



Main Roads Western Australia

Nowergup Depot Access Offset Proposal

February 2020

Executive summary

Main Roads Western Australia (Main Roads) proposes to undertake clearing of native vegetation to construct a roundabout and access road on Hester Avenue, immediately east of Mitchell Freeway where the freeway currently terminates (Figure 1, Appendix A). This Proposal is related to the Mitchell Freeway Extension Hester Avenue to Romeo Road project, however is being assessed separately to allow for flexibility in delivery timing, funding and approval requirements.

The Proposal will involve the construction of a new roundabout on Hester Avenue, construction of a new two lane northern access road to the Public Transport Authority (PTA) Nowergup Bus/Rail Depot. Construction of a new bridge is also required to facilitate the grade separation of the Mitchell Freeway southbound carriageway from the PTA access road. A native vegetation clearing permit (NVCP) (purpose) is required for clearing of native vegetation associated with the proposed works.

Aspect	Comments
Proposal Details	Main Roads proposes to undertake clearing in association with the construction of a roundabout on Hester Avenue and a two lane northern access road to the Nowergup Bus/Rail Depot (Figure 1).
Proposal Requirement	Main Roads proposes to undertake clearing of 1.91 ha native vegetation in association with the Proposal. The Proposal will improve accessibility and road safety.
Measures to avoid, reduce, mitigate and manage Proposal impacts	<p>All strategies to avoid and mitigate environmental impacts have been explored and implemented, including the following:</p> <ul style="list-style-type: none"> • The access has been located as close as possible to the existing PTA access to minimise the clearing footprint. Selection of preferred alignment and location of access was undertaken to minimise impacts to native vegetation. • Design of access has minimised clearing or impacts to the National Park by: <ul style="list-style-type: none"> – Ensuring the access road alignment is located in or as close to the existing adjacent road reserve as possible. – Designing the access road to impact degraded vegetation and avoid better condition vegetation in the vicinity (e.g. follow existing cleared access tracks where possible). – Installing new or modifying existing drainage basins in the current roads reserve where possible including the use of Freehold Lot (Lot 809) for any future additional drainage needs. – Reducing the cross section width of the PTA access road to the minimum permissible to ensure safe and efficient movement. – Implementation of typical surface water control measures along the access road including swales to prevent impacts to adjacent vegetation from surface water runoff and control 1 in 50 flooding events. – Implementation of typical surface water control measures on the roundabout including pit and pipe drainage connecting to the existing drainage network on Hester Avenue preventing runoff into adjacent vegetation.

Aspect	Comments
	<ul style="list-style-type: none"> – Fully sealing the road which eliminates potential impact of dust particles on adjacent vegetation (associated with unsealed roads). – Vertical design of the road closely matches the existing topography where possible to minimise earthworks. – Minimising roundabout size as far as permissible, to accommodate the design vehicles and minimise clearing. <ul style="list-style-type: none"> • Installation of retaining walls is being considered during detailed design to further reduce the earthworks batters and associated clearing. • Early consultation was undertaken with utility service providers to ensure design was optimised to minimise relocation of existing services (and associated ground disturbance/clearing). • Early consultation with the DBCA was undertaken to ensure design acceptance and determine concerns in relation to minimising impacts to native vegetation and the National Park.
Related Documents	<p>A biological survey was conducted by GHD (2019) for the Mitchell Freeway Extension project, which covers the proposed NVCP area. A Supporting Documentation report for the NVCP was completed in February 2020 and outlines the mitigation measures applied to the Proposal as well as an assessment against the Environmental Protection Act 1986 (EP Act) Ten Clearing Principles (GHD 2020).</p>
Clearing Impacts	<p>Clearing impacts will include the loss of:</p> <ul style="list-style-type: none"> • Up to 1.91 ha of native vegetation • 1.15 ha of vegetation in Good or better condition • 1.5 ha of Class A Neerabup National park • 1.5 ha of Bush Forever Site 383 (overlapping with Neerabup National Park) • 0.14 ha of Northern Spearwood shrublands and woodlands PEC • 1.30 ha of Banksia woodlands of the Swan Coastal Plain PEC. This includes 1.11 ha of the EPBC Act listed Banksia woodlands of the Swan Coastal Plain TEC • 1.91 ha of foraging habitat for Carnaby's Cockatoo and Forest Red-tailed Black Cockatoo, as well as 1 potential breeding tree. • 1.91 ha of habitat for the Peregrine Falcon • 1.91 ha of habitat for the Southern Brown Bandicoot • 1.91 ha of habitat for the Western Brush Wallaby • Up to 1.3 ha of habitat for the Black-striped Snake • 1.44 ha of habitat for <i>Ctenotus gemmula</i> (Swan Coastal Plain population).
Offset Type	<p>Financial contribution to the Department of Water Environment Regulation (DWER) to mitigate significant residual impacts associated with the Proposal activities. A total of \$135,280 is proposed, to be used for the purposes of purchasing 8 ha for the conservation estate as part of the EPBC offset requirements for the larger Mitchell Freeway Extension project (EPBC 2018/8367).</p>

Aspect	Comments
Offset Purpose	A NVCP Supporting Documentation report was completed for the Proposal and identified residual impacts remaining, after the application of the mitigation hierarchy (GHD 2020). The purpose of this document is to outline the offset proposed for the Proposal in accordance with the WA Environmental Offsets Guidelines, as a response to the residual impacts remaining.
Offset Proposal	For the purposes of providing a financial offset for this Proposal, it is assumed that an 8 ha rural freehold property will be acquired on the northern Swan Coastal Plain as part of a larger land parcel being purchased to satisfy EPBC 2018/8367 offset requirements. The value of unimproved (vegetated) rural land in the Shire of Gingin is estimated by the Valuer-General at \$16,910/hectare, which for 8 ha equates to the sum of \$135,280.

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1. Introduction

1.1 Proposal background

Main Roads Western Australia (Main Roads) proposes to undertake clearing of native vegetation to construct a roundabout and access road on Hester Avenue, immediately east of Mitchell Freeway where the freeway currently terminates (Figure 1, Appendix A). This Proposal is related to the Mitchell Freeway Extension Hester Avenue to Romeo Road project, however is being assessed separately to allow for flexibility in delivery timing, funding and approval requirements.

The Proposal will involve the construction of a new roundabout on Hester Avenue, construction of a new two lane northern access road to the Public Transport Authority (PTA) Nowergup Bus/Rail Depot. Construction of a new bridge is also required to facilitate the grade separation of the Mitchell Freeway southbound carriageway from the PTA access road. A native vegetation clearing permit (NVCP) (purpose) is required for clearing of native vegetation associated with the proposed works.

1.2 Purpose

The purpose of this document is to outline the offset proposed for the NVCP in accordance with the Western Australian (WA) Environmental Offsets Guidelines (Government of Western Australia (GoWA) 2011), as a response to the residual impacts remaining after the application of the mitigation hierarchy (detailed in the *Nowergup Depot Access Native Vegetation Clearing Permit Supporting Documentation* (GHD 2020)).

1.3 Proposal location

The NVCP area is located on Hester Avenue, immediately east of Mitchell Freeway where the freeway currently terminates (Figure 1, Appendix A). The Proposal area is 2.3 hectares (ha) in size (also referred to as the NVCP area), with 1.91 ha of native vegetation.

1.4 Clearing principles likely to be at variance

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 construction of the Proposal has been assessed against the Ten Clearing Principles, with each principle being assessed in accordance with the Department of Environment Regulation (DWER) *Guide to the Assessment of Applications to Clear Native Vegetation* (DWER 2014) to determine whether the application is at variance to the principles. The assessment indicates that the Proposal is at variance with principles b and h and likely to be at variance with principle a (Table 1).

Table 1 Principles at variance

Principle	Assessment	Outcome
<p>A Native vegetation should not be cleared if it comprises a high level of biological diversity.</p>	<p>The NVCP area has a high level of biodiversity, commensurate with the surrounding region. Four vegetation types were recorded from the NVCP area including two woodland types, one shrubland type and one type characterised by scattered natives over weeds. Native vegetation was mainly in Very Good – Good condition (54%). Approximately 38% was in Degraded condition. This reflects the context of the site, between an existing road and conservation areas.</p> <p>No State or Commonwealth Threatened or Priority flora species were recorded in the NVCP area during the biological surveys (GHD 2019).</p> <p>One Bush Forever site occurs within the NVCP area, Bush Forever Site No. 383 Neerabup National Park, Lake Nowergup Nature Reserve and adjacent bushland. Up to 1.5 ha of Bush Forever Site No. 383 is within the NVCP area.</p> <p>The majority of vegetation within the NVCP area (1.44 ha) is representative of two State listed PECs, these include:</p> <ul style="list-style-type: none"> • 0.14 ha of Northern Spearwood shrublands and woodlands PEC • 1.30 ha of Banksia woodlands of the Swan Coastal Plain PEC. This includes 1.11 ha of the EPBC Act listed Banksia woodlands of the Swan Coastal Plain TEC. <p>Four fauna habitat types were recorded in the NVCP area:</p> <ul style="list-style-type: none"> • Banksia woodland • Jarrah woodland • Mixed heathland • Scattered natives over weeds, highly disturbed <p>The <i>NatureMap</i> database identified 253 terrestrial fauna species previously recorded within the study area. This total comprised 142 birds, 54 reptiles, 22 mammals, 5 amphibians and 27 invertebrates. The biological assessment (GHD 2019) recorded no conservation significant fauna species within the NVCP area, however seven species were considered likely to occur based on the habitat present.</p> <p>One Regional Ecological Linkage intersects the NVCP area, and provides for movement of fauna through the landscape. The NVCP area intersects Regional Ecological Linkage ID 6, which links Neerabup National Park (Bush Forever Site No. 383) to Lake Joondalup (Bush Forever Site No. 299) in the south</p>	<p>Likely to be at variance to this principle</p>

Principle	Assessment	Outcome
	<p>and Yanchep and Neerabup National Parks (Bush Forever Site No. 130) in the north. The NVCP area is located on an existing road, therefore the impacts are expected to be less significant than bisecting contiguous vegetation. The Proposal will not break this ecological linkage, clearing 0.42 ha within the indicative border (based on GIS boundary data) (WALGA 2008).</p> <p>The Proposal will involve clearing native vegetation in an area of high biological diversity. The Proposal is likely to be at variance to this principle.</p>	
<p>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</p>	<p>The NVCP area contains habitat suitable for seven conservation significant fauna species including:</p> <ul style="list-style-type: none"> • Carnaby's Cockatoo (<i>Calyptorhynchus latirostris</i>) – Endangered under the EPBC Act and BC Act • Forest Red-tailed Black Cockatoo (<i>Calyptorhynchus banksii naso</i>) – Vulnerable under the EPBC Act and BC Act • Peregrine Falcon (<i>Falco peregrinus</i>) – Other specially protected fauna under the BC Act • Southern Brown Bandicoot (<i>Isodon fusciventer</i>) – Priority 4 • Western Brush Wallaby (<i>Notamacropus Irma</i>) – Priority 4 • Black-striped Snake (<i>Neelaps calonotos</i>) – Priority 3 • <i>Ctenotus gemmula</i> (Swan Coastal Plain population) – Priority 3. <p>The NVCP area contains suitable foraging habitat for both Carnaby's Cockatoo and Forest Red-tailed Black Cockatoo. Up to 1.91 ha of foraging habitat will be cleared. One black cockatoo potential breeding tree is within the NVCP area (with a DBH > 500 mm). This tree does not contain any hollows. No roosting habitat was identified in the NVCP area.</p> <p>The Proposal represents approximately 0.04% of available Black Cockatoo foraging habitat within 5 km of the Proposal (approximately 4,800 ha), of which 35% (1,673 ha) is located in DBCA managed lands (GoWA 2020). The Proposal lies within the modelled distribution of Carnaby's Cockatoo. Red Forest Black Cockatoo are also known to occur in the area in search of food. There are extensive, well reserved areas in the vicinity of the Proposal that are expected to provide suitable foraging, roosting and potential breeding resources for Black Cockatoos.</p> <p>Clearing of the NVCP area will also result in the loss of:</p> <ul style="list-style-type: none"> • 1.91 ha of habitat for the Peregrine Falcon • 1.91 ha of habitat for the Southern Brown Bandicoot • 1.91 ha of habitat for the Western Brush Wallaby 	<p>At variance to this principle</p>

Principle	Assessment	Outcome
	<ul style="list-style-type: none"> • 1.3 ha of habitat for the Black-striped Snake • 1.44 ha of habitat for Ctenotus gemmula (Swan Coastal Plain population). <p>Given the clearing of habitat for conservation significant fauna, the Proposal is considered to be at variance to this principle.</p>	
<p>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.</p>	<p>The NVCP area intersects Class A reserve, Neerabup National Park. Up to 1.5 ha of vegetation in Neerabup National Park will be cleared for the Proposal.</p> <p>The Proposal is at variance to this principle.</p>	<p>At variance to this principle.</p>

1.5 Residual impacts associated with specific clearing principles

The residual impacts associated with the Proposal include the loss of 1.91 ha of native vegetation. The vegetation was mainly in Very Good – Good (54%) and Degraded (38%) condition. This reflects the context of the site, between an existing road and conservation areas. A total of 1.15 ha of vegetation is in Good or better condition and represents high biodiversity vegetation.

Clearing impacts will include the loss of:

- 1.15 ha of native vegetation in Good or better condition
- 1.5 ha of Class A Neerabup National Park
- 1.5 ha of Bush Forever Site 383 (overlaps with Neerabup National Park)
- 1.44 ha of PECs as summarised below:
 - 0.14 ha of Northern Spearwood shrublands and woodlands PEC
 - 1.30 ha of *Banksia* woodlands of the Swan Coastal Plain PEC. This includes 1.11 ha of the EPBC Act listed *Banksia* woodlands of the Swan Coastal Plain TEC
- Up to 1.91 ha of habitat for conservation significant fauna, specifically:
 - 1.91 ha of foraging habitat for Carnaby's Cockatoo and Forest Red-tailed Black Cockatoo, as well as one potential breeding tree with no hollows.
 - 1.91 ha of habitat for the Peregrine Falcon
 - 1.91 ha of habitat for the Southern Brown Bandicoot
 - 1.91 ha of habitat for the Western Brush Wallaby
 - Up to 1.3 ha of habitat for the Black-striped Snake
 - 1.44 ha of habitat for *Ctenotus gemmula* (Swan Coastal Plain population).

2. Offset proposal requirements

2.1 Summary of offsets proposed

The principle offset for the Proposal relates to residual impacts to black cockatoo habitat. The offsets calculation has determined that 8 ha of land is required to offset this residual impact.

For the purposes of providing a financial offset for this Proposal, it is assumed that an 8 ha rural freehold property will be acquired on the northern Swan Coastal Plain as part of a larger land parcel being purchased to satisfy EPBC offset requirements for the larger Mitchell Freeway Extension Hester Avenue to Romeo Road project (EPBC 2018/8367). The value of unimproved (vegetated) rural land in the Shire of Gingin is estimated by the Valuer-General at \$16,910/hectare, which for 8 ha equates to the sum of \$135,280. A summary of the offset proposed is provided in Table 2.

Table 2 Summary of residual impacts, offset type, size of offset and percentage of residual impact offset

Residual Impact	Details	Temporary clearing revegetation (Y/N)	Offset Type (Other)	Residual impact (ha)	Offset size (ha)	% of residual impact offset
1 Loss of high biodiversity vegetation	<ul style="list-style-type: none"> • 1.15 ha of vegetation in Good or better condition • 1.5 ha of Class A Neerabup National Park • 1.5 ha of Bush Forever Site 383 • 1.44 ha of PECs 	N	Financial Contribution to a fund established by DWER	1.5 ha	5 ha	108%
2 Loss of habitat necessary for the maintenance of indigenous fauna	<ul style="list-style-type: none"> • 1.91 ha of foraging habitat for Carnaby's Cockatoo and Forest Red-tailed Black Cockatoo, as well as one potential breeding tree with no hollows. • 1.91 ha of habitat for the Peregrine Falcon • 1.91 ha of habitat for the Southern Brown Bandicoot • 1.91 ha of habitat for the Western Brush Wallaby • Up to 1.3 ha of habitat for the Black-striped Snake • 1.44 ha of habitat for <i>Ctenotus gemmula</i> (Swan Coastal Plain population). 	N	Financial Contribution to a fund established by DWER	1.91 ha	8 ha	106.90%
3 Clearing of vegetation associated with a conservation reserve	<ul style="list-style-type: none"> • 1.5 ha of Class A Neerabup National Park • 1.5 ha of Bush Forever Site 383 (note, this is the same area as the Class A Neerabup National Park). 	N	Financial Contribution to a fund established by DWER	1.5 ha	5 ha	108%

2.2 Justification for the Offset Proposal

The EPBC Offset Calculator Tool was used to evaluate Proposal impacts for clearing principles with significant residual impacts (principles a, b and h), in accordance with the requirements of the WA Environmental Offsets Guidelines (GoWA 2011). The calculations for Principles a, b and h are provided in Appendix B. Copies of the EPBC Offset Calculator Tool worksheets for the residual impacts to Clearing Principles a, b and h for the Proposal are included in Appendix C.

2.3 Calculation of financial contribution

A total offset of 8 ha will be required for this Proposal, taking the largest result from the offset calculations (black cockatoo). It is assumed that land purchased for offset purposes will include suitable land for the other environmental factors impacted.

The financial contribution was calculated using the EPBC Offset Calculator Tool to determine the area of the offset required in hectares (8 ha total) multiplied by the market valuation of the unimproved (vegetated) land. For the purposes of providing a financial offset for this Proposal, it is assumed that an 8 ha rural freehold property will be acquired on the northern Swan Coastal Plain as part of a larger land parcel being purchased to satisfy EPBC 2018/8367 offset requirements for the larger Mitchell Freeway Extension Hester Avenue to Romeo Road project. The value of unimproved (vegetated) rural land in the Shire of Gingin is estimated by the Valuer-General at \$16,910/hectare, which for 8 ha equates to the sum of \$135,280.

The market valuation of the vegetated land was based on the valuation obtained from the Valuer-General (on a \$/ha basis) for unimproved (vegetated) land within the Local Government Area (LGA) (Landgate 2016). As the Valuer-General's market valuation (\$/ha) of vegetated land differs according to the size of the land parcel, the valuation of the closest 'standard parcels' of land (i.e. 10, 50, 100, 200 or 500 ha) was used to determine the market valuation of the offset area.

2.4 Offset Condition Milestones

Condition Milestone 1 – Main Roads shall provide documentary evidence to the CEO of DWER that funding of \$135,280 has been transferred to the Department.

Timeframe for Completion – Prior to undertaking any clearing authorised under the Proposal clearing permit.

3. Application of Environmental Offset Policy Principles

The WA Environmental Offsets Policy (GoWA 2011) states that environmental offsets are to be used as a last resort, and details six principles to be applied in the assessment and decision making with respect to offsets.

The application of the environmental offset policy principles to this offset proposal is provided in Table 3.

Table 3 Application of the WA Environmental Offset Policy Principles to the Offset Proposal

Principle No.	Principle	Comment
1.	Environmental offsets will only be considered after avoidance and mitigation options have been pursued.	<p>All strategies to avoid and mitigate environmental impacts have been explored and implemented, including the following:</p> <ul style="list-style-type: none"> • The access has been located as close as possible to the existing PTA access to minimise the clearing footprint. Selection of preferred alignment and location of access was undertaken to minimise impacts to native vegetation. • Design of access has minimised clearing or impacts to the National Park by: <ul style="list-style-type: none"> – Ensuring the access road alignment is located in or as close to the existing adjacent road reserve as possible. – Designing the access road to impact degraded vegetation and avoid better condition vegetation in the vicinity (e.g. follow existing cleared access tracks where possible). – Installing new or modifying existing drainage basins in the current roads reserve where possible including the use of Freehold Lot (Lot 809) for any future additional drainage needs. – Reducing the cross section width of the PTA access road to the minimum permissible to ensure safe and efficient movement. – Implementation of typical surface water control measures along the access road including swales to prevent impacts to adjacent vegetation from surface water runoff and control 1 in 50 flooding events. – Implementation of typical surface water control measures on the roundabout including pit and pipe drainage connecting to the existing drainage network on Hester Avenue preventing runoff into adjacent vegetation. – Fully sealing the road which eliminates potential impact of dust particles on adjacent vegetation (associated with unsealed roads).

Principle No.	Principle	Comment
		<ul style="list-style-type: none"> – Vertical design of the road closely matches the existing topography where possible to minimise earthworks. – Minimising roundabout size as far as permissible, to accommodate the design vehicles and minimise clearing. • Installation of retaining walls is being considered during detailed design to further to reduce the earthworks batters and associated clearing. • Early consultation was undertaken with utility service providers to ensure design was optimised to minimise relocation of existing services (and associated ground disturbance/clearing). • Early consultation with the DBCA was undertaken to ensure design acceptance and determine concerns in relation to minimising impacts to native vegetation and the National Park.
2	Environmental offsets are not appropriate for all proposals.	Environmental offsets are considered an appropriate form of mitigation for biological impacts including the clearing of native vegetation.
3	Environmental Offsets will be cost effective, as well as relevant and proportionate to the significance of the environmental value being impacted.	Main Roads believes that the proposed offset represents a cost-effective solution that is relevant and proportionate to the environmental value being impacted by the Proposal. The area to be purchased with the financial contribution will consist of environmental values that are equal or of higher value than the vegetation proposed to be cleared within the Proposal area.
4	Environmental offsets will be based on sound environmental information and knowledge.	The selection and management of land to be purchased will be based on sound environmental information and knowledge.
5	Environmental offsets will be applied within a framework of adaptive management.	The offset land acquired will be added to the conservation estate and will be managed within an adaptive management framework utilising the State's environmental knowledge and understanding.
6	Environmental offsets will be focussed on longer term strategic outcomes.	The proposed offset will contribute to the Offset Fund established by DWER under the EP Act for the acquisition of offset sites. Land to be purchased will be added to the conservation estate.

4. References

Department of Environment Regulation (DWER) 2014, A Guide to the Assessment of Applications to Clear Native Vegetation. Government of Western Australia, Perth.

GHD 2019, Mitchell Freeway Extension Hester Avenue to Romeo Road Biological Survey, unpublished report prepared for Main Roads Western Australia, June 2019

GHD 2020, Nowergup Depot Access Roundabout Native Vegetation Clearing Permit Supporting Documentation, February 2020

Government of Western Australia (GoWA) 2011, WA Environmental Offset Policy (September 2011). Perth, WA. Available online: <http://www.epa.wa.gov.au/EPADocLib/WAEnvOffsetsPolicy-270911.pdf>

Government of Western Australia (GoWA) 2020, *Data WA*, retrieved February 2020, from <https://data.wa.gov.au/>.

Keighery, BJ 1994, Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, WA.

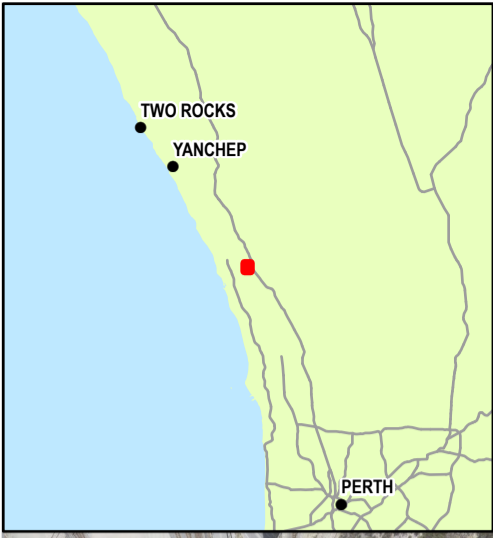
Land Information Authority, WA (Landgate) 2016, Landgate Land Valuations of Unimproved Land, 2016-2017 – *Confidential. Unpublished report prepared for Main Road's WA. Perth, WA.

WALGA 2008, Perth Biodiversity Project, data provided by WALGA under a licence agreement, June 2008.

Appendices

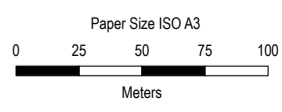
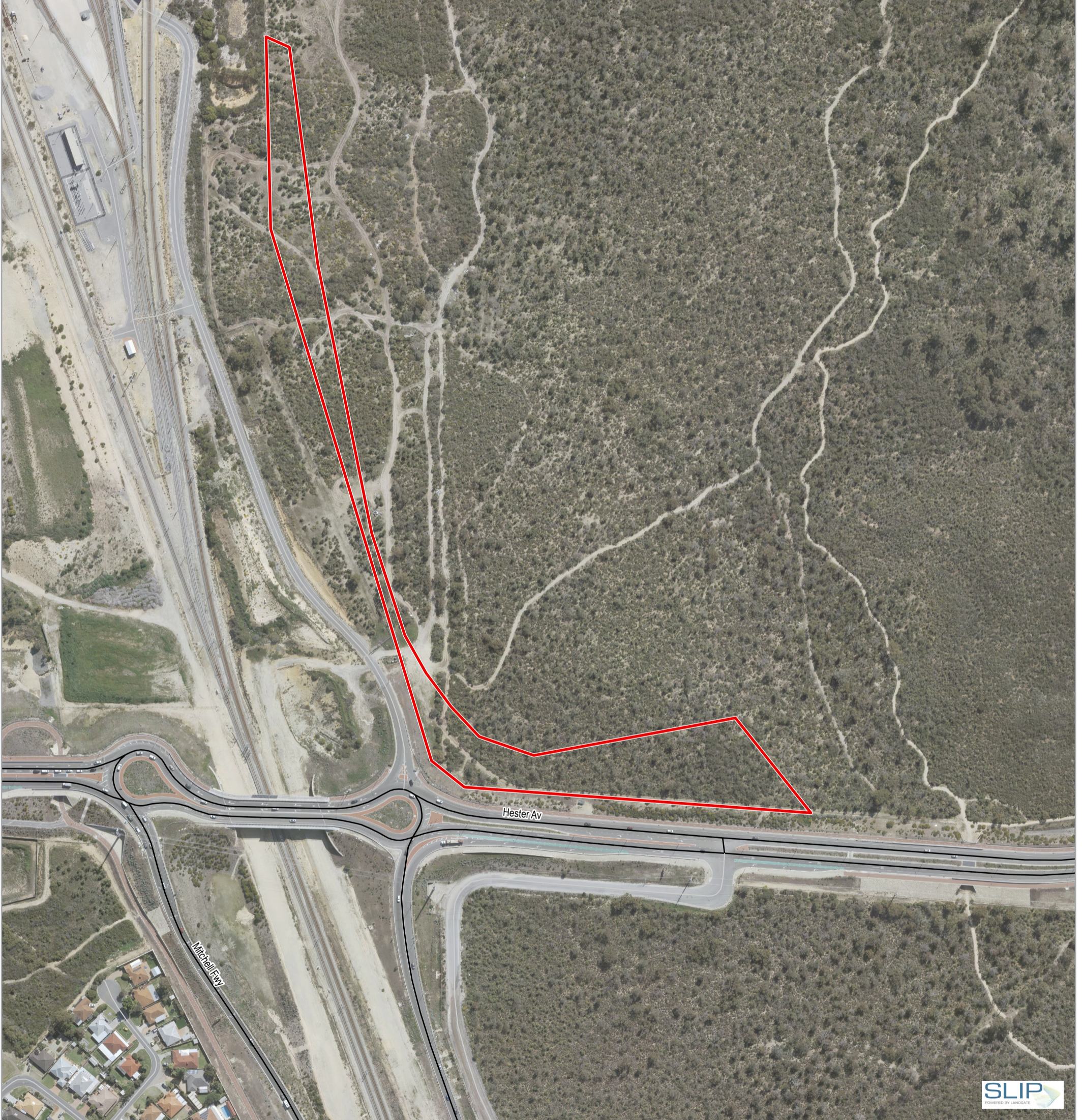
Appendix A – Figures

Figure 1 Proposal location

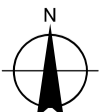


Legend

- Major roads
- Minor roads
- ▭ Project Footprint



Map Projection: Transverse Mercator
 Horizontal Datum: GDA 1994
 Grid: GDA 1994 MGA Zone 50



Main Roads WA
 Nowergup Depot Access

Project Location

Project No. 12522027
 Revision No. 0
 Date 24 Feb 2020

FIGURE 1

Appendix B – Offset Calculation Values

Values that were input into the EPBC Calculator Tool – Residual Impact to Clearing Principle a

Attribute	Value	Justification
Area of community/habitat impacted	1.5 ha	Total amount of Class A Neerabup National Park to be cleared, assuming that the National Park represents high biodiversity vegetation
Vegetation/Habitat quality of the impacted area	5	<p>An overall quality score was obtained by weighting the vegetation condition across the Proposal area:</p> <ul style="list-style-type: none"> • Pristine: score 10 – 0% of National Park area • Excellent: score 9 – 0% of National Park area • Excellent – Very Good: score 8 – 0% of National Park area • Very Good: score 7 – 0% of National Park area • Very Good – Good: score 6 – 68.7% of National Park area • Good: score 5 – 0% of National Park area • Good – Degraded: score 4 – 0% of National Park area • Degraded: score 3 – 29.5% of National Park area • Degraded – Completely Degraded: score 2 – 0% of National Park area • Completely Degraded: score 1 – 1.8% of National Park area. <p>The majority of National Park area impacted is in Very Good to Good condition, with a large section of Degraded. A weighted score of 5 was identified.</p>
Start quality Vegetation/habitat Quality of the offset area (takes into account the regional context and stocking rate)	9	Rating for Excellent condition vegetation based on Keighery (1994). It is assumed that land purchase with funds provided under s51i (2b) of the EP Act would be in Excellent or Pristine condition (Keighery 1994).
Future Quality without Offset	9	Unlikely to change over a period of one year prior to purchase.
Future Quality with Offset	9	Acquisition only therefore no change is expected in future quality
Time Horizon over which loss is averted (security of land tenure)	20 years	Land purchased with financial contributions will be added to the conservation estate so long term protection is afforded. Twenty years is the maximum value that can be input.
Time until ecological benefit	1 year	Short time-frame required for land to be purchased and placed into the conservation estate.
Risk of loss without offset	30%	Moderate risk of loss.
Risk of loss with offset	10%	Minimal risk. Offset placed into secure tenure managed by the State (i.e. conservation estate). Ten percent allows for ongoing management of the offset site.
Confidence in result	90%	High degree of confidence. Financial contributions are used to purchase land that is added to the conservation estate through a State guaranteed scheme.
Hectares of offset required	5 ha	

Attribute	Value	Justification
Percentage of impact offset	108%	

Values that were input into the EPBC Offset Calculator Tool – Residual Impact to Clearing Principle b – Black Cockatoos

Attribute	Value	Justification
Area of community/habitat impacted	1.91 ha	1.91 ha of foraging habitat for Carnaby’s and Forest Red-tailed Black Cockatoos will be cleared. Black cockatoos has the highest combined conservation significance and hectares of impact for the clearing area. It is assumed that black cockatoo habitat is also representative of habitat for other conservation significant species.
Vegetation/Habitat quality of the impacted area	5	<p>An overall quality score was obtained by weighting the habitat quality across the Proposal area, taking into account site condition, site context and species stocking rate.</p> <p>Site condition</p> <ul style="list-style-type: none"> • Pristine: score 10 – 0% of cockatoo habitat • Excellent: score 9 – 0% of cockatoo habitat • Excellent – Very Good: score 8 – 0% of cockatoo habitat • Very Good: score 7 – 0% of cockatoo habitat • Very Good – Good: score 6 – 54% of cockatoo habitat • Good: score 5 – 6.6% of cockatoo habitat • Good – Degraded: score 4 – 0% of cockatoo habitat • Degraded: score 3 – 38% of cockatoo habitat • Degraded – Completely Degraded: score 2 – 0% of cockatoo habitat • Completely Degraded: score 1 – 1.4% of cockatoo habitat. <p>A weighted score of 4.7 was identified.</p> <p>Site context</p> <p>A moderate score was applied to reflect the location of the Proposal between a road and conservation areas. The Proposal area is subject to threatening processes to habitat associated with informal access and weed invasion along the interface with the disturbed areas. The Proposal represents approximately 0.04% of available Black Cockatoo habitat remaining within 5 km of the Proposal (approximately 4,800 ha), of which 35% (1,673 ha) is located in DBCA managed lands (GoWA 2020). The Proposal lies within the modelled distribution of Carnaby’s Cockatoo and foraging by Forest Red-tailed Black Cockatoos has been recorded in the past. A score of 6 has been applied to reflect this context.</p>

Attribute	Value	Justification
		<p>Stocking rate</p> <p>A moderate score is provided as the Proposal area is known to support foraging and occupation by the species, but has an absence of actual breeding and roosting evidence. The Proposal is expected to play a minor role in sustaining the overall species population viability as the species forages and migrates across the Swan Coastal Plain each year.</p> <p>The score reflects the presence of 1.91 ha of foraging habitat and one potential future breeding tree.</p> <p>A score of 4 has been applied.</p> <p>An average score of 4.9 was obtained, this has been rounded up to 5.</p>
Start quality Vegetation/habitat Quality of the offset area (takes into account the regional context and stocking rate)	9	Rating for Excellent condition vegetation based on Keighery (1994). It is assumed that land purchase with funds provided under s51i (2b) of the EP Act would be in Excellent or Pristine condition (Keighery 1994).
Future Quality without Offset	9	Unlikely to change over a period of one year prior to purchase.
Future Quality with Offset	9	Acquisition only therefore no change is expected in future quality.
Time Horizon over which loss is averted (security of land tenure)	20 years	Land purchased with financial contributions will be added to the conservation estate so long term protection is afforded. Twenty years is the maximum value that can be input.
Time until ecological benefit	1 year	Short time-frame required for land to be purchased and placed into the conservation estate.
Risk of loss without offset	30%	Moderate risk of loss.
Risk of loss with offset	10%	Minimal risk. Offset placed into secure tenure managed by the State (i.e. conservation estate). Ten percent allows for ongoing management of the offset site.
Confidence in result	90%	High degree of confidence. Financial contributions are used to purchase land that is added to the conservation estate through a State guaranteed scheme.
Hectares of offset required	8 ha	
Percentage of impact offset	106.90%	

Values that were Input into the EPBC Offset Calculator Tool – Residual Impact to Clearing Principle h

Attribute	Value	Justification
Area of community/habitat impacted	1.5 ha	Total amount of Class A Neerabup National Park to be cleared
Vegetation/Habitat quality of the impacted area	5	<p>An overall quality score was obtained by weighting the vegetation condition across the Proposal area:</p> <ul style="list-style-type: none"> • Pristine: score 10 – 0% of National Park area • Excellent: score 9 – 0% of National Park area • Excellent – Very Good: score 8 – 0% of National Park area • Very Good: score 7 – 0% of National Park area • Very Good – Good: score 6 – 68.7% of National Park area • Good: score 5 – 0% of National Park area • Good – Degraded: score 4 – 0% of National Park area • Degraded: score 3 – 29.5% of National Park area • Degraded – Completely Degraded: score 2 – 0% of National Park area • Completely Degraded: score 1 – 1.8% of National Park area. <p>The majority of National Park area impacted is in Very Good to Good condition, with a large section of Degraded. A weighted score of 5 was identified.</p>
Start quality Vegetation/habitat Quality of the offset area (takes into account the regional context and stocking rate)	9	Rating for Excellent condition vegetation based on Keighery (1994). It is assumed that land purchase with funds provided under s51i (2b) of the EP Act would be in Excellent or Pristine condition (Keighery 1994).
Future Quality without Offset	9	Unlikely to change over a period of one year prior to purchase.
Future Quality with Offset	9	Acquisition only therefore no change is expected in future quality
Time Horizon over which loss is averted (security of land tenure)	20 years	Land purchased with financial contributions will be added to the conservation estate so long term protection is afforded. Twenty years is the maximum value that can be input.
Time until ecological benefit	1 year	Short time-frame required for land to be purchased and placed into the conservation estate.
Risk of loss without offset	30%	Moderate risk of loss.
Risk of loss with offset	10%	Minimal risk. Offset placed into secure tenure managed by the State (i.e. conservation estate). Ten percent allows for ongoing management of the offset site.
Confidence in result	90%	High degree of confidence. Financial contributions are used to purchase land that is added to the conservation estate through a State guaranteed scheme.
Hectares of offset required	5 ha	

Attribute	Value	Justification
Percentage of impact offset	108%	

Appendix C – EPBC Offset Guides

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29039/[https://projectsportal.ghd.com/sites/pp18_04/nowergupdepotaccessr/ProjectDocs/12522027_Nowergup Depot Access_Offset Proposal_Feb2020.docx](https://projectsportal.ghd.com/sites/pp18_04/nowergupdepotaccessr/ProjectDocs/12522027_Nowergup%20Depot%20Access_Offset%20Proposal_Feb2020.docx)

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