

Development Applications

Notice is hereby given under Section 57(3) of the *Land Use Planning & Approvals Act 1993* that an application has been made to the Break O' Day Council for a permit for the use or development of land as follows:

DA Number	DA 2025 / 00002
Applicant	DCM Sheds
Proposal	Residential – Construction of a Garage and Attached Carport
Location	2 The Flat, St Marys

Plans and documents can be inspected at the Council Office by appointment, 32 – 34 Georges Bay Esplanade, St Helens during normal office hours or online at www.bodc.tas.gov.au.

Representations must be submitted in writing to the General Manager, Break O'Day Council, 32 -34 Georges Bay Esplanade, St Helens 7216 or emailed to admin@bodc.tas.gov.au, and referenced with the Application Number in accordance with section 57(5) of the abovementioned Act during the fourteen (14) day advertised period commencing on Saturday 7 June, 2025 **until 5pm Monday 23 June, 2025.**

John Brown
GENERAL MANAGER

PROPOSED STEEL FRAMED GARAGE AT 2 THE FLAT, ST MARYS 7215 FOR PAUL & VANESSA SPILSBURY

SITE INFORMATION:

Council Break O'Day
Zone General Residential - 8
Code Overlays Natural Assets Code - 7
General Overlay Stormwater Management Specific
Area Plan - BRE-S2.0

20 Richings Drive
YOUNGTOWN
TAS 7249

ph. 6343 2183
mobile. 0418 137 246

email. stevejordandrafting@gmail.com
ABN 48 567 070 667
Accreditation CC1570 S

FLOOR AREA*		
existing dwelling	187.0m ²	
shed	72.0m ²	
proposed garage	82.5m ²	
total floor area	82.5m ²	

*floor area is the area measured within the
roof foot print of steel structures

LAND TITLE REFERENCE No. C/T 77064/3
P.I.D. 6405164

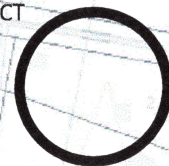
DESIGN WIND SPEED N3
SOIL CLASSIFICATION N/A
CLIMATE ZONE ZONE 7
BUSHFIRE-PRONE AREA RATING N/A
ALPINE AREA N/A
CORROSION ENVIRONMENT MODERATE
LANDSLIP ZONE N/A

DRAWING No.	DESCRIPTION
SJD 24/54-01	LOCALITY PLAN
SJD 24/54-02	SITE PLAN
SJD 24/54-03	PLUMBING SITE PLAN
SJD 24/54-04	GARAGE/CARPORT PLANS
SJD 24/54-05	GARAGE/CARPORT ELEVATIONS

steve jordan drafting

rev | comments
- | for building application

LOCATION
OF PROJECT



DRAWING

LOCALITY PLAN

DRG. No.

SJD 24/54-01

CLIENT

PAUL & VANESSA SPILSBURY
2 THE FLAT,
ST MARYS 7215

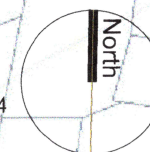
PROJECT

PROPOSED STEEL GARAGE
2 THE FLAT,
ST MARYS 7215

CONCEPT
DESIGN
CHECKED
DATE
SCALE
SHEET

OWNER
D.C.M. SHEDS
OWNER
DECEMBER 2024
N/A
1 of 5

steve jordan
drafting

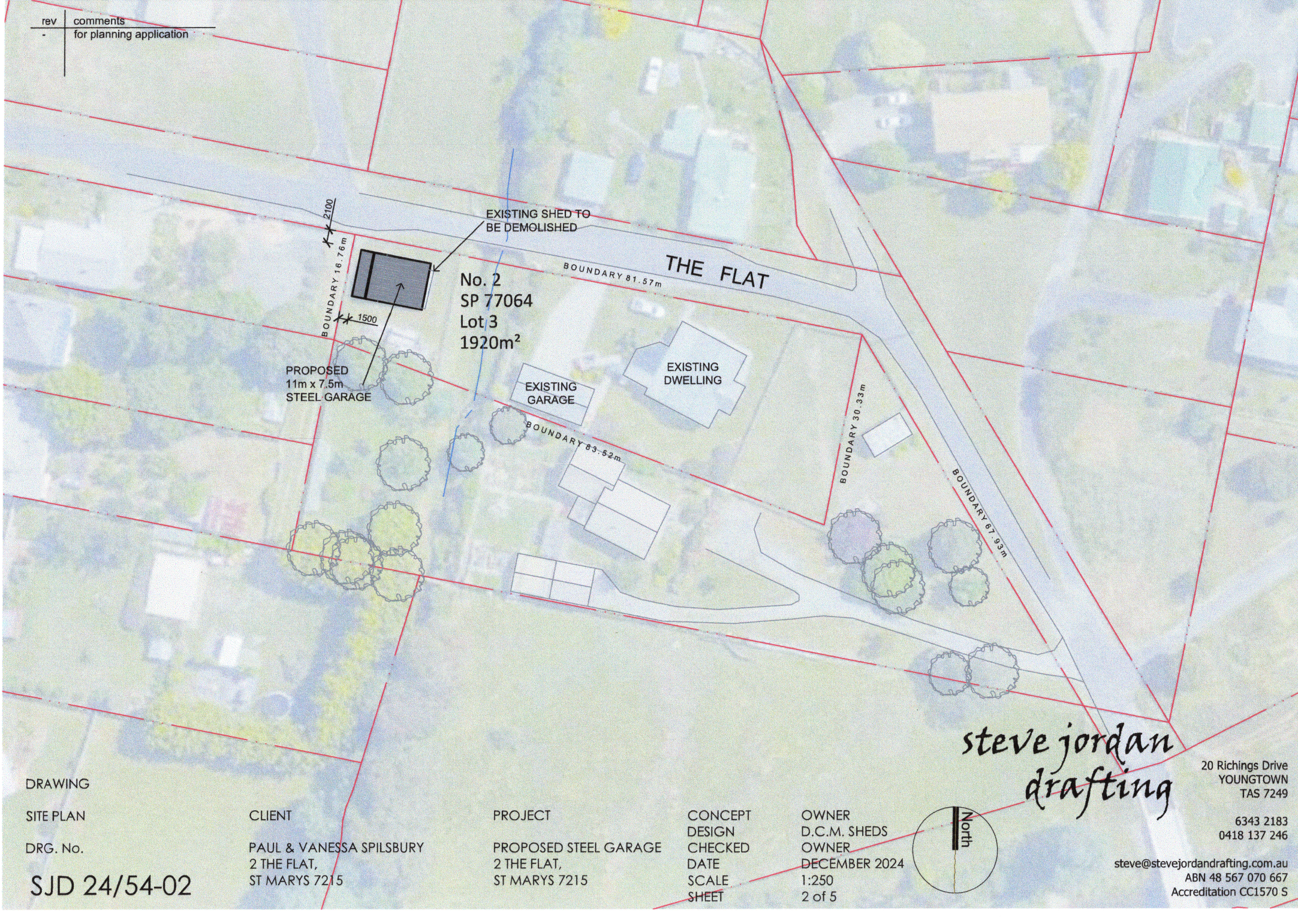


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rev	comments
-	for planning application



DRAWING

SITE PLAN

DRG. No.

SJD 24/54-02

CLIENT

PAUL & VANESSA SPILSBURY

2 THE FLAT,

ST MARYS 7215

PROJECT

PROPOSED STEEL GARAGE

2 THE FLAT,

ST MARYS 7215

CONCEPT

DESIGN

CHECKED

DATE

SCALE

SHEET

OWNER

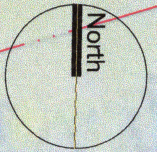
D.C.M. SHEDS

OWNER

DECEMBER 2024

1:250

2 of 5



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20 Richings Drive

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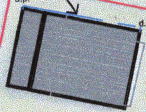
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GUTTERS & DOWNPIPES. NCC 2022-HP7.4
colourbond metal facias, gutters and uPVC down pipes.
down pipes maximum spacing 12m & 1.2m from a valley.
storm water to be directed to existing stormwater drain.

BOUNDARY 16.76m



NEW DN80 UPVC STORMWATER PIPEWORK,
AS SHOWN. ALL WORK TO COMPLY WITH A.S.
3500 & BREAK O'DAY COUNCIL INSTRUCTIONS.

EXISTING
GARAGE

EXISTING
DWELLING

No. 2
SP 77064
Lot 3
1920m²

BOUNDARY 83.52m

BOUNDARY 81.57m
THE FLAT

BOUNDARY 30.33m

BOUNDARY 67.93m

DRAWING

PLUMBING SITE PLAN

DRG. No.

SJD 24/54-03

CLIENT

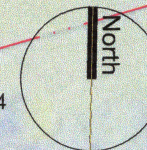
PAUL & VANESSA SPILSBURY
2 THE FLAT,
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3 of 5



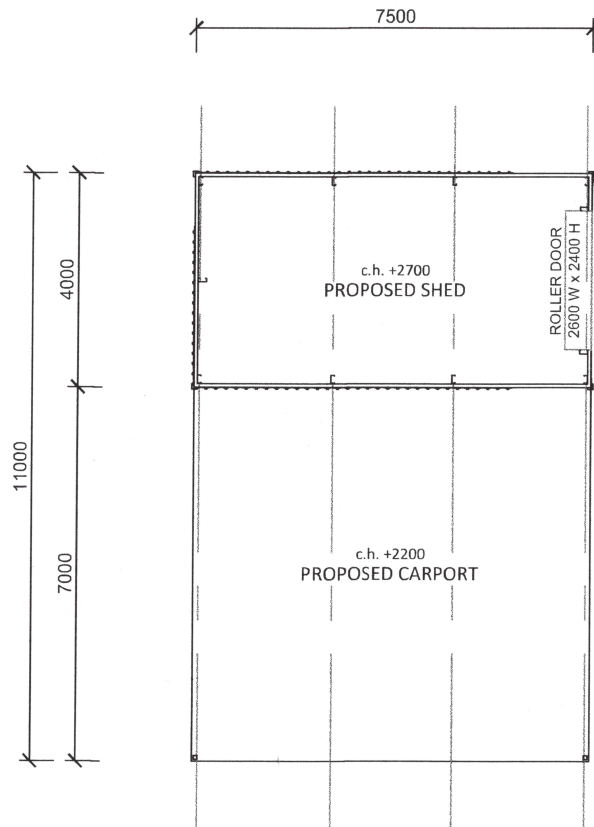
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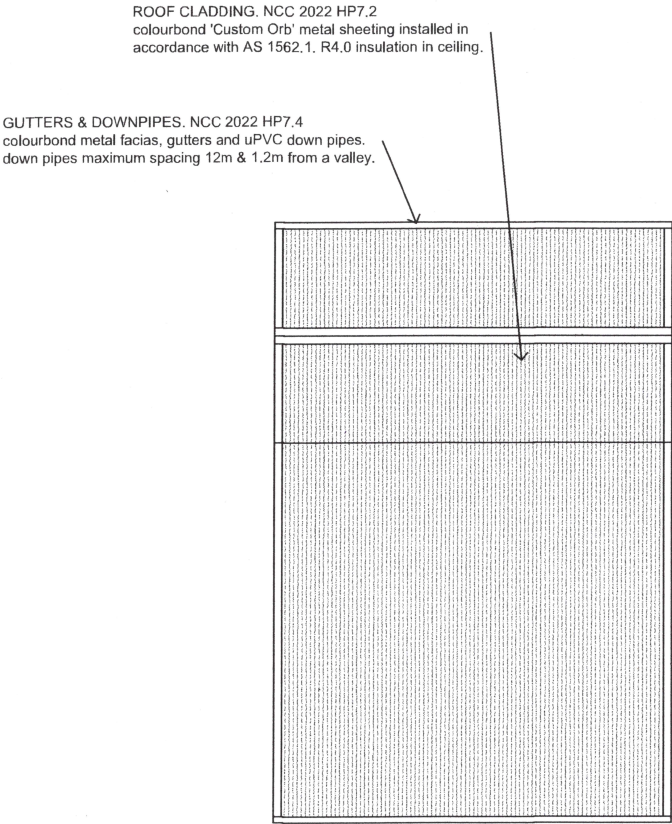
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FLOOR PLAN

scale 1:100



ROOF PLAN

scale 1:100

DRAWING

GARAGE/CARPORT PLANS

DRG. No.

SJD 24/54-04

CLIENT

PAUL & VANESSA SPILSBURY

2 THE FLAT,

ST MARYS 7215

PROJECT

PROPOSED STEEL GARAGE

2 THE FLAT,

ST MARYS 7215

CONCEPT

DESIGN

CHECKED

DATE

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DECEMBER 2024

1:100

4 of 5

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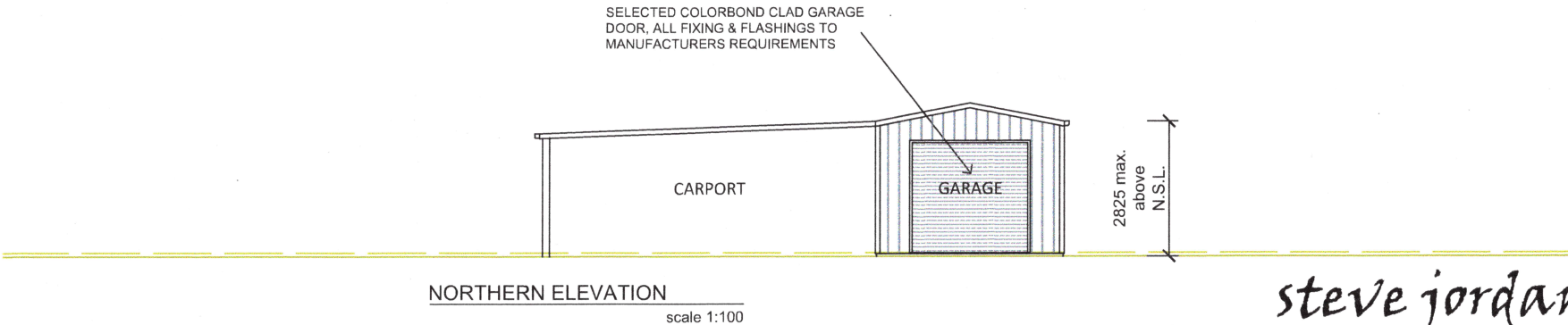
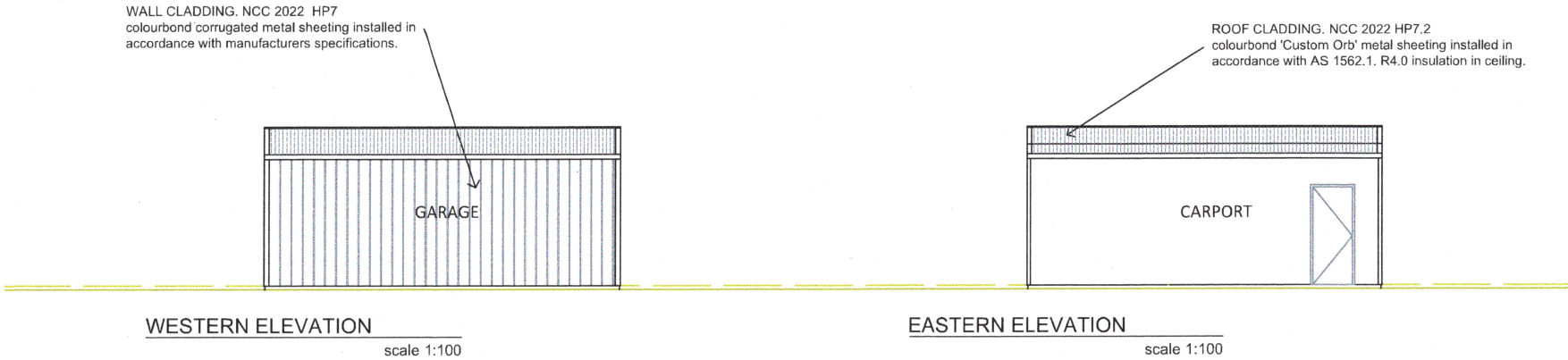
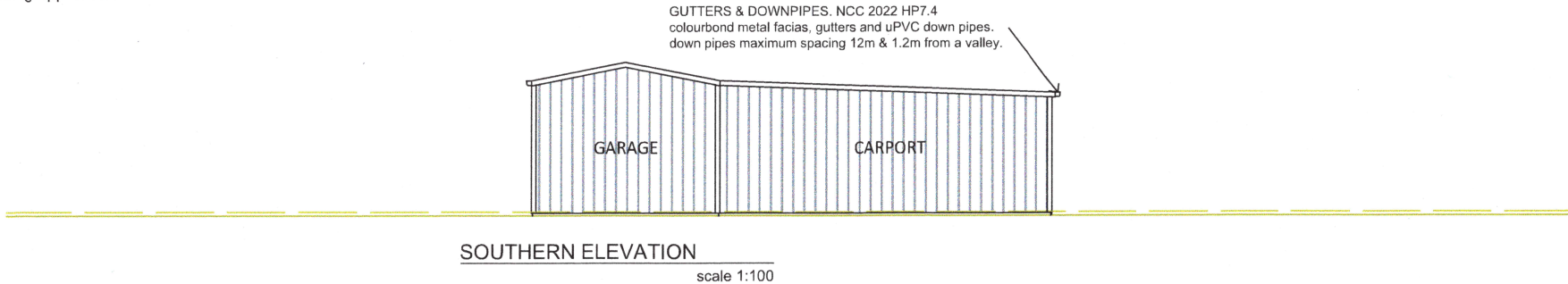
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DRAWING

GARAGE/CARPORT ELEVATIONS

DRG. No.

SJD 24/54-05

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PAUL & VANESSA SPILSBURY
2 THE FLAT,
ST MARYS 7215

PROJECT

PROPOSED STEEL GARAGE
2 THE FLAT,
ST MARYS 7215

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1:100
5 of 5

2 the Flat – St Marys

Item 2

8.0 general Residential Zones

8.4.2 Setbacks and building envelopes for all dwellings

A1 Not applicable – the proposed is excluded as it is a garage

P2 The setback is 2.1m, which is compatible with setbacks of existing garages and carports along The Flat – The ground is totally level

P3

- a) The sitting and scale of the proposed shed will not interfere with dwellings on adjoining properties as they are a long way from the existing (and proposed) shed
- b) The dwellings on adjoining properties are nowhere near the existing (and proposed) shed
- c) The proposed shed is a long way from adjoining dwellings and is also a long way from the existing dwelling

C2.0 parking and Sustainable Transport Code

C2.5.1 Car Parking Numbers

A1 – N/A - there will be no car parking on site. The proposed shed is 2.1m from the boundary. The 2 roller doors face the frontage. The proposed shed is to be used for caravan storage and will enter from the frontage directly into the proposed shed which is 2.1m from the frontage

C2.6.1 Construction of parking areas

A1 – N/A - there will be no car parking on site. The proposed shed is 2.1m from the boundary. The 2 roller doors face the frontage. The proposed shed is to be used for caravan storage and will enter from the frontage directly into the proposed shed which is 2.1m from the frontage

C7.0 Natural Assets Code

C7.6.1 Buildings and works within a waterway and coastal protection area or a future coastal refugia area

P1.1

- a) There will be no impact caused by erosion, siltation sedimentation and runoff as the proposed project is a 9m x 6m shed on a concrete slab
- b) There is no riparian or littoral vegetation in the proposed project
- c) There is no natural streambank or streambed condition
- d) There are no natural habitat, such as fallen logs, bank overhangs, rocks or trailing vegetation
- e) There natural flow and drainage is not applicable
- f) There is no fish passage
- g) There are no wetlands
- h) The proposed shed is replacing an existing shed on the exact same spot
- i) Cut and fill will be minimised
- j) The proposed shed is keeping with the shape of the land. It is a replacement shed
- k) There is no sand or waves within the proposed shed
- l) There will be no need for future works on the property. The shed will be used for storage

m) As per the Wetlands and Waterways Works Manual

n) As per the Tasmanian Coastal Works Manual

C7.6.1 P3 – Not applicable – report attached

BRE-S2-0 Stormwater Management Specific Area Plan – not applicable – report attached

STORMWATER ASSESSMENT

2 The Flat

St Marys

May 2025



GEO-ENVIRONMENTAL

S O L U T I O N S

Disclaimer: The author does not warrant the information contained in this document is free from errors or omissions. The author shall not in any way be liable for any loss, damage or injury suffered by the User consequent upon, or incidental to, the existence of errors in the information.

Investigation Details

Client:	Paul Spilsbury
Site Address:	2 The Flat, St Marys
Date of Inspection:	26/03/2025
Proposed Works:	Shed
Investigation Method:	Geoprobe 540UD - Direct Push
Inspected by:	C. Cooper

Site Details

Certificate of Title (CT):	77064/3
Title Area:	Approx. 1916 m ²
Applicable Planning Overlays:	Waterway and Coastal Protection Areas
Slope & Aspect:	3° S facing slope
Vegetation:	Grass & Weeds

Background Information

Geology Map:	MRT
Geological Unit:	Quaternary Sediments
Climate:	Annual rainfall 650mm
Water Connection:	Mains
Sewer Connection:	Serviced-Mains
Testing and Classification:	Onsite Stormwater Retention

Investigation

A number of bore holes were completed to identify the distribution and variation of the soil materials at the site, bore hole locations are indicated on the site plan. See soil profile conditions presented below. Tests were conducted across the site to obtain bearing capacities of the material at the time of this investigation.

Soil Profile Summary

BH 1 Depth (m)	BH 2 Depth (m)	USCS	Description
0.00-0.50	0.00-0.50	SM	Silty SAND: with gravel, grey, brown, slightly moist, medium dense
0.50-2.50	0.50-2.00+	CH	Silty CLAY: trace of gravel, high plasticity, pale brown mottled grey, slightly moist, firm to stiff,
2.50-3.00+	2.00	CH	Sandy CLAY: with gravel, high plasticity, pale brown mottled grey, moist, stiff, no refusal

Site Notes

Soils on the site are developing from quaternary sediments, the clay fraction is likely to show significant ground surface movement with moisture fluctuations.

Soil Conditions

The soil on site has developed from Quaternary sediments and consists of silt and sandy topsoil overlying silty clay subsoils. The soil has an estimated permeability of approximately 0.50m/day

GES have identified the following at the site:

- The site has a <5% grade that then drops down into the nearby Newmans Creek.
- There are no proposals for cuts or changes of grade which may impact on any proposed onsite stormwater absorption.
- The soil onsite has been identified as comprising of silts and sands overlying silty clay subsoils. No soil dispersion was identified.
- No evidence of a water table was observed at the time of the investigation
- There is a low risk of the natural soils being impacted by contamination
- No bedrock was encountered

Soil Dispersion

The soil is non-dispersive.

Existing Conditions and Assumptions

The site covers an area of approximately 1916m² with a roof area of the proposed shed of approx. 82.5m². It is proposed that stormwater from the new shed would be routed through the proposed conventional underground drainage system comprising of Grated Sumps and PVC Pipes, coupled with soakage trench elements for on-site detention.

The stormwater management report is prepared in accordance with the design criteria listed below:

- The stormwater drainage system is designed using Bureau of Meteorology (BOM) published rainfall Intensity Frequency Duration (IFD) data as a minor / major system to accommodate the 5% AEP / 20 min storm events.
- The flow rate of stormwater leaving the site shall be designed so that it does not exceed the pre-developed flow rate for both the minor and major rain events.
- The total site discharges are modelled as described in *Storm Drainage Design in Small Urban Catchments*, a handbook for Australian practice by *Australian Rainfall and Runoff (ARR2019)*, Book 9 – Runoff in Urban Areas.

Detention Calculations

Detention calculations area provided in Appendix A

Summary and Conclusions

- Detention design to be adopted as per design and documentation.
- The designed solution complies with the performance solution design check carried out.
- The 7.2m² base (6m x 1.2m), 0.6m deep soakage trench is designed over a 20-minute storm duration for proposed development.
- DN100 slotted PVC pipe with geotextile covering on top of aggregate to be installed within the soakage trench.

It is also recommended that regular inspection and maintenance is conducted to ensure the stormwater system is operating without obstruction. A schematic of recommended checks is attached.

GES Stormwater Maintenance Plan Checklist

Indicative frequency	Inspection and criteria	Maintenance activities (where required)
Annual	Check whether any tree branches overhang the roof or are likely to grow to overhang the roof	If safe and where permitted, consider pruning back any overhanging branches
	Check that access covers to storage tanks are closed	Secure any open access covers to prevent risk of entry
	Check that screens on inlets, overflows and other openings do not have holes and are securely fastened	Repair any defective screens to keep out mosquitoes
	Inspect tank water for presence of rats, birds, frogs, lizards or other vermin or insects	Remove any infestations, identify point of entry and close vermin and insect-proof mesh
	Inspect tank water for presence of mosquito larvae (inspect more frequently in sub-tropical and tropical northern Australia, based on local requirements)	Identify point of entry and close with insect-proof mesh with holes no greater than 1.6 mm in diameter
	Inspect gutters for leaf accumulation and ponding	Clean leaves from gutters-remove more regularly if required. If water is ponding, repair gutter to ensure water flows to downpipe
	Check signage at external roof water taps and that any removable handle taps are being properly used	Replace or repair the missing or damaged signage and fittings
	Check plumbing and pump connections are watertight/without leakage	Repair any leaks as necessary
	Check suction strainers, in-line strainers and pump location for debris	Clean suction strainers, in-line strainers or debris from pump location
	Check pump installation is adequate for reliable ongoing operation	Modify and repair as required
	Check first flush diverter, if present	Clean first flush diverter, repair and replace if necessary
	Check health of absorption trench area and surrounding grass or plants	Investigate any adverse impacts observed that might be due to irrigation
	Check condition of roof and coatings	Investigate and resolve any apparent changes to roof condition, such as loss of material coatings
Triennial	Drain, clean out and check the condition of the tank walls and roof to ensure no holes have arisen due to tank deterioration	Repair any tank defects

	Check sediment levels in the tank	Organise a suitable contractor to remove accumulated sediment if levels are approaching those that may block tank outlets
	Undertake a systematic review of operational control of risks to the system	Identify the reason for any problems during inspections and take actions to prevent failures occurring in future
After 20 years and then every 5 years	Monitor the effectiveness of the stormwater absorption area to assess for any clogging due to algal growth, or blocking due to tree roots/grass growth/trench failure.	Clean or replace clogged equipment
Ongoing	Inspect and follow up on any complaints or concerns raised that could indicate problems with the system	Repair or replace any problems that are notified

APPENDIX A: STORMWATER DETENTION CALCULATIONS

STORAGE TRENCH			
Hydrology			
Total Catchment Area		82.5	m2
Runoff Coefficient		1	
Annunal Recurrence Interval (ARI)		20	yr
Ground Conditions			
Hydraulic conductivity (K)		0.5	m/day
		0.350	mm/min
Adjusted Rate (15% clogging factor)		0.298	mm/min
Trench Design			
Length		6	m
Width		1.2	m
Depth		1	m
Infiltration Area		7.2	m2
Porosity		0.35	%
Trench Storage		2.52	m3
		2520	L
Final Check			
Criteria	Requirement	Design	Check
Detention reqd	2440	2520	OK

STORM CHECK					
Storm Duration	Intensity	Inflow Volume	Outflow Volume	Required Storage	Emptying time
	(mm/hr)	(m ³)	(L)	(L)	(hr)
1 min	236	325	2	322	2.51
2 min	182	501	4	496	3.86
3 min	166	685	6	678	5.28
4 min	156	858	9	849	6.61
5 min	146	1004	11	993	7.73
10 min	112	1540	21	1519	11.82
15 min	91.2	1881	32	1849	14.39
20 min	77.5	2131	43	2088	16.25
25 min	67.8	2331	54	2277	17.72
30 min	60.7	2504	64	2440	18.98
45 min	47.3	2927	96	2830	22.02
1 hour	39.8	3284	129	3155	24.55
1.5 hour	31.7	3923	193	3730	29.02
2 hour	27.3	4505	257	4247	33.05
3 hour	22.6	5594	386	5208	40.52
4.5 hour	19.1	7091	578	6513	50.67
6 hour	17.1	8465	771	7693	59.86
9 hour	14.7	10915	1157	9758	75.93
12 hour	13.2	13068	1542	11526	89.68
18 hour	11.2	16632	2313	14319	111.41
24 hour	9.72	19246	3084	16161	125.75
30 hour	8.61	21310	3856	17454	135.81
36 hour	7.71	22899	4627	18272	142.17
48 hour	6.35	25146	6169	18977	147.66
72 hour	4.63	27502	9253	18249	141.99
			Full volume	2520	147.66

Location

Label: 2 The Flat St Marys

Easting: 599050

Northing: 5396500

Zone: 55

Latitude: Nearest grid cell: 41.5875 (S)

Longitude: Nearest grid cell: 148.1875 (E)



IFD Design Rainfall Intensity (mm/h)

Issued: 04 April 2025

Rainfall intensity for Durations, Exceedance per Year (EY), and Annual Exceedance Probabilities (AEP).
[FAQ for New ARR probability terminology](#)

Table

Chart

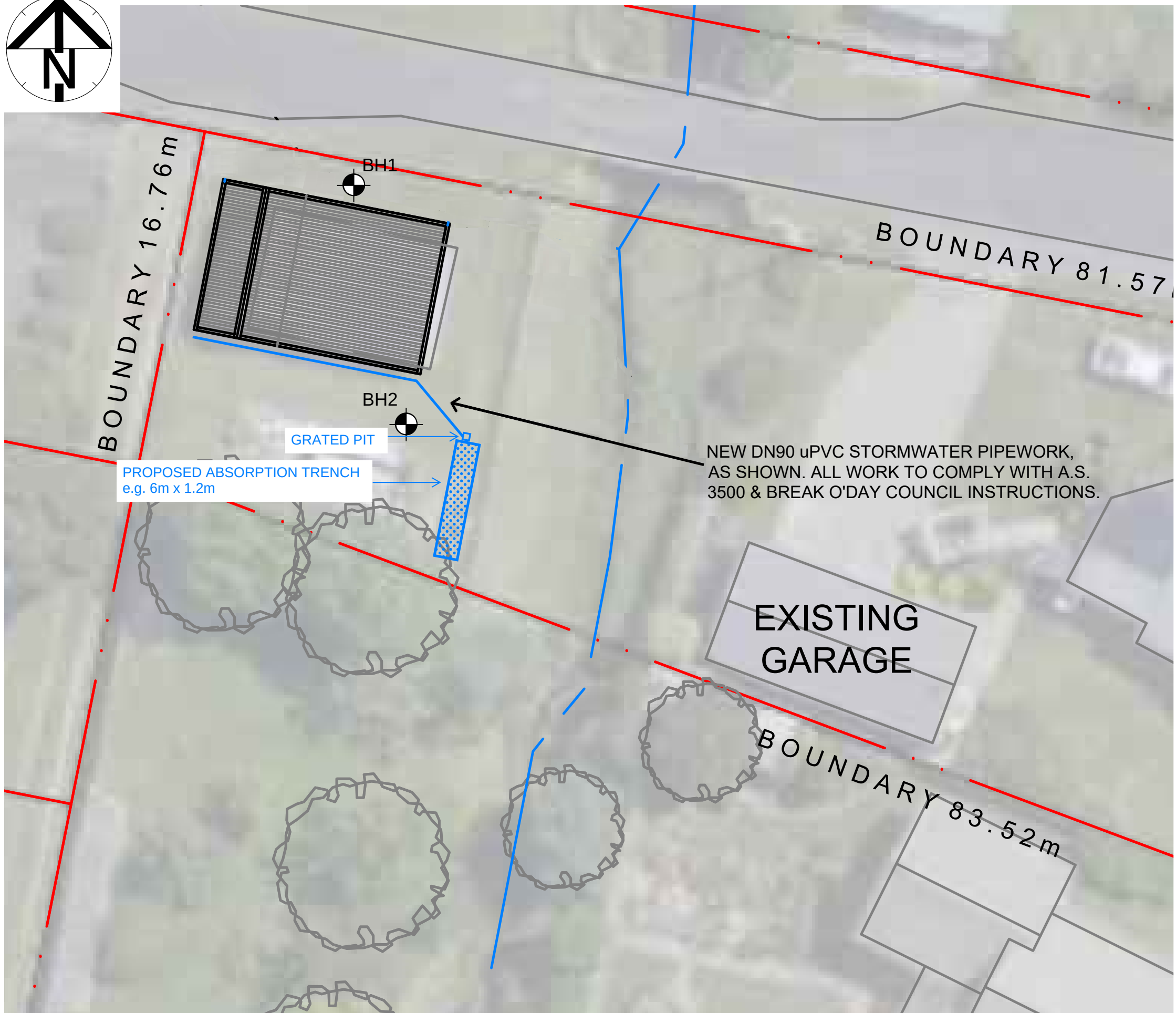
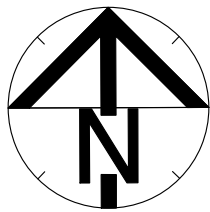
Unit: **mm/h**

Duration	Annual Exceedance Probability (AEP)						
	63.2%	50%#	20%*	10%	5%	2%	1%
1 min	103	117	164	199	236	289	332
2 min	85.8	96.7	132	157	182	213	236
3 min	77.2	87.2	120	143	166	197	220
4 min	70.6	79.9	111	133	156	186	210
5 min	65.2	74.0	103	124	146	177	201
10 min	48.1	54.7	77.3	94.2	112	138	160
15 min	39.0	44.3	62.7	76.5	91.2	113	131
20 min	33.3	37.8	53.4	65.1	77.5	95.6	111
25 min	29.4	33.4	47.0	57.1	67.8	83.3	96.2
30 min	26.5	30.1	42.2	51.2	60.7	74.2	85.4
45 min	21.2	24.0	33.4	40.2	47.3	57.2	65.1
1 hour	18.2	20.6	28.5	34.1	39.8	47.7	53.9
1.5 hour	14.9	16.8	23.0	27.4	31.7	37.5	41.9
2 hour	13.0	14.7	20.0	23.7	27.3	32.0	35.6
3 hour	10.8	12.3	16.7	19.7	22.6	26.3	29.1
4.5 hour	9.15	10.4	14.2	16.7	19.1	22.2	24.6
6 hour	8.11	9.24	12.7	15.0	17.1	20.0	22.1
9 hour	6.81	7.80	10.8	12.8	14.7	17.3	19.3
12 hour	5.95	6.85	9.61	11.4	13.2	15.7	17.6
18 hour	4.82	5.58	7.96	9.57	11.2	13.4	15.2
24 hour	4.06	4.72	6.82	8.27	9.72	11.8	13.4
30 hour	3.51	4.09	5.96	7.28	8.61	10.5	12.0
36 hour	3.09	3.61	5.29	6.49	7.71	9.46	10.9
48 hour	2.49	2.91	4.30	5.31	6.35	7.83	9.03
72 hour	1.77	2.08	3.09	3.84	4.63	5.71	6.59
96 hour	1.38	1.61	2.40	2.99	3.60	4.42	5.10
120 hour	1.14	1.33	1.97	2.44	2.93	3.58	4.12
144 hour	0.973	1.13	1.67	2.07	2.47	3.00	3.44
168 hour	0.860	1.00	1.47	1.80	2.15	2.58	2.96

Note:

The 50% AEP IFD **does not** correspond to the 2 year Average Recurrence Interval (ARI) IFD. Rather it corresponds to the 1.44 ARI.

* The 20% AEP IFD **does not** correspond to the 5 year Average Recurrence Interval (ARI) IFD. Rather it corresponds to the 4.48 ARI.



GEO-ENVIRONMENTAL

SOLUTIONS

29 Kirksway Place, Battery Point
T| 62231839 E| office@geosolutions.net.au

New Services

- STORMWATER PIPE WITH FLOW DIRECTION
- GRATED STORMWATER PIT 450x450 CLASS A ACO GALVANISED HEELGUARD OR SIMILAR ENGINEER APPROVED

Performance Solution Compliance Notes:

- AS 3500.3 - CL 7.10
- 7.10.1 - OVERFLOW IS SAFE AND DOES NOT COMPROMISE FREEBOARD TO HABITABLE SPACES.
- GENERAL**
- AS/NZS 3500.3: PART 3 STORMWATER DRAINAGE AUSTRALIAN RAINFALL AND RUN-OFF VOLUME 8: URBAN STORMWATER MANAGEMENT
- AUSTRALIAN RUNOFF QUALITY - A GUIDE TO WATER SENSITIVE URBAN DESIGN
- STORM DRAINAGE DESIGN IN SMALL URBAN CATCHMENTS: A HANDBOOK FOR AUSTRALIAN PRACTICE
- WATER SENSITIVE URBAN DESIGN (WSUD) ENGINEERING PROCEDURE: STORMWATER
- WATER SERVICES ASSOCIATION OF AUSTRALIA CODE (WSAA)

Stormwater Services Notes:

- ALL SITE SAFETY & MANAGEMENT PROCEDURES SHALL BE IN ACCORDANCE WITH THE DEPARTMENT OF STATE GROWTH SPECIFICATIONS: SECTION 168 OCCUPATIONAL HEALTH AND SAFETY & SECTION 176 ENVIRONMENTAL MANAGEMENT.
- ALL PIPES UNDER TRAFFICABLE AREAS ARE TO BE BACKFILLED FULL DEPTH WITH 20 F.C.R. AND FULLY COMPACTED.
- ALL STORMWATER PIPES TO BE PVC-U-SWJ CLASS "SN8" TO AS1254 UNO.
- ALL DRAIN AND TRENCH CONSTRUCTION SHALL COMPLY WITH THE LGAT STANDARD DRG TSD G01.
- ANY EXCAVATED TRENCHES IN EXCESS OF 1.5M IN DEPTH ARE TO BE ADEQUATELY SHORED TO PREVENT COLLAPSE DURING WORKS.

Do not scale from these drawings.
Dimensions to take precedence
over scale.

2 The Flat
ST MARYS 7215

C.T.: 77064/3

Date: 7/5/2025

On-Site Stormwater Management Plan

1:200 @ A3

Sheet 1 of 1
Drawn by: SR

STORMWATER DETENTION V5.05

Geo-Environmental Solutions

Location: St Marys
Site: 82.5m² with tc = 20 and tcs = 15 mins.
PSD: AEP of 5%, Underground rectangular tank PSD = 0.53L/s
Storage: AEP of 5%, Underground rectangular tank volume = 2.44m³

Design Criteria (Custom AEP IFD data used)

Location = St Marys
Method = E (A)RI 2001,A(E)P 2019

PSD annual exceedance probability (APE) = 5 %
Storage annual exceedance probability (APE) = 5 %

Storage method = U (A)bove,(P)ipe,(U)nderground,(C)ustom

Site Geometry

Site area (As) = 82.5 m² = 0.00825 Ha
Pre-development coefficient (Cp) = 0.30
Post development coefficient (Cw) = 1.00

Total catchment (tc) = 20 minutes
Upstream catchment to site (tcs) = 15 minutes

Coefficient Calculations

Pre-development				Post development			
Zone	Area (m ²)	C	Area * C	Zone	Area (m ²)	C	Area * C
Concrete	0	0.90	0	Concrete	0	0.90	0
Roof	0	1.00	0	Roof	82.5	1.00	83
Gravel	0	0.50	0	Gravel	0	0.50	0
Garden	82.5	0.30	25	Garden	0	0.30	0
Total	83	m²	25	Total	83	m²	83
Cp = $\Sigma \text{Area} * C / \text{Total} =$				0.300	Cw = $\Sigma \text{Area} * C / \text{Total} =$		
					1.000		

Permissible Site Discharge (PSD) (AEP of 5%)

PSD Intensity (I) = 77.5 mm/hr For catchment tc = 20 mins.
Pre-development ($Q_p = C_p * I * A_s / 0.36$) = 0.53 L/s
Peak post development ($Q_a = 2 * C_w * I * A_s / 0.36$) = 3.55 L/s $= (0.046 \times I)$ Eq. 2.24

Storage method = U (A)bove,(P)ipe,(U)nderground,(C)ustom
Permissible site discharge ($Q_u = \text{PSD}$) = 0.535 L/s

Above ground - Eq 3.8

$$Q = \text{PSD}^2 - 2 * Q_a / t_c * (0.667 * t_c * Q_p / Q_a + 0.75 * t_c + 0.25 * t_{cs}) * \text{PSD} + 2 * Q_a * Q_p$$

Taking x as = PSD and solving

$$a = 1.0 \quad b = -7.4 \quad c = 3.8$$

$$\text{PSD} = \frac{-b \pm \sqrt{b^2 - 4ac}}{(2a)}$$

$$\text{PSD} = 0.555 \text{ L/s}$$

Below ground pipe - Eq 3.3

$$Q_p = \text{PSD} * [1.6 * t_{cs} / \{t_c * (1 - 2 * \text{PSD} / (3 * Q_a))\} - 0.6 * t_{cs}^{2.67} / \{t_c * (1 - 2 * \text{PSD} / (3 * Q_a))\}^{2.67}]$$

$$= 0.53$$

$$\text{PSD} = 0.551 \text{ L/s}$$

Below ground rectangular tank - Eq 3.4

$$t = t_{cs} / (t_c * (1 - 2 * \text{PSD} / (3 * Q_a))) = 0.834$$

$$Q_p = \text{PSD} * [0.005 - 0.455 * t + 5.228 * t^2 - 1.045 * t^3 - 7.199 * t^4 + 4.519 * t^5]$$

$$= 0.53$$

$$\text{PSD} = 0.535 \text{ L/s}$$

Design Storage Capacity (AEP of 5%)

$$\begin{aligned} \text{Above ground (Vs)} &= [0.5*Q_a*td - [(0.875*PSD*td)(1-0.917*PSD/Q_a) + (0.427*td*PSD^2/Q_a)]] * 60/10^3 \text{ m}^3 & \text{Eq 4.23} \\ \text{Below ground pipe (Vs)} &= [(0.5*Q_a - 0.637*PSD + 0.089*PSD^2/Q_a)*td] * 60/10^3 \text{ m}^3 & \text{Eq 4.8} \\ \text{Below ground rect. tank (Vs)} &= [(0.5*Q_a - 0.572*PSD + 0.048*PSD^2/Q_a)*td] * 60/10^3 \text{ m}^3 & \text{Eq 4.13} \end{aligned}$$

td (mins)	I (mm/hr)	Qa (L/s)	Above Vs (m³)	Pipe Vs (m³)	B/G Vs (m³)
5	146.2	6.7			0.91
53	42.9	2.0			2.17
76	34.8	1.6			2.28
100	30.0	1.4			2.35
124	26.9	1.2			2.39
148	24.7	1.1			2.42
172	23.1	1.1			2.43
195	21.8	1.0			2.44
219	20.8	1.0			2.43
243	19.9	0.9			2.42

Table 1 - Storage as function of time for AEP of 5%

Type	td (mins)	I (mm/hr)	Qa (L/s)	Vs (m³)
Above Pipe				
B/ground	194.1	21.9	1.0	2.44

Table 2 - Storage requirements for AEP of 5%

Frequency of operation of Above Ground storage

$$\begin{aligned} Q_{op2} &= 0.75 \text{ CI 2.4.5.1} \\ Q_{p2} = Q_{op2} * Q_{p1} \text{ (where } Q_{p1} = PSD) &= 0.42 \text{ L/s at which time above ground storage occurs} \\ I = 360 * Q_{p2} / (2 * C_w * A_s * 10^3) &= 9.1 \text{ mm/h} & \text{Eq 4.24} \end{aligned}$$

Period of Storage

Time to Fill:

$$\begin{aligned} \text{Above ground (tf)} &= td * (1 - 0.92 * PSD / Q_a) & \text{Eq 4.27} \\ \text{Below ground pipe (tf)} &= td * (1 - 2 * PSD / (3 * Q_a)) & \text{Eq 3.2} \\ \text{Below ground rect. tank (tf)} &= td * (1 - 2 * PSD / (3 * Q_a)) & \text{Eq 3.2} \end{aligned}$$

Time to empty:

$$\begin{aligned} \text{Above ground (te)} &= (Vs + 0.33 * PSD^2 * td / Q_a * 60 / 10^3) * (1.14 / PSD) * (10^3 / 60) & \text{Eq 4.28} \\ \text{Below ground pipe (te)} &= 1.464 / PSD * (Vs + 0.333 * PSD^2 * td / Q_a * 60 / 10^3) * (10^3 / 60) & \text{Eq 4.32} \\ \text{Below ground rect. tank (te)} &= 2.653 / PSD * (Vs + 0.333 * PSD^2 * td / Q_a * 60 / 10^3) * (10^3 / 60) & \text{Eq 4.36} \end{aligned}$$

$$\text{Storage period (Ps = tf + te)} \quad \text{Eq 4.26}$$

Type	td (mins)	Qa (L/s)	Vs (L/s)	tf (mins)	te (mins)	Ps (mins)
Above Pipe						
B/ground	194.1	1.0	2.4	125.1	292.9	417.9

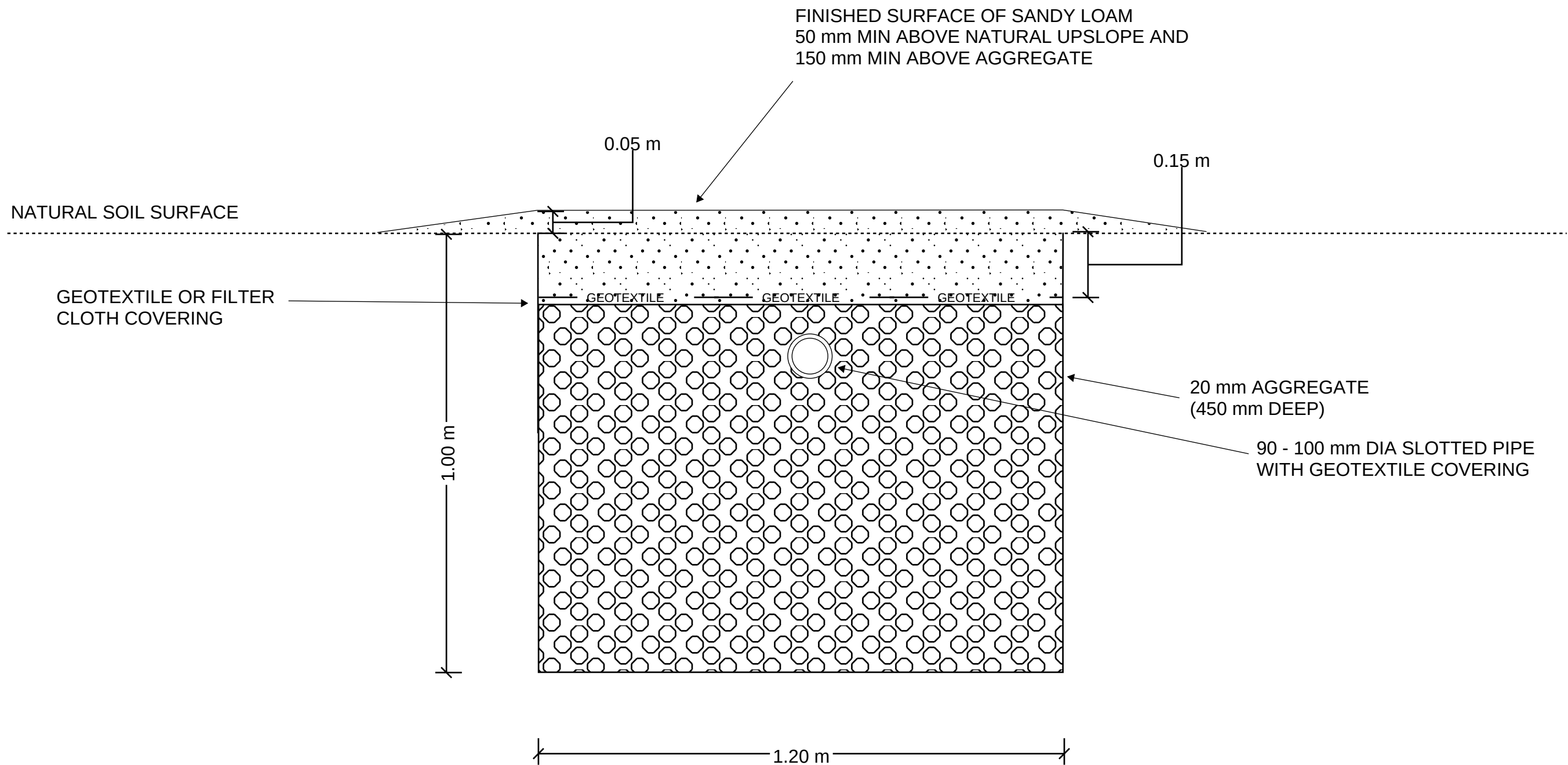
Table 3 - Period of Storage requirements for AEP of 5%

Orifice

$$\begin{aligned} \text{Permissible site discharge (Qu=PSD)} &= 0.53 \text{ L/s (Underground storage)} \\ \text{Orifice coefficient (CD)} &= 0.61 \text{ For sharp circular orifice} \\ \text{Gravitational acceration (g)} &= 9.81 \text{ m/s}^2 \\ \text{Maximum storage depth above orifice (H)} &= 400 \text{ mm} \\ \text{Orifice flow (Q)} &= CD * A_o * \sqrt{2 * g * H} \\ \text{Therefore:} \\ \text{Orifice area (Ao)} &= 313 \text{ mm}^2 \\ \text{Orifice diameter (D = } \sqrt{4 * A_o / \pi} \text{)} &= 20.0 \text{ mm} \end{aligned}$$

Design notes:

- 1.Absorption trench dimensions of up to 20m long by 1.0m deep by 1.2m wide
– total storage volume calculated at average 35% porosity.
- 2.Base of trenches to be excavated level and smearing and compaction avoided.
- 3.90-100mm slotted pipe should be placed in the top 100mm of the 20mm aggregate
- 4.Geotextile or filter cloth to be placed over the pipe to prevent clogging of the pipes and aggregate
- 5.All works on site to comply with AS3500 and Tasmanian Plumbing code.



Do not scale from these drawings.
Dimensions to take precedence
over scale.

CERTIFICATE OF THE RESPONSIBLE DESIGNER

Section 94
Section 106
Section 129
Section 155

Form **35**

To: Owner name
 Address
 Suburb/postcode

Designer details:

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

Details of the proposed work:

Owner/Applicant Designer's project reference No.
 Address: Lot No:

 Type of work: Building work ☐ Plumbing work ☒ (X all applicable)

Description of work:

On-Site stormwater system - design
 (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
	☐ Building design	Architect or Building Designer
	☐ Structural design	Engineer or Civil Designer
	☐ Fire Safety design	Fire Engineer
	☒ Civil design	Civil Engineer or Civil Designer
	☐ Hydraulic design	Building Services Designer
	☐ Fire service design	Building Services Designer
	☐ Electrical design	Building Services Designer
	☐ Mechanical design	Building Service Designer
	☐ Plumbing design	Plumber-Certifier; Architect, Building Designer or Engineer
	☐ Other (specify)	

Deemed-to-Satisfy: ☐ Performance Solution: ☒ (X the appropriate box)

Other details:

Onsite stormwater retention

Design documents provided:

The following documents are provided with this Certificate –

Document description:

Drawing numbers:	Prepared by: Geo-Environmental Solutions	Date: May-25
Schedules:	Prepared by:	Date:
Specifications:	Prepared by: Geo-Environmental Solutions	Date: May-25
Computations:	Prepared by:	Date:
Performance solution proposals: Onsite stormwater retention	Prepared by: Geo-Environmental Solutions	Date: May-25
Test reports:	Prepared by: Geo-Environmental Solutions	Date: May-25

Standards, codes or guidelines relied on in design process:

AS3500 (Parts 0-5)-2013 Plumbing and drainage set.

Any other relevant documentation:

Stormwater Assessment - 2 The Flat St Marys - May-25

Attribution as designer:

I Vinamra Gupta, am responsible for the design of that part of the work as described in this certificate;

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

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

	<i>Name: (print)</i>	<i>Signed</i>	<i>Date</i>
Designer:	Vinamra Gupta		08/05/2025
Licence No:	685982720		

Assessment of Certifiable Works: (TasWater)	
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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 Vinamra Gupta..... 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

	<i>Name: (print)</i>	<i>Signed</i>	<i>Date</i>
Designer:	Vinamra Gupta		08/05/2025