



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: 8243/1
File Number: DWERTV1732
Duration of Permit: 22 June 2019 to 22 June 2021

PERMIT HOLDER

Aigle Royal Group Pty Ltd

LAND ON WHICH CLEARING IS TO BE DONE

Lot 1199 on Deposited Plan 203629, Casuarina
Lot 9011 on Deposited Plan 410834, Casuarina
Lot 3 on Diagram 86318, Casuarina
Lot 9012 on Deposited Plan 410834, Casuarina
Lot 9013 on Deposited Plan 410834, Casuarina

AUTHORISED ACTIVITY

The Permit Holder shall not clear more than 8.9 hectares of native vegetation within the area hatched yellow on attached Plan 8243/1.

CONDITIONS

1. Avoid, minimise and reduce the impacts and extent of clearing

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in 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.

2. Dieback and weed control

When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the 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.

3. Wind erosion management

The Permit Holder shall not clear native vegetation unless works commence within two months of the authorised clearing being undertaken.

4. Records must be kept

The Permit Holder must maintain the following records in relation to the clearing of native vegetation authorised under this Permit:

- (a) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
- (b) the date that the area was cleared;
- (c) the size of the area cleared (in hectares);
- (d) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 1 of this Permit;
- (e) actions taken to minimise the risk of the introduction and spread of *weeds* and *dieback* in accordance with condition 2 of this Permit; and
- (f) the date development commenced in accordance with condition 3 of this Permit.

5. Reporting

The Permit Holder must provide to the *CEO* the records required under condition 4 of this Permit, when requested by the *CEO*.

DEFINITIONS

The following meanings are given to terms used in this Permit:

CEO: means the Chief Executive Officer of the Department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*;

dieback means the effect of *Phytophthora* species on native vegetation;

fill means material used to increase the ground level, or fill a hollow;

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;

weed/s means any plant -

- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*;
or
- (b) published in a Department of Biodiversity, Conservation and Attractions Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



Mathew Gannaway
MANAGER
NATIVE VEGETATION REGULATION

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

23 May 2019


Plan 8243/1

115°51'18"



115°51'18"

Legend

 CPS areas approved to clear base layers

 Cadastre

 Road Centrelines

 Local Government Authorities

Image



MGA 94
Geocentric Datum of Australia 1994

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Officer delegated under Section 20 of the Environmental Protection Act 1986



GOVERNMENT OF
WESTERN AUSTRALIA



1. Application details

1.1. Permit application details

Permit application No.: 8243/1
Permit type: Area Permit

1.2. Applicant details

Applicant's name: Aigle Royal Group Pty Ltd
Application received date: 8 November 2018

1.3. Property details

Property: Lot 1199 on Deposited Plan 203629, Casuarina
Lot 9011 on Deposited Plan 410834, Casuarina
Lot 3 on Diagram 86318, Casuarina
Lot 9012 on Deposited Plan 410834, Casuarina
Lot 9013 on Deposited Plan 410834, Casuarina
Local Government Authority: City of Kwinana
Localities: Casuarina

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	Purpose category:
8.9		Mechanical Removal	Bulk earthworks

1.5. Decision on application

Decision on Permit Application: Granted
Decision Date: 23 May 2019

Reasons for Decision: The clearing permit application has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986* (EP Act). It has been concluded that the proposed clearing is at variance to principle (f), may be at variance to principles (g) and (i), and is not likely to be at variance to the remaining principles.

Based on the assessment, the Delegated Officer determined that:

- the proposed clearing may cause land degradation in the form of wind erosion and water logging between clearing and the proposed works; and
- the proposed clearing may result in the spread of weeds and dieback into adjacent remnant vegetation.

To minimise weed and dieback impacts, a condition has been placed on the permit requiring the implementation of weed and dieback hygiene measures.

To minimise the impact of wind erosion, a condition has been placed on the permit requiring the proposed works to commence within two months of clearing.

Given the above, the Delegated Officer decided to grant a clearing permit subject to weed/dieback control and wind erosion/waterlogging management conditions.

2. Site Information

Clearing Description The application is to clear 8.9 hectares of native vegetation within a clearing footprint area of 17.89 hectares within Lots 9011, 9012 and 9013 on Deposited Plan 410834, Lot 1199 on Deposited Plan 203629, and Lot 3 on Diagram 86318, Casuarina, for the purpose of undertaking bulk earthworks to facilitate commercial development for bulky goods showrooms (Figure 1).

Vegetation Description The application area is mapped as Bassendean Complex – Central and South, which is described as vegetation that ranges from woodland of *Eucalyptus marginata* (Jarrah) - *Allocasuarina fraseriana* (Sheoak) - Banksia species to low woodland of *Melaleuca* species, and sedgelands on the moister sites. This area includes the transition of *Eucalyptus marginata* (Jarrah) to *Eucalyptus tottiana* (Pricklybark) in the vicinity of Perth (Hedde et al., 1980).

A total of five broad vegetation communities were identified within the application area which have been described as the following (DWER, 2019a; Coterra Environment, 2013; Bennett Environmental Consulting, 2012):

- Banksia woodland: Open *Banksia attenuata* and *Banksia menziesii* woodland with emergent *Allocasuarina fraseriana* over a mid-storey of scattered Banksia sp., *Macrozamia riedlei*, *Acacia* sp., *Leucopogon conostephioides* and *Xanthorrhoea preissii* over *Ehrharta calycina* (exotic weed) and *Dasyopogon bromeliifolius*. This vegetation type comprises approximately 0.55 hectares of the application area;
- Mixed Myrtaceous closed shrubland: Closed shrubland comprising of *Kunzea glabrescens*, *Astartea scoparia*, *Melaleuca teretifolia* and *Melaleuca* sp. over *Ehrharta calycina* (exotic weed) and native sedges. This vegetation type comprises approximately 0.41 hectares of the application area;
- Parkland cleared area: Isolated scattered *Eucalyptus* spp. and *Melaleuca* spp. and native shrubs over an understorey dominated by exotic weeds of *Carpobrotus virescens* and *Ehrharta calycina*. This vegetation type comprises approximately 13.112 hectares of the application area;
- Sedgeland; Sedgeland of *Juncus kraussii* subsp. *australiensis* over grassland of *Phalaris? paradoxa*. This vegetation type comprises approximately 1.548 hectares of the application area; and
- *Melaleuca raphiophylla* and *Eucalyptus rudis* woodland: Open woodland *Eucalyptus rudis*, *Melaleuca raphiophylla*, *Corymbia calophylla* over exotic weed species. This vegetation type comprised approximately 2.27 hectares of the application area.

Vegetation Condition

The condition and description of the vegetation within the application area was determined via a site inspection undertaken by the Department of Water and Environmental Regulation (DWER) officers on 16 January 2019 and upon review of previous flora surveys and supporting documentation provided by the applicant (DWER, 2019a; Bennett Environmental Consulting, 2012; Coterra Environment, 2013). The vegetation within the application area was identified as being in a completely degraded to good (Keighery, 1994) condition, described as:

- Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994), to
- Completely Degraded; No longer intact, completely/almost completely without native species (Keighery, 1994).

Soil type

The application area intersects three soil types mapped by the Department of Primary Industries and Regional Development (DPIRD), described as:

- Bassendean B1 Phase subsystem is described as extremely low to very low relief dunes, undulating sandplain and discrete sand rises with deep bleached grey sands sometimes with a pale yellow B horizon or a weak iron-organic hardpan at depths generally greater than 2 m; banksia dominant (approximately 40 per cent of the application area);
- Bassendean B3 Phase subsystem is described as closed depressions and poorly defined stream channels with moderately deep, poorly to very poorly drained bleached sands with an iron-organic pan, or clay subsoil. Surfaces are dark grey sand or sandy loam (approximately 53 per cent of the application area); and
- Bassendean B6 Phase subsystem is described as sandplain and broad extremely low rises with imperfectly drained deep or very deep grey siliceous sands (approximately 53 per cent of the application area) (Schoknecht et al., 2004).

The site inspection observed dark grey sandy loamy soils in the 'mixed Myrtaceous closed shrubland', '*Melaleuca raphiophylla* and *Eucalyptus rudis* woodland' and 'sedgeland' vegetation types. White/grey sandy soils in the 'Banksia woodland' vegetation type and grey sandy soils in the 'Parkland cleared' areas.

Comment

The local area considered in the assessment of this application is defined as a 10 kilometre radius surrounding the application area. The local area contains approximately 25.9 per cent (8,784.57 hectares) native vegetation cover.

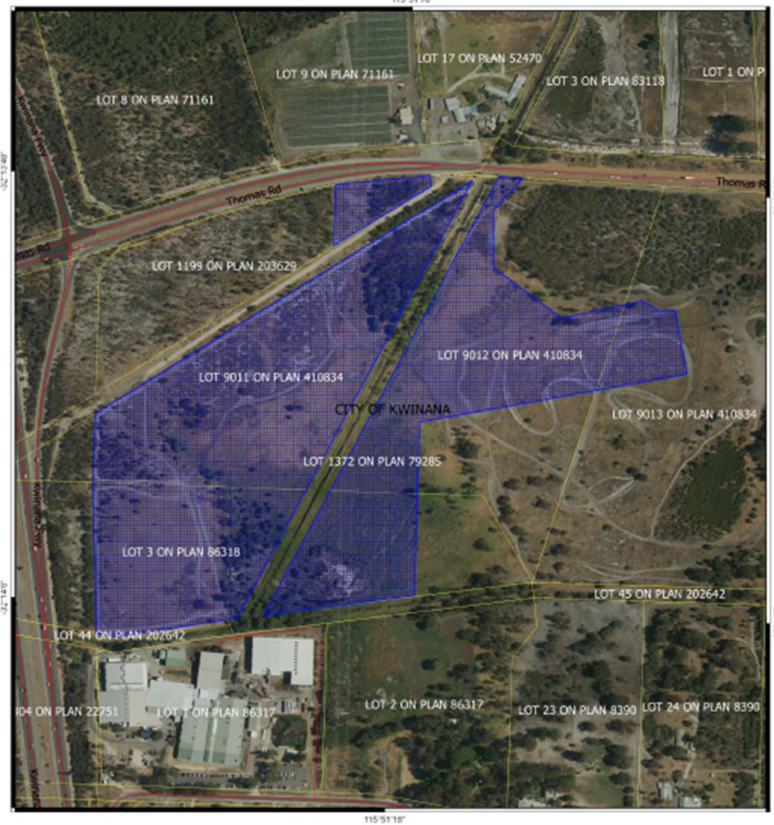


Figure 1: Revised Application Area



Figure 2: Original Application Area

3. Minimisation and mitigation measures

The applicant initially applied to clear 15 hectares of native vegetation within a 23.16 hectare footprint area (Figure 2), whereby a preliminary assessment of that area identified the following impacts:

- the application area contains 4.227 hectares of significant foraging habitat for Carnaby's cockatoo (*Calyptorhynchus latirostris*), Baudin's cockatoo (*Calyptorhynchus baudinii*) and forest red-tailed black cockatoo (*Calyptorhynchus banksii* subsp. *naso*);
- the application area includes a densely vegetated portion of the wetland considered to be of high conservation value that is hydrologically connected to a suite of wetlands surrounding the application area. The proposed clearing is likely to increase sedimentation into the wetland, thus potentially degrading the quality of surface water and alter the hydrology of surrounding wetlands;
- the proposed clearing may result in an increased risk of waterlogging post-clearing in areas subject to inundation; and
- the proposed clearing may result in an increased risk of wind erosion causing land degradation should the surface soils within the application area be exposed for a prolonged period post clearing.

On 12 April 2019, the applicant amended the application area from 15 hectares to 8.9 hectares within a 17.89 hectare footprint area. The amendment has avoided/minimised the above mentioned impacts via the following measures:

- reduced the extent of suitable foraging habitat for black cockatoos from 4.227 hectares to 0.55 hectares;
- modified the application area to exclude the densely vegetated portion of wetland identified to be of high conservation value with the inclusion of a 20 metre buffer zone;
- reduced the risk of increased sedimentation into the multiple-use wetland and surrounding wetlands by excluding the densely vegetated portion of wetland from the application area; and
- reduced the risk of land degradation in the form of waterlogging by reducing the extent of remnant wetland vegetation (by 2.6 hectares) proposed for clearing.

4. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biodiversity.

Proposed clearing is not likely to be at variance to this Principle

The condition of the vegetation within the application area changes markedly throughout ranging from good to completely degraded (Keighery, 1994). The vegetation within the application area has been highly modified and subject to significant human disturbance through clearing, grazing, tracks, and weed invasion (DWER, 2019a). A fire event occurred in the summer of 2017/2018 within the remnant of Banksia woodland that occurs in the north eastern corner of Lot 1199 and the north western corner of Lot 9011 (PGV Environmental, 2017). The structure of the vegetation within this portion of the application area has been significantly altered as a result of these disturbances and the understorey is in a degraded to completely degraded (Keighery, 1994) condition comprising of a high density cover of weeds (DWER, 2019a).

As outlined in Section 2 above, the application area comprises of five vegetation types. The remnant of 'Banksia woodland' that occurs in the north eastern corner of Lot 1199 is considered to be in a degraded to good (Keighery, 1994) condition, with the majority in a degraded (Keighery, 1994) condition (DWER, 2019a). An additional patch of 'Banksia woodland' occurs north western corner of Lot 9011 which is considered to be in a degraded (Keighery, 1994) condition (DWER, 2019a).

Approximately 11.14 hectares of the application area occurs within a mapped multiple-use wetland. The four remaining vegetation types occur within this area, which include the mixed 'Myrtaceous closed shrubland', 'Parkland cleared area', 'sedgeland'; and '*Melaleuca raphiophylla* and *Eucalyptus rudis* woodland'. The '*Melaleuca raphiophylla* and *Eucalyptus rudis* woodland' and 'sedgeland' vegetation types are considered to be in a degraded to good (Keighery, 1994) condition.

The areas identified as 'parkland cleared' which comprise of isolated trees (mainly *Eucalyptus* sp. and *Melaleuca* sp.) over an understorey of exotic weeds. These areas have been subject to significant historical human disturbance through illegal rubbish dumping, weed invasion and old vehicle tracks and are therefore in a completely degraded (Keighery, 1994) condition.

According to available datasets, there are records of 25 priority (P) flora species and six threatened flora species mapped within the local area (10 kilometre radius). Two flora surveys have been conducted within the application area, which include a Level 2 flora survey conducted in May 2012 by GHD, and a follow up spring flora survey by Bennett Environmental Consulting in October 2012 to target the threatened flora species *Caladenia huegelli* and *Diuris purdiei* that were identified as having the potential to occur within the application area (Bennett Environmental Consulting, 2012). A collective total of 133 flora species (79 native and 54 introduced species) were recorded following the completion of both surveys (Bennett Environmental Consulting, 2012; PGV Environmental 2017). There were no conservation significant flora identified during the flora surveys (PGV Environmental, 2017).

The closest priority flora species is '*Aponogeton hexatepalus*' (P4) mapped approximately 800 metres south west of the application area. This species is a rhizomatous or cormous aquatic perennial that flowers between July to October and has a preference for muddy soils associated to freshwater ponds, rivers and claypans (Western Australian Herbarium, 1998-). Noting the habitat requirements for this species, suitable habitat is not likely to be present within the application area.

The application area may provide suitable habitat for the P1 flora species '*Boronia juncea* subsp. *juncea*', which has a preference for sandy soils in low scrub in areas where water is held above ground for substantial periods (Western Australian Herbarium, 1998-; Department of Biodiversity, Conservation and Attractions (DBCA), 2019a). It is noted that the flora survey was undertaken outside of the flowering time (April) for this species (Western Australian Herbarium, 1998-). However, noting that '*Boronia juncea* subsp. *juncea*' is a type of perennial shrub, it is considered this species would have been identified during the flora surveys and if it was present within the application area. Given this, this species is not likely to occur within the application area.

With the exception of the P1 flora species *Acacia lasiocarpa* var. *bracteolata* long peduncle variant (G.J. Keighery 5026), which is considered not likely to occur within the application area due to the preferred soil type for this species, the remaining priority flora species recorded in the local area are all P3 or P4 species. Noting that P3 and P4 species are generally known from

numerous locations and that the flora surveys did not identify priority flora, it is not likely that the proposed clearing will impact upon priority flora (PGV Environmental, 2017).

As discussed under Principle (b), the application area contains foraging habitat for the conservation significant forest red-tailed black-cockatoo (*Calyptorhynchus banksii* subsp. naso), Carnaby's cockatoo (*Calyptorhynchus latirostris*) and Baudin's cockatoo (*Calyptorhynchus baudinii*). The proposed clearing of 0.55 hectares of suitable foraging habitat is not likely to provide significant habitat for these species.

As discussed under Principle (c), the application area may support suitable habitat for three species of threatened flora known to occur within the local area, namely *Caladenia huegelii*, *Diuris purdiei* and *Drakaea elastica*. Noting the spring survey was undertaken at the optimum flowering time to detect these species within the application area, and that no threatened flora were identified during the survey, the proposed clearing is not likely to impact upon threatened flora known to occur within the local area.

As discussed under Principle (d), the vegetation within the application area is not likely to be representative of any threatened ecological communities (TEC) that have been recorded within the local area. Although there are three occurrences of the 'Banksia Woodlands of the Swan Coastal Plain ecological community' mapped within the application area, the vegetation within the application does not meet the key diagnostic requirements to be considered representative of this TEC.

As discussed under Principles (f), (g) and (i), the majority of the application area (approximately 11.14 hectares) is located within the Geomorphic Wetlands Swan Coastal Plain dataset as a multiple-use wetland. A densely vegetated portion of this wetland identified as having 'High value' in the 2017 Wetland Review is located adjacent to the north eastern boundary of the application area (DBCA, 2019b). This area was included in the original application, however, the applicant modified the application area to exclude this portion of the wetland from the application area and included a 20 metre buffer from the wetland. These mitigation measures will minimise the impacts of the proposed clearing to this wetland and the suite of wetlands that surround the application area that are hydrologically connected. The impacts as a result of the proposed clearing to surface water quality and land degradation in the form of water logging will also be minimised as a result of these mitigation measures.

The disturbance caused by the proposed clearing may introduce or spread weeds and dieback into adjacent areas of remnant vegetation. Weed and dieback management practices will assist to minimise this risk.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.

Proposed clearing is not likely to be at variance to this Principle

According to available DBCA datasets, 45 records of conservation significant fauna taxa are found within a 10 kilometre radius of the application area which comprises of 11 threatened fauna species, 18 species protected under international agreement, two specially protected fauna species and 14 priority fauna species (DBCA, 2007-). The majority of these species are waterbird species that are likely to utilise the suite of wetlands that occur in the local area, including the Sandy Lake (conservation category), Spectacles South (conservation category) and Spectacles North (conservation category) wetlands located 40 metres north, 810 metres and 1.5 kilometres north west of the application area respectively. These waterbird species may opportunistically utilise the application area given the majority of the application area is situated within a multiple-use wetland and a drainage line intersects the southern boundary line of the application area. Given that several wetlands occur within the local area, the application area is not likely to provide significant habitat for these species.

A Level 1 fauna survey of the application area was conducted by GHD in 2012, which identified six species of conservation significance listed under the *Biodiversity Conservation Act 2016* (BC Act) within the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* (WC Notice) that may potentially occur at the site including (PGV Environmental, 2017):

- Carnaby's cockatoo;
- forest red-tailed black cockatoo;
- Baudin's cockatoo;
- quenda (*Isoodon fusciventer*);
- Perth slider, Lined skink (*Lerista lineata*); and
- Black-striped snake (*Neelaps calonotos*).

Two species listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) were also identified as potentially occurring within the application area (PGV Environmental, 2017):

- cattle egret (*Ardea ibis*); and
- Rainbow bee-eater (*Merops ornatus*).

A significant habitat tree survey of the application area was undertaken by PGV Environmental in 2017 upon request of the City of Kwinana in accordance with Local Planning Policy No 1. Landscape Feature and Tree Retention (PGV Environmental, 2018). It was noted in the tree survey that a fire event had occurred in the area of Banksia woodland the summer of 2017/2018. This area of Banksia woodland was identified previously in the GHD 2012 survey as being in good to very good (Keighery, 1994) condition (PGV Environmental, 2017). The site inspection undertaken by DWER officers in January 2019 determined that the condition of the 'Banksia woodland' vegetation has regenerated to a good to degraded (Keighery, 1994) condition, with the majority of vegetation in a degraded condition (DWER, 2019a). The patch of 'Banksia woodland' that is located in the north western corner of Lot 9011 is in a degraded (Keighery, 1994) condition (DWER, 2019a).

Carnaby's cockatoo, Baudin's cockatoo and Forest Red-tailed black cockatoo (collectively referred to as black cockatoos within the report) are classified as threatened or likely to become extinct as Endangered fauna under the BC Act within the WC Notice. Under the BC Act, Carnaby's and Baudin's cockatoo are listed as Endangered and the Forest Red-tailed black cockatoo is listed as Vulnerable. Black cockatoos forage on the seeds, nuts and flowers of a large variety of plants including Proteaceous species (*Banksia*, *Hakea*, *Grevillea*), *Eucalyptus*, *Corymbia* species and a range of introduced species (Valentine and Stock, 2008).

As discussed under section 2, one of the five broad vegetation types identified within the application area during previous flora surveys and DWER's site inspection is described as 'Banksia woodland' (DWER, 2019a; PGV Environmental, 2017; Bennett Environmental Consulting, 2012). Noting the 'Banksia woodland' contains a canopy dominated by *Banksia attenuata* and *Banksia menziesii* species, the application area provides suitable habitat for black cockatoo species. The GHD (2012) survey recorded the presence of Baudin's and Forest Red-tailed black cockatoos within the application area (PGV Environmental, 2017).

Following the implementation of avoidance/mitigation measures, the proposed clearing will impact upon approximately 0.55 hectares of suitable foraging habitat for black cockatoo species (DWER, 2019a). Although a small portion of the application area contains suitable foraging habitat, it is not considered to provide significant habitat for black cockatoo species given the absence of nesting trees within the application area, and the presence of large tracts of remnant vegetation associated with the Bush Forever sites that occur in the local area. Bush Forever Site No. 270 known as 'Sandy Lake and adjacent bushland, Anketell' is located approximately 75 metres north of the application area at its closest point.

Black cockatoo's breed in large hollow-bearing trees, generally within woodlands or forests or in isolated trees (Commonwealth of Australia, 2012). These species nest in hollows in live or dead trees of karri, marri, wandoo, tuart, salmon gum, jarrah, flooded gum, York gum, powder bark, bullich and blackbutt (Commonwealth of Australia, 2012). To be suitable as a breeding site, trees require a suitable nest hollow or be of a suitable diameter at breast height (DBH) to develop a nest hollow. For most tree species, a suitable DBH is 500 millimetres (Commonwealth of Australia, 2012). The significant tree survey recorded 38 trees within the survey area whereby the DBH was over 500 millimetres (PGV Environmental, 2018). The site inspection identified one dead hollow bearing tree within the application area (DWER, 2019a). None of the large mature trees identified during the significant tree survey identified hollows that would provide suitable breeding habitat for black cockatoo species (PGV Environmental, 2018). Given this, the application area is not likely to provide significant breeding habitat for black cockatoo species.

The cattle egret is commonly found in tropical and temperate grasslands, wooded lands and terrestrial wetland environments (Department of the Environment and Energy, 2019). The species has a preference for shallow, open and fresh wetlands including meadows and swamps with low emergent vegetation and has been recorded in its highest numbers in moist, low-lying poorly drained pastures with an abundance of high grass (Department of the Environment and Energy, 2019). Given the application area contains a terrestrial wetland habitat and areas of high grass were observed during DWER's site inspection, suitable habitat may occur within the application area. The proposed clearing will not likely impact on the conservation status of this species given several wetland environments occur in close proximity to the application area that could provide suitable habitat in similar or better condition.

On the Swan Coastal Plain, the quenda has a preference for a dense understorey often associated with wetland vegetation (DEC, 2012). Noting the majority of the application area is mapped within a multiple-use wetland and contains small portions of dense wetland vegetation, suitable habitat for this species occurs within the application area. However, the application area would not likely provide significant habitat noting the presence of wetland vegetation located in close proximity to the application area that is likely to be in similar or better condition.

Although suitable habitat for the rainbow bee-eater occurs within the application area, the proposed clearing will not likely impact on the conservation status of this species given they are a highly mobile avian species. The remnant of 'Banksia woodland' within the application area is likely to provide suitable habitat for the Perth slider and Black-striped snake. Following the implementation of avoidance/mitigation measures, suitable habitat for these species has largely been avoided, and the proposed clearing would will not likely impact on the conservation status of these species.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.

Proposed clearing is not likely to be at variance to this Principle

A search of the DBCA threatened flora database revealed that six threatened flora species have been recorded in the local area, being; *Caladenia huegelii*, *Diuris micrantha*, *Diuris purdiei*, *Drakaea elastica*, *Drakaea micrantha* and *Synaphea* sp. Serpentine (G. R. Brand 103). Noting the habitat requirements of the threatened flora species recorded in the local area, the application area may support suitable habitat for three of the six species, including *Caladenia huegelii*, *Diuris purdiei* and *Drakaea elastica*.

Caladenia huegelii occurs in areas of mixed woodland of jarrah (*Eucalyptus marginata*), candlestick banksia (*Banksia attenuata*), holly banksia (*B. ilicifolia*) and firewood banksia (*B. menziesii*) with scattered sheoak (*Allocasuarina fraseriana*) and marri (*Corymbia calophylla*) over dense shrubs of blueboy (*Stirlingia latifolia*), swan river myrtle (*Hypocalymma robustum*), yellow buttercups (*Hibbertia hypericoides*), buttercups (*H. subvaginata*), balga (*Xanthorrhoea preissii*), coastal jugflower (*Adenanthos cuneatus*) and *Conostylis* species (DEC, 2009). Throughout its range, the species tends to favour areas of dense undergrowth. Soil is usually deep grey-white sand usually associated with the Bassendean sand-dune system (DEC, 2009). Noting the 'Banksia woodland' vegetation type and grey sandy soils described under Section 2 'Site Information', suitable habitat for this species may occur within the application area.

Diuris purdiei is a tuberous perennial herb that flowers between September to October and occurs within moist, grey-black sands associated with winter-wet swamps (Western Australian Herbarium, 1998-). Noting the majority of the application area occurs within a mapped multiple-use wetland, the application area may provide suitable habitat for this species.

A Level 2 flora survey was undertaken by GHD in May 2012 which identified that the threatened flora species *Caladenia huegelli* and *Diuris purdiei* have the potential to occur within the application area (Bennett Environmental Consulting, 2012). An additional targeted flora survey was undertaken during their respective optimal flowering time (September to October for both species) (Bennett Environmental Consulting, 2012). The survey did not identify the presence of either species within the application area, or any other threatened flora species that have been recorded within the local area.

Drakaea elastica is a gloss-leaved orchid that flowers between October to November, and has a preference for white or grey sands in low lying situations adjoining winter-wet swamps (Western Australian Herbarium, 1998-). Noting the presence of wetlands and grey sandy soils within the application area, the application area has the potential to support this species. While this species was not targeted during the spring flora survey of the application area in 2012, the survey was undertaken at the optimum flowering time for this species. Therefore, if the species was present within the application area, it is likely to have been identified during the flora survey. Given this, the proposed clearing is not likely to impact on the conservation status of this species.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Proposed clearing is not likely to be at variance to this Principle

A portion of the application area (being 1.14 hectares of the application area) has been mapped by the Commonwealth Department of the Environment and Energy (DotEE) within three occurrences of the 'Banksia Woodlands of the Swan Coastal Plain ecological community', listed as Endangered under the EPBC Act. The mapping of the Banksia Woodland TEC is based on the Commonwealth's 'likely to occur' areas and incorporates broad-scale mapping of areas most likely to contain the TEC. The approved conservation advice for this community states that "Ground-truthing (e.g. an on-ground survey) is required to verify if a particular site meets the required key diagnostic characteristics and minimum condition thresholds to be the described ecological community" (Threatened Species Scientific Committee, 2016).

The canopy of the ecological community is most commonly dominated or co-dominated by *Banksia attenuata* and/or *Banksia menziesii* (Threatened Species Scientific Committee (TSSC), 2016). If present, the emergent tree layer often includes *Corymbia calophylla*, *Eucalyptus marginata*, or *Eucalyptus gomphocephala*. Other trees that may be present include *Eucalyptus totiana*, *Nuytsia floribunda*, *Allocasuarina fraseriana*, *Callitris arenaria*, *Callitris pyramidalis* and *Xylomelum occidentale* (TSSC, 2016). The understorey of the community typically contains a high to very high diversity of sclerophyllous shrub and herb species that often vary from patch to patch (TSSC, 2016). The Approved Conservation Advice for the TEC states that the patch of vegetation must meet the minimum patch size and condition thresholds criteria to be representative of the TEC. The approved advice states that a single patch of the TEC must be in at least a good (Keighery, 1994) condition to meet the condition threshold requirements of the TEC. The minimum patch size for a patch considered to be in a good (Keighery, 1994) condition is two hectares (TSSC, 2016).

As discussed under Section 2 'Site Information', five vegetation types were identified within the application area, one of which was described as 'Banksia woodland' (DWER, 2019a; PGV Environmental, 2017; Bennett Environmental Consulting, 2012). The site inspection and flora surveys confirmed that the vegetation within one of the three mapped occurrences of the TEC was representative of a 'Banksia woodland' vegetation type (being approximately 0.234 hectares of the 1.14 hectares mapped TEC). As discussed under Principles (a) and (b), the site inspection undertaken by DWER officers in January 2019 determined that Banksia woodland vegetation type is considered to be in a good to degraded (Keighery, 1994) condition, with the majority of the vegetation in a degraded (Keighery, 1994) condition.

The Banksia woodland does contain a canopy dominated by *Banksia attenuata* and *Banksia menziesii* species which is a key diagnostic characteristic of the TEC (DWER, 2019a). However, the majority of the understorey vegetation lacks density and species diversity and contains a high density of perennial grassy weeds (DWER, 2019a). This was confirmed through a site inspection and review of the species list in the spring flora survey, which determined that the key indicator species of the TEC that occur in the scrub and groundcover layers had not returned following the fire event that occurred in the summer of 2017/2018. Noting the vegetation within the application area is inconsistent with the key diagnostic characteristics, condition and minimum threshold size requirements of the TEC, the application area is considered not likely to be representative of this TEC.

The vegetation that was observed within the two other mapped occurrences were representative of a 'Mixed Myrtaceous closed shrubland' and '*Melaleuca raphiophylla* and *Eucalyptus rudis* woodland', and are therefore not consistent with the key diagnostic characteristics of the TEC.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Proposed clearing is not likely to be at variance to this Principle

The local area (10 kilometre radius surrounding the application area) retains approximately 25.9 per cent (8,784.57 hectares) native vegetation cover.

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). In the Perth Metropolitan and Bunbury regions, the Environmental Protection Authority (EPA) has a modified objective to retain at least 10 per cent of the pre-clearing extent of

vegetation complexes for defined constrained areas (intensely developed) (EPA, 2008). Noting that the application area is located within the mapped extent of the Perth Metropolitan Region Scheme, the 10 per cent threshold applies in this instance.

As indicated in Table 1, the remaining extents of native vegetation within the bioregion and mapped vegetation complexes are above the minimum 10 per cent representation threshold for a constrained area.

Noting that the application area occurs within a constrained area, that the local area and mapped vegetation complexes retain above the recommended threshold and the largely degraded to completely degraded (Keighery, 1994) condition of the vegetation proposed to be cleared, the application area is not likely to be considered significant as a remnant of native vegetation in an area that has been extensively cleared.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

Table 1: Vegetation extents

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Current Extent in all DBCA managed lands (ha)	Extent remaining in all DBCA managed lands (proportion of Pre-European extent) (%)
IBRA Bioregion*					
Swan Coastal Plain	1,501,221.9	578,997.4	38.6	222,766.5	14.8
Swan Coastal Plain Complex**					
Bassendean Complex – Central and South	87,476.3	23,533.1	26.9	4,363.69	5

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Proposed clearing is at variance to this Principle

According to available databases, approximately 11.14 hectares of the application area is mapped within the Geomorphic Wetlands Swan Coastal Plain dataset as a multiple-use wetland with the Unique Feature Identifier (UFI) 6669. UFI 6669 is characterised as a sump land identified in the Geomorphic Wetlands Swan Coastal Plain dataset as Jandakot consanguineous suite with approximately 21 per cent remaining as having conservation management category (DBCA, 2019b). As demonstrated in Figure 3, the application area forms part of this consanguineous suite of wetlands and the Perth Regional Ecological Linkage has corridors located to the north through the conservation category wetlands and the south of the application area.

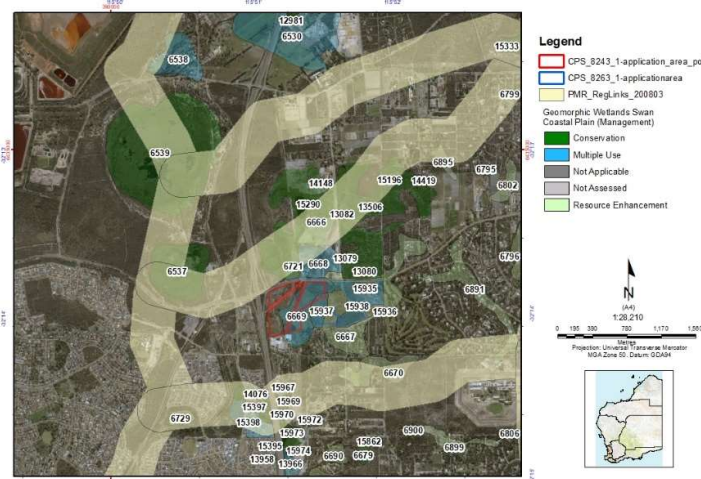


Figure 3: Application area (CPS 8243/1) showing suite of wetlands and regional ecological linkages (DBCA, 2019b)

The wetland system is hydrologically connected through agricultural drainage in the area which connects the system to the extensive sumpland and dampland systems to the north of the application which drains in the Peel Main Drain located 606 metres downstream and the Serpentine River system. The proposed clearing and associated land development therefore has the potential to alter this hydrological system via impacts to waterways through increased sedimentation, weed encroachment and increased nutrients (DBCA, 2019b).

Multiple use category wetlands are wetlands with few important ecological attributes and functions remaining. Use, development and management should be considered in the context of ecologically sustainable development and best management practice catchment planning through landcare (Water and Rivers Commission, 2001).

Although mapping indicates that UFI 6669 is of multiple-use category, DBCA advised that the portion of the densely vegetated wetland as shown in green in Figure 4, is likely to commensurate with conservation category (DBCA, 2019b). The 2017 Wetland Review assessed this portion as being of 'High Value' with a Multi Criterion Evaluation (MCE) percentage of 53 per cent, valued for its habitat, vegetation composition and hydrological connectivity (DBCA, 2019b). This score supports the acknowledgement that this portion of UFI 6669 may be consistent with a higher category wetland due to its significant conservation values (DBCA, 2019b).



Figure 4: 2017 Wetland Mapping Review (DBCA, 2019b)

The area highlighted in green in Figure 4 was originally included within the application area, however as demonstrated in Figure 1 of this report, the applicant has implemented mitigation/avoidance measures and modified the application area to exclude the densely vegetated portion of wetland UFI 6669 considered to be of high conservation value. A suitable buffer of approximately 20 metres has also been implemented to ensure the proposed clearing does not impact upon the environmental values of this wetland as a result of weed encroachment.

Although the densely vegetated portion of wetland UFI 6669 has been retained, 11.14 hectares of vegetation associated to the multiple-use wetland will still be impacted as a result of the proposed clearing. However, noting the majority of the wetland vegetation within the application area is 'Parkland cleared' vegetation that is of a degraded to completely degraded (Keighery, 1994) condition, and given the most densely vegetated portion of wetland UFI 6669 is being retained, the proposed clearing is not likely to significantly impact upon vegetation growing in association with this wetland.

Given the above, the proposed clearing is at variance to this Principle.

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Proposed clearing may be at variance to this Principle

As described under section 2, the application area is situated within three mapped soil types, being the Bassendean B1 Phase subsystem, Bassendean B3 Phase subsystem and Bassendean B6 Phase subsystems. The Bassendean B3 Phase subsystem is the most prevalent soil type within the application area, with approximately 54 per cent of the application area mapped within this soil unit. All three of the mapped soil units are sandy soil types, which are highly susceptible to wind erosion. This was evident during the site inspection, where wind erosion was observed within the 'Parkland cleared' areas (DWER, 2019a).

Noting the extent of the application area and the sandy soil types within the application area, there is a risk of wind erosion causing land degradation, should the surface soils within the application area be exposed for a prolonged period post clearing. To minimise the risk of wind erosion, the applicant will be required to undertake construction activities within two months of the date of clearing. This will prevent the prolonged exposure of bare sandy soils.

Based on the mapped land degradation risk outlined in Table 2, the application area has a low likelihood of water erosion as a result of the proposed clearing, given the presence of highly permeable sandy soils which typically have high infiltration rates. The portion of the application area mapped as Bassendean 3 Phase has a moderate likelihood of water erosion which is likely to be associated to the sandy loamy soils typical of this soil unit.

Table 2: Land Degradation Risk Categories for mapped soil subsystems

Land Degradation Risk Category	Bassendean B1 Phase	Bassendean B3 Phase	Bassendean B6 Phase
Wind erosion	>70% of map unit has a high to extreme wind erosion risk	3-10% of map unit has a high to extreme wind erosion risk	>70% of map unit has a high to extreme wind erosion risk
Water erosion	3-10% of map unit has a high to extreme water erosion risk	30-50% of map unit has a high to extreme water erosion risk	<3% of map unit has a high to extreme water erosion risk
Salinity	30-50% of map unit has a moderate to high salinity risk or is presently saline	30-50% of map unit has a moderate to high salinity risk or is presently saline	30-50% of map unit has a moderate to high salinity risk or is presently saline
Subsurface Acidification	<3% of map unit has a high subsurface acidification risk or is presently acid	<3% of map unit has a high subsurface acidification risk or is presently acid	10-30% of map unit has a high subsurface acidification risk or is presently acid
Flood risk	<3% of the map unit has a moderate to high flood risk	30-50% of the map unit has a moderate to high flood risk	<3% of the map unit has a moderate to high flood risk
Water logging	3-10% of map unit has a moderate to very high waterlogging risk	>70% of map unit has a moderate to very high waterlogging risk	10-30% of map unit has a moderate to very high waterlogging risk
Phosphorus export risk	>70% of map unit has a high to extreme phosphorus export risk	>70% of map unit has a high to extreme phosphorus export risk	>70% of map unit has a high to extreme phosphorus export risk

Waterlogging for the Bassendean 3 Phase is mapped at 70 per cent of the map unit having a high to extreme risk of waterlogging which is likely to be associated to the multiple-use wetland where areas that are lower in the landscape are subject to inundation. The proposed clearing may pose an increased risk of waterlogging in these areas post-clearing. Noting a large extent of the application area is 'Parkland cleared' vegetation and the highly permeable sandy soils that occur within the application area, it is not likely the proposed clearing will result in appreciable land degradation in the form of water logging.

Given the above, the proposed clearing may be at variance to this Principle.

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Proposed clearing is not likely to be at variance to this Principle

Large tracts of Bush Forever sites surround the application area, with the closest conservation area being Bush Forever Site No. 270 known as 'Sandy Lake and adjacent bushland, Anketell' located approximately 75 metres north west of the application area at its closest point. Some of these Bush Forever sites are also DBCA managed lands.

While the application area is within close proximity to Bush Forever Site No. 270, noting that the application area is separated from this conservation area by a major road, it is not likely the proposed clearing will impact upon the environmental values of this conservation area. Noting this, the distance to the other Bush Forever Sites in the local area which are separated by residential development and strips of native vegetation, the application area is not likely to be supporting a significant ecological linkage.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Proposed clearing may be at variance to this Principle

As discussed under Principle (f), approximately 11.14 hectares of the application area is mapped within the Geomorphic Wetlands Swan Coastal Plain dataset as a multiple-use wetland with the Unique Feature Identifier (UFI) 6669. A site inspection of the application area confirmed the presence of the mapped wetland (DWER, 2019).

Noting the application area comprises a large portion of UFI 6669's total mapped occurrence and that the wetland system is hydrologically connected to a suite of wetlands surrounding the application area, the proposed clearing may increase sedimentation into the wetland, thus potentially degrading the quality of surface water. However, noting the retention of the densely vegetation portion of wetland UFI 6669 located adjacent to the application area, the sandy soil types within the application area, and that the majority of the vegetation associated to wetland UFI 6669 is 'Parkland cleared' vegetation in a degraded to completely degraded (Keighery, 1994) condition, the potential impacts to surface water quality through increased sedimentation are not likely to be significant. Given this, the proposed clearing is not likely to significantly alter the hydrology of surrounding wetlands. To minimise the risk of the deterioration in the quality of surface water quality, the applicant will be required to undertake construction activities within two months of the date of clearing.

Mapped groundwater salinity within the application area is low (500 to 1000 milligrams per litre total dissolved solids). This level of groundwater salinity is classified as 'fresh'. Given this, the proposed clearing is unlikely to cause deterioration in the quality of surface and/or underground water via increased salinity.

Given the above, the proposed clearing may be at variance to this Principle.

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Proposed clearing is not likely to be at variance to this Principle

Noting the moderate rainfall experienced by the region (900 millimetres per annum), the well-drained sandy soils of the majority of the application area and the largely degraded (Keighery, 1994) condition of the vegetation within the application area, the proposed clearing is not likely to cause, or exacerbate, the incidence or intensity of flooding.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

Planning instruments and other relevant matters.

On 7 February 2019, the applicant was granted planning approval by the City of Kwinana for the purpose of 'bulk earthworks' (Aigle Royal Group Pty Ltd, 2019). It was noted that the purpose of clearing stated on the clearing permit application was for 'facilitating commercial development for bulky goods showrooms', not for 'bulk earthworks' as per the planning approval. On 18 April 2019, the applicant amended the purpose of the clearing for the clearing permit application to bulk earthworks to align with the purpose noted on the planning approval.

Upon review of the approved plan associated with the granted planning approval, it is noted the boundary that shows the extent of clearing contains an un-named road reserve (PIN 1353079) and Lot 1372 on Diagram 79285, Casuarina, which are properties vested with the City of Kwinana and Water Corporation respectively. The applicant does not have authority to access or clear within these land parcels. The applicant advised that they are aware of this matter, and did not request to include these land parcels with the clearing permit application.

It is also noted that the planning approval includes the area of wetland that DBCA identified as being of 'High Value' as discussed under Principle (f) and (i). It is noted that following the modification of the application area by the applicant as shown in Figure 1 of this report, that this area has been excluded from the approved clearing area.

The application area lies within the Serpentine Jandakot Groundwater Area, Mound 1 subarea, which is a proclaimed groundwater area under the *Rights in Water and Irrigation Act 1914* (RIWI Act). DWER's Kwinana – Peel – Land Use Planning Region advised that if the proposed clearing activity requires the use of ground water (i.e. for dust suppression), a 'Licence to take water' will be required (DWER, 2019b). The applicant has submitted an application for dust suppression and public open space irrigation, however a decision on the application has not yet been determined (DWER, 2019b, DWER 2019c). The Department notes that adequate groundwater for the applicant is currently available (DWER, 2019b). The applicant is required to contact DWER's Kwinana – Peel – Land Use Planning Region to determine the status of the application and ensure a 'Licence to take water' is obtained prior to clearing commencing.

The project was referred to the Commonwealth Department of the Environment and Energy (DotEE) in 2016 to determine whether the proposed action of developing the site is considered to be a controlled action. On 4 April 2016, a decision was made by the DoEE that the proposed clearing is not a controlled action under the EPBC Act (PGV Environmental, 2017).

No Aboriginal sites of significance have been mapped within the application area.

The clearing permit application was advertised on the DWER website on 6 December 2018 with a 21 day submission period. No public submissions have been received in relation to this application.

5. Applicant's Submissions

On 21 February 2019, DWER wrote to the applicant inviting them to address the impacts identified in the preliminary assessment of the application as outlined under Section 3.

On 12 April 2019, the applicant requested to modify the application area to exclude the area of 'Banksia woodland' and the densely vegetated portion of wetland UFI 6669 that is recognised as being of 'high value'. This amendment reduced the extent of clearing native vegetation from 15 hectares to 8.9 hectares and addressed the matters raised in the preliminary assessment. The impacts to foraging habitat for black cockatoo species are now considered to be minimal. The potential impacts of land degradation in the form of wind erosion resulting in the degradation of surface water quality will be managed through the implementation of a condition on the clearing permit requiring the applicant to undertake works two months following the cessation of clearing.

6. Consideration of variances following applicants submission / further information

Following the applicant's mitigation and avoidance measures, the variances of clearing principles (b) and (i) were amended from being 'at variance' to 'not likely' and 'may be at variance' respectively, as impacts as a result of the proposed clearing are not likely to be significant.

7. References

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- Department of Biodiversity, Conservation and Attractions (DBCA) (2019b) Species and Communities wetlands advice received in relation to clearing permit application CPS 8243/1, received 5 February 2019, Department of Biodiversity, Conservation and Attractions, Western Australia (DWER Ref: A1763530).
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- Department of Water and Environmental Regulation (DWER) (2019a) Site Inspection Report for Clearing Permit Application CPS 8243/1. Site inspection undertaken 16 January 2019. Department of Environment Regulation, Western Australia (DWER Ref A1765860).
- Department of Water and Environmental Regulation (DWER) (2019b) Department of Water and Environmental Regulation Land-use planning/water licencing advice received from DWER Kwinana-Peel Region for clearing permit application CPS 8243/1, received 19 December 2018, Department of Water and Environmental Regulation, Western Australia (DWER Ref: A1765402).
- Department of Water and Environmental Regulation (DWER) (2019c) Department of Water and Environmental Regulation Land-use planning/water licencing advice received from DWER Kwinana-Peel Region for clearing permit application CPS 8243/1, received 24 April 2019, Department of Water and Environmental Regulation, Western Australia (DWER Ref: A1783634).
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GIS Databases:

- Aboriginal Sites of Significance
- Department of Biodiversity, Conservation and Attractions, Tenure
- Hydrography, COG Hydro
- Hydrography, General Hydro
- Hydrography, SLIP Hydro
- Hydrography, Waterbodies
- Hydrography, Wetlands
- SAC bio datasets
- TPFL Data December 2018
- WAHerb Data December 2018
- WA TEC PEC Boundaries