



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 9373/1
Permit Holder:	City of Busselton
Duration of Permit:	From 05 December 2022 to 05 December 2032

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

PART I – CLEARING AUTHORISED

1. Clearing authorised (purpose)

The permit holder is authorised to clear *native vegetation* for the purpose of road widening and maintenance.

2. Land on which clearing is to be done

Boallia Road reserve (PINs 11471094 and 11471125), Boallia

3. Clearing authorised

The permit holder must not clear more than 0.14 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

4. Period during which clearing is authorized

The permit holder must not clear any *native vegetation* after 05 December 2027.

PART II – MANAGEMENT CONDITIONS

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

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

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

6. Weed 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 towards adjacent *native vegetation* to allow fauna to move into adjacent *native vegetation* ahead of the clearing activity.

8. Flora management – threatened and priority flora

- (a) Where *threatened* flora and/or *priority* flora species are identified in the area cross-hatched yellow on Figure 1 of Schedule 1, the permit holder shall engage a *botanist* to demarcate all *threatened* flora and *priority* flora individuals and their relevant *buffers*, located within the area cross-hatched yellow on Figure 1 of Schedule 1.
- (b) When undertaking any clearing authorised under this permit, the permit holder must not cause or allow the clearing of more than:
 - i. one (1) individual *Verticordia plumosa* var. *ananeotes* (T) plant
 - ii. two (2) *Grevillea brachystylis* subsp. *grandis* (T) plants; and
 - iii. twenty one (21) *Loxocarya magna* (P3) plants.

9. Revegetation and rehabilitation – mitigation planting

The permit holder must within 12 months of undertaking clearing authorised under this permit:

- (a) undertake deliberate infill *planting* of at least 0.25 hectares within Boallia road reserve (PINs 11471094 and 11471125), Booallia, by:
 - i. ensuring only *local provenance* species are used;
 - ii. ensuring *planting* is undertaken at the *optimal time*;
- (b) undertake *weed control* activities of at least 0.72 hectares Boallia road reserve (PINs 11471094 and 11471125), Booallia;
- (c) establish at least three (3) ten metre long monitoring transects that are to the width of the road reserve within areas where *planting* has occurred under this permit;
- (d) monitor transects specified in condition in 9(c) at least biannually in autumn and in spring for the first three (3) years after *planting*;
- (e) monitor transects specified in condition in 9(c) at least annually in autumn in years four (4) and five (5) after *planting*;
- (f) monitoring of transects specified in condition 9(c) is to be undertaken by an *environmental specialist*;

- (g) achieve the completion criteria specified in Schedule 2 (Completion criteria) after the five year monitoring period for areas where *planting* has occurred under this permit;
- (h) undertake *weed control* activities to maintain the minimum criteria specified in Schedule 2 (Completion criteria);
- (i) undertake *remedial actions* for areas where *planting* has occurred where monitoring indicates the completion criteria, outlined in Schedule 2 (Completion criteria), has not been met including:
 - i. deliberately *planting native vegetation* that will result in the minimum targets specified in Schedule 2 (Completion criteria) ensuring only *local provenance* species are used;
 - ii. undertake further *weed control* activities;
 - iii. undertake watering activities; and
 - iv. undertake biannual monitoring of areas where *planting* has occurred, until the completion criteria outlined in Schedule 2 (Completion criteria) are met.
- (j) where an *environmental specialist* has determined that the completion criteria, outlined in Schedule 2 (Completion criteria) has been met, that report is to be provided to the *CEO*.

PART III - RECORD KEEPING AND REPORTING

10. Records that must be kept

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

Table 1: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	<ul style="list-style-type: none"> (a) the species composition, structure, and density of the cleared area; (b) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994/2020 (GDA94/20), 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; (f) actions taken to minimise the risk of the introduction and spread of <i>weeds</i> and <i>dieback</i> in accordance with condition 6; and (g) actions taken in accordance with condition 7.

No.	Relevant matter	Specifications
2.	In relation to flora management pursuant to condition 8	<ul style="list-style-type: none"> (a) the date <i>threatened</i> and/or <i>priority flora</i> species were cleared; (b) the <i>threatened</i> and/or <i>priority flora</i> taxa and number of individuals cleared; (c) the location of <i>threatened</i> and/or <i>priority flora</i> taxa cleared, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994/2020 (GDA94/20), expressing the geographical coordinates in Eastings and Northings; and (d) actions taken to avoid the clearing of <i>threatened</i> and/or <i>priority flora</i> species, where practicable.
3.	In relation to <i>revegetation</i> and <i>rehabilitation</i> requirements – mitigation planting pursuant to condition 9	<ul style="list-style-type: none"> (a) the location of areas of infill <i>planting</i> using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994/2020 (GDA94/20), expressing the geographical coordinates in Eastings and Northings or decimal degrees; (b) description of the infill <i>planting</i> activities undertaken; (c) the size of the area of infill <i>planting</i> (in hectares); (d) evidence supporting compliance with condition 9(a) to 9(h) of this permit; (e) <i>remedial actions</i> required to be undertaken;

11. Reporting

The permit holder must provide to the *CEO* the records required under condition 10 of this permit when requested by the *CEO*.

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> .
botanist	means a person who holds a tertiary qualification specialising in environmental science or equivalent, and has a minimum of two (2) years work experience in Western Australian flora identification and undertaking flora surveys native to the bioregion being inspected or surveyed, or who is approved by the CEO as a suitable environmental specialist for the bioregion, and who holds a valid flora licence issued under the Biodiversity Conservation Act 2016.
buffer	means 50 metres for threatened flora, and 20 metres for priority flora.
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.
fill	means material used to increase the ground level, or to fill a depression.
dieback	means the effect of <i>Phytophthora</i> species on native vegetation.
department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
environmental specialist	means a person who holds a tertiary qualification in environmental science or equivalent, and has a minimum of 2 years work 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	<i>Environmental Protection Act 1986</i> (WA)
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.
optimal time	means the period from May to July for undertaking planting and seeding.
planting	means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species.
priority flora	means those plant taxa described as priority flora classes 1, 2, 3, or 4 in the Department of Biodiversity, Conservation and Attractions <i>Threatened and Priority Flora List for Western Australia</i> (as amended from time to time).

Term	Definition
remedial actions	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> .
threatened flora	means those plant taxa listed as threatened flora under the <i>Biodiversity Conservation Act 2016</i> .
weeds	means any plant – (a) that is a declared pest under section 22 of the <i>Biosecurity and Agriculture Management Act 2007</i> ; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.
weed control	means methods used in the control of <i>weeds</i> such as mechanical removal, chemical spraying, use of mulch and or weed mat.

END OF CONDITIONS



Mathew Gannaway
 MANAGER
 NATIVE VEGETATION REGULATION

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

11 November 2022

Schedule 1

The boundary of the area authorised to be cleared is shown in the map below (Figure 1).

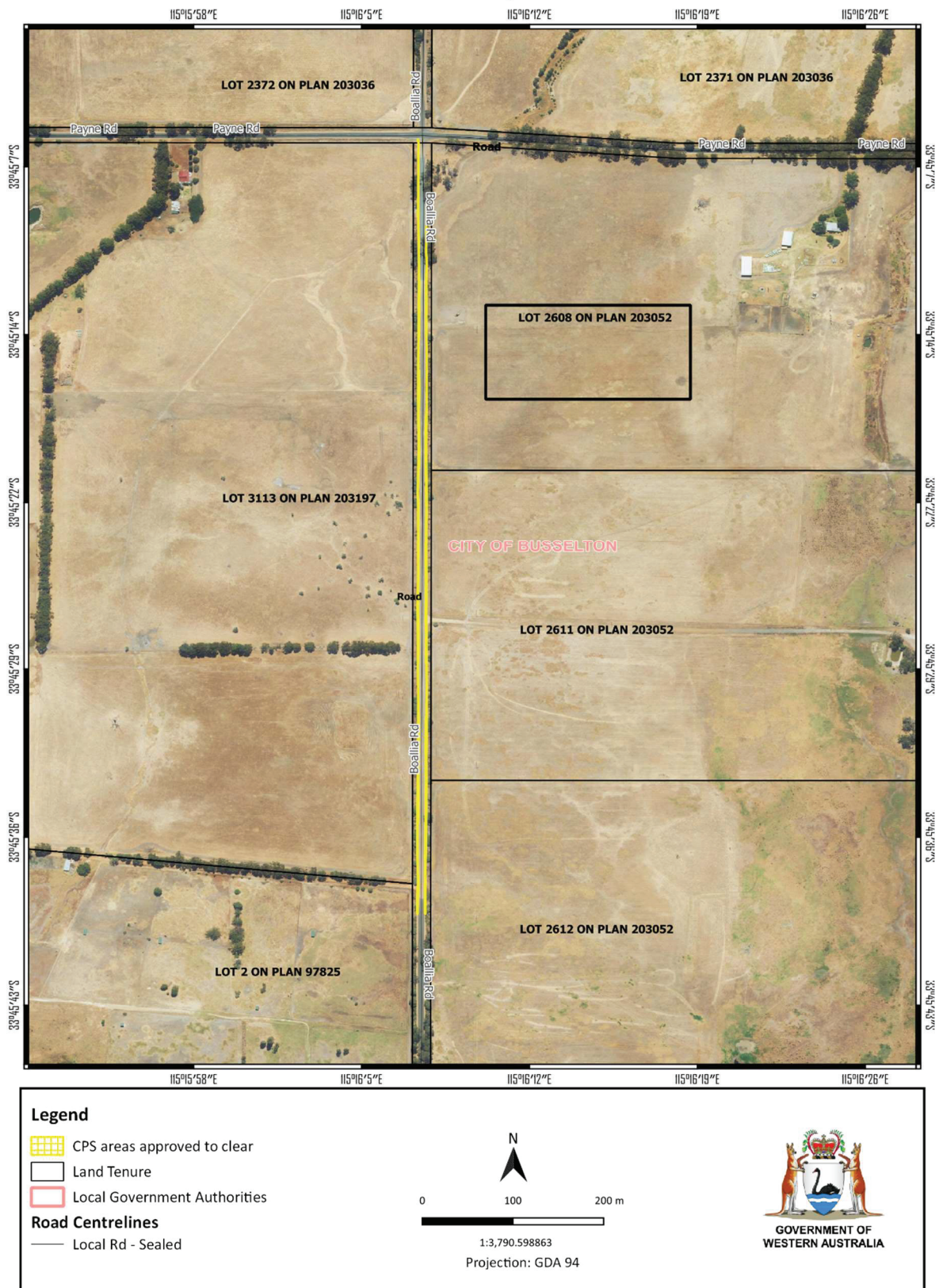


Figure 1: Map of the boundary of the area within which clearing may occur

Schedule 2

Specific conditions that apply to the planting completion criteria are provided in the two tables below

Table 1: Revegetation and rehabilitation completion criteria

Aspect	Timing	Completion criteria
Density	3 months post planting	Minimum 50 per cent permanent and/or temporary groundcover <i>native vegetation</i> .
	2 and 5 years post planting	Minimum 50 per cent permanent groundcover <i>native vegetation</i> .
Species diversity	2 and 5 years post planting	50 per cent of species listed in Table 2 of Schedule 2 exhibiting evidence of healthy growth.
Structural complexity	2 and 5 years post planting	Species should comprise approximately 20 per cent groundcover species, 30 per cent overstorey species and 30 per cent midstorey species.
Weeds	6 months post planting	Primarily only non-aggressive exotic species present. If aggressive species are present, these would be under active control and comprise no more than 5 per cent of total species abundance on the site.
	2 and 5 years post planting	Primarily only non-aggressive exotic species present. If aggressive species are present, these would be under active control and comprise no more than 5 per cent of total species abundance on the site. Kikuyu (<i>Cenchrus clandestinus</i>) is excluded.

Table 2: Revegetation species list

Species name
<i>Allocasuarina humilis</i>
<i>Allocasuarina thuyoides</i>
<i>Cyathochaeta avenacea</i>
<i>Hakea ceratophylla</i>
<i>Hakea marginata</i>
<i>Hakea varia</i>
<i>Hibbertia diamesogenos</i>
<i>Hypolaena pubescens</i>
<i>Kunzea micrantha</i>
<i>Loxocarya magna</i>
<i>Mesomelaena tetragona</i>
<i>Patersonia occidentalis</i>
<i>Pericalymma ellipticum</i>
<i>Stenotalis ramosissima</i>



Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 9373/1
Permit type:	Purpose permit
Applicant name:	City of Busselton
Application received:	4 August 2021
Application area:	0.14 hectares of native vegetation
Purpose of clearing:	Road widening and maintenance
Method of clearing:	Mechanical
Property:	Boallia Road reserve (PINs 11471094 and 11471125)
Location (LGA area/s):	City of Busselton
Localities (suburb/s):	Boallia

1.2. Description of clearing activities

The vegetation proposed to be cleared is 0.14 hectares of native vegetation distributed along a one kilometre stretch of road reserve (see Figure 1, Section 1.5). The City of Busselton (the City) propose to undertake road widening and maintenance works to improve the safety of Boallia Road.

1.3. Decision on application

Decision:	Granted
Decision date:	Click to enter date
Decision area:	0.14 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 (the department) advertised the application for 21 days and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix B), relevant datasets (see Appendix F.1), the findings of a flora and fauna survey (see Appendix E), advice received from the Department of Biodiversity, Conservation and Attractions (DBCA), the clearing principles set out in Schedule 5 of the EP Act (see Appendix C), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3). The Delegated Officer also took into consideration the purpose of the clearing is for improving safety along Boallia Road.

The Delegated Officer has considered the proposed clearing will result in:

- the loss of one *Verticordia plumosa* var. *ananeotes* (T) plant, the loss of two *Grevillea brachystylis* subsp. *grandis* (T) plants and 21 *Loxocarya magna* (P3) plants
- the pruning of one *Grevillea brachystylis* subsp. *grandis* (T) plant

- the loss of approximately 0.02 hectares of the State listed Threatened Ecological Community (TEC), SCP02 *Southern wet shrublands* of the Swan Coastal Plain
- the potential introduction and spread of weeds and dieback into adjacent vegetation, which could impact on the quality of the surrounding vegetation and its habitat values
- potential indirect impacts to the surrounding flora, including but not limited to the conservation significant flora and TEC identified above, from risk of unintentional take from road maintenance and risk of incidental damage from cars pulling onto the road shoulder
- the clearing of vegetation within an extensively cleared landscape.

Advice received from DBCA regarding impacts to conservation significant flora and the TEC, in particular the populations of both threatened species, *Verticordia plumosa* var. *ananeotes* and *Grevillea brachystylis* subsp. *grandis* indicated that they are not showing signs of recruitment (DBCA, 2021). The individuals that are proposed to be removed as a part of this application are not likely to be viable in the future due to their location in the road reserve. The proposed clearing is not likely to lead to significant impacts to the local populations.

The City has worked closely with DBCA to inform the design of the clearing area, including a site visit from a DBCA representative. The City has worked closely with DBCA to construct appropriate mitigation and management measures, outlined in a Conservation Management Plan (CMP) and a construction and Environmental Plan (CEMP) (see Section 3.1) including:

- revegetation (infill planting) of 0.25 hectares within Boallia road reserve
- weed control of 0.72 hectares within Boallia road reserve
- construction controls to avoid accidental impact and mitigate overall project impacts

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 to the environment.

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 and dieback;
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity;
- demarcation of significant flora and vegetation areas to avoid unnecessary or accidental vegetation impacts;
- infill planting of 0.25 hectares within the Boallia road reserve (PINs 11471094 and 11471125);
- weed control of 0.72 hectares within the Boallia road reserve (PINs 11471094 and 11471125);

1.5. Site map

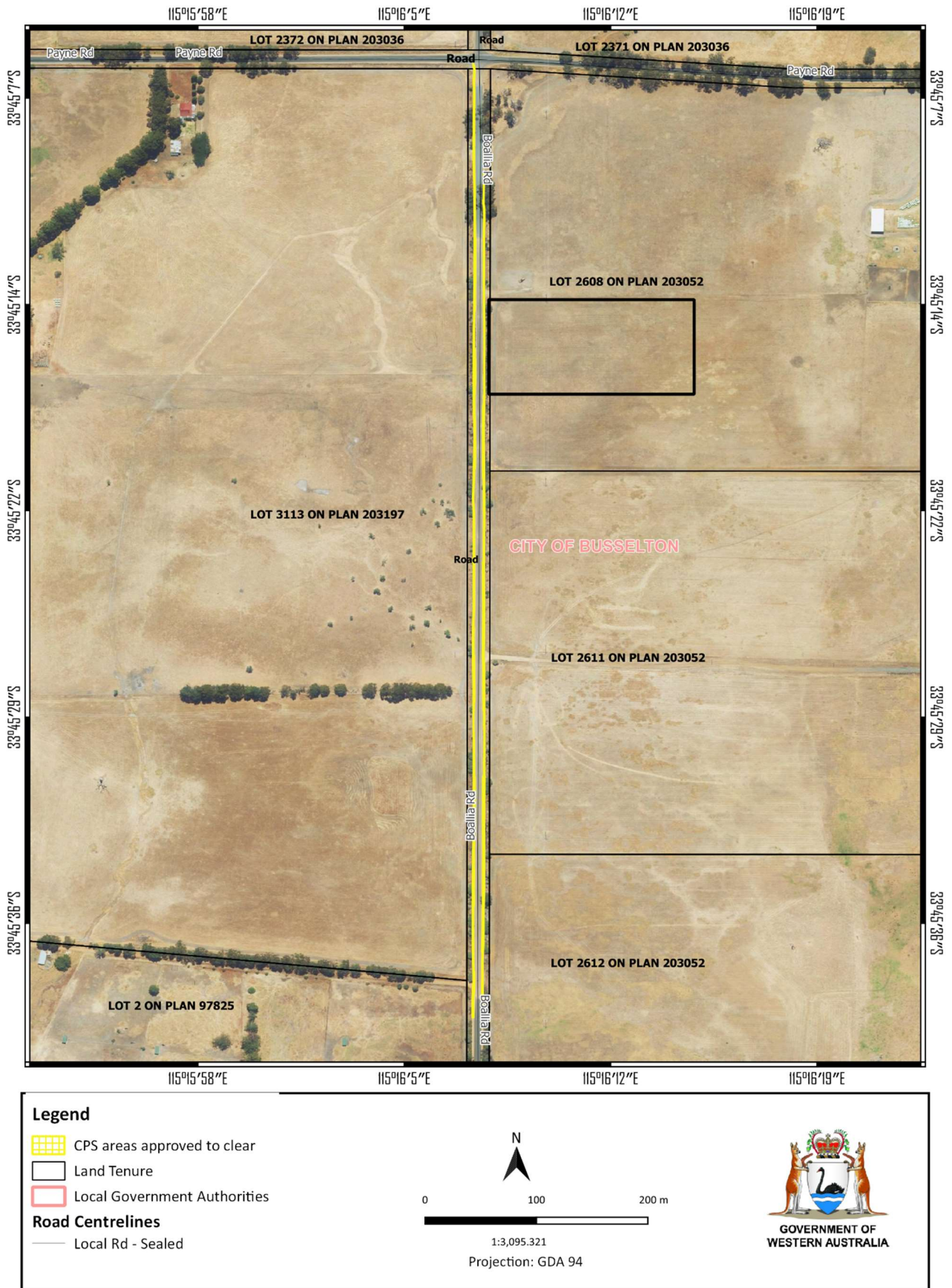


Figure 1 The area crosshatched yellow indicates the areas authorised to be cleared under the granted clearing permit.

2 Legislative context

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

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

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

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Soil and Land Conservation Act 1945* (WA)

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)
- 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 following evidence was submitted by the applicant to demonstrate that avoidance, and mitigation measures have been applied to the proposed clearing method:

- modified the preferred alignment to best fit between constraints.
- narrowed design footprint from 8.2m standard formation width to 7.2m formation width with a reduced batter slope (from 1:4 to 1:1).
- no drains adjacent to the road will be constructed to avoid impacting native vegetation.
- limited lifting of finished road surface (250mm-300mm) to further reduce the footprint.
- utilisation of limestone within the road base to minimise road batter spill.
- regular meetings with the DBCA to accurately locate flora and vegetation constraints to adjust design alignments and heights to avoid or minimise constraints.
- preparation of a CEMP, outlining strategies to minimise risk of environmental damage, including:
 - clearing area demarcation
 - management of noise, vibration and dust
 - limiting vehicle speeds during works
 - staff training and inductions
 - dieback and weed hygiene measures (City of Busselton, 2022).

Additionally, upon request from the department, the City prepared a Conservation Management Plan (CMP), in consultation with DBCA, outlining measures to mitigate and manage potential impacts to conservation significant flora and vegetation including:

- weed control of 0.72 hectares within the road reserve,
- infill planting of 0.25 hectares with local provenance species, of a low enough density to enable recruitment of the existing threatened flora from existing subsurface seed bank,
- demarcation, bunting and monitoring of significant flora and vegetation areas to avoid unnecessary or accidental vegetation impacts (SW Environmental, 2022).

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.

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, flora and vegetation), significant remnant vegetation 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 vegetation) - Clearing Principles (a), (c) and (d)

Assessment:

The application area is located within the Swan Coastal Plain IBRA region. A reconnaissance and targeted flora survey conducted over the application area and broader Boallia road reserve mapped two vegetation units within the proposed clearing area:

- CcXp: Woodland of *Corymbia calophylla* over shrubland of *Melaleuca preissiana* and *Xanthorrhoea preissii* over mixed grassland herbland of **Freesia alba x leichtlinii* and **Avena fatua*
- MpXp: Open Shrubland of *Melaleuca preissiana* over *Hakea* sp. MB01, *Astartea fascicularis* and *Xanthorrhoea preissii* over low shrubland of *Melaleuca incana* (SW Environmental, 2021).

Over most of the application area the proposed clearing is narrow, with the widest point being 1.5 metres from the existing cleared edge. The majority of the vegetation proposed to be cleared is road verge vegetation that has been subject to existing edge effects. The survey recorded the vegetation in good to completely degraded condition (Keighery, 1994) with no vegetation in very good or better condition (SW Environmental, 2021).

A desktop assessment identified 43 priority and 14 threatened flora records within the local area (10 kilometres from the application area). Of these, one threatened flora species, *Grevillea brachystylis* subsp. *grandis* occurs within the application area. Based on the similarities between the soil and vegetation types within the application area, 16 flora species are considered possible to occur within the Boallia road reserve (Appendix B).

The targeted flora survey and follow up site visits by DBCA recorded three conservation significant flora within the application area, including two threatened species and one priority 3 species: *Verticordia plumosa* var. *ananeotes* (T), *Grevillea brachystylis* subsp. *grandis* (T) and *Verticordia plumosa* var. *ananeotes* (P3) (SW Environmental, 2021). Given the condition and extent of the vegetation within the application area, the targeted flora survey results and a site visit from DBCA representatives, it is considered unlikely that additional conservation significant flora occur within the application area.

***Verticordia plumosa* var. *ananeotes* (T)**

One individual plant of *Verticordia plumosa* var. *ananeotes* is proposed to be cleared. A further 16 occur within the adjacent verge. Seven of these are in very close proximity to the roadworks and have the potential to be either directly or indirectly impacted as a result of the proposed clearing. Three of these seven plants will be adjacent to the road shoulder in the roadside drain, and the remaining four occur in an area where the plants will no longer be protected by surrounding vegetation.

Advice was sought from DBCA on the significance of the proposed clearing on the *Verticordia plumosa* var. *ananeotes* individuals and subpopulation. DBCA noted that this species is known from four subpopulations over a relatively linear 10 km east-west extent and is represented by 249 plants. DBCA advised the department that the potential loss of eight plants from this subpopulation represents an impact of 3.2 per cent to the species overall and a potential significant impact of 47 per cent of the subpopulation due to indirect impacts. DBCA also noted that the majority of the populations of *Verticordia plumosa* var. *ananeotes* are present in remnant roadside vegetation, with many of the subpopulations, including those within the application area, not showing signs of recruitment due to the disruption of natural disturbance regimes, loss of pollinators, weed invasion and population size (DBCA, 2021).

***Grevillea brachystylis* subsp. *grandis* (T)**

Two individuals of *Grevillea brachystylis* subsp. *grandis* were recorded within the application area and are proposed to be cleared. One additional plant is proposed to be pruned. The survey recorded a total of 102 individual plants within nearby roadside remnant vegetation from the previously known population (SW Environmental, 2021).

Advice was sought from DBCA on the significance of the proposed clearing on the *G. brachystylis* subsp. *grandis* individuals and subpopulation. DBCA advised the department that *G. brachystylis* subsp. *grandis* is known from 13 subpopulations over a 10.5 kilometre north-south and 10.5 kilometre east-west extent. There are currently 450 known individuals. DBCA noted that the proposed clearing will impact (direct and indirectly) 4.1 per cent of the subpopulation and 0.6 per cent of the total number of individuals. The proposed works are unlikely to have a significant impact on the conservation of the species as a whole, although it is possible that subsequent indirect impacts resulting from the proposed works may lead to further decline (DBCA, 2021).

As with *Verticordia plumosa* var. *ananeotes*, DBCA noted that many of the subpopulations of *Grevillea brachystylis* subsp. *grandis*, including the one within the application area, are not showing signs of recruitment (DBCA, 2021).

Given the above, the department considers the loss of one *Verticordia plumosa* var. *ananeotes* (T) plant and two *Grevillea brachystylis* subsp. *grandis* (T) plants from non-viable populations is not likely to lead to significant impacts to the local populations. Through consultation with DBCA the City has proposed mitigation and management measures (see section 3.1,) such as infill planting and weed control to enhance the vegetation within the Boallia road reserve to protect the remaining individuals of these Threatened species.

***Verticordia plumosa* var. *ananeotes* (P3)**

Twenty-one individual *Loxocarya magna* (P3) plants are proposed to be cleared, with 87 plants to be retained within the verge immediately adjacent. *Loxocarya magna* has nine verified populations and is well represented in secure tenure. DBCA advice noted that there are at least 3000 plants of this species known, although this number is considered to be a significantly underrepresentation due to a lack of survey effort. Based on the number of records and abundance of *Loxocarya magna*, the proposed clearing is not likely to significantly impact the conservation of this species (DBCA, 2021).

Threatened ecological communities (TEC)

The survey conducted by SW Environmental identified two vegetation communities that have potential affinities to State listed TECs (SW Environmental 2021). The vegetation type CcXp, is mapped across 0.01 hectares of the application area. This vegetation type would have conformed to the definition of the State listed Vulnerable SCP1b: *Corymbia calophylla* woodlands on heavy soils of the southern Swan Coastal Plain TEC, however it does not meet the condition requirement due to the degraded to completely degraded condition of vegetation within the application area (City of Busselton, 2021b).

The vegetation type MpXp was identified during the flora survey as having potential affinities to the State listed Endangered SCP02: *Southern wet shrublands*, Swan Coastal Plain TEC. The vegetation type MpXp was mapped across 2.66 hectares of the Boallia road reserve. Approximately 0.04 hectares occurs within the application area in good condition and is therefore considered to be the *Southern wet shrublands*, Swan Coastal Plain TEC. An additional 0.09 hectares of this vegetation type occurs within the application area, however it is considered too degraded to be regarded as the TEC (City of Busselton, 2021). Approximately 0.12 hectares of this vegetation type in good condition remains in the adjacent road reserve.

According to available databases, the local area contains three occurrences of the *Southern wet shrublands*, Swan Coastal Plain TEC (totalling 19.3 hectares), located within a Reserve (under landscape and wildlife protection, DPLH-071) nine kilometres north east of the application. Considering the extent and linear nature of the proposed clearing area, it is unlikely that vegetation within the area proposed to be cleared is significant to the continued existence of the *Southern wet shrublands*, Swan Coastal Plain TEC. It is acknowledged however that given the survey identified weed species within the application area (SW Environmental, 2021), the proposed clearing may cause degradation of adjacent and nearby remnant native vegetation, in particular the remaining occurrence of this TEC by facilitating the spread of weeds and dieback.

Considering the above impacts to conservation significant flora and TEC, and advice received from DBCA (DBCA, 2021), the department requested mitigation and management of the adjacent road reserve to be provided by the City. The City prepared, in consultation with DBCA, a CMP (see section 3.1) outlining mitigation and management measures (such as infill-planting, weed control and vegetation monitoring) to enhance or improve the TEC condition and the long-term survival of the threatened flora populations (SW Environmental, 2022). The 0.25 hectares of infill planting and 0.72 hectares of weed control was determined to be suitable mitigation measures to ensure a significant residual impact does not remain (see section 3.2.3).

Conclusion

Based on the above assessment, the proposed clearing will result in:

- loss of one *Verticordia plumosa* var. *ananeotes* (T) plant, two *Grevillea brachystylis* subsp. *grandis* (T) plants and 21 *Loxocarya magna* (P3) plants
- the pruning of one *Grevillea brachystylis* subsp. *grandis* (T) plant.
- the loss of approximately 0.02 hectares of the State listed TEC Endangered SCP02 *Southern wet shrublands*, Swan Coastal Plain.
- potential indirect impacts to the surrounding flora, including but not limited to the conservation significant flora and TEC identified above, from increased risk of weed and disease incursion, risk of unintentional take from road maintenance and risk of incidental damage from cars pulling onto the road shoulder.

Based on the findings of the flora survey (SW Environmental, 2021) and DBCA advice (DBCA, 2022), it is considered that the impacts of the proposed clearing on conservation significant flora and TEC can be managed by the City

through the implementation of the CMP and CEMP. The 0.25 hectares of infill planting and 0.72 hectares of weed control was determined to be suitable mitigation measures to ensure a significant residual impact does not remain.

Conditions

To address the above impacts, the following will be required as a condition on the clearing permit:

- demarcation of significant flora
- dieback and weed control, which ensures protocols are put in place to limit the introduction and transportation of dieback- and weed-affected materials
- infill planting of 0.25 hectares within the Boallia road reserve (PINs 11471094 and 11471125)
- weed control of 0.72 hectares within the Boallia road reserve (PINs 11471094 and 11471125)

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

Assessment

Within the local area (10 – kilometre radius of the application area), 34 conservation significant fauna species have been recorded, including 21 birds, five invertebrates and eight mammals. A fauna survey was conducted by SW Environmental in 2020 across the broader Boallia Road reserve (SW Environmental, 2021). Two fauna habitats were identified within the application area:

- CcXp: Marri woodland with *Melaleuca preissiana* and Grass trees (poor quality habitat), and
- MpXp: *Melaleuca preissiana* over shrubland (poor – moderate quality habitat)

A total of 23 fauna species were recorded across the survey area, including four threatened species; Baudin's cockatoo (*Zanda baudinii* previously *Calyptorhynchus baudinii*), Carnaby's cockatoo (*Zanda latirostris* previously *Calyptorhynchus latirostris*), Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*) and Western ringtail possum (*Pseudocheirus occidentalis*) (SW Environmental, 2021).

Black cockatoos

The application area is mapped within the known distribution zones of the Endangered Baudin's cockatoo, Carnaby cockatoo and the Vulnerable Forest red-tailed black cockatoo. Records of all three species occur within the local area, including records of six black cockatoo known roosts, the closest located 4.6 kilometres north west of the application area.

Black cockatoo habitat can be considered in terms of breeding, roosting and foraging habitat. The fauna survey conducted by SW Environmental (2021) included:

- foraging habitat assessment: the amount and quality of potential black cockatoo foraging habitat was noted, with presence of any feed residue observed.
- roosting habitat survey: direct and indirect evidence of black cockatoos roosting within trees on site were noted if observed. Black cockatoo breeding requirement.
- a suitable Diameter at Breast Height (DBH) tree survey – notes were taken on tree species size, and the number, height and size of hollows classified.

Suitable breeding habitat for black cockatoos includes trees which either have a suitable nest hollow or are of a suitable DBH to develop a nest hollow (Commonwealth of Australia, 2022). While suitable breeding trees were identified within the broader Boallia Road reserve, no trees with hollows or trees likely to develop large hollows required for black cockatoo breeding were recorded within the application area. Additionally, there was no evidence of black cockatoo roosts within the application area or broader road reserve (SW environmental, 2021).

Black cockatoos have a preference for foraging habitat that includes jarrah and marri woodlands and forests, and proteaceous woodlands and heath dominated by plant species such as *Banksia* spp., *Hakea* spp. and *Grevillea* spp. (Commonwealth of Australia, 2022). The fauna survey observed feed residue within the Boallia Road reserve from all three black cockatoo species. However, of the fauna habitat identified within the application area, the majority was regarded as providing poor quality habitat with a small area regarded as poor to moderate quality habitat (SW Environmental, 2021).

While the vegetation proposed to be cleared is regarded as poor-quality foraging habitat for Black Cockatoos, the City have committed to infill planting (0.25 hectares) and weed control (0.72 hectares) within the Boallia road reserve to enhance the existing ecological values of the road reserve. Of the species proposed to be planted, suitable foraging

species, such as *Hakea* spp. are included to mitigate the loss of foraging habitat from the proposed clearing (SW Environmental, 2021).

Given the extent of vegetation proposed to be cleared, no suitable breeding hollows were identified within the application area, and that suitable foraging habitat will remain within the adjacent road reserve. The application area is not likely to comprise significant breeding or foraging habitat for the black cockatoo species.

Western ringtail possum

Evidence of western ringtail possum occurrence was recorded along the broader Boallia road reserve during the fauna survey, with low densities of scats found within the dense vegetation in the north of the survey area and other areas where Peppermint trees were present. No Western ringtail possum individuals or habitat features were identified within the vegetation of the application area. Noting the species proposed to be cleared and the condition of the vegetation, the application area is not likely to comprise significant habitat for the Western Ringtail Possum.

Other significant fauna that were recorded during the survey, that may be transient visitors to the application area include *Falco peregrinus* (peregrine falcon, OS), *Phascogale tapoatafa wambenger* (Southern brush-tailed phascogale, CD), *Hydromys chrysogaster* (water rat, P4) and *Isoodon fusciventer* (quenda, P4). Due to the small, narrow areas of vegetation within the application area, the vegetation is not considered to contain good quality habitat (SW Environmental, 2021).

Given the survey identified weed species within the application area (SW Environmental, 2021), the proposed clearing may cause degradation of adjacent and nearby remnant native vegetation, by facilitating the spread of weeds and dieback, which could impact on the quality of fauna habitat. However, it is considered that the impact of clearing can be mitigated through the Sire's implementation of the CEMP and CMP (SW Environmental, 2022).

Ecological Linkage

While the proposed clearing is not within any mapped ecological linkages, noting the extent of clearing in the local area, the vegetation proposed to be cleared may contribute to an ecological linkage function enabling fauna to move between areas of remnant vegetation. The extent of clearing over most of the application area is narrow, with the widest point being 1.5 metres from the existing cleared edge. Given this, the condition of the vegetation within the application area and the mitigation measures proposed by the City, including infill planting and weed control across the broader Boallia road reserve (see section 3.1), the proposed clearing is not likely to sever an ecological linkage or significantly impact vegetation connectivity and fauna dispersal within the local area.

Conclusion

Given the extent of clearing, the results of the survey (SW Environmental, 2021), and the lack of good quality fauna habitat, the application area is not likely to comprise significant habitat for conservation significant fauna, and is not considered significant as an ecological linkage in the local area. The proposed clearing area is therefore not considered to be significant for the continued survival of conservation significant fauna. The clearing activities have the potential to impact the quality of surrounding fauna habitat by facilitating the spread of weeds and dieback. The biggest risk is impacts to individuals that may be present at the time of clearing. It is considered that the impact of clearing can be mitigated through the Sire's implementation of the CEMP and CMP. The 0.25 hectares of infill planting and 0.72 hectares of weed control was determined to be suitable mitigation measures to ensure a significant residual impact does not remain.

Conditions

To address potential impacts to nearby native vegetation from the proposed clearing, the following will be required as a condition on the clearing permit:

- dieback and weed control, which ensures protocols are put in place to limit the introduction and transportation of dieback- and weed-affected materials
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity
- infill planting of 0.25 hectares within the Boallia road reserve (PINs 11471094 and 11471125)
- weed control of 0.72 hectares within the Boallia road reserve (PINs 11471094 and 11471125)

3.2.3. Significant remnant vegetation - Clearing Principle (e)

Assessment

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearing of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).

The application area is located within the Swan Coastal Plain IBRA which currently retains 38.62 per cent of the pre-European vegetation (Commonwealth of Australia, 2019b). The application area is mapped as Beard vegetation Pinjarra 1136: Jarrah, marri and wandoo *Eucalyptus marginata*, *Corymbia calophylla*, *E. wandoo* and Abba vegetation complex: mixture of open forest of *Corymbia calophylla* (Marri) - *Eucalyptus marginata* (Jarrah) - Banksia species and woodland of *Corymbia calophylla* (Marri) with minor occurrences of *Corymbia haematoxylon* (Mountain Marri). Woodland of *Eucalyptus rudis* (Flooded Gum) - Melaleuca species along creeks and on flood plains. Across the Swan Coastal Plain, the Pinjarra vegetation association retains approximately 6.94 per cent of the original extent.

At a local scale, the application area is mapped within the Abba vegetation complex, which retains 6.54 per cent of its pre-European extent (Commonwealth of Australia, 2019a). The extent of native vegetation within the local area (10 kilometres from the application area) retains approximately 22 per cent native vegetation cover and is inconsistent with the national targets (Commonwealth of Australia, 2001). Given this, the application area is considered to be located within an extensively cleared landscape.

A reconnaissance survey mapped two vegetation units within the application area, CcXp: Marri woodland with *Melaleuca preissiana* and Grass trees, and MpXp: *Melaleuca preissiana* over shrubland. The vegetation proposed to be cleared is restricted to less than 1.5 metres from the existing cleared roadside, with a majority of the adjacent roadside vegetation to be retained. However, given the application area contains the presence of Threatened Flora and a TEC and contributes towards an ecological linkage, it is considered significant as a remnant of native vegetation in an area that has been extensively cleared. It is acknowledged that clearing activities have the potential to facilitate the spread of weeds and dieback into nearby vegetation, impacting on the quality of the remaining verge vegetation.

Through consultation with DBCA the City has constructed a CMP (see section 3.1), outlining mitigation and management measures to enhance the existing ecological values of the Boallia road reserve, including weed control of 0.72 hectares and revegetation (infill planting) of 0.25 hectares within Boallia road reserve, to ensure the clearing will not contribute to the further decline of vegetation within the road reserve.

To assess the suitability of the mitigation measures, the proposed mitigation planting and weed control was input into the WA Environmental Offsets Metric Calculator to determine the ratio required to mitigate the loss of 0.14 hectares of native vegetation in good to completely degraded condition that contained habitat for Threatened Flora and a TEC. From this, it was determined that 0.25 hectares of infill planting and 0.72 hectares of weed control were suitable mitigation measures to ensure a significant residual impact does not remain. The department considers that the mitigation planting and weed control aligns with the WA Environmental Offset Policy (2011) and WA Environmental Offsets Guideline (2014).

Conclusion

Whilst the proposed clearing is considered significant as a remnant of native vegetation, the mitigation measures proposed by the City ensures that a significant residual impact does not remain. The proposed clearing has the potential to facilitate the spread of weeds and dieback into the remaining road reserve vegetation. It is considered that the impact of clearing can be mitigated through the City's implementation of the above-mentioned CMP.

Conditions

To address potential impacts to nearby native vegetation from the proposed clearing, the following will be conditioned on the permit:

- dieback and weed control, which ensures protocols are put in place to limit the introduction and transportation of dieback- and weed-affected materials.
- demarcation of significant flora and vegetation areas to avoid unnecessary or accidental vegetation impacts
- infill planting of 0.25 hectares within the Boallia road reserve (PINs 11471094 and 11471125)
- weed control of 0.72 hectares within the Boallia road reserve (PINs 11471094 and 11471125)

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

Assessment

This principle aims to conserve vegetated watercourses and wetlands and their buffers. As a portion of the application area is mapped within a palusplain and may be seasonally wet, the vegetation within the application area is considered to be growing in, or in association with, an environment associated with a wetland. SW Environmental (2021) mapped two vegetation units within the proposed clearing area:

- CcAf: Forest of *Corymbia calophylla* over low open woodland of *Agonis flexuosa* over grassland of *Ehrharta calycina* and *Avena fatua*
- MpXp: Open Shrubland of *Melaleuca preissiana* over *Hakea* sp. MB01, *Astartea fascicularis* and *Xanthorrhoea preissii* over low shrubland of *Melaleuca incana* (SW Environmental, 2021).

It is acknowledged that the palusplain has been highly modified through historical clearing for paddocks and road infrastructure, and that the majority of the vegetation within the application area is degraded to highly degraded (76.6 per cent). Therefore, it is unlikely that the vegetation within the application area is contributing significantly to the function of riparian communities or wetlands in the local area. Given the extent of the proposed clearing within the mapped wetland, the condition of the vegetation, and adjacent land uses, the proposed clearing is not considered likely to result in any significant or long-term impacts to the ecological values of the vegetation communities associated with the wetland mapped within the application area.

Noting that the mapped soil type within the application area is susceptible to land degradation resulting from wind erosion, waterlogging, and subsurface acidification, the proposed clearing has the potential to facilitate land degradation. It is acknowledged that the extent of clearing is minimal, up to 1.5 metres from the existing road, with the majority of the road reserve vegetation being retained. The retained vegetation, paired with the proposed 0.25 hectares of revegetation along Boallia Road reserve (SLK 1.48 to 2.50), are expected to provide a buffer for the impacts of waterlogging and subsurface acidification. Given the extent of clearing and management measures outlined in the CEMP (see section 3.1), any impacts arising from wind erosion are considered likely to be minimal, localised and short-term.

Given the extent and location of the proposed clearing in the context of the site and local area, and the condition of the vegetation, the proposed clearing is not considered likely to cause appreciable land degradation. The proposed clearing may cause degradation of adjacent and nearby remnant native vegetation by facilitating the spread of weeds and dieback. It is considered that the impact of clearing can be mitigated through the City's implementation of the above-mentioned CMP and CEMP (see section 3.1).

Conclusion

Based on the above assessment, the proposed clearing is unlikely to result in significant impacts to the ecological values of vegetation communities associated with a watercourse or wetland, or to cause appreciable land degradation. For the reasons set out above, it is considered that the impacts of the proposed clearing can be managed to be environmentally acceptable through the City's implementation of the above-mentioned CMP and CEMP (see section 3.1).

Conditions

To address potential impacts to nearby native vegetation from the proposed clearing, the following will be conditioned on the permit:

- dieback and weed control, which ensures protocols are put in place to limit the introduction and transportation of dieback- and weed-affected materials.
- infill planting of 0.25 hectares within the Boallia road reserve (PINs 11471094 and 11471125)

3.3. Relevant planning instruments and other matters

The clearing of Threatened Flora listed under BC Act requires an Authoritarian to Take Threatened Flora under s40 of the BC Act. The DBCA did not have any concerns in issuing a s40 to the City for the proposed works. DBCA has advised that they will be issuing a s40 upon the granting of the clearing permit (DBCA, 2021).

Several Aboriginal sites of significance have been mapped within the local area, however none occur 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.

End

Appendix A. Additional information provided by applicant

Provision of a CMP, providing detailed description of avoidance measures to minimise or avoid edge effects of the new road design and post road construction, in response to identified risk to conservation significant flora. This has been incorporated into applicant mitigation and minimisation response Section 3.1 (SW Environmental, 2022).

Appendix B. Site characteristics

The information provided below describes the key characteristics of the area proposed to be cleared and is based on the best information available to the department at the time of the assessment. This information was used to inform the assessment of the clearing against the Clearing Principles, contained in Appendix C.

Characteristic	Details
Local context	<p>The area proposed to be cleared is distributed along a 2.49 kilometre stretch of vegetated road reserve in the intensive land use zone of Western Australia. The application area is surrounded by cleared land for agricultural purposes.</p> <p>Aerial imagery and spatial data indicates the local area (10 kilometre radius from the centre of the area proposed to be cleared) retains approximately 21.8 per cent of the original native vegetation cover.</p>
Ecological linkage	<p>While the proposed clearing is not within any mapped ecological linkages, it does contribute toward local linkages as surrounding properties are mostly cleared for agricultural purposes.</p>
Conservation areas	<p>The nearest conservation area is the Blackwood State Forest which is located four kilometres south of the application area.</p>
Vegetation description	<p>The vegetation survey describes the vegetation within the proposed clearing area as a mix of:</p> <ul style="list-style-type: none"> • Forest of <i>Corymbia calophylla</i> over low open woodland of <i>Agonis flexuosa</i> over grassland of <i>Ehrharta calycina</i> and <i>Avena fatua</i> • Open Shrubland of <i>Melaleuca preissiana</i> over <i>Hakea</i> sp. MB01, <i>Astartea fascicularis</i> and <i>Xanthorrhoea preissii</i> over low shrubland of <i>Melaleuca incana</i> (SW Environmental, 2021). <p>The full survey descriptions are available in Appendix E.</p> <p>These appear to be a degraded remnant of the mapped vegetation type, Abba Complex, described as:</p> <ul style="list-style-type: none"> • a mixture of open forest of <i>Corymbia calophylla</i> (Marri) - <i>Eucalyptus marginata</i> (Jarrah) - <i>Banksia</i> species and woodland of <i>Corymbia calophylla</i> (Marri) with minor occurrences of <i>Corymbia haematoxylon</i> (Mountain Marri). Woodland of <i>Eucalyptus rudis</i> (Flooded Gum) - <i>Melaleuca</i> species along creeks and on flood plains. (Shepherd et al, 2001). <p>The local vegetation retains approximately 21.84 per cent of the original extent (Government of Western Australia, 2019a).</p>
Vegetation condition	<p>Vegetation survey (SW Environmental, 2021) recorded the vegetation within the proposed clearing area in good to completely degraded condition (Keighery, 1994). The full Keighery (1994) condition rating scale is provided in Appendix D.</p>
Climate and landform	<p>The mean annual rainfall within the local area is recorded as 807 millimetres. The application area is approximately 30 metres in the north with a slight rise to 35 meters to the south.</p>
Soil description	<p>The soil is mapped as Abba wet ironstone flats Phase and Abba flats Phase:</p> <ul style="list-style-type: none"> - Abba wet ironstone flats, described as winter wet flats and slight depressions with shallow red brown sands and loams over ironstone (i.e. bog iron ore soils) (DPIRD 2019). - Abba flats Phase, described as flats and low rises with sandy grey brown duplex (Abba) and gradational (Busselton) soils (DPIRD 2019).

Characteristic	Details
Land degradation risk	The soils within the application area are susceptible to land degradation from wind erosion, waterlogging and substrate acidification (DPIRD 2019).
Waterbodies	The desktop assessment and aerial imagery indicated that the area proposed to be cleared intersects an unnamed palusplain wetland and a minor non perennial tributary of the Buayanup River.
Hydrogeography	Application area is located within the Buayanup River catchment. The application area is not within any proclaimed areas under the <i>Rights in Water and Irrigation Act 1914</i> or the <i>Country Areas Water Supply Act</i> .
Flora	Database records identified 43 Priority and 14 Threatened flora records within the local area. Of these, records of <i>Grevillea brachystylis</i> subsp. <i>grandis</i> are within the application area. The flora survey identified three individuals of <i>Grevillea brachystylis</i> subsp. <i>grandis</i> , one individual of <i>Verticordia plumosa</i> var. <i>ananeotes</i> and 21 individuals of <i>Loxocarya magna</i> (P3) within the application area (SW Environmental, 2021).
Ecological communities	The flora survey identified approximately 0.037 hectares of the State listed TEC, Endangered SCP02 <i>Southern wet shrublands, Swan Coastal Plain</i> . Vegetation consistent with the State listed TEC Vulnerable SCP1b <i>Corymbia calophylla woodlands on heavy soils of the southern Swan Coastal Plain</i> TEC was identified within 0.001 hectares of the application area, however it does not meet the condition requirement due to the Degraded to Completely Degraded condition of vegetation within the footprint (SW Environmental, 2021).
Fauna	Desktop records identified 34 records of conservation significant species within the local area. A fauna survey recorded all three species of conservation significant black cockatoos within the application area, however, no roosts or hollows were identified (SW Environmental, 2021).

B.1. 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*					
Swan Coastal Plain	1,501,221.93	579,813.47	38.62	222,916.97	14.85
Vegetation complex					
Abba Complex	50892.77	3326.20	6.54	183.19	0.36
Local area					
10 km radius	33473.54	7312.74	21.84	-	-

*Government of Western Australia (2019a)

**Government of Western Australia (2019b)

B.2. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix F.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]
<i>Grevillea brachystylis</i> subsp. <i>grandis</i>	T	Y	Y	Y	0.00	18	Y
<i>Calothamnus quadrifidus</i> subsp. <i>teretifolius</i>	P4	Y	Y	Y	0.08	21	Y
<i>Banksia squarrosa</i> subsp. <i>argillacea</i>	T	Y	Y	Y	1.48	15	Y
<i>Schoenus benthamii</i>	P3	Y	Y	Y	1.48	2	Y
<i>Leucopogon</i> sp. Busselton (D. Cooper 243)	P2	Y	Y	Y	1.87	2	Y
<i>Verticordia plumosa</i> var. <i>ananeotes</i>	T	Y	Y	Y	2.03	14	Y
<i>Verticordia densiflora</i> var. <i>pedunculata</i>	T	Y	Y	Y	2.76	4	Y
<i>Verticordia plumosa</i> var. <i>vassensis</i>	T	Y	Y	Y	2.76	11	Y
<i>Daviesia elongata</i>	T	Y	Y	Y	4.08	32	Y
<i>Boronia tetragona</i>	P3	Y	Y	Y	4.89	4	Y
<i>Morelotia australiensis</i>	T	Y	Y	Y	4.89	4	Y
<i>Leptomeria furtiva</i>	P2	Y	Y	Y	5.08	4	Y
<i>Lasiopetalum laxiflorum</i>	P3	Y	Y	Y	5.76	8	Y

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

B.3. 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)	Are surveys adequate to identify? [Y, N, N/A]
<i>Calyptorhynchus</i> sp. 'white-tailed black cockatoo' (white tailed black cockatoo)	EN	Y	Y	1.62	20	Y
<i>Calyptorhynchus banksii naso</i> (forest red-tailed black cockatoo)	VU	Y	Y	4.33	6	Y
<i>Notamacropus Irma</i> (western brush wallaby)	P4	Y	Y	4.33	9	Y
<i>Zanda latirostris</i> previously <i>Calyptorhynchus latirostris</i> (Carnaby's cockatoo)	EN	Y	Y	4.33	1	Y
<i>Phascogale tapoatafa wambenger</i> (south-western brush-tailed phascogale)	CD	Y	Y	4.33	13	Y
<i>Dasyurus geoffroii</i> (chuditch)	VU	N	Y	4.36	13	Y
<i>Isodon fusciventer</i> (quenda)	P4	N	Y	4.36	1	Y
<i>Pseudocheirus occidentalis</i> (western ringtail possum)	CR	N	Y	4.79	14	Y

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)	Are surveys adequate to identify? [Y, N, N/A]
<i>Zanda baudinii</i> previously <i>Calyptorhynchus baudinii</i> (Baudin's cockatoo)	EN	Y	Y	4.89	300	Y
<i>Hydromys chrysogaster</i> (water-rat)	P4	Y	Y	7.50	5	Y
<i>Falco peregrinus</i> (peregrine falcon)	OS	Y	Y	8.50	1	Y

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

Appendix C. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p><u>Principle (a):</u> <i>“Native vegetation should not be cleared if it comprises a high level of biodiversity.”</i></p> <p><u>Assessment:</u></p> <p>A survey conducted within the application area noted the presence of threatened and priority flora, black cockatoos and a TEC.</p>	May be at variance	Yes <i>Refer to Section 3.2.1 and 3.2.2 above.</i>
<p><u>Principle (b):</u> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.”</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared contains foraging habitat for conservation significant fauna, including black cockatoos.</p>	At variance	Yes <i>Refer to Section 3.2.2, above.</i>
<p><u>Principle (c):</u> <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><u>Assessment:</u></p> <p>A flora survey identified two threatened flora species within the application area: <i>Grevillea brachystylis</i> subsp. <i>grandis</i> and <i>Verticordia plumosa</i> var. <i>ananeotes</i>.</p> <p>The vegetation within the application area is not considered to be necessary for the continued existence of these threatened flora species.</p>	May be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (d):</u> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.”</i></p> <p><u>Assessment:</u></p> <p>A portion of the area proposed to be cleared contains the State listed threatened ecological community ‘<i>Southern wet shrublands</i>’ of the Swan Coastal Plain. This community is listed as ‘Endangered’ under the BC Act.</p>	May be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
Environmental value: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u></p> <p>The extent of the mapped vegetation type and native vegetation in the local area is inconsistent with the national objectives and targets for biodiversity conservation in Australia.</p>	At variance	Yes <i>Refer to Section 3.2.3, above.</i>
<p><u>Principle (h):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.”</i></p> <p><u>Assessment:</u></p> <p>Given the distance to the nearest conservation area (~4 kilometres), the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.</p>	Not likely to be at variance	No
Environmental value: land and water resources		

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Principle (f)</u>: <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment</u>:</p> <p>The application area intersects a flat, seasonally wet, Palusplain wetland and a minor non perennial tributary of the Buayanyup River. The vegetation proposed to be cleared was mapped by SW Environmental (2021) and is considered to be growing in, or in association with, an environment associated with a wetland</p>	At variance	<p>Yes</p> <p><i>Refer to Section 3.2.4, above.</i></p>
<p><u>Principle (g)</u>: <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment</u>:</p> <p>The mapped soils are moderately susceptible to wind erosion, waterlogging and substrate acidification. Noting the extent of the application area and the condition of the vegetation, the proposed clearing is not likely to have an appreciable impact on land degradation.</p>	May be at variance	<p>Yes</p> <p><i>Refer to Section 3.2.4, above.</i></p>
<p><u>Principle (i)</u>: <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.”</i></p> <p><u>Assessment</u>:</p> <p>The application area is not within a Public Drinking Water Sources Areas or Groundwater Areas.</p> <p>The application area intersects a flat, seasonally wet, Palusplain wetland. The proposed clearing may impact the hydrological regime within the hyper-local area. Given the condition of the vegetation and small extent of vegetation proposed to be cleared, any change resulting from the clearing of native vegetation is considered to be minor and temporary. No long-term impacts on quality of surface and underground water are anticipated as a result of clearing native vegetation.</p>	Not likely to be at variance	No
<p><u>Principle (j)</u>: <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment</u>:</p> <p>The mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding.</p> <p>Given the application area intersects a wetland, the proposed clearing may contribute to waterlogging. However given the size and linear nature of the clearing, impacts are not likely to be significant.</p>	Not likely to be at variance	No

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. Biological survey information excerpts (SW Environmental, 2021)

Vegetation types mapped within the application area CPS 9373/1

<p>CcXp</p>	<p>Woodland of <i>Corymbia calophylla</i> over shrubland of <i>Melaleuca preissiana</i> and <i>Xanthorrhoea preissii</i> over mixed grassland herbland of <i>Freesia alba x leichtlinii</i> and <i>Avena fatua</i></p> <p>Possible TEC</p>	<p>Predominantly Degraded to Completely Degraded</p>	<p>Site04</p>	
<p>MpXp</p>	<p>Open Shrubland of <i>Melaleuca preissiana</i> over <i>Hakea</i> sp. MB01, <i>Astartea fascicularis</i> and <i>Xanthorrhoea preissii</i> over low shrubland of <i>Melaleuca incana</i>.</p> <p>Probable TEC</p>	<p>Completely Degraded to Good</p>	<p>Site01</p>	

Appendix F. Sources of information

F.1. GIS databases

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

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

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

F.2. References

City of Busselton (2021a) *Clearing permit application CPS 9373/1*, received 4 August 2021 (DWER Ref: A2032026).

City of Busselton (2021b) *Supporting information for clearing permit application CPS 9373/1*, received 4 August 2021 (DWER Ref: A2032027).

City of Busselton (2022) *Construction Environmental Management Plan (CEMP)*, received 29 September 2022 (DWER Ref: DWERDT664921).

- Commonwealth of Australia (2001) *National Objectives and Targets for Biodiversity Conservation 2001-2005*, Canberra.
- Commonwealth of Australia (2022) Referral guideline for 3 WA threatened black cockatoo, Canberra.
- Department of Biodiversity, Conservation and Attractions (DBCA) (2021) *Species and Communities Branch TEC, flora and fauna advice for clearing permit application CPS 9373/1*, received 12 November 2021. Department of Biodiversity, Conservation and Attractions, Western Australia (DWER Ref: DWERDT674266).
- Department of Biodiversity, Conservation and Attractions (DBCA) (2018). Wetland Mapping [WWW Document]. Department of Biodiversity, Conservation and Attractions. Retrieved from: <https://www.dpaw.wa.gov.au/management/wetlands/mappingand-monitoring?showall=1> <http://florabase.dpaw.wa.gov.au/>.
- Department of Environment Regulation (DER) (2013). *A guide to the assessment of applications to clear native vegetation*. Perth. Available from: https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf.
- Department of Primary Industries and Regional Development (DPIRD) (2019). *NRInfo Digital Mapping. Department of Primary Industries and Regional Development*. Government of Western Australia. URL: <https://maps.agric.wa.gov.au/nrm-info/> (accessed 30 June 2020).
- Department of Water and Environmental Regulation (DWER) (2019). *Procedure: Native vegetation clearing permits*. Joondalup. Available from: <https://dwer.wa.gov.au/sites/default/files/Procedure Native vegetation clearing permits v1.PDF>.
- Environmental Protection Authority (EPA) (2016a). *Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment*. Available from: http://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey_Dec13.pdf.
- Environmental Protection Authority (EPA) (2016b). *Technical Guidance – Terrestrial Fauna Surveys*. Available from: https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/Tech%20guidance-%20Terrestrial%20Fauna%20Surveys-Dec-2016.pdf.
- Government of Western Australia (2019a) *2018 South West Vegetation Complex Statistics. Current as of March 2019*. WA Department of Biodiversity, Conservation and Attractions, Perth, <https://catalogue.data.wa.gov.au/dataset/dbca>
- Government of Western Australia. (2019b) *2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019*. WA Department of Biodiversity, Conservation and Attractions. <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics>
- Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Molloy, S., Wood, J., Hall, S., Wallrodt, S. and Whisson, G. (2009) *South West Regional Ecological Linkages Technical Report*, Western Australian Local Government Association and Department of Environment and Conservation, Perth.
- Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68) *Atlas of Australian Soils*, Sheets 1 to 10, with explanatory data. CSIRO and Melbourne University Press: Melbourne.
- Schoknecht, N., Tille, P. and Purdie, B. (2004) *Soil-landscape mapping in South-Western Australia – Overview of Methodology and outputs* Resource Management Technical Report No. 280. Department of Agriculture.
- Shah, B. (2006) *Conservation of Carnaby's Black-Cockatoo on the Swan Coastal Plain, Western Australia*. December 2006. Carnaby's Black-Cockatoo Recovery Project. Birds Australia, Western Australia.

Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) *Native Vegetation in Western Australia, Extent, Type and Status*. Resource Management Technical Report 249. Department of Agriculture, Western Australia.

SW Environmental (2021) *Reconnaissance and Targeted Flora and Fauna Survey: Interim report*, received 4 August 2021 (DWER Ref: A2032028).

SW Environmental (2022) *Conservation Management Plan – Boallia Road (SLK 1.48 to 2.50), Boallia*, received 5 October 2022 (DWER Ref: DWERDT667266).

Valentine, L.E. and Stock, W. (2008) *Food Resources of Carnaby's Black Cockatoo (Calyptorhynchus latirostris) in the Gnangara Sustainability Strategy Study Area*. Edith Cowan University and Department of Environment and Conservation. December 2008.

Western Australian Herbarium (1998-). *FloraBase - the Western Australian Flora*. Department of Biodiversity, Conservation and Attractions, Western Australia. <https://florabase.dpaw.wa.gov.au/> (Accessed 18 October 2022)