GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 10595/1
Permit Holder:	Trico Resources Pty Ltd
Duration of Permit:	From 20 December 2024 to 20 December 2035

ADVICE NOTE

Revegetation and rehabilitation offset

The '3650 Toodyay Road, Bailup Landscaping Plan' referred to in condition 10 of this permit, is intended to facilitate the *revegetation* and *rehabilitation* of a total of 2.44 hectares of native vegetation within Lot 3556 on Deposited Plan 426420, Bailup that comprises of significant foraging habitat for *black cockatoo species*, to be protected in perpetuity.

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

PART I – CLEARING AUTHORISED

1. Clearing authorised (purpose)

The permit holder is authorised to clear *native vegetation* for the purpose of road widening and construction of an acceleration lane.

2. Land on which clearing is to be done

Toodyay Road reserve (PINs 1367736, 1367737, 1367744, 1367745, and 1367746), Bailup

Lot 556 on Deposited Plan 77558, Bailup

3. Clearing authorised

The permit holder must not clear more than 1.25 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

4. Period during which clearing is authorised

The permit holder must not clear any *native vegetation* after 20 December 2029.

PART II – MANAGEMENT CONDITIONS

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

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

(a) avoid the clearing of *native vegetation*;

(b) minimise the amount of *native vegetation* to be cleared; and

(c) reduce the impact of clearing on any environmental value.

6. Weed 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 area to be cleared;

(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 areas to be cleared.

7. Directional clearing

The permit holder must conduct clearing activities in a slow, progressive manner from southwest to northeast to allow fauna to move into adjacent *native vegetation* ahead of the clearing activity.

8. Vegetation management – watercourse or wetland

The permit holder shall not clear *riparian vegetation* of any *watercourse* or *wetland*.

9. Vegetation management – flora management

Prior to commencing *clearing*, the permit holder shall demarcate the perimeter of populations of *priority* flora species *Tetratheca pilifera* identified within the report prepared by Western Environmental '3650 Toodyay Road, Bailup - Targeted Flora Searches (CPS 10595/1), 20 September 2024' at the locations specified in Table 1 below.

Table 1: Locations of *Tetratheca pilifera* to be demarcated**.**

Easting	Northing
433603.9911	6491894.2291
433563.8473	6491878.2546

10. Offset – revegetation and rehabilitation

For the area cross-hatched red in Figure 2 of Schedule 1, the permit holder must implement and adhere to the '3650 Toodyay Road, Bailup Landscaping Plan' dated 16 October 2024, including but not limited to the following actions:

(a) no later than 20 December 2026 commence *revegetating* and *rehabilitating* the 2.44-hectare area cross-hatched red on Figure 2 of Schedule 1 by way of:

  (i) ripping the soil prior to *direct seeding;*

  (ii) *direct seeding* at an *optimal time,* using plant species that will provide suitable foraging habitat for *black cockatoo species*;

  (iii) ensuring only *local provenance* seeds and propagating material are used to *revegetate* and *rehabilitate* the area;

(b) implement hygiene protocols by cleaning earth-moving machinery of soil and vegetation prior to entering and leaving the *revegetation* and *rehabilitation* area;

(c) establish at least four 10 x 10 metre *quadrat* monitoring sites;

(d) water planted vegetation between December and April for the first two years post planting;

(e) undertake *weed* control activities prior to the commencement of *revegetation* and *rehabilitation*, and then at least annually until the completion criteria, as per Table 2, have been met;

(f) achieve the following *completion criteria* listed in Table 2 for the area *revegetated* and *rehabilitated* under condition 10(a) of this permit:

Table 2**:** Completion criteria for the *rehabilitation* and *revegetation* with the areas cross hatched red in Figure 2 of Schedule 1.

Aspect	Completion Criteria	Monitoring
Black cockatoo	The site must be fully revegetated to at least 75% cover of high to medium priority foraging species for *black cockatoo species*	*Quadrats* to be assessed bi-annually by an *environmental specialist* in spring and autumn for a minimum of three years after plants are established.
Plant density	The following plant density to be achieved: • Upper storey: 1 tree per 10 m^2 • Mid- and ground storey: 1 plant per 4 m^2	*Quadrats* to be assessed bi-annually by an *environmental specialist* in spring and autumn for a minimum of three years after plants are established.
Weeds present	• No woody, rhizomatous, bulbous, Declared Pest Plants under the *Biosecurity and Agricultural Management Act 2007* or Weeds of National Significance present. • Perennial grasses will be kept below 150 mm and no greater than 5% coverage.	*Quadrats* to be assessed bi-annually by an *environmental specialist* in spring and autumn for a minimum of three years after plants are established.

(g) undertake remedial actions for the *revegetation* and *rehabilitation* area where monitoring indicates that the completion criteria, outlined in Table 2, have not been met, including:

(i) deliberately *planting* and/or *direct seeding native vegetation* that will result in the minimum targets specified in Table 2 (completion criteria);

(ii) undertake further *weed* control activities; and

(iii) continue monitoring of the *rehabilitated* area by an *environmental specialist*, until the completion criteria outlined in Table 2, have been met.

(h) where an *environmental specialist* has determined that the completion criteria, outlined in Table 2 have been met, a report is to be provided to the CEO within three (3) months of the determination being made by the *environmental specialist;* and

(i) where the CEO does not agree with the determination made under condition 10(h), the CEO may require the permit holder to undertake remedial actions in accordance with the requirements under condition 10(g).

11. Offset - conservation covenant

In respect to the area cross-hatched red in Figure 2 of Schedule 1, the permit holder must, no later than 12 months after commencing *revegetation and rehabilitation* under condition 10 of this permit, and no later than 20 December 2027 give a conservation covenant under section 30B of the *Soil and Land Conservation Act 1945* for the protection and management of vegetation in perpetuity, in accordance with the following conditions;

(a) native vegetation in the area subject to the conservation covenant must not be cleared, other than for clearing required under the *Bush Fires Act 1954;*

(b) the conservation covenant is to apply in perpetuity and be registered on the title of the property; and

(c) within one (1) month of executing and returning the conservation covenant to the Commissioner of Soil and Land Conservation the permit holder shall notify the CEO in writing that the conservation covenant has been executed.

12. Offset - vegetation management - fencing

(a) Prior to commencing *revegetation* and *rehabilitation* activities in accordance with condition 10, the permit holder must construct a fence enclosing the area cross-hatched red in Figure 2 of Schedule 1.

(b) The fence should allow for the movement of wildlife by being raised 15 centimetres from the ground.

(c) The permit holder must notify the CEO within three (3) months of the completion of the fence constructed under condition 12(a).

PART III - RECORD KEEPING AND REPORTING

13. 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 3.

Table 3: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised *clearing* activities generally	(a) the species composition, structure, and density of the cleared area; (b) the location where the *clearing* occurred, recorded using a Global Positioning System (GPS) unit set to 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 5; and (f) actions taken to minimise the risk of the introduction and spread of *weeds* and *dieback* in accordance with condition 6.
2.	In relation to the offset management, pursuant to conditions 10, 11 and 12	(a) the location and size of the areas revegetated and rehabilitated (in hectares) recorded using a GPS unit set to GDA2020, expressing the geographical coordinates in Eastings and Northings or decimal degrees (b) the date that *revegetation* and *rehabilitation* works began; (c) a species list identifying those species planted; (d) the assessment of the revegetation and rehabilitation against criterion outlined in Table 2; (e) any remedial actions undertaken in accordance with condition 10(g); (f) a copy of the *environmental specialist* report and activities undertaken during monitoring; (g) a copy of the relevant conservation covenant under section 30B of *the Soil and Land Conservation Act 1945* in accordance with condition 11; and (h) evidence of fencing undertaken in accordance with condition 12.

14. Reporting

The permit holder must provide to the *CEO* the records required under condition 13 of this permit when requested by the *CEO*.

DEFINITIONS

In this permit, the terms in Table 4 have the meanings defined.

Table 4: Definitions

Term	Definition
black cockatoo species	means one or more of the following species: (a) *Calyptorhynchus lateriosis* (Carnaby's cockatoo); (b) *Calyptorhynchus baudinii* (Baudin's cockatoo); and/or (c) *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo).
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*.
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 *Public Sector Management Act 1994* (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
dieback	means the effect of *Phytophthora* 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 experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit, or who is approved by the 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 Interim Biogeographic Regionalisation for Australia (IBRA) subregion of the area cleared.
mulch	means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation.
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
optimal time	means the period from April to June for undertaking planting and *direct seeding*
quadrat	means a sample plot established for the purpose of data collection and monitoring vegetation characteristics, for example species composition, structure, density and condition
rehabilitate/ed/ion	means actively managing an area containing native vegetation in order to improve the ecological function of that area
revegetate/ed/ion	means the re-establishment of a cover of local provenance native vegetation in an area using methods such as natural regeneration, direct seeding and/or planting, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area
riparian vegetation	has the meaning given to it in Regulation 3 of *the Environmental Protection (Clearing of Native Vegetation) Regulations 2004.*

Term	Definition
watercourse	has the meaning given to it in section 3 of the *Rights in Water and Irrigation Act 1914.*
weeds	means any plant – (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.
wetland	means an area of seasonally, intermittently or permanently waterlogged or inundated land, whether natural or otherwise, and includes a lake, swamp, marsh, spring, dampland, tidal flat or estuary.

END OF CONDITIONS

J Burton

Jessica Burton
A/MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

27 November 2024

Schedule 1

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

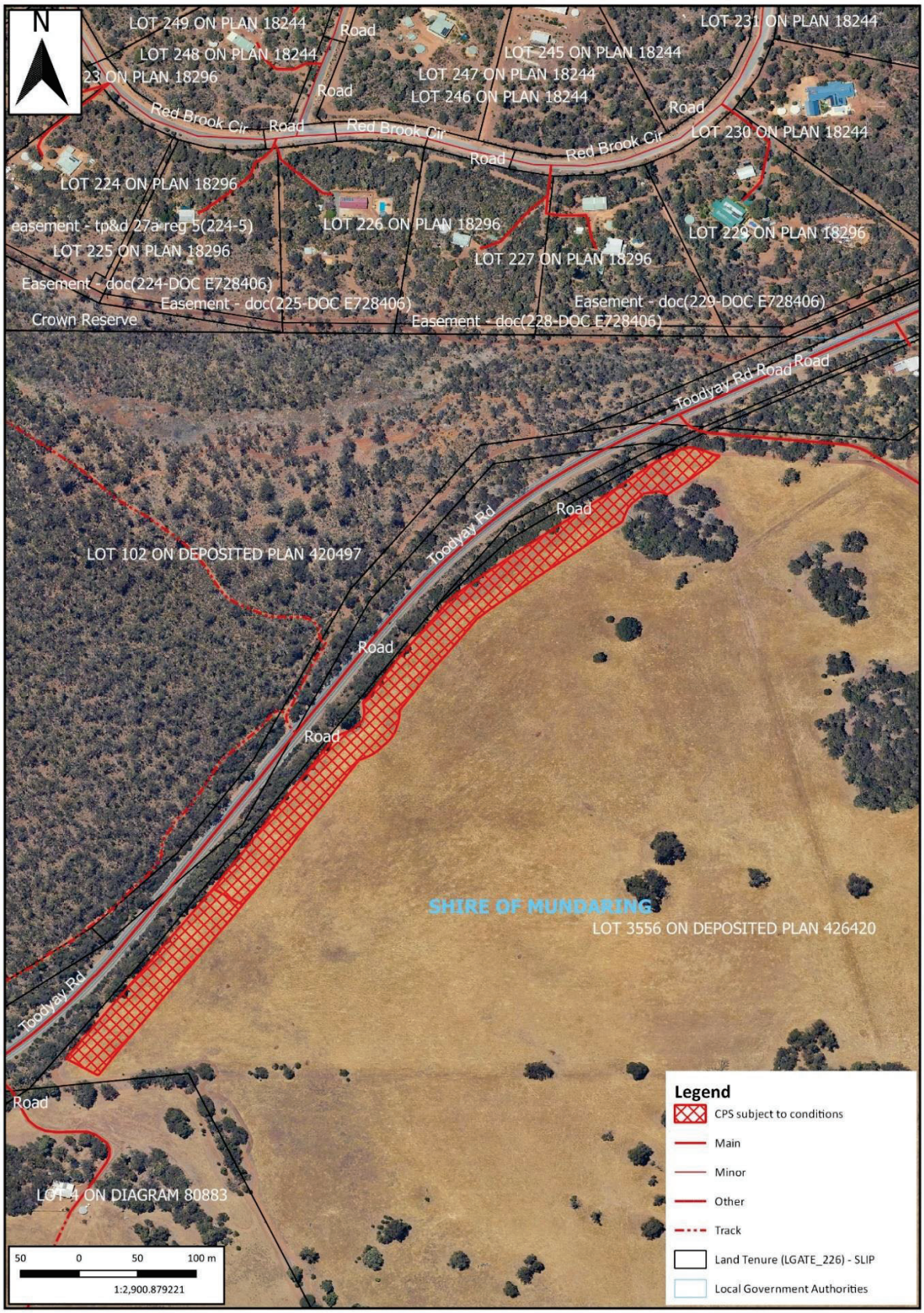

Figure 2: Map of the boundary of the area within which *conditions* apply

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 10595/1
Permit type:	Purpose permit
Applicant name:	Trico Resources Pty Ltd
Application received:	23 April 2024
Application area:	1.25 hectares of native vegetation
Purpose of clearing:	Road widening and construction of acceleration lane for heavy vehicle access
Method of clearing:	Mechanical
Property:	Toodyay Road reserve (PINs 1367736,1367737, 1367744, 1367745, and 1367746) Lot 556 on Deposited Plan 77558
Location (LGA area/s):	Shire of Mundaring and Shire of Toodyay
Localities (suburb/s):	Bailup and Morangup

1.2. Description of clearing activities

The proposed clearing of 1.25 hectares of native vegetation within a 2.06 hectare clearing footprint is for the purpose of road widening and the construction of an acceleration lane for heavy vehicles to access a gravel extraction pit on Lot 556 on Deposited Plan 77558 (see Figure 1, Section 1.5). The area proposed to be cleared is an approximately 900 metre long strip of native vegetation on the south-east side of the existing road (Trico Resources, 2024).

1.3. Decision on application

Decision:	Granted
Decision date:	27 November 2024
Decision area:	1.25 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). The Department of Water and Environmental Regulation (DWER) advertised the application for 21 days and two submissions were received. Consideration of matters raised in the public submissions are summarised in 0.

In making this decision, the Delegated Officer had regard for the site characteristics (see 0), relevant datasets (see Appendix H.1), the findings of a biological survey (see Appendix G), the clearing principles set out in Schedule 5 of the EP Act (see Appendix D), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3). The Delegated Officer also took into consideration that the purpose of the proposed clearing was to improve road safety and traffic flow and is consistent with road safety standards.

The assessment identified that the proposed clearing:

- will result in the loss of 1.17 hectares of high-quality black cockatoo foraging habitat, which is considered to have significant impacts on black cockatoos;
- will impact potential habitat for chuditch and western brush wallaby, but is not considered likely to result in significant impacts to these species;
- will result in the loss of 2 plants of Priority 3 species *Tetratheca pilifera*, but is not considered likely to impact the conservation status of this species and is unlikely to impact adjacent populations; and
- may result in minor and temporary impacts to Red Swamp Brook, however, is considered unlikely to result in significant impacts to this watercourse or on the upstream swamp.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing is unlikely to have long-term adverse impacts on the above environmental values, subject to appropriate conditions being placed on the permit and the implementation of the proposed offset. The applicant has suitably demonstrated avoidance and minimisation measures (see Section 4).

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;
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity;
- demarcate adjacent recorded populations of *Tetratheca pilifera, prior to clearing;*
- prohibit clearing of riparian vegetation; and
- revegetation and rehabilitation offset for black cockatoo foraging habitat (refer to Section 4).

1.5. Site map

Figure 1. Map of the application area. The area crosshatched yellow indicates the area authorised to be cleared under the granted clearing permit.

2 Legislative context

The clearing of native vegetation in Western Australia is regulated under the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the 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)

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 2019)
- *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 applicant advised that the following avoidance and mitigation measures were applied when determining the extent of the proposed clearing area (Trico Resources, 2024a):

- The clearing is necessitated for the construction of an access road and acceleration lane. This will allow heavy vehicles and machinery to access the approved gravel extraction site on Lot 556 without disrupting and endangering other traffic.
- Opportunities to avoid and mitigate the impact have been limited due to access being required from Toodyay Road. Vegetation within the foreshore area of Red Swamp Brook, which is registered as Aboriginal heritage site (ID 15979), has been avoided in the footprint design.
- The clearing extent has been limited to areas where clearing is absolutely required for construction. No other clearing is proposed.

During the assessment of this application, noting the impacts of the clearing to significant black cockatoo foraging habitat, additional evidence of consideration avoidance and mitigation measures, as well as justification as to the necessity of the clearing, was requested from the applicant In response, the applicant (Trico Resources, 2024b) submitted the following:

- Avoidance and mitigation measures:
  - No clearing will be undertaken within the Red Swamp Brook foreshore, which is potential water resource for black cockatoo species and therefore contributes to potential roosting habitat in the area;
  - Red Swamp Brook also limits the proponent's ability to cart material within Lot 556 to seek a different access point onto Toodyay Road. Extractive Industry Licence and prescribed premises approvals generally keep activities away from Red Swamp Brook.
  - The alignment of the acceleration lane utilises the already cleared access road to Lot 556;
  - This location was chosen as it's the ideal location for meeting the safety requirements of traffic entering and exiting Toodyay Road, while minimising the impact to the Brook;
  - This location provides sight lines with longer straight site line opportunities and therefore the required level of safety.
  - As the extraction areas applied for and approved are on land in the Mundaring Shire hence, they are the local government approving body, and the access had to be within this local government area (and not within the Shire of Toodyay).

- The required length of the acceleration lane has been calculated to be 600m as required by Main Roads Western Australia (MRWA). The acceleration lane and entry crossover to the site utilises the existing crossover location to minimise native vegetation clearing.
- The MRWA and Austroads safety standards (AGRD04A) require the implementation of Safe Intersection Sight Distances (SISD) and all designs take these requirements into account.

- Necessity of the clearing:
  - The property for which the access is for will be used for gravel extraction activities. Gravel is defined as Basic Raw Material (BRM) in accordance with State Planning Policy 2.4 Planning for Basic Raw Materials (SPP 2.4). BRM are considered finite resources providing a particular value for economic development in WA. Gravel is a key resource for construction projects particularly in regional areas and for the construction of roads, major hardstands and Infrastructure development. In order to address the current Infrastructure projects for the population growth in Western Australia, both metropolitan and regional areas, resources including Gravel, are critical to enable these projects. The proposed extraction activities provide social and economic value to the state of Western Australia.
  - Consistent with SPP 2.4, development approval was obtained to ensure responsible extraction and use of BRM resources. The current design for the access to site is supported by statutory authorities including DPLH, DWER, MRWA & Shire of Mundaring.
  - It was a condition of the original DPLH approval that the proponent purchase from the State of Western Australia, its original access to the property as this was known as old Toodyay Road (road reserve).
  - The proposed clearing is necessitated to widen Toodyay Road and construct an acceleration lane that allows entering trucks to Toodyay Road to achieve a necessary speed to merge with other traffic. This is required to avoid an undue hazard or obstruction to traffic and is consistence with the MRWA RAV Assessment Guideline. Widening of the road lanes is a common task required to ensure the road network maintains a safe standard for increasing traffic volumes.
  - Clearing of native vegetation is therefore required for safety reasons under Austroads and MRWA standards and has been limited to the smallest extent possible. This enables access to a valuable economic resource to the State of Western Australia under BRM policy outlined by DPLH.

After consideration of the above, it was determined that the applicant has appropriately demonstrated avoidance and mitigation measures, however an offset to counterbalance the significant residual impacts to black cockatoo foraging habitat is considered necessary. In accordance with the Government of Western Australia's *Environmental Offsets Policy* and *Environmental Offsets Guidelines*, the significant residual impacts have been addressed through the conditioning of environmental offset requirements on the permit. The nature and suitability of the offset provided is 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 0) 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 **Error! Reference source not found.**) identified that the risk of impacts of the proposed clearing to biological values (fauna and flora) and land and water resources required further consideration. 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 (fauna) - Clearing Principles (a) and (b)

Assessment

According to available databases, 12 conservation significant fauna species were recorded in the local area (10 km radius). Nine of these species were recorded in similar vegetation types and eight have been recorded in similar habitat types that occur within the application area. Further assessment determined that five of these fauna species may utilise the vegetation within the application area. These are:

- *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo)
- *Dasyurus geoffroii* (chuditch)
- *Notamacropus irma* (western brush wallaby)
- *Zanda baudinii* (Baudin's cockatoo)
- *Zanda latirostris* (Carnaby's cockatoo)

Black cockatoos

The application area is located within the mapped distribution of Carnaby's cockatoo, forest red-tailed black cockatoos and Baudin's cockatoo (hereafter collectively referred to as black cockatoos). Habitat requirements for black cockatoos can be considered in terms of breeding, roosting and foraging habitat. Black cockatoos are known to nest in hollows of live and dead trees, including marri (*Corymbia calophylla*), jarrah (*Eucalyptus marginata*), karri (*Eucalyptus diversicolor*), wandoo (*Eucalyptus wandoo*), tuart (*Eucalyptus gomocephala*), flooded gum *(Eucalyptus rudis*), and other Eucalyptus spp. (Commonwealth of Australia, 2022). 'Breeding habitat' for black cockatoos includes trees of these species that either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow, where suitable DBH for nest hollows is 300 - 500 millimetres depending on the tree species (Commonwealth of Australia, 2022). The fauna survey conducted by Western Environmental (2024) identified 43 potential breeding trees within the application area but none had hollows suitable for black cockatoos.

Black cockatoos generally roost in large eucalyptus or marri trees (DAWE, 2022). The fauna survey identified the application area has the potential to provide suitable roosting sites due to the proximity to foraging habitat and permanent water sources (Western Environmental, 2024). However, noting the local area is highly vegetated and also likely to provide roosting habitat, the removal of potential roosting habitat within the application area is not considered likely to have a significant impact on local black cockatoo populations.

Black cockatoos forage over a large area, feeding on a variety of native and introduced (exotic and non-WA) vegetation species. Not all suitable native vegetation will produce good foraging resources each year, so black cockatoos will vary their foraging strategy depending on availability. Black cockatoos rely upon the availability of foraging resources across their range, particularly when birds need to build condition after breeding and are teaching juveniles where foraging resources are located. Lack of foraging resources increases the likelihood that birds will not regain condition after breeding, will not breed again the following season, and that juveniles will not survive to become part of the adult population. Food resources within the range of breeding sites and roost sites are critical to sustain populations, and foraging resources are therefore viewed in the context of known breeding and night roosting sites, particularly within 12 kilometres of an impact area (DAWE, 2022). A total of four roosting sites have been recorded within the local area (10 kilometres) of the proposed clearing, with the closest occurring within 2 kilometres. According to available databases, no natural breeding sites have been recorded in the local area however four potential breeding sites occur.

The application area consists of Jarrah and Marri woodland and Wandoo woodland in very good (Keighery, 1994) condition (Western Ecological, 2024a). All three black cockatoo species are likely to forage on jarrah and marri trees (Bancroft and Bamford, 2023 and DAWE, 2022), and Carnaby's black cockatoo and Baudin's black cockatoo are also likely to forage on wandoo, *Xanthorrhoea preissii* (Grass Tree) and *Banksia squarossa (*Bancroft and Bamford, 2023). As such, both the jarrah-marri forest and wandoo woodland vegetation types mapped within the application area, comprising 1.17 hectares, provide foraging habitat for black cockatoo species. The loss of this foraging habitat is considered likely to have a significant impact on black cockatoos, noting:

- The predominantly Very Good (Keighery, 1994) condition of the vegetation;
- That foraging evidence was recorded within both vegetation types (Western Environmental, 2024);
- The presence of recorded roost sites and potential breeding sites within the local area; and
- The availability of water sources within 1 kilometre of the application area.

Chuditch

The chuditch is a carnivorous marsupial often found in the Jarrah Forest mostly near riparian areas (DEC, 2012a). They have large home ranges and can travel long distances (DEC, 2012a). As the application area consists of Jarrah and Marri open forest, there is the potential for the Chuditch to inhabit vegetation within the application area. However, noting the presence of a much larger tract of vegetation to the north of Toodyay Road, it is more likely that the species would use this vegetation instead, and that the application area is unlikely to be significant habitat for chuditch.

Western brush wallaby

The Western brush wallaby is a herbivorous wallaby often found in open forest or woodland and prefer open seasonally damp flat areas with low grasses and open scrubby thickets (DEC, 2012b). As the application area consists of open forest, there is the potential for the Western brush wallaby to inhabit vegetation within the proposed clearing footprint. However, noting the presence of a much larger tract of vegetation to the north of Toodyay Road, it is more likely that the species would use this vegetation instead, and that the proposed clearing is unlikely to be significant habitat for the western brush wallaby.

Conclusion

Based on the above assessment, the proposed clearing will result in the loss of 1.17 hectares of high-quality black cockatoo foraging habitat, which is considered to have significant impacts on black cockatoos. While chuditch and

western brush wallaby may also inhabit the application area, the proposed clearing is unlikely to have significant impacts on these species.

For the reasons set out above, it is considered that the impacts of the proposed clearing on black cockatoos can be managed by slow directional clearing to allow fauna to move into adjacent vegetation and a revegetation and rehabilitation offset.

The applicant may have notification responsibilities under the EPBC Act for impacts to Baudin's black cockatoo, Carnaby's cockatoo, and forest red-tailed black cockatoo and their habitats, as set out in the EPBC Act referral guideline for three WA threatened black cockatoo species as per DAWE (2022). The applicant has been advised to contact the federal Department of Climate Change, Energy, the Environment and Water (DCCEEW) to discuss EPBC Act referral requirements.

Conditions

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

- Slow directional clearing to allow fauna to move into adjacent vegetation ahead of the clearing activity
- Revegetation and rehabilitation offset for black cockatoo foraging habitat (refer to Section 4)

3.2.2. Biological values (flora) - Clearing Principles (a) and (c)

Assessment

According to available databases 12 conservation significant flora species have been recorded in the local area (10 km radius). After consideration of habitat requirements, it is considered that suitable habitat the following species may occur within the application area:

- *Banksia nivea* subsp. Morangup (Priority 2)
- *Beaufortia purpurea* (Priority 3)
- *Cyanicula ixioides subsp. ixioides* (Priority 4)
- *Drosera sewelliae* (Priority 2)
- *Grevillea candolleana* (Priority 2)
- *Senecio gilbertii* (Priority 1)
- *Tetratheca pilifera* (Priority 3)
- *Verticordia citrella* (Priority 2)
- *Verticordia huegelii* var. *tridens* (Priority 3)

The biological surveys conducted by Western Environmental (2024a, 2024b) did not record the presence of the above species within the application area, except for *Tetratheca pilifera* (Priority 3), of which one population, consisting of two individual plants, was recorded. Two other populations of this species were recorded adjacent to the application area within the wider surveyed area. There are 36 records of *Tetratheca pilifera* within the Jarrah Forest and Swan Coastal Plain IBRA bioregions (Western Australia Herbarium, 1998-). Given the number of records of this species and that two known adjacent populations of this species will be retained, it is considered that the conservation status of this species will not be significantly impacted by the proposed clearing. A condition to demarcate adjacent populations of *Tetratheca pilifera*, as well as weed management conditions imposed on the permit will limit impacts to adjacent *Tetratheca pilifera* populations.

Conclusion

Based on the above assessment, while priority 3 species *Tetratheca pilifera* was recorded within and adjacent to the application area, the conservation status of this species is unlikely to be impacted by the proposed clearing. A condition to demarcate adjacent populations of *Tetratheca pilifera* as well as weed management conditions imposed on the permit will limit impacts to adjacent populations of this species. The proposed clearing is not likely to result in impacts to other conservation significant flora species.

Conditions

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

- Avoid, minimise to reduce the impacts and extent of clearing
- Take hygiene steps to minimise the risk of the introduction and spread of weeds
- Demarcate adjacent recorded populations of *Tetratheca pilifera,* prior to clearing.

3.2.3. Land and water resources - Clearing Principles (f), (i) and (j)

Assessment

The application area intersects one minor non-perennial watercourse, the Red Swamp Brook, which is a major tributary of the Avon River and connects to Red Swamp upstream. The supporting information provided in the initial application suggested the water course would not be impacted by the proposed clearing as the water course has been diverted through a culvert under the road. Only the regrowth, growing over the culvert, is proposed to be cleared and no riparian vegetation will be impacted (Western Environmental, 2024a).

The applicant has committed to a condition to not clear any riparian vegetation. Noting the above, any impact on the water quality of the surface water is likely to be minor and temporary and is not likely to significantly impact the Red Swamp Brook. It is also noted that Red Swamp is located upstream of the application area and any short-term impact to the surface water of Red Swamp Brook resulting from the proposed clearing is unlikely to impact water quality upstream.

Conclusion

Based on the above assessment, the proposed clearing may result in minor and temporary impacts to Red Swamp Brook, however is considered unlikely to result in significant impacts to this watercourse or the upstream swamp.

Conditions

- No clearing of riparian vegetation permitted.

3.3. Relevant planning instruments and other matters

Other relevant authorisations required for the proposed land use include:

- Development approval under the *Planning and Development Act 2005* (issued by the Shire of Mundaring).
- Permit to interfere with bed and banks under the *Rights in Water and Irrigation Act 1914*.

The application area intersects the Red Swamp Brook which is in the Avon River Catchment area as proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act) (DWER, 2024a). However, noting the proposed activity does not interfere with the structure of the tributary, that no riparian vegetation is proposed to be cleared and no impacts to the culvert other than additional fill on top of existing culvert is expected, a bed and banks permit under the RIWI Act is not required (DWER, 2024b).

The Shire of Mundaring advised that planning approval for the project was approved on 13 April 2021 and is valid for 15 years. The development approval issued by the Shire required revegetation of a 1.8-hectare area along the roadside within the applicant's property to offset the clearing at a ratio of 2:1 (Shire of Mundaring, 2024). This area of revegetation is incorporated within the offset area conditioned on this permit (refer to Section 4).

The Shire of Toodyay was contacted but not did not provide any comment regarding this clearing permit application.

One Aboriginal site of significance, the Avon River (ID 15979), has 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, after the application of the avoidance and mitigation measures, residual impacts to 1.17 hectares of black cockatoo foraging habitat remain. To counterbalance these impacts the applicant proposed an environmental offset consisting of revegetation and rehabilitation of a 2.44-hectare area immediately south of the application area (depicted in Figure 2 below) with species suitable for foraging by black cockatoo species. This area will be placed under a conservation covenant as a condition of 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 F.

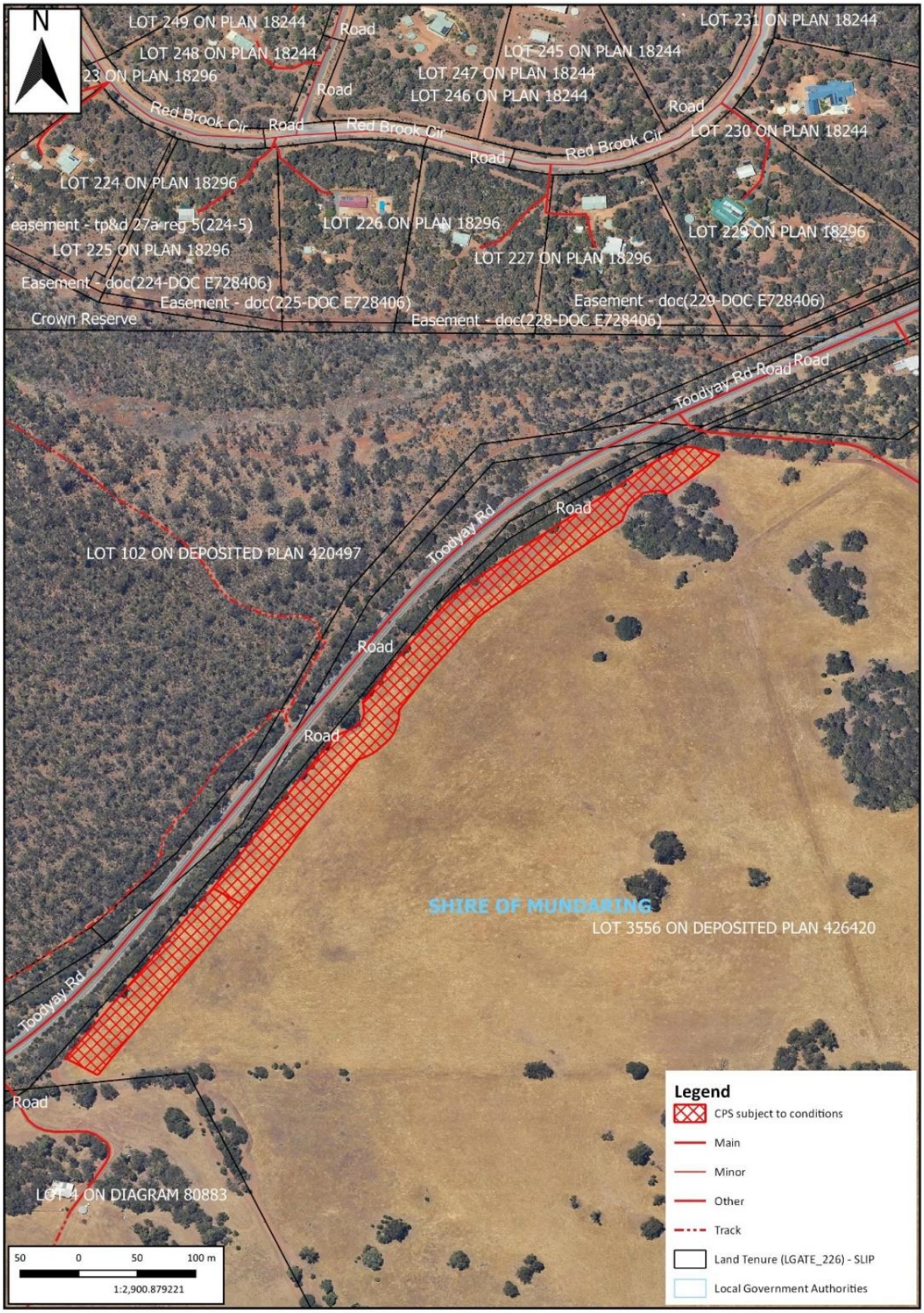

Figure 2. Map of the area to be revegetated and rehabilitated

End

Appendix A. Additional information provided by applicant

The applicant supplied the following additional information during the assessment of this application.

Summary of comments	Consideration of comment
Additional evidence of consideration of avoidance and mitigation measures, and justification regarding the necessity of the clearing (Trico Resources, 2024b)	Considered in Section 3.1
A targeted flora search (Western Environmental, 2024b)	Results included in Appendix C and considered in Section 3.2.2
Offset proposal	Considered in Section 4 and summarised in Appendix F

Appendix B. Details of public submissions

Summary of comments	Consideration of comment
Public submission (2024a) stated that the clearing will leave many fauna species without habitat including echidnas, lizards and wallabies. The proposed clearing will not have any public benefit, just private benefit for Trico resources.	Impacts to western brush wallaby are considered in Section 3.1.1. Noting the extent of the clearing and the availability of vegetation on the northern side of Toodyay Road immediately north of the application area, the proposed clearing is considered unlikely to significantly impact fauna species (other than black cockatoos as discussed in Section 3.1.1). Conditions to require slow directional clearing and a revegetation offset further reduce the likelihood of impacts to fauna species. The purpose of the proposed clearing to improve safety and traffic flow and is consistent with road safety standards (see section 3.1).
Public submission (2024b) stated that clearing will remove wildlife habitat and plant life and will provide no public benefit.	As above. Impacts to vegetation are considered under Section 3.2.2

Appendix C. Site characteristics

C.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is part of some native vegetation along Toodyay Road surrounded by general agricultural, rural residential or rural zones in the intensive land use zone of Western Australia. The proposed clearing area mostly borders a cleared agricultural property, with a large stretch of native vegetation on the opposite side of Toodyay Road. Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 49.23 per cent of the original native vegetation cover.
Ecological linkage	Part of the application area intersects the Perth regional ecological linkage and a Roadside conservation ecological linkage along Toodyay Road.

Characteristic	Details
Conservation areas	There are no conservation areas within the application area, the closest (an area under a conservation covenant) is approximately 910 metres north of the application area.
Vegetation description	A vegetation survey (Western Ecological, 2024a) indicates the vegetation within the proposed clearing area consists of three vegetation types: • VT01: Jarrah-Marri open forest which is described as *Eucalyptus marginata* and *Corymbia calophylla* over *Banksia squarrosa* and *Xanthorrhoea preissii* over native sedges and herbs (0.74 ha) • VT02: Wandoo woodland which is described as *Eucalyptus wandoo* woodland over *Banksia squarrosa* and *Xanthorrhoea preissii* over native and weedy herbs and sedges on laterite outcrop and gravel (0.43 ha) • VT03: *Eucalyptus rudis* over *Melaleuca* sp. which is described as *Eucalyptus rudis* over *Melaleuca ?viminea* over native sedges and weedy herbs and grasses in drainage lines (0.05 ha) The full survey descriptions and maps are available in Appendix G. This is consistent with the mapped vegetation types: • Dwellingup, D4, which is described as Open forest to woodland of *Eucalyptus marginata* subsp. *thalassica* - *Corymbia calophylla* on lateritic uplands in semiarid and arid zones. • Pindalup, Pn, which is described as Open forest of *Eucalyptus marginata* subsp. *thalassica* - *Corymbia calophylla* on slopes and open woodland of *Eucalyptus wandoo* with some *Eucalyptus patens* on the lower slopes in semiarid and arid zones. The mapped vegetation types retain approximately 87.35 and 76.79 per cent of their original extents (Government of Western Australia, 2019b).
Vegetation condition	A vegetation survey (Western Ecological, 2024a) indicates the vegetation within the proposed clearing area is in a Degraded to Very Good condition, with the majority (75%) of the vegetation in a Very Good condition (Keighery, 1994) 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 closest weather station at Baker's Hill is 13.8 km from Bailup (BOM, 2024). The mean maximum temperature is highest in January at 31.8 degrees Celsius and lowest in July at 15.1 degrees Celsius. The mean minimum temperature is highest in February at 16.1 degrees Celsius and lowest in August at 6.4 degrees Celsius. The annual rainfall is 579.5 mm.
Soil description	The soil is mapped as three soil types: • Pindalup 1 Phase which is described as very gently to gently inclined sideslopes (<10%) with well drained gravelly brownish sands, pale brown sands and earthy sands. E. wandoo woodland with some E.loxophleba and Acacia spp.. • Pindalup 5 Phase which is described as broad, level to gently inclined (<5%) valley floors with very poorly drained uniform grey or brown clays or clay loams. • Yalanbee 1 Phase which is described as well drained gently undulating lateritic uplands with moderately deep to deep fine gravelly brownish sands, pale brown sands and earthy sands
Land degradation risk	The application area has a high risk of wind erosion, waterlogging, subsurface acidification with moderate to low risks for the remaining land degradation factors.
Waterbodies	The desktop assessment and aerial imagery indicated that one non perennial minor river, the Red Swamp Brook which is a major tributary to the Avon River, intersects the area proposed to be cleared. Red Swamp, a perennial swamp, is located approximately 130 m upstream of the intersection of Red Swamp Brook and the

Characteristic	Details
	application area.
Hydrogeography	The application area is within the Avon River Surface Water Catchment Area proclaimed under the *Rights in Water and Irrigation Act 1914.*. Hydrogeology: Rocks of Low Permeability, Fractured and Weathered Rocks - Local Aquifers (gneiss, migmatite lithology) Groundwater salinity: 1000-3000 mg/L TDS
Flora	The desktop assessment recorded one Threatened and 11 Priority flora species in the local area (10 km radius), the closest of which was Priority 2 species *Verticordia citrella* recorded 1.77 km from the application area. Eight were found in similar vegetation types and four in similar soil types as the application area. The flora surveys (Western Environmental, 2024a and 2024b) recorded a population of 2 plants of one conservation significant species, Priority species *3 Tetratheca pilifera* within the application area, and another two populations of this species to the north of the application area. No other conservation significant species were recorded.
Ecological communities	The desktop assessment recorded no priority or threatened ecological communities in the local area. The flora survey (Western Environmental, 2024a) found none of the vegetation types represented a priority or threatened ecological community.
Fauna	The desktop assessment recorded 12 conservation significant fauna in the local area with the closest record, the forest red-tailed black cockatoo approximately 20 metres from the application area. Nine were found in similar vegetation types and eight in similar habitat types to those present within the application area. Four potential white tailed black cockatoo breeding trees have been recorded within the local area, approximately 6.5 km from the application area. Five black cockatoo roost sites have been recorded in the local area, with the closest 2.32 km from the application area. This roost site has recorded both white tailed black cockatoo and red-tailed black cockatoo roosting activity. A black cockatoo habitat assessment (Western Environmental, 2024a) found 43 trees (14 jarrah, 5 marri, 17 wandoo and 7 dead) with a diameter at breast height of greater than 50 cm within the application area. No trees were assessed as possessing a hollow with sufficient entry diameter to potentially support a suitable nesting hollow.

C.2. 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)	Are surveys adequate to identify? [Y, N, N/A]
Banksia nivea subsp. Morangup (M. Pieroni 94/2)	P2	Y	Y	Y	3.96	3	Y
Beaufortia purpurea	P3	Y	Y	N	4.65	2	Y
Cyanicula ixioides subsp. *ixioides*	P4	Y	N	N	8.19	11	Y
Drosera sewelliae	P2	Y	N	N	8.67	2	Y
Grevillea candolleana	P2	Y	Y	N	5.18	6	Y
Senecio gilbertii	P1	Y	Y	N	9.84	2	Y
Tetratheca pilifera	P3	Y	Y	Y	6.68	4	Y

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)	Are surveys adequate to identify? [Y, N, N/A]
Verticordia citrella	P2	Y	Y	Y	1.77	8	Y
Verticordia huegelii var. *tridens*	P3	Y	Y	Y	4.60	2	Y

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

C.3. Fauna 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 fauna required further consideration.

Species name (Common 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)	Are surveys adequate to identify? [Y, N, N/A]
Calyptorhynchus banksii naso (forest red-tailed black cockatoo)	VU	Y	Y	0.02	11	Y
Dasyurus geoffroii (chuditch)	VU	Y	Y	2.68	8	N
Notamacropus irma (western brush wallaby)	P4	Y	Y	1.93	3	N
Zanda baudinii (Baudin's cockatoo)	EN	Y	Y	3.49	6	Y
Zanda latirostris (Carnaby's cockatoo)	EN	Y	Y	1.18	58	Y

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

Appendix D. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: The area proposed to be cleared contains priority flora and habitat for significant fauna.	At variance	Yes Refer to Section 3.2.1 and 3.2.2 above
Principle (b): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna."* Assessment: The area proposed to be cleared contains foraging and roosting habitat for threatened black cockatoos.	At variance	Yes Refer to Section 3.2.1 and 3.2.2 above
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: The area proposed to be cleared is unlikely to contain habitat for flora species listed under the BC Act.	Not likely to be at variance	No
Principle (d): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community."* Assessment: The area proposed to be cleared does not contain species indicative of a	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
threatened ecological community, defined as: a) those defined in the *Biodiversity Conservation Act 2016* section 5(1); or b) any other ecological community listed, designated or declared as threatened, endangered or vulnerable under or for the purposes of a written law; or c) a listed threatened ecological community as defined in the Commonwealth Environment Act section 528.		
Environmental value: significant remnant vegetation and conservation areas		
Principle (e): *"Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."* Assessment: The extent of the mapped vegetation type is consistent with the national objectives and targets for biodiversity conservation in Australia (to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia 2001)). While vegetation within the application area is associated with a mapped Perth Regional Ecological Linkage, it is not considered to be a crucial component of this linkage noting the extensive vegetation present to the north of Toodyay Road which would be much more important to this linkage.	Not likely to be at variance	No
Principle (h): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area."* Assessment: Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.	Not likely to be at variance	No
Environmental value: land and water resources		
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: Although the application area intersects a water course, a condition placed on the permit requires the applicant not clear any riparian vegetation.	Not likely to be at variance	Yes Refer to Section 3.2.3 above.
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: The mapped soils are highly susceptible to wind, waterlogging and subsurface acidification. Noting the extent of the application area, the proposed clearing is not likely to have an appreciable impact on land degradation.	Not likely to be at variance	No
Principle (i): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water."* Assessment: Although the application area intersects the Red Swamp Brook, a condition placed on the permit requires the applicant not clear any riparian vegetation.	May be at variance	Yes (*Refer to Section 3.2.3, above.*)

Assessment against the clearing principles	Variance level	Is further consideration required?
Noting this, and that the Brook passes through a culvert beneath Toodyay Road and the banks will therefore not be disturbed by the clearing, while minor and temporary impacts to the Brook may occur, impacts are not likely to be significant. Noting the extent of clearing and distance to other surface and groundwater sources, impacts to the quality of other surface water and groundwater sources are considered unlikely.		
Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."* Assessment: The mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding or waterlogging.	Not likely to be at variance	No

Appendix E. 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 Keighery (1994) scale below was used to measure the condition of the vegetation proposed to be cleared.

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 F. Offset calculator value justification

Environmental value to be offset			
Calculation	***Score (Area)***		***Rationale***
Conservation significance			
Description	BC foraging		
Type of environmental value	Species (flora/fauna)		
Conservation significance of environmental value	Rare/threatened species - endangered		habitat is for both Baudins and Carnabys cockatoo
Landscape-level value impacted	yes/no		
Significant impact			
Description	Foraging habitat for Carnaby's, forest red-tailed and Baudin's black cockatoo species		
Significant impact (hectares) / Type of feature	1.17		1.17 ha of vegetation within the application area is mapped as Jarrah-Marri open forest or Wandoo woodland provides foraging habitat
Quality (scale) / Number	7.00		Vegetation is considered to be high quality foraging habitat due to its condition (mainly Very Good), presence of breeding and roosting sites in the local area, presence of nearby water sources
Rehabilitation credit			
Description	0		
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	0		
Proposed offset (area in hectares)	2.44		The area required to offset 100% of the impacts to black cockatoo foraging habitat
Current quality of offset site / Start number (of type of feature)	1.00		Land is considered to provide very minimal foraging value, noting it has been cleared
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	1.00		Foraging value is unlikely to change without management
Future quality WITH offset (scale) / Future number WITH offset	6.00		With the planting of appropriate forgaing species, noting the local context (nearby roosting and breeding sites and water availability) and that vegetation will be part of an existing vegetation corridor, it is considered that revegetation will provide good quality foraging habitat for black cockatoo species.
Time until ecological benefit (years)	17.00		Time taken for vegetation to grow to an extent to provide sufficient foraging resources for black cockatoo species
Confidence in offset result (%)	0.8		Providing a sufficient revegetation plan is provided, DWER can have a reasonably high level of confidence that foraging habitat will be provided
Duration of offset implementation (maximum 20 years)	20.00		Maximum of 20 years applied
Time until offset site secured (years)	2.00		Time taken for conservation covenant to be placed and planting to occur
Risk of future loss WITHOUT offset (%)	15.0%		As appropriate for rural zoning
Risk of future loss WITH offset (%)	5.0%		Assuming revegetated land is placed under a conservation covenant
Offset ratio (Conservation area only)	N/A		
Landscape level values of offset?	N/A	N/A	

Appendix G. Biological survey information excerpts

Vegetation Unit Description	Total Area, Proportion (%) of vegetation within Survey Area	Vegetation Condition	Photograph
VT01 - Jarrah-marri open forest *Eucalyptus marginata* and *Corymbia calophylla* over *Banksia squarrosa* and *Xanthorrhoea preissii* over native sedges and herbs.	1.34 ha 46.0%	Very Good	

Vegetation Unit Description	Total Area, Proportion (%) of vegetation within Survey Area	Vegetation Condition	Photograph
VT02 - Wandoo woodland *Eucalyptus wandoo* woodland over *Banksia squarrosa* and *Xanthorrhoea preissii* over native and weedy herbs and sedges. Laterite outcrops and gravel	1.39 ha 47.8%	Good	

Vegetation Unit Description	Total Area, Proportion (%) of vegetation within Survey Area	Vegetation Condition	Photograph
VT03 - *Eucalyptus rudis* over *Melaleuca* sp. *Eucalyptus rudis* over *Melaleuca ?viminea* over native sedges and weedy herbs and grasses. Vegetation associated with drainage line.	0.18 ha 6.2%	Good	

Figure G.1. Vegetation types mapped within the application area (Western Environmental, 2024a)

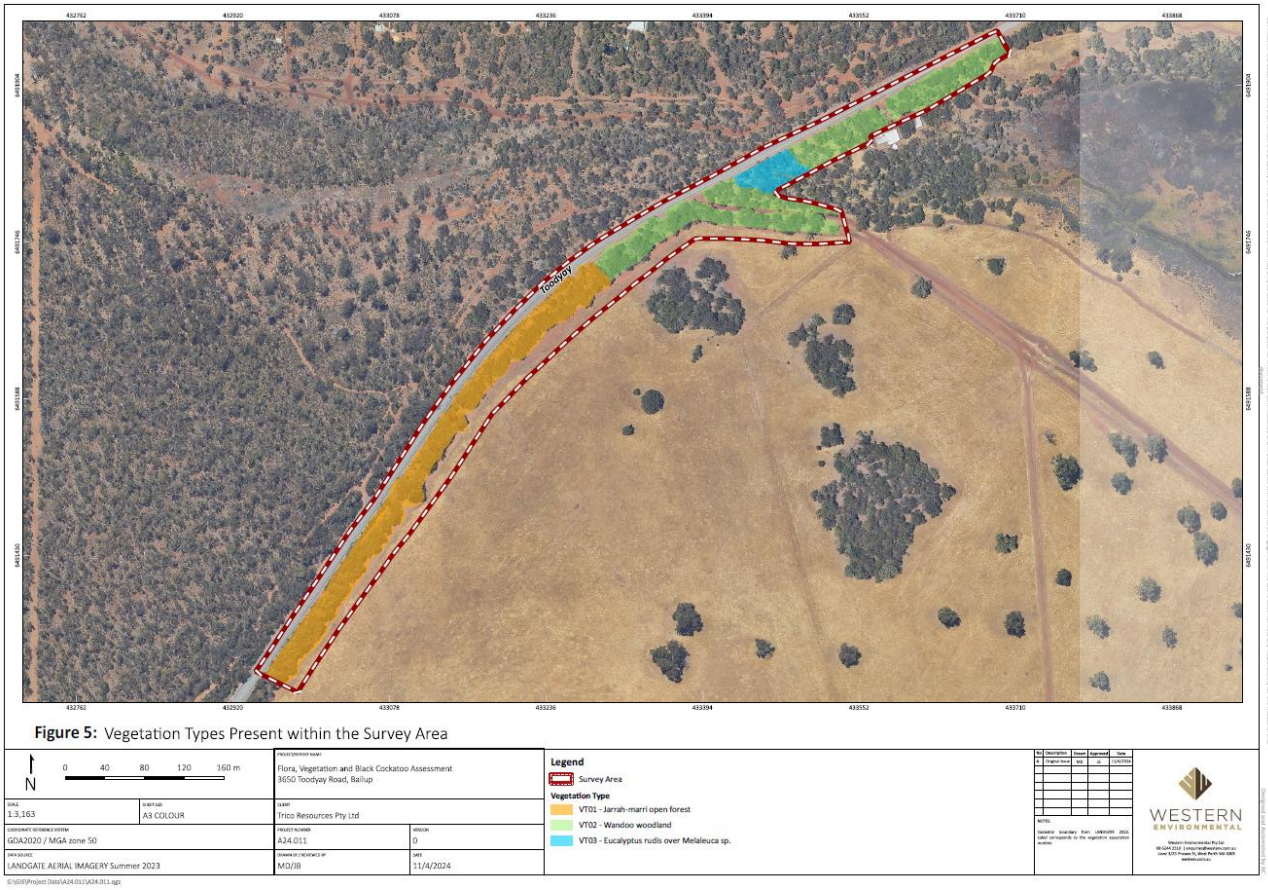

Figure G.2. Vegetation type mapping within the application area (Western Environmental, 2024a)

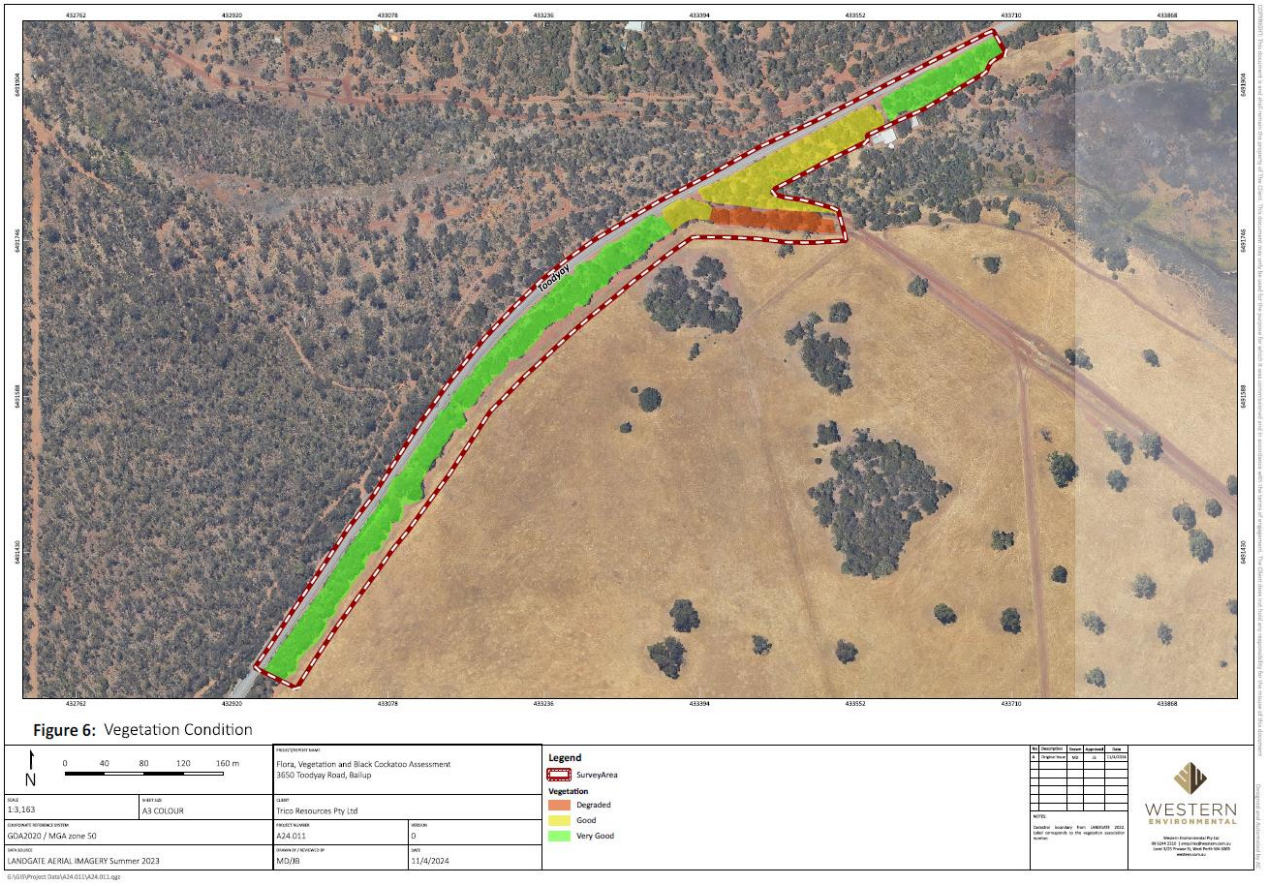

Figure G.3. Vegetation condition mapping within the application area (Western Environmental, 2024a)

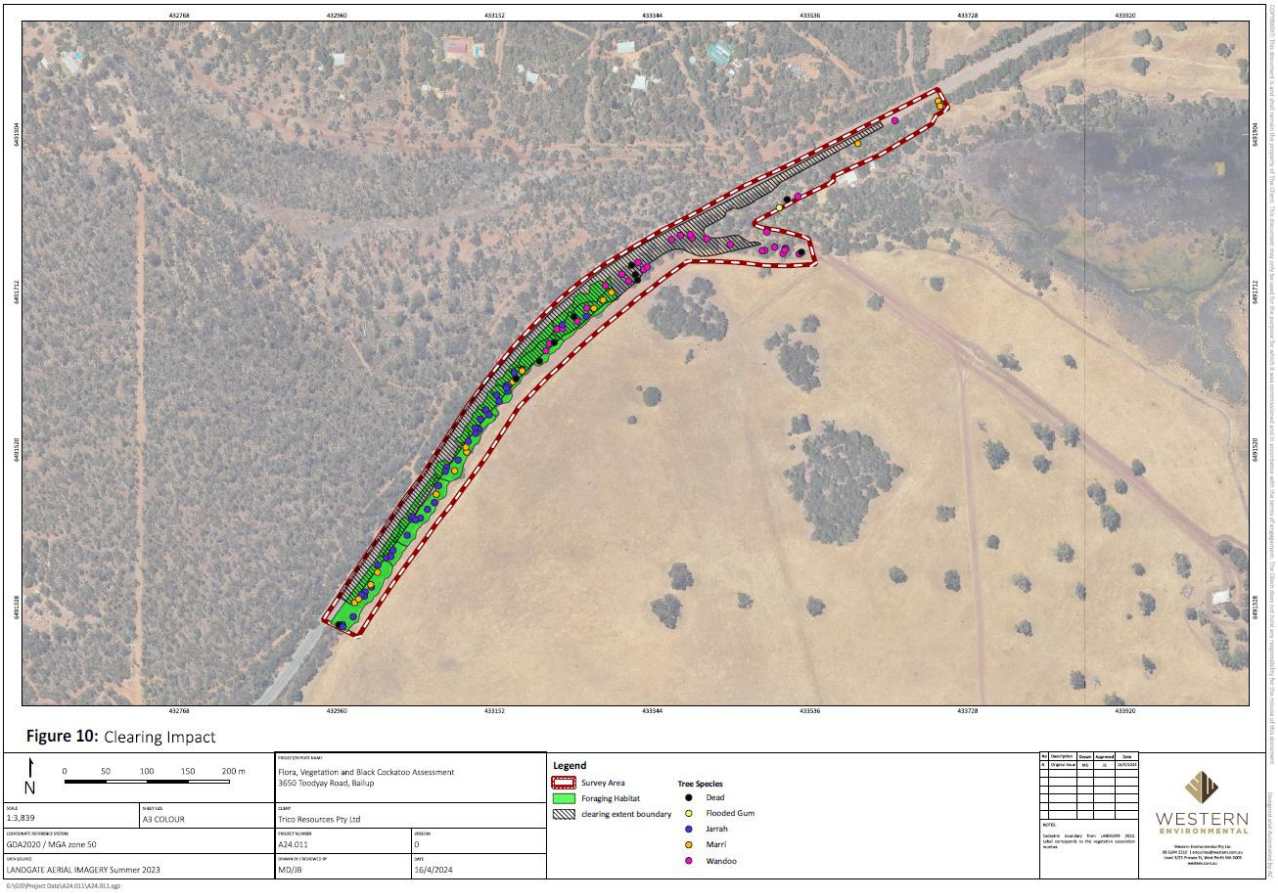

Figure G.4. Trees recorded within the application area (Western Environmental, 2024a)

Appendix H. Sources of information

H.1. GIS databases

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

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas

- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems

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)

H.2. References

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