Attachments to item number 5.1 -

Site Assessment by Geo Environmental Solutions

Stormwater Report by Aldanmark

AS2870:2011 SITE ASSESSMENT

10 Heron Crescent

Midway Point

December 2022

GEO-ENVIRONMENTAL

SOLUTIONS

Investigation Details

Client:	Taylor and Beeson Building
Site Address:	10 Heron Crescent, Midway Point
Date of Inspection:	30/11/2022
Proposed Works:	New Units
Investigation Method:	Geoprobe 540UD - Direct Push
Inspected by:	M. Campbell

Site Details

Certificate of Title (CT):	177622/80
Title Area:	Approx. 1503 m²
Applicable Planning Overlays:	Potential Dispersive Soil
Slope & Aspect:	3-4° NE facing slope
Vegetation:	Grass & Weeds Disturbed

Background Information

Geology Map:	MRT 1:25000
Geological Unit:	Triassic
Climate:	Annual rainfall 400mm
Water Connection:	Mains
Sewer Connection:	Serviced-Mains
Testing and Classification:	AS2870:2011, AS1726:2017 & AS4055:2021

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)	BH 3 Depth (m)	BH 4 Depth (m)	USCS	Description
0.00-0.10	0.00-0.35	0.00-0.20	0.00-0.30	SP	**SAND**: dark grey, slightly moist, loose, BH3 refusal on sandstone.
0.10-0.35				GW	**Sandy GRAVEL**: yellow, dry, very dense, BH1 refusal on sandstone.
	0.35-0.40		0.30-0.40	SP	**SAND** trace gravel: orange, slightly moist, very dense, BH2 & 4 refusal on sandstone.

Site Notes

The soils on site consist of sandy topsoil overlying sandy gravel subsoils which have developed on Triassic sandstone deposits which also outcrops across the site.

Site Classification

The site has been assessed and classified in accordance with AS2870:2011 *"Residential Slabs and Footings".*

The site has been classified as:

Class A

Y_s range: **0-20mm**

Notes: The shallow and sandy soils are likely to exhibit very little to no ground surface movement from soil moisture fluctuations.

Wind Loading Classification

According to *"AS4055:2021 - Wind Loads for Housing"* the house site is classified below:

Wind Classification: N3

Region:	A
Terrain Category:	1.0
Shielding Classification:	PS
Topographic Classification:	T1
Wind Classification:	N3
Design Wind Gust Speed – m/s ($V_{h,u}$):	50

Construction Notes & Recommendations

The site has been classified as **Class A**- nonreactive site, which is likely experience no discernible ground movement from moisture changes.

It is recommended the foundations be placed on the underlying bedrock to minimise the potential for any foundation movement.

All earthworks on site must comply with AS3798:2012, and I further recommend that consideration be given to drainage and sediment control on site during and after construction. Care should also be taken to ensure there is adequate drainage in the construction area to avoid the potential for weak bearing and foundation settlement associated with excessive soil moisture.

I also recommend that during construction that I and/or the design engineer be notified of any major variation to the foundation conditions as predicted in this report.

Dr John Paul Cumming B.Agr.Sc (hons) PhD CPSS GAICD

Director

Explanatory Notes

1 Scope of Works

The methods of description and classification of soils used in this report are based largely on Australian Standard 1726 – Geotechnical Site Investigations (AS1726:2017), with reference to Australian Standard 1289 – Methods for testing soils for engineering purposes (AS1289), for eventual Site Classification according to Australian Standard 2870 (AS2870:2011) – Residential Slabs and Footings and Australian Standard 1547 (AS1547:2012) On-site domestic wastewater management.

1.1 Site Classification AS2870:2011

Site classification with reference to the above Australian Standards are based on site reactivity.

Class	Foundation Conditions	Characteristic Surface Movement
A	Most sand and rock sites with little or no ground movement from moisture changes.	**0mm**
S	Slightly reactive clay sites, which may experience only slight ground movement from moisture changes.	**0 – 20mm**
M	Moderately reactive clay or silt sites, which may experience moderate ground movement from moisture changes.	**20 – 40mm**
H-1	Highly reactive clay sites, which may experience high ground movement from moisture changes.	**40 – 60mm**
H-2	Highly reactive clay sites, which may experience very high ground movement from moisture changes.	**60 – 75mm**
E	Extremely reactive sites, which may experience extreme ground movement from moisture changes.	**>75mm**

*Note: Soils where foundation performance may be significantly affected by factors other than reactive soil movement are classified as **Class P**.*

A site is classified as **Class P** when:

- The bearing capacity of the soil profile in the foundation zone is generally less than 100kpa
- If excessive foundation settlement may occur due to loading on the foundation.
- The site contains uncontrolled fill greater than 0.8m in depth for sandy sites and 0.4m in depth for other soil materials.
- The site is subject to mine subsistence, landslip, collapse activity or coastal erosion.
- The site is underlain by highly dispersive soils with significant potential for erosion
- If the site is subject to abnormal moisture conditions which can affect foundation performance

1.2 Soil Characterisation

This information explains the terms of phrase used within the soil description area of the report.

It includes terminology for cohesive and non-cohesive soils and includes information on how the Unified Soil Classification Scheme (USCS) codes are determined.

NON COHSIVE – SAND & GRAVEL		
Consistency Description	**Field Test**	**Dynamic Cone Penetrometer blows/100 mm**
Very loose (VL)	Easily penetrated with 13 mm reinforcing rod pushed by hand.	0 - 1
Loose (L)	Easily penetrated with 13 mm reinforcing rod pushed by hand. Can be excavated with a spade; 50 mm wooden peg can be easily driven.	1 - 3
Medium dense (MD)	Penetrated 300 mm with 13 mm reinforcing rod driven with 2 kg hammer, - hard shovelling.	3 - 8
Dense (D)	Penetrated 300 mm with 13 mm reinforcing rod driven with 2 kg hammer, requires pick for excavation: 50 mm wooden peg hard to drive.	8 - 15
Very dense (VD)	Penetrated only 25 - 50 mm with 13 mm reinforcing rod driven with 2 kg hammer.	>15

COHESIVE - SILT & CLAY		
Consistency Description	**Field Test**	**Indicative undrained shear strength kPa**
Very soft	Easily penetrated >40 mm by thumb. Exudes between thumb and fingers when squeezed in hand.	<12
Soft	Easily penetrated 10 mm by thumb. Moulded by light finger pressure	>12 and <25
Firm	Impression by thumb with moderate effort. Moulded by strong finger pressure	>25 and <50
Stiff	Slight impression by thumb cannot be moulded with finger.	>50 and <100
Very Stiff	Very tough. Readily indented by thumbnail.	>100 and <200
Hard	Brittle. Indented with difficulty by thumbnail.	>200

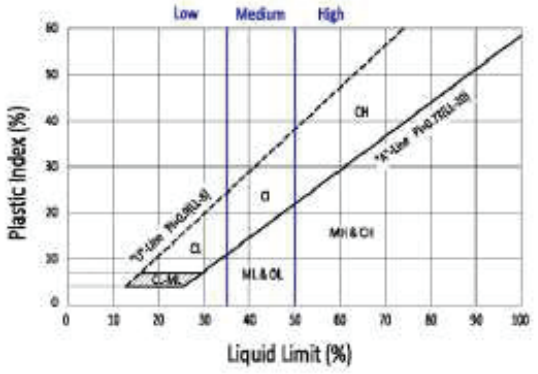
1.3 USCS Material Descriptions

Soils for engineering purposes are the unconsolidated materials above bedrock, they can be residual, alluvial, colluvial or aeolian in origin.

Major Divisions		Particle size mm	USCS Group Symbol	Typical Names	Laboratory Classification				
					% < 0.075 mm (2)	Plasticity of fine fraction	$C_u = \frac{D_{60}}{D_{10}}$	$C_c = \frac{(D_{30})^2}{(D_{10})(D_{60})}$	NOTES
COARSE GRAINED SOILS (more than half of material less than 63 mm is larger than 0.075 mm)	BOULDERS	200							
	COBBLES	63							
	GRAVELS (more than half of coarse fraction is larger than 2.36 mm)	coarse 20 medium 6 fine 2.36	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. (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.
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines, uniform gravels	0-5	—	Fails to comply with above		
			GM	Silty gravels, gravel-sand-silt mixtures (1)	12-50	Below 'A' line or PI<4	—	—	
			GC	Clayey gravels, gravel-sand-clay mixtures (1)	12-50	Above 'A' line and PI>7	—	—	
	SANDS (more than half of coarse fraction is smaller than 2.36 mm)	coarse 0.6 medium 0.2 fine 0.075	SW	Well graded sands and gravelly sands, little or no fines	0-5	—	>6	Between 1 and 3	
			SP	Poorly graded sands and gravelly sands, little or no fines	0-5	—	Fails to comply with above		
			SM	Silty sands, sand silt mixtures (1)	12-50	Below 'A' line or PI<4	—	—	
			SC	Clayey sands, sand-clay mixtures (1)	12-50	Above 'A' line and PI>7	—	—	
FINE GRAINED SOILS (more than half of material less than 63 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	Use the gradation curve of material passing 63 mm for classification of fractions according to the criteria given in 'Major Divisions'				
			CL CI	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, mic- aceous or diato-maceous 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					

Plasticity Chart

For classification of fine grained soils and fine fraction of coarse grained soils.



Grain size analysis is performed by two processes depending on particle size. Sand silt and clay particles are assessed using a standardised hydrometer test, and coarse sand and larger is assessed through sieving by USCS certified sieves. For more detail see the following section.

Soil Classification	Particle Size
Clay	Less than 0.002mm
Silt	0.002 – 0.06mm
Fine/Medium Sand	0.06 – 2.0mm
Coarse Sand	2.0mm – 4.75mm
Gravel	4.75mm – 60.00mm

1.4 Bearing Capacities and DCP testing.

DCP and PSP weighted penetrometer tests – Dynamic Cone Penetrometer (DCP) and Perth Sand Penetrometer (PSP) tests are carried out by driving a rod into the ground with a falling weight hammer and measuring the blows for successive 100mm increments of penetration. Normally, there is a depth limitation of 1.2m but this may be extended in certain conditions by the use of extension rods. The methods for the two tests are quite similar.

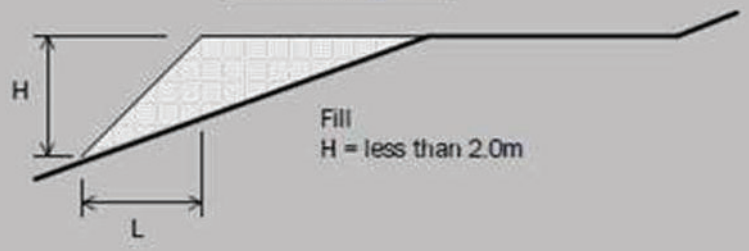
- Dynamic Cone Penetrometer – a 16mm rod with a 20mm diameter cone end is driven with a 9kg hammer dropping 510mm (AS 1289, Test 6.3.2).
- Perth Sand Penetrometer – a 16mm diameter flat-ended rod is driven with a 9kg hammer, dropping 600mm (AS 1289 Test 6.3.3). This test was developed for testing the density of sands and is mainly used in granular soils and filling.

Site Anomalies – During construction GES will need to be notified of any major variation to the foundation conditions as predicted in this report.

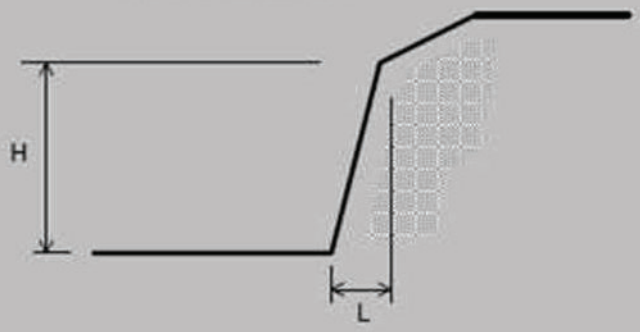
1.5 Batter Angles for Embankments *(Guide Only)*

Note : Retaining walls or other form of soil retaining methods must be adopted where the slope ratio is greater than that indicated in the table below :-

FILL EMBANKMENTS



CUT EMBANKMENTS



MATERIAL TYPE (refer soils report)		EMBANKMENT SLOPES (Height : Length)	
		Compacted Fill	Cutting
Stable Rock (A*)		2 : 3	6 : 1
Sand (A*)		1 : 2	2 : 3
Silt (P*)		1 : 4	1 : 4
Clay	Firm Clay	1 : 2	1 : 1
	Soft Clay	Not Suitable	2 : 3
Soft Soils (P*)		Not Suitable	Not Suitable

Glossary of Terms

Bearing Capacity – Maximum bearing pressure that can be sustained by the foundation from the proposed footing system under service loads which should avoid failure or excessive settlement.

Clay – (Mineral particles less than 0.002mm in diameter). Fine grained cohesive soil with plastic properties when wet. Also includes sandy clays, silty clays, and gravelly clays.

Dynamic Cone Penetrometer (DCP) – Field equipment used to determine underlying soil strength and therefore bearing capacity (kPa) by measuring the penetration of the device into the soil after each hammer blow.

Dispersive soil – A soil that has the ability to pass rapidly into suspension in water.

Footing – Construction which transfers the load from the building to the foundation.

Foundation – Ground which supports the building

Landslip – Foundation condition on a sloping site where downhill foundation movement or failure is a design consideration.

Qualified Engineer – A professional engineer with academic qualifications in geotechnical or structural engineering who also has extensive experience in the design of the footing systems for houses or similar structures.

Reactive Site – Site consisting of clay soil which swells on wetting and shrinks on drying by an amount that can damage buildings on light strip footings or unstiffened slabs. Includes sites classified as S, M, H-1, H-2 & E in accordance with AS2870-2011.

Sand – (Mineral particles greater than 0.02mm in diameter). Granular non-cohesive, non-plastic soil that may contain fines including silt or clay up to 15%.

Services – Means all underground services to the site including but not limited to power, telephone, sewerage, water & storm water.

Silt – (Mineral particles 0.002 – 0.02mm in diameter). Fine grained non-cohesive soil, non-plastic when wet. Often confers a silky smoothness of field texture, regularly includes clay and sand to form clayey silts, sandy silts and gravelly silts.

Site – The site title, as denoted by address, lot number, or Certificate of Title (CT) number, or Property Identification Number (PID).

Surface Movement (Ys) – Design movement (mm) at the surface of a reactive site caused by moisture changes.

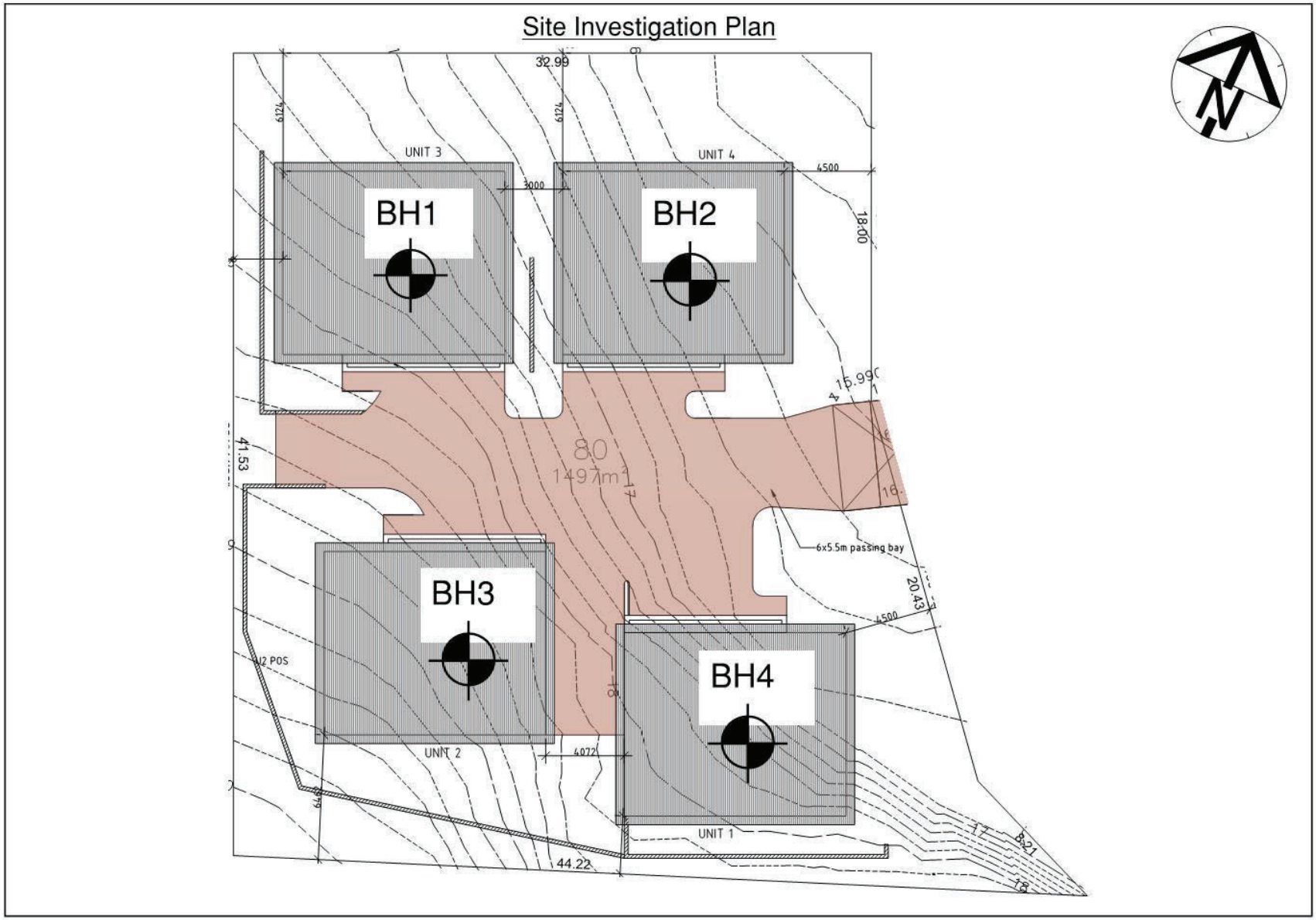
Disclaimer

This Report has been prepared in accordance with the scope of services between Geo-Environmental Solutions Pty. Ltd. (GES) and the Client. To the best of GES's knowledge, the information presented herein represents the client's requirements at the time of printing of the Report. However, the passage of time, manifestation of latent conditions or impacts of future events may result in findings differing from that discussed in this Report. In preparing this Report, GES has relied upon data, surveys, analyses, designs, plans and other information provided by the Client and other individuals and organisations referenced herein. Except as otherwise stated in this Report, GES has not verified the accuracy or completeness of such data, surveys, analyses, designs, plans and other information.

The scope of this study does not allow for the review of every possible geotechnical parameter or the soil conditions over the whole area of the site. Soil and rock samples collected from the investigation area are assumed to be representative of the areas from where they were collected and not indicative of the entire site. The conclusions discussed within this report are based on observations and/or testing at these investigation points.

This report does not purport to provide legal advice. Readers of the report should engage professional legal practitioners for this purpose as required.

No responsibility is accepted for use of any part of this report in any other context or for any other purpose by third a party.


Site Investigation Plan
32.99
UNIT 3
UNIT 4
BH1
BH2
3000
4500
18.00
41.53
80
1497m²
6x5.5m passing bay
BH3
BH4
20.43
12 POS
UNIT 2
4072
UNIT 1
44.22
B:21

CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

Form 55

To: Taylor and Beeson Building *Owner /Agent*
3 Takari Place *Address*
Mornington 7018 *Suburb/postcode*

Qualified person details:

Qualified person: John-Paul Cumming
Address: 29 Kirksway Place
Battery Point 7004
Phone No: 03 6223 1839
Fax No:
Licence No: AO999
Email address: jcumming@geosolutions.net.au

Qualifications and Insurance details: Certified Professional Soil Scientist (CPSS stage 2)
(description from Column 3 of the Director's Determination - Certificates by Qualified Persons for Assessable Items

Speciality area of expertise: AS2870-2011 Foundation Classification
(description from Column 4 of the Director's Determination - Certificates by Qualified Persons for Assessable Items)

Details of work:

Address: 10 Heron Crescent
Midway Point 7171
Lot No:
Certificate of title No: 177622/80

The assessable item related to this certificate: Classification of foundation Conditions according to AS2870-2011
(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: Foundation Classification
(description from Column 1 of Schedule 1 of the Director's Determination - Certificates by Qualified Persons for Assessable Items n)

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:	The attached soil report for the address detailed above in 'details of Work'
Relevant calculations:	Reference the above report.
References:	AS2870:2011 residential slabs and footings AS1726:2017 Geotechnical site investigations CSIRO Building technology file – 18.

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

Site Classification consistent with AS2870-2011.

Scope and/or Limitations

The classification applies to the site as inspected and does not account for future alteration to foundation conditions as a result of earth works, drainage condition changes or variations in site maintenance.

I, John-Paul Cumming certify the matters described in this certificate.

Qualified person:

Signed:

Certificate No: J8108

Date: 01/12/2022

STORMWATER REPORT

10 Heron Crescent
Midway Point, Tasmania, 7171

Aldanmark Reference: **22E11-1**

ALDANMARK
CONSULTING ENGINEERS

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VERSION	DATE	AUTHOR	
1	28/11/22	Daniel Gardner	

ALDANMARK
CONSULTING ENGINEERS

1. INTRODUCTION AND SCOPE OF ENGAGEMENT

Aldanmark have been engaged to design a stormwater detention system for the proposed residential development at 10 Heron Crescent, Midway Point. The proposal is to construct four new units on a currently empty block of land.

Section E7.7.1 of the Sorell Interim Planning Scheme states the stormwater runoff on from a new development must not exceed the runoff of the site prior to development. Therefore, any increase of discharge caused by the proposed residential development must be accommodated within the existing or upgraded public stormwater infrastructure. It is Aldanmark's understanding that Sorell Council does not consider that additional peak discharges can be accommodated in the existing nor is there a proposal to upgrade the existing public stormwater infrastructure. Hence to meet the planning requirements, the project must incorporate a suitable detention system.

2. DETENTION MODEL PARAMETERS

The following areas were determined from the Site Plan prepared by Greg Tilley Design & Drafting (Dated: 23/11/2022):

Pre-development Areas:	
Landscaped Ground	*≈ 1498 m²*
Post- Development Areas:	
Unit 1 Roof	*≈ 133 m²*
Unit 2 Roof	*≈ 133 m²*
Unit 3 Roof	*≈ 133 m²*
Unit 4 Roof	*≈ 133 m²*
Driveway	*≈ 280 m²*
Landscaped Ground	*≈ 686 m²*

Coefficients of run-off adopted for design are as follows:

Roof Areas	*C = 1.0*
Paved Areas	*C = 0.9*
Pervious Areas:	*C = 0.4*
5-minute duration – 5% AEP (BOM IFD)	*I = 86.52 mm/hr*

Calculations have been based on the Modified Rational Method for stormwater run-off:

$$Q = \frac{C \times I \times A}{3600}$$

Where: Q = Design Volumetric Flow Rate [L/s]
C = Runoff Coefficient
I = Rainfall Intensity [mm/hr] (5 minute - 5% AEP storm)
A = Sum of all equivalent areas [m^2]

Pre-Development Site Discharge to Stormwater:

$$Q_{Pre} = 14.40\ L/s$$

Post-Development Site Discharge to Stormwater

$$Q_{Post} = 25.44\ L/s$$

As shown above the post-development flow, Q_{Post}, is 11.04 L/s greater than the pre-development flow and therefore on-site detention (OSD) is required. A tri-tank system is proposed, consisting of two 2000 litre slimline tanks and a Hudson ST670 underground tank.

Modelling the scenario of 266 m^2 of roof area (belonging to both Unit 1 and Unit 2) being detained in a TankTec 2000 Litre Slimline tank equipped with a 25 mm orifice shows a reduction in flow rate of 4.83 L/s (**Figure 1**). Similarly, Modelling the scenario of 266 m^2 of roof area (belonging to both Unit 3 and Unit 4) being detained in a TankTec 2000 Litre Slimline tank equipped with a 25 mm orifice shows a reduction in flow rate of 4.83 L/s (**Figure 2**). Finally, modelling the scenario of a minimum of 265 m^2 of driveway area being detained in a Hudson ST670 with a 30 mm orifice shows a reduction in flow rate of 4.43 L/s (**Figure 3**). Cumulatively, these three detention tanks reduce the post-development site discharge by 14.09 L/s to 11.35 L/s which is 3.05 L/s below the pre-development site discharge of 14.40 L/s.

The detention tanks were subsequently checked for capacity with all other durations for the 5% AEP (including the 10-, 15- and 20-minute events) and the flow rate was reduced as required for each case, and the tank has adequate capacity for all 5% AEP events.

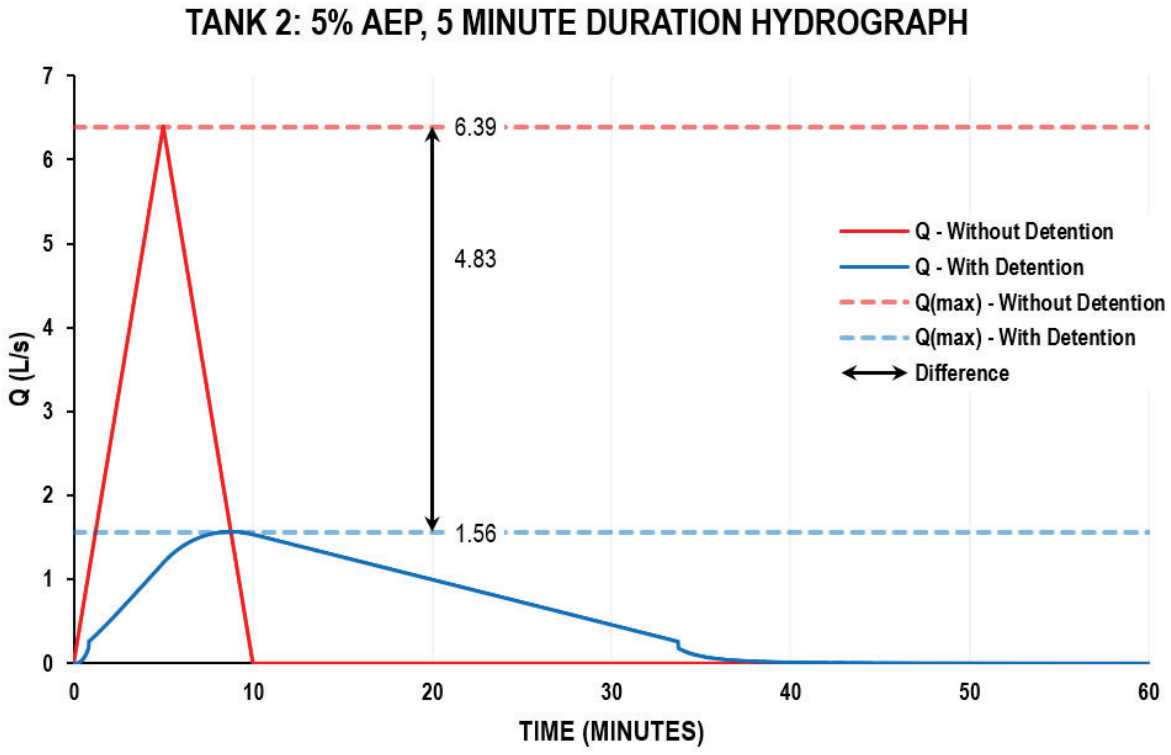


FIGURE 1: SITE OUTFLOW HYDROGRAPH – UNITS 1 AND 2.

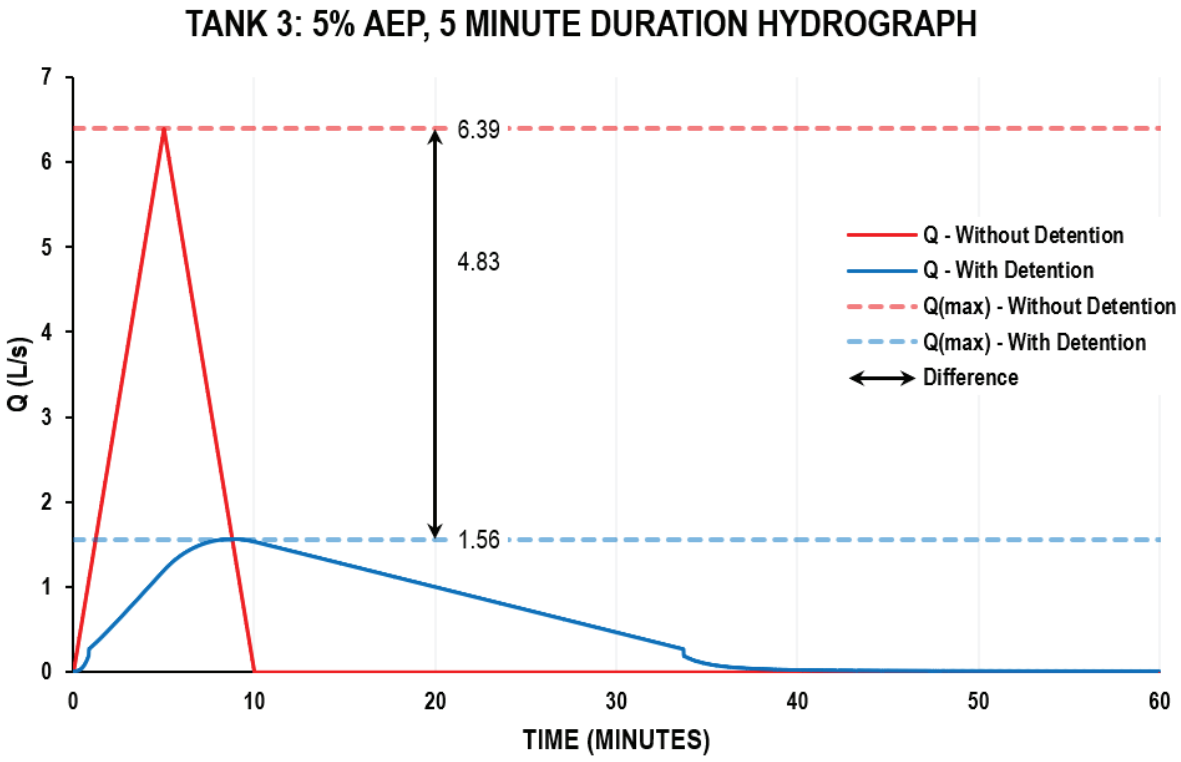


FIGURE 2: SITE OUTFLOW HYDROGRAPH – UNITS 3 AND 4.

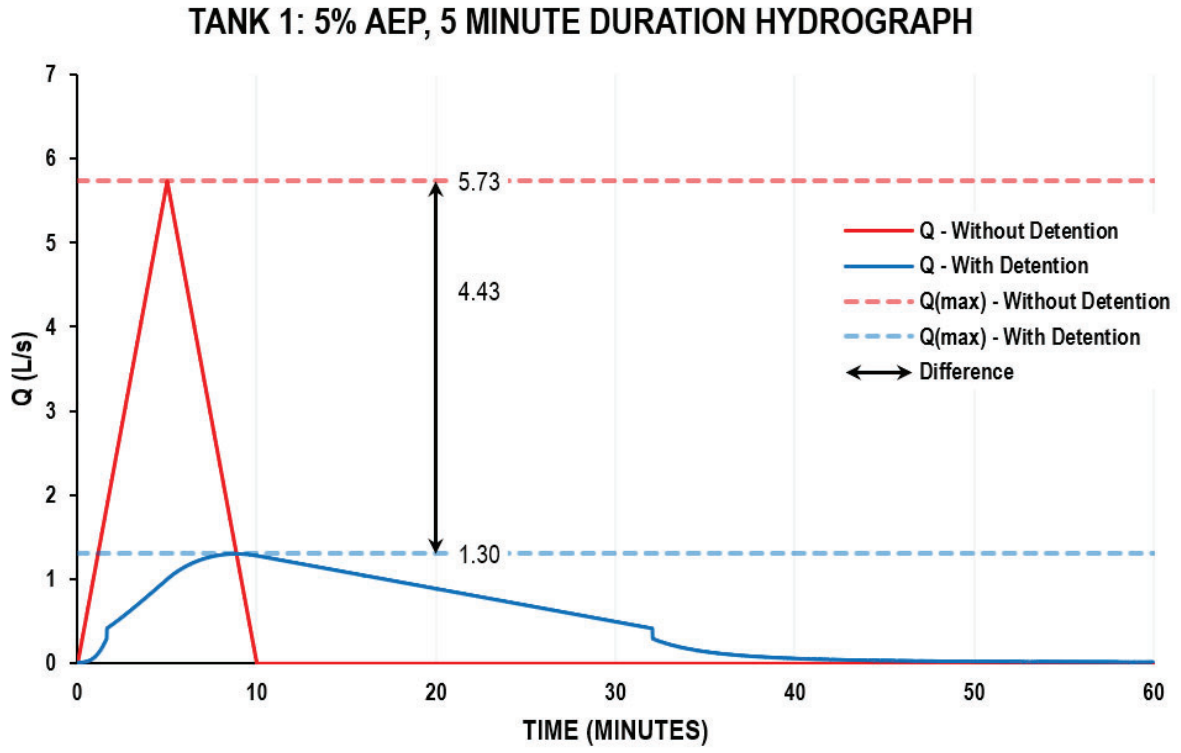


FIGURE 3: SITE OUTFLOW HYDROGRAPH – DRIVEWAY.

3. STORMWATER TREATMENT

A MUSIC concept model has been produced in collaboration with OceanProtect to meet the Tasmanian State Stormwater Strategy Targets of:

- An 80% reduction in the average annual load of total suspended solids (TSS)
- An 45% reduction in the average annual load of total phosphorous (TP)
- An 45% reduction in the average annual load of total nitrogen (TN)
- An 90% reduction in gross pollutants.

The following parameters were used in the MUSIC concept model:

- MUSIC Version 6.3.0.
- Rainfall station 94029 Ellerslie Road Hobart 1990-2010 6min.
- Melbourne MUSIC Guidelines (Melbourne Water 2016) utilizing modified % impervious area, rainfall threshold, soil properties & pollutant concentration.
- No drainage routing between nodes.

The following site break up was used in the MUSIC model:

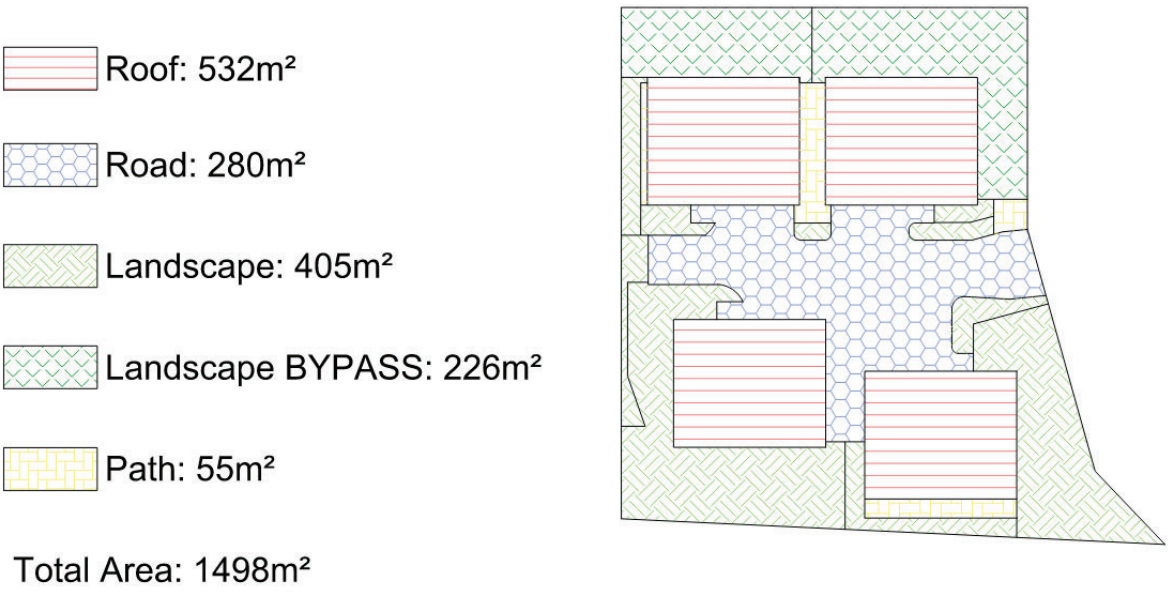
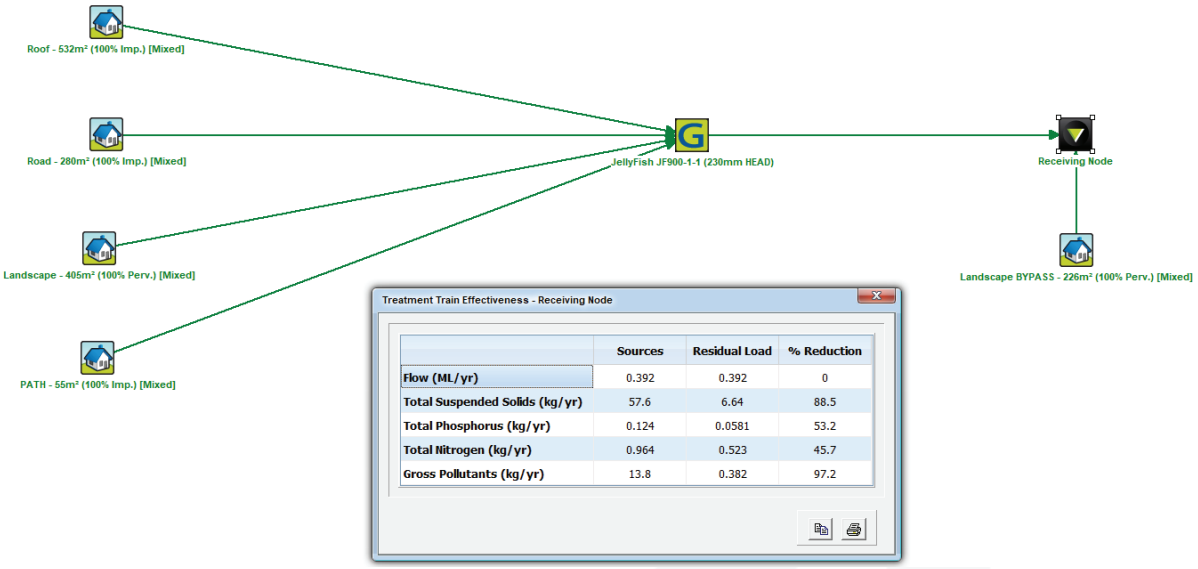


FIGURE 4: SITE BREAKUP.

The modelling considered a JellyFish JF900-1-1 (with a minimum of 230 mm head) filtering 532 m^2 of roof area, 280 m^2 of road (driveway), 55 m^2 of pathway and 405 m^2 of landscape (**Figure 5**). The modelling found that this filter was able to achieve an 88.5% reduction in total suspended solids, 53.2% reduction in total phosphorus, a 45.7% reduction of total nitrogen and a 97.2 reduction in gross pollutants and therefore meeting and succeeding the Tasmanian State Stormwater Strategy targets identified above. Please note – Jellyfish unit to be installed offline.



	Sources	Residual Load	% Reduction
Flow (ML/yr)	0.392	0.392	0
Total Suspended Solids (kg/yr)	57.6	6.64	88.5
Total Phosphorus (kg/yr)	0.124	0.0581	53.2
Total Nitrogen (kg/yr)	0.964	0.523	45.7
Gross Pollutants (kg/yr)	13.8	0.382	97.2

FIGURE 5: MUSIC MODELLING RESULTS.

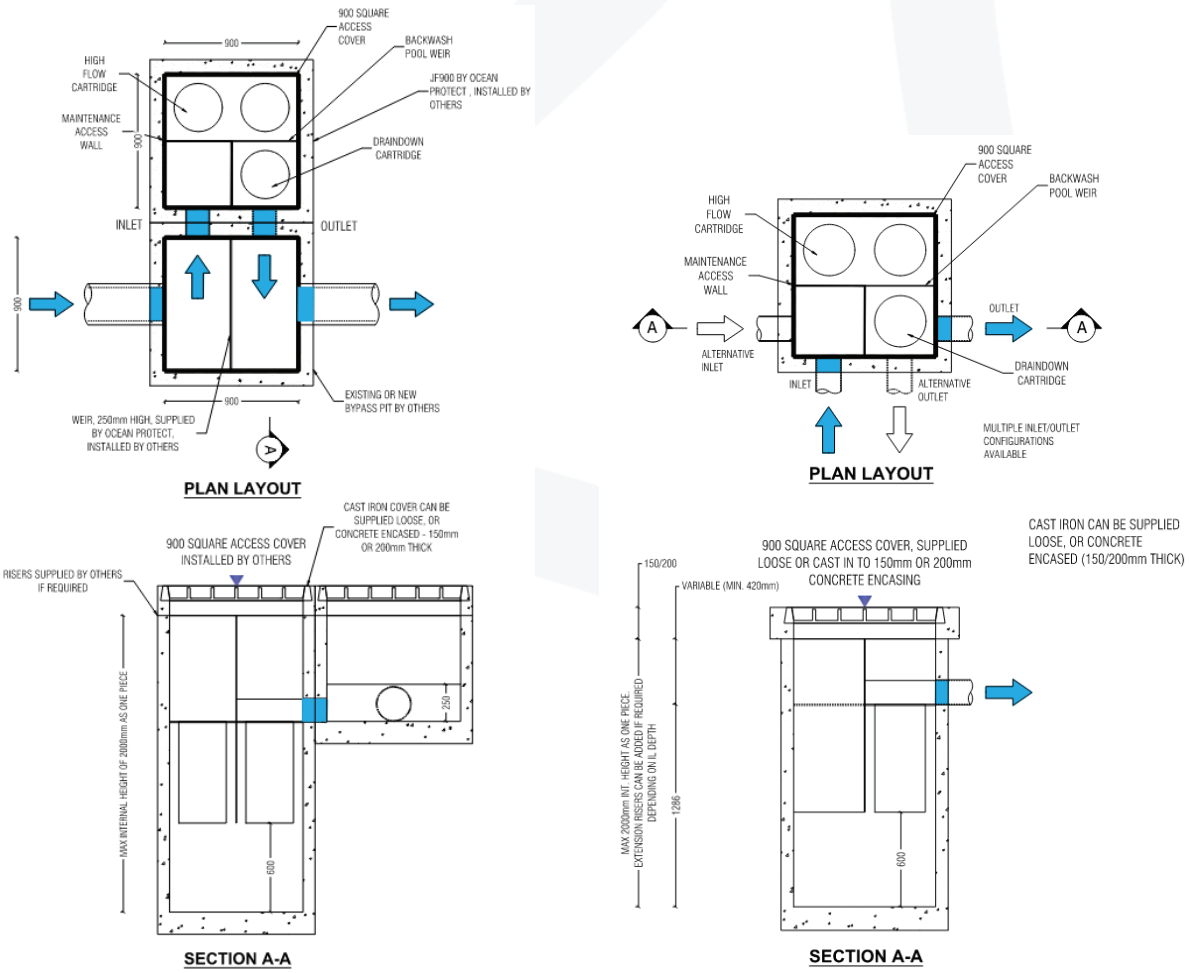


FIGURE 6: JELLYFISH 900 SQUARE ADJACENT BYPASS PIT LAYOUT (LEFT) AND JELLYFISH 900 SQUARE STANDARD PRODUCT DRAWING (RIGHT).

4. STORMWATER SITE LAYOUT

Refer to final plans by Greg Tilley Design & Drafting for 10 Heron Crescent for full site layout. In these plans the roof catchments of Units 1 and 2 will be detained in a 2000 Litre TankTec detention tank via a charged system. Similarly, Units 3 and 4 will also be detained in a separate 2000 Litre TenkTec detention tank via a charged system. Finally, the driveway area will be detained in a Hudson ST670 underground detention tank.

5. DETENTION TANK DETAILS

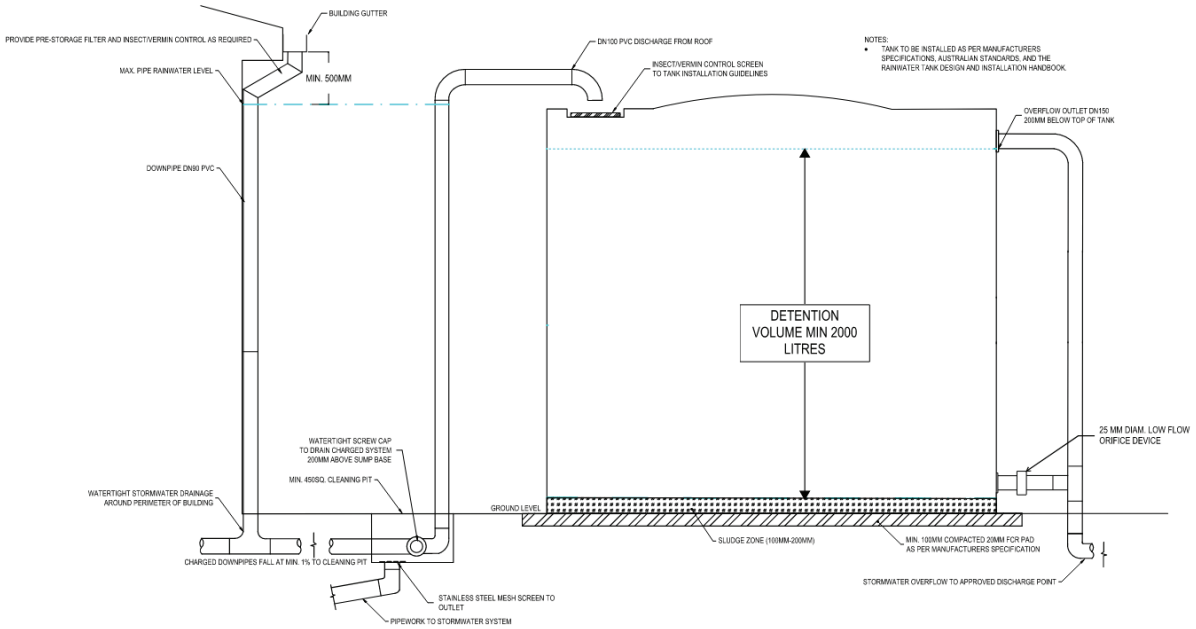


FIGURE 4. ABOVE GROUND DETENTION TANK DETAIL.

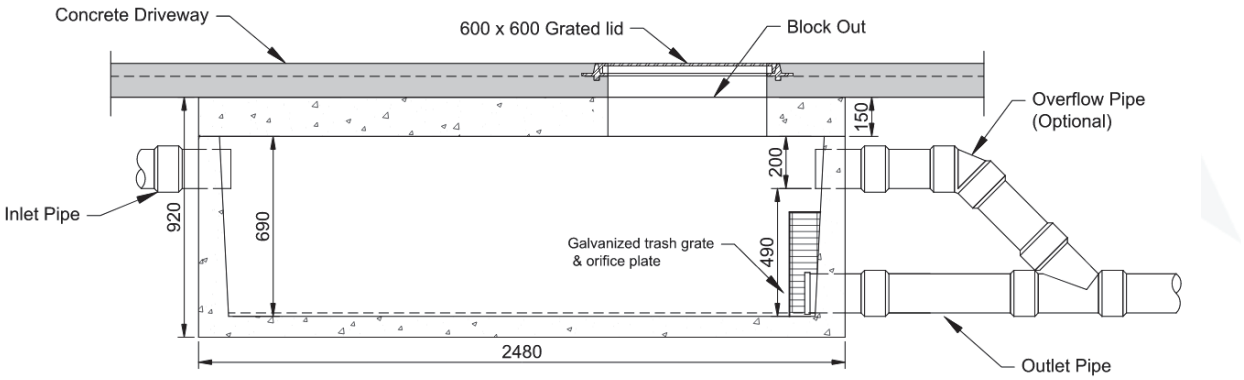


FIGURE 5. BELOW GROUND DETENTION TANK DETAIL.

6. MAINTENANCE REQUIREMENTS

ACTIVITY	FREQUENCY
TankTec 2000L Slim	
Visual Inspection Visual inspection inside each tank, ensure sludge zone does not exceed orifice height	Year 1 & 2 – Every six months Years 3 - Onwards – Once per year depending on sediment accumulation rates
Silt & Sediment Removal Vacuum truck silt and sediment removal **Charged stormwater system** – remove cap from system, drain and then remove detritus	This is dictated by silt conditions on the site, detected through the visual inspections approximately every 2-3 years.
Part replacement Check functionality of parts during visual inspection replace as required	Approximately every 20 years
Hudson ST670	
Visual Inspection Visual inspection inside each tank, ensure sludge zone does not exceed orifice height	Year 1 & 2 – Every six months Years 3 - Onwards – Once per year depending on sediment accumulation rates.
Silt & Sediment Removal Vacuum truck silt and sediment removal	Dictated by silt conditions on the site. approximately every 4-5 years.
Part replacement Check functionality of parts during visual inspection replace as required	Approximately every 20 years

7. CONCLUSION

This report has demonstrated that with inclusion of the proposed detention methods detailed above, the proposed development at 10 Heron Crescent complies with the stormwater quantity conditions of Sorell Council. Additionally, the MUSIC model presented in this report demonstrates that with the inclusion of the proposed stormwater quality treatment detailed above, the proposed development at 10 Heron Crescent complies with the state stormwater quality targets.

Note:

- No assessment has been undertaken of Council's stormwater infrastructure and its capacity.
- This report assumes the Council stormwater main has capacity for the pre-development peak discharge.
- It is the responsibility of Council to assess their infrastructure and determine the impact (if any) of altered inflows into their stormwater network.

Please contact me at dg@aldanmark.com.au if you require any additional information.

Yours faithfully,

Daniel Gardner BEng (Hons)
Structural / Civil Engineer

Attachments to item number 5.2 -

Integrated impact assessment prepared by John Lewis dated 23 December 2022

Traffic impact assessment prepared by Hubble Traffic dated December 202

Gandy and Roberts engineering advice dated 12 October 2022

Gandy and Roberts stormwater management report dated 2 November 2021

Hydrodynamica memo dated 24 October 2022

Letter from applicant dated 4 April 2023

Survey from Rogerson and Birch dated 15 September 2021

CALIBAN CONSULTING

Caliban Consulting Pty Ltd
john.lewis@vetica.net
0418 445 313

04.04.2023

Mr Shane Wells
Senior Planner
Via: Planning@sorell.tas.go.au

Re: Proposed Development of 5 Station Lane, Sorell
Your Ref: DA 2022/9-1

Dear Shane,

I write in response to your Request for Information of the 19th January 2023. Following our on-site meeting on the 9th of March, we have prepared the attached, revised Parking layout that hopefully addresses the issues you have raised, as follows:

- The parking solution now doesn't involve any spaces outside 5 & 7 Station Lane, as per the enclosed Site Plan, hence the remaining unsatisfied points 7d & 13 are no longer applicable.
- As discussed at our Site Meeting, the parking requirement is proposed to be met as follows:
  - 28 dedicated spaces on 7 Station lane.
  - 11 kerbside spaces on Station Lane in front of 5 & 7 Station Lane.
  - 29 spaces as a cash-in-lieu payment.
  - 68 Spaces in Total
- All other parking provisions, as listed below, would be accommodated on 7 Station Lane:
  - 2 Motor Cycle spaces
  - 8 Bicycle spaces
  - 1 Disabled Space
  - 1 Loading Dock
- The only proposed change to the existing parking arrangements for the site owned by the proponents is the closure of the existing entry at the northern end of 7 Station Lane and the creation of a new one onto Station Lane at its southern end.
- The following DA drawings have been modified to reflect the above changes:
  - DA00 Site Plan
  - DA20 Location Plan
  - DA22 Landscaping Plan

All of this material can be downloaded from the link below:

https://www.dropbox.com/scl/fo/wskaoso57snb31vti0vg2/h?dl=0&rlkey=3nzztfeojtm118yntp704v9cd

Kind regards,

John Lewis
Principal Architect
Board of Architects of Tasmania No.1134
Tasmanian Architect License 927751479

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MEMO **24 October 2022**

Re: DA 2022 / 9 - 1-COMMERCIAL/ RETAIL BUILDING AT 5 STATION LANE, SORELL

RESPONSE TO ITEM 5 ON RFI 16/02/2022 E15 INUNDATION PRONE AREAS CODE

Introduction:

This memo addresses Item 5 of the RFI sent to John Lewis from Sorell Council (SC) on 16 February 2022. Item 5 is as follows:

5. Council has draft inundation / flood mapping which is shown to potentially impacting your site (see attachment). Consequently as the property is deemed to be within Code E15.0 Inundation Prone Area, under the Sorell Interim Planning Scheme 2015, please provide evidence of compliance with this Code which may include an inundation vulnerability report that includes an inundation risk management plan, prepared by a suitably qualified person, in accordance with best practice guidelines which details;

   - the risk of inundation of the site, with respect to the proposed location and floor levels of buildings, within applicable timeframes (current, year 2050 and/or 2100); and

   - any inundation control measures or design features proposed to be employed to reduce risk to an acceptable level.

   - The report needs to address the performance criteria of clauses E15.7.4 P3, E15.7.5 P1 & E15.7.5 P2 of Code E15.0 Inundation Prone Areas Code – Riverine.

The proposed 'Sorell Central' development is a multi-storey development which will occupy most of the site. It will back directly on to the existing Woolworths supermarket at no. 27 Cole Street.

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Sorell Council provided mapping of the 1% AEP flood depth with the RFI, shown for reference in Figure 1. It is understood that this mapping is derived from modelling undertaken by Entura in 2020.

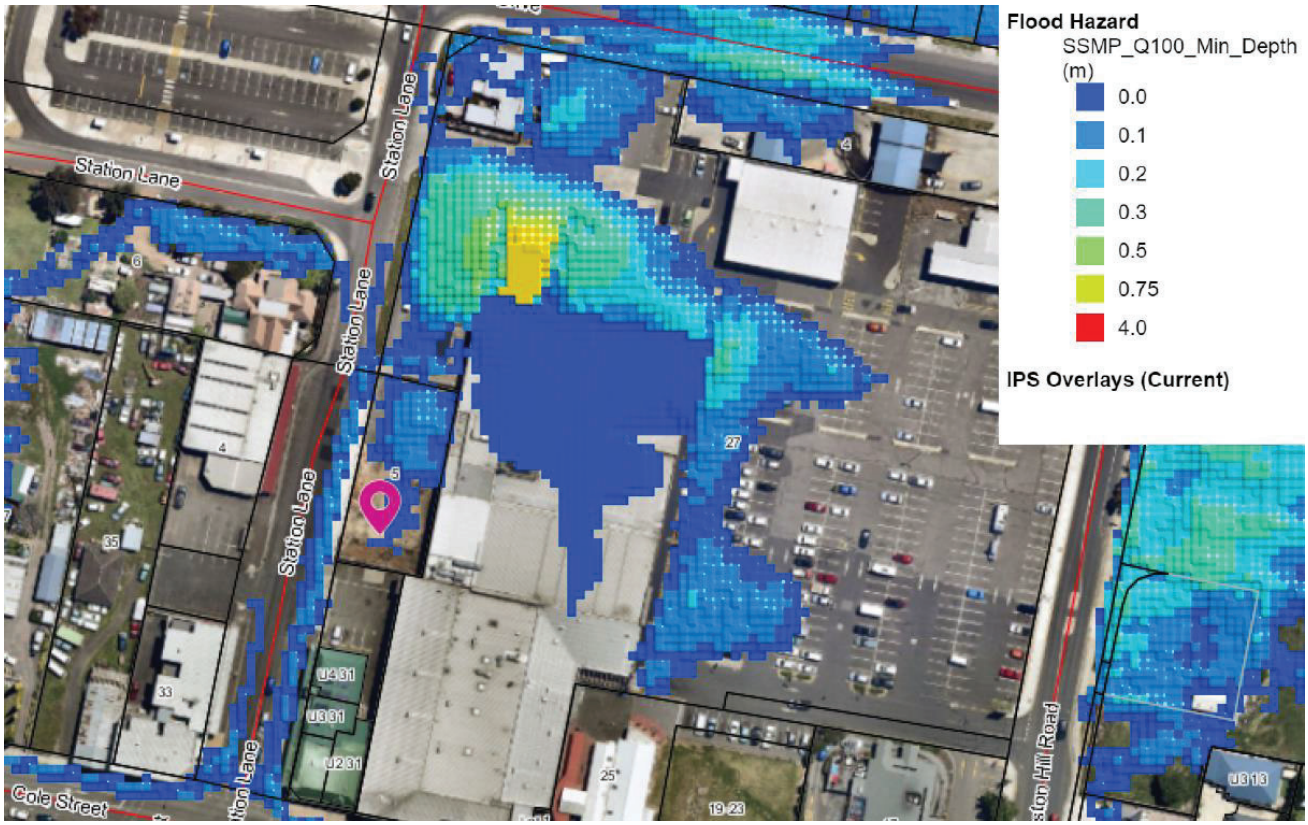

Figure 1. Sorell Council Flood Hazard Mapping

The flood footprint in Figure 1 shows minor flooding in the 1% AEP, ranging from 0 to approximately 100mm on the site. This would provide minimal risk the proposed development assuming nominal finished floor levels are provided.

Although the public pipe and pit stormwater infrastructure seems to have been used in the Entura modelling, it is unlikely that private stormwater infrastructure, such as the pits and pipes servicing Woolworths and the large carpark, were surveyed or modelled for the production of the flood map. Therefore, it is likely that the modelled flood footprint in Figure 1 is greater than what would be anticipated in the 1% AEP, if private drainage of Woolworths carpark and surrounding businesses was included in the model.

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It is also evident that shallow flooding has been allowed to pass *through* buildings in the model. This is probably due to the model having been set up using a high Manning's roughness area for the building polygons in the catchment. While this is a typical 2D modelling process which prevents overland flooding from being 'stuck' against buildings, it does not necessarily capture the complex nature of flooding in and around those structures.

Also, the minor flooding present on the development site seems to be due to it being a local depression, without private drainage. Putting a roof over the majority of the site would direct a significant proportion of stormwater to the public stormwater system and prevent ponding.

In addition to the mapping supplied, the Sorell Interim Planning Scheme identifies flooding of the Sorell Rivulet in their 'river inundation hazard area' for the 1% AEP, as shown in Figure 2. At its nearest point, 1% AEP flooding from the rivulet is 300 metres from the development site. The rivulet can therefore be discounted as a source of flooding impacting no. 5 Station Lane.

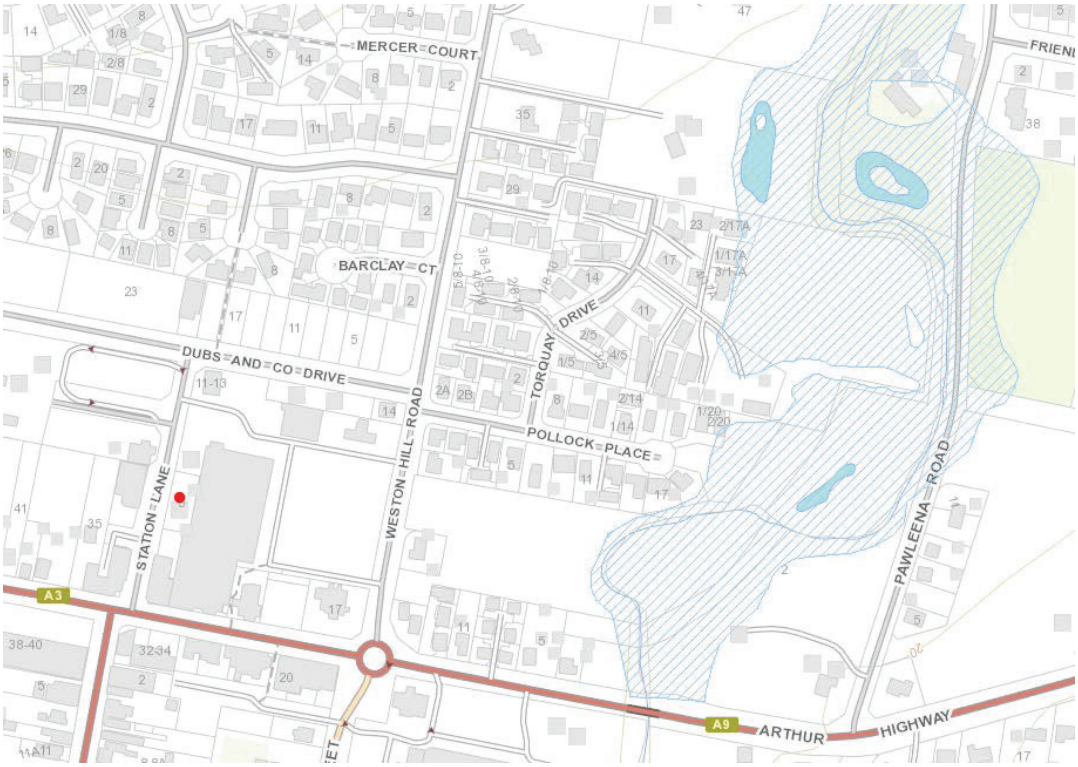

Figure 2. Sorell Interim Planning Scheme 2015 1% AEP Riverine Inundation Hazard Area Overlay

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Description of flood mechanisms:

In order to confirm the possible flooding mechanisms in and around the development site a basic rain-on-grid model was produced for the catchment. This model assumed an extremely conservative fraction impervious of *90%* for the entire catchment, which extends north to the Low-Density Residential Zoning at the intersection of Weston Hill Road and Gatehouse Drive.

Buildings in the vicinity of the development site were represented as polygons with a Manning's roughness of 1. This means the modelled buildings are pervious, but somewhat resistant to flow through them.

The model utilised the Greater Hobart 2013 1 metre digital elevation model (DEM) available on ELVIS (https://elevation.fsdf.org.au/). The model assumed no public or private stormwater systems within the catchment. Roads with kerb and channel were dropped 150mm to ensure definition of the kerb line. The flow directions are shown below:

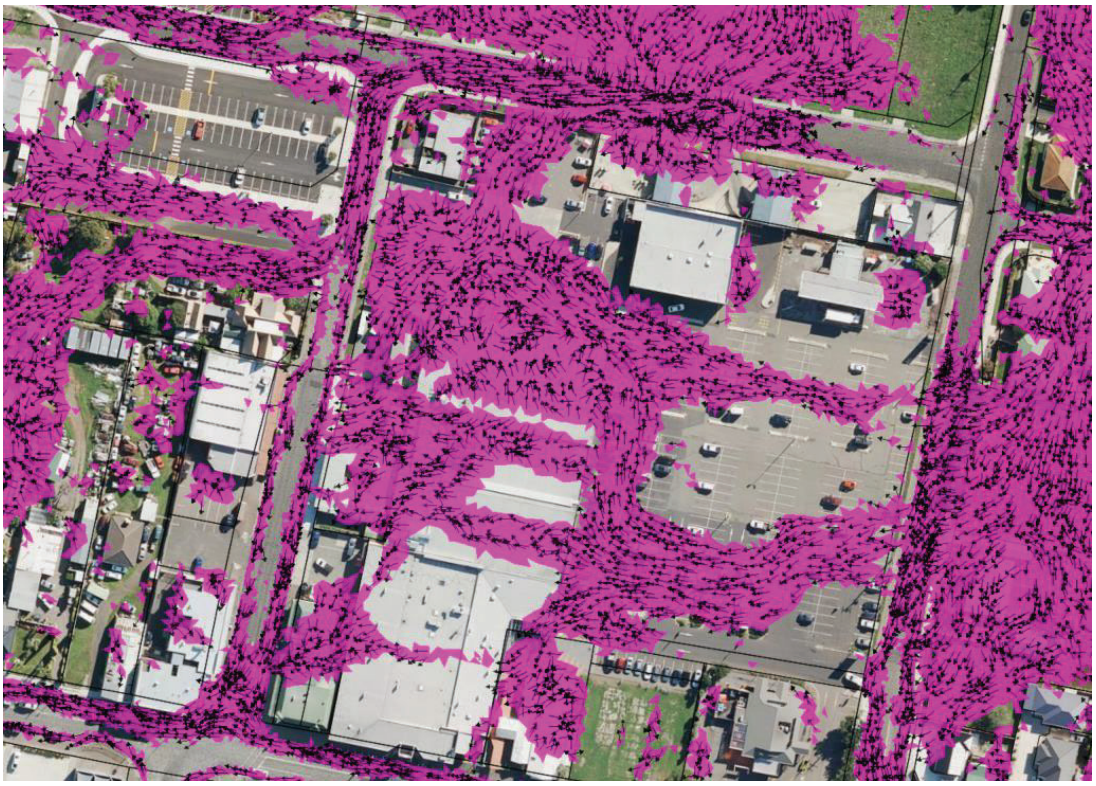

Figure 3. Indicative pre-development flow paths, resulting from a basic but conservative rain-on-grid model (depths >20mm)

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Figure 3 shows modelled flows impacting on the development site originating from two sources:

1. Spill from the Woolworths loading bay; and
2. From Weston Hill Road and the carpark to the east, including *through* the supermarket

Rainfall falling directly on the site probably also contributes nominally to the footprint.

Referring back to Figure 1 it shows an anomalous flood area at the north-west corner of the Woolworths building, significantly deeper than the surrounding flooding. This is occurring in the ramp down into the loading bay, with the mapped flooding effectively being held against the bay doors and filling the ramp. The ramp and loading bay can be seen in Figure 4.

Figure 4. Woolworths loading bay area (Google Streetview & LISTmap)

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Unless the doors have a water-tight seal flooding would actually enter the building here, assuming their private drainage was inadequate. It is understood the loading bay floor level is lower that the level of the adjacent development site. If this is the case, then more 'detention' volume is available inside Woolworths. This would reduce the flooding on 5 Station Lane in comparison to that shown in the flood mapping.

Flood modelling and results:

Our 1% AEP modelling results in a peak flood depth in of 184mm in the proposed development site. This compares to Sorell Councils 1% AEP mapping which results in depths of up to approximately 100mm in the development site. It must be reiterated that results shown in Figure 3 are much less likely to occur than in a 1% AEP, due to:

- The assumption that the entire contributing catchment, which extends north to the Low-Density Residential Zoning at the intersection of Weston Hill Road and Gatehouse Drive, is 90% impervious
- No pipes and pits of any kind were modelled, which would mitigate overland flooding.
- The Woolworths loading bay is unlikely to be watertight. Flooding in the loading bay would likely pass into the Woolworths building
- Shallow flooding from east to west directly *through* Woolworths is extremely unlikely. I would have to pass through solid walls

Figure 6 presents the Australian Rainfall and Runoff 2019 flood Hazard Vulnerability Classifications (HVCs) during the 1% AEP, from our conservative model. The HVCs definitions are a function of flood velocity and depth, as per the flood hazard curves shown in Figure 5.

It can be seen that despite the conservative nature of the model, which is predicting worse flooding than Councils 1% AEP mapping, the HVC on the development site is the lowest class, H1. H1 is defined as 'generally safe for people, vehicles and buildings'.

The post-development results, shown in Figure 7, give very similar results after including the proposed19.8m x 43.2m building on the development site. It can be seen that there is negligible change in the flood footprint and HVCs.

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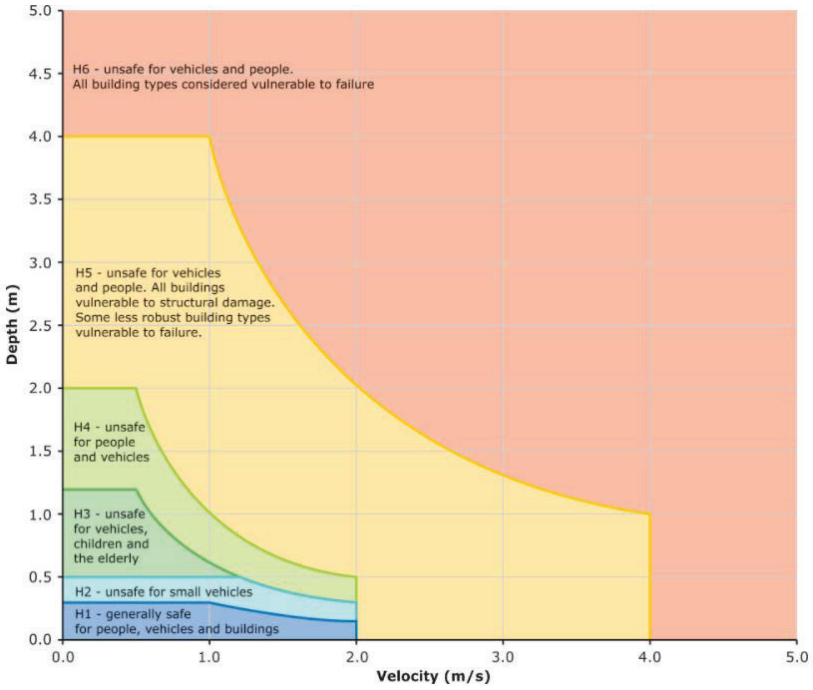

Figure 5. Australian Rainfall & Runoff 2019 Flood Hazard Curves

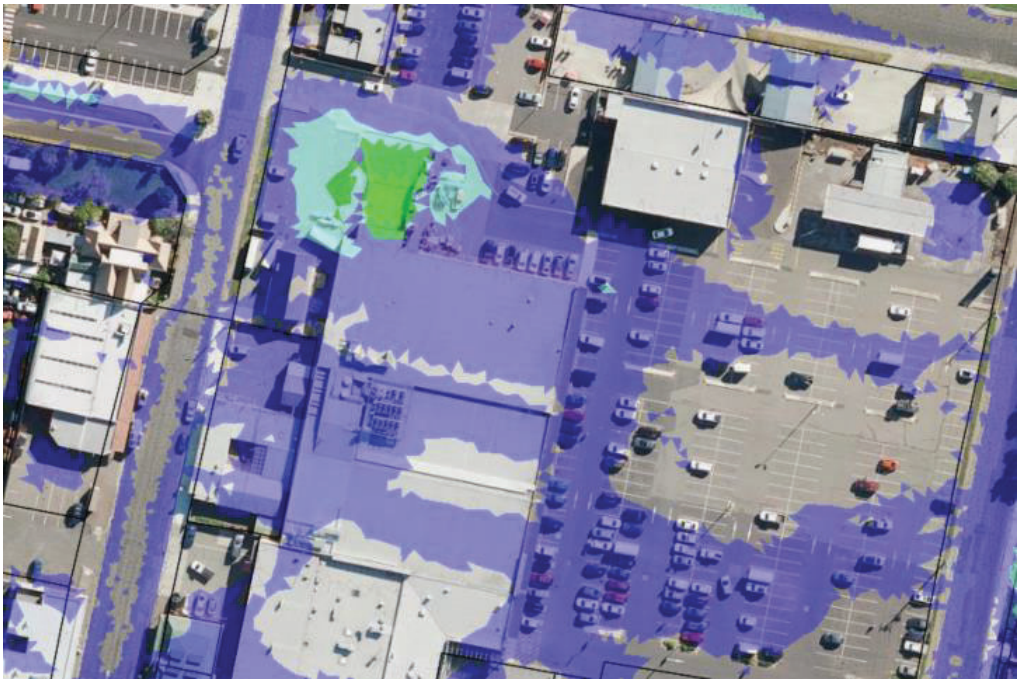

Figure 6. Pre-development Hazard Vulnerability Classes (light green = H4, dark green = H3, light blue = H2, dark blue = H1), for depths >20mm

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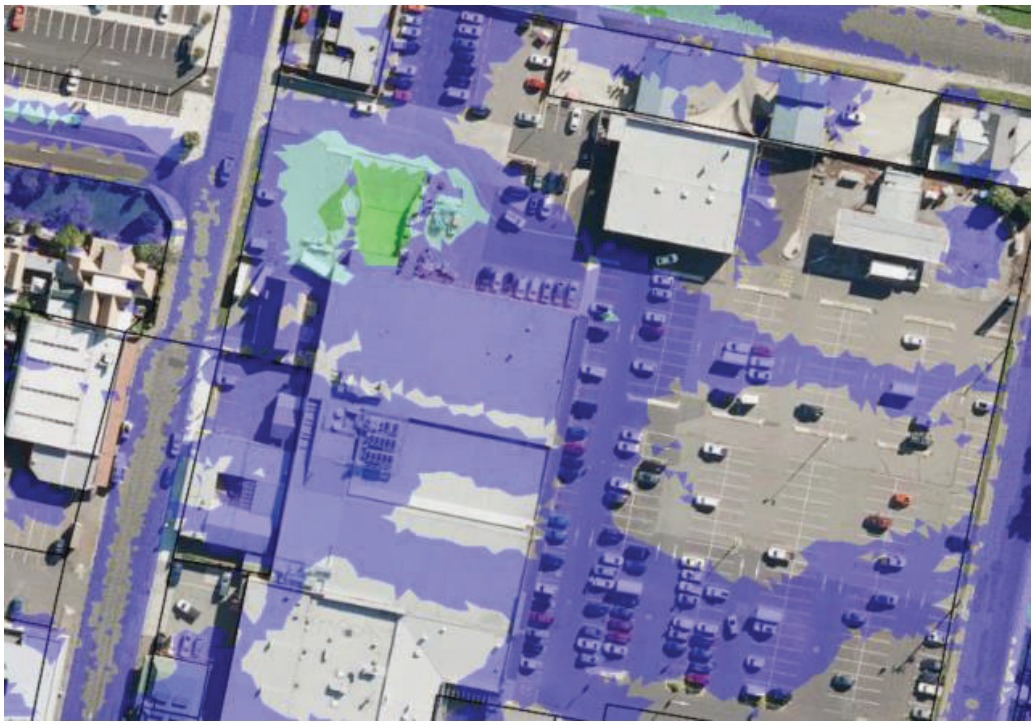

Figure 7. Post-development Hazard Vulnerability Classes (light green = H4, dark green = H3, light blue = H2, dark blue = H1), for depths >20mm

Pre- and post-development site flood footprints were compared in a model which embedded the impervious building footprints of the development and the surrounding buildings using a raised 2.5 metre tall mesh zone. The procedure artificially increased the level of the publicly available ground model over the building footprints. This potentially better estimates how flooding would be intercepted and diverted by these structures, however this modelling remains limited by the lack of inclusion of the stormwater drainage system.

The flood depth results from the pre and post development scenarios are shown in Figure 8. Again, there is negligible change because of the development. It is noted that the post-development flood depth on the development site in Figure 8 is a result of water falling and sitting on a depression on the roof of the building. This would not occur, due to the rainfall falling on roofs being diverted directly to the stormwater system.

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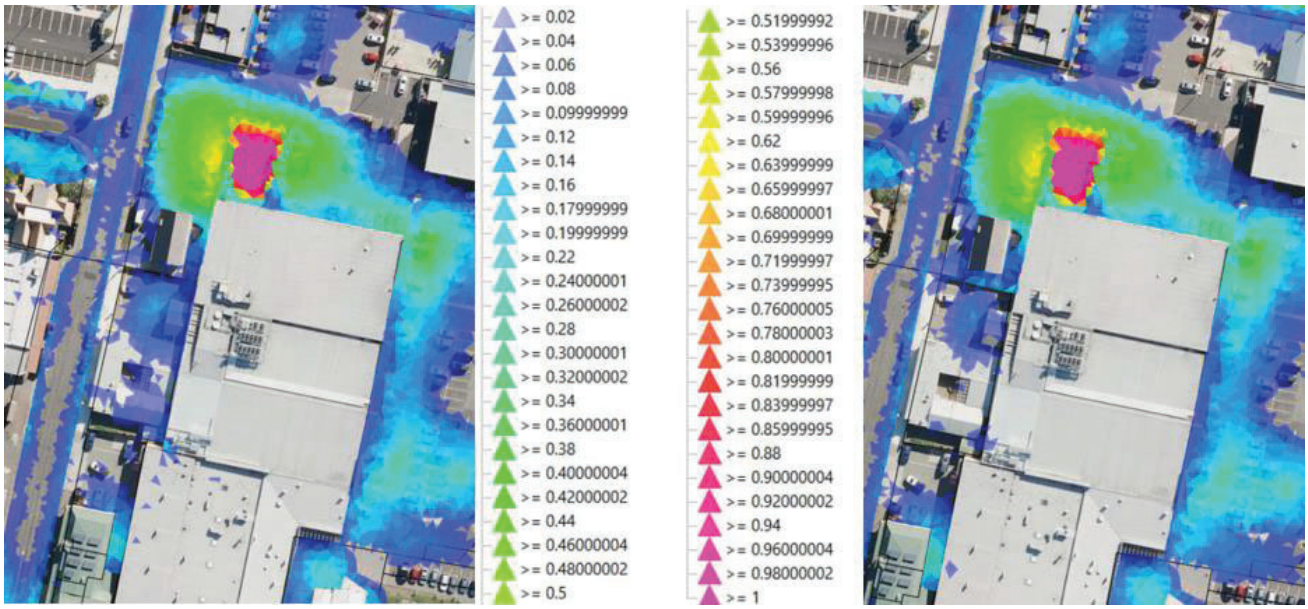

Figure 8. 1% AEP Pre (left) and Post development (right) flood depths (raised building footprints)

Examining the impacts of climate change for the RCP8.5 2090 Australian Rainfall and Runoff interim climate change factor (16.3%), the following peak flooding is generated for the pre- and post-development scenarios, assuming pervious buildings, are as follows:

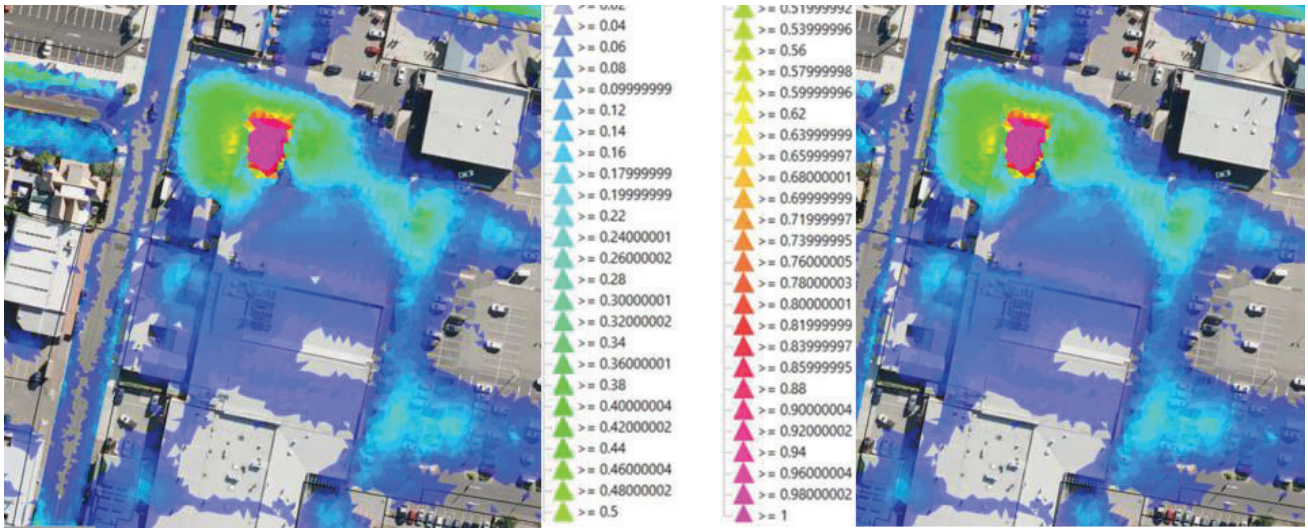

Figure 9. 1% AEP CC Pre (left) and Post development (right) flood depths (pervious building footprints)

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Figure 10 shows the pre- and post-development results for the 1% AEP climate change results with raised building footprints. Again, it is noted that the post-development flood depth on the development site is a result of water falling and sitting on a depression on the roof of the building, rather than it being actual flooding impacting upon the development.

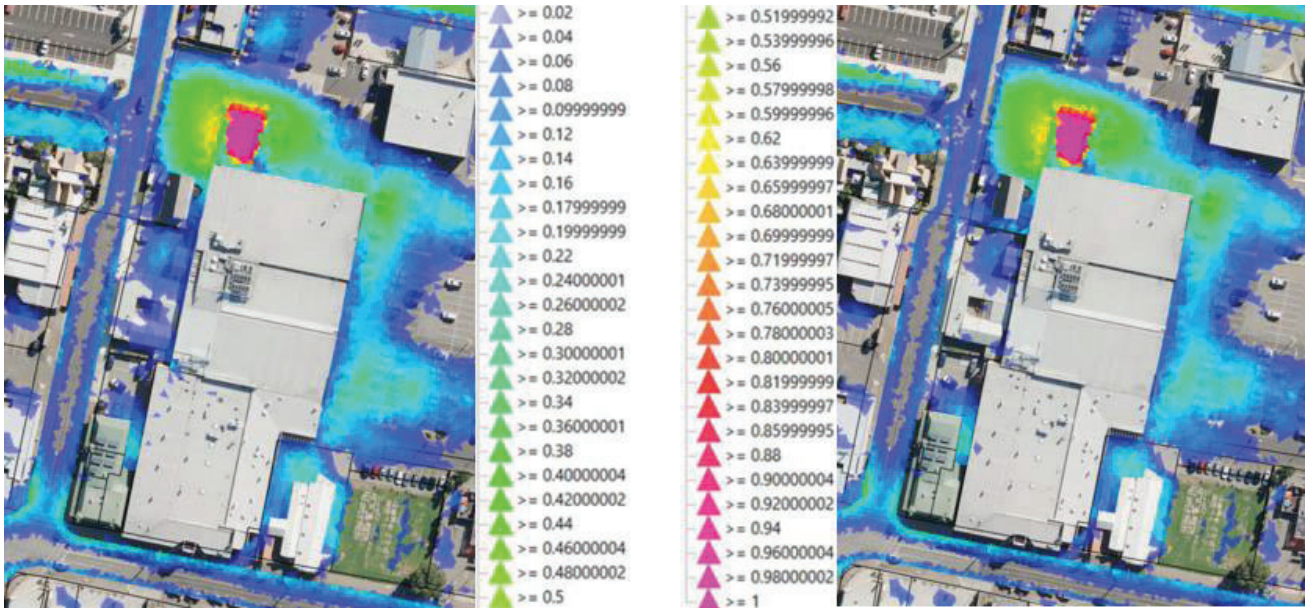

Figure 10. 1% AEP CC Pre (left) and Post development (right) flood depths (raised building footprints)

Again, Figure 9 and 10 show negligible changes between the scenarios.

Conclusion and Performance Criteria:

Based on the 1% AEP provided by Council the results presented in this report are more severe, due to the model being more conservative for demonstrative purposes. Despite the very conservative nature of the model, the risk of inundation of the proposed development is very low in all scenarios, including the climate change scenario. The Hazard Vulnerability Classification on the site remains low (H1) in all scenarios, and in reality, most 'flooding' is the result of ponding on the site, which will not occur when the site is mostly covered by roofing, properly drained and connected to the public stormwater system.

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Assuming some flow is intercepted by the site directly north of the development, which again is unlikely, these flows are a H1 class which, combined with an insignificant consequence, results in a low risk. Ensuring the floor level of the development is not built on existing ground level, and has a minimum FFL of say 200mm above the current surface, will ensure an insignificant risk of very shallow flooding in storms more extreme than the 1% AEP climate change RCP8.5 2090.

Performance Criteria 15.7.4 P3 is as follows:

A non-habitable building, an outbuilding or a Class 10b building under the Building Code of Australia, must satisfy all of the following:

(a) risk to users of the site, adjoining or nearby land is acceptable;

(b) risk to adjoining or nearby property or public infrastructure is acceptable;

(c) need for future remediation works is minimised;

(d) provision of any developer contribution required pursuant to policy adopted by Council for riverine flooding protection works;

Response:

a) Risks are insignificant as demonstrated
b) Risks remain unchanged, low H1 Vulnerability Classification with an insignificant consequence is a low risk, and therefore acceptable
c) Future remediation works are extremely unlikely
d) N/A

Performance Criteria 15.7.4 P1 is as follows:

Landfill, or solid walls greater than 5 m in length and 0.5 m in height, must satisfy all of the following:

(a) no adverse affect on flood flow over other property through displacement of overland flows;

(b) the rate of stormwater discharge from the property must not increase;

(c) stormwater quality must not be reduced from pre-development levels.

Response:

a) There is a negligible displacement of overlands flows, with no adverse effects

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b) The rate of stormwater discharge from the site will not increase. Both the pre- and post-development sites are fully impervious
c) Stormwater quality from the existing site will remain unchanged

Performance Criteria 15.7.4 P2 is as follows:

Mitigation measures, if required, must satisfy all of the following:

(a) be sufficient to ensure habitable rooms will be protected from flooding and will be able to adapt as sea levels rise;

(b) not have a significant effect on flood flow.

Response:

a) Sea level rise will not impact the development
b) The property does not have a significant impact on flood flow.

Cameron Oakley

B. TECH (Env.), B. ENG (Hons), MBA

HYDRODYNAMICA

Licensed Building Services Provider No. 949718126

ENGINEERS ADVICE

TO	John Lewis	**DATE**	12/10/2022
FROM	Dale Hayers	**TIME**	
PROJECT	5 Station Lane Offices	**PROJECT №**	21.0212
SUBJECT	Response to Council RFI	**REF №**	EA-C01

GANDY AND ROBERTS
159 DAVEY ST
HOBART TASMANIA
AUSTRALIA 7000
CONSULTING ENGINEERS

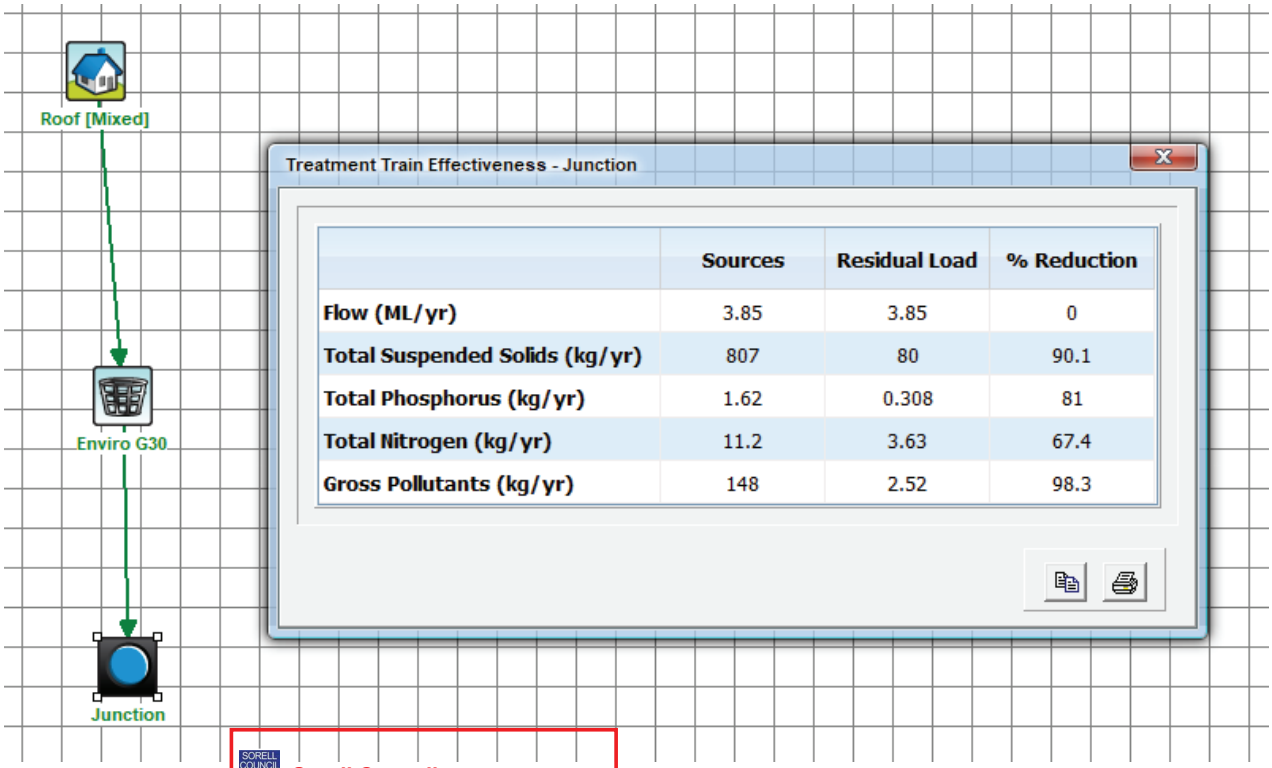
The purpose of this Engineers Advice is to address Item 13 in the Request for Additional Information from Sorell Council dated 16.02.2022. This Advice shall be read in conjunction with the Gandy and Roberts Concept Servicing Plan C020 Revision A.

The proposed development is for a three-storey commercial development on Station Lane, Sorell. It should be noted that the site was previously fully impervious, but currently sits as a gravel hardstand. It is proposed that the existing stormwater lot connection will be maintained and re-used by the development, with several existing kerb adaptors to be removed, refer to C020 for details.

WSUD

It is proposed that the roof runoff will be treated upstream of the detention tank via an above ground solution located under the fire stair. Many mechanical treatment devices are available to cater for roof treatment and the final design solution is to be confirmed during detailed design. One such system capable of achieving treatment targets as defined in the Sorell Interim Planning Scheme Table E7.1 is the EnviroAustralis G30. Treatment train results as provided by MUSIC Version 6.3.0 are shown in Figure 1.

Figure 1 MUSIC model treatment train results using a EnviroAustralis G30 Treatment Device



	Sources	Residual Load	% Reduction
Flow (ML/yr)	3.85	3.85	0
Total Suspended Solids (kg/yr)	807	80	90.1
Total Phosphorus (kg/yr)	1.62	0.308	81
Total Nitrogen (kg/yr)	11.2	3.63	67.4
Gross Pollutants (kg/yr)	148	2.52	98.3

GANDY AND ROBERTS
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Onsite Stormwater Detention

Calculations of pre-existing run-off have been based on the gravel hardstand. On-site stormwater detention will be required to cater for the difference between the permissible site discharge and the maximum discharge for the 5% AEP (20 year ARI) design event across a range of storm durations.

Permissible Site Discharge

AEP:	5%
Duration:	5 min
Intensity:	86 mm/hr
Existing gravel hardstand:	888 m^2 (C = 0.6)
Permissible Site Discharge:	12.7 L/s

Post-development areas

Roofs: 888 m^2

The site storage requirement has been assessed for a range of storm durations. Detention requirement volumes calculated using Boyd's formula results in a peak volume of 2612 L, refer Table 1.

Table 1 Detention requirements for various storm durations

Duration (min)	Intensity (mm/hr)	Peak Runoff (L/s)	Total Runoff Volume (L)	Detention Requirement (L)
1	142	35.0	2102	1338
2	112	27.6	3315	1788
3	101	24.9	4484	2193
4	93.3	23.0	5523	2469
5	**86.9**	**21.4**	**6431**	**2612**
10	65.7	16.2	9724	2087
15	53.5	13.2	11877	422
20	45.5	11.2	13468	-1806
25	39.9	9.8	14763	-4329
30	35.8	8.8	15895	-7015
45	27.8	6.9	18515	-15851
60	23.2	5.7	20602	-25219
90	18.1	4.5	24109	-44622

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Design Solution

It is proposed that the roof runoff will be directed to an above ground detention tank located under the fire stair. Discharge from the tank shall be limited by a 64 mm diameter orifice outlet resulting in a maximum flow of 11.8 L/s. The discharge shall be connected to the existing DN150 stormwater lot connection.

The resulting post development discharge will be less than the permissible (pre-development) site discharge.

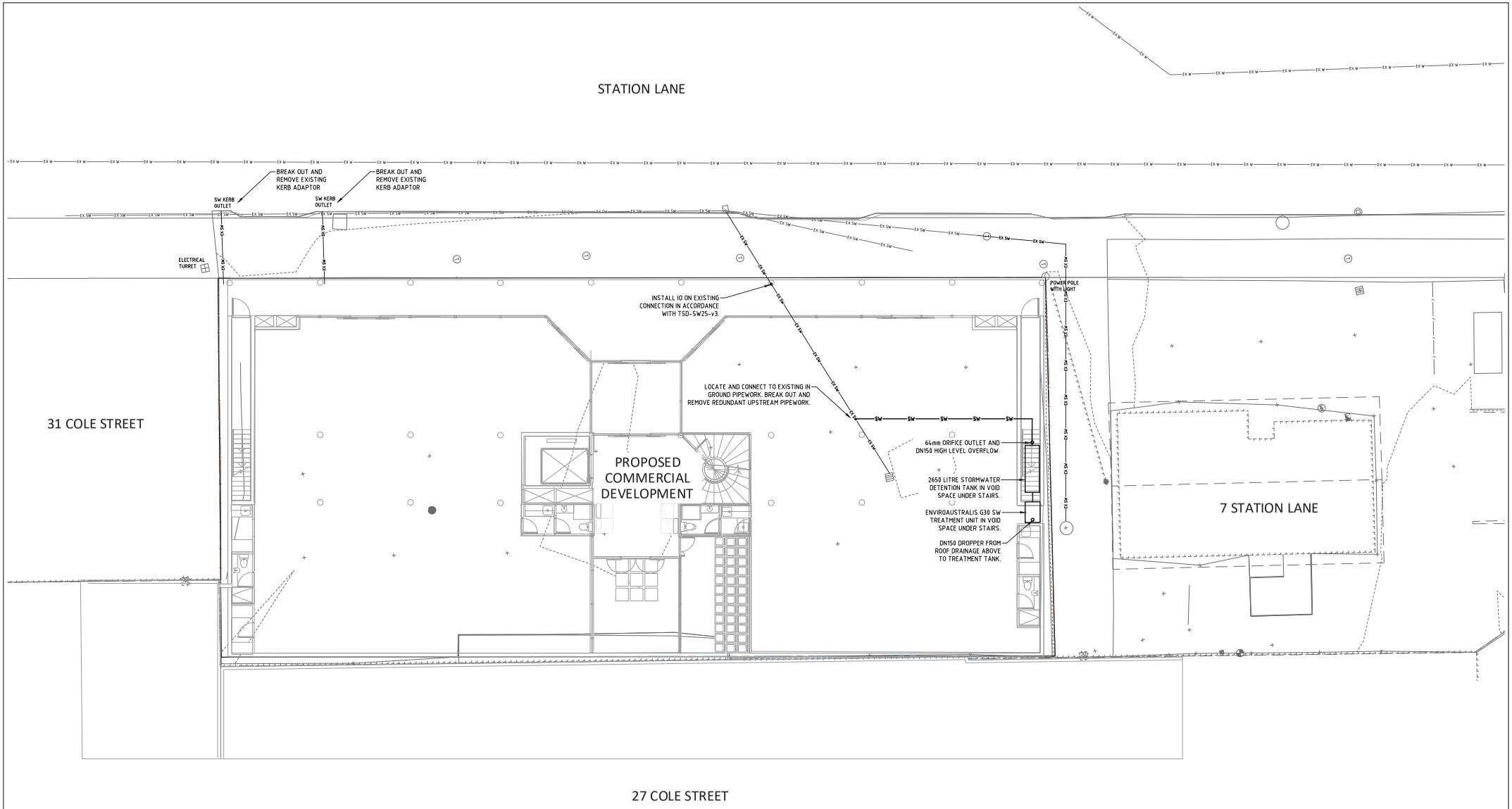
Conclusion

It is proposed that the existing site stormwater connection will be maintained by the proposed development. This solution satisfies Acceptable Solution A1 of E7.7.1 of the Sorell Interim Planning Scheme 2015.

Through the incorporation of an EnviroAustralis G30 mechanical treatment device, Performance Solution P2 of E7.7.1 of the Sorell Interim Planning Scheme 2015 is satisfied.

The proposed onsite stormwater detention solution satisfies Acceptable Solutions A3(a) and A3(b) of E7.7.1 of the Sorell Interim Planning Scheme 2015, accommodating the expected flows and limiting discharge from the lot to be no greater than existing, as determined in accordance with AS/NZS 3500.

Signed: Dale Hayers



Sorell Council

Development Application: Response to Not Satisfied Information Request - 5 Station Lane, Sorell
Plans Reference: P3
Date Received: 9/01/2023

REV	DESCRIPTION	APP'D	DATE
A	PLANNING APPROVAL	DH	12.10.2022

THIS DRAWING HAS NOT BEEN APPROVED FOR CONSTRUCTION

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5 STATION LANE, SORELL
TASMANIA 7172
DRAWING TITLE
CONCEPT SERVICING PLAN

SCALE	DESIGNED	DRAWN	CHECKED
1:100 @ A1	DH	DH	AC

PROJECT	DRAWING	REVISION
21.0212	C020	A

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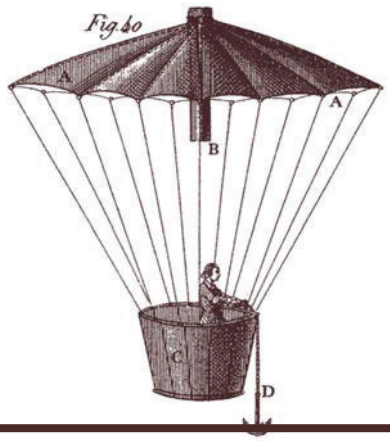

Stormwater Management Report

Planning Scheme Compliance

5 Station Lane, Sorell

for Tempus Village Management Pty Ltd

2/11/21

Version control

Revision	Description	Issue date	Issued by
0	Final	21/11/2021	Iain Millar

PROJECT NUMBER **21.0212**
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Figures

1 Background

A three-level office development is proposed for 5 Station Lane at Sorell (Lot 1 in DP 232925). Gandy and Roberts have been engaged to address elements of the Stormwater Management Code, in the Sorell Interim Planning Scheme 2015, in support of the development application for this proposal.

Figure 1. Site of the proposed development (from LISTmap)

Figure 2. Site of the proposed development.

2 Planning Scheme Requirements

The current Sorell Interim Planning Scheme 2015 requires that this development manages stormwater in compliance with the Stormwater Management Code. Code requirements for this development, and comment on how the development will address these, are as follows.

- Acceptable Solution A1 of Clause E.7.7.1 Stormwater Drainage and Disposal, states:

  "Stormwater from new impervious surfaces must be disposed of by gravity to public stormwater infrastructure".

  It is proposed that site stormwater shall be disposed of, by gravity, to public stormwater infrastructure.

- Acceptable Solution A2 of Clause E7.7.1 Stormwater Drainage and Disposal, states:

  "A stormwater system for a new development must incorporate water sensitive urban design principlesR1 for the treatment and disposal of stormwater if any of the following apply:

  (a) the size of new impervious area is more than 600 m2,
  (b) new car parking is provided for more than 6 cars,
  (c) a subdivision is for more than 5 lots".

  The amount of impervious surface will not be increased compared to the existing site, which comprises completely of impervious surfaces (roof, bitumen sealed car park, and driveway). No car parking is currently proposed for the development. The development does not involve subdivision. Therefore, no Water Sensitive Urban Design (WSUD) measures are required.

- Acceptable Solution A3 of Clause E7.7.1 Stormwater Drainage and Disposal states:

  "*A minor stormwater drainage system must be designed to comply with all of the following:*

  (a) be able to accommodate a storm with an ARI of 20 years in the case of non-industrial zoned land, and an ARI of 50 years in the case of industrial zoned land, when the land serviced by the system is fully developed,
  (b) stormwater runoff will be no greater than pre-existing runoff or any increase can be accommodated within existing or upgraded public stormwater infrastructure".

  The development will incorporate a minor stormwater drainage system, and so therefore must satisfy both criterion (a) and criterion (b) of Acceptable Solution A3.
  As the development is located within a General Business zone, the 20-year ARI storm must be accommodated in the design.
  It is noted that the current proposal will not increase the amount of impervious surface when compared to the existing site that comprises completely of impervious surfaces (roof, bitumen sealed car park, and driveway), therefore no flow detention is required.

- Acceptable Solution A4 of Clause E7.7.1 Stormwater Drainage and Disposal states:

  "*A major stormwater drainage system must be designed to accommodate a storm with an ARI of 100 years".*

It appears that stormwater from the development will flow directly to Sorell Council infrastructure (pipe network and rod formation) during the major storm event.

3 Stormwater Management

3.1 Stormwater Run-off Quantity

Following development, site stormwater, during the minor storm event, will be disposed of by gravity to the existing Sorell Council stormwater system.

During the major storm event, stormwater will from the development will flow directly to the adjacent Sorell Council infrastructure (pipe network and rod formation).

The amount of flow will be unchanged from that generated by the current site use, as impervious surfaces will not be increased compared to the existing site, which comprises completely of impervious surfaces (roof, bitumen sealed car park, and driveway).

3.2 Stormwater Run-off Quality

No stormwater quality treatment (WSUD) is required as the amount of impervious surface will not be increased over the current site arrangement, no car parking is currently proposed for the development, and no subdivision of land is required.

4 Conclusion

The development can be designed to provide stormwater drainage in accordance with the requirements of Clause E7.0, the Stormwater Management Code, of the Sorell Interim Planning Scheme 2015.

5 References

Sorell Interim Planning Scheme 2015

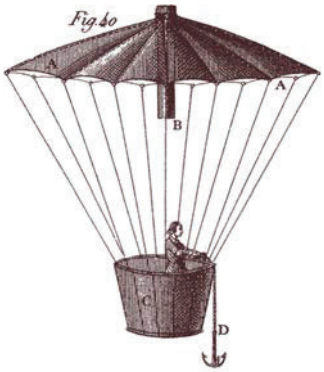
Fig. 40
A
A
B
C
D

TRAFFIC IMPACT ASSESSMENT

Hubble Traffic

December 2022 Updated

OFFICE DEVELOPMENT AT 5 STATION LANE, SORELL

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Version	Date	Reason for Issue
Final	October 2020	Issued to client
Updated	22 December 2022	Development providing 13 parking spaces by redeveloping the land adjacent to the site increasing existing parking supply from 17 to 30 spaces.

Table of Contents

1. Introduction

Caliban Consulting has engaged Hubble Traffic on behalf of the developer, to prepare an independent Traffic Impact Assessment, to consider the traffic impacts from the proposed construction of a three-storey office building at 5 Station Street, Sorell.

Caliban consulting has met with the Sorell Council Mayor, General Manager and Planner, and advised that Council will accept that the entire site will be treated as `englobo,' due to common site ownership. However, a traffic impact assessment will need to be provided to support this development.

For clarity, within this assessment report the total site owned by the developer will be known as the Woolworths site, and the new development will be known as the development site.

This report considered the amount of traffic already generated by the Woolworths site, including the existing traffic flow along both Station Lane and Western Hill Road, and the current usage of the Woolworths car parking facilities.

While this office development will be supported with an increase in the number of parking spaces, it will also rely on surplus parking spaces within the Woolworths site. To determine the availability of surplus parking spaces, a patrolled parking survey of the on-site car park was undertaken, to establish the total number of on-site car parking spaces, and the parking demand generated from the current stores located within the Woolworths site.

This report has been prepared to satisfy the requirements of Austroads, Guide to Traffic Management Part 12: Traffic Impacts of Developments, 2019. This assessment has referred to the following information and resources:

- Sorell Interim Planning Scheme
- Road Traffic Authority NSW (RTA) Guide to Traffic Generating Developments
- Australian Standards 2890 parts 1, 2 and 6
- SIDRA 8 intersection modelling software
- Austroads series of Traffic Management and Road Design
    - Part 4: Intersection and crossings, General
    - Part 4a: Unsignalised and Signalised Intersections
    - Part 12: Traffic Impacts of Development
- Department of State Growth crash database
- Department of State Growth traffic database
- Autoturn swept path software
- Google Earth imagery

2. Site Description

The Woolworths site is bounded by Station Lane, Western Hill Road, and Cole Street, and is highlighted in blue on the map below, with the proposed office development located off Station Lane shown in red.

2.0 Map – Extract of Google Earth shows the location of the Woolworths site and proposed new development.

3. Development proposal

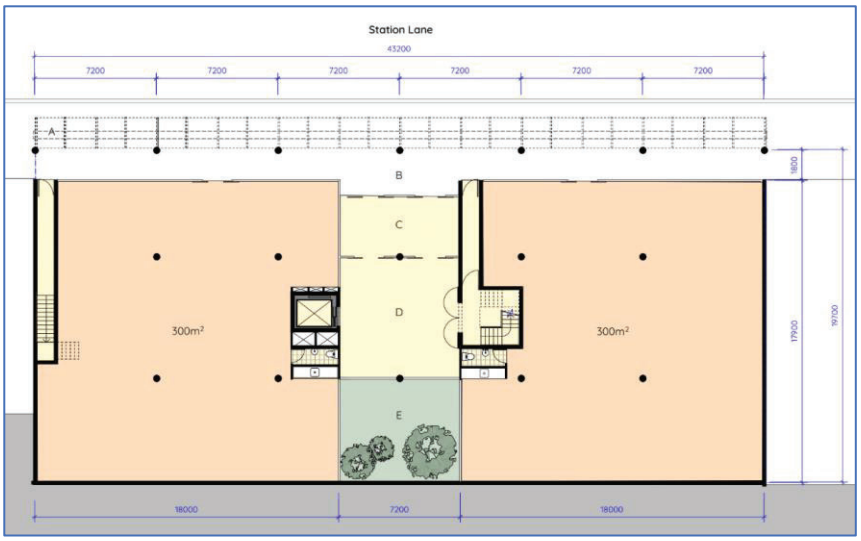
This proposed development will replace an existing single storey building, with a three-storey building, with the first floor (ground) allocated for general retail, and levels one and two allocated to office space.

Photograph 3.0 – Existing building to be replaced

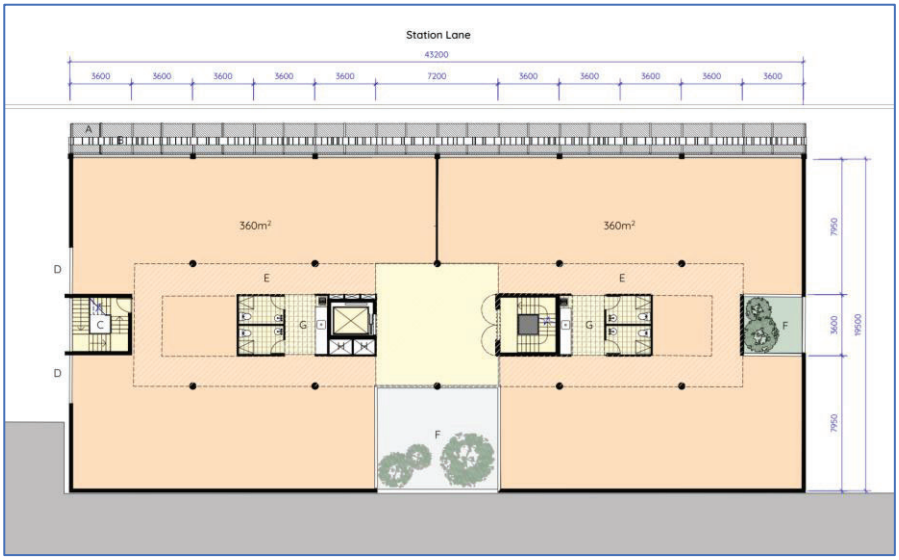
The development will be a standalone building with street frontage, located on the eastern side of Station Lane, approximately 65 metres north of Cole Street.

The ground floor will have direct access to Station Lane with a net leasable retail space of 600 m^2. Levels one and two will be accessed from Station Lane via a lift or stairwell, with leasable office floor space of 720 $m^2$for each floor.

Plan 3.0 – Ground floor plan

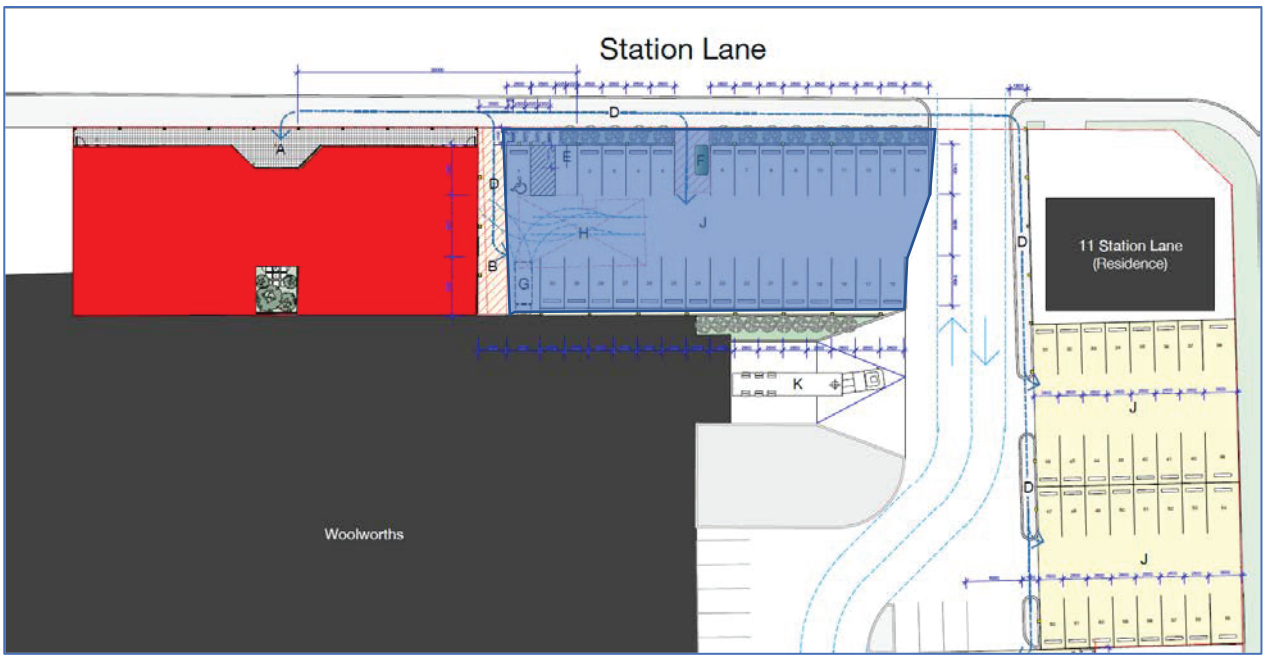


Plan 3.0A – Floor plans for levels one and two



On land immediately adjacent to the development site is an existing building and 17 on-site parking spaces, which will be used by the development. To increase on-site parking the existing building will be demolished to increase the on-site parking to 30 spaces, which includes one accessible space, and a loading bay. Further parking requirements will be reliant on surplus parking within the Woolworths site.

Diagram 3.0 – Redevelopment of adjacent land to increase the number of car parks



4. Trip generation by this development

A trip in this report is defined as a one-way vehicular movement from one point to another, excluding the return journey. Therefore, a return trip to and from a land use is counted as two trips.

To determine the number of trips likely to be generated by this development, reference has been taken from the RTA Guide to Traffic Generating Developments, section 3.5.1 for Office and Commercial premises and section 3.6 for Retail.

4.1. Office and commercial premises

Trip rates from RTA Guide:
- Daily vehicle trips of 10 per 100 square metres of available floor area
- Evening peak hour trips of 2 per 100 square metres of available floor area
Employee density
Varies depending on the type of commercial development, the mean employee density is 21 square metres for each employee.

In using this RTA guidance, the two levels of office leasable space of 1,440 square metres are expected to generate a total of 144 weekday trips, based on 10 trips per 100 square metres of floor space. With 29 of these trips expected to occur in the evening peak hour (2 trips per 100 square metres).

Based on an average floor space for employees of 21 square metres, the total leasable floor area of 1,440 square metres could accommodate 68 employees. Each of these employees could generate a minimum of two trips per day, which would total 136 trips.

Both trip calculation methods produced similar results, and the highest trip generation of 144 weekday trips will be used in assessing the impact of this development.

Having consideration to mode split, not all employees are expected to travel by a private motor vehicle, with some employees choosing an alternative transport mode such as cycling, public transport or walking.

While the RTA guide indicates that mode split for cars can be as low as 62 percent, Tasmanians are reluctant to use public transport when parking spaces are readily available. A more realistic percentage for employees using private vehicles is likely to be 85 percent, and this reduces the number of weekday trips from 144 to 122, with 25 of these occurring in the peaks.

4.2. Retail space

Prediction of generation rates of retail space depends largely on the type of retail; there is slow or fast trade, or specialty shops. With a Woolworths supermarket already on site, this retail space is more likely to be occupied by specialty shops, which tend not to be primary attractors to the overall shopping complex. The majority of these trips could be classified as multi-purpose trips, where more than one shop or facility is visited, with the prime purpose of the trip being the supermarket.

The average rate for slow trade is 38 peak hour trips per 1,000 square metres of leasable floor area. Based on this generation rate, with 600 square metres of leasable floor space, the expected number of peak hour trips to be generated is 23.

A significant proportion of these trips are expected to be linked, or multi-purpose trips, as this development is part of a larger retail complex. A 30% reduction in trips, to account for linked and multi-purpose trips would be reasonable, reducing the peak hour trips to 16 per hour.

4.3. Summary of trip generation

Overall, both the office and retail spaces of this development is expected to generate some 250 new weekday trips, with 41 of these trips generated in the peak hour.

5. Existing traffic Conditions

The Woolworths site is bounded by Station Lane, Western Hill Road, and Cole Street. Both Station Lane and Western Hill Road are managed by the Sorell Council, while Cole Street is the local name for the Arthur Highway, managed by the Department of State Growth (Department). In order of street hierarchy, Cole Street has the highest importance for carrying traffic between regions, while Station Lane and Western Hill Road have a collector role function, of either dispersing local traffic to and from residential areas, or commercial facilities.

All roads are of a suitable standard to carry significant traffic flow and offer excellent accessibility for vehicle movement into and out of the Woolworths site.

5.1. Cole Street (Arthur Highway)

Cole Street or the Arthur Highway is a Category 3 Regional Access Road under the Tasmanian State Road Hierarchy, and its purpose is to connect regional towns with Category 1 and 2 roads, such as the Tasman Highway. The road is designed to carry a substantial volume of through traffic, and within the Sorell township there is parallel kerbside parking along both sides of the road to service the shops.

Cole Street connects with Station Lane at a four-leg intersection controlled by traffic signals, with the other two legs being the Tasman Highway. The traffic signals provide a high level of control for traffic entering and leaving Station Lane; the signals also provide a safe and convenient location for pedestrians to cross the road. Midblock, there is one traffic lane in each direction, and parallel kerbside parking on both sides.

East of Station Lane, Cole Street intersects with Western Hill Road, and this intersection is controlled by a roundabout, with Pelham Street being the southern leg. This roundabout calms the traffic flow approaching from the southern beaches and facilitates safe and efficient traffic movements entering and leaving Cole Street.

5.2. Station Lane

Along Station Lane there are a variety of small commercial properties, with some having small private car parks. This street also provides connection to the council bus transit centre, street frontage to the development site, and access to the Woolworths site. Midblock, there is one traffic lane in each direction with parallel kerbside parking along both sides.

The street is short in length (200 metres long) and currently connects with Dub and Co Drive, which connects to the Weston Hill Road. Dub and Co Drive has the potential to be extended in a westerly direction to access vacant land and provide connection to existing residential streets.

5.3. Western Hill Road

Western Hill Road extends from Cole Street in a northerly direction and provides access to a large residential street network. This road provides the main access to a substantial car park as part of the Woolworths site and includes a service station with its own access. There is one traffic lane operating in each direction, with parallel kerbside parking along both sides, and along the eastern side there are residential properties.

5.4. Traffic flow

Traffic surveys were undertaken on Station Lane and Western Hill Road on Tuesday 29 September 2020, from 7:30am to 9:00am and 4:30pm to 6:00pm. The surveys classified whether the vehicle used the Woolworths site or travel past, with a summary of the survey data shown in table 5.4. To distinguish between the three accesses to the Woolworths site, they have been named A through to C. Access A and B are located on Western Hill Road, with access A located near Cole Street, while the single access on Station Lane is named C.

During the peak AM hour period 392 traffic movements were recorded on Station Lane and Western Hill Road, with the Woolworths site estimated to contribute 42 percent of these total traffic movements. Considering the standard and function of these roads, this number of traffic movements is reasonably low, with no operational issues found during the survey periods.

During the peak PM hour period, the total number of traffic movements increased substantially from the AM period. A total of 814 vehicle movements were recorded on the two roads, with the Woolworths site estimated to contribute 62 percent of these traffic movements.

Table 5.4 – Summary of collected traffic data

Peak	Road		Traffic accessing Woolworths site			Straight through traffic	
			A	B	C	North	South
AM Peak	Western Hill Road	In	52	17			
		Out	14	25		59	99
	Station Lane	In			34		
		Out			20	38	30
Total			**66**	**42**	**54**	**97**	**129**
PM Peak	Western Hill Road	In	108	26			
		Out	89	94		92	93
	Station Lane	In			114		
		Out			67	78	50
Total			**197**	**120**	**181**	**170**	**143**

Most of the trips generated by the Woolworths site in the PM peak, used Cole Street to enter either Station Lane or Western Hill Road, in order to access the Woolworths site and then re-enter Cole Street. This means that these trips were generated by the Woolworths site and were not passing trade trips.

5.5. Traffic efficiency

The easiest method to examine and quantify traffic efficiency, is to use traffic modelling software to model each of the access points to the Woolworths site. The access to the small car park generated very-low traffic movements and will not be modelled.

SIDRA 8 Intersection software was used to model the three accesses in the Woolworths site. This software reports the performance in the terms of Degree of Saturation, which is the operational level based on the intersection capacity. The desirable intersection capacity level should be below 85 percent of the capacity, or 0.85 as a decimal.

Level of Service is a term used, which defines the overall performance from the expected average delays, and queues. There are six levels of performance, A to F, where A is the highest level of performance for a give way control.

The summary from the traffic modelling is shown in table 5.5; the data clearly demonstrates that each of the three accesses into the Woolworths site are performing well. With all the accesses operating at the highest level of operational performance, with traffic leaving the site are not experiencing any notable delays due to ample gaps in the traffic stream. From a traffic efficiency perspective, although the Woolworths site is a significant traffic generator, the local road network can easily accommodate the traffic flow, and they are not causing any adverse traffic conditions for other road users.

Table 5.5 – Summary of traffic modelling

Peak	Access location	Total vehicles	Degree of Saturation	Average Delay (seconds)	Level of Service
AM Peak	A – Western Hill Road (southern)	245	0.065	6 seconds	A
	B – Western Hill Road (northern)	220	0.061	6 seconds	A
	C – Station Lane	138	0.043	5.7 seconds	A
PM Peak	A- Western Hill Road (southern)	402	0.112	6.4 seconds	A
	B – Western Hill Road (northern)	321	0.087	6.2 seconds	A
	C – Station Lane	325	0.106	5.7 seconds	A

6. Existing parking spaces and availability

6.1. Current businesses operating from the Woolworths site

There are a number of businesses that operate from the Woolworths Site, these include:

- Woolworths Service Station (separate building)
- BWS drive thru bottle shop (separate building)
- Woolworths supermarket
- Specialised stores contained within the supermarket building are:
  - Audrey Hairdresser
  - Harcourts real estate
  - Eyelines
  - Professional Life Coach
  - Surf shop
  - Lovely nails and beauty
  - Candy store
  - Laurel Massage
  - Asian Café
  - Waxed Beauty therapy
  - Reject Shop
  - Trendy Meats
  - Trendy bakery
  - T-Life station

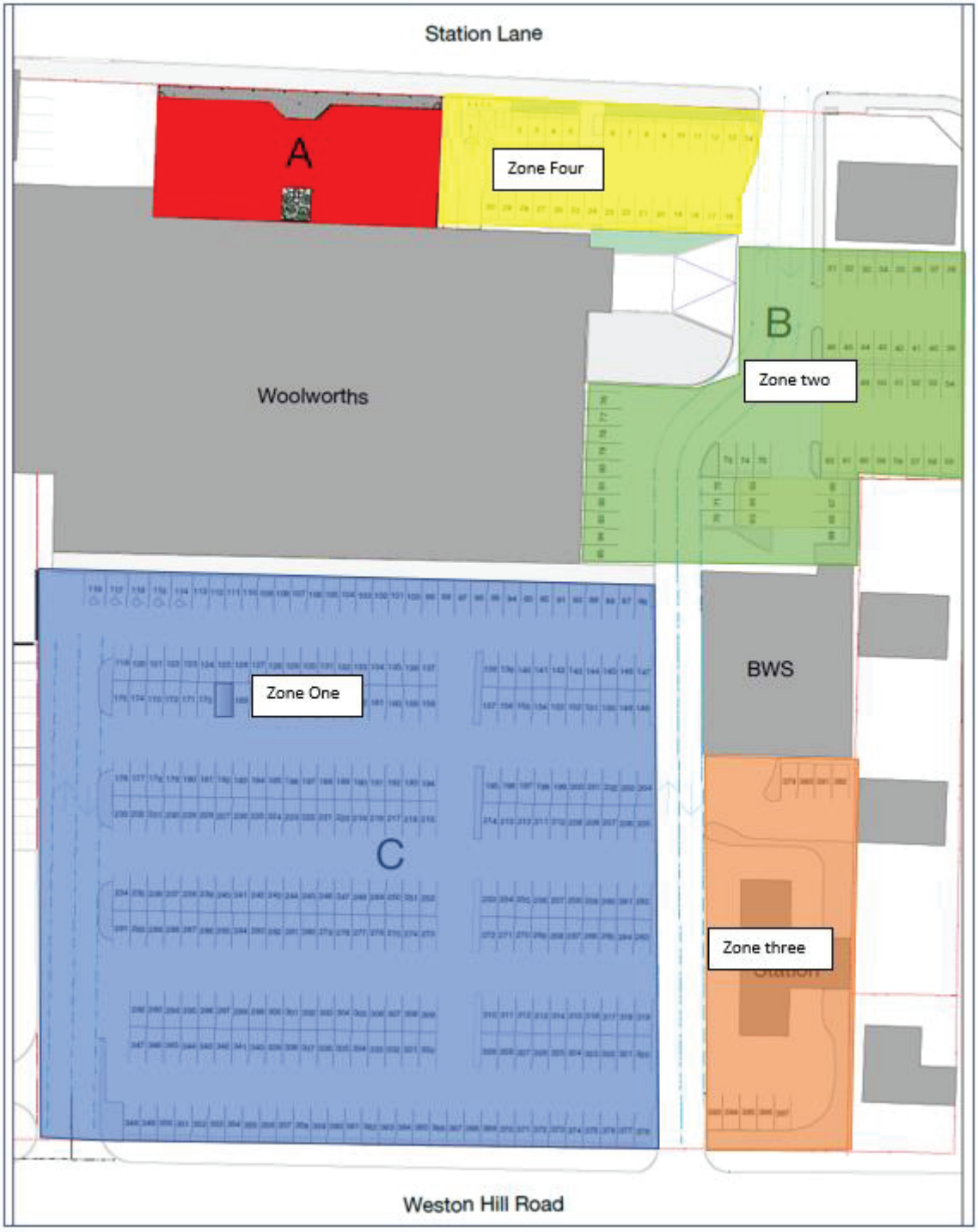
Along Station Lane there are several standalone buildings, including the vacant proposed development site, a bus adventure tours business, and small car parks.

6.2. On-site parking spaces

Contained within the Woolworths Site there are substantial on-site parking spaces to support the businesses operating at the site, as listed in 6.1. For the parking supply and demand survey purpose, the current car park has been zoned into four zones:

- Zone one - main supermarket car park access from Western Hill Road (highlighted in blue)
- Zone two – medium size parking module access with main access from Station Lane (highlighted in green)
- Zone three – spaces within the service station area (highlighted in orange)
- Zone four – the area where additional spaces will be developed (highlighted in yellow)

Diagram 6.2 – Existing on-site parking within the Woolworths site



An extensive car parking supply and demand survey was undertaken on the week commencing 12 December 2022, with this period expected to generate a worst-case scenario being so close to the Christmas Holiday period. The survey found there is a supply of 376 car parking spaces currently available within the Woolworths site.

Patrolled demand parking surveys were undertaken from Tuesday 13 December to Sunday 18 December 2022, to capture the number of vehicles parked within each designated zone. The survey captured vehicles in the morning between 9:00am and 10:00am, midday between 12:00pm and 2:00pm and evenings between 5:00pm and 6:00pm, with the parking demands shown in the two tables below.

Table 6.2A – Results of patrolled parking survey (Tuesday to Thursday)

Zone	Supply	Tuesday			Wednesday			Thursday		
		Morning	Midday	Evening	Morning	Midday	Evening	Morning	Midday	Evening
One	295	22	119	97	20	125	112	30	167	111
Two	55	36	40	34	37	38	48	38	41	29
Three	9	0	0	0	0	0	0	0	0	0
Four	17	4	6	5	3	5	5	7	6	6
Total	**376**	**62**	**165**	**136**	**60**	**168**	**165**	**75**	**214**	**146**
Demand		**17%**	**44%**	**36%**	**16%**	**45%**	**44%**	**20%**	**57%**	**39%**

Table 6.2B - Results of patrolled parking survey (Friday to Sunday)

Zone	Supply	Friday			Saturday			Sunday		
		Morning	Midday	Evening	Morning	Midday	Evening	Morning	Midday	Evening
One	295	45	135	72	36	95	74	22	128	70
Two	55	38	39	22	28	26	20	24	22	18
Three	9	0	0	0	0	0	0	0	0	0
Four	17	6	6	3	3	3	3	2	3	2
Total	**376**	**89**	**180**	**97**	**67**	**124**	**97**	**48**	**153**	**90**
Demand		**24%**	**48%**	**26%**	**18%**	**33%**	**26%**	**13%**	**41%**	**24%**

The patrolled parking surveys clearly demonstrate there is a surplus of car parking supply within the Woolworths site, with the maximum parking demand of 57 percent occurring on Thursday evening at 5:00pm, where 214 spaces were occupied of the available 376 car parking spaces. This means at maximum demand there are 162 car parking spaces not in use.

7. Development layout and access arrangement

7.1. Vehicular access

The Woolworths site has road frontage to both Station Lane and Weston Hill Road. A large shopping centre car park is located off Weston Hill Road, with the existing two-way vehicular access on to Weston Hill Road the main vehicular access to the site.

An additional two-way access is located north of the main access adjacent to an existing service station, from this access an internal two-way driveway connects through the site to Station Lane, providing efficient traffic access to the existing on-site bottle shop, and enhanced vehicle circulation.

The existing two-way access onto Station Lane services the delivery area of the shopping centre, and access to a secondary car parking area that is probably used by centre staff.

Under the development proposal the land adjacent to the new office building is being redeveloped, to facilitate additional on-site car spaces, and the access to this car parking module will be from the existing Station Lane access.

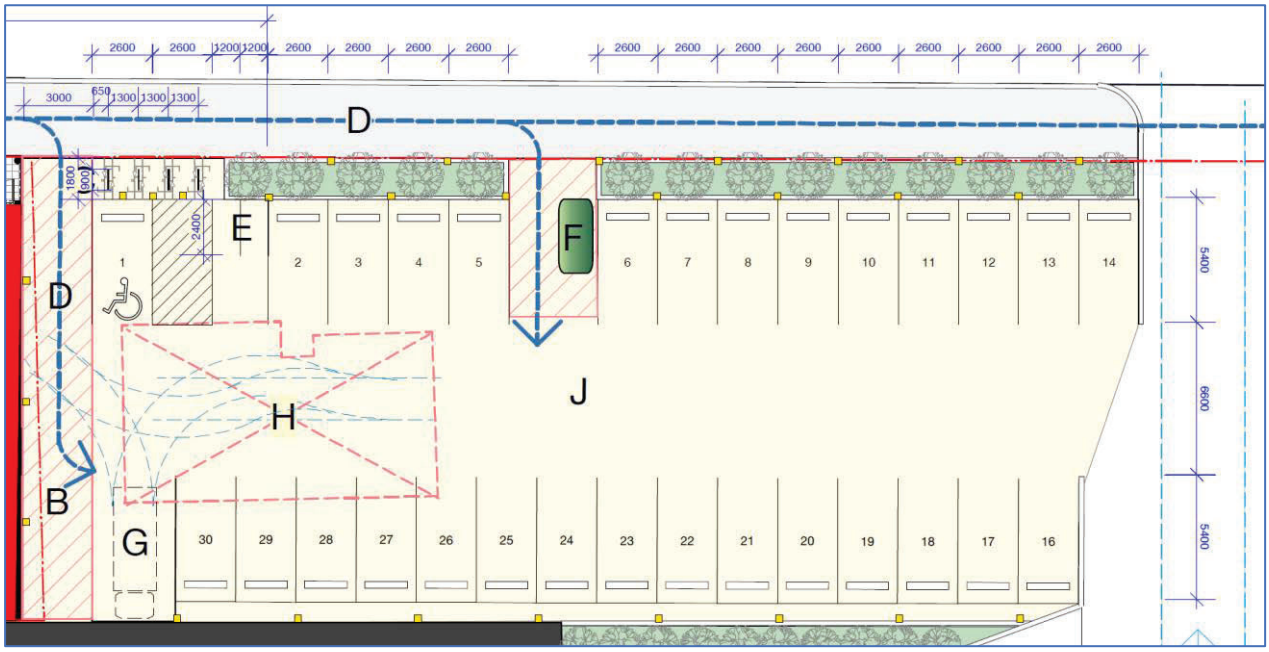
From a planning scheme perspective, the development will comply with the acceptable solution A1, as the existing vehicular accesses will be used, and no new vehicular access is required. The existing accesses has available sight distance to ensure vehicles can enter and leave in a safe and efficient manner, and in a forward-driving direction. Traffic surveys found the existing accesses are operating efficiently.

7.2. Redeveloped parking module as part of the development

The land adjacent to the office building will be redeveloped to increase the number of parking spaces. The dimensions of the parking spaces have been designed to comply with the Australian Standard 2890.1:2004 as user class 3A, suitable for short-term, high turnover, at shopping centres. For ninety-degree parking spaces, the spaces will be 2.6 metres wide, 5.4 metres long, supported with a 6.6-metre-wide manoeuvring aisle. This parking layout ensures vehicles can enter and leave in a safe and efficient manner.

The parking spaces and manoeuvring aisle will be constructed with a hard-wearing concrete surface, with all parking spaces located on grade less than five percent. The parking layout will be graded so that surface water will be directed away from buildings into an approved stormwater drainage system. Parking spaces will be supported with wheel stops, delineated with road markings, and there will be no structures overhanging the car parking spaces.

Diagram 7.2 – Layout of redeveloped parking module



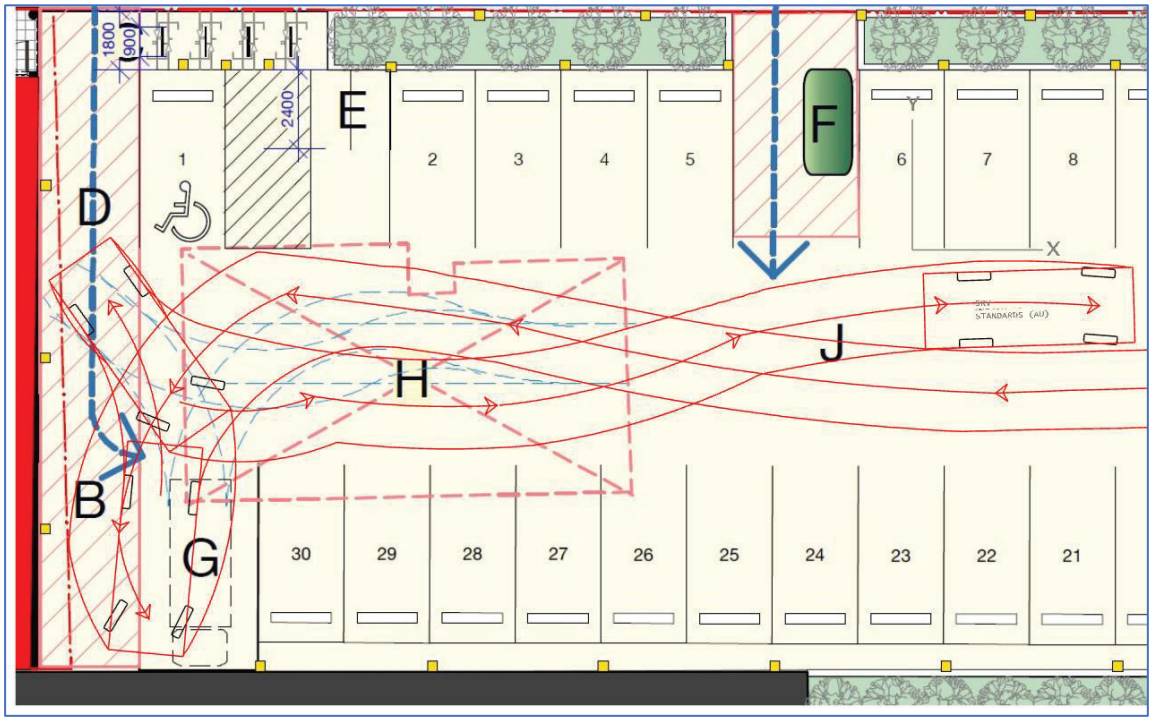
7.3. Pedestrian pathway

Within the redeveloped parking module, vehicle occupants will be able to use the footpath to access the main entrance of the office building, while existing pathways within the Woolworths site will facilitate safe and convenient access to existing buildings.

7.4. Commercial deliveries to the office building

The redeveloped car parking layout includes the provision for small vans to deliver goods to the office building, with the Autoturn swept path software demonstrating a single rigid vehicle (6.4 metres in length) can enter and leave in a forward-driving direction.

Diagram 7.4 – Swept path for 6.4 metre single rigid delivery van



8. Impact from traffic generated by this development

As determine by section 4 of this report, the office and commercial leasable floor area is expected to generate an additional 122 weekday trips, with 25 of these trips occurring in the evening peak hour. While the retail leasable floor area is expected to generate 16 evening peak hour trips.

In total, an additional 41 evening trips can be expected to be generated from this new development. These new peak hour trips have been assigned to enter and leave the Woolworths site, using one of the existing accesses.

In addition to these extra peak hour trips, the traffic modelling includes ten-year incremental growth of two percent per annum, to demonstrate the local road network will maintain a high level of traffic efficiency into the future.

8.1. Impact of additional traffic movements on the surrounding street network

Distribution of these extra trips generated by the new development, has been assigned to the surrounding road network using the same proportion of traffic entering and leaving the site. For the AM period, 56 percent entered via the southern access on Western Hill Road (access A); 33 percent entered from Station Lane (access C); and 11 percent entered from Western Hill Road the northern access (access B).

While in the evening peak, the extra traffic leaving the Woolworths site, were recorded as 37 percent using the southern access on Western Hill Road (access A); 35 percent using the Western Hill Road northern access (access B) and 28 percent using Station Lane (access C).

Table 8.1 Summary of the traffic modelling of the extra traffic generated from the development, including ten years of incremental traffic growth.

Peak	Access location	Total vehicles	Degree of Saturation	Average Delay (seconds)	Level of Service
AM Peak	A – Western Hill Road (southern)	319	0.091	6.2 seconds	A
	B – Western Hill Road (northern)	220	0.061	6 seconds	A
	C – Station Lane	272	0.074	6.1 seconds	A
PM Peak	A- Western Hill Road (southern)	505	0.137	6.7 seconds	A
	B – Western Hill Road (northern)	404	0.123	6.4 seconds	A
	C – Station Lane	406	0.13	5.8 seconds	A

Traffic modelling at each of the three accesses to the Woolworths site, indicates that the extra traffic movements generated by the new development, will have an insignificant impact on the efficiency and traffic performance of the local road network. Even with ten years two percent incremental traffic growth, the traffic performance of the accesses and local road network will remain at the highest possible level of service.

8.2. Traffic leaving the Woolworths site

Traffic leaving the Woolworths site with the extra traffic generated from the development will cause no adverse impact to current users, as the average delay for all the accesses is expected to be less than seven seconds. This means there are sufficient gaps in the traffic flow along Station Lane and Western Hill Road, for vehicles to leave the Woolworths site safely and efficiently.

8.3. Parking spaces generated by the new development

Having consideration to the Sorell planning scheme for car parking spaces, the planning scheme indicates that for office space, one parking space should be provided per 30 square metres of leasable floor space, and this represents a need for 48 parking spaces. Similarly, retail leasable floor space, requires one parking space per 30 square metres of leasable floor area, and with the retail space being 600 square metres, this use requires 20 parking spaces.

In total the new development generates demand for an additional 68 on-site parking spaces.

This number of additional parking spaces is expected to be the upper limit, with a lower rate of parking demand expected, as the development is located in close proximity to Council's transit centre, offering users convenient and frequent access to public transport.

As demonstrated in section 6.2, the Woolworths site currently has 376 parking spaces and a comprehensive patrolled parking demand survey found the maximum parking demand occurred on Thursday midday, where 214 parking spaces were occupied, which is 57 percent of the spaces available. This means there were 162 parking spaces unoccupied.

The development is providing an additional 13 parking spaces through redeveloping land adjacent to the office building, which reduces the planning scheme deficiency in required parking spaces from 68 to 55. As demonstrated by the parking demand survey there is sufficient surplus of parking spaces within the Woolworths site, to easily meet the shortfall in number of car parking spaces.

8.4. Council's transit centre

The Sorell Council operates a bus transit centre off Station Lane, where customers can leave their vehicles and catch public transport. This means there is a high frequency of buses servicing this transit centre and makes the use of public transport to this new development a viable alternative. This facility has sufficient parking spaces to accommodate 87 vehicles.

9. Planning scheme

9.1. E5.0 Road and Railway Assets Code

E5.5.1 Existing access and junctions

The Woolworths site has three existing accesses, two on Western Hill Road and one on Station Lane. Both roads are controlled by the default 50 km/h speed limit and the total expected increase in traffic generated is 250 daily movements, which exceeds the acceptable solution threshold. Therefore, this new development must be considered under the performance criteria P3.

Performance criteria	Assessment
Any increase in vehicle traffic at an existing access or junction in an area subject to a speed limit of 60km/h or less, must be safe and not unreasonably impact on the efficiency of the road, having regard to:	
a) the increase in traffic caused by the use;	This development is for 600 square metres of retail space and 1,440 square metres of leasable office space. These two uses could generate some 250 new daily trips, having discount for link and multi-purpose trips, due to this new development being part of an existing large retail complex. Of these new trips 41 are expected to occur during the evening peak and these additional trips represent a 16 percent increase in the number of trips leaving the Woolworths site in the evening peak. Traffic modelling has been used to demonstrate the increase in trips will not have any adverse traffic efficiency impacts to the accesses, or the local road network.
b) the nature of the traffic generated by the use;	Both the retail and office development are expected to generate light passenger vehicles and be compatible with the majority of the current traffic flow using the surrounding street network and the Woolworths site. While most customers will be attracted from nearby streets, the surrounding road network has sufficient capacity to absorb the additional traffic movements without causing any adverse impacts.
c) the nature and efficiency of the access or the junction;	The Woolworths site has three existing accesses, and each of them has been assessed using SIDRA traffic modelling software. The modelling has found the increase in traffic movements will not reduce the level of traffic performance and each access will continue to operate at the highest possible level of service for a give way control. Traffic leaving the site will have minimal delays averaging less than seven seconds, as there will be ample gaps in the local roads to allow for safe and efficient manoeuvres. Each access has adequate sight distance to enable vehicles to enter and leave in a safe and efficient manner, without disrupting current users.
d) the nature and category of the road;	Both Western Hill Road and Station Lane are designed to operate as collector roads in the surrounding road network. The standard of both roads is suitable to carry significant traffic volumes, and the expected increase in traffic movements is not expected to cause any adverse safety or operational impact.

e) the speed limit and traffic flow of the road;	The speed limit along both Station Lane and Western Hill Road is the urban default 50 km/h speed limit. The peak hour traffic surveys found the flow of traffic along both roads is efficient, with some small delays for traffic entering Cole Street through either the traffic signals at Station Lane, or through the roundabout at Western Hill Road. This assessment found the surrounding road network has sufficient spare traffic capacity to absorb the increase in traffic generated by the development.
f) any alternative access to a road;	The three current accesses to the Woolworths site are adequate, and suitable to cater for the current and future traffic demand. No additional access is required.
g) the need for the use	The new development is replacing an existing building, which will provide greater leasable floor area and is in close proximity to the general Sorell retail precinct. The site is located within walking distance to the Sorell transit centre, so public transport for employees would be a viable alternative mode of travel. The new retail space will complement the existing retail space, with a significant proportion of the trips from this new development expected to be linked, or multi-purpose trips.
h) any traffic impact assessment; and	An independent Traffic Impact Assessment has found no reason for this development not to proceed.
i) any written advice received from the road authority.	None

E5.6.4 Sight distance at accesses, junction, and level crossings

No new access is being considered for this development, and this criterion is not being assessed.

9.2. E6.0 Parking and Access Code

E6.6.1 Number of parking spaces

Having consideration to the planning scheme, this development requires the provision of 68 additional parking spaces. This development will provide 13 on-site parking spaces by redeveloping the adjacent land to increase the existing 17 to 30 parking spaces and rely on surplus car parking spaces within the Woolworths site to meet the shortfall of 55 spaces. Consequently, this development must be considered under the performance criteria P1.

Performance criteria	Assessment
To ensure there is enough car parking to meet the reasonable needs of all users of a development, taking into account the level of parking available on or outside of the land and the access afforded of users by other modes of transport. The use or development does not detract from the amenity of users or the locality by preventing regular parking overspill and minimising the impact of car parking on heritage and local character.	
a) car parking demand	Based on the leasable floor space, the office space is expected to generate a demand for 48 on-site parking spaces, to comply with the planning scheme requirement of 1 parking space per 30 square meters of leasable floor area. The retail space is expected to generate a demand of 20 parking spaces per hour. In total this development could generate a demand for 68 parking spaces.
b) The availability of on-street and public car parking in the locality;	Both Station Lane and Western Hill Road have sufficient road width to allow for on-street parking along both sides of the roads. On-street parking has not been considered as part of this development assessment, because there is sufficient surplus parking within the Woolworths site
c) The availability and frequency of public transport within 400m walking distance of the site;	The Sorell transit centre is located within 50 metres of the site, and this makes public transport a viable mode of travel for office employees. This transit centre has 87 parking spaces.
d) the availability and likely use of other modes of transport;	The development site is reasonably located to residential catchments, making cycling, and walking an attractive alternative for office employees.
e) the availability and suitability of alternative arrangements for car parking provisions;	None.
f) any reduction in car parking demand due to the sharing of car parking spaces by multiple uses, either because of variation of car parking demand over time or because of efficiencies gained from the consolidation of shared car parking spaces;	This development is located within the Sorell retail precinct and as part of the Woolworths site. Much of the trade from the retail space is expected to be linked with multi-purpose trips, and the number of retail parking spaces could be discounted to allow for these linkages.

g) Any car parking deficiencies or surplus associated with the existing use of the land;	This development is part of the Woolworths site, which provides 376 on-site parking spaces. A comprehensive patrolled parking survey over six days found the maximum parking demand was 214 spaces, or 57 percent of the available spaces. This means there were at least 162 car parking spaces unoccupied, which can be considered surplus and more than adequate to be shared with the development.
h) Any credit which should be allowed for a car parking demand deemed to have been provided in associated with a use which existed before the change of parking requirements, except in the case of substantial redevelopment of a site;	None
i) The appropriateness of a financial contribution in lieu of parking towards the cost of parking facilities or other transport facilities, where such facilities exist or are planned in the vicinity;	No financial contribution is considered necessary, as the surplus of parking spaces already within the Woolworths site will be more than sufficient to meet the expected parking demand of this new development.
j) Any verified prior payment of a financial contribution in lieu of parking for the land;	None required.
k) Any relevant parking plan for the area adopted by Council;	Not aware of any.
l) The impact on the historic cultural heritage significance of the site if subject to the Local Heritage Code;	None expected.
m) Whether the provision of the parking would result in the loss, directly or indirectly of one or more significant trees listed in the Significant Trees Code.	None.

E6.6.2 Number of accessible car parking spaces for people with a disability

The current Woolworths Site includes at least four accessible parking spaces that are located adjacent to the building entrance.

The development site provides for both office and retail space. The retail space requires a higher accessible space requirement of one space for every 50 car parking spaces, compared with office space requiring one space per 100 car parking spaces. Having consideration that the majority (70 percent) of the floor area will be office space, one accessible parking space would be reasonable.

The redeveloped land adjacent to the office building will contain one accessible parking space and this complies with the acceptable solution under the planning scheme.

E6.6.3 Number of motorcycle parking spaces

The development will provide two dedicated motorcycle parking spaces, complying with the acceptable solution under the planning scheme.

E6.6.4 Number of Bicycle parking spaces

The number of bicycle parking spaces is specified in the planning scheme table E6.2 with the office and retail use requirements specified in the table below. Based on the office space being 1,440 square metres, the development will provide five bicycle parking spaces, with these spaces being a locked compound with communal access using duplicate keys. One wheel frame will be provided for visitors to secure their bikes. The number of bicycle parking spaces will comply with acceptable solution under the planning scheme.

Bicycle parking requirements

Land use	Employee requirement		Visitor requirement	
	Rate	Class	Rate	Class
Office	One spec for each 250m2 floor area after the first 250m2 floor area	1 or 2	One space for each 1,000m2 of floor area if the floor area exceeds 1,000m2	3
1440m2	Five spaces for employees		One space for visitors	
Retail	No bicycle requirement			

E6.7 Development Standards

Development standards		Comment
6.7.1	number of vehicular accesses;	This development will use the existing accesses to the Woolworths site and create no new access. This complies with the acceptable solution.
6.7.2	design of vehicular access;	Not applicable
6.7.3	vehicular passing areas along an access;	All vehicular accesses have sufficient width to accommodate two-way traffic flow. This complies with the acceptable solution.
6.7.4	On-site turning;	All vehicles will be able to enter and leave the development site in a forward driving direction, complying with the acceptable solution.
6.7.5	Layout of parking areas;	Designed to conform with AS 2890 part 1 and complies with the acceptable solution, ensuring vehicles can access in a safe and efficient manner.
6.7.6	Surface treatment of parking areas;	Will be hard wearing concrete or bitumen surface and have sufficient grade for surface water to be directed to an approved stormwater system.
6.7.7	Lighting of parking areas;	Lighting will be provided to satisfy the acceptable solution.
6.7.8	Landscaping of parking areas;	Landscaping will be provided within the development site.
6.7.9	Design of Motorcycle parking areas;	The motorcycle parking spaces will be provided in accordance with the Australian Standard.

6.7.10	Design of Bicycle Parking facilities;	For employees, the five bicycle parking spaces will be located in a locked compound with communal keys, and one wheel frame for visitors to secure their bikes, complying with the acceptable solution
6.7.11	Bicycle end of trip facilities;	Not required.
6.7.12	Siting of car parking;	The parking spaces have been set back from the road frontage as far as possible, with landscaping provided to screen the parking spaces, complying with the acceptable solution.
6.7.13	Facilities for commercial vehicles;	A dedicated loading bay is incorporate in the redevelopment car parking area, to enable a single rigid van to enter, turnaround and leave in a forward-driving direction, complying with the acceptable solution.
6.7.14	Access to a road	The current vehicular accesses connecting the Woolworths site to the surrounding road network provides for safe and efficient vehicle movements.

10. Conclusion

This new three storey development will replace an existing single storey building and provide a substantial increase in leasable office floor space for the area. The use will be compatible with the surrounding land-use and optimise the existing road infrastructure. The development will draw on a surplus of parking spaces available within the Woolworths site.

From a traffic engineering and road safety perspective, additional traffic generated from this development site is not expected to create any adverse safety, amenity, or traffic efficiency problems, as:

- there is sufficient capacity within the current road network to absorb the extra traffic movements,
- the additional traffic movements will use three existing accesses on Station Lane and Western Hill Road to access the Woolworths site parking spaces,
- traffic modelling has demonstrated that each of the accesses will provide the highest level of traffic efficiency possible to ensure safe traffic movements, and
- the Woolworths site has sufficient surplus parking spaces to accommodate the additional parking demand, without causing any overspill to the adjacent street network.

This Traffic Impact Assessment found no reason for this development not to proceed.

SORELL CENTRAL

5 Station Lane, Sorell

Integrated Impact Assessment

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Principal of

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vD

23 December 2022

Contents

1. Introduction

The site was previously occupied by a single storey building, housing a Laundromat, offices and two units, until fire destroyed it in 2019. It is proposed to replace this with an office centre to be called 'Sorell Central'.

Sorell Central is intended to become the centre of Sorell's commercial life. Its site is at Sorell's logistic epicentre, the cross-road of its retail, civic & pedestrian movements.

The proponent of this proposal owns most of the block of which it is a part and sees this as the commercial complement to the retail centre, Sorell Gateway, they've already created.

It would consist of three levels:

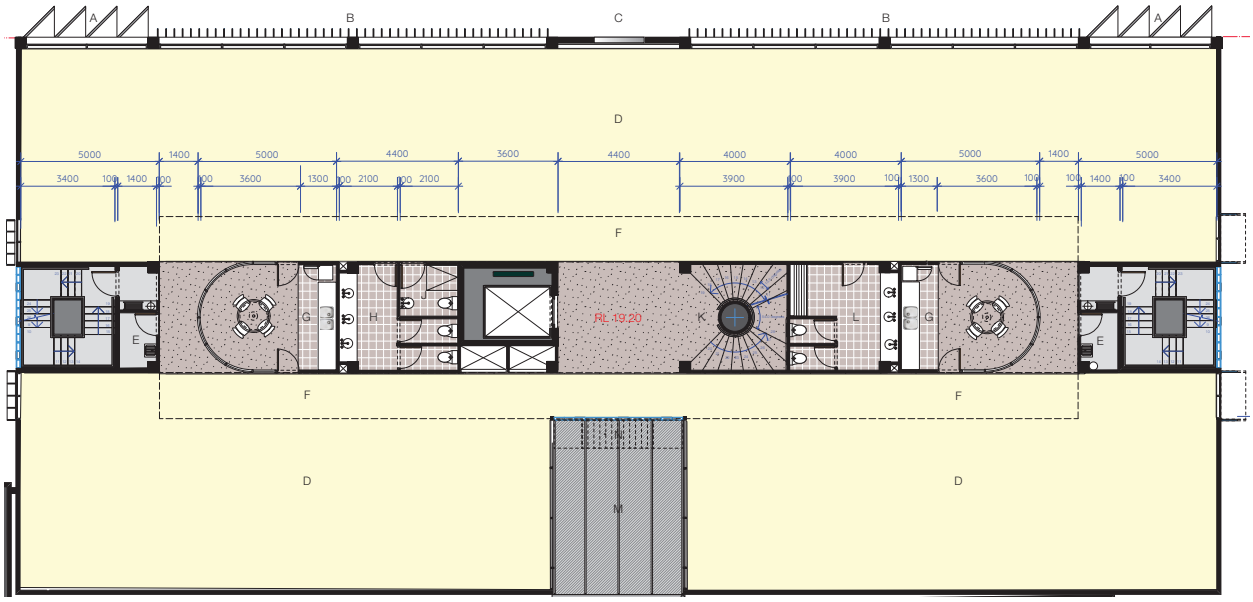
- A street level occupied by retail and commercial tenancies with active street frontages, such as a government services office, or café.
- Two upper levels designed to accommodate commercial offices in a flexible range of possible configurations, from a diversity of small tenancies, to whole floor tenants.

In addition to the required fire stairs, another central, curving stair is proposed that, freed of the exigencies of catering for fire egress, can remain open and be illuminated by a clerestory at the top. This is designed to encourage those in the building to use it in preference to the lift.

A light court at the rear of the central entry lobby would also bring daylight and ventilation into the heart of the building. This East/West axis is complemented by a North/South one, incorporating amenities, including communal meeting rooms, kitchens and unisex toilets.

This arrangement allows the floors to be potentially subdivided into four quadrants, which could be further broken down into smaller tenancies, if required. In this way, tenancies ranging from 25m^2 up to 750m^2 could be accommodated.

Potential tenants range from small professional businesses, up to government agencies.



Plan of Level 2 of Sorell Central

2. Impacts on the Community

2.1. Socio-Economic Impact.

Sorell is the fastest growing municipality in Tasmania and is forecast to be an even more significant regional centre than it already is. Traditionally it has been the 'Stop-off on the way to the shack', which made it thrive during holiday periods and over the tourist season, but it would tend to wane in the off seasons. This seasonality has led to it having a lack of some of the more fundamental infrastructure one might expect in a major regional centre. Its proximity to Hobart has meant that locals have the option to commute there to obtain professional & government services.

Increasingly though, traffic issues are making going to Hobart more time consuming and local agents are starting to be approached by professionals and government agencies looking to establish branch offices in Sorell to meet a growing demand. At the moment, though, all these agents have to show them is houses, or rooms over shops, which are not fully professional options. There is no dedicated office complex, in a convenient location, with adequate access to parking and 'state of the art' facilities.

Sorell Central is a proposal to address this growing market. Being right at the centre of Sorell it has access to the largest pool of parking in the town centre. It would also be the tallest structure in the CBD, making it both conspicuous and recognisable. Any lawyer, accountant, consultant or engineer that wanted to be regarded as being the foremost practitioner in the region would want to have an office here and their collective presence would help to reinforce Sorell's claim to being the regional centre of the East Coast.

The colonnade along its frontage would provide weather protection for those going between the bus terminus and the businesses on Cole Street and the active street frontage would help to fill-in the sequence along Station Lane, thereby enlivening this side of the town's main block.

View looking down Station Lane to the South

2.3 Visual Impact.

The design is deliberately iconic, with its striking blue features and distinctive roof-form that would be visible from all of the approaches into the town. This prominence would no doubt be superseded by other developments in the future as Sorell continues its upward trajectory, but not before it has become an established landmark, emblematic of the town's business heart.

It is unashamedly modern, as is appropriate for a state-of-the art facility, and is also unflinchingly conspicuous. Sorell has a bold new future in front of it and the proponents contend that Sorell Central should symbolise confidence in this vision for the future. No longer a country town, but a thriving metropolis, with business at its heart.

View from the southern end of Station Lane

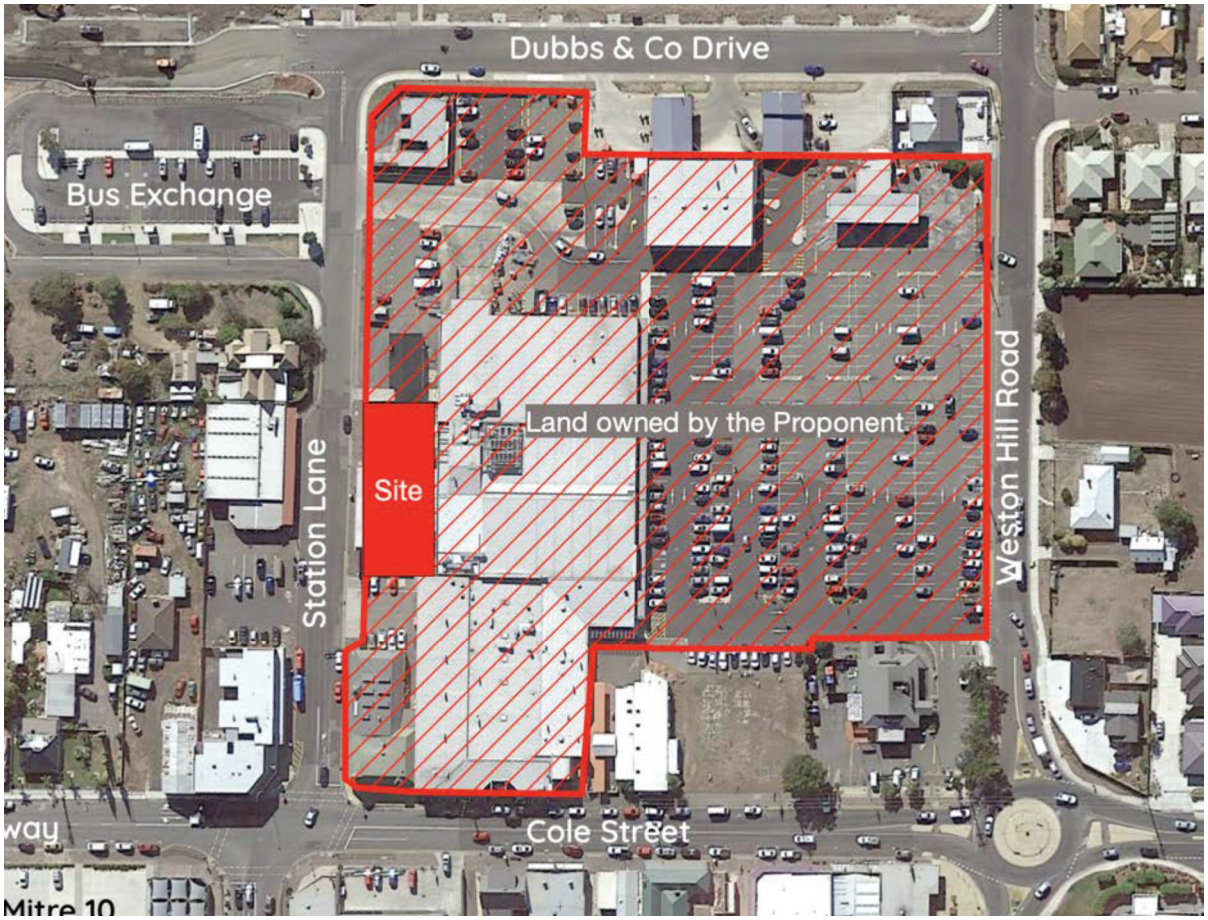
View from Dubs & Co Drive, looking South down Station Lane

View from the Arthur Hwy Roundabout, looking West

View from the Tasman Hwy, looking East

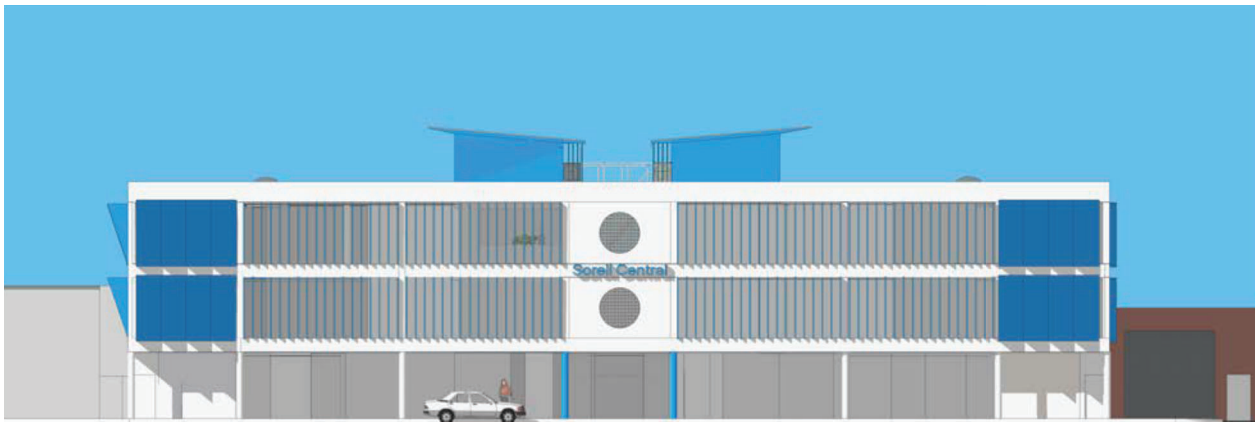
2.4. Impact on Neighbours.

The surrounding land to the site is almost all owned by the proponent, with the exception of the Library, the car wash and McDonalds, none of which would be affected by this proposal.



Properties on the other side of Station Lane would benefit from an improved outlook and an increased level of foot traffic in the street.

Shadows from the building would only reach the other side of the street early in the morning in winter and would be gone by 9am.



View from the other side of Station Lane

2.5. Impact on Services Infrastructure

Power, water, sewer, NBN & Telstra were all connected to the building that previously occupied the site and we have been advised that all of this infrastructure has the capacity to provide what is needed for the new building.

2.6. Impact on Traffic & Transport

The attached revised Traffic Impact Assessment by Hubble Traffic concludes that:

> "From a traffic engineering and road safety perspective, additional traffic generated from this development site is not expected to create any adverse safety, amenity, or traffic efficiency problems, as:
>
> - There is sufficient capacity within the current road network to absorb the extra traffic movements
> - The additional traffic movements will use three existing accesses on Station Lane and Western Hill Road to access the Woolworth site parking spaces
> - Traffic modelling has demonstrated that each of the accesses will provide the highest level of traffic efficiency possible to ensure safe traffic movements, and
> - The Woolworth site has sufficient surplus parking spaces to accommodate the additional parking demand without causing any overspill to the adjacent street network.
> - This Traffic Impact Assessment found no reason for this development not to proceed.

2.7. Planning Scheme Compliance

The following table shows that there are two aspects of this proposal that exceed the Acceptable Provisions and must be justified in terms of the Performance Criteria. These are the building's height and its setback from Station Lane.

Sorell Planning Scheme 2015

- Development Standards for General Business Zone:

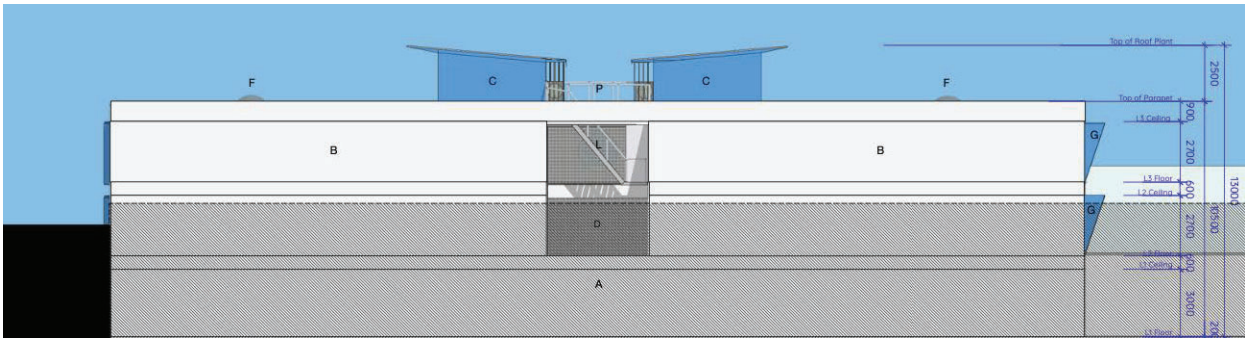
	Requirement	Proposed	✔
21.4.1	Building Height less than 10m	10.7m to parapet + 2.5m roof plant	No
21.4.2	Front Setback 3m	Zero setback	No
21.4.3	Design		
(a)	Visible Pedestrian Entry	Entry very prominent	Yes
(b)	40% Ground Floor glazed	90% Ground Floor glazed	Yes
(c)	Blank wall < 30% Facade	0% Blank	Yes
(d)	Conceal Plant	All Plant concealed on Roof	Yes
(e)	Incorporate Plant into Roof	All Roof Plant Contained	Yes
(f)	Awnings over Footpath	Full length Colonnade	Yes
(g)	No Security Shutters on Street	No Security Shutters on Street	Yes
21.4.4	Passive Surveillance		Yes
(a)	Main Pedestrian Entry on Street	Main Pedestrian Entry on Street	Yes
(b)	40% Ground Floor glazed	90% Ground Floor glazed	Yes
(c)	Blank wall < 30% Facade	0% Blank	Yes
(d)	Avoid Concealment Alcoves	No Concealment Alcoves	Yes
(e)	External Lighting	Colonnade Floodlit	Yes
(f)	Well-lit Entry	Colonnade Floodlit	Yes
21.4.5	No landscaping if <1m setback	Zero setback	Yes
21.4.6	Outdoor Storage Contained	No Outdoor Storage	Yes
21.4.7	Fencing Requirements	No Fencing	Yes

Building Height

The objectives of the Building Height Provision are:

a) That the building's height is compatible with the streetscape, and
b) Does not cause an unreasonable loss of amenity to adjoining residential zones.

When viewed from its immediate proximity, the top of the building would be slightly higher than the allowable 10.0m, at 10.7m. The structure enclosing the roof plant, which would not be visible from the street, as it is set back 8.4m from the front and 14.4m from either end, is an additional 2.5m high, making a total of 13.2m.



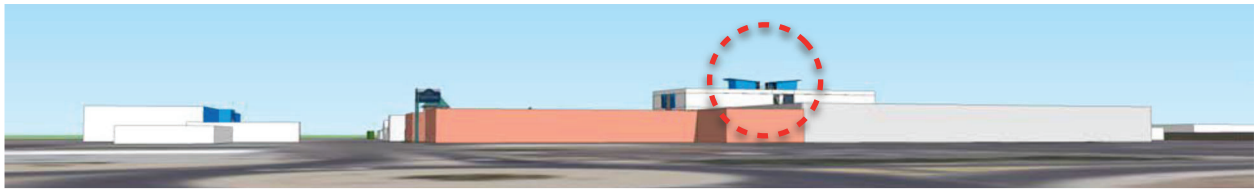
East *Elevation, showing heights of each level*

Roof Plan, showing setbacks of the Plant Room to the front & sides.

The structure enclosing the roof plant has a distinctive 'winged' roof and is proposed to be painted a bright 'Azure' blue, to relate it to the sky against which it would be profiled from a distance.

The streetscape of Station Lane is predominantly two storey, with a 10m corner tower on the SE corner with Cole Street. It is submitted that a three storey element in the middle portion of the street, with two storey elements at either end, is an appropriate scaling up to form a town centre landmark, in this, the town's effective epicentre.

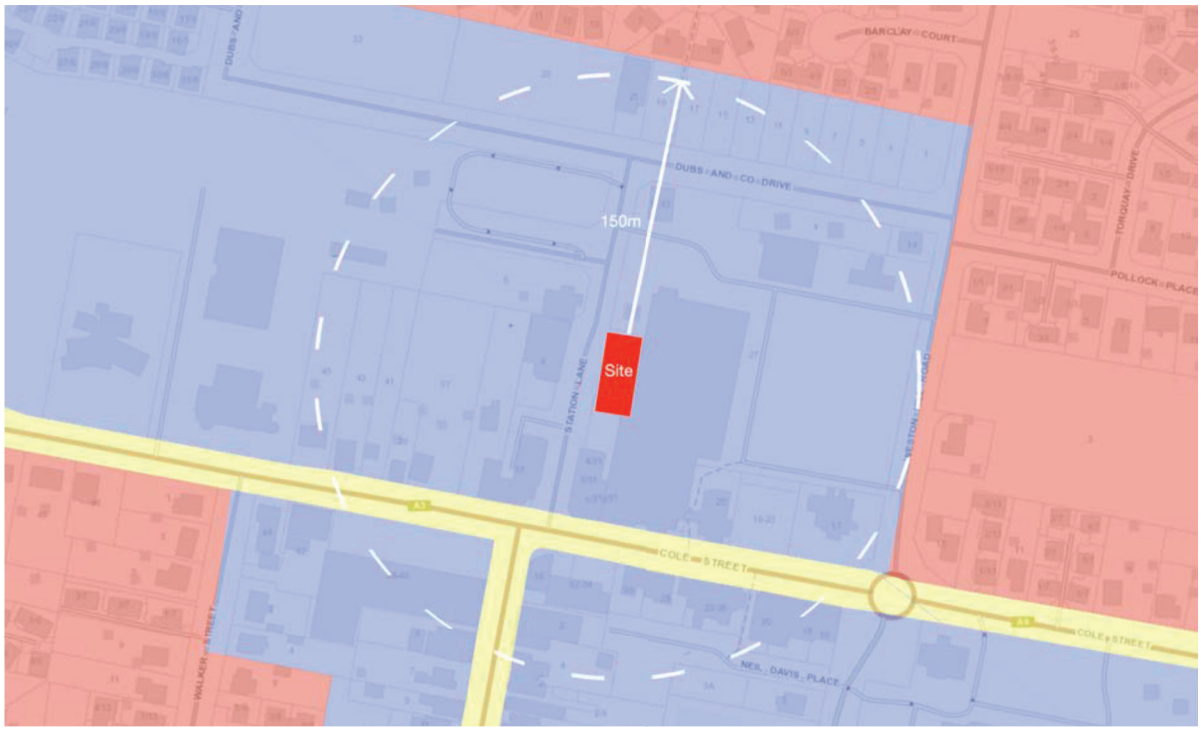
When viewed from a distance, the winged roof form would be a noticeable, but interesting, blue element, floating above the surrounding roof-scape, denoting the centre of the town.



View from the Arthur Hwy Roundabout

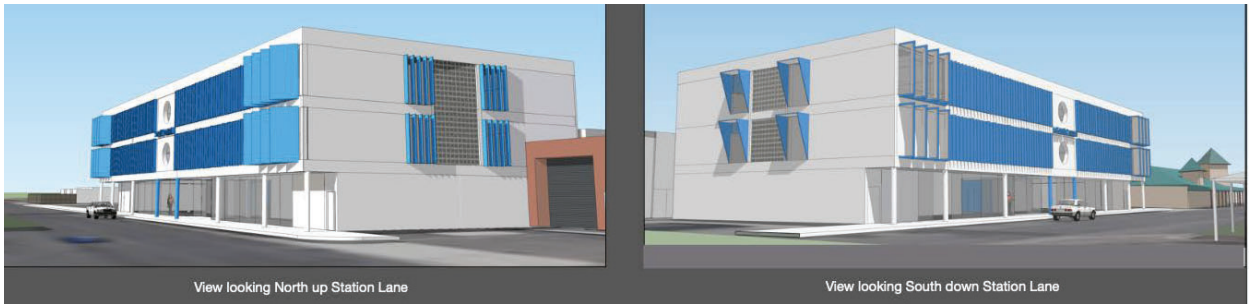
View from the Tasman Hwy, looking East

In regard to objective b), That it does not cause an unreasonable loss of amenity to adjoining residential zones, the diagram below shows that the site is at least 150m from the nearest residential zoned land, so could not have any affect on their amenity.



The Site is at least 150m from the nearest Residential Area

While the proposal exceeds the Acceptable Building Height limit of 10m, it is submitted that it can be justified under the Performance Criteria, as follows:



a) '*Be consistent with any Desired Future Character Statements*'. Addressing each of the clauses of the Statement for Sorell Township in turn:

   a) It provides an active & attractive streetscape through the setback of the facade at street level creating a colonnade along Station Lane, with multiple entrances along it.

   b) Because of the location of the site, there is no opportunity to improve access/permeability to the town centre from the adjacent residential areas

   c) The site is too small to provide open space within, other than the colonnade, which would give shelter from the weather for those going along Station Lane.

   d) It is a sustainable development that optimises water & energy conservation, through the orientation & sun-shading of its double-glazed fenestration; the choice of materials; its 5 star heating & cooling system; use of low-energy LED lighting throughout; the R4 insulation of the roof and the Storm Water Management system[1].

   e) The facade is both colourful, through the use of blue sun-shading and articulated, through the setback of the colonnade at street level; the differentiation above the central entry and the glass-block panels & shaded windows on the end facades.

The element that exceeds the 10m height limit is not visible from street level in the immediate vicinity of the building, due to its setback in the centre of the roof. It therefore has no effect on the streetscape values of Station Lane. It is only visible from more distant vantage points, as elaborated in 2.3 'Visual Impact', above.

b) '*Be compatible with the scale of nearby buildings*'. Having car parks on either side, Sorell Central has no immediately adjacent neighbours. The nearest building is 20m south on Cole Street, which has a clocktower 10m high. To the north is a flat-roofed house 60m away on the corner of Dubs & Co Drive, whose highest point is 5m. Behind the site, 20m back from Station Lane, is the 6m high blank concrete wall of Woolworths. The sites either side of the proposal could potentially be infilled with buildings to 10m high. This would lead to the plant room on Sorell Central being a small rise in the centre of the block, which could only be seen from a long distance away. It is therefore submitted that this proposal is entirely compatible with its neighbours.

Elevation along Station Lane, with Sorell Central & potential infills superimposed

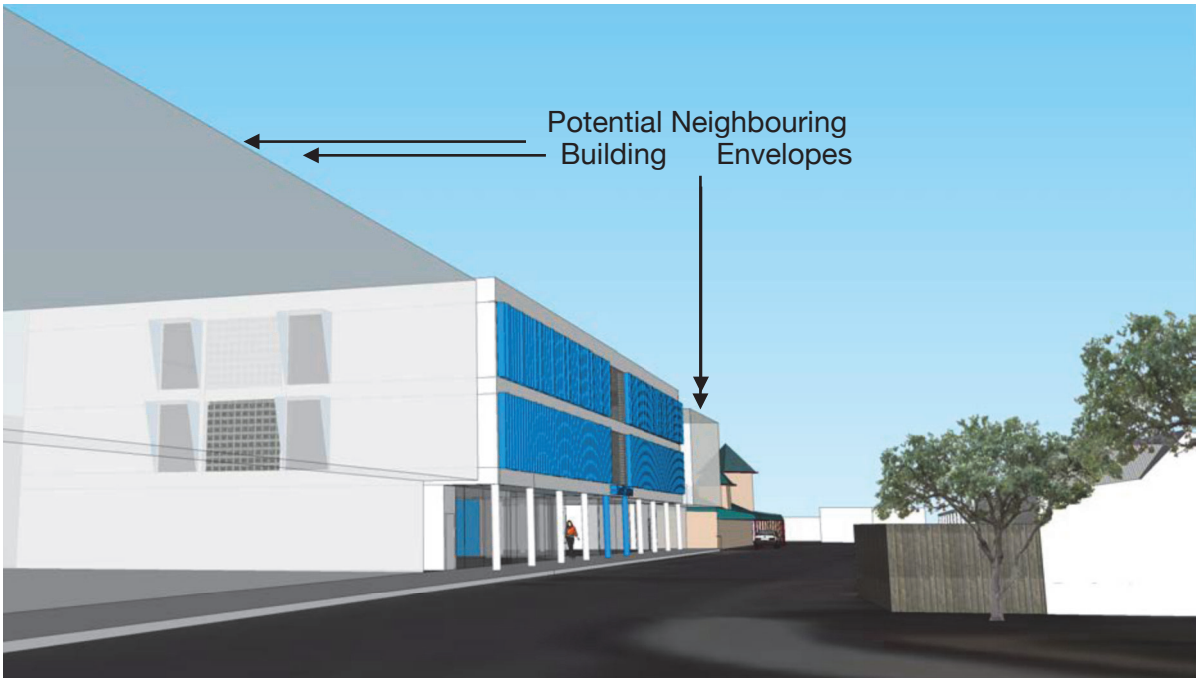
c) '*Not unreasonably overshadow adjacent public space'*. There is no public space adjacent to the site, other than for Station Lane itself. The proposed building would cast a shadow over the

[1] Refer revised Storm Water Management Plan attached.

street on winter mornings, but, even at its solstice, the shadow would not reach the footpath on the other side of the street.

d) '*Allow for a transition in height between adjoining buildings, where appropriate*'. The street elevation on the previous page shows there are no adjoining buildings, however, if infill were to occur beside it in the future, the diagrams below show that this proposal would sit comfortably with them. The one element that is slightly higher, the plant room, would not be visible anywhere from along Station Lane as it is set back from the front parapets by at 8.275m and from the sides by 14.400m.

View looking south along Station Lane, showing potential adjacent envelopes



View looking north along Station Lane, showing potential adjacent envelopes

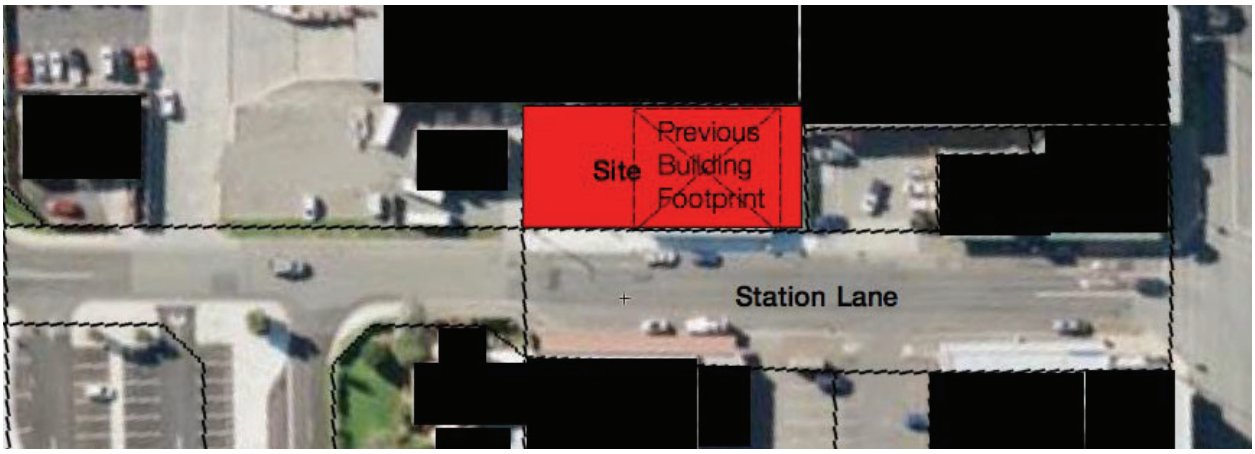
Front Setback

The proposed building is setback 2m at the ground level and is on the boundary alignment on the upper levels. The Acceptable Solution allows for a nil setback on Gordon & Coles Streets and requires 3m on other streets. The proposed alignment can be justified, however, in terms of the Performance Criteria, as follows:

a) '*Be consistent with any Desired Future Character Statements*':

   a) It provides an active & attractive streetscape through the setback of the facade at street level creating a colonnade along Station Lane, with multiple entrances along it.
   b) Because of the location of the site, there is no opportunity to improve access/permeability to the town centre from the adjacent residential areas
   c) The site is too small to provide open space within, other than the colonnade, which would give shelter from the weather for those going along the east side of Station Lane.
   d) It is a sustainable development, as outlined in 4.2 above and the SW Management Plan.
   e) The facade is both colourful, through the use of blue sun-shading and articulated, through the setback of the colonnade at street level; the differentiation above the central entry and the glass-block panels & shaded windows on the end facades.

b) '*Be consistent with the setback of adjoining buildings, generally maintaining a continuous building line, if evident in the streetscape*'. All of the neighbouring buildings to the site have zero setbacks, on both sides of Station Lane and the previous building on the site, (which burnt down in 2019), also had a zero setback.



Aerial view showing all nearby building footprints have zero setbacks to Station Lane.

c) '*Enhance the characteristics of the site, adjoining lots and the streetscape*'. The 2m colonnade along the frontage would enhance pedestrian amenity and articulate the streetscape.

d) '*Provide for small variations in building alignment, only where appropriate, to break up long building facades, provided no potential concealment or entrapment opportunity is created*'. A glass block central panel divides the facade into 2 segments, less than 20m, and the entry is splayed to prevent it becoming an entrapment or concealment opportunity.

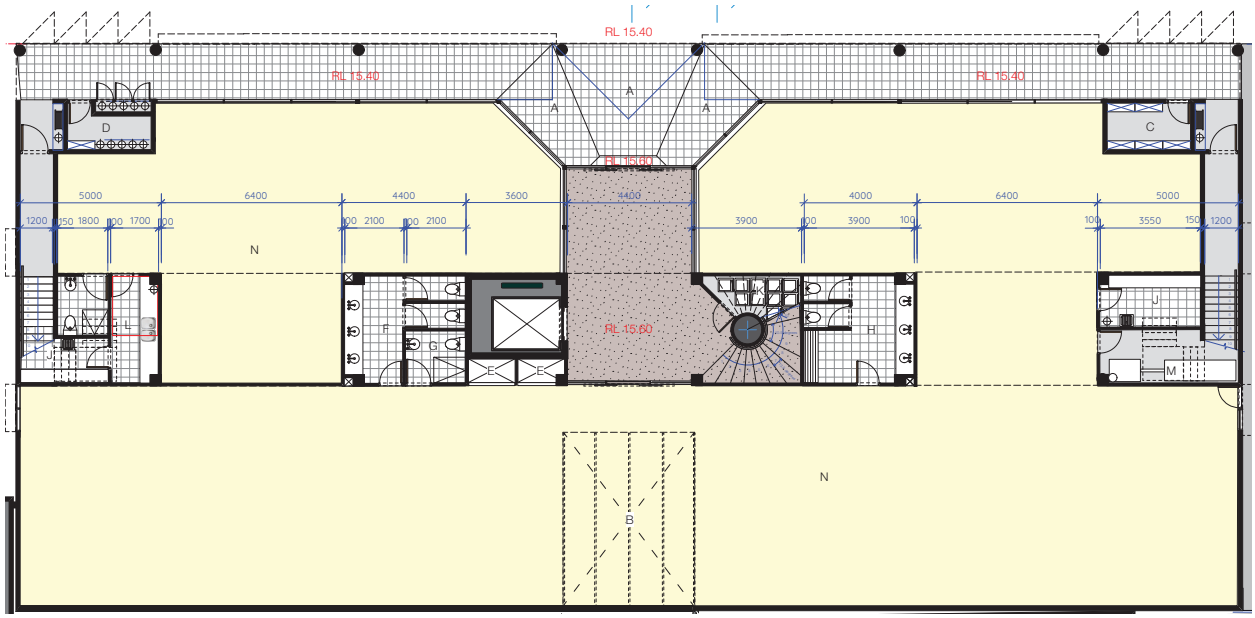
e) *'Provide for large variations in building alignment only where appropriate to provide for a forecourt for space for public use, such as outdoor dining or landscaping, provided the that no potential concealment or entrapment opportunity is created and the forecourt is afforded very good passive surveillance*'. The site is too small to afford a forecourt, but the colonnade does provide some weather protected public space for pedestrians without creating either entrapment, or concealment opportunities.

P2 '*Building setback from a residential zone must be sufficient to prevent unreasonable adverse impacts on residential amenity*'. As the site is 150m from any residential area it can not affect any residential amenity.

3. Impacts on the Occupants

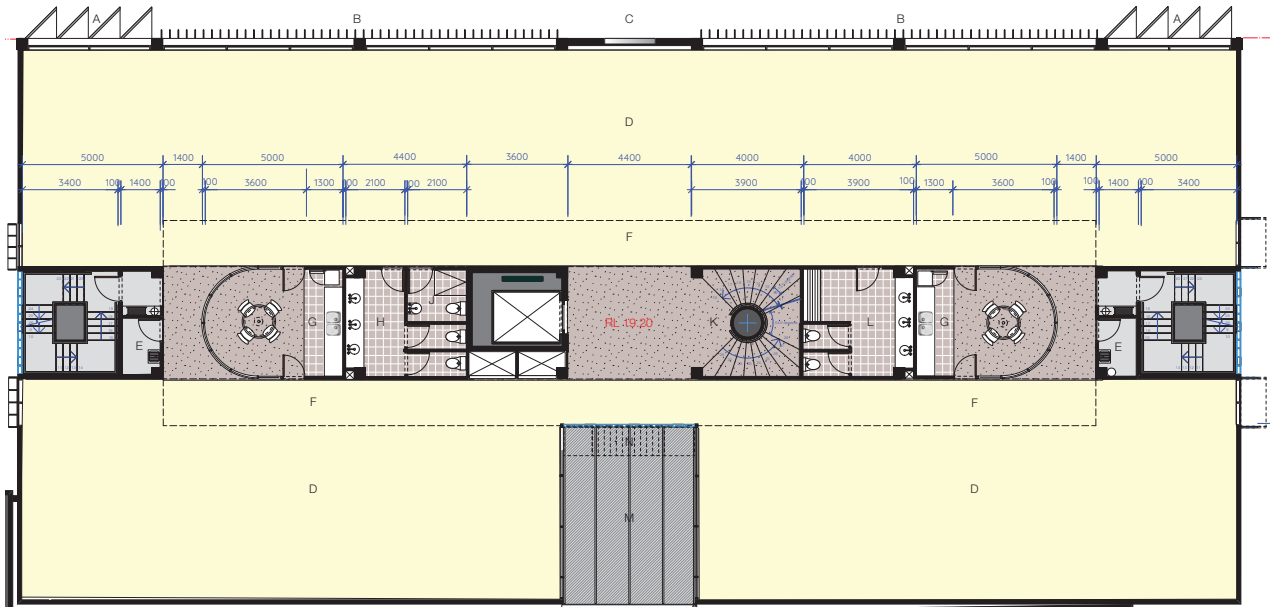
3.1. Accommodation

The Street Level is divided into two lettable areas divided by a central bay running east/west across the building, consisting of a wind lobby, the lift lobby and a landscaped light court beyond. The tenancies are configured with amenities on either side so that they could potentially be subdivided into two tenancies each. These commercial tenancies are intended for 'publicly engaging' uses, such as government services agencies, in order to activate the colonnade, which runs along the full length of the street frontage.



Street Level Plan

The upper floors have been configured with a central spine of amenities running north/south, enabling the floor to be a single tenancy of 715m² ; two of 357m²; four of 117m²; or up to 17 tenancies of between 26m² & 39m². The flexibility of this arrangement would 'future-proof' Sorell Central against the rapidly changing nature of the commercial office market, at present and into the future, thereby ensuring Sorell Central's ongoing viability and relevance.



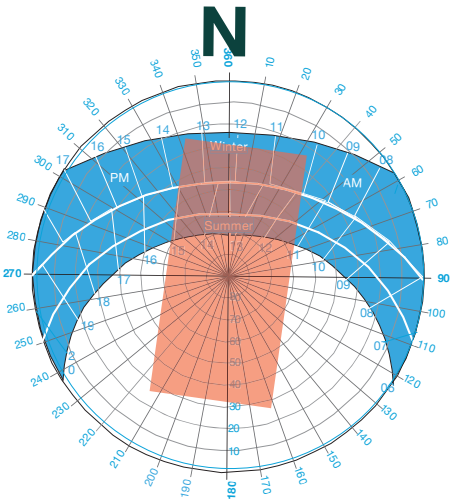
Levels 2 & 3 PlanSolar Access

The main axis of the site runs north/south, giving the street frontage a westerly aspect. The CSIRO's guidelines for Sun-Shading in Australia recommends vertical blades for a western aspect at this latitude. Therefore, the main facade has been covered with vertical louvres, which create a 100% sun-break. The depth of the colonnade provides a 70% sun break to the bottom level and the lower angled summer sun would be blocked by the buildings across the street, ensuring that the retail tenancies do not receive any excessive solar gain.

The northern facade faces onto a property boundary, which, while both sides are owned by the proponent, has been treated as an adjacent lot to enable the this property to be sold independently in the future. Hence, only 10% of glazing has been created on this and the southern side. The Sun-Shading Guide recommends a 50% horizontal sun-break for a Northern facade at this latitude, so shade hoods have been added to these windows.

The 10% of glazing on the southern facade has been given vertical shading, as recommended.

The eastern facade is mostly covered by the wall of the adjacent Woolworths up to a height of 7m, leaving only the top 3.5m exposed. This facade has therefore been left blank, with the exception of a panel of glass blocks to admit light into the shaft in the middle.



Footprint imposed on the Sun Path

There are also glass-block panels to the fire stairs on the north & south and over the entry. Since these have a 2 hour fire-rating they are not included in the 10% limit on glazing to the facades on the shared boundaries.

Using this combination of optimal sun-shading would ensure that the summer sun would be excluded on all sides and as much of the Spring/Winter/Autumn sun admitted as possible.

3.2. Occupant & Visitor Amenities

On the office levels, communal meeting rooms have been provided in the central amenities block on either side, along with the other shared amenities. On the top level, these are illuminated by domed skylights to admit daylight and even sun at certain times.

All of the toilets on the upper levels incorporate showers for the use of staff wanting to cycle to work or to be able to change before going out in the evening.

A public colonnade along the full length of the frontage would provide weather protection and effectively widen the footpath from 3.2m to 5.2m.

3.3. Accessibility

The additional space for the shower in all of the toilets on the upper levels also allows them to be AS1428.1 compliant, making them accessible to all users. As required, the lift is also compliant and services all levels. As required, there is a DP parking space within 30m of the entry/ Automatic glass sliding doors in the wind lobby and around the upper lift lobbies would facilitate access by wheel chair users and those less ambulant generally.

3.4. Landscaping Strategy

Within the building, a light court at the end of the Entry Lobby is proposed to be landscaped with ferns and other plants that are suitable for shady conditions.

At the top of the central stair, the 1200 diameter central tube would be filled with soil and planted with a small tree, which would benefit from the north facing Clerestory above it.

The following page shows the landscaping proposed for the adjacent parking area, which would consist of low-level, native, Lilly Pilly hedges, to screen the cars and the loading dock beyond, while minimising the creation of concealment or entrapment opportunities.

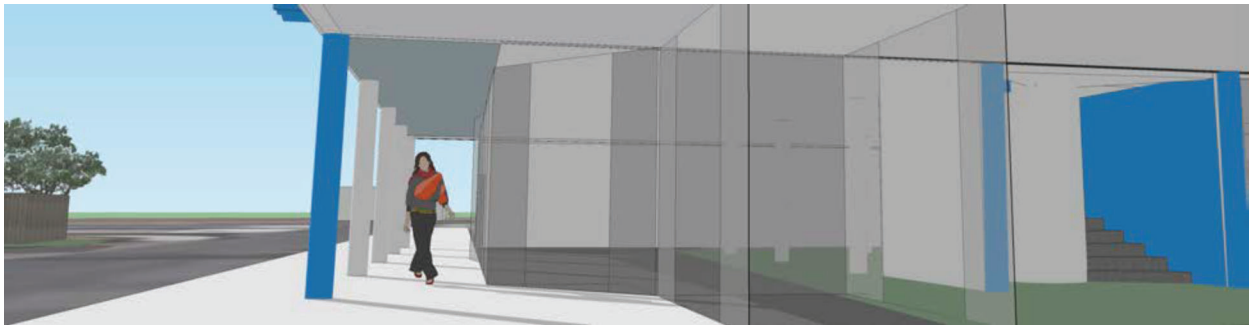
3.5. Pedestrian Circulation

Apart from the BCA required fire stairs at either end, a 'Non-required', central stair has been incorporated. The stairs curves around a central tube, which would be lit from above by a north facing clerestory on the roof. This is intended to provide an attractive alternative to the lifts, as a healthier, more congenial way of moving between the floors.

The street level colonnade would provide weatherproof cover for visitors to the building, or those just moving along Station Lane. This leads from both directions into the splayed entrance to the wind lobby, with access to the tenancies on each side of the splay. The central automatic doors would open on to the lift & stair lobby, which looks through to a light court at its eastern end.

If the tenancies are whole floor, the public access would be controlled at the Lift Lobby, with a reception on the western side and doors at the beginning of each of the circulation corridors. If the floor is broken up into smaller tenancies, the corridors would become publicly accessible.

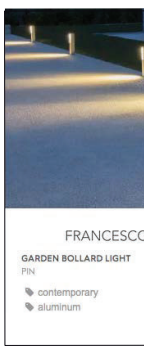
The Landscaping Plan on the previous page shows how the external pedestrian circulation would connect from the colonnade to the adjacent dedicated parking areas, via footpaths separated by curbs from the car circulation. These would all be illuminated by solar powered, LED lighting bollards at 5.2m centres, to provide safer pathways at night.



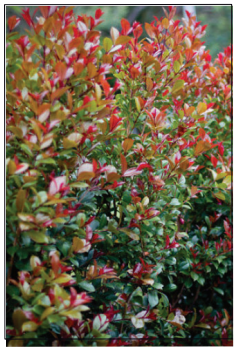
View along the colonnade, where it meets the entry lobby

Station Lane

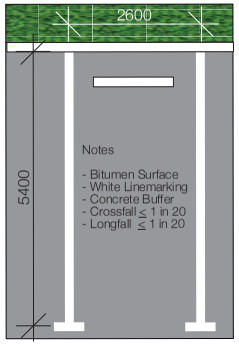
Dubs & Co Drive



LED Lighting Bollards



Screen Planting
Syzyglum Australe (Lilly Pilly)



Typical Parking Bay

CALIBAN CONSULTING

Contacts:

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Tas. Arch. Reg. No. 1134

Caliban Consulting Pty Ltd
john.lewis@vetica.net
P.O. Box 219, Orford,
Tasmania, 7190
0418 445 313

Drawing

No.: STA2 DA22
Date: 22 Oct 2022
Scale: 1:250 @ A2
1:500 @ A4

5 Station Lane, Sorell

Landscaping & Lighting Plan

vC

0 5 10 15 20 25
metres

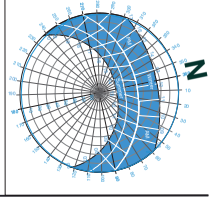
Schedules

Dedicated Spaces	67
Disabled Spaces	1
Total Car Spaces	68
Motorcycle Spaces	2
Bicycle Spaces	8

Dedicated Parking 1,760m²
5% Landscaping = 88m²
Proposed L/scaping 105m²

Key

- Bitumen Surface
- LED Bollard Lighting
- Pedestrian Pathways
- Syzyglum Australe (Lilly Pilly)



4. Impacts on the Environment

4.1. Waste Management

A two bin system of Otto bins would be used to collect Recycling & General Waste separately. These would be located in the tenancy until full and then taken down to the Otto Bin Store at the rear of the Street Level, by the tenants. From there, the bins would be collected and put out on the street for collection by the building janitor. During construction, a comprehensive Waste Management Strategy would be adopted to minimise waste.

4.2. Energy Efficiency

The following measures would be adopted to minimise energy consumption:

- Low-Energy LED lighting throughout the building.
- The Lift & A/C units would all be selected to be 5 star rated appliances.
- The measures to minimise solar gain in summer and maximise it in the cooler months would help to reduce the demand on the A/C.
- Windows would all be double glazed, or glass blocks, to minimise transmission losses.
- The roof would be insulated with R4 Batt insulation.

4.3. Material Selection

Materials would be selected for low captured energy content, recyclability when replaced and their ability to be sources locally, as follows:

Material	Application	Positive	Negative
Concrete	- Floor Slabs	- Thermal Capacitance - Recyclable	- Moderately high captured energy
Aluminium	- Thermal-gapped, Double Glazed Door & Windows	- Insulation performance - Low maintenance - Recyclable	- High captured energy - Not locally sourced
100% Wool Carpet	- Office Areas	- Durability & Non static - Recyclable	- Higher Cost
Ceramic Tiles	- Wet Areas	- Durability - Clean-ability	- Not locally sourced
MDF with Emporite	- Wet Area Joinery	- Durability - Clean-ability	- Dust hazard during manufacture
Timber Benchtops	- Kitchenettes	- Ability to be renewed - Locally sourced	- Higher Cost
Pre-Cast Concrete	- External Walls	- Thermal Capacitance - Locally sourced - Recyclable	- Moderately high captured energy
Softwood Framing	- Internal partitions	- Locally sourced - Low captured energy	
Solarspan Roofing	- Skillion Roofs	- High Insulation value	- High captured Energy - Not locally sourced

5. Conclusions

This proposal is to create a new type of Business Centre for Sorell that would establish a new standard for professional services. Its creation would be a milestone moving Sorell further towards being a truly regional hub, further reducing the need for locals to have to travel into Hobart.

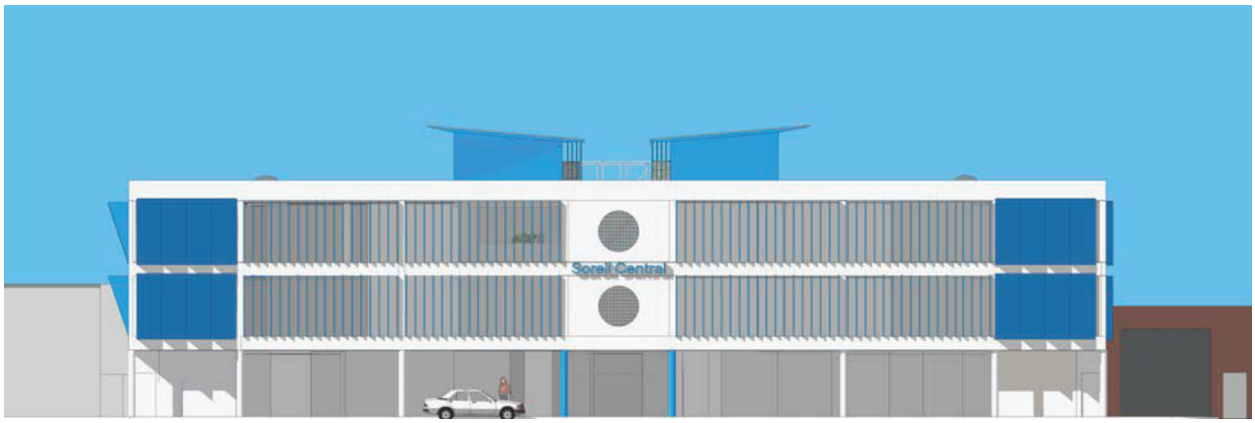
Sorell Central would have a positive effect on the local economy and create a landmark that would identify the town centre from all of the approaches into Sorell. It is unashamedly modern and exuberant, incorporating state of the art environmental technologies and best practice sustainability.

It has two non-compliances with the planning scheme, which have been justified in terms of the performance criteria in the Planning Scheme.

The first is its height, the main structure exceeding the 10m limit by 700mm. On top of this, the roof has a structure enclosing plant and a clerestory skylight, which adds a further 2.5m, but this is setback from the parapet so that it can not be seen in the immediate vicinity.

The second is that it is not setback from the street, as the Planning Scheme indicates, but this follows the pattern of all the other buildings in Station Lane, which are on the street alignment, and the building that previously occupied the site until 2019.

We therefore respectfully submit that the proposal should be approved, as we believe it respects the intentions behind the prevailing Planning Policies and will bring great benefits to the surrounding community.



East Elevation

ROGERSON & BIRCH SURVEYORS
UNIT 1, 2 KENNEDY DRIVE
CAMBRIDGE 7170
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NOTES:

This plan and associated digital model is prepared for Rhonda Hall from a combination of field survey and existing records for the purpose of designing new constructions on the land and should not be used for any other purpose.

The title boundaries as shown on this plan were not marked at the time of the survey and have been determined by plan dimensions only and not by field survey. No measurements or offsets are to be derived between the features on this plan and the boundary layer. The relationship between the features in this model and the boundary layers cannot be used for any set out purposes or to confirm the position of the title boundaries on site.
Due to the nature of the title boundary information, if any structures are designed on or near a boundary we would recommend a re-mark survey be completed and lodged with the Land Titles Office to support the boundary definition.

Services shown have been located where visible by field survey. Services denoted as being "Per DBYD only" are approximate and for illustrative purposes only. Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

This note forms an integral part of the Plan/Data. Any reproduction of this plan/model without this note attached will render the information shown invalid.

Photo 1 - 5 Station Lane

Electrical Substation
Sewer Main per DBYD
Water Main per DBYD
Stormwater Main per DBYD
Photo 1
0.15 dia plastic Pipe
Pump Station Control
Dia 0.675
20.12
Grated Pit full of dirt
Woolworths
1
888m²
43.98
44.33
20.13
Spk = 15.32
Power Line with Concrete Covered
STATION LANE

LEGEND
- Fire Plug
- Water Meter
- Sewer Manhole
- Stormwater Manhole
- Stormwater House Conn.
- Side Entry Pit
- Grated Pit
- Power Conn.
- Telstra/NBN Pit
- Power Pole
- Floor Level
- Survey Control
- Property Boundary
- Fence
- Sewer Main
- Electric Line Overhead
- Stormwater Pipe Per DBYD
- Water Main Per DBYD
- Sewer Main Per DBYD

0 4.0 8.0 12.0 16.0 20.0 metres
SCALE - 1 : 200

HORIZONTAL DATUM is GDA2020, Coordinates are Plane
Coordinate Origin: SPM9921
E 546293.375 N 5263639.798 PER SURCOM

Sorell Council
Development Application: Response to Not Satisfied Information Request - 5 Station Lane, Sorell
Plans Reference: P3
Date Received: 9/01/2023

REV	AMENDMENTS	DRAWN	DATE	APPR.
E				
D				
C				
B				
A				

Contour & Detail Plan

FOR: RHONDA HALL
LOCATION: 5 STATION LANE SORELL

Date:	Contour interval:	Reference:
15-09-2021	0.25m	HALLR04 13696-01
Drawn:	Scale:	Bearing Datum:
AH	1:200 (A3)	MGA
Approved:	C.T. Reference:	Vertical Datum:
SH	232925/1	AHD