



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 10418/1
Permit Holder:	Waddi Wind Farm Pty Ltd
Duration of Permit:	From 22 June 2025 to 22 June 2055

The permit holder is authorised to clear *native vegetation* subject to the following conditions of this permit.

ADVICE NOTE

Revegetation and rehabilitation offset

The *Offset Management Plan* referred to in condition 10 of this permit is intended to facilitate the *revegetation* and *rehabilitation* within the *offset site* to restore 17.60 hectares of foraging habitat for Carnaby's cockatoo (*Zanda latirostris* (previously *Calyptorhynchus latirostris*)).

PART I – CLEARING AUTHORISED

1. Clearing authorised (purpose)

The permit holder is authorised to clear *native vegetation* for the purpose of geotechnical investigation and construction of a wind farm and associated infrastructure.

2. Land on which clearing is to be done

Lot 3899 on Deposited Plan 209567, Cataby Lot 3805 on Deposited Plan 209083, Badgingarra Lot 3903 on Deposited Plan 209569, Cooljarloo Lot 3901 on Deposited Plan 209568, (Crown Reserve 27216), Cooljarloo Lot 2 on Plan 8424, Cooljarloo Lot 3 on Plan 8424, Cooljarloo Lot 3897 on Deposited Plan 209569, Cooljarloo Lot 101 on Diagram 72336, Cooljarloo Lot 4134 on Deposited Plan 240347, (Crown Reserve 41986), Cooljarloo Lot 105 on Deposited Plan 59027, Cooljarloo Lot 3 on Deposited Plan 408189, Cooljarloo Brand Highway road reserve (PIN 11579146), Cooljarloo Mullering Road reserve (PIN 11579147), Cataby and Cooljarloo.

3. Clearing authorised

The permit holder must not clear more than 5.5 hectares of *native vegetation* within the areas cross-hatched yellow in Figures 1A - 1J of Schedule 1.

PART II – MANAGEMENT CONDITIONS

4. 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.

5. Weed and dieback 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* and *dieback*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the *project area*;
- (b) ensure that no known *dieback* or *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 *project area*.

6. Fauna management (geotechnical investigation) – backfilling

The Permit holder must:

- (a) backfill all test pits on the day of drilling/excavating with excavated material; or
- (b) fence all test pits on the day of drilling/excavating with fine mesh to prevent fauna access; or
- (c) cover all test pits on the day of drilling/excavating with a cover which prevents entry to the pits by fauna species;
- (d) cover all bore holes at the end of each day and backfill upon completion.

7. Fauna management - directional clearing

The Permit Holder must:

- (a) conduct clearing authorised under this permit in one direction towards adjacent native vegetation; and
- (b) allow a reasonable time for fauna present within the area being cleared to move into that adjacent *native vegetation* ahead of the clearing activity.

8. Threatened flora management

Prior to undertaking any clearing authorised under this Permit within Waddi Road reserve (PIN 1353722), Badgingarra and Cooljarloo and Lot 3901 on Deposited Plan 209568, Cooljarloo, within the areas cross-hatched yellow in Figures 1C and 1J of Schedule 1, the Permit Holder must:

- (a) demarcate the area authorised to be cleared; and
- (b) install fencing with windbreak netting along the boundary of the area authorised to be cleared where individuals of *Thelymitra stellata* occur as identified by RPS (2025).

9. Revegetation and rehabilitation (temporary works)

The permit holder must:

- (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) at an *optimal time* within 12 months following clearing authorised under this permit, *revegetate* and *rehabilitate* the areas that are no longer required for the purpose of geotechnical investigation and/or construction of a wind farm and/or associated infrastructure, by:
 - i ripping the ground on the contour to remove soil compaction; and
 - ii laying the vegetative material and topsoil retained under condition 9(a) on the cleared area(s).
- (c) within 24 months of laying the vegetative material and topsoil on the cleared area in accordance with condition 9(b) of this permit:
 - i. engage an *environmental specialist* to determine the species composition, structure and density of the area *revegetated* and *rehabilitated*; and
 - ii. where, in the opinion of an *environmental specialist*, the composition structure and density determined under condition 9(c)(i) of this Permit will not result in similar species composition, structure and density to that of prereferral clearing vegetation types in that area, *revegetate* the area by deliberately *planting* and/or *direct seeding native vegetation* that will result in a similar species composition, structure and density of native vegetation to pre-clearing vegetation types in that area and ensuring only local provenance seeds and propagating material are used.

10. Offset – revegetation and rehabilitation requirements

- (a) Within 6 months of the commencement of clearing activities authorised under this permit, the permit holder must submit an *Offset Management Plan* to the *CEO* for approval for the *revegetation and rehabilitation* of a total of 17.60 hectares of the *offset site*. The *Offset Management Plan* must be developed in accordance with A *Guide to Preparing Revegetation Plans for Clearing Permits* (Department of Water and Environmental Regulation, 2018).
- (b) The *Offset Management Plan* must be prepared by an *environmental specialist*.
- (c) The *Offset Management Plan* must include the following:
 - (i) the location/s of the *revegetation* and *rehabilitation* area/s required under condition 10(a) of this permit, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020),

expressing the geographical coordinates in Eastings and Northings or decimal degrees;

- (ii) *site preparation*;
- (iii) *weed* control;
- (iv) regeneration, direct seeding or planting, at an optimal time;
- (v) a vegetation establishment period;
- (vi) revegetation success completion criteria to restore foraging habitat for Carnaby's cockatoo (Zanda latirostris (previously Calyptorhynchus latirostris)) based on selected reference sites, including but not limited to target weed cover, target species diversity, target vegetation condition, target density, and target structure;
- (vii) *remedial actions* to be undertaken if completion criteria are not met;
- (viii) details of ongoing maintenance and monitoring of the area to be *revegetated* and *rehabilitated* for a minimum of five (5) years;
- (ix) timeframes for completion of the activities; and
- (x) management commitments that will be achieved.
- (d) If the *CEO*, having had regard to conditions 10(b) and 10(c) of this permit, does not approve the *Offset Management Plan*, the permit holder must revise and resubmit the *Offset Management Plan* within one (1) month of the date of the *CEO*'s decision.
- (e) If the *CEO*, having had regard to conditions 10(b) and 10(c) of this permit, does not approve a revised *Offset Management Plan* submitted in accordance with condition 10(d) of this permit, the permit holder must again revise and resubmit the *Offset Management Plan* in accordance with condition 10(d) of this permit.
- (f) The permit holder must obtain the approval of the *CEO*, prior to implementing the *Offset Management Plan*.
- (g) The permit holder must implement the approved *Offset Management Plan* within 12 months of the date of approval by the *CEO*.

11. Offset – Conservation Covenant

Within 36 months of the commencement of clearing authorised under this Permit, and no later than 22 June 2028, the Permit Holder must provide to the CEO evidence of setting aside the area *revegetated* and *rehabilitated* under Condition 10 for the protection and management of vegetation in perpetuity.

PART III - RECORD KEEPING AND REPORTING

12. 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.

No.	Relevant matter	Specifications
1.	In relation to the authorised	(a) the species composition, structure, and density of the cleared area;
	clearing	(b) the location where the clearing occurred, recorded

Table 1: Records that must be kept

No.	Relevant	Specifications			
	activities generally	 using a GPS unit set to GDA2020, 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 4; (f) actions taken to minimise the risk of the introduction and spread of <i>weeds</i> and <i>dieback</i> in accordance with condition 5; (g) evidence of backfilling / fencing / covering al excavations in accordance with condition 6 (h) actions taken to mitigate impacts to fauna in accordance with condition 7; and 			
		 actions taken to avoid and minimise direct and indirect impacts of the clearing on <i>threatened</i> flora species in accordance with condition 8 of this Permit 			
2.	In relation to the <i>revegetation</i> and <i>rehabilitation</i> of areas pursuant to condition 9 of the permit	 (a) The size of the area <i>revegetated</i> and <i>rehabilitated</i> (b) The date(s) on which the <i>revegetation</i> and <i>rehabilitation</i> was undertaken; and (c) The boundaries of the area <i>revegetated</i> and <i>rehabilitated</i> (recorded digitally as a shapefile). 			
3.	In relation to the offset <i>revegetation</i> and <i>rehabilitation</i> or areas pursuant to conditions 10 and 11	 (a) A description of the <i>revegetation</i> and <i>rehabilitation</i> activities undertaken; (a) The size of the area <i>revegetated</i> and <i>rehabilitated</i>; (b) The date/s on which the <i>revegetation</i> and <i>rehabilitation</i> was undertaken; (c) The boundaries of the area <i>revegetated</i> and <i>rehabilitated</i>, recorded using a GPS unit set to GDA 2020, expressing the geographical coordinates in Eastings and Northings; and (d) any other actions taken in accordance with condition 10; and (e) evidence of setting aside the area <i>revegetated</i> and <i>rehabilitated</i> for the protection and management o vegetation in perpetuity. 			

13. Reporting

- (a) The permit holder must provide to the CEO, on or before 30 June of each calendar year, a written report conditioning:
 - (i) the records required to be kept under condition 12; and

- (ii) records of 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 has been undertaken, a written report confirming that no clearing under this permit has been undertaken must be provided to the *CEO* on or before 30 June of each calendar year.
- (c) The permit holder must provide to the *CEO*, no later than 90 days prior to the expiry date of the permit, a written report of records required under condition 12, where these records have not already been provided under condition 13(a).

DEFINITIONS

In this permit, the terms in Table 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.				
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</i> <i>Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.				
dieback	means the effect of <i>Phytophthora</i> species on native vegetation.				
direct seeding	means a method of re-establishing vegetation through the 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 a minimum of two (2) years work experience relevant to the type of environmental advice that ar environmental specialist is required to provide under this permit, or who is approved by the CEO as a suitable environmental specialist.				
EP Act	Environmental Protection Act 1986 (WA)				
fill	means material used to increase the ground level, or to fill a depression.				
local provenance	means native vegetation seeds and propagating material from natural sources within 50 kilometres and the same 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	means a direct offset as described in the Government of Western Australia, WA Environmental Offsets Policy, September 2011.				
Offset Management Plan	means a document describing the environmental offsets that will be implemented by the permit holder to cover the full cost of establishing and maintaining native vegetation that provides foraging habitat for Carnaby's cockatoo as an environmental offset for the clearing activities				

Term	Definition			
	authorised under this permit.			
offset site	means a property or its portion within the proximity of the proposed clearing to counterbalance the significant residual impacts of native vegetation authorised under this permit. As the acquisition of land tenure associated with the offset site is still being finalised, the Department is unable to disclose property details at the time of the decision due to commercial sensitivity.			
optimal time	means the period from April to June			
planting	means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species.			
project area	Means the area shown as the project area within " <u>Attachment 1 WDWF-</u> <u>Infrastructure Map-2023</u> " of the application for CPS 10418/1.			
reference sites	 means nearby sites used to provide baseline data for planning revegetation project. Measurements from fixed reference points or plo where biodiversity components are measured are used to set measurab completion criteria for revegetation projects. The reference sites mu contain the following values: suitable foraging habitat for Zanda latirostris (previous) <i>Caluttarlumature latinostris</i>) (<i>Carrelwis</i> acadetee) and 			
	 vegetation in a Very Good (Keighery, 1994) or better condition. 			
regenerate/ regenerated / regeneration	means re-establishment of vegetation from in situ seed banks and propagating material (such as lignotubers, bulbs, rhizomes) contained either within the topsoil or seed-bearing mulch.			
rehabilitate/ rehabilitated/ rehabilitation	means actively managing an area containing native vegetation in order to improve the ecological function of that area.			
remedial action/s	means any activity that is required to ensure successful reestablishment of vegetation to its pre-clearing composition, structure and density, and may include a combination of soil treatments and <i>revegetation</i> .			
revegetate/ revegetated/ revegetation	means the re-establishment of a cover of local provenance native vegetation in an area using methods such as natural <i>regeneration</i> , <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.			
site preparation	means management of existing site topsoil and preparation of the finished soil surface, for example by ripping or tilling the soil surface and respreading site topsoil and chipped native vegetation.			
vegetation establishment period	means a period of at least two summers after the <i>revegetation</i> during which time replacement and infill <i>revegetation</i> works may be required for areas in which <i>revegetation</i> has been unsuccessful and involves regular inspections of <i>revegetation</i> sites to monitor the success of revegetation.			
weeds	 means any plant – (a) that is a declared pest under section 22 of the <i>Biosecurity and</i> <i>Agriculture Management Act 2007</i>; or (b) published in a Department of Biodiversity, Conservation and 			

Term	Definition
	Attractions species-led ecological impact and invasiveness
	ranking summary, regardless of ranking; or
	(c) not indigenous to the area concerned.

References:

Department of Water and Environmental Regulation. (2018). *A guide to Preparing Revegetation Plans for Clearing Permits*. March 2018. Available at <u>this</u> link.

RPS. (2025). *Waddi Wind Farm: Targeted star sun orchid and sandplain duck orchid searches.* DWER Ref: DWERDT1119974

END OF CONDITIONS

B.Walker.

Belinda Walker EXECUTIVE DIRECTOR GREEN ENERGY

Officer delegated under Section 20 of the Environmental Protection Act 1986

30 May 2025

Schedule 1



Figure 1A: Map of the boundary of the area within which clearing may occur.



Figure 1B: Map of the boundary of the area within which clearing may occur.



Figure 1C: Map of the boundary of the area within which clearing may occur.



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Figure 1D: Map of the boundary of the area within which clearing may occur.



4611-Clearing Regulation(Shared Data)(CLEARING PERMITS)(10418)(CPS 10418-1 - Assessment)(QCIS-101418-1.ggz

Figure 1E: Map of the boundary of the area within which clearing may occur.



Figure 1F: Map of the boundary of the area within which clearing may occur.



Figure 1G: Map of the boundary of the area within which clearing may occur.



-Clearing Regulation);Shared Data)(CLEARING PERMITS);10418);CP5 10418-1 - Assessment);QGIS-101418-1.ogz

Figure 1H: Map of the boundary of the area within which clearing may occur.



Figure 1I: Map of the boundary of the area within which clearing may occur.



%11-Gearing Regulation(Shared Data)(LEARING PERMITS)(10418)(2PS 10418-1 - Assessment)(QGIS-101418-1.ggz

Figure 1J: Map of the boundary of the area within which clearing may occur.



Clearing Permit Decision Report

1 Application details and outcome						
1.1. Permit application details						
Permit number:	CPS 10418/1					
Permit type:	Purpose permit					
Applicant name:	Waddi Wind Farm Pty Ltd					
Application received:	17 November 2023					
Application area:	5.5 hectares of native vegetation (revised)					
Purpose of clearing:	Geotechnical investigation and construction of a wind farm and associated infrastructure					
Method of clearing:	Mechanical					
Property:	Lot 3899 on Deposited Plan 209567, Cataby Lot 3805 on Deposited Plan 209083, Badgingarra Lot 3903 on Deposited Plan 209569, Cooljarloo Lot 3901 on Deposited Plan 209568, (Crown Reserve 27216), Cooljarloo Lot 2 on Plan 8424, Cooljarloo Lot 3 on Plan 8424, Cooljarloo Lot 3897 on Deposited Plan 209569, Cooljarloo Lot 101 on Diagram 72336, Cooljarloo Lot 4134 on Deposited Plan 240347, (Crown Reserve 41986), Cooljarloo Lot 105 on Deposited Plan 59027, Cooljarloo Lot 3 on Deposited Plan 408189, Cooljarloo Mullering Road reserve (PIN 11579146), Cooljarloo					
Location (LGA area/s):	Shire of Dandaragan					
Localities (suburb/s):	Badgingarra, Cataby and Cooljarloo					

1.2. Description of clearing activities

The application is to clear 5.5 hectares (see Figure 1, Section 1.5) of native vegetation scattered over an approximately 25 kilometre long development envelope (see Figure 3, Section 1.5). The proposed clearing is for the geotechnical investigation and subsequent construction of the Waddi Wind Farm which comprises of:

- up to 18 wind turbines;
- internal access roads;
- an overhead 132 kilovolt transmission line; and
- a substation.

The wind farm is projected to generate renewable energy to power 68,000 homes per year. The geotechnical investigations will be conducted prior to the construction of the wind farm which is anticipated to take approximately 16 months. The infrastructure will have an operational life of approximately 30 years.

The application area was originally 1,227 ha. During assessment, in response to the Department of Water and Environmental Regulation's (DWER) request for further information, the application area was reduced to 5.5 ha to minimise impacts on environmental values.

1.3. Decision on application					
Decision:	Granted				
Decision date:	30 May 2025				
Decision area:	5.5 hectares of native vegetation as depicted in Section 1.5, below				

1.4. Reasons for decision

This clearing permit application was submitted, accepted, assessed and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). DWER advertised the application for 21 days. One submission was received. Consideration of matters raised in the public submission is summarised in Appendix A.

In making this decision, the Delegated Officer had regard for:

- public concerns raised during the submission period (Appendix A)
- the site characteristics (see Appendix B)
- relevant datasets (see Appendix G.1)
- the findings of biological surveys (see Appendix F), in particular:
 - *Reconnaissance Flora and Vegetation Assessment, Waddi Wind Farm (*RPS,2023) which identified the locations of conservation significant flora species
 - Black-Cockatoo habitat survey and assessment (Terrestrial Ecosystems, 2022) which identified the habitat quality of the vegetation proposed to be clear for foraging by the Carnaby's black cockatoo and the absence of breeding and roosting trees within the application area
 - Targeted *Drosera macropelata* survey (RPS, 2024b) which identified records of any *D. macropelata* (P1) individuals within and outside the application area
 - Targeted star sun orchid and sandplain duck orchid surveys (RPS, 2025) which identified the locations of *Thelymitra stellata* (Endangered) individuals adjacent to the application area which were subsequently avoided
- avoidance and minimisation actions implemented by the applicant (see Section 3.1)
- Expert advice from the Species and Communities Branch of the Department of Biodiversity, Conservation and Attractions (DBCA) regarding the potential impacts and mitigation measures of the proposed clearing on conservation significant flora and fauna (DBCA, 2024b)
- Environmental offset developed by the applicant to counterbalance significant residual impacts of the proposed clearing (see Section 4)
- the clearing principles set out in Schedule 5 of the EP Act (see Appendix C); and
- relevant planning instruments and any other matters considered relevant to the assessment (see Section 3).

The Delegated Officer also took into consideration that the proposal is for the development of a wind farm to feed renewable energy into the South West Interconnected System energy grid. The proposal will reduce greenhouse gas emissions in the region, representing actions towards the State and Federal Government's targets of achieving net zero emissions by 2050.

Noting the above, the Delegated Officer has considered the following:

- the proposed clearing will remove 5.5 ha of native vegetation, of which 5.4 ha provides significant foraging habitat for Carnaby's cockatoo
- the environmental offset developed by the applicant comprising of acquisition, rehabilitation and protection
 in perpetuity of degraded land located within six km of the impact site to counterbalance the loss of the
 foraging habitat for black cockatoo species. The rehabilitation will improve the vegetation condition at the
 offset site to a level suitable for foraging by the Carnaby's cockatoo species and result in a net increase in
 the amount of foraging habitat in the local area.
- The proposed clearing will remove *Banksia chamaephyton* (Priority 4 (P4)) *Cognostephium magnum* (P4), *Hypolaena robusta* (P4) and *Ispogon autuimnalis* (P3) individuals which represent 4.7; 6; 30 and 1.8 percents respectively of the known populations within the project area. Noting the relatively small percentage, the distribution of species and the conditions of surrounding vegetation, the loss is unlikely significant to the species at the local, regional or conservation levels of the species (DBCA, 2024b).
- The proposed clearing will not remove any individuals of *Thelymitra stellata* (Endangered) identified and recorded in the survey area. The applicant has avoided direct impact to the conservation significant flora species by siting the project outside of the known population.

• The proposed clearing may have indirect impact to the adjacent population of *Thelymitra stellata* and remnant native vegetation.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined that some of the impacts of the proposed clearing, including direct and indirect impacts to flora, and the potential to facilitate the introduction of weeds and dieback, can be minimised and managed to be unlikely to lead to an unacceptable risk to environmental values through permit conditioning. However, impacts to native vegetation that is representative of significant foraging habitat for Carnaby's cockatoo species remained significant even after the application of minimisation and mitigation measures and constitutes a significant residual impact.

Having considered the environmental impacts outlined above, the applicant's implementation of the mitigation hierarchy and planning and other matters (including the consistency of the proposal with the planning framework and the public benefit of the proposed Waddi wind farm), the Delegated Officer determined that, on balance, it was appropriate to grant the clearing permit subject to an adequate environmental offset being provided by the proponent, consistent with the WA Environmental Offsets Policy (2011) and the WA Environmental Offsets Guidelines (2014), to counterbalance the significant residual impacts to native vegetation that provides significant foraging habitat for Carnaby's cockatoo.

The Delegated Officer decided to grant a clearing permit subject to conditions to:

- avoid, minimise to reduce the impacts and extent of clearing
- take hygiene steps to minimise the risk of the introduction and spread of weeds
- fencing and netting of the fences around clearing areas where *Thelymitra stellata* individuals occur within 20 m of the clearing area to avoid inadvertent clearing of and minimise indirect impacts to the individuals of this species
- backfilling of geotechnical testing pits to avoid impacts on fauna
- rehabilitation of cleared sites no longer required for the proposed project
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity
- rehabilitation, conservation and protection in perpetuity of 17.6 hectares of native vegetation in degraded (Keighery, 1994) condition in the local area (10-km radius from the proposed clearing) which must provide foraging habitat for Carnaby's cockatoo of the quality similar to that within the application area.





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Figure 1: Map of the final application area (5.34 hectares)

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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 510 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 polluter pays principle
- 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)
- Conservation and Land Management Act 1984 (WA) (CALM Act)
- Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act)
- Planning and Development Act 2005 (WA) (P&D Act)
- Aboriginal Heritage Act 1972
- Rights in Water and Irrigation Act

Relevant policies considered during the assessment include:

• 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 2021)
- Environmental Offsets Guidelines (August 2014)
- Technical guidance Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016)
- Technical guidance Terrestrial Fauna Surveys for Environmental Impact Assessment (EPA, 2016)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

The Waddi Wind Farm project relates to two previously approved clearing permits, CPS 4608/2 and CPS 8449/1, under which no clearing of native vegetation had taken place. CPS 4608/2 expired on 13 February 2017 and the applicant applied to surrender CPS 8449/1 on 17 October 2023. Since the granting of CPS 4608/2 in 2012, the area of native vegetation proposed to be cleared has increased from 1.07 hectares to 5.5 hectares. The application area was designed to meet the Western Power's specifications for the overhead 132 kilovolt transmission line which required increases to the pad size of the transmission poles and increasing the width of all access tracks to the transmission line to meet the size requirements for Western Power's heavy fleet vehicles (Waddi Wind Farm Pty Ltd, 2023b).

The applicant has avoided and minimised impacts via the following measures (Waddi Wind Farm Pty Ltd, 2023b):

- Siting most of the infrastructure, such as wind turbines, access tracks and the on-site substation, within cleared farmland that has already been heavily degraded by cropping
- Negotiation with Main Roads Western Australia to agree for the overhead 132 kilovolt transmission line to
 pass overhead of Brand Highway instead of underground, which avoided additional clearing needed for
 launch and retrieval pits
- Adjusting the transmission line heights so that sufficient clearance between the vegetation and the electrical conductors is provided to meet Western Power's requirements without the need to clear any vegetation underneath the transmission line conductors
- Avoiding disturbance of riparian vegetation and drainage lines by siting the nearest transmission poles outside of the watercourse area and limiting the number of trees removed
- Avoiding direct clearing of the locations where threatened flora species listed under the BC Act were recorded during field surveys
- Locating the transmission infrastructure alignment along existing access tracks or previously cleared areas where possible, such that the clearing will predominately widen existing disturbed areas rather than create new ones
- Undertaking pre-clearing surveys within 100 metres of the native vegetation clearing areas by a suitably qualified fauna specialist

- Where breeding Carnaby's cockatoo are found during pre-clearing surveys, clearing will not commence within 100 metres of the breeding tree until breeding in the area has finished. The Carnaby's cockatoo breeding season in the Swan Coastal Plain and Wheatbelt regions occur from July to December (DAWE, 2022).
- Dust management during construction to ensure excessive amounts of dust are not generated along access tracks and during clearing activities
- Vegetation clearing and construction works within Crown Reserve 41986 will be subject to a Hygiene Protocol that will include Phytophthora dieback and weed management measures to prevent the introduction and / or spread of Phytophthora dieback and weeds into and within the Conservation Park
- A Construction and Operation Environment Management Plan will be prepared to include protocols and procedures for monitoring (e.g. visual records, auditing) and management (e.g. refuelling procedures, waste disposal) to minimise the residual impacts of the clearing activities to the receiving environment. The CEMP will be implemented prior to, during and post construction by the civil contractor for the project.

During the assessment of the application the applicant further avoided and minimised impacts via the following measures:

- Reduced the proposed amount of native vegetation clearing down from 1,227 ha to 5.5 ha
- Negotiated with the Shire of Dandaragan to remove a development requirement to construct a viewing
 platform for the wind farm. This reduced the amount of native vegetation and the amount of significant
 Carnaby's cockatoo foraging habitat
- Moved and realigned a track required for the project to avoid impacts on *Thelymitra stellata (EN)* population.

The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values.

After consideration of avoidance and mitigation measures, it was determined that an offset to counterbalance the significant residual impacts to Carnaby's cockatoo habitat was necessary. In accordance with the Government of Western Australia's Environmental Offsets Policy and Environmental Offsets Guidelines, the significant residual impact has been addressed through the conditioning of environmental offset requirements on the permit. The nature and suitability of the offset provided are summarised in Section 4.

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix B) 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 C) identified that the impacts of the proposed clearing present a risk to biological values (fauna, adjacent flora and vegetation), conservation areas and land and water resources. 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. Biological values (flora and biodiversity) - Clearing Principles (a) and (c)

Assessment

Flora

According to available database information, 105 conservation significant flora species were recorded within 10 km of the application area, comprising:

- 13 Threatened species
- 13 Priority 1
- 14 Priority 2
- 47 Priority 3; and
- 18 Priority 4 species.

Given the mapped soil, vegetation types and suitable habitat, the conservation significant flora species listed in Appendix B.3 may occur within the application area. The local area retains approximately 33.39 per cent (approximately 22,851 hectares) native vegetation cover (see Appendix B.2).

Several flora and vegetation surveys have been commissioned by the applicant across the local area since 2008. The surveys include:

- Targeted Level 1 Vegetation and flora assessment during November 2008 and January 2009 (Outback Ecology, 2010).
- Reconnaissance Level 1 flora, vegetation and Black Cockatoo habitat survey during October and November 2013 (Outback Ecology, 2014)
- Detailed flora, vegetation and fauna survey during October 2016 (Ecologia, 2016)
- Reconnaissance Flora and Vegetation Assessment, (Ecologia, 2023)
- Targeted *Drosera macropelata* search in August 2024, (RPS, 2024)
- Targeted Thelymitra stellata and Paracaleana dixonii) search in October 2024 (RPS, 2025)

The surveys described nine types of vegetation in the survey area which are representative of the Proteaceous scrub heath of the Kwongan, Banksia woodland vegetation, degraded area, and revegetated area. The vegetation condition ranges between Completely Degraded and Excellent (Keighery 1994). The vegetation in within the transmission alignment is generally rated as Good to Excellent condition.

The surveys identified a total of 15 conservation significant flora species in the local area (Table 1), four of which were found within the application area (Table 2).

	WA- Conservation Status	Count of record	Abundance	Date/year of survey	Minimum Distance (m) from application area)
Anigozanthos viridis subsp. terraspectans	Т	1	1	Sep-21	295.08
Banksia chamaephyton	P4	3	21	2021-2022	0.00
Conostephium magnum	P4	327	578	2021-2022	0.00
Hakea megalosperma (Lesueur Hakea)	Т	4	4	Sep-21	60.50
Hypolaena robusta	P4	28	73	2021-2022	0.00
Isopogon autumnalis	P3	51	109	2021-2022	0.00
Lepidobolus quadratus	P3	25	33	Sep-21	2.47
Leucopogon foliosus	P3	3	4	Sep-21	48.94
Stylidium aeonioides	P4	3	3	Sep-21	7.72
Stylidium diplotrichum	P2	1	1	2021-2022	181.08
Stylidium hymenocraspedum	P3	42	266	2021-2022	4.89
Synaphea endothrix	P3	11	17	Sep-21	12.28
Tetratheca angulata	P3	6	8	Sep-21	24.40
Thelymitra stellata	T	16	37	Sep-21	4.50
	1	26	39	Oct-24	3.38
Thomasia cognata	RE	1	1	Sep-21	463.54

Table 1. Conservation significant flora species identified from surveys within the local area

Table 2. Conservation significant flora species found within the application area

Taxon	WA Conservation Status	Number of individuals	Total number of known population (local)	Percent of local population (%)
Banksia chamaephyton	P4	1	21	4.76
Conostephium magnum	P4	35	573	6.11
Hypolaena robusta	P4	22	73	30.14
Isopogon autumnalis	P3	2	109	1.83

Considering the above, the potential direct and indirect impacts of the proposed clearing on the following conservation significant flora species have been further assessed.

Banksia chamaephyton (Priority 4)

According to available databases, there are no known records of the species within the local area, with the closest record (PERTH 09423478) located 19 kilometres northwest of the proposed clearing area. A total of 21 individuals were recorded during the 2021 and 2022 field survey (RPS, 2023) within vegetation type W1. One individual was located within the proposed clearing area and the remainder were located 230 metres outside of the proposed clearing area.

The proposed clearing of the one individual represents 5% of the individual plants recorded in the local area. With the information available it is considered that the removal of up to one individual is unlikely to result in a significant impact at the local scale or species level. Advice received from the DBCA (2024b) endorsed this assessment.

Conostephium magnum (Priority 4)

According to available databases, 16 unique records of the species occur within the local area, with the closest record located 45 metres west of the proposed clearing area (PERTH 09039074).

A total of 573 individuals were recorded during the 2021/22 field survey (RPS, 2023). Of these, a total of 35 individuals are located within the application area. This represents 6.11% of the local population. While there is limited information available about the size of the *C. magnum* populations in the local area, known records are located within Badgingarra National Park and additional records occur in most larger remnants of native vegetation within the area. As the species was found in all surveyed vegetation types with a Good or better condition, it is considered that suitable habitat for the species is likely to be present in vegetation surrounding the application area. Given the above, it is considered that the removal of up to 35 individuals is unlikely to result in a significant impact at a local scale, regional or species level, and the DBCA in their advice endorsed this assessment.

Hypolaena robusta (Priority 4)

According to available databases, two records of the species occur within the local area, with the closest record located within the proposed clearing area (PERTH 09446699) and resulting from the field survey by Ecoedge and RPS. The other record is located 4.2 kilometres south of the proposed clearing area (PERTH 04384946) within roadside vegetation.

A total of 73 individuals were recorded during the 2021 and 2022 field survey (RPS 2023) within vegetation type W1, 22 of which were located within the application area. This represents 30 % of the individual plants recorded in the local area. While there is limited information available about the size of the *H. robusta* populations in the local area, the database records note that the species is locally abundant at the recorded locations. Additional records also occur in large remnants of native vegetation within the greater area (20 kilometres from the application area) which note that the species is locally abundant. Given the above, it is considered that the removal of up to 22 individuals and potential indirect impacts to eight individuals is unlikely to result in a significant impact at a regional scale or to the conservation status of the species.

Thelymitra stellata (Endangered)

According to available databases, eight records of the species (Populations 36, 37, 38, 45, 49 and 58) occur within the local area, with the closest record located 150 metres north of the proposed clearing area (Population 49). The Threatened and Priority Flora database records 60 populations occurring across the species range from between Three Springs and Pinjarra, with a single disjunct occurrence near Dumbleyung.

Two flora surveys pertinent to the identification of the Threatened flora species have been conducted by the proponent over the application area and surrounds:

- Reconnaissance Flora and Vegetation Assessment, (Ecologia, 2023)
- Targeted *Thelymitra stellata* and *Paracaleana dixonii*) search in October 2024 (RPS, 2025)

A total of 37 individuals were recorded during the 2021 and 2022 field surveys (Ecologia, 2023) within vegetation type HL. Most of the findings were recorded from areas near Population 36, 49 and 59 in the same strip of roadside vegetation. The 2022 survey was conducted between 7 and 9 September, which is prior to the late September to November which is the optimal flowering period of *Thelymitra stellata* (WA Herb, 1998). A further 39 individuals were identified during a targeted survey for the species in October 2024. Given these findings, the applicant revised the application area to avoid direct impacts and minimise indirect on the identified individuals. As a result, twenty-six individuals of *T. stellata* occur within 50 metres of the application area.
DBCA advised that the application area occurs around the centre of the current known range of *Thelymitra stellata* and there are at least 65 known populations of the species, containing approximately more than 330 recorded individuals (DBCA, 2024b). Populations 36, 49 and 58 are known to contain approximately 67, five and four plants respectively (DBCA, 2024b). As orchids are cryptic in nature and do not flower every year, it is possible that underground tubers may be present within the application area that were not detected during the surveys (DBCA, 2024b). Therefore, the number of individual plants with the potential to be impacted may be greater than known. DBCA advised mitigation strategies should be put in place to minimise the risks to individual plants adjacent to the clearing area (DBCA, 2024b).

Given the above, it is considered that indirect impacts on up to 26 individuals of *Thelymitra stellata* is unlikely to present a significant impact to the conservation status of the species or at a regional scale. However, clearing in close proximity to the species also has the potential for indirect impacts through dust deposition, weed encroachment, trampling, inadvertent damage from machinery and altered surface water flow. To minimise inadvertent impacts to individuals of the species, DWER will require the following mitigation strategies under the conditions of the clearing permit:

- clearly demarcating works areas prior to clearing
- Installing fences with windbreak netting along the boundary of the area authorised to be cleared where individuals of *Thelymitra stellata* occur as identified by RPS (2025).
- hygiene measures to prevent the spread of weeds and disease
- report on all mitigation measures implemented.

In addition, the applicant will require a section 40 authorisation under the BC Act for the take of soil stored seed, underground tubers and any plants taken from indirect impacts (DBCA, 2024b)

Drosera macropetala (Priority 1)

According to available databases, one record of the species occurs within the local area and is located approximately 570 metres from the proposed clearing area.

A submission received during public advertisement of the application noted that *Drosera macropetala* was only recently rediscovered in close proximity to the proposed clearing area at the corner of Mullering Road (Appendix A). This species is stated as being a large and very easily identifiable tuberous sundew, growing up to 45 centimetres tall and displaying large bi-coloured flowers.

It is noted that the species has only been recently recorded and was not listed in spatial databases at the time of the desktop component for the 2022/21 surveys. As such, *D. macropetala* was not specifically targeted during the surveys. DBCA advised that *D. macropetala* is a recent nomenclatural recombination which is currently only know with certainty from a single August 2021 herbarium collection within one kilometre of the application area on Mullering Rd, with the last historical record dating to 1904 from the Mogumber area (DBCA, 2024b). A recent report of the Mullering Rd subpopulation indicated there were 196 individuals within a 2,000 square metre area, based on a survey by researchers from Curtin University undertaken on 24 August 2023 (DBCA, 2024b). The species has been recorded as flowering on 22 August 2021 and 24 August 2023, with plants quickly going dormant after flowering (DBCA, 2024b). It was advised that the any individuals potentially present are likely to have finished flowering before the 2021 and 2022 surveys were undertaken and detection would have been difficult (DBCA, 2024b).

Given the above and to minimise the potential for significant impacts to the species, DWER required the applicant to conduct an appropriately targeted flora survey of these areas to identify and avoid clearing of the species (DWER, 2024). In response to the request, a targeted survey in search of *Drosera macropetala* was performed in August 2024 covering the application area and adjacent areas in accordance with the Technical Guidance – Terrestrial flora and vegetation survey for environmental impact assessment (EPA, 2016). The search identified no records of *D. macropetala* within any of the proposed clearing areas or nearby. Specimens suspected to represent *D. macropetala* were collected by RPS and vouchered with Curtin University for taxonomic identification. The identification process confirmed that the specimens collected from the survey did not represent *D. macropetala* (RPS, 2024b).

Priority Ecological Community

Banksia woodlands of the Swan Coastal Plain PEC (Priority 3)

According to available databases, the local area contains approximately 10,112.95 hectares of the *Banksia Woodlands of the Swan Coastal Plain Ecological Community* (Banksia Woodlands), listed as Priority 3 (PEC) under the BC Act and Endangered under the EPBC Act (DotEE, 2016) located to the south, west and northwest of the application area.

Only a small portion of the application area is located within the Swan Coastal Plain (SCP) IBRA region, where the Banksia Woodlands PEC / TEC may occur. The applicant commissioned a survey to identify the occurrence of the Banksia Woodlands PEC in the area (RPS, 2023; Ecologia, 2016; Outback Ecology, 2014). The survey has identified the Banksia woodland vegetation units within the application area, measuring a total of 0.27 ha in area size, as meeting the key diagnostic characteristics for composition, structure, soil and landform of the Banksia Woodlands of the Swan Coastal Plain ecological community (SCP Banksia Woodlands community). This vegetation is present along or adjacent to existing disturbance corridors and power infrastructure, comprising part of a larger patch of the TEC totalling approximately 33.95 hectares in size.

Clearing of 0.27 ha of the Banksia Woodlands PEC/TEC may reduce the extent of the remnant of the ecological community. However, the proposed clearing accounts for approximately 0.003 percent of the local extent of the community in the Swan Coastal Plain IBRA region. Noting the current extent of this community in the local area, the proposed clearing is not considered to have a significant impact on the Swan Coastal Plain Priority Ecological Community.

Due to the requirement of connecting to existing power infrastructure that is completely surrounded by vegetation considered to be the SCP *Banksia* Woodlands community, clearing of the TEC was unable to be avoided. The applicant has taken or proposed to undertake the avoidance and mitigation measures listed in Section 3.1 to minimise impacts to the PEC/TEC.

In consideration of the applicant's proposed mitigation measures, indirect impacts from the proposed clearing such as dust deposition or the spreading of weeds and dieback are not considered likely to have a significant impact on the remaining PEC/TEC adjacent to the clearing area.

Conclusion

Based on the above assessment, the proposed clearing will result in the loss of 0.27 hectares of the SCP *Banksia* Woodlands TEC and present indirect impacts to the TEC located adjacent to the clearing area. Due to the extent of the TEC remaining in the local area and clearing being centred along existing disturbance areas, this impact is not considered significant.

For the reasons set out above, it is considered that the impacts of the proposed clearing on the SCP *Banksia* Woodlands TEC can be managed by taking steps to minimise the risk of the introduction or spread of pathogens and weeds, and dust deposition.

The applicant may have responsibilities under the EPBC Act for impacts to the SCP *Banksia* Woodlands TEC, as set out in the EPBC Act referral guidance for the *Banksia* Woodlands of the Swan Coastal Plain ecological community (DotEE, 2019). The applicant has referred the wind farm project to the federal Department of Climate Change, Energy, the Environment and Water (DCCEEW) for assessment under the EPBC Act.

Conclusion

Based on the above assessment, the clearing may result in indirect impacts to *Thelymitra stellata* and direct impacts priority flora species. However these potential impacts are not considered significant and can be managed through measures imposed on the clearing permit. Clearing of 0.27 ha of vegetation identified as the Banksia Woodlands PEC/TEC is also considered proportionally insignificant. Indirect impact to the adjacent PEC/TEC can be managed through the management conditions imposed on the permit

Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- Dieback and weed management, which ensures protocols are put in place to limit the introduction and transportation of dieback- and weed-affected materials;
- Wind erosion management, requiring the applicant to commence construction within three months of clearing to limit the amount of dust deposition from exposed soils;
- Flora management, requiring the applicant to install netted fences along the perimeter of the clearing area where *Thelymitra stellata individuals have been identified nearby.*
- Offset conservation covenant, which primarily is for residual impacts to Carnaby's cockatoo foraging habitat but utilise a site that contains a known sub-population of *D. macropetala*.

3.2.2. Biological values (fauna) - Clearing Principle (b)

Assessment

According to available database information, several conservation significant fauna species have been recorded from within 10 kilometres of the application area (Appendix B4). Noting the findings of biological surveys for the application area (Terrestrial Ecosystems, 2022; Ecologia, 2016, Outback Ecology, 2014; RPS, 2014; Outback Ecology, 2010; RPS, 2010), habitat requirements for fauna, distribution of potentially occurring species, the mapped vegetation types (RPS, 2023; Ecologia, 2016; Outback Ecology, 2014) and the condition of the vegetation within the application area, the application area may comprise suitable habitat for the following conservation significant fauna species:

- Carnaby's black cockatoo, Zanda latirostris (EN)
- Peregrine falcon, Falco peregrinus (OS)
- A bothriembryontid land snail (Moore River), Bothriembryon perobesus (P1)
- Black-striped snake, Neelaps calonotos (P3)
- Jewelled southwest ctenotus (Swan Coastal Plain subpopulation), Ctenotus gemmula (P3)
- Western brush wallaby, Notamacropus irma (P4)

Of the vertebrate fauna, the Carnaby's and Peregrine falcons have the most likelihood of using the native vegetation within the application area.

Carnaby's cockatoo (Zanda latirostris)

Carnaby's cockatoo rely on three key types of habitat; foraging, breeding and night roosting. All areas of breeding habitat are critical to black cockatoos, as are the associated foraging areas in close proximity to breeding and night roosting habitat (DAWE, 2022). The cockatoos forage in native shrubland, kwongan heathland and woodland on seeds, flowers and nectar of native proteaceous plant species (*Banksia* spp., *Hakea* spp. and *Grevillea* spp.), as well as *Callistemon* spp. and Marri (DAWE, 2022). They generally forage up to 12 kilometres from their nesting site during the breeding season and in areas up to 20 kilometres from night roosting sites during the non-breeding period (DAWE, 2022). Night roosting occurs generally in or near riparian environments or natural and artificial permanent water sources, where any tall trees may be suitable, but particularly Flat-topped Yate, Salmon Gum, Wandoo, Marri, Karri, Blackbutt and Tuart (DAWE, 2022). Nesting occurs in the hollows of live and dead trees of *Eucalyptus* spp., particularly Salmon Gum, Wandoo, Tuart, Jarrah, Flooded Gum, York Gum, Powderbark, Karri and Marri (DAWE, 2022). Breeding habitat includes trees of these species with either a suitable nest hollow currently present or have a suitable diameter at breast height (DBH) to develop a nest hollow, which is considered to be 500 millimetres for most tree species (DAWE, 2022).

The proposed clearing area is located within the modelled range for Carnaby's cockatoo. Within 12 km radius of the proposed clearing area, 82 breeding sites have been confirmed and recorded and further two potential breeding sites are recorded. According to the Murdoch University's database, there are a number of roosting sites located within 6 and 12 kilometres of the application area (GHD, 2024a).

Black cockatoo surveys (Terrestrial Ecosystems, 2022, Ecologia, 2016; Outback Ecology, 2014) identified a total of three potential breeding and roosting trees with a DBH greater than 500 millimetres without hollows within the application area, which were all marri trees (Terrestrial Ecosystems, 2022). An additional 61 potential breeding trees were also identified outside of the proposed clearing area along with feeding evidence, of which 11 trees contained potentially suitable breeding hollows with no evidence of use (Terrestrial Ecosystems, 2022). All trees identified as containing potentially suitable breeding hollows have been excluded from the application area and will be retained. The various surveys indicated that 5.4 hectares of significant foraging habitat was present in the application area, with the 2022/21 survey (Terrestrial Ecosystems, 2022) scoring the foraging habitat quality between 7 to 8 out of 10 (DAWE, 2022). No chewing of banksia infructescence or foraging evidence was observed during the 2022/21 survey. However, it was noted that this wasn't an indicator of no foraging occurring, as it would be difficult to detect in the Kwongan heath vegetation unless heavy foraging was occurring (Terrestrial Ecosystems, 2022). While there were no active sightings of Carnaby's cockatoos actively breeding or foraging in the area proposed to be cleared, it is considered likely for the species to utilise the area for breeding and foraging at some time given the declining habitat available to black cockatoos. The lack of sightings is also likely due to surveys being undertaken outside of January to June when Carnaby's cockatoos are more likely to utilise the area (DBCA, 2024b). Anecdotal evidence from farm owners gathered during the survey was that the area has historically been used by black cockatoos (Terrestrial Ecosystems, 2022).

It is noted that an additional 72 potential black cockatoo large trees with DBH larger than 500 mm occur within the application area. However, these comprise non-native species intentionally planted as windbreaks between farm paddocks and driveways and are not considered native vegetation under the EP Act. Impacts to Carnaby's cockatoo from both the clearing of native and non-native vegetation are considered by the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) through their assessment, as the project has been referred under the EPBC Act.

Given the above, the application area is not considered to currently contain any suitable breeding hollows for Carnaby's cockatoo. The proposed clearing is therefore unlikely to directly impact on the breeding of the species. However, noting the occurrence of multiple breeding and roosting sites within the range and the suitability of the vegetation for foraging by the Carnaby's black cockatoo, parts of the vegetation proposed to be clear comprise significant foraging habitat. Of the 5.5 ha of vegetation proposed to be cleared, 5.4 comprises of significant foraging resources for the Carnaby's cockatoo. Removal of this foraging habitat represents a significant residual impact on the Carnaby's cockatoo. Noting the mitigation hierarchy detailed in WA Environmental Offsets Guidelines (2014), and that actions that would avoid or minimise the need for clearing were implemented, residual impacts can be counterbalanced through an environmental offset.

Peregrine falcon (Falco peregrinus)

The peregrine falcon typically nests on rocky ledges in tall, vertical cliff faces and gorges, or in tall trees associated with drainage lines, and can hunt in a range of habitat types including timbered watercourses, riverine environments, wetlands, plains, open woodlands, and pylons and spires of buildings (Australian Museum, 2021). It hunts above canopy vegetation where its favoured prey is medium sized birds such as Galah and Rock Doves (RPS, 2010).

Available databases show two records of the peregrine falcon within a 10 kilometre radius of the project. Both records were located in the nearby Minyulo Brook, with the closest being approximately 2.85 kilometres southeast of the application area. Field investigations recorded a single bird outside of the application area, but within the general locality of the wind farm (RPS, 2010). Reporting considered that due to the primarily agricultural land use, the area would experience seasonal influxes of relevant prey species (mediums sized cockatoos such as galahs and corellas) that would attract the peregrine falcon (RPS, 2014).

Considering the above, the application area may provide suitable foraging habitat for the peregrine falcon but is unlikely to provide suitable nesting habitat due to the lack of rocky ledges or cliff faces and minimal tall trees in proximity to drainage lines. Noting that the peregrine falcon is a highly mobile species with a large home range that does not rely on specialist niche habitats, the species is likely to be transient in the application area only and it is unlikely that the application area represents significant habitat for the species. Further, noting that the application proposes to clear 5.5 ha in predominately linear corridor across over 25 kilometres, it is unlikely that the peregrine falcon would be reliant on the application area for foraging in the local area.

Western brush wallaby (Notamacropus irma)

The western brush wallaby preferred habitat is open forest or woodland, particularly with seasonally wet flats, open scrubby thickets and low grasses (DEC, 2012). They can also be found in areas of mallee and heathland and are uncommonly found in karri forest. The species forages by grazing on low grasses and scrub.

Available databases show two records of the western brush wallaby within a 10-km radius of the application area, with the closest record located approximately 550 meters to the west. Both records were west of Brand Highway and associated with the unnamed Conservation Park (Crown Reserve 41986).

Field surveys considered the western brush wallaby may occur as a resident or forage in the *Banskia* woodland and Proteaceous scrub heath within the application area, as these vegetation types contain common food resources for the species (RPS, 2014). Native vegetation within the application area could also be used as movement corridors between significant stands of habitat.

The western brush wallaby is unlikely to be dependent on the 5.5 ha extent of native vegetation within the application area, as they are a more mobile species and are able to occupy a range of different habitat types (i.e. open forest, woodland, open flats, low grasses). Therefore, they are unlikely to be significantly impacted by the proposed clearing.

Black-striped snake (Neelaps calonotos)

The black-striped snake is a poorly known species (Priority 3) restricted to the sandy areas of the coastal plain between Busselton to Cervantes, where it inhabits dunes and sandplains vegetated with heaths, open banksia

woodlands and shrublands (ALA, 2024). The snake is a nocturnal burrowing species that stays in loose sand during the day and forages for other sand-loving species such as worm lizards (*Aprasia* and *Lerista* species) at night (ALA, 2024).

Available databases show two records of the black-striped snake within a 10 km radius of the application area, with the closest record located approximately 5.11 km to the northwest. Both were recorded through fauna surveys associated with the Cooljarloo and Cataby minesites.

Native vegetation within the application area primarily comprises *Banksia* low open woodland, *Eucalyptus todtiana* woodland and Proteaceous scrub heath (RPS, 2023; Ecologia, 2016; Outback Ecology, 2014). The application area also predominately contains sandy soils when considering the mapped soil systems and phases shown in the soil descriptions listed in Appendix C.1. Considering the above, the application area would be suitable habitat for the black-striped snake.

The black-striped snake is unlikely to be dependent on the 5.5 hectares extent of native vegetation proposed to be cleared, as the application area is adjacent to larger patches of the same vegetation types on sandy soils. This is particularly the case in the area west of Mullering Brook, where the adjacent vegetation is either part of an unnamed Conservation Park (Crown Reserve 41986) or is providing a large buffer area to the park. The species is also not restricted to the local area and occurs more widely across the region. Accordingly, the black-striped snake is unlikely to be significantly impacted by the proposed clearing.

Jewelled southwest ctenotus (Swan Coastal Plain subpopulation) (Ctenotus gemmula)

The jewelled southwest ctenotus is a poorly known species with two distinct subpopulations: one along the lower west coastal plain from Cataby south to Perth, the second along the south coast and adjacent interior, from Rocky Gully east to the beginning of the Great Australian Bight, and inland to Lake Magenta. Only the west coastal subpopulation from Cataby to Perth, referred to as the Swan Coastal Plain subpopulation, is considered conservation significant (Priority 3). The species is found in pale sandplains supporting heaths in association with Banksia or mallee woodlands (Wilson and Swan, 2017).

Available databases show two records of the jewelled southwest ctenotus (Swan Coastal Plain subpopulation) within a 10 km radius of the application area, with the closest record located approximately 5.94 km the northwest. Both were recorded through fauna surveys associated with the Cooljarloo minesite.

Native vegetation within the application area primarily comprises Banksia Low Open Woodland and Proteaceous scrub heath (RPS, 2023; Ecologia, 2016; Outback Ecology, 2014). The application area also predominately contains sandy soils when considering the mapped soil systems and phases shown in the soil descriptions listed in Appendix C.1. Considering the above, the application area would be suitable habitat for the species and any individuals would be part of the jewelled southwest ctenotus Swan Coastal Plain subpopulation.

The jewelled southwest ctenotus Swan Coastal Plain subpopulation is unlikely to be dependent on the native vegetation proposed to be cleared, as the application area is adjacent to larger patches of the same vegetation types on sandy soils. This is particularly the case in the area west of Mullering Brook, where the adjacent vegetation is either part of an unnamed Conservation Park (Crown Reserve 41986) or is providing a large buffer area to the park. Accordingly, the jewelled southwest ctenotus Swan Coastal Plain subpopulation is unlikely to be significantly impacted by the proposed clearing.

A bothriembryontid land snail (Moore River) (Bothriembryon perobesus)

Bothriembryon perobesus is a poorly known (Priority 1) short range endemic with limited information available about the ecology of the species. Previous collections were associated with *Banksia* woodlands and low shrublands on white sandy soils, where the species is typically collected within leaf litter but has also been found on bare sand and the branches of shrubs (Whisson, 2019). Recorded specimens of the species are from the type location at the mouth of the Moore River, Moore River National Park and a limestone escarpment north of Leeman (Whisson, 2019).

Available databases show one record of *B. perobesus* within a 10 km radius of the application area, located approximately 6.71 km to the southwest. This was recorded in 2012 through fauna surveys associated with the Cooljarloo minesite.

Native vegetation within the application area primarily comprises *Banksia* low open woodland and Proteaceous scrub heath (RPS, 2023; Ecologia, 2016; Outback Ecology, 2014). The application area also predominately contains sandy

soils when considering the mapped soil systems and phases shown in the soil descriptions listed in Appendix B.1. Considering the above, the application area would be suitable habitat for *B. perobesus*.

B. perobesus is unlikely to be dependent or restricted to the native vegetation proposed to be cleared, as the application area is predominately a linear corridor occurring over 25 kilometres and no clearing of entire vegetation patches is proposed. The application area is also adjacent to larger patches of the same vegetation types on sandy soils. This is particularly the case in the area west of Mullering Brook, where the adjacent vegetation is either part of an unnamed Conservation Park (Crown Reserve 41986) or is providing a large buffer area to the park. Accordingly, *B. perobesus* is unlikely to be significantly impacted by the proposed clearing.

Impact of geotechnical investigation

Geotechnical investigation, as a part of the project, involves excavation of the ground for test pits. The pits may pose risks to the fauna species in the local area. Fauna species can fall into the pits and be trapped within. This potential impact can be mitigated by ensuring that that test pits be covered during the process and backfilled after use. This is also required as a condition for the permit.

Conclusion

Based on the above assessment, the proposed clearing will have a significant residual impact on Carnaby's cockatoo in the form of the loss of 5.4 hectares of significant foraging habitat, but is not considered likely to result in significant impacts to other conservation significant fauna species. The significant residual impact on the Carnaby's foraging habitat has been addressed through the conditioning of environmental offset requirements, as outlined under Section 4. Impacts of geotechnical investigation on fauna can be managed through a backfilling condition. Indirect impacts to fauna individuals that may occur during clearing can be managed through a slow and directional condition.

Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- Slow and directional clearing, which allows fauna to move into adjacent vegetation ahead of the clearing activity and minimises impact to individuals;
- Geotechnical test pits covering and backfilling to prevent trapping of fauna
- Offset environmental undertaking conservation covenant of a site within the local area which includes revegetation of degraded area to a condition suitable for foraging by Carnaby's cockatoo foraging habitat.

3.2.3. Environmental values (conservation areas) - Clearing Principles (h)

Assessment

A portion of the application area west of Brand Hwy is located within and adjacent to an unnamed Conservation Park (Crown Reserve 41986) vested with the Conservation Commission of WA, this also includes some of the proposed clearing of the Banksia Woodlands of the Swan Coastal Plain ecological community discussed under Section 3.2.4. The Conservation Park totals 2,368.66 hectares and the proposed clearing within the park totals 2.10 hectares, representing less than 0.1 percent of the total area of the Conservation Park. The Conservation Park is understood to have a history of soil borne Phytophthora pathogen occurrences, mainly due to the historic mineral sand mining activities in the area.

Clearing within the Conservation Park has the potential to facilitate dust deposition and the spread of weeds and dieback into the conservation area, as well as reducing the extent of native vegetation being conserved by the park.

Due to the requirement of connecting to existing power infrastructure, clearing within the conservation park was unable to be avoided without increasing the total clearing area required for the project. The applicant has taken or proposed to undertake the avoidance and mitigation measures listed in Section 3.1 to minimise impacts to the Conservation Park.

In consideration of the applicant's proposed mitigation measures, indirect impacts from the proposed clearing such as dust deposition or the spreading of weeds and dieback are not considered likely to have a significant impact on the environmental values of the adjacent or nearby conservation area.

The direct impacts of the proposed clearing will result in the loss of 2.10 hectares of native vegetation from the Conservation Park which has a total size of 2,368.66 hectares. As the application area predominately aligns with existing disturbance through the Conservation Park, higher value vegetation would be present elsewhere in the more intact central portions of the reserve that are located away from existing infrastructure. Noting the mitigation measures applied, the proposed clearing of approximately 0.08 percent of the vegetation within the reserve is not

considered to result in a significant residual impact. The applicant may have additional commitments imposed by the DBCA as part of their consent to access and clear vegetation within Crown Reserve 41986 ((DBCA, 2024a). It is understood that one of these commitments is to undertake all activities within the Conservation Park in accordance with an agreed upon Hygiene Management Plan. The applicant should be aware that any changes made to the Hygiene Management Plan to meet the requirements of the clearing permit will need to be endorsed by DBCA as a condition of their consent to undertake the proposed clearing with the Conservation Park.

Conclusion

Based on the above assessment, the proposed clearing will result in the loss of 2.10 hectares of native vegetation from the Conservation Park (Crown Reserve 41986), which will not result in a significant residual impact to this conservation area. The proposed clearing, however, may facilitate the spread of weeds and dieback into or within the Conservation Park.

For the reasons set out above, it is considered that the impacts of the proposed clearing on the environmental values of an adjacent or nearby conservation area can be managed by taking steps to minimise the risk of the introduction and spread of weeds, minimise the generation of dust and does not constitute a significant residual impact.

Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- Dieback and weed management, which ensures protocols are put in place to limit the introduction and transportation of dieback- and weed-affected materials;
- Wind erosion management, requiring the applicant to commence construction within three months of clearing to limit the amount of dust deposition from exposed soils; and
- Demarcation of clearing area

3.2.4. Land and water resources (land degradation) - Clearing Principles (g)

<u>Assessment</u>

The application area comprises nine different mapped soil types (see Appendix C.1), however the majority of the area contains the Yerramullah 2 Subsystem (59.65%) and the Yerramullah 3 slopes Phase (38.04%). The remaining seven soil types comprise only 2.31 percent of the total application area and less than 0.7 percent each. Soils within the application area predominantly comprise gravelly and sandy soils, with some sandy duplexes and sandy earths. The landform is described generally as plateau residuals, very gently to gently inclined hillcrest and hillslopes and colluvial slopes.

Both the Yerramullah 2 Subsystem and the Yerramullah 3 slopes Phase are highly susceptible to land degradation from wind erosion and subsurface acidification. Subsurface acidification refers to acidification of the soil profile between 10 to 30 centimetres and can result in aluminium toxicity that reduces plant root growth (Bolland *et al.*, 2004). It generally occurs when agricultural production takes place following vegetation clearing on land with acidification risks (Bolland *et al.*, 2004).

Given the application area is a linear infrastructure corridor traversing over 25 kilometres within a larger development envelope and will be used for access tracks and transmission infrastructure, it is unlikely that the proposed clearing would cause appreciable land degradation from wind erosion or subsurface acidification.

Conclusion

Due to the extent of the application area, the proposed clearing is unlikely to cause appreciable land degradation from wind erosion or subsurface acidification.

3.3. Relevant planning instruments and other matters

The Waddi Wind Farm project is related to the Dandaragan Wind Farms proposal, which was referred to the Environmental Protection Authority (EPA) for assessment under Section 38 of the EP Act in February 2011. The Dandaragan Wind Farms proposal included the Waddi Wind Farm and the Yandin Wind Farm (which is not part of this clearing application and has already been constructed) and the proponent at the time was Wind Prospect Pty Ltd.

The EPA considered that the likely environmental impacts of the Dandaragan Wind Farms proposal were not so significant as to warrant formal environmental assessment and subsequently determined that the proposal should be treated as *"Not Assessed – Public Advice Given"* (EPA, 2011). The public advice issued by the Office of the EPA in October 2011 identified that the key environmental factors requiring management were limited to clearing of vegetation, fauna and noise.

Other relevant authorisations required for the proposed land use include a Development approval under the *Planning and Development Act 2005* (issued by the Shire of Dandaragan).

The Shire of Dandaragan advised DWER that local government approvals are in place, as the applicant was successfully granted an amendment to their previous Development Approval on 26 February 2024 (Shire of Dandaragan, 2024).

Several 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 significant residual impacts remain after the application of the avoidance and mitigation measures summarised in Section 3.1:

• the loss of 5.4 hectares of significant foraging habitat for Carnaby's cockatoo.

Preliminary calculation using the WA Offset Guidelines (Calculator) with an assumption that a rehabilitation of a site of a degraded heathland with low foraging value to high quality foraging value is required to counterbalance the SRI:

- acquisition and rehabilitation of 17.60 ha of Degraded vegetation containing low quality foraging habitat for the Carnaby's black cockatoo in the local area;
- placing the land into a conservation covenant in perpetuity.

The applicant proposed an environmental offset consisting of the above. This will be detailed in an Offset Management Plan which will be submitted for the Delegated Officer Approval and is placed as a condition to the permit.

The Delegated Officer considers that this adequately counterbalances the significant residual impacts listed above. The justification for the values used in the offset calculation is provided in Appendix E.

End

Appendix A. Details of public submissions

Summary of comments	Consideration of comment			
The application may potentially impact two rare carnivorous plant species: <i>Drosera leioblastus</i> and <i>Drosera macropetala</i> (Droseraceae). Both species are endemic to the area and currently listed as Priority 1 but are not mentioned in any of the provided flora and vegetation survey reports. Occurrences of the pygmy sundew <i>D. pulchella</i> (not	DWER queried the consideration of the <i>Drosera</i> species with the applicant and requested a post survey likelihood assessment for DBCA listed threatened and priority flora species. From the information provided it was evident that <i>Drosera leioblastus</i> was targeted during the 2021/22 survey (RPS, 2023) as per retrieval in desktop information. The recent recording of <i>D. macropetala</i> was not listed in spatial databases at the			
threatened) found during the 2016 field survey are likely a misidentification. This species prefers seasonally waterlogged swamps and is extremely unlikely to occur in the Banksia low open woodland	for the 2021/22 survey. As such, it was not specifically targeted during the survey or considered in the report.			
mapped at the location. These are more likely to have been <i>D. minutiflora</i> (not threatened) or <i>D. leioblastus</i> . Records of <i>D. leioblastus</i> are known from near the application area and the small size of the species' distinguishing features means it's easily overlooked and frequently misidentified.	DWER requested advice from DBCA regarding the Drocera species. The DBCA advice (DBCA, 2024b) included an assertation that <i>D. macropetala</i> it was not likely to be detected by the previous surveys if present, as they were not undertaken during the late August flowering period of the species.			
<i>Drosera macropetala</i> has only recently been rediscovered and is known from only four subpopulations. One of the subpopulations is in close proximity or potentially within the application area along Mullering Road. This species is a large and very easily identifiable tuberous sundew, growing up to 45 cm tall and displaying large bi-coloured flowers. This area appears to have been surveyed by the RPS 2023 survey, yet they appear to have failed to detect this distinctive species.	Following the DBCA advice, DWER requested the applicant to perform a targeted search for the Drocera species during the appropriate flowering period of the species. In November 2024, the applicant provided the results of such survey including the taxonomic identification of specimens suspected to represent <i>D. macropetala</i> by Curtin University. The identification process confirmed that the specimens collected from the survey did not represent <i>D. macropetala</i> (RPS, 2024b).			
 It is strongly recommended that: a targeted survey of the application area west of Brand Hwy be undertaken during September to October to exclude the possibility of any <i>D.</i> <i>leioblastus</i> individuals occurring within the application area; and the application area is moved away from the <i>D.</i> <i>macropetala</i> subpopulation to avoid impacts on this extremely area encoded 	Impacts to <i>Drosera leioblastus</i> and <i>Drosera</i> <i>macropetala</i> are addressed in the assessment of impacts on environmental values (see Section 3.2.2).			
The application area, namely for the transmission line,	The applicant revised the application area and			
intersects Mullering Brook which is a registered cultural heritage site under the Aboriginal Cultural Heritage Inquiry System.	provided further information regarding the transmission line infrastructure to be installed as part of the project. The revision and information clearly excludes ground disturbance from within Mullering Brook. The nearest			
The applicant undertook consultation and a site assessment in 2012, 2016 and 2022. This resulted in the following recommendations with regards to native vegetation clearing:	towers for the transmission line will be installed away from Mullering Brook at a height that allows the line to span across the brook without requiring vegetation clearing.			
 No ground disturbance within the Mullering Brook heritage site; Transmission poles must avoid any impact to riparian vegetation of Mullering Brook; No removal or damage to any Nuytsia 	The applicant's avoidance and mitigation measures for the clearing of native vegetation are outlined in Section 3.1.			
<i>floribunda</i> trees as these species are culturally significant to the Noongar peoples; and	DWER acknowledges the cultural significance of <i>Nuytsia floribunda</i> trees, however given the species is relatively common and not listed as a threatened or			

Summary of comments	Consideration of comment				
Clearing or damage to native vegetation should be avoided where possible.	priority species, it would be beyond the scope of this assessment to require protection for cultural reasons alone.				

Appendix B. Site characteristics

B.1. Site characteristics

Characteristic	Details
Local context	The majority of the area proposed to be cleared is part of the eastern edge of an expansive tract of native vegetation in the intensive land use zone of Western Australia. It is surrounded by cleared farmland to the east, a mine site to the west and is intersected by Brand Highway. Other clearing areas are part of isolated patches of native vegetation within farm paddocks, along road verges or riparian vegetation associated with Mullering Brook. Aerial imagery and spatial data indicates the local area (10 kilometre radius from the east of t
	original native vegetation cover.
Ecological linkage	There are no known formal ecological linkages mapped within the application area. Remnant roadside vegetation surrounding Waddi Road and Mullering Brook may provide an informal ecological linkage between patches of native vegetation and watercourses.
Conservation areas	Approximately 12.1 hectares of the western end of the application area is within a Conservation Park (Reserve 41986). The Minyulo Nature Reserve is located approximately 1.8 kilometres east of the application area.
Vegetation description	Vegetation surveys undertaken in 2021 and 2022 (RPS, 2023), 2016 (Ecologia, 2016) and 2013 (Outback Ecology, 2014) indicates the vegetation within the proposed clearing area primarily consists of <i>Banksia</i> woodland and Proteaceous heath. The full survey descriptions and maps are available in Appendix G.
	This is consistent with the Beard mapped vegetation types:
	 Le Sueur 7, which is described as 'Scrub-heath / Heath' Bassendean 1030, which is described as 'Low woodland or open low woodland'. Le Sueur 1031, which is described as 'Woodland other '.
	The mapped vegetation types retain approximately 32.6% or more of their original extent (Government of Western Australia, 2019).
Vegetation condition	Vegetation surveys (RPS 2023; Ecologia 2016; Outback Ecology 2014) indicate the vegetation within the proposed clearing area ranges between Completely Degraded to Excellent condition (Keighery, 1994), with most of the vegetation being in Excellent condition.
	The full Keighery (1994) condition rating scale is provided in Appendix E. The full survey descriptions and mapping are available in Appendix G.
Climate and landform	The elevation of the application area ranges from approximately 100 mAHD in the west to 250 mAHD in the east and north.
	The application area is characterised by a Mediterranean climate with hot, dry summers and cool, wet winters. The nearest Bureau of Meteorology weather station is the Badgingarra Research Station (No. 009037), located approximately 30 kilometres north of the centre of the application area. The station provides the following information, based on records from 1991 to 2020:

Characteristic	Details									
	A re A re A re A	verage n espectively verage an nd peaking	naximum /; and nual rainf g in July.	and fall is 4	minimu 39.2 mr	um temperatu n, occurring m	ures are ainly betv	25. veen	9°C an May to S	d 12.2°C September
Soil description	The soil is	mapped	as:							
	Name	Ma	ap Unit	Descr	iption				Proport	ion of
	Yerramulla Subsysten	lah 2 224Ye_2 Plateau residuals, very gently to ge hillcrest and hillslopes; pale sandy shallow gravel over duricrust, grave			ently incline gravels, velly pale de	ed eep	59.65%			
	Yerramulla slopes Pha	h 3 22 ase	4Ye_3a	Colluvi sandy some s	ial slopes; gravels, s sandv dup	pale and yellow on hallow gravel ove lexes and sandy of the set of	leep sands r duricrust, earths	pale	38.04%	
	Yerramulla Subsysten	h 3 22	4Ye_3	Colluvi gently minor sandy some s	ial slopes to gently i valleys; pa gravels, s sandy dup	and some plateau nclined hillslopes ale and yellow dee hallow gravel ove lexes and sandy o	i remnants, and sand fi p sands, pa r duricrust, earths	very lled ale	0.65%	
	Yerramulla Subsysten	h 6 22	'4Ye_6	Colluvi to lowe pale de shallow	ial slopes, er hillslope eep sand, v sand ove	very gently to gen s and sand filled some sandy dupl er pan or bog iron	ntly inclined minor valley exes and	mid /s;	0.56%	
	Yerramulla Subsysten	h 4 22 ו	4Ye_4	Platea sandy gravel sandy	u residual gravels, g over duric duplexes,	s, complex of Ye2 ravelly pale deep rust, pale deep sa yellow deep sand	and Ye3; p sand, shall and, some l	oale ow	0.52%	
	Nylagarda Subsysten	3 22 1	4Ny_3	Relict a	alluvial pla es and pa	in; Grey or yellow le, yellow or brow	//brown san n deep san	dy ds	0.29%	
	Bassendea Subsysten	an 2 21 1	2Bs_2	Undulating sandplain (Similar to Bs1, but with ironstone and occasionally poorly drained depressions) Drainage line and adjacent very gently inclined footslopes; mainly sandy duplexes, brown deep sand and brown sandy oath				0.18%		
	Nylagarda Subsysten	1 22 1	24Ny_1					0.10%		
	Yerramulla Subsysten	h1 22 เ	4Ye_1	Laterite plateau residual; shallow gravel, shallow sand over duricrust, sandy gravels				0.01%		
Land degradation risk	Land deg	adation ri	sk factor s:	mappi	ing indic	ates that the a	pplicatio	n are	a has the	e
	Map unit	Wind erosion	Water erosion	Phos expo	sphorus ort	Waterlogging	Salinity risk	Sub acid	surface ification	Acid sulfate soils
	224Ye_2	H2	L2		M1	L1	L1		H2	None mapped
	224Ye_3a	H2	L1		M1	L1	L1		H2	None mapped
	224Ye_3	H2	L1		M1	L1	L1		H2	None mapped
	224Ye_6	H2	L1		H2	L2	L1		H2	None mapped
	224Ye_4	H2	L1		M2	L1	L1		H2	None mapped
	224Ny_3	M1	L2		M1	M1	L2		H2	None mapped
	212Bs_2	M2	L1		M2	M1	L1		H2	None mapped
	224Ny_1	M2	L2		H1	H2	L2		H2	None mapped
	224Ye_1	H2	M1		M2	L1	L1		H2	None mapped
	Map unit	Flood ris	k Flood	plain						
	224Ye_2	L1	No	D						
	224Ye_3a	L1	No	c						
	224Ye_3	L1	No	о -						
	224Ye_6	L1	No	D C						

Characteristic	Details							
	224Ye_4	L1	No					
	224Ny_3	M1	No					
	212Bs_2	L1	No					
	224Ny_1	M2	No					
	224Ye_1	L1	No					
	Key:							
	H2 High	>70% o	f mapped unit h	as a high to extreme risk				
	H1 High	50-70%	of mapped unit	has a high to extreme risk				
	M2 Mediu	n 30-50%	of mapped unit	has a high to extreme risk				
		n 10-30% 4-10% c	of mapped unit	nas a high to extreme risk				
	L1 Low	<3% of	mapped unit ha	s a high to extreme risk				
Waterbodies	The desktop watercourse Mullering B Mullering B Swamp, ap There are n	o assessm es transec rook, with rook is par proximate o waterco	nent and aer the genera the other two rt of the Nam ly 19 kilomet ourses locate	al imagery indicated th l project area. The larg o watercourses being u abung River system an res west of the applica d in the areas propose	hat three minor, non-perennial est of the three is referred to as unnamed tributaries of the brook. d flows into Coonmadodo tion area. d to be cleared.			
Hydrogeography	The application area is predominately within the Arrowsmith hydrological zone with a small portion towards the southwest located within the Coastal Plain hydrological zone.							
	The application area is within the Jurian Groundwater Area and Gingin Groundwater Area proclaimed under the <i>Rights in Water and Irrigation Act 1914</i> . Groundwater in the area is in the 500-1000 mg/L total dissolved solids salinity band.							
	There are no Public Drinking Water Source Areas located within 10 kilometres of the application area and the location is not a <i>Country Areas Water Supply Act 1947</i> clearing control catchment.							
Flora	There are re application Priority 3 ar	There are records of 109 conservation significant flora within 10 kilometres of the application area, of which 13 are Threatened, 13 are Priority 1, 16 are Priority 2, 47 are Priority 3 and 20 are Priority 4.						
	A likelihood type for eac 33 could po	analysis l h species ssibly occ	based on a c determined our and 21 wo	combination of preferre that 55 of the species ere unlikely to occur.	d habitat, vegetation and soil were likely to occur in the area,			
	Fourteen co field survey one was Pri	onservation of the are ority 2, siv	n significant ea in 2022/21 x were Priori	flora species were reco (RPS, 2023). Three w ty 3 and four were Prio	orded during the most recent vere classified as Threatened, rity 4.			
Ecological communities	There are 1 community Coastal Pla	22 record in the loca in IBRA re	s of the Banl al area. The _l egion contair	ksia Woodlands of the part of the application a is this ecological comm	Swan Coastal Plain ecological area located within the Swan nunity.			
Fauna	There are re comprising two Priority special prot	ecords of one Critica 3, one Pri ection (OS	16 fauna of c ally Endange ority 4, seve S).	conservation significan ered, two Endangered, n Migratory and one sp	ce within the local area one Vulnerable, one Priority 1, pecies otherwise in need of			
	Twelve of th Threatened (Priority 4),	ne records or Specia two reptile	were avian ally Protected es (Priority 3	fauna and included all I. The remaining four s) and one invertebrate	the species classified as pecies comprised one mammal (Priority 1).			

B.2. Vegetation extent									
	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land				
IBRA bioregion*									
Geraldton Sandplains	257,349.70	90,052.48	34.99	38,134.15	14.82				
Swan Coastal Plain	284,846.91	104,369.85	36.64	12,593.42	4.42				
Beard vegetation association									
Le Sueur 7*	4,192.64	1,402.98	33.46	128.04	3.05				
Bassendean 1030*	116,062.13	80,190.68	69.09	11,104.29	9.57				
Le Sueur 1031*	225,533.09	73,570.53	32.62	27,762.42	12.31				
Post clearing calculation									
Le Sueur 7*		1,397.48	33.33						
Bassendean 1030*		80,185.18	69.09						
Le Sueur 1031*		73,565.03	32.62						
Local area									
10 km radius	78,622.68	24,619.54	31.31						
20 km radius	213,256.80	82,912.67	38.88						

*Government of Western Australia (2019)

B.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix H.1), and biological survey information, impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)
Acacia epacantha	P3	Y	Y	Y	2.67	7
Acacia forrestiana	Т	Y	Y	N	6.25	6
Acacia plicata	P3	Ν	Y	Y	7.16	4
Acacia splendens	Т	Y	Y	Y	1.88	22
Allocasuarina grevilleoides	P3	Y	Y	N	7.85	1
Allocasuarina ramosissima	P3	Y	Y	N	7.99	1
Andersonia gracilis	Т	Y	Y	N	3.68	23
Anigozanthos humilis subsp. Badgingarra (S.D. Hopper 7114)	P2	Ν	Y	Y	0.67	10
Anigozanthos humilis subsp. chrysanthus	P4	Y	Y	N	2.78	6
Anigozanthos viridis subsp. terraspectans	Т	Y	Y	N	2.93	11
Arnocrinum gracillimum	P3	Y	Y	Y	0.14	3
Asterolasia drummondii	P4	Y	Y	N	8.69	5
Babingtonia delicata	P1	Y	Y	Y	3.28	3
Babingtonia urbana	P3	Y	Y	N	3.47	3
<i>Baeckea</i> sp. Dandaragan (G. Paczkowska s.n. PERTH 08245606)	P1	Y	Y	Y	0.46	1
Banksia nana	P3	Y	Y	Y	4.69	2
Beaufortia bicolor	P3	Y	Y	Y	4.41	5

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)
Beyeria gardneri	P3	Y	Y	Y	3.60	1
Catacolea enodis	P2	Y	Y	Y	9.18	1
Chordifex chaunocoleus	P4	Y	Y	N	5.32	1
Chordifex reseminans	P2	Y	Y	N	4.03	15
Comesperma rhadinocarpum	P3	Y	Y	Y	6.92	2
Conospermum scaposum	P3	Y	Y	N	5.54	5
Conostephium magnum	P4	Y	Y	Y	0.05	16
Cristonia biloba subsp. pubescens	P2	Y	Y	Y	2.31	1
Dampiera tephrea	P3	Y	Y	Y	2.32	3
Desmocladus biformis	P3	Y	Y	Y	3.03	1
Desmocladus elongatus	P4	Y	Y	Y	1.33	1
Desmocladus microcarpus	P2	Y	Y	Y	7.16	1
Desmocladus nodatus	P3	Y	Y	Y	2.68	5
Drosera leioblastus	P1	Y	Y	Y	1.10	5
Drosera leucostiama	P1	Y	Y	Y	1.98	2
Drosera macropetala	P1	Y	Y	Y	0.57	1
Drosera prophylla	P3	Y	Y	Y	0.02	5
Fremophila dabra subsp. chlorella	Т	Y	Y	N	5.82	1
Eucalyntus abdita	P2	N	v v	× ×	2.87	3
	Т	V	· ·	Y Y	5.51	3
Eucalyptus absila	T P/	v	· ·	۱ ۷	2.80	5
	P4	v	ı v	ı V	5.64	12
	F4	I V	r V	I V	1 40	6
Compbolobium gairdperianum		v	ı v	ı V	3.50	1
Generaliantha	т	I V	1 V	I V	1.60	21
		v	ı v	ı V	7.16	21
Grevillea saccata	FJ D4	I V	r V	I V	0.60	2
Grevillea supaphaa subsp. minuula	P1	I V	1 V	I V	1.60	15
Grevillea thyrapides subsp. minyulo		I V	r V	N	6.28	1
Grevillee thyraeidee subsp. thyraeidee		I V	T Y	N	0.20	7
Grevinea Ingrisoides subsp. Ingrisoides		I V	r V	I V	1.62	5
	гэ	T V	ř V	1 V	0.07	5
		T V	ř V	T NI	0.27	0
		r V	ř	N	0.09	1
	F2	T V	ř V	1 V	1.90	4
	P3	ř V	ř	ř Ni	1.55	21
	PI	ř V	ř	N N	1.13	2
Hypocalymma x proliferum	P1	Y	Y	N	4.92	8
Hypolaena robusta	P4	Y	Y	Y	0.00	2
Isopogon autumnalis	P3	Y	Y	Y	2.58	1
isopogon panduratus subsp. palustris	P3	Y	Y	Y	3.91	4
isotropis cuneitolia subsp. glabra	P3	Y	Y	N	9.59	1
Jacksonia antnoclada	P3	Y	Y	Y	1.07	3
Jacksonia carduacea	P3	Y	Y	N	5.52	2
Lepidobolus quadratus	P3	Y	Y	Y	0.14	2
Lepyrodia curvescens	P2	Y	Y	N	7.02	1
Leucopogon foliosus	P3	Y	Y	Y	0.07	2
Lyginia excelsa	P2	Y	Y	Y	4.24	3
Macarthuria keigheryi	Т	Y	Y	N	7.16	3

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)
Paracaleana dixonii	Т	Y	Y	N	4.59	2
Persoonia filiformis	P3	Y	Y	Y	4.93	1
Persoonia rudis	P3	Y	Y	Y	1.91	1
Petrophile clavata	P2	Y	Y	N	7.73	1
Phlebocarya pilosissima subsp. pilosissima	P3	Y	Y	Y	7.17	2
Poranthera moorokatta	P2	Y	Y	N	4.45	1
Rhetinocarpha suffruticosa	P1	Y	Y	N	9.69	3
Schoenus griffinianus	P4	Y	Y	N	4.43	5
Stenanthemum sublineare	P2	Y	Y	N	4.88	1
Stylidium aeonioides	P4	Y	Y	Y	0.48	8
Stylidium hymenocraspedum	P3	Y	Y	Y	0.57	14
Synaphea endothrix	P3	Y	Y	Y	0.02	5
Tetratheca angulata	P3	Y	Y	Y	0.06	3
Thelymitra apiculata	P4	Y	Y	Y	0.05	17
Thelymitra pulcherrima	P2	Y	Y	Y	0.07	6
Thelymitra stellata	Т	Y	Y	Y	0.15	8
Thysanotus glaucus	P4	Y	Y	N	3.11	2
Verticordia insignis subsp. eomagis	P3	Y	Y	Y	5.25	2
Verticordia lindleyi subsp. lindleyi	P4	Y	Y	Y	1.46	4
Verticordia rutilastra	P3	Y	Y	N	5.25	2

B.4. Fauna analysis table

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)
Birds					
Arenaria interpres (Ruddy turnstone)	MI	N	Ν	5.84	1
Calidris ferruginea (Curlew sandpiper)	CR	N	N	5.84	119
Calidris ruficollis (Red-necked stint)	MI	N	N	5.84	1
Charadrius leschenaultii (Greater sand plover, Large sand plover)	VU	N	N	5.84	1
Falco peregrinus (Peregrine falcon)	OS	Y	Y	2.02	1
Limosa lapponica (Bar-tailed godwit)	MI	N	Ν	5.84	1
Plegadis falcinellus (Glossy ibis)	MI	N	Ν	7.87	1
Pluvialis squatarola (Grey plover)	MI	Ν	Ν	5.84	1
Thalasseus bergii (Crested tern)	MI	Ν	Ν	5.84	2
Tringa nebularia (Common greenshank)	MI	Ν	Ν	5.84	1
Zanda latirostris (Carnaby's cockatoo)	EN	Y	Y	0.45	1
Zanda sp. 'white-tailed black cockatoo' (White-tailed black cockatoo)	EN	Y	Y	1.93	3
Mammals					
Notamacropus irma (Western brush wallaby)	P4	Y		0.14	2
Ctenotus gemmula (Swan Coastal Plain subpopulation) (Jewelled southwest Ctenotus (Swan Coastal Plain subpopulation))	P3	Y	Y	5.65	2
<i>Neelaps calonotos</i> (Black-striped snake, Black-striped burrowing snake)	P3	Y	Y	4.80	2
Invertebrates					

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)
<i>Bothriembryon perobesus</i> (Bothriembryontid land snail (Moore River))	P1	Ν	Y	6.65	1

B.5. Ecological community analysis table

Community name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)
Banksia Woodlands of the Swan Coastal Plain ecological community	EN – EPBC Act P3 – BC Act	Y	Y	Y	0	10,112.95 ha

Appendix C. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<u>Principle (a):</u> "Native vegetation should not be cleared if it comprises a high level of biodiversity."	May be at variance	Yes Refer to Section
Assessment:		3.2.1, above.
The area proposed to be cleared contains locally and regionally significant flora, fauna habitat and assemblages of plants. A portion of the application area is mapped as the 'Banksia Woodlands of the Swan Coastal Plain ecological community' (Priority 3) priority ecological community (PEC).		
<u>Principle (b):</u> "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."	At variance	Yes Refer to Section
Assessment:		0.2.2, 0.0000
The area proposed to be cleared contains foraging, roosting and potential breeding habitat for Black Cockatoo species.		
<u>Principle (c):</u> "Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."	May be at variance	Yes Refer to Section
Assessment:		3.2.1, above.
The area proposed to be cleared is likely to contain suitable habitat for threatened flora species listed under the BC Act.		
<u>Principle (d):</u> "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."	Not likely to be at variance	No
Assessment:		
The area proposed to be cleared does not contain species indicative of a state listed TEC.		
Environmental value: significant remnant vegetation and conservation ar	eas	

Assessment against the clearing principles	Variance level	Is further consideration required?
<u>Principle (e):</u> "Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."	Not likely to be at	No
Assessment:	variance	
The extent of the mapped vegetation type and native vegetation in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.		
<u>Principle (h):</u> "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."	At variance	Yes Refer to Section 3.2.3. above.
Assessment:		
Given part of the clearing area is located within a Conservation Park, the proposed clearing may have an impact on the environmental values of adjacent conservation areas.		
Environmental value: land and water resources		
<u>Principle (f):</u> "Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."	Not likely to be at	No
Assessment:	variance	
Given that the applicant has located the transmission line towers away from Mullering Brook such that clearing will not occur in riparian vegetation, the proposed clearing is unlikely to impact an environment associated with a watercourse or wetland.		
<u>Principle (g):</u> "Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."	May be at variance	Yes Refer to Section
Assessment:		3.2.6, above.
The mapped soils are highly susceptible to wind erosion and subsurface acidification. Given the relatively small extent of the proposed clearing across a larger development envelope, the proposed clearing is not likely to cause appreciable land degradation.		
<u>Principle (i):</u> "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."	Not likely to be at variance	No
Assessment:		
There are no Public Drinking Water Sources Areas within 10 kilometres of the application area and the pathway to the closest wetland, recorded at approximately 4.2 kilometres west of the application area, is separated by the Cooljarloo Mineral Sands Mine pit. Given the clearing area will be a linear corridor extending over 25 kilometres and there is only one minor non-perennial watercourse with native vegetation present, the proposed clearing is unlikely to impact surface or ground water quality.		
<u>Principle (j):</u> "Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."	Not at variance	No
Assessment:		
The mapped soils, topographic contours, average annual rainfall and flood risk mapping in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding.		

Appendix D. 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.

Appendix E. Offset calculator value justification

Area (offset site) Offset calculation Area Duration of offset Proposed offset 17.60 20.00 Description implementation 3.78 (area in hectares) (maximum 20 years) Offset value Rehabilitation of a Current quality of Time until offset site degraded heathland 2.00 3.00 100.0% offset site (scale) secured (years) area located nearby to What-if Analysis **Offsets calculation** achieve a vegetation Future quality Risk of future loss condition similar to the 2.00 WITHOUT offset 15.0% impact area. The WITHOUT offset (%) (scale) rehabilitated areea will be placed into a What-if Analysis Future quality WITH Risk of future loss 5.00 5.0% conservation covenant offset (scale) WITH offset (%) Reinstate Formula (in perpetuity) Time until ecological 17.00 benefit (years) Confidence in offset 80.0% OFFSET ADEQUATE? YES result (%)

Environmental value to be offset				
Calculation	Score (Area)		Rationale	
Conservation significance				
Description	Carnaby's Cockatoo foraging habitat		Vegetation to be cleared is within the breeding and foraging range of Carnaby's cockatoo and includes key foraging resources utilised by the species.	
Type of environmental value	Species (flora/fauna)		1	
Conservation significance of environmental value	Rare/threatened species - endangered			
Landscape-level value impacted	ves/no	l	+ + +	
Significant impact	,	l		
Description	5.40 ha of high quality Carnaby's Cockatoo foraging habitat		Significant residual impacts of the clearing authorised under Clearing Permit CPS 10418/1.	
Significant impact (hectares) / Type of feature	5.40		Native vegetation within the clearing area that is considered significant Carnaby's cockatoo foraging habitat comprises Banksia Woodland (3.95 ha), Proteaceous Heath (1.07 ha) and Marri over cleared pasture (0.22 ha).	
Quality (scale) / Number	7.00		The application area contains established native vegetation which provides primary foraging habitat for Carnaby's cockatoo. The foraging habitat supports Carnaby's cockatoo breeding and roosting.	
Rehabilitation credit				
Description	None proposed			
Proposed rehabilitation (area in hectares)	0.00			
Current quality of rehabilitation site / Start number (of type of feature)	0.00			
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	0.00			
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	0.00			
Time until ecological benefit (years)	0.00			
Confidence in rehabilitation result (%)	0			
Offset				
Description	degraded heathland area located nearby to achieve a vegetation condition similar to the impact area. The rehabilitated areea will be placed into a conservation covenant (in perpetuity)		The proposed offset area is located within 6 km of the impact are, comprising remnant vegetation over a previously disturbed area in Degraded condition. The proposed offset include rehabilitation and management of the site to improve it to a condition similar to the impact area. The offset area will be placed in a conservation covenant in perpetuity to protect the area and its conservational values. A full rehabilitation plan will be submitted in support of the proposed offset.	
Proposed offset (area in hectares)	17.60		Restoration of this extent of foraging habitat for the Carnaby's cockatoo and its protection in perpetuity will offset 100% of the significant residual impacts.	
Current quality of offset site / Start number (of type of feature)	2.00		Vegetation currently provides low quality habitat for Carnaby's cockatoo. The site is adjacent to existing native vegetation and within the known range of Carnaby's cockatoo breeding and roosting area.	
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	2.00		Without offset, the quality of foraging habitat will remain consistent with the current quality	
Future quality WITH offset (scale) / Future number WITH offset	5.00		The rehabilitation actions will improve the Carnaby's cockatoo foraging habitat. The permit holder will be required to revegetate species providing primary foraging habitat for Carnaby's cockatoo. The offset site is located near to the impact areas and within a 12-km radius of known roosting and breeding sites. The species mix to be planted will be submitted for approval within 6 months of the commencement of clearing activities	
Time until ecological benefit (years)	17.00		2 years to secure the site and commence the rehabilitation measures and 15 years for rehabilitation outcomes to be delivered	
Confidence in offset result (%)	0.8		The rehabilitation program is expected to be successful, given it will be developed in accordance with DWER revegetation plan preparation guideline. Given the current condition of the offset site (Degraded), the lowest likelihood of success of 80% is provided.	
Duration of offset implementation (maximum 20 years)	20.00		The maximum timeframe of 20 years has been applied as the intent is for the conservation covenant to be applied in perpetuity.	
Time until offset site secured (years)	3.00		The applicant has stated that the offset site will be secured within the first year post approval. Covenanting may take longer, however a maximum of 3 years post approval is required and it will be placed as a condition to the permit.	
Risk of future loss WITHOUT offset (%)	15.0%		Planning Scheme, so there is a moderate risk of future clearing of the site for arrighter the process.	

Appendix F. Biological survey information excerpts

Vegetation descriptions (RPS, 2023)

HL - Proteaceous Heath

Tall open shrubland of Xanthorrhoea drummondii (with occasional emergent Eucalyptus todtiana low trees) over mid closed heath including Banksia carlinoides, Banksia fraseri subsp. crebra, B. glaucifolia, B. sphaerocarpa var. sphaerocarpa, B. shuttleworthiana, Calothamnus torulosus, Daviesia epiphyllum, Eremaea pauciflora, Gastrolobium oxylobioides, Hakea auriculata, H. conchifolia, H. incrassata, H. lissocarpha, Lambertia multiflora var. multiflora, Melaleuca clavifolia, M. trichophylla and Petrophile shuttleworthiana, P. striata over low open heath of Babingtonia grandiflora, Hibbertia hypericoides subsp. hypericoides, Stenanthemum reissekii, Trymalium ledifolium over open sedgeland including Caustis dioica, Ecdeiocolea monostachya, Lepidosperma pubisquameum, Mesomelaena pseudostygia, Tetraria octandra, open forbland including *Conostylis setigera* subsp. *setigera*, *Haemodorum venosum*, *Orianthera spermacocea, Podotheca gnaphalioides*, with isolated grasses of *Austrostipa compressa*, *A. hemipogon, Neurachne alopecuroidea* on lateritic gravel and shallow grey sandy loam or loam over laterite (Plates 1 and 2).



Plate 1: Vegetation type HL



Plate 2: Vegetation type HL

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HLd - Proteaceous Heath

Hakea auriculata, H. lissocarpha, Petrophile shuttleworthiana, Xanthorrhoea drummondii mid open/sparse heathland over *Avena barbata, *Briza maxima, Neurachne alopecuroidea, Rytidosperma setaceum open grassland, Haemodorum venosum, Opercularia vaginata, Podotheca gnaphalioides, Ptilotus polystachyus, *Ursinia anthemoides forbland and Caustis dioica, Lepidosperma tenue, Mesomelaena pseudostygia, Schoenus caespititius sparse sedgeland on exposed laterite (a variable unit, depending on the degree of degradation) (Plates 3 and 4).



Plate 3: Vegetation type HLd



Plate 4: Vegetation type HLd

W1 - Banksia Low Open Woodland

Eucalyptus todtiana, Banksia attenuata, B. menziesii, Nuytsia floribunda low open woodland over Adenanthos cygnorum subsp. cygnorum tall sparse shrubland over open mid heathland of *Banksia* shuttleworthiana, Eremaea pauciflora, Conospermum stoechadis, Conostephium magnum (P4), C. preissii, Hakea ruscifolia, Jacksonia nutans, Lysinema pentapetalum, Pimelea sulphurea, Stirlingia latifolia over low open heathland of Babingtonia grandiflora, Bossiaea eriocarpa, Darwinia sanguinea, Hibbertia hypericoides subsp. hypericoides, Petrophile linearis, Synaphea spinulosa subsp. spinulosa over sparse/open forbland including Anigozanthos humilis subsp. humilis, Blancoa canescens, Burchardia congesta, Dasypogon obliquifolius, Patersonia occidentalis, Stylidium purpureum, Trachymene pilosa, Xanthosia huegelii and open sedgeland including Alexgeorgea nitens, Lepidobolus preissianus and Lyginia barbata on grey sandy loam or loamy sand. A variable unit, with one or more of the overstorey species often not present (Plates 9 and 10).



Plate 9: Vegetation type W1



Plate 10: Vegetation type W1

W2 - Banksia Low Open Woodland

Banksia menziesii, B. attenuata, Eucalyptus todtiana low woodland over mid shrubland of Conospermum crassinervium, Conostephium magnum (P4), Eremaea pauciflora, Leptospermum erubescens, Melaleuca ciliosa, Verticordia ovalifolia over low open shrubland of Hibbertia subvaginata, Petrophile linearis and open forbland of Dasypogon obliquifolius, Opercularia vaginata, Lagenophora huegelii, Stylidium spp. on grey sand in swales (Plates 11 and 12).



Plate 11: Vegetation type W2



Plate 12: Vegetation type W2

W3 - Banksia Low Open Woodland

Banksia attenuata or Eucalyptus todtiana low open woodland/isolated trees over Allocasuarina humilis, Calothamnus quadrifidus subsp. quadrifidus, Leptospermum erubescens, Xanthorrhoea preissii tall open shrubland over mid shrubland that may include Babingtonia grandiflora, Banksia shuttleworthiana, Calothamnus sanguineus, Conospermum stoechadis, Hakea ruscifolia, Hibbertia hypericoides, Lambertia multiflora var. multiflora, Petrophile shuttleworthiana over Waitzia suaveolens, Anigozanthos humilis, Conostylis setigera open forbland and Mesomelaena pseudostygia open sedgeland on grey sandy clay loam (Plates 13 and 14).



Plate 13: Vegetation type W3



Plate 14: Vegetation type W3

Wd - Eucalyptus todtiana Woodland

Eucalyptus todtiana woodland/open woodland over pasture species including **Bromus diandrus*, **Hordeum leporinum*, **Malva pseudolavatera* and **Raphanus raphanistrum* (Plate 15).



Plate 15: Vegetation type Wd

Vegetation descriptions (Ecologia, 2016)

Vegetation unit mapping code	Short description	Vegetation description (NVIS Level III and Level VI)	Associated species	Average species richness and landform
1a	<i>Banksia</i> low open woodland	Banksia attenuata and B. menziesii low open woodland (with scattered Eucalyptus todtiana and Banksia ilicifolia), over Adenanthos cygnorum tall sparse shrubland, over Melaleuca clavifolia, Hibbertia hypericoides subsp. hypericoides and/or H. subvaginata low sparse shrubland, over Patersonia occidentalis sparse herbland.	Bossiaea eriocarpa Conospermum crassinervium Dasypogon obliquifolius Drosera microphylla Hibbertia subvaginata Hypocalymma xanthopetalum Jacksonia floribunda Trachymene pilosa	Average species richness (mean ± SE): 29 ± 1 Landform: Sand plain
	X			

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Vegetation unit mapping code	Short description	Vegetation description (NVIS Level III and Level VI)	Associated species	Average species richness and landform
1b	<i>Banksia</i> low open woodland	Banksia attenuata and B. menziesii low open woodland (with scattered B. prionotes and Eucalyptus todtiana) over Adenanthos cygnorum tall sparse shrubland, over Eremaea pauciflora var. pauciflora and Hibbertia hypericoides subsp. hypericoides low sparse shrubland, over Mesomelaena pseudostygia sparse sedgeland.	Acacia pulchella vər. reflexa Austrostipa macalpinei Conospermum stoechadis Conostephium preissii Eremaea asterocarpa Hypocalymma xanthopetalum Melaleuca clavifolia Petrophile scabriuscula Synaphea spinulosa	Species richness: 24 Landform: Sand plain



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Vegetation descriptions (Outback Ecology, 2014)

Unit	Code	Description	Photo
Low Open Woodland of <i>Eucalyptus todtiana</i> with Mixed <i>Banksia</i> Woodland over mixed Myrtaceous/Proteaceous	Et/B (1)	Low Open Woodland of <i>Eucalyptus todtiana</i> with <i>Banksia attenuata</i> and <i>B. menziesii</i> and/or <i>B.</i> <i>prionotes</i> over a mixed Myrtaceous and Proteaceous Heath including <i>Allocasuarina</i> <i>humilis, Hakea costata, Melaleuca</i> spp., <i>Eremaea</i> <i>pauciflora Conospermum stoechadis</i> and <i>Hibbertia</i> <i>hypericoides</i> over an Open Sedgeland/Herbland	
Heathland		including Dasypogon obliquifolius, Mesomelaena pseudostygia Lepidobolus preissianus and/or Conostylis juncea on pale grey sandy flats.	
Low Open Woodland of <i>Eucalyptus todtiana</i> with Mixed <i>Banksia</i> Woodland over Tall Shrubland of <i>Adenanthos</i>	Et/B (2)	Low Open Woodland of <i>Eucalyptus todtiana</i> with Low Open Forest of <i>Banksia attenuata</i> , <i>Banksia</i> <i>prionotes</i> and/or <i>Banksia attenuata</i> over patches of Tall Open Shrubland of <i>Adenanthos cygnorum</i> over Open Heath of <i>Eremaea pauciflora</i> var. <i>pauciflora, Conospermum stoechadis</i> subsp. <i>sclerophyllum</i> or <i>Conospermum crassinervium</i> over Low Open Shrubland/Sedgeland of <i>Hibbertia</i> <i>hypericoides, Calytrix angulata, Dasypogon</i> <i>obliquifolius, Patersonia occidentalis</i> and <i>Mesomelaena pseudostygia</i> on pale grey sandy flats.	

Unit	Code	Description	Photo
Low Open Woodland of <i>Melaleuca</i> with <i>Thryptomene</i> Scrub	MLOW	Low Open Woodland of <i>Melaleuca preissiana</i> and <i>Eucalyptus todtiana</i> over Tall Shrubs to Tall Open Scrub of <i>Thryptomene mucronulata</i> over an Open heath to Shrubland of <i>Calothamnus quadrifidus</i> and <i>Xanthorrhoea preissii</i> over <i>Jacksonia</i> <i>furcellata</i> and <i>Verticordia densiflora</i> var. <i>densiflora</i> over a herbland of <i>Drosera gigantea</i> , <i>Hyalosperma</i> <i>cotula</i> and <i>Ursinia anthemoides</i> on grey sandy loam	
Open Woodland of <i>Banksia</i> ilicifolia	OWB	Low Open Woodland of <i>Banksia attenuata and B.</i> <i>menziesii</i> with occasional emergent <i>Banksia</i> <i>illicifolia</i> over a Tall Open Shrubland to Shrubland of <i>Adenanthos cygnorum</i> subsp. <i>cygnorum</i> over a Shrubland of <i>Xanthorrhoea preissii</i> and <i>Leptospermum erubescens</i> over a Low Open Shrubland of <i>Hibbertia subvaginata, Stirlingia</i> <i>latifolia</i> and <i>Conospermum crassinervium</i> , with occasional dominance by <i>Patersonia occidentalis</i> and <i>Phlebocarya ciliata</i> in small depressions on lower slopes of pale grey sand	

Unit	Code	Description	Photo
Proteaceous Heath 1	PH1	Scattered Nuytsia floribunda with Open Shrubland of Xanthorrhoea ?drummondii and Allocasuarina humilis over closed Proteaceous Heath including species such as <i>Petrophile shuttleworthiana</i> , Banksia sphaerocarpa var. sphaerocarpa, Calothamnus hirsutus, Eremaea pauciflora var. ionchophylla, Banksia glaucifolia, Beaufortia bracteosa, Banksia shuttleworthiana, Hakea conchifolia, Hakea incrassata, Melaleuca clavifolia, Melaleuca trichophylla and Lambertia multiflora var. multiflora over Open Low Heath of Hibbertia hypericoides, Gastrolobium oxylobioides, Daviesia nudiflora over Sedgeland/Herbland of species including Tetraria octandra, Conostylis teretifolia subsp. teretifolia, Chordifex sinuosus, Mesomelaena pseudostygia and Schoenus clandestinus with Austrostipa compressa/ hemipogon on lateritic sandy hilltops	

Unit	Code	Description	Photo
Proteaceous Heath 2	PH2	Open Heath of <i>Banksia candolleana</i> and <i>Allocasuarina humilis</i> over Closed Heathland of <i>Lambertia multiflora</i> var. <i>multiflora</i> , <i>Petrophila</i> <i>macrostachya</i> , <i>Hakea spathulata</i> , <i>Hakea</i> <i>incrassata</i> , <i>Xanthorrhoea drummondii</i> , <i>Calothamnus hirsutus</i> over Open Low Heath of <i>Gastrolobium oxylobioides</i> , <i>Patersonia occidentalis</i> over Open Sedgeland of <i>Mesomelaena</i> <i>pseudostygia</i> and <i>Schoenus clandestinus</i> .	
Creekline of <i>Eucalyptus rudis</i> and <i>Melaleuca rhaphiophylla</i> with <i>Corymbia calophylla</i> over pasture	МР	Open Woodland of <i>Corymbia calophylla</i> with <i>Eucalyptus rudis</i> (in creekline) over tall shrubs of <i>Melaleuca rhaphiophylla</i> (in creek line) over a disturbed understorey.	

Vegetation type and condition mapping

Appendix G. Sources of information

G.1. GIS databases

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

- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- 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 Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping Best Available
- Soil Landscape Mapping Systems

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)

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