**TASMAN COUNCIL**

1713 Main Road, Nubeena TAS 7184

Phone: (03) 6250 9200

Email: [tasman@tasman.tas.gov.au](mailto:tasman@tasman.tas.gov.au)Website: [www.tasman.tas.gov.au](http://www.tasman.tas.gov.au)

ABN: 63 590 070 717

## NOTICE OF PROPOSED DEVELOPMENT

Notice is hereby given that an application has been made for planning approval under the Land Use Planning and Approvals Act 1993, for the following development(s):

<b>NUMBER:</b>	DA 76/2022
<b>ADDRESS:</b>	170 Safety Cove Road, Port Arthur (CT 59543/10)
<b>DESCRIPTION:</b>	Residential – Demolition of Existing Dwelling and Construction of a New Dwelling and Outbuilding

The relevant plans and documents can be viewed on Council's website <https://www.tasman.tas.gov.au/developmentservices/publicnotices/> or are available in hard copy upon request by calling Council on (03) 6250 9200 or email [tasman@tasman.tas.gov.au](mailto:tasman@tasman.tas.gov.au) until 4:30pm **03 October 2022**.

Any person may make a representation relating to the application. Representations are to be made in writing addressed to the General Manager, Tasman Council, 1713 Main Road, Nubeena TAS 7184 or by email to [tasman@tasman.tas.gov.au](mailto:tasman@tasman.tas.gov.au) and will be received no later than 4.30pm on **03 October 2022**. Late representations will not be considered.

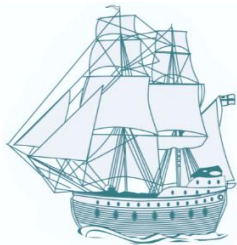
**Kim Hossack****General Manager****Date: 16 September 2022**

The below image was sourced from The List: <https://maps.thelist.tas.gov.au/listmap/app/list/map>

148 Big Pro







## TASMAN COUNCIL

1713 Main Road, Nubeena TAS 7184

Tel 03 6250 9200 Fax 03 6250 9220

Email [tasman@tasman.tas.gov.au](mailto:tasman@tasman.tas.gov.au)

Web [www.tasman.tas.gov.au](http://www.tasman.tas.gov.au)

ABN 63590070717

### Application for Planning Permit

The personal information requested on this form is being collected by council for purpose set out in the title of the form. The personal information will be used solely by council for the primary purpose or directly related purposes. The applicant understands that personal information is provided for the above mentioned function and that he/she may apply to council for access to and/or amendment of the information. Requests for access or correction should be made to Tasman Council's Customer Service Officer.

#### APPLICANT DETAILS\*

FULL NAME			
POSTAL ADDRESS		POSTCODE	
PHONE (BUSINESS HOURS)		FAX	
MOBILE		EMAIL	

#### OWNERS DETAILS (IF DIFFERENT)\*

FULL NAME			
POSTAL ADDRESS		POSTCODE	
PHONE (BUSINESS HOURS)		MOBILE	

#### DESCRIPTION OF PROPOSED DEVELOPMENT\*

<input checked="" type="checkbox"/> New Dwelling	<input type="checkbox"/> New Shed/ Outbuilding
<input type="checkbox"/> Subdivision	<input type="checkbox"/> Extension/ Addition
<input type="checkbox"/> Change of Use	<input checked="" type="checkbox"/> Demolition
<input type="checkbox"/> Commercial/ Industrial Building	<input type="checkbox"/> Other (please specify – right)

#### PRESENT USE OF LAND/ BUILDING(S)

Residential

#### LOCATION OF PROPOSED DEVELOPMENT\*


ADDRESS	170 Safety Cove Road, Port Arthur		
CERTIFICATE OF TITLE	59543	LOT NUMBER	10
FLOOR AREA			
Existing floor area (square metres): 55		Proposed floor area (square metres): 136	
CAR PARKING			
Number existing		Number proposed 2	

<b>SITE CONTAMINATION</b>	
Have any potentially contaminating uses been undertaken on this site? (Refer to list provided on page 5)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>TASMANIAN HERITAGE OR ABORIGINAL HERITAGE REGISTER</b>	
Is this property on the Tasmanian Heritage or Aboriginal Heritage Register?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>VALUE (mandatory field)</b>	
Value of work (inc. GST)	\$386,729.00

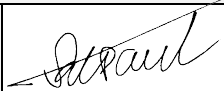
#### PRE-APPLICATION DISCUSSIONS\*

<b>HAVE YOU HAD PRE-APPLICATION DISCUSSIONS WITH A COUNCIL OFFICER?</b> (If yes, please specify officers name, if known) _____	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
---	--

#### DECLARATION BY APPLICANT\*

I/ we declare that the information given is a true and accurate representation of the proposed development; and I/ we am/ are liable for the payment of Council application processing fees, even in the event of the development not proceeding; and I/ we authorise Tasman Council to provide a copy of my documents relating to this application to any person for the purpose of assessment and public consultation and agree to arrange for the permission of the copyright owner of any part of this application to be obtained.	
<b>SIGNATURE OF APPLICANT</b>	
<b>NAME OF APPLICANT (PLEASE PRINT)</b>	
<b>DATE</b>	12/07/2022

#### DECLARATION IF APPLICANT IS NOT THE OWNER

I hereby declare that I am the applicant for the development at the address detailed in this application for a planning permit, and that I have notified the owner/s of the land for which I am making this application, in accordance with Section 52(1a) of the <i>Land Use Planning and Approvals Act 1993</i> .	
<b>SIGNATURE OF APPLICANT</b>	
<b>NAME OF APPLICANT (PLEASE PRINT)</b>	
<b>DATE</b>	12/07/2022
<b>NAME/S OF OWNER/S NOTIFIED</b>	
<b>DATE</b>	12/07/2022

<b>IS THE APPLICANT AND/OR OWNER A TASMAN COUNCIL COUNCILLOR, COUNCIL OFFICER OR HIS OR HER SPOUSE OR IMMEDIATE RELATIVE? *</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
---	---



## DECLARATION IF LAND IS COUNCIL OR CROWN LAND

If the land that is the subject of this application is owned or administered by either the Crown or Tasman Council, the consent of the Minister of the Crown or the General Manager of the Council, whichever is applicable, must be included here. This consent should be completed and signed by either the Minister, the General Manager of Tasman Council, or their delegate (as specified in Subsections 52(1d-1g) of the *Land Use Planning and Approvals Act 1993*).

<b>DECLARATION</b>	I, _____ being responsible for the administration of land at _____
	declare that I have given permission for the making of this application.
<b>SIGNATURE OF MINISTER/ GENERAL MANAGER</b>	
<b>DATE</b>	

## NON-RESIDENTIAL DEVELOPMENTS

Note: This section must be completed for all applications for non-residential uses, home occupations and domestic/ residential businesses or other managed/ commercial residential uses (e.g. hostel or motel).

<b>HOURS OF BUSINESS</b>			
<b>CURRENT</b>		<b>PROPOSED</b>	
Monday to Friday		Monday to Friday	
Saturday		Saturday	
Sunday		Sunday	
<b>NUMBER OF EMPLOYEES</b>			
<b>CURRENT</b>		<b>PROPOSED</b>	
Total Employees		Total Employees	
Employees on Site		Employees on Site	
<b>PLANT/ MACHINERY</b>			
Is there any large plant or machinery that would need to be installed or used on site such as refrigeration units and generators? (If yes, please list below the type of machinery and ensure location, dimensions etc are clearly marked on your plans.)			<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>OUTDOOR STORAGE/ SEATING/ NUMBER OF BEDS</b>			
Is outdoor storage proposed? (If yes, please ensure that your plans show where the outdoor storage areas are and what type of goods are stored. This information will help us assess the impact of the proposal on the amenity.)			<input type="checkbox"/> Yes <input type="checkbox"/> No
If you are proposing a night club, café or the like, what is the number of seats proposed including the capacity at any bar area?		Please ensure that the arrangements are shown on your plans. This information enables us to assess the car parking arrangements.	
If you are proposing a hotel, motel, visitor accommodation, hostel or the like, what is the number of beds proposed?		Please ensure the beds are clearly indicated on your plans. This information enables us to assess the car parking arrangements.	
<b>GOODS DELIVERIES</b>			
Will there be any goods deliveries to and from the site? (If yes, please estimate the number and type of vehicles and how often they will make trips.)			<input type="checkbox"/> Yes <input type="checkbox"/> No
Type and Size of Vehicle		Number of Vehicles on Site	
Trip Frequency per Month			

## CHECKLIST

To ensure that we can process your application as quickly as possible, please read the following checklist carefully to ensure that you have provided the following at the time of lodging the application. If you are unclear on any aspect of your application, please phone **(03) 6250 9200** to discuss or arrange an appointment concerning your proposal. Note that, in accordance with Section 54 of the *Land Use Planning and Approvals Act 1993*, Council may require additional information.

1. A completed Application for Planning Permit Form. *Please ensure that the form provides an accurate description of the proposal, has the correct address and contact details and is signed and dated by the applicant.*
2. A current copy of the Certificate of Title for all lots involved in the proposal. *The title details must include, where available, a copy of the search page, title plan, sealed plan or diagram and any schedule of easements (if any), or other restrictions, including covenants. Council notification or conditions of transfer.*
3. One (1) copy of the following information (email submissions are accepted):
  - a. An analysis of the site and surrounding area setting out accurate descriptions of the following:
    - i. topography and major site features including an indication of the type and extent of native vegetation present, natural drainage lines, water courses and wetlands, trees greater than 5 metres in height in areas of skyline or landscape importance and identification of any natural hazards including flood prone areas, high fire risk areas and land subject to instability;
    - ii. soil conditions (depth, description of type, land capability etc);
    - iii. the location and capacity of any existing services or easements on the site or connected to the site;
    - iv. existing pedestrian and vehicle access to the site;
    - v. any existing buildings on the site;
    - vi. soil and water management plans.
  - b. A site plan for the proposed use or development, drawn at a scale of not less than 1:200 (1:1000 for sites in excess of 1 hectare), showing:
    - i. a north point;
    - ii. the boundaries and dimensions of the site;
    - iii. Australian Height Datum (AHD) levels;
    - iv. natural drainage lines, watercourses and wetlands;
    - v. soil depth and type
    - vi. the location and capacity of any existing services or easements on the site or connected to the site;
    - vii. the location of any existing buildings on the site, indicating those to be retained or demolished, and their relationship to buildings on adjacent sites, streets and access ways;
    - viii. the use of adjoining properties;
    - ix. shadow diagrams of the proposed buildings where development has the potential to cause overshadowing;
    - x. the dimensions, layout and surfacing materials of all access roads, turning areas, parking areas and footpaths within and at the site entrance;
    - xi. any proposed private or public open space or communal space or facilities;
    - xii. proposed landscaping, indicating vegetation to be removed or retained and species and mature heights of plantings; and
    - xiii. methods of minimizing erosion and run-off during and after construction and preventing contamination of storm water discharged from the site.
  - c. Plans and elevations of proposed and existing buildings, drawn at a scale of not less than 1:100, showing internal layout and materials to be used on external walls and roofs and the relationship of the elevations to natural ground level showing any proposed cut or fill.
4. A written submission supporting the application that demonstrates compliance with the relevant parts of the Act, State Policies and planning scheme.

Please note that application fees will be invoiced upon initial assessment.

*Please contact the Council's Building & Development Services Department on (03) 6250 9200 for details of fees.*

POTENTIALLY CONTAMINATING ACTIVITIES	
Agricultural Fertiliser Manufacture	Metal Founders
Asbestos Production and Manufacture	Metal Sprayers
Battery Manufacture and Recycling	Metal Treatments and Picklers
Chemical Manufacture or Formation	Mining and Extractive Industries
Defence Establishments and Training Areas	Pest Controllers (being areas where pest control chemicals are stored or vehicles and tanks used in connection with pest control are washed.)
Drum Reconditioning Wastes	Petroleum and Petrochemical Industries
Dry Cleaning Establishments	Pharmaceutical Manufacture or Formation
Electroplating	Printers
Explosives Production and Storage	Railway Yards
Fuel Depots and Storage Areas	Sanitary and Refining
Galvanisers	Scrap Yards
Gas Works	Service Stations
Gun, Pistol and Rifle Clubs	Smelting and Refining
Hazardous Waste Landfills	Tannery or Fellmongery or Hide Curing Works
Industrial Cleaners	Wood Treatment and Preservation Sites
Lime Burners	

DEFINITION OF OWNER
"Owner" means any of the following:
(a) in the case of a fee simple estate in land – the person in whom that estate is vested;
(b) in the case of land not registered under the <i>Land Titles Act 1980</i> and subject to a mortgage – the person having, for the time being, the equity of redemption in that mortgage;
(c) in the case of the land held under a tenancy for life – the person who is the life tenant;
(d) in the case of land held under a lease of a term not less than 99 years or for a term of not less than such other prescribed period – the person who is the lessee of the land;
(e) in the case of land in respect of which a person has a prescribed interest – that person;
(f) in the case of Crown Land within the meaning of the <i>Crown Lands Act 1976</i> – the Crown on right of the State of Tasmania

**OFFICE USE ONLY:**

<input type="checkbox"/> Planning Fees \$ _____	Receipt No: _____
<input type="checkbox"/> Advertising Fees \$ _____	Date of Receipt: _____



## SEARCH OF TORRENS TITLE

VOLUME 59543	FOLIO 10
EDITION 2	DATE OF ISSUE 03-Jan-2012

SEARCH DATE : 25-Jul-2022

SEARCH TIME : 12.39 PM

DESCRIPTION OF LAND

Parish of CARNARVON, Land District of PEMBROKE  
Lot 10 on Plan 59543 (formerly being P1379)  
Derivation : Part of Lot 6979 Gtd. to J. MacFarlane.  
Prior CT 2309/59

SCHEDULE 1

M358087 Registered 03-Jan-2012 at noon

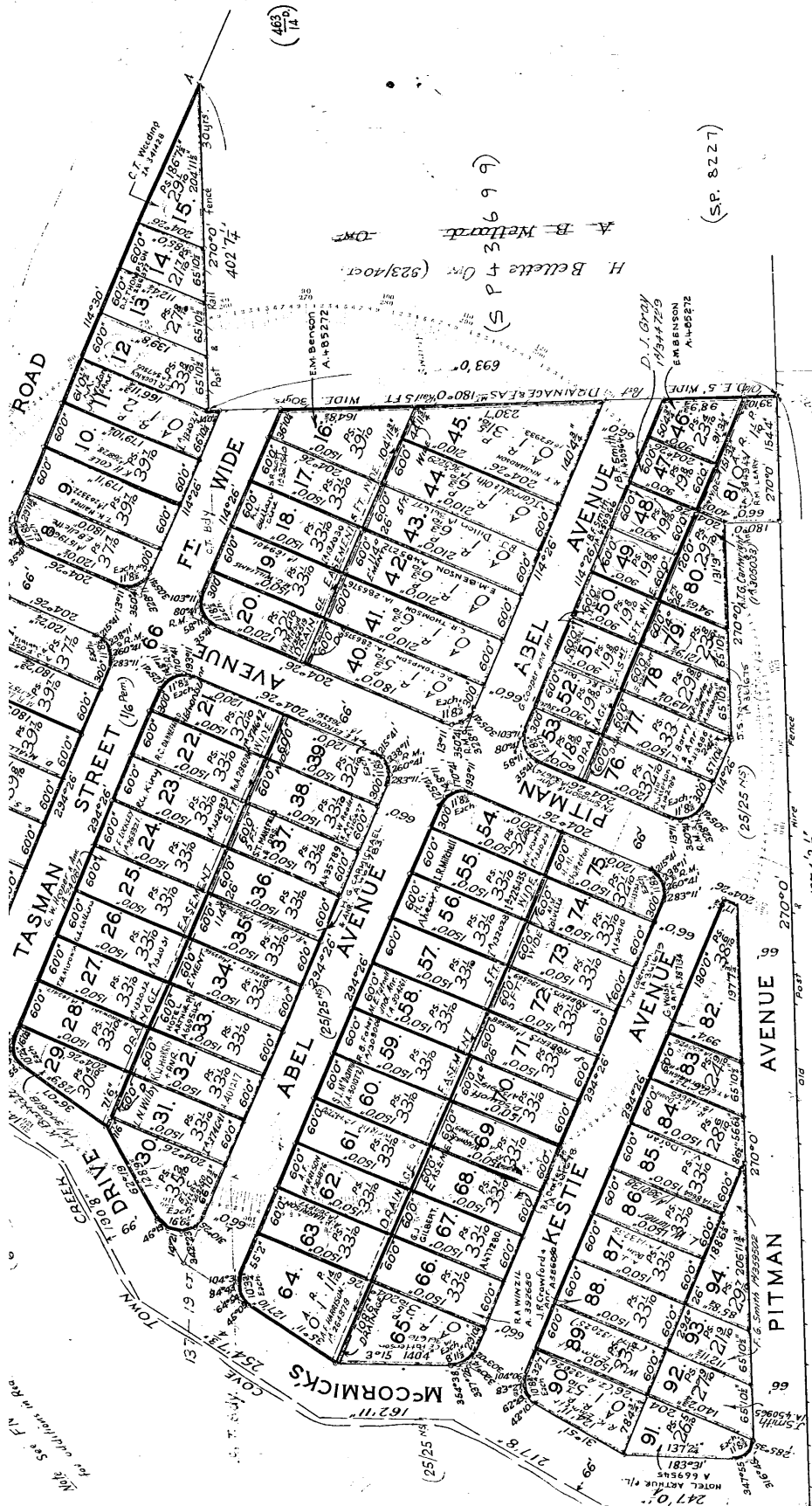
SCHEDULE 2

Reservations and conditions in the Crown Grant if any  
A268128 FENCING PROVISION in Transfer

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

See *FNs* for additions in Red



(SP119258)

T. Mason

Lot 10731

Plotted by  
Competitions checked  
Examined as to boundaries 14/10/10  
Entered on diagrams 14/10/10  
Remains on card  
Entered on card

REGISTERED NUMBER  
**59543**



<b>SURVEY INFORMATION ONLY SURVEY NOTES</b> DEPOSITED FOR PUBLIC RECORD (SEE LTO CIRCULAR 1 OF 2007)		<b>MAIN L.T.O. PLAN</b> (TO BE FILED WITH) <b>P.59543</b>	
<b>PURPOSE:</b> <i>Remark Survey</i>		<b>SIO REFERENCE</b> <b>152282</b>	
<b>LOCATION</b> <i>172 Safety Cove Rd, Port Arthur</i> <b>OWNER</b> <i>Rodney Morine</i> <b>FOLIO REFERENCE</b> <i>C.T. 59543-11</i> <b>GRANTEE</b> <i>Part of Lot 6979 (115a Dr Op) to John Macfarlane</i>		<b>SURVEY CERTIFICATE</b> I, <u>Tony Neville Waelford</u> of <u>Mount Rummy</u> in Tasmania a Registered Land Surveyor HEREBY CERTIFY that: (a) this survey is based upon the best evidence that the nature of the case admits (b) the survey notes have been truly compiled from surveys made by me or made under my supervision; and (c) this survey and accompanying survey notes comply with relevant legislation affecting surveys and are correct for the purpose required.  <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <b>SURVEYORS</b>            REF No: <i>B7074</i> </div> <div style="width: 45%;"> <b>DATE</b> <i>1/1/07</i>            Signature: <u>Tony Neville Waelford</u> </div> </div>	

*All boundaries open unless shown otherwise. Age of old marks consistent with age of the original surveys.*

*Point 3-1 fixed from corner brick buildings per T. Gorman repeg dated 24-9-82:-*

<i>Cr. Brick - Cr. Brick:-</i>	<i>24° 48' 08"</i>	<i>56.094</i>
<i>TSC:-</i>	<i>11° 06' 21"</i>	<i>56.130</i>
	<i>13° 41' 47"</i>	<i>-0.036</i>

*Cr. 5-1 fixed from SP 132972.*

*Comparison 3-1 to 5-1:-*

<i>2-321° 44' 10"</i>	<i>211.931</i>
<i>P.1379-309° 27' 20"</i>	<i>212.341</i>
<i>+ 12° 16' 50"</i>	<i>-0.410</i>

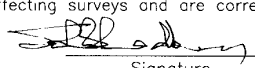
*Adapted to fix lot boundaries.*

*MGA + Datum from SP 140453*  
*Scale Factor - 0.99966*  
*Sea Level Co. - 1.00000*

*2-1*  
 E - 568 936.43  
 N - 5221 454.02

*5-1*  
 E - 568 920.03  
 N - 5221 398.04

(4-1)

<b>SURVEY INFORMATION ONLY SURVEY NOTES</b> DEPOSITED FOR PUBLIC RECORD (SEE LTO CIRCULAR 1 OF 2007)		MAIN L.T.O. PLAN <del>P. 1379</del> P59543 (TO BE FILED WITH)	
PURPOSE: REMARK (Lot 9)		SIO REFERENCE 155273	
LOCATION Safety Cove Road, Port Arthur OWNER I.E. Francombe FOLIO REFERENCE 59543-9 GRANTEE Part of Lot 6979, 115acres granted to John MacFarlane		<b>SURVEY CERTIFICATE</b> I, <u>John B. Medbury</u> of <u>Cambridge</u> in Tasmania a Registered Land Surveyor HEREBY CERTIFY that: (a) this survey is based upon the best evidence that the nature of the case admits (b) the survey notes have been truly compiled from surveys made by me or made under my supervision; and (c) this survey and accompanying survey notes comply with relevant legislation affecting surveys and are correct for the purpose required. <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">             Signature         </div> <div style="text-align: right;">           Date <u>24 / 9 / 08</u> </div> </div>	
SURVEYORS REF No: 08006		PAGE 1. OF 1. PAGES	

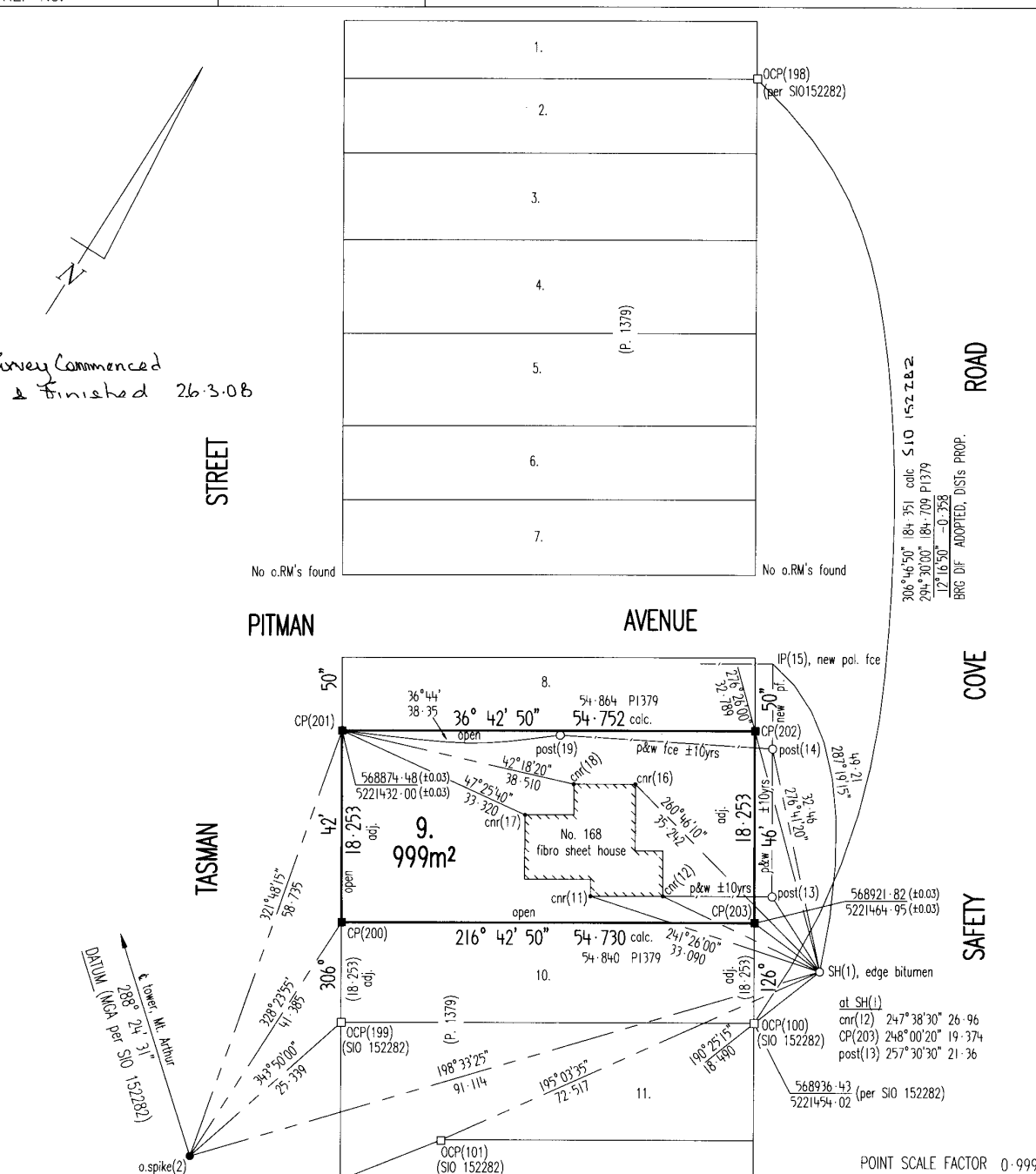
STREET

PITMAN AVENUE

TASMAN

COVE

SAFETY



Survey Commenced  
& finished 26.3.08

STREET

PITMAN AVENUE

TASMAN

COVE

SAFETY

POINT SCALE FACTOR 0.99966  
 SEA LEVEL CORR. 1.00000  
 COMBINED FACTOR 0.99966  
 SURVEY METHOD: TRAVERSE

**J.B.MEDBURY PTY.LTD.** 224 CAMPBELL ST HOBART  
 Ph. 62 346844 Fax. 62 346148 Email. medbury@optusnet.com.au


<b>SURVEY INFORMATION ONLY SURVEY NOTES</b> DEPOSITED FOR PUBLIC RECORD (SEE LTO CIRCULAR 1 OF 2007)		MAIN L.T.O. PLAN (TO BE FILED WITH) P.59543
<b>PURPOSE:</b> RE-MARK Survey of Lot 78		<b>SIO REFERENCE</b> <span style="font-size: 1.2em; font-weight: bold;">159645</span>
<b>LOCATION</b> Parish of CARNARVON <b>OWNER</b> Land District of PEMBROKE <b>FOLIO REFERENCE</b> Edgar Edward Evans & Vicki Ann Evans <b>GRANTEE</b> C.T.59543/78 Part of Lot 6979 Granted to J. MacFarlane LENGTHS IN METRES	<b>SURVEY CERTIFICATE</b> Christopher Lewis Andrews of 57 Mt Rumney Road Mt Rumney in Tasmania a Registered Land Surveyor HEREBY CERTIFY that: (a) this survey is based upon the best evidence that the nature of the case admits (b) the survey notes have been truly compiled from surveys made by me or made under my supervision; and (c) this survey and accompanying survey notes comply with relevant legislation affecting surveys and are correct for the purpose required. <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">             Signature         </div> <div style="text-align: right;">           Date <u>30/10/2009</u> </div> </div>	

Survey commenced 29/10/2009  
 Survey completed 29/10/2009  
 Co-ord origin SIO 155273/203  
 Scale factor 0.99966  
 Height factor 1.00000  
 MGA bearing datum determined from comparison with SIO155273/203 and Mt Arthur tower  
 E 566 607.427 N 5222 152.281  
 (101) ORM was adopted as frontage and the bearing to (600) OCP was adopted. The difference in distance was not adjusted as occupation and C.T. distances fit for the lot under survey.

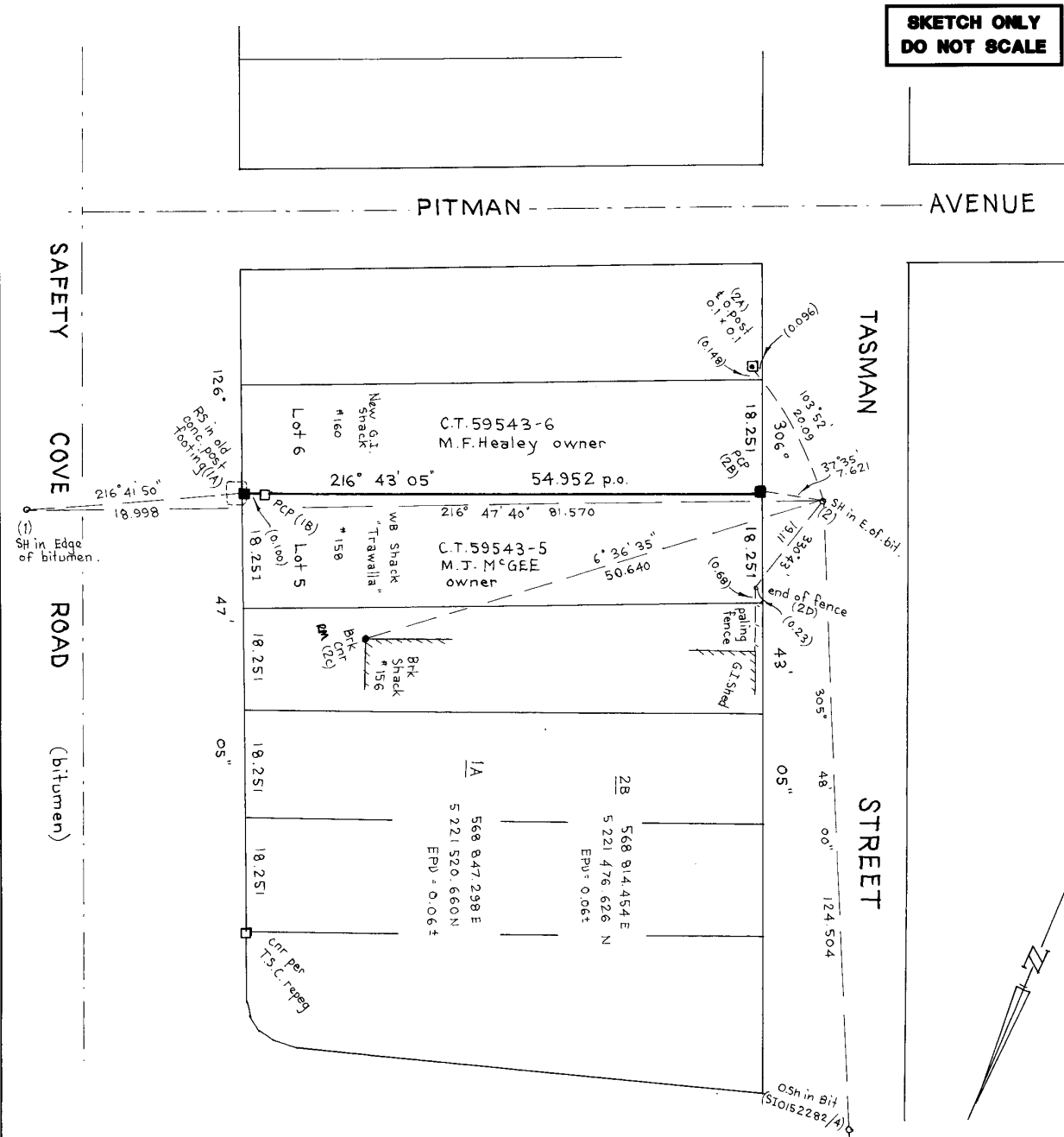
Graduate Surveyor  
 Joanne Hawkes

(1) - (302)  
 105°30'23" 101.589  
 96°09'29" 101.770 (SP119258)  
 9°20'54" 0.181  
 Note: (302) may not be the same ORM from SP119258 due to the nature of the difference found (the house may have altered).




<b>SURVEY INFORMATION ONLY SURVEY NOTES</b> DEPOSITED FOR PUBLIC RECORD (SEE LTO CIRCULAR 1 OF 2007)		<b>MAIN L.T.O PLAN</b> (TO BE FILED WITH)		<b>P59543</b>
<b>PURPOSE:</b> Partial Remark of Common boundary between Lots 5 & 6.		<b>SIO REFERENCE</b>		<b>160156</b>
<b>LOCATION</b> 158 Safety Cove Road, Port Arthur <b>OWNER</b> Margaret Jessica McGee <b>FOLIO REFERENCE</b> C.T. 59543-5 <b>GRANTEE</b> Part of Lot 6979 115 Acres Gtd to John Macfarlane		<b>SURVEY CERTIFICATE</b> I, Craig McDowall Terry of Hobart in Tasmania, a Registered Land Surveyor, HEREBY CERTIFY that: (a) this survey is based upon the best evidence that the nature of the case admits; (b) the survey notes have been truly compiled from surveys made by me or made under my supervision; and (c) this survey and accompanying survey notes comply with relevant legislation affecting surveys and are correct for the purpose required.  Date 22.17.2010 Signature 		
<b>SURVEYORS</b> REF No:		<b>PAGE 1 OF 2 PAGES</b>		

**SKETCH ONLY  
DO NOT SCALE**



The sketch shows a section of land bounded by Safety Cove Road to the west, Pitman Avenue to the north, and Tasman Street to the east. It includes Lot 6 (New G.I. Shack, C.T. 59543-6, M.F. Healey owner), Lot 5 (WB Shack, C.T. 59543-5, M.J. McGEE owner), and Lot 4 (B.K. Shack, C.T. 59543-4, M.J. McGEE owner). Dimensions and bearings are provided for all boundaries. A north arrow is located in the bottom right corner.

This plan is not examined by the office of the Recorder of Titles. Subsequent registered or other surveys in this area may affect the boundary definition shown on this plan. Any differences so caused to the boundary definition shown on this plan are beyond the control of Peacock, Darcey & Anderson Pty Ltd who can accept no responsibility for such differences.

**PDA**  
PEACOCK DARCEY & ANDERSON PTY. LTD.  
127 Gaffney Street  
Hobart, Tasmania, 7000  
www.pda.com.au  
Phone: +61 03 6254 3511  
Fax: +61 03 6254 3511  
Email: pda@pda.com.au



<b>SURVEY INFORMATION ONLY SURVEY NOTES</b> DEPOSITED FOR PUBLIC RECORD (SEE LTO CIRCULAR 1 OF 2007)		MAIN L.T.O. PLAN (TO BE FILED WITH)	P.59543
PURPOSE: RE-MARK Survey of Lot 29		SIO REFERENCE <b>160187</b>	
LOCATION Parish of CARNARVON Land District of PEMBROKE	SURVEY CERTIFICATE Christopher Lewis Andrews of 57 Mt Rumney Road Mt Rumney... in Tasmania a Registered Land Surveyor HEREBY CERTIFY that: (a) this survey is based upon the best evidence that the nature of the case admits (b) the survey notes have been truly compiled from surveys made by me or made under my supervision; and (c) this survey and accompanying survey notes comply with relevant legislation affecting surveys and are correct for the purpose required.		
OWNER Helen Smith	Date <u>09 / 09 / 2010</u>		
FOLIO REFERENCE C.T. 59543/29	Signature <u>Ch. Andrews</u>		
GRANTEE Part of Lot 6979 (115A.0R.OP) Granted to John MacFarlane LENGTHS IN METRES	REF No: 10033      PAGE 1 OF 1 PAGES		

**Connections from (4) to**

- (401) 212°30'11" 17.984 CP star
- (402) 207°27'11" 15.243 CP star
- (403) 197°14'48" 13.470 CP star
- (404) 183°56'32" 13.288 CP star
- (405) 172°46'55" 14.776 CP star
- (406) 161°47'35" 18.503 CP SH in face post

Survey commenced 22/04/2010  
 Survey completed 22/04/2010

Co-ord origin SIO152282  
 Scale factor 0.99966  
 Height factor 1.00000  
 Estimated Coordinate Accuracy 0.07m±

MGA bearing datum SIO152282 & SIO159645

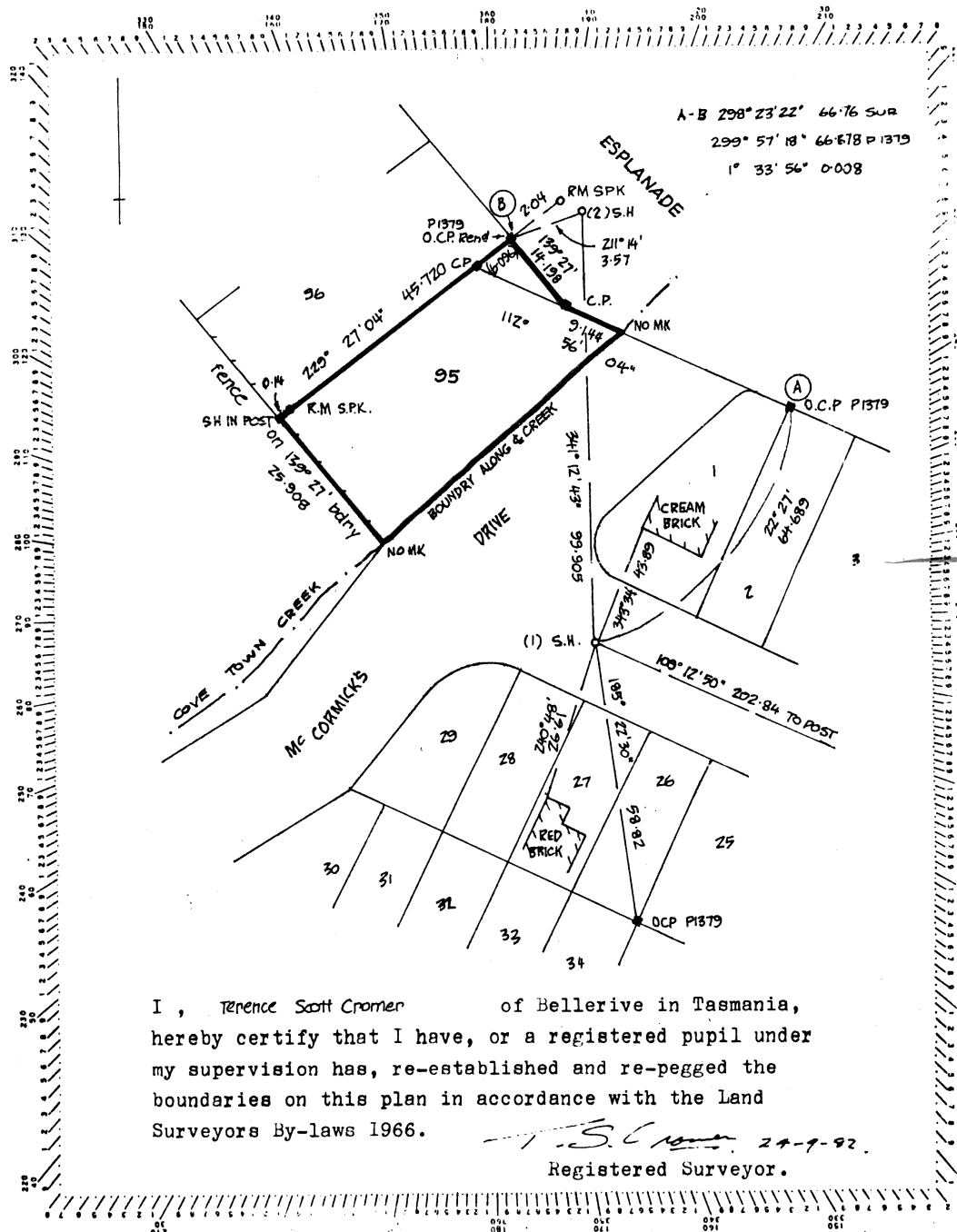


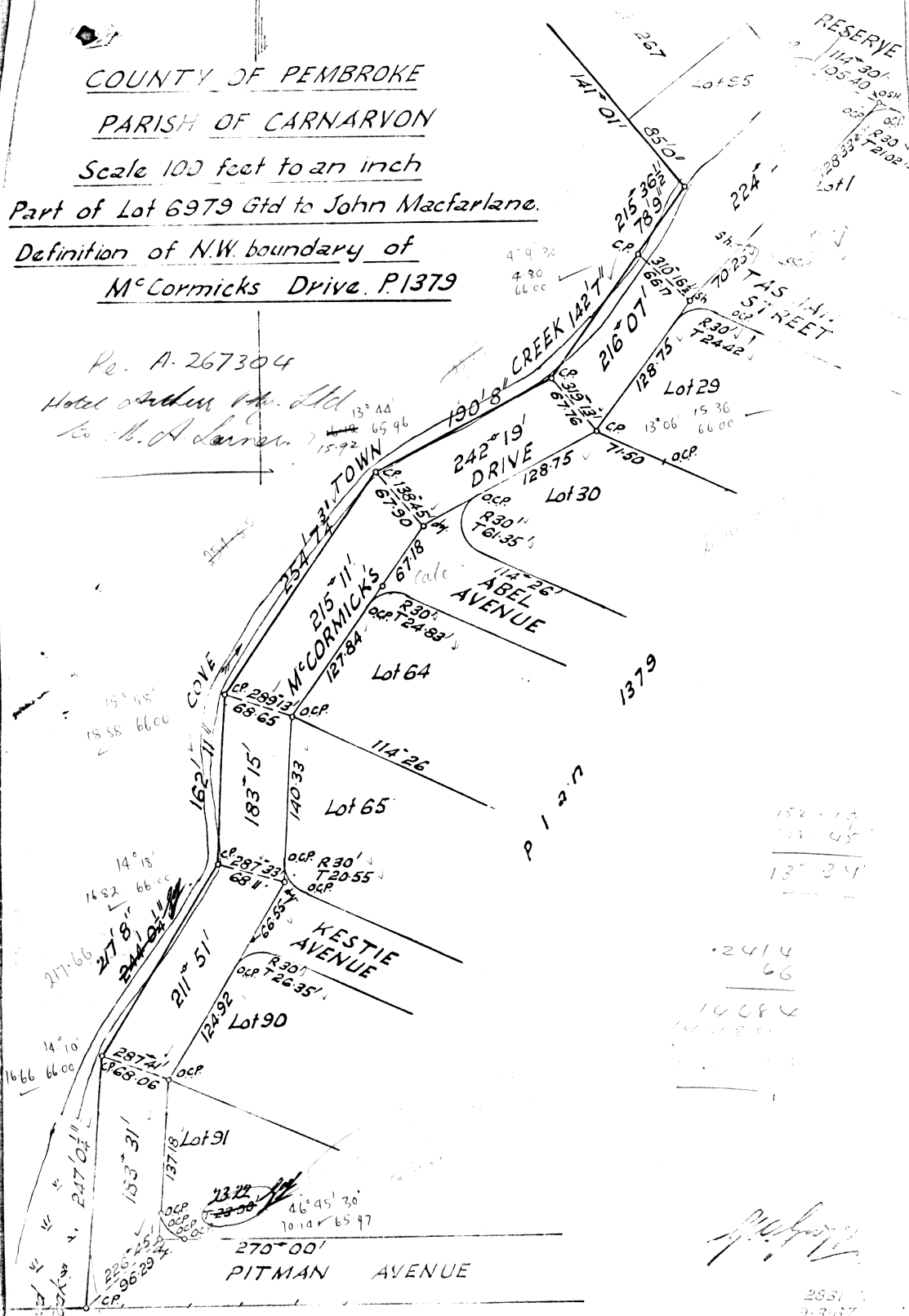
CROMER & CERUTTY

AUTHORISED SURVEYORS 7 BAYFIELD ST BELLERIVE 7018 PH. 441674

owner Peter Robert Hunt title ref 2867 / 45 LOT 95 MCCORMICKS DRIVE, P1379.		location lot 95 McCormicks Drive PORT ARTHUR grantee Part of lot 0979 gtd to J Macfarlane	
scale sketch only	date 24.9.82	municipality Port Arthur	ref no 82-170-3

RE - MARK SURVEY





14484 M374 35 [2]

PB 79.

3037CE1

0.000000

C. 137

30-1-08

26160

PO 1375

DL092

2813.75

5615

10

100

Fig. 1. The effect of the concentration of the solution of the monomer on the rate of polymerization of  $\alpha$ -methylstyrene in the presence of the initiator  $\text{K}_2\text{S}_2\text{O}_8$  at  $50^\circ\text{C}$ . The concentration of the initiator was  $10^{-3}$  mole/l. The concentration of the monomer was 0.05 mole/l. The concentration of the solution was 0.05 mole/l. The concentration of the solution was 0.05 mole/l. The concentration of the solution was 0.05 mole/l.

100

No.	BEARING	LENGTH	LATITUDE		DEPARTURE	
			NORTH	SOUTH	EAST	WEST
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36
	231° 1'	150.00		21.36		163.60
	211° 51'	85.00		18.01	28.12	
			72.17		78.08	
	204° 20'	105.55	12.11			
	204° 20'	46.55	36.21			29.36

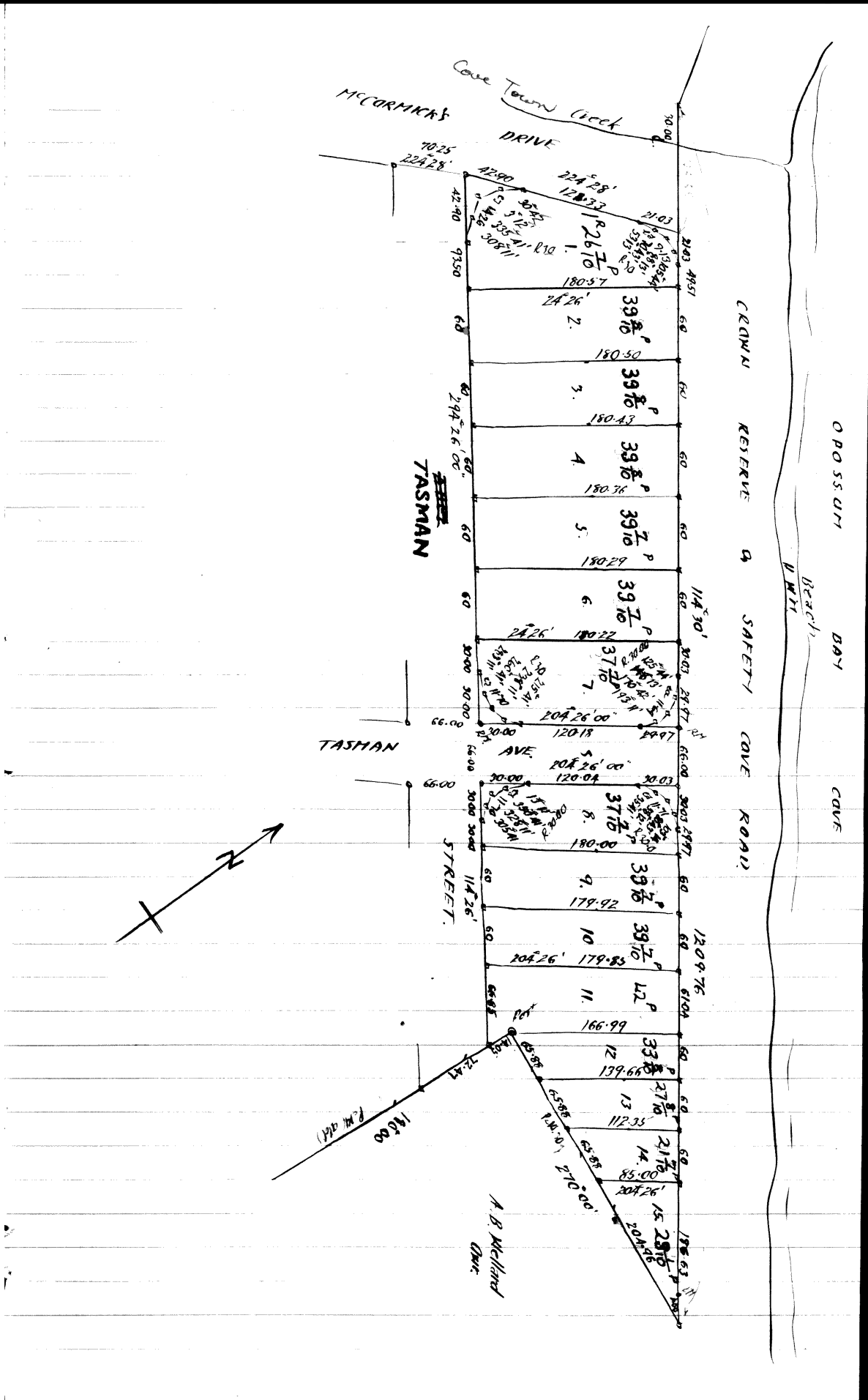
Total Area

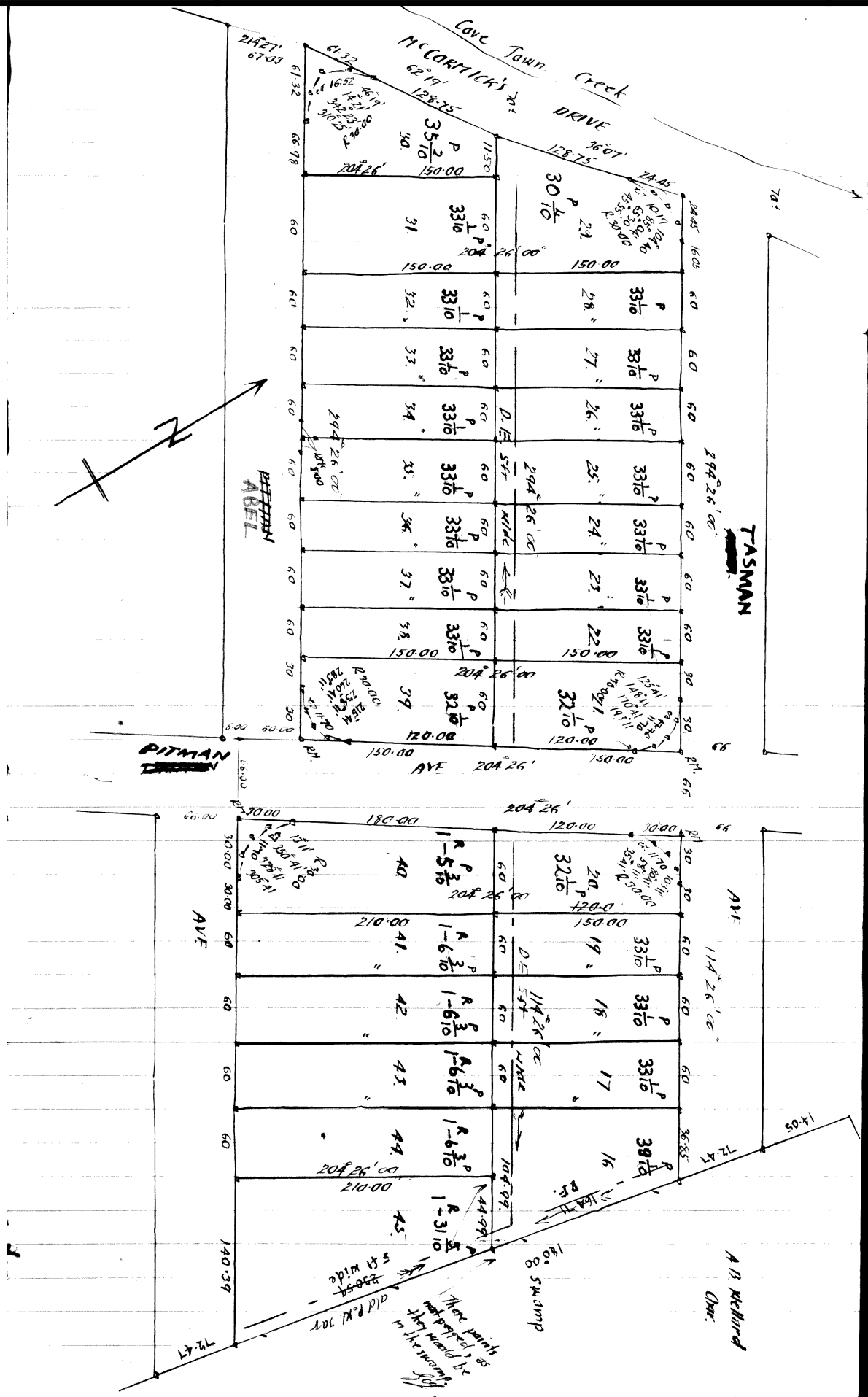
FIELD NOTES  
of  
CROSSUM BAY SUBDIVISION  
PORT ARTHUR  
(P. 1379)

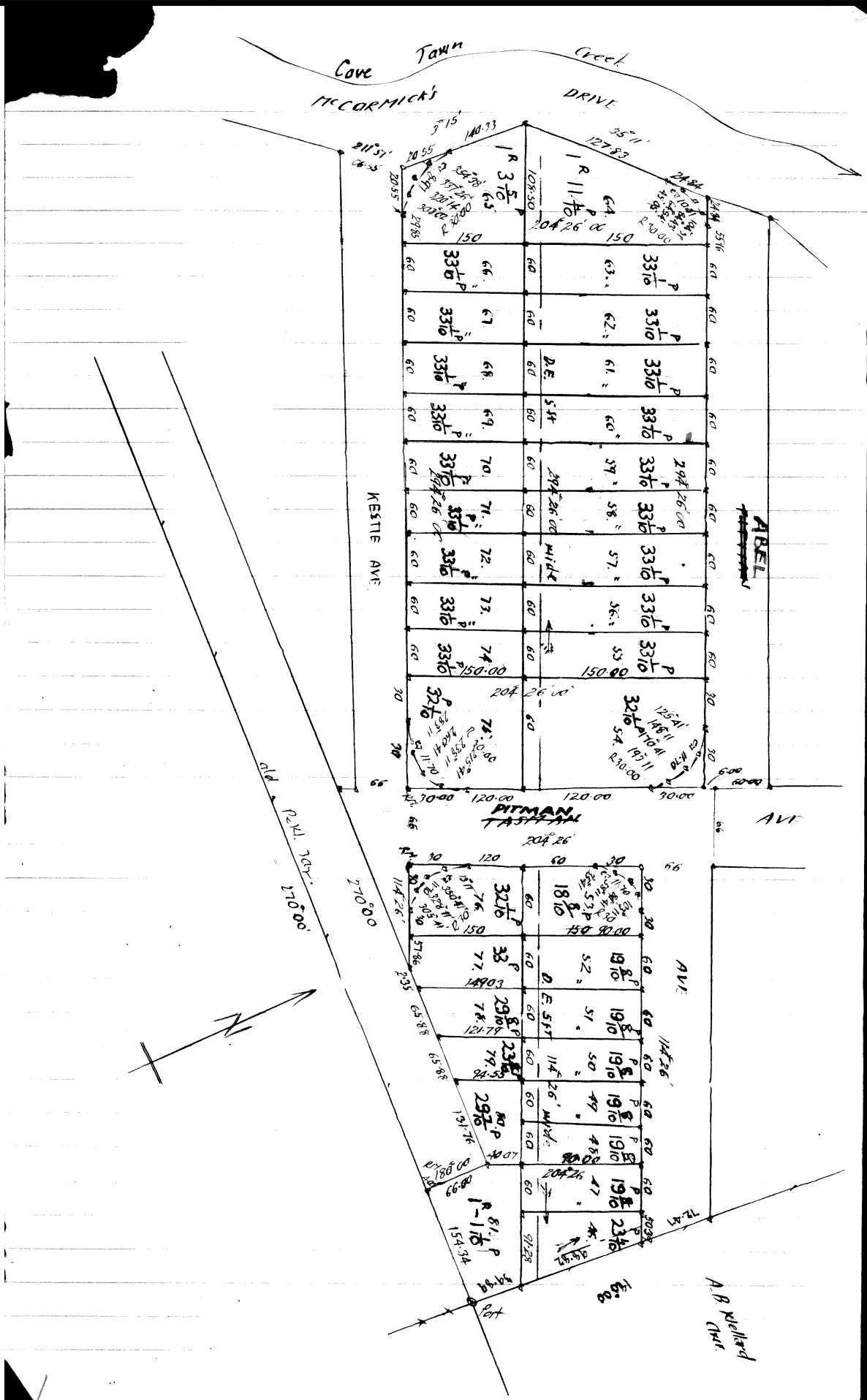
*James L.S.*  
A-4-14

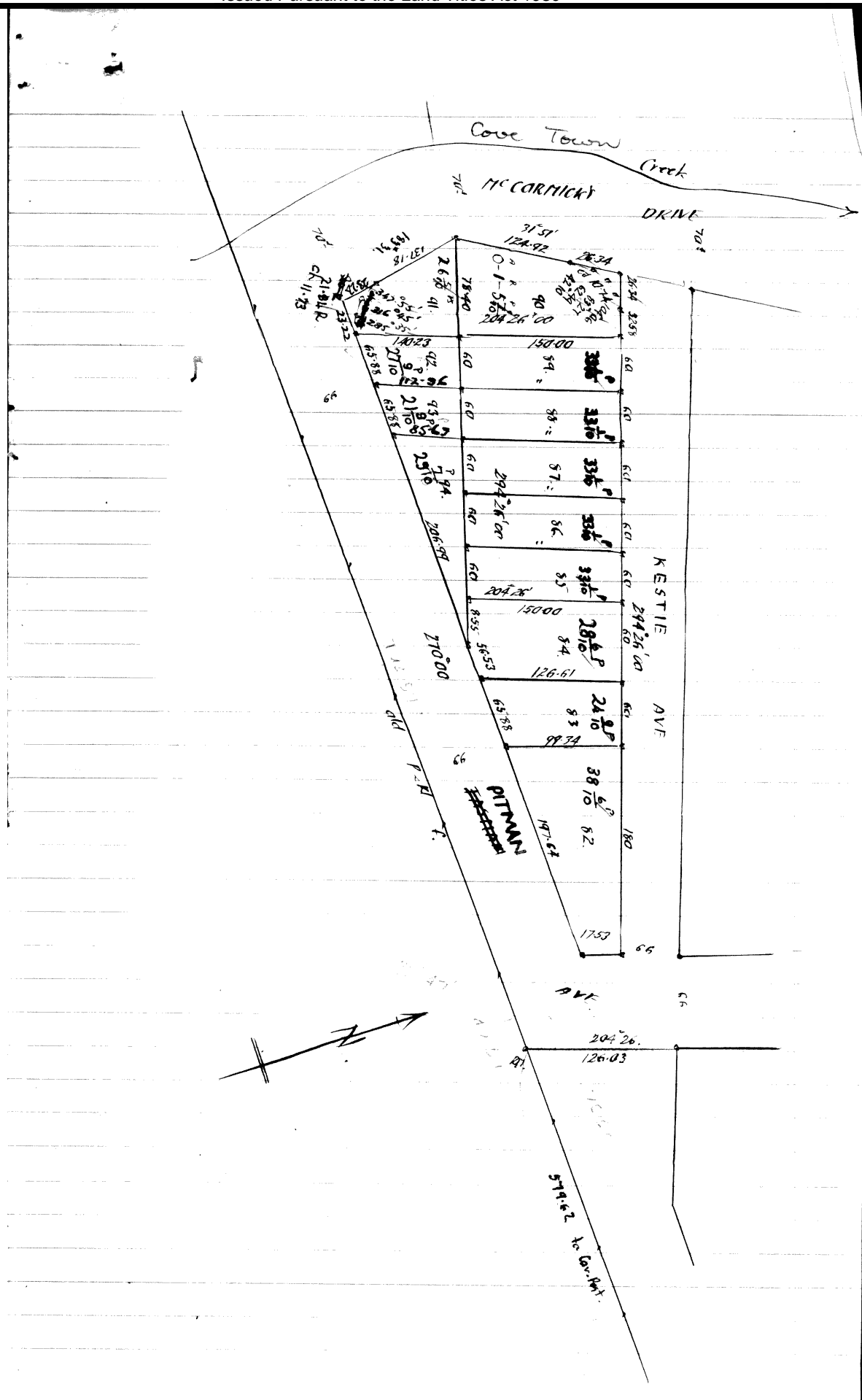












*E. Barrie Valentine*

M.I.S. AUST., A.A.P.I.

AUTHORISED SURVEYOR  
AND  
TOWN PLANNER149A MACQUARIE STREET,  
HOBART  
PHONE 2 2489

REF. NO. 62123

21st August, 1962.

Recorder of Titles,  
Lands' Titles Office,  
Elizabeth Street,  
NORTH HOBART.

Dear Sir,

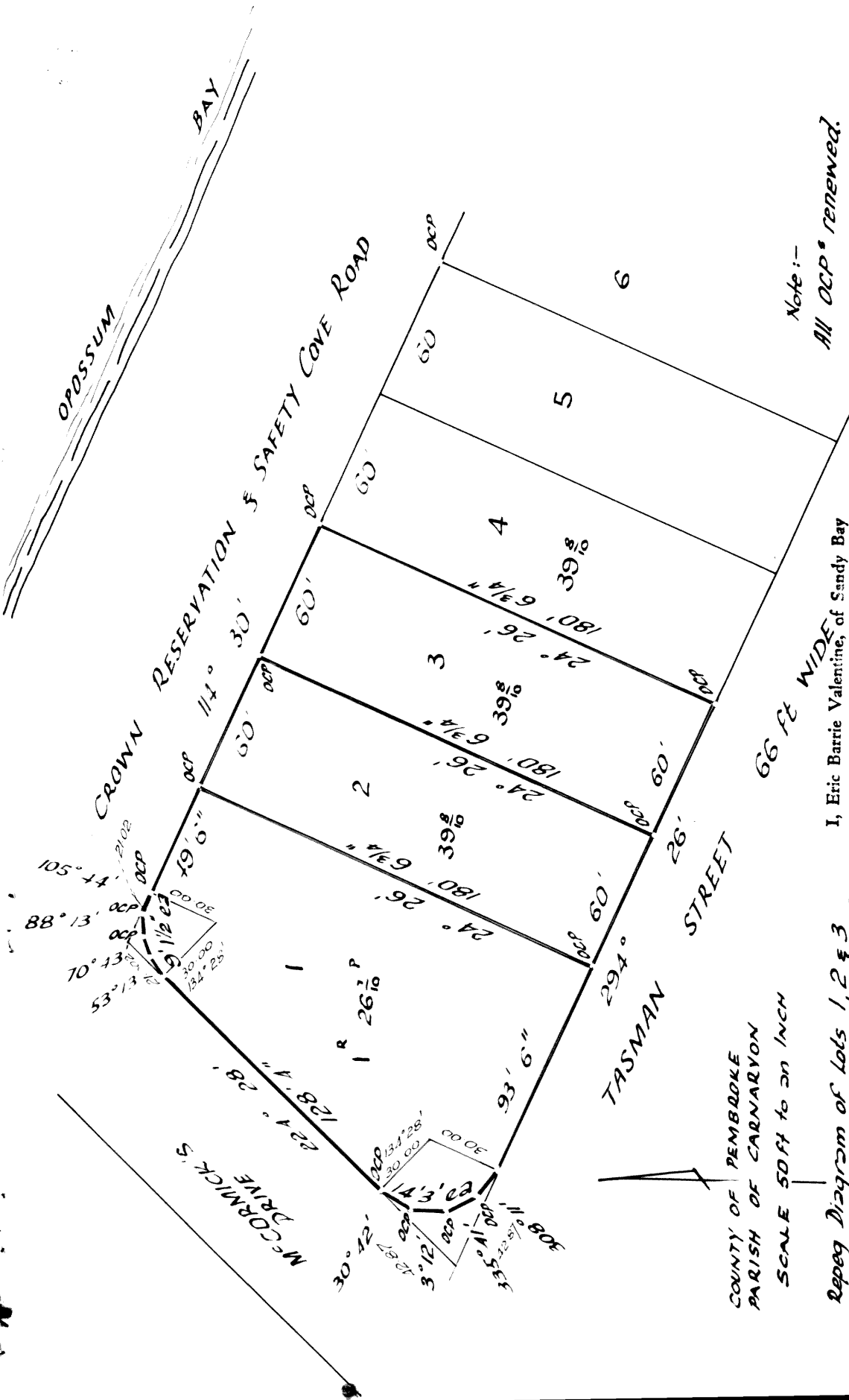
Please find enclosed one copy of repeg plan for  
W.L. Hodgetts, Owner, lots 1, 2, and 3, T.A. Pitman's  
subdivision, Oyster Cove, Port Arthur.

Yours faithfully,

*E. Barrie Valentine*E. BARRIE VALENTINE.

P.1379





Note:-  
All OCP's renewed.

I, Eric Barrie Valentine, of Sandy Bay  
Registered Surveyor, of Tasmania, do hereby certify that I have  
re-established and re-pegged the boundaries of the allotments  
shown on this tracing in accordance with the Land Surveyors'  
By-Law No. 2.

Eric Barrie Valentine  
Authorised Surveyor

Dated this 20th day of August 1962

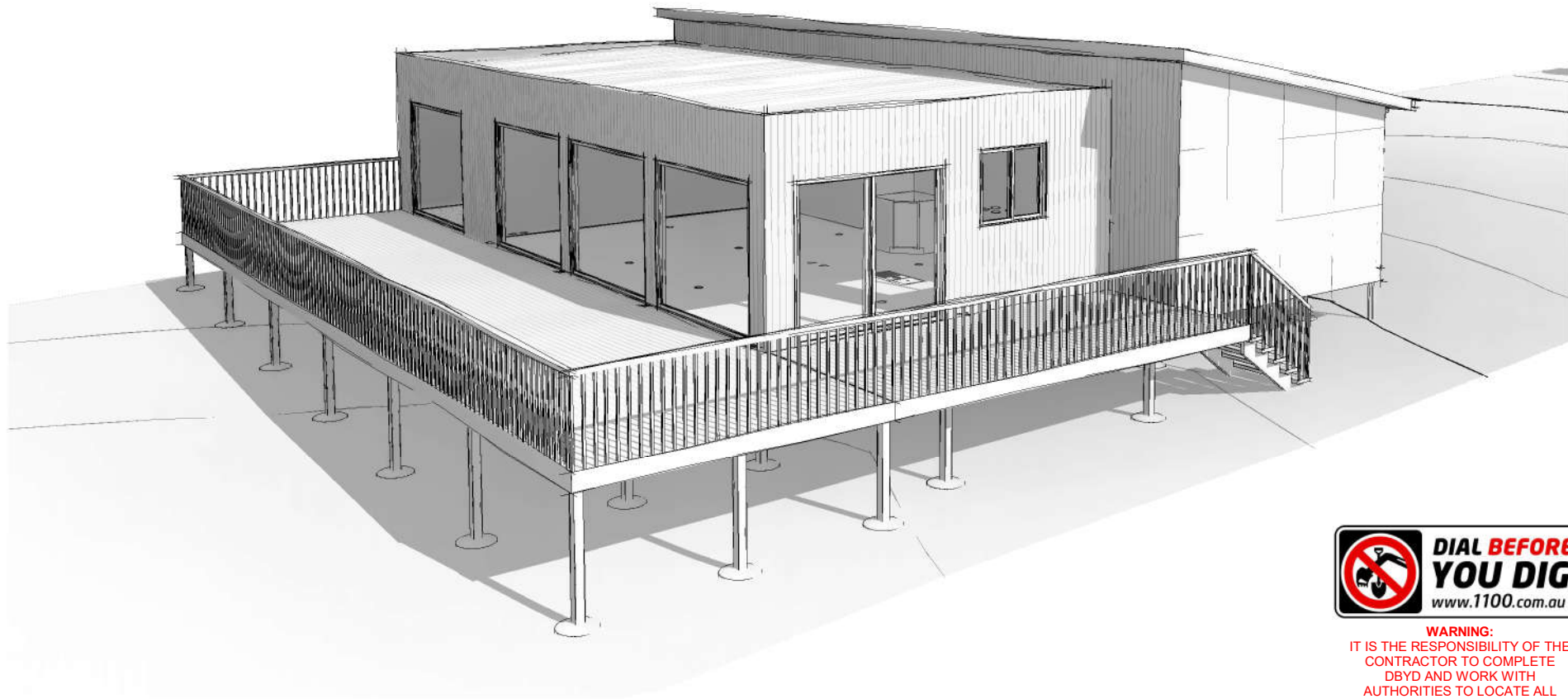
COUNTY OF PEMBROKE  
PARISH OF CARNARVON

SCALE 50 FT TO AN INCH

Repeg Diagram of Lots 1, 2 & 3  
Opossum Bay Cove Subdivision  
Port Arthur for  
W. Hodgetts.

ISSUE

Sheet List				
Sheet Number	Sheet Name	Project Status	Current Revision	Revision Date
1 G-01	COVER	DA	R13	06/09/2022
1 G-02	GENERAL NOTES	DA	R13	06/09/2022
2 A-01	SITE SURVEY	DA	R13	06/09/2022
2 A-01.1	SITE PLAN	DA	R13	06/09/2022
2 A-1.2	COASTAL INUNDATION	DA	R13	06/09/2022
2 A-1.3	COASTAL EROSION	DA	R13	06/09/2022
2 A-02	FLOOR PLAN	DA	R13	06/09/2022
2 A-03	ELEVATIONS	DA	R13	06/09/2022
2 A-04	ROOF PLAN	DA	R13	06/09/2022
2 A-05	FLOOR FINISHES	DA	R13	06/09/2022
2 A-06	ELECTRICAL PLAN	DA	R13	06/09/2022
3 C-01	HYDRAULIC PLAN	DA	R13	06/09/2022



General Information

Designer: Daniel Bastin CC6836  
Classification: 1a  
Title Reference: 59543/9  
Design Wind Speed: N3  
Soil Classification: M  
Climate Zone: 7  
BAL: 12.5  
Corrosion Environment: Severe (see Notes 1G-02)  
Known Hazards: N/A  
Floor Area: 129.13²  
Deck: 15.48m²



**WARNING:**  
IT IS THE RESPONSIBILITY OF THE  
CONTRACTOR TO COMPLETE  
DBYD AND WORK WITH  
AUTHORITIES TO LOCATE ALL  
UNDERGROUND SERVICES.

General Notes  
Do not scale plans, use written dimensions only. The owner/builder subcontractor shall verify all dimensions, levels, setbacks and specifications prior to commencing works or ordering materials and shall be responsible for ensuring that all building works conform to the current NCC and Australian standards, building regulations and town planning requirements.  
Report any discrepancies to this office.  
© Modulus Group Pty Ltd - These designs, drawings and specifications must not be copied or reproduced in any form without written permission from Modulus Group Pty Ltd.

systembuilt  
designed for living

1063 Cambridge Road  
Cambride, TAS 7170 (03) 6214 8888

Residence  
170 Saftey Cove Road, Port Arthur CT-59543/9

COVER

Project number	2203.56
Drawing Status	DA
Current Revision	06/09/2022 R13

1 G-01

Scale on A3

GENERAL NOTES:

Check all dimensions, boundaries, easements and service locations on site.  
All work shall comply with the Tasmanian Building Regulations 2016, National Construction Codes and relevant current Australian Standards.

Check carefully all aspects of these documents before commencing work.  
Any errors or anomalies to be reported to the drawer before work is continued.  
Confirm all sizes and heights on site. Do not scale off plan.

All framing to comply with AS 1684 Residential Timber-Framed Construction.  
Note: All timber sizes specified are minimum requirement only.  
Substitutes may be used as long as verification of equal performance is obtained.

All construction is to comply with the National Construction Codes and all relevant Australian Standards.

These documents to be used with specifications, soil tests and all documentation prepared by an engineer.

These documents are intended for council applications and normal construction.

This design is covered under copyright and any changes must be confirmed with Modulus Studio, the designer retains all intellectual property.

SITE NOTES:

All site works shall be in accordance with NCC CSIRO BTF 18, 19, 22 and AS 2870

Minimal site disturbance is to be carried out.  
Sediment control; 'geolab' silt fence 1000 or similar.  
Topsoil stockpiles remaining on the site to be covered with plastic, adequately retained along all edges. Unused stockpiles to be removed from site or used for future landscaping.

SITE PREPARATION AND EXCAVATION:

In accordance with part 3.1 of current NCC and to local council requirements.

Internal finished floor level (ffl) to be min. 150mm above finished external ground areas (flower beds or grassed areas) and min. 50 mm above finished external sealed surfaces (paved areas).  
Provide 50 mm min. fall for the first metre away from building towards lower ground or alternatively sufficient drainage provisions (ag drains, sumps or similar).

FOOTINGS:

Concrete footings and slabs in accordance with part 3.2 of current NCC, AS 2870.1 and engineer's specifications.

Unless otherwise specified, footings 25mpa / slab 25mpa.  
Strip footings to be placed with a mechanical vibrator. Concrete slabs to be moisture cured for min. of 7 days or apply approved curing compound.

Provide wall cavity drainage with weep holes at 960 max centres along line above finished ground level. (slab area).

BRICK AND BLOCK:

In accordance with part 3.3 of current NCC, AS 4773 and AS 3700

SUB-FLOOR VENTILATION:

In accordance with part 3.4.1 of current NCC  
Minimum rate of sub-floor ventilation to be 6000mm2 per metre of external perimeter wall.

DAMP PROOFING:

In accordance with part 3.3.4 of current NCC and to AS/NZS 2904.

TIMBER FRAMING:

Timber framing, tie down and wind bracing details to AS 1684.2.and AS4055.

WALL CLADDING:

In accordance with part 3.5 of current NCC and manufacturer's specifications.

ROOF CLADDING, GUTTERING AND DOWNPIPES:

In accordance with 3.5.1 and parts 3.5.2 of current NCC and AS/NZS 3500.5. Installation to be in accordance with manufacturer's specifications and recommendations.

WET AREAS:

In accordance with part 3.8.1 of current NCC and AS 3470. Provide all surfaces to wet areas with a water impervious surface. All splash backs to be min. 150 high. Shower area to be fully lined as above to min. 1800 height.

WINDOWS & GLAZING:

All windows and glazing to AS 2047 and AS 1288 and part 3.6 of current NCC. Manufacturer to provide certification of compliance.  
All window measurement shown are nominal only and are to be verified on site, prior to ordering.

CONDENSATION MANAGEMENT NOTES:

All condensation management in accordance with the NCC 3.8.7 as per following;

Pliable Building Membrane 3.8.7.2

- (a) Where a pliable building membrane is installed in an external wall, it must--
  - (i) Comply with AS/NZS 4200.1; and
  - (ii) Be installed in accordance with AS4200.2; and
  - (iii) Be a vapour permeable membrane for climate zones 6, 7 and 8; and
  - (iv) Be located on the exterior side of the primary insulation layer of wall assemblies that form the external envelope of a building.
- (b) Except for single skin masonry or single skin concrete, where a pliable building membrane is not installed in an external wall, the primary water control layer must be separated from water sensitive materials by a drained cavity.

Flow Rate and Discharge of Exhaust Systems 3.8.7.3

- (a) An exhaust system installed in a kitchen, bathroom, sanitary compartment or laundry must have a minimum flow Rate of--
  - (i) 25 l/s for a bathroom or sanitary compartment; and
  - (ii) 40 l/s for a kitchen or laundry.
- (b) Exhaust from a bathroom, sanitary compartment, or laundry must be discharged--
  - (i) Directly or via a shaft or duct to outdoor air; or
  - (ii) To a roof space that is ventilated in accordance with 3.8.7.4.

VENTILATION OF ROOF SPACES 3.8.7.4:

- (a) Where an exhaust system covered by 3.8.7.3 discharges into a roof space, the roof space must be ventilated to Outdoor air through evenly distributed openings.
- (b) Openings required by (a) must have a total unobstructed area of 1/300 of the respective ceiling area if the roof pitch is more than 22°, or 1/150 of the respective ceiling area if the roof pitch is not more than 22°.
- (c) 30% of the total unobstructed area required by (b) must be located not more than 900 mm below the ridge or highest Point of the roof space, measured vertically, with the remaining required area provided by eave vents.

HYDRAULIC:

Stormwater to be in accordance with AS/NSZ 3500  
Wastewater to be in accordance with AS/NSZ 3500 and/or AS 1547  
Water supply to be in accordance with AS/NSZ 3500

ELECTRICAL:

All wiring and electrical installation to be in accordance with AS 3000  
Smoke alarm/s - a 240 volt hard wired smoke alarm complying with AS 3768 should be located near sleeping areas on every story and as per current NCC.

INTERIOR NOTES:

Plasterboard;  
All internal plasterboard finishes to be in accordance with AS/NZS 2588

Joinery;  
- Hardwood in accordance with AS 2796  
- Softwood in accordance with AS 4785  
- Plywood in accordance with AS/NZS 2270 and AS/NZS 2271

Domestic Kitchen Assemblies;  
In accordance with AS/NZS 4386

Ceramic Tiling;  
In accordance with AS 4662, AS 2358 and AS 4992

WATERPROOFING / WET AREAS:

In accordance with AS 3740  
Waterproofing membrane and substrates to be installed to floors, walls and wall/floor junctions in accordance with AS 3740 Waterproofing of Domestic wet areas.  
- Walls and floors of showers, baths, laundries and toilets, splash backs and floor wastes to BCA Clause 3.8.1.2 'Water resistance requirements'.  
- All areas to be lined with resilient 'villaboard' or similar product.

PROTECTIVE COATINGS FOR STEELWORK - SEVERE

Internal	Option 1.	2 coats alkyd primer
	Option 2.	2 coats alkyd gloss
External	Option 1.	Inorganic zinc primer plus 2 coats vinyl gloss finishing coats
	Option 2.	Hot dipped galv. 300g/m² min.
	Option 3.	Hot dipped galv. 100g/m² min. plus - a). 1 coat solvent based primer; or b). 1 coat vinyl gloss or alkyd



WARNING:  
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COMPLETE DBYD AND WORK WITH AUTHORITIES TO LOCATE ALL UNDERGROUND SERVICES.

General Notes  
Do not scale plans, use written dimensions only. The owner/builder subcontractor shall verify all dimensions, levels, setbacks and specifications prior to commencing works or ordering materials and shall be responsible for ensuring that all building works conform to the current NCC and Australian standards, building regulations and town planning requirements.  
Report any discrepancies to this office.  
© Modulus Group Pty Ltd - These designs, drawings and specifications must not be copied or reproduced in any form without written permission from Modulus Group Pty Ltd.



1063 Cambridge Road  
Cambridge, TAS 7170 (03) 6214 8888

Residence  
170 Saftey Cove Road, Port Arthur CT-59543/9

GENERAL NOTES

Project number	2203.56
Drawing Status	DA
Current Revision	06/09/2022 R13

1 G-02

Scale on A3 1 : 1



THIS DOCUMENT HAS BEEN PREPARED FOR EMAC SYSTEMBUILT GROUP BY  
FEATHERSTONE SURVEY AND CIVIL TO ASSIST WITH SITE  
DESIGN. THE INFORMATION IN THIS PLAN SHOULD NOT BE  
USED FOR ANY OTHER PURPOSE.

FEATHERSTONE SURVEY AND CIVIL CAN PROVIDE PLANS  
FOR OTHER PURPOSES.

BOUNDARIES SHOWN ARE FOR IDENTIFICATION PURPOSES  
ONLY AND HAVE NOT BEEN RE-ESTABLISHED OR MARKED.

FEATHERSTONE SURVEY AND CIVIL CAN RE-ESTABLISH AND MARK  
BOUNDARIES IF REQUESTED. IF NEW CONSTRUCTION IS TO OCCUR  
ON OR NEAR BOUNDARIES, BOUNDARIES NEED TO BE RE-ESTABLISHED  
AND MARKED.

ONLY SERVICES VISIBLE AT THE TIME OF SURVEY  
HAVE BEEN LOCATED. OTHER SERVICES MAY EXIST

THIS DISCLAIMER FORMS AN INTEGRAL PART OF THIS PLAN

168 SAFETY COVE ROAD

54.84 CT

EXISTING DRIVEWAY

EXISTING DWELLING  
FLOOR LEVEL 3.43

CT 59543/10  
1004m<sup>2</sup>

54.82 CT

172 SAFETY COVE ROAD

18.29 CT

18.29 CT

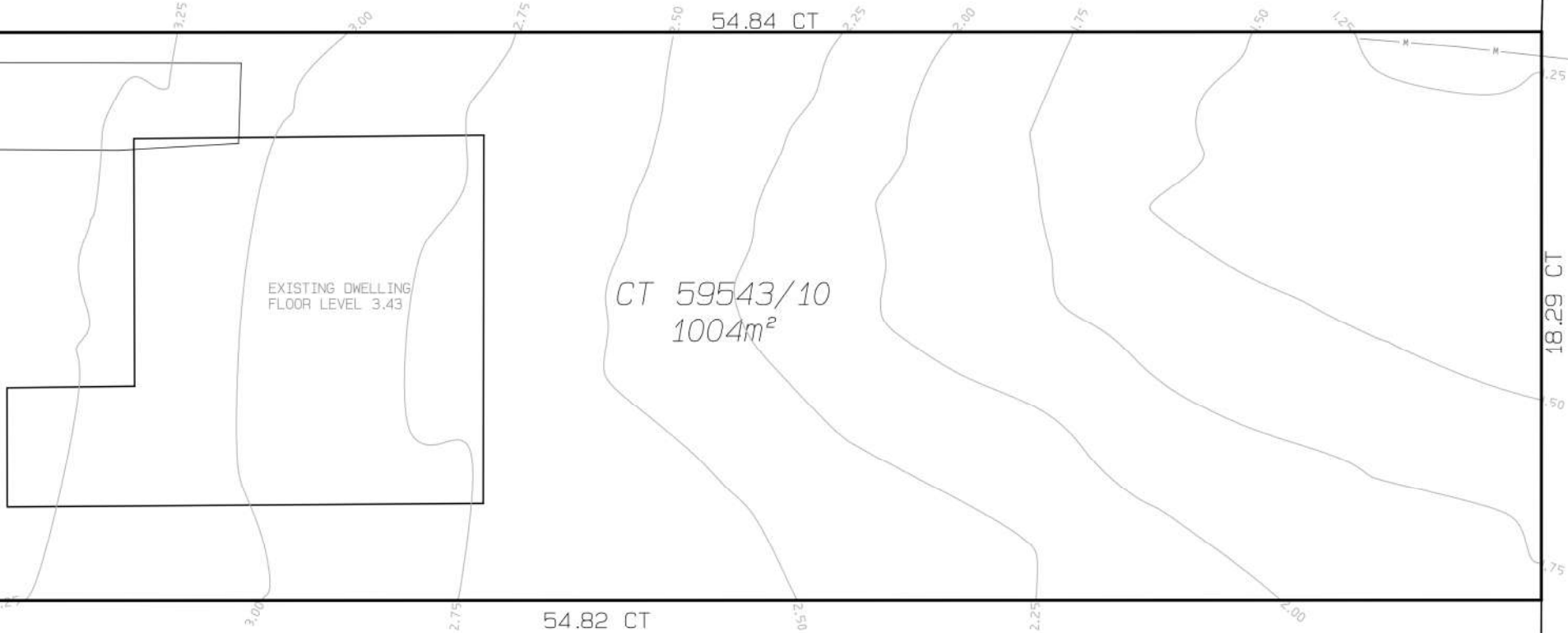
TASMAN STREET

BM SH NAIL EDGE  
OF BITUMEN  
RL 3.86

DRAIN

DRAIN

POWER POLE



PLANE ABOUT POINT BM SH NAIL  
COMBINED SCALE FACTOR: 0.9996578  
E 568890.963  
N 5221412.423  
RL 3.861  
BY 1/CSF 1.0003423

This document may  
only be used for the purpose for  
which it was commissioned in  
accordance with the terms and  
conditions of engagement. Use of  
this document for any other project  
or purpose is prohibited. Unauthorised  
use of this document in any form  
is prohibited.

**FEATHERSTONE**  
SURVEY AND CIVIL

Datum  
MGA2020  
Height Datum  
AHDB3 (TAS)

Date Surveyed 7/11/2021 Drawing Date 19/11/2021 Scale 1 : 200 when plotted at A3

CLIENT  
PROJECT **170 SAFETY COVE ROAD PORT ARTHUR**  
TITLE **DETAIL SURVEY**  
DRAWING NO. **FSC1071-01**

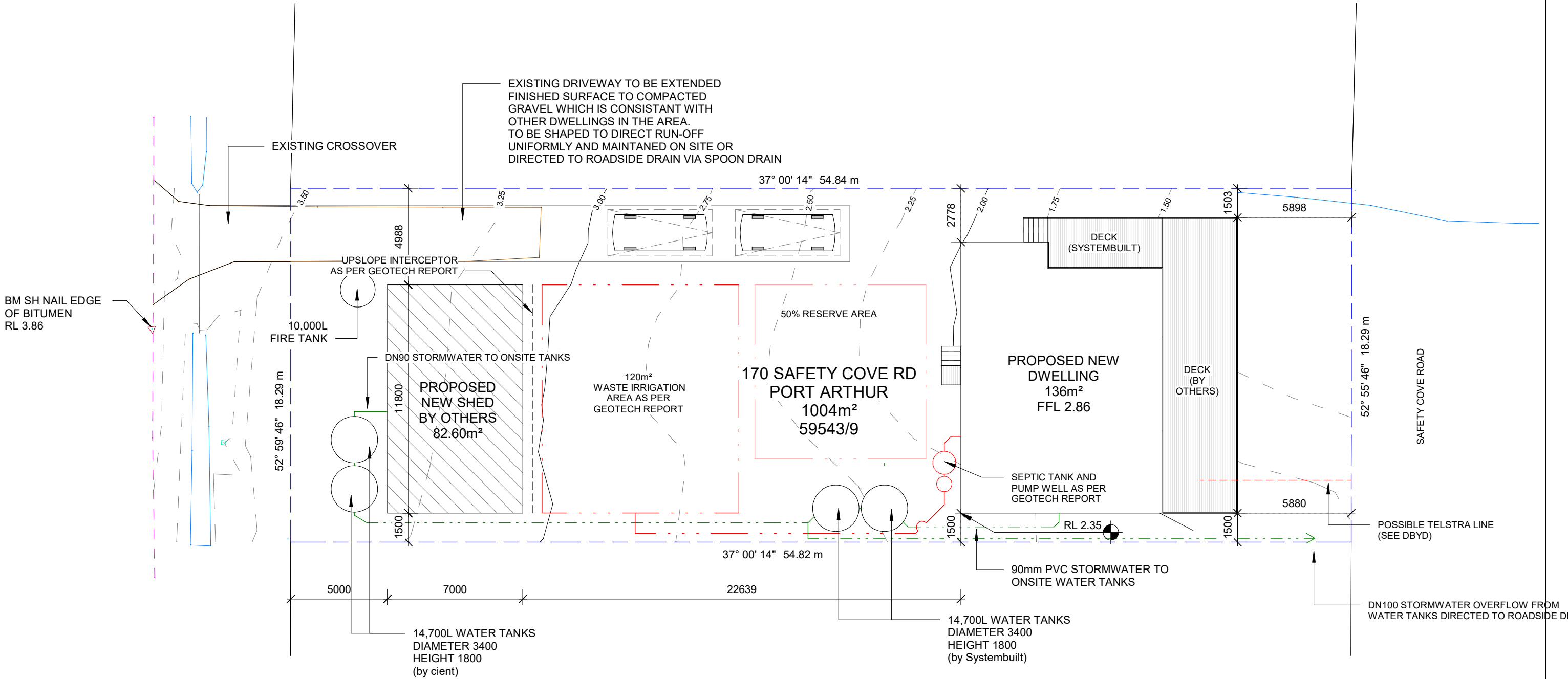
TITLE REF:  
**59543/10**  
PROJECT NO:  
**FSC1071**  
REVISION NO:  
**REV0**

NO	Revisions	Drawn	Job Manager	Project Director	Date



ISSUE

Construction and materials in accordance with current  
NCC requirements and all relevant Australian  
Standards - See General Notes  
Construction in accordance with AS3959 = BAL 12.5



**WARNING:**  
IT IS THE RESPONSIBILITY OF THE  
CONTRACTOR TO COMPLETE  
DBYD AND WORK WITH  
AUTHORITIES TO LOCATE ALL  
UNDERGROUND SERVICES.

General Notes  
Do not scale plans, use written dimensions only. The owner/builder subcontractor shall  
verify all dimensions, levels, setbacks and specifications prior to commencing works or  
ordering materials and shall be responsible for ensuring that all building works conform to  
the current NCC and Australian standards, building regulations and town planning  
requirements.  
Report any discrepancies to this office.  
© Modulus Group Pty Ltd - These designs, drawings and specifications must not be  
copied or reproduced in any form without written permission from Modulus Group Pty Ltd.

**systembuilt**  
designed for living

1063 Cambridge Road  
Cambridge, TAS 7170 (03) 6214 8888

**Residence**

170 Saftey Cove Road, Port Arthur CT-59543/9

SITE PLAN	
Project number	2203.56
Drawing Status	DA
Current Revision	06/09/2022 R13

**2 A-01.1**

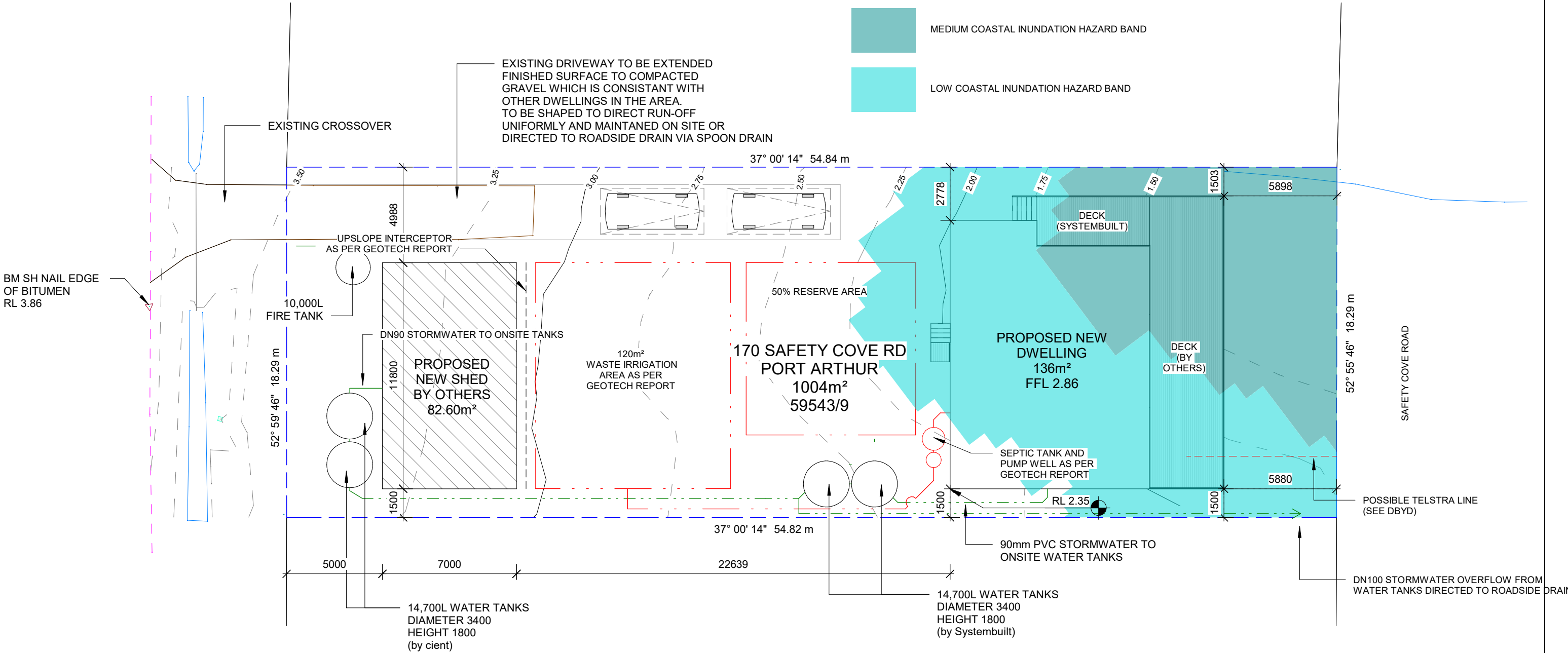
Scale on A3 1 : 200

6/09/2022 2:20:45 PM



ISSUE

Construction and materials in accordance with current  
NCC requirements and all relevant Australian  
Standards - See General Notes  
Construction in accordance with AS3959 = BAL 12.5



General Notes  
Do not scale plans, use written dimensions only. The owner/builder subcontractor shall verify all dimensions, levels, setbacks and specifications prior to commencing works or ordering materials and shall be responsible for ensuring that all building works conform to the current NCC and Australian standards, building regulations and town planning requirements.  
Report any discrepancies to this office.  
© Modulus Group Pty Ltd - These designs, drawings and specifications must not be copied or reproduced in any form without written permission from Modulus Group Pty Ltd.

**systembuilt**  
designed for living

1063 Cambridge Road  
Cambride, TAS 7170 (03) 6214 8888

**Residence**

170 Saftey Cove Road, Port Arthur CT-59543/9

North Arrow

COASTAL INUNDATION	
Project number	2203.56
Drawing Status	DA
Current Revision	06/09/2022 R13

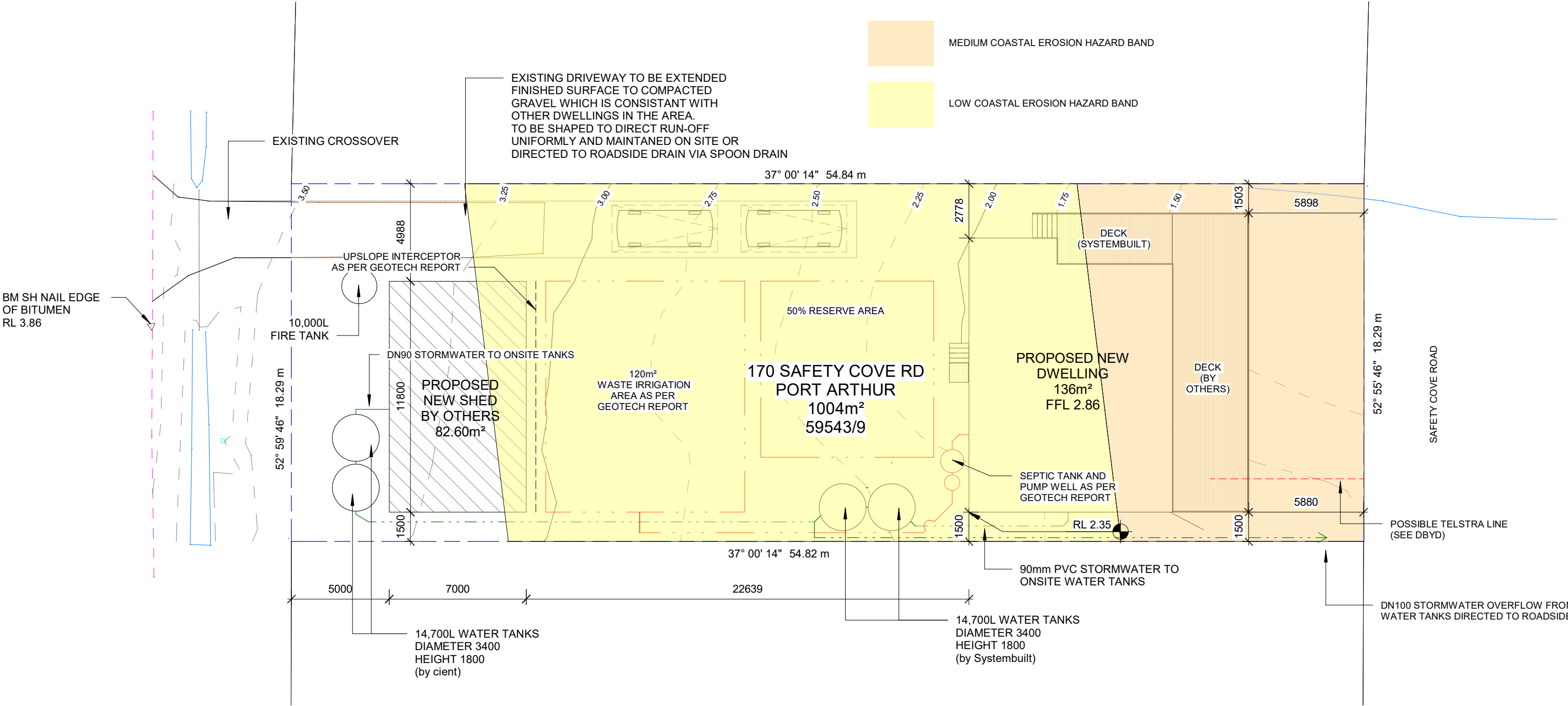
**2 A-1.2**

Scale on A3 1 : 200

6/09/2022 2:20:45 PM

ISSUE

Construction and materials in accordance with current  
NCC requirements and all relevant Australian  
Standards - See General Notes  
Construction in accordance with AS3959 = BAL 12.5



General Notes  
Do not scale plans, use written dimensions only. The owner/builder subcontractor shall verify all dimensions, levels, setbacks and specifications prior to commencing works or ordering materials and shall be responsible for ensuring that all building works conform to the current NCC and Australian standards, building regulations and town planning requirements.  
Report any discrepancies to this office.  
© Modulus Group Pty Ltd - These designs, drawings and specifications must not be copied or reproduced in any form without written permission from Modulus Group Pty Ltd.

**systembuilt**  
designed for living

1063 Cambridge Road  
Cambridge, TAS 7170 (03) 6214 8888

**Residence**

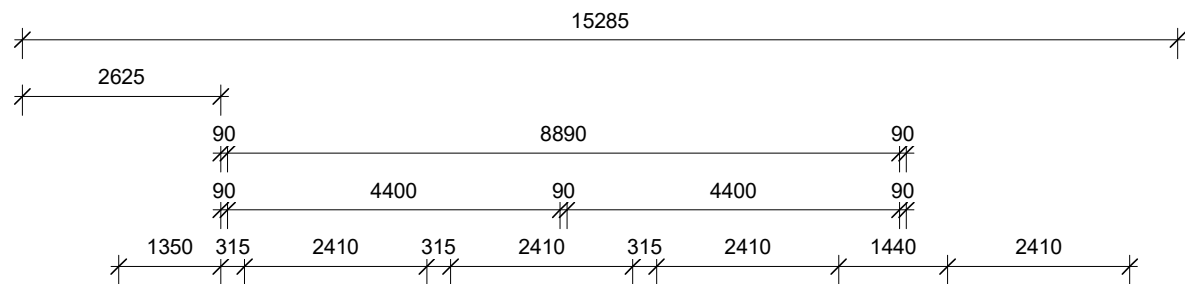
170 Saftey Cove Road, Port Arthur CT-59543/9

North arrow pointing towards the top right.

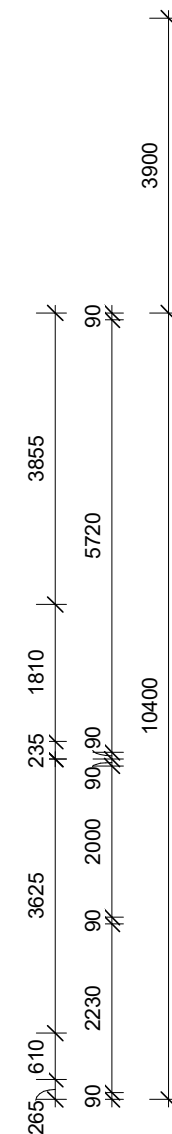
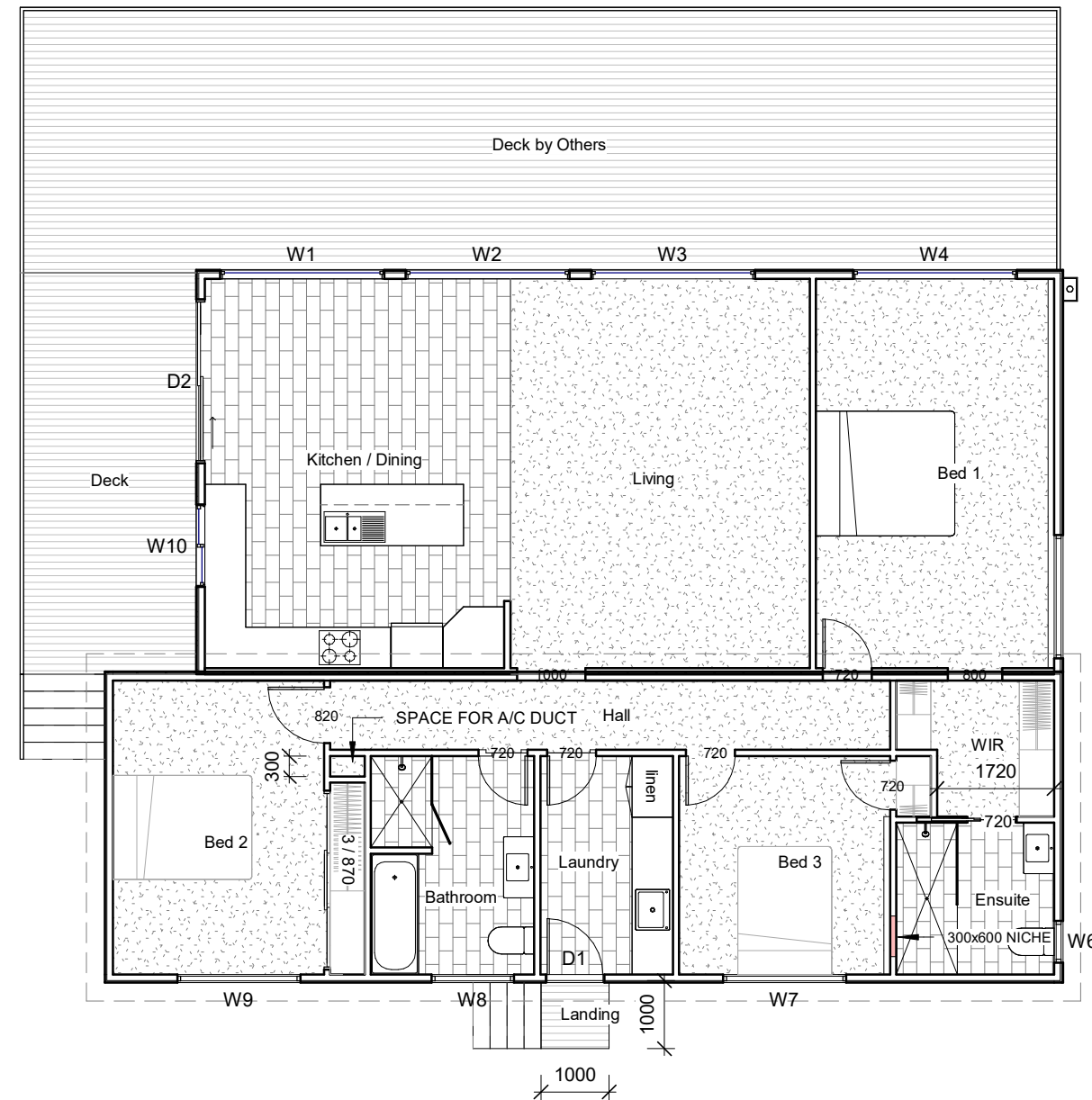
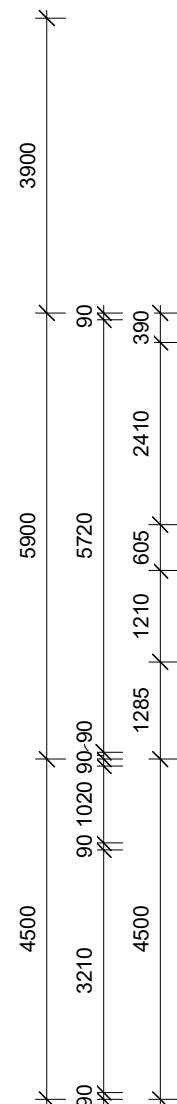
COASTAL EROSION	
Project number	2203.56
Drawing Status	DA
Current Revision	06/09/2022 R13

**2 A-1.3**

Scale on A3 1 : 200

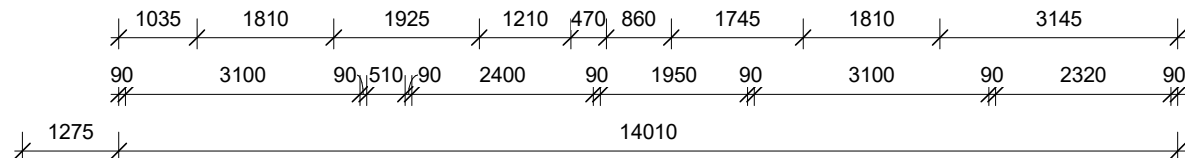


Construction and materials in accordance with current NCC requirements and all relevant Australian Standards - See General Notes  
Construction in accordance with AS3959 = BAL 12.5



Area Schedule	
DECK	15 m <sup>2</sup>
DECK BY OTHERS	60 m <sup>2</sup>
HOUSE	138 m <sup>2</sup>
LANDING	1 m <sup>2</sup>

Glazing Schedule - Double Glazed - Night Sky - BAL 12.5						
Mark	Height	Width	Head Height	Description	Comments	Count
D1	2100	820	2100	Hinged Door	White Trans	1
D2	2100	2410	2100	Sliding Door	Clear	1
W1	2057	2410	2100	Fixed Window	Clear	1
W2	2057	2410	2100	Fixed Window	Clear	1
W3	2057	2410	2100	Fixed Window	Clear	1
W4	2057	2410	2100	Fixed Window	Clear	1
W5	600	1810	2100	Awning Window	Clear	1
W6	1057	610	2257	Awning Window	White Trans	1
W7	600	1810	2100	Awning Window	Clear	1
W8	857	1210	2100	Awning Window	White Trans	1
W9	600	1810	2100	Awning Window	Clear	1
W10	1057	1210	2257	Sliding Window	Clear	1

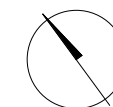


General Notes  
Do not scale plans, use written dimensions only. The owner/builder subcontractor shall verify all dimensions, levels, setbacks and specifications prior to commencing works or ordering materials and shall be responsible for ensuring that all building works conform to the current NCC and Australian standards, building regulations and town planning requirements.  
Report any discrepancies to this office.  
© Modulus Group Pty Ltd - These designs, drawings and specifications must not be copied or reproduced in any form without written permission from Modulus Group Pty Ltd.

systembuilt  
designed for living

1063 Cambridge Road  
Cambridge, TAS 7170 (03) 6214 8888

Residence  
170 Saftey Cove Road, Port Arthur CT-59543/9



## FLOOR PLAN

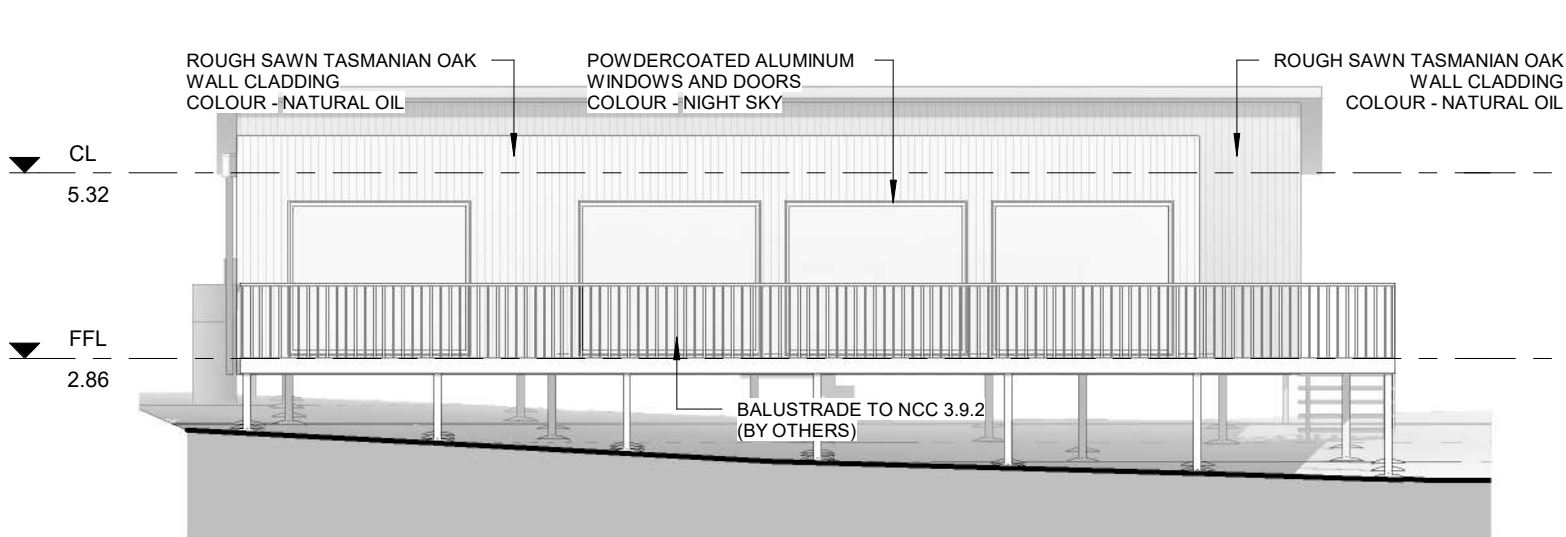
Project number	2203.56
Drawing Status	DA
Current Revision	06/09/2022 R13

2 A-02

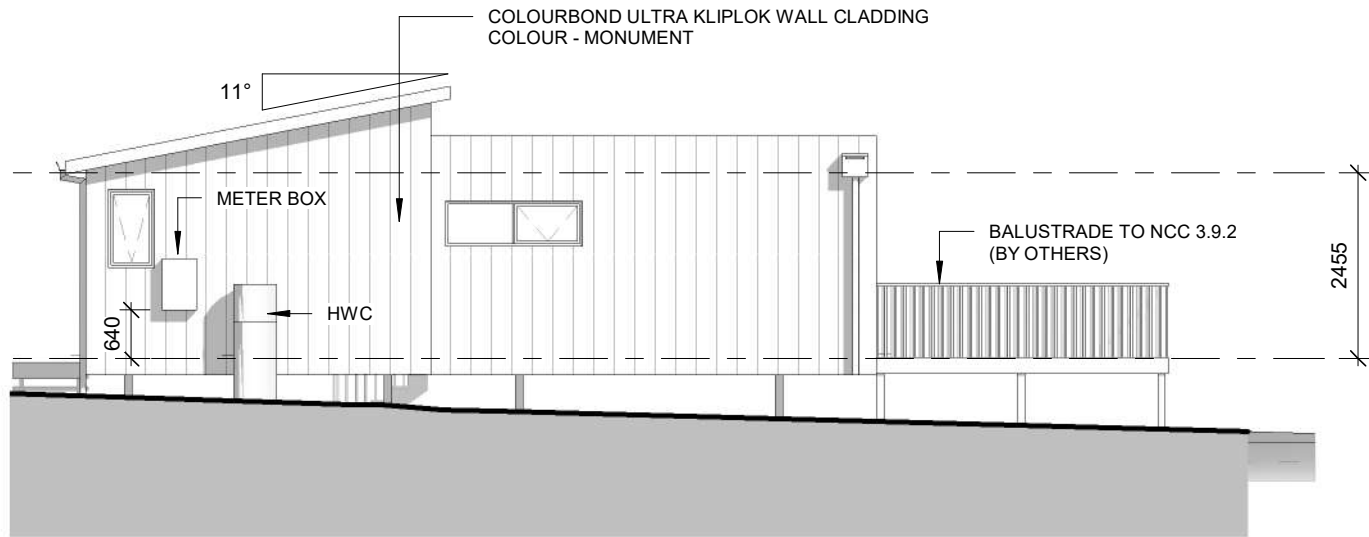
Scale on A3 1 : 100

ISSUE

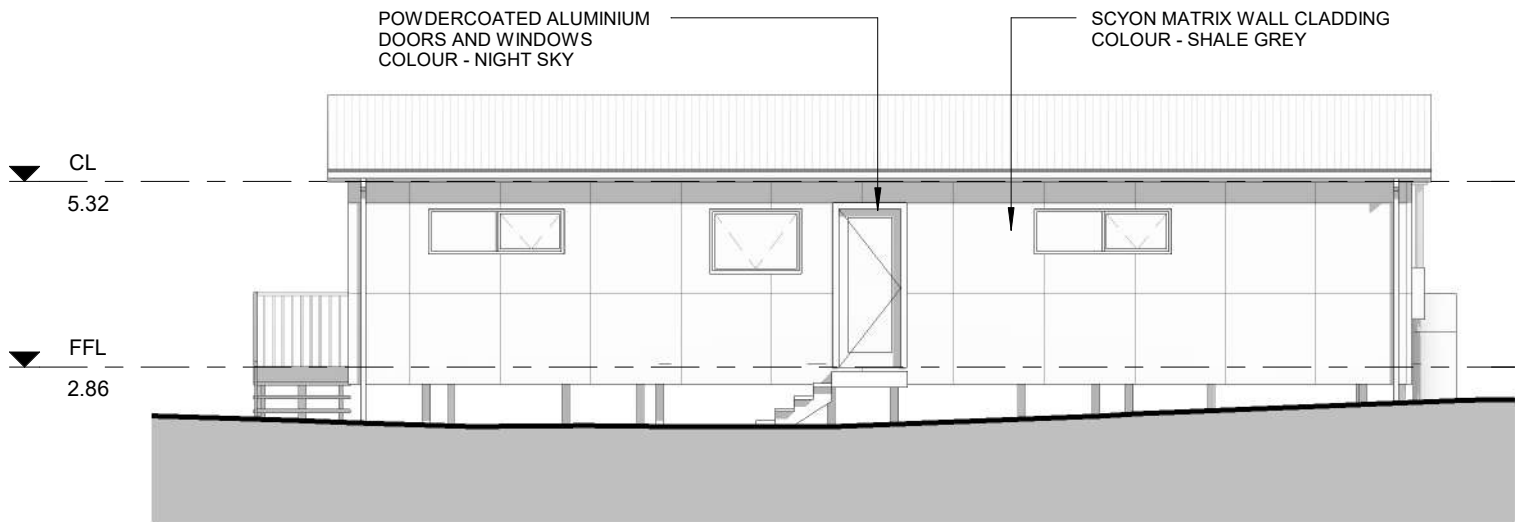
Construction and materials in accordance with current  
NCC requirements and all relevant Australian  
Standards - See General Notes  
Construction in accordance with AS3959 = BAL 12.5



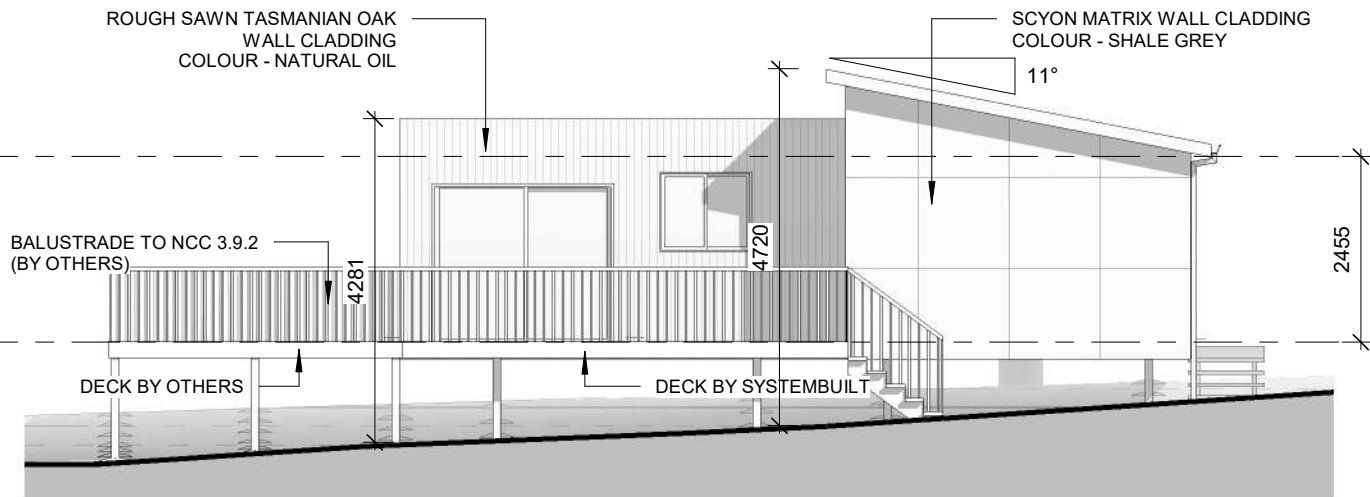
1 NORTH EAST ELEVATION  
1 : 100



2 SOUTH EAST ELEVATION  
1 : 100



3 SOUTH WEST ELEVATION  
1 : 100



4 NORTH WEST ELEVATION  
1 : 100

NOTE: ALL FLASHINGS TO BE COLOURBOND ULTRA

**NOTE:**  
ALL STEEL CLADDING MATERIALS TO HAVE A MINIMUM AM100 COATING. REFER TO NCC 3.5.1  
USE ONLY COMPATIBLE FIXINGS AND INSTALL AS PER MANUFACTURERS SPECIFICATIONS. REFER TO NCC 3.5.1

General Notes  
Do not scale plans, use written dimensions only. The owner/builder subcontractor shall verify all dimensions, levels, setbacks and specifications prior to commencing works or ordering materials and shall be responsible for ensuring that all building works conform to the current NCC and Australian standards, building regulations and town planning requirements.  
Report any discrepancies to this office.  
© Modulus Group Pty Ltd - These designs, drawings and specifications must not be copied or reproduced in any form without written permission from Modulus Group Pty Ltd.

**systembuilt**  
designed for living

1063 Cambridge Road  
Cambridge, TAS 7170 (03) 6214 8888

**Residence**  
170 Saftey Cove Road, Port Arthur CT-59543/9

**ELEVATIONS**

Project number	2203.56
Drawing Status	DA
Current Revision	06/09/2022 R13

**2 A-03**

Scale on A3 1 : 100

6/09/2022 2:20:47 PM

ISSUE

Construction and materials in accordance with current NCC requirements and all relevant Australian Standards - See General Notes  
Construction in accordance with AS3959 = BAL 12.5

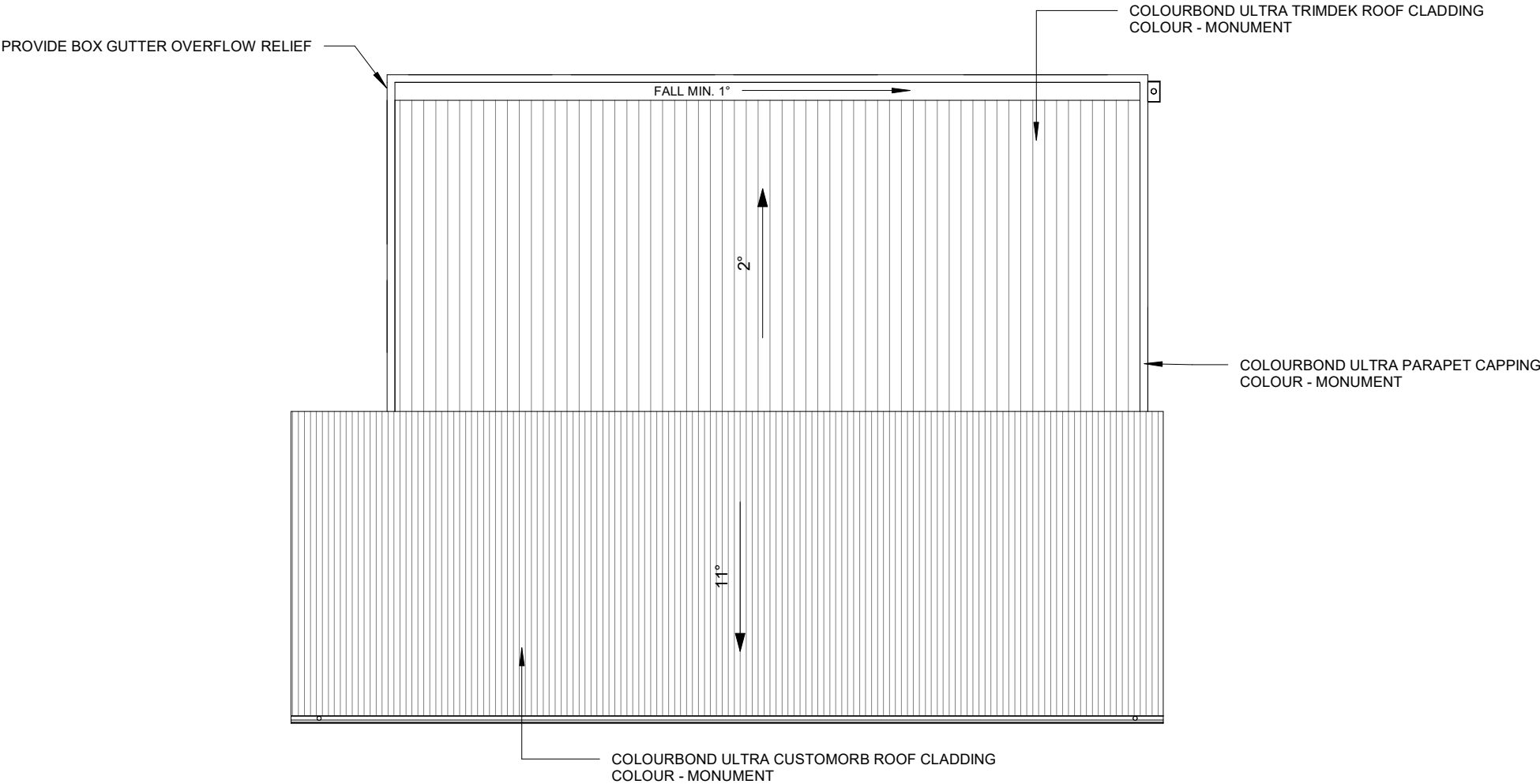
ROOF CLADDING, GUTTERING AND DOWNPIPES:

In accordance with 3.5.1 and parts 3.5.2 of current NCC and AS/NZS 3500.5. Installation to be in accordance with manufacturer's specifications and recommendations.

VENTILATION OF ROOF SPACES

- 3.8.7.4:
- (a) Where an exhaust system covered by 3.8.7.3 discharges into a roof space, the roof space must be ventilated to Outdoor air through evenly distributed openings.
  - (b) Openings required by (a) must have a total unobstructed area of 1/300 of the respective ceiling area if the roof pitch is more than 22°, or 1/150 of the respective ceiling area if the roof pitch is not more than 22°.
  - (c) 30% of the total unobstructed area required by (b) must be located not more than 900 mm below the ridge or highest Point of the roof space, measured vertically, with the remaining required area provided by eave vents.

HYDRAULIC:  
Stormwater to be in accordance with AS/NSZ 3500  
Wastewater to be in accordance with AS/NSZ 3500 and/or AS 1547  
Water supply to be in accordance with AS/NSZ 3500



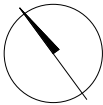
General Notes  
Do not scale plans, use written dimensions only. The owner/builder subcontractor shall verify all dimensions, levels, setbacks and specifications prior to commencing works or ordering materials and shall be responsible for ensuring that all building works conform to the current NCC and Australian standards, building regulations and town planning requirements.  
Report any discrepancies to this office.  
© Modulus Group Pty Ltd - These designs, drawings and specifications must not be copied or reproduced in any form without written permission from Modulus Group Pty Ltd.

systembuilt

designed for living

1063 Cambridge Road  
Cambride, TAS 7170 (03) 6214 8888

Residence  
170 Saftey Cove Road, Port Arthur CT-59543/9



ROOF PLAN

Project number	2203.56
Drawing Status	DA
Current Revision	06/09/2022 R13

2 A-04

Scale on A3 1 : 100



ISSUE

Construction and materials in accordance with current  
NCC requirements and all relevant Australian  
Standards - See General Notes  
Construction in accordance with AS3959 = BAL 12.5

INTERIOR NOTES:

**Plasterboard;**  
All internal plasterboard finishes to be in  
accordance with AS/NZS 2588

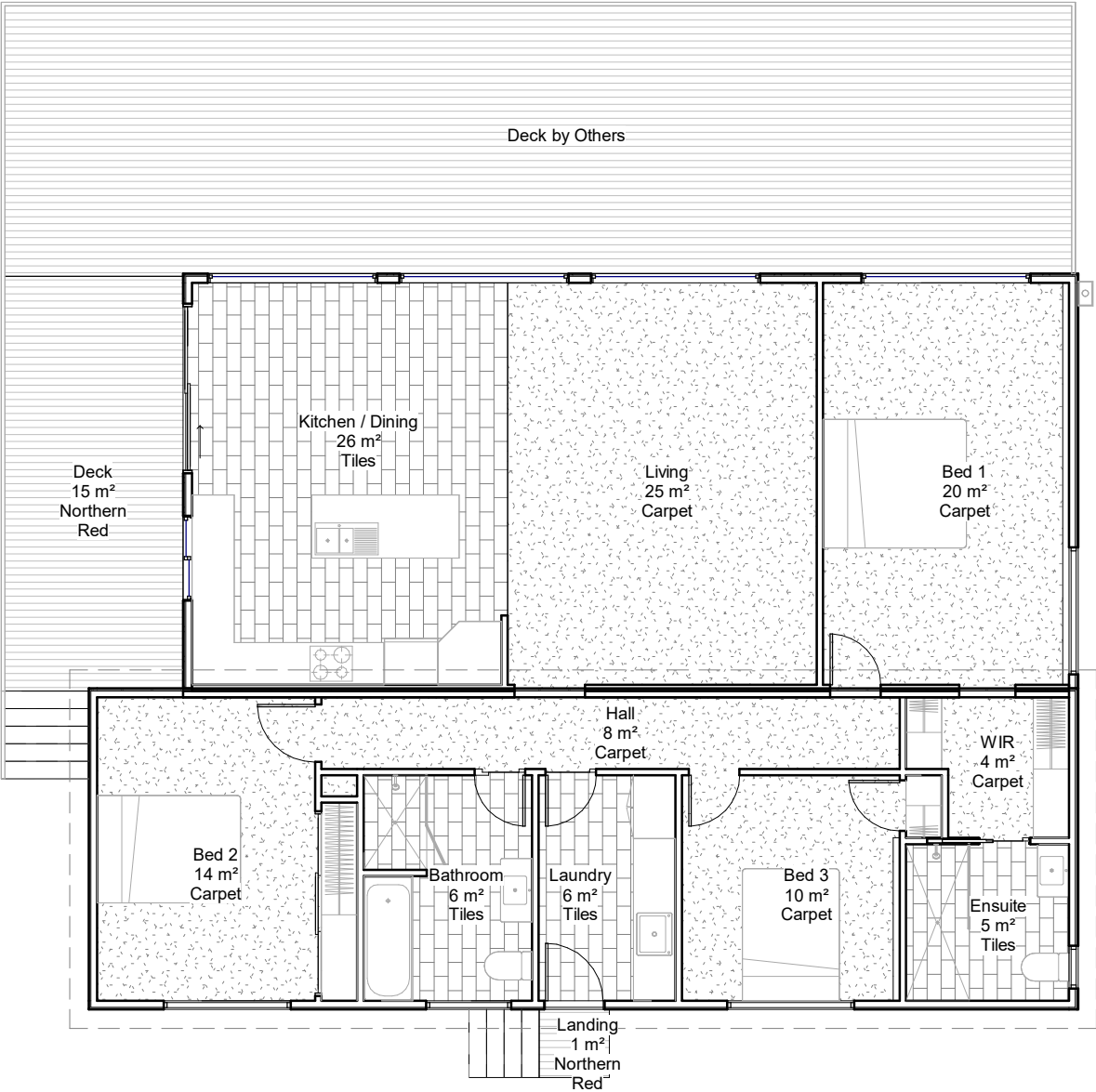
**Joinery;**  
Hardwood in accordance with AS 2796  
Softwood in accordance with AS 4785  
Plywood in accordance with AS/NZS 2270  
and AS/NZS 2271

**Domestic Kitchen Assemblies;**  
In accordance with AS/NZS 4386

**Ceramic Tiling;**  
In accordance with AS 4662, AS 2358 and  
AS 4992

**Floor Coverings;**  
In accordance with AS 1884-2012 and AS  
2455.1

**WATERPROOFING / WET AREAS:**  
In accordance with AS 3740  
Waterproofing membrane and substrates  
to be installed to floors, walls and wall/floor  
junctions in accordance with AS 3740  
Waterproofing of Domestic wet areas.  
- Walls and floors of showers, baths,  
laundries and toilets, splash backs and  
floor wastes to BCA Clause 3.8.1.2 'Water  
resistance requirements'.  
- All areas to be lined with resilient  
'villaboard' or similar product.



FLOOR FINISHES SCHEDULE		
HATCH	PRODUCT	COLOUR / SELECTION
	LAMINATE	TBA
	CARPET	SEE SELECTIONS SHEET
	TILES	SEE SELECTIONS SHEET
	TIMBER DECK	NORTHERN RED

General Notes  
Do not scale plans, use written dimensions only. The owner/builder subcontractor shall verify all dimensions, levels, setbacks and specifications prior to commencing works or ordering materials and shall be responsible for ensuring that all building works conform to the current NCC and Australian standards, building regulations and town planning requirements.  
Report any discrepancies to this office.  
© Modulus Group Pty Ltd - These designs, drawings and specifications must not be copied or reproduced in any form without written permission from Modulus Group Pty Ltd.



1063 Cambridge Road  
Cambride, TAS 7170 (03) 6214 8888

Residence  
170 Saftey Cove Road, Port Arthur CT-59543/9



FLOOR FINISHES

Project number	2203.56
Drawing Status	DA
Current Revision	06/09/2022 R13

2 A-05

Scale on A3 1 : 100

ISSUE

Construction and materials in accordance with current NCC requirements and all relevant Australian Standards - See General Notes  
Construction in accordance with AS3959 = BAL 12.5

ELECTRICAL NOTES:

Electrical layout indicative only, positioning to be confirmed by owner and in accordance with below.

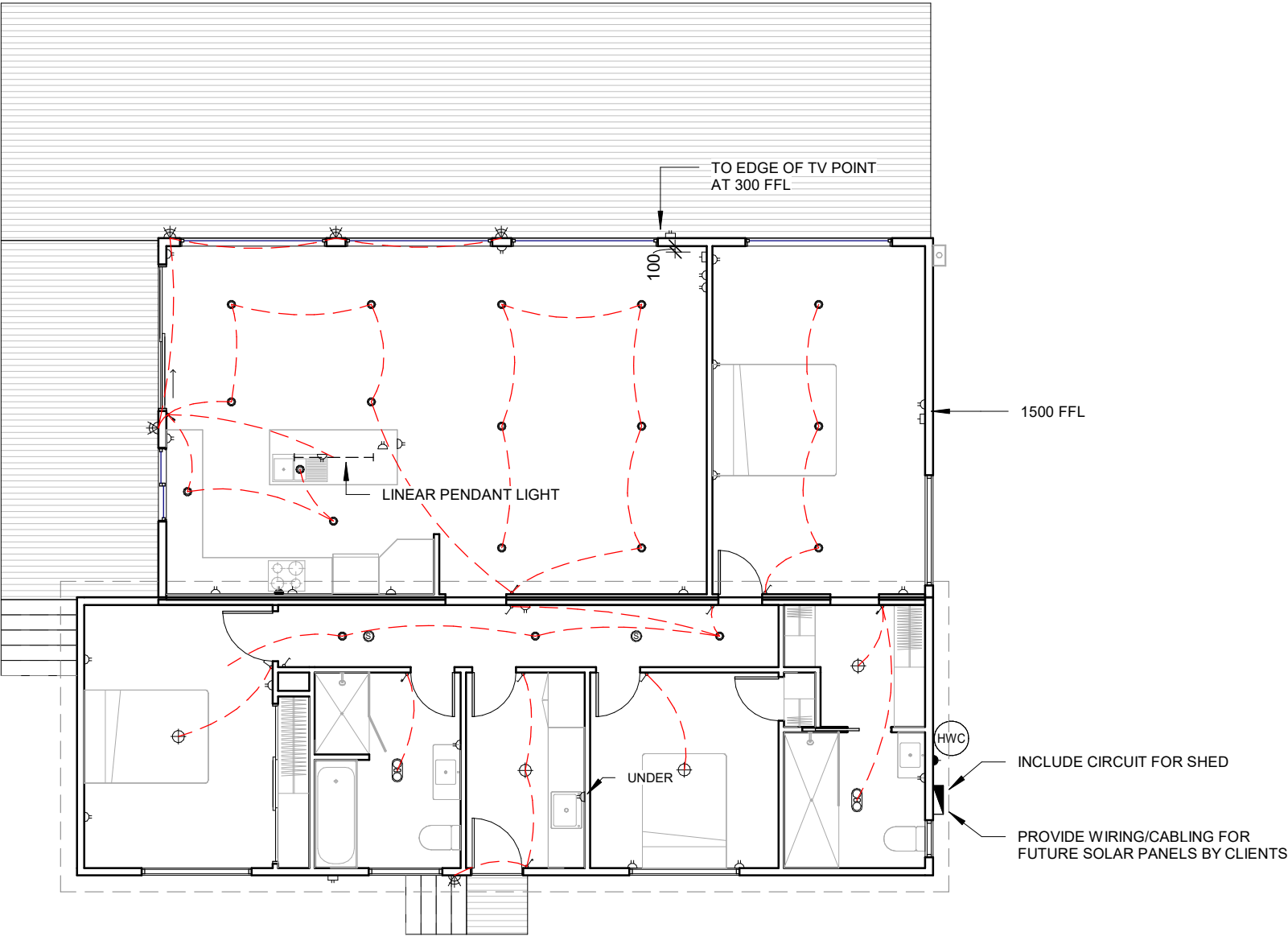
Electrical installation to be in accordance with AS3000

**Smoke Alarms**  
In accordance with part 3.7.2 of current NCC and to AS3768. All smoke alarms to be hard wired with battery back up and located near sleeping areas as per current NCC.

**Heating**  
In accordance with part 3.7.3 of current NCC Installation to be in accordance with applicable Australian Standards and manufacturer's specifications.

LIGHTING (maximum):

- 5 watts per square metre (5W/sqm) of lighting indoors
- 4 watts per square metre (4W/sqm) of lighting in outdoor areas
- 3 watts per square metre (3W/sqm) of lighting in garages



**WARNING:**  
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COMPLETE DBYD AND WORK WITH AUTHORITIES TO LOCATE ALL UNDERGROUND SERVICES.

LIGHTING SPECIFICATIONS			
SYMBOL	DESCRIPTION	WATTAGE INFORMATION	LUMENS
	BATTEN LIGHT HOLDER	10W	1000
	240V LED DOWNLIGHT	9W	850
	IXL FAN/LIGHT/HEATER	2X275W HEAT LAMPS & 1X60W CENTRE GLOVE	750
	EXTERNAL WALL MOUNTED LIGHT	7.5 W	500

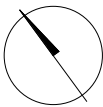
Electrical Fixture Schedule	
Description	Count
2 Light Tastic	2
Antenna Point	2
Batten Light Holder	4
Circuit Breaker Swith	2
Double GPO	24
External Double GPO	2
External Weatherproof Wall Light	5
Heat Pump HWC	1
LED Downlight	19
Lightswitch 1G	7
Lightswitch 2G	2
Lightswitch 3G	1
Lightswitch 4G	2
Meter Box	1
Single GPO	2
Smoke Detector	2

General Notes  
Do not scale plans, use written dimensions only. The owner/builder subcontractor shall verify all dimensions, levels, setbacks and specifications prior to commencing works or ordering materials and shall be responsible for ensuring that all building works conform to the current NCC and Australian standards, building regulations and town planning requirements.  
Report any discrepancies to this office.  
© Modulus Group Pty Ltd - These designs, drawings and specifications must not be copied or reproduced in any form without written permission from Modulus Group Pty Ltd.



1063 Cambridge Road  
Cambride, TAS 7170 (03) 6214 8888

Residence  
170 Saftey Cove Road, Port Arthur CT-59543/9



ELECTRICAL PLAN

Project number	2203.56
Drawing Status	DA
Current Revision	06/09/2022 R13

2 A-06

Scale on A3 1 : 100

6/09/2022 2:20:48 PM

ISSUE

Construction and materials in accordance with current  
NCC requirements and all relevant Australian  
Standards - See General Notes  
Construction in accordance with AS3959 = BAL 12.5

**ROOF CLADDING, GUTTERING AND  
DOWNPIPES:**

In accordance with 3.5.1 and parts 3.5.2  
of current NCC and AS/NZS 3500.5.  
Installation to be in accordance with  
manufacturer's specifications and  
recommendations.

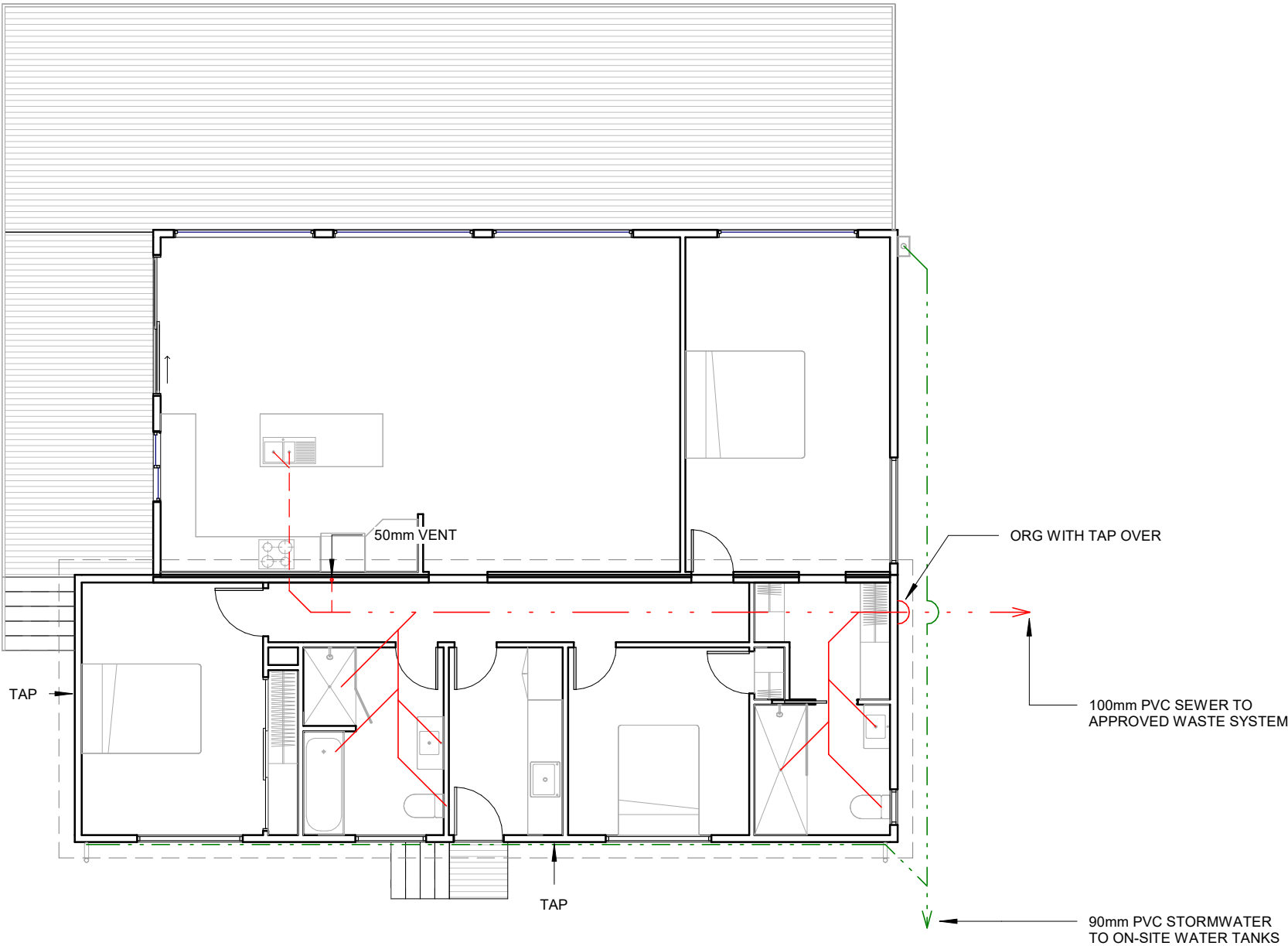
**VENTILATION OF ROOF SPACES**

**3.8.7.4:**

- (a) Where an exhaust system covered by 3.8.7.3 discharges into a roof space, the roof space must be ventilated to Outdoor air through evenly distributed openings.
- (b) Openings required by (a) must have a total unobstructed area of 1/300 of the respective ceiling area if the roof pitch is more than 22°, or 1/150 of the respective ceiling area if the roof pitch is not more than 22°.
- (c) 30% of the total unobstructed area required by (b) must be located not more than 900 mm below the ridge or highest Point of the roof space, measured vertically, with the remaining required area provided by eave vents.

**HYDRAULIC:**

Stormwater to be in accordance with AS/NSZ 3500  
Wastewater to be in accordance with AS/NSZ 3500 and/or AS 1547  
Water supply to be in accordance with AS/NSZ 3500



**WARNING:**  
IT IS THE RESPONSIBILITY OF THE  
CONTRACTOR TO COMPLETE  
DBYD AND WORK WITH  
AUTHORITIES TO LOCATE ALL  
UNDERGROUND SERVICES.

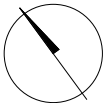
General Notes  
Do not scale plans, use written dimensions only. The owner/builder subcontractor shall verify all dimensions, levels, setbacks and specifications prior to commencing works or ordering materials and shall be responsible for ensuring that all building works conform to the current NCC and Australian standards, building regulations and town planning requirements.  
Report any discrepancies to this office.  
© Modulus Group Pty Ltd - These designs, drawings and specifications must not be copied or reproduced in any form without written permission from Modulus Group Pty Ltd.

systembuilt

designed for living

1063 Cambridge Road  
Cambride, TAS 7170 (03) 6214 8888

Residence  
170 Saftey Cove Road, Port Arthur CT-59543/9



HYDRAULIC PLAN	
Project number	2203.56
Drawing Status	DA
Current Revision	06/09/2022 R13

3 C-01

Scale on A3 1 : 100

6/09/2022 2:20:48 PM

**Quote Valid for 30 days**

25/11/2021

**Application** for Credit to Rainbow Roofing & Garages Pty Ltd (ABN 83 114 191 481) T/A Rainbow Building Solutions / **Contract**

Name of Buyer/Customer: Quote No: SOR01\_6535  
 Postal Address:  
 Site Address:  
 Telephone: | Mobile: | Email:

**Goods** (also referred to in the General Terms & Conditions of Trade as the Collateral) sought to be purchased

Description of Building: 6000 x 11800 x 2400mm skillion shed in Colorbond  
 Notes/Extras: Includes 1 roller door, 1 PA Door, 1 window & 1 skylight sheet

**Design Factors:** Importance Level 1 & 2, Region A, Terrain Cat 2.5 (41 m/s). Class 10a & 7b only, other POA.  
**Other Details:** Price also includes all engineers' plans, specs & slab design ready for council submission to suit soil type Class A, S & M only. Other soil types POA. Additional charges may apply for a site plan, BAL Assessment or Environmental Management Plan if required by local council. No allowance has been made for any additional loads, ie hoists, snow loads or solar panels etc. Please enquire if required.

Building type:	Skillion Shed			See sketch for door and/or window opening sizes.	
	<b>Width</b>	<b>Length</b>	<b>Height</b>	<b>Roof Pitch</b>	<b>Bay Size</b>
<b>Main</b>	6.00m	11.80m	2.40m	11°	3 @ 3.933m
<b>Left Leanto</b>	NA	NA	NA	NA	
<b>Right Leanto</b>	NA	NA	NA	NA	

**Wall Cladding:** 0.42 BMT (0.47 TCT) K-Panel Low Rib Colorbond®, Colorbond  
**Roof Cladding:** 0.42 BMT (0.47 TCT) Corrugated Colorbond®, Colorbond  
**Skylight:** 1 Skylights Panels, Polycarbonate Grey tint  
**Roller Doors:** 1 x 3000H x 2850W (Opening: 3000H x 2790W) Series A Roller Door Manual Lift Colorbond  
**PA Doors:** 1 x PA Door 820w x 2040h, 180 deg outward opening Colorbond  
**Windows:** 1 x 790h x 1505w XO Shed Window Clear Glass Colorbond  
**Glass Sliding Doors:** No Glass Sliding Doors  
**Roof Vents:** No Roof Vents  
**Barge:** Garage Barge, Colorbond  
**Gutter:** Quad Gutter 115 High Tensile, Colorbond  
**Down Pipes:** Downpipe 90mm Round, Colorbond  
**Wall Insulation:** No Insulation.  
**Roof Insulation:** No Insulation.

<b>Kit Total</b> - delivered to site:	\$12,660.00
<b>Deposit</b> - required to secure engineering plans and order building (20%): (Payable upon signing contract)	\$2,530.00
<b>Kit Balance</b> - payable upon 7 days after notification or before delivery to site – whichever occurs first	\$10,130.00
<b>Council Approvals</b> - including site plan (Form 35), planning approval incl. advertising, private building surveyor, building notification fees, TasWater Exemption, admin fee. A signed Agent Authorisation form is also required: (Payable upon signing contract.)	Not Included
<b>Concrete Slab</b> - assuming cleared and level ground with maximum fall +/- 100mm (excavation POA), stable soil, no allowance for concrete pump, rock breaker or rock removal. Finished slab height (FFL) to be 150-200mm minimum above ground level (NGL). Subject to site inspection. (Payable upon completion of the works)	Not Included
<b>Installation</b> - onto existing concrete slab or footings, mains power required on site at all times (generator \$150 extra per day if no mains). Installed in accordance with WHS Act & Regulations 2012. Down pipes and plumbing connection by others: (Payable upon completion of the works)	Not Included
<b>Grand Total (inc GST):</b>	\$12,660.00

To convert this quote into a contract of sale please complete the information below and contact us:

25/11/2021

Quote No: SOR01 6535



<b>Order before Council Approval</b> <input type="checkbox"/> I understand that I am liable for the building regardless if I receive Council approval or not. Any cancellations or change to size or colour will not be accepted <u>after</u> 24 hours of ordering.	<b>Await Council Approval</b> <input type="checkbox"/>  <b>Condition subsequent:</b> I understand that upon acceptance of this Application by the Seller this Contract comes into being provided always that this Contract thereafter automatically terminates; (a) if the Local Council rejects my application for approval for the construction of the building for which the Goods/collateral sought to be purchased are to be used, then upon such rejection, I am entitled to a refund of my deposit less the cost of engineering plans & certificates retained by you for the cost of the plans; or alternatively (b) in the event that any Credit Report obtained by you is not favourable, (and thereafter you do not accept this application); I am entitled to a refund of my deposit less the cost of engineering plans & certificates. (c) in the event of any published price variations whilst waiting for council approval or otherwise the contracted price may vary during this time.
<b>Order Products Now</b> <input type="checkbox"/>  Date: _____  Initials: _____	

I certify that the above information is true and correct and that I am authorised to make this Application for credit. In accordance with the Privacy Act (1988) I authorise any person or company to give information as may be required in response to credit inquiries. I have read and understand the GENERAL TERMS AND CONDITIONS OF TRADE (overleaf) of Rainbow Roofing & Garages Pty Ltd which form part of, and are intended to be read in conjunction with this Application / Contract and I agree and where the signatory is the agent of the Buyer the signatory warrants that the Buyer agrees to abide by the conditions and agree to be and is hereby bound by the GENERAL TERMS & CONDITIONS OF TRADE of Rainbow Roofing & Garages Pty Ltd set forth overleaf AND the same form part of and are intended to be read in conjunction with this Application/Contract and authorisation.

Rainbow Signature: _____	Customer Signature: _____
Full Name: Josh Smith	Customer (Referred to the General Terms & Conditions of Trade as The Buyer)
Date: _____	Full Name: Brendon Cole
	Date: _____

**Optional Extras:** Not already included in price, unless otherwise stated specifically on page 1:

Tick as many as applicable:

<b>Foam Cell Shed Liner – 4.0mm</b> Reflects up to 95% radiant heat, allowing for cooler internal conditions in hot and humid climates. No support mesh required. Not suitable for commercial buildings. Extra Heavy Duty (EHD) rating, providing maximum strength and durability. Aids in the prevention of condensation. Includes a 150mm foil flap to maximise coverage and requires no taping for rapid installation. Incorporates an anti-glare coating on one side for added install safety.	<b>Wall Insulation:</b> \$1,360.00	<b>Wall Installation:</b> \$1,000.00 - Install (If needed)	<input type="checkbox"/>
	<b>Roof Insulation:</b> \$1,020.00	<b>Roof Installation:</b> \$800.00 - Install (If needed)	<input type="checkbox"/>
<b>Foam Cell Multipurpose– 8.4mm</b> 3-in-1 multipurpose solution: insulation + thermal break + vapour barrier. No support mesh required. Reflects up to 95% radiant heat, allowing for cooler internal conditions in hot and humid climates. Suitable for walls & roof up to Bushfire Attack Level (BAL) 40. Aids in the prevention of condensation. Includes a 150mm foil flap to maximise coverage and requires no taping for rapid installation.	<b>Wall Insulation:</b> \$1,840.00	<b>Wall Installation:</b> \$1,000.00 - Install (If needed)	<input type="checkbox"/>
	<b>Roof Installation:</b> \$1,380.00	<b>Roof Installation:</b> \$800.00 - Install (If needed)	<input type="checkbox"/>
<b>Remote operated roller door motors</b> Merlin MR655evo - for roller doors up to and including 3.0h x 3.4w  -all units above come with 2 keychain remotes + 1 wall mount remote	\$420.00  \$180 - install		<input type="checkbox"/>
<b>Dust and vermin flashing to slab/wall junction</b> A strong steel Colorbond® (to match the wall colour) perimeter edging. Helps prevent rain, wind, dust, vermin, snakes and vegetation entering through the ribs of wall cladding. Also helps seal up bottom of wall cladding up to BAL40. Comes in approx. 1.0 – 4.0m lengths. To be installed at point of construction.	\$12.50 per lineal metre  \$8.00 install per lineal metre (if required)		<input type="checkbox"/>
<b>Roof whirly birds in colorbond</b> 300mm throat diameter ventilators exhaust hot air trapped in the roof space and lowers inside temperatures. Dampness and condensation are removed helping prevent mould and mildew. Suitable on all roof pitches Provides natural ventilation powered by the wind.	\$140.00 Each.  \$100.00 install per each.		<input type="checkbox"/>

## The Rainbow Guarantee

*Rainbow guarantees to deliver your shed in full, every time.\**

As an independent Tasmanian owned and operated business, Rainbow has developed a strict and thorough quality control and detailed checking system over the past decade - to help reduce and even eliminate the chance of damaged or missing parts in each and every shed we deliver. We are so confident that everything will be delivered to site as expected, that if you do discover a discrepancy, just call us and we will make it our top priority to immediately rectify the situation. Rainbow will be responsible for the cost of repair or replacement of parts and delivery for an appropriate resolution. Together with our 15 year BlueScope Steel Warranty, we believe in solid measures to guarantee you get exactly what you expect in a Rainbow shed, and enjoy it for years to come.

\*Conditions apply, visit <http://www.rainbowbuilding.com.au/terms-and-conditions/>

COLORBOND®, BlueScope, the BlueScope brand mark and ® colour names are registered trade marks of BlueScope Steel Limited. Activate™ and ™ colour names are trade marks of BlueScope Steel Limited. © 2014 BlueScope Steel Limited ABN 16 000 011 058. All rights reserved.





<b>1 Definitions</b>	payment of the Price. The carrier shall be deemed to be the Buyer's agent.	(i) Failure on the part of the Buyer to properly maintain any Goods; or
1.1 "Seller" shall mean Rainbow Roofing & Garages Pty Ltd and its successors and assigns.	5.4 Where there is no agreement that the Seller shall send the Goods to the Buyer, delivery to a carrier at limited carrier's risk at the expense of the Buyer is deemed to be delivery to the Buyer.	(ii) Failure on the part of the Buyer to follow any instructions or guidelines provided by the Seller; or
1.2 "Buyer" shall mean the Buyer or any person acting on behalf of and with the authority of the Buyer.	5.5 Delivery of the Goods to a third party nominated by the Buyer is deemed to be delivery to the Buyer for the purposes of this agreement.	(iii) Any use of any Goods otherwise than for any application specified on a quote or order form; or
1.3 "Guarantor" means that person (or persons), or entity who agrees herein to be liable for the debts of the Buyer on a principal debtor basis.	5.6 The Seller shall not be liable for any loss or damage caused in accessing the work site beyond reasonable control of the Seller (including, without limitation, damage to pathways, driveways and concreted or paved or grassed areas).	(iv) The continued use of any Goods after any defect becomes apparent or would have become apparent to a reasonably prudent operator or user; or
1.4 "Collateral" means "goods" as herein after first defined.	5.7 Prior to delivery of the Goods, if excavation work is interrupted by unforeseen obstacles (including but not limited to rocks, pipes, tree stumps), any additional costs will be invoiced to the Buyer as an extra.	(v) Fair wear and tear, any accident or act of God.
1.5 "Goods" shall mean Goods supplied by the Seller to the Buyer (and where the context so permits shall include any supply of Services as hereinafter defined).	5.8 The Buyer shall take delivery of the Goods tendered notwithstanding that the quantity so delivered shall be either greater or less than the quantity purchased provided that;	(b) The warranty shall cease and the Seller shall thereafter in no circumstances be liable under the terms of the warranty if the workmanship is repaired, altered or overhauled without the Seller's consent.
1.6 "Services" shall mean all services supplied by the Seller to the Buyer and includes any advice or recommendations (and where the context so permits shall include any supply of Goods as defined supra).	(a) such discrepancy in quantity shall not exceed 5%, and	(c) In respect of all claims the Seller shall not be liable to compensate the Buyer for any delay in either replacing or repairing the workmanship/Goods or in properly assessing the Buyer's claim.
1.7 "Price" shall mean the cost of the Goods as agreed between the Seller and the Buyer subject to clause 4 of this contract.	(b) the Price shall be adjusted pro rata to the discrepancy.	9.3 For Goods not manufactured by the Seller, the warranty shall be the current warranty provided by the manufacturer of the Goods. The Seller shall be under no liability whatsoever, except for the express conditions as detailed and stipulated in the manufacturers warranty.
<b>2 Acceptance</b>	5.9 The failure of the Seller to deliver shall not entitle either party to treat this contract as repudiated.	<b>10 The Commonwealth Trade Practices Act 1974, Fair Trading Acts, Building Act 2000 and Housing Indemnity Act 1992, as they may be amended from time to time</b>
2.1 Any instructions received by the Seller from the Buyer for the supply of Goods and/or the Buyer's acceptance of Goods supplied by the Seller shall constitute acceptance of the terms and conditions contained herein.	5.10 The Seller shall not be liable for any loss or damage whatever due to failure by the Seller to deliver the Goods (or any of them) promptly or at all.	10.1 Nothing in this agreement is intended to have the effect of contracting out of any applicable provisions of the Commonwealth Trade Practices Act 1974 or the Fair Trading Acts in each of the States and Territories of Australia, except to the extent permitted by those Acts where applicable.
2.2 Where more than one Buyer has entered into this agreement, the Buyer's shall be jointly and severally liable for all payments of the Price.	<b>6 Risk</b>	10.2 Nothing in this agreement is intended to have the effect of contracting out of any applicable provisions of the Building Act 2000 or the Housing Indemnity Act 1992, except to the extent permitted by the Act where applicable.
2.3 Upon acceptance of these terms and conditions by the Buyer the terms and conditions are irrevocable and can only be rescinded in accordance with these terms and conditions or with the written consent of the manager of the Seller.	6.1 If the Seller retains property in the Goods nonetheless, all risk for the Goods passes to the Buyer on delivery.	<b>11 Buyer's Responsibilities</b>
2.4 None of the Seller's agents or representatives are authorised to make any representations, statements, conditions or agreements not expressed by the manager of the Seller in writing nor is the Seller bound by any such unauthorised statements.	6.2 If any of the Goods are damaged or destroyed prior to property in them passing to the Buyer, the Seller is entitled, without prejudice to any of its other rights or remedies under these Terms and Conditions of Trade (including the right to receive payment of the balance of the Price for the Goods), to receive all insurance proceeds payable for the Goods. This applies whether or not the Price has become payable under the Contract. The production of these terms and conditions by the Seller is sufficient evidence of the Seller's rights to receive the insurance proceeds without the need for any person dealing with the Seller to make further enquiries.	11.1 It is the Buyer's responsibility to
2.5 The Buyer undertakes to give the Seller not less than fourteen (14) days prior written notice of any proposed change in the Buyer's name and/or any other change in the Buyer's details (including but not limited to, changes in the Buyer's address, facsimile number, or business practice).	6.3 In the event that Goods are returned to, or held by, the Seller (for repair or otherwise) the Seller undertakes to maintain a reasonable duty of care towards the Goods but risk (including, but not limited to, insurance risk) in the Goods remains with the Buyer notwithstanding that property in the Goods may remain with the Seller under clause 13. Under no circumstances shall the liability of the Seller, for Goods held by the Seller, exceed the fair market value of the Goods.	(a) arrange any demolition, cartage, electrical and plumbing contractors to prepare the site for the erection of the Goods; and
<b>3 Goods</b>		(b) arrange and pay for all building, planning permits, insurance and fees that may be required by any public authority,
3.1 The Goods are as described on the invoices, quotation, work authorisation or any other work commencement forms as provided by the Seller to the Buyer.	<b>7 Buyer's Disclaimer</b>	<b>12 Default &amp; Consequences of Default</b>
3.2 Plans supplied have slab designs for soil classifications A, S & M only, engineering drawings for all other soil classes are at the expense of the Buyer.	7.1 The Buyer hereby disclaims any right to rescind, or cancel the contract or to sue for damages or to claim restitution arising out of any misrepresentation made to him by any servant or agent of the Seller and the Buyer acknowledges that he buys the Goods relying solely upon his own skill and judgement and that the Seller shall not be bound by nor responsible for any term, condition, representation or warranty other than the warranty given by the Manufacturer which warranty shall be personal to the Buyer and shall not be transferable to any subsequent Buyer.	12.1 Interest on overdue invoices shall accrue from the date when payment becomes due daily until the date of payment at a rate of 2.5% compounding per calendar month and shall accrue at such a rate after as well as before any judgement.
<b>4 Price and Payment</b>		12.2 If the Buyer defaults in payment of any invoice when due, the Buyer shall indemnify the Seller from and against all the Seller's costs and disbursements including on a solicitor and own client basis and in addition all of the Seller's nominees costs of collection.
4.1 At the Seller's sole discretion the Price shall be either;	<b>8 Defects / Returns</b>	12.3 Without prejudice to any other remedies the Seller may have, if at any time the Buyer is in breach of any obligation (including those relating to payment), the Seller may suspend or terminate the supply of Goods to the Buyer and any of its other obligations under the terms and conditions. The Seller will not be liable to the Buyer for any loss or damage the Buyer suffers because the Seller exercised its rights under this clause.
(a) as indicated on invoices provided by the Seller to the Buyer in respect of Goods supplied; or	8.1 The Buyer shall inspect the Goods on delivery and shall within seven (7) days of delivery notify the Seller of any alleged defect, shortage in quantity, damage or failure to comply with the description or quote. The Buyer shall afford the Seller an opportunity to inspect the Goods within a reasonable time following delivery if the Buyer believes the Goods are defective in any way. If the Buyer shall fail to comply with these provisions, the Goods shall be conclusively presumed to be in accordance with the terms and conditions and free from any defect or damage.	12.4 If any account remains unpaid at the end of the second month after supply of the Goods or Services an immediate amount of the greater of \$20.00 or 10.00% of the amount overdue shall be levied for administration fees which sum shall become immediately due and payable.
(b) the Seller's quoted Price (subject to clause 4.2) which shall be binding upon the Seller provided that the Buyer shall accept in writing the Seller's quotation within thirty (30) days.	8.2 For defective Goods, which the Seller has agreed in writing that the Buyer is entitled to reject, the Seller's liability is limited to either (at the Seller's discretion) replacing the Goods or repairing the Goods provided that:	12.5 In the event that:
4.2 Any variation from the plan of scheduled works or specifications will be charged for on the basis of the Seller's quotation and will be shown as variations on the invoice. Payment for all variations must be made in full at their time of completion.	(a) the Buyer has complied with the provisions of clause 8.1;	(a) any money payable to the Seller becomes overdue, or in the Seller's opinion the Buyer will be unable to meet its payments as they fall due; or
4.3 At the Seller's sole discretion a deposit may be required. The deposit amount or percentage of the Price will be stipulated at the time of the order of the Goods and shall become immediately due and payable.	(b) the Seller will not be liable for Goods which have not been stored or used in a proper manner;	(b) the Buyer becomes insolvent, convenes a meeting with its creditors or proposes or enters into an arrangement with creditors, or makes an assignment for the benefit of its creditors; or
4.4 Time for payment for the Goods shall be of the essence and will be stated on the invoice, quotation or any other order forms. If no time is stated then payment shall be made before the delivery date.	<b>9 Warranty</b>	(c) a receiver, manager, liquidator (provisional or otherwise) or similar person is appointed in respect of the Buyer or any asset of the Buyer;
4.5 At the Seller's sole discretion, payment for approved Buyer's shall be due on last business day of the month in which the Goods were purchased.	9.1 Subject to any restrictions set out in the Building Act 2000 and the Housing Indemnity Act 1992 and any conditions in Clause 9.2 the Seller warrants that if any defect in any workmanship manufactured by the Seller becomes apparent and is reported to the Seller within twelve (12) months of the date of delivery (time being of the essence) then the Seller will either (at the Seller's sole discretion) repair the defect or replace the workmanship.	(i) then without prejudice to the Seller's other remedies at law
4.6 At the Sellers discretion a charge may be made for storage costs, as determined by the Seller and will be shown as an extra on the invoice. Payment for all extras must be made in full at their time of completion.	9.2 The conditions applicable to the warranty given by Clause 9.1 are:	(ii) the Seller shall be entitled to cancel all or any part of any order of the Buyer which remains unperformed in addition to and without prejudice to any other remedies; and
4.7 Payment will be made by cash, or by cheque, or by bank cheque, or by credit card, or by direct credit, or by any other method as agreed to between the Buyer and the Seller.	(a) The warranty shall not cover any defect or damage which may be caused or partly caused by or arise through:	(iii) all amounts owing to the Seller shall, whether or not due for payment, immediately become payable in addition to the interest payable under clause 12.1 hereof.
4.8 The Price shall be increased by the amount of any GST and other taxes and duties, which may be applicable, except to the extent that such taxes are expressly included in any quotation given by the Seller.		<b>13 Title</b>
<b>5 Delivery Of Goods / Services</b>		13.1 It is the intention of the seller and agreed by the Buyer that property in the Goods shall not pass until:
5.1 Delivery of the Goods shall be made to the Buyer's address. The Buyer shall make all arrangements necessary to take delivery of the Goods whenever they are tendered for delivery, or delivery of the Goods shall be made to the Buyer at the Seller's address.	(a) The Buyer has paid all amounts owing for the particular Goods, and	(a) The Buyer has paid all amounts owing for the particular Goods, and
5.2 Delivery of the Goods to a carrier, either named by the Buyer or failing such naming to a carrier at the discretion of the Seller for the purpose of transmission to the Buyer, is deemed to be a delivery of the Goods to the Buyer.	(b) The Buyer has met all other obligations due by the Buyer to the Seller in respect of all contracts between the Seller and the Buyer, and that the Goods shall be kept separate until the Seller shall have received payment and all other obligations of the Buyer are met.	(b) The Buyer has met all other obligations due by the Buyer to the Seller in respect of all contracts between the Seller and the Buyer, and that the Goods shall be kept separate until the Seller shall have received payment and all other obligations of the Buyer are met.
5.3 The costs of carriage and any insurance which the Buyer reasonably directs the Seller to incur shall be reimbursed by the Buyer (without any set-off or other withholding whatever) and shall be due on the date for		13.2 It is further agreed that:



- (a) Until such time as ownership of the Goods shall pass from the Seller to the Buyer the Seller may give notice in writing to the Buyer to return the Goods or any of them to the Seller. Upon such notice the rights of the Buyer to obtain ownership or any other interest in the Goods shall cease.
- (b) If the Buyer fails to return the Goods to the Seller then the Seller or the Seller's agent may enter upon and into land and premises owned, occupied or used by the Buyer, or any premises as the invitee of the Buyer, where the Goods are situated and take possession of the Goods, without being responsible for any damage thereby caused.
- (c) The Buyer is only a bailee of the Goods and until such time as the Seller has received payment in full for the Goods then the Buyer shall hold any proceeds from the sale or disposal of the Goods on trust for the Seller.
- (d) The Buyer shall not deal with the money of the Seller in any way which may be adverse to the Seller.
- (e) Receipt by the Seller of any form of payment other than cash shall not be deemed to be payment until that form of payment has been honoured, cleared or recognised and until then the Seller's ownership of rights in respect of the Goods shall continue.
- (f) The Buyer shall not charge the Goods in any way nor grant nor otherwise give any interest in the Goods while they remain the property of the Seller.
- (g) The Seller may require payment of the Price or the balance of the Price due together with any other amounts due from the Buyer to the Seller arising out of these terms and conditions, and the Seller may take any lawful steps to require payment of the amounts due and the Price.
- (h) The Seller can issue proceedings to recover the Price of the Goods sold notwithstanding that ownership of the Goods may not have passed to the Buyer.
- (i) Until such time the Buyer has the Seller's authority to convert the goods into other products and if the goods are so converted, the parties agree that the Seller will be the owner of the end products.

#### 14 Security and Charge

- 14.1 Despite anything to the contrary contained herein or any other rights which the Seller may have howsoever:
- (a) Where the Buyer and if there is a Guarantor, the Guarantor is the owner of land in the State of Tasmania, realty or any other asset capable of being charged, then each of them shall jointly and severally, and do hereby charge all their joint and several interest in the said land to the Seller to secure all their financial obligations due or to become due and owing pursuant to these General Terms and Conditions of Trade; and each of them do jointly and severally undertake to enter into a Mortgage of the said land or lands, as the case may be, at their own cost and expense, such Mortgage containing a Power of Sale.
- (b) Should the Seller elect to proceed in any manner in accordance with this clause and/or its sub-clauses, the Buyer and/or Guarantor shall indemnify the seller from and against all the Seller's costs and disbursements including legal costs on a solicitor and own client basis.
- (c) The Buyer and in the event there is a Guarantor, the Guarantor and each of them jointly and severally irrevocably nominate and constitute the Seller's Board of Directors, or in the event that there is a sole Director, the sole Director, as their joint and several true and lawful attorney to execute any mortgages and any charges (whether registrable or not) pursuant to the provisions of Clause 14 of these General Terms of Conditions of Trade; the Seller shall be the Mortgagee and such Mortgage shall, at the option of the Seller, include the securing of the Buyer and the Guarantor (in the event there is a Guarantor) joint and several obligations due to the Seller and shall further secure the performance of all necessary acts and things including the institution of any legal proceedings agreed to be given, or owed to the Seller. The said Power of Attorney shall entitle the Donee of the Power to execute all or any documents which the Donee may consider necessary or advantageous to give effect to the provisions of Clause 14 of these General Terms & Conditions of Trade.

#### 15 Cancellation

- 15.1 The Seller may cancel these terms and conditions or cancel delivery of Goods at any time before the Goods are delivered by giving written notice. The Seller shall not be liable for any loss or damage whatever arising from such cancellation.
- 15.2 At the Sellers sole discretion the Buyer may cancel delivery of Goods and/or Services. In the event that the Buyer cancels delivery of Goods and/or Services the Buyer shall be liable for any costs incurred by the Seller up to the time of cancellation.

#### 16 Privacy Act 1988

- 16.1 The Buyer and/or the Guarantor/s agree for the Seller to obtain from a credit-reporting agency a credit report containing personal credit information about the Buyer and Guarantor/s in relation to credit provided by the Seller.
- 16.2 The Buyer and/or the Guarantor/s agree that the Seller may exchange information about Buyer and Guarantor/s with those credit providers named in the Application for Credit account or named in a consumer credit report issued by a reporting agency for the following purposes:
- To assess an application by Buyer;
  - To notify other credit providers of a default by the Buyer;
  - To exchange information with other credit providers as to the status of this credit account, where the Buyer is in default with other credit providers; and
  - To assess the credit worthiness of Buyer and/or Guarantor/s.
- (e) The Buyer consents to the Seller being given a consumer credit report to collect overdue payment on commercial credit (Section 18K(1)(h) Privacy Act 1988).
- (f) The Buyer, and where there is a Guarantor, jointly and severally each agree, for the purpose of section 18L of the *Privacy Act 1988 (Cth)*, as amended from time to time, to the Seller, and both jointly and severally here so authorise the Seller, to obtain any credit report that the Seller may so desire, and to use the credit report and the information referred to therein including any information falling within either sections 18L(4)(a) or (b) or either of them of the *Privacy Act 1988 (Cth)* as amended, for the purposes of assessing an Application for credit by the Buyer and also for the purposes of assessing the information in that report for the purposes of determining whether to accept the Guarantor (if a Guarantor is offered or is required), as a Guarantor for the provision of credit to the Buyer.
- 16.3 The Buyer agrees that Personal Data provided may be used and retained by the Seller for the following purposes and for other purposes as shall be agreed between the Buyer and Seller or required by law from time to time:
- provision of Services & Goods;
  - marketing of Services and/or Goods by the Seller, its agents or distributors in relation to the Services and Goods;
  - analysing, verifying and/or checking the Buyer's credit, payment and/or status in relation to provision of Services/Goods;
  - processing of any payment instructions, direct debit facilities and/or credit facilities requested by Buyer; and
  - enabling the daily operation of Buyer's account and/or the collection of amounts outstanding in the Buyer's account in relation to the Services and Goods.
- 16.4 The Seller may give, information about the Buyer to a credit reporting agency for the following purposes:
- to obtain a consumer credit report about the Buyer; and or,
  - allow the credit reporting agency to create or maintain a credit information file containing information about the Buyer.

#### 17 Unpaid Seller's Rights To Dispose Of Goods

- 17.1 In the event that:
- the Seller retains possession or control of the Goods; and
  - payment of the Price is due to the Seller; and
  - the Seller has made demand in writing of the Buyer for payment of the Price in terms of this contract; and
  - the Seller has not received the Price of the Goods, then, whether the property in the Goods has passed to the Buyer or has remained with the Seller, the Seller may dispose of the Goods and may claim from the Buyer the loss to the Seller on such disposal.

#### 18 Lien & Stoppage in Transit

- 18.1 Where the Seller has not received or been tendered the whole of the price, or the payment has been dishonoured, the Seller shall have:
- a lien on the goods;
  - the right to retain them for the price while the Seller is in possession of them;
  - a right of stopping the goods in transit whether or not delivery has been made or ownership has passed; and
  - a right of resale,
  - the foregoing right of disposal,
- 18.2 provided that the lien of the Seller shall continue despite the commencement of proceedings or judgement for the price having been obtained.

#### 19 Granting of a security interest in the collateral

- 19.1 The Buyer hereby grants a security interest in the collateral to the Seller for a period of seven (7) years from the date of signing of the page overleaf by the Buyer and the Seller's representative, [and in the event that the signatures occur on different dates, the latter date].
- 19.2 The Seller may seize the collateral by any method permitted by Law, if the Buyer is in default in payment of any of the purchase money forming part of this Security Agreement and may use all reasonable force to enter into a premise to retake the collateral and further may re-sell the same at the best possible price and thereafter sue the Buyer for any monies due and payable by the Buyer to the Seller;-
- under these General Terms & Conditions of Trade; Or
  - otherwise howsoever the same may arise The Seller may make a decision pursuant to section 117 of the

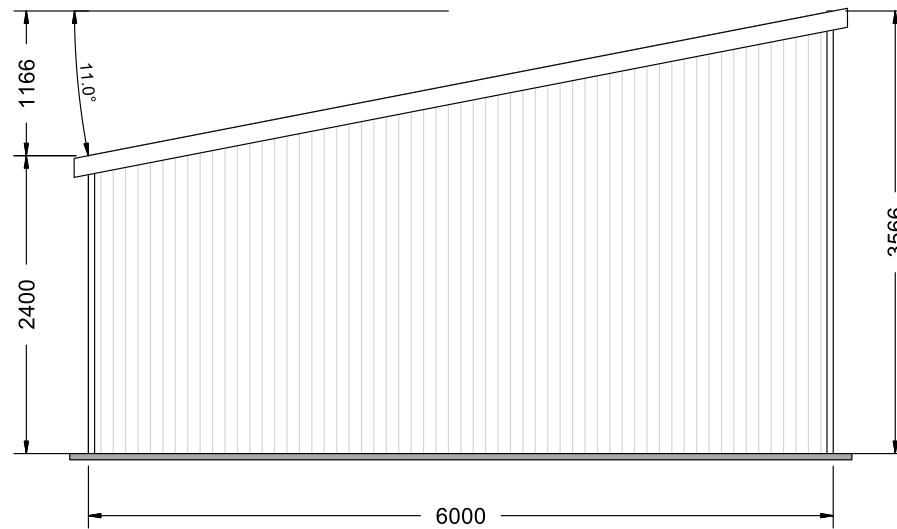
*Personal Property Securities Act 2009 (Cth)* as amended from time to time, at the Seller's own absolute and unfettered discretion.

#### 20 General

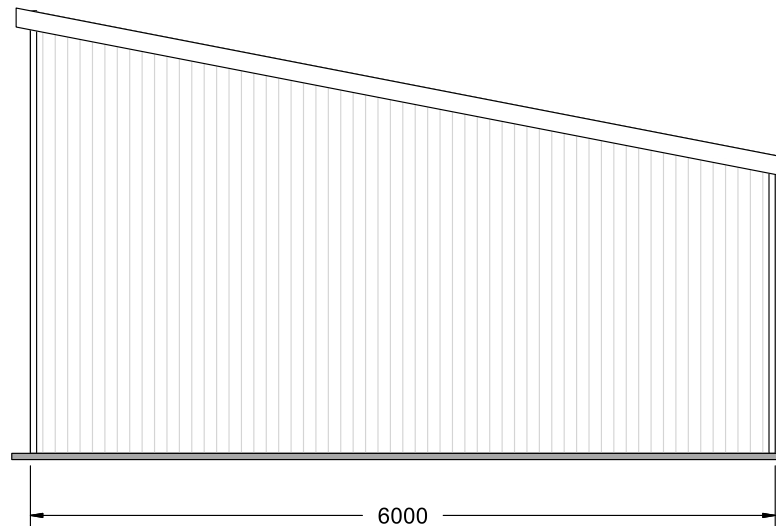
- 20.1 If any provision of these terms and conditions shall be invalid, void, illegal or unenforceable the validity, existence, legality and enforceability of the remaining provisions shall not be affected, prejudiced or impaired.
- 20.2 All Goods supplied by the Seller are subject to the laws of Tasmania and the Seller takes no responsibility for changes in the law which affect the Goods supplied.
- 20.3 The Seller shall be under no liability whatever to the Buyer for any indirect loss and/or expense (including loss of profit) suffered by the Buyer arising out of a breach by the Seller of these terms and conditions.
- 20.4 In the event of any breach of this contract by the Seller the remedies of the Buyer shall be limited to damages. Under no circumstances shall the liability of the Seller exceed the Price of the Goods.
- 20.5 The Buyer shall not set off against the Price amounts due from the Seller.
- 20.6 The Seller may license or sub-contract all or any part of its rights and obligations without the Buyer's consent.
- 20.7 The Seller reserves the right to review these terms and conditions at any time and from time to time. If, following any such review, there is to be any change in such terms and conditions, that change will take effect from the date on which the seller notifies the Buyer of such change.
- 20.8 Neither party shall be liable for any default due to any act of God, war, terrorism, strike, lock out, industrial action, fire, flood, drought, storm or other event beyond the reasonable control of either party.

#### 21 Interpretation Clause

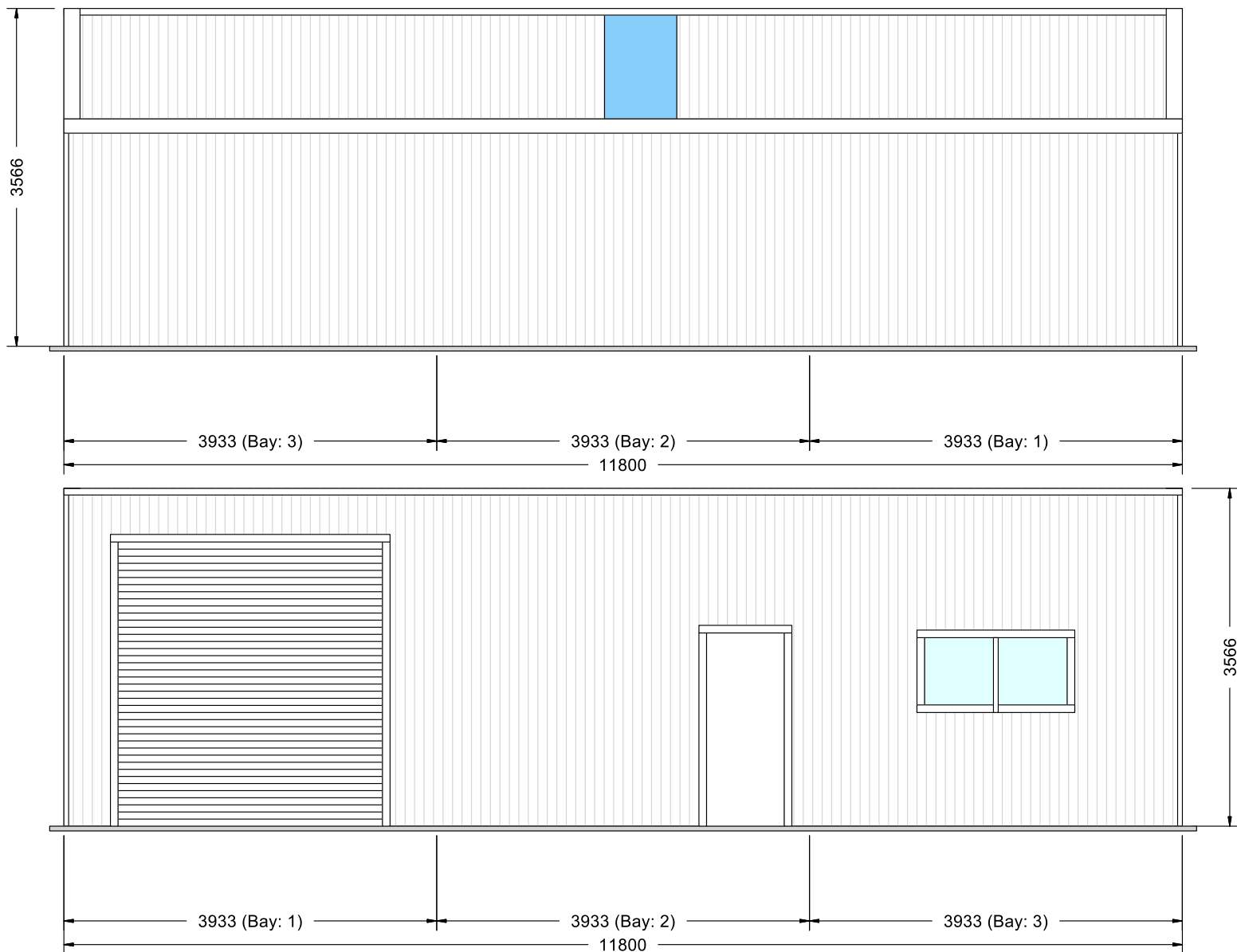
- 21.1 So far as the *Personal Property Securities Act 2009 (Cth)* as amended is concerned, in construing and interpreting the *General Terms & Conditions of Trade*, notwithstanding anything to the contrary herein above contained, these general terms and conditions of trade shall be read down to the minimum extent necessary so that they operate as a security interest capable of effective registration to the intent that they shall secure at least all or such part of the purchase price as is unpaid by the Seller to the Buyer, whichever is the lesser; such purchase money security interest being as defined in section 14 of the *Personal Property Securities Act 2009 (Cth)* as amended from time to time.
- 21.2 In the event that the Australian Consumer Law applies in construing and interpreting the *General Terms & Conditions of Trade*, notwithstanding anything to the contrary above herein contained, these general terms and conditions of trade shall be read down so that neither the seller nor the buyer breach any provisions of the Law, and the *General Terms & Conditions of Trade* shall, so far as is possible, remain in full force and effect.



FRONT ELEVATION



REAR ELEVATION

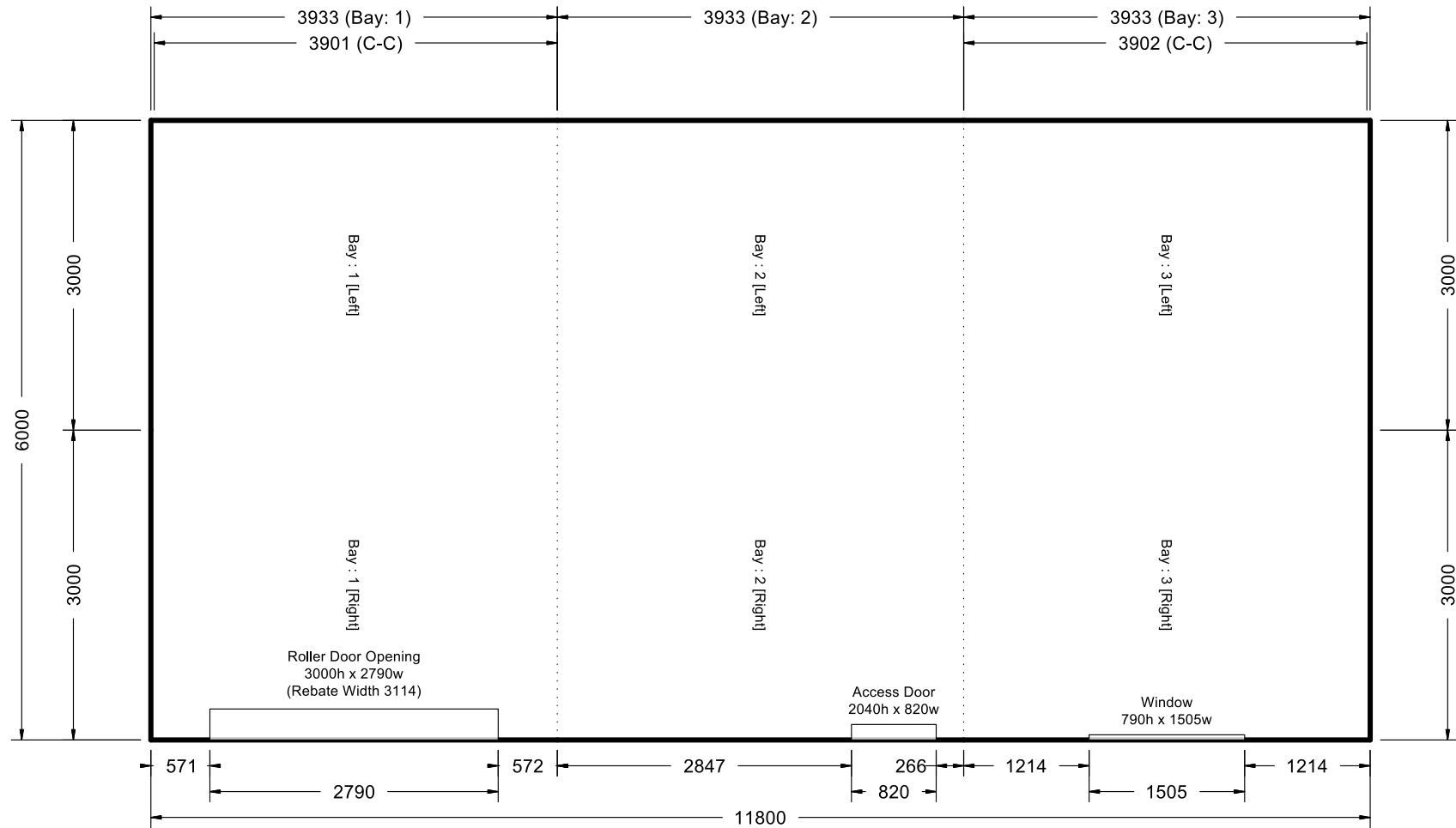


RIGHT ELEVATION

139 Main Road,  
Sorell TAS 7172  
Phone: 1300 737 910  
Email: sales@rainbowbuilding.com.au

CLIENT:  
SITE ADDRESS:  
PHONE:  
EMAIL:

DRAWING TITLE: Side Elevations  
SCALE: 1:63.578  
DATE: 25-11-2021  
Job Number: SOR01\_6535  
Drawing Number: SE

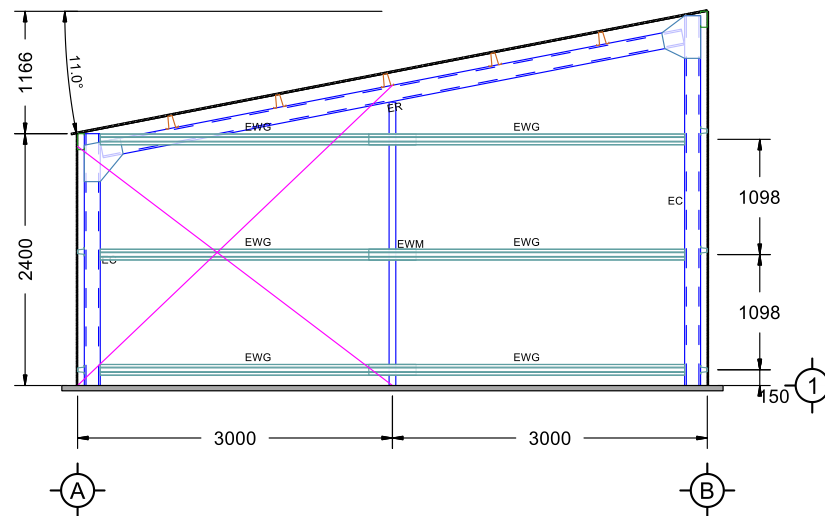


PLAN ELEVATION

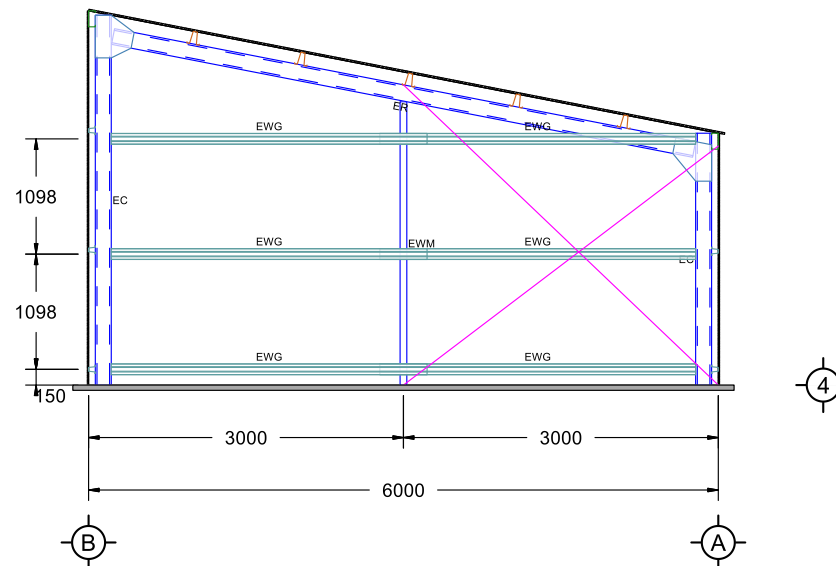
139 Main Road,  
Sorell TAS 7172  
Phone: 1300 737 910  
Email: sales@rainbowbuilding.com.au

CLIENT:  
SITE ADDRESS:  
PHONE:  
EMAIL:

DRAWING TITLE: Plan Elevation  
SCALE: 1:62.817  
DATE: 25-11-2021  
Job Number: SOR01\_6535  
Drawing Number:



FRONT ELEVATION

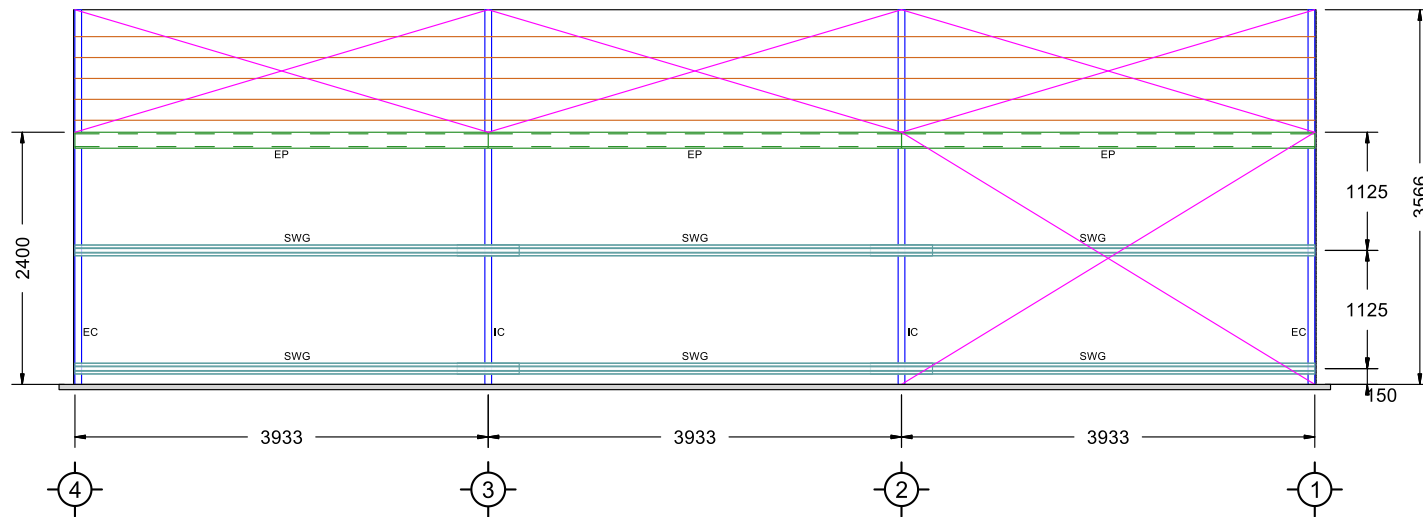


REAR ELEVATION

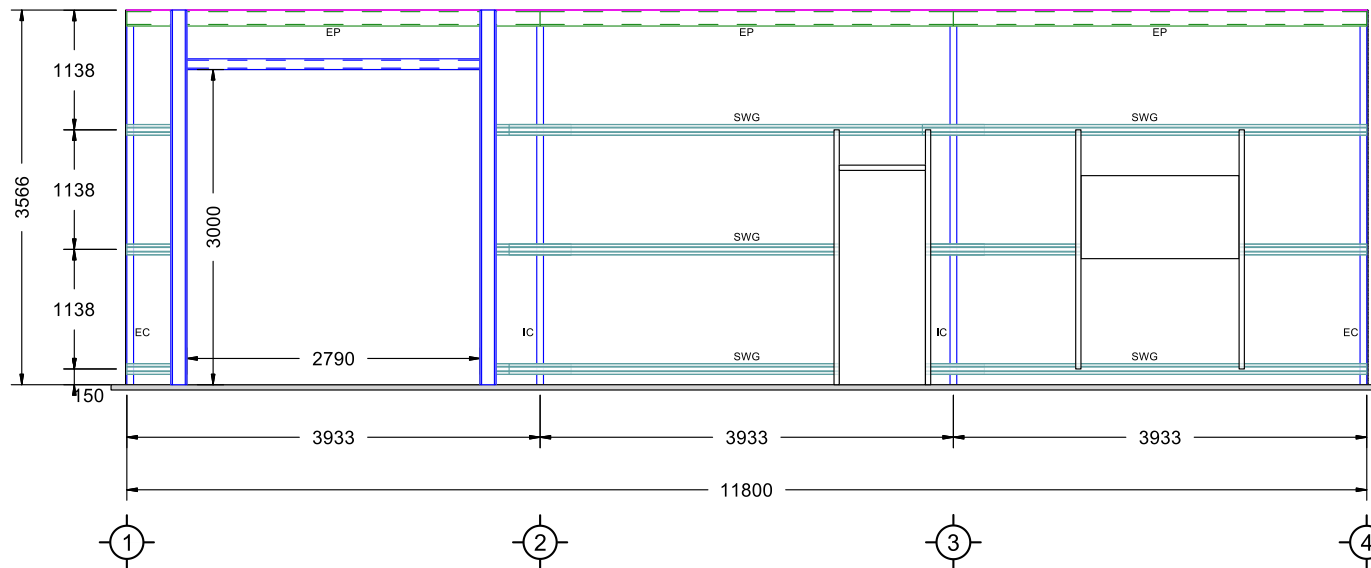
139 Main Road,  
Sorell TAS 7172  
Phone: 1300 737 910  
Email: [sales@rainbowbuilding.com.au](mailto:sales@rainbowbuilding.com.au)

CLIENT:  
SITE ADDRESS:  
PHONE:  
EMAIL:

DRAWING TITLE: End Frame Elevations  
SCALE: 1:72.041  
DATE: 25-11-2021  
Job Number: SOR01\_6535  
Drawing Number: EFE



LEFT ELEVATION



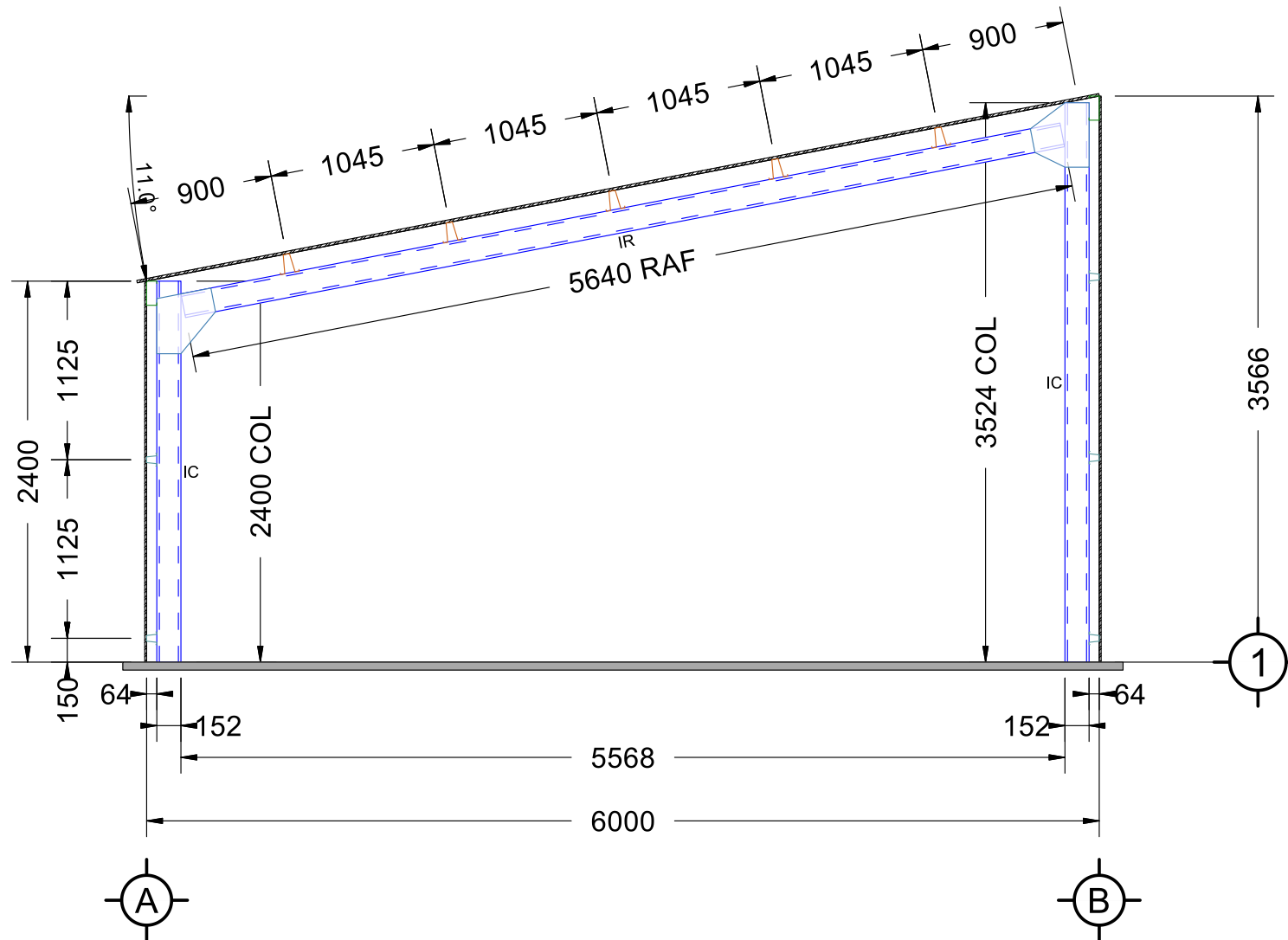
RIGHT ELEVATION

139 Main Road,  
Sorell TAS 7172  
Phone: 1300 737 910  
Email: sales@rainbowbuilding.com.au

CLIENT:  
SITE ADDRESS:  
PHONE:  
EMAIL:

DRAWING TITLE: Side Frame Elevations  
SCALE: 1:71.953  
DATE: 25-11-2021  
Job Number: SOR01\_6535  
Drawing Number: SFE



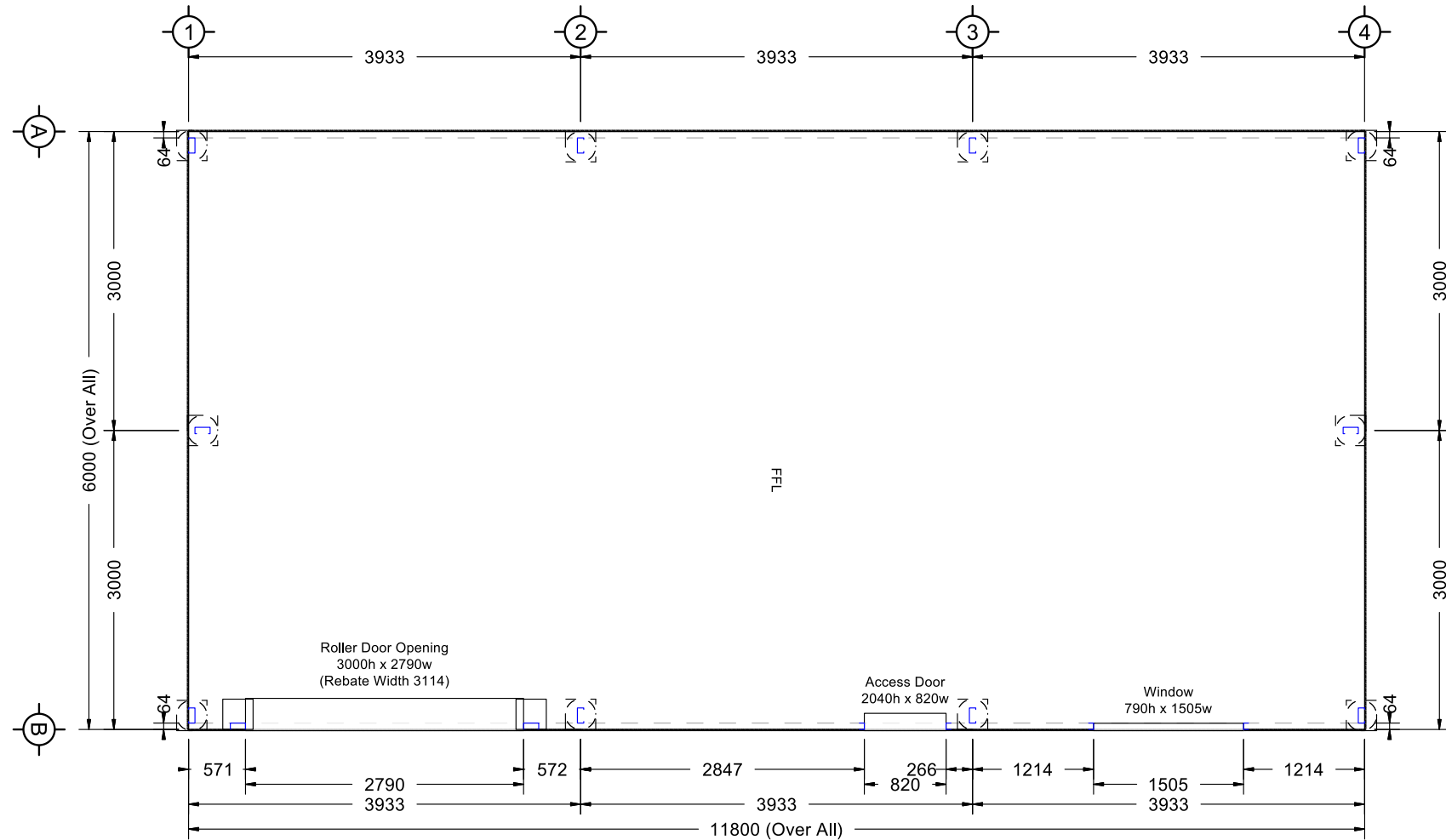


## INTERMEDIATE ELEVATION

139 Main Road,  
Sorell TAS 7172  
Phone: 1300 737 910  
Email: sales@rainbowbuilding.com.au

CLIENT:  
SITE ADDRESS:  
PHONE:  
EMAIL:

DRAWING TITLE: Cross Section  
SCALE: 1:41.221  
DATE: 25-11-2021  
Job Number: SOR01\_6535  
Drawing Number: CS



## FLOOR PLAN

139 Main Road,  
Sorell TAS 7172  
Phone: 1300 737 910  
Email: sales@rainbowbuilding.com.au

CLIENT:  
SITE ADDRESS:  
PHONE:  
EMAIL:

DRAWING TITLE: Floor Plan  
SCALE: 1:64.564  
DATE: 25-11-2021  
Job Number: SOR01\_6535  
Drawing Number: FP



**strata**  
geoscience and environmental

**Onsite Wastewater System Design**

**Proposed Dwelling  
170 Safety Cove Road  
Port Arthur**

**June 2022**

**Important Notes:**

The author, Strata Geoscience and Environmental, gives permission for this report to be copied and distributed to interested parties only if it is reproduced in colour and in full including all appendices. No responsibility is taken for the contents and recommendations of this report if it is not reproduced as requested.

Strata Geoscience and Environmental reserves the right to submit this report the relevant regulatory agencies where it has a responsibility to do so.

## **1. Introduction**

Strata Geoscience and Environmental Pty Ltd was commissioned to conduct an onsite wastewater system design for:

<b>Client and Site Details</b>	
Client Name	
Site Address	170 Safety Cove Road Port Arthur
Proposed Development	New system for proposed dwelling

The investigation was conducted with reference to Australian Standards AS1547-2012 Onsite Domestic Wastewater Management and also follows the principles outlined in AS1726-1993 Geotechnical Site Investigations.

## **2. Summary of Site and Soil Evaluation and Design Outcomes**

The investigation's key findings were:

<b>SSE and Design Outcomes</b>	
General Comments	Site suitable for disposal of primary treatment
Key Site and Soil Limitations to System Design	<ul style="list-style-type: none"><li>• Low permeability subsoils</li></ul>
Summary of Proposed System Specification	Primary Treatment: AWTs Secondary Treatment: AWTs Land Application: Irrigation

### **3. Investigation**

Please refer to Appendix 4 for Site and Soil Evaluation results.

### **4. Interpretation**

The site is situated on a slight to moderate slope underlain by inferred variable soils derived from Permian aged rocks

With respect to the sustainability of long term disposal of wastewater within the site boundaries the following comments are made:

**Soils** – Natural soils will have a moderate permeability for the acceptance of wastewater flows and will show a moderate cation exchange complex for the absorption of nutrients from effluent.

**Environmental Sensitivities** – The development area is gently sloping with nearest surface water body located approximately 100+ m down slope of the proposed residence. Groundwater was not intersected throughout geotechnical investigation however it may flow over clayey subsoils as a perched watertable throughout wet periods.

**Climate** - the nearest weather station with long term data is the Port Arthur Station with a mean annual rainfall of 990.3 mm (BOM 2021) and no evaporation data.

**Title Searches** – Searches of the Land Title did not show any easements or right of ways which would affect the positioning of the wastewater land application system.

Given the above, the general environmental and public health risk associated with the site is regarded as low provided adequate setback distances and other controls are adopted.



## 5. Onsite Wastewater System Design

### 5.1 Site and Soil Considerations

Results of the SSE (Appendix 4) found the following typical soil profile on site:

Topsoils (A1-A3)		
Description	SAND (SW)	CLAYEY SAND (SC)
Soil Category (AS1547-2011)	1	1
Indicative Permeability (m/d)	2.0	1.5
Recommended DIR (mm/d)/DLR (L/D)	5	5
pH	6.9	6.5
EC	1.9	4.2
Emmerson Class	8	5

### 5.2 Risk Management of Site and Soil Constraints

Key site and soil constraints as well as their risk management:

Site/Soil Constraint	Risk Mitigation Measure
Soil depth	<ul style="list-style-type: none"><li>• Irrigation</li></ul>
Runoff	<ul style="list-style-type: none"><li>• Irrigation</li></ul>

### 5.3 Proposed Wastewater System Concept Design

It is therefore recommended that the following system be adopted:

Treatment Train Component	Proposed Concept Design
Primary Treatment	<ul style="list-style-type: none"><li>• AWTs</li></ul>
Secondary Treatment	<ul style="list-style-type: none"><li>• AWTs</li></ul>
LAA Design	<ul style="list-style-type: none"><li>• Irrigation</li></ul>

The development proposal is for the construction of new wastewater system to service the proposed three bedroom dwelling on tank water. Therefore, under AS1547-2012 the calculated effluent flows and required disposal area is as follows:

<b>Wastewater System Modelling</b>	
Number of Proposed Bedrooms	3
Number of Equivalent Persons	5
Water Source (Tank/Mains)	Tank
Daily Loading (L/per person/D)	120
Total Daily Loading (L/D)	600
Adopted Soil Category (AS1547-2012)	1
Indicative Permeability (m/d)	2
Adopted DLR/DIR (mm/d OR L/m <sup>2</sup> /d)	5
Required LAA (m <sup>2</sup> )	120

The absorption areas could be catered for by one 120m<sup>2</sup> subsurface irrigation installed as shown on the site plan with adequate room for a 50% reserve if required (see Appendix 1). Refer to Appendix 2/3 for more detailed calculations as well as specific design and construction notes.

## **5.5 System Requirements**

### **5.5.1 Treatment System**

Given the above modelling the following treatment system would be appropriate:

- Min DN100 gravity fed sewer pipe
- Min 1200L/Day treatment capacity AWTS

### **5.5.2 Land Application Areas**

The land application areas could consist of:

- Min 120 m<sup>2</sup> of subsurface irrigation with appropriate buffer zones
- 50% reserve

## **5.6 Management Requirements**

It is imperative that regular servicing of the treatment unit compliant with the prescriptions of the manufacturer and Council permit occur.

To ensure that the treatment system functions adequately and provides effective treatment and disposal of effluent over its design life, asset owners have the following responsibilities:

- Suitably qualified maintenance contractors must be engaged to service the system, as required by Council under the approval to operate.
- Keep as much fat and oil out of the system as possible; and
- Conserve water.

To ensure that the land application area (LAA) functions adequately and provides effective treatment and disposal of effluent over its design life, asset owners have the following responsibilities:

- LAA should be checked regularly to ensure that effluent is draining freely, including flushing of lines and cleaning of inline filters.
- All vehicles, livestock and large trees should be excluded from around the trench area.
- Low sodium/phosphorous based detergents should be used to increase the service life of trench area.
- Regularly harvest (mow) vegetation within the LAA and remove this to maximise uptake of water and nutrients;
- Not to erect any structures over the LAA;
- Ensure that the LAA is kept level by filling any depressions with good quality topsoil (not clay).

Excessive surface dampness, smell or growth of vegetation around the LAA may indicate sub-optimal performance and professional advice should be sort.

## **5.7 Setback Requirements**

Demonstration of compliance to planning scheme overleaf.

<p><b>A1</b></p> <p>Horizontal separation distance from a building to a land application area must comply with one of the following:</p> <ul style="list-style-type: none"> <li>a. be no less than 6m:</li> <li>b. be no less than: <ul style="list-style-type: none"> <li>(i) <b>2m from an upslope or level building.</b></li> <li>(ii) If primary treated effluent to be no less than 4m plus 1m for every degree of average gradient from a downslope building</li> <li>(iii) If secondary treatment and subsurface application, no less than 2m plus 0.25m for every degree of average gradient from a downslope building</li> </ul> </li> </ul>	<p><b>P1</b></p> <p>Horizontal separation distance from a building to a land application area must satisfy all of the following:</p> <ul style="list-style-type: none"> <li>(a) effluent must be no less than secondary treated effluent standard and applied through a subsurface land application system;</li> <li>(b) be no less than 2m.</li> </ul>	<p><b>Complies with</b></p> <p><b>A1 b(i)</b></p>
---	---	---

<p><b>A2</b></p> <p>Horizontal separation distance from downslope surface water to a land application area must comply with any of the following:</p> <ul style="list-style-type: none"> <li>(a) be no less than 100m;</li> <li>(b) if the site is within a high rainfall area or the site soil category is 4, 5 or 6, be no less than the following: <ul style="list-style-type: none"> <li>(i) if primary treated effluent standard or surface application, 50m plus 7m for every degree of average gradient from downslope surface water;</li> <li>(ii) if secondary treated effluent standard and subsurface application, 50m plus 2m for every degree of average gradient from down slope surface water.</li> </ul> </li> <li>(c) if the site is not within a high rainfall area or the site soil category is not 4, 5 or 6, be no less than the following: <ul style="list-style-type: none"> <li>(i) if primary treated effluent 15m plus 7m for every degree of average gradient from downslope surface water</li> <li>(ii) if secondary treated effluent standard and subsurface application, 15m plus 2m for every degree of average gradient from down slope surface water.</li> </ul> </li> </ul>	<p><b>P2</b></p> <p><b>Horizontal separation distance from downslope surface water for a land application area must satisfy all of the following:</b></p> <ul style="list-style-type: none"> <li><b>(a) effluent must be no less than secondary treated effluent standard and applied through a subsurface land application system;</b></li> <li><b>(b) be no less than 15m;</b></li> <li><b>(c) the surface water is not of high resource or environmental value;</b></li> <li><b>(d) the average gradient is no more than 16 degrees;</b></li> <li><b>(e) the site is not in a flood prone area with an ARI of no less than 20 years;</b></li> <li><b>(f) either of the following applies:</b> <ul style="list-style-type: none"> <li><b>(i) the site soil category is 1, 2 or 3;</b></li> <li><b>(ii) a raised bed (mound) is used.</b></li> </ul> </li> </ul>	<p><b>Complies with</b></p> <p><b>A2 ci</b></p>
---	---	---



*Site and Soil Evaluation and Onsite Wastewater System Design  
170 Safety Cove Road Port Arthur*

<p><b>A3</b></p> <p>Horizontal separation distance from a property boundary to a land application area must comply with either of the following:</p> <ul style="list-style-type: none"> <li>a) be no less than 40m from a property boundary</li> <li>(b) be no less than: <ul style="list-style-type: none"> <li>(i) 1.5m from an upslope or level property boundary; and</li> <li>(ii) if primary treated effluent 2m for every degree of average gradient from a downslope property boundary; or</li> <li>(iii) <b>if secondary treated effluent and subsurface application, 1.5m plus 1m for every degree of average gradient from a downslope property boundary.</b></li> </ul> </li> </ul>	<p>P3</p> <p>Horizontal separation distance from the boundary to a land application area must comply with all of the following:</p> <ul style="list-style-type: none"> <li>a) Setbacks must be consistent with AS/NZS 1547 Appendix R, and</li> <li>b) A risk assessment in accordance with Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable</li> </ul>	<p><b>Complies with A3 (b) (iii)</b></p>
<p>A4</p> <p><b>Horizontal separation distance from a downslope bore, well or similar water supply to a land application area must be no less than 50m.</b></p>	<p>P4</p> <p>Horizontal separation distance from a downslope bore, well or similar water supply to a land application area must satisfy all of the following:</p> <ul style="list-style-type: none"> <li>(a) effluent must be no less than secondary treated effluent standard and applied through a subsurface land application system;</li> <li>(b) be no less than 15m;</li> <li>(c) the water is not high resource value water.</li> </ul>	<p><b>Complies with A4</b></p>
<p><b>A5</b></p>	<p>P5</p>	<p><b>Complies with A5</b></p>

*Site and Soil Evaluation and Onsite Wastewater System Design  
170 Safety Cove Road Port Arthur*

<p><b>Vertical separation distance between groundwater and a land application area must be no less than 1.5m</b></p>	<p>Vertical separation distance between groundwater and a land application area must satisfy all of the following:</p> <ul style="list-style-type: none"> <li>(a) effluent must be no less than secondary treated effluent standard and applied through a subsurface land application system;</li> <li>(b) vertical separation distance must be no less than 0.5m, (whether 'in ground' or by use of a raised bed).</li> </ul>	
<p><b>A6</b></p> <p>Vertical separation distance between a limiting layer and a land application area must be no less than 1.5m</p>	<p><b>P6</b></p> <p><b>Vertical separation distance between a limiting layer and a land application area must satisfy all of the following:</b></p> <ul style="list-style-type: none"> <li>(a) effluent must be no less than secondary treated effluent standard and applied through a subsurface land application system;</li> <li>(b) vertical separation distance must be no less than 0.5m, (whether 'in ground' or by use of a raised bed/mound).</li> </ul>	<p><b>Complies with A6</b></p>
<p><b>A7</b></p> <p><b>The arrangement of a land application area must comply with both of the following:</b></p> <ul style="list-style-type: none"> <li>(a) not include areas beneath buildings, driveways or other hard stand areas;</li> <li>(b) have a minimum horizontal dimension of 3m.</li> </ul>	<p><b>P7</b></p> <p>No performance Criteria</p>	<p><b>Complies with A7</b></p>

## 6. Conclusions and Further Recommendations

In conclusion the following comments and recommendations are made:

- The maximum wastewater flow rate (MWWF) modelling conducted in this report shows that the generated flows are likely to be no more than 600L/day
- That such flows will require a 120m<sup>2</sup> subsurface irrigation area
- It is likely that peak flows associated with the development should be within the buffering capacity of the system both in terms of the system sizing as well as for their acceptance into the disposal area.
- If the hydraulic capacity of soils underlying disposal areas is exceeded by effluent water flows, the disposal area has the capacity to be increased by up to 50%.
- **If the prescriptions of this report are followed the likely human and environmental health risks associated with effluent disposal onsite is rated as low.**



S Nielsen MEngSc CPSS

*Director*

*Strata Geoscience and Environmental Pty Ltd*

E:sven@strataconsulting.com.au



## **7. References**

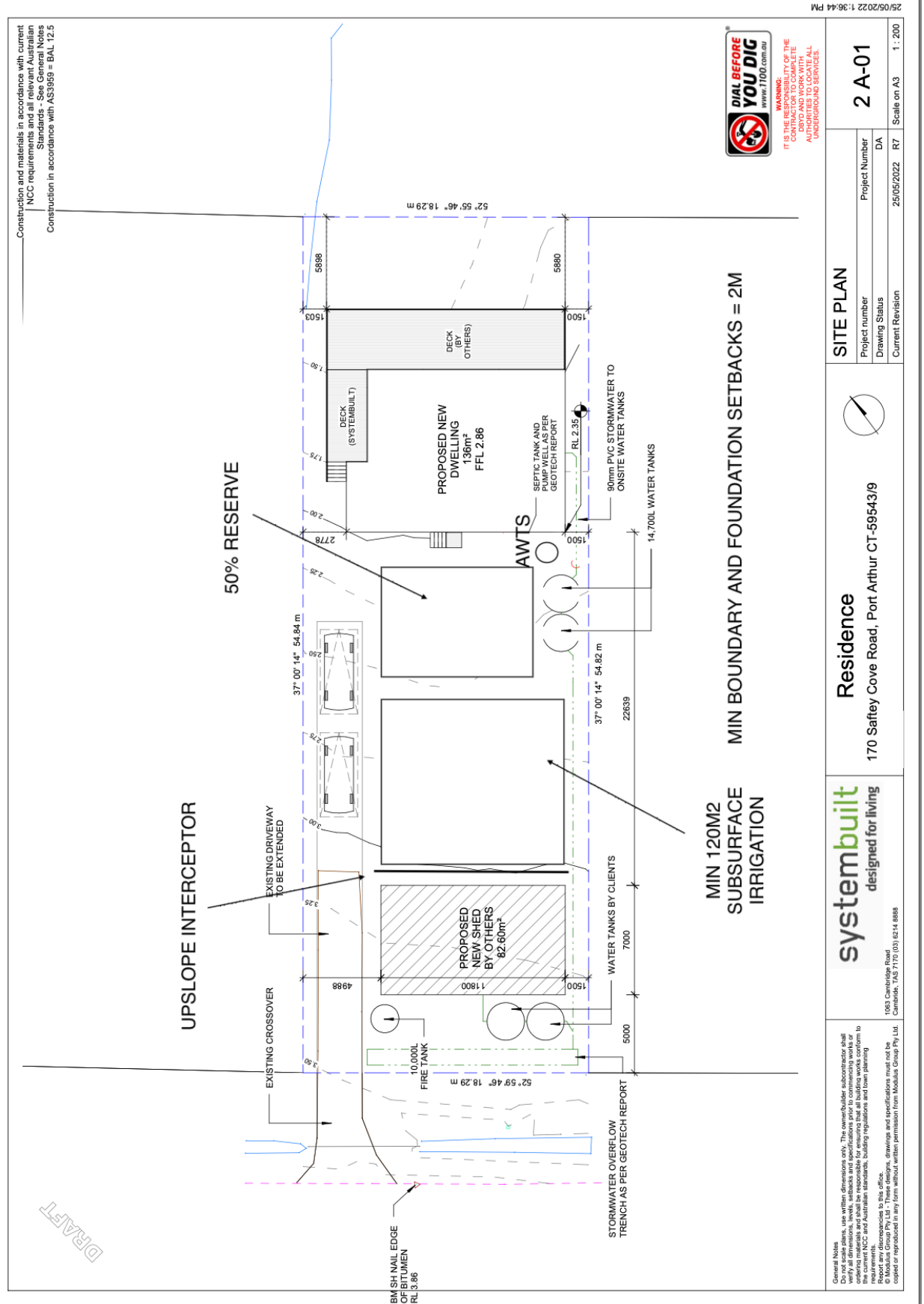
- AS1726-1993- Geotechnical Site Investigations
- AS1547-2012 Onsite Domestic Wastewater Management
- Bureau of Meteorology Website- Monthly Climate Statistics

## Appendix 1 Detailed Design Calculations

<b>Wastewater Loading Certificate*</b>	
<b>System Capacity</b>	600 L/D
<b>Design Summary</b>	
• Effluent Quality	Primary
• Adopted Soil category	1
• Amended Adopted Soil Category	Not amended
• Adopted DLR/DIR (mm/d OR L/m <sup>2</sup> /d)	5
• LAA Design	Irrigation
• Primary LAA Requirement	120m <sup>2</sup>
• Reserve Area	Min 50% reserve LAA must be maintained in an undeveloped state near the primary system as identified on the site plan
<b>Fixtures</b>	Assumes std water saving fixtures inc 6/3L dual flush toilets, aerator forcets, Washing/dishwashing machines with min WELSS rating 4.5 star
<b>Consequences of Variation in Effluent Flows</b>	
• High Flows	The system should be capable of buffering against flows of up to 10% in a 24 hr period. System not rated for spa installation.
• Low Flows	Should not affect system performance
<b>Consequences of Variation in Effluent Quality</b>	Residence to avoid the installation of sink disposal systems (eg "sinkerators"), or the addition of large amounts of household cleaning products or other solvents. These can overload system BOD or affect effluent treatment by system biota.
<b>Consequences of Lack of Maintenance and Monitoring Attention</b>	<p>Owners should maintain the system in compliance with systems Home Owners Manual and council permit.</p> <p>All livestock, vehicles and persons to be excluded from the LAA.</p> <p>Failure to ensure the above may lead to infection of waterways, bores or the spread of disease, as well as production of foul odours, attraction of pests and excessive weed growth.</p>

\* In accordance with Clause 7.4.2(d) of AS/NZS 1547.2012.

## Appendix 2 Land Application Design and Construction Notes



## Irrigation Design

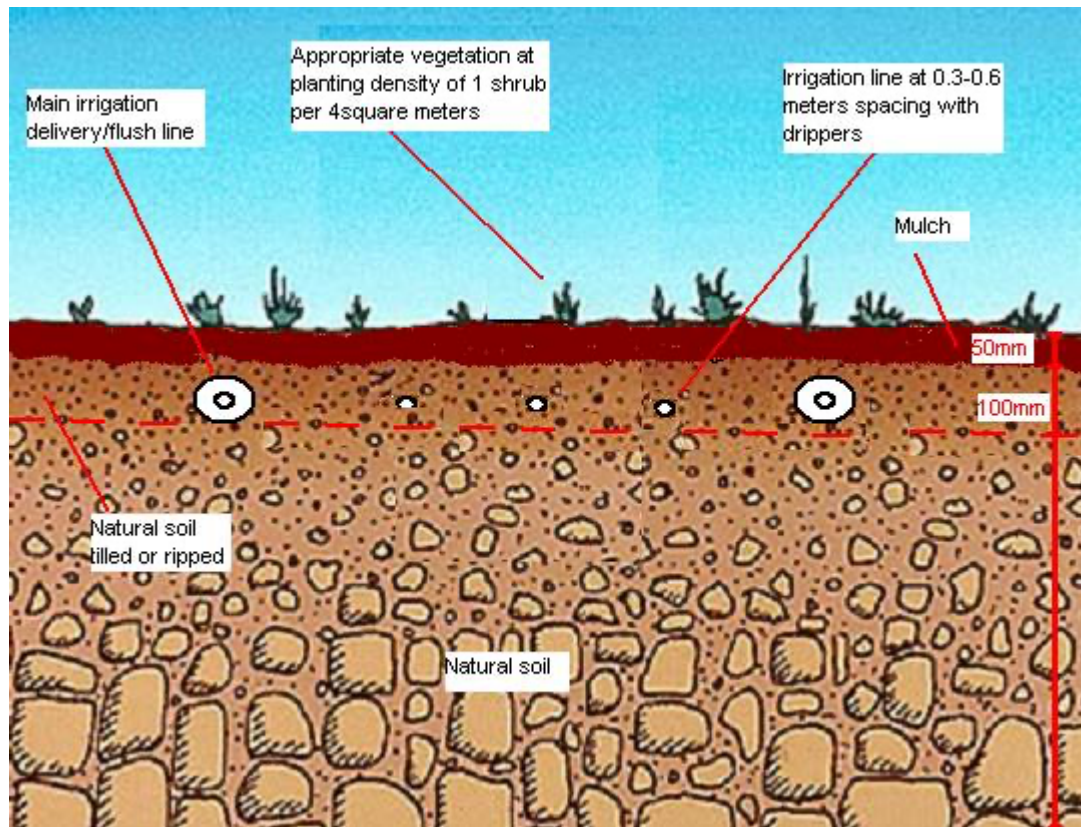


Figure 1 Irrigation cross section showing major delivery/flush lines and irrigation lines.

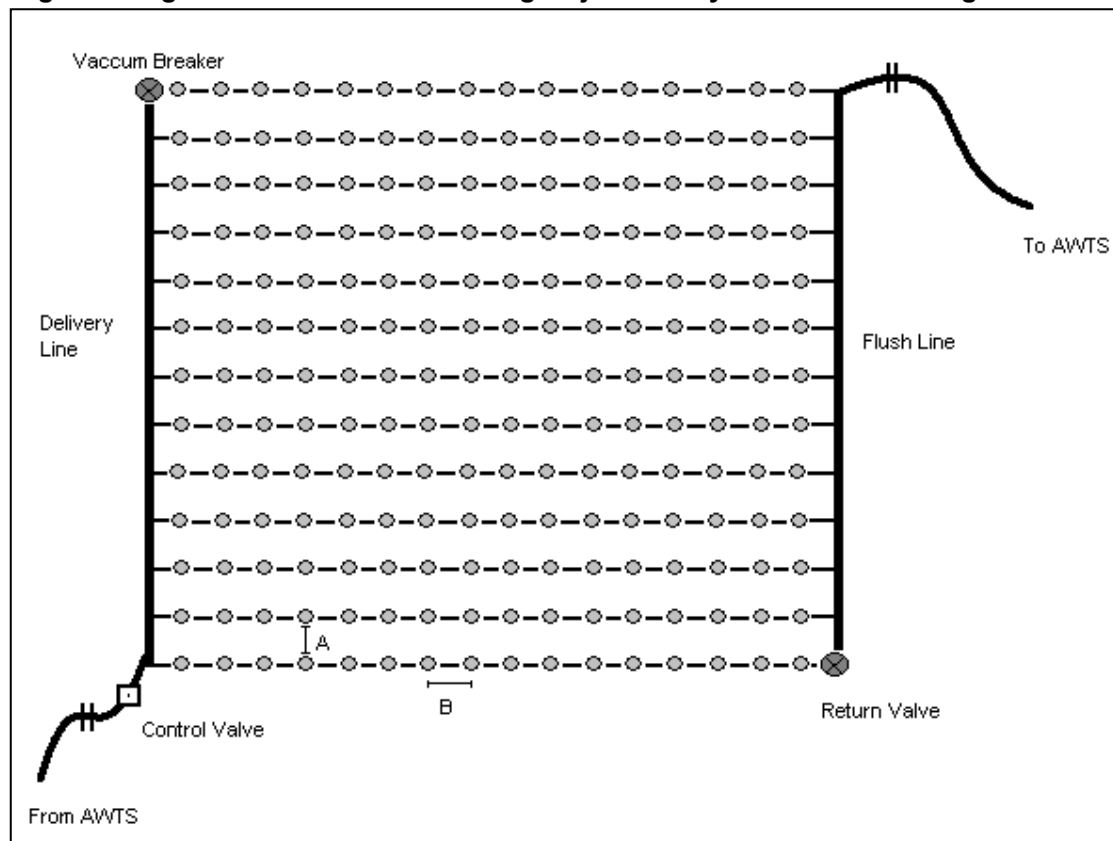


Figure 2 Irrigation Plan View



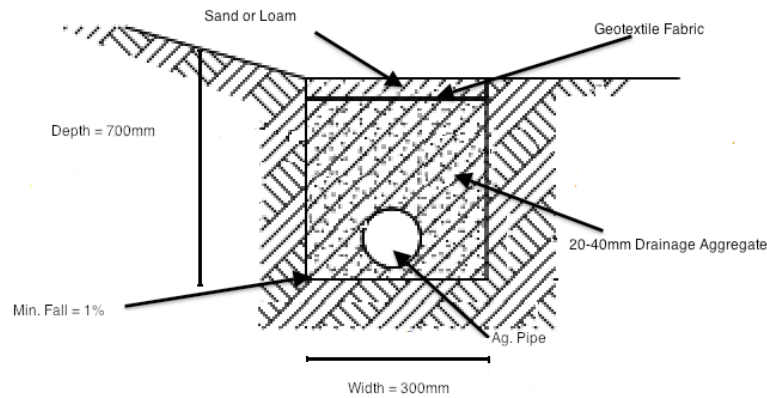
**Site De-vegetation and Soil Renovation Processes  
(only applicable for recently de-vegetated sites)  
(Pre irrigation installation)**

1. The land application area is located in the area contained within the bushfire buffer zone and hence will have all vegetation removed. This will alleviate the effects of the forest canopy reducing evapotranspiration rates.
2. Soils will be disturbed by site de-vegetation and removal of large trees. After de-vegetation the following steps should be taken to renovate the soil profile before irrigation is installed:
  - a. Harrow and level the residual soil surface. Ensure that the ground surface is levelled along natural slope contours and that all major rocks and large roots are removed.
  - b. Gypsum should be incorporated at the rate of 1kg/5m<sup>2</sup>
  - c. Imported topsoil (not clay) should be applied as shown in Fig 1 above. Do not compact this layer, and avoid travelling over with large machinery.
  - d. Irrigation should be laid as per the specifications below (point 3-14) and covered with further topsoil as per Fig 1 above.
  - e. Selected vegetation should be planted at a density of approx. 1 plant per 4m<sup>2</sup>.
  - f. Mulch should be placed over the site as shown in Figure 1 above.

**Land Application Area Design and Construction Notes**

3. Delivery/flush line diameter = 25 -30 mm
4. Irrigation line diameter = 12-16mm
5. Irrigation line spacing (A) =300 mm for Sands, Sandy Loams and Loams to 600mm for Clay Loams, Light Clays and Heavy Clays (see the wastewater flow modelling section of this report for soil classification).
6. Dripper/Sprinkler spacing (B) as per manufacturers specifications.
7. A vacuum breaker should be installed at the highest point of the irrigation area (or in the case of multiple irrigation lots at each lot). This breaker should be protected and marked).
8. A flush line should be installed at the lowest point of the irrigation area incorporating a return valve for back flushing of the system back into the treatment chamber.
9. **All lateral lines MUST be installed parallel to the contours of the land. All minimum setbacks MUST be adhered to.**
10. An inline filter must be inserted into the delivery line.
11. The first 100mm of the natural soil below the ground surface should be mechanically tilled to aid line installation and soil permeability
12. Gypsum should be incorporated at the rate of 1kg/5m<sup>2</sup> in dispersive soils.
13. Imported topsoil (not clay) should be applied as shown above.
14. Selected vegetation should be planted at a density of approx. 1 plant per 4m<sup>2</sup>. Recommendation regarding suitable species is made in this report.
15. Irrigation areas greater than 400 m<sup>2</sup> should be split into 100 m<sup>2</sup> cells with effluent flows switched between irrigation lots with an automatic valve system.
16. Where practical a 50% reserve area should be identified on the site to allow movement of the irrigation area if required.
17. In areas of moderate to steep slopes (>10%) then upslope cut off drainage should be installed to minimise shallow ground water recharge of the irrigation area from upslope.
18. All livestock and Vehicles MUST be excluded from irrigation area.

### Interceptor Ag Drain Design and Construction Notes



Ag drain cross section showing key dimensions

### Interceptor Drain Construction Notes

1. Ag drain should be located upslope of the proposed irrigation area/trenches/beds as shown in site plan.
2. Ag drain should be 300mm wide and 700mm deep. The base of the trench **MUST** be excavated evenly with a minimum fall to the discharge point of 1%. In clay soils smearing of walls and floors of bed **MUST** be avoided.
3. Ag drains are best employed for areas where significant subsurface groundwater recharge is anticipated.
4. Ag. drains should be constructed to ensure adequate fall to appropriate stormwater discharge points or other suitable areas provided that any water is not disposed of over site boundaries.

## **Appendix 3 Site Investigation Results**

### **Notes on Drilling at 170 Safety Cove Road, Port Arthur, 20 December 2021**

- There was an existing dwelling on the southwestern part of the site.
- The existing dwelling and underground services limited the areas that could be drilled.
- The ground surface in the vicinity of the existing dwelling had a gentle fall towards the northeast.
- The ground surface in the vicinity of Boreholes BH3 and BH4 was covered by low grass and had a gentle fall towards the north-northwest.
- The ground surface on the northern part of the site was saturated by water and had a gentle fall towards the northeast.
- Boreholes BH1, BH2 and BH3 were drilled by a 4WD-mounted drilling rig. Borehole BH4 was drilled by hand auger for the purpose of conducting a permeability test.
- An *in situ* permeability test was conducted in Borehole BH4 using a modified Civilab Constant Head Permeameter. A permeability (K) of approximately 0.16m/day was calculated from measurements taken during a brief test.
- A disturbed sample of the clay was collected for subsequent laboratory analysis if required.
- The locations of the boreholes are marked by orange witches hats in the photographs.
- The approximate locations of the boreholes are shown on the Site Plan.
- Vane Shear Strength readings were taken down borehole.
- A Dynamic Cone Penetrometer (DCP) Test was conducted next to Borehole BH2.
- Soil composition was classified using field techniques. Composition should be considered preliminary and may need to be verified by laboratory analysis.
- The borehole data and observations represent subsurface conditions at discrete points where samples and measurements were taken. Conditions may vary between points or with time. Drilltech Environmental and Geotechnical, its proprietor, employees and subcontractors are not responsible for interpretations of the data by other parties. Foundation conditions should be examined and confirmed during construction.

*Site and Soil Evaluation and Onsite Wastewater System Design  
170 Safety Cove Road Port Arthur*





*Site and Soil Evaluation and Onsite Wastewater System Design  
170 Safety Cove Road Port Arthur*





*Site and Soil Evaluation and Onsite Wastewater System Design  
170 Safety Cove Road Port Arthur*





*Site and Soil Evaluation and Onsite Wastewater System Design  
170 Safety Cove Road Port Arthur*







*Site and Soil Evaluation and Onsite Wastewater System Design  
170 Safety Cove Road Port Arthur*

**BOREHOLE LOG**

Borehole No: BH 1				Client: Strata Geoscience & Environmental Pty Ltd							
Logged By: AM				Project: Site Classification and Waste Water Assessment							
Date: 20/12/2021				Locality: 170 Safety Cove Road, Port Arthur							
Notes:				Drill Model: Drilltech							
See attached				Hole Dimensions: 150mm							
Method	Support	Penetration Resistance	Water	Samples	DCP	Depth	Classification Symbol	Material Description	Moisture	Consistency	Notes
AF	N						SM	SILTY SAND - fine-grained, grey	M	L	V=refusal
							SP	SAND - fine-grained, grey, trace of silt	M	MD	
						0.25					
						0.50					
							SM	SILTY SAND - fine-grained, brown	M	MD	
							SC	CLAYEY SAND - fine-grained, brown	M	MD	
						0.75	CL	SANDY CLAY - low plasticity, brown, fine-grained sand	M	VSt	
						1.00					
						SM	SILTY SAND - fine-grained, brown	D/M	MD		
						1.25					
								Borehole met auger refusal @ 1.4m depth in cemented sand			
						1.50					
						1.75					
						2.00					
						2.25					
						2.50					

*Site and Soil Evaluation and Onsite Wastewater System Design  
170 Safety Cove Road Port Arthur*

**BOREHOLE LOG**

Borehole No:		BH 2		Client:		Strata Geoscience & Environmental Pty Ltd						
Logged By:		AM		Project:		Site Classification and Waste Water Assessment						
Date:		20/12/2021		Locality:		170 Safety Cove Road, Port Arthur						
Notes:		See attached		Drill Model:		Drilltech						
				Hole Dimensions:		150mm						
Method	Support	Penetration Resistance	Water	Samples	DCP	Depth	Classification Symbol	Material Description	Moisture	Consistency	Notes	
AF	N					1	SM	SILTY SAND - fine-grained, black	M/W	L		
						0						
						2						0.25
						2	SP	SAND - fine-grained, grey, trace of silt	M	MD		
						3						0.50
						5	CL	SANDY CLAY - low plasticity, black mottled brown, fine-grained sand	M	VSt		
						3						
						8						0.75
						25+						
												1.00
						Borehole met auger refusal @ 1.0m depth in cemented sand						

*Site and Soil Evaluation and Onsite Wastewater System Design  
170 Safety Cove Road Port Arthur*

**BOREHOLE LOG**

Borehole No:		BH 3		Client:		Strata Geoscience & Environmental Pty Ltd					
Logged By:		AM		Project:		Site Classification and Waste Water Assessment					
Date:		20/12/2021		Locality:		170 Safety Cove Road, Port Arthur					
Notes:				Drill Model:		Drilltech					
See attached				Hole Dimensions:		150mm					
Method	Support	Penetration Resistance	Water	Samples	DCP	Depth	Classification Symbol	Material Description	Moisture	Consistency	Notes
AF	N						SM	SILTY SAND - fine-grained, black	M	L	
						0.25	SP	SAND - fine-grained, grey, trace of silt	M	MD	
						0.50					
						0.75	CL	SANDY CLAY - low plasticity, brown, fine-grained sand	D	D	
						1.00		Borehole met auger refusal @ 0.9m depth in cemented sand			
						1.25					
						1.50					
						1.75					
						2.00					
						2.25					
						2.50					





## Appendix 4 Terms and Conditions

### **Scope of Work**

These Terms and Conditions apply to any services provided to you ("the Client") by Strata Geoscience and Environmental Pty Ltd ("Strata"). By continuing to instruct Strata to act after receiving the Terms and Conditions or by using this report and its findings for design and/or permit application processes and not objecting to any of the Terms and Conditions the Client agrees to be bound by these Terms and Conditions, and any other terms and conditions supplied by Strata from time to time at Strata's sole and absolute discretion. The scope of the services provided to the Client by Strata is limited to the services and specified purpose agreed between Strata and the Client and set out in the correspondence to which this document is enclosed or annexed ("the Services"). Strata does not purport to advise beyond the Services.

### **Third Parties**

The Services are supplied to the Client for the sole benefit of the Client and must not be relied upon by any person or entity other than the Client. Strata is not responsible or liable to any third party. All parties other than the Client are advised to seek their own advice before proceeding with any course of action.

### **Provision of Information**

The Client is responsible for the provision of all legal, survey and other particulars concerning the site on which Strata is providing the Services, including particulars of existing structures and services and features for the site and for adjoining sites and structures. The Client is also responsible for the provision of specialised services not provided by Strata. If Strata obtains these particulars or specialised services on the instruction of the Client, Strata does so as agent of the Client and at the Client's expense. Strata is not obliged to confirm the accuracy and completeness of information supplied by the Client or any third party service provider. The Client is responsible for the accuracy and completeness of all particulars or services provided by the Client or obtained on the Client's behalf. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever suffered by the Client or any other person or entity resulting from the failure of the Client or third party to provide accurate and complete information. In the event additional information becomes available to the Client, the Client must inform Strata in writing of that information as soon as possible. Further advice will be provided at the Client's cost. Any report is prepared on the assumption that the instructions and information supplied to Strata has been provided in good faith and is all of the information relevant to the provision of the Services by Strata. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever if Strata has been supplied with insufficient, incorrect, incomplete, false or misleading information.

### **Integrity**

Any report provided by Strata presents the findings of the site assessment. While all reasonable care is taken when conducting site investigations and reporting to the Client, Strata does not warrant that the information contained in any report is free from errors or omissions. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever resulting from errors in a report. Any report should be read in its entirety, inclusive of any summary and annexures. Strata does not accept any responsibility where part of any report is relied upon without reference to the full report.

### **Project Specific Criteria**

Any report provided by Strata will be prepared on the basis of unique project development plans which apply only to the site that is being investigated. Reports provided by Strata do not apply to any project other than that originally specified by the Client to Strata. The Report must not be used or relied upon if any changes to the project are made. The Client should engage Strata to further advise on the effect of any change to the project. Further advice will be provided at the Client's cost. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever where any change to the project is made without obtaining a further written report from Strata. Changes to the project may include, but are not limited to, changes to the investigated site or neighbouring sites, for instance, variation of the location of proposed building envelopes/footprints, changes to building design which may impact upon building settlement or slope stability, or changes to earthworks, including removal (site cutting) or deposition of sediments or rock from the site.

### **Classification to AS2870-2011**

It must be emphasised that the site classification to AS2870-2011 and recommendations referred to in this report are based solely on the observed soil profile at the time of the investigation for this report and account has been taken of Clause 2.1.1 of AS2870 - 2011. Other abnormal moisture conditions as defined in AS2870 - 2011 Clause 1.3.3 (a) (b) (c) and (d) may need to be considered in the design of the structure. Without designing for the possibility of all abnormal moisture conditions as defined in Clause 1.3.3, distresses will occur and may result in non "acceptable probabilities of serviceability and safety of the building during its design life", as defined in AS2870 - 2011, Clause 1.3.1. Furthermore the classification is preliminary in nature and needs verification at the founding surface inspection phase. The classification may be changed at this time based upon the nature of the founding surface over the entire footprint of the project area. Any costs associated with a change in the site classification are to be incurred by the client. Furthermore any costs associated with delayed works associated with a founding surface inspection or a change in classification are to be borne by the client. Where founding surface inspections are not commissioned the classifications contained within this report are void.

### **Subsurface Variations with Time**

Any report provided by Strata is based upon subsurface conditions encountered at the time of the investigation. Conditions can and do change significantly and unexpectedly over a short period of time. For example groundwater levels may fluctuate over time, affecting latent soil bearing capacity and ex-situ/insitu fill sediments may be placed/removed from the site. Changes to the subsurface conditions that were encountered at the time of the investigation void all recommendations made by Strata in any report. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever resulting from any change to the subsurface conditions that were encountered at the time of the investigation. In the event of a delay in the commencement of a project or if additional information becomes available to the Client about a change in conditions becomes available to the Client, the Client should engage Strata to make a further investigation to ensure that the conditions initially encountered still exist. Further advice will be provided at the Client's cost. Without limiting the generality of the above statement, Strata does not accept liability where any report is relied upon after three months from the date of the report, (unless otherwise provided in the report or required by the Australian Standard

## *Site and Soil Evaluation and Onsite Wastewater System Design 170 Safety Cove Road Port Arthur*

which the report purports to comply with), or the date when the Client becomes aware of any change in condition. Any report should be reviewed regularly to ensure that it continues to be accurate and further advice requested from Strata where applicable.

### **Interpretation**

Site investigation identifies subsurface conditions only at the discrete points of geotechnical drilling, and at the time of drilling. All data received from the geotechnical drilling is interpreted to report to the Client about overall site conditions as well as their anticipated impact upon the specific project. Actual site conditions may vary from those inferred to exist as it is virtually impossible to provide a definitive subsurface profile which accounts for all the possible variability inherent in earth materials. This is particularly pertinent to some weathered sedimentary geologies or colluvial/alluvial clast deposits which may show significant variability in depth to refusal over a development area. Rock incongruities such as joints, dips or faults may also result in subsurface variability. Soil depths and composition can vary due to natural and anthropogenic processes. Variability may lead to differences between the design depth of bored/driven piers compared with the actual depth of individual piers constructed onsite. It may also affect the founding depth of conventional strip, pier and beam or slab footings, which may result in increased costs associated with excavation (particularly of rock) or materials costs of foundations. Founding surface inspections should be commissioned by the Client prior to foundation construction to verify the results of initial site characterisation and failure to insure this will void the classifications and recommendations contained within this report. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever resulting from any variation from the site conditions inferred to exist.

Strata is not responsible for the interpretation of site data or report findings by other parties, including parties involved in the design and construction process. The Client must seek advice from Strata about the interpretation of the site data or report.

### **Report Recommendations**

Any report recommendations provided by Strata are only preliminary. A report is based upon 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. Where variations in conditions are encountered, Strata should be engaged to provide further advice. Further advice will be provided at the Client's cost. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever if the results of selective point sampling are not indicative of actual conditions throughout an area or if the Client becomes aware of variations in conditions and does not engage Strata for further advice.

### **Geo-environmental Considerations**

Where onsite wastewater site investigation and land application system designs are provided by Strata, reasonable effort will be made to minimise environmental and public health risks associated with the disposal of effluent within site boundaries with respect to relevant Australian guidelines and industry best practise at the time of investigation. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever resulting from:

- (i) changes to either the project or site conditions that affect the onsite wastewater land application system's ability to safely dispose of modelled wastewater flows; or
- (ii) seepage, pollution or contamination or the cost of removing, nullifying or clearing up seepage, polluting or contaminating substances; or
- (iii) poor system performance where septic tanks have not been de-sludged at maximum intervals of 3 years or AWTS systems have not been serviced in compliance with the manufacturers recommendations; or
- (iv) failure of the client to commission both interim and final inspections by the designer throughout the system construction; or
- (v) the selection of inappropriate plants for irrigation areas; or
- (vi) damage to any infrastructure including but not limited to foundations, walls, driveways and pavements; or
- (vii) land instability, soil erosion or dispersion; or
- (viii) design changes requested by the Permit Authority.

Furthermore Strata does not guarantee septic trench and bed design life beyond 5 years from installation, given the influence various household chemicals have on soil structural decline and premature trench failure in some soil types

Strata does not consider site contamination, unless the Client specifically instructs Strata to consider the site contamination in writing. If a request is made by the Client to consider site contamination, Strata will provide additional terms and conditions that will apply to the engagement.

### **Copyright and Use of Documents**

Copyright in all drawings, reports, specifications, calculations and other documents provided by Strata or its employees in connection with the Services remain vested in Strata. The Client has a licence to use the documents for the purpose of completing the project. However, the Client must not otherwise use the documents, make copies of the documents or amend the documents unless express approval in writing is given in advance by Strata. The Client must not publish or allow to be published, in whole or in part, any document provided by Strata or the name or professional affiliations of Strata, without first obtaining the written consent of Strata as to the form and context in which it is to appear.

If, during the course of providing the Services, Strata develops, discovers or first reduces to practice a concept, product or process which is capable of being patented then such concept, product or process is and remains the property of Strata and:

- (i) the Client must not use, infringe or otherwise appropriate the same other than for the purpose of the project without first obtaining the written consent of Strata; and
- (ii) the Client is entitled to a royalty free licence to use the same during the life of the works comprising the project.

### **Digital Copies of Report**

If any report is provided to the Client in an electronic copy except directly from Strata, the Client should verify the report contents with Strata to ensure they have not been altered or varied from the report provided by Strata.



# CERTIFICATE OF THE RESPONSIBLE DESIGNER

Section 94  
Section 106  
Section 129  
Section 155

Form **35**

To:  Owner name  
 Address  
 Suburb/postcode

## Designer details:

Name:  S NIELSEN Category:  HYDRAULIC SERVICES  
Business name:  STRATA GEOSCIENCE AND ENVIRONMNETAL P/L Phone No:  0413545358  
Business address:  72-74 LAMBECK DRIVE  
 TULLAMARINE  3043 Fax No:   
Licence No:  CC6113K Email address:  [sven@strataconsulting.com.au](mailto:sven@strataconsulting.com.au)

## Details of the proposed work:

Owner/Applicant  AS ABOVE Designer's project reference No.  SR04490  
Address:  170 SAFETY COVE ROAD Lot No:   
 PORT ARTHUR  
Type of work: Building work ☐ Plumbing work ☒ (X all applicable)

## Description of work:

WASTEWATER SYSTEM SPECIFICATION

(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:

**Design documents provided:**

The following documents are provided with this Certificate –

*Document description:*

Drawing numbers:	Prepared by: SN	Date: 23/12/21
Schedules:	Prepared by: SN	Date 23/12/21
Specifications:	Prepared by: SN	Date 23/12/21
Computations	Prepared by: SN	Date 23/12/21
Performance solution proposals:	Prepared by: SN	Date: 23/12/21
Test reports:	Prepared by: NA	Date 23/12/21

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

**Any other relevant documentation:**

STRATA REPORT SR04490

**Attribution as designer:**

I SVEN NIESLEN..... 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.

Name: (print) SVEN NIELSEN

SN

Designer:

SVEN NIELSEN



23/12/21

Licence No:

CC6113K

**Assessment of Certifiable Works: (TasWater)**

**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.

**Certification:**

I .....SVEN NIELSEN..... 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:

SVEN NIELSEN



Date:  
23/12/21



**strata**  
geoscience and environmental

## **Stormwater Overflow Trench Specification and Management Plan**

**Address: 170 Safety Cove Road Port Arthur**

**Proponent:**

**Proposed Development – New dwelling**

Stormwater runoff from impervious surfaces is calculated according to the rational method taken from *Australian Rainfall and Runoff (ARR)* for a 1:20 year 5 minute storm event:

$$Q = 0.278CIA$$

Where:

Q = Flow rate

C = Runoff coefficient (taken as 0.85 for a pitched impervious roof surface)

I = Intensity of rainfall (taken as 50mm/hour for Port Arthur)

A = Catchment area – 152m<sup>2</sup>

Therefore:

$$\begin{aligned} Q &= 0.278 \times 0.85 \times 50 \times 152 \\ &= 1.8\text{L/sec} \end{aligned}$$

Now:

$$V=Qt$$

Where:

V=Volume of runoff

t=time

$$\begin{aligned}\text{Volume of Runoff} &= \text{flow rate} \times \text{time} \\ &= 1.8\text{L/sec} \times 300 \text{ sec} \\ &= 540 \text{ L}\end{aligned}$$

Assuming a design loading rate of 40 l/m<sup>2</sup>/d

Therefore:

$$BA = V/\text{DLR}$$

Where BA = Trench Basal Area

V= Volume

DLR = Design Loading Rate

$$BA=540/40$$

$$BA= 13.5$$

**Therefore, a stormwater trench of basal area of 13.5 m<sup>2</sup> is required**

The dwelling should have all gutters plumber to a min 20KL tank with the overflow plumbed to the trench. Please refer to Appendix 1&2 for detailed design and construction notes.



S Nielsen MEngSc CPSS

*Director*

*Strata Geoscience and Environmental Pty Ltd*

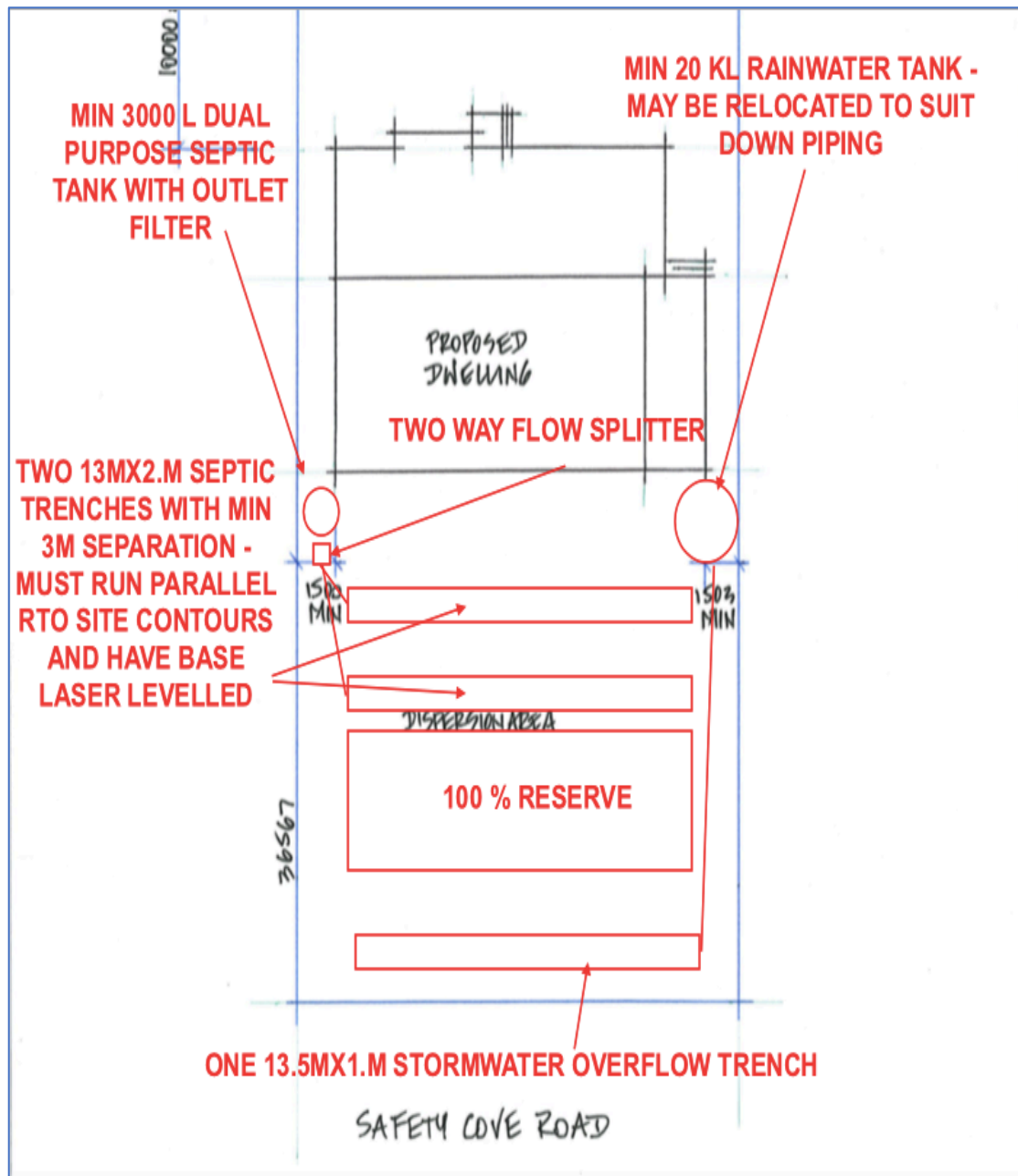
P: 0413545358

E: sven@strataconsulting.com.au

W: www.strataconsulting.com.au

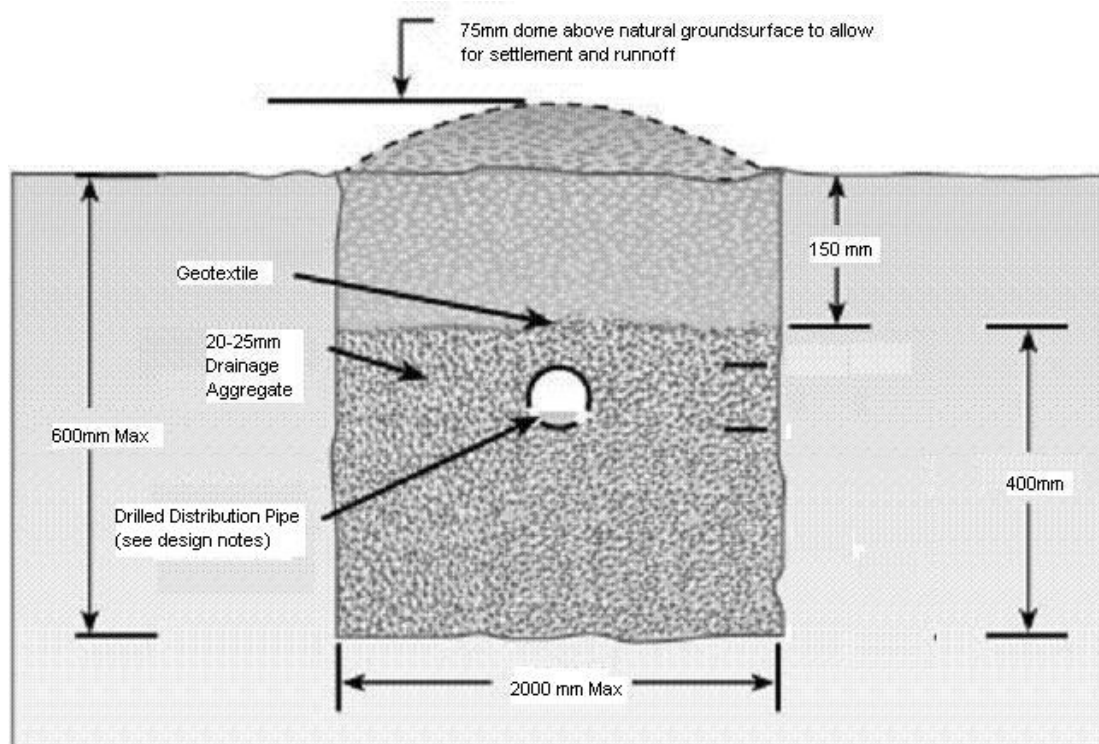


## Appendix 1 Site Plan



## Appendix 2 Stormwater Overflow Trench Design and Construction Notes

1. Trench has the dimensions of 13.5 X 1.0 X 0.6 m.
2. There is one trench in total as located on site plan giving a total area of 10m<sup>2</sup> (See Appendix 1)
3. The base of the trench **MUST** be excavated evenly and level. In clay soils smearing of walls and floors of bed **MUST** be avoided. Soils **MUST** be parallel raked and treated with gypsum at a rate of 1Kg/m<sup>2</sup>.
4. The lower 400mm is to be filled with 20-25mm aggregate.
5. 100mm PVC pipe slotted in the 8'o'clock and 4'o'clock positions to be placed on top of aggregate as shown. The distribution pipe **MUST** be level to ensure flow of stormwater to all areas of the trench. Failure to ensure this may cause preferential overloading of the trench and the potential for trench overflow.
6. A further 50mm of aggregate can be added around/over the grid before overlaying with geo-textile to prevent soil from clogging gravels/lateral slots. For sandy soils the sides of the trench should also be lined.
7. Backfilling of the bed to 50 - 75mm above original ground surface level with endemic topsoil (if a sand/loam) or imported loam should proceed. Do not mechanically compact this layer.
8. An inspection outlet should be placed on each distribution pipe.
9. Overflow Relief Gully should be fitted on pipe inlet to the trench as well as on the outlet for the tank at ground level
10. Slight adjustments to the location of Septic Tank/Flow Diverter/Trenches are permitted to achieve correct fall to levelled trench bases.
11. Vehicles and livestock should be excluded from trench area.







## Appendix 3 Terms and Conditions

### **Scope of Work**

These Terms and Conditions apply to any services provided to you ("the Client") by Strata Geoscience and Environmental Pty Ltd ("Strata"). By continuing to instruct Strata to act after receiving the Terms and Conditions or by using this report and its findings for design and/or permit application processes and not objecting to any of the Terms and Conditions the Client agrees to be bound by these Terms and Conditions, and any other terms and conditions supplied by Strata from time to time at Strata's sole and absolute discretion. The scope of the services provided to the Client by Strata is limited to the services and specified purpose agreed between Strata and the Client and set out in the correspondence to which this document is enclosed or annexed ("the Services"). Strata does not purport to advise beyond the Services.

### **Third Parties**

The Services are supplied to the Client for the sole benefit of the Client and must not be relied upon by any person or entity other than the Client. Strata is not responsible or liable to any third party. All parties other than the Client are advised to seek their own advice before proceeding with any course of action.

### **Provision of Information**

The Client is responsible for the provision of all legal, survey and other particulars concerning the site on which Strata is providing the Services, including particulars of existing structures and services and features for the site and for adjoining sites and structures. The Client is also responsible for the provision of specialised services not provided by Strata. If Strata obtains these particulars or specialised services on the instruction of the Client, Strata does so as agent of the Client and at the Client's expense. Strata is not obliged to confirm the accuracy and completeness of information supplied by the Client or any third party service provider. The Client is responsible for the accuracy and completeness of all particulars or services provided by the Client or obtained on the Client's behalf. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever suffered by the Client or any other person or entity resulting from the failure of the Client or third party to provide accurate and complete information. In the event additional information becomes available to the Client, the Client must inform Strata in writing of that information as soon as possible. Further advice will be provided at the Client's cost. Any report is prepared on the assumption that the instructions and information supplied to Strata has been provided in good faith and is all of the information relevant to the provision of the Services by Strata. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever if Strata has been supplied with insufficient, incorrect, incomplete, false or misleading information.

### **Integrity**

Any report provided by Strata presents the findings of the site assessment. While all reasonable care is taken when conducting site investigations and reporting to the Client, Strata does not warrant that the information contained in any report is free from errors or omissions. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever resulting from errors in a report. Any report should be read in its entirety, inclusive of any summary and annexures. Strata does not accept any responsibility where part of any report is relied upon without reference to the full report.

### **Project Specific Criteria**

Any report provided by Strata will be prepared on the basis of unique project development plans which apply only to the site that is being investigated. Reports provided by Strata do not apply to any project other than that originally specified by the Client to Strata. The Report must not be used or relied upon if any changes to the project are made. The Client should engage Strata to further advise on the effect of any change to the project. Further advice will be provided at the Client's cost. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever where any change to the project is made without obtaining a further written report from Strata. Changes to the project may include, but are not limited to, changes to the investigated site or neighbouring sites, for instance, variation of the location of proposed building envelopes/footprints, changes to building design which may impact upon building settlement or slope stability, or changes to earthworks, including removal (site cutting) or deposition of sediments or rock from the site.

### **Classification to AS2870-2011**

It must be emphasised that the site classification to AS2870-2011 and recommendations referred to in this report are based solely on the observed soil profile at the time of the investigation for this report and account has been taken of Clause 2.1.1 of AS2870 - 2011. Other abnormal moisture conditions as defined in AS2870 - 2011 Clause 1.3.3 (a) (b) (c) and (d) may need to be considered in the design of the structure. Without designing for the possibility of all abnormal moisture conditions as defined in Clause 1.3.3, distresses will occur and may result in non "acceptable probabilities of serviceability and safety of the building during its design life", as defined in AS2870 - 2011, Clause 1.3.1. Furthermore the classification is preliminary in nature and needs verification at the founding surface inspection phase. The classification may be changed at this time based upon the nature of the founding surface over the entire footprint of the project area. Any costs associated with a change in the site classification are to be incurred by the client. Furthermore any costs associated with delayed works associated with a founding surface inspection or a change in classification are to be borne by the client. Where founding surface inspections are not commissioned the classifications contained within this report are void. Classification is based upon a range of expected ground surface movement as indicated in AS2870-2011. Where the range of movement exceeds the stipulations for the nominated classification Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever suffered by the Client or any other person.

### **Slope Instability Risks**

Where comment, modelling or treatment options are suggested to limit the risk of slope instability Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever resulting from actual slope instability or mass movement over the site at any point over the design life of any structures or neighbouring structures.

### **Subsurface Variations with Time**

Any report provided by Strata is based upon subsurface conditions encountered at the time of the investigation. Conditions can and do change significantly and unexpectedly over a short period of time. For example groundwater levels may fluctuate over time, affecting latent soil bearing capacity and ex-situ/insitu fill sediments may be placed/removed from the site. Changes to the subsurface conditions that were encountered at the time of the investigation void all recommendations made by Strata in any report. Strata is not liable, and

accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever resulting from any change to the subsurface conditions that were encountered at the time of the investigation. In the event of a delay in the commencement of a project or if additional information becomes available to the Client about a change in conditions becomes available to the Client, the Client should engage Strata to make a further investigation to ensure that the conditions initially encountered still exist. Further advice will be provided at the Client's cost. Without limiting the generality of the above statement, Strata does not accept liability where any report is relied upon after three months from the date of the report, (unless otherwise provided in the report or required by the Australian Standard which the report purports to comply with), or the date when the Client becomes aware of any change in condition. Any report should be reviewed regularly to ensure that it continues to be accurate and further advice requested from Strata where applicable.

#### **Interpretation**

Site investigation identifies subsurface conditions only at the discrete points of geotechnical drilling, and at the time of drilling. All data received from the geotechnical drilling is interpreted to report to the Client about overall site conditions as well as their anticipated impact upon the specific project. Actual site conditions may vary from those inferred to exist as it is virtually impossible to provide a definitive subsurface profile which accounts for all the possible variability inherent in earth materials. Soil depths and composition can vary due to natural and anthropogenic processes. This is particularly pertinent to some weathered sedimentary geologies or colluvial/alluvial clast deposits which may show significant variability in depth to refusal over a development area. Furthermore where rocky profiles are encountered no comment is made about the potential size of liberated rocks from bulk earthworks or vertical boring. Where large rocks are liberated this may impact upon the ability to cost effectively build on the site and further advice should be sort from Strata. Such profiles may also significantly increase earthworks costs and or materials cost in foundations. Rock incongruities such as joints, dips or faults may also result in subsurface variability. Variability may lead to differences between the design depth of bored/driven piers compared with the actual depth of individual piers constructed onsite. It may also affect the founding depth of conventional strip, pier and beam or slab footings, which may result in increased costs associated with excavation (particularly of rock) or materials costs of foundations. Founding surface inspections should be commissioned by the Client prior to foundation construction to verify the results of initial site characterisation and failure to insure this will void the classifications and recommendations contained within this report. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever resulting from any variation from the site conditions inferred to exist.

Strata is not responsible for the interpretation of site data or report findings by other parties, including parties involved in the design and construction process. The Client must seek advice from Strata about the interpretation of the site data or report.

#### **Report Recommendations**

Any report recommendations provided by Strata are only preliminary. A report is based upon 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. Where variations in conditions are encountered, Strata should be engaged to provide further advice. Further advice will be provided at the Client's cost. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever if the results of selective point sampling are not indicative of actual conditions throughout an area or if the Client becomes aware of variations in conditions and does not engage Strata for further advice.

#### **Geo-environmental Considerations**

Where onsite wastewater site investigation and land application system designs are provided by Strata, reasonable effort will be made to minimise environmental and public health risks associated with the disposal of effluent within site boundaries with respect to relevant Australian guidelines and industry best practise at the time of investigation. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever resulting from:

- (i) changes to either the project or site conditions that affect the onsite wastewater land application system's ability to safely dispose of modelled wastewater flows; or
- (ii) seepage, pollution or contamination or the cost of removing, nullifying or clearing up seepage, polluting or contaminating substances; or
- (iii) poor system performance where septic tanks have not been de-sludged at maximum intervals of 3 years or AWTs systems have not been serviced in compliance with the manufacturers recommendations; or
- (iv) failure of the client to commission both interim and final inspections by the designer throughout the system construction; or
- (v) the selection of inappropriate plants for irrigation areas; or
- (vi) damage to any infrastructure including but not limited to foundations, walls, driveways and pavements; or
- (vii) land instability, soil erosion or dispersion; or
- (viii) design changes requested by the Permit Authority.

Furthermore Strata does not guarantee septic trench and bed design life beyond 5 years from installation, given the influence various household chemicals have on soil structural decline and premature trench failure in some soil types

Strata does not consider site contamination, unless the Client specifically instructs Strata to consider the site contamination in writing. If a request is made by the Client to consider site contamination, Strata will provide additional terms and conditions that will apply to the engagement.

#### **Copyright and Use of Documents**

Copyright in all drawings, reports, specifications, calculations and other documents provided by Strata or its employees in connection with the Services remain vested in Strata. The Client has a licence to use the documents for the purpose of completing the project. However, the Client must not otherwise use the documents, make copies of the documents or amend the documents unless express approval in writing is given in advance by Strata. The Client must not publish or allow to be published, in whole or in part, any document provided by Strata or the name or professional affiliations of Strata, without first obtaining the written consent of Strata as to the form and context in which it is to appear.

If, during the course of providing the Services, Strata develops, discovers or first reduces to practice a concept, product or process which is capable of being patented then such concept, product or process is and remains the property of Strata and:

- (i) the Client must not use, infringe or otherwise appropriate the same other than for the purpose of the project without first obtaining the written consent of Strata; and
- (ii) the Client is entitled to a royalty free licence to use the same during the life of the works comprising the project.

#### **Digital Copies of Report**

If any report is provided to the Client in an electronic copy except directly from Strata, the Client should verify the report contents with Strata to ensure they have not been altered or varied from the report provided.

# CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

Form **55**

To:

Owner /Agent

Address

Suburb/postcode

## Qualified person details:

Qualified person: SVEN NIELSEN

Address: 17 LITTLE ARTHUR STREET

Phone No: 0413545358

NORTH HOBART

Fax No:

Licence No: AO1443 – CPSS

Email address:

[SVEN@STRATACONSULTING.COM.AU](mailto:SVEN@STRATACONSULTING.COM.AU)

Qualifications and Insurance details:

MEngSc CPSS  
PI INSURANCE  
PUBLIC LIABILITY CONTACT  
FOR DETAILS

(description from Column 3 of the Director of Building Control's Determination)

<sup>9</sup>  
Speciality area of expertise:

Site Classification to AS2870-2011/AS4055-2006

(description from Column 4 of the Director of Building Control's Determination)

## Details of work:

Address: 170 SAFETY COVE ROAD

Lot No:

PORT ARTHUR

Certificate of title No:

The assessable item related to this certificate:

SITE CLASSIFICATION

(description of the assessable item being certified)

Assessable item includes –

- a material;
- a design
- a form of construction
- a document
- testing of a component, building system or plumbing system
- an inspection, or assessment, performed

## Certificate details:

Certificate type: SITE CLASSIFICATION/WINDLOAD

(description from Column 1 of Schedule 1 of the Director of Building Control's Determination)

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: ☒

Or

a building, temporary structure or plumbing installation: ☐

In issuing this certificate the following matters are relevant –

Documents:

SR04489

Relevant  
calculations:

SEE REPORT WHERE RELEVANT

References:

AS2870-2011

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

Site Classification AS2870-2011

*Scope and/or Limitations*

See recommendations and well as terms and conditions contained within the relevant report.

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

*Signed:*

*Certificate No:*

*Date:*

Qualified person:

S NIELSEN



SR04489

23/12/202  
1



## **Site Classification to AS2870-2011 - Residential Slabs and Footings**

### **1. Introduction**

Strata Geoscience and Environmental Pty Ltd was commissioned to perform a limited scope geotechnical investigation and Site Classification to AS2870-2011 for:

<b>Site Details and Key Investigation Outcomes</b>	
Site Address	17 Safety Cove Road Port Arhur
Property Owner/Client	System Built Homes
Development	Proposed new dwelling
Date of Investigation	20/12/21
Key Geotechnical Limitations to Site Development	Variable depth topsoils, reactive soils, seasonal site waterlogging, variable uncontrolled fill t(existing and to be created by site demolition activities), Potential for inundation
Key Recommendations	<b>Install site drainage around all foundations, deepened foundations to limit risks associated with fill and abnormal soil moisture gradients. CONFIRM ALL SITE CONDITIONS WITH A POST DEMOLITION ASSESSMENT. Coastal inundation assessment required</b>
Site Classification to AS2870-2011*	<b>Class P – ALERT TO UNCONTROLLED FILL/DISTURBED UPPER PROFILES (existing and created by demolition activities) AS WELL AS ABNORMAL SOIL MOISTURE GRADIENTS AND INUNDATION RISK</b>
Subsidiary Site Classification to AS2870-2011*	Class M
Site Classification to AS4055- 2012	<b>N3</b>

### **2. Scope**

It is the scope of this investigation to consider geotechnical factors affecting the current development plan (if available). Namely;

- Site Classification to AS2870-2011 Residential Slabs and Footings.

The above scope has been determined in consultation with the Client and is subject to time and budgetary considerations. Geotechnical investigations are informative processes and further works may be required depending upon the findings of the results of this investigation. Hello

### 3. Site Investigation

Please refer to Appendices for the results of field/laboratory investigation (where relevant) including site photographs, bore logs, bearing capacity and other relevant data.

### 4. Interpretation

Geotechnical Parameter	Results
General Comments	Site contains existing dwelling to be demolished – further assessment required after demolition activities have occurred. Failure to ensure this will void all classifications and recommendations contained in this report. Cost inundation risk assessment required
Site Geology	Qh
Geotechnical Risks	
Slope Stability	Not mapped (DPAC, 2021)
Bearing Capacity	Max 100kPa min 1500 mm of refusal
Groundsurface Movement	Moderate
Erosion Potential	Moderate – dispersive soil phases likely
Surface/Subsurface Water	Near surface water intercepted – site drainage required
Fill	A localised veneer of uncontrolled fill is likely over areas of the site. Furthermore disturbed areas will be created from demolition activities and further assessment required after demolition activities have occurred. Failure to ensure this will void all classifications and recommendations contained in this report.
Other	Low – Medium Inundation Risk (DPAC 2021) – FURTHER ASSESSMENT BY SUITABLY QUALIFIED PERSON REQUIRED.

### 5. Recommended Foundation Design Parameters

- The following foundation design parameters are recommended:

	Recommended Footing Designs		
	Slab	Pad/Strip	Pier/Pile Footings
Founding material *1	CLAY (CL/CH)	CLAY (CL/CH)	CLAY (CL/CH)
Recommended Minimum Founding Depth (mm or m)	Pier supported to min 1500mm OR REFUSAL	Pier supported to min 1500mm OR REFUSAL	Min 1500mm OR REFUSAL
Max Allowable Bearing Pressure (kPa)	100	100	100



Indicative Soil Ys (mm)	20-40 mm	20-40 mm	20-40 mm
-------------------------	----------	----------	----------

\*1 Where depth to bedrock is given it is a guide only and will vary over the proposed development area(s). Refusal in geotechnical bores may be different than that of larger construction machinery and this may need to be factored into foundation design and contractor quotations.

**It must be emphasised that in classifying the site, Strata Geoscience and Environmental P/L did not place sole reliance on the soil bore logs as a means of being an absolute representation of all subsurface features and conditions over the site. Any persons relying upon this document must not assume that subsurface conditions across the entire site will be identical to that represented in the bore logs.**

Relevant information and guidance used in classifying the site includes several or all of the following:

1. Publications from Standards Australia, CSIRO, Foundation and Footings Society, Australian Geomechanics Society.
2. Well established and relevant knowledge of the behaviour of local soils and processes affecting soil behaviour (eg ephemeral springs, perched water tables, unstable slopes, collapsing soils, vegetation, etc).
3. The broad experience of the site classifier.
4. Specific investigations from nearby areas.
5. Past Performance of existing structures and foundations (where relevant and known)
6. Engineering Assessment of likely characteristic ground surface movement (ys) based upon estimated lpt values and/or laboratory derived lss values where relevant.

## **6. Construction Recommendations**

### **6.1 Pre Construction**

- **Results of this investigation MUST be confirmed when specific development plans are finalised. Failure to ensure this will void the classifications and recommendations contained within this report.**
- **Design depth to refusal for bored pier/driven pile designs may show variability over the site and may need to be considered in any contractor quotation. Construction machinery will show different depths to refusal that what is indicated in this investigation.**
- **Test pitting/piling with construction machinery is recommended before construction commences to determine excavatability of refusing substrate (if found).**
- **This investigation did not determine rock strength parameters of the refusing substrate (if found) and therefore no comment is made about the excavatability of rock at depth. Hard rock may be encountered which may be difficult to excavate and would therefore increase the costs associated with bulk earthworks.**
- **Rocks may be liberated from bulk earthworks or vertical boring. Where large rocks are liberated this may impact upon the ability to cost effectively build on the site and further advice should be sort from Strata. Such profiles may also significantly increase earthworks costs and or materials cost in foundations.**

- **Abnormal moisture conditions as defined in AS2870-2011 Clause 1.3.3 (a-d) MUST be considered in the design of competent footings. Without such consideration distresses of foundations may occur and result in non acceptable performance as defined in AS2870-2011 Clause 1.3.1.**
- The recommendations of CSIRO Building Technology File 18 be adopted.
- An apron of paving around the building perimeter sloping away from foundations with a minimum fall of 1:60 be considered for Class M, H-1, H-2, E and P sites.

## 6.2 During Construction

Throughout construction it is highly recommended that:

- Inspection of the natural soil surface after footings excavation but prior to construction is recommended by Strata Geoscience and Environmental in accordance with Appendix D of AS 2870-2011. Failure to comply with this recommendation will void the classification contained in this report. The site classification may be changed at this time depending upon the nature of the founding surface which is dependant in part on foundation design.
- Site cutting should be avoided if possible and if it occurs below 500mm bgs occurs then reclassification **MUST** be commissioned.
- Fill **MUST NOT** be used as a founding substrate.
- All earthworks onsite must follow the recommendations of AS 3798-2007.
- **Consideration should be given to drainage and sediment control on site during and after construction. Specifically, upslope interceptor drainage must be placed around footings areas and downpipes must be directed away from discharging into founding areas.**
- All colluvial rocks and boulders in founding zones should be removed
- All large trees near the building envelope must be removed. If construction takes place in summer or autumn then moisture conditions should be stabilised by soaking of dry areas around the former tree.
- Shrinkage cracking is almost inevitable in concrete slabs and is associated with the drying process. Therefore care must be taken where brittle or sensitive floor coverings are proposed, or where a polished slab is planned. The risk of damage can be reduced by not installing floor coverings until after shrinkage has occurred, which can take in excess of 3 months, or by using flexible mortars and appropriate sheeting material.
- Vertical barriers to prevent root incursions around founding zones should be considered in areas where gardens are to be established near foundations.

### 6.3 Post Construction

After construction there are certain practices that the owner/occupier should be aware of to prevent excessive foundation movements. The owner will be responsible for any damage or loss associated with disregard for the recommendations contained in CSIRO Building Technology Files 18 "Foundation Maintenance and Footings Performances: A Homeowners Guide" available through CSIRO.

It is furthermore recommended that:

- Gardens or large shrubs or trees must not be established immediately adjacent to foundations
- Garden beds or lawn near foundations must not be excessively watered.
- Leaking underground services and downpipes or gutters must be fixed immediately.



**S Nielsen MEngSc CPSS**

*Director*

*Strata Geoscience and Environmental Pty Ltd*

E:sven@strataconsulting.com.au



## Appendix 1 Indicative Bore Log and Site Photos

### Notes on Drilling at 170 Safety Cove Road, Port Arthur, 20 December 2021

- There was an existing dwelling on the southwestern part of the site.
- The existing dwelling and underground services limited the areas that could be drilled.
- The ground surface in the vicinity of the existing dwelling had a gentle fall towards the northeast.
- The ground surface in the vicinity of Boreholes BH3 and BH4 was covered by low grass and had a gentle fall towards the north-northwest.
- The ground surface on the northern part of the site was saturated by water and had a gentle fall towards the northeast.
- Boreholes BH1, BH2 and BH3 were drilled by a 4WD-mounted drilling rig. Borehole BH4 was drilled by hand auger for the purpose of conducting a permeability test.
- An *in situ* permeability test was conducted in Borehole BH4 using a modified Civilab Constant Head Permeameter. A permeability (K) of approximately 0.16m/day was calculated from measurements taken during a brief test.
- A disturbed sample of the clay was collected for subsequent laboratory analysis if required.
- The locations of the boreholes are marked by orange witches hats in the photographs.
- The approximate locations of the boreholes are shown on the Site Plan.
- Vane Shear Strength readings were taken down borehole.
- A Dynamic Cone Penetrometer (DCP) Test was conducted next to Borehole BH2.
- Soil composition was classified using field techniques. Composition should be considered preliminary and may need to be verified by laboratory analysis.
- The borehole data and observations represent subsurface conditions at discrete points where samples and measurements were taken. Conditions may vary between points or with time. Drilltech Environmental and Geotechnical, its proprietor, employees and subcontractors are not responsible for interpretations of the data by other parties. Foundation conditions should be examined and confirmed during construction.











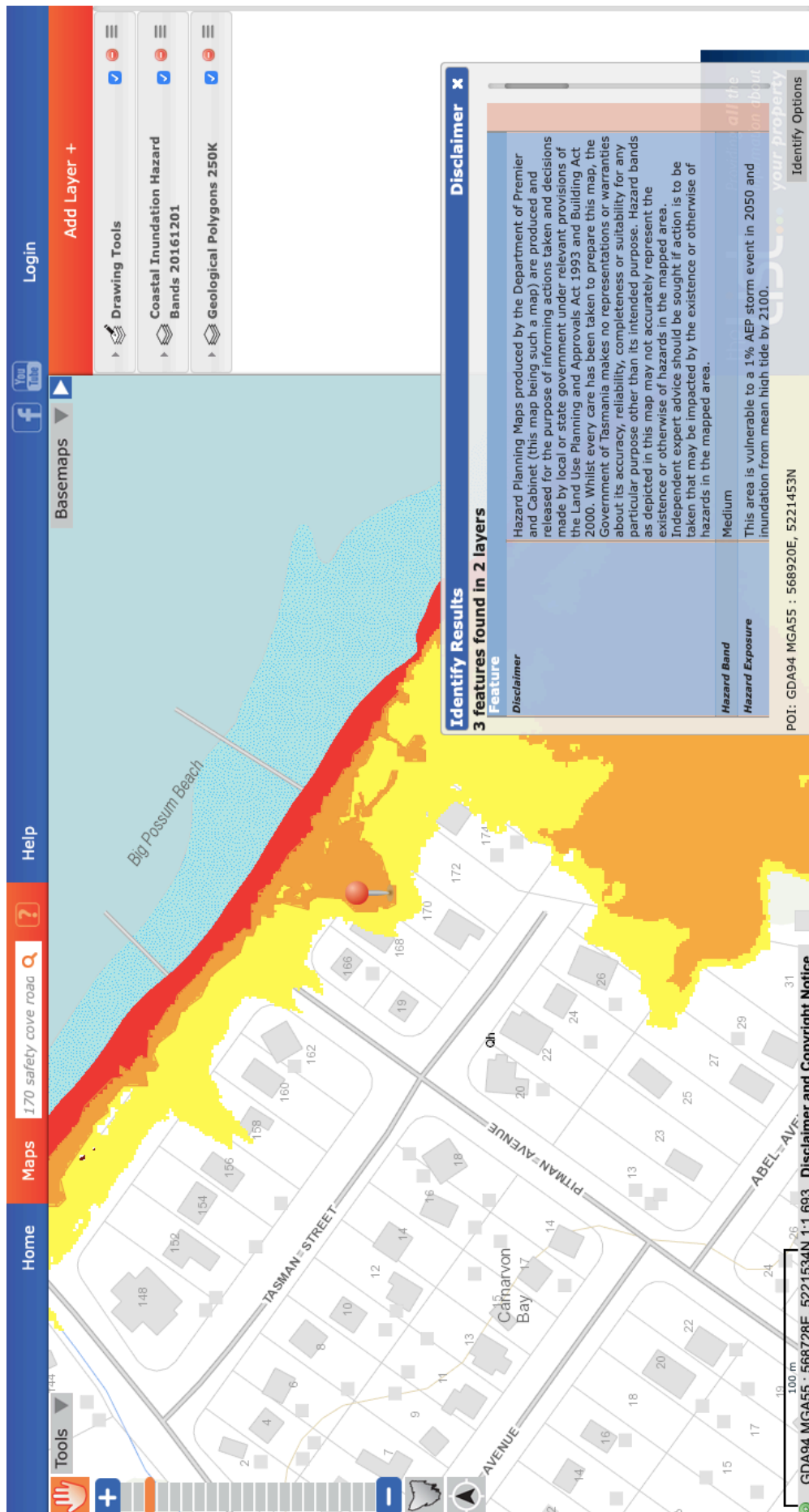












# BOREHOLE LOG

Borehole No: BH 2						Client: Strata Geoscience & Environmental Pty Ltd						
Logged By: AM						Project: Site Classification and Waste Water Assessment						
Date: 20/12/2021						Locality: 170 Safety Cove Road, Port Arthur						
Notes:						Drill Model: Drilltech						
See attached						Hole Dimensions: 150mm						
Method	Support	Penetration Resistance	Water	Samples	DCP	Depth	Classification Symbol	Material Description	Moisture	Consistency	Notes	
AF	N					1	SM	SILTY SAND - fine-grained, black	M/W	L		
						0						
						2						0.25
						2	SP	SAND - fine-grained, grey, trace of silt	M	MD		
						3						0.50
						5	CL	SANDY CLAY - low plasticity, black mottled brown, fine-grained sand	M	VSt		
						3						
						8						0.75
						25+						
							1.00		brown			
							Borehole met auger refusal @ 1.0m depth in cemented sand					
</												

# BOREHOLE LOG

Borehole No: BH 3				Client: Strata Geoscience & Environmental Pty Ltd							
Logged By: AM				Project: Site Classification and Waste Water Assessment							
Date: 20/12/2021				Locality: 170 Safety Cove Road, Port Arthur							
Notes:				Drill Model: Drilltech							
See attached				Hole Dimensions: 150mm							
Method	Support	Penetration Resistance	Water	Samples	DCP	Depth	Classification Symbol	Material Description	Moisture	Consistency	Notes
AF	N						SM	SILTY SAND - fine-grained, black	M	L	
						0.25	SP	SAND - fine-grained, grey, trace of silt	M	MD	
						0.50					
							CL	SANDY CLAY - low plasticity, brown, fine-grained sand	D	D	
						0.75					
						1.00		Borehole met auger refusal @ 0.9m depth in cemented sand			
						1.25					
						1.50					
						1.75					
						2.00					
						2.25					
				2.50							



# BOREHOLE LOG

Borehole No: BH 4		Client: Strata Geoscience & Environmental Pty Ltd	
Logged By: AM		Project: Site Classification and Waste Water Assessment	
Date: 20/12/2021		Locality: 170 Safety Cove Road, Port Arthur	
Notes: Permeameter Test See attached		Drill Model: Hand Auger	
		Hole Dimensions: 110mm	

Method	Support	Penetration Resistance	Water	Samples	DCP	Depth	Classification Symbol	Material Description	Moisture	Consistency	Notes
HA	N						SM	SILTY SAND - fine-grained, black	M	L	
						0.25	SP	SAND - fine-grained, grey, trace of silt	M	MD	
						0.50					
						0.75		Borehole terminated @ 0.6m depth			
						1.00					
						1.25					
						1.50					
						1.75					
						2.00					
						2.25					
						2.50					

# BOREHOLE LOG

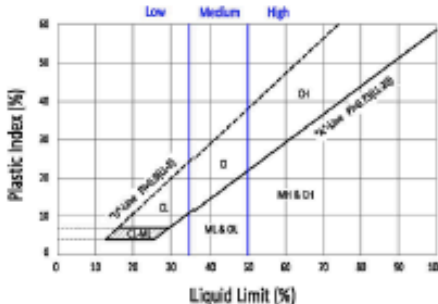
Borehole No:		BH 1		Client:		Strata Geoscience & Environmental Pty Ltd					
Logged By:		AM		Project:		Site Classification and Waste Water Assessment					
Date:		20/12/2021		Locality:		170 Safety Cove Road, Port Arthur					
Notes:		See attached		Drill Model:		Drilltech					
				Hole Dimensions:		150mm					
Method	Support	Penetration Resistance	Water	Samples	DCP	Depth	Classification Symbol	Material Description	Moisture	Consistency	Notes
AF	N						SM	SILTY SAND - fine-grained, grey	M	L	V=refusal
							SP	SAND - fine-grained, grey, trace of silt	M	MD	
						0.25					
						0.50					
							SM	SILTY SAND - fine-grained, brown	M	MD	
							SC	CLAYEY SAND - fine-grained, brown	M	MD	
						0.75	CL	SANDY CLAY - low plasticity, brown, fine-grained sand	M	VSt	
						1.00					
							SM	SILTY SAND - fine-grained, brown	D/M	MD	
	1.25										
						1.50		Borehole met auger refusal @ 1.4m depth in cemented sand			
						1.75					
						2.00					
						2.25					
	2.50										

The following information is intended to assist in the interpretation of terms and symbols used in geotechnical borehole logs, test pit logs and reports issued by or for the Queensland Department of Transport and Main Roads (TMR). More detailed information relating to specific test methods is available in the TMR Materials Testing Manual (MTM) and the relevant Australian Standards.

### Soil Descriptions

Description and Classification of Soils for Geotechnical Purposes: Refer to AS1726-1993 (Appendix A).

The following chart (adapted from AS1726-1993, Appendix A, Table A1) is based on the Unified Soil Classification System (USCS).

Major Divisions		Particle size mm	USCS Group Symbol	Typical Names	Laboratory Classification				
COARSE GRAINED SOILS (more than half of material less than 63 mm is larger than 0.075 mm)	BOULDERS	_____200			% < 0.075 mm (2)	Plasticity of fine fraction	$C_u = \frac{D_{60}}{D_{10}}$	$C_c = \frac{(D_{30})^2}{(D_{10} \times D_{60})}$	NOTES
	COBBLES	_____63							
	GRAVELS (more than half of coarse fraction is larger than 2.36 mm)	coarse _____20	GW	Well graded gravels and gravel-sand mixtures, little or no fines	0-5	—	>4	Between 1 and 3	(1) Identify fines by the method given for fine-grained soils.
		medium _____6	GP	Poorly graded gravels and gravel-sand mixtures, little or no fines, uniform gravels	0-5	—	Falls to comply with above		
		fine _____2.36	GM	Silty gravels, gravel-sand-silt mixtures (1)	12-50	Below 'A' line or $P_i < 4$	—	—	
			GC	Clayey gravels, gravel-sand-clay mixtures (1)	12-50	Above 'A' line and $P_i > 7$	—	—	
	SANDS (more than half of coarse fraction is smaller than 2.36 mm)	coarse _____0.6	SW	Well graded sands and gravelly sands, little or no fines	0-5	—	>6	Between 1 and 3	(2) Borderline classifications occur when the percentage of fines (fraction smaller than 0.075 mm size) is greater than 5% and less than 12%. Borderline classifications require the use of SP-SM, GW-GC.
		medium _____0.2	SP	Poorly graded sands and gravelly sands, little or no fines	0-5	—	Falls to comply with above		
		fine 0.075	SM	Silty sands, sand silt mixtures (1)	12-50	Below 'A' line or $P_i < 4$	—	—	
			SC	Clayey sands, sand-clay mixtures (1)	12-50	Above 'A' line and $P_i > 7$	—	—	
FINE GRAINED SOILS (more than half of material less than 60 mm is smaller than 0.075 mm)	SILTS & CLAYS (Liquid Limit ≤50%)	ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	<div>Plasticity Chart For classification of fine grained soils and fine fraction of coarse grained soils.</div> 					
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays						
		OL	Organic silts and clays of low plasticity						
	SILTS & CLAYS (Liquid Limit >50%)	MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts						
		CH	Inorganic clays of high plasticity, fat clays						
		OH	Organic silts and clays of high plasticity						
	HIGHLY ORGANIC SOILS	PT	Peat and other highly organic soils						

## Geotechnical Terms and Symbols

**Soil Colour:** Is described in the moist condition using black, white, grey, red, brown, orange, yellow, green or blue. Borderline cases can be described as a combination of two colours, with the weaker followed by the stronger. Modifiers such as pale, dark or mottled, can be used as necessary. Where colour consists of a primary colour with secondary mottling, it should be described as follows:

(Primary) mottled (Secondary). Refer to AS 1726-1993, A2.4 and A3.3.

**Soil Moisture Condition:** Is based on the appearance and feel of soil. Refer to AS 1726-1993, A2.5.

Term	Description
Dry	Cohesive soils; hard and friable or powdery, well dry of plastic limit. Granular soils; cohesionless and free-running.
Moist	Soil feels cool, darkened in colour. Cohesive soils can be moulded. Granular soils tend to cohere.
Wet	Soil feels cool, darkened in colour. Cohesive soils usually weakened and free water forms on hands when handling. Granular soils tend to cohere and free water forms on hands when handling.

**Consistency of Cohesive Soils:** May be estimated using simple field tests, or described in terms of a strength scale. In the field, the undrained shear strength ( $s_u$ ) can be assessed using a simple field tool appropriate for cohesive soils, in conjunction with the relevant calibration. Refer to AS 1726-1993, Table A4.

Consistency - Essentially Cohesive Soils						Soil Particle Sizes	
Term	Field Guide	Symbol	SPT "N" Value	Undrained Shear Strength $s_u$ (kPa)	Unconfined Compressive Strength $q_u$ (kPa)	Term	Size Range
Very soft	Oozes between fingers when squeezed in hand.	VS	0-2	<12	<25	BOULDERS	>200 mm
Soft	Easily moulded with fingers.	S	2-4	12-25	25-50	COBBLES	63-200 mm
Firm	Can be moulded by strong pressure of fingers.	F	4-8	25-50	50-100	Coarse GRAVEL	20-63 mm
Stiff	Not possible to mould with fingers.	St	8-15	50-100	100-200	Medium GRAVEL	6-20 mm
Very stiff		VSt	15-30	100-200	200-400	Fine GRAVEL	2.36-6 mm
Hard	Can be indented with difficulty by thumb nail.	H	>30	>200	>400	Coarse SAND	0.6-2.36 mm
						Medium SAND	0.2-0.6 mm
						Fine SAND	0.075-0.2 mm
						SILT	0.002-0.075 mm
						CLAY	<0.002 mm

Note: SPT - N to  $q_u$  correlation from Terzaghi and Peck, 1967. (General guide only).

**Consistency of Non-Cohesive Soils:** Is described in terms of the density index, as defined in AS 1289.0-2000. This can be assessed using a field tool appropriate for non-cohesive soils, in conjunction with the relevant calibration. Refer to AS 1726-1993, Table A5; BS5930-1999, p117.

Consistency - Essentially Non-Cohesive Soils				
Term	Symbol	SPT N Value	Field Guide	Density Index (%)
Very loose	VL	0-4	Foot Imprints readily	0-15
Loose	L	4-10	Shovels Easily	15-35
Medium dense	MD	10-30	Shovelling difficult	35-65
Dense	D	30-50	Pick required	65-85
Very dense	VD	>50	Picking difficult	85-100

**Standard Penetration Test (SPT):** Refer to AS 1289.6.3.1-2004. Example report formats for SPT results are shown below:

Test Report	Penetration Resistance (N)	Explanation / Comment
4, 7, 11	N=18	Full penetration; N is reported on engineering borehole log
18, 27, 32	N=59	Full penetration; N is reported on engineering borehole log
4, 18, 30/15 mm	N is not reported	30 blows causes less than 100 mm penetration (3 <sup>rd</sup> interval) – test discontinued
30/80 mm	N is not reported	30 blows causes less than 100 mm penetration (1 <sup>st</sup> interval) – test discontinued
rw	N<1	Rod weight only causes full penetration
hw	N<1	Hammer and rod weight only causes full penetration
hb	N is not reported	Hammer bouncing for 5 consecutive blows with no measurable penetration – test discontinued

## Rock Descriptions

Refer to AS 1726-1993 (Appendix A3.3) for the description and classification of rock material composition, including:

- (a) Rock type (Table A6, (a) and (b))
- (b) Grain size
- (c) Texture and fabric
- (d) Colour (describe as per soil).

The condition of a rock material refers to its weathering characteristics, strength characteristics and rock mass properties. Refer to AS 1726-1993 (Appendix A3 Tables A8, A9 and A10).

### Weathering Condition (Degree of Weathering):

The degree of weathering is a continuum from fresh rock to soil. Boundaries between weathering grades may be abrupt or gradational.

Rock Material Weathering Classification		
Weathering Grade	Symbol	Definition
Residual Soil	RS	Soil-like material developed on extremely weathered rock; the mass structure and substance fabric are no longer evident; there is a large change in volume but the material has not been significantly transported.
Extremely Weathered Rock	XW	Rock is weathered to such an extent that it has 'soil' properties, i.e. it either disintegrates or can be remoulded in water, but substance fabric and rock structure still recognisable.
Highly Weathered Rock	HW	Strong discolouration is evident throughout the rock mass, often with significant change in the constituent minerals. The intact rock strength is generally much weaker than that of the fresh rock.
Moderately Weathered Rock	MW	Modest discolouration is evident throughout the rock fabric, often with some change in the constituent minerals. The intact rock strength is usually noticeably weaker than that of the fresh rock.
Slightly Weathered Rock	SW	Rock is slightly discoloured but shows little or no change of strength from fresh rock.
Fresh Rock	FR	Rock shows no sign of decomposition or staining.
Notes: 1. Minor variations within broader weathering grade zones will be noted on the engineering borehole logs. 2. Extremely weathered rock is described in terms of soil engineering properties. 3. Weathering may be pervasive throughout the rock mass, or may penetrate inwards from discontinuities to some extent. 4. The 'Distinctly Weathered (DW)' class as defined in AS 1726-1993 is divided to incorporate HW and MW in the above table. The symbol DW should not be used.		

### Strength Condition (Intact Rock Strength):

Strength of Rock Material			
(Based on Point Load Strength Index, corrected to 50 mm diameter – $I_{p(50)}$ . Field guide used if no tests available. Refer to AS 4133.4.1-2007.			
Term	Symbol	Point Load Index (MPa) $I_{p(50)}$	Field Guide to Strength
Extremely Low	EL	$\leq 0.03$	Easily remoulded by hand to a material with soil properties.
Very Low	VL	$> 0.03$ $\leq 0.1$	Material crumbles under firm blows with sharp end of pick; can be peeled with knife; too hard to cut a triaxial sample by hand. Pieces up to 3 cm thick can be broken by finger pressure.
Low	L	$> 0.1$ $\leq 0.3$	Easily scored with a knife; indentations 1 mm to 3 mm show in the specimen with firm blows of the pick point; has dull sound under hammer. A piece of core 150 mm long by 50 mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.
Medium	M	$> 0.3$ $\leq 1.0$	Readily scored with a knife; a piece of core 150 mm long by 50 mm diameter can be broken by hand with difficulty.
High	H	$> 1$ $\leq 3$	A piece of core 150 mm long by 50 mm diameter cannot be broken by hand but can be broken by a pick with a single firm blow; rock rings under hammer.
Very High	VH	$> 3$ $\leq 10$	Hand specimen breaks with pick after more than one blow; rock rings under hammer.
Extremely High	EH	$> 10$	Specimen requires many blows with geological pick to break through intact material; rock rings under hammer.
Notes: 1. These terms refer to the strength of the rock material and not to the strength of the rock mass which may be considerably weaker due to the effect of rock defects. 2. Anisotropy of rock material samples may affect the field assessment of strength.			



## Geotechnical Terms and Symbols

Discontinuity Description: Refer to AS 1726-1993, Table A10.

Anisotropic Fabric		Roughness (e.g. Planar, Smooth is abbreviated PI / Sm) Class		Other	
BED	Bedding	Stepped (Stp)	Rough or Irregular (Ro)	I	Cly Clay
FOL	Foliation		Smooth (Sm)	II	Fe Iron
LIN	Mineral lineation		Slickensided (Sl)	III	Co Coal
Defect Type		Undulating (Un)	Rough (Ro)	IV	Carb Carbonaceous
LP	Lamination Parting		Smooth (Sm)	V	Slmf Soil Infill Zone
BP	Bedding Parting		Slickensided (Sl)	VI	Qz Quartz
FP	Cleavage / Foliation Parting	Planar (Pl)	Rough (Ro)	VII	CA Calcite
J, Js	Joint, Joints		Smooth (Sm)	VIII	Chl Chlorite
SZ	Sheared Zone		Slickensided (Sl)	IX	Py Pyrite
CZ	Crushed Zone	Aperture			Int Intersecting
BZ	Broken Zone	Infilling			Inc Incipient
HFZ	Highly Fractured Zone	Closed	CD No visible coating or infill	Clean	Cn
AZ	Alteration Zone	Open	OP Surfaces discoloured by mineral/s	Stain	St
VN	Vein	Filled	FL Visible mineral or soil infill <1mm	Veneer	Vr
		Tight	TI Visible mineral or soil infill >1mm	Coating	Ct
					V Vertical

Note: Describe 'Zones' and 'Coatings' in terms of composition and thickness (mm).

Discontinuity Spacing: On the geotechnical borehole log, a graphical representation of defect spacing vs depth is shown. This representation takes into account all the natural rock defects occurring within a given depth interval, excluding breaks induced by the drilling / handling of core. Refer to AS 1726-1993, B85930-1999.

Defect Spacing			Bedding Thickness (Sedimentary Rock Stratification)		Defect Spacing in 3D	
Spacing/Width (mm)	Descriptor	Symbol	Descriptor	Spacing/Width (mm)	Term	Description
			Thinly Laminated	< 6	Blocky	Equidimensional
<20	Extremely Close	EC	Thickly Laminated	6 – 20	Tabular	Thickness much less than length or width
20 – 60	Very Close	VC	Very Thinly Bedded	20 – 60	Columnar	Height much greater than cross section
60 – 200	Close	C	Thinly Bedded	60 – 200	Defect Persistence (areal extent)	
200 – 600	Medium	M	Medium Bedded	200 – 600		
600 – 2000	Wide	W	Thickly Bedded	600 – 2000		
2000 – 6000	Very Wide	VW	Very Thickly Bedded	> 2000		
>6000	Extremely Wide	EW			Trace length of defect given in metres	

## Symbols




The list below provides an explanation of terms and symbols used on the geotechnical borehole, test pit and penetrometer logs.

Test Results				Test Symbols	
PI	Plasticity Index	$c'$	Effective Cohesion	DCP	Dynamic Cone Penetrometer
LL	Liquid Limit	$c_u$	Undrained Cohesion	SPT	Standard Penetration Test
LI	Liquidity Index	$c'_R$	Residual Cohesion	CPTu	Cone Penetrometer (Piezocone) Test
DD	Dry Density	$\phi'$	Effective Angle of Internal Friction	PANDA	Variable Energy DCP
WD	Wet Density	$\phi_u$	Undrained Angle of Internal Friction	PP	Pocket Penetrometer Test
LS	Linear Shrinkage	$\phi'_R$	Residual Angle of Internal Friction	U50	Undisturbed Sample 50 mm (nominal diameter)
MC	Moisture Content	$c_v$	Coefficient of Consolidation	U100	Undisturbed Sample 100mm (nominal diameter)
OC	Organic Content	$m_v$	Coefficient of Volume Compressibility	UCS	Uniaxial Compressive Strength
WPI	Weighted Plasticity Index	$c_{wv}$	Coefficient of Secondary Compression	Pm	Pressuremeter

# Geotechnical Terms and Symbols

Test Results				Test Symbols	
WLS	Weighted Linear Shrinkage	$e$	Voids Ratio	FSV	Field Shear Vane
DoS	Degree of Saturation	$\psi_{sv}$	Constant Volume Friction Angle	DST	Direct Shear Test
APD	Apparent Particle Density	$q_t / q_u$	Piezoelectric Tip Resistance (corrected / uncorrected)	PR	Penetration Rate
$s_u$	Undrained Shear Strength	$q_u$	PANDA Cone Resistance	A	Point Load Test (axial)
$q_u$	Unconfined Compressive Strength	$I_{p(0)}$	Point Load Strength Index	D	Point Load Test (diametral)
R	Total Core Recovery	RQD	Rock Quality Designation	L	Point Load Test (irregular lump)

 28/11/13 Groundwater level on the date shown	 Water Inflow	 Water Outflow
--	--	---



## **Appendix 3 Terms and Conditions**

### **Scope of Work**

These Terms and Conditions apply to any services provided to you ("the Client") by Strata Geoscience and Environmental Pty Ltd ("Strata"). By continuing to instruct Strata to act after receiving the Terms and Conditions or by using this report and its findings for design and/or permit application processes and not objecting to any of the Terms and Conditions the Client agrees to be bound by these Terms and Conditions, and any other terms and conditions supplied by Strata from time to time at Strata's sole and absolute discretion. The scope of the services provided to the Client by Strata is limited to the services and specified purpose agreed between Strata and the Client and set out in the correspondence to which this document is enclosed or annexed ("the Services"). Strata does not purport to advise beyond the Services.

### **Third Parties**

The Services are supplied to the Client for the sole benefit of the Client and must not be relied upon by any person or entity other than the Client. Strata is not responsible or liable to any third party. All parties other than the Client are advised to seek their own advice before proceeding with any course of action.

### **Provision of Information**

The Client is responsible for the provision of all legal, survey and other particulars concerning the site on which Strata is providing the Services, including particulars of existing structures and services and features for the site and for adjoining sites and structures. The Client is also responsible for the provision of specialised services not provided by Strata. If Strata obtains these particulars or specialised services on the instruction of the Client, Strata does so as agent of the Client and at the Client's expense. Strata is not obliged to confirm the accuracy and completeness of information supplied by the Client or any third party service provider. The Client is responsible for the accuracy and completeness of all particulars or services provided by the Client or obtained on the Client's behalf. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever suffered by the Client or any other person or entity resulting from the failure of the Client or third party to provide accurate and complete information. In the event additional information becomes available to the Client, the Client must inform Strata in writing of that information as soon as possible. Further advice will be provided at the Client's cost. Any report is prepared on the assumption that the instructions and information supplied to Strata has been provided in good faith and is all of the information relevant to the provision of the Services by Strata. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever if Strata has been supplied with insufficient, incorrect, incomplete, false or misleading information.

### **Integrity**

Any report provided by Strata presents the findings of the site assessment. While all reasonable care is taken when conducting site investigations and reporting to the Client, Strata does not warrant that the information contained in any report is free from errors or omissions. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever resulting from errors in a report. Any report should be read in its entirety, inclusive of any summary and annexures. Strata does not accept any responsibility where part of any report is relied upon without reference to the full report.

### **Project Specific Criteria**

Any report provided by Strata will be prepared on the basis of unique project development plans which apply only to the site that is being investigated. Reports provided by Strata do not apply to any project other than that originally specified by the Client to Strata. The Report must not be used or relied upon if any changes to the project are made. The Client should engage Strata to further advise on the effect of any change to the project. Further advice will be provided at the Client's cost. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever where any change to the project is made without obtaining a further written report from Strata. Changes to the project may include, but are not limited to, changes to the investigated site or neighbouring sites, for instance, variation of the location of proposed building envelopes/footprints, changes to building design which may impact upon building settlement or slope stability, or changes to earthworks, including removal (site cutting) or deposition of sediments or rock from the site.

### **Classification to AS2870-2011**

It must be emphasised that the site classification to AS2870-2011 and recommendations referred to in this report are based solely on the observed soil profile at the time of the investigation for this report and account has been taken of Clause 2.1.1 of AS2870 - 2011. Other abnormal moisture conditions as defined in AS2870 - 2011 Clause 1.3.3 (a) (b) (c) and (d) may need to be considered in the design of the structure. Without designing for the possibility of all abnormal moisture conditions as defined in Clause 1.3.3, distresses will occur and may result in non "acceptable probabilities of serviceability and safety of the building during its design life", as defined in AS2870 - 2011, Clause 1.3.1. Furthermore the classification is preliminary in nature and needs verification at the founding surface inspection phase. The classification may be changed at this time based upon the nature of the founding surface over the entire footprint of the project area. Any costs associated with a change in the site classification are to be incurred by the client. Furthermore any costs associated with delayed works associated with a founding surface inspection or a change in classification are to be borne by the client. Where founding surface inspections are not commissioned the classifications contained within this report are void. Classification is based upon a range of expected ground surface movement as indicated in AS2870-2011. Where the range of movement exceeds the stipulations for the nominated classification Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever suffered by the Client or any other person.

### **Slope Instability Risks**

Where comment, modelling or treatment options are suggested to limit the risk of slope instability Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever resulting from actual slope instability or mass movement over the site at any point over the design life of any structures or neighbouring structures.

### **Subsurface Variations with Time**

Any report provided by Strata is based upon subsurface conditions encountered at the time of the investigation. Conditions can and do change significantly and unexpectedly over a short period of time. For example groundwater levels may fluctuate over time, affecting latent soil bearing capacity and ex-situ/insitu fill sediments may be placed/removed from the site. Changes to the subsurface conditions that were encountered at the time of the investigation void all recommendations made by Strata in any report. Strata is not liable, and

accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever resulting from any change to the subsurface conditions that were encountered at the time of the investigation. In the event of a delay in the commencement of a project or if additional information becomes available to the Client about a change in conditions becomes available to the Client, the Client should engage Strata to make a further investigation to ensure that the conditions initially encountered still exist. Further advice will be provided at the Client's cost. Without limiting the generality of the above statement, Strata does not accept liability where any report is relied upon after three months from the date of the report, (unless otherwise provided in the report or required by the Australian Standard which the report purports to comply with), or the date when the Client becomes aware of any change in condition. Any report should be reviewed regularly to ensure that it continues to be accurate and further advice requested from Strata where applicable.

#### **Interpretation**

Site investigation identifies subsurface conditions only at the discrete points of geotechnical drilling, and at the time of drilling. All data received from the geotechnical drilling is interpreted to report to the Client about overall site conditions as well as their anticipated impact upon the specific project. Actual site conditions may vary from those inferred to exist as it is virtually impossible to provide a definitive subsurface profile which accounts for all the possible variability inherent in earth materials. Soil depths and composition can vary due to natural and anthropogenic processes. This is particularly pertinent to some weathered sedimentary geologies or colluvial/alluvial clast deposits which may show significant variability in depth to refusal over a development area. Furthermore where rocky profiles are encountered no comment is made about the potential size of liberated rocks from bulk earthworks or vertical boring. Where large rocks are liberated this may impact upon the ability to cost effectively build on the site and further advice should be sort from Strata. Such profiles may also significantly increase earthworks costs and or materials cost in foundations. Rock incongruities such as joints, dips or faults may also result in subsurface variability. Variability may lead to differences between the design depth of bored/driven piers compared with the actual depth of individual piers constructed onsite. It may also affect the founding depth of conventional strip, pier and beam or slab footings, which may result in increased costs associated with excavation (particularly of rock) or materials costs of foundations. Founding surface inspections should be commissioned by the Client prior to foundation construction to verify the results of initial site characterisation and failure to insure this will void the classifications and recommendations contained within this report. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever resulting from any variation from the site conditions inferred to exist.

Strata is not responsible for the interpretation of site data or report findings by other parties, including parties involved in the design and construction process. The Client must seek advice from Strata about the interpretation of the site data or report.

#### **Report Recommendations**

Any report recommendations provided by Strata are only preliminary. A report is based upon 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. Where variations in conditions are encountered, Strata should be engaged to provide further advice. Further advice will be provided at the Client's cost. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever if the results of selective point sampling are not indicative of actual conditions throughout an area or if the Client becomes aware of variations in conditions and does not engage Strata for further advice.

#### **Geo-environmental Considerations**

Where onsite wastewater site investigation and land application system designs are provided by Strata, reasonable effort will be made to minimise environmental and public health risks associated with the disposal of effluent within site boundaries with respect to relevant Australian guidelines and industry best practise at the time of investigation. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever resulting from:

- (i) changes to either the project or site conditions that affect the onsite wastewater land application system's ability to safely dispose of modelled wastewater flows; or
- (ii) seepage, pollution or contamination or the cost of removing, nullifying or clearing up seepage, polluting or contaminating substances; or
- (iii) poor system performance where septic tanks have not been de-sludged at maximum intervals of 3 years or AWTs systems have not been serviced in compliance with the manufacturers recommendations; or
- (iv) failure of the client to commission both interim and final inspections by the designer throughout the system construction; or
- (v) the selection of inappropriate plants for irrigation areas; or
- (vi) damage to any infrastructure including but not limited to foundations, walls, driveways and pavements; or
- (vii) land instability, soil erosion or dispersion; or
- (viii) design changes requested by the Permit Authority.

Furthermore Strata does not guarantee septic trench and bed design life beyond 5 years from installation, given the influence various household chemicals have on soil structural decline and premature trench failure in some soil types

Strata does not consider site contamination, unless the Client specifically instructs Strata to consider the site contamination in writing. If a request is made by the Client to consider site contamination, Strata will provide additional terms and conditions that will apply to the engagement.

#### **Copyright and Use of Documents**

Copyright in all drawings, reports, specifications, calculations and other documents provided by Strata or its employees in connection with the Services remain vested in Strata. The Client has a licence to use the documents for the purpose of completing the project. However, the Client must not otherwise use the documents, make copies of the documents or amend the documents unless express approval in writing is given in advance by Strata. The Client must not publish or allow to be published, in whole or in part, any document provided by Strata or the name or professional affiliations of Strata, without first obtaining the written consent of Strata as to the form and context in which it is to appear.

If, during the course of providing the Services, Strata develops, discovers or first reduces to practice a concept, product or process which is capable of being patented then such concept, product or process is and remains the property of Strata and:

- (i) the Client must not use, infringe or otherwise appropriate the same other than for the purpose of the project without first obtaining the written consent of Strata; and
- (ii) the Client is entitled to a royalty free licence to use the same during the life of the works comprising the project.

#### **Digital Copies of Report**

If any report is provided to the Client in an electronic copy except directly from Strata, the Client should verify the report contents with Strata to ensure they have not been altered in any way from the original provide by Strata.