



# Memorandum

26 October 2017

To Carole Armstrong - Water Corporation

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From Angela Benkovic Tel +61 8 6222 8361

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Subject Vasse Diversion Drain – Caribunup King Spider  
Orchid Targeted Survey Job no. 6134862

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## 1 Introduction

### 1.1 Background

The Water Corporation is proposing to upgrade the Vasse Diversion Drain within the City of Busselton, approximately 220 km south of Perth. GHD Pty Ltd (GHD) has provided environmental support to Water Corporation for this project.

Based on triggers in Department of the Environment and Energy (DEE) guidelines, the project was referred under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). DEE has determined the project (proposed action) is likely to have a significant impact on listed threatened species protected under the EPBC Act, including the Western Ringtail Possum (WRP), the three listed black cockatoos, and Caribunup King Spider Orchid (*Caladenia procera*). The referral documentation identified potential impacts to the WRP and black cockatoos. However, as the 2016 flora and fauna assessment (GHD 2017) concluded the Caribunup King Spider Orchid was unlikely to occur within the project area, it was not discussed in the referral documentation. Subsequently, DEE have requested a targeted Caribunup King Spider Orchid survey be completed to inform their assessment.

### 1.2 Scope and purpose

GHD was commissioned by the Water Corporation to complete a targeted Caribunup King Spider Orchid survey for the project.

The purpose of this memorandum is to summarise the methodology of the targeted survey, and report on the outcomes of the survey, including information on the presence/absence of the Caribunup King Spider Orchid within the survey area.

The limitations and assumptions outlined in the GHD biological assessment report (GHD 2017) also apply to this memorandum.

### 1.3 Survey area

The survey area encompasses a section of the existing Vasse Diversion Drain easement (and existing Vasse Diversion Drain channel), approximately 5.6 km in length. The survey area commences at the Vasse River Diversion Dam in the vicinity of the Busselton Golf Club where the drain joins the Vasse River and runs northward to the northern side of New River (adjacent to the Queen Elizabeth Avenue Bridge).

The survey area covers 39.62 hectares (ha) and aligns with the project area described within the EPBC Act referral submitted for the project (EPBC Ref: 2017/7932).

## 2 Methodology

### 2.1 Field survey

GHD botanist (Angela Benkovic, SL012111) conducted a two day targeted search of the survey area on 27 - 28 September 2017. The targeted survey was undertaken with reference to the EPA Technical Guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016).

The survey area was traversed by foot and involved walking transects along either side of the Vasse Diversion Drain channel as well as in vegetated areas (considered suitable habitat) in the southern part of the survey area. Transects along the Vasse Diversion Drain channel were spaced approximately 5-10 meters (m) apart, which equated to approximately 2 transects on each side of the channel. Some areas along the Vasse Diversion Drain channel were steep and unable to be accessed and/or traversed safely. In these areas, visual assessment was undertaken by looking down into the channel from the upper banks. Transects in the southern part of the survey area were spaced approximately 5-10 m apart, except where dense vegetation and water inundation prevented access.

A handheld GPS enabled tablet with ArcGIS software was used for accurate navigation. GPS track logs were recorded during the survey and are shown on Figure 1.

### 2.2 Survey timing, taxonomy and coverage

Survey timing, taxonomy and coverage are important considerations when determining confidence levels in the results. A discussion regarding each of these factors with respect to this targeted survey are described below.

- **Timing/weather/season:** The targeted survey was undertaken in September 2017. In the three months prior to the survey (Jun-Aug), the Perth airport weather recording station recorded a total of 385.8 millimetres (mm) of rainfall. This total is approximately 10% less than the long-term average for the same period (Jun-Aug; 429.8 mm) (BoM 2017).

The field survey was undertaken during September, which is the reported flowering period for Caribunup King Spider Orchid (WA Herbarium 1998–). Whilst, ephemeral species such as orchids are not always present in each year/season, survey timing was considered optimal for locating and identifying Caribunup King Spider Orchid.

- **Flora determination:** Vascular flora was the focus of the assessment and flora determination was undertaken by the GHD botanist in the field. The taxonomy and conservation status of the Western Australian flora is dynamic. This memorandum was prepared with reliance on taxonomy and conservation current at the time issuing, but it should be noted this may change.
- **Completeness:** The survey area was fully surveyed during the September 2017 survey and was accessed on foot. A small number of areas could not physically traversed due to safety, dense

vegetation and/or water inundation. However, these areas were visually assessed from adjacent areas. Survey intensity was considered adequate for locating Carburnup King Spider Orchid, if present.

### **3 Results**

No evidence of Carburnup King Spider Orchid or suitable habitat that would support Carburnup King Spider Orchid was recorded within the survey area during the targeted survey. These results are consistent with the previous findings by GHD for the survey area (GHD 2017).

Regards



**Angela Benkovic**

Botanist

### **References**

Bureau of Meteorology (BoM) 2017, *Climate Data Online*, retrieved September 2017, from <http://www.bom.gov.au/climate/data/>.

Environmental Protection Authority (EPA) 2016, *Technical Guideline – Flora and Vegetation Surveys for Environmental Impact Assessment*, Environmental Protection Authority, WA.

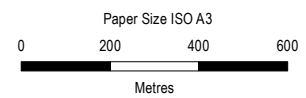
GHD 2017, *Vasse Diversion Drain Upgrade Flora and Fauna Study*, Unpublished report prepared for the Water Corporation.

Western Australia (WA) Herbarium 1998–, *FloraBase—the Western Australian Flora*, Department of Biodiversity, Conservation and Attractions, retrieved September 2017, from <http://florabase.dpaw.wa.gov.au/>.

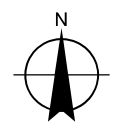


**Legend**

- Tracklog
- Survey Area



Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 50



**Water Corporation**  
**Vasse Diversion Drain Upgrade**

**Survey area and track log**  
**for the Caribunup King Spider**  
**Orchid targeted survey**

Project No. **61-34862**  
Revision No. **A**  
Date **11/10/2017**

**FIGURE 1**

G:\6134862\GIS\Maps\MXD\Caribunup King Spider Orchid Targeted Survey\6134862\_001\_RevA\_Fig1SurveyAreaAndTracklog.mxd  
Print date: 11 Oct 2017 - 10:18

Data source: GHD: Track Log, Survey Area - 20170926; Landgate: Imagery. Created by: atleeny