



## CLEARING PERMIT

*Granted under section 51E of the Environmental Protection Act 1986*

<b>Purpose Permit number:</b>	CPS 8589/1
<b>Permit Holder:</b>	Shire of Kondidin
<b>Duration of Permit:</b>	18 April 2020 to 18 April 2025

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

### PART I – CLEARING AUTHORISED

**1. Purpose for which clearing may be done**

Clearing is for the purpose of gravel extraction.

**2. Land on which clearing is to be done**

Lot 303 on Plan 70760, Forrestania  
Lot 331 on Plan 191193, Forrestania  
Unallocated Crown Land, Norseman

**3. Area of Clearing**

The Permit Holder must not clear more than 2.56 hectares within the areas cross-hatched yellow on attached Plan 8589/1 (a) and no more than 0.78 hectares within the areas cross-hatched yellow on attached Plan 8589/1 (b).

**4. Application**

This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

**5. Period of which clearing is authorised**

The Permit Holder must not clear any native vegetation after 24 April 2025.

**6. Type of clearing authorised**

This Permit authorises the Permit Holder to clear native vegetation for the activities described in condition 1 of this Permit to the extent that the Permit Holder has the power to carry out works involving clearing for those activities under the *Local Government Act 1995* or any other written law.

### PART II – MANAGEMENT CONDITIONS

**7. 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:

- avoid the clearing of native vegetation;
- minimise the amount of native vegetation to be cleared; and
- reduce the impact of clearing on any environmental value.

## 8. Flora Management

Prior to undertaking any clearing authorised under this Permit, the Permit Holder shall:

- (a) engage a *botanist* to demarcate all *priority flora* individuals and a 20 meter buffer, located within the area hatched yellow on Plan 8589/1 (a); and
- (b) ensure that no clearing of *priority flora* occurs.

## 9. Revegetation

Within 12 months of the commencement of clearing, the Permit Holder must implement and adhere to the 'Gravel Pit Revegetation Plan Hyden-Norseman Road, Forrestania (Gravel Pits @ 55.8SLK and 74.95SLK)' dated June 2019, including but not limited to the following actions:

- a) Retain the vegetative material and topsoil removed by clearing authorised under this permit and stockpile the material and topsoil in an area that has already been cleared;
- b) Commence *revegetation* and *rehabilitation* of the area cross-hatched red on the attached Plans CPS 8589/1 (a) and CPS 8589/1 (b) by:
  - i. laying the vegetative material and topsoil retained under condition 9(a)
  - ii. deliberately *planting* native vegetation that will result in similar species composition, structure and density of native vegetation to the vegetation surrounding the Gravel Pits at 55.8SLK and 74.95SLK; and
  - iii. ensuring only *local provenance* seeds and propagating material are used to *revegetate* and *rehabilitate* the area.
- c) establishing four 10 x 10 metre quadrat monitoring sites within the rehabilitated areas;
- d) fencing the rehabilitated areas;
- e) water planted vegetation between November and March during first year following planning;
- f) implement hygiene protocols by cleaning earth-moving machinery of soil and vegetation prior to entering and leaving the site;
- g) undertake weed control activities annually;
- h) achieve the following completion criteria after the five year monitoring period for areas revegetated and rehabilitated under this Permit:

Criterion	Aspect	Baseline floristic data (Table 6)	Five year completion targets	Five year completion criteria	Comments
A	Species Richness	Total species richness • 21 species	Minimum Project Area species richness is 40% of total species richness, or 60% of commercially viable available species.	A minimum of 9 species occurring within the Project Area.	A species richness target of 60% of commercially available species is considered achievable.
B	Species Density	Plant density • 5000 p/ha per species	Minimum plant density (p/ha) is 50 % of baseline data.	A minimum of 2500 native plant stems established per hectare. 1900 stems for 0.76 ha	A 50% target is considered achievable. The low rainfall combined with long hot summers make the success of planted seedlings hard to predict. The sites isolation makes watering of seedlings impractical.
C (i)	Weed Cover	Percentage cover environmental weeds both minor and major competitive species • <1%	Total combined weed cover should not exceed 10% baseline data.	The revegetation site should have no more than 10% cover of either minor and major environmental weeds	It is possible that there will be some colonisation of the site by environmental weeds following site works due to the high level of disturbance. The 10% cover target is applied to this criterion as it may be hard to guarantee complete control of all weeds, especially if they cannot be controlled by selective herbicides.

C (ii)	Weed Cover	Declared Pest Plants • Nil	Total number of Declared Pest plants should not exceed baseline data.	No Declared Pest plants recorded across the Project Area.	A list of Declared Pest plants in the Shire of Kondinin is available on the Department of Primary Industries and Regional Development website.
D	Survival rate to be achieved	If after planting a survival rate of at least 50 per cent is not achieved, infill planting must occur.	The <i>rehabilitation</i> area needs to ensure a survival rate of at least 50 per cent of the density planted is achieved after five years.	The number of surviving plants in the <i>revegetation</i> areas will be monitored annually during spring for five years.	Lack of survival may be due to a number of reasons i.e. weed invasion, lack of water, poor planting methods etc.
E	Vegetation structure	Vegetation at the site to be broadly representative of the pre-clearing vegetation unit represented.	Structure of the rehabilitation area to consist of a of five species occurring within the project area.	Structure to be assessed annually during spring for five years.	Refer to decision report, Section 2, for a detailed description of the vegetation units at each clearing area.

- i) undertake remedial actions for area *revegetated* and *rehabilitated* where monitoring indicated that revegetation has not met the completion criteria, outlined in 9(h); including
  - i. revegetate the area by deliberately *planting* native vegetation that will result in the minimum target in 9(h) and ensuring only *local provenance* seeds and propagating material are used; and
  - ii. undertake further weed control activities; and
- j) monitoring is to be undertaken by an *environmental specialist*.

## 10. 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*:

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

## **PART III – RECORD KEEPING AND REPORTING**

### 11. Record keeping

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(s) 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 7 of this Permit;
- e) actions in accordance with condition 8;
- f) rehabilitation activities undertaken in accordance with condition 9 of this Permit and
- g) actions taken to minimise the risk of the introduction and spread of weeds and dieback in accordance with Condition 10 of this Permit.

## 12. Reporting

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

- a) The Permit Holder must provide to the CEO, on or before 31 December of each calendar year, a report containing:
  - i. The records required to be kept under condition 10; and
  - ii. Records of activities done by the Permit Holder under this Permit between 1 July of the preceding calendar year and 30 June of the current calendar year.
- b) If no clearing authorised under this permit has been undertaken, a written report confirming that no clearing under this Permit has been undertaken, must be provided to the CEO on or before 31 December of each calendar year.
- c) The Permit Holder must provide to the CEO, no later than 90 calendar days prior to expiry date of the Permit, a written report of records required under condition 10, where these records have not already been provided under condition 11(a).

## DEFINITIONS

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

**botanist** means a person who holds a tertiary qualification in environmental science or equivalent, and has a minimum of 2 years work experience in identification and surveys of flora native to the bioregion being inspected or surveyed, or who is approved by the CEO as a suitable botanist for the bioregion;

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

**environmental specialist**: means a person who holds a tertiary qualification in environmental science or equivalent, and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit, or who is approved by the CEO as a suitable environmental specialist;

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

**local provenance** means native vegetation seeds and propagating material from natural sources within 10 and 50 kilometres and the same Interim Biogeographic Regionalisation for Australia (IBRA) subregion of the area cleared;

**mulch** means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

**optimal time** means the period from May to June for undertaking *planting*;

**planting** means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species;

**priority flora** means those plant taxa described as priority flora classes 1, 2, 3 or 4 listed under the *Wildlife Conservation (Rare Flora) Notice 2018* and *Biodiversity Conservation Act 2016*;

**rehabilitate, rehabilitated, rehabilitation** means actively managing an area containing native vegetation in order to improve the ecological function of that area;

**revegetate, revegetated and revegetation** means the re-establishment of a cover of native vegetation in an area such that the species composition, structure, density and *condition* is similar to pre-clearing vegetation types in that area, and can involve regeneration, direct seeding and/or planting;

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



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Samara Rogers  
MANAGER  
NATIVE VEGETATION REGULATION

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

27 March 2020



# Plan 8589/1 (a)

119°46'59"

119°47'2"



119°46'59"

119°47'2"

119°47'6"

## Legend

-  CPS areas approved to clear
-  Local Government Authorities
-  Cadastre - LGATE 218
-  Localities - Landgate



0 25 50 75 100 m



MGA 94  
Geocentric Datum of Australia 1994

**Samara Rogers**

**2020.03.27**

**15:19:05 +08'00'**

Officer delegated under section 20 of the  
Environmental Protection Act 1986



**GOVERNMENT OF  
WESTERN AUSTRALIA**



# Plan 8589/1 (b)

119°58'34"

119°58'37"

119°58'41"

LOT 329 ON DEPOSITED PLAN 70762

FORRESTANIA

Unallocated Crown Land

KONDININ, SHIRE OF

-32°21'4"

-32°21'4"

119°58'37"

119°58'41"

## Legend

-  CPS areas approved to clear
-  Local Government Authorities
-  Cadastre - LGATE 218
-  Localities - Landgate



0 10 20 30 40 m



MGA 94  
Geocentric Datum of Australia 1994

**Samara Rogers**  
2020.03.27

15:20:24 +08'00'

Officer delegated under section 20 of the  
Environmental Protection Act 1986



**GOVERNMENT OF  
WESTERN AUSTRALIA**



# Clearing Permit Decision Report

## 1. Application details

### Permit application details

Permit application No.: 8589/1  
Permit type: Purpose Permit

### Applicant details

Applicant's name: Shire of Kondinin  
Application received date: 28 June 2019

### Property details

Property: Lot 303 on Plan 70760, Forrestania  
Lot 331 on Plan 191193, Forrestania  
Unallocated Crown Land, Norseman

Local Government Authority: Shire of Kondinin  
Localities: Forrestania, Norseman

### Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
3.35		Mechanical Removal	Gravel Extraction

### Decision on application

Decision on Permit Application: Grant  
Decision Date: 27 March 2020  
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*. It has been concluded that the proposed clearing may be at variance with Principle (a) and not likely to be at variance with any of the remaining clearing principles.

During the assessment process the applicant agreed to remove Kings Rock Road (Application Area 1) from the application area to avoid the significant environmental impacts associated with the original application.

Through the assessment it was identified that given the historical presence of Priority 3 flora species *Baeckea sp. Crossroads* and the spatial limits of the survey provided, the potential impacts to nearby individuals can be managed through flora management conditions imposed on the permit. This will act to ensure no individuals are cleared and a 20 metre buffer is established around any recorded individuals.

The Delegated Officer determined that the proposed clearing is not likely to lead to any unacceptable risk to the environment.

## 2. Site Information

### Clearing Description

The application is to clear 3.35 hectares of native vegetation within Unallocated Crown Land, Norseman and Unallocated Crown Land and Road Reserve (PIN 11636289), Hyden for the purposes of gravel extraction.

### Vegetation Description

The vegetation within the application areas are mapped as the following Beard Vegetation Associations (Shepherd et al, 2001):

#### Hyden-Norseman 2.85SLK (Application Area 2)

- 511: Medium woodland; salmon gum & morrel

#### Hyden Norseman 55.8 SLK (Application Area 3)

- 519: Shrublands; mallee scrub, *Eucalyptus eremophila*

The following vegetation types were recorded within the application area based on reconnaissance flora surveys commissioned by the applicant (Ecoedge, 2019a; 2019b):

#### Application Area 2

Mallee Woodland - Low woodland to open woodland of *Eucalyptus calycogona* subsp. *calycogona* or *E. tephroclada* over *Acacia erinacea*, *A. mackeyana*, *A. merrallii*, *Cryptandra* spp., *Melaleuca* spp. and *Thryptomene kochii* on yellow sandy loam.



Shrubland - Shrubland/open shrubland including *Acacia assimilis* subsp. *assimilis*, *Allocasuarina spinosissima*, *Hakea erecta*, *H. francisiana*, *Melaleuca* spp., *Phebalium tuberosum* and *Thryptomene kochii* on yellow sandy loam over gravel.

#### Application Area 3

One vegetation unit was recognised in the survey area, comprising shrubland with scattered emergent small trees, that include *Allocasuarina spinosissima*, *Eucalyptus olivina*, *Callitris preissii*, *Grevillea excelsior* and *Hakea francisiana* with the shrub layer dominated by species such as *Acacia assimilis* subsp. *assimilis*, *Melaleuca cordata* and *Thryptomene kochii*. Of the 0.78 hectares of survey area, 0.76 ha comprised this vegetation unit, with the remainder being devoid of native vegetation. The remainder of the area comprises cleared land.

#### Vegetation Condition

The following vegetation conditions were recorded within the application areas based on the reconnaissance flora surveys commissioned by the applicant:

#### Application Area 2

The majority of the site was classified as very good condition, as shown in table 1 below. A small area of the survey was classified a degraded condition.

Veg Condition	Area	%
Very Good	2.51	97.3
Cleared	0.07	2.7
Total	2.58	100.0

Table 1. Area 2 Veg condition

#### Application Area 3

The majority of the site was classified as excellent condition, shown in Table 2 below. A small section of the survey area contained no vegetation as was classified as cleared.

Veg Condition	Area	%
Excellent	0.76	97.4
Cleared	0.02	2.6
Total	0.78	100.0

Table 2. Area 3 Veg condition

#### Soil and Landform Type:

The application areas are mapped as the following soil types (DPIRD, 2017):

#### Application Area 2

266DD10: Plains with some clay pans and small salt lakes, dunes, and lunettes; and

#### Application Area 3

266AC1: Gently sloping to gently undulating plateau areas, or uplands, on granites, gneisses, and allied rocks, with long gentle slopes and, in places, abrupt erosional scarps.

#### Comments:

The local area referred to in the assessment of this application is defined as a 10 kilometre radius measured from the perimeter of the application area. The local area for **Application Area 2** and **Area 3** contains approximately 99 % and 99.7 % native vegetation cover respectively.

### 3. Avoidance and minimisation measures

The original application was proposing to clear 4.16 hectares of native vegetation within Lot 4257 on Lot 331 on Plan 191193, Lot 303 on Plan 70760, Forrestania, King Rocks road West road reserve (PIN 11636289), Hyden, and Unallocated Crown Land (PINs 641361 and 1031111), Hyden and Norseman for the purpose of gravel extraction.

The Shire of Kondinin (applicant) has advised it's sought gravel from alternative sources, including farm based gravel pits, and determined that the proposed clearing to extend existing gravel pits is the best of the available limited options (Ecoedge, 2019e; Ecoedge 2019f). With regard to the gravel pit extensions associated with Application Areas 2 and 3, the applicant advised that much of the potential sources of gravel in the vicinity of the Hyden-Norseman Road is the subject of mine tenements which limits alternative options for the supply of gravel (Ecoedge 2019e; Ecoedge 2019f). The applicant advised that the nearest farm based gravel pit is approximately 50 kilometres away and was not considered economically feasible (Ecoedge, 2019e; Ecoedge, 2019f)

The applicant has proposed to mitigate the impacts of the proposed clearing via revegetation of the future gravel pits following the extraction activities. The applicant has advised the revegetation activities will mitigate the environmental impacts of clearing due to the following:

- the revegetation activities mean that the proposed clearing will not result in a permanent loss of vegetation at site and that there will be no net loss of vegetated areas; and

- the revegetated area will restore the overall functioning of the ecological linkage / corridor for the migration of fauna and flora; and
- revegetation processes will mitigate potential impacts to infiltration and drainage caused by extraction activities. The exposed layer will be ripped and covered with overburden, top soil and mulch. This will slow water flow and facilitate localised water infiltration; and
- restored vegetation and proposed weed control activities will impede potential recolonisation of cleared areas by weeds (Ecoedge, 2019h).

The applicant has provided an overview of the revegetation approaches and a revegetation plan specifying completion criteria.

#### 4. Applicant Submissions

The original application was proposing to clear 4.16 hectares of native vegetation within Lot 4257 on Lot 331 on Plan 191193, Lot 303 on Plan 70760, Forrestania, King Rocks road West road reserve (PIN 11636289), Hyden, and Unallocated Crown Land (PINs 641361 and 1031111), Hyden and Norseman for the purpose of gravel extraction. This included Application Area 1 located 7.1 Straight Line Kilometres (SLK) from the Lovering Road Junction.

Throughout the assessment of the application, the vegetation within this area was classified as excellent (Keighery, 1994) condition and comprised a mix of shrubland and mallee woodland, with shrubland dominant (Ecoedge, 2019a). Thirty-five species of flora were identified within this area, one of which was suspected to be the Priority 1 taxon *Baeckea sp. Crossroads* (B.L. Rye & M.E. Trudgen 241186) (Ecoedge, 2019a).

The Shire committed to avoiding any clearing of any individual or populations of *Baeckea sp. Crossroads* (B.L. Rye & M.E. Trudgen 241186) contained within application area 1 (Ecoedge, 2019g). The plants would be clearly demarcated on-ground and a buffer of at least two meters will be established around the plants (Ecoedge, 2019g).

The Department of Biodiversity, Conservation and Attractions (DBCA) provided comment on the proposed clearing and advised that "the proposed 2m buffer around the newly discovered priority 1 flora sp *Baeckea sp Crossroad* is inadequate. The only other known locations of this species are further east, so this discovery represents a range extension for the species and an increase in its extent of occurrence. Not much is unfortunately known about this species... A 2m buffer around a single plant is insufficient at a newly discovered population..." (DBCA, 2019). At least a 20 metre buffer would be required to protect individuals from impacts associated with the proposed clearing.

Based on this information and a request from DWER to modify the application area to limit the significant environmental impacts of clearing, the applicant committed to removing Application Area 1 from the proposal entirely (Brace, 2020a) and reduce application area from 4.16 hectares to 3.35 hectares.

#### 5. Assessment of application against clearing principles

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

##### Proposed clearing may be at variance with this principle

The applicant engaged Ecoedge to conduct Reconnaissance and Targeted Flora and Vegetation survey and Level 1 Fauna Survey at both application areas: Hyden-Norseman 2.85SLK (Application Area 2) and Hyden Norseman 55.8 SLK (Application Area 3). The flora and vegetation surveys were conducted on 11 September 2018 in accordance with State and Commonwealth requirements for the bioregion and species and communities present, and the Environmental Protection Authority's 'Technical Advice' (EPA, 2016a). The fauna surveys were conducted on 3 October 2018, as defined by the EPA for the purposes identifying the presence of conservation significant fauna species and/or their habitat (EPA, 2016b). The fauna survey was expanded to include a Level 2 assessment (EPA, 2016b) due to the local area known to support Black Cockatoo habitat.

##### Application Area 2

The flora and vegetation survey identified two vegetation units across the mapped application area. These vegetation units are 'Mallee woodland' covering 0.51 hectares and 'Shrubland' covering 2 hectares of the survey area, with the remaining area classified as cleared (described in section 2). Approximately ninety-seven percent of the vegetation within the application area was classified as Very Good (Keighery, 1994) condition (Ecoedge, 2018a). Although the application area was mapped as Beard Vegetation Association 511, described as 'Medium woodland; salmon gum and morrell', the survey indicated no presence of their salmon gum (*Eucalyptus salmonophloia*) or morrell (*Eucalyptus longicornis*).

This area is located within a high conservation value portion of the eastern wheatbelt region, which is part of one of the most botanically rich provinces in Australia (DSEWPC, 2012). It is within the Coolgardie IBRA bioregion, forming part of the 16 million hectare Great Western Woodland area, and the 31,400 hectare Lake Cronin Area, recognised for its high level of flora and fauna diversity and endemism (DSEWPC, 2012). This area is located approximately 900 metres southeast of the 1100 hectare Class A Lake Cronin Nature Reserve.

The flora and vegetation survey identified thirty-three species of vascular flora within the application area (Ecoedge, 2018a). No Threatened or Priority flora were identified within the application area during this survey (Ecoedge, 2018a). DWER has noted the historical record of the Priority 1 flora species *Baeckea sp. Crossroads* within the southern portion of the application area. According to the available databases the individual was recorded in 2004. No individuals of this species were recorded during the targeted flora survey (Brace, 2020b). However, given the historical presence of *Baeckea sp. Crossroads* and the spatial limits of the survey, DWER cannot determine whether individuals occur directly adjacent to the boundary of the application area, which would be directly impacted by the proposed clearing. As such a flora management condition has been imposed on the permit to coincide with DBCA recommendations a pre-clearing targeted flora survey ensures that no *Baeckea sp. Crossroads* individuals are cleared, and a 20 meter buffer be imposed on any individuals identified within the application area.

According to the available databases, the area is mapped as Ironcap Hills vegetation complexes (Mt Holland, Middle, North and South Ironcap Hills, Digger Rock and Hatter Hill) (banded ironstone formation) Priority 3 Priority Ecological Community (PEC). Neither of the two vegetation units identified in the flora survey are representative of this state listed PEC, or any other state or commonwealth PEC or Threatened Ecological Community (TEC), listed under the *Biodiversity Conservation Act 2016* or the *Environment Protection and Biodiversity Conservation Act 1999*.

As will be discussed under Principle (b), the fauna survey of this application area did not identify any evidence of conservation significant fauna, and the proposed clearing is unlikely to impact on significant habitat for fauna indigenous to Western Australia.

The vegetation within this application area forms part of a large area of remnant and interconnected native vegetation. The proposed clearing is unlikely to have a significant impact on the local and regional linkages given its relatively small individual size and location with the larger Greater Western Woodland area, there the local area retains over 90 percent of its pre-European vegetation extents.

Noting that although the Application Area 2 does not comprise any Threatened Flora, significant fauna habitat or represent any known PEC or TEC, the vegetation within the area may comprise supportive habitat for state listed Priority Flora. The majority of the vegetation is also classified as Very Good (Keighery, 1994) condition and contained within a high conservation value portion of the eastern wheatbelt. Therefore, the proposed clearing of Application Area 2 may be at variance with this Principle. The applicant has advised that revegetation will occur post extraction (see section 3) in accordance with their Revegetation Plan (Ecoedge, 2019h).

### **Application Area 3**

The flora and vegetation survey identified one vegetation unit across the mapped application area. This vegetation unit was 'Shrubland' covering 0.76 hectares, with the remaining area cleared of vegetation (Ecoedge, 2019b). All of the vegetation within the application area is classed as Excellent (Keighery, 1994) condition.

As with Area 2, this area is contained with the Coolgardie IBRA bioregion, forming part of the 16 million hectare Great Western Woodland area, and the 31,400 hectare Lake Cronin Area, recognised for its high level of flora and fauna diversity and endemism (DSEWPC, 2012).

The flora and vegetation survey identified eighteen vascular plant species within the application area (Ecoedge, 2019b). None of the Threatened or Priority flora likely to occur in the area were identified during the survey, nor were any other Threatened or Priority flora species (Ecoedge, 2019b). Many of the potentially occurring flora species are only found on banded ironstone formations, which was not present in the survey area. Therefore, based on the findings of the survey, the clearing of this area is unlikely to impact on any priority or threatened flora species.

Given the findings of the vegetation survey, the vegetation unit recorded in the application area does not represent any state or commonwealth PEC or TEC listed under the *Biodiversity Conservation Act 2016* or the *Environment Protection and Biodiversity Conservation Act 1999*. According to the available databases, there are no mapped PEC or TEC in the application area. The closest is 14 km to the west, mapped as previously mentioned priority 3 state PEC '*Ironcap Hills vegetation assemblages (Mt Holland, Middle, North and South Ironcap Hills, Digger Rock and Hatter Hill) (greenstone ranges)*'.

As discussed under Principle (b), the fauna survey did not identify any evidence of conservation significant fauna species, and the proposed clearing is not likely to impact on significant habitat for fauna (Ecoedge, 2019d).

Noting that this area does not contain priority or threatened flora, comprise significant fauna habitat, or represent any known PEC's or TEC's, the proposed clearing is not likely to be at variance to this Principle. This area does however contain vegetation in excellent condition within a high conservation value portion of the eastern wheatbelt region. The applicant has advised that revegetation will occur post extraction (see section 3) in accordance with a revegetation plan, which will help to mitigate long term vegetation loss.

### **Summary**

Given the above, the proposed clearing of Application Area 2 may be at variance with this Principle, while the clearing of Application Area 3 is not likely to be at variance with this Principle.

As the vegetation within the application areas ranges from Very Good to Excellent (Keighery, 1994) condition and forms a small part of the remnant vegetation considered to have a high conservation value, the applicant has committed to revegetating these areas to restore its current ecological functions as described in section 3 (Ecoedge, 2019h). The applicant has provided measures for revegetation post extraction, which aims to mitigate long term biodiversity loss and vegetation degradation (Ecoedge, 2019h).

Given the historical record of *Baekkea sp. Crossroads* within Application Area 2, DWER will impose a condition on the permit indicating no clearing of any individuals of this species identified through a pre-clearing targeted survey of the surrounding area and a 20 meter buffer of no clearing to be established around any identified plants.

There were no environmental weeds or Declared Pest Plants as listed under the *Biosecurity and Agriculture Management Act 2007* identified during the flora surveys of the application areas. However, it is noted that the removal of native vegetation and soil disturbance associated with clearing increases the risk of weeds being spread into areas of surrounding vegetation, which may impact on the biodiversity of surrounding areas. Therefore DWER will condition the permit to include weed management practices.



**(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 with this principle**

The applicant engaged a zoologist to undertake a reconnaissance fauna survey of the application areas, which were carried out on 3 October 2018. The scope of works included a level 1 fauna survey in accordance with the EPA's Technical Guidance – Terrestrial Vertebrate Fauna Surveys. The scope of the survey work was expanded to include a Level 2 (EPA 2016b) assessment of the site's significance to Carnaby's cockatoo (*Calyptorhynchus latirostris*) in accordance with the EPA's Technical Guidance – Sampling Methods for Terrestrial Vertebrate Fauna.

The survey notes the following with regard to habitat values of all three application areas (Ecoedge, 2019d, Ecoedge, 2019e, Ecoedge, 2019f):

- all trees present are of a size too small to form hollows of any size and this is also reflected in the total absence of fallen hollow logs
- leaf litter and groundcover plants are sparse
- the area contains no wetlands or watercourses
- the area lacks any significant relief and comprises undulating plain of yellow brown sandy loam

The survey notes that fauna biodiversity within all application areas is likely to be typical of the local area, however, given their relatively small size and limited habitat types, the range and number of species actually present at any one time would be low (Ecoedge, 2019d, Ecoedge, 2019e, Ecoedge, 2019f).

Based on the habitat present, the fauna survey noted that the application areas may provide habitat for the following conservation significant fauna species ((Ecoedge, 2019d, Ecoedge, 2019e, Ecoedge, 2019f):

- Central Long-eared Bat (*Nyctophilus major tor*) – listed as Priority 4 by DBCA
- Fork-tailed Swift (*Apus pacificus*) – Protected under international agreement
- Western Rosella (inland) (*Platycercus icterotus xanthogenys*) – listed as Priority 4 by DBCA
- Carnaby's black cockatoo - Specially Protected as 'Endangered' under the *Biodiversity Conservation Act 2016* (BC Act)
- Peregrine Falcon (*Falco peregrinus*) – Specially Protected as 'Other Specially Protected Fauna' under the BC Act
- Lake Cronin Snake (*Paroplocephalus atriceps*) – listed as Priority 3 by DBCA
- Western Brush Wallaby (*Notamacropus irma*) – listed as Priority 4 by DBCA (suitable habitat confined to Application Areas 2 and 3)
- Malleefowl (*Leipoa ocellata*) – Specially Protected as Vulnerable under the BC Act (suitable habitat confined to Application Areas 2 and 3)
- Chuditch (*Dasyurus geoffroi*) – Specially protected as Endangered under the BC Act (suitable habitat confined to Application Areas 2 and 3)

No evidence of any of the above species was observed during the fauna surveys (Ecoedge, 2019d, Ecoedge, 2019e, Ecoedge, 2019f).

**Carnaby's Cockatoo**

The survey did not identify any trees of a suitable size to provide Carnaby's cockatoo breeding habitat (diameter and breast height of greater than 30 centimetres for wandoo and salmon gum and 50 centimetres for other tree species (Commonwealth of Australia, 2012)). Most of the trees identified within the application areas were relatively small mallee like specimens which are also unlikely to provide suitable roost habitat (Ecoedge, 2019d, Ecoedge, 2019e, Ecoedge, 2019f). According to available datasets, no confirmed breeding sites have been mapped within the 12 kilometres of this area, which is the general foraging range from a breeding site for this species (Commonwealth of Australia, 2012).

This area contains several plants known to represent potential foraging habitat for Carnaby's cockatoo, including the following species (Ecoedge, 2019d, Ecoedge, 2019e, Ecoedge, 2019f):

- *Isopogon scabriusculus*
- *Hakea francisiana*, *H. meisneriana*, *H. erecta*, *H. scoparia* and *H. newbeyana*;
- *Grevillea didymobotrya* and *G. excelsior*
- *Allocasuarina spinosissima*.
- *Grevillea excelsior*, and
- *Allocasuarina spinosissima*.

The surveys note that some of the above-mentioned species (e.g. grevillea) are likely to make up only a small portion of any one bird's diet relative to more favoured plant species such as eucalypts (Ecoedge, 2019d, Ecoedge, 2019e, Ecoedge, 2019f). The survey notes that some of these plant species are represented by a small number of specimens and therefore don't contribute significantly to the overall foraging resource (Ecoedge, 2019d). The survey notes that suitable foraging habitat would equate to less than 0.5 hectares within Application Area 1, and less than one hectare within each of Application Areas 2 and 3 (Ecoedge, 2019d, Ecoedge, 2019e, Ecoedge, 2019f).

No evidence of Carnaby's cockatoo foraging evidence was identified during the surveys. The survey notes that the application areas are located at the extreme inland/eastern limit of the Carnaby's cockatoo range and they are likely to occur infrequently, even in areas of ideal habitat (Ecoedge, 2019d, Ecoedge, 2019e, Ecoedge, 2019f).

Based on the above, the proposed clearing isn't expected to impact on significant habitat for Carnaby's cockatoo.

## Other Conservation Significant Fauna

With regard to the eight other species identified as having the potential to occur, the following applies:

- Central long-eared bat – minor foraging habitat occurs for this species. Noting that it may be a transient visitor only, the proposed clearing is not likely to impact on significant habitat for this species.
- Fork tailed swift – this is a highly mobile avian migratory species with a large home range. This species may be a very transient visitor only, and the proposed clearing is not likely to impact on significant habitat for this species.
- Western rosella – minor foraging habitat occurs for this species. Noting that it may be a transient visitor only, the proposed clearing is not likely to impact on significant habitat for this species.
- Peregrine falcon – this is a highly mobile avian species with a large home range. Potential foraging habitat occurs for this species. Noting that it may be a transient visitor only, the proposed clearing is not likely to impact on significant habitat for this species.
- Lake Cronin snake – this species inhabits semi-arid woodlands and rocky outcrops. Marginal habitat occurs for this species, however the proposed clearing is not likely to impact on significant habitat for this species.
- Malleefowl – a small area of possible foraging/dispersal habitat occurs for this species and occasional transients may occur, however the proposed clearing is not likely to impact on significant habitat for this species.
- Western Brush Wallaby – minor foraging habitat occurs for this species, which may be a rare transient visitor only. The proposed clearing is not likely to impact on significant habitat for this species.
- Chuditch - a small area of possible foraging habitat occurs for this species and occasional transients may occur, however the proposed clearing is not likely to impact on significant habitat for this species.

## Ecological Linkages

There are no formally mapped ecological linkages within Application Areas 2 and 3. Noting that these areas are surrounded by extensive areas of remnant native vegetation within the larger Greater Western Woodland Area (contain around 90 and 95 per cent native vegetation within the local area of each respectively), the proposed clearing of these areas is not likely to impact on the values of any ecological linkages.

## Summary

The Department of Biodiversity, Conservation and Attractions provided comment on the proposed clearing and advised that “there are no anticipated significant impacts on fauna anticipated with this clearing application” (DBCA, 2019).

No fauna species of conservation significance were positively identified during the fauna surveys. Based on DBCA’s comments, the survey findings, the lack of suitable niche habitats (eg. large trees with hollows), and relatively small size of the application areas, the proposed clearing of these areas is not likely to impact on significant habitat for any specific conservation listed fauna species. The proposed clearing of Application Areas 2 and 3 is not likely to be at variance with this Principle.

To minimise impacts to linkage values and reduce further landscape fragmentation a condition has been placed on the permit requiring the revegetation of this area post extraction (in accordance with the applicants specified completion criteria)

## (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 with this principle

A review of the available databases identified the following threatened flora species, listed under the *Biodiversity Conservation Act 2016* or the *Environment Protection and Biodiversity Conservation Act 1999*, within the local area of each of the application areas:

- **Application Area 2:**
  - *Calectasia pignattiana*: closest record mapped 1.9 kilometres north east
- **Application Area 3**
  - *Eucalyptus steedmanii*: closest record mapped 10.2 kilometres south west
  - *Banksia sphaerocarpa* var. *dolichostyla*: closest record mapped 12.3 kilometres north west
  - *Paragoodia crenulata*: closest record mapped 5.6 kilometres north west

Flora surveys of the applied areas, conducted on 11 September 2018 did not identify any of the above mentioned threatened flora species, nor any other threatened flora species listed under the *Biodiversity Conservation Act 2016* or the *Environment Protection and Biodiversity Conservation Act 1999*. The survey limitations note that while a follow up survey in October may have added to the total number of herbaceous species identified, almost all threatened flora potentially present would have been identifiable at the time of survey (Ecoedge, 2019a; Ecoedge, 2019b).

DBCA provided comment on the findings and advised that “the methodology & results of the flora reports appear adequate” (DBCA, 2019).

Based on the survey findings, the proposed clearing is not likely to impact on any threatened flora species, and the proposed clearing is not likely to be at variance with 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 with this principle**

According to available datasets, there are no state listed threatened ecological communities (TEC's), as defined under the *Biodiversity Conservation Act 2016*, mapped within the local area of any of the application areas.

The vegetation types recorded within the flora surveys are not representative of any known state listed TEC's. Noting this, and the absence of records within the local area, the proposed clearing is not likely to impact on any state listed TEC's.

Given the above, the proposed clearing is not likely to be at variance with 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 with this principle**

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). The application area

The local area surrounding each application area retains the following extent native vegetation:

- Application Area 2 retains around 90 per cent native vegetation
- Application Area 3 retains around 95 per cent native vegetation

The application areas fall within the Coolgardie Interim Biogeographic Regionalisation of Australia (IBRA) bioregion, which retains 97 % of its pre-European vegetation extent. The application areas are mapped as Beard vegetation associations (BVA) 511 and 519. BVA 511 and BVA 519 retain 99.5 and 93.7 per cent of their pre-European vegetation extent respectively (see Table 3 below) (Government of Western Australia, 2019).

Noting the vegetation extents associated with Application Areas 2 and 3, these areas are not considered to be within an extensively cleared landscape, and the proposed clearing of these areas is not likely to be at variance with this Principle.

To minimise impacts to linkage values and reduce further landscape fragmentation, the applicant has proposed to revegetate the application areas post extraction (see section 3).

The proposed clearing is not likely to be at variance with this principle.

**Table 3: Vegetation representation statistics (Government of Western Australia, 2018)**

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Current Extent in DBCA Managed Lands	
				(ha)	(%)
<b>IBRA Bioregion</b>					
Coolgardie	12,912,204	12,648,491	97	2,114,349	16.3
<b>Local government</b>					
Shire of Kondinin	741,935.21	398,032.17	53.65	6.36	3.41
<b>Beard Vegetation Complex</b>					
519 (Coolgardie)	147,579	146,943	99.5	15,736	10.6
511 (Coolgardie)	464,423.62	435,177.21	93.70	20.62	19.32
<b>Local area</b>					
Application Area 2	32036.58	31720.92	90	-	-
Application area 3	31790.97	31781.96	95	-	-

**(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 not likely to be at variance with this principle**

According to available databases, no wetlands or watercourses have been mapped within the application area.

The closest wetland or watercourse to the application areas is as follows:

- Application Area 2 – Lake Cronin occurs 2.5 kilometres north west of the application area;
- Application Area 3 – A small wetland mapped within the Wheatbelt Wetland Geomorphic Wetlands dataset occurs 1.4 kilometres North West.

The flora surveys did not identify any hydrological features, or any riparian vegetation within the application areas (Ecoedge, 2019a, 2019b and 2019c).

Given the above, the application areas are not growing in, or in association with an environment associated with a watercourse or wetland and the proposed clearing is not likely to be at variance with this Principle.



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

**Proposed clearing is not likely to be at variance with this principle**

The application areas have been mapped as the following soil types:

**Application Area 2** – 266DD10 soil mapping unit (system level as subsystems have not been mapped within this area), which is described as plains with some clay pans and small salt lakes, dunes, and lunettes (Schoknecht et al., 2004.). The survey noted that the two vegetation units within this area comprise of yellow sandy loams (Ecoedge, 2019b).

**Application Area 3** - 266AC1 soil mapping unit (system level as subsystems have not been mapped within this area), which is described as gently sloping to gently undulating plateau areas, or uplands, on granites, gneisses, and allied rocks, with long gentle slopes and, in places, abrupt erosional scarps (Schoknecht et al., 2004.). It is expected that the soil type within this application area would be consistent with Application Area 2, and comprise yellow sandy loams.

The above soil types are moderately to highly permeable and are at low risk for water erosion, water logging or eutrophication. Noting this, and the lack of hydrological features within any of the application areas, the proposed clearing is not likely result in land degradation via water erosion, water logging or eutrophication.

The above soil types have some risk of wind erosion noting the light composition of sandy soils. Given that the application areas are relatively small, and that the applicant will be required to revegetate the areas to a pre-cleared condition post extraction, any long term land degradation is expected to be minimal.

Given the above, the proposed clearing is not likely to be at variance with 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 with this principle**

Lake Cronin Nature Reserve is the only conservation area located within the local area of Application Areas 2 and 3, which occurs 840 metres north west of Application Area 2 and 19 kilometres west of Application Area 3.

Given the distance of Application Areas 2 and 3 to Lake Cronin Nature Reserve, the extent of vegetation surrounding Lake Cronin Nature Reserve, and that the proposed clearing would not sever any landscape linkages between the Nature Reserve and other remnants, the proposed clearing is not likely to impact on the values of this area.

The proposed clearing of Application Areas 2 and 3 is not likely to be at variance with 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 is not likely to be at variance with this principle**

According to available datasets, groundwater salinity within the application area is mapped at between 14,000 and greater than 35,000 total dissolved solids, milligrams per litre. This level of groundwater salinity is classified as high to extreme. While there is a heightened risk of the expression of surface salinity and associated run-off into nearby watercourses as a result of clearing, the proposed clearing is relatively small, and aerial imagery does not show the surface expression of salinity within the vicinity of the application areas. Noting this, and that each area will be revegetated to its pre-cleared condition post extraction, the proposed clearing is unlikely to lead to a long term increase in salinity levels.

As discussed under Principle (f), the application areas do not include any known watercourses or wetlands, with the closest to any of the application areas more than one kilometre away. Given the distance to the nearest wetland or watercourse, and presence of relatively permeable soils, the proposed clearing is not likely to result in the deterioration of surface water through sedimentation.

Given the above, the proposed clearing is not likely to be at variance with 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 with this principle**

As discussed under Principle (g), given the relatively small application areas, that the soils mapped within the application areas are moderately to highly permeable, and distance to the nearest hydrological feature, the proposed clearing is not likely to cause, or exacerbate, the incidence or intensity of flooding.

The proposed clearing is not likely to be at variance with this Principle.

## Planning instruments and other relevant matters.

The application area is located within the Ballardong People and Marlinyu Ghoorlie Native Title claimant areas.

On 19 July 2019, DWER wrote to the claimant's representatives, providing notice as required by section 24GB s9 of the Native Title Act 1993, and providing an opportunity to comment on the application. The South West Aboriginal Land and Sea Council provided comment on behalf of the Ballardong People and advised that " the matter was considered by the Ballardong Working Party on 4 September 2019 and no objection was raised" (South West Aboriginal Land and Sea Council, 2019).

A response has not been received from the Marlinyu Ghoorlie representatives.

The clearing permit application was advertised on the DWER website on 20 July 2019 with a 21 day submission period. No public submissions have been received in relation to this application.

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

## 4. References

- Brace, Debbie (2020a) Email correspondence from applicant indicating the intent to remove Area 1 from the application area. Received by DWER on 17 February 2020. (DWER REF: A1868949)
- Brace, Debbie (2020b) Email correspondence from applicant indicating no DRF found during flora survey. Received by DWER on 6 March 2020. (DWER REF: A1874158)
- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
- Commonwealth of Australia (2012). EPBC Act referral guidelines for three threatened black cockatoo species. Department of Sustainability, Environment, Water, Populations and Communities, Canberra.
- Department of Biodiversity, Conservation and Attractions (DBCA) (2019) Regional Advice for Clearing Permit Application CPS 8589/1, received 30 October 2019. DWER Ref A1842730).
- Department of Primary Industries and Regional Development (DPIRD) (2017). NRInfo Digital Mapping. Accessed at <https://maps.agric.wa.gov.au/nrm-info/> Accessed September 2018. Department of Primary Industries and Regional Development. Government of Western Australia.
- Ecoedge (2019a). Reconnaissance and Targeted Flora and Vegetation Survey at Hyden-Norseman Road, 2.85slk West, Kondinin. Prepared for the Shire of Kondinin. June 2019. Ecoedge.
- Ecoedge (2019b). Reconnaissance and Targeted Flora and Vegetation Survey Hyden-Norseman Road 55.8SLK, Forrestania. Prepared for the Shire of Kondinin. June 2019. Ecoedge.
- Ecoedge (2019c) Fauna Assessment at the Proposed Borrow Pit West Hyden-Norseman Road (SLK 2.85), Kondinin. Supporting Information for Clearing Permit Application CPS 8589/1.
- Ecoedge (2019d) Fauna Assessment at the Proposed Borrow Pit Hyden-Norseman Road, Kondinin (22 SLK). Supporting Information for Clearing Permit Application CPS 8589/1.
- Ecoedge (2019e) Supporting documentation for a Clearing Permit Application For Hyden Norseman Road, Forrestania East.
- Ecoedge (2019f) Supporting documentation for a Clearing Permit Application For a Proposed Gravel Pit Extension Hyden, Norseman Road, Forrestania West. Prepared for the Shire of Kondinin. June 2019. Ecoedge.
- Ecoedge (2019g) Supporting documentation for a Clearing Permit Application For King Rocks Road West, Kondinin. Prepared for the Shire of Kondinin. June 2019. Ecoedge.
- Ecoedge (2019h) Gravel Pit Revegetation Plan Hyden-Norseman Road, Forrestania (Gravel Pits @ 55.8SLK and 74.95SLK). Prepared for the Shire of Kondinin. June 2019. Ecoedge
- EPA (2016b). Technical Guidance – Technical Guidance - Terrestrial fauna surveys. Environmental Protection Authority. Government of Western Australia.
- EPA (2016a). Technical Guidance – Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment. Environmental Protection Authority. Government of Western Australia.
- Government of Western Australia (2018) 2017 South West Vegetation Complex Statistics. Current as of October 2017. WA Department of Biodiversity, Conservation and Attractions, Perth, <https://catalogue.data.wa.gov.au/dataset/dbca>
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Mattiske, E.M. and Havel, J.J. (1998) Vegetation Complexes of the South-west Forest Region of Western Australia. Maps and report prepared as part of the Regional Forest Agreement, Western Australia for the Department of Conservation and Land Management and Environment Australia.
- Schoknecht, N., Tille, P. and Purdie, B. (2004) Soil-landscape mapping in South-Western Australia – Overview of Methodology and outputs' Resource Management Technical Report No. 280. Department of Agriculture.
- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.
- South West Aboriginal Land and Sea Council (2019) Direct Interest Comments for Clearing Permit Application CPS 8589/1, received 5 November 2019. DWER Ref A1838652.
- Western Australian Herbarium (1998-). FloraBase - the Western Australian Flora. Department of Biodiversity, Conservation and Attractions. <https://florabase.dpaw.wa.gov.au/> Accessed March 2019.

## 5. GIS Datasets

- Aboriginal Sites of Significance
- Bush Forever
- Carnaby's cockatoo: breeding, roosting, feeding
- Clearing Regulations - Environmentally Sensitive Areas

- Contours (DPIRD-073)
- Department of Biodiversity Conservation and Attractions, Tenure
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Geomorphic Wetlands, Swan Coastal Plain
- Groundwater salinity, statewide
- Hydrology, linear
- IBRA Australia
- Land for Wildlife
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- PDWSA, CAWSA, RIWI Act Areas
- Remnant vegetation
- Regional Parks
- SAC Biodatasets (accessed January 2020)
- Soils, statewide
- South coast significant wetlands
- Statewide forest vegetation complexes
- TECs and PECs
- Threatened Fauna
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Town Planning Scheme Zones