



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 9236/1
Permit Holder:	Cooperative Bulk Handling Limited
Duration of Permit:	From 26 May 2022 to 26 May 2032

The Permit Holder is authorised to clear *native vegetation* subject to the following conditions of this Permit.

PART I – CLEARING AUTHORISED

1. Clearing authorised (purpose)

The Permit Holder is authorised to *clear native vegetation* for the purpose of road construction or upgrades.

2. Land on which clearing is to be done

Great Northern Highway Road reserve (PIN 11288339), Dalwallinu and Nugadong
Unnamed Railway reserve (PIN 1323360), Dalwallinu and Nugadong

3. Clearing authorised

The Permit Holder must not *clear* more than one (1) hectare of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

4. Period during which clearing is authorised

The Permit Holder must not *clear any native vegetation* after 26 May 2027.

PART II – MANAGEMENT CONDITIONS

5. Avoid, minimise, and reduce impacts and extent of clearing

In determining the *native vegetation* authorised to be *cleared* under this Permit, the Permit Holder must apply the following principles, set out in descending order of preference:

- (a) avoid the *clearing of native vegetation*;
- (b) minimise the amount of *native vegetation* to be *cleared*; and
- (c) reduce the impact of *clearing* on any environmental value.

6. Weed management

When undertaking any *clearing* authorised under this Permit, the Permit Holder must take the following measures to minimise the risk of introduction and spread of *weeds*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be *cleared*;
- (b) ensure that no known weed-affected soil, *mulch*, *fill*, or other material is brought into the area to be *cleared*; and
- (c) restrict the movement of machines and other vehicles to the limits of the areas to be *cleared*.

7. Offset – revegetation

Within 12 months of the commencement of clearing, the Permit Holder must implement and adhere to the *Revegetation plan*, including but not limited to the following actions:

- (a) retain the vegetative material and topsoil removed by clearing authorised under this Permit and stockpile the vegetative material and topsoil in an area that has already been cleared;
- (b) commence *revegetation* within the *offset site* by:
 - (i) ripping the *offset site* to remove any areas of compaction or other obstruction that could prevent root penetration of seedlings
 - (ii) laying the vegetative material and topsoil retained under Condition 7(a) on the cleared area
 - (iii) deliberately *planting native vegetation* in accordance with the *revegetation plan*; and
 - (iv) ensuring only *local provenance* seeds and propagating material are used to *revegetate* the area.
- (c) undertake weed control in accordance with Section 3.6 of the *Revegetation plan*
- (d) establish three 10 x 10 metre *quadrat* monitoring sites across the *offset sites*
- (e) conduct *pest animal* control
- (f) fence the *offset sites*
- (g) remove rubbish from the *offset sites*
- (h) install a trafficable firebreak that complies with the Shire of Dalwallinu requirements around the interior perimeter fence of the *offset sites*
- (i) achieve the following *completion criteria* no later than within a 5-year monitoring period for areas *revegetated* under this Permit and for the vegetation to be maintained for a period of two years from the date of the *completion criteria* have been met

Table 1 Completion criteria related to vegetation at the *offset site*

Item	Criterion	Completion targets	Completion criteria	Monitoring
1a	Species richness	Return a minimum of three (3) overstorey species in the <i>offset site</i> .	The <i>offset site</i> needs to contain the following species: <ul style="list-style-type: none"> • <i>Allocasuarina campestris</i>, • <i>A. acutivalvis</i> subsp. <i>acutivalvis</i>; and • <i>Eucalyptus</i> sp. <i>mallee</i> 	Annually in spring by an <i>environmental specialist</i> until completion criterion has been met and maintained for two years (i.e. three successive monitoring events).
1b	Species richness	Minimum of 60 per cent of native species in each structural layer returned, based on <i>reference site</i> .	The <i>offset site</i> needs to contain a minimum of nine (9) locally occurring native species as recorded at the <i>reference site</i>	Annually in spring by an <i>environmental specialist</i> until completion criterion has been met and maintained for two years (i.e. three successive monitoring events).
2a	Cover and density	Minimum of 60 per cent of stems/ha for dominant overstorey species returned based on <i>reference site</i> .	The <i>offset site</i> needs to contain a minimum of 983 stems of the dominant overstorey species from the <i>reference site</i>	Annually by an <i>environmental specialist</i> until completion criterion has been met and maintained for two years (i.e. three successive monitoring events).
2b	Cover and density	Minimum of 60 per cent of plants in each structural layer returned, based on <i>reference site</i> .	The <i>offset site</i> needs to contain a minimum of: <ul style="list-style-type: none"> • 1,210 plants of native shrub species • 1,890 plants of native grasses • 46 plants of native herbs; as recorded at the <i>reference site</i> .	Annually by an <i>environmental specialist</i> until completion criterion has been met and maintained for two years (i.e. three successive monitoring events).
3a	Weeds	Weed cover is no greater than at <i>reference site</i>	The <i>offset site</i> needs to contain a weed cover no greater than that recorded at the targeted <i>reference site</i> .	Annually by an <i>environmental specialist</i> until completion criterion has been met and maintained for two years (i.e. three successive monitoring events).
3b	Weeds	No priority, high impact or highly invasive weeds present. Managed as required by the <i>Biosecurity and Agriculture Management Regulations 2013</i>	No weeds present that are listed as Priority Alert, High Impact or Rapid invasiveness on the DBCA Wheatbelt Region Impact and Invasiveness Ratings list as updated from time to time.	Annually by an <i>environmental specialist</i> until completion criterion has been met and maintained for two years (i.e. three successive monitoring events).
4	Bare ground	No more than 5 per cent greater than at the <i>reference site</i>	The <i>offset site</i> must have the area of bare ground no more than 5 per cent greater than at the <i>reference site</i> .	Annually in Summer by an <i>environmental specialist</i> until completion criterion has been met and maintained for two years (i.e. three successive monitoring events).
5	Gates and boundary fence	Gates and boundary fence to be in good condition with no obvious damage that will enable the entry of <i>pest animals</i> into the <i>offset site</i> .	N/A	Annually by an <i>environmental specialist</i> until completion criteria 1 – 4 has been met.

- (j) following annual site inspections, produce a report prepared by an *environmental specialist* outlining the progress of *revegetation* within the *offset site* towards meeting the *completion criteria*
- (k) undertake remedial actions for the *offset site* where monitoring indicated that revegetation has not met the completion criteria, outlined in condition 7(i) of this Permit, including:
 - (i) revegetate the area by deliberately *planting native vegetation* that will result in the minimum target set out in condition 7(i) of this Permit and ensuring only *local provenance* seeds and propagating material are used;
 - (ii) undertake further weed control activities;
 - (iii) undertake further watering activities; and
 - (iv) annual monitoring by an *environmental specialist of the offset sites* following the three years of biannual monitoring outlined in condition 7(i), until the completion criteria, outlined in condition 7(i) of this Permit are met.

8. Offset – conservation covenant

Prior to undertaking any clearing authorised under this Permit, and no later than 26 May 2023 the Permit Holder must:

- (a) give a conservation covenant under section 30B of the *Soil and Land Conservation Act 1945* setting aside the *offset side* for the protection and management of vegetation in perpetuity; and
- (b) provide to the *CEO* a copy of the executed conservation covenant.

PART III - RECORD KEEPING AND REPORTING

9. Records that must be kept

The Permit Holder must maintain records relating to the listed relevant matters in accordance with the specifications detailed in Table 1.

Table 1: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	<ul style="list-style-type: none"> (a) the species composition, structure, and density of the cleared area; (b) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings; (c) the date that the area was cleared; (d) the size of the area cleared (in hectares); (e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 5 of this Permit; and (f) actions taken to minimise the risk of the introduction and spread of weeds in accordance with condition 6 of this Permit.
2.	In relation to the <i>revegetation of the offset site</i> pursuant to	<ul style="list-style-type: none"> (a) the location of any areas <i>revegetated</i>, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees; (b) the date the fence and firebreak were installed and evidence of maintenance;

No.	Relevant matter	Specifications
	condition 7 of this Permit	(c) the date rubbish was removed from the <i>offset site</i> ; (d) <i>pest animal</i> and weed control measures undertaken; (e) a description of the <i>revegetation</i> activities undertaken; (f) the size of the area <i>revegetated</i> (in hectares); (g) the species composition, structure and density of <i>revegetation</i> ; (h) the number of plants and species installed (i) the assessment of the <i>revegetation</i> against <i>completion criteria</i> outlined in condition 7(i); (j) any remedial actions undertaken in accordance with condition 7(k); and (k) a copy of the <i>environmental specialist's</i> report.

10. Reporting

- (a) The Permit Holder must provide to the *CEO* on or before 30 June of each year, a written report:
- (i) of records required under condition 9 of this Permit; and
 - (ii) concerning activities done by the Permit Holder under this Permit between 1 January and 31 December of the preceding calendar year.
- (b) If no clearing authorised under this Permit was undertaken between 1 January to 31 December of the preceding calendar year, a written report confirming that no clearing under this Permit has been carried out, must be provided to the *CEO* on or before 30 June of each year.
- (c) Prior to 26 February 2032, the Permit holder must provide to the *CEO* a written report of records required under condition 9 of this Permit, where these records have not already been provided under condition 10(a) of this Permit.

DEFINITIONS

In this Permit, the terms in Table 2 have the meanings defined.

Table 2: Definitions

Term	Definition
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the <i>Environmental Protection Act 1986</i> .
Clearing	has the meaning given under section 3(1) of the EP Act.
Completion criteria	means a measurable outcome based on suitable <i>reference site</i> , used to determine revegetation success
Condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
Direct seeding	means a method of re-establishing vegetation through establishment of a seed bed and the introduction of seeds of the desired plant species.
Environmental specialist	means a person who holds a tertiary qualification in environmental science or equivalent and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit, or who is approved by the <i>CEO</i> as a suitable environmental specialist.
EP act	<i>Environmental Protection Act 1986</i> (WA)
Fill	means material used to increase the ground level, or to fill a depression.
Local provenance	means <i>native vegetation</i> seeds and propagating material from natural sources within 100 kilometres and the same Interim Biogeographic Regionalisation for


Term	Definition
	Australia (IBRA) subregion of the area cleared.
Mulch	means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation.
Native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
Offset site	means the area cross-hatched red on Figure 2 of Schedule 1.
Pest animal	animals that are known to impact the survival of revegetation; i.e. rabbits, kangaroos, livestock etc.
Planting	means the re-establishment of vegetation by creating favourable soil conditions and <i>planting</i> seedlings of the desired species.
Quadrat	means a sample plot established for the purpose of data collection and monitoring vegetation characteristics, for example species composition, structure, density and condition
Reference site	means native vegetation within Nugadong Nature Reserve surveyed by Phoenix Environmental Sciences Pty Ltd (2016).
Revegetate/ed/ion	means the re-establishment of a cover of <i>local provenance native vegetation</i> in an area using methods such as natural regeneration, <i>direct seeding</i> and/or <i>planting</i> , so that the species composition, structure and density is similar to pre-clearing vegetation types in that area
Revegetation plan	means plans developed by the Permit Holder for the <i>revegetation</i> of the <i>offset site</i> in accordance with condition 7 of this Permit: “ <i>McLevie Grain Storage Site, Dalwallinu. Revegetation plan. Prepared for CBH Group (360 Environmental, 2022)</i> ”.
Weeds	means any plant – (a) that is a declared pest under section 22 of the <i>Biosecurity and Agriculture Management Act 2007</i> ; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.

REFERENCES

360 Environmental. (2022). *McLevie Grain Storage Site, Dalwallinu. Revegetation plan*. Prepared for CBH Group. April 2022. Received by the Department on 12 April 2022. DWER Ref: DWERDT590558.

Phoenix Environmental Sciences Pty Ltd. (2016). Flora and Fauna assessment for Calingiri to Wubin study areas. Great Northern Highway, Muchea to Wubin Upgrade Stage 2 Project. Prepared for Muchea to Wubin Integrated Project Team (Main Roads WA, Jacobs and Arup). August 2016. Final Report

END OF CONDITIONS


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Ryan Mincham
 MANAGER
 NATIVE VEGETATION REGULATION

*Officer delegated under Section 20
 of the Environmental Protection Act 1986*

3 May 2022

Schedule 1

The boundary of the area authorised to be cleared is shown in the map below

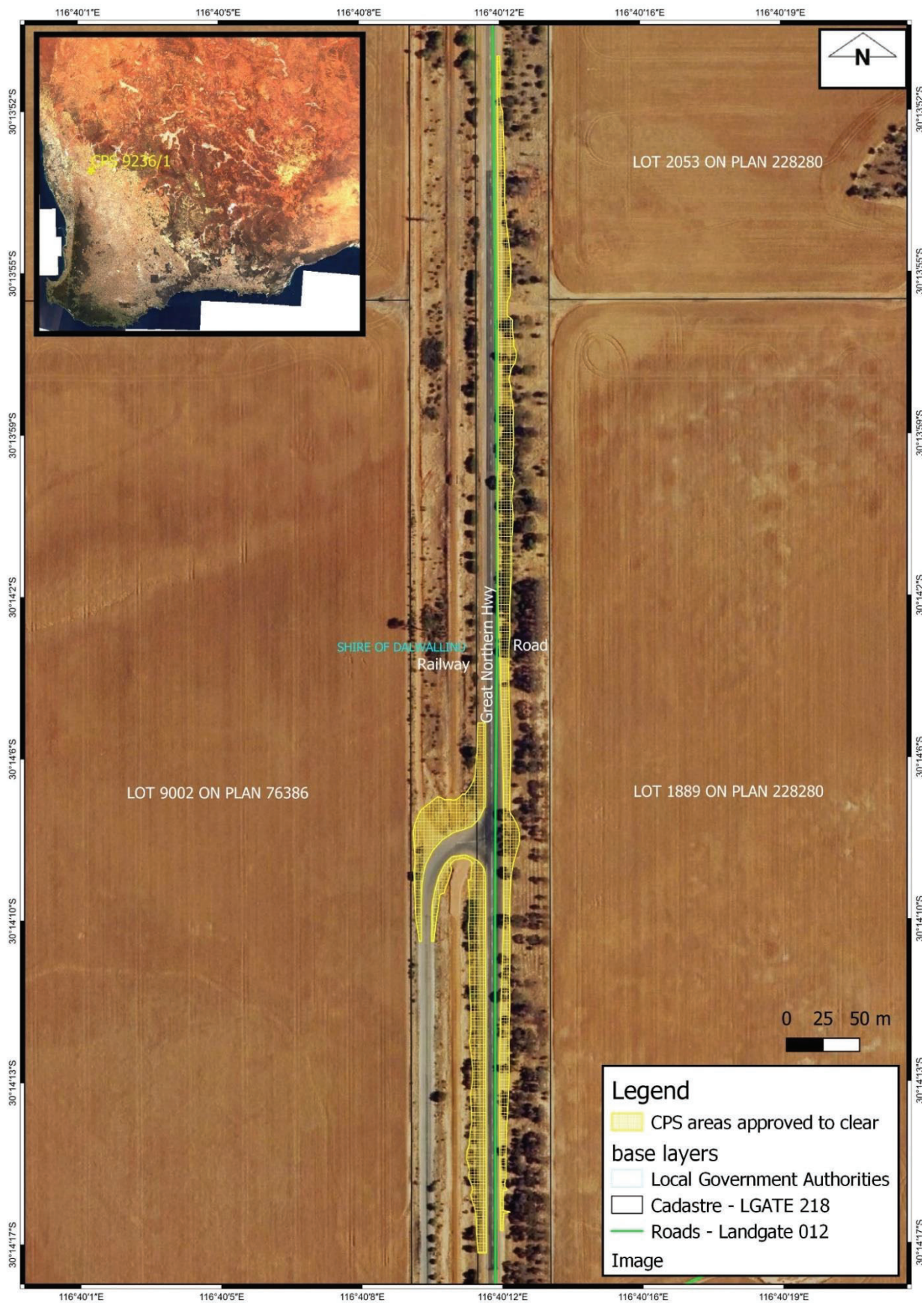


Figure 1: Map of the boundary of the area (cross-hatched yellow) within which clearing may occur.

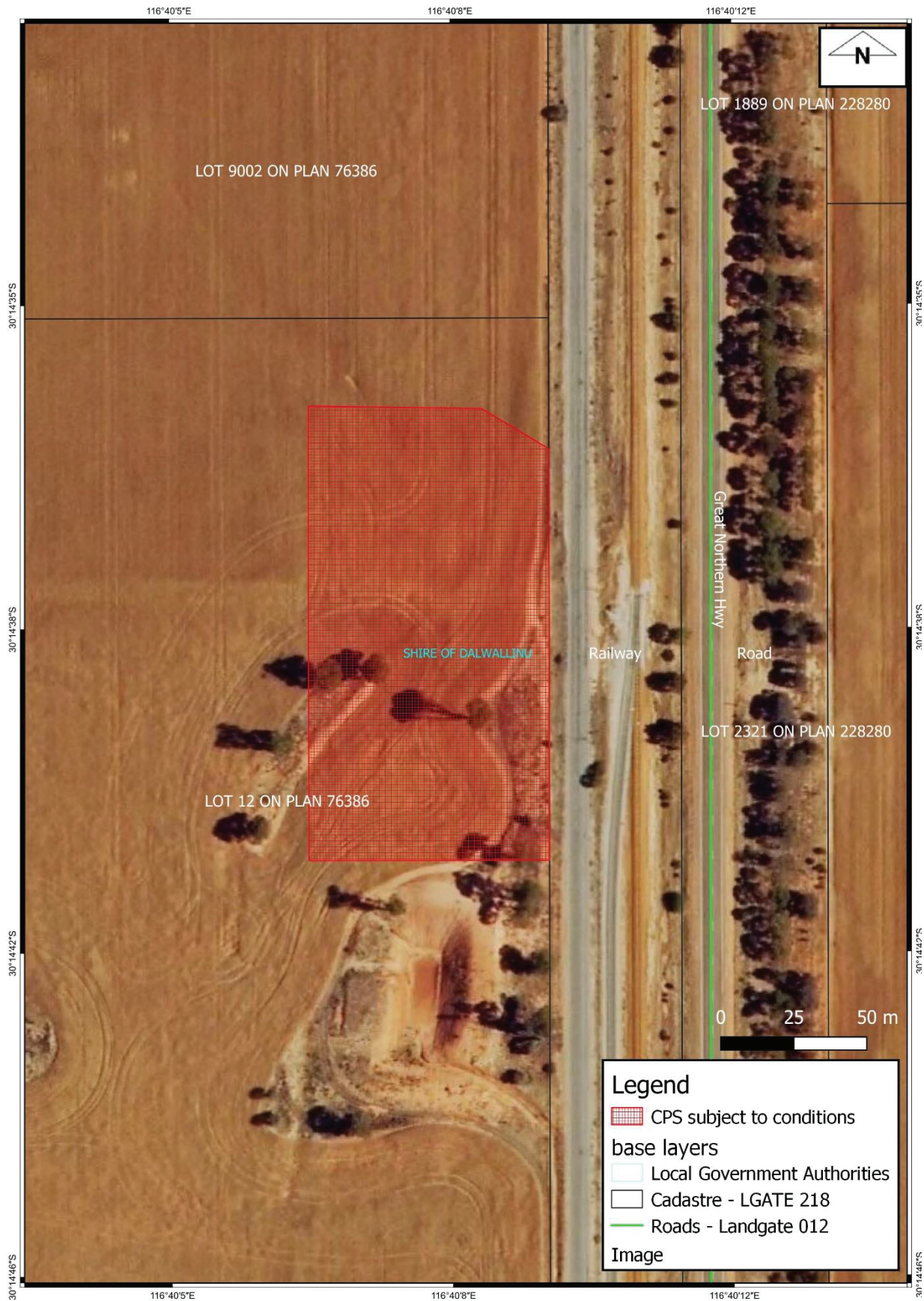


Figure 2: Map of the boundary of the area cross-hatched red which will be revegetated and protected in perpetuity in accordance with the offset conditions of this Permit.



Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 9236/1
Permit type:	Purpose permit
Applicant name:	Cooperative Bulk Handling Ltd (CBH)
Application received:	15 March 2021
Application area:	1 hectare of native vegetation
Purpose of clearing:	Road construction and upgrades
Method of clearing:	Mechanical
Property:	Great Northern Highway Road reserve (PIN 11288339) Unnamed Railway reserve (PIN 1323360)
Location (LGA area/s):	Shire of Dalwallinu
Localities (suburb/s):	Dalwallinu, Nugadong

1.2. Description of clearing activities

The vegetation proposed to be cleared is up to one hectare of native vegetation distributed across three separate areas (see Figure 1, Section 1.5). The purpose of the clearing is to widen the existing road and establish a slip road. The clearing is consistent with Condition 3 of the Shire of Dalwallinu's Development Approval which requires CBH to upgrade the access road to its McLevie grain storage site at the intersection with Great Northern Highway.

1.3. Decision on application

Decision:	Granted
Decision date:	3 May 2022
Decision area:	1 hectare of native vegetation, as depicted in Section 1.5, below.

1.4. Reasons for decision

In undertaking the assessment, the Delegated Officer had regard for:

- actions taken by the applicant which resulted in the avoidance and minimisation of the extent of the clearing area and the mitigation of the impacts of clearing (see Section 3.1 of this report)
- a detailed assessment of the impacts of the clearing on environmental values (see Section 3.2 of this report)
- other matters considered relevant to the assessment (see Section 3.3 of this report). This included:
 - advice from Shire of Dalwallinu on matters regulated under its jurisdiction; and
 - locations of Aboriginal sites of significance
- the application area site characteristics (see Appendix A)
- the 10 Clearing Principles set out in Schedule 5 of the *Environmental Protection Act 1986* (EP Act) (see Appendix B)
- findings of a targeted short-range endemic (SRE) and conservation significant invertebrates fauna survey conducted by Invertebrate Solutions (2020)

- photographs of the representative vegetation within the application area (Appendix D)
- the results of offset calculations using the WA Environmental Offset Metric (see Appendix E)
- the findings of Phoenix Environmental Sciences Pty Ltd's biological surveys along Great Northern Highway, which included the entire application area
- the revegetation plan prepared to support the revegetation offset (360 Environmental, 2022)
- relevant datasets available at the time of the assessment (Appendix F).

The clearing permit application was submitted, accepted, assessed and determined in accordance with section 51E and 51O of the EP Act. DWER advertised the application for 21 days. No public submissions were received.

After consideration of the above information, and the avoidance, minimisation and mitigation actions taken by the applicant, DWER determined that the proposed clearing will result in the following significant residual impacts (SRIs):

- loss of one (1) hectare of native vegetation considered significant as a remnant of native vegetation in an area that has been extensively cleared and which supports fauna movement across the landscape.

DWER also determined that the proposed clearing will result in the potential introduction and spread of weeds into adjacent native vegetation which could impact on the quality of this vegetation.

To address the above SRIs and applying the WA Environmental Offset Metric, DWER determined that the following offset is required:

- revegetation of 1.26 hectares of Lot 12 on Plan 76386, Dalwallinu (the offset site); and
- placing a conservation covenant under the *Soil and Land Conservation Act 1945* over the offset site.

To maximise the revegetation success, the applicant commissioned 360 Environmental to prepare a comprehensive revegetation plan in accordance with the DWER's *Guide to Preparing Revegetation Plan for Clearing Permits*. DWER deemed the revegetation plan (360 Environmental, 2022) adequate due to the following:

- the identified species list is based on reference sites within Nugadong Nature Reserve (R 29326) and appropriate to address the significant residual impacts of the proposed clearing
- SMART (Specific, Measurable, Achievable, Realistic, and Time-bound) completion criteria were developed with the aim to establish a self-sustaining and resilient patch of vegetation
- the completion criteria considered the offset site characteristics, such as the soil type, landscape position and site history
- appropriate revegetation techniques were proposed; and
- appropriate monitoring and contingency actions were developed.

The Delegated Officer considered that the revegetation offset is consistent with the *WA Environmental Offsets Policy* (2011) and *WA Environmental Offsets Guidelines* (2014), will address 100 per cent of the SRI impacts of the proposed clearing and result in:

- a net increase of vegetation in the locality of the application; and
- improved ecological linkage values.

On this basis, the Delegated Officer decided to grant a clearing permit subject to the following conditions imposed on the clearing permit:

- avoid, minimise to reduce the impacts and extent of clearing
- weed management to minimise the risk of introduction and spread of weeds
- revegetation of the offset site to counterbalance the loss of significant remnant vegetation and ecological linkage values.

Noting the above, DWER considered that the impacts of the proposed clearing are unlikely to have any long-term adverse impacts on the environmental values in the local area and that the abovementioned management practices will adequately mitigate any potential impacts.

1.5. Site map

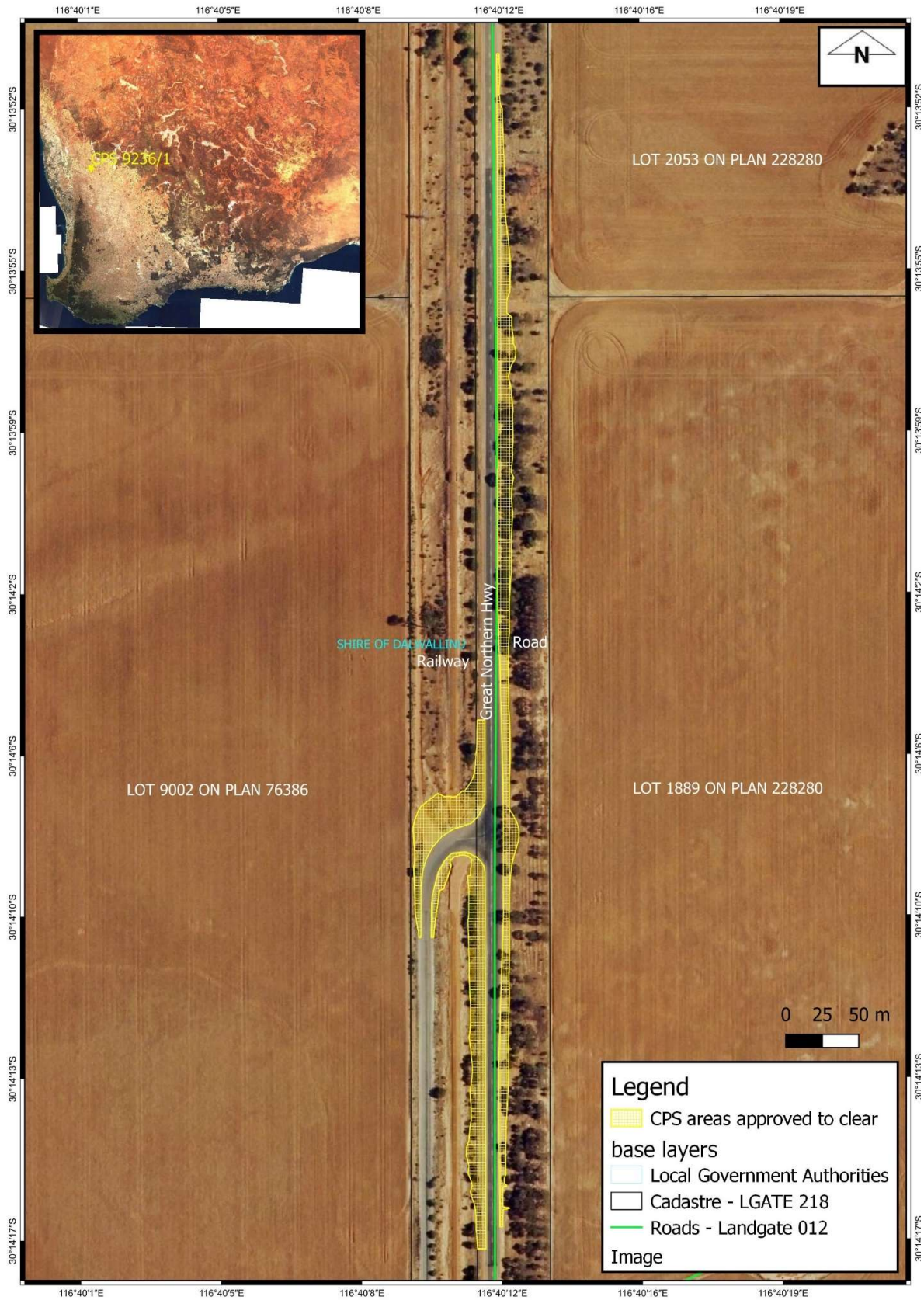


Figure 1 - Map of the application area. The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

2 Legislative context

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 (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Planning and Development Act 2005* (WA) (P&D Act).

Relevant policies considered during the assessment include:

- *WA Environmental Offsets Policy* (2011)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- *WA Environmental Offsets Guidelines* (August 2014)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2016).

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

In relation to any actions which had been considered to avoid and minimise the need for clearing and mitigate its impacts, CBH advised they were obliged to complete the road works for the Shire of Dalwallinu to comply with Condition 3 of the Main Roads Western Australia (MRWA) Determination Letter and Notice. The extent of the proposed clearing area within the road reserve has been designed to comply with the MRWA minimum requirements for Great Northern Highway.

CBH further advised that the proposed clearing within the rail corridor is the minimum area to produce a compliant intersection for RAV 7 and RAV 10 vehicles. The intersection was shifted approximately 20 metres north to maintain clearance from the Mclewie Railway Station limits, to ensure it remains not a 'live' crossing. CBH noted that this was a significant consideration to ensure there was sufficient space between the rail and road reserves to provide compliant stacking distances for grain transport vehicles. Should it change to a live crossing, the Site would not be accessible to road deliveries from the Great Northern Highway.

In addition, CBH noted it had undertaken several engineering controls to minimise clearing impact and ensure safe operation on site. A construction Environmental Management Plan (CEMP) will be developed for the proposed works and shall incorporate the following environmental elements during the key phases of the project (pre-construction, construction) (CBH, 2021):

- vegetation management
- weed management
- fauna and habitat management.

CBH (2021) stated that the CEMP will also address:

- environmental outcomes and performance indicators
- management measures and monitoring
- contingency response and corrective actions
- environmental management roles and responsibilities.

Examples of environmental management measures which mitigate clearing impacts include, but are not limited to (CBH, 2021):

- demarcation of clearing area prior to the commencement of project and native vegetation clearing activities
- induction of all contractors and/or internal personnel undertaking the clearing in accordance with CBH's internal procedures. GPS coordinates of clearing permit area will be supplied to contractors

- clearly outlining (by barrier tape or star pickets) the clearing area to ensure that no clearing beyond the permitted area occurs.

The Delegated Officer was satisfied that the applicant has demonstrated reasonable measures to avoid, minimise and mitigate potential impacts of the proposed clearing on environmental values.

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix A) and the extent to which the impacts of the proposed clearing present a risk to biological, conservation, or land and water resource values.

The assessment against the clearing principles (see Appendix B) identified that the impacts of the proposed clearing present a risk to biological values (fauna) and significant remnant vegetation. The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

3.2.1. Environmental value: biological values (flora) – Clearing Principles (a) and (c)

Outcome:

The proposed clearing may impact adjacent native vegetation through an increase of weeds.

Conditions:

Adhering to weed management measures (as conditioned on the clearing permit) will minimise the risk of introduction and spread of weeds.

Assessment:

According to the Department of Biodiversity, Conservation and Attractions (DBCA) (2022a), a total of two Threatened and four Priority flora species are known to occur within the local area. Based on the similarities shared between the soil and vegetation types in habitats for these flora taxa and within the application area, two threatened and three Priority flora had a potential to occur within the application area. *Banksia benthamiana* is unlikely to occur within the application area given no *Banksia* sp. occur within the application area (Invertebrate Solutions, 2020):

- *Acacia scalena* (P3) is an intricately branched, rigid, often straggly, prickly shrub up to 1.5 metre high which occupies yellow or yellow gravelly sand and loam (WA Herbarium, 1998-). The species is known from 38 populations in the Avon Wheatbelt IBRA bioregion spread across approximately 266 kilometre north-south and 130 kilometres east-west. The closest population is recorded approximately 3.1 kilometres from the application area (DBCA, 2022a).
- *Austrostipa blackii* (P3) is a tufted perennial, grass-like or herb up to one metre high (WA Herbarium, 1998-). According to DBCA (2022a). There are 67 known populations of this species in the Avon Wheatbelt, Coolgardie and Yalgoo IBRA bioregions with a spatial distribution of approximately 400 kilometres north-south and 520 kilometre east-west. The closest population is recorded approximately 4.4 kilometres from the application area (DBCA, 2022a).
- *Eremophila pinnatifida* (T) is a shrub up to 0.6 metre high which tends to occur on loam soils (WA Herbarium, 1998-). The species is known from 18 populations in the Avon Wheatbelt IBRA bioregion with a spatial distribution of approximately 60 kilometres north-south and 20 kilometres east-west. The closest population is recorded approximately 1.5 kilometre from the application area (DBCA, 2022a).
- *Haloragis platycarpa* (T) is a perennial herb, approximately 0.3-metre high which is associated with dark brown/red dry sand/granite rocks in loamy clay (WA Herbarium, 1998-). The species is known from 14 populations on the Avon Wheatbelt and Jarrah Forest bioregions with a distribution of approximately 75 kilometres north-south and 95 kilometres east-west. The closest population is recorded approximately 4.6 kilometres from the application area.
- *Verticordia venusta* (P3) is an erect, spreading shrub up to two metres high which generally grows in yellow sand, sandy gravel soils on sandplains (WA Herbarium, 1998-). The species is known from 103 populations in the Avon Wheatbelt and Geraldton Sandplains bioregions with a range of approximately 195 kilometres north-south and 170 kilometres east-west. The closest populations occur approximately 2.1 kilometres from the application area.

A further likelihood of occurrence identified that the abovementioned species are unlikely to occur within the application area. The understory within the application area is in degraded (Keighery, 1994) to completely degraded (Keighery, 1994) condition. Invertebrate Solutions (2020) described the application area as highly disturbed and observed evidence of historic ploughing throughout the application area. Additionally, the application area is fully encompassed within the boundaries of Clearing Permit CPS 7231/4 which was granted to upgrade

Great Northern Highway between Muchea and Wubin. To support the original clearing permit application CPS 7231/1, MRWA commissioned Phoenix Environmental Sciences to conduct comprehensive spring flora and vegetation surveys. The surveys mapped the vegetation condition in the application area as completely degraded and did not identify any conservation significant species (Phoenix Environmental Sciences Pty Ltd, 2016). Noting this, DWER concluded that the application area is unlikely to provide suitable habitat for conservation significant flora.

There is a risk of weeds spreading into remnants of native vegetation adjacent to the proposed clearing and the applicant will be required to adhere to weed management measures (as conditioned on the clearing permit) to minimise this risk.

3.2.2. Environmental value: biological values (fauna) - Clearing Principles (b)

Outcome:

The application area does not provide significant habitat for conservation significant fauna. However, given the local area has been extensively cleared, the vegetation in the application area is important for the fauna movement across the local and broader region.

Conditions:

Based on the outcomes of the assessment and in accordance with the risk mitigation hierarchy described in the *WA Environmental Offsets Guidelines* (2014), the following management conditions on the clearing permit will adequately mitigate the potential impacts of the proposed clearing on the above environmental values:

- revegetation of 1.26 hectares of the offset site; and
- weed hygiene measures to mitigate the risk of impacts to adjacent fauna habitat.

Assessment:

According to DBCA (2022b), a total of four conservation significant fauna have been recorded within the local area. Noting the habitat requirements, distribution of the recorded species, the mapped vegetation type and the condition of the vegetation within the application area, the application area is likely to comprise suitable habitat for:

- *Calyptorhynchus latirostris* (Carnaby's cockatoo); and
- *Falco peregrinus* (peregrine falcon).

Carnaby's cockatoo

The application is on the eastern edge of the mapped Carnaby's Cockatoo distribution. The seasonal movements of Carnaby's cockatoos mean they require large areas of habitat for breeding, night roosting and foraging, as well as connectivity between these habitats to assist their movement through the landscape (Commonwealth of Australia, 2012). The closest record of Carnaby's cockatoo is approximately 8.3 kilometres south of the application area. This record was recorded in 2003. In a 30-kilometres radius of the application area there are only four records of this species, all of which are historical. This indicates that Carnaby's cockatoo less frequently occupies the vegetation in the locality of the application area. In spite of this, the assessment has considered the potential impacts of the clearing on all types of Carnaby's cockatoo habitat.



Figure 2 - Position of the application area with respect to the mapped distribution of Carnaby's cockatoo

The application area does not provide suitable breeding habitat for Carnaby's cockatoo. Suitable breeding habitat for this species includes trees which either have a suitable nest hollow, or are of a suitable diameter at breast height (DBH) to develop a nest hollow. Suitable DBH for nest hollows is 500 millimetres for most tree species, however, is reduced to 300 millimetres for wandoo and salmon gum (Commonwealth of Australia, 2012). Carnaby's cockatoo typically nests in eucalypt woodlands, primarily in the hollows of wandoo (*Eucalyptus wandoo*), salmon gum (*E. salmonophloia*) and marri (*Corymbia calophylla*) (Groom, 2015). Neither a review of the photographs of the vegetation in the application area, nor Phoenix Environmental Sciences Pty Ltd's (2016) fauna assessment identified Carnaby's cockatoo habitat trees within the application area.

Noting typical food resources for Carnaby's cockatoo, the application area contains limited foraging habitat for this species. The application area contains scattered *Eucalyptus* sp. Carnaby's cockatoo feeds on the seeds, nuts and flowers of a large variety of plants including Proteaceous species (*Banksia*, *Hakea* and *Grevillea*), as well as Allocasuarina and Eucalyptus species, *Corymbia calophylla* and a range of introduced species (Valentine and Stock, 2008). The application area falls outside mapped feeding area buffers.

Significant habitat refers to the resources (breeding, resting and feeding), connectivity or habitat area for a species or community that is critical for its survival. The Australian Department of the Environment (2013) notes that an action is likely to have significant impacts on critically endangered or endangered species, which include black cockatoos, if there is real possibility that it will (including but not limited):

- lead to a long-term decrease in the size of a population
- fragment an existing population into two or more populations
- decrease the availability or quality of habitat to the extent that the species is likely to decline.

Considering the mapped distribution of Carnaby's cockatoo, the extent of its foraging habitat present within the application area and occurrences within the local area, the proposed clearing is not likely to cause significant impacts on Carnaby's cockatoo.

The vegetation within the application area does not contain black cockatoo foraging habitat which supports its breeding. While breeding, black cockatoos will generally forage within a 6–12 kilometre radius of their nesting site (Commonwealth of Australia, 2012). The application area is not located within the mapped confirmed breeding area for Carnaby's cockatoo. According to available databases, there are no confirmed black cockatoo breeding points within the local area. The closest confirmed breeding site is a natural, confirmed breeding tree located approximately 20 kilometres northwest of the application area.

The assessment further identified that the application area unlikely provides foraging habitat that supports black cockatoo roosting. Roosting habitat is defined as a suitable tree (generally the tallest) or group of tall trees, native or introduced, usually close to an important water source, within an area of quality foraging habitat within the range of each black cockatoo species which provide black cockatoos with shelter during the heat of the day and safe resting places at night (Department of the Environment and Energy, 2017). Individual night roosting sites need suitable foraging habitat and water within six kilometres (EPA, 2019). Overlapping foraging ranges within 12

kilometres also support roosting sites and maintain habitat connectivity and movement across the landscape (EPA, 2019). There is no mapped roosting site within the local area. The closest roosting site occurs approximately 90 kilometres southwest of the application area.

Considering the small extent of Carnaby's cockatoo habitat in the application area, the proposed clearing is not likely to restrict the ability of black cockatoos to move across the landscape.

The applicant may have notification responsibilities under the EPBC Act for impacts to Carnaby's cockatoo and its habitats. The applicant has been advised to contact the federal Department of Water, Agriculture and the Environment (DAWE) to discuss EPBC Act referral requirements.

Peregrine falcon

The species is found in most habitats, from rainforests to the arid zone and at most altitudes, from the coast to alpine areas. It requires abundant prey and secure nest sites and prefers coastal and inland cliffs or open woodlands near water and may even be found nesting on high city buildings (Australian Museum, 2020). This species is widespread, highly mobile and is found in various habitats. The application area may comprise suitable habitat for this species, however, noting habitat preferences and the small extent of the proposed clearing, the application area is unlikely to comprise a significant habitat for this species.

Malleefowl and Woma (southwest subpop.)

Records of malleefowl and woma (southwest subpop.) have also been recorded within the local area (DBCA, 2022b). However, these species tend to occupy habitats which do not occur within the application area. Densities of the malleefowl birds are generally greatest in areas where habitats tend to be thicker and there is an abundance of food plants (Benshemesh, 2007). Woma prefers to favour open myrtaceous heath on sandplains, and dunefields dominated by spinifex (DBCA, n.a). The application area is unlikely to provide habitat for malleefowl and woma.

SRE and conservation significant invertebrates

Short range endemic (SRE) invertebrates are species with restricted distributions. The isolation of invertebrates in specific habitats or bioregions leads to endemism at various spatial scales. SRE invertebrate fauna taxa are generally found in sheltered, relatively mesic environments; such as, isolated habitats which may include boulder piles, isolated hills, dense patches of vegetation or gullies. Taxa that exhibit short range endemism are particularly vulnerable to disturbance, either natural or anthropogenic, as they are reliant upon specialised and often restricted habitats (often moist). Short range endemic taxa are unable to disperse to refugia when their habitats are threatened or destroyed (Invertebrate Solutions, 2020).

The proposed clearing will unlikely impact SRE or conservation significant invertebrates. Invertebrate Solutions (2020) conducted a targeted survey for SRE and conservation significant invertebrates within the application area. The survey noted that the application area was highly disturbed, largely cleared and provided little or no habitat value for potential SRE invertebrate species. Evidence of historic ploughing was evident throughout the application area which has degraded the potential habitat for SRE and conservation significant invertebrate species.

Ecological linkages

The application area is not mapped as an ecological linkage. However, the local area retains approximately seven per cent of its original vegetation extent. Noting this, the proposed clearing will impact on native vegetation which supports fauna movement across patches of native vegetation in an extensively cleared landscape.

A revegetation offset condition imposed on the clearing permit will adequately address the potential impact on ecological linkages. The revegetation will result in a net gain of vegetation within the locality of the application area.

3.2.3. Environmental value: significant remnant vegetation – Clearing Principles (e)

Outcome:

The proposed clearing will result in the loss of one hectare of native vegetation which is considered significant as a remnant in an area which has been extensively cleared and which may function as an ecological linkage enabling fauna to move between areas of remnant vegetation. In accordance with *WA Environmental Offsets Policy* (2011), to mitigate this loss, the applicant will be required to revegetate 1.26 hectares of the offset site. DWER considers that the offset is adequately proportionate to the impacts of the proposed clearing and consistent with the Offsets Policy.

Conditions:

Based on the outcomes of the assessment and in accordance with the risk mitigation hierarchy described in the *WA Environmental Offsets Guidelines* (2014), the following management conditions on the clearing permit will adequately mitigate the potential impacts of the proposed clearing on the above environmental values:

- revegetation of 1.26 hectares of the offset site
- weed hygiene measures to mitigate the risk of impacts to adjacent native vegetation.

Assessment:

The aim of this Clearing Principle is to maintain sufficient native vegetation in the landscape for the maintenance of ecological values. It also recognises the need to protect ecological communities that have been extensively cleared and to retain a representation of each ecological community in local areas throughout its pre-European settlement range. Cumulative impacts of clearings within the local area are also considered (Department of Environment Regulation, 2013).

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). The extents of native vegetation in the Interim Biogeographic Regionalisation for Australia (IBRA) bioregion, within which the application area occurs, and in the local area are inconsistent with these thresholds. The application area is located within the 'Avon Wheatbelt' IBRA region which retains approximately 18.51 per cent of its pre-European vegetation extent (Government of Western Australia, 2019). The local area retains approximately 7.1 per cent vegetation cover (approximately 2,352 hectares). Given this, the application area occurs within an area which has been extensively cleared.

Table 1 Vegetation statistics (Government of Western Australia, 2019)

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in DBCA managed land
IBRA bioregion*					
Avon Wheatbelt	9,517,109.95	1,761,187.42	18.51	174,980.68	1.84
Vegetation complex					
Beard vegetation association 142 *	637,707.53	79,309.95	12.44	2,381.81	0.37
Local area					
10km radius	2,352.31	33,103.63	7.11	-	-

*Government of Western Australia (2019)

There is a risk of weeds spreading into remnants of native vegetation adjacent to the proposed clearing and the applicant will be required to adhere to weed management measures (as conditioned on the clearing permit) to minimise this risk.

3.3. Relevant planning instruments and other matters

Planning instruments

Shire of Dalwallinu (2021) advised that the requirement to clear native vegetation is warranted under the condition of Development Approval DA 141819 granted to CBH on 22 February 2022. The approval is related to the applicant's expansion of their operations on the adjacent property (Lot 12 Bell Road, Dalwallinu).

The relevant conditions states:

3. That the CBH Access Road Intersection with Great Northern Highway is designated and upgraded to the satisfaction of the Shire of Dalwallinu on the advice of Main Roads. The design vehicle for this access needs to be a minimum of a RAV 10, 53m long vehicle and swept path as the TIS mentions that the proponent will approach the Shire and MRWA HVS to increase the rating for this section of road.

Aboriginal heritage

No Aboriginal sites of significance have been mapped within the application area. It is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972 (WA)* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

4 Suitability of offsets

Through the detailed assessment outlined in Section 3.2 above, the Delegated Officer has determined that the following SRI remains after the application of the avoidance and mitigation measures summarised in Section 3.1:

- loss of one hectare of native vegetation considered significant as a remnant of native vegetation in an area that has been extensively cleared and which supports fauna movement across the landscape.

To address the above SRI, the application has submitted an environmental offset that involves revegetation of 1.26 hectares of the offset site (Figure 3).



Figure 3 - Offset revegetation area

In assessing whether the proposed offset is adequately proportionate to the significance of the environmental values being impacted, DWER undertook a calculation using the WA Environmental Offset Metric. The calculator indicated that the above offset strategy will address 100 per cent of the SRI of the proposed clearing and is consistent with the *WA Environmental Offsets Policy (2011)*. Appendix E provides the justification for the values used in the offset calculation.

The Delegated Officer noted that the revegetation offset will result in a net gain of vegetation in a region that has been extensively cleared. On this basis, the Delegated Officer determined that the implementation of the above offset strategy will adequately counterbalance the SRI of the proposed clearing.

End

Appendix A - Site characteristics

C.1. Site characteristics

Characteristic	Details
Local context	<p>The area proposed to be cleared is a one-hectare patch of native vegetation in the intensive land use zone of Western Australia. It is predominantly surrounded by cleared agricultural land and is adjacent to Great Northern Highway and farmland.</p> <p>Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 7.1 per cent of the original native vegetation cover.</p>
Ecological linkage	<p>The application area is not within any mapped ecological linkages.</p> <p>Aerial imageries indicate that given the extensively cleared nature of the surrounding landscape, it is likely that the vegetation proposed to be cleared supports fauna movement across the landscape.</p>
Conservation areas	<p>The application area does not occur in any conservation areas. There are two reserves under DBCA tenure within the local area and eight unmanaged reserves. The closest conservation area is a Class A Nugadong Nature Reserve, located approximately 2.7 kilometres north of the application area.</p>
Vegetation description	<p>Photographs supplied by the applicant indicate the vegetation within the application area consists of an overstorey of <i>Eucalyptus</i> sp. with planted vegetation and understorey of <i>Myrtaceous</i> shrubs, <i>Acacia</i> sp., as well as other native and exotic herbaceous and grass species. Representative photos are available in Appendix D.</p> <p>This is inconsistent with the vegetation association 142 mapped within the application area, which is described as medium woodland; york gum and salmon gum (Shepherd et al, 2001).</p> <p>The mapped vegetation type retains approximately 12.44 per cent of the original extent (Government of Western Australia, 2019).</p>
Vegetation condition	<p>The photographs supplied by the applicant indicate the vegetation within the proposed clearing area is in degraded (Keighery, 1994) to completely degraded (Keighery, 1994) condition.</p> <p>Invertebrate Solutions (2020) noted that the application area was highly disturbed and largely cleared.</p> <p>The full Keighery (1994) condition rating scale is provided in Appendix E.</p>
Climate and topography	<ul style="list-style-type: none"> • The mean annual rainfall for the application area is 400 mm • The areal actual evapotranspiration for the application area is 400 mm • The topography of the application area is relatively flat and varies slightly between 335 metres Australian Height Datum (AHD) to 337 metres AHD.
Soil description	<p>The soil in the application area is mapped by the Department of Primary Industries and Regional Development (2022) as Ballidu 2 Subsystem (258Bd_2) which is described as colluvium on hill slopes from weathered granite. Red and brown clays, shallow loamy duplex, loamy earth, minor of sandy earth (Shepherd et al., 2004).</p>
Land degradation risk	<p>The soils subsystem mapped in the application area has moderate risks of sub-surface compaction and microbial purification. The risks of land degradation in the form of soil erosion (water or wind erosion), salinity, eutrophication and flooding (including waterlogging) are low (DPIRD, 2022).</p>
Waterbodies	<p>The application area does not intersect any watercourses or wetlands.</p> <p>The closest watercourse is a natural, non-perennial, minor river mapped approximately 30 metres west of the application area.</p>

Characteristic	Details
	The closest wetland is a basin (ID 5672) which occurs approximately 5.6 kilometres west of the application area.
Hydrogeography	The application area does not fall within any proclaimed surface or ground water areas, or any Public Drinking Water Source Areas.
Flora	A total of four Priority and two Threatened flora species have been recorded within the local area (DBCA, 2021a). Based on the similarities shared between the soil and vegetation types in habitats for these flora taxa and within the application area, the following species have the potential to occur within the application area: <ul style="list-style-type: none"> • <i>Acacia scalena</i> • <i>Austrostipa blackii</i> • <i>Eremophila pinnatifida</i> • <i>Haloragis platycarpa</i> • <i>Verticordia venusta</i>.
Ecological communities	The local area contains one conservation significant ecological community. <i>Eucalypt</i> woodlands of the Western Australian Wheatbelt (Wheatbelt Woodlands) (Wheatbelt Woodlands threatened ecological community (TEC)) is listed as Critically Endangered under the EPBC Act and Priority 3 under the State criteria. The closest mapped occurrence is located approximately 120 metres north of the application area (DBCA, 2022c). A review of representative photographs of the vegetation proposed to be cleared and conservation advice for this TEC indicate that the application area does not contain dominant species of the Wheatbelt Woodland TEC.
Fauna	The local area contains records of four conservation significant fauna species: <ul style="list-style-type: none"> • Carnaby's cockatoo (<i>Calyptorhynchus latirostris</i>) • Malleefowl (<i>Leipoa ocellata</i>) • Peregrine falcon (<i>Falco peregrinus</i>) • Woma (southwest subpop.) (<i>Aspidites ramsayi</i> (southwest subpop.)).

C.2. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix F), impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable habitat features?	Suitable vegetation type?	Suitable soil type?	Distance of closest record to application area (km)	Total number of known records	Are surveys adequate to identify?
<i>Acacia scalena</i>	P3	Y	Y	Y	3.2	38	N/A
<i>Austrostipa blackii</i>	P3	Y	Y	Y	4.4	67	N/A
<i>Eremophila pinnatifida</i>	T	Y	Y	Y	3.6	18	N/A
<i>Haloragis platycarpa</i>	T	Y	Y	Y	4.6	14	N/A
<i>Verticordia venusta</i>	P3	Y	Y	Y	2.1	103	N/A

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

C.3. Fauna analysis table

Species name	Conservation status	Suitable habitat features?	Distance of closest record to application area (km)	Are surveys adequate to identify?
Camaby's cockatoo (<i>Calyptorhynchus latirostris</i>)	EN	Yes	8,342	No
Peregrine falcon (<i>Falco peregrinus</i>)	OS	Yes	3,767	No

Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p><u>Principle (a):</u> <i>“Native vegetation should not be cleared if it comprises a high level of biodiversity.”</i></p> <p><u>Assessment:</u></p> <p>The proposed clearing area is not likely to contain locally or regionally significant flora or assemblages of plants. The application area:</p> <ul style="list-style-type: none"> • is in a degraded to completely degraded (Keighery, 1994) condition • provides habitat for conservation significant fauna which has not been deemed significant • does not resemble habitat for threatened or priority flora; and • does not contain native vegetation which represents a TEC or PEC. 	Not likely to be at variance	Yes Refer to Section 3.2.1 above.
<p><u>Principle (b):</u> <i>“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.”</i></p> <p><u>Assessment:</u></p> <p>The proposed clearing area provides foraging habitat for Carnaby’s cockatoo and peregrine falcon. No hollow-bearing trees occur within the application area. Noting the vegetation proposed to be cleared, the application area does not represent significant habitat for these or any other conservation significant fauna species.</p> <p>Considering the extent of remnant native vegetation in the local area, the vegetation in the application area may support fauna movement across the landscape.</p>	Not likely to be at variance	No Refer to Section 3.2.2 above.
<p><u>Principle (c):</u> <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><u>Assessment:</u></p> <p>Given the degraded to completely degraded (Keighery, 1994) condition of vegetation proposed to be cleared, the application area is unlikely to contain habitat for threatened flora species listed under the BC Act.</p>	Not likely to be at variance	Yes Refer to Section 3.2.1 above.
<p><u>Principle (d):</u> <i>“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.”</i></p> <p><u>Assessment:</u></p> <p>The proposed clearing area does not contain species composition indicative of a TEC listed under the BC Act or EPBC Act.</p>	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u></p> <p>The extent of the mapped vegetation type and native vegetation in the local area is inconsistent with the national objectives and targets for biodiversity conservation in Australia.</p>	At variance	Yes Refer to Section 3.2.3, above.

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Principle (h):</u> <i>“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.”</i></p> <p><u>Assessment:</u></p> <p>Given the separation distance between the application area and the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.</p>	Not likely to be at variance	No
Environmental value: land and water resources		
<p><u>Principle (f):</u> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u></p> <p>No wetlands or watercourses are mapped within the application area. Vegetation within the application area does not grow in association with a watercourse or wetland.</p>	Not likely to be at variance	No
<p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u></p> <p>The mapped soils are not susceptible to land degradation in the form of soil erosion, salinity and eutrophication. Noting the extent and vegetation proposed to be cleared, the clearing is not likely to have an appreciable impact on land degradation.</p>	Not likely to be at variance	No
<p><u>Principle (i):</u> <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.”</i></p> <p><u>Assessment:</u></p> <p>Noting the relatively flat landscape in the vicinity of the proposed clearing and the distance to the closest watercourse, the clearing is unlikely to impact surface or ground water quality.</p>	Not likely to be at variance	No
<p><u>Principle (j):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment:</u></p> <p>The mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding.</p>	Not likely to be at variance	No

Appendix C. Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from:

- Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Measuring vegetation condition for the South West and Interzone Botanical Province (Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.



Figure 4a - Vegetation in the application area



Figure 4b - Vegetation in the application area



Figure 4c - Vegetation in the application area

Appendix E. Offset calculator value justification

Significant impact		
Description	Loss of significant remnant of native vegetation	The local area retains approximately 7.11 per cent of its original vegetation extent.
Significant impact (hectares) / Type of feature	1.00	The application area comprises one (1) hectare of native vegetation which is considered significant in an area which has been extensively cleared.
Quality (scale) / Number	3.00	The vegetation in the application area is in degraded (Keighery, 1994) to completely degraded (Keighery, 1994) condition and supports fauna movement across an extensively cleared landscape.
Offset		
Proposed offset (area in hectares)	1.26	A revegetation area of this size would be required to adequately offset the loss of native vegetation considered significant in an extensively cleared landscape
Current quality of offset site / Start number (of type of feature)	0.00	A quality score of (0) (completely degraded) has been assigned given the offset site and adjacent land do not contain any vegetation.
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	0.00	Without the offset revegetation, the future value of the offset site would remain 0
Future quality WITH offset (scale) / Future number WITH offset	4.00	The revegetation could improve the vegetation condition to a good condition
Time until ecological benefit (years)	10.00	It is assumed that the environmental values obtained from the revegetation will not be evident until 10 years post revegetating.
Confidence in offset result (%)	70	With a comprehensive revegetation plan, there is a relatively high level of confidence that the offset site would improve from a completely degraded to good condition.
Duration of offset implementation (maximum 20 years)	20.00	The offset site will be conserved in perpetuity under a conservation covenant. 20 years is the maximum value associated with this field.
Time until offset site secured (years)	1.00	The process for implementing a conservation covenant could be finalised within one year.
Risk of future loss WITHOUT offset (%)	0.0%	there is no risk of loss of in situ biodiversity values given there are none in the offset site
Risk of future loss WITH offset (%)	10.0%	The revegetation area, with a conservation covenant over it, should reduce the risk of loss to 10%. The risk of catastrophic events (fire, dieback etc.) remain.

Appendix F. Sources of information

F.1. GIS databases

Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems
- Wheatbelt Wetlands Stage 1 (DBCA-021)

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

F.2. References

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