

PLANNING AUTHORITY COMMITTEE - 11 OCTOBER 2021 ATTACHMENTS

|   |           |
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| Application No. | Location                        | Development  | Approval Date |
|-----------------|---------------------------------|--|---------------|
| PA2021.0030     | 113 Percy Street, Devonport     | Subdivision and multiple dwellings (one additional unit) | 13/08/2021    |
| PA2021.0048     | 84-86 Hillcrest Road, Devonport | 3 lot subdivision  | 6/08/2021     |
| PA2021.0061     | 135 George Street, Devonport    | Educational and Occasional Care (classrooms)             | 27/07/2021    |
| PA2021.0062     | 19 Nyora Court, Miandetta       | Residential (carport)                                    | 1/07/2021     |
| PA2021.0064     | 59 Gunn Street, Devonport       | Residential (carport) demolition and replacement         | 7/07/2021     |
| PA2021.0066     | 26 Triton Road, East Devonport  | Residential (multiple dwellings x 2)                     | 12/07/2021    |
| PA2021.0067     | 6 Aikman Place, Devonport       | Residential (single dwelling)                            | 14/07/2021    |
| PA2021.0069     | 232 William Street, Devonport   | Signage (illuminated)                                    | 13/07/2021    |
| PA2021.0070     | 200 Stony Rise Road, Stony Rise | Removal of items   | 26/07/2021    |
| PA2021.0071     | 53 Fleetwood Drive, Spreyton    | Residential (multiple dwellings x 3)                     | 2/09/2021     |
| PA2021.0073     | 108 River Road, Ambleside       | Demolition (single dwelling and garage)                  | 6/07/2021     |
| PA2021.0074     | 8a Devonport Road, Quoiba       | Manufacturing and Processing (sign writing)              | 23/07/2021    |
| PA2021.0075     | 27 Leary Avenue, Stony Rise     | Residential (single dwelling)                            | 12/07/2021    |
| PA2021.0076     | 41-43 Middle Road, Devonport    | Education and occasional care (greenhouse)               | 19/07/2021    |
| PA2021.0077     | 2 Woodland Grove, Tugrah        | Residential (outbuilding)                                | 12/07/2021    |
| PA2021.0079     | 76 Hillcrest Road, Devonport    | Subdivision (1 new lot)                                  | 2/09/2021     |
| PA2021.0080     | 8 Luck Street, Spreyton         | Storage (wholesale horse products) No. 5                 | 9/07/2021     |
| PA2021.0081     | 40-48 Best Street, Devonport    | Advertising Signage - third party signs                  | 26/07/2021    |
| PA2021.0082     | 68 Fleetwood Drive, Spreyton    | Residential (single dwelling)                            | 2/08/2021     |
| PA2021.0083     | 56 Fleetwood Drive, Spreyton    | Residential (single dwelling and shed)                   | 23/07/2021    |
| PA2021.0084     | 126 Forth Road, Don             | Boundary Adjustment                                      | 18/08/2021    |
| PA2021.0086     | 230 Bellamy Road, Forthside     | Residential (additions and alterations)                  | 14/07/2021    |
| PA2021.0087     | 10300 Bass Highway, Lillico     | Visitor Accommodation                                    | 29/07/2021    |
| PA2021.0088     | 5 Luck Street, Spreyton         | Storage  | 30/07/2021    |
| PA2021.0089     | 6 Matthews Way, Devonport       | Service Industry (motor repairs)                         | 26/07/2021    |
| PA2021.0090     | 57 Kelcey Tier Road, Spreyton   | Storage Shed   | 21/07/2021    |
| PA2021.0092     | 6 Wright Street, East Devonport | Visitor Accommodation (carport)                          | 19/07/2021    |
| PA2021.0093     | 41 Hiller Street, Devonport     | 2 lot subdivision  | 5/08/2021     |
| PA2021.0094     | 12 Mulligan Dr, Spreyton        | Residential (multiple dwellings x 2)                     | 2/08/2021     |
| PA2021.0095     | 9 Victoria Parade, Devonport    | Residential (multiple dwellings) - shed and garage       | 29/07/2021    |

|             |   |   |            |
|-------------|---|---|------------|
| PA2021.0096 | 62 Oldaker Street, Devonport                  | Business and Professional Services (Medical Centre additions)           | 10/08/2021 |
| PA2021.0097 | 2 Marconi Court, Stony Rise                   | Signage   | 1/09/2021  |
| PA2021.0098 | 126 Tarleton Street, East Devonport           | Change of Use - Community Meeting and Entertainment (Youth Services)    | 20/08/2021 |
| PA2021.0099 | 2 Vons Way, Aberdeen                          | Residential (shed)  | 20/08/2021 |
| PA2021.0100 | 17 Mangana Drive, Tugrah                      | Residential (single dwelling and shed)                                  | 1/09/2021  |
| PA2021.0101 | 115-119 Rooke Street, Devonport               | Signage   | 19/08/2021 |
| PA2021.0102 | 34 Forest Heights Drive, Tugrah               | Residential (shed)  | 26/08/2021 |
| PA2021.0103 | 50 Formby Road, Devonport                     | Business and Professional Services (office)                             | 30/08/2021 |
| PA2021.0104 | 142 Durkins Road, Quoiba                      | Telecommunications (upgrade of existing tower)                          | 31/08/2021 |
| PA2021.0105 | 11 Luck Street, Spreyton                      | Manufacturing and Processing (new storage building and retaining walls) | 27/08/2021 |
| PA2021.0106 | 1a Highfield Road, Ambleside                  | 21 lot subdivision  | 6/09/2021  |
| PA2021.0108 | 48 Tugrah Road, Tugrah                        | 3 Lot Subdivision   | 24/09/2021 |
| PA2021.0110 | 137 Sheffield Road, Spreyton                  | Residential (multiple dwellings - 2 additional units)                   | 8/09/2021  |
| PA2021.0111 | 3 Vons Way, Aberdeen                          | Residential (outbuilding)   | 14/09/2021 |
| PA2021.0112 | 42 Elizabeth Street, Devonport                | Business and Professional Services (audiology consulting service)       | 15/09/2021 |
| PA2021.0113 | 280 Pumping Station Road, Forth               | Utilities (pump station and balance tank)                               | 27/09/2021 |
| PA2021.0114 | 61 Kelcey Tier Road, Spreyton                 | Residential (single dwelling and outbuilding)                           | 23/09/2021 |
| PA2021.0115 | 16 North Caroline Street, East Devonport      | Service Industry (workshop extension)                                   | 9/09/2021  |
| PA2021.0116 | 17 Elizabeth Street, Devonport                | Change of Use to Storage (warehouse)                                    | 23/09/2021 |
| PA2021.0117 | 215-221 Tarleton Street, East Devonport       | Hotel Industry (new laundry)  | 27/09/2021 |
| PA2021.0118 | 59 Nielsens Road, Tugrah                      | Residential (dwelling addition)   | 14/09/2021 |
| PA2021.0122 | 189 Tugrah Road, Tugrah                       | 16 lot subdivision  | 27/09/2021 |
| PA2021.0127 | 15 Formby Road, Devonport                     | Storage (shed)  | 16/09/2021 |
| PA2021.0128 | 11 Turners Lane, Quoiba                       | Resource Processing (additional storage tanks)                          | 28/09/2021 |
| PA2021.0130 | 39/2-12 North Caroline Street, East Devonport | Residential (unit)  | 28/09/2021 |
| PA2021.0131 | 45/2-12 North Caroline Street, East Devonport | Residential (unit)  | 28/09/2021 |

|                               |
|-------------------------------|
| Office use                    |
| Application no. _____         |
| Date received: _____          |
| Fee: _____                    |
| Permitted/Discretionary _____ |

**Devonport City Council***Land Use Planning and Approvals Act 1993 (LUPAA)**Tasmanian Planning Scheme - Devonport***Application for Planning Permit****Use or Development Site**

Street Address: \_\_\_\_\_

139 Waverley Rd  
Devon Tas.

Certificate of Title Reference No.: \_\_\_\_\_

**Applicant's Details**

Full Name/Company Name: \_\_\_\_\_

Darryl Archer

Postal Address: \_\_\_\_\_

209 West Pine Road  
Penguin

Telephone: \_\_\_\_\_

0497118094

Email: \_\_\_\_\_

corriband2018@gmail.com

**Owner's Details (if more than one owner, all names must be provided)**

Full Name/Company Name: \_\_\_\_\_

As above.

Postal Address: \_\_\_\_\_

Telephone: \_\_\_\_\_

Email: \_\_\_\_\_



APPL 47 611 416 016  
PO Box 604  
137 Roke Street  
Devonport TAS 7310  
Telephone 03 6424 0511  
www.devonport.tas.gov.au  
council@devonport.tas.gov.au



Sufficient information must be provided to enable assessment against the requirements of the planning scheme.

Please provide one copy of all plans with your application.

---

**Assessment of an application for a Use or Development**

What is proposed?:

Subdivision of lot 2 139 Waverley Rd Don

Description of how the use will operate:

Residential housing

Use Class (Office use only):

Applications may be lodged by email to Council - [council@devonport.tas.gov.au](mailto:council@devonport.tas.gov.au)  
The following information and plans must be provided as part of an application unless the planning authority is satisfied that the information or plan is not relevant to the assessment of the application:

|  |  |
|--|--|
| <b>Application fee</b>   |  |
| <b>Completed Council application form</b>  |  |
| <b>Copy of the current certificate of title, including title plan and schedule of easements</b>  |  |
| <b>Any written permission and declaration of notification required under s.52 of LUPAA</b>   |  |
| <b>A site analysis and site plan at an acceptable scale on A3 or A4 paper (1 copy) showing:</b>  |  |
| <ul style="list-style-type: none"> <li>The existing and proposed use(s) on the site</li> <li>The boundaries and dimensions of the site</li> <li>Topography including contours showing AHD levels and major site features</li> <li>Natural drainage lines, watercourses and wetlands on or adjacent to the site</li> <li>Soil type</li> <li>Vegetation types and distribution including any known threatened species, and trees and vegetation to be removed</li> <li>The location, capacity and connection point of any existing services and proposed services</li> <li>The location of easements on the site or connected to the site</li> <li>Existing pedestrian and vehicle access to the site</li> <li>The location of existing and proposed buildings on the site</li> <li>The location of existing adjoining properties, adjacent buildings and their uses</li> <li>Any natural hazards that may affect use or development on the site</li> <li>Proposed roads, driveways, parking areas and footpaths within the site</li> <li>Any proposed open space, common space, or facilities on the site</li> <li>Proposed subdivision lot boundaries (where applicable)</li> <li>Details of any proposed fencing</li> </ul> |  |
| <b>Where it is proposed to erect buildings, a detailed layout plan of the proposed buildings with dimensions at a scale of 1:100 or 1:200 on A3 or A4 paper (1 copy) showing:</b>  |  |
| <ul style="list-style-type: none"> <li>Setbacks of buildings to property (title) boundaries</li> <li>The internal layout of each building on the site</li> <li>The private open space for each dwelling</li> <li>External storage spaces</li> <li>Parking space location and layout</li> <li>Major elevations of every building to be erected</li> <li>The relationship of the elevations to existing ground level, showing any proposed cut or fill</li> <li>Shadow diagrams of the proposed buildings and adjacent structures demonstrating the extent of shading of adjacent private open spaces and external windows of buildings on adjacent sites</li> <li>Materials and colours to be used on roofs and external walls</li> </ul>   |  |
| <b>Details of any signage proposed</b>   |  |

Value of use and/or development

\$

125 000

Notification of Landowner/s (s.52 Land Use Planning and Approvals Act 1993)

If land is not in applicant's ownership

I, Darryl Thomas Archer declare that the owner/s of the land has/have been notified of my intention to make this application.

Applicant's signature:

*[Signature]*

Date:

22-6-21

If the application involves land owned or administered by the Devonport City Council

Devonport City Council consents to the making of this permit application.

General Manager's signature:

Date:

If the application involves land owned or administered by the Crown

Crown consent must be included with the application.

### Signature

I apply for consent to carry out the use and development described in this application. I declare that all the information given is true and correct. I also understand that:

- if incomplete, the application may be delayed or rejected; and
- more information may be requested in accordance with s.54 (1) of LUPAA.

PUBLIC ACCESS TO PLANNING DOCUMENTS - DISCRETIONARY PLANNING APPLICATIONS (s.57 of LUPAA)

I understand that all documentation included with a discretionary application will be made available for inspection by the public.

Applicant's signature:

*[Signature]*

Date:

22-6-21

### PRIVACY ACT

The personal information requested on this form is being collected by Council for processing applications under the Land Use Planning and Approvals Act 1993 and will only be used in connection with the requirements of this legislation. Council is to be regarded as the agency that holds the information.

### Fee & payment options



**Pay by Direct Deposit** – BSB: 067-402 Account No. 000 000 13 – Please quote your application number.



**Pay in Person at Service Tasmania** – Present this notice to any Service Tasmania Centre, together with your payment. See [www.service.tas.gov.au](http://www.service.tas.gov.au) for opening hours.



**Pay by Phone** – Please contact the Devonport City Council offices on 64240511 during office hours, Monday to Friday.



**Pay by Post** – Cheques should be made payable to Devonport City Council and posted to PO Box 604, Devonport, Tasmania, 7310.

Agenda - PLANNING AUTHORITY COMMITTEE - 11 OCTOBER 2021 ATTACHMENTS



**RESULT OF SEARCH**

## RECORDER OF TITLES

*Issued Pursuant to the Land Titles Act 1980*

## SEARCH OF TORRENS TITLE

|                  |                              |
|------------------|------------------------------|
| VOLUME<br>180138 | FOLIO<br>2                   |
| EDITION<br>2     | DATE OF ISSUE<br>19-Jan-2021 |

SEARCH DATE : 23-Jul-2021

SEARCH TIME : 02.07 PM

DESCRIPTION OF LAND

City of DEVONPORT

Lot 2 on Sealed Plan 180138

Derivation : Part of Lot 246, 500 Acres Gtd. to John Palmer

Prior CT 100615/1

SCHEDULE 1

M863462 TRANSFER to DARRYL THOMAS ARCHER Registered  
19-Jan-2021 at noon

SCHEDULE 2

Reservations and conditions in the Crown Grant if any

SP180138 EASEMENTS in Schedule of Easements

SP180138 COVENANTS in Schedule of Easements

SP180138 FENCING PROVISION in Schedule of Easements

SP 39290 FENCING COVENANT in Schedule of Easements

E236401 AGREEMENT pursuant to Section 78 of the Land Use

Planning and Approvals Act 1993 Registered

30-Nov-2020 at noon

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations



# SCHEDULE OF EASEMENTS

## RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980



|  |   |
|--|---|
| <b>SCHEDULE OF EASEMENTS</b><br><br><b>NOTE:</b> THE SCHEDULE MUST BE SIGNED BY THE OWNERS & MORTGAGEES OF THE LAND AFFECTED. SIGNATURES MUST BE ATTESTED. | Registered Number<br><br><b>SP 180138</b> |
|--|---|

### EASEMENTS AND PROFITS

PAGE 1 OF 2 PAGE/S

Each lot on the plan is together with:-

- (1) such rights of drainage over the drainage easements shown on the plan (if any) as may be necessary to drain the stormwater and other surplus water from such lot; and
- (2) any easements or profits a prendre described hereunder.

Each lot on the plan is subject to:-

- (1) such rights of drainage over the drainage easements shown on the plan (if any) as passing through such lot as may be necessary to drain the stormwater and other surplus water from any other lot on the plan; and
- (2) any easements or profits a prendre described hereunder.

The direction of the flow of water through the drainage easements shown on the plan is indicated by arrows.

### Easements

1. Lots 1 and 2 on the plan are subject to a right of Drainage (appurtenant to Lot 1 on SP 19962) over the "DRAINAGE EASEMENT 1.50 WIDE" as shown on the plan.  
(SP19962)

### Covenants \* - SEE PAGE 2

1. Not to erect on Lot 2 any building other than a dwelling house together with all usual outbuildings PROVIDED ALWAYS that if that Lot shall at any time be legally subdivided with the consent of all appropriate authorities, this stipulation shall be construed as to permit the erection of not more than one dwelling house together with all usual outbuildings on each Lot created by that subdivision.
2. Not to erect on Lot 2 any dwelling house of an area (exclusive of the area of outbuildings) of less than one hundred and thirty square metres (130m<sup>2</sup>).
3. Not to erect, maintain or permit to be erected or maintained on Lot 2 any easily removable or transportable residential or other buildings.
4. Not to erect or allow to be erected on Lot 2 on the plan any dwelling, outbuilding or other structure within area marked ABFE on the plan.
5. Not to erect on Lot 2 any dwelling house the roof of which is constructed of any material other than tiles or non-reflective colourbond, non-reflective iron or some other non-reflective material approved in writing by the Vendors.

*[Signature]*

(USE ANNEXURE PAGES FOR CONTINUATION)

|   |   |
|---|---|
| SUBDIVIDER: Tina Kate Smith<br>FOLIO REF: Volume 100615 Folio 1<br>SOLICITOR<br>& REFERENCE: Debbie Hutton Conveyancing Pty Ltd<br>200471 | PLAN SEALED BY: Devonport City Council<br>DATE: 19 October 2020<br>PA2019:0158.<br>REF NO. <i>[Signature]</i><br>Council Delegate |
| <b>NOTE:</b> The Council Delegate must sign the Certificate for the purposes of identification.   |   |

**SCHEDULE OF EASEMENTS**

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

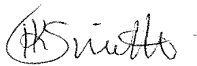
|   |                                       |
|---|---------------------------------------|
| <b>ANNEXURE TO<br/>SCHEDULE OF EASEMENTS</b><br>PAGE 2 OF 2 PAGES     | Registered Number<br><b>SP 180138</b> |
| SUBDIVIDER: Tina Kate Smith<br>FOLIO REFERENCE: Volume 100615 Folio 1 |                                       |

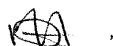
6. Not to erect or re-erect on Lot 2 any building whatsoever which shall have been pulled down or demolished on other land and not to use any second-hand materials on the exterior of any building on the Lot other than clean washed bricks.
7. Not to carry out or permit or allow to be carried out on Lot 2 or any part thereof any trade or business of an industrial commercial or manufacturing nature.
8. Not to grow or permit to grow on Lot 2 on the plan any plant, tree or shrub to a height exceeding 2.00 metres above the natural ground level in the area marked "ABFE" on the plan.
9. Not to permit or allow the planting or growing of plantation timber of any lot on the plan.

Fencing Provision

In respect of each lot shown on the plan, the Vendor, Tina Kate Smith, shall not be required to fence.

SIGNED by Tina Kate Smith  
 the registered proprietors of the land  
 in Certificate of Title Volume 100615  
 Folio 1 in the presence of:-

)   
 )  
 )  
 )



Debbie Hutton  
 81 Gunn Street  
 Devonport TAS 7310  
 Licensed Conveyancer



- \* The owners of Lots 1 & 2 on the plan covenant with Tina Kate Smith ("the Vendor") and the owner or owners for the time being of every other Lot on the plan or every part thereof with the intent that the burden of these covenants may run with and bind the Covenantor's Lot and every Part thereof and the benefit thereof shall be annexed to and devolve with each and every part of every other Lot shown on the plan to observe the following stipulations:-

**NOTE:** Every annexed page must be signed by the parties to the dealing or where the party is a corporate body be signed by the persons who have attested the affixing of the seal of that body to the dealing.





**Environmental Service and Design Pty Ltd**  
ABN 97 107 517 144 ACN 107 517 144

**Office**  
74 Minna Road  
Heybridge TAS 7316  
Phone : (03) 6431 2999  
Fax: (03) 6431 2933  
[www.esandd.com.au](http://www.esandd.com.au)

**Postal**  
PO Box 651  
Burnie TAS 7320

## Bushfire Hazard Management Report

**Lot 2 (CT180138/2) Waverley Road DON**



Applicant:

**Darryl Archer**  
**209 West Pine Road**  
**PENGUIN TAS 7316**

Prepared by:

Bruce Harpley  
Environmental Service and Design Pty Ltd  
Version 1: 12 August 2021

Contact Phone Number:

0429 355 259

E- Mail:

[bharpley@esandd.com.au](mailto:bharpley@esandd.com.au)

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## BUSHFIRE-PRONE AREAS CODE

### **CERTIFICATE<sup>1</sup> UNDER S51(2)(d) *LAND USE PLANNING AND APPROVALS ACT 1993***

---

#### **1. Land to which certificate applies**

The subject site includes property that is proposed for use and development and includes all properties upon which works are proposed for bushfire protection purposes.

**Street address:**

Lot 2 Waverley Road DON

**Certificate of Title / PID:**

180138/2 PID 9510668

#### **2. Proposed Use or Development**

**Description of proposed Use and Development:**

2 Lot subdivision – created 2 vacant lots

**Applicable Planning Scheme:**

Tasmanian Planning Scheme - Devonport

#### **3. Documents relied upon**

This certificate relates to the following documents:

| Title  | Author               | Date       | Version |
|--|----------------------|------------|---------|
| Development Application Proposal Plan 1886-D01 | Land and Sea Surveys | 23/07/2021 |         |
|  |                      |            |         |
|  |                      |            |         |
|  |                      |            |         |

---

<sup>1</sup> This document is the approved form of certification for this purpose and must not be altered from its original form.

#### 4. Nature of Certificate

The following requirements are applicable to the proposed use and development:

|                          |  |                               |
|--------------------------|--|-------------------------------|
| <input type="checkbox"/> | <b>E1.4 / C13.4 – Use or development exempt from this Code</b> |                               |
|                          | <b>Compliance test</b>   | <b>Compliance Requirement</b> |
| <input type="checkbox"/> | E1.4(a) / C13.4.1(a)   | Insufficient increase in risk |

|                          |   |   |
|--------------------------|---|---|
| <input type="checkbox"/> | <b>E1.5.1 / C13.5.1 – Vulnerable Uses</b> |   |
|                          | <b>Acceptable Solution</b>                | <b>Compliance Requirement</b>   |
| <input type="checkbox"/> | E1.5.1 P1 / C13.5.1 P1                    | <i>Planning authority discretion required. A proposal cannot be certified as compliant with P1.</i> |
| <input type="checkbox"/> | E1.5.1 A2 / C13.5.1 A2                    | Emergency management strategy   |
| <input type="checkbox"/> | E1.5.1 A3 / C13.5.1 A2                    | Bushfire hazard management plan   |

|                          |  |   |
|--------------------------|--|---|
| <input type="checkbox"/> | <b>E1.5.2 / C13.5.2 – Hazardous Uses</b> |   |
|                          | <b>Acceptable Solution</b>               | <b>Compliance Requirement</b>   |
| <input type="checkbox"/> | E1.5.2 P1 / C13.5.2 P1                   | <i>Planning authority discretion required. A proposal cannot be certified as compliant with P1.</i> |
| <input type="checkbox"/> | E1.5.2 A2 / C13.5.2 A2                   | Emergency management strategy   |
| <input type="checkbox"/> | E1.5.2 A3 / C13.5.2 A3                   | Bushfire hazard management plan   |

|                                     |   |   |
|-------------------------------------|---|---|
| <input checked="" type="checkbox"/> | <b>E1.6.1 / C13.6.1 Subdivision: Provision of hazard management areas</b> |   |
|                                     | <b>Acceptable Solution</b>  | <b>Compliance Requirement</b>   |
| <input type="checkbox"/>            | E1.6.1 P1 / C13.6.1 P1  | <i>Planning authority discretion required. A proposal cannot be certified as compliant with P1.</i> |
| <input type="checkbox"/>            | E1.6.1 A1 (a) / C13.6.1 A1(a)   | Insufficient increase in risk   |
| <input checked="" type="checkbox"/> | E1.6.1 A1 (b) / C13.6.1 A1(b)   | Provides BAL-19 for all lots (including any lot designated as 'balance')                            |
| <input type="checkbox"/>            | E1.6.1 A1(c) / C13.6.1 A1(c)  | Consent for Part 5 Agreement  |

|                                     |  |   |
|-------------------------------------|--|---|
| <input checked="" type="checkbox"/> | <b>E1.6.2 / C13.6.2 Subdivision: Public and fire fighting access</b> |   |
|                                     | <b>Acceptable Solution</b>   | <b>Compliance Requirement</b>   |
| <input type="checkbox"/>            | E1.6.2 P1 / C13.6.2 P1   | <i>Planning authority discretion required. A proposal cannot be certified as compliant with P1.</i> |
| <input type="checkbox"/>            | E1.6.2 A1 (a) / C13.6.2 A1 (a)                                       | Insufficient increase in risk   |
| <input checked="" type="checkbox"/> | E1.6.2 A1 (b) / C13.6.2 A1 (b)                                       | Access complies with relevant Tables  |

|                                     |   |   |
|-------------------------------------|---|---|
| <input checked="" type="checkbox"/> | <b>E1.6.3 / C13.1.6.3 Subdivision: Provision of water supply for fire fighting purposes</b> |   |
|                                     | <b>Acceptable Solution</b>  | <b>Compliance Requirement</b>                         |
| <input type="checkbox"/>            | E1.6.3 A1 (a) / C13.6.3 A1 (a)  | Insufficient increase in risk                         |
| <input checked="" type="checkbox"/> | E1.6.3 A1 (b) / C13.6.3 A1 (b)  | Reticulated water supply complies with relevant Table |
| <input type="checkbox"/>            | E1.6.3 A1 (c) / C13.6.3 A1 (c)  | Water supply consistent with the objective            |
| <input type="checkbox"/>            | E1.6.3 A2 (a) / C13.6.3 A2 (a)  | Insufficient increase in risk                         |
| <input type="checkbox"/>            | E1.6.3 A2 (b) / C13.6.3 A2 (b)  | Static water supply complies with relevant Table      |
| <input type="checkbox"/>            | E1.6.3 A2 (c) / C13.6.3 A2 (c)  | Static water supply consistent with the objective     |

**5. Bushfire Hazard Practitioner****Name:** Bruce Harpley**Phone No:** 0429 355 259**Postal Address:** Environmental Service and Design Pty Ltd  
PO Box 651  
BURNIE TAS 7320**Email Address:** bharpley@esandd.com.au**Accreditation No:** BFP – 140**Scope:** 1, 2, 3A and 3B**6. Certification**

I certify that in accordance with the authority given under Part 4A of the *Fire Service Act 1979* that the proposed use and development:

☐

Is exempt from the requirement Bushfire-Prone Areas Code because, having regard to the objective of all applicable standards in the Code, there is considered to be an insufficient increase in risk to the use or development from bushfire to warrant any specific bushfire protection measures, or

☒

The Bushfire Hazard Management Plan/s identified in Section 3 of this certificate is/are in accordance with the Chief Officer's requirements and compliant with the relevant **Acceptable Solutions** identified in Section 4 of this Certificate.

**Signed:**  
certifier

**Name:** Bruce Harpley**Date:** 12/08/2021**Certificate Number:** 7968-1

(for Practitioner Use only)

### Scope of Assessors Accreditation

**Bruce Harpley (BFP-140)** is accredited by the Chief Officer of the Tasmania Fire Service under Section 60B of the *Fire Service Act 1979* for scope of works:

- 1.** *Certify a Bushfire Hazard Management Plan for the purposes of the Building Act 2016*
- 2.** *Certify an Exemption from a Bushfire Hazard Management Plan for the purposes of the Building Act 2016 or the Land Use Planning and Approvals Act 1993*
- 3A.** *Certify a Bushfire Hazard Management Plan meets the Acceptable Solutions for Vulnerable Uses and Hazardous Uses for the purposes of the Land Use Planning and Approvals Act 1993.*
- 3B.** *Certify a Bushfire Hazard Management Plan meets the Acceptable Solutions for small subdivisions for the purposes of the Land Use Planning and Approvals Act 1993.*

Works performed by **Bruce Harpley (BFP-140)** that require Tasmania Fire Service endorsement:

- 3C.** *Certify a Bushfire Hazard Management Plan meets the Acceptable Solutions for large subdivisions for the purposes of the Land Use Planning and Approvals Act 1993.*
- 4.** *Certify an Emergency Management Strategy or Bushfire Emergency Plan*

### Disclaimer

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Bushfires in Tasmania are an unpredictable natural phenomenon and preparing a Bushfire Hazard Management Plan increases your chances of defending your property and assists in the protection the people whom frequent it. This Fire Hazard Management Plan in no way guarantees immunity from a bushfire in or around your property or the effects thereof.

Any measures implemented based on the advice from *Environmental Services and Design Pty Ltd*, is offered as potential methods of reducing your properties risk of fire damage only and is not to be relied upon as a total solution. It in no way guarantees that any or all buildings on site will survive the effects of a bushfire nor does it guarantee the safety and security of any individuals whom frequent the property.

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Each paragraph of this disclaimer shall be deemed to be separate and severable from each other. If any paragraph is found to be illegal, prohibited or unenforceable, then this shall not invalidate any other paragraphs.

### Re-Certification – Ability to Re-Evaluate

If in the event that the landowner requests a re-assessment of this plan due to a reduced or eliminated bushfire risk in the future; an Accredited Bushfire Assessor can over-ride any or all of the requirements or provisions of this plan. This provision serves to formally expunge any Part 5 Agreement with a Council Planning Authority (if placed on a Title as a condition of Permit) or to reduce the construction standards required under *AS3959 Construction of Buildings in Bushfire Prone Areas* (as amended) if the bushfire risk is reduced to **BAL – LOW** or a threat no longer exists.



## Section 1

### 1. Introduction

Environmental Services and Design Pty Ltd has been engaged by the owner to complete a bushfire hazard management assessment for a proposed 2 lot subdivision at Lot 2 Waverley Road Don.

The proposal consists of creation of 2 vacant lots with each lot containing a nominated building envelope.

Lot 1 building envelope is located in the northeast corner based on the recommendations of the geotechnical report by Geoton.

The lot 2 building envelope remains in the same location as nominated by the previous approved subdivision.

The purpose of this report is to document the assessment under Code C13 – Bushfire-Prone Areas Code of the Tasmanian Planning Scheme – Devonport and identify the bushfire attack level and any bushfire hazard management areas in accordance with AS3959.

## Section 2

### 2.1 Property Details

|                      |  |
|----------------------|--|
| Property Address     | Lot 2 Waverley Road DON                              |
| Certificate of Title | CT180138/2 PID 9510668                               |
| Type of Application  | Subdivision  |
| Area                 | Lot 1 – 0.876ha and Lot 2 –0.876ha                   |
| Zoning               | Zone 11 – Rural Living A                             |
| Surrounding Zoning   | Rural living and Agriculture                         |
| Planning Scheme      | Tasmanian Planning Scheme - Devonport                |
| Existing land Use    | Agriculture and residential                          |
| Proposed land use    | In accordance with Planning Scheme Zone 11 Use Table |

### 2.2 Surrounding land use

Surrounding land uses consist of developed and vacant rural living lots and agriculture.

## 2.3 Vegetation Assessment

### Lot 1

- North – low threat developed residential uses and road for 100m – then grassland,
- South – grassland 50m within boundary,
- East – road and low threat residential uses for 54m – then grassland.
- West – grassland over 100m within boundary.

### Lot 2

- Northeast – grassland;
- Northwest – grassland;
- Southeast – low threat residential use and road; and
- Southwest – grassland external to boundary.

## 2.4 Topography

The slope of both lots varies with slopes to Parkers Creek affecting both lots. Assessable vegetation slopes relative to each lot, over 100m, are as follows:

### Lot 1

- North – upslope,
- South – downslope 10<sup>0</sup>,
- East – downslope 5<sup>0</sup>,
- West – Upslope.

### Lot 2

- Northeast – Up slope;
- Northwest – Up slope;
- Southeast – Down slope 10<sup>0</sup>; and
- Southwest – 15<sup>0</sup> down slope

## 2.5 Water Supply

### Lot 1

There is a reticulated water supply available to the lot. Hydrants were observed on the western side of Don Road during the site assessment. One hydrant is located 15m north of the boundary and the second 100m north of the boundary.

Site measurements indicate that the furthest portion of proposed building envelope is within a 120m hose lay of the closest hydrant.



Hydrant north of lot 1

Reticulated water supply for lot 1 building envelope complies with the requirements of Code C13.4 of the Tasmanian Planning Scheme – Devonport.

### Lot 2

There is a reticulated water supply available to the lot. Hydrants were observed on the western side of Don Road during the site assessment. One hydrant is located 8m north of the boundary and the second 64m south of the boundary.

Site measurements indicate the hydrant is within a 120m hose lay of the furthest point of the proposed building envelope shown on the site plan.



Hydrant north of lot 2

Reticulated water supply for lot 2 building envelope complies with the requirements of Code C13.4 of the Tasmanian Planning Scheme – Devonport.

## 2.6 Access

### Lot 1

Subdivision proposal plan shows a proposed 5m wide all-weather access. Position of the proposed building envelope results in an access that is less than 30m in length.

As noted in section 2.5 access is not required for a fire appliance to access a static water supply.

Access for lot 1 complies with the requirements of Code C13.2 element A of the Tasmanian Planning Scheme – Devonport.

### Lot 2

Proposed access to lot 2 is shown on the subdivision proposal plan as 5m wide and all-weather construction. Site measurements indicate the access length will be 30m or greater.

As noted in section 2.5, although access will be 30m or more, access is not required for a fire appliance to access a static water supply.

Access for lot 2 complies with the requirements of Code C13.2 element A of the Tasmanian Planning Scheme – Devonport.



### 3.0 Site Assessment

A site assessment was carried out on 21 July 2021 and risk assessment conducted 12 August 2021. The subdivision proposal plan, drawing number 1886-D01, prepared by Land and Sea Surveys, is at attachment A.



North from lot 1



South from lot 1



West – lot 1



Northeast and northwest grassland



Southwest grassland

### 3.1 Fire Danger Index

The fire danger index as per Table 2.1 AS3959 for Tasmania is 50.

3.2 BAL Assessment – Lot 1

|  |  |  |  |  |
|--|--|--|--|--|
| Vegetation classification<br>(refer Table 2.3) | North <input checked="" type="checkbox"/>                          | South <input checked="" type="checkbox"/>    | East <input checked="" type="checkbox"/>       | West <input checked="" type="checkbox"/>       |
|  | North East <input type="checkbox"/>                                | South West <input type="checkbox"/>          | South East <input type="checkbox"/>            | North West <input type="checkbox"/>            |
| Group A Forest                                 |  |  |  |  |
| Group B Woodland                               |  |  |  |  |
| Group C Scrub land                             |  |  |  |  |
| Group D Scrub                                  |  |  |  |  |
| Group E Mallee/Mulga                           |  |  |  |  |
| Group F Rainforest                             |  |  |  |  |
| Group G Grassland                              |  | X  | X (54m)  | X  |
| Low threat vegetation                          | X  |  | X  |  |
| Exclusions                                     | Insert relevant exclusion paragraph descriptor from clause 2.2.3.2 |  |  |  |
|  | f  |  | e & f  |  |
| Prevailing winds                               | <input type="checkbox"/>   | <input type="checkbox"/>                     | <input type="checkbox"/>                       | <input checked="" type="checkbox"/>            |
| Distance to classified vegetation              | Show distance in metres  |  |  |  |
|  | 100m   | 19m  | 54m  | 13m  |
| Effective Slope                                | Upslope  |  |  |  |
| Slope under the classified vegetation          | Upslope/0° <input checked="" type="checkbox"/>                     | Upslope/0° <input type="checkbox"/>          | Upslope/0° <input checked="" type="checkbox"/> | Upslope/0° <input checked="" type="checkbox"/> |
|  | North <input checked="" type="checkbox"/>                          | South <input checked="" type="checkbox"/>    | East <input checked="" type="checkbox"/>       | West <input checked="" type="checkbox"/>       |
|  | North East <input type="checkbox"/>                                | South West <input type="checkbox"/>          | South East <input type="checkbox"/>            | North West <input type="checkbox"/>            |
|  | Downslope  |  |  |  |
|  | >0 to 5 <input type="checkbox"/>                                   | >0 to 5 <input type="checkbox"/>             | >0 to 5 <input type="checkbox"/>               | >0 to 5 <input type="checkbox"/>               |
|  | >5 to 10 <input type="checkbox"/>                                  | >5 to 10 <input checked="" type="checkbox"/> | >5 to 10 <input type="checkbox"/>              | >5 to 10 <input type="checkbox"/>              |
|  | >10 to 15 <input type="checkbox"/>                                 | >10 to 15 <input type="checkbox"/>           | >10 to 15 <input type="checkbox"/>             | >10 to 15 <input type="checkbox"/>             |
|  | >15 to 20 <input type="checkbox"/>                                 | >15 to 20 <input type="checkbox"/>           | >15 to 20 <input type="checkbox"/>             | >15 to 20 <input type="checkbox"/>             |
| BAL Value for each side of site                | Low  | 12.5   | Low  | 12.5   |



3.2 BAL Assessment – Lot 2

| Vegetation classification<br>(refer Table 2.3) | North<br>North East <input checked="" type="checkbox"/>                  | South<br>South West <input checked="" type="checkbox"/> | East<br>South East <input checked="" type="checkbox"/>  | West<br>North West <input checked="" type="checkbox"/> |
|--|--|---|---|--|
| Group A<br>Forest                              |  |   |   |  |
| Group B<br>Woodland                            |  |   |   |  |
| Group C<br>Scrub land                          |  |   |   |  |
| Group D<br>Scrub                               |  |   |   |  |
| Group E<br>Mallee/Mulga                        |  |   |   |  |
| Group F<br>Rainforest                          |  |   |   |  |
| Group G<br>Grassland                           | <b>X</b>   | <b>X</b>  |   | <b>X</b>   |
| Low threat<br>vegetation                       |  |   | <b>X</b><br>(developed<br>residential uses and<br>road) |  |
| Exclusions                                     | Insert relevant exclusion<br>paragraph descriptor from<br>clause 2.2.3.2 |   |   |  |
| Prevailing winds                               | <input type="checkbox"/>   | <input type="checkbox"/>                                | <input type="checkbox"/>                                | <input checked="" type="checkbox"/>                    |
| Distance to<br>classified<br>vegetation        | Show distance in<br>metres   |   |   |  |
|  | 10m  | 15m   | 6m  | 10m  |
| Effective Slope                                | Upslope  |   |   |  |
| Slope under the<br>classified<br>vegetation    | Upslope/0° <input checked="" type="checkbox"/>                           | Upslope/0° <input type="checkbox"/>                     | Upslope/0° <input checked="" type="checkbox"/>          | Upslope/0° <input checked="" type="checkbox"/>         |
|  | North <input type="checkbox"/>   | South <input type="checkbox"/>                          | East <input type="checkbox"/>                           | West <input type="checkbox"/>                          |
|  | North East <input checked="" type="checkbox"/>                           | South West <input checked="" type="checkbox"/>          | South East <input checked="" type="checkbox"/>          | North West <input checked="" type="checkbox"/>         |
|  | Downslope  |   |   |  |
|  | >0 to 5 <input type="checkbox"/>   | >0 to 5 <input type="checkbox"/>                        | >0 to 5 <input type="checkbox"/>                        | >0 to 5 <input type="checkbox"/>                       |
|  | >5 to 10 <input type="checkbox"/>  | >5 to 10 <input type="checkbox"/>                       | >5 to 10 <input type="checkbox"/>                       | >5 to 10 <input type="checkbox"/>                      |
|  | >10 to 15 <input type="checkbox"/>                                       | >10 to 15 <input checked="" type="checkbox"/>           | >10 to 15 <input type="checkbox"/>                      | >10 to 15 <input type="checkbox"/>                     |
|  | >15 to 20 <input type="checkbox"/>                                       | >15 to 20 <input type="checkbox"/>                      | >15 to 20 <input type="checkbox"/>                      | >15 to 20 <input type="checkbox"/>                     |
| BAL Value for<br>each side of site             | <b>19</b>  | <b>19</b>   | <b>low</b>  | <b>19</b>  |

### 3.3 Risk Assessment

In relation to lot 1 the following factors have been considered:

- Assessed vegetation is grassland to the west,
- Low threat residential development to the north, south and west,
- Reticulated water supply for firefighting complies with the requirements of Code C13.4 of the Tasmanian Planning Scheme – Devonport,
- Access complies with the requirements of Code C13.2 element A of the Tasmanian Planning Scheme – Devonport,
- Lot 1 overall BAL rating of 12.5.

Lot 1 can achieve hazard management distances equal to or greater than BAL 19.

The risk mitigation in relation to water supply for firefighting is the hydrant within 120m hose lay of the furthest portion of the building envelope.

It is appropriate that hazard management areas be maintained around the building envelope as shown on the accompanying hazard management plan.

In relation to lot 2 the following factors have been considered:

- Proposed subdivision is within an existing rural living zone,
- Assessed vegetation is grassland,
- Access is 30m in length or greater however access is not required to a static water supply,
- Access complies with the requirements of Code C13.2 element A of the Tasmanian Planning Scheme – Devonport,
- Reticulated water supply for firefighting complies with the requirements of Code C13.4 of the Tasmanian Planning Scheme – Devonport,
- Lot 2 has an overall BAL rating of 19.

Lot 2 can achieve hazard management distances for BAL 12.5 within the boundaries of the lot.

The risk mitigation in relation to water supply for firefighting is the hydrant within 120m hose lay of the furthest portion of the building envelope.

It is appropriate that hazard management areas be maintained around the building envelope as shown on the accompanying hazard management plan.

### 3.4 Conclusion

Adequate hazard management areas can be created within lots 1 and 2 to meet the requirements of Tasmanian Planning Scheme – Devonport Code C13 Bushfire-Prone Areas Code.

This report must be read in conjunction with the requirements of the associated bushfire hazard management plan.

### 4.0 Bushfire Hazard Management Plan

A bushfire hazard management plan is required and shows the required hazard management areas for lots 1 and 2.

#### **NOTE**

The bushfire hazard management plan is a separate document.

The bushfire hazard management plan must be read in conjunction with this risk assessment report.

## **Bushfire Hazard Management Plan**

### **Hazard management areas and specification**

**Lot 2 (CT 180138/2) Waverley Road DON**  
180138/2 (PID 9510668)



**Assessor:** Bruce Harpley BFP-140

**Scope of works:** 1, 2, 3a and 3b

**Documents:** Subdivision Proposal Plan – Land and Sea Surveys


**Regulatory Requirement:** Tasmanian Planning Scheme - Devonport – Zone  
11 Rural Living A  
Code C13 – Bushfire-Prone Areas Code

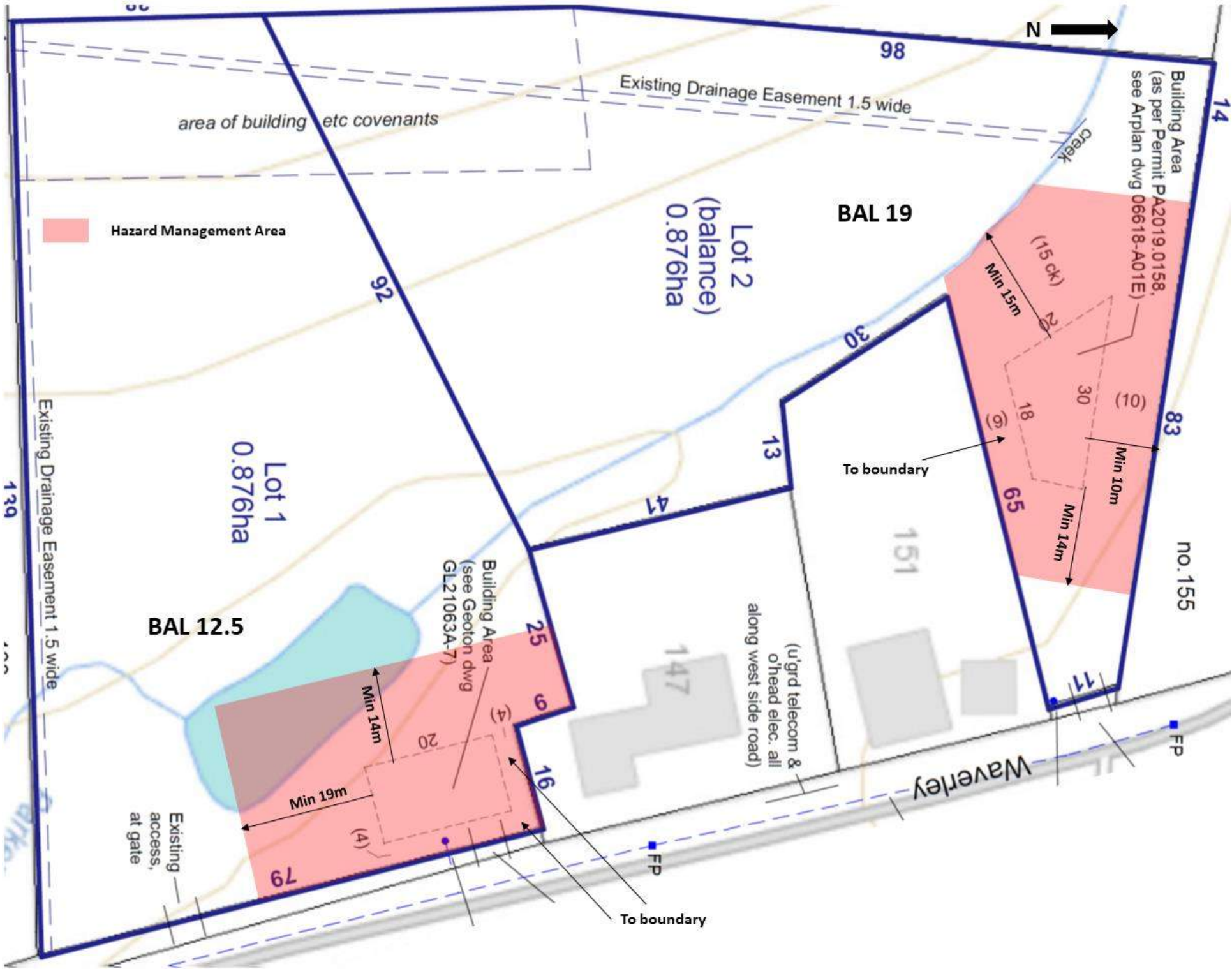
**Date:** 12 August 2021

**Associated Bushfire Hazard Report:** Version 1 12 August 2021

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|  |  |
|--|--|
| <div>Environmental Services and Design Pty Ltd<br/>PO Box 651<br/>BURNIE TAS 7320 <a href="http://www.esandd.com.au">www.esandd.com.au</a><br/>(03) 6431 2999</div> <div></div> | <b>Bushfire Hazard Management Plan</b><br><b>Hazard Management Areas</b><br><b>Lot 2 Waverley Road DON</b> |
|  | Title Reference: CT 180138/2   |



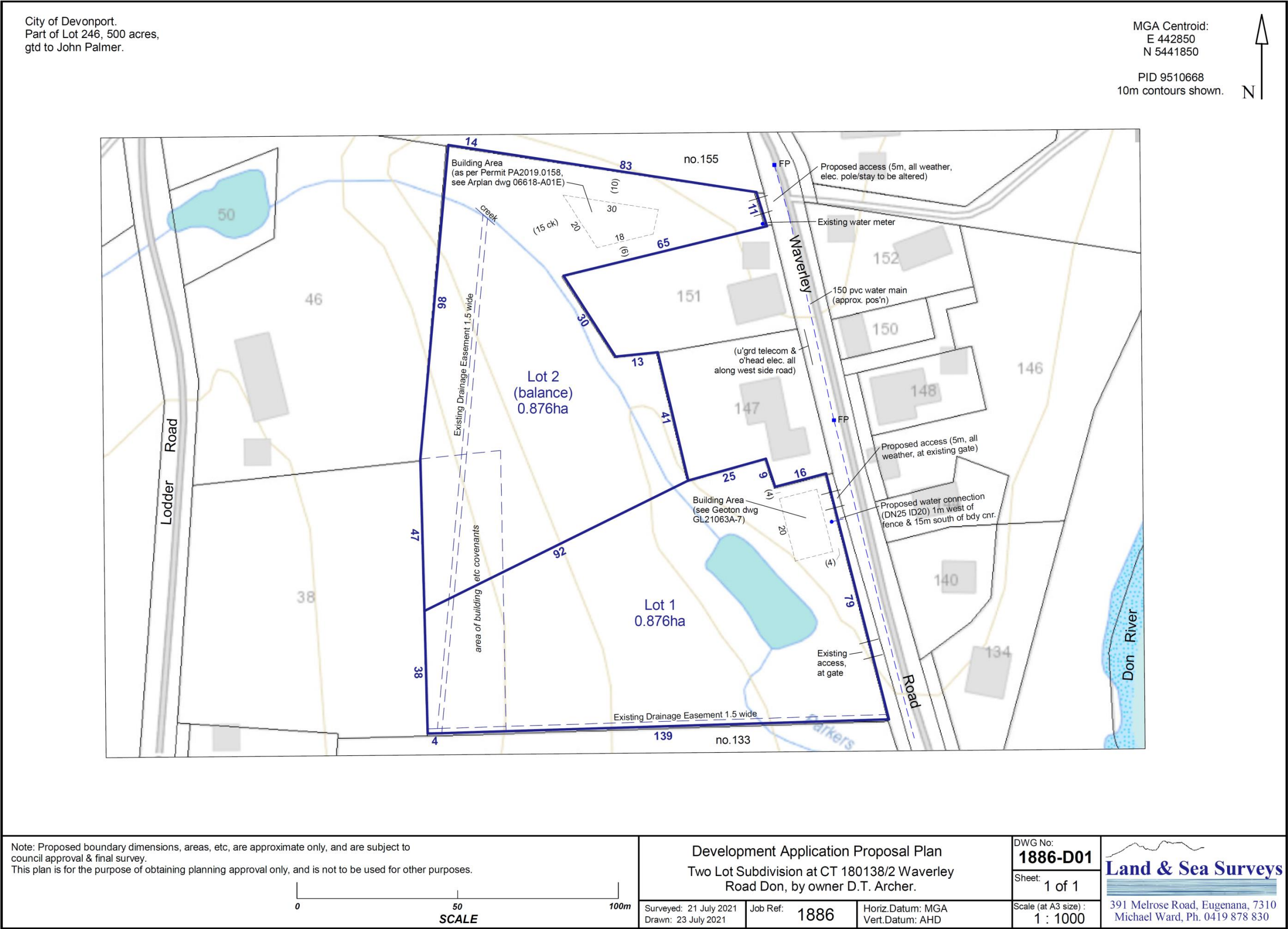
|  |   |  |
|--|---|--|
| This plan has been prepared only for the purpose of complying with E1 Bushfire-Prone Areas Code and the information shown hereon must not be used for any other purpose. All dimensions and areas are in meters. | Scale: NTS    Drawing No: 7755-1    Date: 28 May 2021 | Drawn: Bruce Harpley BFP-140    Revision No: 1 |
|  |   |  |

This Bushfire Hazard Management Plan must be read in conjunction with the requirements detailed in **Attachment B** of this plan

|  |  |   |
|--|--|---|
| <p>Environmental Services and Design Pty Ltd<br/>PO Box 651 BURNIE TAS 7320 <a href="http://www.esandd.com.au">www.esandd.com.au</a><br/>(03) 6431 2999</p>   | <p align="center"><b>Bushfire Hazard Management Plan</b></p> <p align="center"><b>Specification</b></p> <p align="center"><b>Lot 2 Waverley Road DON</b><br/>Title Reference: 180138/2</p>   |   |
| <p><b>1.1 Introduction</b></p> <p>The Bushfire Attack Level (BAL) assessment is for the proposed 2 lot subdivision Lot 2 Waverley Road DON.</p> <p>The development will have a Hazard Management Area (HMA) surrounding the features identified on Drawing No: <b>7968-1</b>.</p> <p>Vegetation greater than 1Ha within 100m (50m grassland) of the proposal site was assessed against the Acceptable Solutions Criteria of the municipal planning scheme. AS3959-2009 was used to assign a BAL level to the development utilising a range of data specific to the subject site.</p> <p><b>1.2 Water Supply</b></p> <p>The subject lots are connected to municipal water supply and there are fire hydrants located within a 120m hose lay of the building envelopes for each lot.</p> <p>Reticulated water supply for firefighting complies with the requirements of Code C13.4 of the Tasmanian Planning Scheme – Devonport.</p> <p>No action is required.</p> <p><b>1.3 Access</b></p> <p>Road access is via <b>Waverley Road</b> which is a Council maintained roadway that complies with municipal standards.</p> <p>Access to lots 1 and 2 for fire appliances is not required to the static water supply for firefighting purposes.</p> <p>Access to lot 1 and 2 complies with the requirements of Code C13.2 element A of the Tasmanian Planning Scheme – Devonport.</p> <p>No action is required.</p> <p>Egress from the site is via a <b>CLASS 4A</b> road which is constructed to Standards enabling safe passage for a variety of vehicle sizes through to a State road.</p> | <p><b>1.4 Landscaping</b></p> <p>It is the responsibility of the landowner to maintain the landscaping in accordance with the Bushfire Hazard Management Plan.</p> <p>All paths and pedestrian areas within 1m of any habitable structure on the subject site must be constructed of non- combustible materials (i.e. stone, paving, concrete, pebbles etc.).</p> <p>Vegetation along pathways should be of a low flammability type and in accordance with the Tasmania Fire Services’ brochure - Fire Retardant garden plants. Plants that produce a lot of debris or fine fuels should be avoided. Trees and shrubs that retain dead material in branches, or which shed long strips of bark, or rough fibrous bark, or large quantities of leaves should be avoided.</p> <p>Vines on walls or tree canopies over roofed areas should be avoided. Timber, woodchip and flammable mulches cannot be used and brush and timber fencing should be avoided.</p> <p><b>1.5 Hazard Management Area (HMA)</b></p> <p>A bushfire Hazard Management Area (HMA) must be developed within and/or up to the property boundaries for each lot as shown on Drawing No <b>7968-1</b>.</p> <p>The specified width of the HMA is to enable:</p> <p>Lot 1 building envelope to comply, in the position shown on the plan of subdivision, as required by Code C13 with a rating of <b>BAL 12.5</b>.</p> <p>Lot 2 building envelope to comply, in the position shown on the plan of subdivision, as required by Code C13 with a rating of <b>BAL 19</b>.</p> <p>This area is to be regularly maintained and managed and in particular between the months of September and March in each calendar year. Landscaping in the HMA is to be minimised, grass maintained to a maximum height of 50mm with fuel loads not exceeding 2 tonnes per hectare.</p> | <p>Pathways and landscaping material surrounding any habitable structures must be of non-combustible elements for a minimum of 1m from any external walls or decks.</p> <p>This BHMP is achieved by:</p> <ul style="list-style-type: none"> <li>• Pathways located on the subject land to be of non-combustible materials</li> <li>• Fuel loads to be kept to less than 2 tonnes per hectare</li> <li>• Total shrub cover is to be kept to a maximum of 20% of the available area.</li> <li>• Clear space from any habitable structures of at least 4 times the mature height of any shrubs planted</li> <li>• Shrubs must not be planted in cluster forms or clumps</li> <li>• Remove ground level fuels and trim the bottom of tree canopies to at least a height of 2m off ground level</li> <li>• Minimise ground level fuels wherever possible.</li> </ul> <p><b>1.6 Maintenance prior to the onset of each fire season</b></p> <ul style="list-style-type: none"> <li>• Guttering on all habitable structures must be inspected and cleared of debris annually</li> <li>• Ensure all hoses and brass connections are in good working order</li> <li>• All valley and wall/roof junctions are inspected and debris removed,</li> <li>• Roof sheeting inspected for damages or dislodged roofing materials (replace if necessary)</li> <li>• Painted surfaces are in good condition and decaying timbers given particular attention to repair</li> <li>• Screens/shutters on windows and doors are in good working condition and fit well without breaks, holes or tares.</li> <li>• Door mats to be of non-combustible materials</li> <li>• Woodpiles, garden sheds and other combustible materials to be kept well away from habitable structures.</li> </ul> |



Attachment A – Plan of Subdivision



**GEOTON** Pty Ltd  
**Geotechnical Consultants**

**Geoton Pty Ltd** ABN 81 129 764 629  
PO Box 522 Prospect TAS 7250  
Unit 24, 16-18 Goodman Court  
Invermay TAS 7248  
Tel (+61) (3) 6326 5001  
**[www.geoton.com.au](http://www.geoton.com.au)**

24 March 2021

Reference No. GL21063Ab

Mr Darryl Archer  
209 West Pine Road  
PENGUIN TAS 7316

Dear Sir

**RE: Landslide Risk Assessment, Site Classification and Onsite Wastewater  
Disposal Assessment and Design  
Lot 2 Waverley Road, Don**

We have pleasure in submitting herein our report detailing the results of the geotechnical investigation conducted at the above site.

Should you require clarification of any aspect of this report, please contact Sean Shahandeh or the undersigned on 03 6326 5001.

For and on behalf of

**Geoton Pty Ltd**



**Tony Barrieria**

Director – Principal Geotechnical Engineer

Landslide Risk Assessment, Site Classification and Onsite Wastewater Disposal Assessment and Design

## 1 INTRODUCTION

A limited scope investigation has been conducted for Mr Darryl Archer at the site of a proposed residential development at Lot 2 Waverley Road, Don.

It is understood that the Council has indicated that Lot 2 Waverley Road is located within an area of doubtful stability, and as such a landslide risk assessment is required to satisfy ground hazard code requirements (Code E6) for the Central Coast Interim Planning Scheme.

The investigation has been conducted to provide the following:

- A landslide risk assessment;
- An assessment of the general subsurface conditions at the site and consequently assigning a Site Classification in accordance with AS 2870 – 2011 “Residential Slabs and Footings”;
- An assessment of the surrounding topography and provide a Wind Classification in accordance with AS 4055:2012 “Wind Loads for Housing”; and
- The suitability of the site for disposal of domestic wastewater and the design of an on-site wastewater disposal system in accordance with AS/NZS 1547:2012 “On-site domestic wastewater management”.

No site plan was provided; however, based on on-site discussion with the client, we understand that the building envelope will be to the east and upslope of a small dam adjacent to Waverley Road.

### 1.1 Previous Landslide Risk Assessment

A landslide risk assessment for 38 Lodder Road, inclusive of Lot 2, was previously undertaken by Geoton Pty Ltd, Report No. GL19100Ab, dated 12 June 2019. This report included a review of geomorphological features, subsurface conditions and historical photographs. The assessment concluded that the risk from landslides of the proposed building envelope within the site was **LOW**.

## 2 BACKGROUND

### 2.1 Geology

The Mineral Resources Tasmania (MRT) Tasmanian Landslide Map Series, Devonport – Geology Map, 1:25,000 Scale, indicates the proposed building envelope location is mapped as being underlain by Quaternary Period landslide deposits predominantly derived from weathered Tertiary rocks. An extract of the Geology Map is provided as Figure 1.

### 2.2 Landslide Susceptibility

Examination of the Land Information System Tasmania (LIST) Landslide Planning Map – Hazard Bands Overlay, indicates that the proposed building envelope is within a mapped medium landslide hazard band.

#### Landslide Risk Assessment, Site Classification and Onsite Wastewater Disposal Assessment and Design

Examination of the MRT Tasmanian Landslide Map Series, Devonport – Landslide Inventory Map, indicates the eastern portion of the site, including the proposed building envelope, is mapped within a deep-seated landslide feature of unknown activity (ID 791). The southern portion of the site is mapped within a possible landslide with the activity being unknown (Landslide ID No. 2773). A discrete recent or active landslide (ID 793) is mapped down slope of 151 Waverley Road on the bank of Parkers Creek. An extract of the Landslide Inventory Map is provided as Figure 2.

Examination of the MRT Tasmanian Landslide Map Series, Devonport – Geomorphology Map, 1:25,000 scale, indicates that the southernmost portion of the site is mapped within the head scarp and displaced mass of a possible landslide (ID 791). The eastern portion of the site is mapped within the displaced mass of a deep-seated landslide of unknown activity. An extract of the Geomorphology Map is provided as Figure 3.

Examination of the MRT Tasmanian Landslide Map Series, Devonport – Shallow Slide and Flow Susceptibility Map, indicates that the site has mapped low to high susceptibility source areas for shallow landslides. The proposed building envelope within the eastern portion of the site, is mapped within low to moderate susceptibility source areas for shallow landslides. An extract of the Shallow Slide and Flow Susceptibility Map is provided as Figure 4.

Examination of the MRT Tasmanian Landslide Map Series, Devonport – Deep Seated Landslide Susceptibility Map, indicates that the southernmost portion of the site and eastern portion of the site between Waverley Road and Parker Creek are mapped within a susceptibility zone for landslide reactivation. The steep slopes within the western portion of the site are mapped within a susceptibility source area for first time failure. Furthermore, the slopes along Parker Creek are mapped within a susceptibility runout area for first time failure. An extract of the Deep-Seated Landslide Susceptibility Map is provided as Figure 5.

### **3 FIELD INVESTIGATION**

The field investigation was carried out on 15 March 2021 and involved the drilling of 5 boreholes by 4WD mounted auger rig to auger refusal or investigated depths of 0.7m to 2.9m.

Insitu vane shear strength tests were conducted in the clay layers encountered in the investigation, with samples of these soils being obtained for subsequent laboratory testing.

The results of the field and laboratory tests are shown on the borehole logs.

The logs of the boreholes are included in Appendix A with their locations shown on Figure 6 attached.

Landslide Risk Assessment, Site Classification and Onsite Wastewater Disposal Assessment and Design

## **4 SITE CONDITIONS**

### **4.1 Site Description**

The site is located to the west of the Don River on a predominantly east facing hill slope between Lodder and Waverley Roads. Parkers Creek runs through the eastern portion of the site and into a small dam adjacent to Waverley Road. The eastern portion of the site (proposed building envelope) uphill of Parkers Creek is relatively smooth with a moderate westerly fall of 13° - 15°. The slopes on the western side of Parkers Creek generally have a cover of mature trees and grass and were found to be undulating.

No springs or seeps were observed within the proposed building envelope.

### **4.2 Subsurface Conditions**

The investigation indicated that the subsurface conditions were relatively uniform within the proposed building envelope. The boreholes encountered clayey silt topsoil to depths of 0.2m to 0.3, underlain by low to high plasticity clayey silt to the auger refusal depths of 0.7m to 2.9m.

The boreholes did not encounter any sign of seepage over the investigated depths.

Full details of soil conditions encountered are presented on the borehole logs.

An assessment of the plasticity characteristics of the materials encountered indicates that the clay soils at this site possess a high shrink/swell potential.

## **5 GEOLOGICAL MODEL**

From a review of available reports, geological maps and information collected during the investigation, a general geological model of the site has been inferred. Generally, the geology at the site comprises shallow Quaternary Period deposits underlain by Tertiary Period basalt.

Groundwater was not encountered in the investigation.

## **6 LANDSLIDE RISK ASSESSMENT**

Based on the geological and geomorphological settings of the site, the following possible landslide scenarios are identified for the site.

- Deep-seated/large-scale landslide occurs within the Quaternary Period deposits and/or Tertiary Period basalt affecting the proposed development; and
- Shallow/small-scale landslide occurs within the Quaternary Period deposits affecting the proposed development.

The qualitative likelihood, consequence and risk terms used in this report for risk to property are given in Appendix B. The risk terms are defined by a matrix that brings together different combinations of likelihood and consequence. Risk matrices help to communicate the results of risk assessment, rank risks, set priorities and develop transparent approaches to decision making. The notes attached to the tables and

## Landslide Risk Assessment, Site Classification and Onsite Wastewater Disposal Assessment and Design

terms and the comments on response to risk in Appendix B are intended to help explain the risk assessment and management process.

In light of the findings of this investigation (topography, stiff soils, no seepages, slope angles), the likelihood of small-scale failures occurring on the site affecting a residential development within the proposed building envelope at this site is considered UNLIKELY, whilst the likelihood of a larger scale failure occurring is considered RARE.

Accordingly, the likelihoods estimated for the possible landslide scenarios are summarised in Table 1 as follows.

**Table 1: Summary of Estimated Pre-existing Landslide Hazard**

| Possible Landslide Scenarios  | Indicative Annual Probability (pa) | Indicative Recurrence Interval (yrs) | Descriptor (AGS 2007c) |
|---|------------------------------------|--------------------------------------|------------------------|
| Deep-seated/large-scale landslide occurs within the Quaternary Period deposits and/or Tertiary Period basalt affecting the proposed development | $10^{-5}$                          | 100,000                              | Rare                   |
| Shallow/small-scale landslide occurs within the Quaternary Period deposits affecting the proposed development                                   | $10^{-4}$                          | 10,000                               | Unlikely               |

## 6.1 Incremental Landslide Hazards

The alterations to the site as a result of the proposed development can generally be classified into two categories:

- Disturbance to the site due to the proposed development; and
- Introduction of additional water into the ground affecting the groundwater regime.

It is considered that the proposed development would not adversely impact on the site and immediate surrounds nor significantly increase the pre-existing landslide hazard, provided that the development adheres to the principles of good hillside practice and the recommendations provided below.

The site is not within a sewer serviced subdivision and domestic effluent shall be disposed of via an Aerated Wastewater Treatment System and a raised irrigation bed as described in Section 9 below to minimise the introduction of water into the ground at the site. Stormwater runoff should be piped to the exiting watercourse within the site.

## 6.2 Landslide Consequences

The proposed development is the element at risk for this assessment.

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The landslide consequences for different scenarios are summarised in Table 2 as follows.

**Table 2: Summary of Consequences for Different Landslide Scenarios**

| Possible Landslide Scenarios  | Assessed Landslide Consequences  | Descriptor (AGS 2007c) |
|---|--|------------------------|
| Deep-seated/large-scale landslide occurs within the Quaternary Period deposits and/or Tertiary Period basalt affecting the proposed development | The landslide may significantly displace the footing system of the proposed development causing major damage | Major                  |
| Shallow/small-scale landslide occurs within the Quaternary Period deposits affecting the proposed development                                   | The landslide may displace the footing system of the proposed development causing minor to medium damage     | Minor to Medium        |

### 6.3 Landslide Risk to Property

Based on the outcomes of the landslide hazard and landslide consequence assessments detailed above, the assessed landslide risks to property are summarised in Table 3 as follows.

**Table 3: Summary of Assessed Landslide Risks to Property (AGS 2007c)**

| Possible Landslide Scenarios  | Assessed Landslide Hazards | Assessed Landslide Consequences | Qualitative Landslide Risk to Property |
|---|----------------------------|---------------------------------|--|
| Deep-seated/large-scale landslide occurs within the Quaternary Period deposits and/or Tertiary Period basalt affecting the proposed development | Rare                       | Major                           | <b>Low</b>                             |
| Shallow/small-scale landslide occurs within the Quaternary Period deposits affecting the proposed development                                   | Unlikely                   | Minor to Medium                 | <b>Low</b>                             |

The **acceptable** qualitative risk to property criteria suggested by AGS is **LOW**, given that the element at risk is a proposed low-rise residential development located on an existing slope.

Therefore, subject to compliance with the recommendations within Section 7 of this report, the landslide risks to property are assessed as **acceptable** for the identified elements at risk.

Landslide Risk Assessment, Site Classification and Onsite Wastewater Disposal Assessment and Design

## 6.4 Landslide Risk to Life

The person considered most at risk is a resident living in the proposed development.

The landslide risk to life for the identified person most at risk is calculated in Table 4 as follows.

**Table 4: Landslide Risk to Life for Person Most at Risk**

| Possible Landslide Scenarios  | Adopted Annual Landslide Probability, P(H) | Spatial Probability of Landslide Impacting Buildings at Risk, P(S:H)   | Temporal Spatial Probability of Person Most at Risk at Buildings at Risk, P(T:S) | Vulnerability of Person Most at Risk, V(D:T)  | Risk to Life, R(LoL)                             |
|---|--|--|--|---|--|
| Deep-seated/large-scale landslide occurs within the Quaternary Period deposits and/or Tertiary Period basalt affecting the proposed development | 10 <sup>-5</sup>                           | 1.0 (Spatial Probability has been considered in the landslide hazards) | 0.67 (16hrs/day)   | 0.5 (Building suffers major damage but is unlikely to collapse, may cause injury but death is unlikely)                                   | 3.3 x 10 <sup>-6</sup>                           |
| Shallow/small-scale landslide occurs within the Quaternary Period deposits affecting the proposed development                                   | 10 <sup>-4</sup>                           |  |  | 0.005 to 0.05 (Building suffers minor to medium damage but is highly unlikely to collapse, may cause injury but death is highly unlikely) | 3.3 x 10 <sup>-7</sup> to 3.3 x 10 <sup>-6</sup> |
| Total: 3.6 x 10 <sup>-6</sup> to 6.7 x 10 <sup>-6</sup>   |  |  |  |   |  |

The tolerable risk to life criteria for the person most at risk suggested by AGS is  $10^{-5}$ , given that the development is a new development located on an existing slope. Acceptable risks are usually considered to be one order of magnitude lower than the tolerable risks, which in this case is  $10^{-6}$ . However, AGS suggests that, for most developments in existing urban areas, criteria based on Tolerable Risk Level is applicable. Given that the site is mapped within a Low-Density Residential Zone, the above criteria is also considered applicable.



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Therefore, subject to compliance with the recommendations within Section 7 of this report, the landslide risks to life are assessed as **tolerable** for the identified person most at risk.

## 7 DISCUSSION AND RECOMMENDATIONS

Based on the findings of the investigation and the above landslide risk assessment, we consider that the proposed development would not adversely impact on the site and immediate surroundings nor significantly increase its current assessed landslide risk ***provided the development adheres to the principles of good hillside practice and the recommendations below***. An information sheet entitled "Some Guidelines for Hillside Construction" adapted from the Journal of the Australian Geomechanics Society, Volume 42, Number 1, dated March 2007, is presented in Appendix C.

We recommend that:

### 7.1 Buildings

- All buildings must be located within the building envelope shown on Figures 6 & 7. Any development outside of the proposed building envelope will require further investigation;
- Flexible lightweight construction is preferred on this site, such as pole frame buildings;
- However, brick veneer can be considered provided the building is well articulated on a stiffened footing system;
- All footings for the proposed residence are to be socketed into the highly weathered rock (or better);
- The footing system should be designed by a suitably qualified engineer with consideration of the possible lateral loading of moving soil and the structure; and
- Surface water cut off drains should be provided uphill of any building.

### 7.2 Cuts and Fills

- Cuts and fills where less than 1.5m in height may be battered at slope angles no steeper than 1 vertical to 3 horizontal (1V:3H) for fill and 1V:2.5H for cuts, or alternatively these should be retained;
- Proposed cuts and fills greater than 1.5m in height should be reviewed by a qualified geotechnical engineer;
- All retaining walls greater than 1m in height shall be designed by a suitably qualified structural engineer;
- Adequate subsurface and surface drainage should be provided behind all retaining walls; and
- Excavations for the construction of retaining walls may result in a temporary reduction in the stability of the adjacent area particularly during wet weather until the wall is complete. This increased risk can be managed or reduced by appropriate construction planning, using temporary support, staged excavation, and control of drainage.

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### 7.3 Drainage

- All wastewater is to be disposed of using an Aerated Wastewater Treatment System (AWTS) and raised beds. All wastewater is to be disposed of within the area shown on Figure 7;
- Cut-off drains are to be installed above the proposed buildings and wastewater envelopes;
- All stormwater including cut off drains must be piped to Parkers Creek downstream of the existing dam located alongside Waverley Road;
- Collected runoff from paved surfaces such as driveways should be piped to the stormwater system;
- No uncontrolled discharge of collected surface water onto the ground surface or through absorption trenches is permitted on the site; and
- Should any seepage or groundwater be encountered during site or footing excavations, it is recommended that subsoil drainage be provided to discharge to the council stormwater or street drainage system.

## 8 SITE CLASSIFICATION

After allowing due consideration of the site geology, drainage and soil conditions, and as the proposed building envelope is within an area of doubtful stability the proposed building envelope has been classified as follows:

### **CLASS P (AS 2870)**

However, if footings are founded uniformly into the highly weathered or better rock, footings may be proportioned to a **CLASS A**.

Foundation designs in accordance with this classification are to be subject to the overriding conditions of the foundation section below.

This Classification is applicable only for ground conditions encountered at the time of this investigation. If cut or fill earthworks are carried out, then the Site Classification will need to be re-assessed, and possibly changed.

Landslide Risk Assessment, Site Classification and Onsite Wastewater Disposal Assessment and Design

## 9 FOUNDATIONS

Particular attention should be paid to the design of footings as required by AS 2870 – 2011.

In addition to normal founding requirements arising from the above classification, particular conditions at this site dictate that the founding medium for all footings would be as follows:

**BEDROCK (BASALT) – highly weathered or better,  
encountered below 0.6m (BH2) to 2.9m (BH3) from the existing ground surface**

An allowable bearing pressure of **500kPa** is available for deep edge beams, strips, pads and bored piers founded below the auger refusal depths as above.

The site classification presented assumes that the current natural drainage and infiltration conditions at the site will not be markedly affected by the proposed site development work. Care should therefore be taken to ensure that surface water is not permitted to collect adjacent to the structure and that significant changes to seasonal soil moisture equilibria do not develop as a result of service trench construction or tree root action.

Attention is drawn to Appendix B of AS 2870 and CSIRO Building Technical File BTF18 “Foundation Maintenance and Footing Performance: A Homeowner’s Guide” as a guide to maintenance requirements for the proposed structure.

Although the borehole data provides an indication of subsurface conditions at the site, variations in soil conditions may occur in areas of the site not specifically covered by the field investigation. The base of all footing or beam excavations should therefore be inspected to ensure that the founding medium meets the requirements referenced herein with respect to type and strength of founding material.

The boreholes were backfilled shortly after being drilled, not allowing time for groundwater seepage flows to develop. Groundwater seepages or higher groundwater levels can occur during and/or after a prolonged period of wet weather or a heavy rainfall event.

## 10 WIND CLASSIFICATION

After allowing due consideration of the region, terrain, shielding and topography, the site has been classified as follows:

### WIND CLASSIFICATION N3 (AS 4055)

| REGION | TERRAIN<br>CATEGORY | SHIELDING | TOPOGRAPHY |
|--------|---------------------|-----------|------------|
| A      | TC2                 | NS        | T2         |

Landslide Risk Assessment, Site Classification and Onsite Wastewater Disposal Assessment and Design

## 11 EFFLUENT DISPOSAL

The AS/NZS 1547:2012 provides a guide to typical wastewater flow allowances under a range of circumstances. The standard recommends a typical wastewater flow of 150L/person/day for households on reticulated town water. As the proposed development is to be a three-bedroom dwelling, a population equivalent of 5 has been adopted. As such, a wastewater daily flow of **750L/day** is required.

### 11.1 Permeability of Soil and Soil Classification

Based on the findings of the borehole investigation and the results of the permeability test, the soil has been classified as follows:

- Texture – Medium to Heavy Clay (Table E1 from AS/NZS 1547);
- Structure – Moderate (Table E4 from AS/NZS 1547); and
- Category – 6 (Table E1 from AS/NZS 1547).

The permeability of the site was tested to be <0.02m/day. For moderately structured Category 6 soils the indicative permeability ( $K_{sat}$ ) from AS/NZS1547 Table 5.1 is <0.06m/day. Therefore, the tested permeability is consistent with the indicative permeability.

- Adopted Permeability – 0.02m/day.

### 11.2 Disposal and Treatment Method

**As the site is within a landslide hazard band and contains Category 6 soils that have a very low permeability and limited available disposal area due to potential landslide no build areas and minimum required setbacks, primary treated effluent (e.g. septic tank and absorption trenches) will not be suitable for disposal within these soils.**

As such, the site is considered suitable for the disposal of domestic wastewater by way of an Aerated Wastewater Treatment System (AWTS) and a conventional distribution bed raised above the natural ground surface to allow the aerobic process and attenuation period to treat the effluent in a sand and gravel filter bed and reduce the size of the disposal field.

### 11.3 Design Loading Rate

From Table M1 (AS1547-2012) for Category 6 soils the design loading rate for secondary treated effluent is 2mm/day, however, as the proposed conventional raised bed will have 520mm of sand and gravel above the natural surface, the adopted DLR has been set at a conservative rate of 10mm/day.

Landslide Risk Assessment, Site Classification and Onsite Wastewater Disposal Assessment and Design

## 11.4 AWTs and Sub-Surface Irrigation

The Guidelines for the design of the conventional bed systems are outlined in AS/NZS 1547:2012 Appendix L. The method of determining the dimensions for the bed is outlined in AS/NZS 1547:2012 Section L4 and is as follows:

$$L = \frac{Q}{DLR \times W}$$

Where: L = Length in metres

Q = Design daily flow in L/day

DLR = Design Loading Rate in mm/day

W = Bed width in metres

As the DLR has been set at 10mm/day and the daily flow (Q) has been set at 750L/day, when the parameters are inserted in the above equation the bed dimensions required are as follows:

- Bed length = 10.0m
- Bed width = 7.5m
- Bed depth = 0.6m

This would give a disposal area of approximately 75m<sup>2</sup>.

Due to the proximity with Parkers Creek and the required setback, there is no secondary (back-up) area available, however, in case of a failing wastewater system, the disposal field (raised bed) can be demolished and rebuilt again in the same area.

Furthermore, the area initially investigated on the western bank for a disposal bed was deemed unsuitable because of the steep slopes within the western portion of the site being mapped within a susceptibility source area for first time failure, and also within a high susceptibility source area for shallow landslides.

The bed is to be located in the eastern bank area shown on the site plan.

The bed is to be constructed level on the slope and as per the layout and cross section provided on Figure 8 attached.

The area of the disposal field shall be vegetated with grasses or other suitable vegetation. A list of Tasmanian plants suitable for treated wastewater from AWTs units is attached as Appendix D.

The risk management process is an inherent part of the on-site wastewater disposal design. The on-site wastewater disposal system has been designed by considering the site characteristics and with risk identification in accordance with AS1547:2012. The risk reduction measures are detailed in the report and form the basis of the system selection and design.

**As part of the Building Act, the client must specify the AWTs model and provide the Certificate of Accreditation for that particular model before the proposed development gets approval. A list of accredited AWTs models can be found on the Tasmanian Consumer, Building and Occupational Services website.**

Landslide Risk Assessment, Site Classification and Onsite Wastewater Disposal Assessment and Design

<https://www.cbos.tas.gov.au/topics/technical-regulation/plumbing-standards/wastewater/aerated-wastewater-treatment-systems>

## 11.5 Setbacks

The minimum separation distances between the disposal area and downslope features are based on Appendix R from AS/NZS 1547:2012 "Recommended Setback Distances for Land Application Systems", and Section 3.1 from the *Building Act 2016*: Director's Guidelines for On-site Wastewater Management Systems As per the documents, the minimum setbacks are required:

- 15.0m from downslope sensitive features such as watercourses;
- 1.5m from property boundaries;
- 2.0m from downslope buildings; and
- 3.0m from downhill cut batters.

## 11.6 Wastewater Recommendations

It is recommended that the following actions are undertaken in looking after your system:

- Minimise domestic water use;
- Minimise the use of non-biodegradable detergents;
- Minimise the use of detergents containing phosphorous (e.g. Calgon or similar);
- Avoid discharging polluting chemicals into wastewater systems; and
- Monitor quality of groundwater.

### References:

Australian Geomechanics Society (2007) – Practice note guidelines for landslide risk management 2007, Australian Geomechanics Journal, Vol 42, No. 1

AS 1726 - 2017 Geotechnical Site Investigation

AS 2870 - 2011 Residential Slabs and Footings Construction

AS 4055 - 2012 Wind Loads for Housing

AS/NZS 1547- 2012 On-site domestic-wastewater management

*Building Act 2016*: Director's Guidelines for On-site Wastewater Management Systems

### Attachments:

Limitations of report

Figure 1: Site Geology

Figure 2: Landslide Inventory



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Figure 3: Geomorphology

Figure 4: Shallow Slide and Flow Susceptibility

Figure 5: Deep-Seated Landslide Susceptibility

Figure 6: Locality Plan

Figure 7: Site Plan

Figure 8: Raised Bed Section

Site photograph

Appendix A – Borehole Logs & Explanation Sheets

Appendix B – Qualitative Terminology for Use in Assessing Risk to Property

Appendix C – Some Guidelines for Hillside Construction

Appendix D – Example Plants

Appendix E – Certificate Forms



## Geotechnical Consultants - Limitations of report

These notes have been prepared to assist in the interpretation and understanding of the limitations of this report.

### **Project specific criteria**

The report has been developed on the basis of unique project specific requirements as understood by Geoton and applies only to the site investigated. Project criteria are typically identified in the Client brief and the associated proposal prepared by Geoton and may include risk factors arising from limitations on scope imposed by the Client. The report should not be used without further consultation if significant changes to the project occur. No responsibility for problems that might occur due to changed factors will be accepted without consultation.

### **Subsurface variations with time**

Because a report is based on conditions which existed at the time of subsurface exploration, decisions should not be based on a report whose adequacy may have been affected by time. For example, water levels can vary with time, fill may be placed on a site and pollutants may migrate with time. In the event of significant delays in the commencement of a project, further advice should be sought.

### **Interpretation of factual data**

Site assessment identifies actual subsurface conditions only at those points where samples are taken and at the time they are taken. All available data is interpreted by professionals to provide an opinion about overall site conditions, their likely impact on the proposed development and recommended actions. Actual conditions may differ from those inferred to exist, as it is virtually impossible to provide a definitive subsurface profile which includes all the possible variabilities inherent in soil and rock masses.

### **Report Recommendations**

The report is based on the assumption that the site conditions as revealed through selective point sampling are indicative of actual conditions throughout an area. This assumption cannot be substantiated until earthworks and/or foundation construction is almost complete and therefore the report recommendations can only be regarded as preliminary. Where variations in conditions are encountered, further advice should be sought.

### **Specific purposes**

This report should not be applied to any project other than that originally specified at the time the report was issued.

### **Interpretation by others**

Geoton will not be responsible for interpretations of site data or the report findings by others involved in the design and construction process. Where any confusion exists, clarification should be sought from Geoton.

### **Report integrity**

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way.

### **Geoenvironmental issues**

This report does not cover issues of site contamination unless specifically required to do so by the client. In the absence of such a request, Geoton take no responsibility for such issues.

## Figures



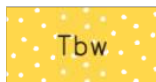
Approximate Scale (m)



MAP EXTRACT FROM - MRT TASMANIAN  
LANDSLIDE MAP SERIES : DEVONPORT -  
GEOLOGY



Quaternary Period landslide deposits predominantly derived  
from weathered Tertiary aged rocks



Tertiary aged deeply weathered basalt

|                       |                 |          |           |   |                     |
|-----------------------|-----------------|----------|-----------|---|---------------------|
| <b>GEOTON</b> Pty Ltd |                 |          |           | client: <b>MR DARRYL ARCHER</b>             |                     |
|                       |                 |          |           | project: <b>LOT 2 WAVERLEY ROAD<br/>DON</b> |                     |
| date                  | <b>24/03/21</b> | drawn    | <b>SS</b> | title: <b>GEOLOGY SHEET</b>                 |                     |
| scale                 | <b>As Shown</b> | approved | <b>TB</b> |   |                     |
| original size         | <b>A4</b>       | rev      |           | project no: <b>GL21063A</b>                 | figure no. <b>1</b> |
















Approximate Scale (m)

0 100 200

MAP EXTRACT FROM - MRT TASMANIAN  
LANDSLIDE MAP SERIES : DEVONPORT -  
LANDSLIDE INVENTORY

### Landslide Features

|   |                             |   |   |   |  |
|---|-----------------------------|---|---|---|--|
|  | Landslide, recent or active |  | Recent or active earth or debris flow.      |  | Earth or debris flow, activity unknown.    |
|  | Landslide, activity unknown |  | Recent or active rock or soil slide.        |  | Rock or soil slide, activity unknown       |
|  | Possible landslide          |  | Recent or active rock fall.                 |  | Rock fall, activity unknown.               |
|   |                             |  | Recent or active unclassified.              |  | Unclassified type, activity unknown.       |
|   |                             |  | Possible landslide, activity not specified. |  | Block or complex spread, activity unknown. |

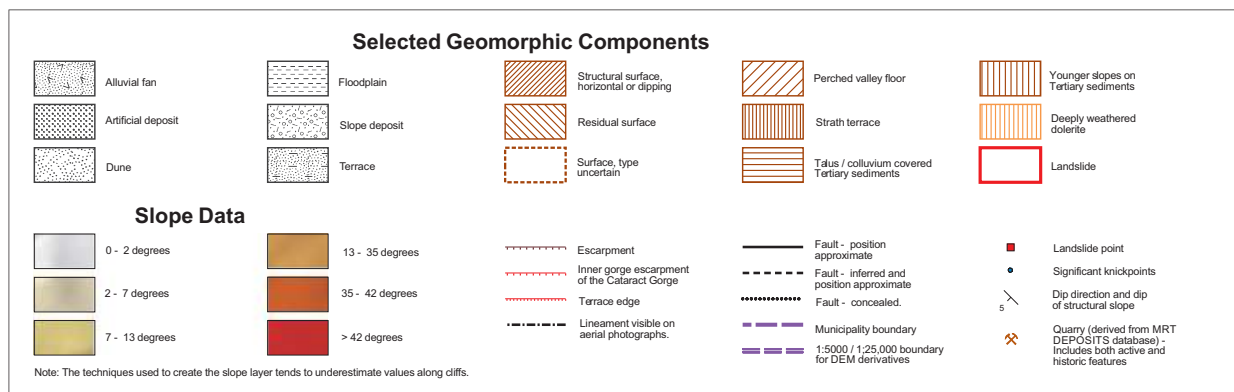
|                                      |          |          |    |                                     |              |
|--------------------------------------|----------|----------|----|-------------------------------------|--------------|
| <div>GEOTON</div> <div>Pty Ltd</div> |          |          |    | client: MR DARRYL ARCHER            |              |
|                                      |          |          |    | project: LOT 2 WAVERLEY ROAD<br>DON |              |
| date                                 | 24/03/21 | drawn    | SS | title: LANDSLIDE INVENTORY SHEET    |              |
| scale                                | As Shown | approved | TB |                                     |              |
| original size                        | A4       | rev      |    | project no: GL21063A                | figure no. 2 |



Approximate Scale (m)

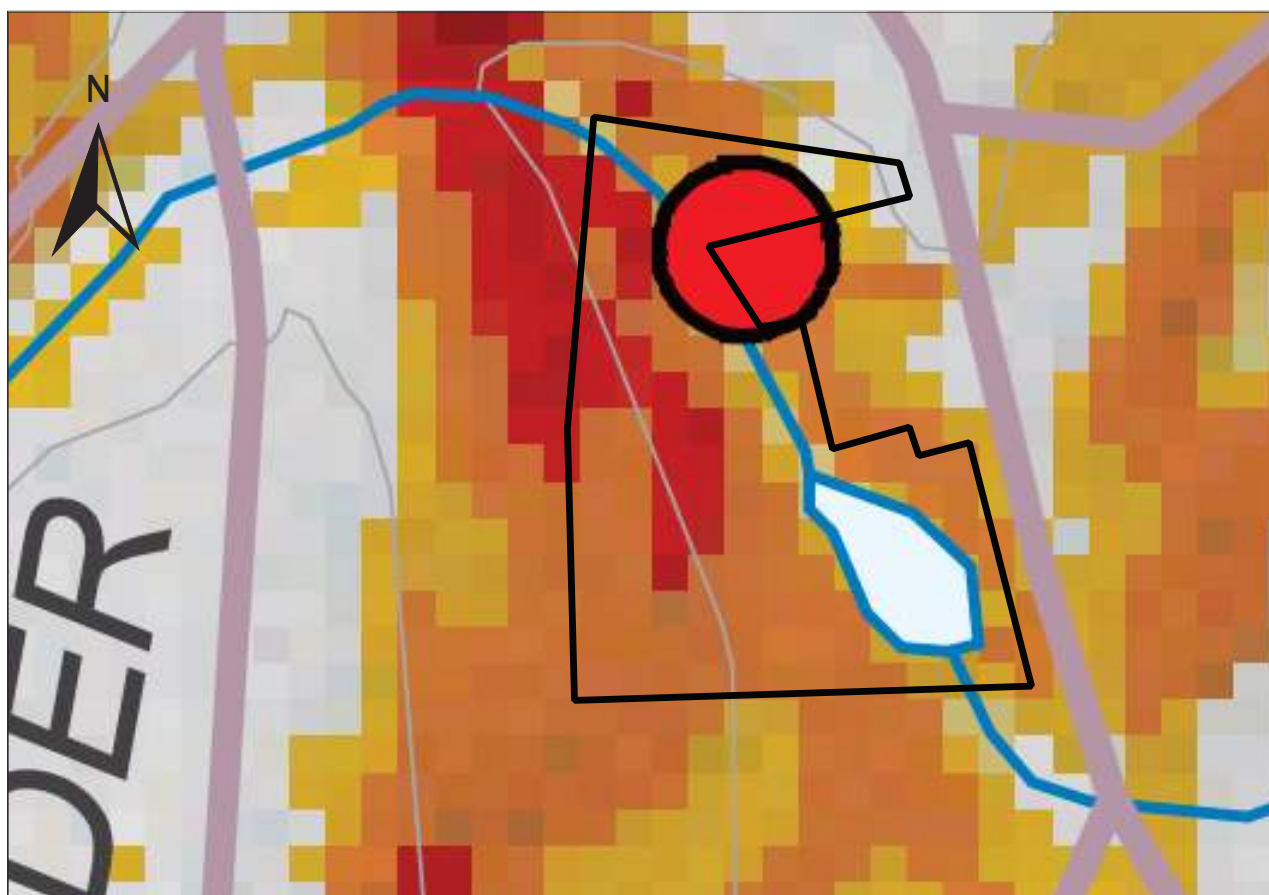
0 100 200

MAP EXTRACT FROM - MRT TASMANIAN  
LANDSLIDE MAP SERIES : DEVONPORT -  
GEOMORPHOLOGY



|                                      |          |          |    |   |                         |
|--------------------------------------|----------|----------|----|---|-------------------------|
| <div>GEOTON</div> <div>Pty Ltd</div> |          |          |    | client: <div>MR DARRYL ARCHER</div>             |                         |
|                                      |          |          |    | project: <div>LOT 2 WAVERLEY ROAD<br/>DON</div> |                         |
| date                                 | 24/03/21 | drawn    | SS | title: <div>GEOMORPHOLOGY SHEET</div>           |                         |
| scale                                | As Shown | approved | TB |   |                         |
| original size                        | A4       | rev      |    | project no: <div>GL21063A</div>                 | figure no. <div>3</div> |





Approximate Scale (m)

0 100 200

MAP EXTRACT FROM - MRT TASMANIAN  
LANDSLIDE MAP SERIES : DEVONPORT -  
SHALLOW SLIDE AND FLOW SUSCEPTIBILITY

### Susceptibility Zones

- High susceptibility source area
- Moderate susceptibility source area
- Low susceptibility source area
- Flow runout area

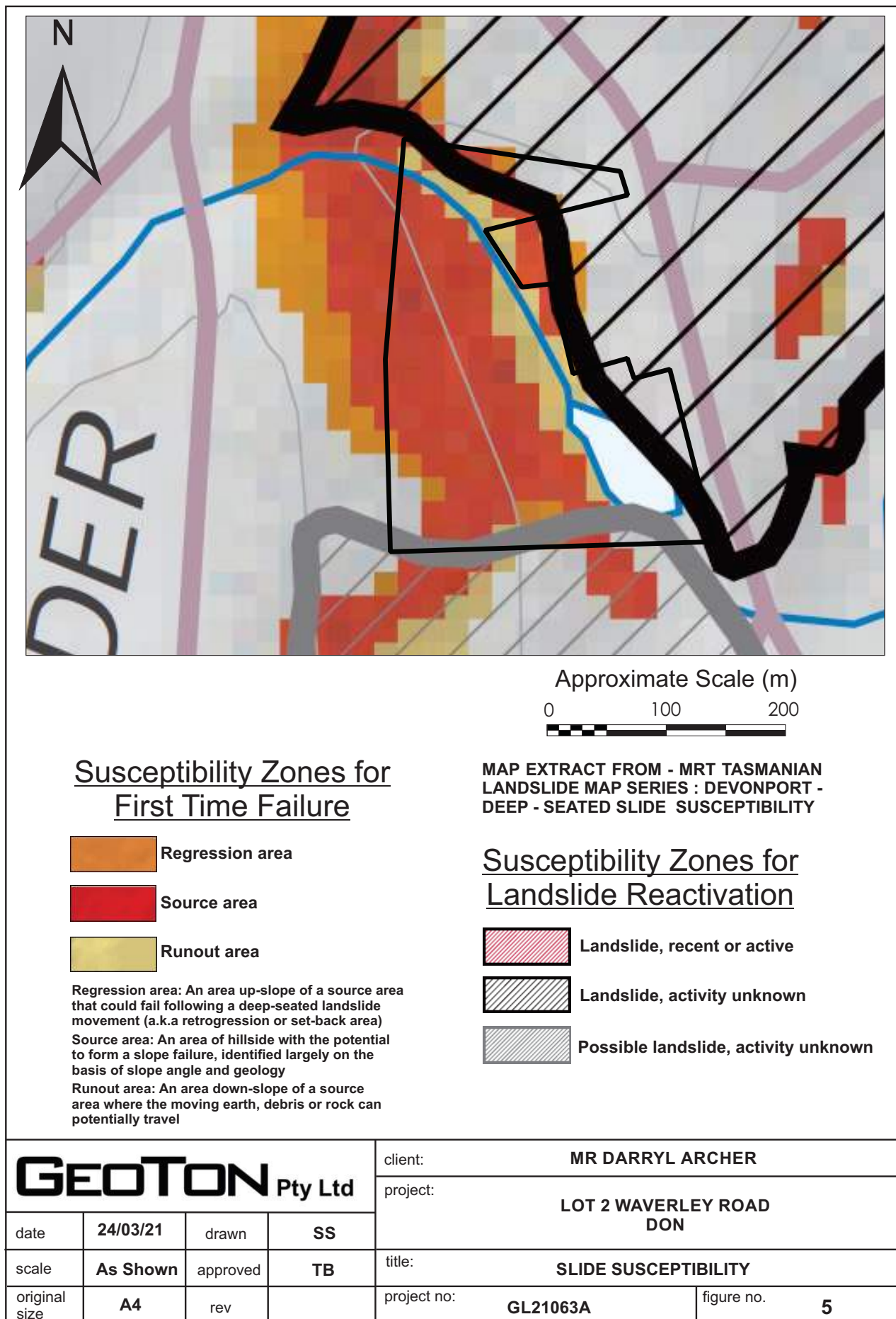
**Source area:** An area of hillside with the potential to form a slope failure, identified largely on the basis of slope angle and geology

**Runout area:** An area down-slope of a source area where the moving earth, debris or rock can potentially travel

### Shallow Slide or Flow Features

- Shallow slide or flow affected area
- Shallow slide, recent or active
- Shallow slide, activity unknown
- Earth or debris flow, recent or active
- Earth or debris flow, activity unknown
- Unclassified shallow slides or flows
- Spring or seep - which have a known association with landslides in many cases

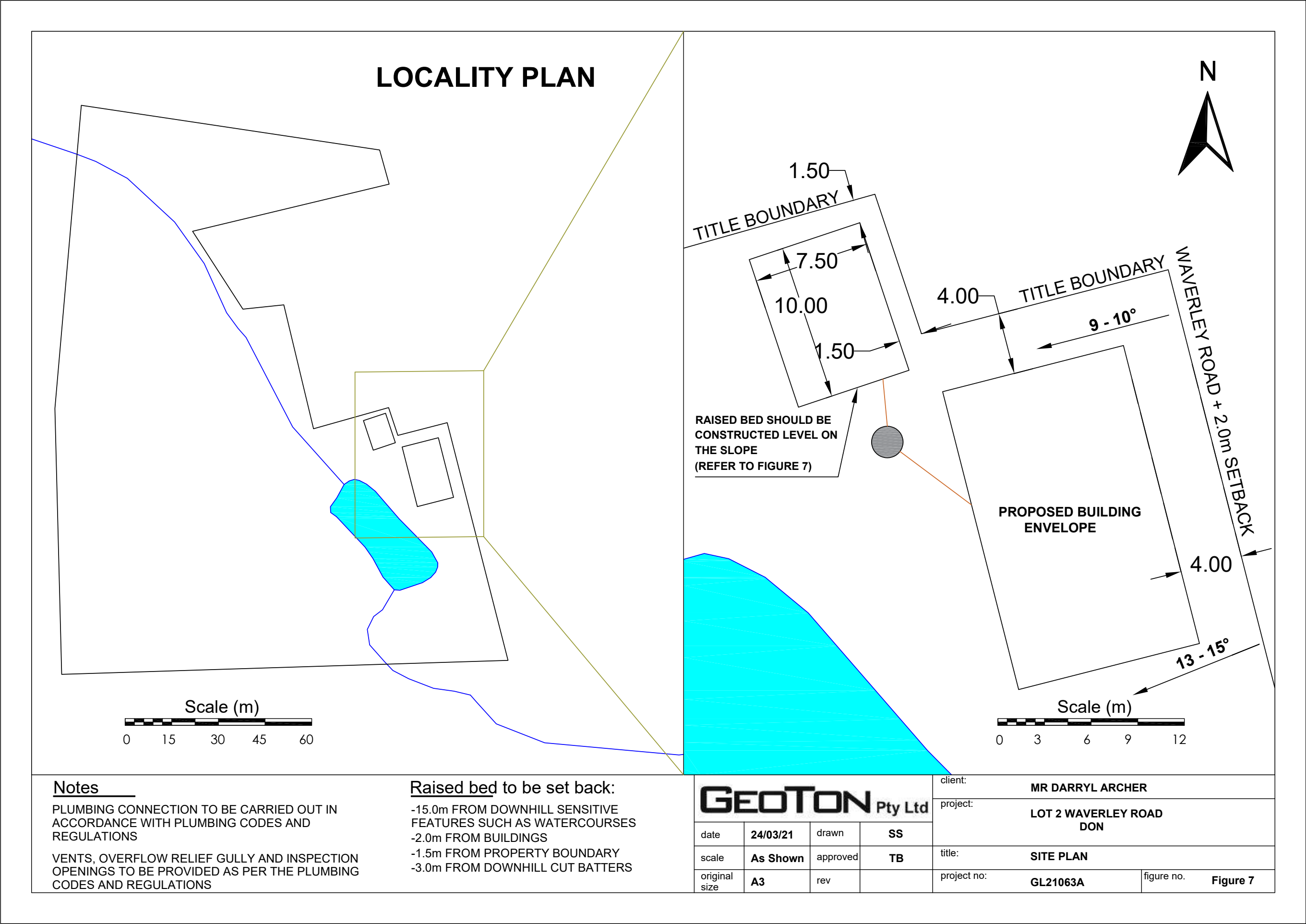
|                       |                 |          |           |   |                     |
|-----------------------|-----------------|----------|-----------|---|---------------------|
| <b>GEOTON</b> Pty Ltd |                 |          |           | client: <b>MR DARRYL ARCHER</b>                     |                     |
|                       |                 |          |           | project: <b>LOT 2 WAVERLEY ROAD<br/>DON</b>         |                     |
| date                  | <b>24/03/21</b> | drawn    | <b>SS</b> | title: <b>SHALLOW SLIDE AND FLOW SUSCEPTIBILITY</b> |                     |
| scale                 | <b>As Shown</b> | approved | <b>TB</b> |   |                     |
| original size         | <b>A4</b>       | rev      |           | project no: <b>GL21063A</b>                         | figure no. <b>4</b> |

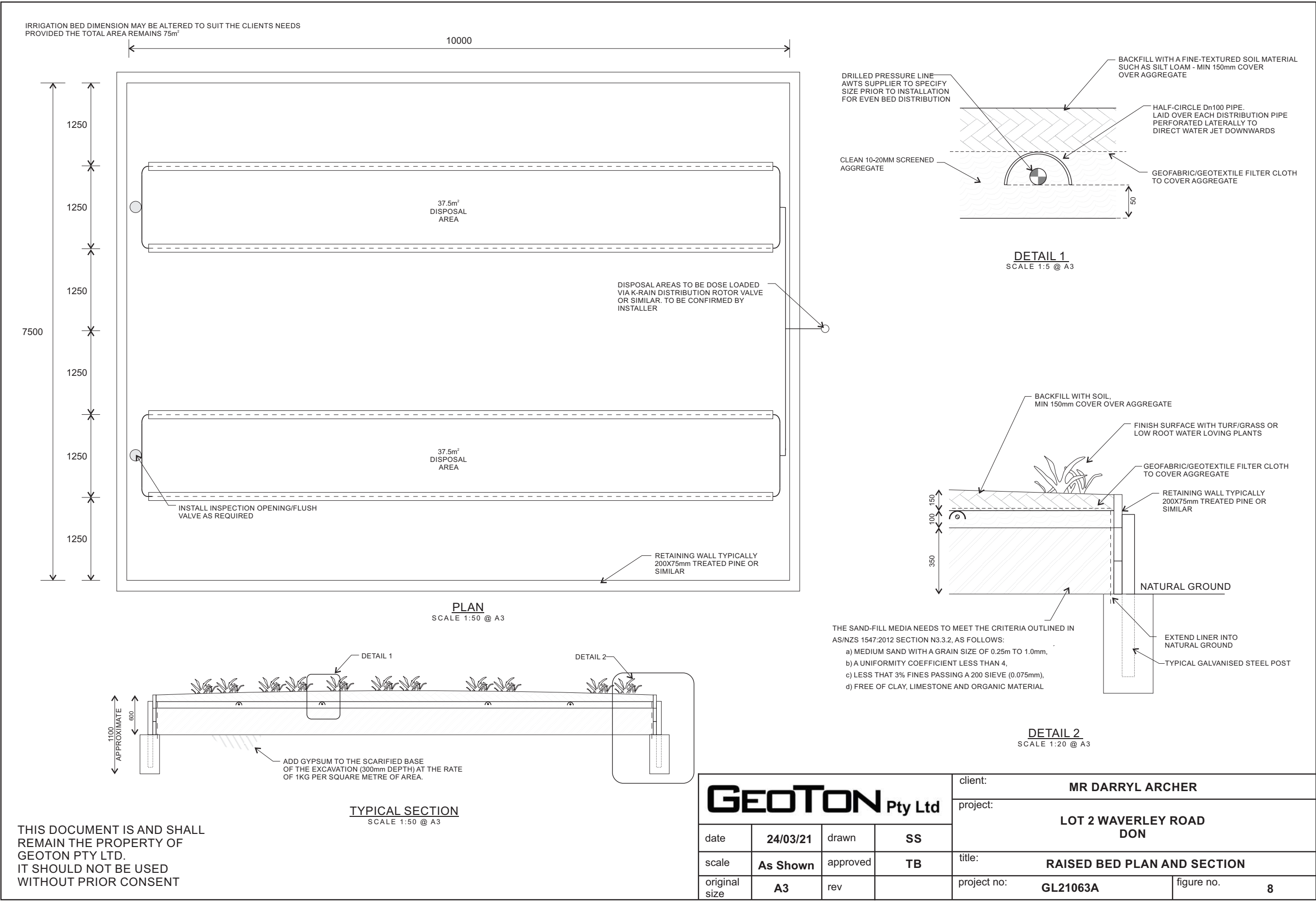














**PLATE 1 - View of the site looking to the south**



**PLATE 2 - View of the site looking to the southeast (from west bank)**

|                       |            |               |    |             |                            |                          |
|-----------------------|------------|---------------|----|-------------|----------------------------|--------------------------|
| <b>GEOTON</b> Pty Ltd |            |               |    | client:     | MR DARRYL ARCHER           |                          |
|                       |            |               |    | project:    | LOT 2 WAVERLEY ROAD<br>DON |                          |
| title: PHOTOGRAPH     |            |               |    | project no: | GL21063A                   | figure no. PLATE 1 AND 2 |
| date:                 | 15/03/2021 | original size | A4 |             |                            |                          |



# Appendix A

## **Borehole Logs**



## ENGINEERING BOREHOLE LOG

### Geotechnical Consultants

PO Box 522 Prospect TAS 7250

Unit 24, 16-18 Goodman Court, Invermay TAS

T (03) 6326 5001

Borehole no. BH1

Sheet no. 1 of 1

Job no. GL21063A

| Client :        |         | Mr Darryl Archer   |       |                  |           | Date : 15/03/2021 |   |   |                    |                            |                                    |
|-----------------|---------|--|-------|------------------|-----------|-------------------|---|---|--------------------|----------------------------|------------------------------------|
| Project :       |         | Landslide Risk Assessment, Site Classification & Wastewater Design |       |                  |           | Logged By : SS    |   |   |                    |                            |                                    |
| Location :      |         | Lot 2 Waverley Road, Don   |       |                  |           |                   |   |   |                    |                            |                                    |
| Drill model :   |         | Drilltech  |       | Easting:         |           | Slope: 90°        |   |   |                    |                            |                                    |
| Hole diameter : |         | 150mm  |       | Northing:        |           | Bearing: -        |   |   |                    |                            |                                    |
|                 |         |  |       |                  |           | RL Surface :      |   |   |                    |                            |                                    |
|                 |         |  |       |                  |           | Datum :           |   |   |                    |                            |                                    |
| Method          | Support | Penetration  | Water | DCP (Blow/100mm) | Depth (m) | Graphic log       | Classification Symbol                         | Material Description  | Moisture condition | Consistency density, index | Structure, additional observations |
| ADV             | N       |  |       |                  |           |                   | ML  | TOPSOIL - Clayey SILT, low plasticity dark grey, root fibres  | M                  | L                          |                                    |
|                 |         |  |       | 0.50             |           | ML                | Clayey SILT - low plasticity, dark brown/grey | M   | St                 | W < PL<br>V = 60kPa        |                                    |
|                 |         |  |       | 1.00             |           | MH                | Clayey SILT - high plasticity, brown          | M   | VSt                | W < PL<br>V = Refusal      |                                    |
|                 |         |  |       | 1.50             |           |                   |   |   |                    |                            |                                    |
|                 |         |  |       | 2.00             |           |                   |   | Borehole BH1 refusal @ 1.4m on inferred highly weathered rock |                    |                            |                                    |
|                 |         |  |       | 2.50             |           |                   |   |   |                    |                            |                                    |
|                 |         |  |       | 3.00             |           |                   |   |   |                    |                            |                                    |
|                 |         |  |       | 3.50             |           |                   |   |   |                    |                            |                                    |
|                 |         |  |       | 4.00             |           |                   |   |   |                    |                            |                                    |
|                 |         |  |       | 4.50             |           |                   |   |   |                    |                            |                                    |

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**ENGINEERING  
BOREHOLE LOG**

Borehole no. BH2

Sheet no. 1 of 1

Job no. GL21063A

|                 |  |  |  |           |  |                   |  |              |  |
|-----------------|--|--|--|-----------|--|-------------------|--|--------------|--|
| Client :        |  | Mr Darryl Archer   |  |           |  | Date : 15/03/2021 |  |              |  |
| Project :       |  | Landslide Risk Assessment, Site Classification & Wastewater Design |  |           |  | Logged By : SS    |  |              |  |
| Location :      |  | Lot 2 Waverley Road, Don   |  |           |  |                   |  |              |  |
| Drill model :   |  | Drilltech  |  | Easting:  |  | Slope: 90°        |  | RL Surface : |  |
| Hole diameter : |  | 150mm  |  | Northing: |  | Bearing: -        |  | Datum :      |  |

| Method | Support | Penetration | Water | DCP<br>(Blow/<br>100mm) | Depth<br>(m) | Graphic log | Classification<br>Symbol             | Material Description  | Moisture condition | Consistency density,<br>index | Structure, additional<br>observations |
|--------|---------|-------------|-------|-------------------------|--------------|-------------|--------------------------------------|---|--------------------|-------------------------------|---------------------------------------|
| ADV    | N       |             |       |                         |              |             | ML                                   | TOPSOIL - Clayey SILT, low plasticity<br>dark grey/brown, root fibres | M                  | L                             | W < PL                                |
|        |         |             |       | 0.50                    |              | MH          | Clayey SILT - high plasticity, brown | D/M   | Vst                |                               |                                       |
|        |         |             |       |                         | 1.00         |             |                                      | Borehole BH2 refusal @ 0.6m<br>on inferred highly weathered rock      |                    |                               |                                       |
|        |         |             |       |                         | 1.50         |             |                                      |   |                    |                               |                                       |
|        |         |             |       |                         | 2.00         |             |                                      |   |                    |                               |                                       |
|        |         |             |       |                         | 2.50         |             |                                      |   |                    |                               |                                       |
|        |         |             |       |                         | 3.00         |             |                                      |   |                    |                               |                                       |
|        |         |             |       |                         | 3.50         |             |                                      |   |                    |                               |                                       |
|        |         |             |       |                         | 4.00         |             |                                      |   |                    |                               |                                       |
|        |         |             |       |                         | 4.50         |             |                                      |   |                    |                               |                                       |



## ENGINEERING BOREHOLE LOG

### Geotechnical Consultants

PO Box 522 Prospect TAS 7250

Unit 24, 16-18 Goodman Court, Invermay TAS

T (03) 6326 5001

Borehole no. BH3

Sheet no. 1 of 1

Job no. GL21063A

| Client :        |         | Mr Darryl Archer   |       |   |              | Date : 15/03/2021                       |  |                    |                               |   |
|-----------------|---------|--|-------|---|--------------|---|--|--------------------|-------------------------------|---|
| Project :       |         | Landslide Risk Assessment, Site Classification & Wastewater Design |       |   |              | Logged By : SS                          |  |                    |                               |   |
| Location :      |         | Lot 2 Waverley Road, Don   |       |   |              |   |  |                    |                               |   |
| Drill model :   |         | Drilltech  |       | Easting:                                    |              | Slope: 90°                              |  |                    |                               |   |
| Hole diameter : |         | 150mm  |       | Northing:                                   |              | Bearing: -                              |  |                    |                               |   |
|                 |         |  |       |   |              | RL Surface :                            |  |                    |                               |   |
|                 |         |  |       |   |              | Datum :                                 |  |                    |                               |   |
| Method          | Support | Penetration  | Water | DCP<br>(Blow/<br>100mm)                     | Depth<br>(m) | Graphic log<br>Classification<br>Symbol | Material Description   | Moisture condition | Consistency density,<br>index | Structure, additional<br>observations                                       |
| ADV             | N       |  |       | D<br>LL=51%<br>PL=26%<br>PI=27.3%<br>LS=11% |              | ML                                      | TOPSOIL - Clayey SILT, low plasticity<br>dark grey, root fibres  | M                  | L                             | W < PL<br><br>V = 70kPa<br><br>V = Refusal<br><br><br><br><br><br>V = 80kPa |
|                 |         |  |       |   | 0.50         | MH                                      | Clayey SILT - high plasticity, dark<br>grey                      | M                  | St                            |   |
|                 |         |  |       |   |              |   | Becoming dark brown/grey   | M                  | VSt                           |   |
|                 |         |  |       |   | 1.00         |   |  |                    |                               |   |
|                 |         |  |       |   | 1.50         | ML                                      | Clayey SILT - low plasticity, dark<br>brown                      | M                  | St                            |   |
|                 |         |  |       |   | 2.00         |   |  |                    |                               |   |
|                 |         |  |       |   | 2.50         |   |  |                    |                               |   |
|                 |         |  |       |   | 3.00         |   |  |                    |                               |   |
|                 |         |  |       |   | 3.50         |   |  |                    |                               |   |
|                 |         |  |       |   | 4.00         |   |  |                    |                               |   |
| 4.50            |         |  |       |   |              |   |  |                    |                               |   |
|                 |         |  |       |   |              |   | Borehole BH3 refusal @ 2.9m<br>on inferred highly weathered rock |                    |                               |   |



## ENGINEERING BOREHOLE LOG

### Geotechnical Consultants

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Unit 24, 16-18 Goodman Court, Invermay TAS

T (03) 6326 5001

Borehole no. BH4

Sheet no. 1 of 1

Job no. GL21063A

| Client :                       |         | Mr Darryl Archer   |       |                         |              | Date : 15/03/2021                       |   |                    |                               |                                       |
|--------------------------------|---------|--|-------|-------------------------|--------------|---|---|--------------------|-------------------------------|---------------------------------------|
| Project :                      |         | Landslide Risk Assessment, Site Classification & Wastewater Design |       |                         |              | Logged By : SS                          |   |                    |                               |                                       |
| Location :                     |         | Lot 2 Waverley Road, Don   |       |                         |              |   |   |                    |                               |                                       |
| Drill model :                  |         | Drilltech  |       | Easting:                |              | Slope: 90°                              |   |                    |                               |                                       |
| Hole diameter :                |         | 150mm  |       | Northing:               |              | Bearing: -                              |   |                    |                               |                                       |
|                                |         |  |       |                         |              | RL Surface :                            |   |                    |                               |                                       |
|                                |         |  |       |                         |              | Datum :                                 |   |                    |                               |                                       |
| Method                         | Support | Penetration  | Water | DCP<br>(Blow/<br>100mm) | Depth<br>(m) | Graphic log<br>Classification<br>Symbol | Material Description  | Moisture condition | Consistency density,<br>index | Structure, additional<br>observations |
| ADV                            | N       |  |       |                         |              | ML                                      | TOPSOIL - Clayey SILT, low plasticity<br>dark grey, root fibres | D                  | L                             | W < PL                                |
|                                |         |  |       |                         | 0.50         | MH                                      | Clayey SILT - high plasticity, grey                             | D/M                | St                            |                                       |
|                                |         |  |       |                         | 1.00         | CH                                      | Silty CLAY - high plasticity, light<br>grey                     | M                  | VSt                           |                                       |
|                                |         |  |       |                         | 1.50         |   |   |                    |                               |                                       |
|                                |         |  |       |                         | 2.00         |   |   |                    |                               |                                       |
|                                |         |  |       |                         | 2.50         |   |   |                    |                               |                                       |
|                                |         |  |       |                         | 3.00         |   |   |                    |                               |                                       |
|                                |         |  |       |                         | 3.50         |   |   |                    |                               |                                       |
|                                |         |  |       |                         | 4.00         |   |   |                    |                               |                                       |
|                                |         |  |       |                         | 4.50         |   |   |                    |                               |                                       |
| Borehole BH4 terminated @ 2.0m |         |  |       |                         |              |   |   |                    |                               |                                       |

**Geotechnical Consultants**

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Unit 24, 16-18 Goodman Court, Invermay TAS

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**ENGINEERING  
BOREHOLE LOG**

Borehole no. BH5

Sheet no. 1 of 1

Job no. GL21063A

|                 |  |  |  |           |  |                   |  |
|-----------------|--|--|--|-----------|--|-------------------|--|
| Client :        |  | Mr Darryl Archer   |  |           |  | Date : 15/03/2021 |  |
| Project :       |  | Landslide Risk Assessment, Site Classification & Wastewater Design |  |           |  | Logged By : SS    |  |
| Location :      |  | Lot 2 Waverley Road, Don   |  |           |  |                   |  |
| Drill model :   |  | Drilltech  |  | Easting:  |  | Slope: 90°        |  |
| Hole diameter : |  | 150mm  |  | Northing: |  | Bearing: -        |  |
|                 |  |  |  |           |  | RL Surface :      |  |
|                 |  |  |  |           |  | Datum :           |  |

| Method | Support | Penetration | Water | DCP<br>(Blow/<br>100mm) | Depth<br>(m) | Graphic log<br>Classification<br>Symbol | Material Description   | Moisture condition | Consistency density,<br>index | Structure, additional<br>observations |
|--------|---------|-------------|-------|-------------------------|--------------|---|--|--------------------|-------------------------------|---------------------------------------|
| ADV    | N       |             |       |                         |              | ML                                      | TOPSOIL - Clayey SILT, low plasticity<br>dark brown, root fibres | D                  | L                             | W < PL                                |
|        |         |             |       |                         | 0.50         | MH                                      | Clayey SILT - high plasticity, dark<br>brown/grey                | M                  | VST                           |                                       |
|        |         |             |       |                         | 1.00         |   | With cobbles, trace of fine gravel                               |                    |                               |                                       |
|        |         |             |       |                         | 1.50         | CH                                      | Silty CLAY - high plasticity, light grey                         | M                  | VST                           |                                       |
|        |         |             |       |                         | 2.00         |   | Borehole BH5 terminated @ 2.0m                                   |                    |                               |                                       |
|        |         |             |       |                         | 2.50         |   |  |                    |                               |                                       |
|        |         |             |       |                         | 3.00         |   |  |                    |                               |                                       |
|        |         |             |       |                         | 3.50         |   |  |                    |                               |                                       |
|        |         |             |       |                         | 4.00         |   |  |                    |                               |                                       |
|        |         |             |       |                         | 4.50         |   |  |                    |                               |                                       |



## Investigation Log Explanation Sheet

### METHOD – BOREHOLE

| TERM | Description      |
|------|------------------|
| AS   | Auger Screwing*  |
| AD   | Auger Drilling*  |
| RR   | Roller / Tricone |
| W    | Washbore         |
| CT   | Cable Tool       |
| HA   | Hand Auger       |
| DT   | Diatube          |
| B    | Blank Bit        |
| V    | V Bit            |
| T    | TC Bit           |

\* Bit shown by suffix e.g. ADT

### METHOD – EXCAVATION

| TERM | Description         |
|------|---------------------|
| N    | Natural exposure    |
| X    | Existing excavation |
| H    | Backhoe bucket      |
| B    | Bulldozer blade     |
| R    | Ripper              |
| E    | Excavator           |

### SUPPORT

| TERM | Description |
|------|-------------|
| M    | Mud         |
| N    | Nil         |
| C    | Casing      |
| S    | Shoring     |

### PENETRATION

|   |   |   |   |                                  |
|---|---|---|---|----------------------------------|
| 1 | 2 | 3 | 4 |                                  |
|   |   |   |   | No resistance ranging to Refusal |

### WATER

| Symbol | Description                 |
|--------|-----------------------------|
|        | Water inflow                |
|        | Water outflow               |
|        | 17/3/08 water on date shown |

### NOTES, SAMPLES, TESTS

| TERM            | Description                             |
|-----------------|---|
| U <sub>50</sub> | Undisturbed sample 50 mm diameter       |
| U <sub>63</sub> | Undisturbed sample 63 mm diameter       |
| D               | Disturbed sample                        |
| N               | Standard Penetration Test (SPT)         |
| N*              | SPT – sample recovered                  |
| N <sub>c</sub>  | SPT with solid cone                     |
| V               | Vane Shear                              |
| PP              | Pocket Penetrometer                     |
| P               | Pressumeter                             |
| B <sub>s</sub>  | Bulk sample                             |
| E               | Environmental Sample                    |
| R               | Refusal                                 |
| DCP             | Dynamic Cone Penetrometer (blows/100mm) |
| PL              | Plastic Limit                           |
| LL              | Liquid Limit                            |
| LS              | Linear Shrinkage                        |

### CLASSIFICATION SYMBOLS AND SOIL DESCRIPTION

Based on AS 1726:2017

### MOISTURE

| TERM | Description |
|------|-------------|
| D    | Dry         |
| M    | Moist       |
| W    | Wet         |

### CONSISTENCY/DENSITY INDEX

| TERM | Description  |
|------|--------------|
| VS   | very soft    |
| S    | soft         |
| F    | firm         |
| St   | stiff        |
| VSt  | very stiff   |
| H    | hard         |
| Fr   | friable      |
| VL   | very loose   |
| L    | loose        |
| MD   | medium dense |
| D    | dense        |
| VD   | Very dense   |





## Soil Description Explanation Sheet (1 of 2)

### DEFINITION

In engineering terms, soil includes every type of uncemented or partially cemented inorganic or organic material found in the ground. In practice, if the material can be remoulded or disintegrated by hand in its field condition or in water it is described as a soil. Other materials are described using rock description terms.

### CLASSIFICATION SYMBOL AND SOIL NAME

Soils are described in accordance with the AS 1726: 2017 as shown in the table on Sheet 2.

### PARTICLE SIZE DEFINITIONS

| NAME     | SUBDIVISION | SIZE (mm)      |
|----------|-------------|----------------|
| BOULDERS |             | >200           |
| COBBLES  |             | 63 to 200      |
| GRAVEL   | Coarse      | 19 to 63       |
|          | Medium      | 6.7 to 19      |
|          | Fine        | 2.36 to 6.7    |
| SAND     | Coarse      | 0.6 to 2.36    |
|          | Medium      | 0.21 to 0.6    |
|          | Fine        | 0.075 to 0.21  |
| SILT     |             | 0.002 to 0.075 |
| CLAY     |             | <0.002         |

### MOISTURE CONDITION

#### Coarse Grained Soils

**Dry** Non-cohesive and free running.

**Moist** Soil feels cool, darkened in colour.  
Soil tends to stick together.

**Wet** As for moist but with free water forming when handling.

#### Fine Grained Soils

**Moist, dry of Plastic Limit –  $w < PL$**

Hard and friable or powdery.

**Moist, near Plastic Limit –  $w \approx PL$**

Soils can be moulded at a moisture content approximately equal to the plastic limit.

**Moist, wet of Plastic Limit –  $w > PL$**

Soils usually weakened and free water forms on hands when handling.

**Wet, near Liquid Limit –  $w \approx LL$**

**Wet, wet of Liquid Limit –  $w > LL$**

### CONSISTENCY TERMS FOR COHESIVE SOILS

| TERM       | UNDRAINED STRENGTH $s_u$ (kPa) | FIELD GUIDE  |
|------------|--------------------------------|--|
| Very Soft  | $\leq 12$                      | Exudes between the fingers when squeezed in hand           |
| Soft       | 12 to 25                       | Can be moulded by light finger pressure                    |
| Firm       | 25 to 50                       | Can be moulded by strong finger pressure                   |
| Stiff      | 50 to 100                      | Cannot be moulded by fingers                               |
| Very Stiff | 100 to 200                     | Can be indented by thumb nail                              |
| Hard       | >200                           | Can be indented with difficulty by thumb nail              |
| Friable    | –                              | Can be easily crumbled or broken into small pieces by hand |

### RELATIVE DENSITY OF NON-COHESIVE SOILS

| TERM         | DENSITY INDEX (%) |
|--------------|-------------------|
| Very Loose   | $\leq 15$         |
| Loose        | 15 to 35          |
| Medium Dense | 35 to 65          |
| Dense        | 65 to 85          |
| Very Dense   | > 85              |

### DESCRIPTIVE TERMS FOR ACCESSORY SOIL COMPONENTS

| DESIGNATION OF COMPONENT | IN COARSE GRAINED SOILS |                             | IN FINE GRAINED SOILS | TERM   |
|--------------------------|-------------------------|-----------------------------|-----------------------|--------|
|                          | % Fines                 | % Accessory coarse fraction | % Sand/ gravel        |        |
| Minor                    | $\leq 5$                | $\leq 15$                   | $\leq 15$             | Trace  |
|                          | >5, $\leq 12$           | >15, $\leq 30$              | >15, $\leq 30$        | With   |
| Secondary                | >12                     | >30                         | >30                   | Prefix |

### SOIL STRUCTURE

| ZONING |   | CEMENTING           |  |
|--------|---|---------------------|--|
| Layer  | Continuous across the exposure or sample.                         | Weakly cemented     | Easily disaggregated by hand in air or water.                        |
| Lens   | Discontinuous layer of different material, with lenticular shape. | Moderately cemented | Effort is required to disaggregate the soil by hand in air or water. |
| Pocket | An irregular inclusion of different material.                     |                     |  |

### GEOLOGICAL ORIGIN

#### WEATHERED IN PLACE SOILS

|                              |   |
|------------------------------|---|
| Extremely weathered material | Structure and/or fabric of parent rock material retained and visible.     |
| Residual soil                | Structure and/or fabric of parent rock material not retained and visible. |

#### TRANSPORTED SOILS

|                 |  |
|-----------------|--|
| Aeolian soil    | Carried and deposited by wind.   |
| Alluvial soil   | Deposited by streams and rivers.   |
| Colluvial soil  | Soil and rock debris transported downslope by gravity.   |
| Estuarine soil  | Deposited in coastal estuaries, and including sediments carried by inflowing rivers and streams, and tidal currents. |
| Fill            | Man-made deposit. Fill may be significantly more variable between tested locations than naturally occurring soils.   |
| Lacustrine soil | Deposited in freshwater lakes.   |
| Marine soil     | Deposited in a marine environment.   |



## Soil Description Explanation Sheet (2 of 2)

### SOIL CLASSIFICATION INCLUDING IDENTIFICATION AND DESCRIPTION

| FIELD IDENTIFICATION PROCEDURES<br>(Excluding particles larger than 63 mm and basing fractions on estimated mass) |  |   |  |   | GROUP SYMBOL | PRIMARY NAME  |      |
|---|--|---|--|---|--------------|---------------|------|
| COARSE GRAINED SOIL<br>More than 65% of soil excluding oversize fraction is larger than 0.075 mm                  | (A 0.075 mm particle is about the smallest particle visible to naked eyes) | GRAVEL<br>More than half of coarse fraction is larger than 2.36 mm                  | CLEAN GRAVEL<br>(Little or no fines)               | Wide range in grain size and substantial amounts of all intermediate particle sizes | GW           | GRAVEL        |      |
|   |  |   |  | Predominantly one size or a range of sizes with some intermediate sizes missing     | GP           | GRAVEL        |      |
|   |  |   | GRAVEL WITH FINES<br>(Appreciable amount of fines) | Non-plastic fines (for identification procedures see ML and MH below)               | GM           | Silty GRAVEL  |      |
|   |  |   |  | Plastic fines (for identification procedures see CL, CI and CH below)               | GC           | Clayey GRAVEL |      |
|   |  | SAND<br>More than half of coarse fraction is smaller than 2.36 mm                   | CLEAN SAND<br>(Little or no fines)                 | Wide range in grain size and substantial amounts of all intermediate sizes          | SW           | SAND          |      |
|   |  |   |  | Predominantly one size or a range of sizes with some intermediate sizes missing     | SP           | SAND          |      |
|   |  |   | SAND WITH FINES<br>(Appreciable amount of fines)   | Non-plastic fines (for identification procedures see ML and MH below)               | SM           | Silty SAND    |      |
|   |  |   |  | Plastic fines (for identification procedures see CL, CI and CH below)               | SC           | Clayey SAND   |      |
| FINE GRAINED SOIL<br>More than 35% of soil excluding oversize fraction is smaller than 0.075 mm                   |  | IDENTIFICATION PROCEDURES ON FRACTIONS <0.075 mm                                    |  |   |              |               |      |
|   |  |   | DRY STRENGTH                                       | DILATANCY   | TOUGHNESS    |               |      |
|   |  | SILT & CLAY<br>(low to medium plasticity, LL ≤ 50)                                  | None to Low  | Slow to Rapid   | Low          | ML            | SILT |
|   |  |   | Medium to High                                     | None to Slow  | Medium       | CL, CI        | CLAY |
|   | Low to Medium  |   | Slow   | Low   | OL           | ORGANIC SILT  |      |
|   | SILT & CLAY<br>(high plasticity, LL > 50)                                  | Low to Medium   | None to Slow                                       | Low to Medium   | MH           | SILT          |      |
|   |  | High to Very High   | None   | High  | CH           | CLAY          |      |
|   |  | Medium to High  | None to Very Slow                                  | Low to Medium   | OH           | ORGANIC CLAY  |      |
|   | Highly Organic Soil  | Readily identified by colour, odour, spongy feel and frequently by fibrous texture. |  |   | Pt           | PEAT          |      |

• LL – Liquid Limit.

• LL – Liquid Limit.

### COMMON DEFECTS IN SOILS

| TERM            | DEFINITION   | DIAGRAM | TERM          | DEFINITION   | DIAGRAM |
|-----------------|--|---------|---------------|--|---------|
| PARTING         | A surface or crack across which the soil has little or no tensile strength. Parallel or sub parallel to layering (e.g. bedding). May be open or closed.  |         | SOFTENED ZONE | A zone in clayey soil, usually adjacent to a defect in which the soil has a higher moisture content than elsewhere.  |         |
| FISSURE         | A surface or crack across which the soil has little or no tensile strength, but which is not parallel or sub parallel to layering. May be open or closed. May include desiccation cracks.  |         | TUBE          | Tubular cavity. May occur singly or as one of a large number of separate or inter-connected tubes. Walls often coated with clay or strengthened by denser packing of grains. May contain organic matter. |         |
| SHEARED SEAM    | Zone in clayey soil with roughly parallel near planar, curved or undulating boundaries containing closely spaced, smooth or slickensided, curved intersecting fissures which divide the mass into lenticular or wedge-shaped blocks. |         | TUBE CAST     | An infilled tube. The infill may be uncemented or weakly cemented soil or have rock properties.  |         |
| SHEARED SURFACE | A near planar curved or undulating, smooth, polished or slickensided surface in clayey soil. The polished or slickensided surface indicates that movement (in many cases very little) has occurred along the defect.                 |         | INFILLED SEAM | Sheet or wall like body of soil substance or mass with roughly planar to irregular near parallel boundaries which cuts through a soil mass. Formed by infilling of open defects.                         |         |

## Appendix B

### **Qualitative Terminology for Use in Assessing Risk to Property**

## QUALITATIVE TERMINOLOGY FOR USE IN ASSESSING RISK TO PROPERTY

### QUALITATIVE MEASURES OF LIKELIHOOD

| Approximate Annual Probability |                    | Implied Indicative Landslide Recurrence Interval |               | Description   | Descriptor      | Level |
|--------------------------------|--------------------|--|---------------|---|-----------------|-------|
| Indicative Value               | Notional Boundary  |  |               |   |                 |       |
| 10 <sup>-1</sup>               | 5x10 <sup>-2</sup> | 10 years   | 20 years      | The event is expected to occur over the design life.                                    | ALMOST CERTAIN  | A     |
| 10 <sup>-2</sup>               |                    | 100 years  |               | The event will probably occur under adverse conditions over the design life.            | LIKELY          | B     |
| 10 <sup>-3</sup>               | 5x10 <sup>-3</sup> | 1000 years                                       | 200 years     | The event could occur under adverse conditions over the design life.                    | POSSIBLE        | C     |
| 10 <sup>-4</sup>               | 5x10 <sup>-4</sup> | 10,000 years                                     | 2000 years    | The event might occur under very adverse circumstances over the design life.            | UNLIKELY        | D     |
| 10 <sup>-5</sup>               | 5x10 <sup>-5</sup> | 100,000 years                                    | 20,000 years  | The event is conceivable but only under exceptional circumstances over the design life. | RARE            | E     |
| 10 <sup>-6</sup>               | 5x10 <sup>-6</sup> | 1,000,000 years                                  | 200,000 years | The event is inconceivable or fanciful over the design life.                            | BARELY CREDIBLE | F     |

**Note:** (1) The table should be used from left to right; use Approximate Annual Probability or Description to assign Descriptor, not *vice versa*.

### QUALITATIVE MEASURES OF CONSEQUENCES TO PROPERTY

| Approximate Cost of Damage |                   | Description   | Descriptor    | Level |
|----------------------------|-------------------|---|---------------|-------|
| Indicative Value           | Notional Boundary |   |               |       |
| 200%                       | 100%              | Structure(s) completely destroyed and/or large scale damage requiring major engineering works for stabilisation. Could cause at least one adjacent property major consequence damage.           | CATASTROPHIC  | 1     |
| 60%                        |                   | Extensive damage to most of structure, and/or extending beyond site boundaries requiring significant stabilisation works. Could cause at least one adjacent property medium consequence damage. | MAJOR         | 2     |
| 20%                        | 40%               | Moderate damage to some of structure, and/or significant part of site requiring large stabilisation works. Could cause at least one adjacent property minor consequence damage.                 | MEDIUM        | 3     |
| 5%                         | 10%               | Limited damage to part of structure, and/or part of site requiring some reinstatement stabilisation works.  | MINOR         | 4     |
| 0.5%                       | 1%                | Little damage. (Note for high probability event (Almost Certain), this category may be subdivided at a notional boundary of 0.1%. See Risk Matrix.)   | INSIGNIFICANT | 5     |

- Notes:**
- (2) The Approximate Cost of Damage is expressed as a percentage of market value, being the cost of the improved value of the unaffected property which includes the land plus the unaffected structures.
  - (3) The Approximate Cost is to be an estimate of the direct cost of the damage, such as the cost of reinstatement of the damaged portion of the property (land plus structures), stabilization works required to render the site to tolerable risk level for the landslide which has occurred and professional design fees, and consequential costs such as legal fees, temporary accommodation. It does not include additional stabilisation works to address other landslides which may affect the property.
  - (4) The table should be used from left to right; use Approximate Cost of Damage or Description to assign Descriptor, not *vice versa*

Geoton Pty Ltd (adapted from Australian Geomechanics Vol 42 No 1 March 2007)

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## QUALITATIVE TERMINOLOGY FOR USE IN ASSESSING RISK TO PROPERTY (CONTINUED)

### QUALITATIVE RISK ANALYSIS MATRIX – LEVEL OF RISK TO PROPERTY

| LIKELIHOOD          |  | CONSEQUENCES TO PROPERTY (With Indicative Approximate Cost of Damage) |                 |                  |                |                             |
|---------------------|--|---|-----------------|------------------|----------------|-----------------------------|
|                     | Indicative Value of Approximate Annual Probability | 1: CATASTROPHIC<br>200%   | 2: MAJOR<br>60% | 3: MEDIUM<br>20% | 4: MINOR<br>5% | 5:<br>INSIGNIFICANT<br>0.5% |
| A – ALMOST CERTAIN  | 10 <sup>-1</sup>                                   | VH  | VH              | VH               | H              | M or L (5)                  |
| B - LIKELY          | 10 <sup>-2</sup>                                   | VH  | VH              | H                | M              | L                           |
| C - POSSIBLE        | 10 <sup>-3</sup>                                   | VH  | H               | M                | M              | VL                          |
| D - UNLIKELY        | 10 <sup>-4</sup>                                   | H   | M               | L                | L              | VL                          |
| E - RARE            | 10 <sup>-5</sup>                                   | M   | L               | L                | VL             | VL                          |
| F - BARELY CREDIBLE | 10 <sup>-6</sup>                                   | L   | VL              | VL               | VL             | VL                          |

- Notes:**
- (5) For Cell A5, may be subdivided such that a consequence of less than 0.1% is Low Risk.
  - (6) When considering a risk assessment it must be clearly stated whether it is for existing conditions or with risk control measures which may not be implemented at the current time.

### RISK LEVEL IMPLICATIONS

| Risk Level |                | Example Implications (7)  |
|------------|----------------|---|
| VH         | VERY HIGH RISK | Unacceptable without treatment. Extensive detailed investigation and research, planning and implementation of treatment options essential to reduce risk to Low; may be too expensive and not practical. Work likely to cost more than value of the property.             |
| H          | HIGH RISK      | Unacceptable without treatment. Detailed investigation, planning and implementation of treatment options required to reduce risk to Low. Work would cost a substantial sum in relation to the value of the property.  |
| M          | MODERATE RISK  | May be tolerated in certain circumstances (subject to regulator's approval) but requires investigation, planning and implementation of treatment options to reduce the risk to Low. Treatment options to reduce to Low risk should be implemented as soon as practicable. |
| L          | LOW RISK       | Usually acceptable to regulators. Where treatment has been required to reduce the risk to this level, ongoing maintenance is required.  |
| VL         | VERY LOW RISK  | Acceptable. Manage by normal slope maintenance procedures.  |

- Note:**
- (7) The implications for a particular situation are to be determined by all parties to the risk assessment and may depend on the nature of the property at risk; these are only given as a general guide

## Appendix C

### **Some Guidelines for Hillside Construction**

## PRACTICE NOTE GUIDELINES FOR LANDSLIDE RISK MANAGEMENT 2007

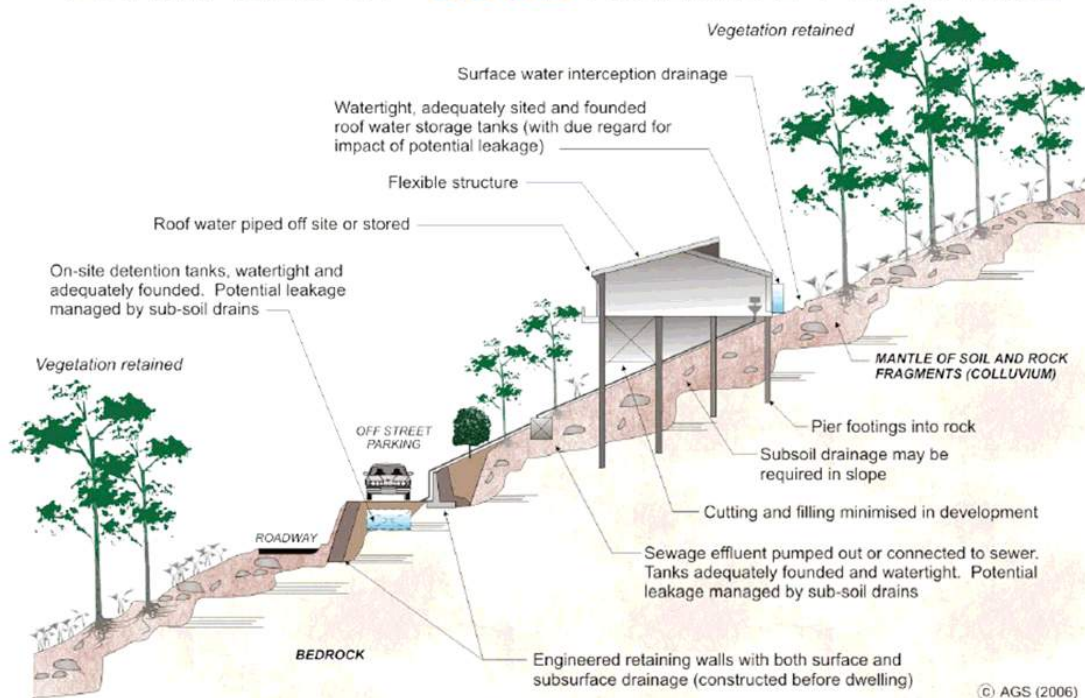
### APPENDIX - SOME GUIDELINES FOR HILLSIDE CONSTRUCTION

| <b>ADVICE</b>                                       |  | <b>GOOD ENGINEERING PRACTICE</b>   | <b>POOR ENGINEERING PRACTICE</b>  |
|---|--|--|---|
| GEOTECHNICAL ASSESSMENT                             |  | Obtain advice from a qualified, experienced geotechnical practitioner at early stage of planning and before site works.  | Prepare detailed plan and start site works before geotechnical advice.  |
| <b>PLANNING</b>                                     |  |  |   |
| SITE PLANNING                                       |  | Having obtained geotechnical advice, plan the development with the risk arising from the identified hazards and consequences in mind.  | Plan development without regard for the Risk.   |
| <b>DESIGN AND CONSTRUCTION</b>                      |  |  |   |
| HOUSE DESIGN  |  | Use flexible structures which incorporate properly designed brickwork, timber or steel frames, timber or panel cladding.<br>Consider use of split levels.<br>Use decks for recreational areas where appropriate.   | Floor plans which require extensive cutting and filling.<br>Movement intolerant structures.   |
| SITE CLEARING                                       |  | Retain natural vegetation wherever practicable.  | Indiscriminately clear the site.  |
| EARTHWORKS  |  | Retain natural contours wherever possible.   | Indiscriminatory bulk earthworks.   |
| CUTS  |  | Minimise depth.<br>Support with engineered retaining walls or batter to appropriate slope.<br>Provide drainage measures and erosion control.   | Large scale cuts and benching.<br>Unsupported cuts.<br>Ignore drainage requirements   |
| FILLS   |  | Minimise height.<br>Strip vegetation and topsoil and key into natural slopes prior to filling.<br>Use clean fill materials and compact to engineering standards.<br>Batter to appropriate slope or support with engineered retaining wall.<br>Provide surface drainage and appropriate subsurface drainage.                                | Loose or poorly compacted fill, which if it fails, may flow a considerable distance including onto property below.<br>Block natural drainage lines.<br>Fill over existing vegetation and topsoil.<br>Include stumps, trees, vegetation, topsoil, boulders, building rubble etc in fill. |
| ROCK OUTCROPS & BOULDERS                            |  | Remove or stabilise boulders which may have unacceptable risk.<br>Support rock faces where necessary.  | Disturb or undercut detached blocks or boulders.  |
| RETAINING WALLS                                     |  | Found on rock where practicable.<br>Provide subsurface drainage within wall backfill and surface drainage on slope above.<br>Construct wall as soon as possible after cut/fill operation.  | Construct a structurally inadequate wall such as sandstone flagging, brick or unreinforced blockwork.<br>Lack of subsurface drains and weepholes.   |
| FOOTINGS  |  | Found within rock where practicable.<br>Use rows of piers or strip footings oriented up and down slope.<br>Design for lateral creep pressures if necessary.<br>Backfill footing excavations to exclude ingress of surface water.   | Found on topsoil, loose fill, detached boulders or undercut cliffs.   |
| SWIMMING POOLS                                      |  | Engineer designed.<br>Support on piers to rock where practicable.<br>Provide with under-drainage and gravity drain outlet where practicable.<br>Design for high soil pressures which may develop on uphill side whilst there may be little or no lateral support on downhill side.   |   |
| DRAINAGE  |  | Provide at tops of cut and fill slopes.<br>Discharge to street drainage or natural water courses.<br>Provide general falls to prevent blockage by siltation and incorporate silt traps.<br>Line to minimise infiltration and make flexible where possible.<br>Special structures to dissipate energy at changes of slope and/or direction. | Discharge at top of fills and cuts.<br>Allow water to pond on bench areas.  |
| SURFACE   |  | Provide filter around subsurface drain.<br>Provide drain behind retaining walls.<br>Use flexible pipelines with access for maintenance.<br>Prevent inflow of surface water.  | Discharge roof runoff into absorption trenches.   |
| SUBSURFACE  |  |  |   |
| SEPTIC & SULLAGE                                    |  | Usually requires pump-out or mains sewer systems; absorption trenches may be possible in some areas if risk is acceptable.<br>Storage tanks should be water-tight and adequately founded.  | Discharge sullage directly onto and into slopes.<br>Use absorption trenches without consideration of landslide risk.  |
| EROSION CONTROL & LANDSCAPING                       |  | Control erosion as this may lead to instability.<br>Revegetate cleared area.   | Failure to observe earthworks and drainage recommendations when landscaping.  |
| <b>DRAWINGS AND SITE VISITS DURING CONSTRUCTION</b> |  |  |   |
| DRAWINGS  |  | Building Application drawings should be viewed by geotechnical consultant  |   |
| SITE VISITS   |  | Site Visits by consultant may be appropriate during construction/  |   |
| <b>INSPECTION AND MAINTENANCE BY OWNER</b>          |  |  |   |
| OWNER'S RESPONSIBILITY                              |  | Clean drainage systems; repair broken joints in drains and leaks in supply pipes.<br>Where structural distress is evident see advice.<br>If seepage observed, determine causes or seek advice on consequences.   |   |

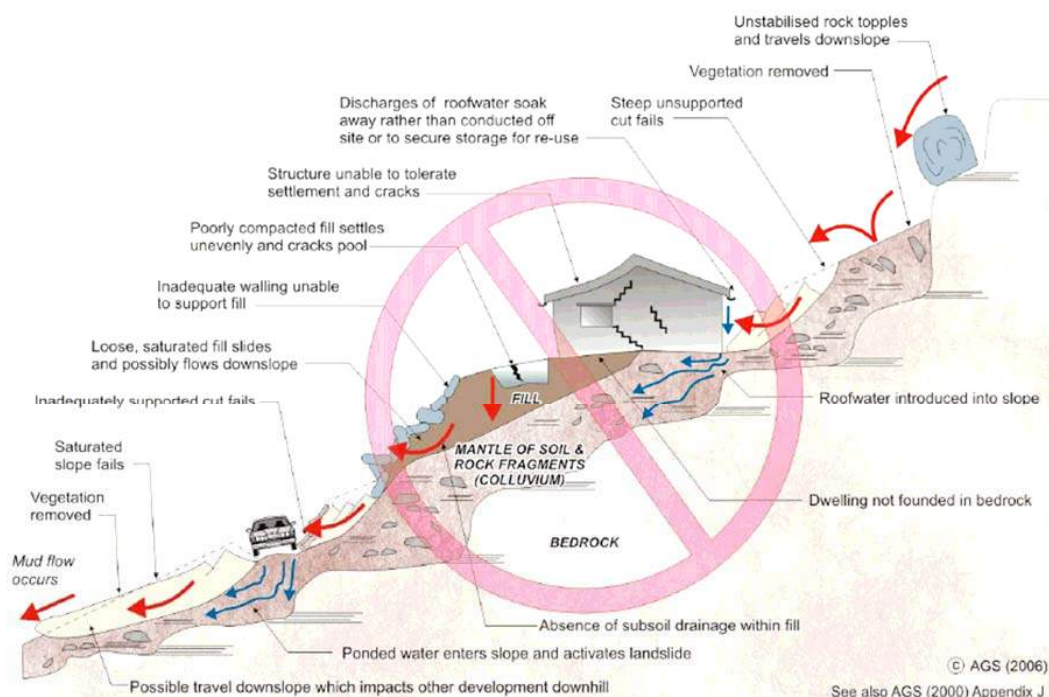


## PRACTICE NOTE GUIDELINES FOR LANDSLIDE RISK MANAGEMENT 2007

### EXAMPLES OF **GOOD** HILLSIDE PRACTICE



### EXAMPLES OF **POOR** HILLSIDE PRACTICE



## Appendix D

### **Example Plants**

## **Taz Wild Plants**

Phone: (03) 6384 2165  
Fax: (03) 6384 2165  
Web site: [www.tazwild.com](http://www.tazwild.com)

## **Wastewater Treatment Units**

### **Tasmanian Plants suitable for Water from Wastewater Treatment Units**

Water from septic tanks and aerated wastewater treatment units such as Biocycle, Envirocycle or other may contain salts, boron and disease bearing microbes. The major ingredients of most cleaning fluids are various salts, of which common kitchen salt (sodium chloride) is the least common. These salts may have large concentrations in wastewater, which can have a detrimental effect on plants. The survival of plants will depend on the concentrations of salts. Long-term build up of chemicals and salts in the soil will adversely affect any plantings.

We can't guarantee these plants will survive but they are tolerant to reasonable amounts of the main offenders and will tolerate wet conditions.

Below is a list of plants to help make an attractive garden bed for your wastewater treatment area.

### **PLANTS 1 – 6m**

#### **Acacia mucronata**

*Variable willow wattle, Narrow leaf wattle*

An upright or spreading, medium to tall shrub 3-4m X 2-3m. Quick growing. Profuse cream to yellow flowers in spring, showy. Attracts seed eating birds. Drought tolerant.

#### **Acacia verticillata**

*Prickly Moses*

Prickly shrub to 2m. Useful habitat plant and very attractive in flower.

#### **Banksia marginata**

*Honeysuckle, Silver banksia*

Evergreen shrub or small tree with attractive narrow, smooth edged leaves which are square or notched at the end and silvery beneath. Greenish yellow cones of flowers that last as cut flowers. Grows well in sandy soil. Strong upright growth.

#### **Bauera rubioides**

*Dog Rose*

Hardy small to medium dense shrub. 1-2m X 1-2m wide with masses of dainty pink flowers, flowering most of year, attracting butterflies. Grows well in wet or moist soils, prefers acid soils. Likes full or filtered sun. Good coastal plant. Frost tolerant. Prune regularly. Good erosion control.

#### **Callistemon pallidus**

*Lemon Bottlebrush*

Evergreen medium shrub, very upright with silky leaves that become smooth with age. Lovely lemon yellow bottlebrushes in spring and summer. Likes a dry or moist position. Tolerates full or filtered sunlight. Attracts nectar eating birds.

#### **Callitris oblonga**

*Cypress pine, South esk pine*

This is one of Australia's native conifers. It has an attractive shrubby shape and is suitable for use in the garden as a fast growing hedge, since it can be pruned to shape. It is also useful for gardens where the soil is rocky and sandy but will tolerate a range of soils, providing the drainage is good.

#### **Correa backhousiana**

*Velvet correa*

A dense, bushy, spreading shrub to 1.5m high by 2m wide. Leaves are glossy green on top, rusty coloured underneath. Greenish cream bell flowers in winter. Spring bird attracting. Tolerates lime and coastal plantings. Usually frost resistant.

#### **Leptospermum lanigerum**

*Woolley tea-tree*

Hardy medium to large shrub 2.5 to 5m high x 1.2-3m wide, massed with white flowers during spring. Soft grey foliage. Prefers moist to wet soils with good drainage and will grow well in full or filtered sun. Attracts butterflies and seed eating birds. Tolerates light snow, smog and frost.

**Melaleuca ericifolia**

A very hard, fast growing small evergreen tree suited to most soils and aspects. Suitable for poorly drained or saline soils and withstands coastal exposure. Needle-like leaves and 2-3cm long cream flower spikes, in spring and early summer. Ideal for planting as a screen.

**Melaleuca gibbosa**

*Fine leaved paperbark, Slender honey-myrtle*

Evergreen small shrub with mauve/purple ball shaped flowers in late spring and summer. Suitable for most soils, tolerating lime and salt soil. Frost resistant.

**Melaleuca squarrosa**

Tall, bushy shrub, good foliage. Scented, yellow brush flowers, in spring-summer. Suitable for most soils, tolerating very wet conditions, lime, saline and frost.

**Micrantheum hexandrum**

*River box*

Attractive foliage plant with new growth showing red stems. Cream flowers in spring. Grows up to 2m high. Prune to form a dense screen plant.

**Notelaea ligustrina**

*Native Olive, Mock olive, Privet mock olive*

Tall shrub with smooth, dark green leaves. Small yellow flowers and purple fruit. Prefers a moist, semi-shaded position but grows well in a wide range of conditions.

**Pomaderris apetala**

*Dogwood*

Medium to tall shrub 3 to 15 m. This shrub grows in a wide variety of sites from very dry to very wet but will grow larger with moisture. Looks good planted in copses.

**SHRUBS TO 1m****Amperea xiphioclada**

Upright or arching stems. Attractive foliage sculpturesque in appearance to 60cm. Useful for basket weaving. Dry to moist sites.

**Blechnum penna-marina**

*Alpine Water Fern*

Attractive, low growing, matted ground cover. Leathery dark green fronds to 15cm long, tinged pink when young. Ideal hanging baskets. Rockeries and moist positions in the open ground.

**Blechnum wattsi**

*Hard Water Fern*

Hardy and vigorous fern with dark green leathery fronds to 1m tall. Very easily grown in large pot or a moist, shady position in the ground.

**Callistemon viridiflorus**

*Green Bottlebrush*

Erect shrub with pale green bottlebrushes. Good in damp conditions. 1-2m X 1m. Frost resistant.

**Carex appressa**

*Tall sedge, Tussock sedge*

A tall perennial to 1.8m high. Stems acutely 3 angled and leaves 3-6mm broad. Occurs in winter wet depressions that can dry out completely in summer. Flowers in spring.

**Carex inyx**

*Tassell Sedge*

Evergreen clump forming sedge with green foliage and gorgeous golden brown pendulous tassels 1m x 1m.

**Carex tasmanica**

*Curley Sedge*

An upright sedge to 30cm. Attractive tight curls on tips of leaves. Wet sites but will tolerate long dry spells.

**Dianella tasmanica**

*Flax Lily*

An evergreen perennial plant with arching, strap-like leaves which can be up to 1.2m long. During spring and summer this plant bears clusters of nodding, star shaped, bright blue to purple flowers which are followed by glossy deep blue berries. Thrives in a sunny to partly shaded position in humus rich, well drained soil. Ideal for rockeries, poolside planting and containers.

**Ficinea nodosa (syn isolepis nodosa)***Knobby club rush*

Dense tufted native rush with stiff stems. Rounded brown flower knobs in summer. Suit damp or moist sandy soil. 60cm X 1m wide.

**Ficinea nodosa (syn isolepis nodosa)***Knobby club rush (syn. Isolepis nodosa)*

Ideal for planting around pond margins, this fast growing perennial plant forms clumps of upright, often arching, dark green stems. Brownish, globular flower heads are produced throughout the year. A tough hardy plant which thrives in full sun in a range of soils. Tolerates salt spray, waterlogged and saline soils. Adds texture and colour to seaside gardens and water features, useful for general garden planting.

**Goodenia elongata***Lanky Goodenia*

Suckering ground cover 10cm tall X 50cm. Glossy green leaves, rich yellow flowers on tall stems spring-summer, prefers moist soils in full sun or part shade.

**Isolepis inundata***Knobby club rush, Swamp club rush*

Handy aquatic for waters edge or general planting (eg. shrub beds, dry creek beds).

**Lomandra longifolia***Long leaf mat bush, Sagg*

A popular plant for use as accent in gardens, where the rush like foliage contrasts well with broad leaved plants. Use it next to ponds or as a boarder plant. Flowers in spring, bearing clusters of cream, strongly perfumed flowers - great for use in flora arrangements. A very adaptable plant that will grow well in a range of soils but does best in a moist position.

**Mazus pumilio***Mauve carpet*

Low growing creeping plant. Ideal ground cover, with mauve flowers, spring and summer. Semi shade or sun.

**Melaleuca squamea**

A bushy shrub to 1m with stunning mauve flowers in spring-summer. Grows well in a damp spot. Frost hardy.

**Poa labillardieri**

A popular native grass grown for its soft blue foliage. In the warmer months this clumping plant produces an attractive flower head with a purple tint. Thrives in a sunny to partly shaded position and grows in a range of soils. Suitable for planting under trees, embankments and mass plantings. Cut to just above ground level in late winter for fresh new spring growth.

**Polystichum proliferum***Mother Shield Fern*

An easy to grow fern with attractive green fronds. New fronds are covered with eye catching brownish scales. An ideal plant for ferneries and shaded garden positions but will perform equally well when planted in a container. Plant in humus rich, moist, well drained soil in part shade. Fertilise with a good organic fertilizer. When planting in containers use a premium potting mix.

**Polystichum proliferum***Mother Shield Fern*

Attractive native fern with arching fronds to 1m long forming plantlets near the tip. Very easily grown in a moist position in morning or filtered sun. Suitable for tubs.

**Pratia pedunculata***Blue pratia, Common pratia, White pratia*

This dainty, spreading plant forms a carpet of tiny green leaves which from spring to early summer is smothered in a mass of tiny, white flowers. This carpeting plant is ideal for filling in spaces near rocks and sleepers and makes an attractive groundcover. Thrives in a sunny to semi-shaded position in moist soil. Keep moist at all times.

**Pratia pedunculata***Blue pratia, Common pratia, White pratia*

This dainty, spreading plant forms a carpet of tiny, green leaves, which from spring to early summer is smothered in a mass of tiny blue flowers. This carpeting plant is ideal for filling in spaces near rocks and sleepers, and makes an attractive groundcover, thrives in a sunny to semi-shaded position in moist soil. Keep moist at all times.

**Scaevola hookeri***Creeping fan flower, Mat fan flower*

A very densely matting, evergreen groundcover with glossy, dark green leaves and small, white fan-shaped flowers in flushes, during spring, summer and autumn. An excellent soil binding plant for average to moist positions. Frost hardy.

**Velleia paradoxa***Spur velleia*

Wild flower 20cm X 20cm with large yellow flowers spring and summer. Prefers moist soils which are well drained and part shade to full sun.

**Viola fuscoviolacea**

A spreading, matting violet with attractive dense foliage and tiny deep purple-blue flowers in spring and summer. Prefers a moist position. Withstands frosts and snow.

**Viola hederacea***Native violet*

An attractive creeping evergreen perennial with fan shaped leaves. This plant produces beautiful mauve flowers over a long flowering period. An ideal ground cover for full sun to part shade in well drained soils.

**TREES****Acacia dealbata***Silver Wattle*

A tall tree with a smooth trunk, often decorated with silvery, mottled patches contrasting with the greyish-green leaves. In spring, clusters of golden-yellow, fluffy ball like flowers almost cover the whole tree.

**Acacia melanoxylon***Blackwood*

A beautiful formal tree that produces one of Australia's most sought after woods for cabinet making. Light yellow flowers occur in winter and early spring. A useful tree for a windbreak or screen as it grows densely. It is also tolerant of a wide range of positions, however its height and width will be greatest if the soil is moist and fertile.

**Eucalyptus ovata***Black gum, Swamp gum*

Evergreen medium to tall moisture loving tree, good for poorly drained soils. Smooth white trunk. Masses of white flowers in autumn which attract birds. Frost hardy. Good tree for cool districts. Water absorber. Drought tolerant. Excellent shade and windbreak tree.

**Eucalyptus rodwayi***Swamp Peppermint*

This tree is suitable for a wide range of conditions, from very dry sandy soils to river banks. Grows 15 to 20m.

**Eucalyptus viminalis***White Gum*

A magnificent tree with a lovely white trunk. This tree is suitable for very dry to very wet sites. Its height is 20 to 40m depending on availability of moisture.

**Pomaderris apetala***Dogwood*

Medium to tall shrub 3 to 15 m. This shrub grows in a wide variety of sites from very dry to very wet but will grow larger with moisture. Looks good planted in copses.

**Prostanthera lasianthos***Christmas bush, Tasmanian Christmas bush*

The Tasmanian Christmas bush comes into flower around Christmas with masses of mint scented foliage. A rapid growth in a range of soils but for best results grow in a well drained soil and mulch to retain moisture in the drier months. An attractive plant that will grow in a range of positions in the garden.

**Tasmannia lanceolata***Mountain pepper, Native pepper*

Small leafed mountain form. Handsome foliage shrub with bright green leaves and red stems. Creamy-yellow flowers in spring. Slow growing to 1.5m, hardy in a cool moist well drained position in sun or shade.

## Appendix E

### **Certificate Forms**



| h   |   |   | <b>Section 321</b>  |
|---|---|---|---|
| <b>CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM</b>  |   |   | Form 55   |
| To:   | <div style="border: 1px solid black; padding: 2px;">Mr Darryl Archer</div> <div style="border: 1px solid black; padding: 2px;">209 West Pine Road</div> <div style="display: flex; justify-content: space-between; border: 1px solid black; padding: 2px;"> <div style="border: 1px solid black; padding: 2px;">Penguin Tas</div> <div style="border: 1px solid black; padding: 2px;">7316</div> </div>   | <div style="font-size: 0.8em;">Owner /Agent</div> <div style="font-size: 0.8em;">Address</div> <div style="font-size: 0.8em;">Suburb/postcode</div> |   |
| <b>Qualified person details:</b>  |   |   |   |
| Qualified person:   | <div style="border: 1px solid black; padding: 2px;">Tony Barriera - Geoton Pty. Ltd.</div> <div style="border: 1px solid black; padding: 2px;">PO Box 522</div> <div style="border: 1px solid black; padding: 2px;">Prospect Tas</div> <div style="border: 1px solid black; padding: 2px;">7250</div>   |   |   |
| Address:  | <div style="border: 1px solid black; padding: 2px;">CC6220 P</div> <div style="border: 1px solid black; padding: 2px;">tbarriera@geoton.com.au</div>  |   | <div style="font-size: 0.8em;">Phone No:</div> <div style="border: 1px solid black; padding: 2px;">03 6326 5001</div> <div style="font-size: 0.8em;">Fax No:</div> <div style="border: 1px solid black; padding: 2px;"></div>             |
| Licence No:   |   |   |   |
| Qualifications and Insurance details:   | <div style="border: 1px solid black; padding: 5px;">           Tony Barriera – BEng, MSc<br/>           CPEng, NER – IEAust 471929<br/>           Civil, Geotechnical<br/>           Certain Underwriters at Lloyd's-<br/>           ENG 19 000330         </div> <div style="font-size: 0.8em; margin-top: 5px;"> <i>(description from Column 3 of the Director's Determination - Certificates by Qualified Persons for Assessable Items)</i> </div>   |   |   |
| Speciality area of expertise:   | <div style="border: 1px solid black; padding: 5px;">Geotechnical Engineering</div> <div style="font-size: 0.8em; margin-top: 5px;"> <i>(description from Column 4 of the Director's Determination - Certificates by Qualified Persons for Assessable Items)</i> </div>  |   |   |
| <b>Details of work:</b>   |   |   |   |
| Address:  | <div style="border: 1px solid black; padding: 2px;">Lot 2 Waverley Road</div> <div style="border: 1px solid black; padding: 2px;">Don Tas</div> <div style="border: 1px solid black; padding: 2px;">7310</div>  |   | <div style="font-size: 0.8em;">Lot No:</div> <div style="border: 1px solid black; padding: 2px;">2</div> <div style="font-size: 0.8em;">Certificate of title No:</div> <div style="border: 1px solid black; padding: 2px;">180138/2</div> |
| The assessable item related to this certificate:  | <div style="border: 1px solid black; padding: 5px;">           Classification of foundation conditions according to AS2870 - 2011         </div> <div style="font-size: 0.8em; margin-top: 5px;"> <i>(description of the assessable item being certified)</i><br/>           Assessable item includes –           <ul style="list-style-type: none"> <li>- a material;</li> <li>- a design</li> <li>- a form of construction</li> <li>- a document</li> <li>- testing of a component, building system or plumbing system</li> <li>- an inspection, or assessment, performed</li> </ul> </div> |   |   |
| <b>Certificate details:</b>   |   |   |   |
| Certificate type:   | <div style="border: 1px solid black; padding: 2px;">Foundation Site Classification – AS2870</div> <div style="font-size: 0.8em; margin-top: 5px;"> <i>(description from Column 1 of Schedule 1 of the Director's Determination - Certificates by Qualified Persons for Assessable Items n)</i> </div>   |   |   |
| This certificate is in relation to the above assessable item, at any stage, as part of - (tick one) |   |   |   |
| building work, plumbing work or plumbing installation or demolition work:                           |   |   | <input type="checkbox"/>  |
| or  |   |   |   |
| a building, temporary structure or plumbing installation:   |   |   | <input checked="" type="checkbox"/>   |

In issuing this certificate the following matters are relevant –

Documents:

Geoton Pty Ltd, Report Reference No. GL21063Ab,  
dated 24/03/2021

Relevant  
calculations:

Refer to report

References:

AS 2870 – 2011 Residential Slabs and Footings Construction  
AS 4055 – 2012 Wind Loads for Housing  
CSIRO Building Technical File 18

*Substance of Certificate: (what it is that is being certified)*

Site Classification in accordance to AS2870 - 2011  
Wind Loading in accordance to AS 4055 - 2012  
Findings and recommendations of report

*Scope and/or Limitations*

The classification applies to the site as investigated at the time and does not account for any future alteration to foundation conditions resulting from earthworks, drainage condition changes or site maintenance variations.

**I certify the matters described in this certificate.**

*Signed:*

Qualified person:



*Certificate No:*

GL21063Ab

*Date:*

24/03/2021

# CERTIFICATE OF THE RESPONSIBLE DESIGNER

Section 94  
Section 106  
Section 129  
Section 155

To:  Owner name  
 Address  
  Suburb/postcode

Form **35**

## Designer details:

Name:  Category:   
  
 Business name:  Phone No:   
 Business address:   
  Fax No:   
 Licence No:  Email address:

## Details of the proposed work:

Owner/Applicant  Designer's project reference No.   
 Address:  Lot No:   
   
 Type of work: Building work ☐ Plumbing work ☒ (X all applicable)

## Description of work:

(new building / alteration / addition / repair / removal / re-erection / water / sewerage / stormwater / on-site wastewater management system / backflow prevention / other)

## Description of the Design Work (Scope, limitations or exclusions): (X all applicable certificates)

| Certificate Type:  | Certificate  | Responsible Practitioner   |
|--|--|--|
|  | <input type="checkbox"/> Building design             | Architect or Building Designer   |
|  | <input type="checkbox"/> Structural design           | Engineer or Civil Designer   |
|  | <input type="checkbox"/> Fire Safety design          | Fire Engineer  |
|  | <input type="checkbox"/> Civil design                | Civil Engineer or Civil Designer                                       |
|  | <input checked="" type="checkbox"/> Hydraulic design | Building Services Designer   |
|  | <input type="checkbox"/> Fire service design         | Building Services Designer   |
|  | <input type="checkbox"/> Electrical design           | Building Services Designer   |
|  | <input type="checkbox"/> Mechanical design           | Building Service Designer  |
|  | <input type="checkbox"/> Plumbing design             | Plumber-Certifier; Architect, Building Designer or Engineer            |
| <input type="checkbox"/> Other (specify)   |  |  |
| Deemed-to-Satisfy: <input checked="" type="checkbox"/>                                       |  | Performance Solution: <input type="checkbox"/> (X the appropriate box) |
| Other details:<br><b>All design documents provided in Report GL21063Ab, dated 24/03/2021</b> |  |  |

**Design documents provided:**

The following documents are provided with this Certificate –

*Document description:*

|                                 |              |       |
|---------------------------------|--------------|-------|
| Drawing numbers:                | Prepared by: | Date: |
| Schedules:                      | Prepared by: | Date: |
| Specifications:                 | Prepared by: | Date: |
| Computations:                   | Prepared by: | Date: |
| Performance solution proposals: | Prepared by: | Date: |
| Test reports:                   | Prepared by: | Date: |

**Standards, codes or guidelines relied on in design process:**


All design documents are contained within report  
AS/NZS1547:2012 On-site domestic-wastewater management

**Any other relevant documentation:****Attribution as designer:**

I Tony Barriera of Geoton Pty Ltd am responsible for the design of that part of the work as described in this certificate;

The documentation relating to the design includes sufficient information for the assessment of the work in accordance with the *Building Act 2016* and sufficient detail for the builder or plumber to carry out the work in accordance with the documents and the Act;

This certificate confirms compliance and is evidence of suitability of this design with the requirements of the National Construction Code.

|             | <i>Name: (print)</i> | <i>Signed</i>  | <i>Date</i> |
|-------------|----------------------|--|-------------|
| Designer:   | Tony Barriera        |  | 24/03/2021  |
| Licence No: | CC6220P              |  |             |

|  |  |
|--|--|
| <b>Assessment of Certifiable Works: (TasWater)</b> |  |
|--|--|

**Note: single residential dwellings and outbuildings on a lot with an existing sewer connection are not considered to increase demand and are not certifiable.**

**If you cannot check ALL of these boxes, LEAVE THIS SECTION BLANK.**

**TasWater must then be contacted to determine if the proposed works are Certifiable Works.**


**I confirm that the proposed works are not Certifiable Works, in accordance with the Guidelines for TasWater CCW Assessments, by virtue that all of the following are satisfied:**

- ☐ The works will not increase the demand for water supplied by TasWater
- ☐ The works will not increase or decrease the amount of sewage or toxins that is to be removed by, or discharged into, TasWater's sewerage infrastructure
- ☐ The works will not require a new connection, or a modification to an existing connection, to be made to TasWater's infrastructure
- ☐ The works will not damage or interfere with TasWater's works
- ☐ The works will not adversely affect TasWater's operations
- ☐ The work are not within 2m of TasWater's infrastructure and are outside any TasWater easement
- ☐ I have checked the LISTMap to confirm the location of TasWater infrastructure
- ☐ If the property is connected to TasWater's water system, a water meter is in place, or has been applied for to TasWater.

|                       |  |
|-----------------------|--|
| <b>Certification:</b> |  |
|-----------------------|--|

I Tony Barriera of Geoton Pty Ltd being responsible for the proposed work, am satisfied that the works described above are not Certifiable Works, as defined within the *Water and Sewerage Industry Act 2008*, that I have answered the above questions with all due diligence and have read and understood the Guidelines for TasWater CCW Assessments.

Note: the Guidelines for TasWater Certification of Certifiable Works Assessments are available at: [www.taswater.com.au](http://www.taswater.com.au)

|           | Name: (print) | Signed   | Date       |
|-----------|---------------|--|------------|
| Designer: | Tony Barriera |  | 24/03/2021 |



## LOADING CERTIFICATE

|                      |                 |   |
|----------------------|-----------------|---|
| To: Mr Darryl Archer | Owner /Agent    | Certificate Ref:<br>AS/NZS 1547:2012<br>Section 7.4.2 |
| 209 West Pine Road   | Address         |   |
| Penguin Tas          | Suburb/postcode |   |

### Details of work:

|                                       |  |  |                          |
|---------------------------------------|--|--|--------------------------|
| Address:                              | Lot 2 Waverley Road                    | Lot No:  | 2                        |
|                                       | Don Tas                                | 7310   | Certificate of title No: |
|                                       |  |  | 180138/2                 |
| The work related to this certificate: | On-site domestic-wastewater management | (description of the work or part work being certified) |                          |

### Certificate details:

In issuing this certificate the following matters are relevant –

|                        |   |
|------------------------|---|
| Documents:             | Report GL21063Ab dated 24/03/2021<br>Figure 6 – Locality Plan<br>Figure 7 – Site Plan<br>Figure 8 – Raised Bed Plan and Section |
| Relevant calculations: | Contained in the above  |
| References:            | AS/NZS1547:2012 On-site domestic-wastewater management  |

### Substance of Certificate:

This certificate sets out the design criteria and the limitations associated with use of the system.

#### Wastewater Characteristics

Population equivalent used for this assessment = 5 (3 bedroom dwelling)  
Wastewater volume (L/day) used for this assessment = 750 (150 Litres per person)  
Approximate blackwater volume (L/day) = 450  
Approximate greywater volume (L/day) = 300

#### Soil Characteristics/Design Criteria

Texture (Table E4 from AS/NZS 1547) = Medium to Heavy clay  
Soil category (Table E1 from AS/NZS 1547) = 6  
Soil structure (Table E4 from AS/NZS 1547) = Moderate  
Indicative permeability (Table 5.1 from AS/NZS 1547) = <0.06m/day  
Adopted permeability = <0.06m/day  
Adopted Design Loading Rate = 10mm/day  
Soil thickness for disposal = >2m  
Minimum depth (m) to water = >2m

**Dimensions for On-Site Treatment System**

*Disposal and treatment methods* = Aerated Wastewater Treatment System (AWTS) and Raised Convestional Bed

*Site modification and specific design* = Not required

*Primary disposal area required* = 75.0m<sup>2</sup>

*Reserve disposal area required* = 75.0m<sup>2</sup>

*Location and use of Reserve area* = Due to proximity with the Parkers Creek and required setback, there is no secondary (back-up) area available, however, in case of a failing wastewater system, the disposal field (raised bed) can be demolished and rebuilt again in the same area\*.

*Is there sufficient area available on site for disposal (including reserve)* = Yes\*

**Notes**

*The purpose of the reserve area is to allow for future extention of the land application system to allow a factor of safety against unforeseen malfunction or failure, perhaps following increased household occupancy or inadvertent misuse of the system.*

*The land application area may be reduced to account for flow reductions by water-saving devices, provided the organic loading rate is not higher than it would have been without the flow reduction.*

**Allowable Variation from Design Flow**

Based on an approved AWTS 10 EP system (10 equivalent persons) rated at 1500 litres per day and a wastewater design volume of 750L/day the allowable variation from design flow (peak loading events) would be an additional 750L/day.

**System Limitations**

*Consequences of overloading the system:*

- (A) Adverse effects on soil properties and plant growth through excess salt accumulation in the root zone during extended dry periods
- (B) Harmful long-term environmental effects to the soil of land application system or the adjacent surface water and groundwater; or
- (C) Increased risk to public heath from surface ponding in the land application area or channelling or seepage beyond the land application area.

*Consequences of underloading the system:*

Not applicable to this type of system.


**Operation Requirements**

Refer to operation manual of preferred aerated waterwater treatment system.

**Maintenace Requirements**

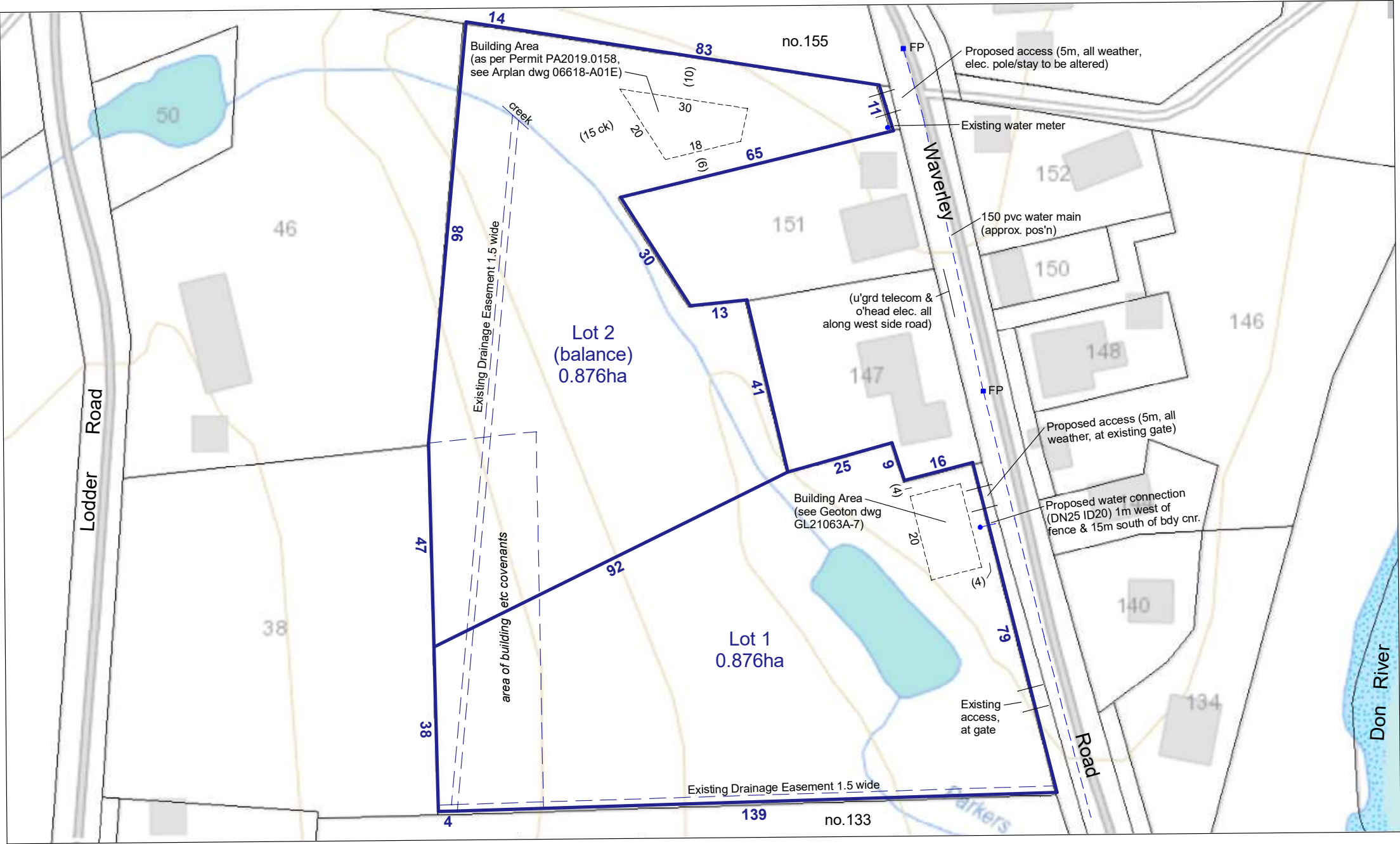
Refer to operation manual of preferred aerated waterwater treatment system.

**I certify the matters described in this certificate.**

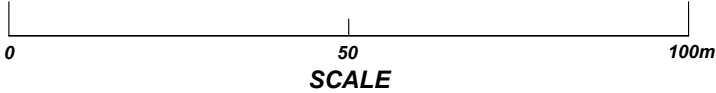
|            |   |              |                        |
|------------|---|--------------|------------------------|
|            | <i>Signed:</i>  | <i>Date:</i> | <i>Certificate No.</i> |
| Certifier: |  | 24/03/2021   | GL21063Ab              |

City of Devonport.  
Part of Lot 246, 500 acres,  
gtd to John Palmer.

MGA Centroid:  
E 442850  
N 5441850  
  
PID 9510668  
10m contours shown.



Note: Proposed boundary dimensions, areas, etc, are approximate only, and are subject to council approval & final survey.  
This plan is for the purpose of obtaining planning approval only, and is not to be used for other purposes.



Development Application Proposal Plan  
Two Lot Subdivision at CT 180138/2 Waverley  
Road Don, by owner D.T. Archer.

Surveyed: 21 July 2021  
Drawn: 23 July 2021

Job Ref: 1886

Horiz. Datum: MGA  
Vert. Datum: AHD

DWG No:  
**1886-D01**  
Sheet:  
1 of 1  
Scale (at A3 size) :  
1 : 1000

**Land & Sea Surveys**  
391 Melrose Road, Eugenana, 7310  
Michael Ward, Ph. 0419 878 830



20<sup>th</sup> September, 2021

General Manager  
Devonport City Council  
PO Box 604  
Devonport 7310

Dear Sir,

**RE: PA2021.0125 - Proposed 2 Lot Subdivision 139 Waverley Road, Don**

I wish to make a representation relating to the application in accordance with section 57(5) of the Land Use Planning Approvals Act 1993. The applicant has applied to subdivide the land at 139 Waverley Road, Don into two lots within the Rural Living Zone A.

Nature of Representation:

The proposed development application fails to meet many of the requirements of the Rural Living Zone A and gives no consideration to the following codes:

- Natural Asset Code - Priority Vegetation;
- Natural Asset Code - Waterway and Coastal Protection; and
- Local Historic Landscape Precinct DEV-C6.3.1

**11.5.1 Lot design**

A1

The Rural Living Zone requires a minimum lot size of 1ha, of which both proposed lots fall short of at just 0.876ha. Each lot is therefore subjected to the performance criteria of providing sufficient useable area and dimensions suitable for its intended use. In review of the documentation provided, I do not believe the development of Lot 1 on the proposed plan meets this criteria for many reasons including the intended location of future buildings on the lot, the setbacks from boundaries, the encroachment of the bushfire management area on priority vegetation and waterway and coastal protection areas and the pattern of development existing on establish properties in the area.

The intended building envelop on Lot 1 is situated within both the Priority Vegetation Area (Appendix B) and the Waterway and Coastal Protection Area (Appendix C). It is situated just 4m from the boundary of Waverley Road and 4m from the neighbouring property to the north, both of which fall short of the 20m front setback and 10m side setback required in the Rural Living Zone A. The need to have buildings this close to the boundaries alone demonstrates there is insufficient land on this part of the lot for development. The owner has further emphasised this by the planting of shrubbery on

the nature strip and the erection of an additional fence between the property boundary and Waverley Road reducing public open space on the road reserve (see photo on p.12 of the BAL Assessment report included in the application).

The entire location of the Aerated Wastewater Treatment System specified and shown by Geoton on their site plan, Figure 7, falls within the Waterway and Coastal Protection Area. It would be fair to assume that if provision for a wastewater system cannot be outside a designated waterway this development has no grounds to be approved. Geoton has also clearly stated in their report on p.12 that the minimum setback of the on-site wastewater management system is 15m from downslope sensitive features such as watercourses. If this is the case, it is rather ironic that they are happy to show on plan the location of the proposed AWTs within the 15m radius of the dam (Appendix 1).

Regarding the 4m setback from Waverley Road, this is far less than the minimum building setback from the frontage specified in 11.4.2 A2 of 20m, it is also less than that of a house in a residential zone! In respect to the performance criteria, in my opinion the proposal is not compatible with the character of the area with adjacent buildings having greater setbacks from their Waverley Road boundaries, the one to the north 5-5.5m and the one to the south over 100m. Whilst there are other dwellings with similar setbacks in the area, these are historical buildings and do themselves pose issues regarding parking, pedestrians walking, etc. The location of a dwelling so close to the road would also limit the ability to manoeuvre vehicles onsite and would not provide adequate provision of off-street parking. This narrow section of Waverley Road already has limited parking available, and this development could further exasperate this issue. In summary, a new house with a setback of 4m would not be in character with the Don area where most houses have a setback far greater.

The topography of the site also makes it difficult for any development to occur in the planned location due to the existing dam on site. The house site shown on the Land & Sea Surveys plan, DWG No: 1886-D01 of the planning application, is positioned approximately 6m from the watercourse, and within the Waterway and Coastal Protection Area as mentioned previously. The absence of dimensions, information, or consideration of this in this planning application is deplorable.

The Bushfire Hazard Management Plan supplied by ES&D that accompanies the application clearly shows a Bushfire Hazard Management Area within a Waterway and Coastal Protection area (Appendix B). C7.7.1 clearly states that all buildings and any associated bushfire hazard management areas must be outside a Waterway and Coastal Protection area, both of which this proposal fails to do. Whilst much of the vegetation on this section of the land has recently been cleared, the works associated with subdivision and subsequent clearing to meet the Bushfire Hazard Management Area will also impact on the priority vegetation area (Appendix C). I do not believe this development meets either the acceptable solutions or performance criteria in C7.6.2. Hence, the Bushfire Hazard Management Plan accompanying this application must be considered invalid.

This application also does not provide reference to the Local Historical Lands Prescient which applies to this development, at a minimum evidence of consideration should be sought from the developer.

## A2

Lot 2 of the proposed development fails to address the need for a minimum road frontage of not less than 40m and vehicular access. The functionality and useability of the proposed access of Lot 2 from the land on the northern end of the property is restricted by the position of both a power pole and stay on the nature strip. TasNetworks has previously assessed this infrastructure as not being possible

to relocate and if this remains the case, Lot 2 would not have a frontage or legal connection to a road. The proposed subdivision also splits Lot 2 into two sections separated by Parkers Creek. This would restrict access to the largest portion of Lot 2 due to the unstable cliff face on the eastern side of Parkers Creek. It would be unlikely that any future owner would be prepared to invest in the necessary infrastructure to gain access to this portion of land purely for the purpose of maintaining vegetation, and hence the land to the west of Parkers Creek could likely end up unmanaged.

### **11.5.3 Services**

A2

Lot 1 must be capable of accommodating an on-site wastewater treatment system adequate for the future use and development of the land. Paradoxically, it was less than two years earlier that Geoton, the same office who provided the accompanying reports to this development application, deemed the proposed wastewater site unsuitable due to its location to the dam on Parkers Creek. One would question how the landform and dam position could have changed so much within an 18month period for it now to be a suitable position for a wastewater system? As noted in the Geoton report, GL21063Ab dated 24 March 2021, there is a requirement for the wastewater system to be located 15m from downslope sensitive features such as watercourses. As evidence on Appendix A using The List aerial photography, the proposed location of the onsite wastewater system is within the 15m setback and hence should not be considered an acceptable solution and this application should be deemed invalid. Reference should also have been given to the Waterway and Coastal Protection Code in relation to the location of the on-site wastewater treatment system of which Geoton clearly have not considered.

### **Summary**

Thank you for considering my representation in relation to the proposed two lot subdivision at 139 Waverley Road, Don. As evidenced, there are several factors that have failed to be adequately addressed in this application: the location of both the dwelling and wastewater system on Lot 1 in relation to the dam and other dwellings on Waverley Road; the access and future maintenance of Lot 2, and most importantly the environmental impact the residence and wastewater system on Lot 1 would have on Parkers Creek. It appears to me the lack of consideration given to the Natural Asset Code by all three reports accompanying this application is inexcusable.

Kind regards,

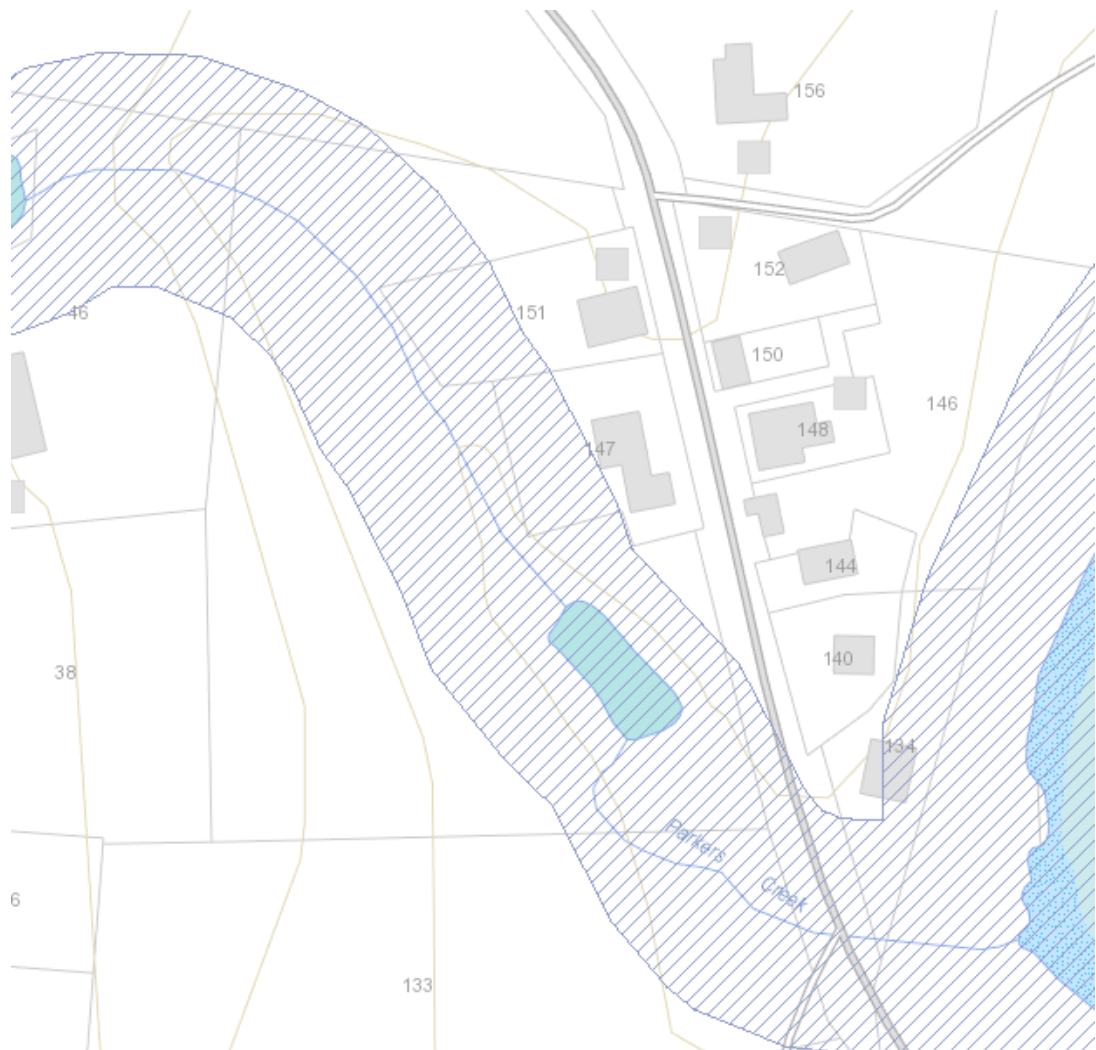
Tina Smith

APPENDIX A:



Reference: <https://maps.thelist.tas.gov.au/listmap/app/list/map>

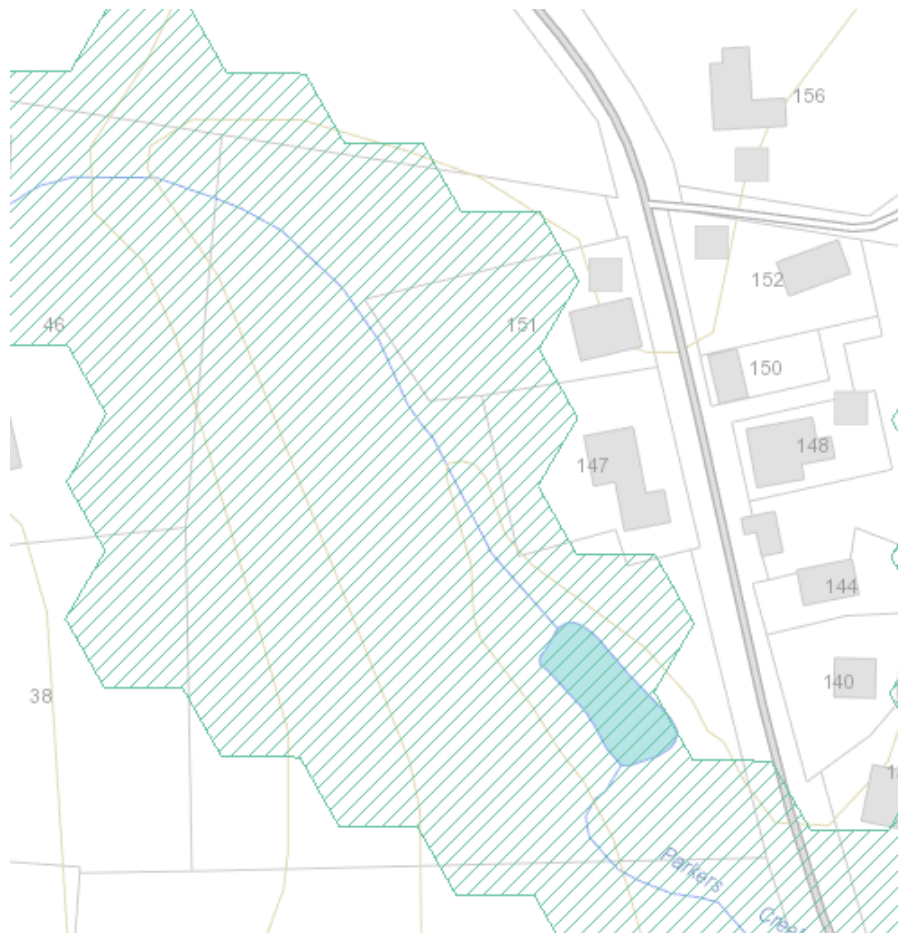
APPENDIX B:




Waterway and Coastal Protection Area

Reference: <https://maps.thelist.tas.gov.au/listmap/app/list/map>

APPENDIX C:



 Priority Vegetation

Reference: <https://maps.thelist.tas.gov.au/listmap/app/list/map>