



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 11127/1
Permit Holder:	Covalent Lithium Pty Ltd
Duration of Permit:	From 6 November 2025 to 6 November 2030

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 Bush fire hazard reduction.

2. Land on which clearing is to be done

Lot 15 on Diagram 74883, Kwinana Beach

3. Clearing authorised

The permit holder must not clear more than 3.42 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

4. Clearing not authorised

- (a) Prior to *clearing* under this permit, the permit holder must demarcate the *black cockatoo habitat trees* marked in red in Figure 2 and Figure 3 of Schedule 1.
- (b) The permit holder must not clear the *black cockatoo habitat trees* marked in red in Figure 2 and Figure 3 of Schedule 1.

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:

- (a) conduct *clearing* activities in a slow, progressive manner from the northern portion of the site towards the southern portion of the site into adjacent remnant *native vegetation*; and
- (b) allow reasonable time for fauna present within the area being cleared under this permit to move into adjacent *native vegetation* ahead of the *clearing* activity.

PART III - RECORD KEEPING AND REPORTING

8. 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	(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;

No.	Relevant matter	Specifications
		(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) direction of <i>clearing</i> activities in accordance with condition 7 of this permit.
2.	In relation to clearing not authorised condition 4	(a) actions taken in accordance with condition 4; (b) photographs of the trees in Figure 2 and Figure 3 of Schedule 1 taken before and after the <i>clearing</i> activities.

9. Reporting

The permit holder must provide to the *CEO* the records required under condition 8 of this permit when requested by the *CEO*.

DEFINITIONS

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

Table 2: Definitions

Term	Definition
black cockatoo habitat trees	means trees that have a diameter, measured at 130 centimetres from the base of the tree, of 50 centimetres or greater (or 30 centimetres or greater for <i>Eucalyptus salmonophloia</i> or <i>Eucalyptus wandoo</i>).
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the <i>Environmental Protection Act 1986</i> .
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 2.
dieback	means the effect of <i>Phytophthora</i> species on native vegetation.
fill	means material used to increase the ground level, or to fill a depression.
EP Act	<i>Environmental Protection Act 1986</i> (WA)
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.
weeds	means any plant – (a) that is a declared pest under section 22 of the <i>Biosecurity and</i>

Term	Definition
	<i>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.

END OF CONDITIONS



Meenu Vitarana

MANAGER

NATIVE VEGETATION REGULATION

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

14 October 2025

Schedule 1

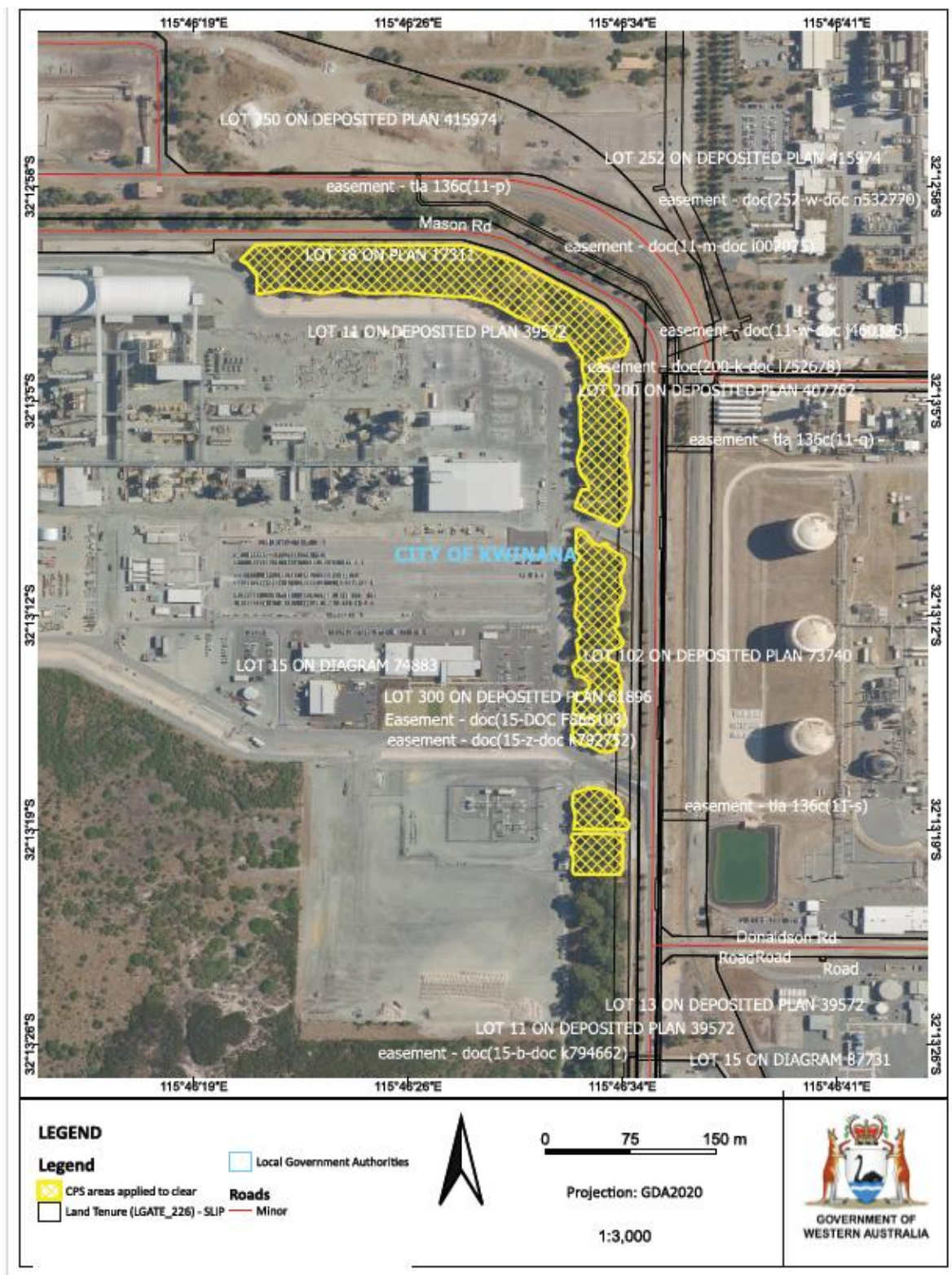


Figure 1: Map of the boundary of the area within which clearing may occur

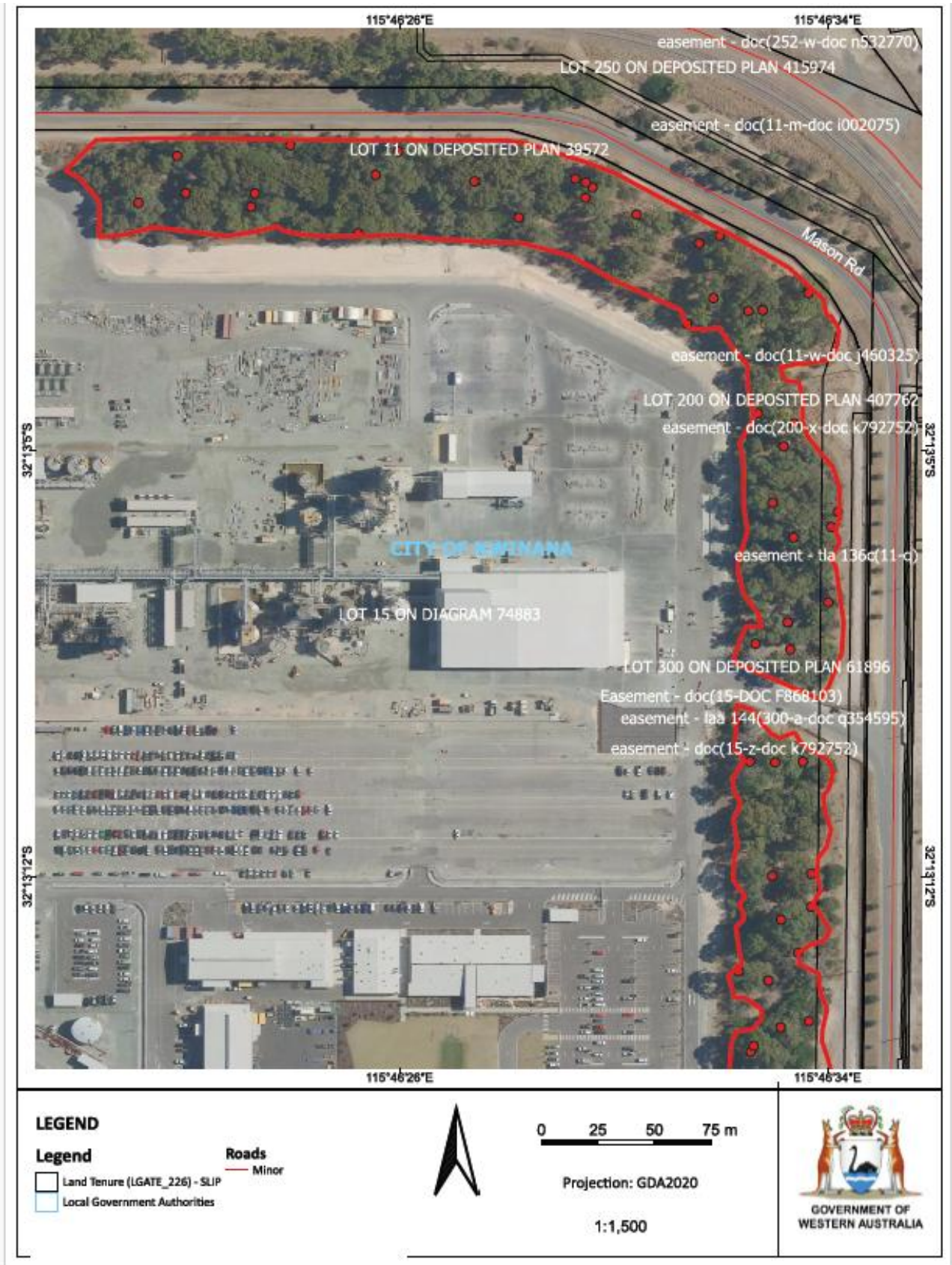


Figure 2: Location of the black cockatoo habitat trees to be retained under condition 4

CPS 11127/1, 14 October 2025



Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 11127/1
Permit type:	Purpose permit
Applicant name:	Covalent Lithium Pty Ltd
Application received:	11 June 2025
Application area:	3.42 hectares of native vegetation
Purpose of clearing:	Bushfire hazard reduction
Method of clearing:	Mechanical
Property:	Lot 15 on Diagram 74883
Location (LGA area/s):	City of Kwinana
Localities (suburb/s):	Kwinana Beach

1.2. Description of clearing activities

The vegetation proposed to be cleared is to selectively clear dry and dead vegetation including invasive species within the site boundary in the north and east side of the refinery to reduce fire fuel load and control fire hazards (see Figure 1, Section 1.5). The large native trees will be retained, and the native understory will be retained where possible (Covalent Lithium Pty Ltd, 2025).

The refinery will process spodumene ore concentrate to produce battery grade Lithium Hydroxide Monohydrate, which is primarily used in Lithium-ion Batteries in electric vehicles (Covalent Lithium Pty Ltd, 2025).

1.3. Decision on application

Decision:	Granted
Decision date:	14 October 2025
Decision area:	3.42 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 no submissions were received.

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

- the site characteristics (see 0)
- relevant datasets (see Appendix E.1)
- the findings of a threatened species habitat assessment (GHD, 2019)
- the clearing principles set out in Schedule 5 of the EP Act (see 0)
- relevant planning instruments and any other matters considered relevant to the assessment (see Section 3).

The Delegated Officer also took into consideration that the City of Kwinana has recommended some bushfire mitigation measures after their site inspection in late 2024 (Covalent Lithium Pty Ltd, 2025).

The assessment identified that the proposed clearing will result in:

- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values and
- impacts to fauna individuals present within the application area if they present during the time of clearing

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 lead to have long-term adverse impacts on environmental values and can be minimised and managed to unlikely lead to an unacceptable risk to environmental values. The applicant has suitably demonstrated avoidance and minimisation measures (see Section 3.1).

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

- retain all large trees that provide habitat for black cockatoos
- 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

1.5. Site map(s)

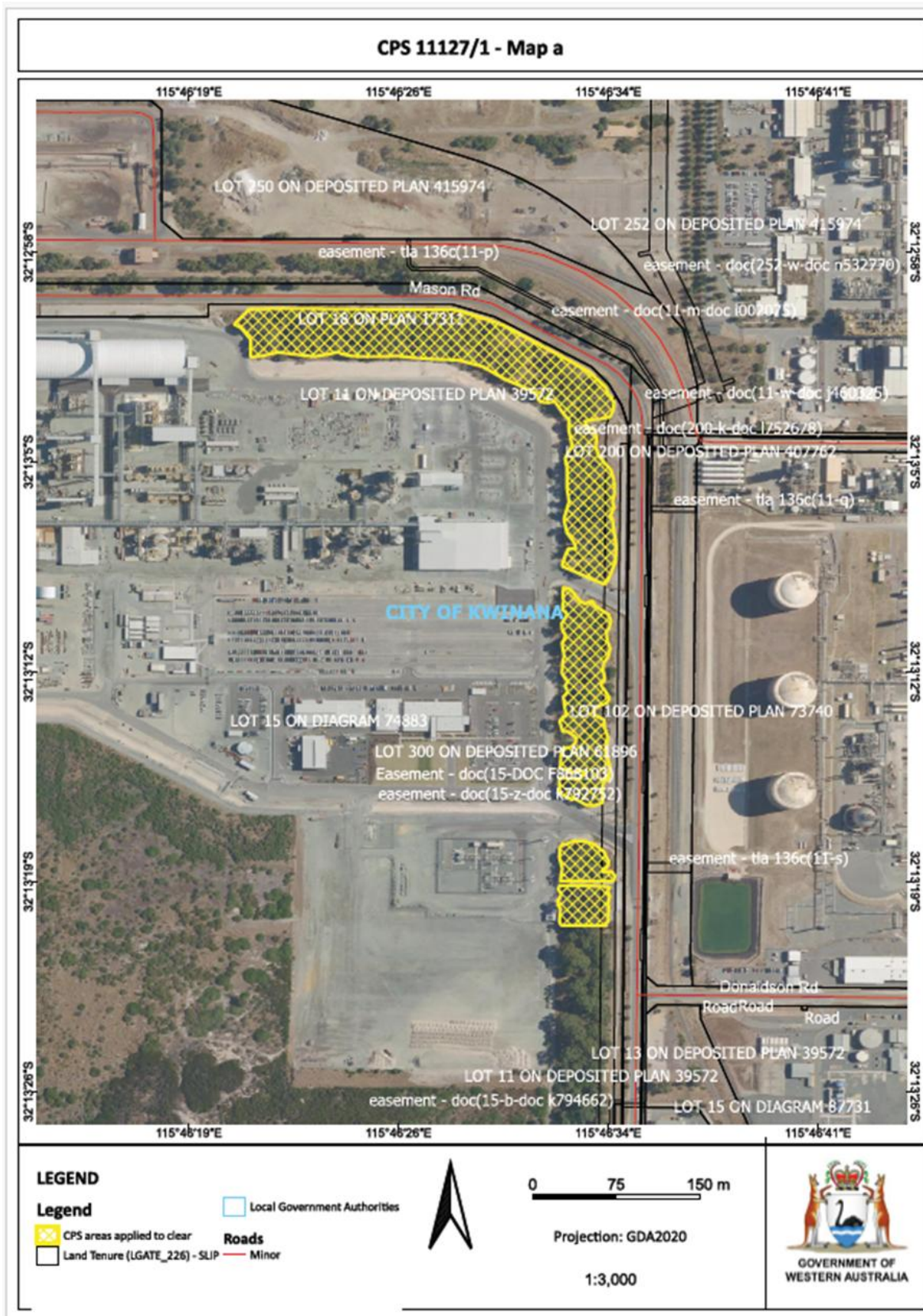


Figure 1 Map of the application area

The area(s) crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

CPS 11127/1 - Map b



LEGEND

Legend

- Land Tenure (LGATE_226) - SLIP
- Local Government Authorities

Roads

Minor



0 25 50 75 m

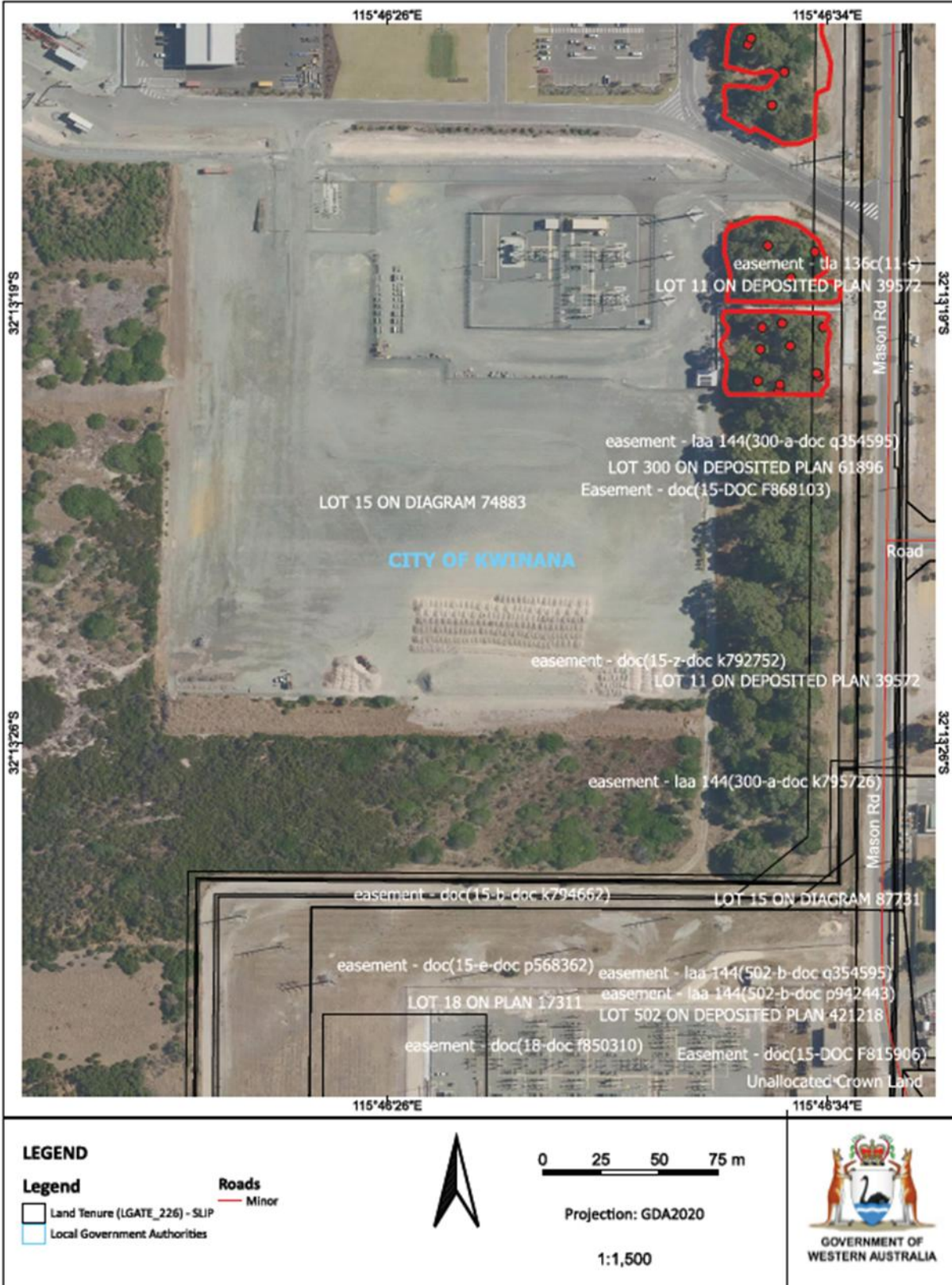
Projection: GDA2020

1:1,500



GOVERNMENT OF
WESTERN AUSTRALIA

CPS 11127/1 - Map c



The areas marked with red dots indicate trees to be retained (Clearing not authorised)

2 Legislative context

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

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

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

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)

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

Evidence was submitted by the applicant, demonstrating that sufficient avoidance and mitigation measures have been taken to minimise the impact of the clearing of native vegetation.

Electrical, gas and chemical pipework and infrastructure management measures:

- Asset Protection Zones (APZ) have been incorporated within the existing footprint to maximise the distance to the boundary vegetation.
- The services corridor and switchyard area are maintained with a non-vegetated surface or as low threat vegetation.
- Bunding is installed around transformers within the switchyard and substation, to prevent the spread of an oil fire
- In the event of a bushfire, power at the facility can be shut down to reduce further ignition sources within the switchyard.
- Any above ground chemical pipework is made of steel and fire-resistant materials to prevent damage.
- The reagent metering station is fire rated on 3 sides and the roof. In addition, walls extend to ground level and any pipework penetrations are sealed with non-combustible material.
- Gas metering station is low-pressure only and majority is below ground within the plant.
- Below ground chemical pipework has been avoided where possible, as above-ground pipework enables regular visual inspection. Below ground pipework however was proposed through the vegetated buffer to prevent damage from falling trees from potential fire and allowing firefighters to cool pipework if required.
- Pipework is fitted with measures such as the ability to cease tank filling, leak detection and the ability to depressurise the pipework.

Other management methods around the refinery:

- Provision of adequate emergency water supply and vehicular access. Such as a fire hydrant and reel system onsite and existing hydrants at 100m intervals on Donaldson Road.
- Fire extinguishers around the site in accordance with AS 2444.
- The calciner and roasting functions in the pyrometallurgical circuit are monitored and controlled by a Burner Management System (BMS). The BMS utilises safety Programmable Logic Controllers (PLC's) for surveillance and management of flames and unburnt gases, including a live shutoff facility, to manage the pyrometallurgical circuit and gas control, thereby limiting potential for unwanted ignition.
- The site has fire protection and detection equipment to address an onsite fire as well as bushfire fighting purposes.
- Emergency management and evacuation procedures are in place and personnel onsite are trained.
- All dangerous and flammable goods onsite are compliant with relevant standards.

A number of engineering controls have been implemented across the site to minimize the scale of clearing and fuel reduction (Covalent Lithium Pty Ltd, 2025).

- All large native trees will be retained to avoid the clearing of native vegetation
- Weed and introduced species will be targeted for removal, as well as dead and dry vegetation
- Native understorey will be retained where possible in order to minimise the clearing of native vegetation
- The large native trees and identified habitat trees for the Carnaby's Cockatoo are to be retained in order to reduce the impact of clearing on any environmental value.
- As an attempt to manage the fauna specially, Carnaby's black cockatoos, area will be walked before clearing to check for black cockatoo presence.
- Clearing will occur from the northern portion of the site to the southern portion towards adjacent native vegetation.
- Reasonable time will be given to allow any fauna present to move from the cleared area to the native vegetation ahead.
- Area will be mulched after clearing to prevent any wind erosion and dust.

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 A) and the extent to which the impacts of the proposed clearing present a risk to biological, conservation, or land and water resource values.

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

3.2.1. Environmental value: Biological value(fauna) - Clearing Principles (b)

Assessment

The desktop assessment identified a total of 50 conservation significant fauna species that had previously recorded within the local area. Given the boundary of the local area overlaps the ocean, the majority of the recorded species are exclusively associated with marine, estuarine or freshwater habitats (wetlands) that do not occur within the application area. Noting the habitat requirements, distribution of the recorded species, the mapped vegetation type and the condition of the vegetation within the application area, the application area is likely to comprise suitable habitat for following species.

- Carnaby's cockatoo (*Calyptrorhynchus latirostris*) (endangered)
- Forest red-tailed black cockatoo (*Calyptrorhynchus banksii naso*) (vulnerable)
- Quenda (*Isodon obesulus subsp. fusciventer*) (Priority 4).
- Perth slider (*Lerista lineata*) (Priority 3).
- Black-striped snake (*Neelaps calonotos*) (Priority 3).

GHD Pty Ltd has undertaken threatened species assessment including the targeted black cockatoo assessment across the site (survey boundary) on 22 May 2019. GHD has identified that the vegetation within the application area was in degraded condition and has a long history of clearing and associated disturbance. According to the survey details, the vegetation present appears to represent a mixture of remnant natives, natural regrowth and planted trees and shrubs including a large fuel load within the boundary vegetation (GHD Pty Ltd, 2019).

Black cockatoos

The proposed clearing is located within the mapped distribution areas of Carnaby's cockatoo and forest red-tailed cockatoo. Within a 10-kilometre radius of the application area, there are 1,175 records of Carnaby's cockatoo and 135 records of forest-red tailed black cockatoos, with the closest distance of approximately 1.29 and 0.85 kilometres, respectively, from the application area. While habitat requirements for these species of black cockatoo differ, the requirements in general can be categorised as breeding habitat, foraging habitat and night roosting habitat.

Breeding habitat

Suitable breeding habitat for black cockatoos includes trees which either have a suitable nest hollow or are of a suitable Diameter Breast Height (DBH) to develop a nest hollow. For most tree species a suitable DBH is 500 millimetres (Commonwealth of Australia, 2012). The targeted black cockatoo assessment conducted by GHD has identified 88 potential breeding trees of suitable DBH (>500 mm) within the survey area (Figure 3). Trees of this size are considered to have a nesting potential now or will develop hollows within 100 years (GHD Pty Ltd, 2019). All tree species recorded consisted of Tuart (*Eucalyptus gomphocephala*) and none of the 88 trees recorded contained hollows visible from the on-ground assessment. Therefore, the proposed site does not currently contain suitable breeding habitat for Black cockatoos. Further, the desktop assessment indicates that there are no confirmed or potential breeding sites recorded within the local area (10-kilometre radius from the centre of the area proposed to be cleared).

Roosting habitat

Night-roosts are usually located in the tallest trees of an area, and in close proximity to both a food supply and a water source (DAFF, 2024). According to the available databases, the application area is not mapped as a known roost site. Tall Eucalyptus trees near a permanent watercourse within close proximity to high quality foraging habitat are identified as the trees that provide preferable roosting habitat for the black cockatoos (DAFF, 2024).

The desktop assessment indicates that 16 roosting sites are located within the local area and with the closest record within 3.84 kilometres away from the application area. GHD indicates that the eucalyptus trees (including both native and introduced/planted) recorded in the survey area are of a sufficient size to provide roosting habitat for black cockatoos. However, no evidence of roosting has been observed during the survey.

Noting that the vegetation within the application area is an isolated mixture of remnant natives, natural regrowth and planted trees and shrubs within a highly industrial zone with low quality foraging habitat and no breeding sites and limited water sources within the local area, it is unlikely to have good quality roosting habitats for these species. The applicant is required to retain all large trees, which will not impact roosting habitat, if present.

Foraging habitat

Food resources within the range of breeding sites and roost sites are important to sustain black cockatoo populations. Foraging resources are therefore, viewed in the context of known breeding and night roosting sites. It is considered that foraging habitat within 6 to 12 kilometres of a known roosting and a breeding site are a significant food source (DAFF, 2024). According to the available databases, only one known black cockatoo roosting site is mapped within the six-kilometre radius buffer of the application area, and no breeding sites are recorded within the 10-kilometre radius buffer of the application area.

GHD indicates that no black cockatoo species were directly seen feeding or observed flying over the survey area. Additionally, there was no evidence of foraging observed. Additionally, the vegetation within the application area is considered to have low foraging value due to the lack of proteaceous species and native eucalypt species such as Marri (*Corymbia calophylla*) and Jarrah (*Eucalyptus marginata*) and distance from known breeding and roosting habitat.

Given that habitat trees will be retained and noting the low foraging values within the application area, it is unlikely to have a significant impact for the foraging habitats for the above black cockatoos by clearing of dry and dead vegetation including invasive species within the site boundary.

Quenda

Quenda prefers dense scrubby, often swampy, vegetation with dense cover up to one metre high. It also occurs in woodlands and may use less ideal habitat where this habitat occurs adjacent to the thicker, more desirable vegetation (Department of Environment and Conservation (DEC), 2012). Also, quenda have adapted to urban and suburban habitats and are known to seek shelter and food in gardens and remnant bushlands in urban areas (DBCA, 2017). Noting that the proposed vegetation is in degraded condition with long history of clearing and associated disturbance, this species is likely a transient feeder within the site noting a lack of suitable habitat to provide permanent habitat.

Perth slider

Perth slider is largely restricted to the Swan Coastal Plain including Garden and Rottnest Island, mostly within the highly developed southern Perth Metropolitan Area. The species likely has poor dispersal abilities and relies on litter

ground cover and other debris for shelter, which makes it vulnerable to fire. Perth slider is known to occur in several bush remnants near Perth, including Forrestdale Lake Nature Reserve, Jandakot Airport, Modong Nature Reserve and Woodman Point. The species unlikely occupies small remnants of native vegetation (Threatened Species Scientific Committee, 2020), as such the application area is unlikely to comprise significant habitat for this species.

Black-striped snake

Black-striped snake is one of five species of small burrowing elapids in the Perth region. The species is more abundant north of the Swan River, whereas records are comparatively scarcer to the south. Black-striped snake typically occupy Banksia woodlands atop soft calcareous sand and, to a lesser extent, coastal heathlands and shrublands. Although relatively abundant in both habitats, scientists recorded higher capture rates of Black-striped snake in Banksia woodlands which are also the preferred habitat for skinks, such as *Aprasia* and *Lerista* spp., which are exclusive food resources for Black-striped snake. Black-striped snake is rarely found in small urban bushland remnants as these are more susceptible to weed infestation, bushfires and predation by feral species, with weeds having an adverse effect on the composition of microhabitats required by fossorial species (He, 2021).

Noting the nature of clearing and its position within the landscape, the vegetation proposed to be cleared does not comprise significant habitat for the above fauna species. To mitigate any potential impacts on ground dwelling fauna which may use the application area for dispersal, the applicant will be required to conduct directional clearing.

Conclusion

Based on the above assessment, the proposed clearing is unlikely to provide significant habitat for the above fauna species. However, it may be used for fauna dispersal or occasional foraging.

Conditions

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

- retain all black cockatoo habitat trees
- directional clearing, to allow fauna present at the time of clearing, to move into adjacent vegetation.

3.3. Relevant planning instruments and other matters

As applicant informed the lithium refinery has been assessed under Part IV of the *Environmental Protection Act 1986* (EP Act) with Ministerial Statement 1170 issued on 15 July 2021. Ministerial Statement 1170 allows for the clearing of 11.2 hectares of native vegetation with a 76 ha Development Envelope. To date 9.14 ha of vegetation has been cleared. Clearing of the remaining hectares is allocated for future bushfire Asset Protection Zones (APZ). The Ministerial Statement approval did not consider a need to undertake fuel load reduction clearing within the site boundary vegetation (Covalent Lithium Pty Ltd, 2025).

The applicant advised that the project has also been assessed under the Planning and Development Act by the City of Kwinana with the Notice of Determination (DA9534.2) approved on 27 July 2021. A Bushfire Management Plan (BMP) and Bushfire Risk Management Plan (BRMP) were included in this assessment. Whilst identifying APZ clearing areas, these plans or approval did not consider a need to undertake fuel load reduction clearing within the site boundary vegetation (Covalent Lithium Pty Ltd, 2025).

The City of Kwinana (the City) advised DWER that the City does not have any objections to the proposed clearing (City of Kwinana, 2025). Further, the City had undertaken a site inspection in late 2024, and recommended further bushfire mitigation, which included 'staged fuel reduction of this boundary bushland including removal of invasive species and mowing of grasses, maintaining native and habitat trees along the corridor subject to environmental considerations and approvals by Covalent Lithium' (Covalent Lithium Pty Ltd, 2025).

The City of Kwinana's recommendations had included following measures as well:

- Remove all dead standing and fallen timber with the exclusion of large dead habitat trees (lookouts) and large logs on the ground
- Remove all invasive species and woody weeds including but not limited to Caster oil bush, Japanese pepper trees, *Watsonia* and fig
- Slash all grasses, light shrubs and scrub to 500mm
- Under prune where practical to a height of 3 metres
- All woody weeds should have the cut stumps treated with herbicide
- Ongoing herbicide and mechanical to maintain a low fuel environment.

The site is classified as 'Remediated for restricted use' under the *Contaminated Sites Act 2003*, based on several soil and groundwater investigations which identified that hydrocarbon wastes have historically been disposed of on site. DWERs Contaminated Sites branch (CS) advised that no potentially contaminating activities have been undertaken within the proposed clearing area, and the contamination status of the site is not thought to materially impact the proposed clearing. However, CS recommends that the Construction and Operational Environmental Management Plan (COEMP) in place for the site is adhered to during the clearing.

A portion of the proposed clearing lies within the easement area (Easement - doc (15-DOC F868103)) and applicant confirmed that the easement is consistent with the proposed clearing.

No Aboriginal site of significance 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.

End

Appendix A. Site characteristics

A.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is part of a 3.42-hectare isolated patch of native vegetation in the intensive land use zone of Western Australia. It is surrounded by the industrial buildings and road infrastructure. The proposed clearing area is a small, isolated remnant in a highly cleared landscape. Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 20.9 per cent of the original native vegetation cover.
Ecological linkage	The application area does not occur within the mapped ecological linkages and given it is an isolated patch surrounded by the developed industrial area, it is unlikely to support fauna movement across the landscape. The closest mapped ecological linkage is Perth Regional Ecological Linkage approximately 1.8 kilometres west of the application area.
Conservation areas	There are no mapped conservation areas within the application area. The closest mapped conservation area is Bush forever area (site no 349), located approximately 1.2 kilometres southwest of the application area.
Vegetation description	The Photographs and the supporting information supplied by the applicant indicate the vegetation within the proposed clearing area consists of Eucalyptus woodland dominated by a mixture of <i>Eucalyptus gomphocephala</i>, <i>E. decipiens</i> and <i>E. cornuta</i> over scattered <i>Callitris preissii</i>, <i>Melaleuca lanceolata</i> and <i>M. huegelii</i> over sparse native and introduced/weed shrubs including <i>Acacia saligna</i>, <i>A. cyclops</i> and <i>Schinus terebinthifolius</i> over weedy grasses and herbs. Representative photographs and the excerpt of the threatened species habitat assessment are available in Appendix D. This is partially consistent with the mapped vegetation type of Quindalup complex noting that the vegetation within the proposed clearing area is considered as the regrowth vegetation (GHD, 2019). The Quindalup complex is described as Coastal dune complex consisting mainly of two alliances - the strand and fore-dune alliance and the mobile and stable dune alliance. Local variations include the low closed forest of <i>Melaleuca lanceolata</i> (Rottnest Teatree) - <i>Callitris preissii</i> (Rottnest Island Pine), the closed scrub of <i>Acacia rostellifera</i> (Summer-scented Wattle) and the low closed <i>Agonis flexuosa</i> (Peppermint) forest of Geographe Bay. (Shepherd et al, 2001). The mapped vegetation type retains approximately 60.49 per cent of the original extent (Government of Western Australia, 2019).
Vegetation condition	Supporting information supplied by the applicant indicates the vegetation within the proposed clearing area is in degraded to completely degraded (Keighery, 1994) condition, described as: - 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. The full Keighery (1994) condition rating scale is provided in 0.

Characteristic	Details
	Representative photographs and excerpt from the threatened species habitat assessment are available in Appendix D.
Climate and landform	The climate is classified as Mediterranean, with dry hot summers and cool wet winters. The average annual rainfall is 716.8 mm, the majority falling between May and September. The mean annual maximum temperature is 28.4°C and mean annual minimum temperature is 19.9°C.
Soil description and land degradation risk	The soil is mapped as EnvGeol S13 Phase (211Qu __S13), described as CALCAREOUS SAND - white, medium-grained, rounded quartz and shell debris, well sorted, of eolian origin. The mapped soil type has a low to medium risk of land degradation risk (DPIRD, 2019).
Waterbodies and hydrogeography	The application area is in close proximity to the coastline but does not intersect any watercourses or wetlands. The application area is mapped with the Terrestrial groundwater dependence ecosystem (Terrestrial GDE). The application area falls within Cockburn Groundwater Area proclaimed under the RIWI Act. Groundwater salinity within the application area is mapped at 500 to 1000 milligrams per litre total dissolved solids.
Flora	The desktop assessment identified a total of 19 conservation significant flora species that had previously been recorded within the local area. These include five threaten flora, one priority one flora species (P1), two priority two flora species (P2), six Priority three flora species (P3) and five priority four flora species (P4) (Western Australian Herbarium, 1998-). None of these existing records occur within the application area, with the closest records being <i>Eucalyptus foecunda</i> subsp. <i>foecunda</i> (P4), recorded approximately 1.39 kilometres from the application area.
Ecological communities	No Threatened Ecological Communities (TEC) are mapped over the application area. The closest record is an occurrence of Sedgeland in Holocene dune swales of the southern Swan Coastal Plain (floristic community type 19 as originally described in Gibson et al. 1994), which is a state listed Critically Endangered Threatened Ecological Community (TEC), approximately 3.7 kilometres south to the application area.
Fauna	The desktop assessment identified a total of 50 conservation significant fauna species that had previously recorded within the local area. These include 34 bird species, eight mammals, five reptiles and three invertebrates. The closest record is an occurrence of Quenda (<i>Isoodon fusciventer</i>), approximately 0.11 kilometres away from the application area.

A.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Swan Coastal Plain	1,501,221.93	579,813.47	38.62	222,916.97	14.85
Vegetation complex					
Quindalup complex (55)	54,573.87	33,011.64	60.49	5,994.64	10.98

	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
Local area					
10km radius	19724.65	4123.21	20.9	-	-

Government of Western Australia (2019a)

A.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>Zanda latirostris</i>	EN	Y	Y	1.29	1175	N/A
<i>Calyptrorhynchus banksii naso</i>	VU	Y	Y	0.85	135	N/A
<i>Isoodon fusciventer</i>	P4	Y	Y	0.11	3370	N/A
<i>Neelaps calonotos</i>	P3	Y	Y	1.18	55	N/A
<i>Lerista lineata</i>	P3	Y	Y	1.47	880	N/A

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

A.4. Land degradation risk table

Risk categories	Land Unit 1
Wind erosion	M1: 10-30% of the map unit has a high to extreme wind erosion risk
Water erosion	L1: <3% of map unit has a high to extreme water erosion risk
Salinity	L1: <3% of map unit has a moderate to high salinity risk or is presently saline
Subsurface Acidification	L1: <3% of map unit has a high subsurface acidification risk or is presently acid
Flood risk	L1: <3% of the map unit has a moderate to high flood risk
Water logging	L1: <3% of map unit has a moderate to very high waterlogging risk
Phosphorus export risk	L1: <3% of map unit has a high to extreme phosphorus export risk

Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<u>Principle (a):</u> <i>"Native vegetation should not be cleared if it comprises a high level of biodiversity."</i> <u>Assessment:</u> The application area is unlikely to comprise a high level of biodiversity given: - it is unlikely to provide significant habitat for Threatened or Priority flora - it does not contain native vegetation which represents Threatened (TECs) or Priority Ecological Communities (PECs); and - it does not comprise significant habitat for fauna, noting habitat trees will be retained.	Not likely to be at variance	No
<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> <u>Assessment:</u> Noting the nature of the clearing (habitat trees being retained) and its position within the landscape, the area proposed to be cleared does not comprise significant habitat for threatened fauna.	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<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> <u>Assessment:</u> Noting the condition of the vegetation within the application area and given that the vegetation within the application area is a mixture of native and planted vegetation with high infestation of weeds, it is unlikely to provide habitat for the conservation significant flora within the application area. GHD (2019) did not identify any conservation significant flora within the survey area is unlikely to support conservation significant species on the available habitats considering the condition of the vegetation.	Not likely to be at variance	No
<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> <u>Assessment:</u> The application area does not contain species that can indicate a Threatened Ecological Community. The closest TEC is the Sedgeland in Holocene dune swales of the southern Swan Coastal Plain (floristic community type 19 as	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
originally described in in Gibson et al. 1994) which is approximately 3.7 kilometres south to the application area.		
Environmental value: significant remnant vegetation and conservation areas		
Principle (e): <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> Assessment: The extent of native vegetation in the local area is less than the 30 per cent threshold set by the national objectives and targets for biodiversity conservation in Australia. However, it is within the Metropolitan Region Scheme which is subject to the EPA modified objective of 10 per cent vegetation retention within a constrained area. The local area (10-kilometre radius from the centre of the area proposed to be cleared) retains 20.9 per cent native vegetation which is over the threshold for constrained areas. However, the proposed clearing does not comprise significant environmental values and is not considered significant as remnant vegetation within the local area given that the vegetation proposed to be cleared is to selectively clear dry, dead vegetation and invasive/weed species within the site boundary vegetation. The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.	Not likely to be at variance	No
Principle (h): <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> 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 at variance	No
Environmental value: land and water resources		
Principle (f): <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> Assessment: Given that no watercourses or wetlands are recorded within the application area, the proposed clearing is not considered to be growing in, or in association with, an environment associated with a watercourse or wetland.	Not at variance	No
Principle (g): <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i> Assessment: The mapped soil has a low susceptibility to the land degradation except from moderate risk of wind erosion (see Appendix C.4). Noting the nature of the clearing of dry, dead vegetation and invasive species within the site boundary vegetation, the proposed clearing is not likely to have an appreciable impact on land degradation.	Not likely to be at variance	No
Principle (i): <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> Assessment: The application area is in close proximity to the coastline but does not intersect any watercourses or wetlands. Given that the proposed clearing is to selectively remove dry, dead and invasive species within the application area, the proposed clearing is unlikely to impact surface or ground water quality.	Not at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<u>Principle (j)</u>: “Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.” <u>Assessment</u>: The mapped soil and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding.	Not at variance	No

Appendix C. Vegetation condition rating scale

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

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

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

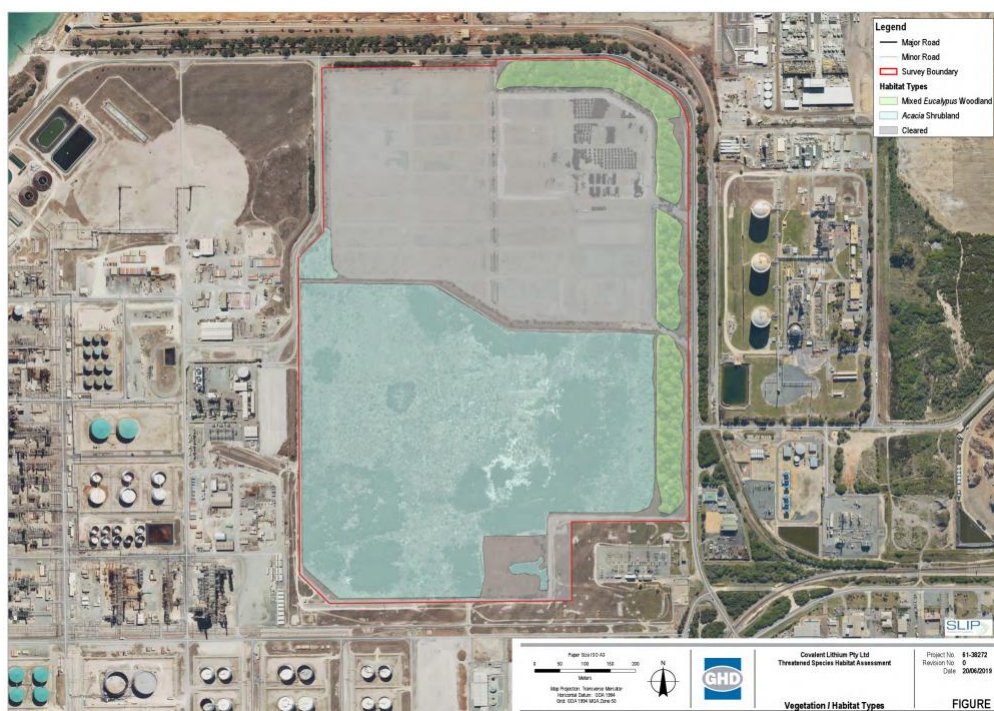
Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance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

Appendix D. Biological survey information excerpts (GHD, 2019)

Figure 2: Eucalyptus Woodland



Figure 3: Dense vegetation in boundary vegetation with Higher fuel load



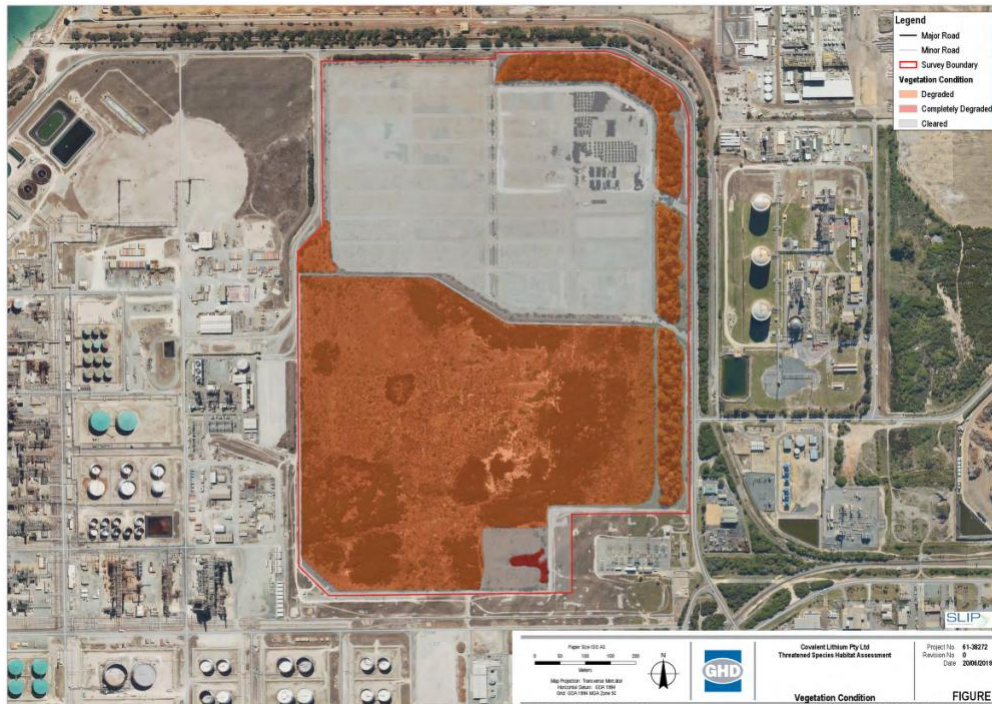


Figure 6: Vegetation Condition

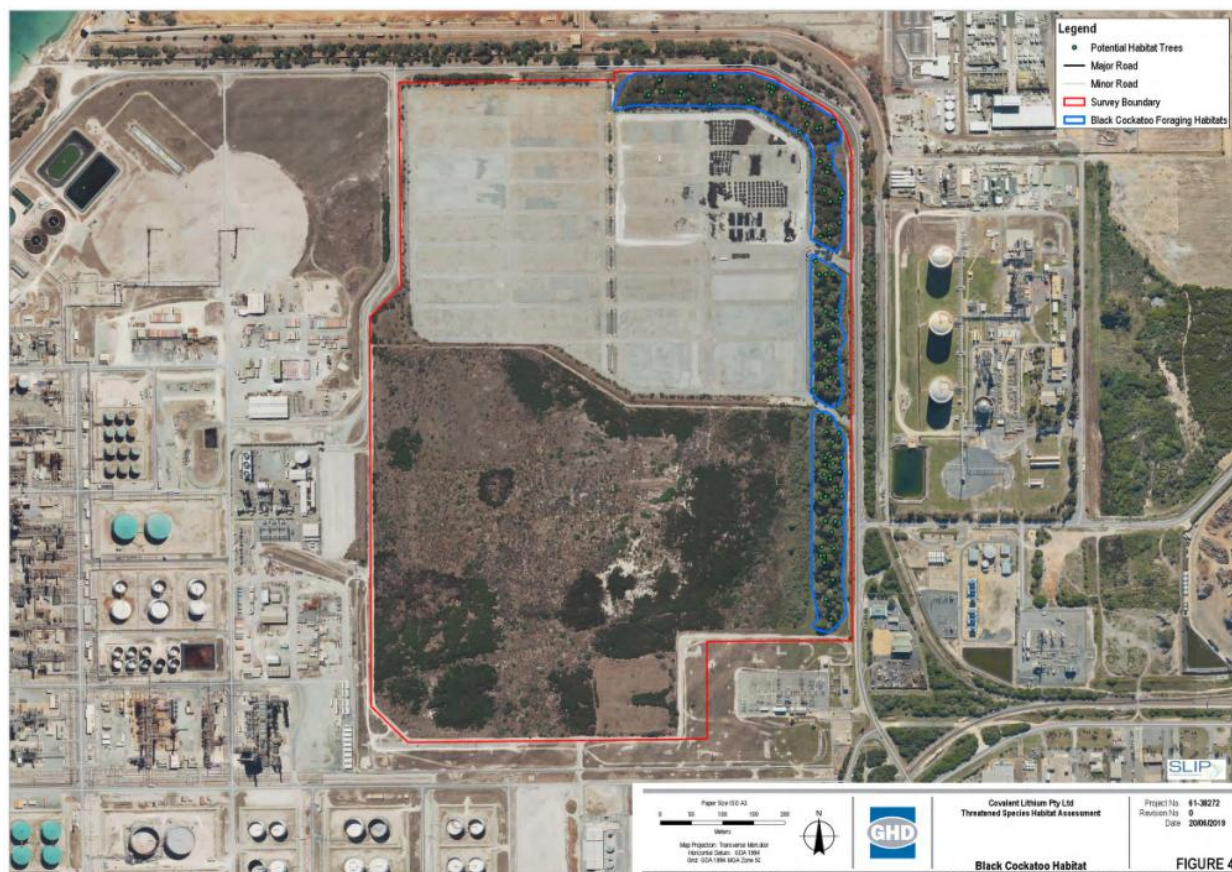


Figure 7: Black cockatoo Habitat

Appendix E. Sources of information

E.1. GIS databases

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

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

Restricted GIS Databases used:

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

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