

APPENDIX B

Threatened Flora Survey

Our Ref: 2493AB

5 December 2017



Kris Kennedy
Manager - Planning
Aigle Royal Developments
Via Email: kkennedy@aigleroyal.com.au

Dear Kris

Targeted Flora Survey – Lots 11 and 74 Beenyup Road, Banjup

1. Background

360 Environmental Pty Ltd (360 Environmental) was commissioned by Aigle Royal Developments to address the additional information request by Department of Environment and Energy (DEE) in regards to the assessment of the proposed redevelopment of Lots 11 and 74 Beenyup Road, Banjup under the Environmental Protection and Biodiversity Conservation (EPBC) Act 1999 (Figure 1).

360 Environmental (2015) undertook a Level 2 Flora and Vegetation Survey for the proposed development on 15 and 16 September 2015, which involved a database and desktop study. No Threatened species pursuant to the EPBC Act 1999 and/or gazetted as Declared Rare Flora (DRF) pursuant to the Wildlife Conservation (WC) Act 1950 or Priority species were recorded during the 2015 survey.

From the 2015 report, 24 species listed as Threatened by the EPBC Act, listed under the WC Act, or considered Priority flora, were identified as potentially occurring in the Survey Area. Two of these species, *Caladenia huegelii* and *Drakaea micrantha* have been identified as having the potential to occur in the Survey Area due to the presence of suitable habitat and the close proximity to the site of previous records. *The 2015 survey was undertaken at the optimum time for these species; however, due to their growth habits and therefore the difficulty in locating them, the DEE raised their concerns of these orchids being present and requested a second survey to be undertaken (DEE letter 22 September, Comment 10).*

2. Methods

The targeted search was undertaken on 11 October 2017. The survey involved traversing the Survey Area on foot to search for species of conservation significance, particularly *Drakaea micrantha*, *Caladenia huegelii* and other species identified during the 2015 desktop assessment.

For each population of suspected significant flora located in the Survey Area the following was recorded:

- Co-ordinate locations (using handheld GPS units);
- Photograph; and
- Estimation of population size.

3. Results

3.1. Vegetation Description

Thirteen vegetation associations were described for the Survey Area:

- Low Woodland of *Banksia attenuata*, *Banksia menziesii*, *Allocasuarina fraseriana*, *Eucalyptus marginata* over *Kunzea glabrescens*, *Acacia pulchella*, *Hibbertia hypericoides*, *Xanthorrhoea preissii*, *Bossiaea eriocarpa* and *Conostylis aculeata*;
- Low Woodland of *Banksia attenuata*, *Banksia menziesii*, *Allocasuarina fraseriana* over *Kunzea glabrescens*, *Dasypogon bromeliifolius*, *Hibbertia subvaginata*, *Calytrix fraseri* and *Bossiaea eriocarpa*;
- Open Woodland of *Allocasuarina fraseriana*, *Eucalyptus marginata* and *Banksia ilicifolia* over *Xanthorrhoea preissii*, *Dasypogon bromeliifolius*, *Bossiaea eriocarpa*, *Gompholobium tomentosum* and *Phlebocarya ciliata*;
- Woodland of *Banksia ilicifolia* and *Banksia attenuata* over *Kunzea glabrescens*, *Xanthorrhoea preissii*, *Dasypogon bromeliifolius* and *Desmocladius flexuosus*;
- Woodland of *Eucalyptus rudis* and *Melaleuca preissiana* over *Kunzea glabrescens*, *Xanthorrhoea preissii*, *Adenanthos cygnorum* and *Hypocalymma angustifolium*;
- Low Open Woodland of *Melaleuca preissiana* and *Melaleuca raphiophylla* over *Kunzea glabrescens*, *Hypocalymma angustifolium*, *Astartea scoparia*, *Melaleuca teretifolia*, *Meeboldina scariosa* and *Lepidosperma longitudinale*;

- Low Open Woodland of *Melaleuca preissiana* over *Kunzea glabrescens*, *Hakea varia*, *Acacia pulchella* var. *glaberrima*, *Calothamnus lateralis* var. *lateralis* and *Meeboldina coangustata*;
- Low Closed Forest of *Melaleuca raphiophylla* over *Baumea articulata*;
- Closed Tall Scrub of *Melaleuca teretifolia*, *Melaleuca raphiophylla*, *Meeboldina coangustata* and *Juncus capitatus*;
- Low Woodland of *Melaleuca raphiophylla* over *Melaleuca lateritia*, *Astartea scoparia*, *Meeboldina coangustata*, *Lepidosperma longitudinale* and *Juncus pallidus*;
- Ecotone of *Banksia ilicifolia* and *Banksia menziesii* over *Kunzea glabrescens*, *Dasyogon bromeliifolius* and *Phlebocarya ciliata*;
- Closed Heath of *Hypocalymma angustifolium*, *Kunzea glabrescens*, *Dielsia stenostachya*, *Dasyogon bromeliifolius* and *Boronia crenulata* var. *crenulata*;
and
- Monoculture of young *Melaleuca raphiophylla* over water.

3.2. Vegetation Condition

Vegetation condition ranged from Completely Degraded to Excellent. Historical vegetation clearing, weeds, housing, a nursery and the presence of tracks in the Survey Area were the most frequently observed impacts on native vegetation.

Clearing of the eastern side of the Survey Area was undertaken around 1983 for residential and agriculture use. Additional tracks and clearing have been undertaken since then, including another residence on the western side.

The Conservation Category Wetland (CCW) in the middle of the Survey Area has remained relatively intact and the majority is considered to be in Very Good to Excellent condition. There are a couple of areas within the wetland in Good condition along with tracks and a couple of small pockets considered to be in Degraded to Completely Degraded condition.

The upland vegetation ranges from Excellent to Degraded condition, with the majority considered to be in Good condition.

3.3. Flora of Conservation Significance

The aim of this survey was to undertake a targeted search for *Drakaea micrantha* and *Caladenia huegelii*; however, no specimens of these species were recorded during the survey.

4. Discussion

No threatened species pursuant to the EPBC Act or to the WC Act or priority species were recorded in the project area during the field survey. *Caladenia huegelii* is a tuberous, perennial orchid that grows to 0.6 m high that is easily recognizable during its flowering period from September to October (WAH 2017). Outside of this period *C. huegelii* remains as an underground tuber and is difficult to detect in the field. Soil preferable for the species is usually deep grey-white sand associated with the Bassendean sand-dune system. However, specimens have been known to extend into the Spearwood system in some areas. The species grows in well-drained, deep sandy soils in low mixed woodlands of *Banksia attenuata*, *Banksia menziesii*, *Banksia ilicifolia*, *Allocasuarina fraseriana* and *Eucalyptus marginata*. It tends to favour areas of lush undergrowth (Brown et al. 1998; Hoffman & Brown 1998; Kelly et al. 1993). Therefore, there is vegetation in the Survey Area that is favourable habitat for *Caladenia huegelii*. As the Survey Area was extensively searched for a second time at the optimal time for this species, it can be concluded that *Caladenia huegelii* is not present.

Drakaea micrantha is a tuberous, terrestrial herb which has a diminutive flower and a heart shaped leaf which is silvery grey with prominent green veins. The species flowers from September to October and is usually found on cleared firebreaks or open sandy patches that have been disturbed, where competition from other plants has been removed (Brown et al. 1998; Hearn et al. 2006). It occurs in infertile grey sands, in *Eucalyptus marginata* and *Allocasuarina fraseriana* woodland or forest associated with *Banksia* species. It is often found under thickets of Spearwood *Kunzea glabrescens* with the Flying Duck-orchid (*Paracaleana nigrita*) and other *Drakaea* species (Brown et al. 1998; Hoffman & Brown 1992; Robinson & Coates 1995). Regardless of the Survey Area containing suitable habitat for the species, the Survey Area was extensively searched and no specimens were found.

The 2017 targeted flora survey was completed within the recommended season and optimum flowering period for the south west botanical province and the targeted conservation significant species *Caladenia huegelii* and *Drakaea micrantha*. The project area was sufficiently surveyed and as such the following conclusions can be drawn:

- No Threatened species are present in the Survey Area

We trust this meets your requirements at this time. Should you have any questions or require further action please do not hesitate to contact Narelle Whittington on (08) 9388 8360.

For and on behalf of

360 Environmental Pty Ltd



Narelle Whittington - Principal Botanist

Enc:

Attachment 1.0 – Figure 1

5. References

Brown, A., Thomson-Dans, C. and Marchant, N. (Eds). (1998) Western Australia's Threatened Flora;

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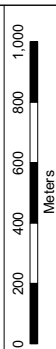
FIGURE

Legend



SLIP ENABLER

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LOCALITY MAP



| | |
|---------------------------------|------------|
| DATE | 23/11/2017 |
| PROJECT ID | 2493 |
| HORIZONTAL DATUM AND PROJECTION | |
| GDA 1994 MGA Zone 50 | |
| CREATED | JA |
| CHECKED | NW |
| APPROVED | TS |
| REVISION | 0 |

Agle Royal Developments
Beenyup Road, Banjup
Targeted Flora Survey

Figure 1
Site Location

