco peregrinus*), Listed Special Protection under the BC Act
- Western Pebble-mound Mouse (*Pseudomys chapmani*), Listed P4 by DBCA
- Brush-tailed Mulgara (*Dasycercus blythi*), listed P4 by DBCA
- Osprey (*Pandion haliaetus*), listed as marine and Migratory under International Conventions by EPBC Act and BC Act
- Caspian Tern (*Hydroprogne caspia*) listed as marine and Migratory under International Conventions by EPBC Act and BC Act.

Of the species listed above the Peregrine Falcon, Osprey and Caspian Tern are generally common with large ranges across Australia. The Western Pebble-mound Mouse is restricted to the flanks of the Cape Range and until recently was presumed extinct in the area. The Brush-tailed Mulgara is a new record for the region and these observations represent a range extension west for the species.

A likelihood of occurrence assessment for significant fauna post survey concluded that an additional 15 species including, Ningaloo Worm Lizard (P3), Cape Range Stone Gecko (P2), Grey Falcon (T), Eastern Curlew (T, Mi), Wood Sandpiper (Mi), Common Greenshank (Mi), Sharp-tailed Sandpiper (Mi), Bar-tailed Godwit (T, Mi), Curlew Sandpiper (T, Mi), Grey-tailed Tattler (Mi) Pectoral Sandpiper (Mi), Gull-billed Tern (Mi), White-winged Black-tern (Mi), Common Sandpiper (Mi) and Oriental Plover (Mi) are considered likely to occur within the survey area. Most of these species are associated with seasonal floodplain or creekline/drainage area use. The Ningaloo Worm Lizard is associated with sandy coastal soils or dunes and Cape Range Stone Gecko the heavy loam soils and rocky habitats. The Grey Falcon is an opportunist and can utilise all areas.

Appendix 2: Vegetation within Clearing Area/Development Envelope

[REDACTED]

Appendix 3: DBCA Threatened Flora and Fauna Database Searches

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