

**SUPPLEMENTARY GAZETTE**



**THE SOUTH AUSTRALIAN  
GOVERNMENT GAZETTE**

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**PUBLISHED BY AUTHORITY**

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**ALL PUBLIC ACTS appearing in this GAZETTE are to be considered official, and obeyed as such**

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ADELAIDE, TUESDAY, 4 MARCH 2014

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## DEVELOPMENT ACT 1993: SECTION 46 (1)

*Preamble*

Subsection (1) of Section 46 of the Development Act 1993, allows the Minister for Planning to declare that Section 46 applies to a specified kind of development or project if the Minister is of the opinion that a declaration under Section 46 is appropriate or necessary for the proper assessment of development or a project of major environmental, social or economic importance.

## NOTICE

PURSUANT to Section 46 (1) of the Development Act 1993, being of the opinion that a declaration under that section is appropriate for the proper assessment of development which is of major environmental importance, of major social importance, and of major economic importance, I JOHN RAU Minister for Planning declare that Section 46 of the Act applies to all development of a kind specified in Schedule 1 in any part of the State specified in Schedule 2.

## SCHEDULE 1

*Specified Kinds of Development*

Development for the purposes of establishing:

- (i) a golf course and associated practice facilities, clubhouse, dining facilities and retail outlet;
- (ii) tourism accommodation and facilities;
- (iii) a maintenance compound and associated facilities;
- (iv) an abalone farm;
- (v) a cattle farm;
- (vi) a vineyard;
- (vii) a desalination plant and pipelines;
- (viii) water storage facilities;
- (ix) stormwater and sewage infrastructure for the capture, treatment and re-use of recycled water; and
- (x) associated infrastructure in respect of water supply, electricity, telecommunications, stormwater, effluent disposal, roads, parking and walking trails.

## SCHEDULE 2

*Specified Parts of the State*

The following parts of the State are specified:

- (a) Allotment 14 in Deposited Plan 70078, Hundred of Waterhouse, comprised in Certificate of Title Register Book Volume 6058, Folio 185;
- (b) Allotment 200 in Deposited Plan 85108, Hundred of Waterhouse, comprised in Certificate of Title Register Book Volume 6071, Folio 913;
- (c) Allotment 201 in Deposited Plan 85108, Hundred of Waterhouse, comprised in Certificate of Title Register Book Volume 6071, Folio;
- (d) Allotment 202 in Deposited Plan 85108, Hundred of Waterhouse, comprised in Certificate of Title Register Book Volume 6071, Folio 915;
- (e) Section 569, Hundred of Waterhouse, comprised in Crown Record Volume 5643, Folio 503;
- (f) that part of the Southern Ocean into which desalination plant infrastructure is proposed to extend;
- (g) land in the vicinity of the land described in paragraphs (a)-(e) if it is proposed to be used in respect of any part of the declared development.

Dated 14 February 2014.

JOHN RAU, Minister for Planning



# Title Register Search

## LANDS TITLES OFFICE, ADELAIDE

For a Certificate of Title issued pursuant to the Real Property Act 1886

REGISTER SEARCH OF CERTIFICATE OF TITLE \* VOLUME 6058 FOLIO 185 \*

COST : \$25.75 (GST exempt ) PARENT TITLE : CT 5972/519  
REGION : EMAIL AUTHORITY : TG 11344051  
AGENT : PUSH BOX NO : 000 DATE OF ISSUE : 13/05/2010  
SEARCHED ON : 27/05/2014 AT : 10:35:04 EDITION : 1  
CLIENT REF SCANLON

### REGISTERED PROPRIETORS IN FEE SIMPLE

DAMIAN ANTHONY SCANLON OF 1 UNDIVIDED 3RD PART OF 14 HALSBURY AVENUE  
KINGSWOOD SA 5062 AND PAULA ORTNER AND RICHARD ORTNER BOTH OF 8  
HEATHERBANK TERRACE STONYFELL SA 5066 AS JOINT TENANTS OF 1 UNDIVIDED 3RD  
PART AND STEVE DUDLEY OF 1 UNDIVIDED 3RD PART OF 6 FERNBANK ROAD STONYFELL  
SA 5066

### DESCRIPTION OF LAND

ALLOTMENT 14 DEPOSITED PLAN 70078  
IN THE AREA NAMED NORA CREINA  
HUNDRED OF WATERHOUSE

### EASEMENTS

SUBJECT TO THE EASEMENT OVER THE LAND MARKED F FOR THE TRANSMISSION OF  
ELECTRICITY BY UNDERGROUND CABLE (TG 11344051)

SUBJECT TO FREE AND UNRESTRICTED RIGHTS OF WAY OVER THE LAND MARKED C

TOGETHER WITH A FREE AND UNRESTRICTED RIGHT OF WAY OVER THE LAND MARKED D  
ON DP 70078 AND E ON DP 76284

### SCHEDULE OF ENDORSEMENTS

NIL

### NOTATIONS

DOCUMENTS AFFECTING THIS TITLE

NIL

REGISTRAR-GENERAL'S NOTES

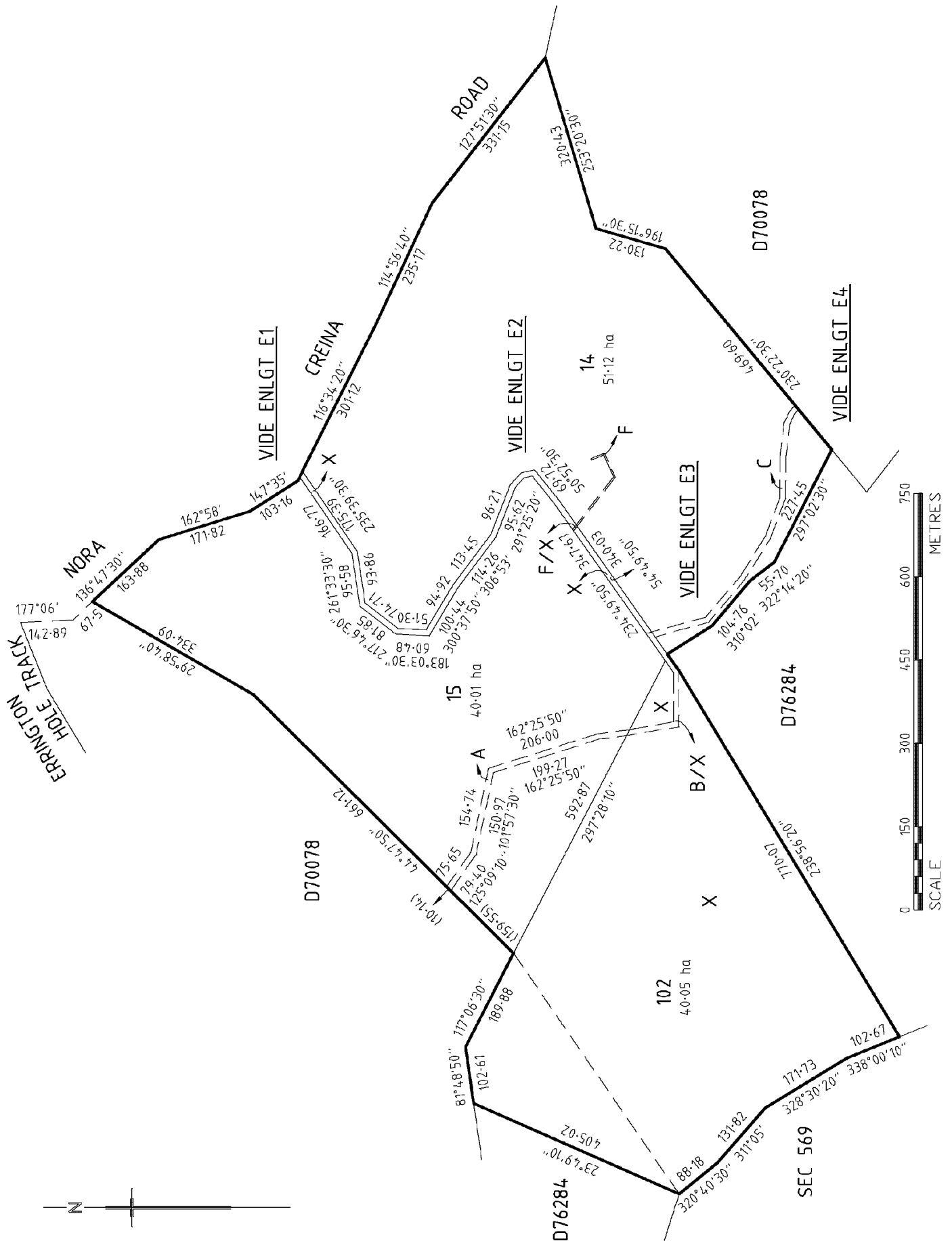
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LANDS TITLES OFFICE ADELAIDE SOUTH AUSTRALIA

DIAGRAM FOR CERTIFICATE OF TITLE VOLUME 6058 FOLIO 185

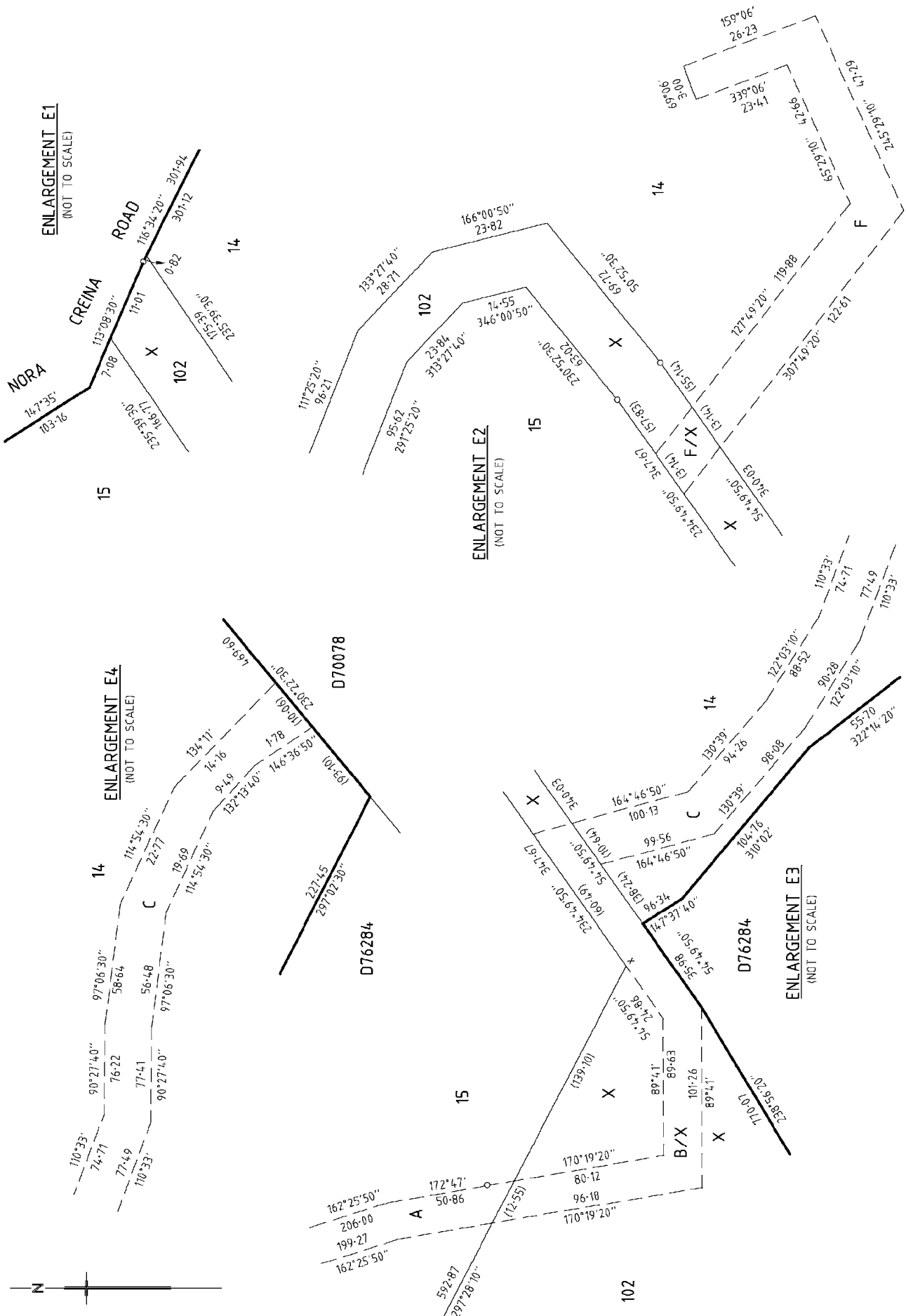
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LANDS TITLES OFFICE ADELAIDE SOUTH AUSTRALIA

DIAGRAM FOR CERTIFICATE OF TITLE VOLUME 6058 FOLIO 185

SEARCH DATE : 27/05/2014 TIME: 10:35:04





# Title Register Search

## LANDS TITLES OFFICE, ADELAIDE

For a Certificate of Title issued pursuant to the Real Property Act 1886

REGISTER SEARCH OF CERTIFICATE OF TITLE \* VOLUME 6071 FOLIO 913 \*

COST : \$19.20 (GST exempt )	PARENT TITLE : CT 6009/541 & OTHERS
REGION : EMAIL	AUTHORITY : RTC 11508836
AGENT : NABSP BOX NO : 000	DATE OF ISSUE : 09/02/2011
SEARCHED ON : 08/05/2012 AT : 09:30:43	EDITION : 1

REGISTERED PROPRIETORS IN FEE SIMPLE

JUSTIN ANDREW SCANLON OF 1 UNDIVIDED 2ND PART OF PO BOX 110 URAIDLA SA  
5142 AND DAMIAN ANTHONY SCANLON OF 1 UNDIVIDED 2ND PART OF 14 HALSBURY  
AVENUE KINGSWOOD SA 5062

DESCRIPTION OF LAND

ALLOTMENT 200 DEPOSITED PLAN 85108  
IN THE AREA NAMED NORA CREINA  
HUNDRED OF WATERHOUSE

EASEMENTS

SUBJECT TO THE EASEMENT OVER THE LAND MARKED F FOR THE TRANSMISSION OF  
ELECTRICITY BY UNDERGROUND CABLE (TG 11344051)

SUBJECT TO FREE AND UNRESTRICTED RIGHTS OF WAY OVER THE LAND MARKED B

TOGETHER WITH A FREE AND UNRESTRICTED RIGHT OF WAY OVER THE LAND MARKED C  
AND D APPURTENANT ONLY TO THE LAND MARKED X

TOGETHER WITH A FREE AND UNRESTRICTED RIGHT OF WAY OVER THE LAND MARKED E

SCHEDULE OF ENDORSEMENTS

10177921 MORTGAGE TO NATIONAL AUSTRALIA BANK LTD.

NOTATIONS

DOCUMENTS AFFECTING THIS TITLE

NIL

REGISTRAR-GENERAL'S NOTES

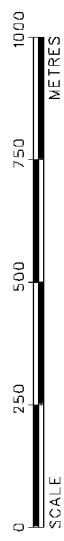
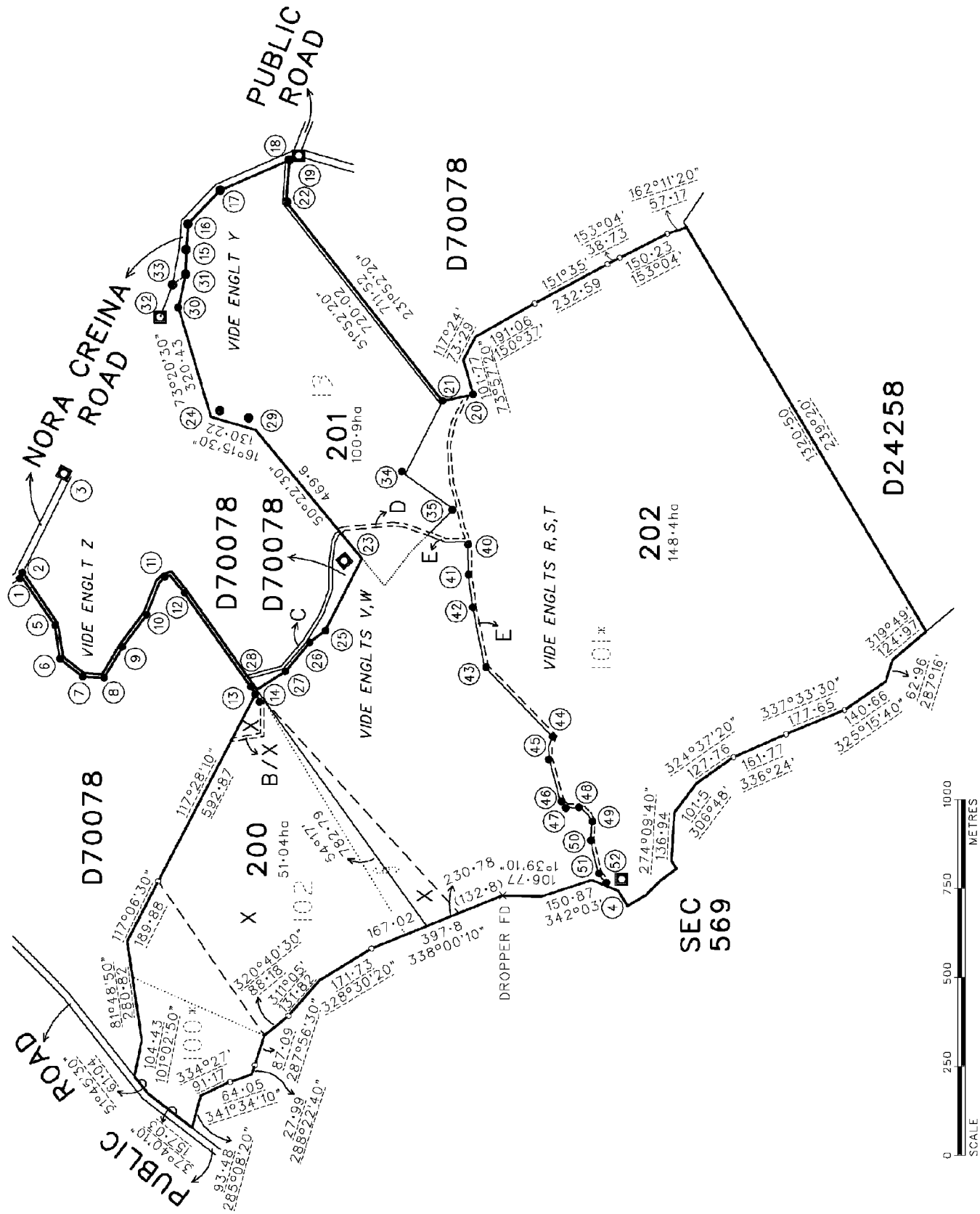
PLAN FOR HERITAGE AGREEMENT GP 38/11

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LANDS TITLES OFFICE ADELAIDE SOUTH AUSTRALIA

DIAGRAM FOR CERTIFICATE OF TITLE VOLUME 6071 FOLIO 913

SEARCH DATE : 08/05/2012 TIME: 09:30:43



SURVEY INFORMATION IS DERIVED FROM DEPOSITED PLAN 85108

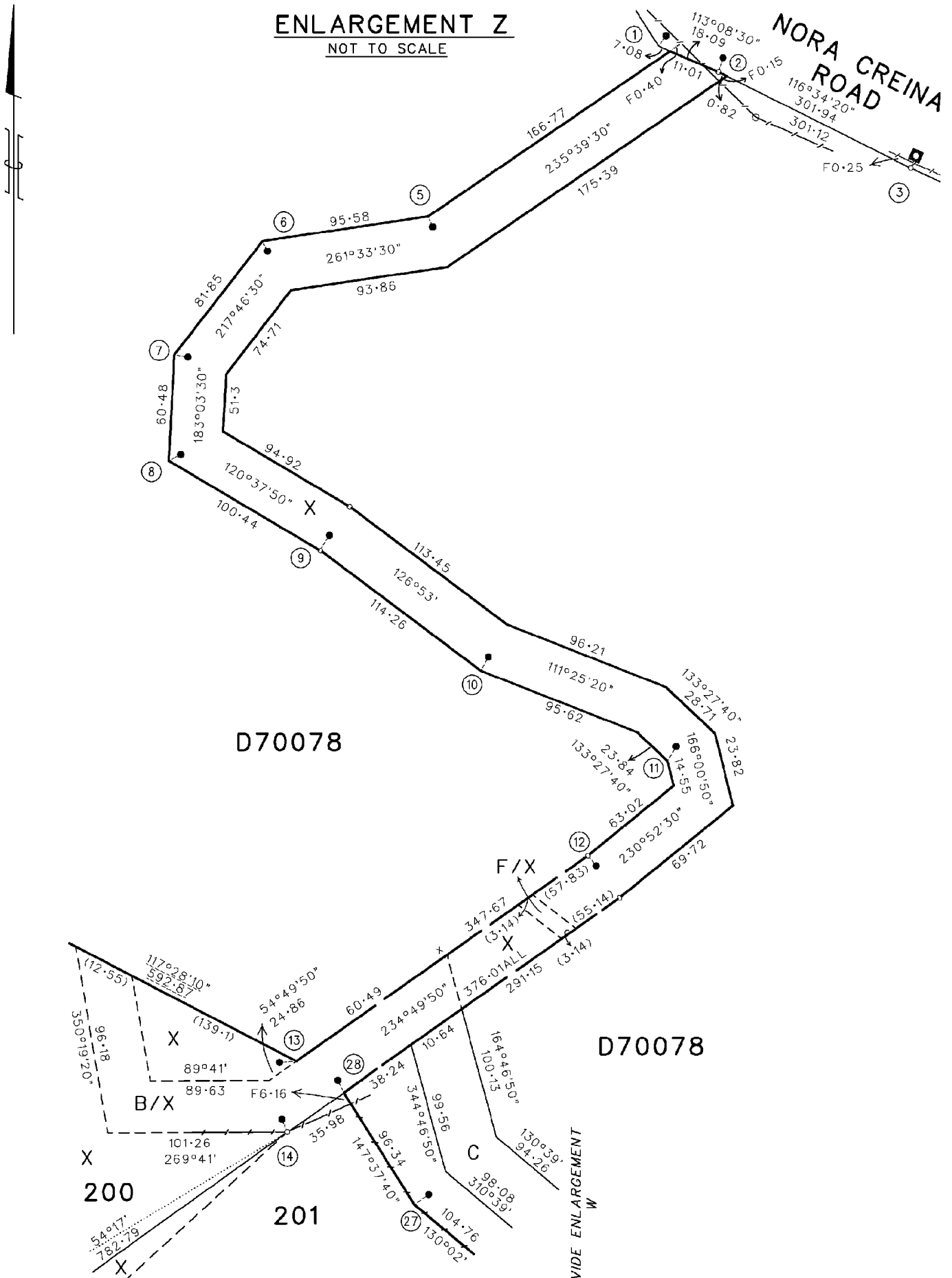
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SEARCH DATE : 08/05/2012 TIME: 09:30:43

**ENLARGEMENT Z**

NOT TO SCALE



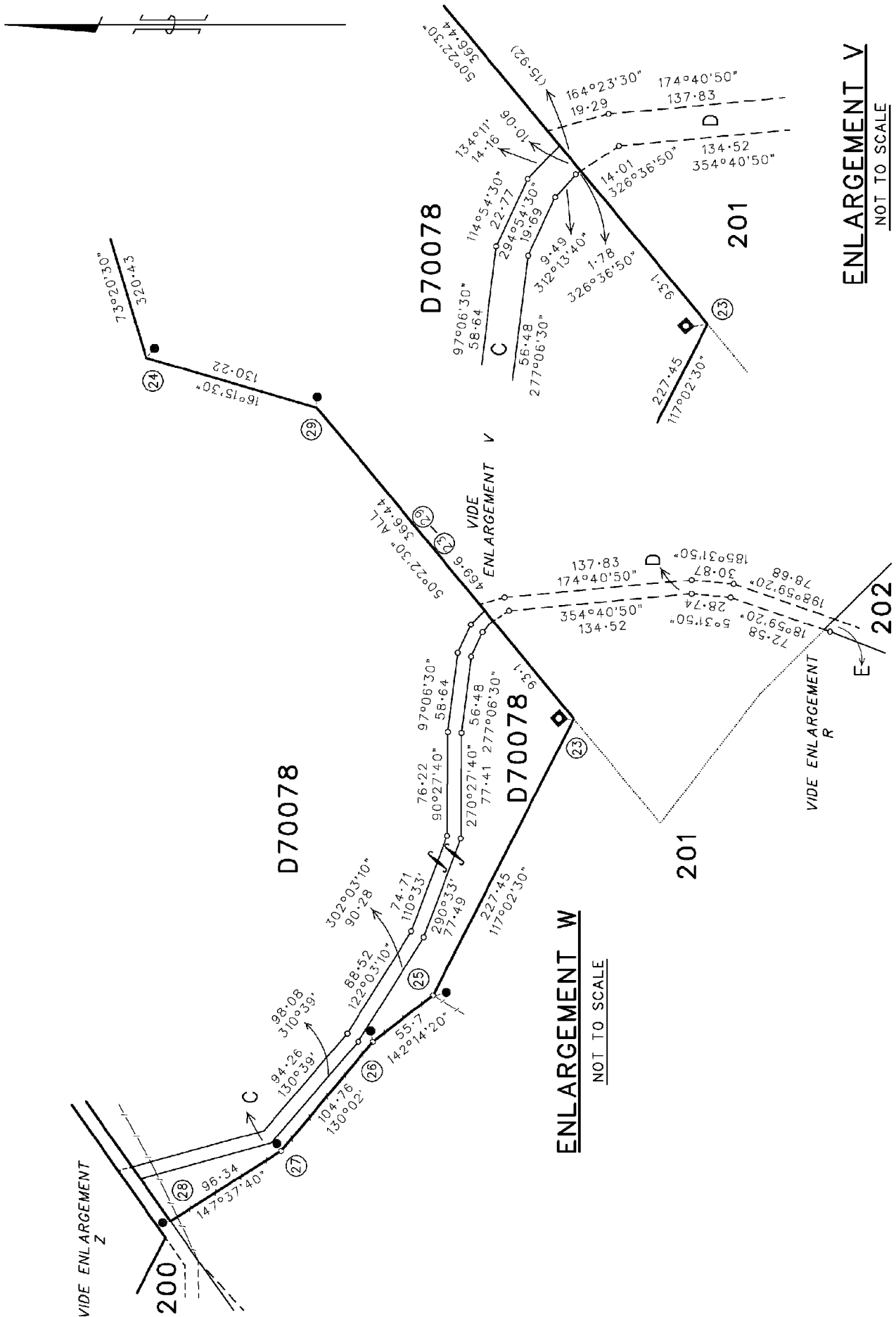




LANDS TITLES OFFICE ADELAIDE SOUTH AUSTRALIA

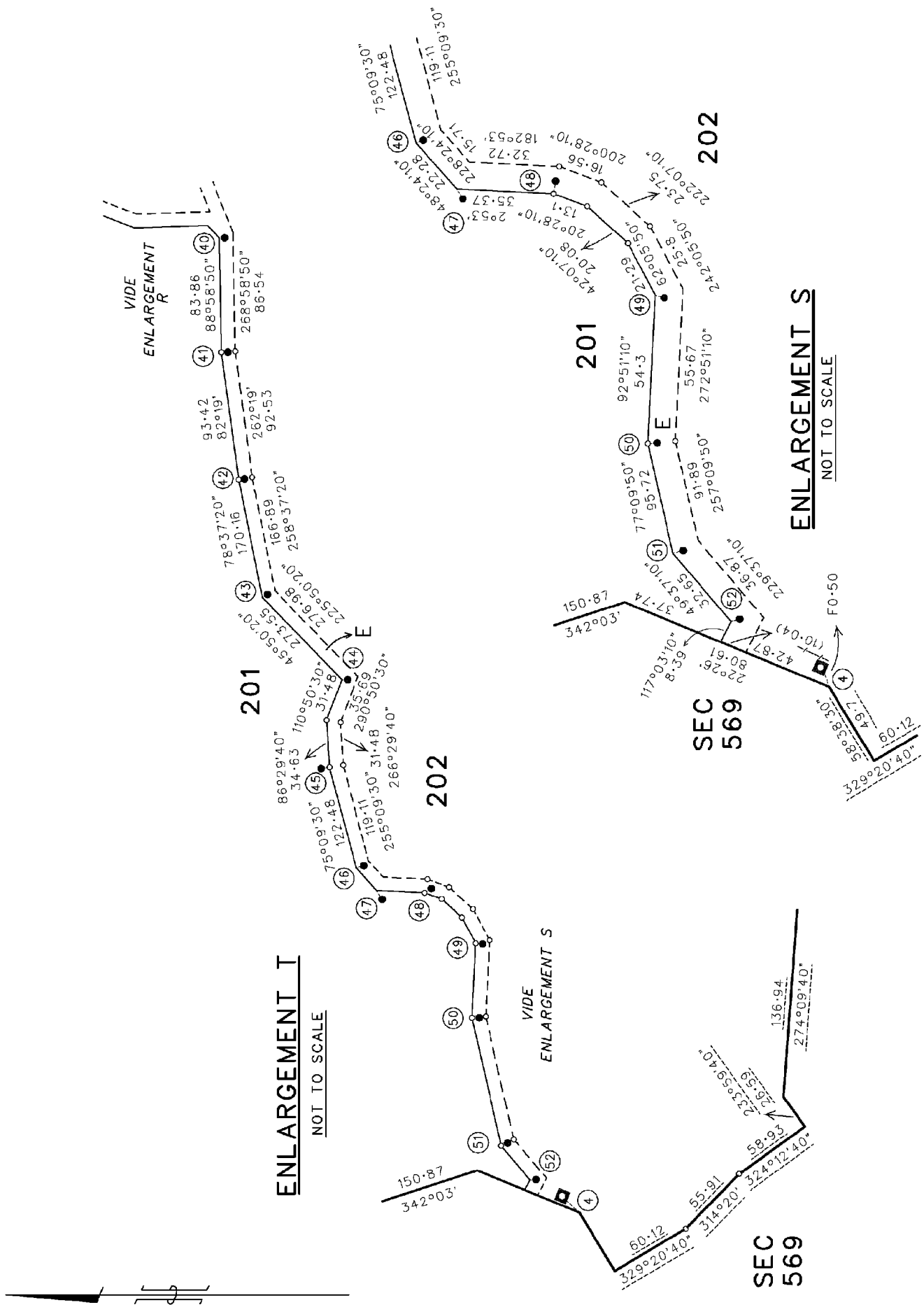
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SEARCH DATE : 08/05/2012 TIME: 09:30:43



ENLARGEMENT V  
NOT TO SCALE

ENLARGEMENT W  
NOT TO SCALE







# Title Register Search

## LANDS TITLES OFFICE, ADELAIDE

For a Certificate of Title issued pursuant to the Real Property Act 1886

REGISTER SEARCH OF CERTIFICATE OF TITLE \* VOLUME 6071 FOLIO 914 \*

COST : \$19.20 (GST exempt )	PARENT TITLE : CT 5972/518 & OTHERS
REGION : EMAIL	AUTHORITY : RTC 11508836
AGENT : NABSP BOX NO : 000	DATE OF ISSUE : 09/02/2011
SEARCHED ON : 08/05/2012 AT : 09:39:39	EDITION : 1

### REGISTERED PROPRIETORS IN FEE SIMPLE

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JUSTIN ANDREW SCANLON OF 1 UNDIVIDED 2ND PART OF PO BOX 110 URAIDLA SA  
5142 AND DAMIAN ANTHONY SCANLON OF 1 UNDIVIDED 2ND PART OF 14 HALSBURY  
AVENUE KINGSWOOD SA 5062

### DESCRIPTION OF LAND

-----  
ALLOTMENT 201 DEPOSITED PLAN 85108  
IN THE AREA NAMED NORA CREINA  
HUNDRED OF WATERHOUSE

### EASEMENTS

-----  
SUBJECT TO FREE AND UNRESTRICTED RIGHTS OF WAY OVER THE LAND MARKED D  
  
TOGETHER WITH A FREE AND UNRESTRICTED RIGHT OF WAY OVER THE LAND MARKED C  
APPURTENANT ONLY TO THE LAND MARKED X  
  
TOGETHER WITH A FREE AND UNRESTRICTED RIGHT OF WAY OVER THE LAND MARKED E

### SCHEDULE OF ENDORSEMENTS

-----  
10177921 MORTGAGE TO NATIONAL AUSTRALIA BANK LTD.

### NOTATIONS

-----  
DOCUMENTS AFFECTING THIS TITLE

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NIL

REGISTRAR-GENERAL'S NOTES

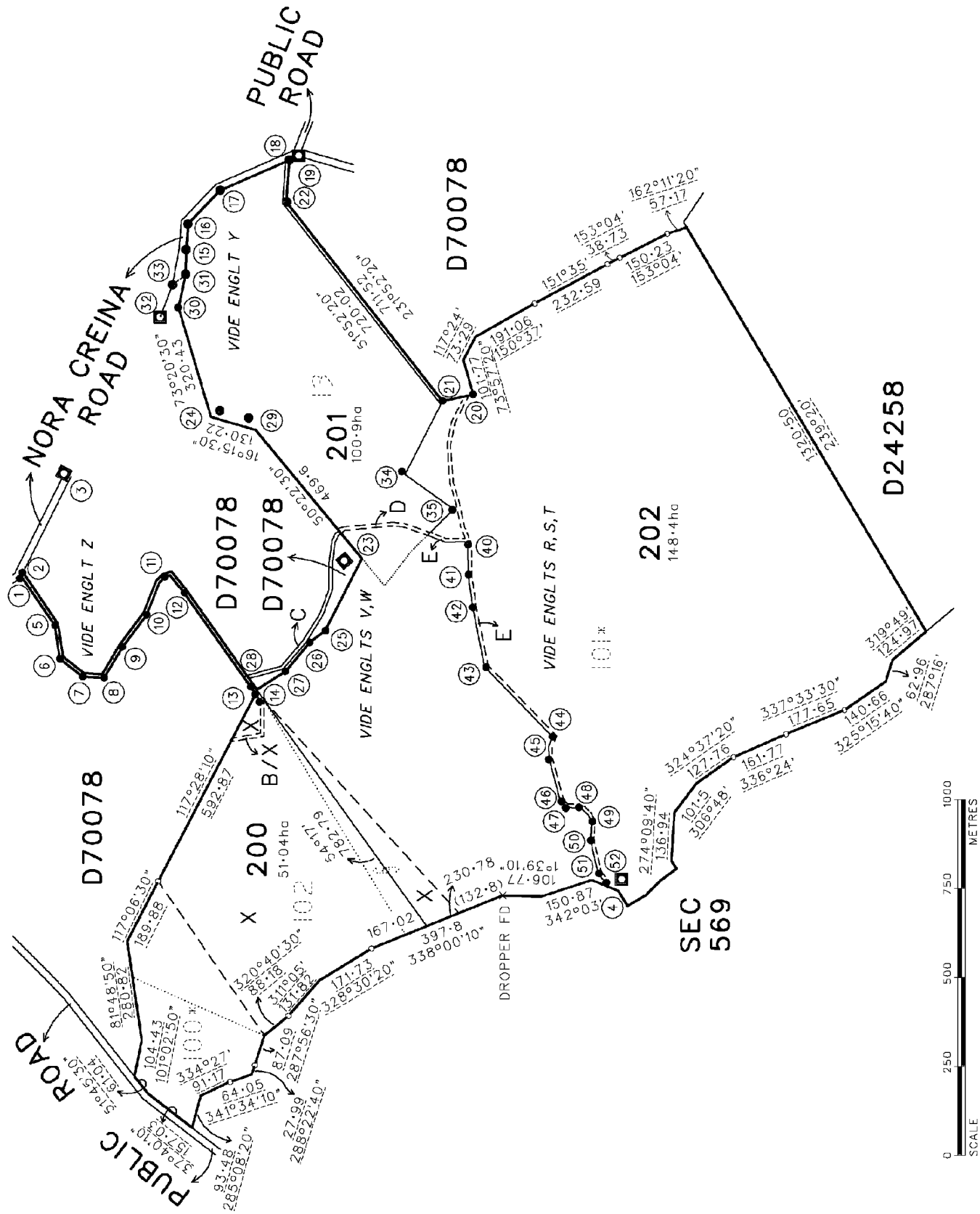
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LANDS TITLES OFFICE ADELAIDE SOUTH AUSTRALIA

DIAGRAM FOR CERTIFICATE OF TITLE VOLUME 6071 FOLIO 914

SEARCH DATE : 08/05/2012 TIME: 09:39:39



SURVEY INFORMATION IS DERIVED FROM DEPOSITED PLAN 85108

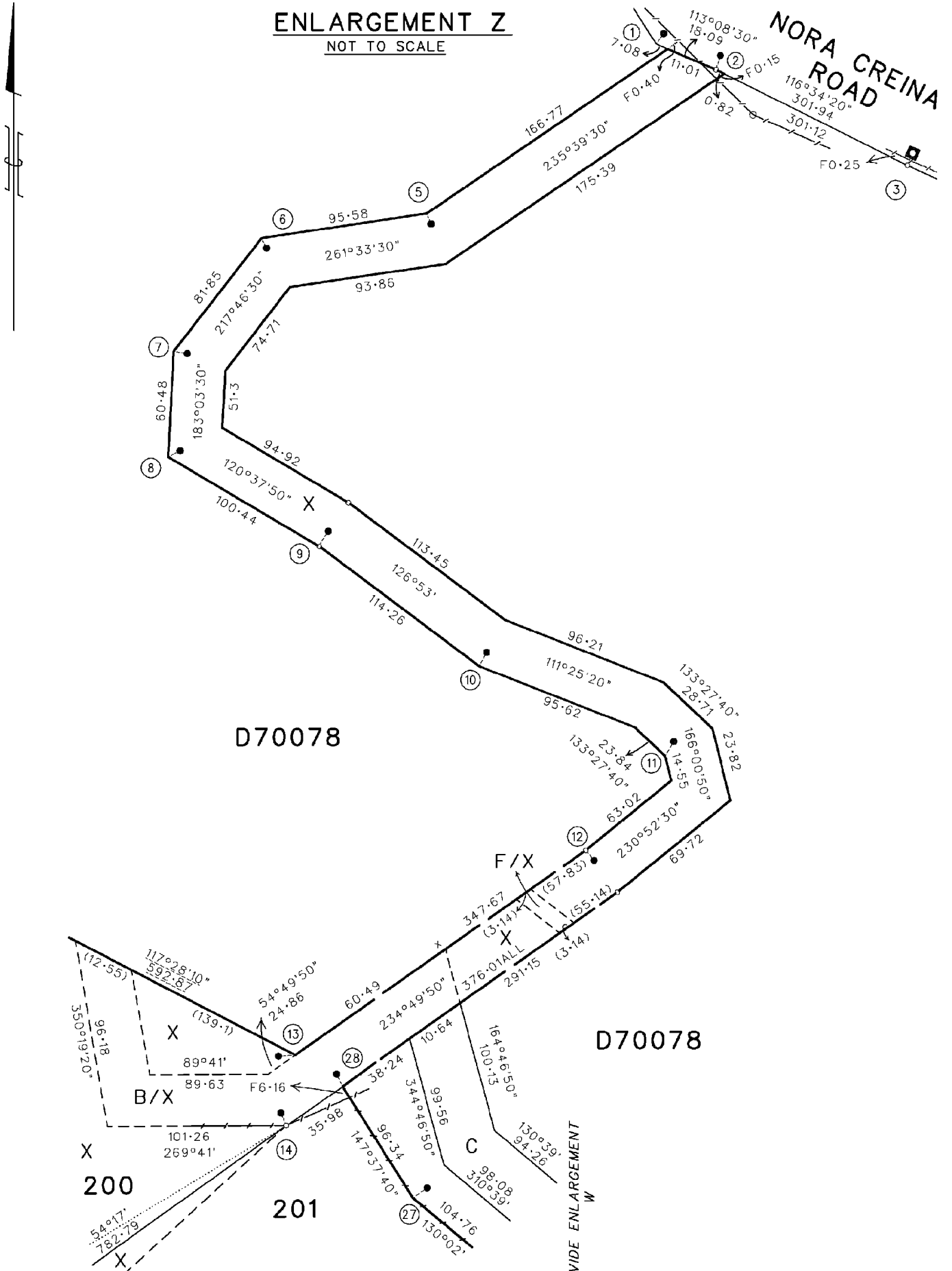
LANDS TITLES OFFICE ADELAIDE SOUTH AUSTRALIA

DIAGRAM FOR CERTIFICATE OF TITLE VOLUME 6071 FOLIO 914

SEARCH DATE : 08/05/2012 TIME: 09:39:39

**ENLARGEMENT Z**

NOT TO SCALE



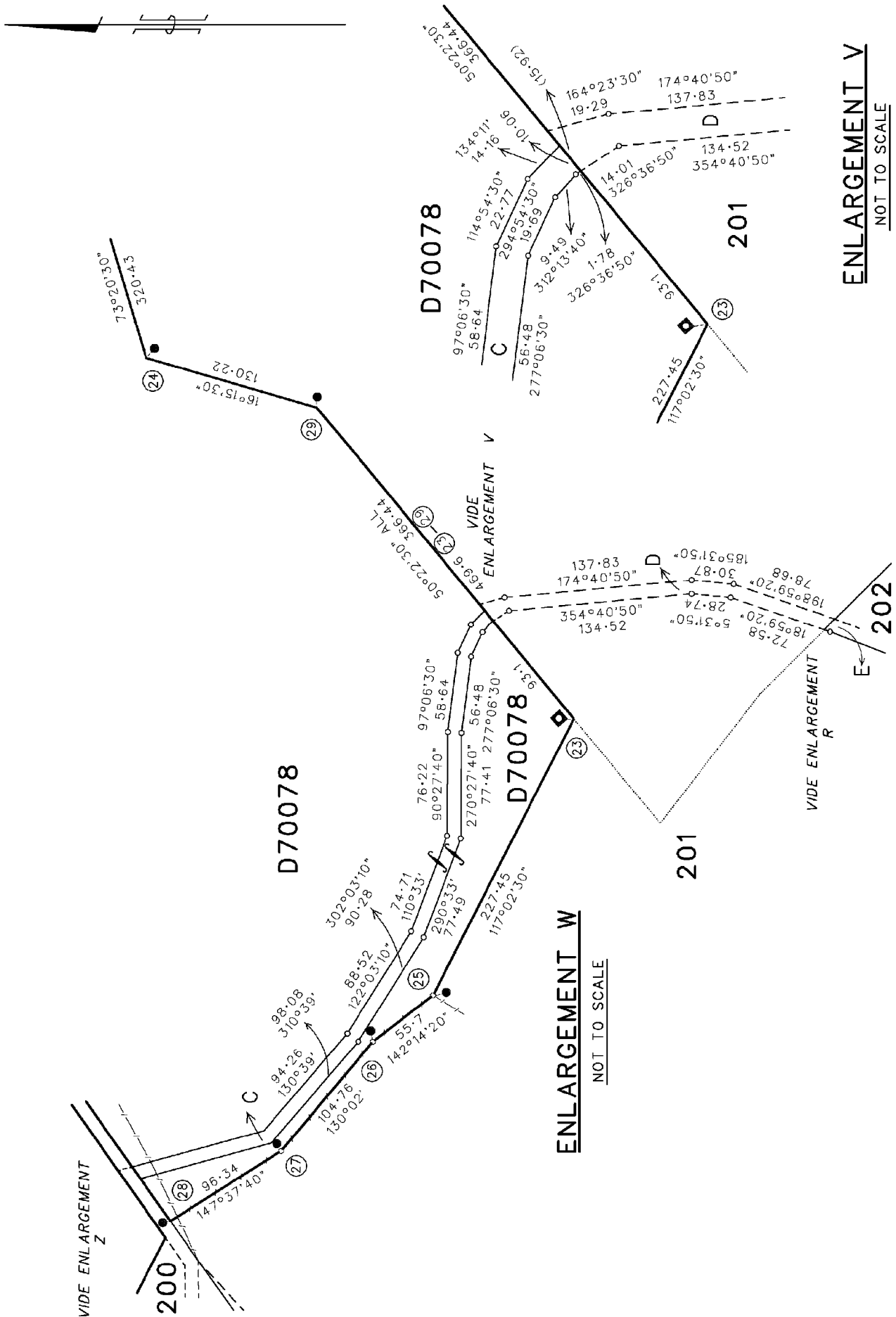


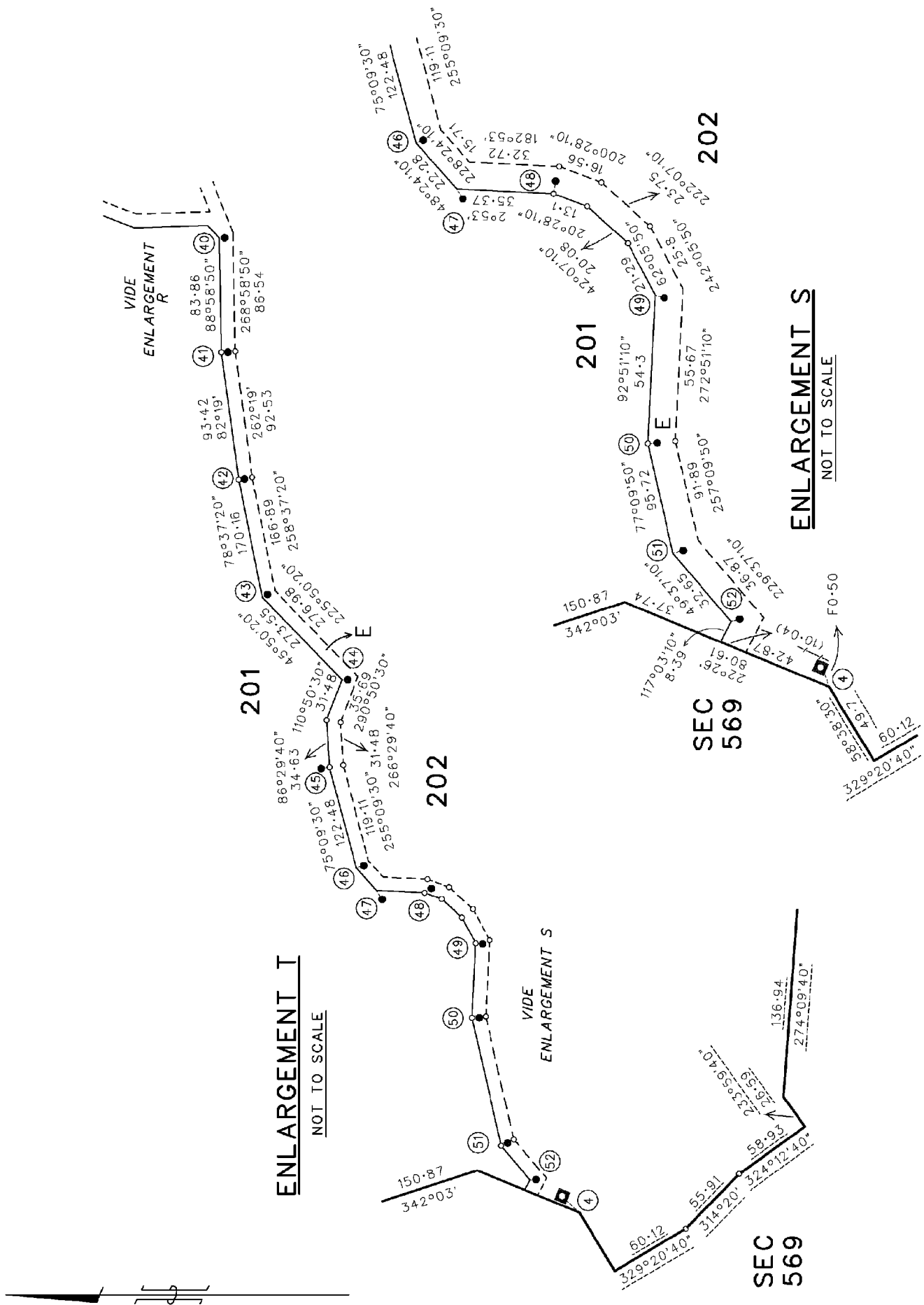


LANDS TITLES OFFICE ADELAIDE SOUTH AUSTRALIA

DIAGRAM FOR CERTIFICATE OF TITLE VOLUME 6071 FOLIO 914

SEARCH DATE : 08/05/2012 TIME: 09:39:39

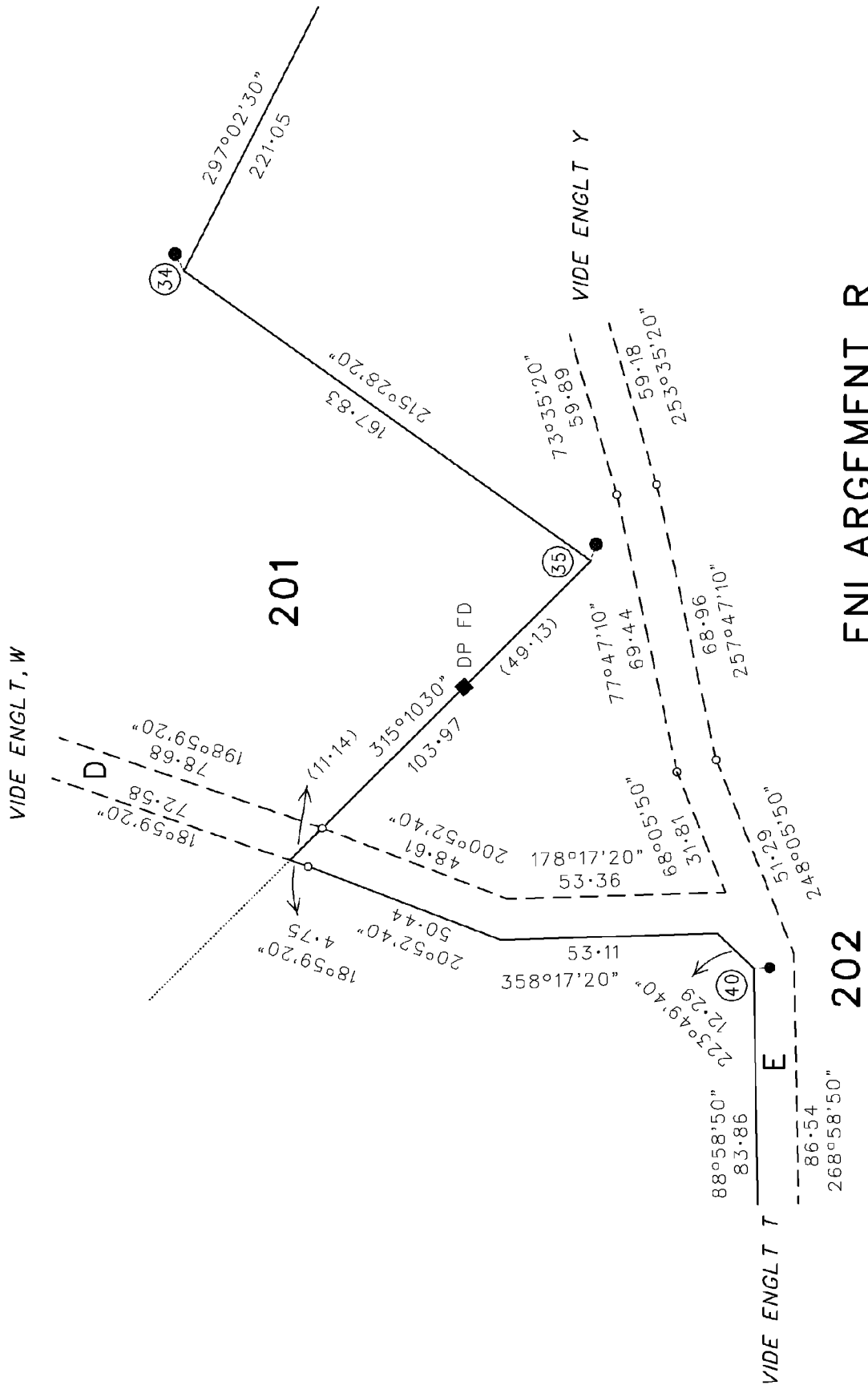




LANDS TITLES OFFICE ADELAIDE SOUTH AUSTRALIA

DIAGRAM FOR CERTIFICATE OF TITLE VOLUME 6071 FOLIO 914

SEARCH DATE : 08/05/2012 TIME: 09:39:39



NOT TO SCALE

**ENLARGEMENT R**



# CERTIFICATE OF TITLE

REAL PROPERTY ACT, 1886



VOLUME 6071 FOLIO 915

Edition 3  
Date Of Issue 09/02/2011  
Authority RTC 11508836

## South Australia

I certify that the registered proprietor is the proprietor of an estate in fee simple (or such other estate or interest as is set forth) in the land within described subject to such encumbrances, liens or other interests set forth in the schedule of endorsements.

A handwritten signature in black ink, appearing to read 'B. P.'.



REGISTRAR-GENERAL

### REGISTERED PROPRIETORS IN FEE SIMPLE

JOANNE MARY SCANLON OF 10 UNDIVIDED 20TH PARTS AND JUSTIN ANDREW SCANLON  
OF 10 UNDIVIDED 20TH PARTS BOTH OF PO BOX 110 URAIDLA SA 5142

### DESCRIPTION OF LAND

ALLOTMENT 202 DEPOSITED PLAN 85108  
IN THE AREA NAMED NORA CREINA  
HUNDRED OF WATERHOUSE

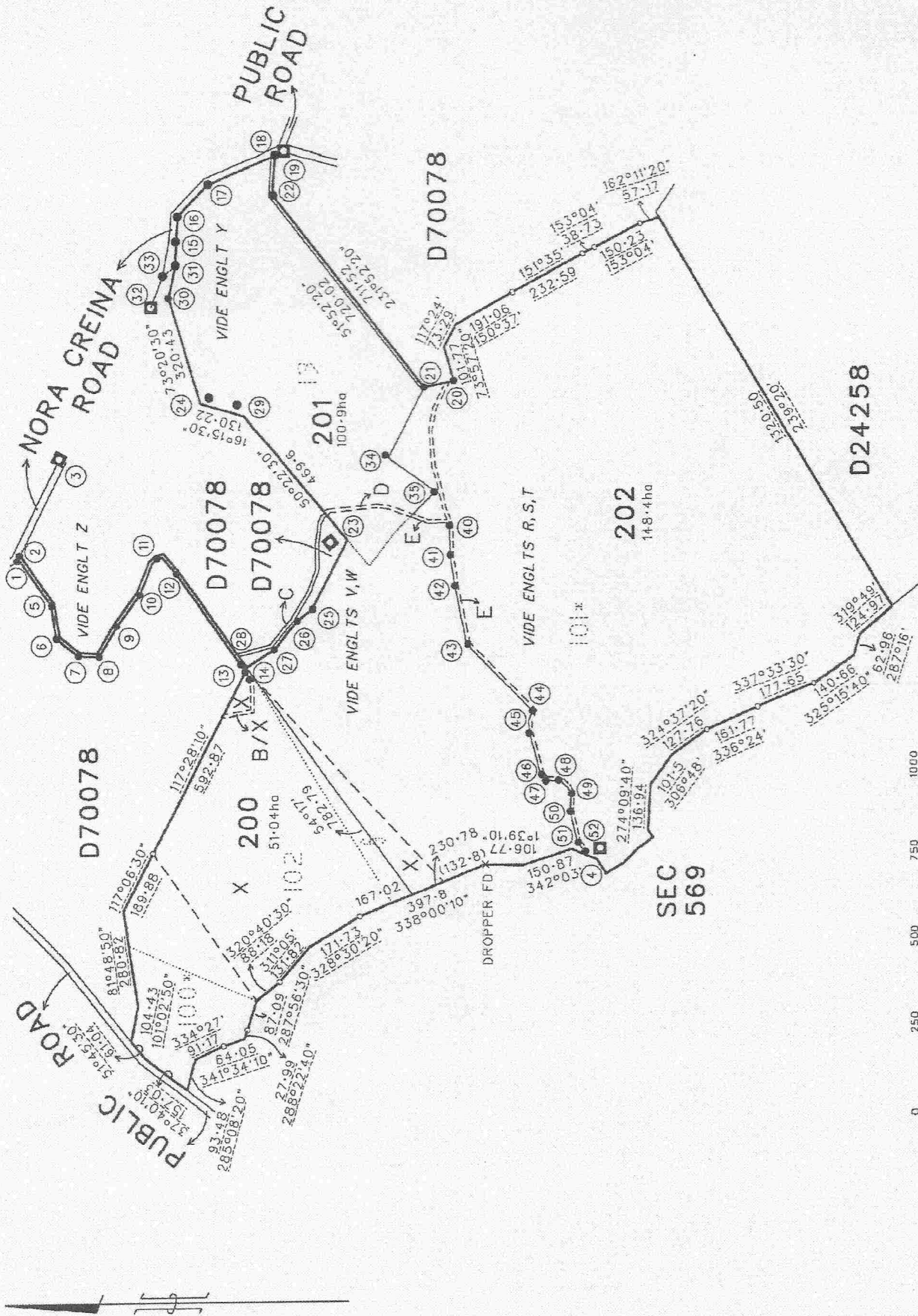
### EASEMENTS

SUBJECT TO FREE AND UNRESTRICTED RIGHTS OF WAY OVER THE LAND MARKED E

### SCHEDULE OF ENDORSEMENTS

NIL

WARNING: BEFORE DEALING WITH THIS LAND, SEARCH THE CURRENT CERTIFICATE



SURVEY INFORMATION IS DERIVED FROM DEPOSITED PLAN 85108

# Nora Creina Golf Resort

Robe, South Australia



## LEGEND

- ① Cattle farm
- ② Vineyard
- ③ 3-5 star accom
- ④ Clubhouse
- ⑤ Retreat
- ⑥ 7-star villa



## Golf Course Masterplan

Buildings designed by:  
studio-gram pty ltd  
suite 406  
33 Pirie Street  
Adelaide SA 5000



### NORA CREINA GOLF RESORT

Scale: 1:4000 @ A1  
Date: 9th October 2015  
Client: J & D Scanlon  
Revision: For Review

Golf Course design by:

**harrison golf**  
PTY LTD  
Harrison Golf Pty Ltd  
Suite 1002, 275 Alfred Street  
North Sydney NSW 2060

# **Guidelines**

for the preparation of a

Public Environmental Report

## **Nora Creina Golf Course and Tourism Resort**

Proposal by Justin Scanlon and Damian  
Scanlon

October 2014

[DAC LOGO]





# **Guidelines**

for the preparation of a

Public Environmental Report

## **Nora Creina Golf Course and Tourism Resort**

Proposal by Justin Scanlon and Damian  
Scanlon

October 2014

**Department of Planning, Transport and Infrastructure**

136 North Terrace, Adelaide

GPO Box 1815

South Australia 5001

**Development Assessment Commission**

**South Australia**

[www.planning.sa.gov.au/dac](http://www.planning.sa.gov.au/dac)

ISBN 978-0-7590-0191-6 (print version)

ISBN 978-0-7590-0185-5 (electronic version)

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Appendix A - SA *Development Act 1993*, Section 46C, PER Process

Appendix B – Relevant Plans of the Proposal



# 1 INTRODUCTION

- 1.1 On 4 March 2014, the Minister for Planning ('the Minister') made a declaration in the *South Australian Government Gazette* for a proposed Golf Course and Tourism Resort development near Nora Creina in the South East of South Australia to be assessed as a Major Development under the provisions of Section 46 of the *Development Act 1993*.
- 1.2 The proposed development comprises a 36 hole world class public golf course (and associated practice range/greens, clubhouse, restaurant, accommodation and retail facilities), as well as an Abalone farm, boutique Wagyu beef farm, boutique vineyard and recreational facilities (such as nature trails and for recreational fishing and diving). The site is located on the coast between Robe and Beachport in the South East Region. The subject land is a 900 acre site that comprises a mix of cleared farmland and natural coastal ecosystems.
- 1.3 On 18 July 2014, a delegate of the Commonwealth Minister for the Environment determined that the proposed development was a 'controlled action' requiring assessment and a decision on approval under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) before it can proceed.
- 1.4 The Development Assessment Commission (DAC) is an independent statutory authority that has the task of determining the appropriate level of assessment for a Major Development, namely an Environmental Impact Statement (EIS); Public Environmental Report (PER) or a Development Report (DR), and setting Guidelines.
- 1.5 Following consideration of the implications of the proposal, the DAC has determined that the proposal will be subject to the processes and procedures of a PER, as set out in Section 46C of the *Development Act 1993*. A PER was considered appropriate due to a range of issues to be investigated, including:
  - The extent of departure from existing zone policies within the relevant Development Plan.
  - The economic implications and sustainability of the proposal, particularly the economic impact of the development with respect to the local tourism industry and the broader community of the South East (especially to justify any environmental or cultural impacts).
  - The sensitivity of the coastal location and the potential for impacts on the environmental, landscape and cultural values of the coast.
  - Construction impacts, including native vegetation clearance, disturbance to native fauna (especially threatened species), disturbance to sites of Aboriginal heritage significance, substantial earthworks, noise, dust, odour and vibration.
  - Operational impacts, including human disturbance to fauna, effects of golf course irrigation and management (such as the use of fertilisers, herbicides and pesticides), 'edge effects' between the golf course and

- the natural environment, stormwater and wastewater management (including reuse).
  - Potential impacts on the surrounding coastal and marine environment (especially from habitat loss, human disturbance/activity and the proposed Abalone farm).
  - Potential implications for the cultural values of the surrounding area and the region.
  - Potential implications for the environment and land management from the mixed primary production uses (aquaculture, grazing and vineyards), including discharges to the marine environment from the Abalone farm.
  - Traffic generation and implications for the local road network.
  - Infrastructure requirements (especially the provision of power and water).
  - Bushfire protection requirements.
- 1.6 It should be noted the *Development Act 1993* requires a PER to be publicly exhibited for a period of at least 30 business days, and for a public meeting to be held during this period.
- 1.7 The DAC has now prepared Guidelines for the proposed Nora Creina Golf Course and Tourism Resort, based on the significant issues relating to the proposed development. The PER should be prepared in accordance with these Guidelines and should describe what the proponent wants to do, what the environmental effects will be and how the proponent plans to manage the project.
- 1.8 The PER should be prepared to cover both the construction and ongoing operation of the development and, where possible, should outline opportunities to incorporate best practice design and management.
- 1.9 For the purposes of environmental impact assessment under the *Development Act 1993*, the meaning of ‘environment’ is taken to include an assessment of environmental (biological and physical), social and economic effects associated with the development and the means by which those effects can be managed.
- 1.10 An opportunity for public comment will occur when the completed PER is released for public exhibition. At that time, an advertisement will be placed in *The Advertiser*, *The South Eastern Times*, *Coastal Leader* and the *Border Watch* newspapers to indicate where the PER is available and the length of the public exhibition period. During the exhibition period, written submissions on the proposal can be made to the Minister for Planning.
- 1.11 The DAC’s role in the assessment process is now fulfilled. The Minister will continue with the assessment process under Section 46 of the *Development Act 1993* from this point. The object of Section 46 is to ensure that matters affecting the environment, the community or the economy to a significant extent are fully examined and taken into account

in the assessment of this proposal.

- 1.12 The documentation and the analyses from the assessment process will then be used by the Governor in the decision-making process, under Section 48 of the *Development Act 1993*, to decide whether the proposal can be approved, and the conditions that would apply.
- 1.13 In accordance with the requirements of the Bilateral Agreement, the State of South Australia will also provide an assessment report to the Commonwealth Environment Minister for the purposes of Part 9 of the EPBC Act.
- 1.14 The key stages in the assessment process under the Major Developments or Projects provisions of the *Development Act 1993* are shown in Figure 1.





INSERT FIGURE 1 – PER PROCESS FLOW CHART



## 2 BACKGROUND

- 2.1 The proponent of the proposed Nora Creina Golf Course and Tourism Resort is Justin Scanlon and Damian Scanlon.
- 2.2 Justin Scanlon and Damian Scanlon propose to develop a world class, links style golf course and mixed tourism resort on the South East coastline, approximately 15 km south of Robe. The proposal comprises the following components:
- 36 hole international standard golf course, comprising a 'Red Course' (Stage 1) and a 'Blue Course' (Stage 2), and associated practice range and greens.
  - Golf course maintenance facility.
  - Clubhouse, including bar, lounge, pro shop and associated parking.
  - Tourist accommodation complex, including restaurant and retail facilities. The accommodation is anticipated to comprise four-star hotel-style accommodation (two storey), with 20 rooms provided initially. A limited number of exclusive, high end tourist accommodation opportunities would also be provided within the site.
  - Abalone farm, including caretakers residence.
  - Boutique Wagyu beef farm.
  - Boutique vineyard.
  - Recreational facilities, such as nature trails and for recreational fishing and diving.
  - Infrastructure, including an access road, waste water treatment plant, water supply (including storage dams) and three-phase power supply.
  - Storm water and sewage infrastructure for the capture, treatment, storage and re-use of recycled water throughout the development (where possible).
- It should be noted the Major Development declaration included a desalination plant, which is no longer part of the proposal.
- 2.3 Refer to Appendix B for a copy of the relevant plans of the proposal.
- 2.4 The DAC has determined that the proposal will be subject to the processes and procedures of a PER, as set out in Section 46C of the *Development Act 1993*.
- 2.5 The proponent has been advised by the Minister for Planning that a PER is required to assist the Government in assessing the environmental, social and economic impacts of the proposal.
- 2.6 The DAC has prepared these Guidelines for the proponent, based on the significant issues relating to the proposed development. These Guidelines identify the issues associated with the proposal that must be addressed in the PER.



### **3 THE PUBLIC ENVIRONMENTAL REPORT (PER) PROCESS**

- 3.1 A PER, as defined in Section 46C of the *Development Act 1993*, includes a description and analysis of issues relevant to the development and the means by which those issues can be addressed.
- 3.2 The PER should detail the expected environmental, social and economic effects of the development. The PER must consider the extent to which the expected effects of the development are consistent with the provisions of any Development Plan, the Planning Strategy and any matter prescribed by the Regulations under the Act. The PER should also state the proponent's commitments to meet conditions (if any) placed on any approval that may be given to avoid, mitigate or satisfactorily control and manage any potential adverse impacts of the development on the environment. Further to this, any other information required by the Minister must be considered.
- 3.3 In preparing the PER, the proponent should bear in mind the following aims of the PER and public review process:
  - 3.3.1 To provide a source of information from which interested individuals and groups may gain an understanding of the proposal, the need for the proposal, the alternatives, the environment that would be affected, the impacts that may occur and the measures to be taken to minimise these impacts.
  - 3.3.2 To provide a forum for public consultation and informed comment on the proposal.
  - 3.3.3 To provide a framework in which decision-makers may consider the environmental aspects of the proposal in parallel with social, economic, technical and other factors.
- 3.4 Following the release of the Guidelines adopted by the DAC:
  - 3.4.1 The PER must be prepared by the proponent in accordance with these Guidelines.
  - 3.4.2 The PER is referred to the District Council of Robe and to any prescribed authority or body, and to other relevant authorities or bodies for comment.
  - 3.4.3 Public exhibition of the PER document by advertisement is undertaken for a least 30 business days. Written submissions are invited.
  - 3.4.4 A public meeting is held in the locality by the Department of Planning, Transport and Infrastructure (Planning Division) during the period for making submissions, in order to provide information on the development or project, to explain the PER document and processes, and to assist interested persons to

make submissions under the Act.

- 3.4.5 Copies of the submissions from the public, Council, relevant government agencies and other interested parties will be given to the proponent soon after closing of the public comment period.
- 3.4.6 The proponent must then prepare a written response in a ‘Response Document’ to the matters raised in all submissions. The proponent is nominally given two months to provide this to the Minister.
- 3.4.7 The Minister then prepares an Assessment Report, taking into account any submissions and the proponent’s response to them. Comments from any other authority or body may be considered as the Minister thinks fit.
- 3.4.8 The Assessment Report and the Response Document are to be kept available for inspection and purchase at a place and period determined by the Minister. Availability of each of these documents will be notified by advertisements in *The Advertiser* newspaper and local press.
- 3.4.9 Copies of the PER, the Response Document and the Assessment Report will be given to the District Council of Robe for distribution purposes.
- 3.4.10 The Governor is the relevant decision maker under Section 48 of the Act, when a development application is subject to the PER process.
- 3.4.11 In arriving at a decision, the Governor must have regard to:
- The provisions of the appropriate Development Plan and Regulations.
  - If relevant, the Building Rules.
  - The Planning Strategy.
  - The EIS/PER, Response Document and Assessment Report.
  - If relevant, the *Environment Protection Act 1993*.
  - If relevant, the objects of the *River Murray Act 2003* and any obligations under the Murray-Darling Basin Agreement.
  - If relevant, the objects of the *Adelaide Dolphin Sanctuary Act 2005*.
  - If relevant, the objects of the *Marine Parks Act 2007*.
- 3.5 The Governor can at any time, and prior to completion of the assessment process, determine that the development will not be granted authorisation. This may occur if it is clear that the development is inappropriate or cannot be managed properly. This is commonly referred to as an “early no”.

## **Australian Government Involvement in the Assessment Process**

On 20 June 2014, the proponent submitted a Referral Notice for the proposal (i.e. proposed action) to the Australian Government Department of the Environment, in accordance with the Commonwealth EPBC Act.

On 18 July 2014, a delegate of the Commonwealth Minister for the Environment made a decision that the Nora Creina Integrated Golf Course and Tourism Development proposal requires assessment and approval under the EPBC Act (referral no. 2014/7249). This was because the proposed action is considered likely to have a significant impact on the following matter protected by the EPBC Act:

- Listed threatened species and communities (sections 18 and 18A)

The Commonwealth of Australia has a Bilateral Agreement (Assessment) with the State of South Australia, under Section 45 of the EPBC Act, to accredit the South Australian environmental assessment processes. The agreement makes it possible to undertake a single assessment, following the South Australian environmental impact assessment processes, and minimise duplication between State and Australian governments. It has been decided the proposal will be assessed through the State assessment process under the Bilateral Agreement. Following assessment, the State of South Australia will provide an assessment report to the Commonwealth Minister for the Environment, who will then make a decision whether or not to approve the proposed action under Part 9 of the EPBC Act.

In accordance with the Bilateral Agreement (*Development Act 1993* provisions), the proposal will undergo a streamlined assessment process in co-ordination with Australian Government Department of the Environment. This means there will only be one PER document prepared, one period of public consultation undertaken and one Response/Supplementary PER document (and possibly one Assessment Report) prepared to satisfy the legislative requirements of each jurisdiction.

The Australian Government Department of the Environment has had input into the preparation of these Guidelines in regard to issues related to the EPBC Act.





## **4 THE PER DOCUMENT**

- 4.1 The Guidelines set out the major issues associated with the proposal and their degree of significance, as determined by the Development Assessment Commission. It describes each issue and then outlines the way that these issues should be dealt with in the PER.
- 4.2 In these Guidelines the terms “description” and other similar terminology should be taken to include both quantitative and qualitative materials as practicable and meaningful. Similarly, adverse and beneficial effects should be presented in quantitative and/or qualitative terms as appropriate.
- 4.3 The main text of the PER should be clear and precise and presented in terms that are readily understood by the general reader. Technical details should be included in the appendices so that the PER forms a self-contained entity.
- 4.4 The document should give priority to the major issues associated with the proposal. Matters of lesser concern should be dealt with only to the extent required to demonstrate that they have been considered to assist in focussing on the major issues.
- 4.5 The following should be included in the PER:

### **4.5.1 SUMMARY**

The PER should include a concise summary of the matters set out in section 46C of the *Development Act 1993* and include all aspects covered under the headings set out in the Guidelines below, in order for the reader to obtain a quick but thorough understanding of the proposal and the resulting environmental impacts.

### **4.5.2 INTRODUCTION**

The introduction to the PER should briefly cover the following:

- Background to, and objectives of, the proposed development.
- Details of the proponent.
- Staging and timing of the proposal, including expected dates for construction and operation.
- Relevant legislative requirements and approval processes.
- Purpose and description of the PER process.

### **4.5.3 NEED FOR THE PROPOSAL**

- The specific objectives that the proposal is intended to meet, including market demand and environmental standards.

- Expected local, regional and state benefits and costs, including those that cannot be adequately described in monetary or physical terms (eg. effects on aesthetic amenity).
- A summary of environmental, economic and social arguments to support the proposal.
- The consequences of not proceeding with the proposal.

#### **4.5.4 DESCRIPTION OF THE PROPOSAL**

The description of the proposal should include the following information:

- The nature of the proposal and location (including a description of the principal components and any off-site infrastructure requirements).
- Land tenure and ownership details (or leasing arrangements) for all land parcels likely to be affected by the proposal (including off-site infrastructure).
- A project plan to outline objectives, constraints, key activity schedule and quality assurance.
- Site layout plans (including an indicative land division plan, if relevant).
- The construction and commissioning timeframes (including staging).
- A description of the existing environment (including the immediate and broader location).
- Details of all buildings and structures associated with the proposed development (including plant and infrastructure).
- Any other infrastructure requirements and availability.
- Details on the operation of the proposed development.
- The relevant Development Plan zones.
- Management arrangements for the construction and operational phases (including Environmental Management and Monitoring Plans).

4.6 The PER must include the following:

##### **4.6.1 ASSESSMENT OF EXPECTED ENVIRONMENTAL, SOCIAL AND ECONOMIC EFFECTS**

The assessment of effects should include all issues identified in Section 5 of these Guidelines and cross referenced to supporting technical references.

##### **4.6.2 CONSISTENCY WITH GOVERNMENT POLICY**

The *Development Act 1993* requires the PER to state the consistency of the expected effects of the proposed

development with the relevant Development Plan and Planning Strategy (i.e. Region Plan).

The PER should also demonstrate that the proposed action is consistent with any relevant EPBC Act guidelines or plans that may be relevant to the proposed action.

#### **4.6.3 AVOIDANCE, MITIGATION, OFFSET, MANAGEMENT AND CONTROL OF ADVERSE EFFECTS**

The proponent's commitments to avoid, mitigate and/or compensate (including environmental offsets), satisfactorily manage and/or control any potentially adverse impacts of the development on the biological, physical, social or economic environment, must be clearly stated as part of the PER.

The design of the proposal should be flexible enough to incorporate changes to minimise any impacts highlighted by this evaluation or by post-construction monitoring programs.

Where relevant, the PER should demonstrate that the proposed avoidance, mitigation, offset, management and control measures are consistent with the EPBC Act offsets policy and relevant recovery plans, conservation advice and threat abatement plans.

4.7 The PER should also provide the following additional information:

##### **4.7.1 SOURCES OF INFORMATION**

The sources of information (e.g. reference documents, literature searches, research projects, authorities consulted) should be fully referenced, and reference should be made to any uncertainties in knowledge. Where judgments are made, or opinions given, these will need to be clearly identified as such, and the basis on which these judgments or opinions are made will need to be justified. The expertise of those making the judgments including the qualifications of consultants and authorities should also be provided.

##### **4.7.2 APPENDICES**

Technical and additional information relevant to the PER that is not included in the text should be included in the appendices (maps, graphs, tables, photographs, reports etc). A glossary may also be appropriate.

### **4.7.3 OTHER**

Appropriate plans, drawings and elevations are needed for a decision to be made. As much information as possible is required on the design and layout of the proposal.

## 5 THE MAIN ISSUES

### 5.1 PLANNING AND ENVIRONMENTAL LEGISLATION AND POLICIES

- 5.1.1 Describe the proposal's consistency with and/or variance from the Robe Council Development Plan and Planning Strategy (namely the Limestone Coast Region Plan).
- 5.1.2 Describe the proposal's consistency with the 'South East Regional Natural Resources Management Plan' (2010) and the 'Limestone Coast and Coorong Coastal Action Plan' (2011).
- 5.1.3 Describe the proposal's consistency with the South Australian Tourism Commission 'Design Guidelines for Sustainable Tourism Development' (2007).
- 5.1.4 Describe the relevant requirements of the *Environment Protection Act 1993* and associated policies and guidelines, and how these would be complied with.
- 5.1.5 Describe the relevant requirements of the *Marine Parks Act 2007*, particularly the general duty of care, zoning and management strategies (including any prohibitions or restrictions that may apply).
- 5.1.6 Describe the relevant requirements of the *Aquaculture Act 2001* that relate to the proposed abalone aquaculture farm, especially whether the current licence remains valid or relevant.
- 5.1.7 Describe any relevant EPBC Act policies, guidelines or plans, and how these would be complied with and/or demonstrate that the implementation of the proposal will not be inconsistent with any relevant EPBC Act policies, guidelines or plans.
- 5.1.8 Consider relevant protocols, agreements and strategies including: 'Tackling Climate Change, SA's Greenhouse Strategy 2007 – 2020', the *Climate Change and Greenhouse Emissions Reduction Act 2007* and the *National Greenhouse and Energy Reporting Act 2007*.
- 5.1.9 Demonstrate the proposal's consistency with State and Commonwealth legislation and initiatives relating to conservation or protection of the biological environment and heritage items, including sections 3 – Objects of Act and 3A – Principles of ecologically sustainable development of the EPBC Act .
- 5.1.10 Consider any other relevant plans or studies that relate to the area, including (if relevant) section 176(5) – Bioregional Plans of the EPBC Act.

- 5.1.11 Identify legislative requirements and the range of approvals needed to complete the proposed development.
- 5.1.12 Describe any changes that may need to be made to the Development Plan policies for the site (especially for the residential component).

## 5.2 **NEED FOR THE PROPOSAL**

- 5.2.1 Justify the rationale for the proposal from an environmental, economic (especially market demand), social and sustainability perspective, including the reasons for its proposed location, scale and staging.
- 5.2.2 Justify the selection of the proposed location from an environmental and economic perspective in comparison with alternative sites along the South East coast.
- 5.2.3 Outline current and predicted demand for the facility.
- 5.2.4 Outline the expected local, regional and state benefits and costs, including those that cannot be adequately described in monetary or physical terms (such as effects on aesthetic amenity).
- 5.2.5 Assess the “do nothing” option (i.e. the consequences of not proceeding with the proposal).

## 5.3 **ENVIRONMENTAL ISSUES**

- 5.3.1 Describe the impact of past and current land management practices on the environmental values of the site, especially any environmental problems or degrading factors that may need to be addressed.

### **Native Vegetation**

- 5.3.2 Quantify and detail the extent, condition and significance of native vegetation (individual species and communities) that currently exist on site (or affected by off-site infrastructure requirements) and would be preserved and, if appropriate, rehabilitated.
- 5.3.3 Quantify and detail the extent, condition and significance of native vegetation (individual species and communities) that may need to be cleared or disturbed (directly or indirectly) during construction (including ancillary clearing for the proposed development of walking trails, shelters, areas required for bushfire safety and all infrastructure, such as the water supply pipeline and power transmission line).
- 5.3.4 Describe the impacts of construction and operational activities

on native vegetation (including coastal and marine communities) and proposed mitigation measures.

- 5.3.5 Describe the ability of communities or individual species (especially those listed as uncommon or threatened under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and the South Australian *National Parks and Wildlife Act 1972*) to recover, regenerate or be rehabilitated.
- 5.3.6 Identify measures to minimise and mitigate vegetation clearance and disturbance, including incorporating remnant stands in the layout design, with particular reference to the total areas likely to be cleared and the extent to which such clearances would impact on the integrity and function of vegetation corridors and/or habitat fragmentation. Include details of strategies to compensate for the loss of native vegetation and habitat.
- 5.3.7 Outline proposed revegetation works (including the location, densities and types of locally indigenous species to be planted) and how this relates to existing native vegetation, with particular reference to the capacity of revegetation works to mitigate habitat fragmentation and to facilitate the re-establishment of vegetation corridors.
- 5.3.8 Describe the effect of introduced weed species and increased human habitation on native vegetation, before and after construction, especially species that may originate from the golf course or landscaped areas.
- 5.3.9 Describe measures to deliver significant environmental benefit to the existing native vegetation, whether intact stratum or scattered patches/trees, as required by the *Native Vegetation Act 1991*.
- 5.3.10 Describe how the proposal is not inconsistent with any relevant EPBC Act guidelines, conservation advice and/or recovery plans. For instance, the Recovery Plan for the Little Dip Spider Orchid (*Caladenia richardsiorum*).

#### **Native Fauna**

- 5.3.11 Quantify and detail the abundance, condition and significance of native fauna populations that currently exist or may depend on habitat on site or along the routes of infrastructure for the proposal. Any fauna surveys conducted must meet the requirements of any relevant EPBC Act survey guidelines.
- 5.3.12 Describe direct and indirect impacts to fauna associated with the proposal, the extent of expected fauna and/or habitat loss or

disturbance during the construction and operation phases (both on and around site) and the ability of communities and individual species to recover, especially for resident or migratory birds and threatened or significant species (including those listed under the EPBC Act and the South Australian *National Parks and Wildlife Act 1972*).

- 5.3.13 Detail appropriate buffer distances that would be required for the construction and operational phases between the proposed development (including coastal access points) and threatened species, especially feeding areas, nesting sites and roosting sites.
- 5.3.14 Outline the effect of light and noise pollution on nocturnal animals.
- 5.3.15 Outline the risk of road-related fauna death and injury (including from construction vehicles) and the risk of bird strike associated with any large glass windows.
- 5.3.16 Provide information on the expected levels of noise (and where relevant vibration) associated with the construction and operation of the facility, identifying all potential sources, and describe the extent to which emissions can be reduced and contained to acceptable levels to minimise effects upon the wider locality (especially native fauna populations that occur on and around the site).
- 5.3.17 Outline how native fauna that is likely to interact with the golf course development (such as kangaroos, wallabies, wombats and possums) and how this would be managed.
- 5.3.18 Identify impact avoidance, minimisation and mitigation measures and their effectiveness, including measures to minimise access roads and subsidiary tracks acting as fauna barriers or as a corridor for feral animals.
- 5.3.19 Describe measures to address any displacement of native fauna or the isolation of metapopulations due to habitat fragmentation.
- 5.3.20 Describe how the proposal is not inconsistent with any relevant EPBC Act guidelines, conservation advice and/or recovery plans. For instance, the National Recovery Plan for the Orange-bellied Parrot (*Neophema chrysogaster*).

### **Coastal Environment**

- 5.3.21 Describe all coastal ecological assets and current levels of disturbance on and around the site.
- 5.3.22 Describe the effect of the proposed development on the



beaches, coastal dunes and the calcarenite formations of the site (and associated vegetation communities) and outline management and rehabilitation measures for these areas, including reference to long-term strategies to protect vegetation on coastal dunes from trampling and other disturbances associated with the anticipated increases in visitation rates.

- 5.3.23 Describe measures to be adopted for the remediation of sand drift, should it occur within the dune system as a direct result of the development.
- 5.3.24 Identify the impact of coastal erosion due to expected sea level rise of 0.3 metre to 2050 and 1.0 metre to 2100.
- 5.3.25 Detail the impacts of the construction and operation of the supply and discharge pipes for the abalone farm, especially any effect on coastal processes.
- 5.3.26 Describe the effect on the coastal wetlands on the site (which form part of the Karinya Coastal Lake Complex), including from cattle grazing and vineyard management.
- 5.3.27 Describe the effect on the conservation values of the nearby Little Dip Conservation Park, Lake Eliza (which forms part of the South East Coastal Salt Lakes complex and is listed in the Commonwealth Department of the Environment *Directory of Important Wetlands in Australia*) and the Heritage Agreement area south of the site.
- 5.3.28 Describe the effect on the habitat value of on-site native vegetation that provides a wildlife corridor along the coast (including coastal Crown land), especially to link the Little Dip Conservation Park with the Heritage Agreement area south of the site.

### **Marine Environment**

- 5.3.29 Describe the marine ecological assets in the vicinity of the site and current levels of disturbance.
- 5.3.30 Describe the existing marine and aquatic communities potentially impacted by the proposal (especially invasive species and species listed under the EPBC Act).
- 5.3.31 Describe the direct and indirect impacts (including potential discharges from the development, such as from the abalone farm and contaminated groundwater or surface water resulting from golf course and vineyard irrigation) on marine/aquatic communities and the proposed measures to mitigate impacts.
- 5.3.32 Describe the effect of the development (for both the construction and operational phases) on the Upper South East

Marine Park, especially the adjoining habitat protection zone (including the beach).

- 5.3.33 Describe the operational requirements for the abalone aquaculture farm and proposed methods for monitoring impacts on the marine environment (including the marine park). In particular, the proposed treatment of wastewater and measures to mitigate any impacts on the marine environment from the discharge of wastewater (including the risk from the spread of viruses/diseases and the reuse of water).

### **Geology and Soils**

- 5.3.34 Describe the hydrogeology of the site in relation to soil types, geology and surface drainage patterns, including any drainage to on-site wetlands, Lake Eliza and the marine environment.
- 5.3.35 Outline the interaction between erosion processes and the proposed development (especially sand drift and ‘blow-outs’).

### **Groundwater and Site Contamination**

- 5.3.36 Describe the known existing groundwater and land related environmental conditions, including possible site contamination.
- 5.3.37 Undertake a preliminary site investigation, conducted by a site contamination consultant in accordance with the *National Environment Protection (Assessment of Site Contamination) Measure 1999*, to identify whether a potentially contaminating land use has occurred on the proposed site. If the existence of potential site contamination is identified, appropriate assessment and remediation strategies must be undertaken to ensure the land is suitable for the proposed uses.
- 5.3.38 Detail the measures to be taken to manage and monitor any groundwater resources.
- 5.3.39 Detail the potential impacts on the underlying groundwater from nutrients and chemicals leaching from the golf course and vineyard.
- 5.3.40 Identify any submarine groundwater discharges along the coast and describe the extent to which potential contamination of groundwater (particularly from nutrients, herbicides, pesticides and agricultural chemical use) could impact on the surrounding marine environment in areas where such discharges occur.
- 5.3.41 Identify impact avoidance, minimisation and mitigation measures and their effectiveness.

## **Sustainability and Climate Change**

- 5.3.42 Outline the principles to be followed to demonstrate that the development would be environmentally sustainable.
- 5.3.43 Describe the measures associated with orientating all of the built components for the best possible energy efficiency, having regard to alternative or renewable energy sources, sustainable design and low emission design measures.
- 5.3.44 Outline waste management strategies for residential uses and commercial facilities (including measures to deter scavenging by native or feral species) and the potential for incorporating recycling and resource recovery.
- 5.3.45 Outline measures to minimise or reduce materials and resources used during the construction and operational phases, including the use of on-site (or local) and recycled materials.
- 5.3.46 Describe the arrangements to control and manage activities, particularly to ensure that the proposed development is environmentally sustainable in the long-term.
- 5.3.47 Describe implications of climate change with respect to the proposal and measures to minimise, reduce and ameliorate greenhouse gas emissions, particularly the use of alternative or renewable energy sources and off-sets.

## **5.4 ECONOMIC ISSUES**

- 5.4.1 Provide a full economic analysis of the proposal, including the long term economic viability of the project.
- 5.4.2 Detail the potential economic benefits and costs of the development to the South East region's economy and the State economy (such as employment and investment opportunities), including the "multiplier effect".
- 5.4.3 Outline the opportunity for tourism and investment in the South East region and the State to be enhanced as a result of the proposal.
- 5.4.4 Outline the potential for the project to attract and enhance the business operations of other allied industries and commercial ventures.
- 5.4.5 Describe strategies to manage the site, should the project fail during the period between the commencement of earthworks and final completion of the golf course.
- 5.4.6 Outline contingencies for the site and the other components of the proposal to address the potential risk that the golf course

component is not financially viable in the long-term.

## 5.5 SOCIAL ISSUES

- 5.5.1 Detail the likely size and composition of the construction workforce and employees required during operation, particularly information on employment opportunities for the local community.
- 5.5.2 Outline the impact on existing tourism and recreation services and facilities (including opportunities).
- 5.5.3 Describe any potential conflict with adjoining primary production activities, including measures to ameliorate any such conflict.
- 5.5.4 Describe the impact of noise emissions and vibration on existing sensitive receivers (if any) or sensitive receivers to be introduced as part of the proposed development (especially potential new residents) during construction and operation. Detail strategies to minimise any potential impacts to an acceptable level.
- 5.5.5 Describe the impact of dust and odour on any existing sensitive receivers or sensitive receivers introduced as part of the proposal (such as within the proposed tourist accommodation) during construction and operation.
- 5.5.6 Identify the impact on the heritage significance of any known heritage places on or adjacent the site, including National, State or local heritage places entered on the South Australian Heritage Register, or identified after consultation with the State Heritage Unit of the Department of Environment, Water and Natural Resources.

## 5.6 DESIGN MATTERS

### **Built Form**

- 5.6.1 Describe the rationale and design intent for the major elements of the proposed development (including reference to the *Principles of Good Design* (2014), prepared by the Office for Design + Architecture SA) and measures to mitigate their visual impact.
- 5.6.2 Provide design guidelines for the proposed tourist accommodation components.
- 5.6.3 Provide conceptual plans for all components of the proposal (including building envelopes, cross-sections and three dimensional representations) that show the scale, style, context and overall form of the development.

- 5.6.4 Provide details of construction materials to be used for all buildings and structures (including colours and finishes).
- 5.6.5 Detail the extent of any landscaping or screen plantings, especially the use of locally indigenous plant species suited to local conditions.

**Visual Effects**

- 5.6.6 Describe the visual effect of the proposed development on scenic quality in this locality when viewed from important viewing points, including from surrounding land and the sea.
- 5.6.7 Describe the effect on visual amenity and landscape quality, especially the effects of the built form of buildings and structures (including the access road, earthworks, water and power supply infrastructure) and the impact on the coastal environment.

**5.7 INFRASTRUCTURE**

- 5.7.1 Outline the requirements for and likely location of infrastructure for gas, electricity, sewerage, stormwater management, waste management and communications systems.
- 5.7.2 Detail the extent to which the facility would generate the need for upgraded infrastructure beyond the site boundaries, especially any broader impacts for the South East region's community (including strategic implications for Council and/or utility providers).
- 5.7.3 Detail emergency services arrangements to be implemented during the operation of the development.
- 5.7.4 Outline opportunities to incorporate best practice infrastructure design and construction, especially potential flow-on benefits for the South East community.

**Water**

- 5.7.5 Describe the provision of an adequate water supply for the proposed development (both potable and non-potable), including information on the quality of water required, treatment, storage and use.
- 5.7.6 Describe any proposal to extract groundwater at the site, the target aquifer, potential impacts (including water quality) and any approvals required under the *Natural Resources Management Act 1994*.
- 5.7.7 Describe the impacts of developing a wastewater treatment system, especially the expected volume to be treated, disposal

method and how it would be managed to maximise reuse/recycling (including storage requirements, especially for the winter period). Outline how the treatment system elements would be installed, if it is a phased development. If the disposal method involves irrigation to the golf course or any other areas of land, a draft Wastewater Irrigation Management Plan should be prepared to demonstrate sustainable re-use.

- 5.7.8 Describe stormwater and grey water management strategies to maximise recycling (including recycled water storage requirements) and the potential impact on groundwater resources, surface water resources and the marine and coastal environment. In particular, with regard to golf course and vineyard, the management of runoff and the transport of nutrients and chemicals used in day to day maintenance.
- 5.7.9 Describe the impact of the development on existing local and regional water resources, including the need for a water supply pipeline to the site. Details regarding the proposed location of infrastructure (including storage on site), distance from the supply source and procedural/administrative requirements for establishing infrastructure outside of the site (especially in regard to the Lower Limestone Coast Water Allocation Plan).
- 5.7.10 Describe the impact of the development on current users of water resources in the district, including irrigated primary production.
- 5.7.11 Describe the integrated water management strategy, especially Water Sensitive Urban Design (WSUD) measures (including ways in which water use would be minimised), and the use and management of alternative water sources (i.e. wastewater, grey water and stormwater).
- 5.7.12 Outline the measures proposed to manage and treat stormwater runoff from hard surfaces which are not being used for harvesting water supply, especially access roads and carparks.

#### **Power**

- 5.7.13 Describe the provision of an adequate power supply for the development, including potential impacts associated with a transmission line corridor to the site.
- 5.7.14 Outline the implications of connecting to the power grid for the existing infrastructure and current users.
- 5.7.15 Identify ways in which power use can be minimised or supplemented, especially using alternative energy sources (such as wind turbines) and energy efficiency measures.

## **Access**

- 5.7.16 Outline the level of traffic generation and vehicle movements to and from the site, especially details of vehicle types and distribution (including the hours that vehicles would access the site) during the construction period and operational phase.
- 5.7.17 Outline and analyse the impacts on local and arterial roads, especially the safety and adequacy of access to the site (i.e. via Nora Creina Road, Fayrefield Lane and/or Powells Road), including any junctions/intersections with the arterial road network (i.e. Main Road and/or Southern Ports Highway).
- 5.7.18 Outline the need for and the implications of any upgrading of road infrastructure.
- 5.7.19 Identify alternative access arrangements for emergency services.
- 5.7.20 Detail the proposed access and on-site car parking arrangements, including information about road width and associated drainage measures and maintenance requirements.
- 5.7.21 Describe any proposed coastal access (including the maintenance of current public access and the potential future enhancement of access) and the measures to avoid or minimise impacts.
- 5.7.22 Describe what plans would be put in place to control public access from the Crown leasehold land.

## **Land Tenure**

- 5.7.23 Describe what processes and approvals would be undertaken to reconcile encroachments on the Crown leasehold land dedicated for conservation purposes.
- 5.7.24 Detail the measures to be taken to define the golf course from the Crown leasehold land.
- 5.7.25 Describe what processes and approvals would be undertaken for infrastructure related to the proposed abalone aquaculture farm, especially intake and outfall pipes located within the foreshore and seabed.

## **5.8 CONSTRUCTION AND OPERATION**

- 5.8.1 For each component, provide a site construction plan and outline strategies to minimise effects on the local environment.
- 5.8.2 Outline the staging and timing of construction (including the time of year works are likely to occur).

- 5.8.3 Describe the level of cut and fill required (including for access and infrastructure requirements) and the effect on the natural topography of the site.
- 5.8.4 Where possible, identify the source and origin of construction materials for buildings and infrastructure (such as road making) and the opportunity for the use of on-site (or local) and recycled materials.
- 5.8.5 Describe the measures proposed for the disposal of excavated material and construction waste.
- 5.8.6 Provide information about the transport and storage of any construction materials to minimise effects on the local environment.
- 5.8.7 Identify measures to stabilise disturbed areas and areas susceptible to soil erosion.
- 5.8.8 Detail measures for the implementation of environmentally acceptable work practices.
- 5.8.9 Provide information about the potential accommodation and transport arrangements for the construction workers and employees.
- 5.8.10 Detail the proposed monitoring of impacts during and after construction, including reporting and auditing measures.
- 5.8.11 Detail what will be included in an environmental management and monitoring plan, for both construction and operational activities for all components of the development.
- 5.8.12 Detail long-term management agreements for operation of the development, including the ownership of land and infrastructure.

## 5.9 **RISK AND HAZARD MANAGEMENT**

- 5.9.1 Describe strategies for ensuring public safety during construction and operation.
- 5.9.2 Detail fire management processes and measures to reduce bushfire risk, especially those which minimise vegetation clearance and land disturbance.
- 5.9.3 Detail the availability of water for fire-fighting purposes.
- 5.9.4 Describe strategies for emergency evacuation during medical emergencies and/or bushfire risk.
- 5.9.5 Describe procedures to prevent, minimise and manage pollution



spills or sewage leaks (especially given the porous substrate and proximity to the coast and Lake Eliza). Outline measures for the bunding of hazardous materials storage areas.

- 5.9.6 Describe measures to avoid or mitigate potential impacts from the disturbance of any acid sulfate soils.
- 5.9.7 Describe management strategies to prevent the introduction to the site, and from the site to other sites, of pest species and pathogens during construction and operation (especially *Phytophthora cinnamomi*), including strategies to manage or avoid creating mosquito breeding habitats.
- 5.9.8 Describe strategies for the control of wind and water erosion during construction and operation.

## 5.10 **ABORIGINAL HERITAGE AND NATIVE TITLE**

### Aboriginal Heritage

- 5.10.1 Describe the measures taken to identify and record any Aboriginal sites, objects or remains, including consultation details with relevant Aboriginal parties.
- 5.10.2 Detail plans for the possible discovery of Aboriginal ancestral remains and any Aboriginal sites or objects of archaeological, anthropological or historical significance under the *Aboriginal Heritage Act 1988*.
- 5.10.3 Detail any other measures to ensure compliance with the *Aboriginal Heritage Act 1988*.
- 5.10.4 Detail consultation undertaken with the Aboriginal people during the preparation and development of the assessment document.

### Native Title

- 5.10.5 Identify any Native Title issues in respect of the requirements of the *Native Title Act 1993* (Commonwealth) and the *Native Title Act 1994* (South Australia).
- 5.10.6 Describe the impact on the appropriate Native Title Claimants and the consequent impact on the potential ongoing enjoyment of native title rights (if any) by native title holders.



## **6 AVAILABILITY OF GUIDELINES**

### **6.1 Copies of the Guidelines will be made available at the following locations:**

Department of Planning, Transport and Infrastructure  
5th Floor Public Counter  
136 North Terrace  
Adelaide SA 5000

District Council of Robe  
Royal Circus  
Robe SA 5276

Electronic copies can also be downloaded from the following web sites:

[www.dac.sa.gov.au](http://www.dac.sa.gov.au)

[www.sa.gov.au](http://www.sa.gov.au)



*Development Act 1993, Section 46C—PER process—Specific provisions*

- (1) This section applies if a PER must be prepared for a proposed development or project.
- (2) The Minister will, after consultation with the proponent—
  - (a) require the proponent to prepare the PER; or
  - (b) determine that the Minister will arrange for the preparation of the PER.
- (3) The PER must be prepared in accordance with guidelines determined by the Development Assessment Commission under this subdivision.
- (4) The PER must include a statement of—
  - (a) the expected environmental, social and economic effects of the development or project;
  - (b) the extent to which the expected effects of the development or project are consistent with the provisions of—
    - (i) any relevant Development Plan; and
    - (ii) the Planning Strategy; and
    - (iii) any matters prescribed by the regulations;
  - (c) if the development or project involves, or is for the purposes of, a prescribed activity of environmental significance as defined by the *Environment Protection Act 1993*, the extent to which the expected effects of the development or project are consistent with—
    - (i) the objects of the *Environment Protection Act 1993*; and
    - (ii) the general environmental duty under that Act; and
    - (iii) relevant environment protection policies under that Act;
  - (ca) if the development or project is to be undertaken within the Murray-Darling Basin, the extent to which the expected effects of the development or project are consistent with—
    - (i) the objects of the *River Murray Act 2003*; and
    - (ii) the *Objectives for a Healthy River Murray* under that Act; and
    - (iii) the general duty of care under that Act;
  - (cb) if the development or project is to be undertaken within, or is likely to have a direct impact on, the Adelaide Dolphin Sanctuary, the extent to which the expected effects of the development or project are consistent with—
    - (i) the objects and objectives of the *Adelaide Dolphin Sanctuary Act 2005*; and
    - (ii) the general duty of care under that Act;
  - (cc) if the development or project is to be undertaken within, or is likely to have a direct impact on, a marine park, the extent to which the expected effects of the development or project are consistent with—

- (i) the prohibitions and restrictions applying within the marine park under the *Marine Parks Act 2007*; and
    - (ii) the general duty of care under that Act;
  - (d) the proponent's commitments to meet conditions (if any) that should be observed in order to avoid, mitigate or satisfactorily manage and control any potentially adverse effects of the development or project on the environment;
  - (e) other particulars in relation to the development or project required—
    - (i) by the regulations; or
    - (ii) by the Minister.
- (5) After the PER has been prepared, the Minister—
- (a) —
    - (i) must, if the PER relates to a development or project that involves, or is for the purposes of, a prescribed activity of environmental significance as defined by the *Environment Protection Act 1993*, refer the PER to the Environment Protection Authority; and
    - (ia) must, if the PER relates to a development or project that is to be undertaken within the Murray-Darling Basin, refer the PER to the Minister for the River Murray; and
    - (ib) must, if the PER relates to a development or project that is to be undertaken within, or is likely to have a direct impact on, the Adelaide Dolphin Sanctuary, refer the PER to the Minister for the Adelaide Dolphin Sanctuary; and
    - (ib) must, if the PER relates to a development or project that is to be undertaken within, or is likely to have a direct impact on, a marine park, refer the PER to the Minister for Marine Parks; and
    - (ii) must refer the PER to the relevant council (or councils), and to any prescribed authority or body; and
    - (iii) may refer the PER to such other authorities or bodies as the Minister thinks fit,

for comment and report within the time prescribed by the regulations; and
  - (b) must ensure that copies of the PER are available for public inspection and purchase (during normal office hours) for at least 30 business days at a place or places determined by the Minister and, by public advertisement, give notice of the availability of copies of the PER and invite interested persons to make written submissions to the Minister on the PER within the time determined by the Minister for the purposes of this paragraph.
- (6) The Minister must appoint a suitable person to conduct a public meeting during the period that applies under subsection (5)(b) in accordance with the requirements of the regulations.
- (7) The Minister must, after the expiration of the time period that applies under subsection (5)(b), give to the proponent copies of all submissions made within time under that subsection.

- (8) The proponent must then prepare a written response to—
- (a) matters raised by a Minister, the Environment Protection Authority, any council or any prescribed or specified authority or body, for consideration by the proponent; and
  - (b) all submissions referred to the proponent under subsection (7),
- and provide a copy of that response to the Minister within the time prescribed by the regulations.
- (9) The Minister must then prepare a report (an *Assessment Report*) that sets out or includes—
- (a) the Minister's assessment of the development or project; and
  - (b) the Minister's comments (if any) on—
    - (i) the PER; and
    - (ii) any submissions made under subsection (5); and
    - (iii) the proponent's response under subsection (8); and
  - (c) comments provided by the Environment Protection Authority, a council or other authority or body for inclusion in the report; and
  - (d) other comments or matter as the Minister thinks fit.
- (10) The Minister must, by public advertisement, give notice of the place or places at which copies of the Assessment Report are available for inspection and purchase.
- (11) Copies of the PER, the proponent's response under subsection (8), and the Assessment Report must be kept available for inspection and purchase at a place determined by the Minister for a period determined by the Minister.
- (12) If a proposed development or project to which a PER relates will, if the development or project proceeds, be situated wholly or partly within the area of a council, the Minister must give a copy of the PER, the proponent's response under subsection (8), and the Assessment Report to the council.





## **APPENDIX B**

### **Relevant Plans of the Proposal**

## **GUIDELINE REFERENCE TABLE**

As the PER Guidelines for the Nora Creina project have not been addressed sequentially in the final document and there is cross-over and repetition between some of the guidelines, the table below is intended to provide a more convenient way to cross-reference where each of the guidelines has been addressed in the document.

PER GUIDELINE	Section(s)
<b>Section 5.1<sup>1</sup></b>	5
<b>Section 5.2</b>	6
<b>Section 5.3<sup>2</sup></b>	7 & 11
<b>Section 5.4</b>	8
<b>Section 5.5</b>	8
<b>Section 5.6</b>	9
<b>Section 5.7<sup>3</sup></b>	10
<b>Section 5.8</b>	11
<b>Section 5.9</b>	12
<b>Section 5.10</b>	13

---

<sup>1</sup> Guidelines 5.1.5 and 5.1.6 no longer applicable

<sup>2</sup> Guidelines 5.3.25 and 5.3.33 no longer applicable

<sup>3</sup> Guideline 5.7.25 no longer applicable

## Coastal Conservation Zone

Refer to the [Map Reference Tables](#) for a list of the maps that relate to this zone.

### OBJECTIVES

- 1 To enhance and conserve the natural features of the coast including visual amenity, landforms, fauna and flora.
- 2 Low-intensity recreational uses located where environmental impacts on the coast will be minimal.
- 3 Development that contributes to the desired character of the zone.

### DESIRED CHARACTER

The coastal margins of the council area are an important and integral component of the ecosystem, providing a buffer between the active coastal process and the more stable terrestrial environment beyond.

Because of the level of human intervention in clearing land for agriculture, the coastal areas and dunes systems remain in a largely natural state and provide an important source of habitat and plant diversity.

The coastal areas are sensitive to human activity and are subject to the impacts of sea level rise and coastal erosion. As such, the zone requires careful and strict management practices.

Land in the zone will be retained in a natural state with protection of coastal dunes, cliffs, geological features and associated native vegetation being paramount. Agricultural activity will be limited to existing cleared areas and cliff tops and sand dunes will be excluded from development.

The siting of buildings associated with farming pursuits will be limited to existing cleared areas and the replanting of native vegetation common to the area will be required.

Parts of the zone are at risk of coastal flooding and erosion and this risk will increase in the event of future sea level rise due to climate change.

### PRINCIPLES OF DEVELOPMENT CONTROL

#### Land Use

- 1 The following forms of development are envisaged in the zone:
  - conservation work
  - interpretive signage and facility
  - small-scale tourism/visitor facility (excluding accommodation).
- 2 Development listed as non-complying is generally inappropriate.
- 3 Buildings and structures should mainly be for essential purposes, such as shelters and toilet facilities associated with public recreation, navigation purposes or necessary minor public works.
- 4 Development involving the removal of shell grit or sand, other than for coastal protection works purposes, or the disposal of domestic and industrial waste should not be undertaken.

- 5 Aquaculture inlet and outlet pipes should not be developed unless one or more of the following applies:
  - (a) the adjoining land is located in an aquaculture zone
  - (b) the environmental impacts will be minimal.
- 6 Development for residential purposes should not take place except for dwellings and ancillary outbuildings, to a maximum of 1 dwelling per allotment, on Allotment 2001 of Deposited Plan 82834 and Sections 135, 227 and 228 of Hundred Plan 441800.

#### Form and Character

- 7 Development should not be undertaken unless it is consistent with the desired character for the zone.
- 8 Development should be designed and sited to be compatible with conservation and enhancement of the coastal environment and scenic beauty of the zone.
- 9 Development should:
  - (a) not adversely impact on the ability to maintain the coastal frontage in a stable and natural condition and, in any case, should be setback at least 100 metres from the coastal frontage
  - (b) minimise vehicle access points to the area that is the subject of the development
  - (c) be landscaped with locally indigenous plant species to enhance the amenity of the area and to screen buildings from public view
  - (d) utilise external low reflective materials and finishes that will minimise glare and blend in with the features of the landscape.
- 10 Where public access is necessary in sensitive locations, walkways and fencing should be provided to effectively control access.
- 11 Development should be carried out in accordance with the concepts shown on [Concept Plan Map Ro/9 – Evans Cave Road South](#).
- 12 Dwellings should not be located within 350 metres of the facultative ponds associated with the Community Wastewater Management Scheme.

#### Land Division

- 13 Except where within **Frenchman Bay Policy Area 1**, land division should only occur where:
  - (a) no additional allotments are created wholly or partly within the zone
  - (b) there is no increase in the number of allotments with direct access to the coast or a reserve including by creation of land under rights of way or community titles.

## PROCEDURAL MATTERS

### Complying Development

Complying developments are prescribed in Schedule 4 of the *Development Regulations 2008*.

No other forms of development are complying in the zone.

### Non-complying Development

Development (including building work, a change in the use of land, or division of an allotment) for the following is non-complying:

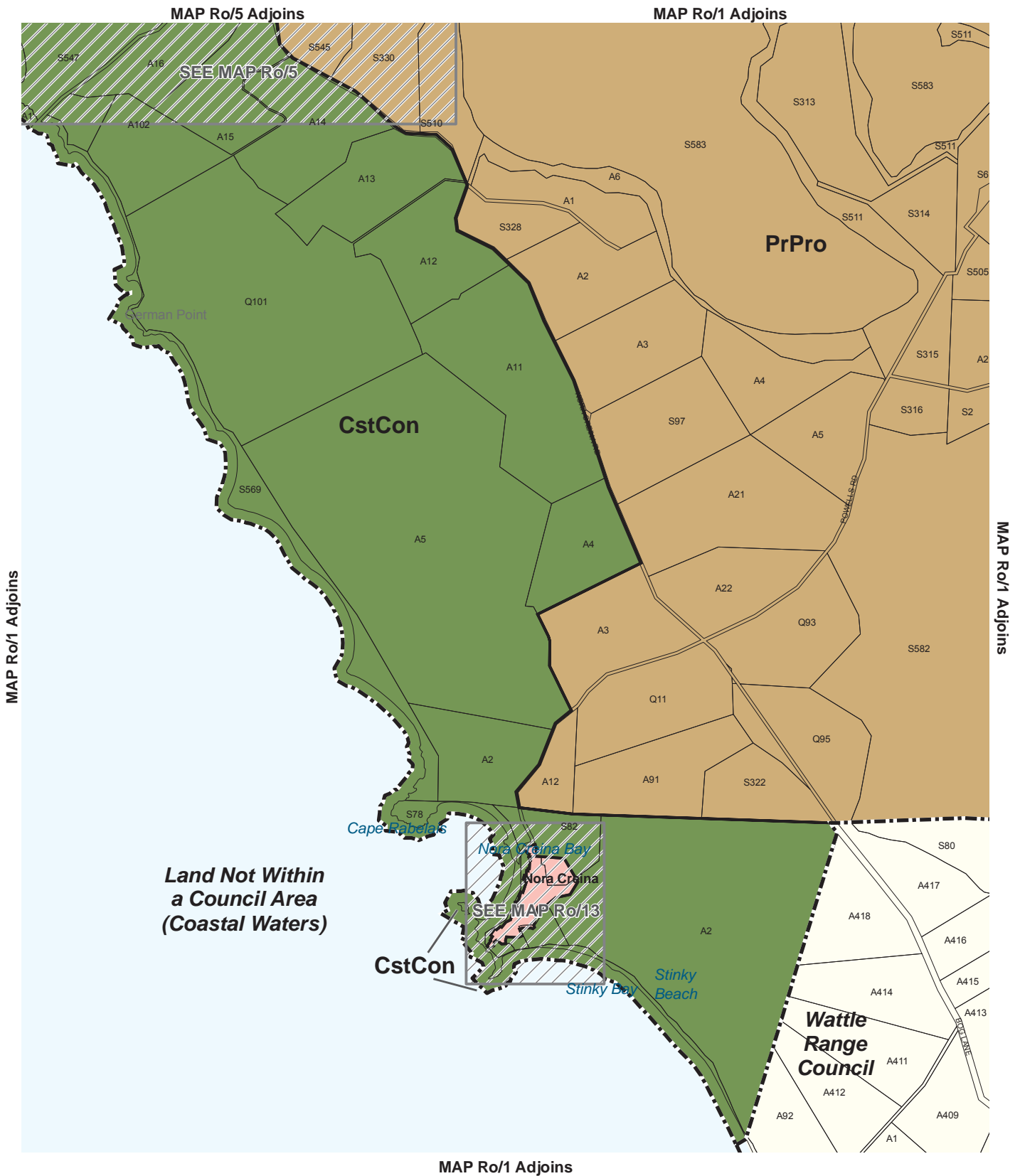
Form of Development	Exceptions
Advertisement and/or advertising hoarding	Except in association with conservation works for tourist information purposes.
Amusement machine centre	
Bus depot	
Caravan park	
Cemetery	
Commercial forestry	
Community centre	
Consulting room	
Crematorium	
Dairy	
Dam	
Dwelling within <b>Frenchman Bay Policy Area 1</b>	<p>Except for a detached dwelling and provided it is not located on:</p> <p>(a) allotments 28 to 61, 63 to 161 and 163 to 166 in Memorandum of Lease Number 280 6503, being portion of Lot 8 in GRO Plan 353 of 1967</p> <p>OR</p> <p>(b) allotments 1 to 3, 5 to 9, 11 to 13, 15 to 22 and 24 to 27 in Memorandum of Lease Number 280 6503, being portion of Lot 8 in GRO Plan 353 of 1967, until such time as the lease terms and conditions attaching to those allotments have been extinguished with the coastal portion of each subject allotment having been vested as coastal reserve, and the remainder divided to accommodate the form of development depicted on the <a href="#">Concept Plan Map Ro/1 – Frenchman Bay Estate Concept Plan</a> and in addition, the lease terms and conditions attaching to Allotments 28 to 61, 63 to 161 and 163 to 166 aforesaid have been extinguished with each of those allotments having been vested as coastal reserve.</p>

Form of Development	Exceptions
Dwelling elsewhere in the zone	Except where either of the following applies: (a) it is used for the purposes of administering either or both of the: (i) <i>National Parks and Wildlife Act 1972</i> (ii) <i>Wilderness Protection Act 1992</i> (b) it is for a detached dwelling and is located within Allotment 2001 of Deposited Plan 82834 and Sections 135, 227 and 228 of Hundred Plan 441800.
Educational establishment	
Fuel depot	
Horse keeping	
Horticulture	
Hospital	
Hotel	
Indoor recreation centre	
Industry	
Intensive animal keeping	Except inlet and outlet pipes in association with aquaculture.
Land division not located within Frenchman Bay Policy Area 1	Except where all of the following apply: (a) no additional allotments are created wholly or partly within the zone (b) there is no increase in the number of allotments with frontage or direct access to the coast.
Marina	
Motel	
Motor repair station	
Nursing home	
Office	Except where used for the purposes of administering the <i>National Parks and Wildlife Act 1972</i> .
Petrol filling station	
Place of worship	
Pre-school	
Prescribed mining operations	
Public service depot	
Residential flat building	
Road transport terminal	
Service trade premises	
Shop	
Stadium	

Form of Development	Exceptions
Stock sales yard	
Stock slaughter works	
Store	
Tourist accommodation	
Warehouse	
Waste reception, storage, treatment or disposal	
Water tank	
Wrecking yard	

#### Public Notification

Categories of public notification are prescribed in Schedule 9 of the *Development Regulations 2008*.



See enlargement map for accurate representation.  
Lamberts Conformal Conic Projection, GDA94



- Zones**
- CstCon Coastal Conservation
  - PrPro Primary Production
  - Zone Boundary
  - Development Plan Boundary

# Zone Map Ro/6





**Notification of  
REFERRAL DECISION AND DESIGNATED PROPONENT – controlled action**

**Nora Creina integrated golf course and tourism development, South Australia  
(EPBC 2014/7249).**

This decision is made under section 75 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

---

**proposed action**            To clear native vegetation and develop a golf course and tourism complex at Nora Creina, approximately 15 km south-east of Robe, South Australia [See EPBC Act referral 2014/7249].

---

---

**decision on proposed action**    The proposed action is a controlled action.  
  
The project will require assessment and approval under the EPBC Act before it can proceed.

---

---

**relevant controlling provisions**    • Listed threatened species and communities (sections 18 & 18A)

---

---

**designated proponent**            Damian and Justin Scanlon

---

---

**assessment approach**            To be advised.

---

**Decision-maker**

---

**name and position**            Dr. Simon Banks  
Assistant Secretary  
West Assessment Branch

---

---

**signature**

---

**date of decision**            18 July 2014

---



Mr Justin Scanlon  
PO Box 110  
URAILDA SA 5142

Dear Mr Scanlon

**Decision on referral**

**Nora Creina integrated golf course and tourism development, South Australia (EPBC 2014/7249).**

Thank you for submitting a referral under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). This is to advise you of my decision regarding the proposed action to develop a golf course and tourism complex at Nora Creina, approximately 15 km south-east of Robe, South Australia.

**As a delegate of the Minister for Environment, I have decided that the proposed action is a controlled action and, as such, requires assessment and a decision on approval under the EPBC Act before it can proceed.**

It appears that the proposed action is likely to have a significant impact on the following matter protected by the EPBC Act:

- Listed threatened species and communities (sections 18 & 18A).

For example, based on the information available in the referral:

- The proposed action is likely to significantly impact the endangered Little Dip Spider-orchid (*Caladenia richardsiorum*); and
- The proposed action has the potential to significantly impact the critically endangered Orange-bellied Parrot (*Neophema chrysogaster*).

Please note that this decision only relates to the potential for significant impact on the specific matters protected by the Australian Government under Chapter 2 of the EPBC Act.

While I have determined that your project will be a controlled action, some further information will be required to be able to assess the relevant impacts of the action. This information required is presented in Attachment A.

A copy of the document recording this decision is enclosed.

At this stage, a decision has not been made on the approach that must be used to assess the project. You should expect to receive further advice on this issue within ten business days.

I have also written to Ms Angela Crimes of the South Australian Department for Environment, Water & Natural Resources, advising her of my decision.

Please also note that once a proposal to take an action has been referred under the EPBC Act, it is an offence under Section 74AA to take the action while the decision making process is ongoing (unless that action is specifically excluded from the referral or other exemptions apply).

This provision of the EPBC Act carries a maximum penalty of \$425,000. The EPBC Act is available on line at: <http://www.environment.gov.au/epbc/about/index.html>

The Department has recently published an *Environmental Impact Assessment Client Service Charter* (the Charter) which outlines the Department's commitments when undertaking environmental impact assessments under the EPBC Act. A copy of the Charter can be found at: <http://www.environment.gov.au/epbc/publications/index.html>.

If you have any questions about the referral process or this decision, please contact the project manager, Justin Williams, by email to [justin.williams@environment.gov.au](mailto:justin.williams@environment.gov.au), or telephone 02 6275 9492 and quote the EPBC reference number shown at the beginning of this letter.

Yours sincerely



Dr. Simon Banks  
Assistant Secretary  
West Assessment Branch

18 July 2014



**Subject Land at Nora Creina**

*(Little Dip Conservation Park at top, German Point marked)*

**Aerial Photo - January 1951**

*(Source: DEWNR)*



**Subject Land at Nora Creina**

*(Little Dip Conservation Park at top, German Point marked)*

**Aerial Photo - March 1965**

*(Source: DEWNR)*

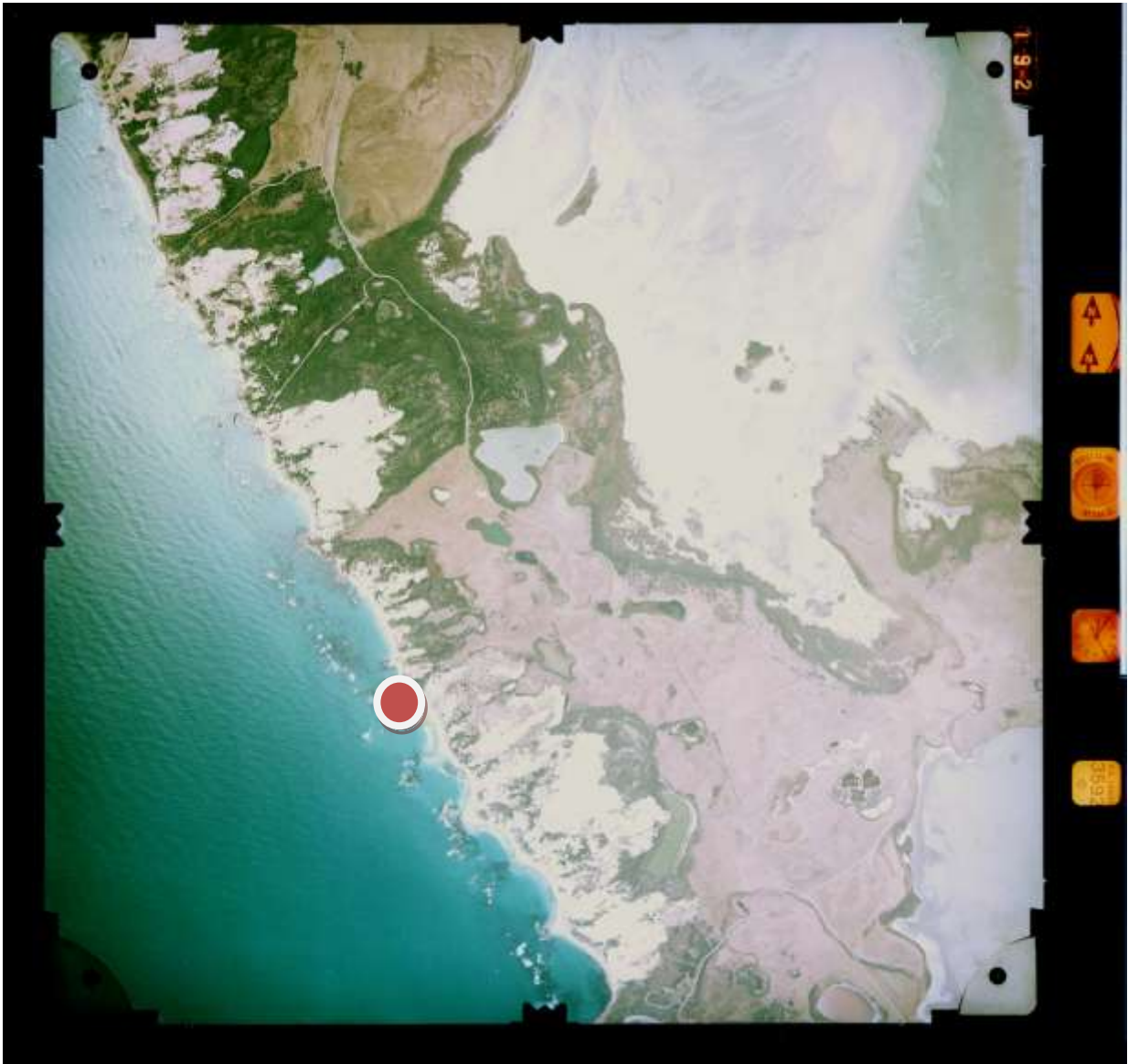


**Subject Land at Nora Creina**

*(German Point marked)*

**Aerial Photo - February 1975**

*(Source: DEWNR)*



**Subject Land at Nora Creina**

*(German Point marked)*

**Aerial Photo - February 1987**

*(Source: DEWNR)*



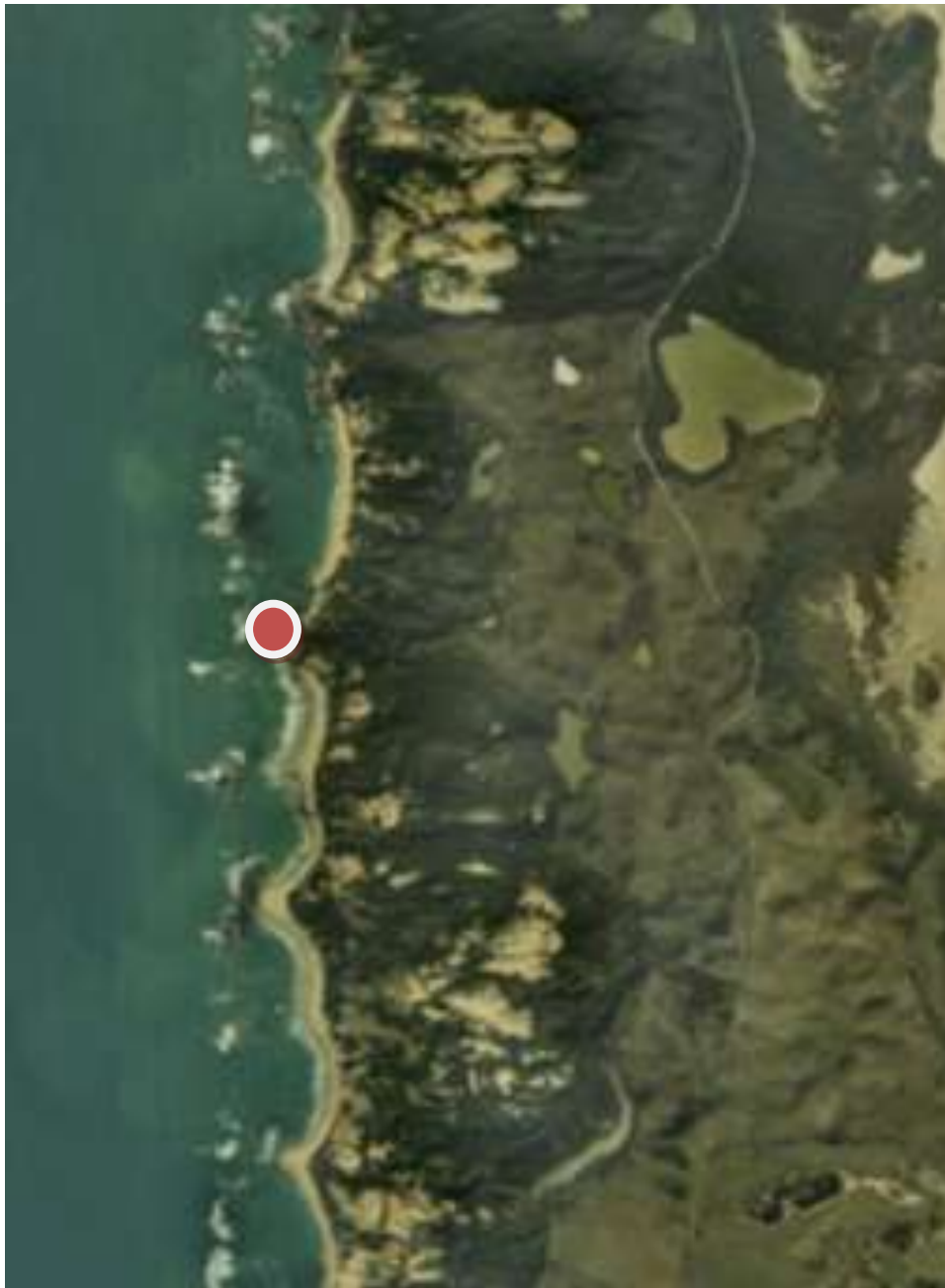
**Subject Land at Nora Creina**

*(Little Dip Conservation Park at top, German Point marked)*

**Aerial Photo - February 1997**

*(Source: DEWNR)*





**Subject Land at Nora Creina**

*(Little Dip Conservation Park at top, German Point marked)*

**Aerial Photo - April 2005**

*(Source: DEWNR)*

# Restoration Plan for Scanlon's Lake

Karinya Coastal Lake Complex

**DRAFT** July 2010



Government  
of South Australia

**For further information please contact:**

Department of Environment and Natural Resources  
Mt Gambier Office (08) 8735 1177

Online information available at: <http://www.environment.sa.gov.au>

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Photography: DENR Mt Gambier

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**Government  
of South Australia**

Department of Environment  
and Natural Resources

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## 1.0 Introduction

Scanlon's Lake is one of a string of coastal lakes occurring in association with coastal dunes to the west and Lake Eliza to the east. It is one of the northernmost lakes in a complex extending from Robe through to Nora Creina, referred to as the Karinya Coastal Lakes Complex. Haney's Lake is one of three wetlands in this complex participating in the *Healthy Wetlands on Private Land* project in 2010.

Small scale restoration action plans such as this aim to provide simple actions that can be implemented to alleviate some of the critical stresses to aquatic habitats (both permanent and ephemeral) that are on public and/or private land.

### 1.1 Reserve Biodiversity values

Over the past 150 years wetland habitats of the SE region have been drastically altered. Extensive drainage and clearance has left only 6% of original wetlands (Bachmann 2002; Harding 2009) with only 10% of these wetlands considered to still be intact (Harding 2007). While Scanlon's Lake has lost much of its surrounding vegetation, its biodiversity value is enhanced by close proximity to Little Dip Conservation Park, located only 1.4 kilometres to the north. Scanlon's Lake contributes to the formation of a corridor of remnant native vegetation in the Nora Creina area linking Little Dip Conservation Park to a series of wetland habitats.

Common Wombats (*Vombatus ursinus*) are frequently seen in the Nora Creina area with burrows recorded on the Scanlon's property. At a state level however the common wombat is considered rare. A fauna survey has not been carried out on Haney's property but Little Dip Conservation Park is home to a number of endangered species that could also utilise Scanlon's Lake and adjacent coastal dune habitat.

### 1.2 Restoration plan objectives

The broad objectives of this action plan are to:

- Conserve and improve the indigenous vegetation around Scanlon's Lake
- Conserve and restore this coastal lake

The plan intends to achieve these outcomes predominantly by protecting vegetation associated with the wetland from stock grazing. Weed control will be an ongoing and integral management action and while a weed control program is not within the scope of this current funding program the landholder has expressed interest in receiving information on the best methodology for controlling key weed species.

It is worth noting that landholder contribution to this project is voluntary. As such this landholder is making a significant personal and financial contribution to the protection and restoration of an important wetland remnant.

### 1.3 Location and General Site Description

Scanlon's Lake, located on Allotments 13 and 14, Deposited Plan 70078, Hundred of Waterhouse is privately owned by the Scanlon family. This lake occurs across two allotments, one is owned by Justin Scanlon (13) while allotment 14 is jointly owned by Damien Scanlon and Peta Dudley. A map showing allotment boundaries is included in the Appendices. In total the lake and fringing vegetation comprises approximately 8.2ha. The wetland's location in the south east is shown in Figure 1.



Figure 1: Scanlon's lake – location in the South-east of South Australia

This lake is recorded on the South Australian Wetland Inventory Database (SAWID ID No. S0109883). SAWID data sheets are included in the appendices of this report. Scanlon's Lake is approximately 14.5km south east of Robe. This brackish coastal lake is groundwater dependant with local runoff and dune recharge also contributing to the water level in the lake. Fringing vegetation is predominantly *Melaleuca halmaturorum* (Swamp paperbark) and *Gahnia trifida* (cutting grass), with pockets of *Leptospermum lanigerum* (Silky tea tree) (see Figure 2).



**Figure 2: Vegetation fringing the edge of Scanlon's lake (July 2010)**

As a property with a grazing history much of the native vegetation on allotments 15 and 16 has been cleared. Fringing vegetation surrounding the coastal lakes is all that remains of the original vegetation however the dunes to the immediate west of the lake retain most of their original vegetation. Surrounding pasture comprises predominantly weed species, in particular False Caper (*Euphorbia terracina*) and Kikuyu (*Pennisetum clandestinum*).

#### **1.4 Vegetation Condition**

This wetland has a history of stock grazing although in recent years grazing pressure has been relatively low. Stock impact on the native vegetation fringing the wetland in a number of ways which include:

- grazing existing vegetation
- grazing young seedlings
- trampling and pugging the soil.

The compaction and disturbance this creates results in scalded areas which can become difficult to restore. There is evidence of this impact particularly on the eastern edge of the lake (see Figure 3). Overall though, the vegetation that remains is in reasonable condition with good potential to recover once stock are excluded.



**Figure 3: Compaction and scalding resulting from uncontrolled stock access (eastern edge of Scanlon's Lake; July 2010)**

## **2.0 Management Issues**

### **2.1 Grazing**

This property was one of several created by the subdivision of a much larger parcel of land which incorporated a number of coastal lakes. This occurred in the mid 2000's. Prior to this it had a history of cattle grazing, the effects of which are apparent through lack of regeneration and severe soil pugging. Grazing pressure at low stocking rates continues. It is also likely that stock have contributed to nitrification of the wetland, impacting on water quality. While the Nora Creina coastal lakes are brackish they are utilised by stock as watering points. Alternative water points are available to stock if Scanlon's Lake is fenced.

### **2.2 Weeds**

The dominant weed species is False Caper (*Euphorbia terracina*) however as this prefers sandy and disturbed soils it is not as severe in close proximity to the lake. It is worth noting however that infestations are reported as capable of spreading into ephemeral wetlands or saline depressions so it is important to closely monitor the spread of this weed. Infestation beyond the fringing vegetation is severe. Mature boxthorn (*Lycium ferocissimum*) plants were observed in the fringing vegetation strip and horehound (*Marrubium vulgare*) was also observed. Kikuyu (*Pennisetum clandestinum*) has been introduced as a pasture species and has potential to become invasive, particularly with grazing pressure removed. This will need to be closely monitored once grazing ceases and sprayed as necessary.

### **2.3. Altered Water Regime**

As a system dependant on both groundwater and local surface runoff the health of all Nora Creina coastal lakes will be impacted by groundwater use in the area and fluctuations in annual rainfall. There is no obvious sign that changed watering patterns are adversely



affecting this wetland based on the health of fringing vegetation. Water quality is reportedly good and is utilised by stock. Alternative watering points are available to stock post-fencing.

#### 2.4 Loss of buffer vegetation

Stock grazing has impacted on the site through pugging and compaction. Grazing has also limited natural regeneration of the native vegetation. A narrow remnant of buffer vegetation remains around the edge of Scanlon's Lake however this has been degraded by grazing as described in section 2.1. Close proximity to Little Dip Conservation Park and dunes to the west may help to counteract the loss of vegetation around the lake as there is scope for native species to move between Scanlon's Lake and the nearby Park and private properties to the north. Haney's lake to the north of Scanlon's has also been fenced as part of the Healthy Wetlands project. Fencing the perimeter of Scanlon's Lake to exclude stock will allow a gradual recovery of fringing and buffer vegetation around Scanlon's Lake.

#### 2.5 Feral Species

No notable feral species were observed during site visits however it is likely that at times rabbits, foxes and feral cats are an issue in this area. Foxes and feral cats have the ability to impact on native fauna utilising this area so, it is worth monitoring the populations of these species and if necessary conducting an eradication program

### 3.0 Management Actions

The following table identifies and summarises action to be taken to deal with management issues identified in section 2.0. The table also identifies people/agencies/organisations responsible for the actions and a time frame to work within. Fence alignment for fencing that was installed in June 2010 is shown in Figure 5.

Management Issue	Management Action	Responsibility	Time Frame
Stock grazing	Install a boundary fence to exclude stock	DEH / landholder	June 2010
Weed management	Horehound Boxthorn <i>Euphorbia terracina</i>	Landholder	As required
Feral Pest Control	Monitor fox, cat and rabbit populations and undertake control work as required	Landholder (there may be scope to link into DENR programs conducted on adjacent Conservation Park)	As required
Revegetation	Conduct a small scale revegetation program utilising local species tubestock to restore degraded buffer vegetation	landholder	Recommendation only.

Figure 4: Management Actions for Scanlon's Lake

#### 3.1 Monitoring

A single permanent vegetation photopoint (PVP Id. 11673) has been installed at the eastern edge of Haney's Lake. This provides an opportunity to monitor the vegetation response to the removal of stock grazing pressure over a number of years. Details pertaining to the PVP are recorded in the Appendices attached to this report.



Figure 5: Fence alignment for Scanlon's lake and local setting

It will also be important to monitor the response of weeds now that grazing has been excluded from the wetland. Early control through spot spraying will reduce the long term management input to control these weeds.

### 3.2 Timing

Action	Mar	April	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Fencing										
Weed Control										
Monitoring										

Figure 6 : Summary table scheduling on-ground works

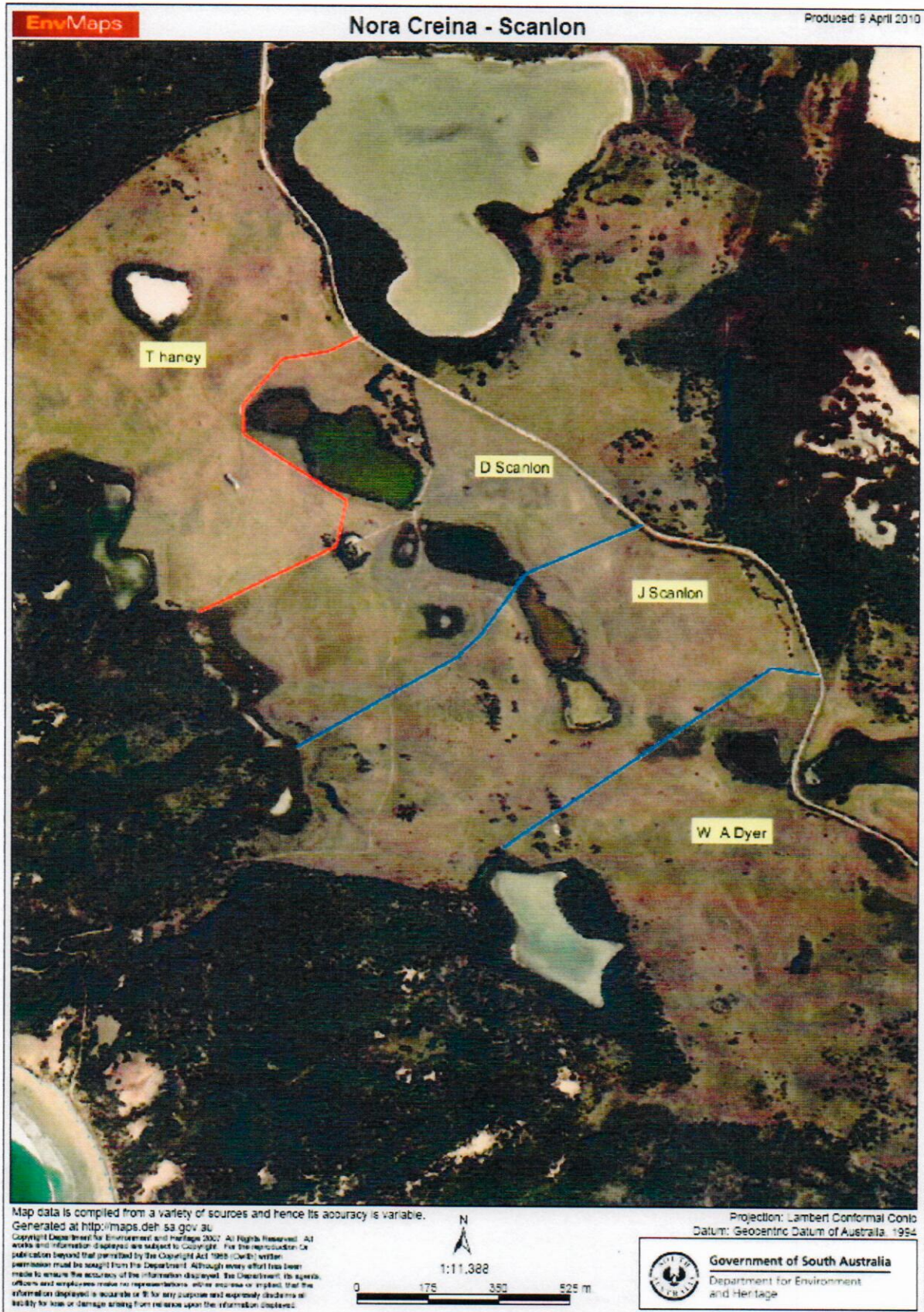
### 4.0 References

Bachmann, M. (2002). Silky Tea-tree and Cutting Grass Wetland Rehabilitation Project Summary 1999-2002. Nature Conservation Society of South Australia, Adelaide. p. 176.

Harding, C. (2007). Wetland Environmental Values - Reflows Background Paper. Prepared for the Upper South East Dryland Salinity & Flood Management Program. Department for Environment & Heritage, South East Region, Mount Gambier.

## 5.0 Appendices

### Appendix 1: Allotment boundaries - Scanlon's Lake



**Appendix 2: South Australian Wetland Inventory Database Report (SAWID ID: S0109883)**

# WETLAND REPORT - SAWID

Number of hits: 1

Department for Environment and Heritage

Wetland Name: **LAKE ELIZA PERIPHERAL WETLANDS**  
Complex: **SOUTH EAST COASTAL LAKES**

Wetland ID:  
**S0110559**

## Reference Data

Centroid position	Area: 6.15 ha	NRMBoard: South East	IBRA: Naracoorte Coastal Plain
Easting: 398175.00	Perimeter: 0.13 km	50K Map Sheet: 68232	IBRA Sub-region: Bridgewater
Northing: 5871579.00	Elevation: m (asl)	LGA: ROBE	Env. Association: Beachport
MGA Zone: 54 GDA 94	Rainfall: 600 mm (annual)		

## Location Description:

Approx. 15 km SE of Robe, west side of the Robe-Nora Creina Rd, Nora Creina

## General Comments:

This saline coastal interdunal lake is in excellent condition supporting a range of wetland habitat types and vegetation communities. This is most likely due to the expression of fresh water at at least two discrete locations on the wetland fringe which are partly responsible for the spatial and temporal variation in salinity within the wetland. Whilst the lake waters support extensive meadows of the algae Chara sp. The wetland fringe includes vegetation communities of Gahnia trifida/filum sedgeland with an understory of saltmarsh herbs and rushes. Stands of Leptospermum lanigerum scrub give way to Melaleuca lanceolata woodland. A naturalised (or planted) stand of mature Eucalyptus comuta provides a nest site for either a White-bellied Sea Eagle or a Wedge-tailed Eagle. A heritage agreement exists for this wetland and adjacent terrestrial habitat.

## Conservation significance / National recognition

National Status: N Ramsar: N East Asian - Australasian Shorebird Site Network: National Estate:

## Meets Criteria of National Significance

1 Good example of a wetland type occurring within a biogeographic region in Australia.

Database Assessment (regional) Ecological significance rating 19.9 High

## Land tenure and use

Onsite	Surrounding	Management Authority:	Park Name:
Tenure: Private	Tenure: Private	Freehold	Heritage Agreement number:
Landuse: Private Conservation	Landuse: Grazing (sheep)		
Private Conservation	Grazing (cattle)		

## Wetland Hydrology

Basin: MILLICENT COAST	Water regime (current): SEASONAL
Sub-Catchment:	Water regime (optimal): SEMI-PERMANENT
Watercourse:	Optimum inundation: Semi-permanent; generally 12 months inund
Wetland system: Lacustrine	Water quality variation: Saline; >20 000 uS/cm
Landform Element: Interdune Low	Water sources: Local Runoff
Wetland origin: Coastal Interdunal	Spring
Max. depth: 0.50 m (when full)	Groundwater
Avg. depth: 0.35 m (when full)	

## Description of flow control structures

## Water Chemistry Recorded from: 19/11/2008 to 19/11/2008

	Conductivity (uS/cm)	pH	Temp (C)	Turbidity (NTU)	Dissolved O2 (ppm)
Min	35600 Saline		21.7		
Max	35600 Saline		21.7		
Avg	35600 Saline		21.7		
No. samples	1	0	1	0	0

## Wetland Classification

Classification: B17 Freshwater springs, oases and rock pools.  
B12 Seasonal saline/brackish marshes.

S0110559

**Threatening Processes**

Disturbance	Extent	Notes
Changed Soil Character - pugging	Minimum	minor livestock access. Landowner concerned about cattle from neighbouring property accessing wetland
Degraded buffer - degraded	Moderate	mainly in buffer at ground level where weeds have displaced native groundcovers
Nutrient enrichment - agricultural	Minimum	
Overgrazing - native	Minimum	
Overgrazing - stock	Minimum	
Vermin - foxes	Minimum	
Vermin - introduced birds	Minimum	
Weeds - environmental	Moderate	Mainly in buffer zone
Weeds - noxious	Moderate	
Weeds - pasture	Moderate	
Weeds - woody	Moderate	

**Conservation measures**

Conservation measures	current	suggested	Notes
Heritage Agreement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Listed nationally important	<input type="checkbox"/>	<input checked="" type="checkbox"/>	possible inclusion with South East Coastal Lakes
Pest control - animal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Pest control - weed	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Privately managed for conservation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	maintain active management and monitor progress

**Vegetation characteristics**

Surveyed flora diversity

Total No. of species: 71      No threatened species 0      No. introduced species 23

**Dominant Native Species**

Species	Common Name
<i>Chara sp.</i>	
<i>Gahnia trifida</i>	Cutting Grass

**Problem weed species**

Species	Common Name
* <i>Bromus diandrus</i>	Great Brome
* <i>Ehrharta longiflora</i>	Annual Veldt Grass
* <i>Hordeum sp.</i>	

Wetland vegetation description:

Leptospermum lanigerum tall shrubland with sedge u  
 Mixed sedgeland  
 Phragmites and/or Typha grassland with emergent Vi  
 Gahnia filum, Gahnia trifida tussock sedgeland  
 Baumea spp., Juncus spp. sedgeland  
 Baumea juncea, Leptocarpus brownii, Leptocarpus te  
 Chara spp.and/or Nitella spp. Submerged macroalgal meadow

Structural Formation: Wet Sedgeland

**Fauna**

**Surveyed Fauna Diversity**

Fauna Group	No. species
AVES	4
MAMMALIA	2
REPTILIA	2

**Fauna Survey Methods**

Opportune Trace ID  
 Opportune Sighting

**Known Breeding Activity**

Common Name  
 Red-capped Plover

**Survey data source**

Project Name      Publication produced      Number of surveys completed

1

# FLORA AND FAUNA LIST

SA Wetland Inventory  
Database

Wetland ID: S0110559 LAKE ELIZA PERIPHERAL WETLANDS

## WETLAND FLORA

Species	Common Name	Regional Status	NPW Act	EPBC
<i>Acacia pycnantha</i>	Golden Wattle			
<i>Acaena novae-zelandiae</i>	Biddy-biddy			
<i>Adriana quadripartita</i>	Coast Bitter-bush			
<i>Allocasuanna verticillata</i>	Drooping Sheoak			
<i>Apium prostratum</i> var. <i>prostratum</i>	Native Celery			
<i>Baumea arthropphylla</i>	Swamp Twig-rush			
<i>Baumea juncea</i>	Bare Twig-rush			
<i>Chara</i> sp.				
<i>Chenopodium</i> sp.	Goosefoot			
<i>Clematis microphylla</i> var. <i>microphylla</i>	Old Man's Beard			
<i>Epilobium billardierianum</i> ssp. <i>billardierianum</i>	Robust Willow-herb			
<i>Gahnia trifida</i>	Cutting Grass			
<i>Hydrocotyle plebeya</i>				
<i>Hydrocotyle</i> sp.	Pennywort			
<i>Isolepis cernua</i>	Nodding Club-rush			
<i>Isolepis nodosa</i>	Knobby Club-rush			
<i>Juncus caespiticius</i>	Grassy Rush			
<i>Juncus kraussii</i>	Sea Rush			
<i>Lachnagrostis billardierei</i> ssp. <i>billardierei</i>	Coast Blown-grass			
<i>Lawrenzia spicata</i>	Salt Lawrenzia			
<i>Lepidosperma gladiatum</i>	Coast Sword-sedge			
<i>Lepidosperma</i> sp.	Sword-sedge/Rapier-sedge			
<i>Leptospermum lanigerum</i>	Silky Tea-tree			
<i>Leucopogon parviflorus</i>	Coast Beard-heath			
<i>Lilaeopsis polyantha</i>	Australian Lilaeopsis			
<i>Lobelia anceps</i>	Angled Lobelia			
<i>Lotus australis</i>	Austral Trefoil			
<i>Lythrum hyssopifolia</i>	Lesser Loosestrife			
<i>Melaleuca lanceolata</i>	Dryland Tea-tree			
<i>Microlaena stipoides</i> var. <i>stipoides</i>	Weeping Rice-grass			
<i>Muehlenbeckia adpressa</i>	Climbing Lignum			
<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum			
<i>Nitella</i> sp.				
<i>Olearia axillaris</i>	Coast Daisy-bush			
<i>Pimelea</i> sp.	Riceflower			
<i>Pomaderris paniculosa</i> ssp. <i>paralia</i>	Coast Pomaderris			
<i>Rhagodia candolleana</i> ssp.	Sea-berry Saltbush			
<i>Samolus repens</i>	Creeping Brookweed			
<i>Sarcocornia quinqueflora</i>	Beaded Samphire			
<i>Schoenoplectus pungens</i>	Spiky Club-rush			
<i>Selliera radicans</i>	Shiny Swamp-mat			
<i>Senecio biserratus</i>	Jagged Groundsel			
<i>Senecio glomeratus</i> (NC)	Swamp Groundsel			
<i>Sonchus hydrophilus</i>	Native Sow-thistle			
<i>Tetragonia implexicoma</i>	Bower Spinach			



<i>Triglochin striatum</i>	Streaked Arrowgrass
<i>Typha</i> sp.	Bulrush
<i>Villarsia umbricola</i> var.	Lax Marsh-flower
* <i>Acacia longifolia</i> ssp. <i>longifolia</i>	Sallow Wattle
* <i>Avena barbata</i>	Bearded Oat
* <i>Bromus diandrus</i>	Great Brome
* <i>Carduus tenuiflorus</i>	Slender Thistle
* <i>Cotula coronopifolia</i>	Water Buttons
* <i>Cynosurus echinatus</i>	Rough Dog's-tail Grass
* <i>Echium plantagineum</i>	Salvation Jane
* <i>Ehrharta calycina</i>	Perennial Veldt Grass
* <i>Ehrharta longiflora</i>	Annual Veldt Grass
* <i>Euphorbia terracina</i>	False Caper
* <i>Festuca arundinacea</i>	Tall Meadow Fescue
* <i>Hordeum leporinum</i>	Wall Barley-grass
* <i>Hordeum</i> sp.	
* <i>Hypochaeris radicata</i>	Rough Cat's Ear
* <i>Lolium rigidum</i>	Wimmera Ryegrass
* <i>Lycium ferocissimum</i>	African Boxthorn
* <i>Melilotus indicus</i>	King Island Melilot
* <i>Parapholis incurva</i>	Curly Ryegrass
* <i>Plantago coronopus</i> ssp.	Bucks-horn Plantain
* <i>Polypogon</i> sp.	Beard-grass
* <i>Polypogon viridis</i>	Water Bent
* <i>Trifolium</i> sp.	Clover
* <i>Veronica anagallis-aquatica</i>	

#### WETLAND FAUNA

Common Name	NPW Act	EPBC	Treaty
Common Long-necked Tortoise			
Eagle ( <i>Aquila</i> sp.)			
Lowland Copperhead			
Macropod ( <i>Macropus</i> sp.)			
Nankeen Kestrel			
Red-capped Plover			
* European Goldfinch			
* Fox			

**Appendix 3: Permanent Vegetation Photopoint PVP ID: 11673**



**Appendix 3: PVP ID. 11673.**

**Photo taken 27<sup>th</sup> July 2010 14:00hrs. Two star pickets have been installed. Photos are taken from the northern star picket facing towards the southern star picket which has a PVP ID disk attached. Photopoint is on the eastern edge of the lake south of the gate.**

**GPS coordinates UTM 54H 0396969**

**5873051 (accuracy to 4.3m)**

#### **Appendix 4: Recommendations for weed control**

[It is recommended that you contact your local authorised officer from the South East NRM Board for more information - Robe office (Dean Burgoyne 0408 854 602)]

##### ***Marrubium vulgare (Horehound)***

Begin removal in least weedy area removing scattered plants first. Pull or grub seedlings before flowering (July- December). Spot spray dense patches using 2,4-D before flowering. Seeds are long lived and may germinate after 10 years in the soil. Regular follow up is recommended. (Fearn 2010)

##### ***Euphorbia terracina (false caper) Management Notes***

[Florabase: Flora of Western Australia, Department of Environment and Conservation, Western Australian Herbarium.] \*\* see below for Department of Environment and Natural Resources recommendation. Always use chemicals as per instructions on the label.

Note that Department of Environment and Natural Resources staff treat false caper in similar settings using the following treatment:

15 grams per 100 Litres (1.5 grams/10 Litres) metsulfuron, + 200/1 pulse penetrant (surfactant). Weeds are sprayed preferably before flowering, taking about 5 weeks to respond. Glyphosate is not used which means grassy species will not be impacted by the spray - Metsulfuron is a broad leaf weed species.

**Note - it is important that surfactants are not used near water as they are known to affect frogs.**

(More general information on False Caper on following page)



Plants → [Euphorbiaceae](#) → [Euphorbia](#)

\* ***Euphorbia terracina* L.**

Geraldton Carnation Weed  
Sp.Pl. edn 2, 1:654 (1762)

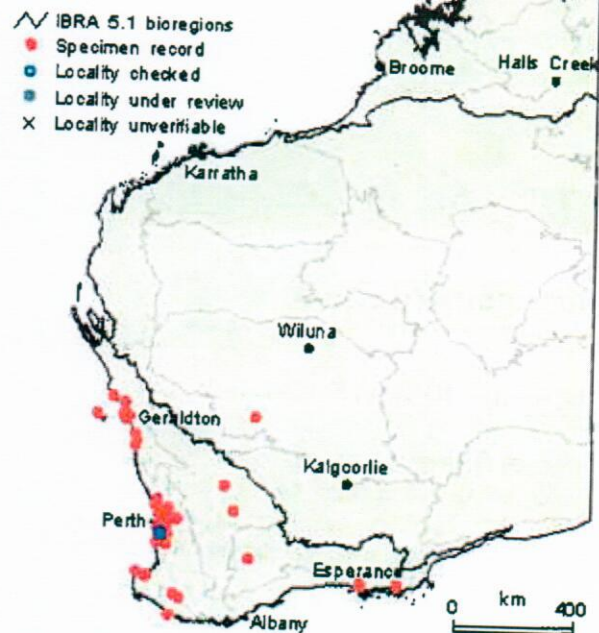
Conservation Status: [Alien](#)  
Name Status: [Current](#)

**Brief Description**

Grazyna Paczkowska, Monday 2 September 1996

Erect or ascending perennial, herb, 0.1–0.5(–1.2) m high. Fl. green, yellow, Aug–Dec. Sandy & calcareous soils. Disturbed coastal areas, swamps. **Distribution:** ER: MUR; SW: AW, ESP, GS, JF, MAL, SWA.

***Euphorbia terracina***



Map by Paul Gioia, WA Herbarium. Current at June 01, 2010



Euphorbia terracina

Photos: J. Dodd &amp; K. R. Thiele

## Management Notes

Kate Brown and Karen Bettink, Tuesday 11 May 2010

**Alternative Names.** False Caper, Geraldton Carnation Spurge, Terracina Spurge.

**General Biology.** *Growth form.* Herb. *Life form.* Short-lived perennial. *Reproduction.* Seed. *Dispersal.* Local spread by fruit opening explosively, birds, ants, movement of limestone soils and by machinery. *Toxicity.* Sap is poisonous and irritant. *Seedbank persistence.* 3-5 years. *Fire response.* Plants are generally killed by fire, however some resprout. Fire causes mass germination of soil-stored seed.

**Notes.** Most common on sandy nutrient-poor calcareous soils, also capable of spreading into fertile inland soils, ephemeral wetlands and saline depressions. Invasion into natural areas is greatly enhanced by disturbance such as grazing, fire and soil movement. Once established is able to invade relatively undisturbed vegetation. Has allelopathic properties, can reduce germination of other plant species, form dense thickets and out compete native species for space, light and nutrients. Plants are monoecious (both male and female). Has rapid growth and prolific seed production in the first season. Can grow well or adapt to shade and high light conditions, tolerant of waterlogging and drought. Toxic sap deters native herbivores. Loses most of its leaves during summer. Germination may occur at any time of the year if there is adequate rainfall. If there is insufficient rainfall, depletion of the seed bank may be relatively slow. Plants from early cohorts produce greater numbers of seeds per plant than late cohorts. Disturbance that brings seed to the soil surface should be avoided, as buried seed is far less likely to germinate. Mature plants have a deep root system and are able to resprout readily when cut, grazed or burnt. Similarly, seedlings are not easily killed through slashing or any physical means that do not remove the entire plant. Resprouting plants are often more robust and have greater seed output.

**Additional information.** *Origin.* Mediterranean coast and islands, Canary Islands in the Atlantic, north of the Red Sea and the Black Sea to Georgia. *History of use/introduction.* The reasons for its introduction are uncertain, however many species of *Euphorbia* are used as ornamentals. *Similar exotic species.* *E. peplus*, *E. paralias*.

**Suggested method of management and control.** Spot spray large infestations with metsulfuron methyl 0.1 g/15 L or metsulfuron methyl + 1% glyphosate before flowering. Follow-up with hand

removal for at least five years. Ensure adequate personal protective clothing is worn to avoid contact with sap. Since seed production is highest from plants which emerged early, it is important to control early cohorts, if not treated when small these become increasingly tolerant to herbicides. Control of the late emergence before seed formation will prevent fresh seeds being added to the existing seed bank. Slashing in November after seed production may result in no vegetative regeneration, due to lack of food reserves in the underground roots and stem and the remaining underground plant parts cannot withstand hot dry summer conditions. Use any fire events to undertake control. Read the manufacturers' labels and material safety data sheets before using herbicides. For further information consult the [Australian Pesticides and Veterinary Medicines Authority](#) to determine the status of permits for your situation or state.

## Management Calendar

Calendar Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Comments
Dormant	Y	Y	Y	O								Y	
Active Growth					Y	Y	Y	Y	Y	Y	Y		
Germination	O	O	O	O	O	Y	Y	Y	O	O	O	O	
Flowering	O	O	O	O	O	O	O	Y	Y	Y	O	O	
Fruiting	O	O	O	O	O	O	O	O	O	Y	Y	Y	
Manual Removal	O	O	O	O	O	Y	Y	Y	Y	Y	Y	O	
Herbicide Treatment	O	O	O	O	O	Y	Y	Y	O	O	O	O	

Legend: Y = Yes, regularly, O = Occasionally, U = Uncertain, referred by others but not confirmed.

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#### Project information and acknowledgements



Department of  
Environment and Conservation  
Western Australian Herbarium

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## **Horehound – *Marrubium vulgare***

**Origin** A perennial herb originated in southern and Western Europe, central and western Asia and North Africa

### **Description**

- A bushy perennial plant 30 to 80 cm high
- Sharply aromatic when crushed
- Leaves are wrinkled and blue-green colour and white woolly on the underside
- Flowers are white in clusters and dry to form burrs with hooked spines

### **Impacts**

- A widespread weed of pastures and waste lands
- Unpalatable to stock, it can taint the meat of animals
- The burrs contaminate wool and are spread by sheep

### **Distribution**

Horehound favours the alkaline limestone ridges of the South East but can grow in any soil and rainfall situation.

See map on facing page for current known distribution in the South East.

### **Control techniques**

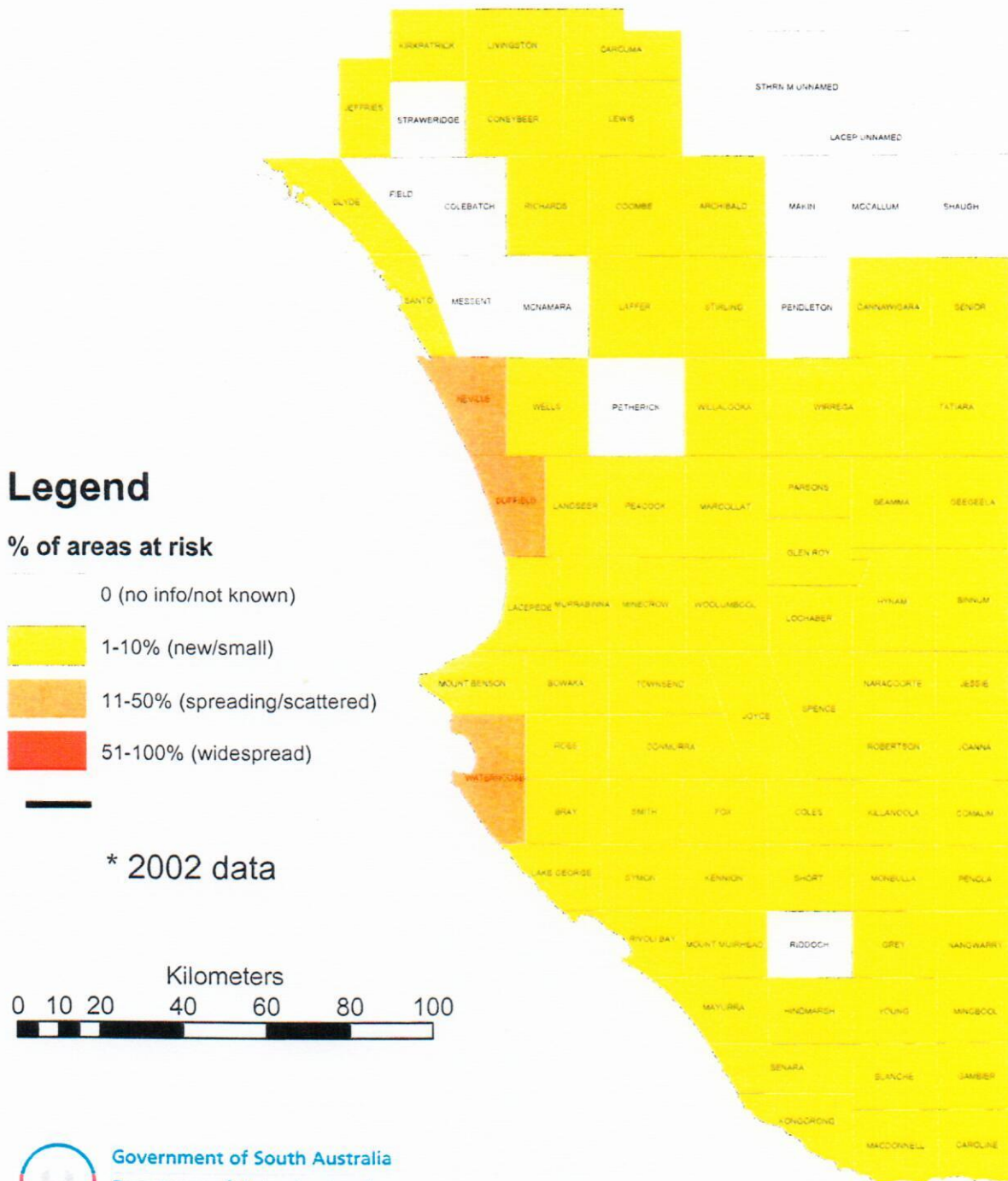
- Spray before flowering with metsulfuron methyl or 2,4-D amine or MCPA and metsulfuron methyl mix.
- The horehound plume moth is an effective biocontrol agent present in the region.

### **Current management programs**

- Horehound is a Proclaimed Plant under the Animal and Plant Control (agriculture and other purposes) Act.
- There is currently no coordinated regional program, however land managers are controlling the weed according to local APCB policies. The general cooperation for the control of this plant is high among land managers within the region.
- This weed is a major issue for grazing landuses.



# Current Distribution of *Marrubium vulgare* (HOREHOUND) within Hundreds in the South-East of South Australia.\*



Wednesday, 28 May 2014

Justin and Damian Scanlon  
c/o 23 Wahroonga Avenue,  
WATTLE PARK SA 5066

**Re: Reconnaissance flora survey for the Scanlon's Nora Creina property**

Dear Justin and Damian,

As requested and referring to Figure 1, I conducted a reconnaissance flora survey of approximately 240 hectares of coastal native vegetation (inland of the Coastal protection strip) on the above property, on the 13 & 14<sup>th</sup> May 2014. This was for the purpose of conducting an initial assessment of the type and condition of the vegetation, to assist with planning further assessment and guiding on-going site planning, for a proposed Major development on the site. The site is adjoined by the Little Dip Conservation Park to the north and a Heritage Agreement to the south.

I spent at least 8 hours on site, conducting a 'ramble' style survey to try and access as much of the site as possible, by vehicle and foot. Referring to the species list in Table 1, I recorded a total of 82 plant species, of which 34 (approx. 40%) are introduced, either as invaded weeds or planted by the previous owner (discussed below). For a site of this size, in this region and for this length of time in survey, I consider this result to be a relatively low level of species diversity, with a relatively high proportion of introduced species. No species had particular conservation significance, although two vegetation associations do (see below). The total groundcover is characterized by the following types in approximate proportions:

- 80% Native vegetation cover (generally very dense, especially on dunes);
- 10% weed or introduced (planted) cover;
- 10% bare ground, rock, tracks, wetland/water etc.

The vegetation cover is characterised as follows:

- Coastal wattle (*Acacia longifolia sophorae*) dense shrubland – 80% (Figure 3);
- Coastal daisy bush (*Olearia axillaris*) & Ridged bush-everlasting (*Ozothamnus decurrens*) dense low shrubland – 10% (Coastal fore-dune & fringe);
- SA Swamp Paperbark (*Melaleuca halmaturorum*) and Dryland Teatree (*Melaleuca lanceolata*) Low Open Forest – 5% (eastern lake fringes) (Figure 6);
- Cutting grass (*Gahnia lanigera*) sedgeland & Woolly Teatree (*Leptospermum lanigerum*) Shrubland – 5% (western inland wetland fringes); (Endangered in DEWNR provisional list) (Figure 7).

A previous landholder has established numerous small plantations of mostly introduced species, within the native vegetation, which are still surviving and, in some cases, spreading as woody weeds along with invading African Boxthorn (eg Pines, Coast Teatree – Table 1, Figure 4 & 5). These woody weeds will continue to spread if left uncontrolled. Introduced Rabbits and European fox were also observed and are also contributing to an ongoing biodiversity, soil and weed degradation threat to the wider area.

The plantations are often characterised by Norfolk Island Pine, Cypress Pines, Tuart Gums, among others, and are in varying degrees of condition and vigour. It is recommended to retain at least the larger trees as interim tall habitat structure (except spreading weeds), especially as roosting habitat for the Critically

Endangered Orange-bellied parrot. This latter species may use this area in its winter migratory route between Tasmania and SA.

Referring to historical aerial photography (Figure 2), there is substantial evidence for much of the site being highly degraded and disturbed by eroding mobile dunes, possibly caused by a combination of burning and over-grazing, as well as land clearance in the recent past, before recovering to some degree. This conclusion is supported by only very few naturally occurring Sheoaks, Dryland Teatree or Coastal Mallee being observed, which I would normally expect to be common in the area, as either components of, or as dominant species in, various vegetation associations. Also, the remnant sand dunes and swales appear to be degraded and aligned perpendicular, rather than parallel, to the coast, as a probable indicator of erosion and mobility in the recent past.

The inland wetland areas appear to be in good condition and have a higher biological value than the remainder of the area and I recommend they be protected from feral pests, weed invasion and significant disturbance. However, they could be managed within the context of sensitive eco-tourism activities (eg bird-watching, board-walks/hides, kayaking).

Although degraded, there is some potential for the Little Dip Spider-orchid, *Caladenia richardsiorum* (Nationally (EPBC Act) & State (NPWSA Act) - Endangered) to still occur on the site and at least 2 follow-up surveys in spring are recommended to try and detect it and any other species of interest at a more appropriate time (flowering).

Given much of the area has recovered from significant disturbance in recent times, but remains in a degraded condition at the risk of being over-run by woody weeds with ongoing threats to the biodiversity of the area, I consider that the site would benefit from a more structured approach to land management, which can also happen in harmony with the proposed development if suitable steps and advice are taken now.

#### **Recommendations**

- 2 follow-up spring flora surveys (4-6 weeks apart, in Sept and Oct) to try to detect Little Dip Spider-orchid and any other significant or threatened species that may be flowering.
- Protect, enhance and minimise disturbance (eg avoid significant development) in wetland habitats on the inland side of the site.
- Control introduced pests (rabbits and foxes) and invasive woody weeds, but retain most larger planted trees, at least for the medium term, as taller vegetation structure and roosting habitat for Orange-bellied parrots;
- The area remains prone to erosion and future development, subject to necessary approvals, would need to be conducted in a manner so as not to reactivate erosion and mobile dunes.

I hope this information is satisfactory and thank you for the opportunity to be of assistance. Please let me know if you have any further queries.

Kind Regards



PHIL BARRON

***Barron Environmental***

[pbarron@chariot.net.au](mailto:pbarron@chariot.net.au)

PO Box 1047 NAIRNE SA 5252

ph 0435 546 069, (08) 8388 0826

ABN: 67 763 442 142

# Barron



## Scanlon, Nora Creina, SA - vegetation assessed on the 13 & 14th May, 2014



Map data is compiled from a variety of sources and hence its accuracy is variable.

AW Region - 2007 and Arid Lands - 2007 Imagery (Copyright © JAXA) cannot be used for commercial purposes.

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Datum: Geocentric Datum of Australia, 1994  
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Government of South Australia  
Department of Environment,  
Water and Natural Resources

Figure 1. Site Map for the reconnaissance survey – area within the red polygon.

**Table 1. Interim plant species list from this survey**

Title: Scanlon - Nora Creina

Author: Phil Barron

Survey date: May 13 & 14, 2014

Description: Reconnaissance flora survey

Species Name	Common Name	Alien	EPBC	NPWSA /NRM	Notes
<i>Acacia cupularis</i>	Coast Umbrella-bush				
<i>A. longifolia ssp. sophorae</i>	False Boobialla				Dominant species
<i>A. pycnantha</i>	Golden Wattle				
<i>Acaena novae-zelandiae</i>	Bidgee-widgee				
<i>Adriana quadripartita</i>	Coast Bitter-bush				
<i>Allocasuarina verticillata</i>	Drooping Sheoak				Mostly planted
<i>Aloe sp.</i>	Aloe	*			Planted
<i>Alyxia buxifolia</i>	Dysentery Bush				
<i>Ammophila arenaria</i>	Marram Grass	*			
<i>Araucaria heterophylla</i>	Norfolk Island Pine	*			Planted
<i>Avena barbata</i>	Bearded Oat	*			
<i>Baumea juncea</i>	Blue Twig-rush				
<i>Bursaria spinosa ssp. spinosa</i>	SA Christmas Bush				
<i>Cakile edentula</i>	Sea Rocket	*			
<i>Callitris gracilis</i>	Native Pine				
<i>Carpobrotus rossii</i>	Karkalla				
<i>Cassytha sp.</i>	Tangled Dodder-laurel				
<i>Casuarina glauca</i>	Swamp Oak	*			Planted
<i>Cirsium vulgare</i>	Swamp Thistle	*		Proclaimed	
<i>Clematis microphylla</i>	Small-leaf Clematis				Dominant species
<i>Conyza bonariensis</i>	Tall Fleabane	*			
<i>Cupressus macrocarpa</i>	Monterey Cypress	*			Planted
<i>Cynoglossum australe</i>	Australian Hound's-tongue				
<i>Cynosurus echinatus</i>	Rough Dog's-tail Grass	*			Dominant species
<i>Dianella brevicaulis</i>	Coast Flax-lily				
<i>Dodonaea viscosa ssp. spatulata</i>	Spoon-leaf Hop-bush				
<i>Echium plantagineum</i>	Paterson's Curse	*		Proclaimed	
<i>Ehrharta villosa var. maxima</i>	Pyp Grass	*			
<i>Enchylaena tomentosa var.</i>	Barrier Saltbush				
<i>Eucalyptus diversifolia ssp.</i>	Soap Mallee				2 individuals found
<i>E. gomphocephala</i>	Tuart	*			Planted
<i>E. platypus</i>	Moort	*			Planted
<i>Euphorbia paralias</i>	Sea Spurge	*			
<i>E. terracina</i>	Terracina Spurge	*		Proclaimed	
<i>Exocarpos syrticola</i>	Coast Ballart				Dominant species
<i>Ficinia nodosa</i>	Knobby Club-sedge				
<i>Foeniculum vulgare</i>	Sweet Anise	*			
<i>Gahnia trifida</i>	Coast Saw-sedge				
<i>Gazania rigens</i>	Gazania	*			Planted – spreading?
<i>Geranium solanderi var.</i>	Australian Crane's-bill				
<i>Goodia medicaginea</i>	Golden-tip				
<i>Juncus kraussii</i>	Sea Rush				

Species Name	Common Name	Alien	EPBC	NPWSA /NRM	Notes
<i>Kennedia prostrata</i>	Running Postman				
<i>Kunzea pomifera</i>	Pink Buttons				
<i>Lagunaria patersonii</i>	Itchy Powder Tree	*			Planted
<i>Lagurus ovatus</i>	Hare's Tail Grass	*			
<i>Lepidosperma gladiatum</i>	Sword Rush				
<i>Leptospermum laevigatum</i>	Coast Tea-tree	*			Planted & spreading
<i>L. lanigerum</i>	Woolly Tea-tree				
<i>Leucophyta brownii</i>	Cushion Bush				
<i>Leucopogon parviflorus</i>	Coast Beard-heath				
<i>Limonium binervosum</i>	Dwarf Sea-lavender	*			
<i>Lycium ferocissimum</i>	African Boxthorn	*		Proclaimed	
<i>Marrubium vulgare</i>	Horehound	*		Proclaimed	
<i>Melaleuca halmaturorum</i>	Salt Paper-bark				
<i>M. lanceolata</i>	Black Tea-tree				Some planted
<i>Muehlenbeckia adpressa</i>	Native Sarsparilla				
<i>M. gunnii</i>	Native Sarsparilla				
<i>Myoporum insulare</i>	Native Juniper				
<i>Olearia axillaris</i>	Coast Daisy-bush				Dominant species
<i>Osteospermum fruticosum</i>	Trailing African Daisy	*			Planted - spreading?
<i>Ozothamnus decurrens</i>	Ridged Everlasting				Dominant near coast
<i>Pelargonium australe</i>	Australian Pelargonium				
<i>Phalaris aquatica</i>	Toowoomba Canary-grass	*			
<i>Pimelea serpyllifolia ssp.</i>	Thyme Riceflower				
<i>Pinus halepensis</i>	Aleppo Pine	*		Proclaimed	Planted & spreading
<i>Pinus sp.</i>	Pine	*			Planted & spreading
<i>Plantago lanceolata var.</i>	Ribgrass	*			
<i>Pomaderris paniculosa ssp.</i>	Inland Pomaderris				
<i>Rhagodia candolleana ssp.</i>	Sea-berry Saltbush				Dominant species
<i>Scabiosa atropurpurea</i>	Scabious	*			
<i>Scaevola angustata</i>	Coast Fanflower				
<i>Senecio elegans</i>	Purple Ragwort	*			
<i>S. vulgaris</i>	Common Ragwort	*			
<i>Sisymbrium orientale</i>	Wild Mustard	*			
<i>Solanum laciniatum</i>	Large Kangaroo-apple				
<i>Sonchus oleraceus</i>	Milk Thistle	*			
<i>Spinifex hirsutus</i>	Coast Spinifex				
<i>Stenotaphrum secundatum</i>	Buffalo Grass	*			
<i>Swainsona lessertiifolia</i>	Poison Pea				
<i>Tetragonia implexicoma</i>	Bower Spinach				Dominant species
<i>Threlkeldia diffusa</i>	Coast Bonefruit				
<i>Zygophyllum billardierei</i>	Coast Twinleaf				

**SUMMARY STATISTICS**

Status Indigenous-Alien Status

Alien/Introduced: 34

EPBC Environment Protection and Biodiversity Conservation Act 1999 Status - Nil

NPWSA National Parks & Wildlife South Australia Conservation Status – 6 Proclaimed Weeds

Total Number of species: 82

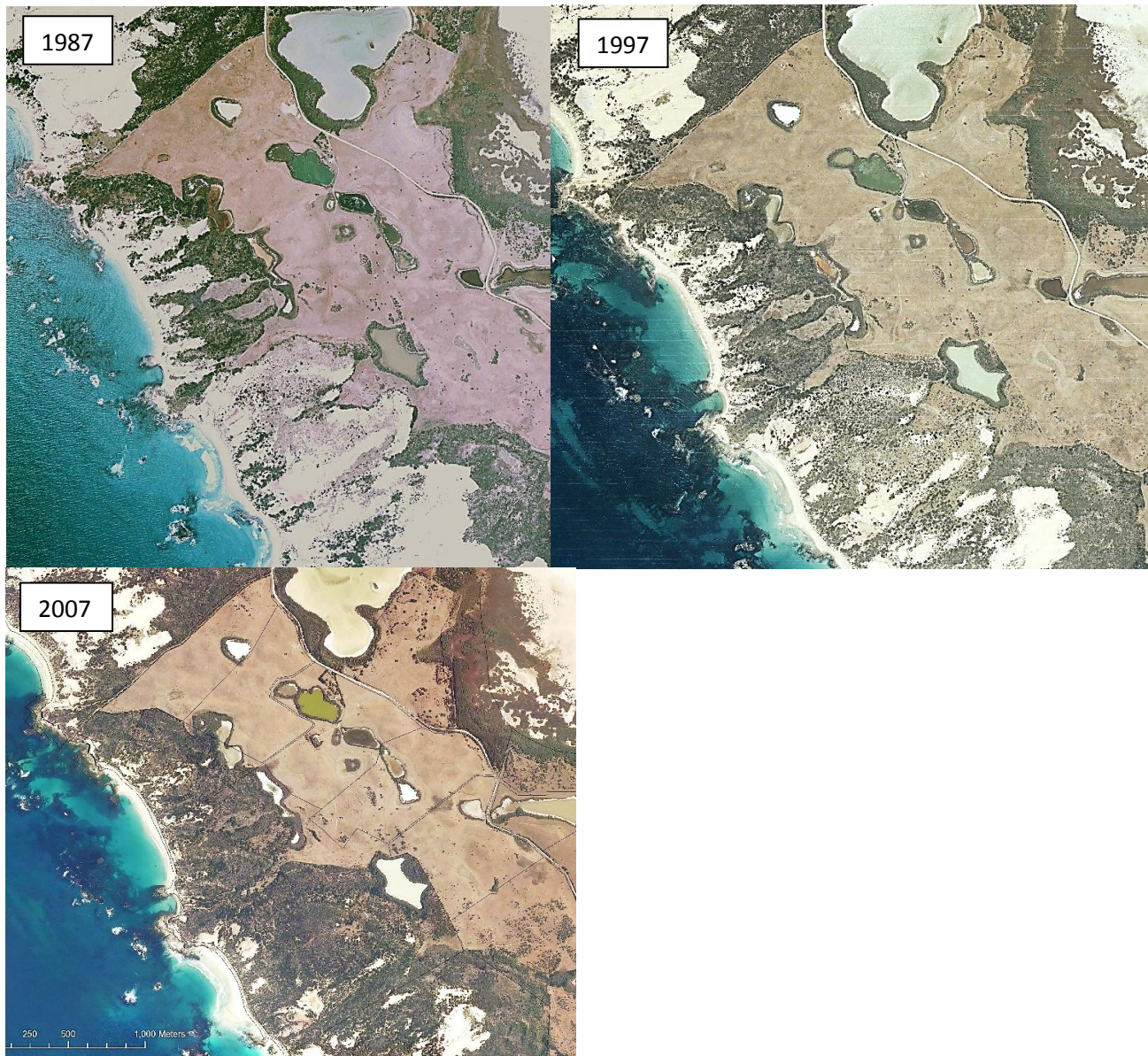
**Glossary:**

**EPBC = Environment Protection and Biodiversity Conservation Act 1999 Status**

<i>Extinct*</i>	Taxa not definitely located in the wild during the last 50 years
<i>Critically Endangered</i>	Taxa facing an extremely high risk of extinction in the wild
<i>Endangered</i>	Taxa facing a very high risk of extinction in the wild in the near future
<i>Endangered*</i>	Allocation to Endangered category is subject to qualification
<i>Vulnerable</i>	Taxa facing a high risk of extinction in the wild in the medium term
<i>Vulnerable*</i>	Allocation to Vulnerable category is subject to qualification

**NPWSA = National Parks & Wildlife South Australia Conservation Status**

<i>Endangered</i>	Taxa facing a very high risk of extinction in the wild in the near future
<i>Endangered*</i>	Endangered but allocation to endangered category is subject to qualification
<i>Vulnerable</i>	Species rare and at risk from potential threats in the medium to long term
<i>Vulnerable*</i>	Vulnerable but allocation to vulnerable category is subject to qualification
<i>Rare</i>	Low overall frequency, and confined to a restricted range or scattered sparsely over a wider area
<i>Rare*</i>	Rare but allocation to rare category is subject to qualification
<i>Not listed*</i>	Not listed
<i>Proclaimed</i>	Pest species declared under the Natural Resources Management (NRM) Act 2004



**Figure 2. Changes over time since 1987**





**Figure 3. The typical dense Coastal wattle vegetation that currently dominates the site.**



**Figure 4. Note plantations of Norfolk Island pine in the foreground and Cypress Pine in the background. Recommend these be retained as Orange-bellied parrot roosting habitat, at least in the short to medium term.**



**Figure 5. Introduced pine species, spreading from plantations in the area. Recommend some the larger ones be initially retained as Orange-bellied parrot roosting habitat, at least in the short to medium term. However they area woody weed that threatened to overrun the area.**



**Figure 6. SA Swamp Paperbark (*Melaleuca halmaturorum*) and Dryland Teatree Low Open Forest Coast paperbark low forest– 5% (eastern lake fringes)**



**Figure 7. Cutting grass (*Gahnia lanigera*) sedgeland & Woolly Teatree (*Leptospermum lanigerum*) Shrubland – 5% (western inland wetland fringes); (Endangered in DEWNR provisional list)**

19 November 2014

Justin and Damian Scanlon  
c/o 23 Wahroonga Avenue,  
WATTLE PARK SA 5066

**Re: Survey for *Caladenia richardsiorum* (Little Dip Spider-orchid) on the Scanlon's Nora Creina property**

Dear Justin and Damian,  
Please find my report following on recent surveys for *C. richardsiorum* (Little Dip Spider-orchid), on your property as above.

**Introduction**

Referring to its Draft Recovery Plan (Dickson *et al.* 2009), *Caladenia richardsiorum* (Little Dip Spider-orchid) is listed as Nationally Endangered under the Commonwealth *EPBC Act*, and as Endangered in South Australia under the *National Parks and Wildlife Act 1972* (NPW Act) (Figure 1). It is endemic to the South East Herbarium Region of SA and is found in coastal vegetation primarily between Southend and Robe, including in the Little Dip Conservation Park adjacent to your property.

*C. richardsiorum* is found in several coastal and sub coastal vegetation types along the Limestone Coast of SA. At Nora Creina, just south of this property, it occurs in Coast Daisy-bush (*Olearia axillaris*) Coast Beard-heath (*Leucopogon parviflorus*) shrubland complex (Dickson *et al.* 2009). Associated species include Thyme Riceflower (*Pimelea serpyllifolia*), Bower Spinach (*Tetragonia implexicoma*), Coast Swainson-pea (*Swainsona lessertiiifolia*) and Coast Velvet-bush (*Lasiopetalum discolor*). This vegetation complex ranges from low coastal heathland on exposed cliff tops to shrubland on the protected side of coastal fore dunes and is significant as it supports the larger and denser sub-populations of *C. richardsiorum*.



Figure 1. *Caladenia richardsiorum* (Little Dip Spider-orchid) – At Teeluck, North of Kingston SE, by Bill New

Approximately less than 100 hectares of this vegetation type exists on this property and the possible presence of this species on your property could have profound effects on the development you are planning to undertake on this property, so a timely search was considered important to aid in the planning process. As

such, 2 separate searches for *C. richardsiorum* were undertaken on the property in October 2014, in what was considered appropriate habitat.

### **Methodology**

The searches were conducted according to the Survey Guidelines for Australia's Threatened Orchids (2013) and known biological information (especially flowering timing). These guidelines state that "given the cryptic nature of terrestrial orchids and their often rare, scattered appearance in bushland, quadrat-based surveys or meandering searches alone are not considered to be an adequate survey technique. However, a random 'meander' survey may be conducted initially during the flowering period to ascertain the presence of the orchid species. This is to cover large areas of potential habitat if the species has not been detected previously at the site. Records are taken using GPS and on-ground markers along transects where the target species is located. A more thorough search should then be undertaken in the vicinity of plants detected using area search and targeted parallel transects." Therefore searches based on the aforementioned 'meander' or 'ramble' style were conducted with the following details:

- 8<sup>th</sup> & 9<sup>th</sup> October 2014: Phil Barron (myself) & Micah Doecke - 8hrs x 2 people;
- 21<sup>st</sup> October 2014: Ben McCallum (Ecologist & Field Botanist with EAC – Ecological Evaluation Pty Ltd, Andrew Allanson (Ecologist & Field Botanist with Irongrass Environmental Rehabilitation Services) & myself - 5 hrs x 3 people;
- 22<sup>nd</sup> October 2014: Ben McCallum & Andrew Allanson – 8 hrs x 2 people.
- A total of 47 person hours on ground searching

### **Results**

Referring to Figures 2-4, after extensive searching of the property as above, orchids of any species were only found in 2 locations – of which one of these was *C. richardsiorum*. The details are listed below:

- One small sub-population of *Caladenia latifolia* (Pink Fairies) – no Conservation ratings; and
- One sub-population of *C. richardsiorum* located at UTM 54H 395437 5872697:
  - Approximately 100 individuals patchily distributed in an approximately 30m x 10m band under planted non-local native *Eucalyptus gomphocephala* (Tuart Gum – native to WA) and *Leptospermum laevigatum* (Coast or Victorian Tea-tree) plants adjacent to a possibly artificial clay-pan and at the base of a dune (atypical habitat) (Figure 1).
  - These orchids were identified on the original search on the 9<sup>th</sup> of October and the identification was corroborated by B. McCallum & A. Allanson on the 21<sup>st</sup> October.

### **Discussion**

Interestingly, these *C. richardsiorum* were found under one of the species listed as a 'weed' threat in the Recovery Plan: *Leptospermum laevigatum* (Coast Tea-tree), as well as another introduced species (Dickson *et al.* 2009). The implications of this are unclear, but appears to indicate that it can recover from some level of disturbance and colonise under introduced species if other conditions are suitable. It also raised the question of whether woody-weed control, as a threat-abatement action, is appropriate for this species. However, apart from weeds, the Recovery Plan also lists clearance of habitat and their subsequent fragmentation and isolation; grazing by domestic livestock and native and introduced fauna; potential damage from off-road vehicles, especially four wheel drives and motorbikes, and other visitor impacts; as well as altered hydrological regimes and inappropriate fire regimes as the most serious threats to this species.



Figure 2. Micah Doecke standing in front of the habitat where the *C. richardsiorum* were found on 9/10/14.

Also, the results don't mean that other sub-populations of *C. richardsiorum* don't exist here - as the referenced Survey Guidelines acknowledge, these cryptic orchids appearance may vary from year to year and, despite the survey rigor used on this occasion, some may still have been overlooked in the dense vegetation. However, clearly *C. richardsiorum*, or in-fact any orchid species, are not widespread on the property, probably due to the recent disturbance history discussed in my earlier reconnaissance flora survey report (27<sup>th</sup> May, 2014). Therefore, if managed appropriately, especially via the control of certain weeds and grazing pressure, as well as disturbance from public access and off-road vehicles, the nature of the proposed development could be used to enhance conservation of this species on the region.

### **References**

Dickson C.R., Murphy A., Pritchard A., and Craig A. (2009). Draft version May 2009. Recovery Plan for three orchid species in South Australia and Victoria: *Caladenia richardsiorum* (Little Dip Spider- orchid), *Caladenia calcicola* (Limestone Spider-orchid) and *Pterostylis tenuissima* (Swamp Greenhood) 2009-2013. Department for Heritage and Environment, South Australia, South East Region & Department of Sustainability and Environment, Victoria, South West Victoria Region.

Survey Guidelines for Australia's Threatened Orchids. Guidelines for Detecting Orchids Listed as 'Threatened' under the ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999. Commonwealth of Australia, 2013

I hope this information is satisfactory and thank you for the opportunity to be of assistance. Please let me know if you have any further queries.

Kind Regards

PHIL BARRON

**Barron Environmental**

[pbarron@chariot.net.au](mailto:pbarron@chariot.net.au)

PO Box 1047 NAIRNE SA 5252

ph 0435 546 069, (08) 8388 0826

ABN: 67 763 442 142



Figure 3. Sample photos of the *Caladenia richardsiorum* (Little Dip Spider-orchid) found at this location



Figure 4 Site Map show locations where orchids were identified.