Lot 9006 Reilly Road,
Harrisdale

Environmental Assessment Report
(Structure Plan)

Prepared for
Sytka Pty Ltd
by Strategen

March 2019
Lot 9006 Reilly Road,
Harrisdale

Environmental Assessment Report
(Structure Plan)

Strategen is a trading name of
Strategen Environmental Consultants Pty Ltd
Level 1, 50 Subiaco Square Road Subiaco WA 6008
ACN: 056 190 419

March 2019
Limitations

Scope of services

This report ("the report") has been prepared by Strategen Environmental Consultants Pty Ltd (Strategen) in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and Strategen. In some circumstances, a range of factors such as time, budget, access and/or site disturbance constraints may have limited the scope of services. This report is strictly limited to the matters stated in it and is not to be read as extending, by implication, to any other matter in connection with the matters addressed in it.

Reliance on data

In preparing the report, Strategen has relied upon data and other information provided by the Client and other individuals and organisations, most of which are referred to in the report ("the data"). Except as otherwise expressly stated in the report, Strategen has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report ("conclusions") are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. Strategen has also not attempted to determine whether any material matter has been omitted from the data. Strategen will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to Strategen. The making of any assumption does not imply that Strategen has made any enquiry to verify the correctness of that assumption.

The report is based on conditions encountered and information received at the time of preparation of this report or the time that site investigations were carried out. Strategen disclaims responsibility for any changes that may have occurred after this time. This report and any legal issues arising from it are governed by and construed in accordance with the law of Western Australia as at the date of this report.

Environmental conclusions

Within the limitations imposed by the scope of services, the preparation of this report has been undertaken and performed in a professional manner, in accordance with generally accepted environmental consulting practices. No other warranty, whether express or implied, is made.

Client: Sytka Pty Ltd

<table>
<thead>
<tr>
<th>Report Version</th>
<th>Revision No.</th>
<th>Purpose</th>
<th>Strategen author/reviewer</th>
<th>Submitted to Client</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draft Report (issued under previous job No. FJM16171.01)</td>
<td>Rev A</td>
<td>For review by Client</td>
<td>C Courtauld / A Welker / D Walsh</td>
<td>Electronic 12 September 2016</td>
</tr>
<tr>
<td>Final Report (issued under previous job No. FJM16171.01)</td>
<td>Rev 0</td>
<td>For Submission</td>
<td>C Courtauld / A Welker / D Walsh</td>
<td>Electronic 28 September 2016</td>
</tr>
<tr>
<td>Final Report</td>
<td>Rev 1</td>
<td>Update for Rezoning and Structure Plan and</td>
<td>K Cooper / D Walsh</td>
<td>Electronic 27 February 2018</td>
</tr>
<tr>
<td>Final Report</td>
<td>Rev 2</td>
<td>Incorporate client comments</td>
<td>K Cooper / D Walsh</td>
<td>Electronic 29 March 2018</td>
</tr>
<tr>
<td>Final Report</td>
<td>Rev 3</td>
<td>Incorporate client comments</td>
<td>K Cooper / D Walsh</td>
<td>Electronic 9 April 2018</td>
</tr>
<tr>
<td>Final Report</td>
<td>Rev 4</td>
<td>Incorporate DEE Referral decision and conditions</td>
<td>C Lehman / K Choo</td>
<td>Electronic 20 March 2019</td>
</tr>
</tbody>
</table>

Filename: SYT18022_01 R002 Rev 4 - 20 March 2019/
Table of contents

1. Introduction 1
   1.1 Overview 1
   1.2 Planning and environmental approvals and plans 1
      1.2.1 Planning and Development Act 2005 1
      1.2.2 Local Planning Scheme No. 2 1
      1.2.3 Environment Protection and Biodiversity Conservation Act 1999 2
      1.2.4 Environmental Protection Act 1986 2
      1.2.5 Integrated land and water management plan 2
   1.3 Document purpose and scope 2

2. Existing environment 5
   2.1 Topography and soils 5
      2.1.1 Acid Sulfate Soils 5
      2.1.2 Contamination 5
   2.2 Hydrology 5
      2.2.1 Groundwater 5
      2.2.2 Wetlands 6
   2.3 Vegetation and flora 8
      2.3.1 Overview 8
      2.3.2 Vegetation 8
      2.3.3 Banksia Woodland TEC 11
      2.3.4 Dieback 11
      2.3.5 Conservation significant flora 13
   2.4 Fauna habitat 16
      2.4.1 Black cockatoo habitat assessment 16
   2.5 Bushfire risk 19
   2.6 Cultural heritage 19

3. Potential impact, mitigation and management 20
   3.1 Acid Sulphate soils 20
   3.2 Stormwater and drainage 20
   3.3 Wetlands 20
   3.4 Vegetation and Flora 21
      3.4.1 General 21
      3.4.2 DRF 21
      3.4.3 Banksia Woodland TEC 21
      3.4.4 Dieback 22
      3.4.5 Fauna habitat 22

4. Conclusion 23

5. References 24
List of figures
Figure 1: Site location 3
Figure 2: Subdivision Concept Plan 4
Figure 3: Hydrology 7
Figure 4: Vegetation Types 12
Figure 5: Potential Diuris purdiei habitat 15
Figure 6: Baudin’s Black Cockatoo and Carnaby’s Black foraging habitat 17
Figure 7: Forest Red-tailed Black Cockatoo foraging habitat 18

List of plates
Plate 1: VT1 – Banksia attenuata and Banksia menziesii Low Woodland over Hibbertia hypericoides dominated Low Shrubland with scattered Banksia ilicifolia and Nuysia floribunda (Very Good condition) within the site 10
Plate 2: VT2 – Closed heath of Xanthorrhoea preissii and mixed herbs and shrubs with emergent Melaleuca preissiana and Melaleuca rhiphiophylla (Very Good condition) within the site 10
Plate 3: VT4 – Closed Shrubland of Melaleuca teretifolia and Kunzea glabrescens over scattered Xanthorrhoea preissii and exotic grasses (Very Good condition) within the site 11

List of appendices
Appendix 1 WAPC MRS amendment 1336/27 advice
Appendix 2 EPBC Approval and Conditions (2016/7846)
Appendix 3 Advice from the EPA
Appendix 4 Dieback Mapping (Glevan Consulting 2017)
Appendix 5 North Forrestdale Structure Plan
Appendix 6 Letter from the Executive Director (CALM)
1. Introduction

1.1 Overview

Sytka Pty Ltd (Sytka) is proposing to develop part Lot 9006 Reilly Road, Harrisdale (the site) located approximately 19 km southeast of the Perth CBD. Lot 9006 is approximately 10 ha in size of which 4ha is a proposed future primary school (to be developed by the Department of Education) and 6ha subdivision area (the site) (to be developed by Sytka). The site is located within an urban context with semi-rural properties to the north, proposed primary school to the east, residential development (Vertu Estate) immediately South and Carey Baptist College located to the west (Figure 1).

1.2 Planning and environmental approvals and plans

1.2.1 Planning and Development Act 2005

In December 2017, the Western Australian Planning Commission (WAPC) in accordance with Clause 27 of the Metropolitan Region Scheme (MRS), resolved to transfer Lot 9006 from the Urban Deferred zone to the Urban zone. The WAPC advised that any future structure plan for the subject land is expected to address the environmental attributes of Lot 9006 Reilly including the retention of vegetation. It was further clarified (refer to Appendix 1) that:

- retention of suitable vegetation within Public Open Space (POS) areas particularly where vegetation is contiguous with adjacent land;
- retention of mature trees in verge and median areas; and
- potential retention of vegetation within the Primary School site is to be determined appropriate by the Department of Education.

1.2.2 Local Planning Scheme No. 2

The City of Armadale Town Planning Scheme 2 (TPS) Amendment 190 (Development Area 215) (which includes the site) was referred to the Environmental Protection Authority (EPA) in December 2003. The amendment included the site (which was proposed to be rezoned from general rural to urban development), as well as the majority of the Forrestdale District Structure Plan area.

In March 2004, the EPA concluded that the overall environmental impact of the TPS scheme amendment implementation was not significant enough to warrant assessment under Part IV of the Environmental Protection Act 1986 (EP Act). The EPA also concluded that it was not necessary to provide advice on the scheme amendment and no environmental factors were observed. The EPA’s advice concluded:

"Under the provisions of Section 48A(a) of the Environmental Protection Act the above scheme amendment is now deemed assessed by the EPA".

Based on this statement and the previous advice received from the EPA regarding the MRS amendment, it is considered that the EPA was satisfied that the matters identified in its advice in relation to MRS Amendment 1072/33 had been adequately addressed in relation to the site.

The site is currently zoned Urban Development under the City’s TPS2. A Structure Plan (SP) has been prepared to guide development and subsequent subdivision on site which includes, residential lots, Public Open Space (POS) and associated infrastructure (Figure 2). This Environmental Assessment Report (EAR) supports the SP.
1.2.3 Environment Protection and Biodiversity Conservation Act 1999

In 2016, an Environment Protection and Biodiversity Conservation Act (1999) (EPBC Act) referral (2016/7846) was submitted to the Department of Environment and Energy (DEE) to clear approximately 6.3ha of remnant native vegetation which included 4.66 ha of the Banksia woodland Threatened Ecological Community (TEC) and the retention of approximately 0.4 ha of the Banksia woodland TEC and good quality Carnaby’s Cockatoo (CC) and Baudin’s Black Cockatoo (BBC) habitat within POS. Refer to Figure 2, for the EPBC referral area.

The outcome of the EPBC Act referral decision was a controlled action, due to the provision of listed threatened species and communities. Additional preliminary documentation was forwarded the DEE for assessment late 2017/ early 2018. In March 2019, the DEE notified Sytka of the decision to approve the proposed action and the subsequent clearing of 4.66 ha of Banksia woodland TEC within the site (EPBC 2016/7846). That is, subject to specific environmental conditions being implemented to compensate for the loss of Banksia Woodlands TEC, namely the purchase and management of offset sites.

Section 3.4.3 and Appendix 2 provides further detail on the conditions imposed by the DEE.

1.2.4 Environmental Protection Act 1986

MRS amendment 1072/33 (which included the site and the majority of the Forrestdale District Structure Plan area), was referred to the EPA in April 2003. In May 2003, the EPA considered that the overall environmental impact of the scheme amendment implementation was not significant enough to warrant assessment under Part IV of the Environmental Protection Act 1986 (EP Act). The MRS Amendment was therefore determined to be ‘Not assessed’ with advice given. The EPA stated:

“Under the provisions of Section 48A(a) of the Environmental Protection Act the above scheme amendment is now deemed assessed by the EPA to the extent that the EPA supports the broad zoning proposed. As outlined above however, the EPA has deferred assessment of a number of environmental factors to later stages of planning to allow a more detailed consideration at the town planning scheme, structure planning and subdivision stages.” (Appendix 3).

1.2.5 Integrated land and water management plan

A Integrated Land and Water Management Plan (ILWMP) (DoW, 2009) has been prepared for the Southern River District Structure Plan (which includes the site) to facilitate the implementation of the Southern River/Forrestdale/ Brookdale/Wungong Urban Water Management Strategy. The ILWMP sets out management requirements for water management at the regional, local and lot scale, including specific targets (design objectives) for the management of surface and groundwater quantity and quality and for potable water use. For example, new developments should aim to achieve a target of less than 100 kilolitres per person per year (kL/person/year) for consumers within Perth. In addition, there is an aspirational target of not more than 40-60 kL/person/year for new developments (DoW, 2009:vii).

A Local Water Management Strategy (LWMS) has been developed for the SP and should be read in conjunction with this document.

1.3 Document purpose and scope

This EAR was prepared to support the submission and implementation of the SP. The EAR identifies the key environmental elements of the site and potential environmental impacts and proposed management measures and implementations.
Figure 1: Survey Area

Legend
- Site boundary
- EPBC referral boundary (2016/7864)
- Cadastre
- Primary School area
- Subdivision area

Source: Existing cadastre: SLIP, landgate 2016.
Note that positional errors may occur in some areas

Scale: 1:3,000 at A4
Coordinate System: GDA 1994 MGA Zone 50
Date: 22/02/2018
Author: JCrute
Source: Existing cadastre: SLIP, landgate 2016.
Figure 2: Draft Concept Plan (CLE design)

Source: [Diagram of land uses and boundaries]

Legend:
- EPA referral boundary (2015/7864)
- Site boundary
- Lot layout
- Cadastre

Note that positional errors may occur in some areas.
Coordinate System: GDA 1994 MGA Zone 50
Datum: GDA 1994
Map Projection: MGA94 Zone 50
Units: 02 5 5 0 7 5 m

Date: 26/03/2018
Author: vdinh

Source: info@strategen.com.au
www.strategen.com.au
2. Existing environment

2.1 Topography and soils

The site is predominantly flat and low lying with surface elevation from 27 mAH (Australian Height Datum) along the northern boundary to 23 mAH at the southern boundary.

The majority of the site overlies the Southern River Landform and Soil Units (Aeolian deposits) and consists predominantly of grey Bassendean Sands over Guildford Formation at varying depths (Churchwood and McArthur 1978). Regional geology mapping indicates that the site consists of S10 soil unit which comprises sand over sandy clay to clayey sand of the Guildford Formation (Jordan 1986).

2.1.1 Acid Sulfate Soils

Regional Acid Sulfate Soil (ASS) Swan Coastal Plain risk mapping (DER 2014) identifies the project area as a ‘moderate to low’ (Class 2) risk of ASS occurring within 3 m of natural soil surface.

The Department of Environment Regulation (2015) (DER, now Department of Water Environmental Regulation) ‘Identification and Investigation of Acid Sulfate Soils and Acidic Landscapes Guidelines’ outline when sites need to be investigated for ASS. In areas mapped as ‘moderate to low’ risk of ASS occurring within 3m of natural soil surface’, ASS investigations may be required when:

- works involving lowering of watertable (temporary or permanent);
- earthworks extending to greater then 3m below natural ground surface; and
- works within 500m of wetlands.

Given the above, when earthwork design and specifications (including infrastructure and drainage services) are known, a desktop investigation and completion of a self-assessment form will be completed to confirm whether further ASS investigations are warranted.

2.1.2 Contamination

The Department of Water and Environmental Regulation (DWER) (2018) Contaminated Sites Database was searched and there are currently no registered contaminated sites within or surrounding the site. A review of historical aerial imagery (from 1953) indicates that the site contains remnant vegetation with surrounding agricultural and residential land uses. It is highly unlikely that there has been potential contamination sources /land-uses on site.

There are two registered sites within a 500m radius of the site. These are:

- 1627 Ranford Rd Southern River WA 6110. Contaminated - remediation required (Fragments of asbestos-containing material are present within the fill. A metal (zinc) and a pesticide (dieldrin) are present within fill sands); and
- 7 Balannup Rd Harrisdale WA 6112. Contaminated - restricted use (Asbestos-impacted soil and asbestos-containing material (ACM) within soil).

2.2 Hydrology

2.2.1 Groundwater

The site is located on the Perth Superficial Swan aquifer and the Confined Perth Leederville and Yarragadee North Aquifers.

The Perth Groundwater Atlas (DWER 2018) indicates that the historical maximum groundwater level to be approximately 22-24 mAH which equates to a depth to groundwater within the site of approximately 3-5 m.
There are no groundwater licences applicable for the site. The ground water aquifers within the locality of the site are fully allocated (DWER, 2018a).

2.2.2 Wetlands

The Department of Biodiversity Conservation and Attractions (DBCA) Regional Geomorphic Wetland mapping indicates that a Sumpland Resource Enhancement Wetland (REW) (UFI 15947) is mapped within the southern portion of the site. REWs are defined as wetlands which may be partially modified but still support significant ecological attributes and functions (Figure 3). There is also an area mapped as a Multiple Use Wetland (MUW). MUW’s are the lowest management category assigned to wetlands by the DWER, and are generally considered appropriate for development, provided the hydrological regime is not disturbed (EPA 2008).
Figure 3: Hydrography - Topography

Legend

- 1m contour (mAHĐ)
- Groundwater maximum (mAHĐ)
- EPBC referral boundary (2016/7864)
- Cadastre
- Geomorphic wetland
- Multiple Use
- Resource Enhancement
2.3 Vegetation and flora

2.3.1 Overview

Regionally, Beard (1980) vegetation association mapping indicates that the site is within the 1001- Medium very sparse woodland; jarrah, with low woodland; banksia and casuarina. WALGA (2017) estimates that there is approximately 10-30% of this vegetation complex within the IBRA subregion.


Within the City of Armadale Local Biodiversity Strategy (CoA 2009), the site is considered a Local Natural Area (LNA) within Biodiversity Planning Precinct No. 1. LNA have been identified for priority of retention, protection and management. These areas are usually the responsibility of the Local Government Area (Del Marco et al. 2004).

According to Del Marco et al. (2004) the importance of ecological linkage is to connect natural areas, preferably with continuous corridors of native vegetation, which assists in fauna movement between the areas and to access resources and habitats. The protection, management and buffering of existing natural areas within an ecological linkage is a higher priority than revegetation of cleared portions of the link. The site is not shown within a Regional Ecological Linkage and has not been classified as a Bush Forever site.

2.3.2 Vegetation

Since 2005, several flora and vegetation surveys have been completed for the site. A summary of the survey and outcomes are provided in Table 1.

Table 1: Surveys conducted within the site

<table>
<thead>
<tr>
<th>Author (date)</th>
<th>Survey</th>
<th>Date of survey (if relevant)</th>
<th>Scope and outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATA Environmental (2005)</td>
<td>North Forrestdale Development Area Flora and Vegetation Survey (including site)</td>
<td>September 2004</td>
<td>Targeted surveys for Caladenia huegelii within site with the objective of verifying an historical record of the species lodged with the former Department of Conservation and Land Management. C. huegelii was not observed.</td>
</tr>
<tr>
<td>360 Environmental</td>
<td>Balannup Road, Harrisdale: Flora and Vegetation Assessment</td>
<td>November 2014</td>
<td>Level 2 flora and vegetation survey of a site directly adjacent to the site.</td>
</tr>
</tbody>
</table>
Remnant vegetation within the site was observed to comprise *Banksia attenuata* and *Banksia menziesii* Low Woodland over *Hibbertia hypericoides* dominated Low Shrubland with scattered *Banksia ilicifolia* and *Nuytsia floribunda* (ATA 2005) (Plate 1, Figure 4). The majority of vegetation on the site (subdivision area) was considered to represent Floristic Community Type (FCT) 23a (Central *Banksia attenuata-Banksia menziesii* woodlands). The eastern portion of the site (Primary School site) corresponds to FCT 5 (Mixed shrub damplands) which is not a Threatened or Priority Ecological Community. Both FCT 23a and 5 are well reserved within the Swan Coastal Plan and deemed to be at ‘low risk’ and therefore propose no restriction on development (ATA, 2005).

The vegetation on site was in Very Good condition in accordance with the vegetation condition scale outlined in Keighery (1994) (ATA 2005).

The following Vegetation Types (VT) have been mapped as occurring on site (Figure 4):

- **VT1** – *Banksia attenuata* and *Banksia menziesii* Low Woodland over *Hibbertia hypericoides* dominated Low Shrubland with scattered *Banksia ilicifolia* and *Nuytsia floribunda* (Very Good condition) within the site (Plate 1);
- **VT2** – Closed heath of *Xanthorrhoea preissii* and mixed herbs and shrubs with emergent *Melaleuca preissiana* and *Melaleuca rhaphiophylla* (Very Good condition) within the site (Plate 2);
- **VT3** - Closed sedgeland of *Phlebocarya ciliata* and other herbs and shrubs with emergent *Banksia ilicifolia*, *B. attenuata*, *Allocasuarina fraseriana*;
- **VT4** - Open woodland of *Allocasuarina fraseriana* and *Nuytsia floribunda* over mixed sedges and herbs; and
- **VT5** – Closed Shrubland of *Melaleuca teretifolia* and *Kunzea glabrescens* over scattered *Xanthorrhoea preissii* and exotic grasses (Very Good condition) within the site (Plate 3) (Strategen, 2017).
Plate 1: VT1 – Banksia attenuata and Banksia menziesii Low Woodland over Hibbertia hypericoides dominated Low Shrubland with scattered Banksia ilicifolia and Nuytsia floribunda (Very Good condition) within the site

Plate 2: VT2 – Closed heath of Xanthorrhoea preissii and mixed herbs and shrubs with emergent Melaleuca preissiana and Melaleuca rhaphiophylla (Very Good condition) within the site
2.3.3 Banksia Woodland TEC

A total of 5.06 ha of Banksia Woodland TEC (VT1) (FCT 23a) was recorded as occurring within the site. An assessment of the Banksia woodland TEC against the key diagnostic criteria (DEE, 2016) was undertaken and presented in the EPBC referral (2016/7846), the area is depicted within Figure 4.

2.3.4 Dieback

A Phytophthora Dieback survey was completed for the site by Glevan Consulting (2017) in July 2017. It was recorded by Glevan Consulting (2017:13) that Phytophthora Dieback was observed to be present in (and spreading from) the low-lying dampland in the south-east of the site (refer to Appendix 4). This infestation is spreading north-west, and upslope, into the Banksia vegetation and currently covers half of the site. All vegetation to the south-east of the central firebreak is also infested with Phytophthora Dieback. The edge of the Phytophthora Dieback infestation is obvious with many recent deaths observed in indicating species, particularly Banksia attenuata, B. silicifles, Xanthorrhoea prissii and Patersonia species. Over 50% of the site is currently infested with P. cinnamomi.
Figure 4: Vegetation types

Legend
- EPBC referral boundary (2016/7864)
- Site boundary
- Cadastre
- VT1
- VT2
- VT3
- VT4
- VT5
- Cleared

Coordinate System: GDA 1994 MGA Zone 50
Note that positional errors may occur in some areas
Date: 22/02/2018
Author: JCrute
Source: Existing cadastre: SLIP, landgate 2016.

Source: Existing cadastre: SLIP, landgate 2016.
2.3.5 Conservation significant flora

The site has been extensively surveyed, no conservation significant flora species has been recorded on site, a summary of the surveys completed is presented in Table 1.

*Caladenia huegelii*

The species’ range extends from north of Perth to Busselton, with most records found within 20 km of the coast, generally associated with dense understorey on deep grey–white sands of the Bassendean system. Vegetation within the Survey Area was described as follows (360 Environmental 2015b):

* Banksia attenuata* and *Allocasuarina fraseriana* low open forest over *Kunzea glabrescens* and *Adenanthes cygnorum* tall shrubland over *Xanthorrhoea preissii* low open shrubland over *Dasypogon bromeliifolius*, *Lomandra preissii* and *Patersonia occidentalis* var. *occidentalis* open shrubland.

This vegetation type is considered suitable habitat for *C. huegelii*, and the Survey Area is situated within the species’ known range.

Targeted surveys for *C. huegelii* were conducted at Lot 9006 Reilly Rd by ATA Environmental between 2003 and 2005, with no individuals recorded (as reported in Ecologia 2017). Upon review of the surveys the Department of Conservation and Land Management (CALM) (letter dated 23/12/2005-Appendix 6) concluded that based on surveys completed for the site the species does not occur at the site. An earlier, unverified record of the species is now listed as “unverified” by the Department of Biodiversity, Conservation and Attractions (DBCA, Ecologia 2017). No individuals of *C. huegelii* were recorded during the current survey, nor were any other *Caladenia* species of the Spider Orchid complex recorded.

A subsequent spring survey was also undertaken by 360 Environmental in 2015, which also did not locate any evidence of *C. huegelii* within the site.

Further to the above information Strategen (2018) completed a field survey in accordance to standards set out in the following documents:

- Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016); and

The surveys were undertaken by three ecologists from Strategen on 21 September 2017 and 12 October 2017. *Caladenia huegelii* was not observed within the site during either of the surveys.

*Drakaea elastica*

A targeted DRF search for the Glossy-leafed Hammer Orchid (*Drakaea elastica*) was undertaken by Strategen, 2018a). The field surveys were conducted according to standards set out in the following documents:

1. Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016); and

The surveys were undertaken by two ecologists from Strategen on 25 July 2017, the *D. elastica* was not found during the survey.
Diuris purdiei (habitat)

The nearest record of *D. purdiei* to the Project Area is approximately 3.2km to the immediate north within a remnant of low dampland heath on Warton Rd, approximately 300 southwest of Gay St (Ecologia 2017). Another record is located further to the south at the intersection of Anstey and Keane Roads, in Bush Forever site 342: Anstey/Keane dampland and adjacent bushland (also known as Jandakot Regional Park Anstey-Keane Block).

The ATA (2005) survey assessment reports that the *Diuris purdiei* was searched for in spring 2004 (after the fire event in 2002) and no species were recorded on site. Strategen (2018) completed a desktop assessment of potential *D. purdiei* habitat within the site, which was referred to DBCA for advice.

Based on site survey and correspondence with DBCA *pers. comm* (2018), the eastern portion of the site contains potentially suitable habitat for *D. purdiei* within the following vegetation types:

- VT2-closed heath of *Xanthorrhoea preissii* and mixed herbs and shrubs with emergent *Melaleuca preissiana* and *Melaleuca rhaphiophylla*; and
- VT3-closed sedgeland of *Phlebocarya ciliata* and other herbs and shrubs with emergent *Banksia ilicifolia*, *B. attenuata*, *Allocasuarina fraseriana* (Figure 5).

The closed sedgeland and open woodland vegetation types are transitional between the two main vegetation types (Banksia woodland and closed heath dampland) within the site. Based on the scientific surveys which have been undertaken for the site, it is highly unlikely that the species is present on site.
Figure 5: Potential *Diuris purdiei* habitat

Legend
- EPBC referral boundary (2016/7864)
- Site boundary
- Cadastre
- Potential *Diuris purdiei* habitat

Scale: 1:3,000
Coordinate System: GDA 1994 MGA Zone 50
Date: 22/02/2018
Author: JCrute
Source: Existing cadastre: SLIP, landgate 2016.
2.4 Fauna habitat

2.4.1 Black cockatoo habitat assessment

The site was inspected in September 2016 by a Strategen ecologist with relevant experience as specified by the EPBC Act Referral guidelines for three threatened black cockatoo species (DSEWPaC 2012). The inspection included:

- a vegetation assessment to identify vegetation communities and potential black cockatoo foraging species; and
- a significant tree assessment to identify any trees with the potential to be utilised by black cockatoos for breeding.

The site includes approximately 5.06 ha of good (VT1) and 0.2 ha of moderate (VT3) quality foraging habitat (FCT23a) for CC and BBC (Figure 6). The FRTC habitat is associated with VT3 (0.2ha), therefore it can be concluded that there is very limited habitat for FRTC on site (Figure 7).

Based on the site assessment and vegetation mapping within the area, no roosting or breeding habitat for black cockatoos occurs within the site and there are no known records of black cockatoos roosting or foraging in the area (Strategen, 2016).

Based on the above and the large areas of potential habitat contained in the surrounding conservation areas (e.g. Harrisdale Swamp Recreation Reserve, Piara Nature Reserve, Balannup Lake Nature Reserve, Bush Forever Site 253) the site is not considered a significant habitat for black cockatoos, which has been reflected in correspondence from the DEE.
Figure 6: Baudin’s Black Cockatoo and Carnaby’s Black Cockatoo foraging habitat

Legend

Foraging habitat quality
- Good
- Moderate
- Poor
- Nil

EPBC referral boundary (2016/7864)
Site boundary
Cadastre

Source: Existing cadastre: SLIP, landgate 2016.
Note that positional errors may occur in some areas

Scale at A4
Date: 22/02/2018
Author: JCrute
Coordinate System: GDA 1994 MGA Zone 50
www.strategen.com.au
info@strategen.com.au
Path: U:\Consult\2018\SYT\SYT1802_R002\ArcMap_documents\SYT1802_R002_revA.mxd
Figure 7: Forest Red-tailed Black Cockatoo foraging habitat
2.5 Bushfire risk

Based on the Map of Bush Fire Prone Area (Department of Fire and Emergency Services, 2017) the site is located in a Bush Fire Prone Area. Therefore, under Measure 6.5 of State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7) there is a requirement for a Bushfire Management Plan (BMP) to be prepared in support of planning documentation. The BMP shall include:

- a Bushfire Attack Level (BAL) contour map to determine the indicative acceptable BAL ratings across the subject land;
- identification of any bushfire hazard issues arising from the BAL assessment; and
- assessment against the bushfire protection criteria requirements contained within the Guidelines demonstrating compliance within the boundary of the site.

A preliminary bushfire hazard assessment was undertaken by Strategen (2016) as part of the original environmental assessment for the site. The BMP has been updated to reflect the SP and has been prepared for the project area to address SPP 3.7 in accordance with the Guidelines. The BMP should be read in conjunction with this EAR.

2.6 Cultural heritage

A search of the Department of Planning, Lands and Heritage (DPLH) Aboriginal Heritage Inquiry System (DPLH 2018) found no registered Aboriginal Heritage sites or Other Heritage Places within the site.

A search of the State Heritage Council (SHC) inHerit database (SHC 2018) found no State Heritage sites within the site. A search of the Australian Heritage Places inventory (DIA 2015) found no National Heritage sites within the site.
3. Potential impact, mitigation and management

3.1 Acid Sulphate soils

When earthworks (including infrastructure and drainage services) are defined, an ASS desktop self-assessment can be completed to confirm whether further ASS investigations in accordance with DER (2015) ASS guidelines are warranted.

3.2 Stormwater and drainage

Subdivision

In accordance with Better Urban Water Management guidelines (WAPC 2008) an Urban Water Management Plan (UWMP) will be developed for the subdivision area, which will aim to meet the principles and objectives of stormwater management in Western Australia, as detailed in the Stormwater Management Manual for Western Australia (DoW 2004 – 2007).

The UWMP identifies and describes a range of design elements and management measures being considered for the development. The principal objective of the UWMP is to achieve better urban water management outcomes by specifying a development that manages the total water cycle in a sustainable manner and meets objectives for water sensitive urban design. This includes meeting the desired outcomes of:

- protecting public health and safety;
- protecting public and private infrastructure and buildings from flooding;
- protecting and enhancing sensitive receiving environments by managing the water cycle, water quality, habitat diversity and biodiversity;
- enabling economically sustainable construction, maintenance and renewal/replacement costs; and
- achieving good urban amenity (DWER 2017).

In accordance with the Draft Subdivision Concept Plan (Figure 2) drainage/passive POS will be incorporated within the south-east POS area. For further information, refer to the LWMS.

Primary school site

It is likely that stormwater drainage associated with the Primary School site will be implemented through the Development Application (DA) process i.e. stormwater management plan.

3.3 Wetlands

The site does not contain any Conservation Category Wetlands (CCWs). An environmental assessment of the REW and surrounding wetlands within the DSP area was undertaken as part of the extensive state and local government planning processes to determine the permitted level of impact within the DSP area. During that planning process the REW (UFI 15947) was identified for urban development. This was also illustrated in the advice from the EPA on the MRS Amendment 1072/33 (Appendix 5).

Given the above, the impacts to this REW have already been rationalised and mitigated during the district structure planning process, therefore the presence of the REW would not prevent development of the site. The stormwater and drainage requirements for the site are further discussed in the LWMS.
3.4 Vegetation and Flora

3.4.1 General

In accordance with the WAPC's advice (2018) (Appendix 1) the subdivision concept plan design has given due regard to the following:

- retention of suitable vegetation within POS areas particularly where vegetation is contiguous with adjacent land;
- retention of mature trees in verge and median areas; and
- potential retention of vegetation within the Primary School site is to be determined appropriate by the Department of Education.

It is recommended that a landscape tree retention assessment be undertaken for the site to:

- provide advice on the current condition of each tree, species, height, Diameter at Breast Height (DBH), canopy spread, health and structural condition. Priority will be given for retaining mature trees with a high retention value; and
- provide recommendations for the protection requirements during the development of the site.

The landscape tree retention assessment will also provide information on what trees can be viability retained within road verges and median strips and within the Primary School site.

3.4.2 DRF

No conservation significant flora species (C. Huegelli and D. elastic) were noted during the time of the flora and vegetation assessments (refer to Table 1) completed for the site. As presented in Section 2.3.5, while there may be potential D. purdiei habitat (2.4ha) within the eastern portion of the site, which will be impacted through the implementation of the SP (Figure 2), it is highly unlikely that the species is present on site.

3.4.3 Banksia Woodland TEC

Approximately 5.06 ha Banksia Woodland TEC is present within the site (Figure 4). The implementation for the subdivision concept plan (Figure 2) will result in the removal of 4.66 ha of Banksia Woodland TEC and the retention of approximately 0.4 ha of the TEC within the site. The removal of up to 4.66 ha of Banksia Woodland TEC is unlikely to significantly impact the Banksia Woodland TEC on the Swan Coastal Plain given the:

- small scale nature of the clearing -the proposed clearing represents only 1.64% of the known extent of the TEC protected in conservation reserves within the local area (< 3 km);
- the already modified and disturbed nature of the vegetation within the site compared to patches of the TEC protected in the local area;
- given the large extent of the Banksia Woodland TEC which is protected in conservation reserves within the local area - approximately 279.6 ha (98.22 % of its known extent in the local area) of the TEC recorded within eleven nearby conservation reserves (< 3 km); and
- the proposed action also includes the retention of 0.4 ha of the Banksia Woodland TEC within the site will assist to reduce fragmentation of the ecological community and maintain connectivity of the community and the habitat it provides with adjacent and surrounding vegetation including areas of the ecological community.

The north-west POS (0.4ha) proposes to retain Banksia Woodland TEC on site (Figure 2).

The EPBC conditions of approval (EPBC 2016/7846; Appendix 2), details the following project specific actions required to be undertaken prior to development commencing:

- no more than 4.66 ha of Banksia Woodland TEC within the site may be cleared; and
• to compensate for the loss of Banksia Woodland TEC, the following offset package will be implemented:
  • purchase and management of an offset site with 13 ha of Banksia Woodland TEC; and
  • a financial contribution to DBCA to fully fund the purchase and management of an additional 56 ha of Banksia Woodland TEC in very good to excellent condition.

3.4.4 Dieback

Due to the occurrence of dieback on site (Glevan Consulting 2017), the implementation of hygiene methods for machinery and access will need to be managed during site works. It is noted that the dieback is spreading north-west (upslope) into the Banksia vegetation with over half of the site currently infested with dieback, therefore the long-term viability and condition of the remnant vegetation (Banksia species) will be significantly influenced by management (hygiene within the POS area) and controlled access to the north-west POS area.

A Dieback Management Plan will be developed to mitigate the risk of dieback until the POS areas are handed over the City of Armadale.

3.4.5 Fauna habitat

The implementation of the SP will require the clearing of 4.86ha of black cockatoo foraging habitat (Figure 6). As per Section 2.4.1, there are no significant breeding trees recorded on site. The removal of potential foraging habitat for CC and BBC is unlikely to significantly impact the black cockatoo species; given the:

  • small scale of clearing of black cockatoo foraging habitat relative to the habitat available within 3 km of the site;
  • survey results indicate that the proposed action area does not contain any breeding or roosting trees;
  • extensive areas of potential foraging and breeding habitat within Bush Forever Sites within the Forrestdale/Harrisdale area i.e., Bush Forever site 413: Balannup Lake and Adjacent Bushland to the north east (<1 km), Bush Forever site 262: Piara Nature Reserve to the south west (<3 km) and Bush Forever site 342: Anstey/Keane dampland and adjacent bushland to the south (<1.5 km); and
  • approximately 0.4 ha of good quality black cockatoo foraging habitat will be retained within the site and the development will be designed to retain trees in POS and potentially road reserves where practicable.

The SP has incorporated a POS area in the north-west section of the site which provides an ecological connection to existing vegetation within Carey Baptist College and remanent vegetation within the semi-rural properties located along the site northern cadastral boundary. Where possible1 viable banksia trees will be retained within the Primary School site, road verges and south-east POS area.

---

1 Subject to landscaping (tree health and structural condition) and engineering requirements.
4. Conclusion

Based on the extensive history of environmental assessment relevant to the site, it can be concluded that the site does not contain unique environmental values that are not already well represented in nearby conservation areas or the locality generally. In addition, a substantial amount of the vegetation is infested with dieback, which is likely to lead to ongoing decline in the condition of remnant Banksia vegetation and its values.
5. References

360 Environmental 2015a, Balannup Road, Harrisdale: Flora and Vegetation Assessment, report prepared for Glendinning Property Pty Ltd.

360 Environmental 2015b, Hatch Court, Harrisdale: Flora and Vegetation Assessment, report prepared for Glendinning Property Pty Ltd.


Department of Biodiversity Conservation and Attractions (DBCA) 2018 Lot 9006 Reilly Road Harrisdale Diuris purdiei habitat assessment Strategen 18 January 2018. Personal Communication.


Department of Environment Regulation (DER) 2014, Identification and investigation of Acid Sulfate Soil (ASS) and acidic landscapes, Government of Western Australia.

Department of Environment Regulation (DER) 2015, Acid Sulfate Soil (ASS) Swan Coastal Plain risk map, Government of Western Australia.


Heddie EM, Loneragan OW & Havel JJ 1980, Darling System, Vegetation Complexes, Forest Department, Perth.


Strategen Environmental (Strategen) 2016, Lot 9006 Reilly Road Harrisdale: Black Cockatoo habitat assessment. Ref No. SYT16402.01 R002.

Strategen Environmental (Strategen) 2018, Lot 9006 Reilly Road Harrisdale: Caladenia huegelii survey. Prepared for Sytka Pty Ltd, Reference SYT16402.01 M003.

Strategen Environmental (Strategen) 2018a, Lot 9006 Reilly Road Harrisdale: Drakaea elastica survey. Prepared for Sytka Pty Ltd, Reference SYT16402.01 M004.

Appendix 1
WAPC MRS amendment 1336/27
advice
Mr Kyle Jeavons
Sytka Pty Ltd
29 Monaco Place
DIANELLA WA 6059

By Email - kyle.jeavons@fjmproperty.com.au

Dear Mr Jeavons

MRS AMENDMENT 1336/27 - LOT 9006 REILLY ROAD, HARRISDALE

I refer to your letter of 31 January 2018 regarding the above Metropolitan Region Scheme (MRS) amendment.

I understand that you are seeking clarity regarding the intent of the WAPC’s advice that ‘given the quality of the vegetation present within the subject land, any future structure plan for the subject land is expected to address the environmental attributes of Lot 9006 Reilly Road, and provide for retention of these attributes consistent with WAPC policy where appropriate’.

In assessing the lifting of urban deferment request the WAPC noted the quality of the vegetation within the lifting area and its extensive coverage of the site. It is the expectation of the WAPC that portions of the vegetation within the site in good condition, noting the advice you provide regarding the presence of dieback within the lot, will be retained where possible through subsequent stages of the planning process consistent with WAPC policy.

The WAPC expects that future structure planning and subdivisions within Lot 9006 will address this advice through the retention of suitable vegetation within public open space contribution areas, particularly where this vegetation is contiguous with vegetation on adjacent land, the retention of mature trees in verge and median areas and the potential retention of vegetation within the Primary School site where this is determined appropriate by the Department of Education.

I trust the above is of assistance.

Yours sincerely

[Signature]

Eric Lumsden PSM
Chairman
Western Australian Planning Commission

February 2018

cc - Paul Sanders - City of Armadale
Appendix 2

EPBC Approval and Conditions (2016/7846)
APPROVAL

Residential development and bushfire protection within part of Lot 9006 Reilly Road, Harrisdale, WA (EPBC 2016/7846)

This decision is made under sections 130(1) and 133(1) of the Environment Protection and Biodiversity Conservation Act 1999 (Cth). Note that section 134(1A) of the EPBC Act applies to this approval, which provides in general terms that if the approval holder authorises another person to undertake any part of the action, the approval holder must take all reasonable steps to ensure that the other person is informed of any conditions attached to this approval, and that the other person complies with any such condition.

Details

<table>
<thead>
<tr>
<th>Person to whom the approval is granted</th>
<th>Sytka Pty Ltd</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACN or ABN of approval holder</td>
<td>ACN: 061 148 810</td>
</tr>
<tr>
<td>Action</td>
<td>To develop part of Lot 9006 Reilly Road, Harrisdale, approximately 19 km southeast of Perth, WA, to include residential lots, public open space and associated infrastructure including a bushfire management zone.</td>
</tr>
</tbody>
</table>

Approval decision

My decision on whether or not to approve the taking of the action for the purposes of the controlling provision for the action is as follows.

Controlling Provisions

<table>
<thead>
<tr>
<th>Listed Threatened Species and Communities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 18</td>
</tr>
<tr>
<td>Section 18A</td>
</tr>
</tbody>
</table>

Period for which the approval has effect

This approval has effect until 31 December 2029

Decision-maker

Name and position

Gregory Manning
Assistant Secretary of Assessments and Post Approval Branch
Department of the Environment and Energy

Signature

Date of decision 17 March 2019

Conditions of approval

This approval is subject to the conditions under the EPBC Act as set out in ANNEXURE A.
ANNEXURE A – CONDITIONS OF APPROVAL

Part A – Conditions specific to the action

1. The approval holder must not clear more than 4.66 hectares of Banksia Woodlands TEC within the project area shown at Attachment 1.

2. To compensate for the loss of Banksia Woodland TEC, the approval holder must:
   a. make a financial contribution to DBCA to fully fund the purchase and management for conservation of 13 hectares of Banksia Woodland TEC at Lot 102 Wannamal Road South
   b. make a financial contribution to DBCA to fully fund the purchase and management for conservation of an additional offset site(s) that contains a minimum of 56 hectares of Banksia Woodlands TEC in very good to excellent condition
   c. prior to the commencement of the action provide written evidence to the Department that the financial contributions specified in Condition 2a. and 2b. have been made to DBCA
   d. within one year of commencement of the action, or as otherwise agreed to by the Minister in writing, provide the Department with:
      i. the offset attributes, shapefiles, textual descriptions and maps to clearly define the location and boundaries of the offset site(s)
      ii. a summary of the ecological values of the offset site(s) acquired by DBCA

Part B – Standard administrative conditions

Notification of date of commencement of the action

3. The approval holder must notify the Department in writing of the date of commencement of the action within 10 business days after the date of commencement of the action.

Compliance records

4. The approval holder must maintain accurate and complete compliance records.

5. If the Department makes a request in writing, the approval holder must provide electronic copies of compliance records to the Department within the timeframe specified in the request.

Note: Compliance records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, and or used to verify compliance with the conditions. Summaries of the result of an audit may be published on the Department’s website or through the general media.

Annual compliance reporting

6. The approval holder must prepare a compliance report for each 12 month period following the date of commencement of the action, or as otherwise agreed to in writing by the Minister. The approval holder must:
   a. publish each compliance report on the website within 60 business days following the relevant 12 month period;
b. notify the Department by email that a compliance report has been published on the website within five business days of the date of publication;

c. keep all compliance reports publicly available on the website until this approval expires;

d. exclude or redact sensitive ecological data from compliance reports published on the website; and

e. where any sensitive ecological data has been excluded from the version published, submit the full compliance report to the Department within 5 business days of publication.

Note: Compliance reports may be published on the Department’s website.

Reporting non-compliance

7. The approval holder must notify the Department in writing of any incident: non-compliance with the conditions. The notification must be given as soon as practicable, and no later than two business days after becoming aware of the incident or non-compliance. The notification must specify:

   a. the condition which is or may be in breach; and

   b. a short description of the incident and/or non-compliance.

Independent audit

8. The approval holder must ensure that independent audits of compliance with the conditions are conducted as otherwise requested in writing by the Minister.

9. For each independent audit, the approval holder must:

   a. provide the name and qualifications of the independent auditor and the draft audit criteria to the Department;

   b. only commence the independent audit once the audit criteria have been approved in writing by the Department; and

   c. submit an audit report to the Department within the timeframe specified in the approved audit criteria.

10. The approval holder must publish the audit report on the website within 10 business days of receiving the Department’s approval of the audit report and keep the audit report published on the website until the end date of this approval.

Completion of the action

11. Within 30 days after the completion of the action, the approval holder must notify the Department in writing and provide completion data.
Part C - Definitions

12. In these conditions, except where contrary intention is expressed, the following definitions are used:

a. **Banksia Woodland TEC** is the **EPBC Act** listed Banksia Woodlands of the Swan Coastal Plain ecological community

b. **Business days** means a day that is not a Saturday, a Sunday or a public holiday in the state or territory of the action.

c. **Clear, cleared or clearing** means the cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ringbarking, uprooting or burning of vegetation (but not including weeds – see the *Australian weeds strategy 2017 to 2027* for further guidance).

d. **Commencement of the action** means the first instance of any specified activity associated with the action including clearance of vegetation and construction of any infrastructure. Commencement does not include minor physical disturbance necessary to:
   
i. undertake pre-clearance surveys or monitoring programs;
   
ii. install signage and/or temporary fencing to prevent unapproved use of the project area;
   
iii. protect environmental and property assets from fire, weeds and pests, including erection or construction of fencing and signage, and maintenance or use of existing surface access tracks, if agreed in writing by the **Department**.

e. **Completion data** means an environmental report and spatial data information clearly detailing how the conditions of this approval have been met. The **Department’s** preferred spatial data format is shapefile.

f. **Completion of the action** means all specified activities associated with the action have permanently ceased.

g. **Compliance records** means all documentation or other material in whatever form required to demonstrate compliance with the conditions of approval in the approval holder’s possession or that are within the approval holder’s power to obtain lawfully;

h. **Compliance reports** means written reports:
   
i. providing accurate and complete details of compliance, **incidents**, and non-compliance with the conditions and the **plans**;
   
ii. consistent with the **Department’s Annual Compliance Report Guidelines** (2014);
   
iii. include a shapefile of any clearance of any **protected matters**, or their habitat, undertaken within the relevant 12 month period; and
iv. annexing a schedule of all plans prepared and in existence in relation to the conditions during the relevant 12 month period.

i. **DBCA** means the Western Australian Department of Biodiversity, Conservation and Attractions or any future agency that inherits the roles and responsibilities of this Department.

j. **Department** means the Australian Government agency responsible for administering the **EPBC Act**.

k. **Ecological values** are the floristic descriptors that summarise the environmental values of the acquired offset areas including but not limited to the vegetative type, structure and condition and the Floristic Community Type of the Banksia Woodlands TEC as identified in the **Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain ecological community**.

l. **EPBC Act** means the Environment Protection and Biodiversity Conservation Act 1999 (Cth).

m. **Incident** means any event which has the potential to, or does, impact on protected matter(s).


o. **Lot 102 Wannamal Road South** [also known as title lot 7778] is the offset property located in South Cullulla, Western Australia that was purchased by the Western Australian Government in 2012 for the purposes of advanced offsetting and which contains 13 hectares of **Banksia Woodlands TEC** that has yet to be allocated to projects requiring offsets.

p. **Minister** means the Australian Government Minister administering the **EPBC Act** including any delegate thereof.

q. **Offset attributes** is an excel file (`.xls`) capturing relevant attributes of the offset site required by Condition 2, including the corresponding **EPBC Act** reference ID number, the physical address of the offset site, coordinates of the boundary points in decimal degrees, the **EPBC Act** protected matters that the offset site compensates, any additional **EPBC Act** protected matters which benefit from the offset site, the size of the offset site in hectares and the legal mechanism used to protect and conserve the offset site.

r. **Protected matter** means a matter protected under a controlling provision in Part 3 of the **EPBC Act** for which this approval has effect.

s. **Shapefile** is an ESRI shapefile containing `.shp`, `.shx` and `.dbf` files and other files capturing attributes of the offset area, including the shape, **EPBC Act** reference ID number and **EPBC Act** protected matters present at the relevant site. Attributes should also be captured in `.xls` format.

u. **website** means a set of related web pages located under a single domain name attributed to the approval holder and available to the public.
Figure 1: Proposed project area

Legend
- Red: Proposed project area (7.36 ha)
- Yellow: Bushfire Management Zone

Appendix 3
Advice from the EPA
ATTENTION: Mr Andrew Trevor

SCHEME/AMENDMENT TITLE: MRS Amendment No 1072/33
LOCALITY: North Forrestdale
RESPONSIBLE AUTHORITY: WA Planning Commission
LEVEL OF ASSESSMENT: Scheme Not Assessed - Advice Given

Thank you for your letter of 18 April 2003 referring the above scheme amendment.

After consideration of the likely environmental factors related to the above scheme amendment and based on the information provided by you, the EPA decided that the overall environmental impact of its implementation would not be severe enough to warrant assessment under Part IV of the Environmental Protection Act, the preparation of an Environmental Review and the subsequent setting of formal conditions by the Minister for the Environment and Heritage. Please note that there are no appeal rights on the level of assessment set for scheme amendments.

Although there is to be no formal assessment of the scheme amendment, the following advice is provided to you on the key environmental factors. A copy of this advice will also be sent to the relevant decision-making authorities and will be publicly available on request. The information provided is advice only and is not legally binding.

ADVICE

(a) Key Environmental Factors

- Odour
- Noise

(b) Deferred Environmental Factors

- Vegetation
- Wetlands
- Water quality
- Fauna
- Contamination
- Aboriginal heritage

(c) Relevant advice

Odour
The EPA notes that a portion of the amendment area falls within a 500m buffer area for a poultry farm located near the junction of Nicholson and Hale Roads. The Amendment report indicates that this poultry farm has not operated for more than 3 years and that the landowner has advised that there is no intention of operations commencing again. However, a legal agreement to this effect has not yet been obtained. The EPA generally does not support residential development within 500m of poultry farms because of potential impacts from odour in particular, and dust and noise on future residents. Therefore, as stated in the Amendment report, if this issue is not satisfactorily
addressed during the amendment process then the EPA supports inclusion of the buffer area in the Urban Deferred zone in the finalisation of the amendment.

**Noise**

It is understood that the northern portion of the amendment area is affected by a 500m buffer zone for the Randles Road dog kennels. The EPA supports the inclusion of that portion of the amendment area within this buffer zone in the Urban Deferred zone. However, if necessary the EPA can provide further advice on the zoning of this land for urban purposes during the public review period for the amendment.

**Vegetation**

The Amendment area is surrounded by four Bush Forever sites (Site Nos 253, 262, 342 and 472). Three of these sites are currently protected in Parks and Recreation (P&R) reservations with Site No. 262 (Piana Nature Reserve) vested in the Department of Conservation and Land Management (CALM) for the purposes of conservation. The EPA understands that the landowners are currently in discussions with CALM regarding appropriate interfaces between the amendment area and these P&R reserves. It is therefore proposed that this issue will be dealt with at the more detailed local structure planning (LSP) stage. Therefore, the EPA will further assess this issue when the town planning scheme is amended.

It is also understood that a further assessment to determine the local significance of bushland associated with the amendment will be undertaken during the LSP stage at which time the EPA can provide further advice on this issue.

**Waterways**

The Water and Rivers Commission (WRC) have advised the EPA that there is currently only one conservation category wetland within the amendment area and this is located on Lot 49 (corner of Wright and Nicholson Roads). The other two conservation category wetlands (one on Lot 3 and 4 Nicholson Road and the other on Lot 6 Nicholson Road) have been re-evaluated by the WRC changing from conservation category to multiple use.

The EPA understands that the WRC are currently re-evaluating other wetlands (categorized as Resource Enhancement) in the amendment area and therefore, an up to date map of current management categories for all wetlands is not yet available. Therefore, the EPA will further assess this issue at the LSP stage when this information should be available. At this stage consideration should also be given to the EPA's Preliminary Position Statement No. 4 Environmental Protection of Waterways. The EPA notes and supports however, the commitment in the Amendment report for all conservation category wetlands within the amendment area to be protected and managed for conservation purposes.

**Water quality**

The EPA considers that nutrient and drainage management and potential impacts on wetlands, groundwater and the Swan and Canning Rivers are critical issues which require considerable attention prior to changes in landuse within the Southern River - Forrestdale - Brookdale - Wungong District Structure Planning (DSP) area (which includes this amendment area). The preparation of an Urban Water Management Strategy (UWMS) for the DSP area is a first step towards ensuring appropriate management of this issue. The EPA notes that in implementing the UWMS at the LSP stage for this amendment a Drainage and Nutrient Management Plan will be prepared. Key elements of this plan have been reviewed by the EPA and the WRC and are currently considered to be adequate. However, the EPA would like to further assess and consider this issue when the town planning scheme is amended. The EPA also advises that the Drainage and Nutrient Management Plan should reflect the requirements of the Water Cycle Plan which is to be prepared by the Water Corporation as part of the UWMS.

**Fauna**

The WRC have advised that 72 bird species have been recorded (23 listed under treaties) in the DSP area alone with numerous amphibians, mammals and reptiles. In the Bush Forever sites adjacent to the amendment area the Quenda or Southern Brown Bandicoot has been recorded. The EPA supports the landowner's intentions to identify corridors for fauna movement during the LSP stage, and will therefore, assess this issue at the town planning scheme amendment stage. Other management measures which could be considered at the LSP stage include fauna relocation, prevention of road kills and non-native animal control.

**Contamination**

The amendment area has been used for agricultural/horticultural activities. These activities could have contaminated the soil and/or groundwater. The EPA understands that a map will be produced at the LSP stage identifying previous landuses in the amendment area. This map will
then form the basis for a Preliminary Site Investigation if necessary. Therefore, the EPA will assess this issue at the town planning scheme amendment stage. It is not expected, however, that contamination issues will prevent the land from being developed for residential purposes provided that appropriate management measures are implemented if contamination is identified.

The EPA also notes, however, that the Urban Deferred portion of the amendment is within the 2km radius of the former liquid waste disposal site on Southern River Road. Therefore, if this proposed Urban Deferred zoning is modified to Urban during the amendment process then, as outlined in the EPA Bulletin 987 on the Southern River - Forrestale - Brookdale - Wungong Structure Plan area, controls will need to be applied to groundwater use and drainage associated with future land use within this area.

**Aboriginal heritage**

The EPA understands that there are no sites within the amendment area listed on the Department of Indigenous Affairs Register of Aboriginal sites. However, it is noted that there is a registered ethnographic site recorded from Forrestale Lake (south of the amendment area) and an archaeological site from the Cassil brickworks to the west of the amendment area. Therefore, the EPA supports the landowner's commitment to engage the services of a qualified consultant to determine whether a more thorough investigation of the amendment area needs to be undertaken at the LSP stage. The EPA will further consider this issue at the town planning scheme amendment stage. For the purposes of LSP the EPA advises the landowners to consider *Assessment of Aboriginal Heritage Draft Guidance Statement No. 41* when addressing Aboriginal heritage.

**(d) Sustainability**

The EPA notes that the amendment report refers to the sustainability of the amendment through considering social, environmental and economic sustainability issues specifically associated with the development of the North Forrestale area for urban purposes. The EPA also understands that the vision for the development of this area is to create a fully integrated urban community providing a broad based and diverse residential, employment and recreational environment, whilst achieving the highest standards in urban design, environmental performance management and sustainability. Therefore, the EPA advises that at the LSP stage consideration should be given to the following two Preliminary Position Statements:

- *Principles of Environmental Protection* (October 2002); and
- *Towards Sustainability* (October 2002).

These two statements outline the EPA's position with respect to environmental protection and sustainability. In particular, the *Towards Sustainability Position Statement* also includes a checklist of questions to be asked when proposals are being considered. This checklist provides a guide to proponents on the sorts of issues the EPA will consider when assessing proposals in light of sustainability.

Under the provisions of Section 48A(a) of the Environmental Protection Act the above scheme amendment is now deemed assessed by the EPA to the extent that the EPA supports the broad zoning proposed. As outlined above however, the EPA has deferred assessment of a number of environmental factors to later stages of planning to allow more detailed consideration at the town planning scheme, structure planning and subdivision stages.

---

*K J Taylor  
Director  
Environmental Impact Assessment  
12 May 2003  

cc: Department for Planning & Infrastructure
Appendix 4
Dieback Mapping (Glevan Consulting 2017)
Disclaimer

This report has been prepared in accordance with the scope of work agreed between the Client and Glevan Consulting and contains results and recommendations specific to the agreement. Results and recommendations in this report should not be referenced for other projects without the written consent of Glevan Consulting.

Procedures and guidelines stipulated in various Department of Environment and Conservation and Dieback Working Group manuals are applied as the base methodology used by Glevan Consulting in the delivery of the services and products required by this scope of work. These guidelines, along with overarching peer review and quality standards ensure that all results are presented to the highest standard.

Glevan Consulting has assessed areas based on existing evidence presented at the time of assessment. The Phytophthora pathogen may exist in the soil as incipient disease. Methods have been devised and utilised that compensate for this phenomenon; however, very new centres of infestation, that do not present any visible evidence, may remain undetected during the assessment.

Author Evan Brown
# Table of Contents

1. **Summary** .......................................................... 5

2. **Introduction** .......................................................... 6
   2.1 Background ....................................................... 6
   2.2 Location of Project Area ......................................... 6
   2.3 Study team .......................................................... 7

3. **Phytophthora Dieback** .............................................. 8
   3.1 The Pathogen ....................................................... 8
   3.2 Host ................................................................. 8
   3.3 Environment ..................................................... 9

4. **Methods** ............................................................. 10
   4.1 Pre survey desktop study ......................................... 10
   4.2 Interpretation ...................................................... 10
   4.3 Demarcation of hygiene boundaries ............................. 12
   4.4 Mapping .......................................................... 12
   4.5 Limitations of disease mapping .................................. 12

5. **Results and Discussion** ............................................ 13

6. **Recommendations** .................................................. 15

7. **Bibliography** ....................................................... 16

8. **Appendix – Phytophthora occurrence map** ...................... 17
List of Figures

Figure 1 - Vegetation within Project Area .................................................................6
Figure 2 - Project Area .........................................................................................7

List of Tables

Table 1 - Phytophthora Dieback occurrence categories ........................................ 11
Table 2 - Area Summary ...................................................................................... 13
1 Summary

Glevan Consulting was commissioned by Strategen to conduct an assessment of Lot 9006 Reilly Road Harrisdale for the presence of Phytophthora Dieback.

The Project Area covers approximately 7.4 hectares and is largely Banksia Woodland TEC with an additional closed woodland of *Allocasuarina fraseriana*, a closed heath and closed sedgeland. The Project Area is located at Lot 9006 Reilly Road, Harrisdale. Reilly Road is the south-eastern boundary, Carey Baptist College as the north-western boundary and private property to the north-east.

Known databases of *Phytophthora* locations retained by Glevan Consulting and Vegetation Health Services (DoBCA) were searched to determine previous recoveries of *Phytophthora* within and adjacent to the project area. The adjoining land to the south-west (previously known as Lot 50 Wright Road) was assessed by Glevan Consulting in 2004. This area was found to be completely infested with Phytophthora Dieback. This site also drained from the current Project Area.

Phytophthora Dieback was observed to be present in (and spreading from) the low-lying dampland in the south-east of the Project Area. This infestation is spreading north-west, and upslope, into the Banksia vegetation and currently covers half of the Project Area. All vegetation to the south-east of the central firebreak is infested with Phytophthora Dieback. The edge of the Phytophthora Dieback infestation is obvious with many recent deaths observed in indicating species, particularly *Banksia attenuata*, *B. ilicifolia*, *Xanthorrhoea preissii* and Patersonia species. A small infestation was also observed in the northern corner of the Project Area. This infestation is contiguous with an infestation in the neighbouring property and it is spreading southerly and downslope.

These infestations have been demarcated with 50mm day-glow pink flagging tape, with the knot in the tape facing the infested vegetation.

The assessment was conducted by Evan Brown of Glevan Consulting in July 2017.
2 Introduction

2.1 Background

Glevan Consulting was commissioned by Strategen to conduct an assessment of Lot 9006 Reilly Road Harrisdale for the presence of Phytophthora Dieback.

The Project Area covers approximately 7.4 hectares and is largely Banksia Woodland TEC with an additional closed woodland of Allocasuarina fraseriana, a closed heath and closed sedgeland (Figure 1).

![Figure 1 - Vegetation within Project Area](image)

2.2 Location of Project Area.

The Project Area is located at Lot 9006 Reilly Road, Harrisdale (Figure 2). Reilly Road is the south-eastern boundary, Carey Baptist College as the north-western boundary and private property to the north-east.
2.3 Study team

The assessment was conducted by Evan Brown of Glevan Consulting in July 2017. Mr Brown is registered (DPW-PDI-004) with the Department of Biodiversity, Conservation and Attractions (DBCA) in the detection, diagnosis and mapping of the Dieback disease. This accreditation recognises the skills and experience of Mr Brown.
3  Phytophthora Dieback

The pathogen *Phytophthora cinnamomi* is an agent of environmental disease found in vulnerable areas of Western Australia.

Phytophthora Dieback is the common name for the observable disease result of interaction between the pathogen (*P. cinnamomi*) and the vegetation hosts (susceptible plant species within vulnerable areas). The environment conditions of the site significantly affect the pathogens ability to survive or flourish and spread over time.

All land with an annual average rainfall of more than 400 millimetres and suitable soil composition is considered vulnerable to Phytophthora Dieback. This large area stretches approximately from Perth, Bunbury and Augusta in the west to Narrogin, Ravensthorpe and Esperance in the east, and as far north as Kalbarri.

This vulnerable area has many different bioregions, having specific characteristics of each having been formed by climate and geology. These two factors are highly significant in determining the pathogen’s effectiveness and resulting disease impact levels.

3.1  The Pathogen

*Phytophthora cinnamomi* is a microscopic water mould. It belongs to the class Oomycetes and belongs in the Kingdom Stramenopila. It is more closely related to brown algae than to true fungi.

Oomycetes organisms occupy both saprophytic and pathogenic lifestyles however *P. cinnamomi* is considered parasitic. It behaves largely as a necrotrophic pathogen causing damage to the host plant’s root tissues because of infection and invasion.

The life cycle of *Phytophthora cinnamomi* is a continuous circle of infection, sporulation and further infection and is readily vectored by animals and human activity allowing for rapid invasion into new areas.

3.2  Host

A population of hosts is made up of susceptible, infected and immune or resistant individuals.

The infection of host plants is an unseen activity happening constantly beneath the soil at an infested site.

The environmental conditions favouring or disfavouring the pathogen may change at a critical point during disease development, temporarily changing the rates of infection and invasion.

This can be observed symptomatically after soil temperature change through winter months.
The plant host is a highly variable component of the disease development. Sites may range from having no susceptible host. Within vulnerable areas, three main family groups are regarded as highly susceptible to Phytophthora Dieback disease, being:

- Proteaceae
- Ericaceae
- Xanthorrhoeaceae.

### 3.3 Environment

Two fundamental environmental characteristics influencing Phytophthora Dieback disease are rainfall and soil. Areas vulnerable to Phytophthora Dieback are defined as native vegetation which occur west of the 400 millimetre rainfall isohyet. The correlation of increased Phytophthora Dieback impact with increased annual rainfall is generally applicable.

Certain soil properties influence Phytophthora Dieback disease development within the vulnerable areas:

1. Moisture is critical for *Phytophthora cinnamomi* to survive in the soil and for sporangia production.
2. Soil pH affects the growth and reproduction of the pathogen. The calcareous sands closest to the coast are alkaline and hostile to *Phytophthora cinnamomi*, but are favourable to *P. multivora*.
3. Fertile soils are less favourable to Phytophthora Dieback because the richness of nutrients aids strong host resistance, good soil structure allows water movement and drainage, and high organic matter provides antagonistic microflora.
4. Coarse-textured soils have larger pore spaces which favour dispersal of spores.
5. The optimum temperature for *Phytophthora cinnamomi* sporulation is 21 to 30°C, peaking at 25°C, but some sporangia can still be produced at temperatures as low as 12°C. The optimum growth range is 15 to 30°C and temperatures lower than 5°C or greater than 35°C are unfavourable for the persistence of survival of spores and the vegetative mycelia of *P. cinnamomi*. 
4 Methods

4.1 Pre survey desktop study

Known databases of Phytophthora locations retained by Glevan Consulting and Vegetation Health Services (DPaW) were searched to determine previous recoveries of Phytophthora within the project area.

Previous Phytophthora Dieback Occurrence reports and maps pertaining to the study area were also studied prior to undertaking the field work.

The adjoining land to the south-west (previously known as Lot 50 Wright Road) was assessed by Glevan Consulting in 2004. This area was found to be completely infested with Phytophthora Dieback. This site also drained from the current Project Area.

4.2 Interpretation

Based on the considerations of Section 3 ‘Phytophthora Dieback’, the personnel involved in the field work determined the presence of Phytophthora Dieback based on symptoms and disease signatures displayed in susceptible vegetation. These symptoms are supported through the strategic sampling and subsequent recovery of Phytophthora from soil and tissue samples taken during the assessment.

The detection of the plant pathogen Phytophthora Dieback involves the observation and interpretation of plant deaths (or reduction of biomass or perceived temporal change in vegetation structure) using a logical assessment of factors that imply pathogen presence above other possible causes of plant deaths or vegetation change. A combination of the following factors may indicate the presence of disease caused by Phytophthora Dieback or other Phytophthora species.

Deaths of disease indicating species:
An indicator species is a plant species, which is reliably susceptible to Phytophthora Dieback (i.e. will die). Common indicators include several species of Banksia, Patersonia, Persoonia, and Xanthorrhoea. The distribution and composition of indicator species will vary from place to place according to vegetation types.
Chronology of deaths:
As the pathogen spreads through an area, some or all susceptible plants become infected and die. Consequently there will be an age range from more recent deaths with yellowing or brown leaves through to older leafless stags to remnant stumps in the ground.

Pattern of deaths:
The topography, soil type, vegetation type and drainage characteristics of an area together with the influence of climatic patterns and disturbances will influence the shape or pattern of an infested area over time. A typical recent infestation may show a small cluster of dead indicator species which, in time, will spread to become a small circular shape ‘the ulcer effect’ and then begin lengthening towards natural drainage channels. A fringe of recent deaths is often seen around the edge of the infested area. Patterns may be further highlighted by a paucity of ground cover within the infested area.

Other causes of indicator species death:
*Phytophthora cinnamomi* is not the only agent to cause death of native vegetation. Other agents include, but are not limited to:

- other *Phytophthora* spp, *Armillaria luteobubalina*, various cankers, insects;
- drought, wind scorch, frost, salinity, water logging, fire and lightning;
- senescence, competition, physical damage;
- herbicides, chemical spills (for example fuel).

Based on the field assessment, the Project Area can be distributed to the following occurrence categories.

**Table 1 - Phytophthora Dieback occurrence categories**

<table>
<thead>
<tr>
<th>Vegetated area</th>
<th>Infested</th>
<th>Areas that have plant disease symptoms consistent with the presence of Phytophthora Dieback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uninfested</td>
<td>Areas free of plant disease symptoms that indicate the presence of Phytophthora Dieback.</td>
<td></td>
</tr>
<tr>
<td>Uninterpretable</td>
<td>Areas where indicator plants are absent or too few to determine the presence or absence of Phytophthora Dieback.</td>
<td></td>
</tr>
</tbody>
</table>
Unmappable | Areas that are sufficiently disturbed so that Phytophthora Dieback occurrence mapping is not possible at the time of inspection.
Temporarily Uninterpretable | Areas where the interpretation process has not confidently determined the status of the vegetation.
Non-vegetated area | Excluded | Areas devoid of vegetation are excluded from the assessment area.

(Department of Parks and Wildlife, 2015)

4.3 Demarcation of hygiene boundaries

The Phytophthora Dieback infestation was demarcated with 50mm day-glow pink flagging tape. A single band of tape was tied to a suitable tree with the knot facing towards the infestation. The taped boundary was positioned approximately 10-15 metres outside the infested areas, to provide the required buffer zone, and placed approximately 10 -15m apart.

4.4 Mapping

Subsequent to hygiene boundary demarcation, the boundaries were again walked and recorded utilising a handheld GPS. The recorded data was then transferred to a desktop computer and used to produce the relevant maps.

4.5 Limitations of disease mapping

The assessment for the disease caused by Phytophthora Dieback is based on interpreting the vegetation for symptoms which can be ascribed to the disease presence. These observable factors must be present during the assessment period. Management recommendations may be included if it is considered that the disease may be cryptic, or the project area displays evidence of activities that are considered a high risk of introducing the disease.

The validity of the hygiene boundaries mapped for this project is twelve months from the completion of this project. All boundaries should be reassessed by July 2018 if activities are still occurring beyond this time.
5 Results and Discussion

The vegetation within the Project Area has been mapped into four types. These types being:

- Banksia woodland TEC;
- Closed heath of Xanthorrhoea preissii and mixed herbs and shrubs with emergent Melaleuca species;
- Closed sedgeland of Phlebocarya ciliata and mixed herbs and shrubs with emergent Banksia and Allocasuarina species; and,
- Open woodland of Allocasuarina fraseriana and Nuytsia floribunda over mixed sedges and herbs.

The Banksia woodland TEC is dominant in the Project Area and accounts for 76% of the vegetation coverage.

Phytophthora Dieback was observed to be present in (and spreading from) the low-lying dampland in the south-east of the Project Area. This infestation is spreading north-west, and upslope, into the Banksia vegetation and currently covers half of the Project Area (Table 2). All vegetation to the south-east of the central firebreak is infested with Phytophthora Dieback. The edge of the Phytophthora Dieback infestation is obvious with many recent deaths observed in indicating species, particularly Banksia attenuata, B. ilicifolia, Xanthorrhoea preissii and Patersonia species.

**Table 2 - Area Summary**

<table>
<thead>
<tr>
<th>Category</th>
<th>Area (ha)</th>
<th>% of total area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infested (with <em>P. cinnamomi</em>)</td>
<td>3.82 ha</td>
<td>51.6 %</td>
</tr>
<tr>
<td>Uninfested</td>
<td>3.58 ha</td>
<td>48.4 %</td>
</tr>
<tr>
<td>TOTAL AREA</td>
<td>7.4 ha</td>
<td></td>
</tr>
</tbody>
</table>

A small infestation was also observed in the northern corner of the Project Area. This infestation is contiguous with an infestation in the neighbouring property and it is spreading southerly and downslope.

These infestations have been demarcated with 50mm day-glow pink flagging tape, with the knot in the tape facing the infested vegetation.
The remaining Uninfested section of the Project Area is bordered by firebreaks that appear to be well used in probable unhygienic conditions. There was however no evidence of recent movement of vehicles off the firebreaks and into the vegetation. There remains a risk of P. cinnamomi being spread in soil movement along the firebreaks and for this reason the demarcation flagging has been continued between the Phytophthora Dieback infestations along the edge of the firebreaks to form one continuous demarcation line.

At numerous sites along the margins of the firebreaks, household rubbish dumping was observed. These sites may be an opportunity for Phytophthora Dieback to be introduced into the vegetation if soil and plant material is contained in the dumped material. This was not observed in the Project Area though.
6 Recommendations

- Soil and plant material of infested or unknown dieback status should not be introduced to uninfested or unmappable sections of the study area.

- Soil and plant material should not be transported from the infested or unmappable sections of the study area for use at any other protectable area site.

- Soil movement within each category is permissible, but should not occur across category boundaries, except where the source is uninfested.

- Vehicles and machinery should be clean upon entry into any of the site categories (except infested), and when moving across category boundaries. Moving from uninfested areas into other categories does not require clean down measures.

- Restrict access, where possible, to dry soil conditions only. Where vehicles or machinery are required to access the area during, or shortly after rainfall, they must carry clean down equipment, and remove any soil or plant material at designated hygiene points.
Appendix 5
North Forrestdale Structure Plan
DEVELOPMENT AREA No. 25 - NORTH FORRESTDALE (STAGE ONE / CENTRAL) STRUCTURE PLAN

Source: District Structure Plan
Appendix 6
Letter from the Executive Director
(CALM)
Mr Shaun Grein  
ATA Environmental  
Dihorn House  
2 Bulwer Street  
PERTH WA 6000

Dear Shaun

CALADENIA HUEGELII – 1001 WRIGHT ROAD, FORRESTDALE

I refer to your letter dated 17 November 2005 regarding the occurrence of the DRF Caladenia huegelii at the above location.

As you would be aware from previous experiences with geophytic flora, such as Caladenia huegelii, its occurrence at a site cannot always be determined by survey because of the irregular nature that some of these species exhibit with their flowering. It is also the case that differences in competency of surveyors can lead to different survey outcomes, and hence a conservative approach needs to be taken when considering the occurrence of rare flora in areas of intact habitat where the flora has been previously recorded.

In the specific case of Lot 1001 Wright Road, as you have noted, the occurrence of this species at this site was based on a photograph. There has been no voucher specimens lodged at the WA Herbarium, and the site of the photograph has not been confirmed. However, given the occurrence if this species in proximal locations, and the suitability of the habitat, there was no reason to doubt the veracity of this photo.

Surveys of the site have now been conducted over three flowering periods (2003, 2004, 2005), with no success. While this does not mean that the species does not necessarily occur at this site, it would have been expected that if a viable population did occur there, that some plants would have been observed flowering over this period as there was good flowering observed at other sites within the general area.

On the basis of the survey effort, and the lack of verification of this species at this site, I am now prepared to consider that this species does not occur at this site, and consequently do not regard the site as being encumbered by measures to protect declared rare flora.

Yours sincerely

[Signature]

for Keiran McNamara  
EXECUTIVE DIRECTOR

23 December 2005