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WESTERN AUSTRALIA

**NorthLinkWA**  
Perth-Darwin National Highway

# *Caladenia huegelii* Habitat Management Plan

Perth–Darwin National Highway (Swan Valley Section)

JANUARY 2019







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# CONTENTS

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<b>1</b>	<b>SUMMARY .....</b>	<b>1</b>
<b>2</b>	<b>CONTEXT AND SCOPE .....</b>	<b>3</b>
2.1	Description of the Proposal	3
2.2	Background	3
2.3	Management Area	3
2.3.1	A Class Nature Reserves 46875 and 46919 and Bush Forever Site 300	3
2.3.2	A Class Nature Reserve 23756 (Kooljerrenup Nature Reserve)	4
2.4	Requirements of the Conditions	7
<b>3</b>	<b>ACTIVITIES TO BE UNDERTAKEN .....</b>	<b>9</b>
3.1	Provision of Cable Fencing and Heavy Duty Gates	9
3.2	Weed Mapping and Control	9
3.3	<i>Phytophthora cinnamomi</i> Mapping	10
3.4	Hygiene Plan	10
3.5	<i>Caladenia huegelii</i> Surveys and Critical Habitat Mapping	11
3.6	Other Activities to be Undertaken to Maintain or Improve the Conservation Status of <i>Caladenia huegelii</i>	11
3.6.1	Installation of Washdown Points	11
3.6.2	Feral Pig Control	12
<b>4</b>	<b>CONSISTENCY OF ACTIVITIES WITH RELEVANT RECOVERY PLAN .....</b>	<b>21</b>
<b>5</b>	<b>TIMEFRAMES.....</b>	<b>23</b>
<b>6</b>	<b>ROLES AND RESPONSIBILITIES .....</b>	<b>25</b>
6.1	Main Roads Western Australia	25
6.2	Department of Parks and Wildlife	25
<b>7</b>	<b>FUNDING ARRANGEMENTS.....</b>	<b>27</b>
<b>8</b>	<b>MONITORING, REPORTING AND EVALUATION.....</b>	<b>29</b>
8.1	Monitoring	29
8.2	Reporting and Evaluation	29
<b>9</b>	<b>REVIEW AND REVISION OF THE PLAN .....</b>	<b>31</b>
<b>10</b>	<b>STAKEHOLDER CONSULTATION .....</b>	<b>33</b>

**11 REFERENCES ..... 35**

**Tables**

1	<i>Caladenia huegelii</i> Habitat Management Plan summary	1
2	Requirements of Ministerial Statement No. 1036	7
3	Activities, timeframes, roles and responsibilities to be undertaken within the management area associated with A Class Nature Reserves 46919 and 46875 and Bush Forever Site 300	13
4	Activities, timeframes, roles and responsibilities to be undertaken within the management area associated with Nature Reserve 23756	17
5	Consistency of activities with the Grand Spider Orchid Recovery Plan (DEC, 2009)	21
6	Stakeholders consulted, comments and responses	33

**Figures**

1	<i>Caladenia huegelii</i> Habitat Management Area (Reserves 46919 and 46875 and Bush Forever Site 300)	5
2	<i>Caladenia huegelii</i> Habitat Management Area (Reserve 23756)	6

*Document Control*

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A	01/08/2016	Draft (Coffey v1)	T. Vu	E. Waterhouse	E. Waterhouse
B	10/08/2016	Draft for consultation with DPAW (Coffey v2)	T. Vu	D. Morley	D. Morley
0	13/01/2017	Final for submission to OEPA (Coffey v3)	T. Vu	D. Morley	D. Morley
1	24/02/2017	Addressed OEPA comments (Coffey v4)	M. Holliday	D. Morley	D. Morley
2	02/03/2017	Addressed OEPA comments (Coffey v5)	D. Morley		D. Morley
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# 1 SUMMARY

This *Caladenia huegelii* Habitat Management Plan (this plan) is submitted in accordance with Ministerial Statement No. 1036 conditions 16-12 to 16-18 for the Perth–Darwin National Highway (Swan Valley Section) by Main Road Western Australia (MRWA).

Table 1 presents a summary of this plan including the proposal-specific completion criteria against which the environmental objectives are measured.

**Table 1** *Caladenia huegelii* Habitat Management Plan summary

Item	Details
Title of proposal	Perth-Darwin National Highway (Swan Valley Section)
Proponent name	Commissioner for Main Roads Western Australia
Ministerial Statement No.	1036
Purpose of this Plan	This plan is submitted to fulfil the requirements of conditions 16-12 to 16-18 of the above Statement.
Environmental objective	To maintain or improve the conservation status of <i>Caladenia huegelii</i> , to the requirements of the CEO.
<b>Completion criteria</b>	
Provision of cable fencing and heavy duty gates	<ul style="list-style-type: none"><li>• Cable fencing installed at A Class Nature Reserves 23756, 46919 and 46875 and Bush Forever Site 300.</li></ul>
Weed mapping and control	<ul style="list-style-type: none"><li>• Baseline weed mapping completed.</li><li>• Weed control program, including weed control completion criteria, available for implementation.</li><li>• Weed control completion criteria met.</li></ul>
<i>Phytophthora cinnamomi</i> mapping	<ul style="list-style-type: none"><li>• Baseline dieback mapping completed.</li></ul>
Development of a hygiene plan	<ul style="list-style-type: none"><li>• Hygiene plan, including hygiene completion criteria, available for implementation for A Class Nature Reserves 23756, 46919 and 46875 and Bush Forever Site 300.</li></ul>
<i>Caladenia huegelii</i> surveying and mapping	<ul style="list-style-type: none"><li>• <i>Caladenia huegelii</i> critical habitat mapping completed for A Class Nature Reserves 23756, 46919 and 46875 and Bush Forever Site 300.</li></ul>



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## 2 CONTEXT AND SCOPE

### 2.1 Description of the Proposal

Main Roads Western Australia (MRWA) proposes to construct a new 38 km section of the Perth–Darwin National Highway (PDNH) between Malaga and Muchea in Western Australia (the proposal). The proposal is a dual carriageway highway and will connect the intersection of Tonkin Highway and Reid Highway in the south with Great Northern Highway and Brand Highway in the north.

### 2.2 Background

*Caladenia huegelii* is a declared Rare Flora species under the Western Australian *Wildlife Conservation Act 1950* and is listed as Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

No known occurrences of *Caladenia huegelii* occur within the development envelope, however the development envelope contains known *Caladenia huegelii* critical habitat (Figure 1). Critical habitat is the area surrounding current known occupancy of a population and areas of similar habitat surrounding the known populations.

To offset the loss of *Caladenia huegelii* critical habitat, MRWA will fund activities to manage *Caladenia huegelii* critical habitat located outside the development envelope within existing A Class Nature Reserves 23756, 46919 and 46875 and Bush Forever Site 300 (Figures 1 and 2) in accordance with conditions 16-12 to 16-16 of Ministerial Statement No. 1036.

### 2.3 Management Area

In accordance with condition 16-15, this plan shall apply to A Class Nature Reserves 23756, 46919 and 46875 and Bush Forever Site 300. To manage threats to *Caladenia huegelii* habitat, efforts will focus on areas of known critical habitat and populations of *Caladenia huegelii* at A Class Nature Reserves 23756, 46919 and 46875 and Bush Forever Site 300. This area will be referred to as the management area, which is defined in the following subsections.

#### 2.3.1 A Class Nature Reserves 46875 and 46919 and Bush Forever Site 300

The management area within A Class Nature Reserves 46875 and 46919 and Bush Forever Site 300 subject to this plan is shown in Figure 1 and is defined as:

- The portion of A Class Nature Reserve 46875 that is east of the PDNH development envelope and west of Dunnett Drive, Ellenbrook.
- All of A Class Nature Reserve 46919.
- The portion of Bush Forever Site 300 that is west of the PDNH development envelope.
- The portion of Bush Forever Site 300 that is east of the PDNH development envelope and west of Dunnett Drive, Ellenbrook.

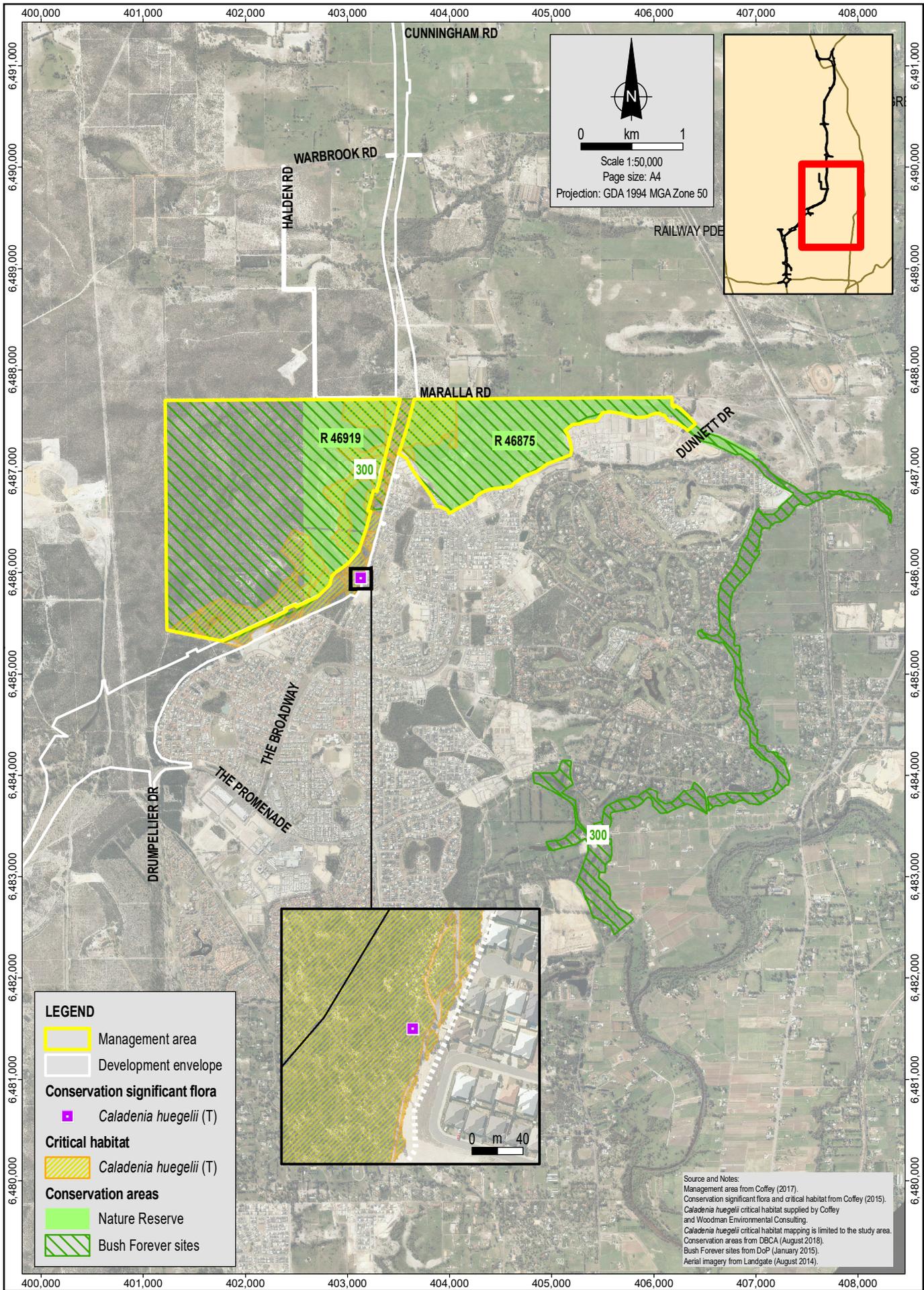
None of A Class Nature Reserves 46875 and 46919 and Bush Forever Site 300 (including the areas of A Class Nature Reserve 46875 and Bush Forever Site 300 east of Dunnett Drive and not included in the management area) are known to contain any *Caladenia huegelii*.



### **2.3.2 A Class Nature Reserve 23756 (Kooljerrenup Nature Reserve)**

The management area within A Class Nature Reserve 23756 subject to this plan is shown in Figure 2 and is defined as the portion of A Class Nature Reserve 23756 that is north of Herron Point Road.

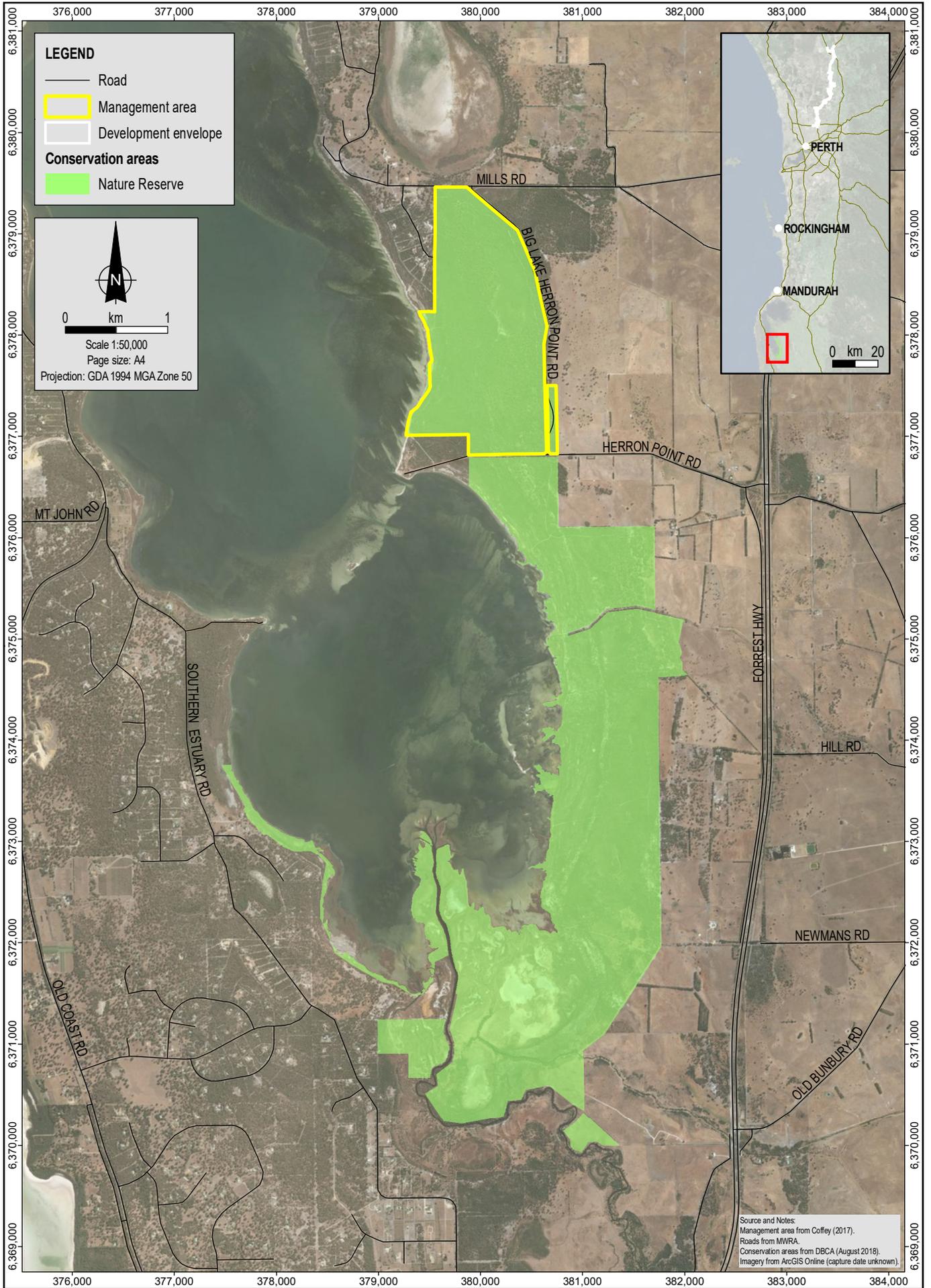
There are three known populations of *Caladenia huegelii* within A Class Nature Reserve 23756 north of Herron Point Road. No other known populations occur within the remainder of the reserve. By focusing efforts on A Class Nature Reserve 23756 north of Herron Point Road, these populations can be effectively managed by directly managing the threats that are relevant to these populations.



**LEGEND**

- Management area
- Development envelope
- Conservation significant flora**
- Caladenia huegelii* (T)
- Critical habitat**
- Caladenia huegelii* (T)
- Conservation areas**
- Nature Reserve
- Bush Forever sites

Source and Notes:  
 Management area from Coffey (2017).  
 Conservation significant flora and critical habitat from Coffey (2015).  
*Caladenia huegelii* critical habitat supplied by Coffey and Woodman Environmental Consulting.  
*Caladenia huegelii* critical habitat mapping is limited to the study area.  
 Conservation areas from DBCA (August 2016).  
 Bush Forever sites from DoF (January 2015).  
 Aerial imagery from Landgate (August 2014).



## 2.4 Requirements of the Conditions

This plan is submitted in accordance with conditions 16-12 to 16-18 of Ministerial Statement No. 1036.

Condition requirements and in-plan section references are provided in Table 2.

The objective of this plan is to maintain or improve the conservation status of *Caladenia huegelii* through implementation of the management activities detailed in Section 3.

Note that the former Department of Parks and Wildlife (DPAW) was replaced by the Department of Biodiversity, Conservation and Attractions (DBCA) on 1 July 2017. References to DPAW in this plan have been changed to DBCA except for direct quotations of the condition text in Ministerial Statement No. 1036.

**Table 2 Requirements of Ministerial Statement No. 1036**

Condition No.	Condition	Section of this plan
16-12	Prior to commencement of ground disturbing activities, or as otherwise agreed in writing by the CEO, the proponent shall prepare and submit a <i>Caladenia huegelii</i> Habitat Management Plan to maintain or improve the conservation status of <i>Caladenia huegelii</i> , to the requirements of the CEO.	This plan
16-13	The proponent shall prepare the <i>Caladenia huegelii</i> Habitat Management Plan required by condition 16-12 on advice of the Department of Parks and Wildlife.	Section 10
16-14	The <i>Caladenia huegelii</i> Habitat Management Plan identified in condition 16-12, shall include details on the: <ol style="list-style-type: none"> <li>(1) Activities to be undertaken.</li> <li>(2) Consistency of the activities identified in 16-14(1) with the management objectives of the relevant Recovery Plan.</li> <li>(3) Timeframes for undertaking management activities.</li> <li>(4) Roles and responsibilities.</li> <li>(5) Funding arrangements for implementation of the plan.</li> <li>(6) Monitoring, and reporting and evaluation mechanisms.</li> <li>(7) Completion criteria.</li> </ol>	Sections 3, 4, 5, 6, 7 and 8
16-15	The <i>Caladenia huegelii</i> Habitat Management Plan required by condition 16-12 shall apply to A Class Nature Reserves 23756, 46919 and 46875, and Bush Forever Site 300.	Section 2.3
16-16	The activities to be undertaken as identified in condition 16-14(1) shall address the requirement for: <ol style="list-style-type: none"> <li>(1) The provision of cable fencing and heavy duty gates.</li> <li>(2) Weed mapping and control.</li> <li>(3) <i>Phytophthora cinnamomi</i> mapping.</li> <li>(4) The development of a hygiene plan based on the mapping as identified in condition 16-16(3).</li> <li>(5) <i>Caladenia huegelii</i> surveys and critical habitat mapping.</li> <li>(6) Other activities to be undertaken that would maintain or improve the conservation status of <i>Caladenia huegelii</i>.</li> </ol>	Section 3



Condition No.	Condition	Section of this plan
16-17	Prior to commencement of ground disturbing activities, and after receiving notice in writing from the CEO on the advice of the Department of Parks and Wildlife that the <i>Caladenia huegelii</i> Habitat Management Plan satisfies the requirements of conditions 16-13 to 16-16, or as otherwise agreed by the CEO, the proponent shall implement the <i>Caladenia huegelii</i> Habitat Management Plan until the CEO advises implementation may cease.	Tables 3 and 4 and Section 6
16-18	The proponent shall review and revise the <i>Caladenia huegelii</i> Habitat Management Plan as and when directed by the CEO.	Section 9

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## 3 ACTIVITIES TO BE UNDERTAKEN

In accordance with conditions 16-14(1) and 16-16, the following activities are to be undertaken as part of this plan:

- Provision of cable fencing and heavy duty gates.
- Weed mapping and control.
- *Phytophthora cinnamomi* mapping.
- Development of a hygiene plan based on the *Phytophthora cinnamomi* mapping.
- *Caladenia huegelii* surveys and critical habitat mapping.
- Other activities to be undertaken that would maintain or improve the conservation status of *Caladenia huegelii*, including:
  - Implementing some infrastructure elements of the hygiene plan including establishment of vehicle wash-down and signage.
  - Feral pig control measures within Reserve 23756.

Table 3 details the specific activities to be undertaken within A Class Nature Reserves 46919 and 46875 and Bush Forever Site 300.

Table 4 details the specific activities to be undertaken within A Class Nature Reserve 23756.

MRWA and DBCA will establish a Memorandum of Understanding (MoU) for the funding and implementation of activities to be undertaken as part of this plan, once this plan is approved by the CEO. See Section 5 for the MoU development timeframe.

Activities detailed in this plan for DBCA-managed lands will be undertaken by DBCA, the land manager and the implementing agency, in accordance with the MoU for the Third Party Delivery Arrangement. MRWA will fund the activities in accordance with a MoU between MRWA and DBCA.

MRWA will fund and implement activities on all other land that is not managed by DBCA.

Details on each of the activities to be undertaken are given in the following sections.

### 3.1 Provision of Cable Fencing and Heavy Duty Gates

Cable fencing and heavy duty gates will be installed along the management area boundaries of A Class Nature Reserves 23756, 46919 and 46875 and Bush Forever Site 300 as specified in Tables 3 and 4. Installation of cable fencing and heavy duty gates will be completed by December 2018.

MRWA will be responsible for all purchase and installation costs. For DBCA-managed lands, this will be through a MoU with DBCA.

### 3.2 Weed Mapping and Control

Baseline weed mapping is to be conducted throughout the management area defined in Section 2.3. Weed mapping will be undertaken by qualified botanists using the techniques and protocols detailed in DBCA's Standard Operating Procedure 22.1 Techniques for mapping weed distribution and cover in bushland and wetlands (DEC, 2011).



A Class Nature Reserves 23756, 46919 and 46875 and Bush Forever Site 300 are weed infested areas that have been subject to human activity. To manage *Caladenia huegelii* critical habitat within the management area, weed mapping will focus on identifying populations and individual weeds with the potential to significantly impact *Caladenia huegelii*, such as:

- Weeds of National Significance (WONS) listed under Section 22 of the *Biosecurity and Agriculture Management Act 2007* (BAM Act).
- Declared pests listed under Section 22 of the BAM Act.
- Invasive grasses, which include:
  - African Lovegrass (*Eragrostis curvula*).
  - Veldt grass (*Ehrharta* spp.).

Separate weed control programs will be developed for the management area associated with A Class Nature Reserves 46919 and 46875 and Bush Forever Site 300 and the management area associated with A Class Nature Reserve 23756. The two weed control programs will direct weed control actions within:

- 200 m of known individuals or populations of *Caladenia huegelii*.
- Known *Caladenia huegelii* critical habitat.

The known *Caladenia huegelii* critical habitat will be informed by the critical habitat mapping as set out in Section 3.5.

The weed control programs will use the baseline weed mapping to determine weed control actions to manage WONS, declared pests and invasive grasses present within 200 m of known individuals or populations of *Caladenia huegelii* or within known *Caladenia huegelii* critical habitat.

The completion criteria for the weed control program will be:

- A minimum of 3 years of weed control has been undertaken.
- The extent of WONS, declared pests or invasive grasses within 200 m of known individuals or populations of *Caladenia huegelii* or within known *Caladenia huegelii* critical habitat has reduced by at least 80% from the baseline weed mapping.

For DBCA-managed land, MRWA will be responsible for the funding of the weed mapping and weed control through a MoU with DBCA.

### **3.3 *Phytophthora cinnamomi* Mapping**

*Phytophthora cinnamomi* mapping will be conducted within the management area defined in Section 2.3 in accordance with current industry practice. Individuals conducting *Phytophthora cinnamomi* mapping will be DBCA-registered dieback interpreters.

Baseline mapping will be conducted in 2017. Follow up surveys will be conducted in 2019 and 2021.

For DBCA-managed land, MRWA will be responsible for the funding of the *Phytophthora cinnamomi* mapping through a MoU with DBCA.

### **3.4 Hygiene Plan**

DBCA will develop separate hygiene plans for the management area associated with A Class Nature Reserves 46919 and 46875 and Bush Forever Site 300 and the management area associated with A Class Nature Reserve 23756.



The hygiene plans will be developed by DBCA-registered dieback interpreters and will apply current hygiene protocols. The hygiene plans will be based on the *Phytophthora cinnamomi* mapping (see Section 3.3). The hygiene plans will be developed by the end of 2017.

MRWA will be responsible for funding the development of the hygiene plans. There is no specific requirement under this management plan or condition 16 for MRWA to be responsible for the implementation of the hygiene plans. The implementation of these hygiene plans will be DBCA's responsibility and is outside the requirements of this plan.

### **3.5 *Caladenia huegelii* Surveys and Critical Habitat Mapping**

Baseline surveys for *Caladenia huegelii* and critical habitat mapping will be conducted in October 2017 by DBCA or a consultant appointed by DBCA. The baseline surveys will be in the form of a targeted survey, conducted in accordance with the techniques detailed in EPA's Technical Guidance Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016).

The baseline surveys will cover the management area associated with A Class Nature Reserves 23756, 46919 and 46875 and Bush Forever Site 300.

The objectives of the baseline surveys will be to:

- Confirm the existence of known populations of *Caladenia huegelii*.
- Identify previously unknown individuals and populations of *Caladenia huegelii*.
- Map the extent of critical habitat within the management area associated with A Class Nature Reserves 23756, 46919 and 46875 and Bush Forever Site 300.

A report on the findings of the baseline surveys will be produced and submitted to MRWA.

Following the completion of the baseline surveys, annual monitoring and surveys will occur in October until 2020. These will include:

- Monitoring known and discovered *Caladenia huegelii* populations and individuals.
- Targeted surveys of critical habitat only for previously undiscovered *Caladenia huegelii* individuals and populations.

For DBCA-managed land, MRWA will provide funding for the *Caladenia huegelii* surveys and critical habitat mapping to DBCA through a MoU with DBCA.

### **3.6 Other Activities to be Undertaken to Maintain or Improve the Conservation Status of *Caladenia huegelii***

Two other activities are proposed to be undertaken to maintain or improve the conservation status of *Caladenia huegelii* within the management area associated with A Class Nature Reserves 23756, 46919 and 46875 and Bush Forever Site 300. These are:

- Install washdown points at all 'heavy duty gates' installed as part of this plan (unless not required by the hygiene plan).
- Feral pig control activities within A Class Nature Reserve 23756.

#### **3.6.1 Installation of Washdown Points**

At each of the eight heavy duty gates installed as part of this plan, DBCA will construct a washdown point (unless not required by the hygiene plan). The washdown points will consist of:

- 
- Signage.
  - An inspection and/or clean down point.
  - Cleaning equipment.

For DBCA-managed land, MRWA will fund the installation of the washdown points through a MoU with DBCA.

### **3.6.2 Feral Pig Control**

DBCA has identified feral pigs within A Class Nature Reserve 23576 as an emerging issue that may affect several populations of *Caladenia huegelii* either directly through the disturbance of soil and vegetation or indirectly through the spread of dieback. DBCA has proposed a feral pig control program be conducted within A Class Nature Reserve 23576 to assist in the recovery of *Caladenia huegelii*.

The feral pig control program will occur throughout A Class Nature Reserve 23576 and not just the management areas within the reserve. No feral pig control is proposed for A Class Nature Reserves 46919 and 46875 and Bush Forever Site 300.

DBCA will be responsible for the development and implementation of all aspects of the feral pig control program. The program will include the following activities throughout A Class Nature Reserve 23756:

- Installation of up to 12 camera traps throughout the reserve.
- Preparation of a pig control program.
- Implementation of pig control plan for three years.
- Ongoing surveillance using camera traps for three years.

MRWA will provide funding for the feral pig control program to DBCA through a MoU with DBCA.

**Table 3 Activities, timeframes, roles and responsibilities to be undertaken within the management area associated with A Class Nature Reserves 46919 and 46875 and Bush Forever Site 300**

Activity	Actions	Timeframe	Roles and responsibilities	Funding arrangement	Completion criteria
Commencement of implementation of this plan	Initiate consultation with DBCA on format and timing of MoU.	Prior to the commencement of construction.	MRWA to initiate consultation.	N/A.	Contact with DBCA made.
Agreement of MoU	Develop and establish MoU.	Within 6 months of approval of this plan.	MRWA and DBCA.	N/A.	MoU signed by the Managing Director of MRWA and the Director General of DBCA in place.
Provision of cable fencing and heavy duty gates	Install cable fencing along the northern and western boundaries of the management area associated with Bush Forever Site 300. This includes the northern boundary of A Class Nature Reserves 46919 and 46875.	By December 2018.	DBCA – for DBCA-managed land.	MRWA to provide funding in accordance with MoU.	Cable fencing installed.
			MRWA – for other land not managed by DBCA.	MRWA.	
	Install 5 heavy duty gates where required for fire and other access in areas of cable fencing.	By December 2018.	DBCA – for DBCA-managed land.	MRWA to provide funding in accordance with MoU.	Heavy duty gates installed.
			MRWA – for other land not managed by DBCA.	MRWA.	

Activity	Actions	Timeframe	Roles and responsibilities	Funding arrangement	Completion criteria
Weed mapping and control	Map weeds within the management area associated with A Class Nature Reserves 46919 and 46875 and Bush Forever Site 300.	By December 2017.	DBCA – for DBCA-managed land.	MRWA to provide funding in accordance with MoU.	Baseline weed mapping completed.
			MRWA – for other land not managed by DBCA.	MRWA.	
	Develop a weed control program for the management area associated with A Class Nature Reserves 46919 and 46875 and Bush Forever Site 300 within 200 m of known individuals of <i>Caladenia huegelii</i> and within known critical habitat for the species.	By December 2017.	DBCA – for DBCA-managed land.	MRWA to provide funding in accordance with MoU.	Weed control program, including weed control completion criteria, available for implementation.
			MRWA – for other land not managed by DBCA.	MRWA.	
	Implement weed control programs.	2018 to 2020.	DBCA – for DBCA-managed land.	MRWA to provide funding in accordance with MoU.	80% reduction in area of WONS, declared plants and invasive grasses <sup>1</sup> within 200 m of known individuals of <i>Caladenia huegelii</i> and within known critical habitat for the species from the baseline survey.
			MRWA – for other land not managed by DBCA.	MRWA.	

Activity	Actions	Timeframe	Roles and responsibilities	Funding arrangement	Completion criteria
<i>Phytophthora cinnamomi</i> mapping	Map dieback within the management area associated with A Class Nature Reserves 46919 and 46875 and Bush Forever Site 300.	Baseline mapping December 2017.  Follow up mapping in 2019 and 2021.	DBCA – for DBCA-managed land.	MRWA to provide funding in accordance with MoU.	Baseline dieback mapping completed.
			MRWA – for other land not managed by DBCA.	MRWA.	
Development of a hygiene plan	Develop a hygiene plan for the management area associated with A Class Nature Reserves 46919 and 46875 and Bush Forever Site 300.	By December 2017	DBCA – for DBCA-managed land.	MRWA to provide funding in accordance with MoU.	Hygiene plan complete for the management area associated with A Class Nature Reserves 46919 and 46875 and Bush Forever Site 300.
			MRWA – for other land not managed by DBCA.	MRWA.	
Survey and map <i>Caladenia huegelii</i>	Conduct <i>Caladenia huegelii</i> spring surveys and mapping of known populations and critical habitat within the management area associated with A Class Nature Reserves 46919 and 46875 and Bush Forever Site 300. Spring surveys and mapping field surveys to be conducted by suitably qualified and experienced botanists during the peak flowering period for <i>Caladenia huegelii</i> in accordance with relevant policies and guidelines.  Conduct follow up surveys for 3 years of known populations and critical habitat.	Baseline surveys and mapping October 2017 and then annually in October until 2020.	DBCA – for DBCA-managed land.	MRWA to provide funding in accordance with MoU.	<i>Caladenia huegelii</i> critical habitat mapping completed for the management area associated with A Class Nature Reserves 46919 and 46875 and Bush Forever Site 300.
			MRWA – for other land not managed by DBCA.	MRWA.	

Activity	Actions	Timeframe	Roles and responsibilities	Funding arrangement	Completion criteria
Other activities to be undertaken that would maintain or improve the conservation status of <i>Caladenia huegelii</i>	Install washdown points at heavy duty gates in accordance with the hygiene plan.	By December 2018.	DBCA – for DBCA-managed land.	MRWA to provide funding in accordance with MoU.	Installation of washdown points at heavy duty gates as and where specified in the hygiene plan.
			MRWA – for other land not managed by DBCA.	MRWA.	

1. Invasive grasses are defined for the purposes of this plan as African Lovegrass (*Eragrostis curvula*) and Veldt grass (*Ehrharta* spp.).

**Table 4 Activities, timeframes, roles and responsibilities to be undertaken within the management area associated with Nature Reserve 23756**

Activity	Actions	Timeframe	Roles and responsibilities	Funding arrangement	Completion criteria
Commencement of implementation of this plan	Initiate consultation with DBCA on format and timing of MoU	Prior to the commencement of construction	MRWA to initiate consultation	N/A	Contact with DBCA made
Agreement of MoU	Develop and establish MoU.	Within 6 months of approval of this plan.	MRWA and DBCA.	N/A.	MoU signed by the Managing Director of Main Roads and the Director General of DBCA in place.
Provision of cable fencing and heavy duty gates	Install 3.5 km of cable fencing along the boundary of the management area associated with A Class Nature Reserve 23756.	By December 2019.	DBCA.	MRWA to provide funding in accordance with MoU.	Cable fencing installed.
	Install 3 heavy duty gates where required for fire and other access in areas of cable fencing.				Heavy duty gates installed.
Weed mapping and control	Map weeds within the management area associated with A Class Nature Reserve 23756.	By December 2018.	DBCA.	MRWA to provide funding in accordance with MoU.	Baseline weed mapping completed.
	Develop a weed control program for the management area associated with A Class Nature Reserve 23756 within 200 m of known individuals of <i>Caladenia huegelii</i> and within known critical habitat for the species.				Weed control program, including weed control completion criteria, available for implementation.
	Implement weed control programs.	2019 to 2021.	DBCA.	MRWA to provide funding in accordance with MoU.	80% reduction in area of WONS, declared plants and invasive grasses <sup>1</sup> within 200 m of known individuals of <i>Caladenia huegelii</i> and within known

Activity	Actions	Timeframe	Roles and responsibilities	Funding arrangement	Completion criteria
					critical habitat for the species from the baseline survey.
<i>Phytophthora cinnamomi</i> mapping	Map dieback within the management area associated with A Class Nature Reserve 23756.	Baseline mapping December 2018. Follow up mapping in 2020 and 2022.	DBCA.	MRWA to provide funding in accordance with MoU.	Baseline dieback mapping completed.
Development of a hygiene plan	Develop a hygiene plan for the management area associated with A Class Nature Reserve 23756.	By December 2017.	DBCA.	MRWA to provide funding in accordance with MoU.	Hygiene plan developed for the management area associated with A Class Nature Reserve 23756.
Survey and map <i>Caladenia huegelii</i>	Conduct <i>Caladenia huegelii</i> spring surveys and mapping of known populations and critical habitat within the management area associated with A Class Nature Reserve 23756. Spring surveys and mapping field surveys to be conducted by suitably qualified and experience botanists during the peak flowering period for <i>Caladenia huegelii</i> in accordance with relevant policies and guidelines.  Conduct follow up surveys for 3 years of known populations and critical habitat.	Baseline surveys and mapping October 2017 and then annually in October until 2020.	DBCA.	MRWA to provide funding in accordance with MoU.	<i>Caladenia huegelii</i> critical habitat mapping completed for the management area associated with A Class Nature Reserve 23756.

Activity	Actions	Timeframe	Roles and responsibilities	Funding arrangement	Completion criteria
Other activities to be undertaken that would maintain or improve the conservation status of <i>Caladenia huegelii</i>	Install washdown points at heavy duty gates in accordance with the hygiene management plan.	By December 2019.	DBCA.	MRWA to provide funding in accordance with MoU.	Installation of washdown points at heavy duty gates as and where specified in the hygiene plan.
	Feral pig control activities within entirety of A Class Nature Reserve 23756: <ul style="list-style-type: none"> <li>• Installation of up to 12 camera traps throughout the reserve.</li> <li>• Preparation of a pig control plan.</li> <li>• Implementation of pig control plan for three years.</li> <li>• Ongoing surveillance using camera traps for three years.</li> </ul>	Installation of camera traps by December 2017.  Pig control plan developed by July 2018.  Pig control plan and ongoing surveillance from July 2018 to June 2021.	DBCA.	MRWA to provide funding in accordance with MoU.	All actions completed within the stated timeframes.

1. Invasive grasses are defined for the purposes of this plan as African Lovegrass (*Eragrostis curvula*) and Veldt grass (*Ehrharta* spp.).



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## 4 CONSISTENCY OF ACTIVITIES WITH RELEVANT RECOVERY PLAN

Table 5 lists the activities proposed under this management plan and details how these activities are consistent with the objectives of the Grand Spider Orchid (*Caladenia huegelii*) Recovery Plan (DEC, 2009).

**Table 5 Consistency of activities with the Grand Spider Orchid Recovery Plan (DEC, 2009)**

Activities	Consistency with recovery plan
Provision of cable fencing and heavy duty gates	Recovery action 8 – Manage access
Weed mapping and control	Recovery action 10 – Undertake weed control
<i>Phytophthora cinnamomi</i> mapping	Recovery action 3 – Carry out appropriate management of bushland that contains <i>Caladenia huegelii</i>
Development of a hygiene plan based on the <i>Phytophthora cinnamomi</i> mapping	Recovery action 3 – Carry out appropriate management of bushland that contains <i>Caladenia huegelii</i>
<i>Caladenia huegelii</i> surveys and critical habitat mapping	Recovery action 6 – Monitor populations Recovery action 11 – Conduct further surveys Recovery action 20 – Obtain biological and ecological information Recovery action 21 – Map habitat critical to survival
Other activities to be undertaken that would maintain or improve the conservation status of <i>Caladenia huegelii</i> , including:  Implementing some infrastructure elements of the hygiene plan including establishment of vehicle wash-down and signage	Recovery action 3 – Carry out appropriate management of bushland that contains <i>Caladenia huegelii</i>
Feral pig control measures within Reserve 23756	Recovery action 3 – Carry out appropriate management of bushland that contains <i>Caladenia huegelii</i>



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## 5 TIMEFRAMES

Timeframes for undertaking management activities within the management areas associated with A Class Nature Reserves 23756, 46919 and 46875 and Bush Forever Site 300 are described in Tables 3 and 4.

The MoU for the Third Party Delivery Arrangement between DBCA and MRWA will be established within six months of approval of this plan (subject to DBCA's agreement).

MRWA will provide funding to DBCA within 60 days of receiving an invoice in accordance with the terms of the MoU.

MRWA will report annually in the Compliance Assessment Report (CAR) required by condition 4-6 on the activities undertaken in the previous 12 months under this plan.

The plan will continue to be implemented until directed otherwise by the CEO of DWER in accordance with condition 16-17.



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## 6 ROLES AND RESPONSIBILITIES

This section sets out the roles and responsibilities related to the implementation of this plan.

### 6.1 Main Roads Western Australia

In relation to the implementation of this plan, MRWA will be responsible for:

- Initiate consultation with DBCA to establish a MoU once this plan is approved by the CEO.
- Providing funding for all activities related to the implementation of the plan (refer to Section 7).
- Developing a Third Party Delivery Arrangement with DBCA regarding implementation of the plan.
- Reaching agreement with DBCA through a MoU for the Third Party Delivery Arrangement (subject to DBCA's agreement).
- Providing the completed MoU and evidence of the funds transfer to the CEO of DWER once the MoU has been signed by both parties and the funds transferred.
- Implementing the activities listed in Table 3 where those activities relate to land not managed by DBCA.
- Reporting on activities undertaken under this plan in the annual Compliance Assessment Report for Ministerial Statement No. 1036.
- Ensuring that this plan is implemented appropriately.

### 6.2 Department of Parks and Wildlife

In relation to the implementation of this plan, DBCA will be responsible for:

- Agreeing in principle with MRWA to establish a MoU once this plan is approved by the CEO.
- Reaching agreement with MRWA through a MoU for the Third Party Delivery Arrangement.
- Establishing a Specific Purpose Account in accordance with applicable legislation for the purpose of holding funds for the implementation of this management plan.
- Invoicing MRWA for the agreed funds once the MoU takes effect.
- Preparing an operational works plan to undertake the activities in Tables 3 and 4.
- Implementing the activities listed in Tables 3 and 4.
- Allocating the funds provided by MRWA to agreed tasks and activities over the timeframe of this plan.
- By 20 October each year and in relation to every year in which the MoU has effect, providing to MRWA an update of:
  - Activities undertaken and expenditure incurred in the 12-month period to 20 September of the same year.
  - Activities proposed or planned in the 12-month period from 20 September of that same year until 20 September of the following year.



- Keeping MRWA informed of activities and works pursuant to the MoU that might affect or have implications for MRWA projects and proposals.



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## 7 FUNDING ARRANGEMENTS

Subject to the conditions of the MoU between MRWA and DBCA regarding the Third Party Delivery Arrangements for the implementation of this plan, the funding arrangements will be as follows:

- MRWA will fully fund all activities required under this plan.
- DBCA is to set up a Specific Purpose Account that is interest-bearing for the sole purpose of funding the implementation of the activities in this plan.
- DBCA will invoice MRWA the full amount agreed in the MoU prior to work commencing.
- MRWA will pay DBCA invoices for activities covered by this plan within 60 days of receiving the invoice.



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## 8 MONITORING, REPORTING AND EVALUATION

### 8.1 Monitoring

Activities to be undertaken as part of this plan include monitoring known and discovered *Caladenia huegelii* populations and individuals as detailed in Tables 3 and 4.

Additional monitoring activities to be undertaken in management areas associated with A Class Nature Reserves 23756, 46919 and 46875 and Bush Forever Site 300 will be detailed in the weed control programs and hygiene plans to be developed (see Sections 3.2 and 3.4).

### 8.2 Reporting and Evaluation

The annual compliance assessment report prepared by MRWA will include:

- The activities undertaken in the previous 12 months under this plan.
- The activities proposed in the next 12 months under this plan.
- A summary of compliance against the management plan.
- An evaluation of the results of monitoring and survey actions to identify progress on meeting the completion criteria detailed in Tables 3 and 4.

Any plan revisions undertaken in accordance with Section 9 will also be highlighted in the CAR. The CAR will be submitted in accordance with condition 4-6.

DBCA will provide an annual report to MRWA detailing the progress in undertaking the activities for which DBCA is identified as the responsible party, expenditure incurred and proposed activities in the following year. This report will be provided to MRWA annually for the duration of the MoU by 20 October each year. See Section 6.2 for more detail. The annual progress report from DBCA will be included in the CAR.



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## 9 REVIEW AND REVISION OF THE PLAN

In accordance with condition 16-18, MRWA shall review and revise this plan as and when directed by the CEO.



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## 10 STAKEHOLDER CONSULTATION

MWRA consulted with stakeholders while developing this plan. This section provides a summary of consultation that occurred. The comments raised during consultations with stakeholders were considered in the developing the plan.

Advice from DBCA (formerly DPAW) was received and incorporated into this plan in accordance with condition 16-13.

A summary of the consultation and MRWA's response is included in Table 6.

**Table 6 Stakeholders consulted, comments and responses**

Date	Organisation	Summary of consultation	MRWA response to comments/concerns
2 March 2016	DPAW	Discussions between MRWA and DPAW with regards to <i>Caladenia huegelii</i> offset funding options for the proposal. DPAW provided advice on: <ul style="list-style-type: none"> <li>• Cable fencing of reserves.</li> <li>• Weed/dieback mapping.</li> <li>• Critical habitat mapping/surveys.</li> <li>• Identified costs.</li> </ul>	MRWA in agreement with DPAW's proposed funding options and advice.
13 September 2016	DPAW	DPAW provided comment on the initial draft of the <i>Caladenia huegelii</i> Habitat Management Plan provided to DPAW on 17 August 2016.	DPAW raised a number of issues, which have been addressed in the development of this version of the <i>Caladenia huegelii</i> Habitat Management Plan.



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## 11 REFERENCES

- DEC. 2009. Grand Spider Orchid (*Caladenia huegelii*) Recovery Plan. Department of Environment and Conservation, Kensington, Western Australia.
- DEC. 2011. Standard Operating Procedure 22.1 Techniques for mapping weed distribution and cover in bushland and wetlands. A WWW publication accessed on 4 January 2017 at [https://www.dpaw.wa.gov.au/images/documents/plants-animals/monitoring/sop/sop221\\_weed\\_mapping.pdf](https://www.dpaw.wa.gov.au/images/documents/plants-animals/monitoring/sop/sop221_weed_mapping.pdf). Department of Environment and Conservation, Perth, Western Australia.
- EPA. 2016. Technical Guidance Flora and Vegetation Surveys for Environmental Impact Assessment. A WWW publication accessed on 4 January 2017 at [http://www.epa.wa.gov.au/sites/default/files/Policies\\_and\\_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey\\_Dec13.pdf](http://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey_Dec13.pdf). Environmental Protection Authority, Perth, Western Australia.

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