Clearing Assessment Report – CPS 818

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Materials Pits [REDACTED]
Great Northern Highway H006
Mid West Gascoyne Region
EOS: 2467

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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) proposes to upgrade Great Northern Highway (GNH) north of Meekatharra ([REDACTED]). 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. A potential pit area has been identified which is strategically placed to provide materials for upcoming works along GNH. Main Roads proposes to undertake material investigations and stockpiling of suitable road building materials at these 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, extraction and stockpiling of suitable road building materials for maintenance and construction purposes within proposed materials pits adjacent to the GNH, located at [REDACTED] (left hand side [LHS] and right hand side [RHS]). Project activities will be undertaken within a Development Envelope of approximately 89.1 ha, shown in Figure 1.

Note: An existing gravel extraction and cleared area exists between the RHS Development Envelope and GNH, however aerial imagery does not yet show this cleared area in the produced figures. No additional clearing is required to access this area.

Investigation works will consist of an initial visual assessment of vegetation and soil surface, followed by test-pitting using a backhoe. Investigation works within the pit area will involve the following activities:

- Surface vegetation clearing that is approximately 3m wide (width of backhoe blade)
- Excavation of test pits (2m x 1m) to a depth of approximately 1m.
- Collection of soil samples by a materials officer in a support vehicle.
- Backfilling of test pits (some pits may not be immediately backfilled).

Once investigation works are completed, vegetation will be left to regenerate naturally.

Following investigation, suitable materials will be extracted and stockpiled in cells to supply maintenance or construction projects when required. Works will be carried out in a staged approach. Each cell will be rehabilitated following the completion of extraction activities, which involves respreading topsoil and vegetation and ripping the surface. However, all clearing should be considered permanent clearing for the purposes of assessment under CPS 818.

1.3 Proposal Location

The Development Envelope is located adjacent to GNH at [REDACTED] (LHS + RHS), in the Shire of Meekatharra as shown in Figure 1. The nearest townsite is Meekatharra, located approximately 100 km to the south-west.

Main Roads proposes to establish materials pits adjacent to both sides of the road at SLK865, located at:

- Latitude: [REDACTED
- Longitude: [REDACTED]

Note: An existing gravel extraction and cleared area exists between the RHS Development Envelope and GNH, however aerial imagery does not yet show this cleared area in the produced figures. No additional clearing is required to access this area.

1.4 Clearing Details

Proposed Clearing to be undertaken using CPS 818: The Development Envelope to be assessed for clearing consists of 81.0 ha (LHS) and 8.1 ha (RHS) which totals up to 89.1 ha of clearing is proposed for assessment under CPS 818.

Areas of Native Vegetation Clearing:
The areas of native vegetation to be cleared are indicated within the boundary of the Development Envelope in Figure 3.

Type of Native Vegetation:

Two vegetation types were described and mapped across two broad landforms (hills: 8.1ha, 9.1% and plains: 80.3ha, 90.1%) within the Development Envelopes. Approximately 0.7 ha, 0.8% was already cleared.

The north-western boundary of the Development Envelope was characterised by low rocky hills and slopes of red-brown and orange hardpan shallow loam soils. The type of vegetation to be cleared in this area is described as: *Acacia incurvaneura* or *Acacia pteraneura* low open woodland.

Most of the Development Envelope comprised brown, orange and red loamy sand flat plains with ironstone and quartz rocks. These plains were characterised by low Acacia woodlands dominated by *Acacia incurvaneura* (+/- *Acacia mulganeura*) over mid sparse shrubland of *Eremophila forrestii* subsp. *forrestii*. Sparse hummock grasslands of *Triodia basedowii* and sparse to isolated tussock grasses were observed occurring in patches within this vegetation type.

The two vegetation types are shown in Figure 3.

[REDACTED]

Figure 1. Proposed Development Envelope / Clearing Area

[REDACTED]

Figure 2. Mapped Pre-European Vegetation Associations

[REDACTED]

Figure 3. Field Observed Vegetation Types within Proposed Development Envelope (source: 360 Environmental, 2022)

[REDACTED]

Figure 4. Vegetation Condition within Proposed Development Envelope (source: 360 Environmental, 2022)

[REDACTED]

Figure 5. Fauna Habitats within Proposed Development Envelope (source: 360 Environmental, 2022).

[REDACTED]

Figure 6. Surface Water Features

1.5 Alternatives to Native Vegetation Clearing Considered During Proposal Development

Alternatives to clearing are limited due to the remote nature of the area. Commercially sourcing the material from an alternative location is not viable due to the significant haulage distances and escalated haulage costs. Materials need to be located close to the project to provide a cost effective medium to long term supply.

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.
- Works will be undertaken in cells and in stages.
- Important environmental values will be avoided where possible.
- Once the pit is exhausted of material the pit it will be rehabilitated.

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.

SCOPE AND METHODOLOGY OF CLEARING ASSESSMENT

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).

2

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:

- **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. In this case, the Clearing Area and the Development Envelope are synonymous. 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.

- **Study Area** – Area covered by the Desktop Assessment in the Biological Survey. The Study Area for the Proposal in the Biological Survey was 50km radius. Additional desktop surveys of Main Roads restricted datasets were undertaken for a 20km radius.

- **Survey Area** – Area covered by the Biological Survey, which in this instance is the same as 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 8.

2.3 Surveys and Assessments

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

- Great Northern Highway [REDACTED] Materials Pit – Biological Report (360 Environmental, 2022).

A summary of the methodology and the results of the above surveys are provided in Section 3.

SUMMARY OF SURVEY

3.1 Overview of Surveys

The Biological survey conducted for the proposal is outlined in Table 1.

Table 1. Summary of Biological Survey details

Consultant & Survey Name	Survey Details
360 Environmental (2022) Great Northern Highway SLK 865 Materials Pit	**Survey Area:** Survey area comprised approximately 89 ha adjacent to both sides of GNH between [REDACTED]. LHS area is approximately 81 ha and RHS area is approximately 8.1 ha. **Type:** Biological survey (detailed and targeted flora and vegetation survey, and basic terrestrial vertebrate fauna). 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 from 11th to 12th October 2021. **Shapefile TRIM Ref:** D22#948371 **Document TRIM Ref:** D22#948356

3.2 Summary of Flora and Vegetation Surveys

Main Roads appointed 360 Environmental to conduct a biological survey along Great Northern Highway (SLK 865) encompassing two potential materials pit areas on either side of the road, within the Shire of Meekatharra. The purpose of the survey is to delineate key flora, fauna, soil, groundwater and surface water values of the survey area, and identify their potential sensitivity to impacts resulting from road works (road widening and gravel extraction). Total extent of survey area was 89.1ha, including the assessment of three floristic quadrats in each of the vegetation types observed, surveyed on 11 – 12 October 2021.

The detailed and targeted flora and vegetation survey was undertaken in accordance with EPA guidelines (Environmental Protection Authority, 2016b) and was considered appropriate to support approvals applications. The key findings of the biological survey are detailed below.

Flora and Vegetation

The flora desktop assessment identified 22 significant taxa occurring within 50 km of the Survey Area. A pre-survey likelihood of occurrence assessment was undertaken and determined one taxon as having a high likelihood of occurrence, four taxa as having a medium likelihood of occurrence, and seventeen taxa as having a low likelihood of occurrence.

The detailed flora and vegetation survey recorded the floristic composition and vegetation types from eight flora quadrats, in addition to mapping notes and opportunistic observations. A total of 54 flora taxa were recorded from 24 genera across 16 families.

No Threatened flora taxa pursuant to the *Environment Protection and Biodiversity Conservation Act 1999* and/or gazetted as Threatened pursuant to the *Biodiversity and Conservation Act 2016* were recorded during the survey. No Priority flora taxa were recorded within the Survey Area.

No introduced flora taxa were recorded during the survey.

Two vegetation types were described and mapped across two broad landforms (hills and plains) within the Survey Area. Vegetation in the Survey Area was representative of existing broad scale vegetation, and soil and land system mapping for the area.

Vegetation condition within the Survey Area ranged from Very Good to Completely Degraded with the majority considered to be in Very Good condition. Evidence of disturbance included clearing, vehicle tracks, human disturbance, litter, and introduced fauna.

Fauna

The vertebrate fauna desktop assessment identified 17 significant species occurring within 50 km of the Survey Area. An assessment of the likelihood of occurrence within the Survey Area was undertaken and identified that of the potential significant fauna, zero had a high likelihood of occurrence, two had a medium likelihood of occurrence, and 15 had a low likelihood of occurrence.

Fauna habitat mapping was based on a combination of field observations, fauna habitat assessment data, vegetation mapping produced by 360 Environmental, and aerial imagery. Three fauna habitats were mapped within the Survey Area, none of which were deemed critical to significant fauna taxa.

No threatened or priority significant fauna species were recorded during the fauna survey.

Two introduced species were recorded during the survey, European Cattle (*Bos primigenius taurus*) and European Rabbit (*Oryctolagus cuniculus*).

VEGETATION DETAILS

4.1 Proposal Site Vegetation Description

The proposal is located in the Murchison IBRA bioregion within the Shire of Meekatharra. The Development Envelope and surrounds consist of native vegetation with little previous disturbance.

4 A biological survey conducted over the proposed materials pit mapped two native vegetation types within the Development Envelope (360 Environmental, 2022), as described in Table 2, (Figure 3). The remainder of the Development Envelope was cleared (0.7 ha, 0.8%).

The condition of the native vegetation within both vegetation types was considered Very Good (Table 2).

Table 2. Summary of Vegetation Types within Development Envelope

Vegetation Type	Vegetation Condition	Extent (ha) within Development Envelope	Extent (%) within Development Envelope
H1: *Acacia incurvaneura or Acacia pteraneura low open woodland to low woodland*	Very Good	8.1 ha	9.1 %
P1: *Acacia incurvaneura* (+/- *Acacia mulganeura*) low open woodland to low woodland over *Eremophila forrestii* subsp. *forrestii* low to mid isolated shrubs to sparse shrubland (over *Triodia basedowii* low sparse hummock grassland over Poaceae sp. low isolated tussock grasses to sparse tussock grassland)	Very Good	80.3 ha	90.1 %
Cleared	Completely Degraded	0.7 ha	0.8 %

Broadscale mapping indicated two pre-European vegetation associations mapped over the Development Envelope: Wiluna 29 and Wiluna 107 (Figure 2). Table 3 provides details of the vegetation associations within the Development Envelope and the remaining extents of these associations. Both vegetation associations have over 99.95% of their pre-European extent remaining.

Table 3. 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. Wiluna 29	**Statewide**	7,903,991.45	7,898,973.24	99.9	0.3
	IBRA Bioregion Murchison	2,956,382.06	2,955,695.34	99.98	0
	IBRA Sub-region Eastern Murchison	796,235.27	796,026.03	99.97	0
Veg Assoc No. Wiluna 107	**Statewide**	2,815,387.35	2,813,995.93	99.95	1.65
	IBRA Bio region Murchison	2,792,383.45	2,790,992.03	99.95	1.67
	IBRA Sub-region Eastern Murchison	2,785,303.02	2,783,911.60	99.95	1.67

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 considered not likely to be at variance with Clearing Principles a, b, g, i, and j; and is considered not at variance with Clearing Principles c, d, e, f, and h.

(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 89.1 ha of native vegetation over two material pits located adjacent to either side of Great Northern Hwy at SLK 865. These areas are proposed to be cleared for the purpose of investigating, extracting and stockpiling of materials. The clearing will be staged over a number of years and progressively rehabilitated after each area is exhausted. The clearing will occur within the confines of the Development Envelope.

The vegetation throughout the Development Envelope is mostly considered of 'Very Good' condition with a small area of 0.7 ha Completely Degraded/cleared.

The Biological Survey (360 Environmental, 2022) mapped two vegetation types in the Development Envelope:

- H1: *Acacia incurvaneura* or *Acacia pteraneura* low open woodland to low woodland;
- P1: *Acacia incurvaneura* (+/- *Acacia mulganeura*) low open woodland to low woodland over *Eremophila forrestii* subsp. *forrestii* low to mid isolated shrubs to sparse shrubland (over *Triodia basedowii* low sparse hummock grassland over *Poaceae* sp. low isolated tussock grasses to sparse tussock grassland).

Neither of these vegetation types are considered to contain Threatened or Priority Ecological Communities. EPA (2016a) describes vegetation can be of significance for a range of reasons, other than a listing as a TEC or a PEC, including:

- Vegetation extent being below a threshold level
- Scarcity
- Unusual species
- Novel combinations of species
- A role as a refuge
- A role as a key habitat for threatened species or large populations representing a significant proportion of the local to regional total population of a species
- Being representative of the range of a unit (particularly a good local and/or regional example of a unit in 'prime' habitat, at the extremes of range, recently discovered range extensions, or isolated outliers of the main range); and/or
- A restricted distribution.

Neither of the two vegetation types in the Development Envelope are considered to contain any of these values, and are not considered locally significant or restricted, with 99.9% extent remaining at the IBRA sub-region, IBRA region, and State level.

Database searches identified 22 significant flora taxa occurring within 50 km of the Development Envelope (360 Environmental, 2022), comprising:

- No Threatened taxa
- Eight Priority 1 taxa
- One Priority 2 taxon
- Eleven Priority 3 taxa
- Two Priority 4 taxa.

The pre-survey likelihood of occurrence assessment identified that of the 22 significant flora species identified by the desktop assessment:

- None had previously been recorded within the Development Envelope
- One was considered to have a high likelihood of occurrence
- Four were considered to have a medium likelihood of occurrence
- Seventeen were considered to have a low likelihood of occurrence.

Following the field survey, the likelihood of occurrence was reassessed and found:

- One taxon was considered to have a high likelihood of occurrence
- Three taxa were considered to have a medium likelihood of occurrence
- Eighteen taxa were considered to have a low likelihood of occurrence.

The taxon considered to have a high or medium likelihood of occurrence (post-survey) are:

Flora Identified in Desktop	Likelihood of occurring in the Development Envelope area (post-survey)	Preferred Habitat?
Eremophila sp. *Meekatharra* (D.J. Edinger 4430) – Priority 1	Medium	Rocky slops, outcropping laterite
Ptilotus actinocladus- Priority 1	Medium	Plains and floodplains. Brown clay.
Indigofera fractiflexa subsp. *augustensis* – Priority 2	Medium	Hill crest and slopes or rocky creeklines. Shallow red brown sandy loam. Ironstone and quartz.
Ptilotus luteolus – Priority 3	High	Loam, clay, red-orange clay loam over laterite, brown rocky soils with quartzite and shale. Gravely slopes, banded ironstone formations, outcrops, hill sides, rock platforms near river channel.

The likelihood of occurrence ratings are based on the species' preferred habitat being located within the Development Envelope. Both of the vegetation types within the Development Envelope have >99.9% remaining within their IBRA subregion, with over 796,000 ha and 2,783,900 ha of the respective vegetation types remaining, with the Priority species likely to have a similar likelihood of occurrence over these vast areas. The vegetation within the Development Envelope is therefore not considered significant, unique or to contain high levels of diversity when compared with the vast expanse of vegetation surrounding the Development Envelope.

The Development Envelope is not considered to comprise a high level of biological diversity as:

- there were no Priority or Threatened Ecological Communities identified or considered likely to occur within the Development Envelope;
- there were no Priority or Threatened flora identified during the survey within the Development Envelope, with only one Priority 3 species considered to have a high likelihood of occurrence, although not identified during the site survey;
- there were no habitats of significance or significant fauna identified or considered likely to occur within the Development Envelope;
- only two vegetation types were identified within the surveyed area and both have >99.9% extent remaining at the IBRA sub-region, IBRA region, and State level.

The clearing of vegetation is therefore considered not likely to be at variance with this principle.

Methodology

- Biological Survey (360 Environmental, 2022)
- DCCEEW Protected Matters Search Tool Report (Accessed 12/05/23)
- Government GIS Shapefiles:
  - DBCA Threatened and Priority Ecological Community database search (Accessed 12/05/23)
  - DBCA Threatened and Priority flora database search (Accessed 12/05/23)
- Statewide Vegetation Statistics (Government of Western Australia 2018)

(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 likely to be at variance to this Principle.

Assessment

The vertebrate fauna desktop assessment identified 17 significant species occurring within 50 km of the Development Envelope. An assessment of the likelihood of occurrence within the Development Envelope was undertaken and identified that of the potential significant fauna, zero had a high likelihood of occurrence, two had a medium likelihood of occurrence, and 15 had a low likelihood of occurrence (adapted from 360 Environmental, 2022):

Table 4. Likelihood of occurrence – Fauna species (360 Environmental, 2022)

Fauna Identified in Desktop	Likelihood of occurring in the Development Envelope area	Justification
Oriental Plover (*Charadrius veredus*)	Low	No nearby records identified from the database searches or literature. Only returned by PMST which searches by modelled distribution, not actual records (Department of Agriculture Water and the Environment, 2021). No suitable habitat present in Survey Area (grasslands, thinly vegetated plains) (Pizzey and Knight, 2013).
Grey Falcon (*Falco hypoleucos*)	Low	No nearby records identified from the database searches or literature. Only returned by PMST which searches by modelled distribution, not actual records (Department of Agriculture Water and the Environment, 2021). No suitable habitat present in Survey Area (open plains with treed watercourses in arid inland) (Pizzey and Knight, 2013).
Peregrine Falcon (*Falco peregrinus*)	Medium	Seven DBCA records within 50 km of the Survey Area, including records from 13.5 km southwest of the Survey Area in 2007 and 17.5 km northeast of the Survey Area in 2011 (Department of Biodiversity Conservation and Attractions, 2021). No suitable nesting habitat present in Survey Area (cliff faces preferred for nesting, commonly uses stick nests built by other birds) (Pizzey and Knight, 2013). May use the Survey Area for hunting.
Malleefowl (*Leipoa ocellata*)	Low	One DBCA record within 50 km of the Survey Area which occurred 21.5 km north northwest of the Survey Area in 2006 (Department of Biodiversity Conservation and Attractions, 2021). No suitable habitat present in the Survey Area (unburned mallee and woodland with abundant litter and low scrub) (Pizzey and Knight, 2013).
Grey Wagtail (*Motacilla cinerea*)	Low	No nearby records identified from the database searches or literature. Only returned by PMST which searches by modelled distribution, not actual records (Department of Agriculture Water and the Environment, 2021). No suitable habitat present in Survey Area (fresh sandy or rocky streams, mown grass, ploughed land) (Pizzey and Knight, 2013).
Yellow Wagtail (*Motacilla tschutschensis*)	Low	No nearby records identified from the database searches or literature. Only returned by PMST which searches by modelled distribution, not actual records (Department of Agriculture Water and the Environment, 2021). No suitable habitat present in Survey Area (swamp-margins, saltmarshes, ploughed lands) (Pizzey and Knight, 2013).
Night Parrot (*Pezoporus occidentalis*)	Low	No nearby records identified from the database searches or literature. Only returned by PMST which searches by modelled distribution, not actual records (Department of Agriculture Water and the Environment, 2021). No suitable habitat present in Survey Area (long unburnt spinifex and samphire bushes on margins of salt lakes) (Pizzey and Knight, 2013).
Princess Parrot (*Polytelis alexandrae*)	Low	No nearby records identified from the database searches or literature. Only returned by PMST which searches by modelled distribution, not actual records (Department of Agriculture Water and the Environment, 2021). No suitable habitat present in Survey Area (spinifex with Eucalyptus, Acacia, desert oaks, hakeas around salt lakes) (Pizzey and Knight, 2013).

Common Sandpiper (*Actitis hypoleucos*)	Low	One DBCA record within 50 km of the Survey Area, which occurred 13.5 km southwest of the Survey Area in 2006 (Department of Biodiversity Conservation and Attractions, 2021). No suitable habitat present in Survey Area (coastal and inland wetlands, river pools, mangroves, beaches) (Pizzey and Knight, 2013).
Sharp-tailed Sandpiper (*Calidris acuminata*)	Low	Three DBCA records within 50 km of the Survey Area, which all occur 47 km west of the Survey Area in 2014 (Department of Biodiversity Conservation and Attractions, 2021). No suitable habitat present in Survey Area (fresh to saline wetlands, lagoons, swamps, temporary floodwaters) (Pizzey and Knight, 2013).
Curlew Sandpiper (*Calidris ferruginea*)	Low	No nearby records identified from the database searches or literature. Only returned by PMST which searches by modelled distribution, not actual records (Department of Agriculture Water and the Environment, 2021). No suitable habitat present in Survey Area (inter-tidal mudflats, lagoons, lakes, dams, flooded saltbush surrounds of inland lakes) (Pizzey and Knight, 2013).
Pectoral Sandpiper (*Calidris melanotos*)	Low	No nearby records identified from the database searches or literature. Only returned by PMST which searches by modelled distribution, not actual records (Department of Agriculture Water and the Environment, 2021). No suitable habitat present in Survey Area (fresh to saline coastal and inland wetlands, mudflats, swamps with heavy overgrowth of vegetation) (Pizzey and Knight, 2013).
Red-necked Stint (*Calidris ruficollis*)	Low	One DBCA record within 50 km of the Survey Area which occurred 13.5 km southwest of the Survey Area in 2003 (Department of Biodiversity Conservation and Attractions, 2021). No suitable habitat present in Survey Area (mudflats, salt marshes, beaches, temporary floodwaters) (Pizzey and Knight, 2013).
Common Greenshank (*Tringa nebularia*)	Low	One DBCA record within 50 km of the Survey Area which occurred 23 km southwest of the Survey Area in 1980 (Department of Biodiversity Conservation and Attractions, 2021). No suitable habitat present in Survey Area (coastal and inland wetlands, swamps, lakes, mudflats, mangrove swamps) (Pizzey and Knight, 2013).
Long-tailed Dunnart (*Sminthopsis longicaudata*)	Medium	Four DBCA records within 50 km of the Survey Area, which occurred 19.5 km and 20.5 km northwest of the Survey Area in 2009 (Department of Biodiversity Conservation and Attractions, 2021). Limited suitable habitat (low rock outcropping and Acacia woodland) present in Survey Area (arid zone scree slopes, boulders, stony plateaus, stony plains with shrubs over spinifex hummock grasslands) (Van Dyck, Gynther and Baker, 2013).
Banded Hare-wallaby (*Lagostrophus fasciatus fasciatus*)	Low	No wild mainland populations, restricted to islands and fenced reserves (Department of Environment and Conservation, 2012). No suitable habitat present in Survey Area (dense thickets of Acacia and Alectryon scrub on sandplains, Diplolaena and Acacia scrub on dunes) (Van Dyck, Gynther and Baker, 2013).
Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia Pilbara form*)	Low	No nearby records identified from the database searches or literature. Only returned by PMST which searches by modelled distribution, not actual records (Department of Agriculture Water and the Environment, 2021). No suitable habitat present in Survey Area (gorges, gullies, humid cave systems, spinifex hummock grasslands) (Van Dyck, Gynther and Baker, 2013).

Two significant fauna species were considered to have a medium likelihood of occurrence:

- Peregrine Falcon (*Falco peregrinus*) may use all habitats (88.5 ha) within the Development Envelope for hunting.
- Long-tailed Dunnarts (*Sminthopsis longicaudata*) may use rock crevices found in the low rocky outcropping (0.2 ha) and Acacia woodland (8.0 ha) habitats within the Development Envelope for shelter and foraging.

The habitat within the Development Envelope is not considered significant for any of the above listed species as contiguous vegetation and habitat extends for vast distances beyond the Development Envelope. No fauna species of significance (Threatened or Priority), or evidence of these species such as tracks, scats, nest, diggings, burrows, or direct sightings were recorded within or directly surrounding the Development Envelope (360 Environmental, 2022).

A separate desktop search was also undertaken for records of invertebrate fauna of conservation significance within a 20km radius from the proposed clearing area. No records were identified (DBCA Restricted Fauna datasets, 2023; DCCEEW Protected Matters Search Tool, 2023)

Fauna habitat mapping was based on a combination of field observations, fauna habitat assessment data, vegetation mapping produced by 360 Environmental, and aerial imagery. Three fauna habitats were mapped within the Development Envelope:

- Acacia woodland: *Acacia incurvaneura* or *Acacia pteraneura* woodland on rocky substrate (8.9%).
- Acacia woodland over hummock/tussock grassland: *Acacia incurvaneura* low woodland over *Eremophila forrestii* subsp. *forrestii* shrubs over *Triodia basedowii* hummock grassland and/or *Poaceae* sp. tussock grassland on sandy loam (90.1%).
- Low rock outcropping: Low rock outcrop with *Acacia incurvaneura* or *Acacia pteraneura* woodland on rocky substrate (0.2%)

None of these fauna habitats were deemed significant habitats for fauna species.

No Threatened or Priority significant fauna species were recorded during the fauna survey.

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

Methodology

- Biological Survey (360 Environmental, 2022)
- DCCEEW Protected Matters Search Tool Report (Accessed 09/05/23)
- GIS database – DBCA Restricted Fauna

(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

The desktop assessment of a 50km study area found no records of Threatened flora species. Similarly the biological survey did not identify any Threatened flora species.

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

Methodology

- Biological Survey (360 Environmental, 2022).

(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

The desktop assessment of a 50km study area found no records of Threatened Ecological Communities. Similarly, the biological survey did not identify any Threatened Ecological Communities present.

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

Methodology

- Biological Survey (360 Environmental, 2022).

(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 proposal is located in the Murchison IBRA bioregion. The proposal and surrounds consist of native vegetation with little previous disturbance and of condition considered 'very good'.

Mapping of pre-European vegetation in Western Australia was completed on a broad scale (1:1,000,000) by Beard (1976). These vegetation types were later refined by Shepherd *et al.* (2002) resulting in 819 vegetation types. Two broadscale pre-European vegetation system associations were mapped over the Development Envelope: Wiluna 29 and Wiluna 107 (Figure 2).

- **Wiluna 29:** Low woodland, open low woodland, or sparse woodland. Mulga (*Acacia aneura*) and associated species. This vegetation association represents 1.0% of the Development Envelope.
- **Wiluna 107:** Shrub-steppe. Hummock grassland with scattered shrubs or mallee (*Triodia* spp., *Acacia* spp., *Grevillea* spp., and *Eucalyptus* spp.). This vegetation association represents 99.0% of the Development Envelope.

Both vegetation associations have over 99.9% of their pre-European extent remaining at state, IBRA bioregion and IBRA sub-region level, shown in Table 5.

Table 5. 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. Wiluna 29	**Statewide**	7,903,991.45	7,898,973.24	99.9	0.3
	IBRA Bioregion Murchison	2,956,382.06	2,955,695.34	99.98	0
	IBRA Sub-region Eastern Murchison	796,235.27	796,026.03	99.97	0
Veg Assoc No. Wiluna 107	**Statewide**	2,815,387.35	2,813,995.93	99.95	1.65
	IBRA Bio region Murchison	2,792,383.45	2,790,992.03	99.95	1.67
	IBRA Sub-region Eastern Murchison	2,785,303.02	2,783,911.60	99.95	1.67

A biological survey conducted over the proposed materials pit mapped two native vegetation types within the Development Envelope (360 Environmental, 2022), as described in Table 6.
(Figure 3).

Table 6. Summary of Vegetation Types within Development Envelope

Vegetation Type	Vegetation Condition	Extent (ha) within Development Envelope	Extent (%) within Development Envelope
H1: *Acacia incurvaneura* or *Acacia pteraneura* low open woodland to low woodland	Very Good	8.1 ha	9.1 %
P1: *Acacia incurvaneura* (+/- *Acacia mulganeura*) low open woodland to low woodland over *Eremophila forrestii* subsp. *forrestii* low to mid isolated shrubs to sparse shrubland (over *Triodia basedowii* low sparse hummock grassland over Poaceae sp. low isolated tussock grasses to sparse tussock grassland)	Very Good	80.3 ha	90.1 %
Cleared	Completely Degraded	0.7 ha	0.8 %

The suite of flora taxa recorded during the survey is considered typical for the Eastern Murchison subregion (Beard, 1976; Cowan, 2001) and aligns with the database search results obtained. Neither of these vegetation types within this subregion are considered locally significant or restricted and is not considered significant as a remnant of native vegetation (360 Environmental, 2022).

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

Methodology

- Aerial photography
- Biological Survey (360 Environmental, 2022)
- Government GIS shapefiles:
  - Pre-European vegetation (Accessed 09/05/23)
  - Vegetation complexes (Accessed 09/05/23)
- Statewide Vegetation Statistics (Government of Western Australia 2018)

(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, and the biological survey did not record any surface water features or riparian vegetation.

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

Methodology

- Biological Survey (360 Environmental, 2022)
- Government GIS shapefiles:
  - Geomorphic Wetlands (Accessed 09/05/23)
  - Ramsar Wetlands (Accessed 09/05/23)
  - Important Wetlands (Accessed 09/05/23)
  - Watercourses (Accessed 09/05/23)
  - RIWI Act Rivers (Accessed 09/05/23)

(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

Soil Landscape Mapping – Zones - describes the development envelope as occurring within '*Paroo Uplands Zone*: *Hills, hardpan wash plains and stony plains on Yerrida, Bryah and Padbury Basins sedimentary rocks and Marymia Inlier granitic and volcanic rocks with Red-brown hardpan shallow loams, Red loamy earths and Stony soils*' (GIS database: DPIRD-017).

Soil Landscape Mapping – systems – describes the development envelope as occurring in the '*BE8 atlas system*', which is described as '*partially dissected pediments extending out from areas of unit Fa7; there may be a surface cover of gravels*' (GIS database: DPIRD-064).

A review of CSIRO shapefiles indicates that the probability of occurrence of acid sulfate soils is 'extremely low'. There are no mapped indications of salinity risks (GIS database: DAFWA-011).

The area proposed for clearing within the Development Envelope does not contain any water features or floodplain areas. Furthermore, there is no dewatering proposed.

The bioclimate is described by Beard (1990) as mainly Eremaean. This is a desert climate, commonly with 12 dry months a year. Most rainfall is in the 200-250 mm range. Typically, there is an even chance of summer or winter precipitation, though in the northern half of the Murchison (containing the Development Envelope), there is a tendency for summer rain, where precipitation drops below 200 mm (Tille, 2006).

The clearing and use of pit 865 for extraction will be staged, with smaller areas opened up, closed and progressively rehabilitated. Clearing of vegetation and proposed extraction of material, in this context, is unlikely to result in appreciable land degradation. Works areas 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 wind and water erosion. It is also unlikely this staged method will result in increased risks of waterlogging.

Works will be conducted in accordance with the Main Roads Standard CEMP to ensure any land degradation issues are appropriately addressed.

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

Methodology

- Biological Survey (360 Environmental, 2022)
- Bureau of Meteorology Australia. (2023). Climate Averages for Australian Sites – Meekatharra – Available online from http://www.bom.gov.au/climate/data/index.shtml (Accessed 12/05/23).
- Government GIS Shapefiles:
  - Acid Sulphate Soil Risk Map (Accessed 08/05/23)
  - Contaminated Sites Database (DWER-059) (Accessed 08/05/23)
  - CSIRO – Acid Sulfate Soils (Accessed 08/05/23)
  - Flood Risk (DAFWA-009) (Accessed 08/05/23)
  - Salinity Risk (DAFWA-011) (Accessed 08/05/23)
  - Soil landscape land quality – Land Instability Risk (DPIRD-042) (Accessed 08/05/23)
  - Soil landscape land quality – Zones (DPIRD-017) (Accessed 08/05/23)

- Soil landscape land quality – Water Erosion Risk (Accessed 08/05/23)
- Soil landscape land quality – Wind Erosion Risk (DPIRD-016) (Accessed 08/05/23)
- Soil landscape land quality – Salinity Risk (Accessed 08/05/23)
- Soil landscape land quality – Surface Acidity (Accessed 08/05/23)
- Soil landscape land quality – Waterlogging Risk (Accessed 08/05/23)
- Soil landscape land quality – Flood Risk (DPIRD-007) (Accessed 08/05/23)
- Wind Erosion Risk (DAFWA-017) (Accessed 08/05/23)
- Waterlogging Risk (DAFWA-016) (Accessed 08/05/23)
- Water Erosion (DAFWA-014) (Accessed 08/05/23)

- Tille, P J. (2006), *Soil-landscapes of Western Australia's rangelands and arid interior*. Department of Primary Industries and Regional Development, Western Australia, Perth. Report 313

(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 at variance to this Principle.

Assessment

Proposed clearing will not directly impact on the values of any conservation areas.

The nearest conservation area is the Collier National Park, located over 100km north of the proposed clearing boundary. Given the distance between the proposed clearing and the conservation area, there will be no impacts to this area.

Therefore the proposed clearing is not at variance to this Principle.

Methodology

- Government GIS Shapefiles:
  - DBCA Legislated Lands and Waters & Lands of Interest (Accessed 09/05/23)
  - Geomorphic Wetlands (conservation category wetlands only) (Accessed 09/05/23)
  - Ramsar Wetlands (Accessed 09/05/23)
  - Important Wetlands (Accessed 09/05/23)
  - Clearing Regulations – Environmentally Sensitive Areas (DWER-046) (Accessed 09/05/23)
  - Offsets Register – Projects (DWER-079) (Accessed 09/05/23)
  - Offsets Register – Offsets (DWER-078) (Accessed 09/05/23).

(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

No hydrographic features intersect the Development Envelope. Hydrographic features in the vicinity of the Development Envelope are described in Table 7 and shown in Figure 6 (Department of Water and Environmental Regulation, 2018).

Table 7: Hydrographical Features in the Vicinity of the Survey Area (360 Environmental, 2022)

Hydrographical Feature	Description
Mainstream – Murchison River	A mainstream originating 21.6 km north of the Survey Area that flows in a south-westerly direction. The Murchison River is located approximately 7.2 km west of the Survey Area.
Minor River	A minor river that originates approximately 10.4 km east of the Survey Area. The minor river flows in a northerly direction and joins the Gascoyne River approximately 62.6 km north of the Survey Area.
Minor Tributary	A minor tributary that flows in a westerly direction and is located approximately 4.2 km south of the Survey Area. This hydrographic feature joins the Murchison River approximately 11.2 km west of the Survey Area.
Minor Tributary	A minor tributary that flows in a southerly direction and joins the Murchison River approximately 8.0 km west of the Survey Area.
Watercourse – minor	A minor, non-perennial watercourse that flows in a westerly direction and is located approximately 116 m north of the Survey Area.

The field survey did not identify any riparian vegetation or changes in vegetation that may have been associated with the Watercourse-minor described in Table 7, some 116m north of the proposed clearing within the Development Envelope (360 Environmental, 2022). There is also a band of rocky hills that separates the Development Envelope and the Watercourse-minor.

No dewatering or drainage modifications are required for the proposal, hence no change to groundwater level or quality is anticipated.

The development envelope does not occur within a mapped Public Drinking Water Source Area or their protection zones and are not located within a proclaimed Surface or Groundwater Area. The nearest proclaimed or protected area lies over 3.8km north of the Development Envelope and is not anticipated to be impacted by the proposal.

GIS datasets indicate there are no mapped risks associated with salinity, acid sulfate soils, waterlogging, wind erosion or water erosion.

Based on the above, the proposed clearing of native vegetation within the Development Envelope is not likely to be at variance to this principle.

Methodology

- Biological Survey (306 Environmental, 2022)
- Government GIS Shapefiles:
  - RIWI Act, Surface Water Areas and Irrigation Districts (Accessed 09/05/23)
  - CAWSA Part 2A Clearing Control Catchments (Accessed 09/05/23)
  - RIWI Act, Groundwater Areas (Accessed 09/05/23)
  - Soil landscape land quality - Salinity Risk (Accessed 09/05/23)
  - Groundwater Salinity Statewide (Accessed 09/05/23)
  - Soil Mapping (Accessed 09/05/23)
  - Acid Sulphate Soil risk mapping (Accessed 09/05/23)
  - Soil landscape land quality - Subsurface Acidification Risk (Accessed 09/05/23)

(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

The closest long-term Bureau of Meteorology weather station with a complete dataset is Meekatharra Airport (Station 7045), located approximately 104 km southwest of the Development Envelope. The Meekatharra Airport weather station has a long-term average of 233.7 mm (Bureau of Meteorology, 2021), i.e. this area experiences very low annual rainfall totals, with high evaporation rates.

The clearing and use of pit 865 for extraction will be staged, with smaller areas opened up, closed and progressively rehabilitated. Clearing of vegetation and proposed extraction of material, in this context, is unlikely to result in, or exacerbate, the incidence or intensity of flooding. Works areas 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 wind and water erosion. It is also unlikely this staged method will result in increased risks of waterlogging.

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

Based on the low rainfall, significant amount of vegetation remaining in the surrounding local area, and the proposed staging of the clearing and extraction activity in smaller cells, the proposed clearing is not likely to be at variance to this principle.

Methodology

- Biological Survey (360 Environmental, 2022)
- BoM Website (Accessed 2021)
- Government GIS Shapefiles:
  - Soil Mapping (Accessed 09/05/23)
  - Contours (Accessed 09/05/23)
  - Soil landscape land quality - Waterlogging Risk (Accessed 09/05/23)
  - Soil landscape land quality - Flood Risk (Accessed 09/05/23)
  - FPM Flood level Contours (m AHD) (DWER-018) (Accessed 09/05/23)
  - FPM Floodplain Area (DWER-020)

STAKEHOLDER CONSULTATION

Main Roads will undertake stakeholder consultation in accordance with CPS 818 Condition 8.

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COMPLIANCE WITH CPS 818

Table 8 summarises what further pre-clearing impact assessment is required in accordance with CPS 818.

Table 8. 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.

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

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Principal Environmental Management Requirements (PEMR's)

Table 1: Clearing PEMR

STANDARD MANAGEMENT REQUIREMENTS
PRE WORKS 1. The Contractor must prepare, implement and maintain processes to ensure that the movement of all vehicles, plant and machinery does not occur outside of the Limits of Vegetation Clearing. This must include all turnaround areas. 2. The Contractor must minimise vegetation clearing and the area of disturbance on ground by utilising existing cleared area where possible.
DURING WORKS 1. The Contractor must report any damage to vegetation beyond the Limits of Vegetation Clearing as an Environment Incident. 2. The Contractor must ensure Movements are confined to the Limits of Vegetation Clearing during the works. 3. The Contractor must undertake the clearing in accordance with the Fauna PEMR.
POST WORKS NIL

Table 2: Erosion and Sedimentation Control PEMR

PRE WORKS

1. The Contractor must develop, implement and maintain processes and procedures to ensure that:
    a. The Contractor is responsive to and addresses incidents of erosion and sedimentation within and adjacent to the work areas;
    b. Prevent water and wind soil erosion within and adjacent to the works areas;
    c. Prevent the sedimentation and siltation of watercourses located within and adjacent to the works area;
    d. Ensure that sedimentation and siltation of drainage lines due to the removal of riparian vegetation is avoided, minimised and mitigated;
    e. Ensure that loose surfaces and recently cleared areas are protected from wind and soil erosion;
    f. Minimise exposed soil working surfaces or protect them from stormwater erosion;
    g. Ensure material such as gravel, crushed rock and excavated material is stockpiled away from drainage paths and covered to prevent erosion; and,
    h. Ensure that water quality monitoring is undertaken when turbidity and sedimentation is an issue.

DURING WORKS

1. Implement, monitor and adhere to the sedimentation and erosion processes developed to address the requirements in the pre-works.

POST WORKS

1. If required, the Contractor must continue to monitor water quality until the turbidity/sedimentation dissipates.
2. The Contractor must ensure that disturbed areas are stabilised as soon as is practicable after construction activities are completed.

Table 3: Fauna Management PEMR

PRE WORKS

1. The Contractor must ensure that fauna management requirements are communicated to the crew undertaking the clearing works during the induction and pre-start meeting.
2. Where active nests, burrows or dens are identified, works must not proceed until the Contractor obtains the Superintendents approval for the management of active nests, burrows or dens and adheres to the Superintendents advice.

DURING WORKS

2. The Contractor must undertake the clearing in the following manner to allow fauna to move out of the clearing area;
    a. Prior to the clearing activities commencing, use machinery to tap large trees with habitat hollows to encourage any animals evacuate; and,
    b. Undertake the clearing in one direction and towards areas of native vegetation to allow the animals to escape to adjacent habitat.
3. The Contractor must ensure that all onsite personnel undertake visual monitoring and are vigilant to the presence of fauna. Any sightings of fauna, including injury or fatality, must be reported as an Environmental Incident.
4. The Contractor must ensure that:
    a. No pets, traps or firearms are brought into the project area;
    b. Fauna are not fed;
    c. Fauna are not intentionally harmed or killed; and,
    d. Fauna that venture into the work area are encouraged to leave in a manner that does not harm the animal or operator (loud noise, slowly approaching in a vehicle etc.).
5. The Contractor must ensure that in the event that sick, injured or orphaned native wildlife are located on the project site, the WILDCARE Helpline ((08) 9474 9055) will be contacted for assistance. The Contractor must maintain records of any animal taken to a wildlife carer.

POST WORKS

1. The Contractor must provide any records of fauna impact to the Superintendent.

Table 4: Machinery and Vehicle Management PEMR

PRE WORKS

1. The Contractor must ensure that all areas associated with the storage, parking, servicing, wash down and refuelling of all vehicles, plant and machinery is located within the Limits of Clearing and approved by the Superintendent.
2. The Contractor must ensure that all vehicles, machinery and plant are clean on entry (i.e. free of all soil and vegetation material) and comply with the requirements of 204.B.32.
3. The Contractor must ensure that vehicle servicing and refuelling will be undertaken at designated areas approved by the Superintendent.
4. The Contractor must ensure that all staff suitably qualified and competent to undertake works, especially refuelling activities.

DURING WORKS

1. The Contractor must maintain records of checking all vehicles, machinery and plant are clean on entry.

POST WORKS

NIL

Table 5: Mulch and Topsoil Management PEMR

PRE WORKS

1. The Contractor must ensure that the movement of soil and vegetation is only undertaken in dry conditions unless otherwise approved and / or directed by the Superintendent.
2. The Contractor must ensure that poor quality topsoil and mulched vegetation does not contaminate the good quality topsoil and vegetation.

DURING WORKS

1. The Contractor must ensure that all machinery used in the removal of weed-infested topsoil must be cleaned down before and between operations to prevent the introduction and spread of weeds.
2. The Contractor must ensure the movement of large equipment over topsoil materials is avoided to minimise compaction.
3. The Contractor must ensure that Dieback and weed infected topsoil and mulch vegetation must be handled separately to minimise the risk of spreading dieback and weed species across the site and stockpiles.
4. The Contractor must ensure that stockpiling operations must occur in a manner to ensure that the properties of the topsoil are not degraded and the topsoil made unsuitable for use in revegetation are not degraded and the topsoil made unsuitable for use in revegetation.

POST WORKS

Nil

Table 6: Weed Management PEMR

PRE WORKS

1. The Contractor must remove or kill any weeds growing in proposal area that are likely to spread and result in environmental harm to adjacent areas of native vegetation that are in good or better condition.
2. The Contractor must develop, implement and maintain procedures to identify and control declared and invasive weed species within the Contract areas, to the satisfaction of the Superintendent.
3. The Contractor must prepare a weed control program, for nominated weed species for control and disposal, to the satisfaction of the Superintendent.
4. The Contractor must undertake weed management in Stockpiles as directed by the Superintendent.

DURING WORKS

1. The Contractor must implement the weed control procedures and management plan and record and manage records of its implementation.
2. The Contractor must treat nominated weed infestations as many times as necessary to control and eradicate the weed species in accordance with the approved weed control program.
3. The contractor must ensure that no known weed, pest or diseased affected soil, mulch, fill or other material is brought into the Site.

POST WORKS

1. The relevant Vegetation Maintenance Record Forms available at: https://www.mainroads.wa.gov.au/technical-commercial/contracting-to-main-roads/ must be completed and sent to the Superintendent.