Clearing Assessment Report – CPS 818

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Geraldton-Mt Magnet Road Material Pits
SLK [REDACTED]

Geraldton-Mt Magnet Road (H050)
Midwest

EOS: 2644

D23#873677
September 2023

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Document Control

Report Compilation & Review	Name and Position	Document Revision	Date
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Reviewer:	[REDACTED] Environment Contractor	Draft v1	26/09/2023

1 PROPOSAL

1.1 Purpose and Justification

The purpose of this Clearing Assessment Report (CAR) is to provide a report detailing the assessment of native vegetation clearing that is proposed to be undertaken using the Statewide Clearing Permit CPS 818 issued to Main Roads Western Australia (Main Roads).

The CAR outlines the key activities associated with the project, the existing environment and an assessment of native vegetation clearing. This assessment provides an evaluation of the vegetation clearing impacts associated with the project using the ten Clearing Principles, and the strategies used to manage vegetation clearing.

Main Roads Western Australia (Main Roads) plans to undertake future upgrades of Geraldton-Mt Magnet Road, East of Geraldton. Main Roads needs to source naturally occurring road building materials to undertake these works. Materials need to be sourced as close as possible to the road network to reduce haulage cost, transport time and vehicle emissions. One potential pit area has been identified which is strategically placed to provide materials for upcoming works along Geraldton-Mt Magnet Road. Main Roads proposes to undertake material investigations and stockpiling of suitable road building materials at this locations (the Proposal).

1.1.1 Main Roads Approach to Road Safety and the Environment

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

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

As the statutory authority responsible for providing and managing a safe and efficient main road network in Western Australia, Main Roads focuses on improving road safety by thoroughly considering all environmental, economic and community benefits and impacts. It operates on a hierarchy of avoiding, minimising, reducing and then, if required, offsetting our environmental impacts. This has been achieved through changes in proposal scope and design. Main Roads regularly reduces its clearing footprint by restricting earthworks limits for proposals, steepening

batters, installing barriers, establishing borrow pits in cleared paddocks and avoiding temporary clearing for storage, stockpiles and turn around bays to avoid and minimise its impacts.

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

1.2 Proposal Scope

The proposal involves the investigation and stockpiling of suitable road building materials for maintenance and construction purposes within one pit location along Geraldton-Mt Magnet Road. Project activities will be undertaken within an envelope of approximately 147.83 ha.

Suitable materials will be extracted and stockpiled in cells to supply maintenance or construction projects when required. Each cell will be rehabilitated following the completion of extraction activities, which involves respreading topsoil and vegetation and ripping the surface.

1.3 Proposal Location

The development envelope is located on Geraldton-Mt Magnet Road, between SLK [REDACTED] and [REDACTED], in the City of Greater Geraldton. The nearest townsite is Pindar located approximately 30 km west of the proposed materials pit.

[REDACTED] SLK
- Latitude: [REDACTED]
- Longitude: [REDACTED]

[REDACTED] SLK
- Latitude: [REDACTED]
- Longitude: [REDACTED]

The location of the proposed works is shown in Figure 1.

1.4 Clearing Details

Proposed Clearing to be undertaken using CPS 818: up to 100 ha.

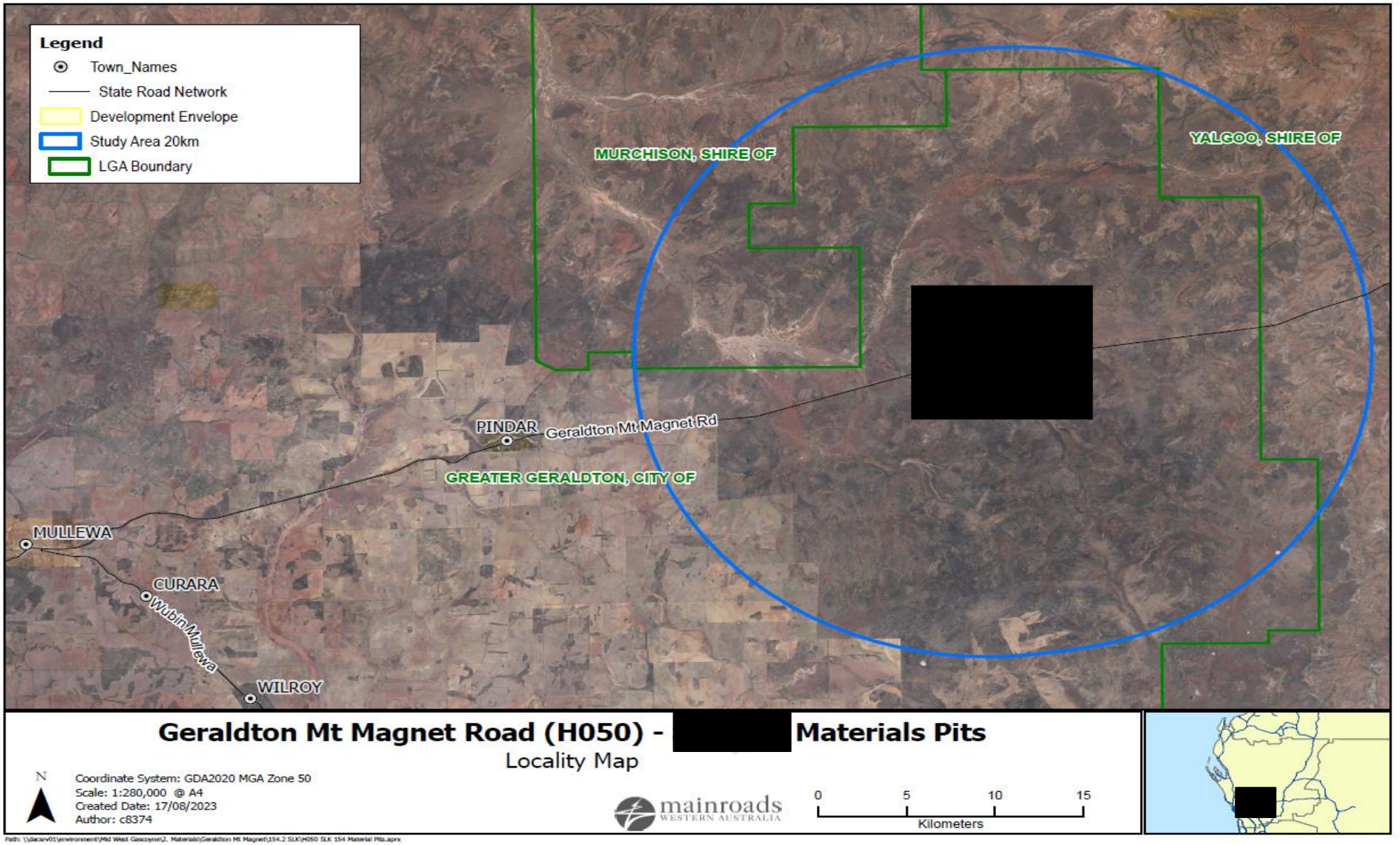
Areas of Native Vegetation Clearing:
The areas of native vegetation to be cleared are shown in Figure 2.

Type of Native Vegetation:
Based on the biological assessment undertaken by Ecologia (2022), six (6) vegetation types were defined for the development envelope:

- **AeSlMp:** *Acacia effusifolia, ±A. acuminata* subsp. small seed (B.R. Maslin 7830) tall open shrubland; *S. lasiophyllum* low sparse shrubland; *M. paradoxus, Goodenia mimuloides, G. occidentalis* low grassland/herbland.
- **AiElAc:** *Acacia incognita, Grevillea obliquistigma* tall open shrubland; *Eremophila latrobei, E. clarkei, P. obovatus* low sparse shrubland; *Aristida contorta, Monachather paradoxus, Hyalosperma glutinosum* low grassland/herbland.
- **AiHYAc:** *A. incognita, A. tetragonophylla, ±A. burkittii* tall open shrubland; *Hemigenia* sp. Yalgoo, *P. obovatus, P. schwartzii* low sparse shrubland; *A. contorta, M. paradoxus, G. mimuloides* low open grassland/herbland.

- **ArAaBs:** *Acacia rhodophloia* tall open shrubland; *Aluta aspera, Darwinia capitellata, Thryptomene costata* mid sparse shrubland; *Borya sphaerocephala, Aristida contorta, Monachather paradoxus* low open herbland/grassland.
- **ArPoBs:** *Acacia rhodophloia, A. tetragonophylla, A. burkittii* tall open shrubland; *P, obovatus, S, lasiophyllum* low sparse shrubland; *Borya sphaerocephala, Hyalosperma glutinosum, Aristida contorta* low herbland/grassland.
- **CcArMp:** *Callitris columellaris, ±Eucalyptus kochii, ±E. leptopoda* low open woodland; *Acacia ramulosa, Hakea preissii* tall open shrubland; *Monachather paradoxus, Ptilotus polystachyus, Waitzia acuminata* low grassland/herbland.

The type of vegetation present within the development envelope which is subject to clearing under this Proposal is shown in Figure 2.


Legend
Town_Names
State Road Network
Development Envelope
Study Area 20km
LGA Boundary
MURCHISON, SHIRE OF
YALGOO, SHIRE OF
PINDAR
Geraldton Mt Magnet Rd
GREATER GERALDTON, CITY OF
MULLEWA
CURARA
Wubin Mullewa
WILROY
Geraldton Mt Magnet Road (H050) - [redacted] Materials Pits
Locality Map
N
Coordinate System: GDA2020 MGA Zone 50
Scale: 1:280,000 @ A4
Created Date: 17/08/2023
Author: c8374
mainroads
WESTERN AUSTRALIA
0
5
10
15
Kilometers

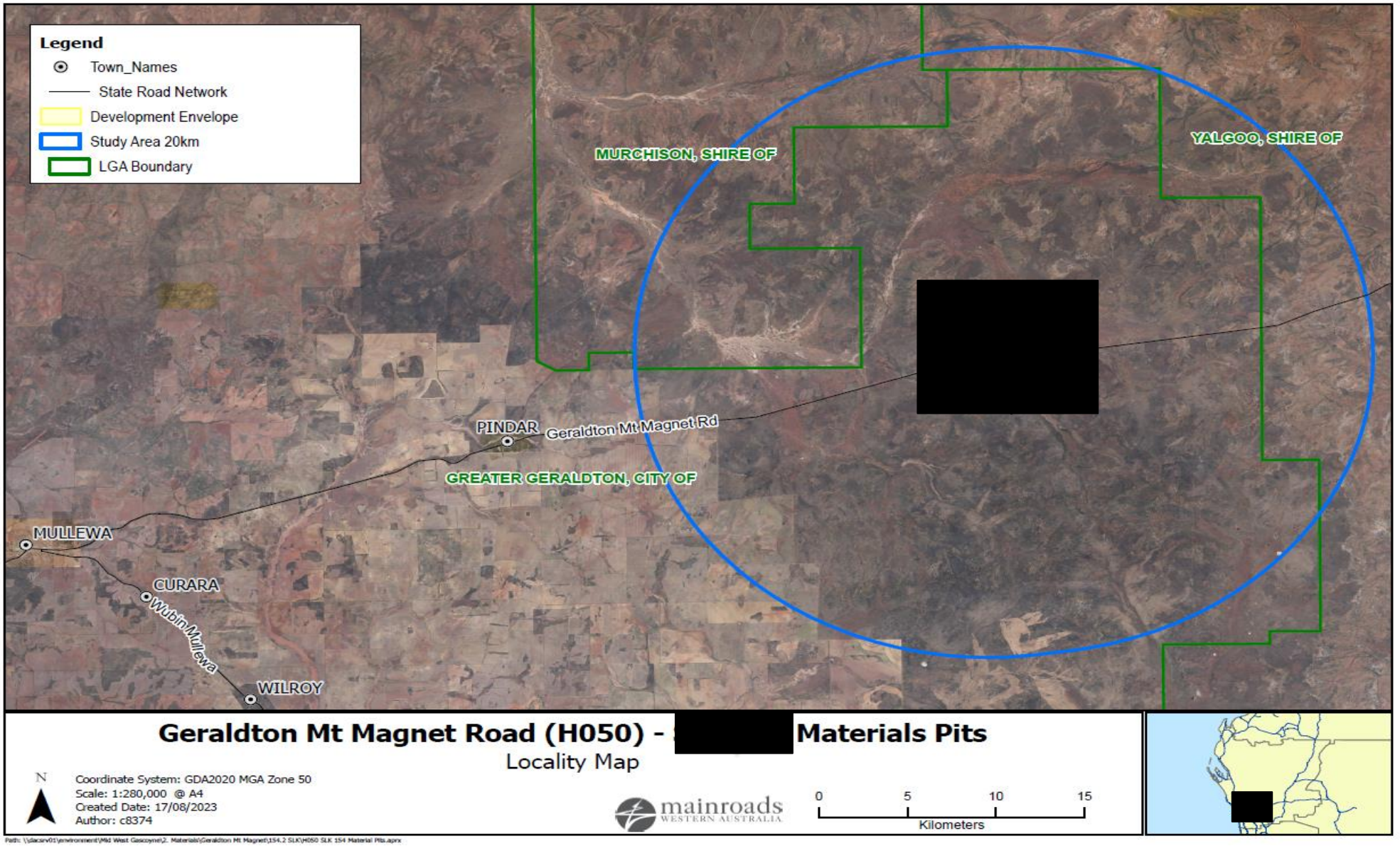


Figure 1. Project Location

IMAGE [REDACTED]

Figure 2. Vegetation within Development envelope – [REDACTED] SLK

1.5 Alternatives to Native Vegetation Clearing Considered During Proposal Development

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

- Main Roads retains frangible vegetation where a clear zone is to be established for road projects. For this project, however, clearing will only be required to accommodate the materials pit excavation works.
- The proposed methodology which Main Roads adopts to construct and operate material pits eliminates non-essential vegetation clearing by only excavating what is necessary to sample and utilise the material within each cell. This methodology is why the entire development envelope will not be cleared and involve only what is required to facilitate the proposed grid pattern, as stated in section 1.2.
- Reducing the speed limit to minimise clearing requirements, while still balancing safety (driver fatigue) and freight efficiency. Speed Limits are an essential mechanism to ensure the safe and efficient operation of road networks. The application of appropriate speed limits and other traffic management measures is a key mechanism in managing vehicle speeds to achieve desired safety, mobility, traffic management, local amenity, and road user expectations. There are several factors involved in road safety, including road conditions, driver behaviour and overall road design. Except in special situations, reducing speed limits below national standards on state and national roads is not typically supported as it has the potential to contribute to driver frustration, impatience, tiredness and recklessness. The environmental values protected by reducing the speed limit, do not justify the impacts on freight efficiencies nor road user safety. The nature of the works being to access, investigate, extract and stockpile materials to be utilised for road building, are not works that are impacted by speed limits. Accordingly, the reduction of the speed limits to avoid clearing of native vegetation for this proposal is not proposed.

This Proposal is focused on the potential development of a materials pit at [REDACTED] SLK which is required by Main Roads to meet specific geotechnical criteria and be in close proximity to road projects. The carting distance and cost required to source road building materials from existing commercial sources would make projects unfeasible. Therefore, there are limited alternative locations Main Roads can develop these materials pits. Hence some level of clearing is unavoidable to source materials for upgrading sections of Geraldton-Mt Magnet Road.

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

The design and management measures implemented to avoid and minimise the clearing impacts by the Proposal include the following:

- Clearing will be limited to areas of suitable material, and not all areas of the Development envelope will be cleared.
- Important environmental values will be avoided where possible.
- Once the pit is exhausted of material the pit will be rehabilitated.

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
Material Pit Grid Pattern Methodology	The proposed material pit development methodology involves excavations of test pits with a backhoe or excavator on a systematic grid pattern of 25m x 25m using a 600mm bucket up to 2.5m deep. Establishment of a pit involves vegetation clearing and stockpiling of material by a Dozer. This process is closely supervised to ensure Road Building Material is not contaminated with unsuitable material and effective rehabilitation of the pit is undertaken once material extraction has taken place. The aforementioned systematic grid pattern prevents the entire development envelope from being cleared for the purpose of investigating and obtaining suitable Road Building Material. Each cell will be strategically spaced apart to allow the investigation to cover an adequate area for sampling, testing and stockpiling, without compromising the ecological value of the vegetation contained within the development envelope.
Staged Cell Rehabilitation	Proposed extraction of material will be progressive with suitable material extracted and stockpiled in cells. Each cell will be rehabilitated following the completion of extractions with works moving to the next cell. This method will ensure the full area is not cleared and stripped at once, thereby minimising erosion and, allowing the impacted areas to be reinstated to an existing environmental value and maintaining similar flora and fauna species diversity. Rehabilitation activities involve respreading topsoil and vegetation and ripping the surface.

1.7 Approved Policies and Planning Instruments

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

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

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

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

Environmental Protection Policies:

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

Other relevant policies and guidance documents:

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

2 SCOPE AND METHODOLOGY ASSESSMENT OF CLEARING

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

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

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

2.1 Report Terminology and Sources

The following terms are used in this Clearing Report:

- **Native Vegetation Clearing Area** – The maximum amount of native vegetation to be cleared for the Proposal that will accommodate the designed earthworks and, typically, a nominal buffer to allow for the safe movement of machinery during construction.

- **Development envelope** – The maximum extent within which the Clearing Area will be located. This envelope is larger than the Clearing Area and the Proposal 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 Development envelope as though all of these values will be impacted, up to the amount specified within the Clearing Area.

- **Proposal Area** – The total footprint of the Proposal including both cleared and uncleared areas. This is based on the current design and is less than the development envelope. It usually includes a buffer to allow for constructability and the movement of machinery during construction.

- **Study Area** – Area covered by the Desktop Assessment. The Study Area for the Proposal is confined to a local area of a 20km radius.

- **Survey Area** – Area covered by the Biological Survey, which is typically larger that the Development envelope.

2.2 Desktop Assessment

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

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 9.

2.3 Surveys and Assessments

The following surveys/assessments were undertaken to inform this CAR:

- Materials Pit Geraldton Mt Magnet Rd SLK [REDACTED] Biological Survey (Ecologia 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
Ecologia (2022) Materials Pit Geraldton Mt Magnet Rd SLK [REDACTED] Biological Survey	**Survey Area:** Survey area comprised approximately 170 ha adjacent to Geraldton Mt Magnet Road between the towns of Pindar and Yalgoo. The survey area is situated between SLK [REDACTED] and [REDACTED]. **Type:** Detailed vegetation, flora and basic fauna survey. The survey identified and mapped the dominant vegetation units, assessed vegetation condition and completed opportunistic searches for conservation significant fauna taxa. Targeted searches of conservation significant flora were conducted in suitable habitat. **Timing:** Fieldwork conducted on 21 October 2021 and 27 - 28 of October 2021. **Survey Results Shapefile TRIM Ref:** D23#860833 **Document TRIM Ref:** D23#859820

3 SURVEY RESULTS

In accordance with CPS 818/16 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

Main Roads required a biological survey to delineate key flora, fauna, soil and surface water values (wetlands) and potential sensitivity to impact for the proposal. Ecologia Environment was engaged by Main Roads to undertake a detailed flora and vegetation survey, including a targeted survey for Threatened and Priority flora to support environmental impact assessment documentation, approvals and potential development. Total extent of survey area was 170 hectares (ha), including the assessment of 23 floristic quadrats, surveyed in late October 2021, which corresponds with the recommended timing of the primary season of a flora survey in the South West and Interzone botanical province.

The key findings of the biological survey are detailed below, with focus on the materials pits areas.

- A total of 133 vascular plant taxa were recorded within the survey area, representing approximately 90% to 92% of the estimated survey area species richness and approximately 71% of the 186 taxa identified within 20 km of the survey area during the desktop assessment.
- Two DBCA listed Priority taxa were recorded within survey area: *Drosera eremaea* (P3) and *Persoonia pentasticha* (P3).
- *Drosera eremaea* was recorded sporadically throughout the survey area from three vegetation types (AeSlMp, AiHYAc, and ArPoBs) (approx. 22 individuals recorded).

- A single individual of *Persoonia pentasticha* was recorded from vegetation type AeSlMp.
- One introduced species (*Pentameris* airoides) was recorded within the survey area, which is not listed as a Declared Pest or a Weed of National Significance.

The survey mapped six (6) vegetation types within the development envelope:

- **AeSlMp:** *Acacia effusifolia, ±A. acuminata* subsp. small seed (B.R. Maslin 7830) tall open shrubland; *S. lasiophyllum* low sparse shrubland; *M. paradoxus, Goodenia mimuloides, G. occidentalis* low grassland/herbland.
- **AiElAc:** *Acacia incognita, Grevillea obliquistigma* tall open shrubland; *Eremophila latrobei, E. clarkei, P. obovatus* low sparse shrubland; *Aristida contorta, Monachather paradoxus, Hyalosperma glutinosum* low grassland/herbland.
- **AiHYAc:** *A. incognita, A. tetragonophylla, ±A. burkittii* tall open shrubland; *Hemigenia* sp. Yalgoo, *P. obovatus, P. schwartzii* low sparse shrubland; *A. contorta, M. paradoxus, G. mimuloides* low open grassland/herbland.
- **ArAaBs:** *Acacia rhodophloia* tall open shrubland; *Aluta aspera, Darwinia capitellata, Thryptomene costata* mid sparse shrubland; *Borya sphaerocephala, Aristida contorta, Monachather paradoxus* low open herbland/grassland.
- **ArPoBs:** *Acacia rhodophloia, A. tetragonophylla, A. burkittii* tall open shrubland; *P, obovatus, S, lasiophyllum* low sparse shrubland; *Borya sphaerocephala, Hyalosperma glutinosum, Aristida contorta* low herbland/grassland.
- **CcArMp:** *Callitris columellaris, ±Eucalyptus kochii, ±E. leptopoda* low open woodland; *Acacia ramulosa, Hakea preissii* tall open shrubland; *Monachather paradoxus, Ptilotus polystachyus, Waitzia acuminata* low grassland/herbland.

There were no plant communities observed within the survey area that corresponded to any state (DBCA) or Commonwealth (EPBC Act) listed Threatened Ecological Community (TEC), nor any state listed Priority Ecological Community (PEC).

Except for vehicle tracks, which account for 4.4 ha (2.62%) of the survey area, vegetation condition across almost the entirety of the survey area was 'Excellent' (154.4 ha, 90.78%), having no or only negligible disturbance (e.g., the presence of few non-aggressive weeds).

The southern border of the survey area adjacent to Geraldton-Mt Magnet Road has been historically cleared but is largely vegetated with local native species and was assessed as 'Very Good' (11.2 ha, 6.6%).

3.2 Summary of Fauna Surveys

Fauna habitat assessments were undertaken to describe and map fauna habitat types with the potential to support significant fauna species within the survey area. After assessing the various vegetation types, soil units, and landforms, a single fauna habitat type was identified within the survey area: Open Shrubland (97.38%). The remainder of the survey area was mapped as Cleared (2.62%) which does not provide habitat for vertebrate fauna species.

Of the 141 vertebrate fauna species identified by database searches as potentially occurring within the survey area, 32 species (22.70%) were recorded during the basic fauna and fauna habitat assessment, including three mammals, one reptile and 28 birds.

Open Shrubland habitat was widespread throughout the survey area and is considered generally common at a local and regional scale. This habitat type encompasses *Acacia* shrubland over sandy substrates and provides shelter and foraging opportunities for small mammal and reptile species, as well as the Malleefowl.

Habitat within the survey areas was assessed as being in 'Excellent' condition throughout the site and generally lacked evidence of disturbance or degradation.

A single introduced fauna species (rabbit) was recorded within the survey area. No permanent pools or species of fish were recorded during the surveys. The fauna assemblage recorded is considered typical for the habitat types observed within the survey area.

An inactive Malleefowl mound was recorded during the field survey within Open Shrubland habitat. No other significant fauna species were recorded during the current survey.

4 VEGETATION DETAILS

4.1 Proposal Site Vegetation Description

The development envelope and surrounds consist of native vegetation with little previous disturbance.

A biological survey conducted over the proposed materials pits mapped six native vegetation associations within the development envelope (Ecologia 2022), as described in Table 3.

The condition of the native vegetation within the development envelope ranges from 'Excellent' to 'Very Good'.

For a full description of the existing vegetation, refer to the Biological Report found at D23#859820.

Table 3. Summary of Vegetation Types within Development envelope

Vegetation Type	Extent within Development envelope (ha)	Total Extent Mapped (ha) within Survey Area
AeSlMp: *Acacia effusifolia, ±A. acuminata* subsp. small seed (B.R. Maslin 7830) tall open shrubland; *S. lasiophyllum* low sparse shrubland; *M. paradoxus, Goodenia mimuloides, G. occidentalis* low grassland/herbland.	94.79	104.75
AiElAc: *Acacia incognita, Grevillea obliquistigma* tall open shrubland; *Eremophila latrobei, E. clarkei, P. obovatus* low sparse shrubland; *Aristida contorta, Monachather paradoxus, Hyalosperma glutinosum* low grassland/herbland.	0.87	0.88
AiHYAc: *A. incognita, A. tetragonophylla, ±A. burkittii* tall open shrubland; *Hemigenia* sp. Yalgoo, *P. obovatus, P. schwartzii* low sparse shrubland; *A. contorta, M. paradoxus, G. mimuloides* low open grassland/herbland.	19.05	24.56
ArAaBs: *Acacia rhodophloia* tall open shrubland; *Aluta aspera, Darwinia capitellata, Thryptomene costata* mid sparse shrubland; *Borya sphaerocephala, Aristida contorta, Monachather paradoxus* low open herbland/grassland.	1.07	1.07
ArPoBs: *Acacia rhodophloia, A. tetragonophylla, A. burkittii* tall open shrubland; *P, obovatus, S, lasiophyllum* low sparse shrubland; *Borya sphaerocephala, Hyalosperma glutinosum, Aristida contorta* low herbland/grassland.	12.65	16.99
CcArMp: *Callitris columellaris, ±Eucalyptus kochii, ±E. leptopoda* low open woodland; *Acacia ramulosa, Hakea preissii* tall open shrubland; *Monachather paradoxus, Ptilotus polystachyus, Waitzia acuminata* low grassland/herbland.	4.20	17.40

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. 419	**Statewide**	313,225.36	296,195.63	94.56	*38.20*
	IBRA Bioregion *Yalgoo*	302,707.72	289,825.56	95.74	*38.44*
	IBRA Sub-region *Tallering*	302,707.72	289,825.56	95.74	*38.44*
	Local Government Authority *City of Greater Geraldton*	94,775.26	91,002.31	96.02	*12.67*

5 ASSESSMENT AGAINST THE TEN CLEARING PRINCIPLES

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

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

The proposed clearing is not likely to be at variance with the ten Clearing Principles.

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

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

Assessment

The proposal requires the clearing of up to 100 ha of native vegetation. The proposal area is proposed to be cleared 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 147.83 ha development envelope.

The vegetation throughout the development envelope ranges from 'Excellent' to 'Very Good'. Over 90% of vegetation at each site is in 'Excellent' condition. Vehicle tracks account for approximately 2.62% of the development envelope. The remaining areas are in 'Very Good' condition.

DBCA database searches and EPBC Act Protected Matters Report indicate that one EPBC Act listed Threatened Ecological Community (TEC) occurs within 20 km of the survey area: 'Eucalypt woodlands of the Western Australian Wheatbelt' (Critically Endangered). DBCA database searches identified one Priority Ecological Community (PEC) within 20 km of the survey area: the 'Eucalyptus woodlands of the Western Australian Wheatbelt' Priority 3 PEC which is synonymous with the 'Eucalyptus woodlands of the Western Australian Wheatbelt' EPBC-listed TEC of the same name. No other TECs or PECs were recorded in the study area. The proposed clearing area is outside the

known distribution of the Western Australian Wheatbelt TEC (Department of the Environment, 2015). Ecologia (2022) did not record any TECs or PECs during the biological field survey.

A desktop assessment of the original pit study area identified two Threatened flora species known to occur in the surrounding area (GIS Database). These species being *Eremophila viscida* and *Eucalyptus synandra*. A detailed survey for vegetation and flora recorded 133 plant taxa in the materials pit survey area. Two DBCA listed Priority species were recorded: *Drosera eremaea* (P3 – 22 records within survey area) and *Persoonia pentasticha* (P3 – one individual recorded within survey area). No Threatened flora species were recorded during the survey, and no Threatened species were considered likely to occur within the development envelope.

Persoonia pentasticha is a low shrub typically found in roadside reserves or shrubland on yellow-brown sand or red-brown clay loam (WA Herbarium, 2021). A single individual of *Persoonia pentasticha* was recorded from vegetation type AeSlMp, with the nearest previous record of the species located approximately 2.6 km to the northeast of the survey area within the study area. This species is known from 53 records (approximately 94 individuals), via the DBCA and WA Herbarium layers, with a distribution extending approximately 220 km from Mullewa and south-east to Mount Gibson. The species is found in the Avon Wheatbelt, Geraldton Sandplains and Yalgoo IBRA Bioregions.

The proposed works have the potential to remove one individual of *Persoonia pentasticha* recorded within the development envelope. Based on the available data, this represents an impact of approximately 1% of counted individuals in state records. Based on this impact, and the broad distribution of the species across three Bioregions, the works are unlikely to result in a significant residual impact on the species.

Drosera eremaea was recorded sporadically throughout the survey area from three vegetation types (AeSlMp, AiHYAc, and ArPoBs) (approximately 22 individuals recorded). The nearest previous record of the species is located approximately 27 km west of the survey area (Atlas of Living Australia, 2022). This species is known from 141 records (greater than 30,000 individuals), via the WA Herbarium, with a distribution extending approximately 400 km from Cue and south-east to Menzies. The species is found in the Coolgardie, Geraldton Sandplains, Murchison and Yalgoo IBRA Bioregions. In the current survey it was recorded in the Bandy and Joseph land systems which occupy over 46% of the study area (Ecologia, 2022).

The proposed works have the potential to remove twenty-two individuals of *Drosera eremaea* recorded within the development envelope. Based on the available data this represents an impact of approximately 0.07% of estimated individuals in state records. Ecologia concluded that given that the species was sparsely distributed across a range of vegetation types and surface geological units, it is likely that it occurs adjacent to the survey area. The removal of 22 individuals is unlikely to result in a significant residual impact on the species.

A total of 32 native fauna taxa have been recorded in the development envelope, comprising 28 bird, three mammal and one reptile species (Ecologia, 2022). One introduced species (rabbit) was recorded during the survey. No Threatened, Priority or Specially Protected fauna species were recorded, however evidence of an inactive Malleefowl mound was recorded in the northeast portion of the survey area. This mound has been excluded from the development envelope and will be avoided.

Although two Priority flora species were recorded in the development envelope, Ecologia (2022) noted that the overall species diversity and floristic composition of the survey area is typical of the landforms present and for the Yalgoo IBRA region more generally. Furthermore, it is noted that the proposed clearing area consists of one common Beard Vegetation Association, one common fauna habitat type, is in a largely uncleared area and does not contain wetlands, watercourses or other unique features that are likely to be representative of an area of high biological diversity.

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

Methodology

- Atlas of Living Australia (2022)
- Biological Survey (Ecologia, 2022)
- DBCA shapefiles
- Department of the Environment (2015)
- Main Roads GIS Shapefiles

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

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

Assessment

A fauna field survey has been undertaken over the development envelope, comprising the mapping of fauna habitat and opportunistic observations of fauna (Ecologia, 2022).

The proposal area comprises of one fauna habitat, being Open Shrubland. This habitat provides potentially suitable habitat for a range of fauna species, is widespread throughout the survey area and is considered generally common at a local and regional scale (Ecologia, 2022).

Of the 141 vertebrate fauna species identified by database searches as potentially occurring within the survey area, 32 species (22.70%) were recorded during the basic fauna and fauna habitat assessment, including three mammals, one reptile and 28 birds (Ecologia, 2022). Fauna recorded during the survey were generally common and are not restricted to the survey area (Ecologia, 2022).

Assessment of Conservation Significant Fauna

No significant fauna species were directly observed within the development envelope at the time of the survey by Ecologia (2022). Secondary evidence of the Malleefowl; *Leipoa ocelleata* (Vulnerable, EPBC Act and BC Act) was detected in the form of one inactive mound located in the northeastern portion of the survey area. A 50m buffer surrounding the identified mound has been applied and this area has been removed from the development envelope to avoid impacts. The Malleefowl was the only significant fauna species identified as having a high likelihood of occurrence within the survey area (Ecologia, 2022).
The Malleefowl has previously been recorded on 10 occasions (most recently in 2016) within 20 km of the survey area, with the nearest record located less than two kilometres west of the survey area.

Malleefowl are mainly found in the semi-arid and arid zones of Australia in mallee dominated shrublands or low woodlands (Benshemesh, 2007). Although no evidence of recent Malleefowl activity was recorded, it is considered possible for Malleefowl to occur in the development envelope given the presence of suitable habitat and records in the local area. The proposed clearing of 100 ha of native vegetation is unlikely to significantly impact the availability of habitat in the local area, or the ability for the species to move across the landscape, given vegetation is contiguous with large areas of surrounding vegetation that would provide similar habitat. The proposed clearing has the potential to impact on individuals and breeding habitat, which will be mitigated by a pre-clearing fauna check prior to the extraction of materials. Any new mounds recorded will be avoided with a 50m buffer established.
Based on the above, while the proposal area contains habitat that may potentially support native fauna, including Malleefowl, the habitat is well represented within the adjacent and surrounding areas and the proposal area is not considered to comprise, or be necessary for, the maintenance of a significant habitat for fauna. Clearing will not result in the long term decline or significantly reduce the available habitat and is therefore, not likely to have a significant impact.

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

Methodology

- Benshemesh (2007)
- Biological Survey (Ecologia, 2022)
- DBCA shapefiles

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

Proposal is not likely to be at variance to this Principle.

Assessment

The desktop assessment of the 20km study area found two recorded Threatened flora species, these being *Eremophila viscida* and *Eucalyptus synandra* (GIS Database).

The biological survey (Ecologia, 2022) did not record either of these species, or any other Threatened flora species, in the development envelope.

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

Methodology

- Biological Survey (Ecologia, 2022)
- DBCA shapefiles

(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

DBCA database searches and EPBC Act Protected Matters Report indicate that one EPBC Act listed Threatened Ecological Community (TEC) occurs within 20 km of the survey area: 'Eucalypt woodlands of the Western Australian Wheatbelt' (Critically Endangered). As noted in the approved conservation advice for this TEC, this community had a broad distribution across the entire Avon Wheatbelt bioregion and the Western Mallee subregion with outlying patches in the Jarrah Forests bioregion. Existing woodland remnants are scattered across this entire range. Woodlands that have the same key eucalypt species but occur in adjacent bioregions, notably the Coolgardie, Esperance Sandplains, Yalgoo and Geraldton Sandplains bioregions are not part of the national ecological community (Department of the Environment, 2015). Furthermore, the vegetation types mapped within the proposed clearing area consisted mainly of Acacia shrublands and are not consistent with the description of this TEC.

No TEC's were identified within the development envelope during the biological survey (Ecologia, 2022).

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

Methodology

- Biological Survey (Ecologia, 2022)
- DBCA shapefiles
- Department of the Environment (2015)

(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 likely to be at variance to this Principle.

Assessment

The proposal is located in the Yalgoo IBRA region and according to a broad scale mapping undertaken by Beard (Shepherd et al 2001), the project lies within vegetation association 419.

The National Objectives and Targets of 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) except in constrained area (Perth & Peel) where 10% representation should be maintained.

Vegetation unit 419 has more than 30% of its pre-European extent remaining at state, IBRA Bioregion and IBRA Sub-region scale and at a Local Government Level.

Summary of Project Area's Mapped Pre-European Vegetation Associations

Pre-European Vegetation Association(s)	Clearing Description	Vegetation Condition	Comments
Vegetation Association 419 described as a Shrublands; bowgada, jam and *Melaleuca uncinata* thicket.	Clearing of up to 100 ha for material investigation and extraction on Geraldton-Mt Magnet Road, in the City of Greater Geraldton.	Very Good to Excellent (EPA 2016)	Vegetation description and condition determined from biological survey (Ecologia, 2022)

Pre-European Vegetation Representation

Pre-European Vegetation Association	Scale	Pre–European (ha)	Current Extent (ha)	% Remaining	% Remaining in DBCA reserves
Veg Assoc No. 419	**Statewide**	313,225.36	296,195.63	94.56	38.20
	IBRA Bioregion *Yalgoo*	302,707.72	289,825.56	95.74	38.44
	IBRA Sub-region *Tallering*	302,707.72	289,825.56	95.74	*38.44*
	Local Government Authority *City of Greater Geraldton*	94,775.26	91,002.31	96.02	*12.67*

Native vegetation within the proposed materials pit consists entirely of vegetation unit 419, and as such the proposed clearing within the development envelope does not represent clearing of

significant remnant vegetation within an extensively cleared area. Vegetation Unit 419 is widely represented within the surrounding area.

With the surrounding areas being well vegetated, the proposed clearing in the materials pit development envelope is not likely to reduce ecosystem functionality or create a barrier to ecological linkages.

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

Methodology

- Aerial photography
- Biological Survey (Ecologia, 2022)
- Commonwealth of Australia (2001)
- EPA (2016)
- Shepherd et al (2001)

(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

There are no mapped watercourses or wetlands in the development envelope for the proposed material pit, and the biological survey (Ecologia, 2022) did not record any surface water features or riparian vegetation.

A search of ArcGIS shapefiles indicates no wetlands (Ramsar, geomorphic, etc.) are located within 20 km of the development envelope.

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

Methodology

- Biological Survey (Ecologia, 2022)
- Government GIS shapefiles
    - Ramsar Wetlands (Accessed 22 August 2023)
    - Important Wetlands (Accessed 22 August 2023)
    - Watercourses (Accessed 22 August 2023)

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

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

Assessment

The soils of the development envelope have been broadly mapped as occurring in the Bandy and Joseph System, which comprises gritty-surfaced plains and low outcrops of granite with scattered *Acacia* shrublands and undulating yellow sandplain supporting dense mixed *Acacia*, *Melaleuca* and *Casuarina* shrublands with patchy mallees, respectively (GIS Database). The biological survey observed sandy to loamy soils (Ecologia, 2022), which typically have high infiltration rates. This together with the area being in a lower rainfall area would indicate the area is not highly susceptible to water logging or water erosion.

According to Payne *et al* (1998), the Joseph System is not susceptible to soil erosion in its natural state. The sandy soils may be susceptible to wind erosion with the removal of vegetation; however this would be done in a staged approach with areas rehabilitated following extraction of material. Additionally, the surrounding local area has a significant amount of vegetation remaining which can act as a barrier to wind erosion.

A review of CSIRO shapefiles indicates that the probability of occurrence of acid sulfate soils is extremely low.

Proposed extraction of material will be progressive with suitable material extracted and stockpiled in cells. Each cell will be rehabilitated following the completion of extractions with works moving to the next cell. This method will ensure the full area is not cleared and stripped at once reducing the likelihood of erosion.

To mitigate impacts of erosion and in keeping with industry standards, the proposed extraction will be staged with smaller areas opened up, closed and progressively rehabilitated. Clearing of vegetation in this context is unlikely to result in appreciable land degradation. Furthermore, there is no dewatering proposed.

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

Methodology

- Biological Survey (Ecologia, 2022)
- Payne et al (1998)
- Government GIS Shapefiles:
    - Acid Sulphate Soil Risk Map (Accessed 11 September 2022)

(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

A search of ArcGIS shapefiles indicates no nature reserves, conservation areas or Bush Forever Sites are located within 20 km of the proposal area.

The nearest conservation area is the Barrabarra Nature Reserve (R 28313), located approximately 22.05 km southwest of the development envelope.

Based on the distance to the nearest conservation area, the proposed clearing is not likely to be at variance to this Principle.

Methodology

- Landgate GIS Cadastre Shapefiles (Accessed 22 August 2023)
- Government GIS Shapefiles:
    - DBCA Legislated Lands and Waters & Lands of Interest (Accessed 22 August 2023)

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

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

Assessment

The development envelope is located within the following Proclaimed areas under the RIWI Act:

- Greenough River and Tributaries Catchment Surface Water Area; and
- Gascoyne Groundwater Area.

With respect to surface water, Ecologia (2022) mapped some areas within the development envelope as floodplain. However, a review of aerial imagery and a search of available ArcGIS shapefiles indicates there are no watercourses intersecting the development envelope. The proposed clearing and extraction works will therefore not require a permit to disturb the bed and banks of a watercourse and are unlikely to significantly affect surface water flows or quality.

With respect to groundwater, the development envelope does not occur within a mapped Public Drinking Water Source Area or their protection zones. No groundwater dependent vegetation was mapped by Ecologia (2022). No dewatering or drainage modifications are required to support the proposed clearing, investigation or extraction activities. As such, no significant changes to groundwater levels or quality are expected to occur.

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

Methodology

- Biological Survey (Ecologia, 2022)
- DWER and DBCA shapefiles
- EPA (2016)
- Government GIS Shapefiles:
    - RIWI Act, Surface Water Areas and Irrigation Districts (Accessed 22 August 2023)
    - RIWI Act, Groundwater Areas (Accessed 22 August 2023)

(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 likely to be at variance to this Principle.

Assessment

Rainfall data from the nearest long-term Bureau of Meteorology (BOM) weather station (since 1896) were obtained from Mullewa (Station No. 8095), located 55.6 km to the southwest of the survey area. The mean annual rainfall for the area is 412 mm. The desktop assessment identified that there is a low risk of waterlogging or flooding in the area, as discussed in principle (g).

The biological survey observed sandy to loamy soils (Ecologia, 2022) which have a high infiltration rate. The terrain of the development envelope is relatively flat.

As the area has a significant amount of vegetation remaining within the surrounding local area, it is unlikely that the clearing required for this project will cause, or exacerbate, the incidence or intensity of flooding.

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

Methodology

- Bureau of Meteorology (BOM, 2022)
- Biological Survey (Ecologia, 2022)
- Government GIS Shapefiles:
    - Contours (Accessed 22 August 2023)

6 VEGETATION MANAGEMENT

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

7 REHABILITATION, REVEGETATION & OFFSETS

7.1 Revegetation and Rehabilitation

Main Roads will undertake rehabilitation of each pit that has been excavated of its suitable material. This involves respreading topsoil and vegetation and ripping the surface.

7.2 Offset Proposal

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

8 COMPLIANCE WITH CPS 818

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

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

Impact of Clearing	Yes/No or NA	Further Action Required
1. The CAR indicates that the clearing is 'At Variance' or 'May be at Variance' with one or more of the Clearing Principles.	**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 Principal Environmental Management Requirements (PEMRs) and Hygiene Checklists will be applied.
5b. Do the proposed works require clearing within or adjacent to DBCA managed lands in non-dry conditions?	**No**	No further action required.
6. Main Roads has been notified by DWER or an environmental specialist that the area to be cleared is susceptible to a pathogen other than dieback.	**No**	No further action required.
7. Weeds are likely to spread to and result in environmental harm to adjacent areas of native vegetation that are in good or better condition.	**No**	No further action required.
8. Did an environmental specialist conduct the survey or field assessment?	**Yes**	The Environmental Specialist undertaking the biological assessments was suitably qualified and had more than three years' experience.

Impact of Clearing	Yes/No or NA	Further Action Required
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, was suitably qualified and had more than three years' experience.

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