



Great Northern Highway Miling Bypass-Richardson Street **Upgrade**

MAIN ROADS WESTERN AUSTRALIA

Environment | Supporting Information Document

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Issue summary

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Glossary

Abbreviation	Description
BAM Act	<i>Biosecurity and Agriculture Management Act 2007 (WA)</i>
DWER	Department of Water and Environmental Regulation (WA)
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)</i>
GNH	Great Northern Highway
ha	Hectare
m	Metre
Main Roads	Main Roads Western Australia
NVCP	Native Vegetation Clearing Permit
PEC	Priority Ecological Communities
TEC	Threatened Ecological Communities
WC Act	<i>Wildlife Conservation Act 1950 (WA)</i>
WoNS	Weeds of National Significance

1. Introduction

The Western Australian (WA) Department of Water and Environmental Regulation (DWER) granted a Native Vegetation Clearing Permit (CPS 7231) to Main Roads Western Australia (Main Roads) on 26 October 2017. CPS 7231 allows for a total of 68.5 ha of native vegetation to be cleared to facilitate upgrading of sections of the Great Northern Highway (GNH), between Walebing and Wubin in the Wheatbelt region of WA. In February 2018 an amendment was requested to correct administrative errors identified in Conditions 3(a) and 7(a). This amendment was granted on 25 May 2018. A further permit amendment was also made to adjust the permit boundary within the Pithara section of the project.

Since the grant of CPS 7231/3, further detailed design has been undertaken which has identified a location near the Miling townsite where additional upgrade works are required to maintain a safe road that meets current design standards. This requires some clearing which does not fall within that approved under the current CPS 7231/3 approval.

This document has been prepared to support an application for a native vegetation clearing permit under of Part V of the *Environmental Protection Act 1986* (EP Act). The scope of this document is restricted to the area of clearing required in proximity to Richardson Street, Miling townsite.

2. Description of Clearing Activities: Miling Bypass - Richardson Street Application Area

The application for CPS 7231/3 described the proposed clearing in terms of four distinct sections:

- Walebing SLK 147.7 to SLK 165.6
- Miling Bypass SLK 177.5 to SLK 186.7
- Pithara SLK 207.8 to SLK 223.4
- Dalwallinu to Wubin SLK 223.4 to SLK 258

Main Roads has been working with the Shire of Moora and the residents of the town of Miling to improve access to and the amenity of the town. These discussions have identified additional works at Richardson Street, Miling that improve access to the town. These works are outside of the approved permit boundary of CPS 7231/3.

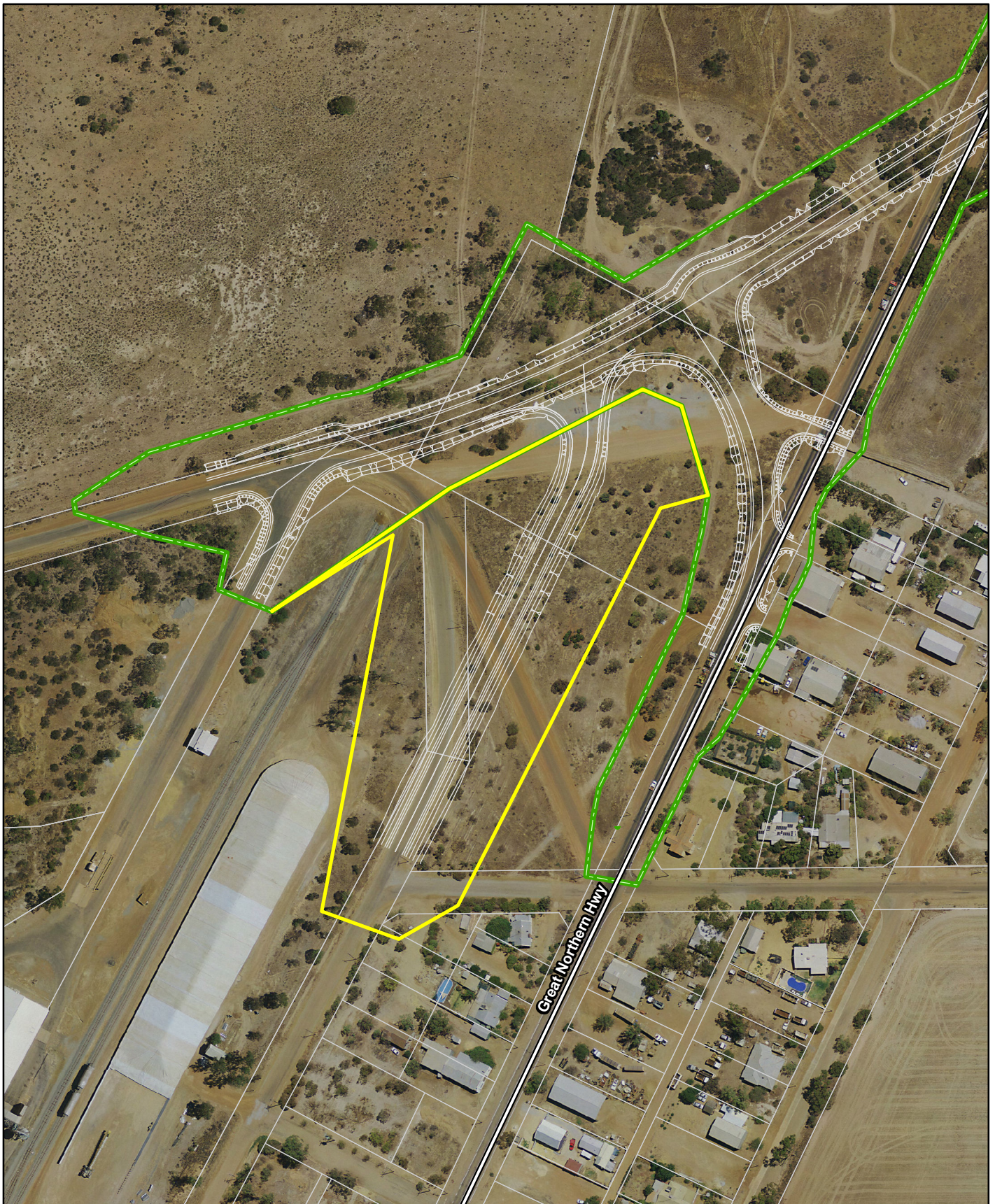
This application seeks approval for additional clearing in one specific location within the Miling Bypass section of the original application. This is described as Miling Bypass - Richardson Street application area.

The proposed works will require clearing of 1.1 ha of native vegetation (**Figure 2-1**). Flora and vegetation surveys of adjacent portions of this area have mapped the vegetation as “Cleared and Planted”. Main Roads has assumed that the revegetation undertaken at this location was completed with external funding for Landcare purposes and as such meets the definition of native vegetation under Part V of the EP Act. Therefore, this application has adopted a precautionary approach and considered it as native vegetation.

2.1 Description of Location and Land Ownership

Clearing resulting from the Miling Bypass - Richardson Street works is located within:

- Lot 3848 on Plan 4938, Miling,
- Lot M2136 on Diagram 24508, and
- Richardson St Road Reserve.



Legend

- CN05 Design
- Additional Proposed NVCP Area
- NVCP CPS 7231/2 boundary
- Cadastral Boundary

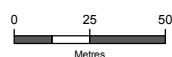


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Coordinate System: GDA 1994 MGA Zone 50



Main Roads Western Australia

Client
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Great Northern Highway
Muechea to Wubin Upgrade Stage 2

Miling Bypass Proposed NVCP Admendment

Drawing No
GNH-CN04-EN01-GIS-0029

Issue
B

Task No
NA

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22/01/2019

By
FK

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3. Existing Environment

The existing environment of the project area was described in the Supporting Information Document that accompanied the original CPS 7231 (ASJV 2016). The area that is the subject of this application do not vary in climate, land use, soils, landforms, fauna or hydrology from what was described in the original application. The following paragraphs describe the flora and vegetation at the location where the proposed works are located.

3.1 Flora and Vegetation

Miling lies in the Avon Wheatbelt Bioregion as defined by the Interim Biogeographic Regionalisation of Australia (IBRA) (Thackway *et al*, 1995). Vegetation of the Avon Wheatbelt Bioregion comprises proteaceous scrub heaths, rich in endemics, and woodlands of Wandoo, York Gum and Salmon Gum with Acacia and Casuarina.

Phoenix Environmental Services Pty Ltd (Phoenix) completed an initial spring season flora and vegetation field survey in October 2014 covering an approximately 40 m wide survey area (the existing road reserve). Between February and June 2015, follow up assessments of the areas surveyed in spring were undertaken along with preliminary flora and vegetation assessments for areas not previously surveyed. Between September and December 2015, areas surveyed in the first half of 2015 but not surveyed in Spring 2014 were revisited (Phoenix, 2015; 2016). The Spring 2015 surveys did not include the Miling Bypass, and these were revisited in Spring 2016.

These surveys do not completely cover the area associated with the Miling Bypass- Richardson Street application area. Therefore, aerial photography and photographs taken during site visits have been used to extrapolate the vegetation association and condition mapping (Figure 3-1 and Figure 3-2).

3.1.1 Vegetation

Table 3-1 shows the vegetation in the application area, the condition of the vegetation and the method for determining vegetation type and condition.







There are no Commonwealth Threatened Ecological Communities (TEC), State TECs or State Priority Ecological Communities (PEC) located within the application area.

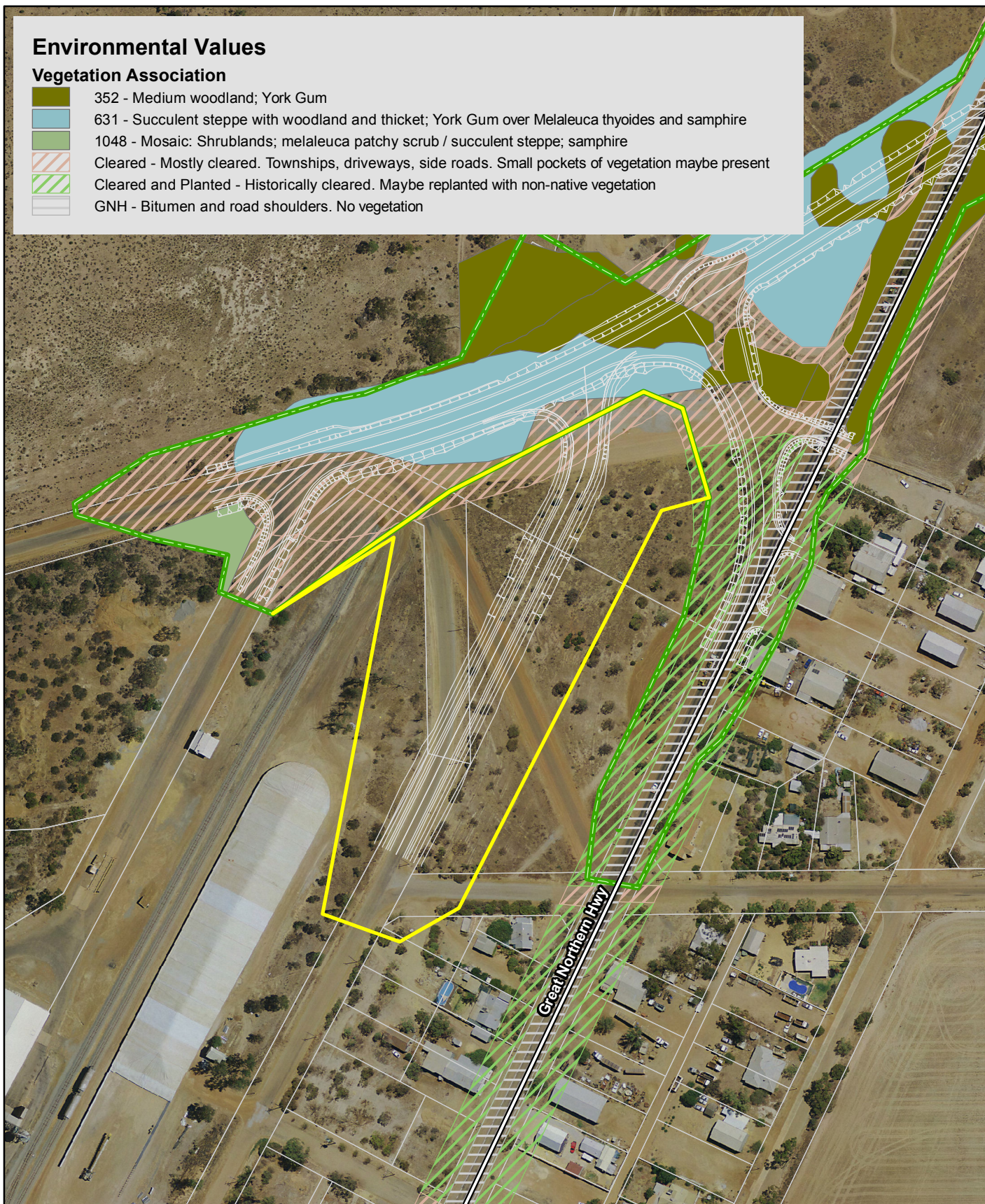
Table 3-1: Vegetation Associations within Application Area

Application Area	Vegetation description	Vegetation condition	Method for determining vegetation
Miling Bypass - Richardson Street	Cleared and planted	Completely Degraded	Extrapolation of survey data based on aerial photographs (Figure 3-1 and Figure 3-2) and photographs taken on site visits (Plates 3-1, 3-2, 3-3, and 3-4).





Environmental Values

Vegetation Association

-  352 - Medium woodland; York Gum
-  631 - Succulent steppe with woodland and thicket; York Gum over Melaleuca thuyoides and samphire
-  1048 - Mosaic: Shrublands; melaleuca patchy scrub / succulent steppe; samphire
-  Cleared - Mostly cleared. Townships, driveways, side roads. Small pockets of vegetation maybe present
-  Cleared and Planted - Historically cleared. Maybe replanted with non-native vegetation
-  GNH - Bitumen and road shoulders. No vegetation



Legend

-  CN05 Design
-  Additional Proposed NVCP Area
-  NVCP CPS 7231/2 boundary
-  Cadastral Boundary

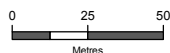


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Muechea to Wubin Upgrade Stage 2

Figure 3-1 Vegetation Associations

Drawing No
GNH-CN05-EN01-GIS-0029

Issue
C

Task No
NA

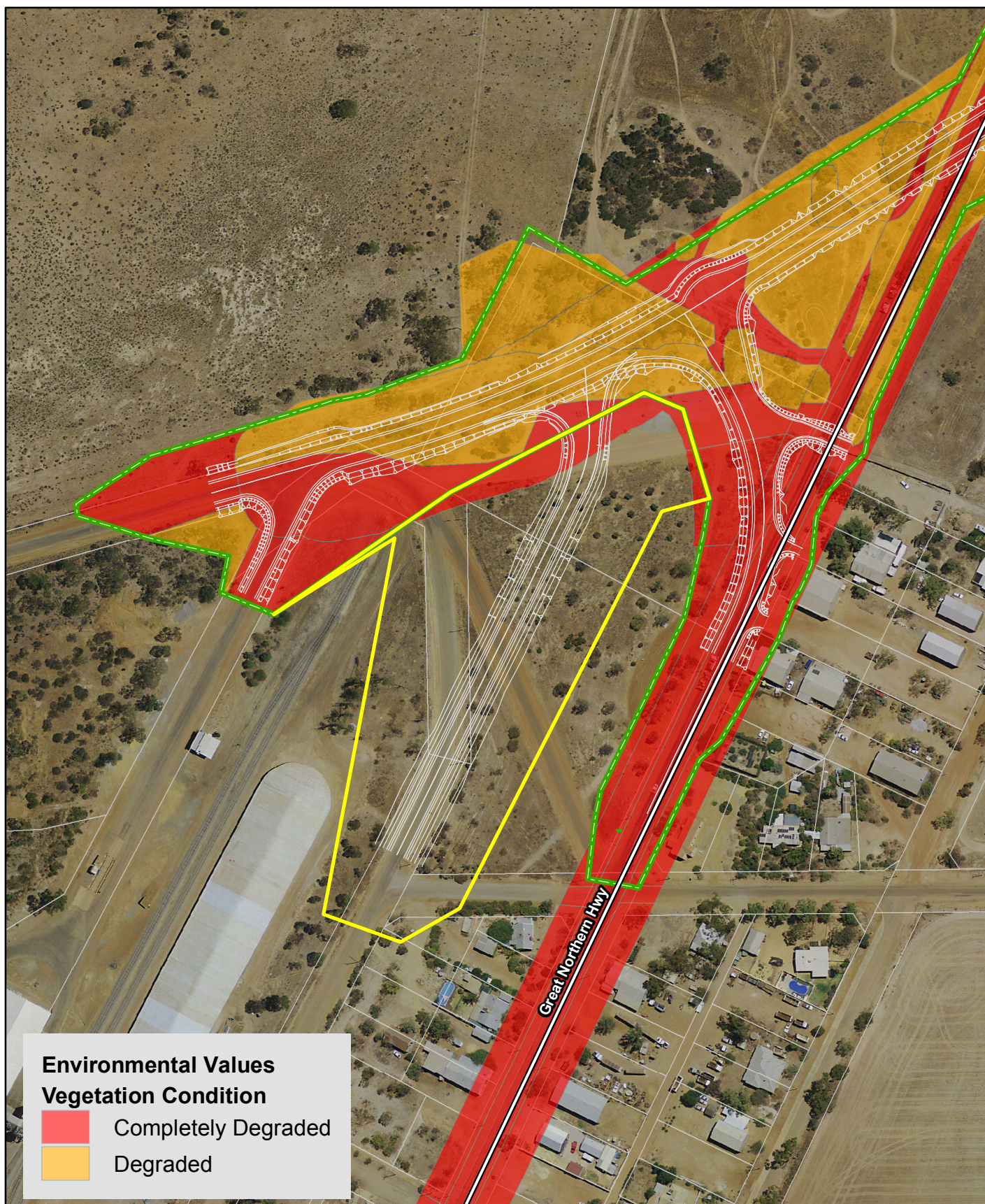
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13/03/2019

By
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SK



**Environmental Values
Vegetation Condition**

Completely Degraded

Degraded

Legend

- CN05 Design
- Additional Proposed NVCP Area
- NVCP CPS 7231/2 boundary
- Cadastral Boundary

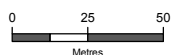


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Muechea to Wubin Upgrade Stage 2**

Figure 3-2 Vegetation Condition

Drawing No
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Issue
D

Task No
NA

Drawing Status / Other
Final

Date
13/03/2019

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SK

Plate 3-1: Miling Bypass – Richardson Street Application Area Vegetation Condition



Plate 3-2: Miling Bypass – Richardson Street Application Area Vegetation Condition



Plate 3-3: Miling Bypass – Richardson Street Application Area Vegetation Condition



Plate 3-4: Miling Bypass – Richardson Street Application Area Vegetation Condition



3.1.2 Flora

The desktop and literature review identified a total of 126 conservation significant flora species potentially present near the application area, of which 23 are listed as Threatened under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and 35 species are listed under the WA *Wildlife Conservation Act 1950* (WC Act) (including all of the EPBC Act listed species) (Phoenix, 2015; 2016). A further 91 species are listed as Priority flora by the WA Department of Biodiversity, Conservation and Attractions (DBCA) (17 Priority 1, 12 Priority 2, 48 Priority 3 and 14 Priority 4). None of the species listed under the EPBC Act or WC Act were recorded by Phoenix during the 2014 and 2015 surveys. Eight flora species listed on the DBCA Priority Flora list were recorded in the nearby CPS 7231/2 permit area though none of these are located within, or near, the application area.

Given the condition of the vegetation in the application area it is considered extremely unlikely that any conservation significant flora would be found.

3.1.3 Weeds

Five flora species identified as Declared Plants under the WA *Biosecurity and Agriculture Management Act 2007* (BAM Act) have been recorded in the nearby CPS 7231/2 permit area (**Asparagus asparagoides* (Bridal Creeper), **Echium plantagineum* (Patterson's Curse), **Emex australis* (Spiny Emex) **Lycium ferocissimum* (African Boxthorn) and **Opuntia monacantha* (Barabary Fig). **Asparagus asparagoides*, **Lycium ferocissimum* and **Opuntia monacantha* are also Weeds of National Significance (WoNS). No Declared Plants have been recorded near the Miling Bypass - Richardson Street application area.

4. Potential Impacts

4.1 Vegetation Associations

This application proposes clearing of 1.1 ha. However, Miling Bypass - Richardson Street is in an area of Completely Degraded vegetation. The area has been historically cleared and replanted with species native to the area. Due to the uncertainty in relation to the funding and purpose of this revegetation, a precautionary approach has been taken and the vegetation present is assumed to meet the definition of native vegetation under Part V of the EP Act.

The vegetation within the application area is not characteristic of any Commonwealth TEC, State TEC or State PEC.

4.2 Remnant Native Vegetation

The proposed clearing is not likely to have an impact on remnant native vegetation, as the Miling Bypass - Richardson Street works vegetation is Cleared and Planted, has not been assessed as being representative of a native vegetation association defined by Shephard *et al* (2002), and is in Completely Degraded quality.

4.3 Flora

No Threatened or Priority flora have been recorded from the application area. While field surveys have not been undertaken across the application area, no Threatened or Priority flora are expected to occur within the Miling Bypass - Richardson Street application area.

5. Clearing Principles Assessment

Schedule 5 of the EP Act defines ten Clearing Principles for native vegetation. These principles aim to ensure that all potential impacts resulting from removal of native vegetation can be assessed in an integrated way.

Clearing required for works at the Miling Bypass – Richardson Street application area has been assessed against the Ten Clearing Principles, with each principle being assessed in accordance with DWER's A Guide to the Assessment of Applications to Clear Native Vegetation (DWER, 2014) to determine whether the application is at variance to the principles. This assessment is shown in **Table 5-1**.

Table 5-1 Clearing Principles Assessment

Principle		Assessment	Outcome
A	Native vegetation should not be cleared if it comprises a high level of biological diversity.	The vegetation proposed to be cleared is Completed Degraded to Degraded in condition. The Richardson Street application area has been historically cleared and planted with sparsely planted native trees and shrubs. The area is not considered to comprise a high level of biological diversity given its Degraded condition. No flora species listed as threatened under the WC Act or EPBC Act were recorded within the application area and no Priority Flora have been recorded within the application area.	Not at variance
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	The application area is within the known breeding range for Carnaby's Black Cockatoo; however, no Carnaby's Black Cockatoo habitat is located within the application area.	Not at variance
C	Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.	No Threatened (rare) flora have been recorded in or near the application area.	Not at variance
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.	No TECs have been recorded in or near the application area.	Not at variance
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.	The application area is located within the Avon Wheatbelt bioregion of WA. This area is recognised as a highly cleared landscape with remaining native vegetation generally considered to be under-represented. However, as the vegetation is Completely Degraded, the area is unlikely to represent a significant remnant. The clearing is therefore unlikely to be at variance with this principle.	Unlikely to be at variance

Principle		Assessment	Outcome
F	Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.	Given the small quantity of completely degraded vegetation to be cleared, the required clearing is considered extremely unlikely to negatively impact the Moore River east or its floodplain. Existing hydrology and drainage will not be unnecessarily restricted, and the Construction Environmental Management Plan will be implemented to stabilise any potential erosion.	Not at variance
G	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	<p>Due to the small scale of the required clearing proposed under this application, clearing of native vegetation is not expected to increase soil acidity or salinity. Given the gentle slopes in the application area, it is also unlikely that clearing will result in increased erosion, particularly water erosion.</p> <p>Clearing activities are unlikely to increase the percentage coverage of weeds within the application area. Management controls will reduce the risk of the spread or introduction of weeds in the application area.</p> <p>It is considered extremely unlikely that the required clearing will cause appreciable land degradation.</p>	Not at variance
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.	No conservation areas are adjacent to or nearby the proposed application area.	Not at variance
I	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.	<p>Impacts to groundwater are not expected to occur as there are no surface expressions of the groundwater table within the application area and direct interactions between clearing activities and groundwater are not anticipated.</p> <p>Clearing may result in minor increased sediment loads to local water courses, however given the gentle nature of the slopes within the application area, the risk of significant erosion is considered minimal.</p> <p>It is therefore considered extremely unlikely that the required clearing will result in the deterioration of the quality of surface or underground water.</p>	Not at variance

Principle		Assessment	Outcome
J	Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.	Given the limited amount of clearing of native vegetation required, it is unlikely that the clearing will cause, exacerbate or increase the incidence of flood in the application area or surrounds.	Not at Variance

6. References

Arup Jacobs Joint Venture. 2016. Walebing to Wubin Purpose Permit to Clear Native Vegetation - Supporting Information.

Government of Western Australia. (2018). *2017 State-wide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report)*. Current as of December 2017. WA Department of Biodiversity, Conservation and Attractions, Perth. <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics>

Phoenix, 2015. Flora and fauna assessment for Lyons East road to Gatti Road study area. (Unpublished Report Prepared for the ASJV and Main Roads).

Phoenix, 2016. Flora and fauna assessment for Calingiri to Wubin study areas. Great Northern Highway, Muchea to Wubin Upgrade Stage 2 Project (Unpublished Report Prepared for the ASJV and Main Roads).

Shepherd, D.P., Beeston, G.R., Hopkins, A.J., 2002. Native vegetation in Western Australia: extent, type and status (No. 249). Department of Agriculture and Food, Western Australia.

Thackway, R. and Cresswell, I.D. (Editors), 1995. An Interim Biogeographic Regionalisation for Australia: a framework for establishing the national system of reserves (No. Version 4.0). Australian Nature Conservation Agency, Canberra.