

Great Northern Highway Muchea to Wubin Upgrade - Stage 2

MAIN ROADS WESTERN AUSTRALIA

Bindoon Bypass - Northern Section | CPS 8573/1 Amendment - Supporting Information Document

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Contents

Gl	ossar	y	1
1.	Intro	duction	2
	1.1 1.2	Great Northern HighwayChanges Since Grant of CPS 8573/1	2 2
2.	Desc	cription of Clearing Activities	3
3.	Exis	ting Environment	5
	3.1 3.2	Flora and Vegetation Carnaby's Black Cockatoo Habitat	
4.	Pote	ntial Impacts	9
	4.1 4.2 4.3 4.4	Vegetation Associations	9 9
5.	Man	agement Measures	15
6.	Clearing Principles Assessment		16
7.	Refe	rences	24
Tal Tal	ole 4-1:	Additional Amount of Vegetation Associations within Amended Permit Boundary Additional Vegetation Clearing Requested by Vegetation Condition	9
Fi	gur	es	
Fig Fig	ure 3-1 ure 4-1	: CPS 3578/1 Location Plan : Location of <i>Persoonia sulcata</i> in Relation to Amended Permit Boundary : Vegetation Association and Condition of the Tie-in Area	7 10
		2: Remnant Native Vegetation Within 5 km of the Tie-in Area 3: DBCA <i>Persoonia sulcata</i> Known Records	
		l: Carnaby's Black Cockatoo Habitat Value of the Tie-in Area	



Glossary

Abbreviation	Description
BAM Act	Biosecurity and Agriculture Management Act 2007 (WA)
BC Act	Biodiversity and Conservation Act 2016 (WA)
DBCA	Department of Biodiversity, Conservation and Attractions (WA)
DWER	Department of Water and Environmental Regulation (WA)
EP Act	Environmental Protection Act 1986 (WA)
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)
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
WoNS	Weeds of National Significance



1. Introduction

1.1 Great Northern Highway

In 2014 Main Roads Western Australia (Main Roads WA) established an Integrated Project Team (IPT), comprising Main Roads and industry partners Arup and Jacobs (combining to form Arup Jacobs Joint Venture, ASJV) to conduct a comprehensive planning review of the full Muchea to Wubin link along the Great Northern Highway (GNH). Among the improvements considered as part of the planning review were additional passing lanes, flattening crests and easing curves, safer roadsides, more rest stops and additional facilities for heavy vehicles.

The review examined the previous upgrade strategy developed in the 1990s and, having carefully considered current requirements for the safe and efficient movement of people and freight, delivered a revised upgrade strategy. The IPT then used the review to identify and prioritise construction packages to be delivered over the five-year period from 2015/16 to 2019/20.

Additional planning has been undertaken to identify the last remaining impediment to 53.5 m road train movements to Muchea; specifically, a 66 km bypass of Bindoon from Chittering Roadhouse in the south, connected to New Norcia in the north. This bypass comprises two sections: Bindoon Bypass – Southern Section (which is also referred to as the Bindoon Bypass) which forms the main bypass around the town of Bindoon, and Bindoon Bypass – Northern Section that links the bypass to recently completed road upgrades around New Norcia.

The Western Australian (WA) Department of Water and Environmental Regulation (DWER) granted a Native Vegetation Clearing Permit (CPS 8573/1) to Main Roads Western Australia (Main Roads) on 25 May 2020. This permit allows for a total of 28 hectares (ha) of native vegetation to be cleared to facilitate construction of the Bindoon Bypass – Northern Section of the GNH, in the Wheatbelt region of WA.

1.2 Changes Since Grant of CPS 8573/1

Since the grant of CPS 8573/1, the IPT has identified the need for a "tie-in" to link a section of the new road back into the existing GNH in order to effectively manage construction of the Bindoon Bypass – Northern Section (refer to Inset A of **Figure 2-1**). This tie in will result in a change to the permit boundary and an increase in clearing of 0.6 ha.

Additionally, negotiations with landowners have progressed and matured since the grant of CPS 8573/1 resulting in the locations of some driveways, fencing and drainage structures having moved slightly and are now outside of the permit boundary. The overall permit boundary has therefore been modified to cater for these changes. There is no increase in the overall clearing associated with these modifications.

This document has been prepared to support an application to amend CPS 8573/1 under Section 51K of Part V of the *Environmental Protection Act 1986* (EP Act).

There is no change to the land ownership detailed in CPS 8573/1.



2. Description of Clearing Activities

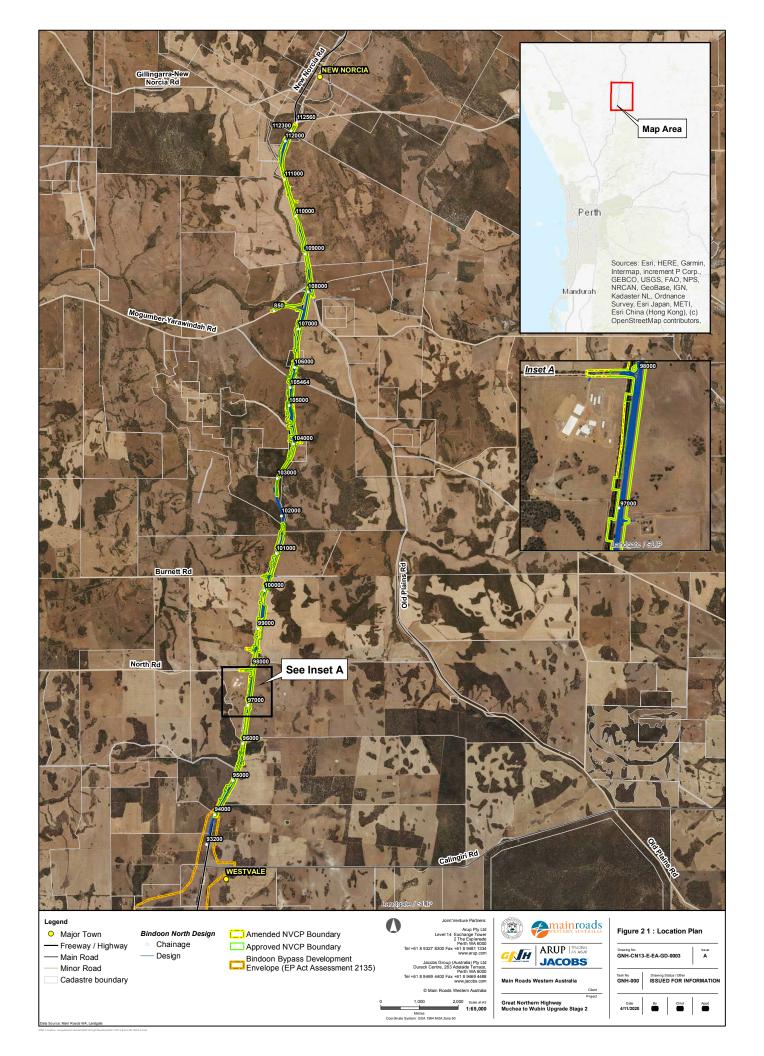
This amendment seeks to amend the overall boundary for CPS 8573/1 and increase the permitted clearing by 0.6 ha to 28.6 ha. The requested permit boundary changes will increase the overall size of the permit area to a total area of 184 ha (**Figure 2-1**).

For the purposes of this amendment, vegetation clearing will be required for:

- construction of approximately 350 m of road to create a tie-in from the newly constructed portion of the Bindoon Bypass – Northern Section to the existing GNH between Straight Line Kilometre (SLK) 97.4 and SLK 98 (Figure 2-1);
- · construction of roadside drainage;
- installation of signage and line marking;
- installation of safety barriers (if required); and
- installation of road lighting (if required).

Clearing activities across the remainder of the permit remain as described in the original application.

Clearing of native vegetation will be undertaken using standard earthmoving equipment, such as bulldozers, to provide a surface free of vegetative matter, though some roots may remain. Topsoil will be stripped separately to vegetation, stockpiled for later reuse in reinstatement, landscaping and revegetation activities. Where required, topsoil and vegetation stockpiles will be segregated according to their weed and *Phytophthora cinnamomi* (Dieback) status and managed through the Principal's Environmental Management Plan (PEMP) and the Contractor's Construction Environmental Management Plan (CEMP).





3. Existing Environment

The existing environment of the project area was described in the Supporting Information Document that accompanied the original application for a permit to clear native vegetation (ASJV 2020). The area subject to this amendment application does not vary in climate, land use, soils, landforms, fauna or hydrology from that described in the original application. The following paragraphs describe the flora and vegetation at the locations where the proposed amendments are located.

3.1 Flora and Vegetation

The CPS 8573/1 permit area lies within the Avon Wheatbelt bioregion and Jarrah Forest bioregion as per the Interim Biogeographic Regionalisation for Australia (IBRA) (Thackway *et al.* 1995). The most northerly portion of the application area is located in the Katanning subregion of the Avon Wheatbelt bioregion and is comprised of an erosional surface of gently undulating rises to low hills with abrupt breakaways and continuous stream channels (Beecham 2001). Soils support woodlands of Wandoo, York Gum and Salmon Gum with Jam and Casuarina species. The remainder of the application area is located within the Northern Jarrah Forest subregion of the Jarrah Forest bioregion, which incorporates an area east of the Darling Scarp and is comprised of Jarrah Marri forest and Marri woodlands. Sand sheets support local populations of Banksia low woodlands and heath.

Phoenix Environmental Services Pty Ltd (Phoenix) have undertaken biological surveys within the Bindoon Bypass – Northern Section between October 2014 and March 2018, the findings of which have been consolidated into a single report (Phoenix 2019). These surveys cover an area larger than and inclusive of the CPS 8573/1 permit boundary.

3.1.1 Vegetation Associations

Vegetation mapping by Phoenix (2019) identified 11 vegetation associations within the survey area (a large area including the permit area). The majority of vegetation associations represented medium woodlands comprising of Wandoo, York Gum, Flooded Gum and/or Marri. These covered approximately 25% of the study area. Areas mapped as the existing GNH, cleared (e.g. townships, driveways, side roads), cleared and planted (revegetated), pasture (agricultural areas) and pasture and cleared (mosaic of agricultural areas and cleared areas for other agricultural purposes) accounted for approximately 74% of the study area (Phoenix 2019).

The changes requested to the permit boundary will increase the amount of native vegetation within the boundary by 3 ha from 33 ha to 36 ha. The breakdown by vegetation association is provided in **Table 3-1**.

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

Table 3-1: Additional Amount of Vegetation Associations within Amended Permit Boundary

Vegetation Association	Additional Area within Permit Boundary (ha)
4: Medium woodland; Marri and Wandoo	0.80
7: Medium woodland; York Gum (<i>Eucalyptus loxophleba</i>) and Wandoo	0.70
946: Medium woodland; Wandoo	0.40
973: Low forest; paperbark (Melaleuca rhaphiophylla)	0.30
999: Medium woodland; Marri	0.30
1034: Medium woodland; Marri, Wandoo and Powderbark	0.30
1182: Medium woodland; Eucalyptus rudis and Melaleuca rhaphiophylla	0.20
Total	3.00

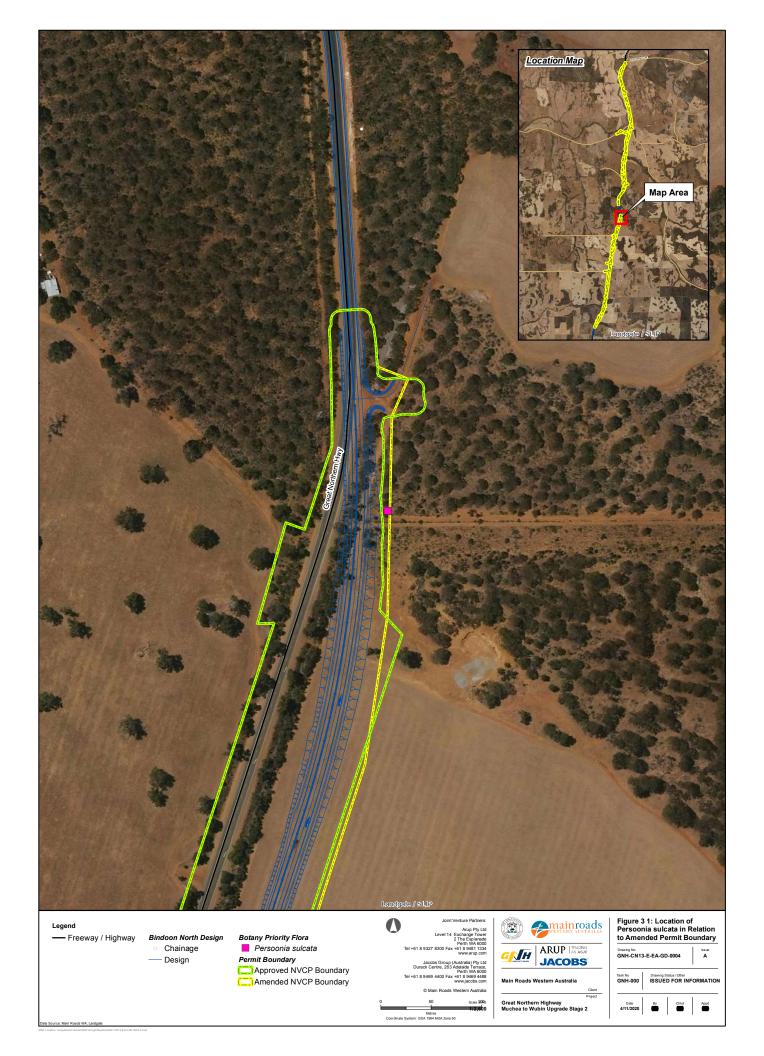


3.1.2 Flora

The Phoenix (2019) desktop and literature review identified a total of 92 conservation significant flora species; including 24 threatened species (listed under the EPBC Act and/or *Biodiversity Conservation Act 2016* [BC Act]) and 68 DBCA listed Priority flora species (Phoenix 2019) which may occur within the area of the surveys. Of these, 12 species were recorded as being present within the survey area (a larger area including the 8573/1 permit area) with a further three species (*Daviesia debilior* subsp. *sinuans* (P3), *Hakea chromatrope* (P1) and *Leucopogon darlingensis* subsp. *rectus* (P2)) that were not identified in the desktop review also recorded as being present within the survey area (Phoenix 2019).

No species listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) or Threatened species under the *Biodiversity Conservation Act 2016* (BC Act) occur within the application area.

The requested changes to the permit boundary will result in one individual of the Priority 4 species *Persoonia sulcata* now being within the permit boundary. There is no change to the number of other Priority flora species (namely *Acacia drummondii* subsp. *affinis* [P3] and *Grevillea drummondii* [P4]) that are within the permit boundary.





3.1.3 Weeds

A total of 52 weed species were recorded for the Bindoon Bypass – Northern Section survey area, one of which is Declared Plant (under the *Biosecurity and Agriculture Management Act 2007*) and Weed of National Significance (WoNS); *Asparagus asparagoides* (Bridal Creeper). No other declared plant species or WoNS were observed during the survey.

The requested changes to the application area will not change the number or type of weeds present within the permit boundary.

3.2 Carnaby's Black Cockatoo Habitat

Surveys undertaken by Phoenix (2019) recorded approximately 98 ha of quality foraging habitat and 212 ha of low value foraging habitat for Carnaby's Black Cockatoo present within the survey area. The changes requested to the permit boundary will increase the amount of habitat for Carnaby's Black Cockatoo within the permit boundary by 3 ha. Of this, 2 ha was mapped by Phoenix (2019) as low value habitat with 1 ha mapped as quality value habitat.

No additional trees with hollows showing evidence of use, or that are suitable for use by Carnaby's Black Cockatoo have been incorporated into the permit boundary as a result of the requested changes. One tree with a hollow suitable for use by the species is adjacent to the boundary within the western side of the road reserve. The nearest tree with a hollow showing evidence of use is approximately 310 m north of the tie-in location and is also outside of the permit boundary.



4. Potential Impacts

4.1 Vegetation Associations

The clearing required to construct the tie-in will result in an additional 0.6 ha of Vegetation Association 4 (Medium woodland; Marri and Wandoo) being cleared (**Table 4-1**, **Figure 4-1**). The minor changes in the locations of driveways and fencing will not change the clearing required either in total or when broken down by vegetation association.

None of the vegetation associations within the amendment areas are characteristic of any Commonwealth TEC, State TEC or State PEC.

Table 4-1: Additional Vegetation Clearing Requested by Vegetation Condition

Vegetation Association	Vegetation Condition	Additional Clearing Required (ha)
4: Medium woodland; Marri and Wandoo	Good	0.2
4: Medium woodland; Marri and Wandoo	Very Good	0.4
Total		0.6

4.2 Remnant Native Vegetation

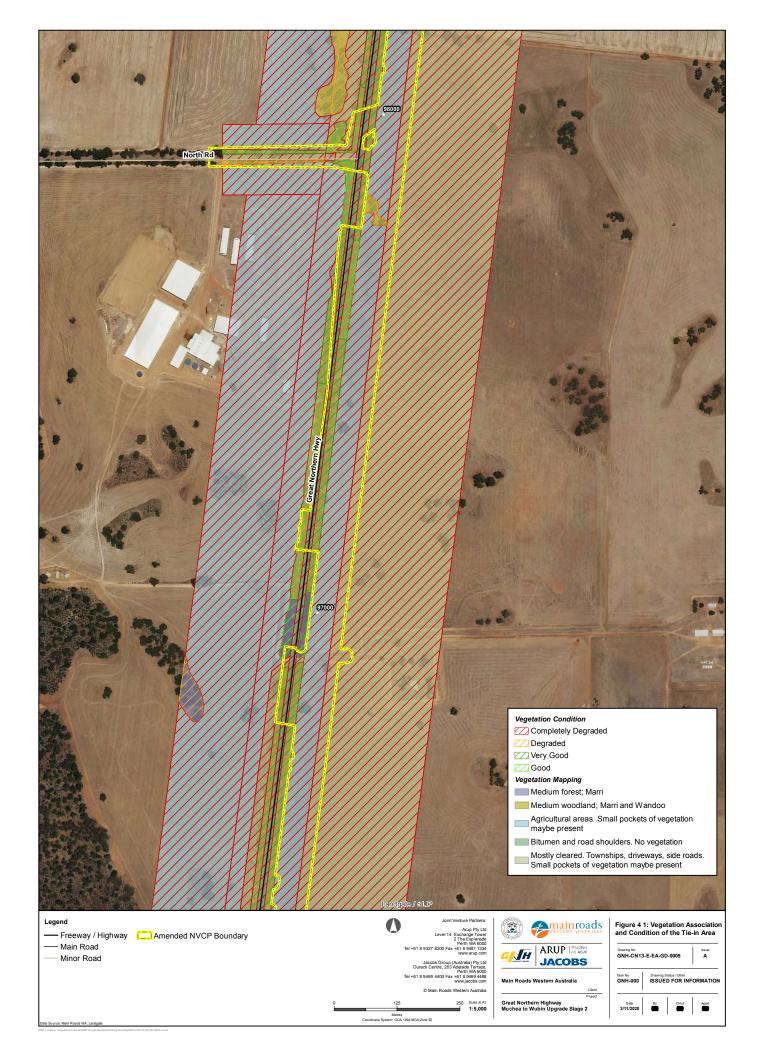
Vegetation Association 4 is below 30% of its pre-European extent within the Shire of Chittering, however it is above 30% within the Northern Jarrah Forest IBRA sub-region. The location of the additional clearing for the tie-in is unlikely to be considered a significant remnant as a number of much larger patches of remnant vegetation occur within a 5 km radius (**Figure 4-2**).

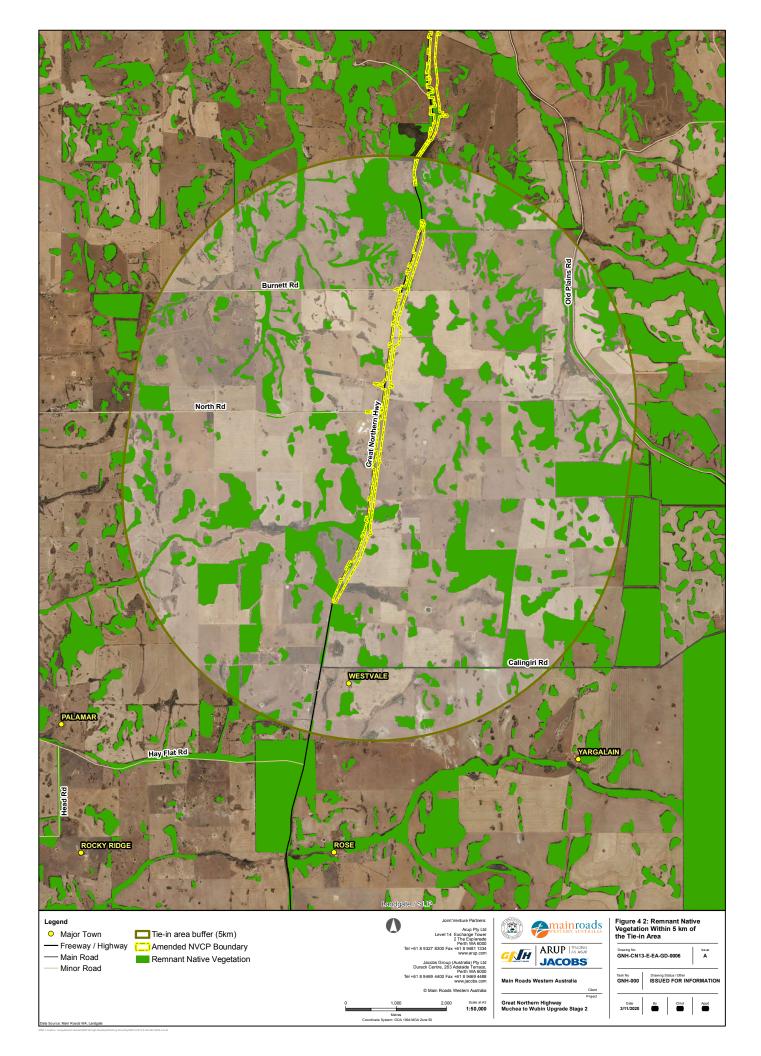
4.3 Flora

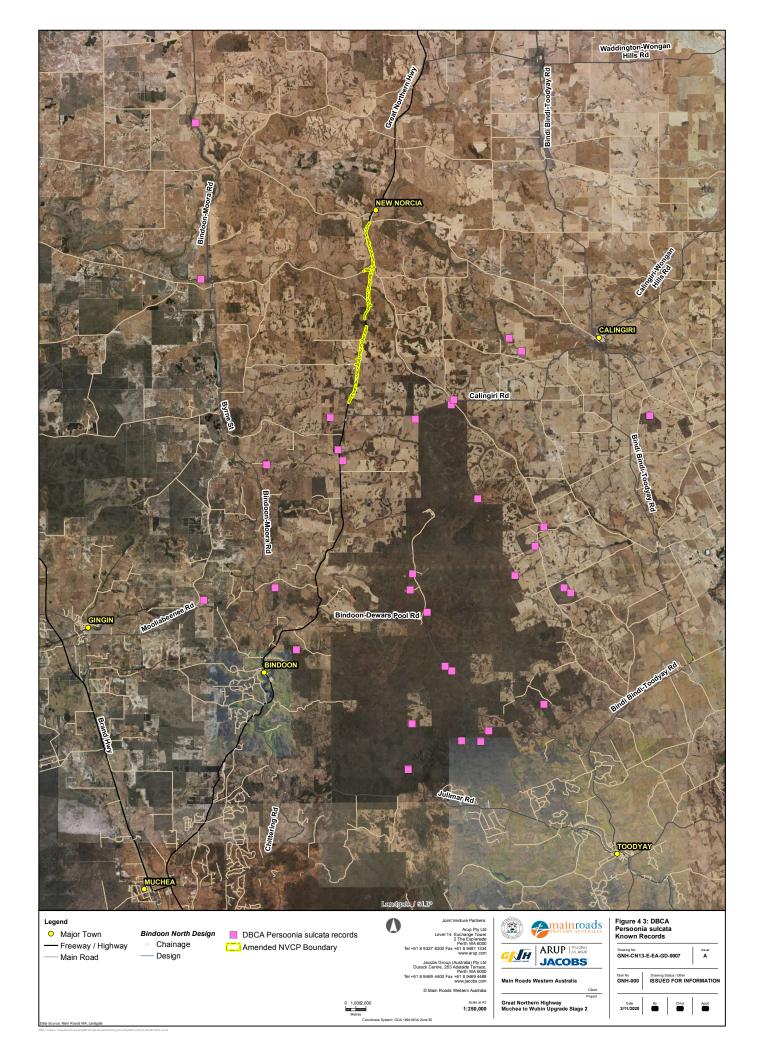
Changes to the permit boundary will result in the Priority 4 species *Persoonia sulcata* now being within the permit boundary and likely to be cleared in order to provide an appropriate firebreak for the adjacent landowner, in line with Shire of Moore requirements. A single individual of this species was recorded by Phoenix (2019).

The species is known to grow in lateritic or granitic soils in the Avon Wheatbelt, Geraldton Sandplains, Jarrah Forest and Swan Coastal Plain bioregions (Phoenix 2019). Emery and Offord (2018) suggests that the breeding system of *Persoonia* species favours out-crossing (that is, pollination of one individual by another), rather than self-pollination, with the rate of seed set and germination higher in individuals where cross pollination had occurred. This suggests that single plant populations are likely to be less viable than populations of at least two plants. Dispersal of seeds is likely to be via birds and mammals who consume the fleshy fruits (Emery and Offord 2018), which would be expected to result in widespread dispersal and probably germination of single, isolated plants.

A total of 40 known *Persoonia sulcata* records, as identified from DBCA's NatureMap tool, are located between Wagin in the south, Dalwallinu in the north and from the edge of the Darling Scarp to 15 km north east of Toodyay, an area of occurrence of approximately 800 ha (**Figure 4-3**). These 40 records represent the total known population of the species, with the individual documented by Phoenix (2019) being an additional record not included in the 40 identified on NatureMap. Abundance of the species at these locations was recorded as ranging from uncommon to frequent, with several sites recording the population at that location as healthy. The loss of the single individual recorded by Phoenix (2019) will not reduce the area of occurrence of the species and is not expected to negatively impact the survival of the species as a whole given that a single plant was recorded, which is isolated from other populations. The loss of a single isolated individual is considered unlikely to change the conservation status of the species at a species, regional or local level.





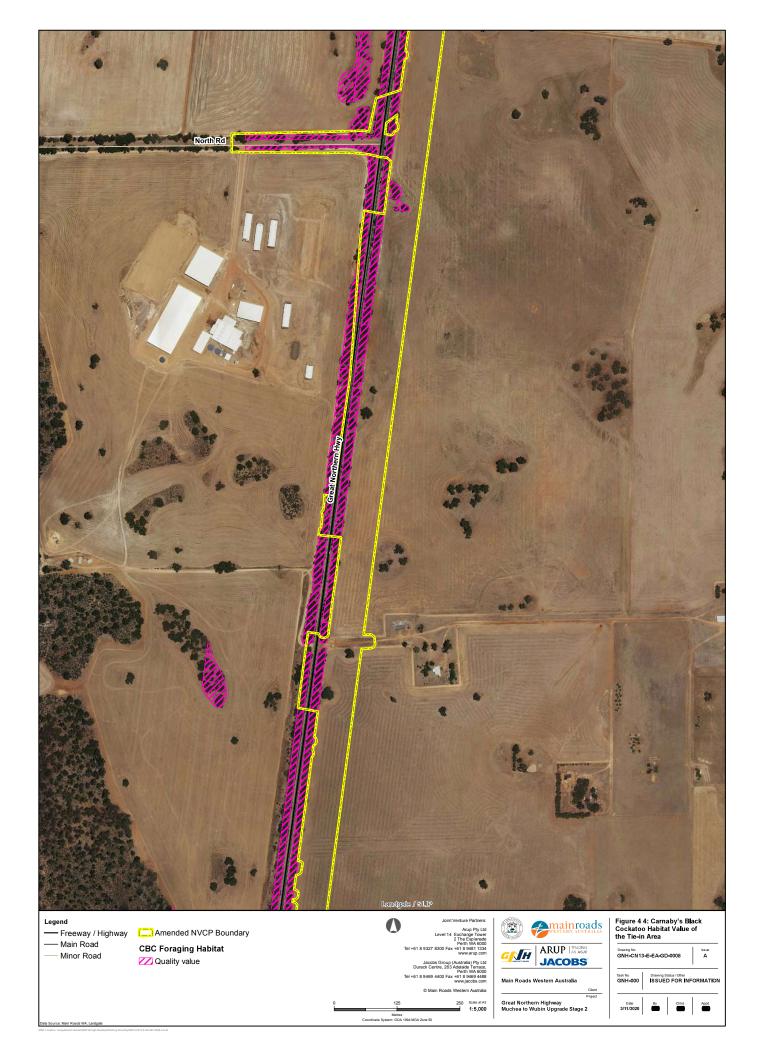




4.4 Carnaby's Black Cockatoo Habitat

The clearing required to construct the tie-in will result in an additional 0.6 ha of Quality Value habitat for Carnaby's Black Cockatoo being cleared (**Figure 4-4**). The minor changes in the locations of driveways and fencing will not change the clearing required in relation to Carnaby's Black Cockatoo habitat.

No trees with hollows showing evidence of use or that are suitable for use by the species will be cleared for the tie-in. A total of 36 potential breeding trees (those with a diameter at breast high of 500mm or more) are within the clearing footprint.





5. Management Measures

As described in the original permit application, a Principal's Environmental Management Plan (PEMP) has been developed to manage potential environmental impacts for the construction works. The PEMP addresses both preventative and management measures to be applied during the construction phase to minimise environmental impacts and has been developed to capture regulatory requirements and guide the development of the Contractor's Construction Environmental Management Plan (CEMP). The additional areas requested under this amendment application will be included in the PEMP and Contractor's CEMP.

The following management measures relevant to vegetation clearing are included in the PEMP:

- Vegetation Clearing Management:
 - demarcation of site boundaries and areas to be cleared;
 - establishment and communication of No-Go Zones around significant flora or vegetation; and
 - establishment of weed and disease management areas, such as 'clean on entry' facilities.
- Fauna Management:
 - implementation and enforcement of speed limits for construction traffic; and
 - transfer of any injured fauna found on site to an appropriate fauna rescue organisation or individual.

 A list of local fauna rescue organisations and individuals will be maintained on site.
- Other management measures:
 - management and/or control measures for the Declared Plant Asparagus asparagoides as recommended by the Department of Primary Industries and Regional Development;
 - implementation of standard dust control measures such as use of water carts; and
 - as required under Condition 14 of CPS 8573/1, a Revegetation Plan will be prepared for the project. An additional 0.6 ha of vegetation that provides suitable foraging habitat for Carnaby's Black Cockatoo will be included in the revegetation plan to account for the additional 0.6 ha of habitat to be cleared.



6. 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.

The inclusion of additional native vegetation within the permit boundary for the Bindoon Bypass – Northern Section has been assessed against the Clearing Principles (see **Table 6-1**).



Table 6-1: Clearing Principles Assessment

Pri	nciple	Assessment	Outcome
Α	A Native vegetation should not be cleared if it comprises a high level of biological diversity. Up to 0.6 ha of Vegetation Association 4 (Medium woodland; Marri & Wandoo) will be cleared for the vegetation is in Good to Very Good condition. There are no Priority or Threatened flow species recorded within the area to be cleared for the tie-in. The vegetation to be cleared provides habitat for Carnaby's Black Cockatoo. One individual of the Priority 4 species Persoonia sulcata will be cleared in order to instate fencing and provide appropriate firebreaks for private landowners.		Proposed clearing may be variance with this Principle
В	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 area of vegetation to be cleared for the tie-in is mapped as quality value foraging habitat for Carnaby's Black Cockatoo (Phoenix 2019). No trees with hollows showing evidence of use or that are suitable for use by the species will be cleared for the tie-in. Given the small increase in area to be cleared it is unlikely that the additional clearing will result in increased impacts Carnaby's Black Cockatoo or habitat for the species beyond that assessed under CPS 8573/1	Proposed clearing may be at variance with this Principle
С	Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.	No rare flora will be cleared under this amendment. No vegetation identified as critical habitat for rare flora will be cleared under this amendment.	Proposed clearing is not at variance with this Principle
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 mapped within the amended permit boundary.	Proposed clearing is not at variance with this Principle
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.	A small amount of vegetation clearing will be required for the tie-in. The location of the additional clearing unlikely to be considered a significant remnant as a number of much larger patches of remnant vegetation occur within 500 m to 5 km of the tie-in (Figure 4-2).	Proposed clearing is not at variance with this Principle
F	Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.	No clearing of vegetation growing in, or in association with, an environment associated with a watercourse or wetland is required for the requested amendments.	Proposed clearing is not at variance with this Principle



Pri	nciple	Assessment	Outcome
G	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	The small amount of additional clearing requested (0.6 ha) is unlikely to result in land degradation. Dieback Hygiene controls will be in place throughout the project to minimise the risk of introducing or spreading dieback.	Proposed clearing is not at variance with this Principle
Н	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 amendment areas.	Proposed clearing is not at variance with this Principle
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.	There are no surface water bodies adjacent to or within the area of the tie-in. The extent of localised clearing associated with the requested amendment is not anticipated to result in deterioration in the quality of surface or underground water.	Proposed clearing is not at variance with this Principle
J	Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.	The extent of localised clearing associated with the requested amendment is not anticipated to have any impact at a catchment scale. It is unlikely that the clearing will cause, exacerbate, or increase the incidence of flooding in the Project area or surrounds.	Proposed clearing is not at variance with this Principle



7. References

Arup Jacobs Joint Venture (ASJV), 2020. Bindoon Bypass – Northern Section (SLK 94.74 – 112.2). Purpose Permit to Clear Native Vegetation - Supporting Information.

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