

# **Westdeen Holdings Pty Limited**

## **Clearing Application Support Document**

**for**

**Cowcowing Lakes  
South West Mineral Field  
Project Code J00810  
Site Code S0223030**



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## 1. Summary

This document supports the clearing amendment application for CPS 6176/2 and is an assessment of the vegetation and habitat types found across the sites in Cowcowing Lakes, the results of searches on the State and National databases for listed or threatened species that may occur in this vicinity and population estimates of *Frankenia conferta* (identified Declare Rare Flora (DRF)) for assessment potential impacts to the species associated with clearing.

Between October and December of 2014, Westdeen engaged Ecoscape as consultant botanists to undertake a regional threatened flora survey across all Westdeen tenements in Cowcowing Lakes system as well as surrounding areas. That assessment determined the extent of the local population of *Frankenia conferta* in the region and made population estimates of the species. The report is attached as Appendix 1.

## 2. Introduction

Westdeen Holdings holds several mining leases on Cowcowing Lakes, located approximately 17km north of Wyalkatchem in the Western Australian Wheatbelt.

Cowcowing Lakes is a large, mainly dry, playa lake occupying approximately 13,700 ha. Most of the lake bed has sparse *Tecticornia* spp. (Samphire) shrubs over a relatively flat surface that has only minor variations in elevation (estimated at less than 20 cm). Within the lake are areas of lower elevation that may be seasonally wet and are salt-encrusted and unvegetated (lower elevation lakes). Most of these lower elevation lakes have sandy, concentric berms surrounding them, generally on the eastern and southern sides, vegetated with *Tecticornia* spp., *Atriplex* spp. and *Frankenia* species. Within the lake bed are also a number of linear gypsum mounds, mostly only approximately 20-30 cm higher than the lake bed however a number are approximately 3-5 m high and sparsely vegetated with *Tecticornia* spp., *Casuarina obesa*, *Hakea preissii*, *Lycium australe* and native and introduced grasses and herbs. These higher elevated mounds are of interest for gypsum mining and are associated with mining tenements (M70/171, M70/172, M70/173, M70/264, M70/1078, M70/559 and L70/195). Westdeen does not hold the lease M70/137 that is located between tenements M70/171 and M70/172 (south eastern cluster) but does have a miscellaneous license (L70/195) and an access agreement with the lease holder through M70/137.

Westdeen Holdings is seeking approval for an amendment to Clearing Permit CPS 6176/2 (Purpose Permit) to clear a total 13.5 ha within a total boundary area of 61.94ha over the next 10 years. Table 1 (Table of Disturbance) itemizes individual clearing boundaries (ha) per tenement and the total clearing footprint (ha) within those boundaries. The Geolocations (derived from Tenagraph web) of the total boundary area per tenement are Appended to this document.

Clearing is required for several reasons including advancing the gypsum mining operation from M70/173 into M70/1078 (already permitted under CPS 6176/2), then onto M70/171 and M70/559 as well as clearing an access road in L70/195 and re visiting stockpiles to crush gypsum rocks that are sparsely revegetated with native flora (M70/172, M70/264, M70/173).

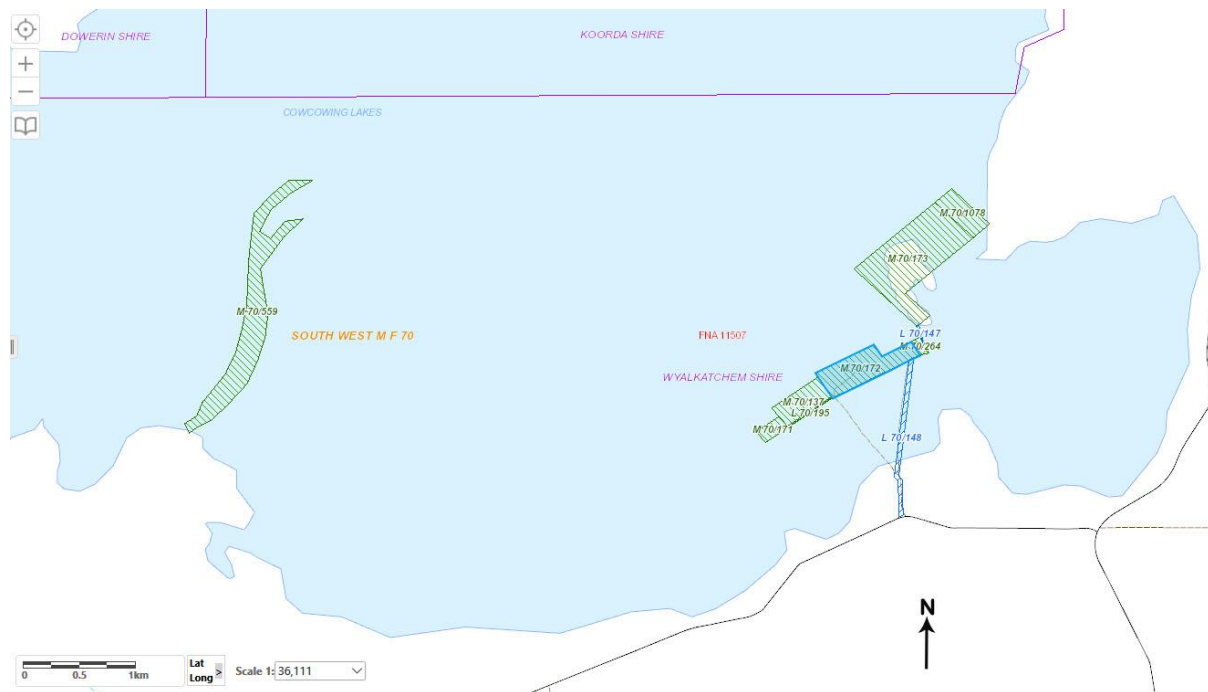
Once this amended area is approved by DMIRS, Westdeen shall apply to amend their current Authorization To Take or Disturb Threatened Species Permit TLF 107-1920 to include the areas approved.

Seed gypsum resources are close to depletion in M70/173 and M70/1078 and therefore we need to revisit previously cleared areas in M70/172, M70/264, M70/173 where gypsum rocks were previously stockpiled and now have native vegetation recolonizing the stockpiles.

Clearing of L70/195 will allow Westdeen access into M70/171 for additional clearing of that lunette to secure seed gypsum.

**Table 1: Table of Disturbance per Westdeen tenement at Cowcowing Lakes**

TENEMENT	CLEARING BOUNDARY (ha)	CLEARING WITHIN BOUNDARY (ha)
M70/171	2.56	2.53
L70/195	0.46	0.46
M70/172	20.93	2.9
M70/264	1.10	0.285
M70/173	33.51	4.92
M70/1078	3.38	2.42
<b>TOTAL</b>	<b>61.94</b>	<b>13.52</b>



**Figure 1: Cowcowing Lakes Site group S0223030 location**

## 2. Floristics summary

The playa floors contain halophilic species such as *Tecticornia doleiformis* and *Tecticornia halocnemoides*.

Most of the lunettes are sparsely vegetated with plant growth that appears to occur only where gypsum accumulation has raised the soil above the saline floor level. This is most likely due to halite being leached from the higher elevation allowing the salt tolerant species to establish. Those species which grow on the lunettes above the highly saline areas are well represented in surrounding farmland and lake edge.

Evidence of rabbit burrowing in the soft kopi soil has been observed however there are no other signs of active mammal or bird life.

The flora found on the gypsum lunettes being mined are also abundant either throughout the lake floor (halophytes) or around the edge of the lake as the terrain rises to lower salt levels. See the Appendix 1 for further details.

Plant samples observed on and around the lunettes are dominated by:

- *Atriplex* ? *vesicaria*
- *Tecticornia doleiformis*
- *Tecticornia* sp
- *Tecticornia halocnemoides*
- *Frankenia* sp
- *Amyema linophylla* spp. ? *Linophylla*
- *Casuarina* ? *obesa*
- *Dodonaea viscosa* spp *angustissima*

## 3. State and National Database Searches

A current search was undertaken on November 2019 of State and National Databases for the presence of additional listed or threatened species likely to occur on the proposed clearing footprint of this CPS 6176/2 amendment. The searches were carried out at a 1, 2 and 10km buffer around 31° 1.656'S, 117° 20.452'E, the central point of the clearing area for this amendment, results are presented in Table 1 and 2 and then summarized below. The 3 buffers were analyzed to identify potential sensitivities and ensure all species potentially at risk were identified. Appendix 2 has the actual reported results.

### 3.1 NatureMap

The searches did not identify any species likely to be impacted by clearing on S0223030 at the 1km range. *Frankenia conferta* was the only rare species at 2km range and *Eromophila resinosa*, *Pityrodia scabra* (Wyalkatchem foxglove), *Frankenia conferta* occurred at the 10km range along with *Egernia stokesii subsp. badia* (Gidgee Skink). At the 10 km range, one (1) P1 fauna species *Parartemia contracta* (a brine shrimp) was identified, one (1) P2 species *Fitzwillia axilliflora* (Wyalkatchem foxglove), zero (0) P3 species and one (1) P4 fauna species *Oxyura australis* (Blue

Billed Duck) was identified. Notably, Ecoscape survey did not find any occurrence of these flora on tenement during their survey however, *Fitzwillia axilliflora* was recorded at two locations offsite, one close to M70/172 and one adjacent to the lower elevation lake near M70/559. *Falco peregrinus* (peregrine Falcon) was identified at the 10km buffer however, considering the lack of optimal foraging habitat for prey, it is unlikely to occur in this area.

Mining at Cowcowing lakes occurs in the dry bed area with increasing salinity and therefore the aquatic species of *Parartemia contracta* and *Oxyura australis* are unlikely to occur.

*Egernia stokesii subsp. badia* habitat (remnant woodlands of the WA wheatbelt and areas of limestone caprock (*Egernia stokesii* National Recovery Plan 2012) does not occur on the salt pans or lunettes of Cowcowing Lakes and therefore this species is unlikely to occur.

Should the presence of any of these species be identified during clearing or mining then clearing will be stopped until a management plan has been developed by Westdeen Holdings.

Table 2: Summary of NatureMap Results

Buffer	Rare	Protected	Other Protected	P1	P2	P3	P4
1km	0	0	0	0	0	0	0
2km	1	0	0	0	0	0	0
10km	4	0	1	1	1		1

### 3.2. EPBC Matters of National Environmental Significance

The results from the EPBC database search are presented in Table 2 and summarized below. Appendix 3 has the actual reported results.

The Threatened Ecological Community (TEC) of ‘Eucalypt Woodlands and the Western Australian Wheatbelt’ is listed as possibly occurring in all the 1km, 2km and 10km buffer searches. However, the species associated with this community type were not identified in the Ecoscape survey and are not able to survive in the halophilic environment of the Cowcowing lakes system. Therefore, this TEC is not at risk from clearing activities proposed in this CPS 6176/2 amendment.

Table 3: Summary of EPBC Database Results

Buffer	National Heritage Places	Listed Threatened Species	Listed Migratory Species
1km	0	15	6
2km	0	17	6
10km	0	24	6

Three (3) listed threatened birds within the 1km buffer that may occur within the area were as follows:

*Calidris ferruginea* (Curlew Sandpiper) – critically endangered, habitat preference for this species is coastal wading waters. Given the lack of standing water onsite and remoteness to coastal areas, it is highly unlikely this species will be disturbed during clearing.

*Leipoa ocellata* (Mallee Fowl) - Vulnerable, the habitat preference for this species is semi-arid to arid shrublands and low woodlands (Mallee Fowl Recovery Plan) where they build mounds during reproduction for the incubation of their eggs. Leaf litter is critical to their habitat and therefore the landscape of the Cowcowing Lakes system is not likely to support their existence and clearing is not expected to impact this species.

*Rostratula australis* (Australian Painted Snipe)- Endangered, this species inhabits permanent terrestrial freshwater wetlands with areas of bare wet mud. This habitat does not exist in the dry saline lake bed of Cowcowing Lakes and therefore this species will not be impacted.

One (1) other species of the *Idiosoma nigrum* (Shielded-backed Trapdoor Spider) – Vulnerable, may occur within the 1km area. This spider prefers arid clays soils with critical habit being dense leaf litter from York gums. This habitat does not exist onsite and therefore this species will not be impacted by clearing.

Within the 1km buffer, a total of 10 flora species were identified as potentially occurring within the area including *Frankenia conferta* and *Pityrodia scabra*.

Of the other species within that list, the only other species that may occur in the halophilic lake system of Cowcowing lakes is *Roycea pycnophylloides*.

This species is a small halophilic mat-like shrub that grows in the highly specialised habitats where there are seasonally wet clay pans in open flats near salt pans. During the Ecoscape 2014 survey, this species was not identified as occurring on or near the tenement areas forming part of this clearing amendment.

All other floristic species are unlikely to support these species and therefore clearing will not have any impact.

The 10 km buffer identified a larger range of species (24) as would be expected due to the increased area capturing both dry land wheatbelt zones as well as the

Cowcowing Lakes system and therefore only those listed above were explored as having any potential to be impacted by the project.

Six (6) migratory species were identified with one (1) being the *Apus pacificus* which is a marine bird, one (1) being the *Motacilla cinerea* terrestrial species and the remaining four (4) being wetland species. Of the 6 migratory birds in total on that list, the habitat of Cowcowing Lakes is not expected to support their varying critical habitat needs and therefore clearing is not expected to have any impact to these populations.

### 3.3 Summary

Searches of both the State and National threatened species databases did not identify any species likely to be impacted by clearing for gypsum extraction on S0223030 other than *Frankenia conferta* and *Pityrodia scabra*.

Should *Pityrodia scabra* or any other species other than *Frankenia conferta* be identified during clearing or mining operations then the footprint will be modified to avoid disturbance. A photo identification package will be provided to the clearing and mining contractors to enable them to identify these species with instructions to stop clearing and notify the Westdeen Holdings management team to enable a management plan to be developed in consultation with the Department of Mines and Petroleum (DMP) and the Department of Parks and Wildlife (DPAW).

An assessment of the *Frankenia* population that is likely to be impacted by clearing for mining of gypsum and construction of the roadway through L70/195 is included in detail in Section 4.

## 4. Estimated impacts to *Frankenia conferta* population through clearing

### 4.1 Population estimates and area density.

During the Ecoscape 2014 targeted flora survey (as described in Section 5.1 of Appendix 1), the total number of *Frankenia conferta* individual plants to be disturbed were calculated depending on the proportion of habitat for each tenement (Figure 2). Contiguous populations were recorded separately from patchy populations and then predicted *Frankenia conferta* population estimates were mapped.

The population estimates are:

Scattered: 2 plants/100m<sup>2</sup>

Moderate: 40 plants/100m<sup>2</sup>

Abundant: 90 plants/100m<sup>2</sup>

Table 4 shows the total estimated sub-population on each tenement.

Table 4 has been derived from Section 5.2 of Appendix 1 and amended to include L70/195.

## 4.2 Methods of estimation of population density in M70/171 and M70/137.

Population density of *Frankenia conferta* within M70/137 is moderate (i.e. 40 plants/100m<sup>2</sup>). To ensure estimates were liberal in assessment, the whole alignment of the L70/195 roadway was included in the calculation (i.e. 4554m<sup>2</sup>) even though Figure 3 shows approximately 70% of the lease being *Frankenia conferta* habitat.

From there, the calculation for number of plants to be disturbed along L70/195 was as follows:

If there are 40 plants per 100m<sup>2</sup>, then 1 plant per 2.5m<sup>2</sup> is the estimated density.

So, area to be disturbed is 4554m<sup>2</sup>, hence a total of 1822 plants potentially impacted.

Table 4: Estimated population of *Frankenia conferta* on Aglime tenements.

TENEMENT	TENEMENT SIZE (m <sup>2</sup> )	PREDICTED HABITAT (m <sup>2</sup> )	ESTIMATED POPULATION
M70/171	36,798	17,186	6,800
M70/172	230,452	149,787	17,000
M70/173	557,249	140,630	11,000
M70/264	15,587	7,547	360
M70/1078	100,502	20,407	8,000
M70/559	474,400	257,235	197,000
L70/195	4,554	4554*	1822*
Total (estimated)	1,419,542	597,346	241,982

\*As explained in Section 4.2



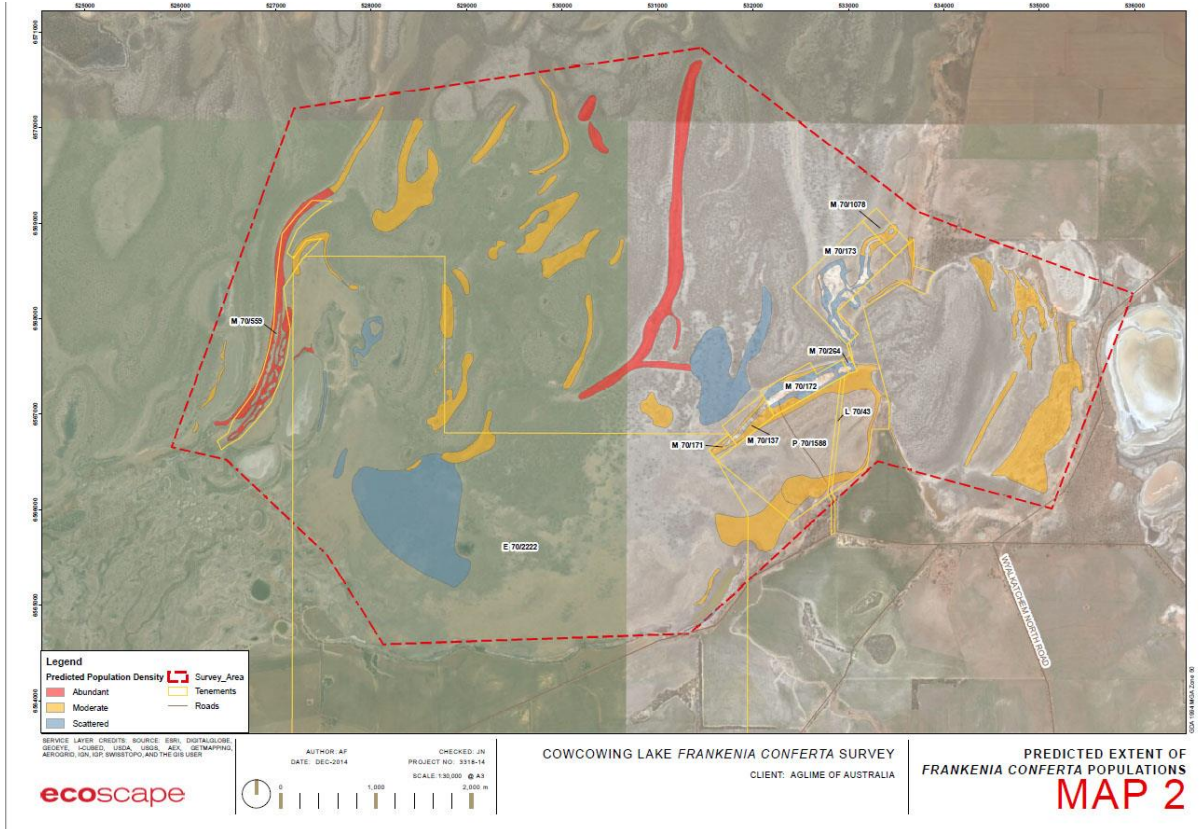


Figure 2: Extent of *Frankenia conferta* populations at Cowcowing Lakes tenements

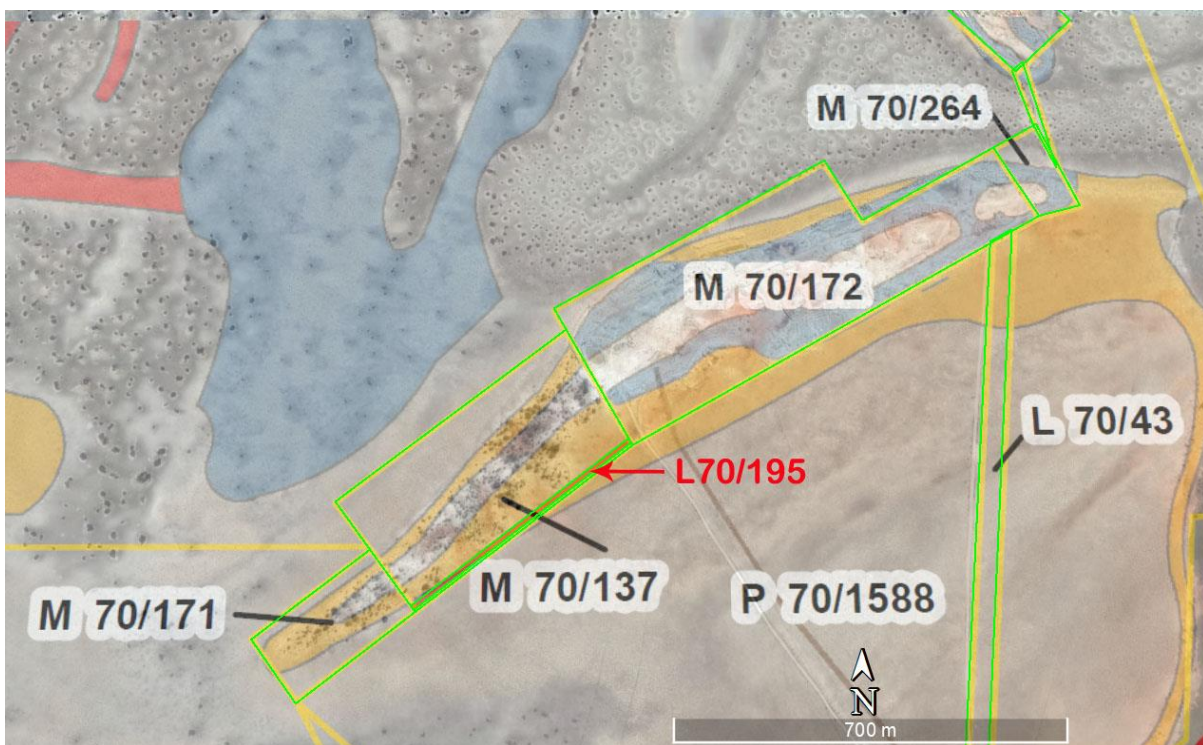


Figure 3: Extent of *Frankenia conferta* population to include L70/195.

### 4.3. Population estimate result

The Ecoscape report of 2014 (Appendix 1) broadly estimates there are in excess of 10,000,00 individual *Frankenia conferta* plants as the total population at Cowcowing Lakes. Of the total estimated population, approximately 7.6% is in existence within Aglime tenements.

Within previously mined areas (M70172, M70/264 and part of M70/173) it is estimated that 5,300 *Frankenia conferta* have regenerated since disturbance.

In the Westdeen final report for the Department of Biodiversity, Conservation and Attractions (DBCA) on 2<sup>nd</sup> October 2019, the total number of individual plants cleared under the Permit to Take (128:1415) thus far has been 9,120.

Liberal estimates of the remaining area to be cleared within M70/1078 will see approximately 4,000 being removed which totals 13,120 plants that are likely to be impacted. The estimated population within M70/173 and M70/1078 was 19,000 individual plants (Table 4) and therefore worst-case scenario shows 69% of that population will be removed.

Table 5 shows the total estimated populations in all the tenements included in this clearing permit amendment. The figures used are assuming the entire population will be impacted however, results of the Permit to Take *Frankenia conferta* thus far shows that worse cast scenario, less than 70% of the population is typically impacted.

In summary and based on the figures in Table 5, only 0.39% of the estimated population of *Frankenia conferta* across the Cowcowing Lakes system is to be impacted by this clearing permit.

Table 5: Total *Frankenia conferta* populations in each tenement to be impacted by this clearing permit.

TENEMENT	TOTAL NUMBER OF NUMBER OF PLANTS TO BE IMPACTED
M70/171	6,800
L70/195	1,822
M70/172	17,000
M70/264	360
M70/1078	4,000
Already taken (M70/173 & M70/1078)	9,120
<b>TOTAL</b>	<b>39,102</b>

### 5. Conclusion

Whilst clearing in this area contravenes Clearing Principle (C), it is not necessary for the continued existence of this species as the results of this assessment shows clearing permit amendment will have an insignificant impact to *Frankenia conferta* at Cowcowing lakes as only 0.39% of the total population will be affected.

Additionally, the review of NatureMap shows that there are 56 records for this species (four at Cowcowing Lake) which spans across the Avon Wheatbelt IBRA region, Geraldton Sandplains and Coolgardie IBRA region. Therefore, the Cowcowing Lakes population is only a small proportion of the total population.

Importantly, *Frankenia conferta* was also recorded as recolonising previously mined areas indicating the habitat specific to this species is not difficult to recreate in the final landform once mining is finished.

As *Frankenia conferta* is listed by the State as rare, Ministerial approval is required to 'take' Threatened Flora.

As *Frankenia conferta* is also listed under the EPBC Act 1999, this clearing permit may also require referral to the Commonwealth Department of the Environment for assessment, however only 'significant impacts' require referral. The decision relating to significance, and therefore referral, is generally the responsibility of State regulatory authorities (Department of Water and Environmental Regulation, DBCA, DMIRS).

## **5. Appendices (attached on the following pages)**

*Appendix 1: Ecoscape Threatened Flora Survey report 2014*

*Appendix 2: Results of Naturebase Search for Flora and Fauna species with 2km Buffer*

*Appendix 3: Results of Naturebase Search for Flora and Fauna species with 10km Buffer*

*Appendix 4: EPBC Database Search Results with 1km Buffer*

*Appendix 5: EPBC Database Search Results with 2km Buffer*

*Appendix 6: EPBC Database Search Results with 10km Buffer*

*Appendix 7: Clearing boundary area polygons*

*Appendix 8: Clearing boundary area maps*