Attachments to item number 4.1-

Access Report

Bushfire Hazard Report

17th February 2022

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Mr Brendan Day
42 Arthur Highway,
Dunalley, TAS 7177

Dear Brendan,

PROPOSED ACCESS TO 42 ARTHUR HIGHWAY, DUNALLEY

This traffic impact statement assesses the proposed access in terms of traffic engineering principles, the Sorell Interim Planning Scheme 2015, and Department of State Growth (DSG) requirements including:

- site inspection, sight distance and speed environment assessment,
- consideration of property access requirements,
- consideration of traffic safety for all road users.

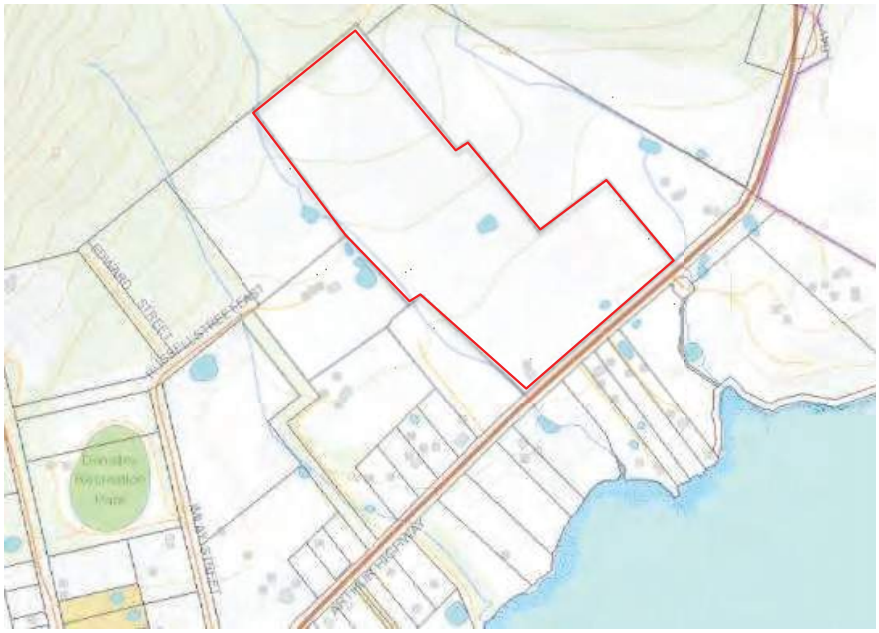
1) Background

42 Arthur Highway is located 1.9 km Northeast of the Denison Canal Bridge at Dunalley, see Figures 1 and 2.

Figure 1 – Location of 42 Arthur Highway, Dunalley

Source: LISTmap

Figure 2 – Location of 42 Arthur Highway, Dunalley



Source: LISTmap

2) Site

The site consists of flat cleared land, with a few surrounding residences, see Figure 3. Site plans are attached in Appendix B. The property has an existing access with the Arthur Highway.

Figure 3 – Aerial View of 42 Arthur Highway

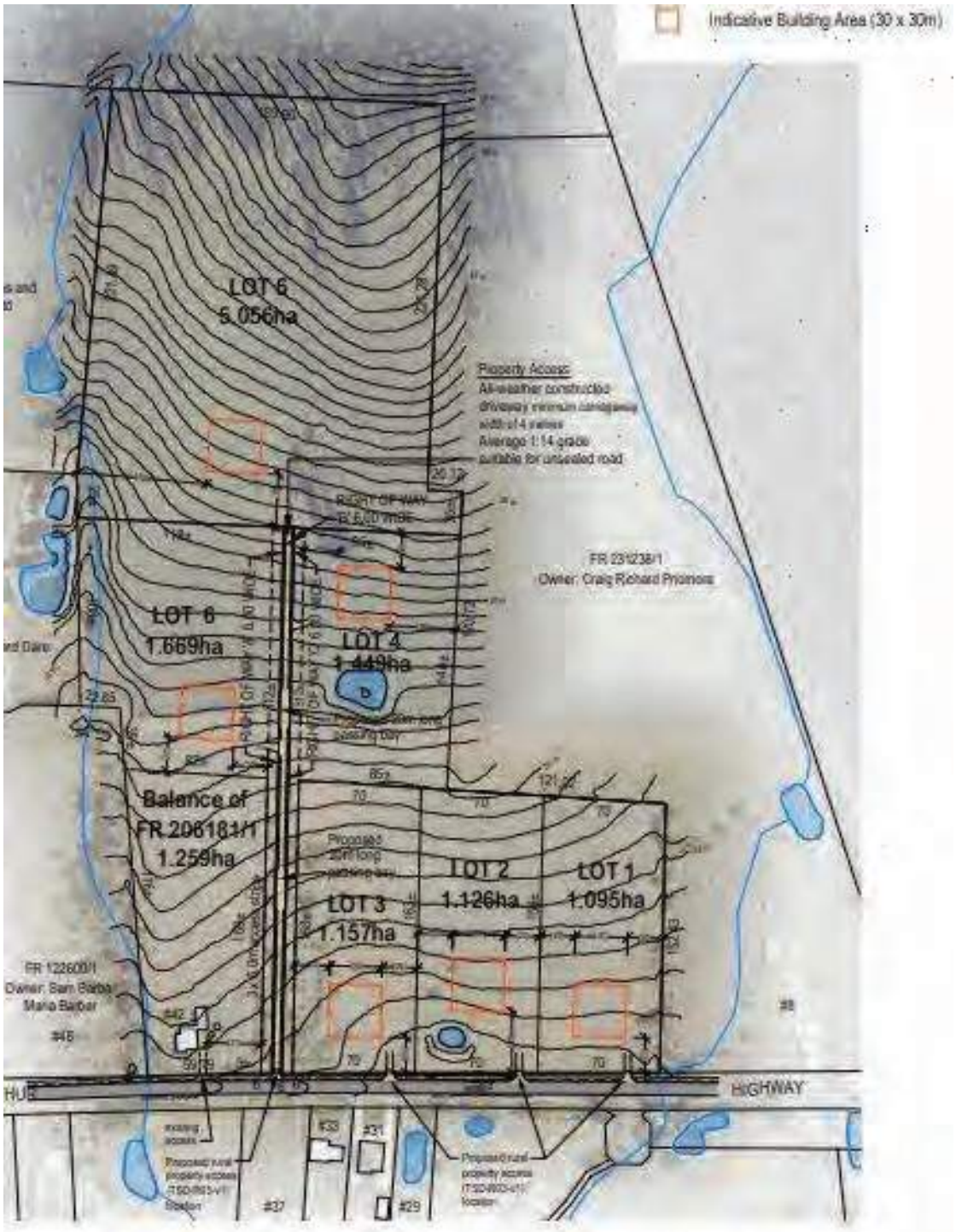
Source: LISTmap

3) Proposal

3.1 Description of Proposed Development

The development footprint is shown in figure 4 and Appendix B and involves a 7-lot subdivision development with use of an existing Arthur Hwy access and 4 proposed accesses.

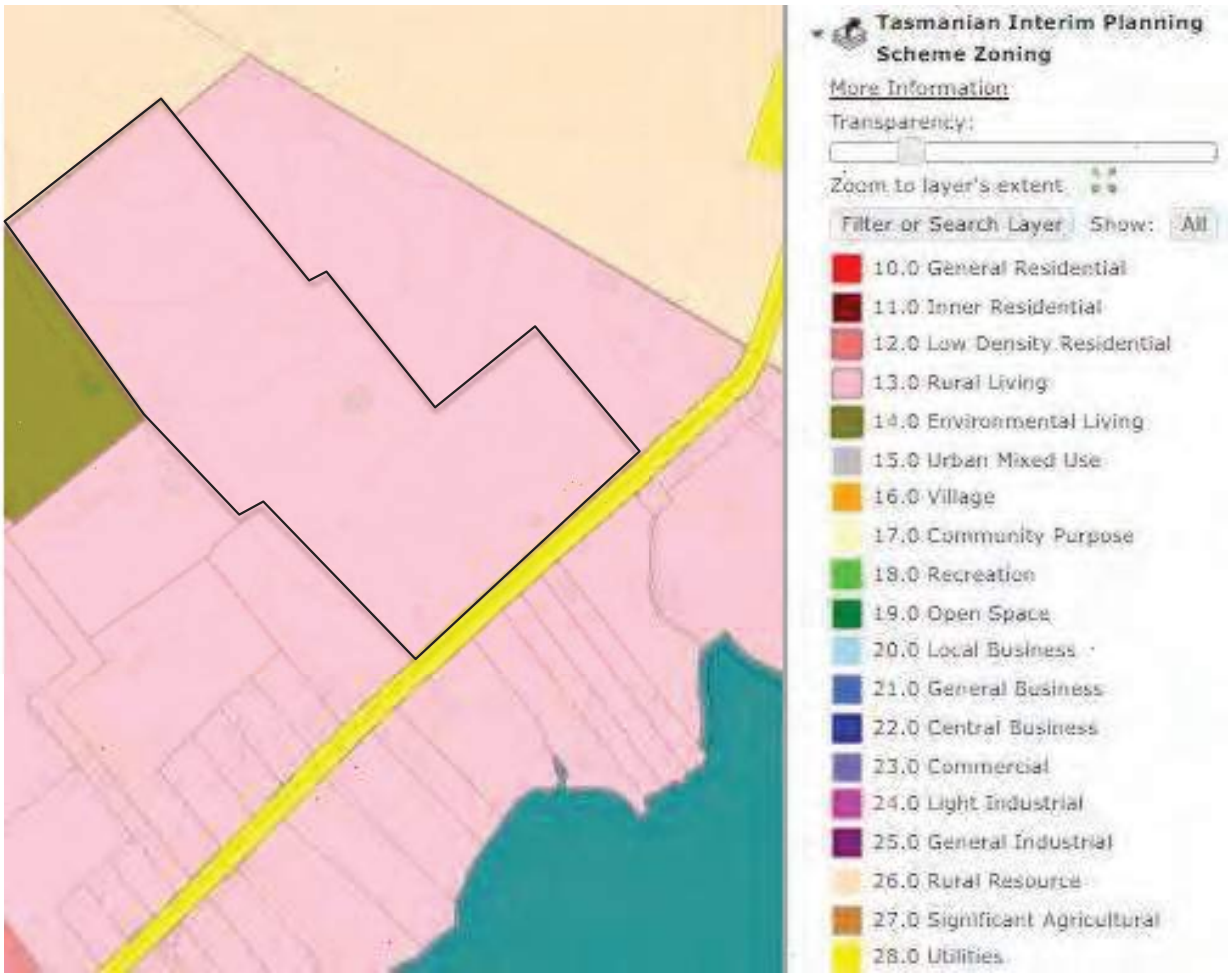
Figure 4 – Proposed development layout



3.2 Council Planning Scheme

Sorell Interim Planning Scheme 2015 zoning for 42 Arthur Highway, Dunalley is shown in Figure 5.

Figure 5 – 42 Arthur Highway is zoned Rural Living



Source: LISTmap

3.3 State Road Network Owner Objectives

The Department of State Growth (DSG) objectives are to maintain safe and efficient operation of the State Road network. The Arthur Highway is a State Road, see Appendix C.

4) Existing Conditions

The Arthur Highway is a Category 3 Regional Access Road in the State Road Hierarchy and is not a part of the Tasmanian 26m B Double Network, see Appendix D and not a Limited Access Road, see Appendix E.

The road has an 60km/h speed limit, has a sealed width of 6.0m, has 0.5m gravel shoulders and no footpaths. Delineation is provided with B1 Barrier Line, RRPMs and guideposts. There is no streetlighting.

4.01) Existing access to #42 Arthur Highway (Lot 7)

Figures 6 – 10 show the nature of the existing access.

Figure 6 – Western approach to existing access

Figure 7 – Looking left along Arthur Hwy from existing access

Sight distance left is 400m.

Figure 8 – Looking right along Arthur Hwy from existing access

Sight distance right is 200m.

Figure 9 – Side view of #42 Arthur Hwy existing access

Figure 10 – Elevation view of #42 Tasman Hwy existing access

4.02) Proposed access to Lots 4-6

Figures 11 – 15 show the nature of the proposed access.

Figure 11 – Western approach to proposed access to Lots 4-6

Figure 12 – Looking left along Arthur Hwy from proposed access

Sight distance left is 350m.

Figure 13 – Looking right along Arthur Hwy from proposed access

Sight distance right is 200m.

Figure 14 – Side view of the proposed access to Lots 4-6

Figure 15 – Elevation view of the proposed access to Lots 4-6

4.03) Proposed access to Lot 3

Figures 16 – 20 show the nature of the proposed access.

Figure 16 – Western approach to proposed access to Lot 3

Figure 17 – Looking left along Arthur Hwy from proposed access

Sight distance left is 280m.

Figure 18 – Looking right along Arthur Hwy from proposed access

Sight distance right is 115m.

Figure 19 – Side view of the proposed access to Lot 3

Figure 20 – Elevation view of the proposed access to Lot 3

4.04) Proposed access to Lot 2

Figures 21 – 25 show the nature of the proposed access.

Figure 21 – Western approach to proposed access to Lot 2

Figure 22 – Looking left along Arthur Hwy from proposed access

Sight distance left is 210m.

Figure 23 – Looking right along Arthur Hwy from proposed access

Sight distance right is 200m.

Figure 24 – Side view of the proposed access to Lot 2

Figure 25 – Elevation view of the proposed access to Lot 2

4.05) Proposed access to Lot 1

Figures 26 – 30 show the nature of the proposed access.

Figure 26 – Western approach to proposed access to Lot 1

Figure 27 – Looking left along Arthur Hwy from proposed access

Sight distance left is 145m.

Figure 28 – Looking right along Arthur Hwy from proposed access

Sight distance right is 270m.

Figure 29 – Side view of the proposed access to Lot 1

Figure 30 – Elevation view of the proposed access to Lot 1

4.1) Traffic Activity

DSG traffic data, Annual Average Daily Traffic (AADT) for the Arthur Highway 1.6km North of the existing access is attached in Appendix C and summarised as follows:

- 1,642 vpd (2001)
- 2,381 vpd (2019) projected.
- 3,060 vpd (2031) projected.
- compound annual growth rate of 2.1%
- Trucks 9% AADT

4.2) Road Safety Review

From road safety review no roadside hazards were identified on either approach to the proposed access to 42 Arthur Highway, Dunalley.

From Austroads Safe System Assessment principles:

- Crash exposure is low with 2,488 vpd (2021) on the Arthur Highway at Dunalley
- Crash likelihood is low as the access has acceptable sight distance , a good standard and adequately delineated.
- Crash severity is low as the speed environment is 60km/h.

Accordingly, the site is assessed as having a low crash risk.

4.3) Sight Distance

The existing and proposed lots along the Arthur Highway are within a 60km/h speed environment, see Figures 17 & 21.

The existing and proposed accesses satisfy Table E5.1 of the Road and Railway Assets Code for SISD, see Figure 31.

Figure 31 – Sight distance summary

Junction	Speed		Road frontage sight distance			
Major Rd - Minor Rd	Limit (km/h)	Environment (km/h)	Table E5.1 SISD (m)	Available Left(m)	Available Right(m)	SSD (m) AS/NZS 2890.1
#42 Arthur Hwy	60	60	105	400	200	65
Lots 4-6 Arthur Hwy	60	60	105	350	200	65
Lot 3 Arthur Hwy	60	60	105	280	115	65
Lot 2 Arthur Hwy	60	60	105	210	200	65
Lot 1 Arthur Hwy	60	60	105	145	270	65

E5.1 Compliant

4.4) Traffic Generation

Traffic generation rates are sourced from the RTA Guide to Traffic Generating Developments 2002.

For dwelling houses traffic generation rates are 9 daily trips per house with 0.85 peak hour vehicle trips.

Traffic generation is estimated as follows:

- Existing access: 9 vpd
- Lot 1: 9 vpd
- Lot 2: 9 vpd
- Lot 3: 9 vpd
- Lots 4, 5 and 6 : 27vpd in total.

In total all 7 lots will generate estimated 49vpd spread over 5 lots.

5) Sorell Interim Planning Scheme 2015

Road and Railway Assets Code E5

Section E5.5.1 Existing Road Accesses and Junctions

Acceptable Solution A3: *The annual average daily traffic (AADT) of vehicles movements, to and from a site, using an existing access or junction, in an area subject to a speed limit of 60km/h or less , must not increase by more than 20% of 40 vehicle movements per day, whichever is greater.*

The existing lot access is estimated to generate 9 vpd. **A3 is satisfied.**

Section E5.6.2 – Road Accesses and junction

Acceptable solution A2: *No more than one access providing both entry and exit , or two accesses providing separate entry and exit, to roads in an area subject to a speed limit of 60km/h or less.*

A two-way single access is proposed for the existing lot and lots 1,2 and 3 and for the ROW access to lots 4,5 and 6.

More than one access is proposed, **A2 is not satisfied.**

Performance Criteria P2: *For roads in an area subject to a speed limit of 60km/h or less, accesses and junctions must be safe and not unreasonably impact on the efficiency of the road, having regard to:*

(a) *The nature and frequency of the traffic generated by the use;* Traffic activity on the Arthur Hwy in the vicinity of the proposed accesses is estimated at 2,490vpd(2021) and 3,061 vpd (2031). This is in the low range for traffic activity and easily able to cope with the traffic generated by the proposal.

(b) *The nature of the road;* The road is constructed to a suitable standard with suitable delineation and gravel shoulders. From Austroad Safe System Assessment the road has a low crash risk.

(c) *The speed limit and traffic flow of the road.* Arthur Hwy has a 60km/h speed limit which is very negotiable for traffic flow in the order of 3,000vpd and the proposed access distribution.

(d) Any alternative access to a road. There is no alternative access.

(e) *The need for the access or junction*. The accesses are required for vehicular access for residents for land zone Rural Living.

(f) Any traffic impact assessment. This TIA finds no reasons to reject the proposed accesses on traffic grounds.

(g) *Any written advice received from the road authority.* Advice has been received from DSG, see Appendix F.

P1 is satisfied.

Section E5.6.4 – Sight Distance at Accesses, Junctions & Level Crossings

Acceptable solution A1: *Sight distances at:*

(a) an access or junction must comply with Safe Intersection Sight Distances shown in Table 5.1; and
(b) rail level crossings must comply with AS1742.7 Manual of uniform traffic control devices- Railway crossings, Standards Association of Australia.

The existing and proposed Lots along the Arthur Highway are within a 60km/h speed environment, see Figures 17 & 21.

Requirements of Table E5.1 are satisfied, see Figure 31.

A1 is satisfied.

6) Department of State Growth requirements

DSG review of TIS

These reviews are required to:

- consider proposals and whether the TIS prepared satisfies DSG requirements.
- resolve any issues so the TIS can be finalised.
- enable the TIS endorsement provided by DSG to be communicated to Council as part of the Development application process.

These reviews are usually arranged by the TIS author. The email address for submissions is:
Development@stategrowth.tas.gov.au

Crown landowner consent

This is to provide DSG to opportunity to check alignment of proposals with DSG objectives for the road. If the proposal aligns with DSG objectives Crown Land Consent is issued by DSG. Crown Landowner Consent is required where there is a proposed change in use of property adjacent to a state road. The website for Crown Landowner Consent is:
https://www.transport.tas.gov.au/road/permits/crown_landownerconsent\

Access works permits

Developers must obtain an access works permit from DSG for proposed work within a state road reservation. Applications need to include:

- suitably design plans detailing the proposal and services affected.
- relevant design calculations for stormwater management and pavement design
- a traffic impact assessment

The website for access works permit applications is:
https://www.transport.tas.gov.au/road/permits/road-access

Summary of DGS requirements

DSG acceptance of this TIS will be inserted in Appendix F. The developer will need to apply for Crown landowner consent to access Arthur Highway and Access works permit to comply with DSG standards.

Rural road access requirements

Proposals involving state road accesses within a rural road environment should comply with the DSG Rural Access Standard and the driveable culvert endwall standard drawing both attached in Appendix A.

7) Recommendations and Conclusions

This traffic impact statement (TIS) has been prepared to assess the operation and safety of the existing and proposed accesses arising from subdivision of 42 Arthur Highway, Dunalley.

Existing road conditions have been reviewed including the speed environment and available sight distances.

It is assessed that the proposal will have minimal impact on traffic safety and capacity for all road users including pedestrians and cyclists.

Evidence is provided to demonstrate the proposal satisfies Sorell Interim Planning Scheme 2015 - Road & Railway Assets Code E5. DSG confirmation of acceptability of this TIS will be attached in Appendix F.

Recommendations:

- *Check with DSG and if necessary, apply for Crown landowner consent. The website for Crown Landowner Consent applications is: https://www.transport.tas.gov.au/road/permits/crown_landownerconsent*

- *Apply for an Access Works Permit from DSG. The website for access works permit applications is: https://www.transport.tas.gov.au/road/permits/road-access*

- *Seal the access to at least 10m from the edge of seal on the Arthur Highway in accordance with DSG layout for residential property accesses, see Appendix A.*

- *Driveway culverts and driveable culvert endwalls, see Appendix A, are required for each of the proposed accesses and the existing driveway.*

Overall, it has been concluded that the proposal will not create any traffic issues and traffic will be able to continue to operate safely and efficiently along the Arthur Highway. Based on the finding of this report and subject to the recommendations above, the proposal is supported on traffic grounds.

8) Assessor Credentials

Richard Burk is a qualified Traffic and Civil Engineer with over 34 years of experience with State and Local Government in the Roads and Traffic industry in Tasmania. Richard has also represented Tasmania on various national committees including Austroads Traffic Management Working Group and the National Pavement Marking Working group. Visit

www.trafficandcivil.com.au .

Yours sincerely

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Appendices:

Appendix A – DSG Access Standards

Appendix B – Site Plans

Appendix C – Arthur Highway Traffic Data

Appendix D – Tasmanian 26m B Double Network

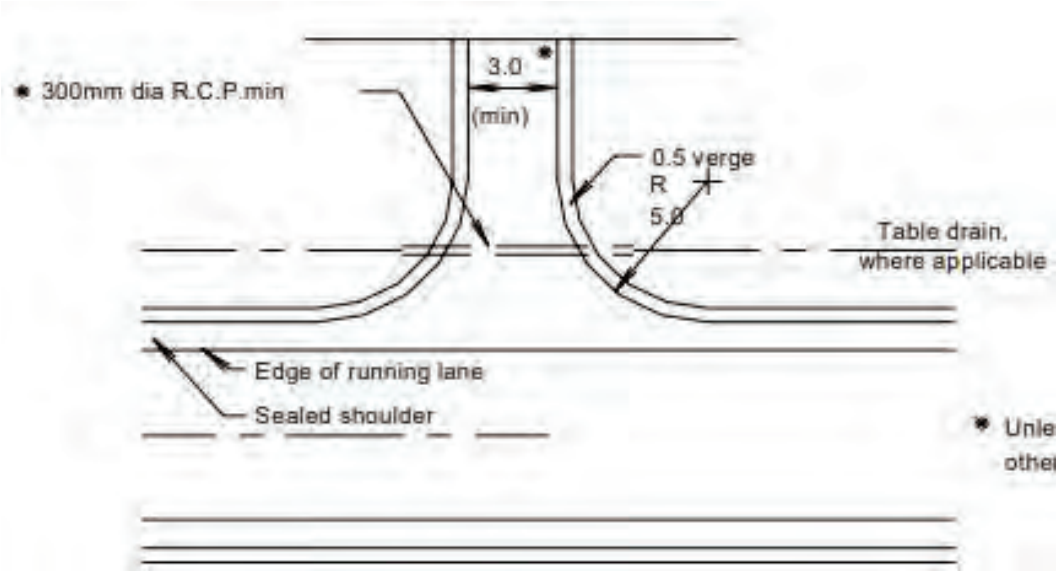
Appendix E – DSG Limited Access Road Network

Appendix F - DSG Endorsement

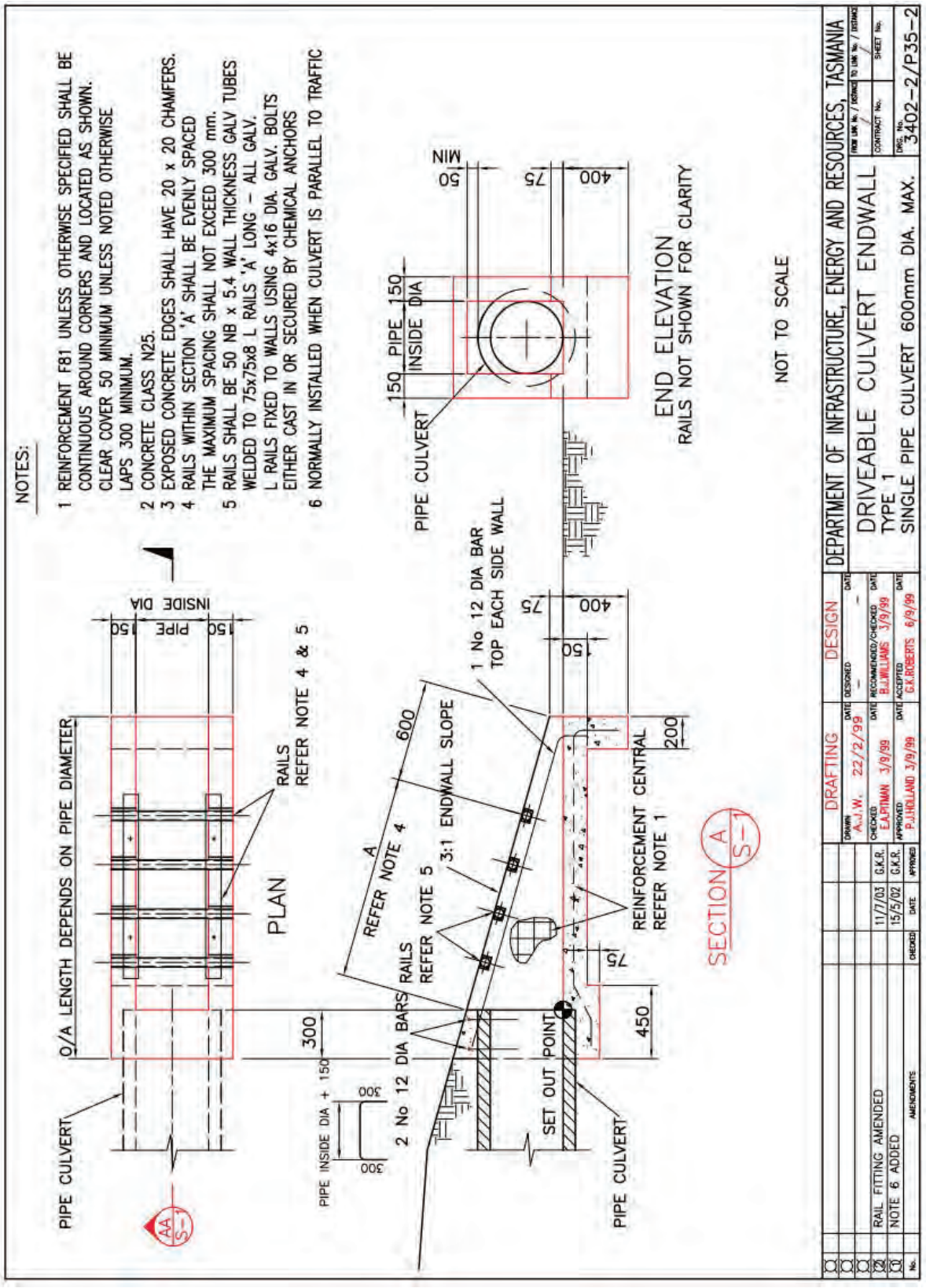
Appendix A – DSG Access Standards

Rural Access Layout

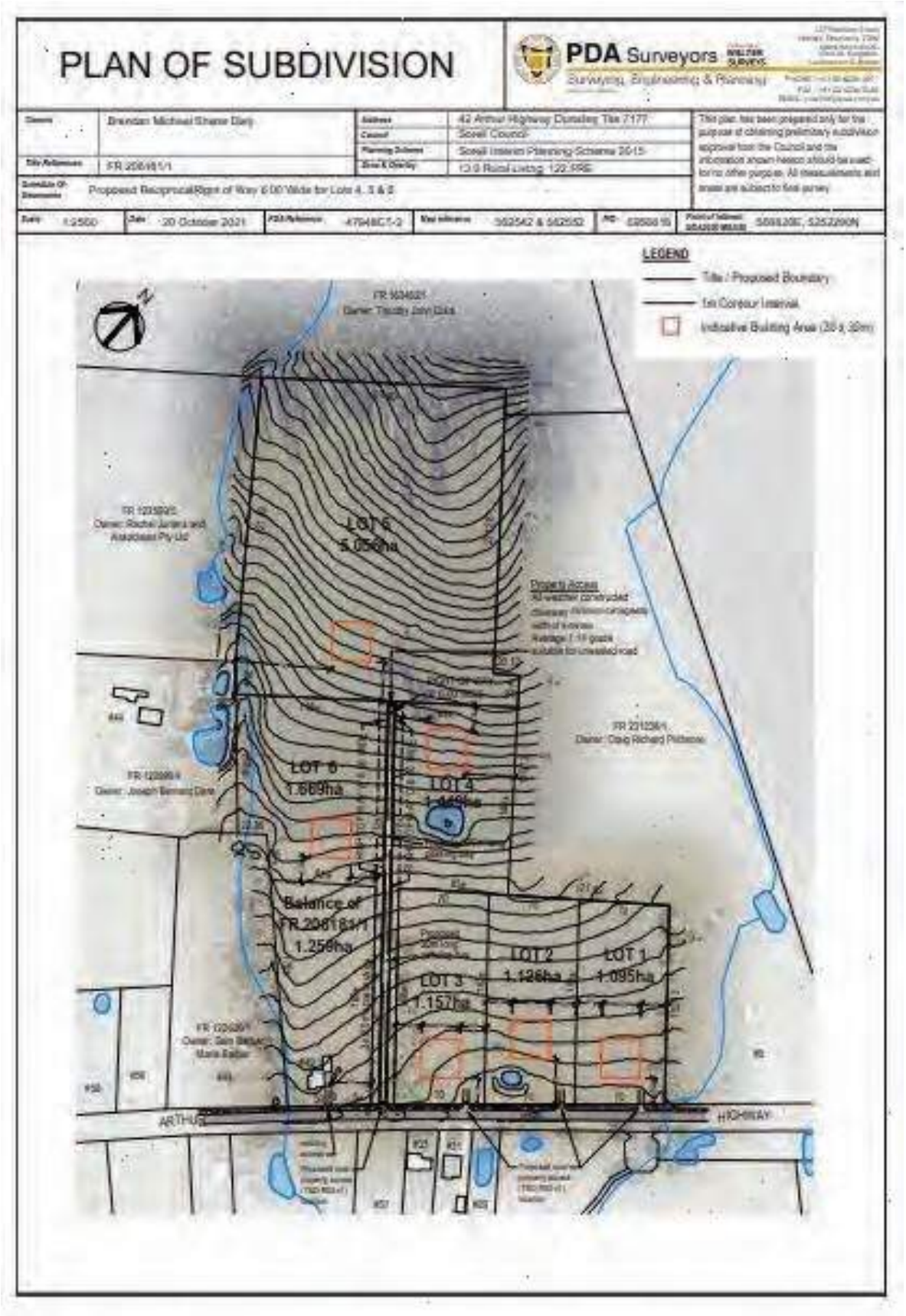
It is recommended that the access be constructed to DSG rural residential access standard and sealed to the gate. Installation of a driveway culvert is not necessary in this case as one exists.



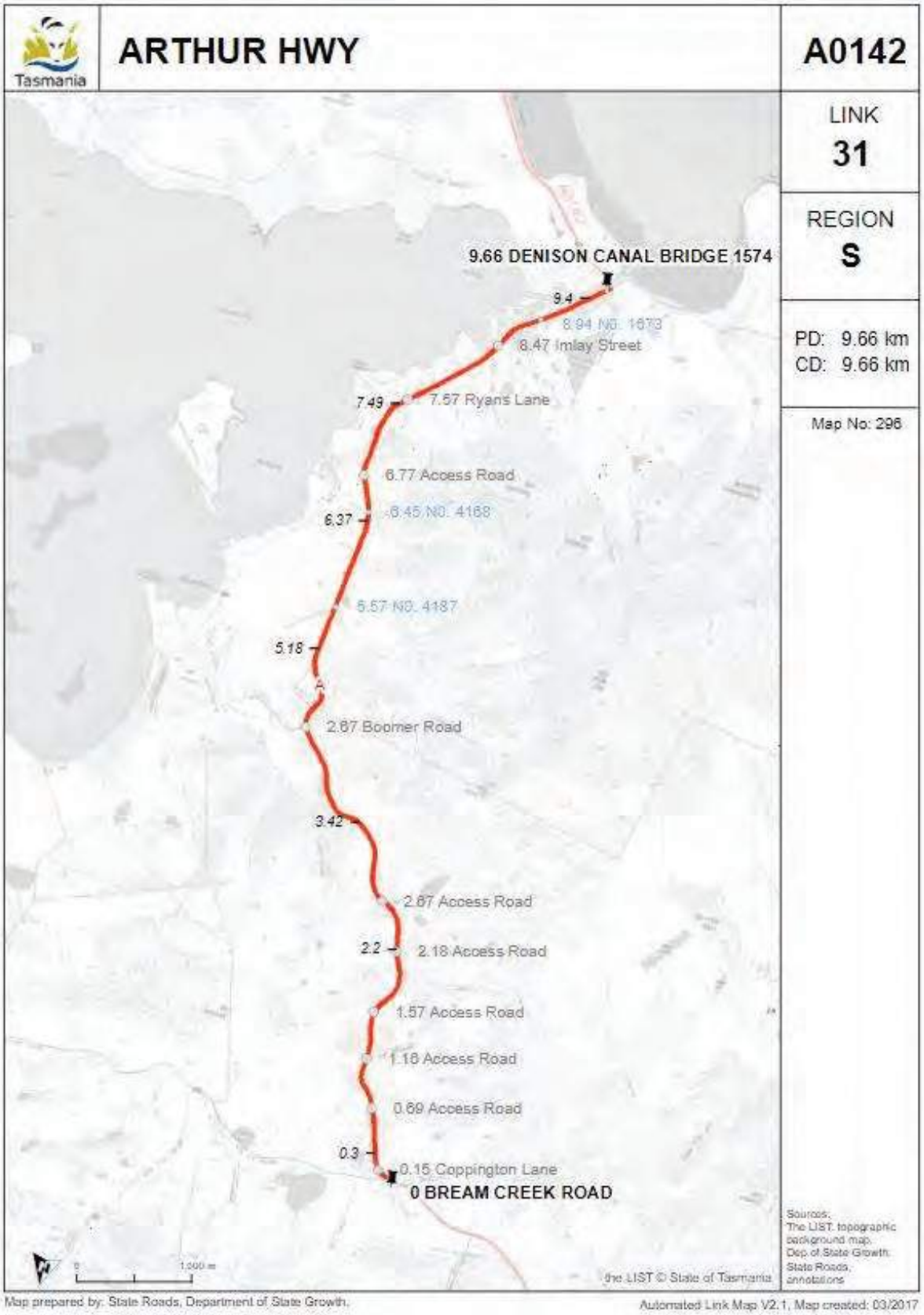
Driveable Culvert Endwall Standard



Appendix B –Site Plans



Appendix C –Arthur Highway Traffic Data



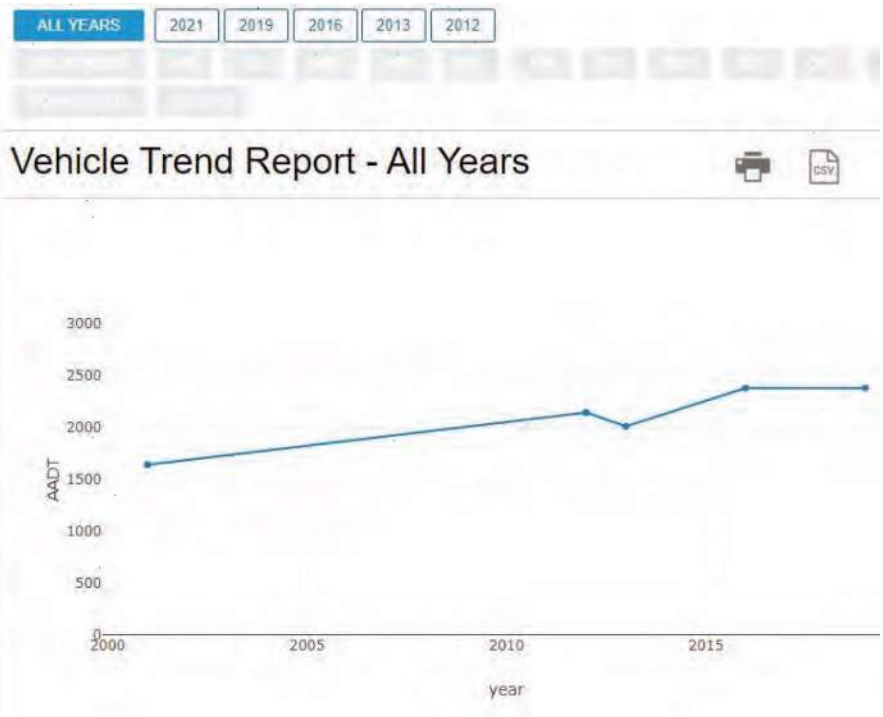
STATION

A0142225

a short term classified counter located at a two way road [N/S] in **Dunalley**, **Sorell** on **A0142**, 430m S Of Little Boomer Creek [UTS L31/ 0.00 - L45 0.31]

Reports Spanning All Available Years

Report Fragments		
XAxis	Value	Series
Vehicle Trend Report		
Change in AADT over time		
HV pct Report		



HV Pct Report - All Years

Percent Trucks by year

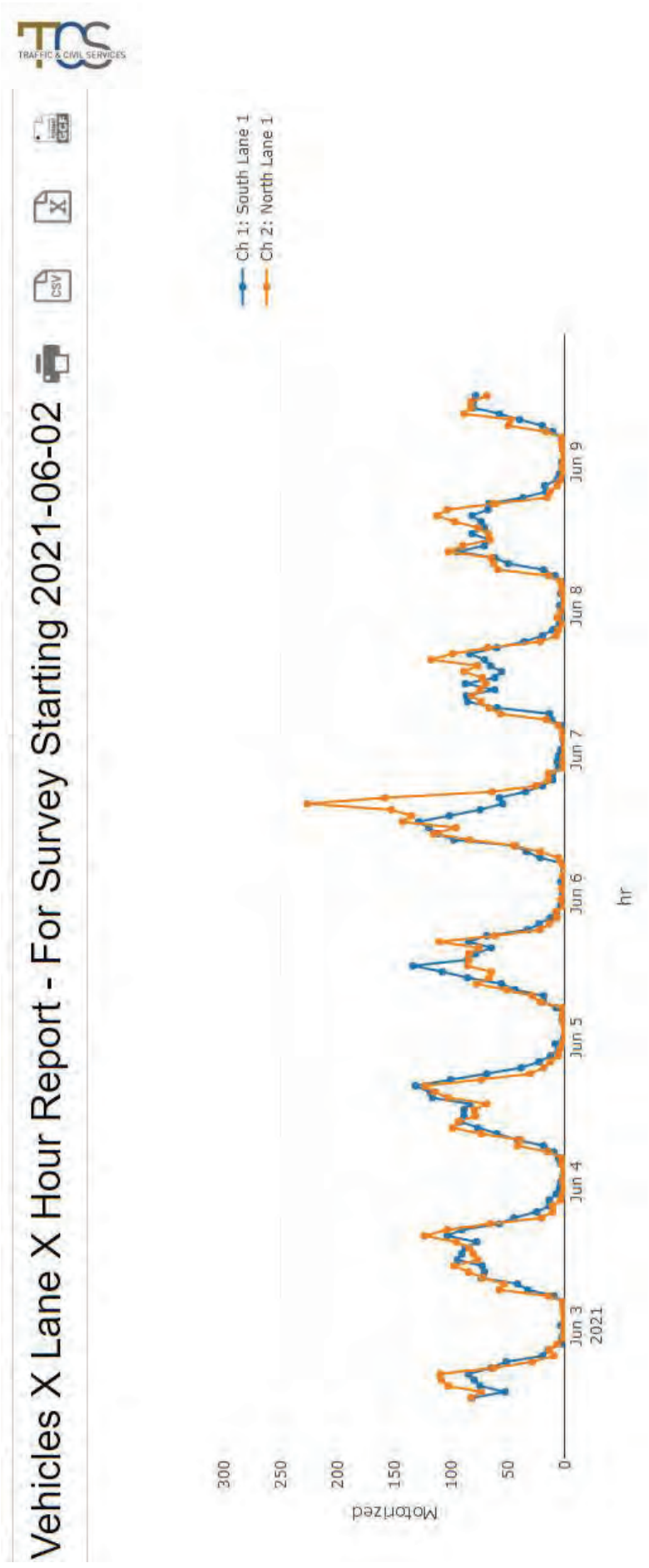
year	Percent Trucks
2001	0
2002	
2003	
2004	
2005	
2006	
2007	
2008	
2009	
2010	
2011	
2012	8.4
2013	10.6
2014	
2015	
2016	9.2
2017	
2018	
2019	8.6

Arthur Hwy AADT
(1.6km North of existing access)

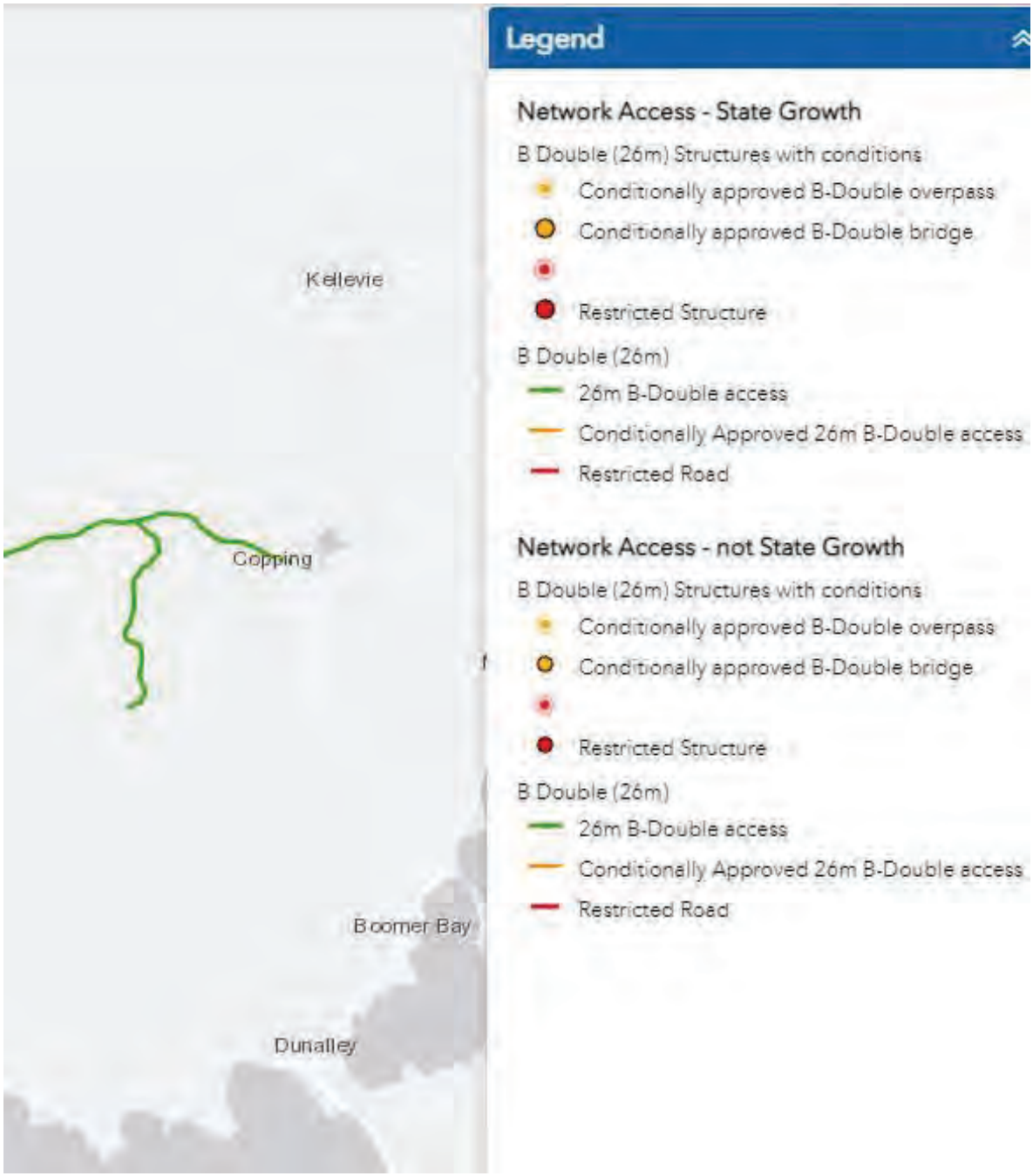
- **2001 – 1,642 vpd**
- **2019 – 2,381 vpd**

2.1% compound annual growth rate

9 % Heavy Commercial Vehicles


Vehicles X Lane X Hour Report - For Survey Starting 2021-06-02
Ch 1: South Lane 1
Ch 2: North Lane 1
Motorized
300
250
200
150
100
50
0
Jun 3
2021
Jun 4
Jun 5
Jun 6
Jun 7
Jun 8
Jun 9
hr

Appendix D – Tasmanian 26m B Double Network



Appendix E – DSG Limited Access Road Network

Appendix F - DSG Endorsement

GES
GEO-ENVIRONMENTAL
SOLUTIONS

Proposed Subdivision

42 Arthur Highway, Dunalley

Bushfire Hazard Report

Applicant: PDA Surveyors.

August 2022, J5353v2.0

Geo-Environmental Solutions - 29 Kirksway Place, Battery point, Tasmania, 7004.
Phone: 036223 1839 Email: Web: www.geosolutions.net.au

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Appendix A - Plan of Subdivision
Appendix B - BAL assessment tables
Appendix C - Bushfire Hazard Management Plan
Appendix D - Planning Certificate

1.0 Introduction

This Bushfire Hazard Report has been completed to form part of supporting documentation for a planning permit application for a proposed subdivision. The proposed subdivision occurs in a Bushfire-prone Area defined by the Sorell Interim Planning Scheme 2015 (the Scheme). This report has been prepared by Mark Van den Berg a qualified person under Part 4a of the *Fire Service Act 1979* of Geo Environmental Solutions Pty Ltd for PDA Surveyors.

The report considers all the relevant standards of Code E1 of the planning scheme, specifically;

The requirements for appropriate Hazard Management Areas (HMA's) in relation to building areas;

The requirements for Public and Private access;

The provision of water supplies for firefighting purposes;

Compliance with the planning scheme, and

Provides a Bushfire Hazard Management Plan to facilitate appropriate compliant future development.

2.0 Proposal

It is proposed that a six lot plus balance subdivision be developed on the site described as per the proposed plan of subdivision in appendix A. Public access to new lots will be provided by existing public roadways. The development is proposed to occur as a single stage. The balance lot has existing residential development, lots 1 to 6 inclusive are undeveloped.

3.0 Site Description

The subject site comprises private land on one title at 42 Arthur Highway, Dunalley, CT: 206181/1 (figure 1). The site occurs in the municipality of Sorell, this application is administered through the Sorell Interim planning scheme 2015 which makes provision for subdivision. The proposed development occurs within the Rural Living zone.
The site is located north-east of the Dunalley settled area, approximately 1.0km south-east of Township Hill (figure 1), is dominated by grassland vegetation transitioning to landscape scale native vegetation to the north and north-west. The sites have gentle slopes with a dominantly south eastly aspect, surrounding lands comprise both developed and un-developed areas characterised by grassland vegetation with sparse native vegetation remnants (figure 2).

Figure 1. The site in a topographical context, pink line defines the subdivision boundary (approx.).

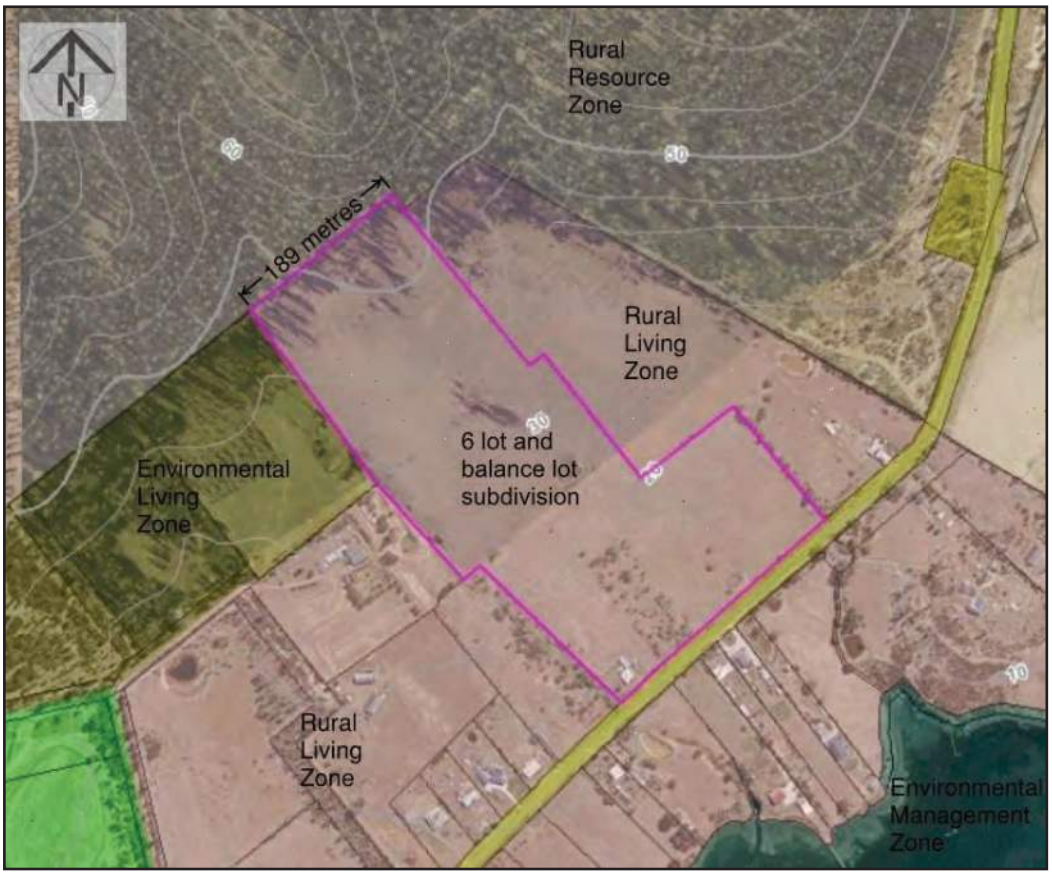


Figure 2. Aerial photo of the site, pink line denotes the property boundaries (approximate).

4.0 Bushfire Hazard Assessment

4.1 Vegetation

The site and adjacent lands within 100 metres of the proposed building areas carry grassland vegetation with landscape scale native forest vegetation to the north-west. Lands to the south and west are fragmented by residential development on large lots (figures 3 to 6). The highest risk vegetation occurs to the north and north-west of the sites.

4.2 slopes

The effective slopes in relation to the proposed new lots are gentle (<5 degrees) and are unlikely to have a significant impact on fire behaviour.

Figure 3. Grassland vegetation looking north from the vicinity of Lot 3.

Figure 4. Grassland vegetation looking east from the vicinity of lot 3.

Figure 5. Grassland vegetation looking south from the vicinity of lot 3.

Figure 6. Grassland vegetation looking west from the vicinity of lot 3.

4.3 Bushfire Attack Level

An assessment of vegetation and topography was undertaken within and adjacent to the subdivision area. A bushfire attack level assessment as per *AS3959-2018* was completed which has determined setbacks for each lot from bushfire-prone vegetation such that subsequent residential development does not exceed BAL-19 of AS3959-2018 (appendix B). This process defined the building areas on lots 1 to 6 inclusive. The building areas and bushfire attack level are identified on the BHMP. Where existing residential development occurs within the balance lot, a building area has been defined to include the footprint of the existing residential development.

5.0 Bushfire Prone Areas Code

Code E1 of the planning scheme articulates requirements for the provision of hazard management areas, standards for access and firefighting water supplies and requirements for hazard management for staged subdivisions. Existing residential development on the balance lot will need to comply with sections 5.1, 5.2 and 5.3, these specifications will need to be implemented prior to the sealing of titles.

5.1 Hazard Management Areas

Hazard management areas are required to be established for each lot, they provide an area around the building within which fuels are managed to reduce the impacts of direct flame contact, radiant heat and ember attack on the site. The balance lot, with existing residential development will require the HMA to be established prior to sealing of titles.
The Bushfire Hazard Management Plan (BHMP) shows building areas (for habitable buildings) and the associated HMA's for each lot, guidance for establishment and maintenance of HMA's is provided below.

The subdivision is to occur as a single stage. Each proposed lot can accommodate a hazard management area with sufficient separation from bushfire-prone vegetation not exceeding the requirements for BAL-19 of AS3959-2018. This means that each lot is not dependant on adjacent land use or management for bushfire mitigation.

5.1.1 Building areas

Building areas for habitable buildings on each lot are shown on the BHMP. Each lot has been assessed and a Bushfire Attack Level (BAL) assigned to it. If future buildings are located within the building area and comply with the minimum setbacks for the lot, the buildings may be constructed to the bushfire attack level assigned to that lot. If associated structures like sheds or other non-habitable buildings exist or are proposed, they do not need to conform to a BAL unless they are within 6 metres of the habitable building. Building areas for lots with existing residential development have been defined to include the footprint of the existing residential building.

5.1.2 Hazard Management Area requirements

A hazard management area is the area, between a habitable building or building area and the bushfire prone vegetation which provides access to a fire front for firefighting, is maintained in a minimal fuel condition and in which there are no other hazards present which will significantly contribute to the spread of a bushfire. This can be achieved through, but is not limited to the following strategies;

- Remove fallen limbs, sticks, leaf and bark litter;
- Maintain grass at less than a 100mm height;
- Avoid or minimise the use of flammable mulches (especially against buildings);
- Thin out under-story vegetation to provide horizontal separation between fuels;
- Prune low-hanging tree branches (<2m from the ground) to provide vertical separation between fuel layers;
- Remove or prune larger trees to establish and maintain horizontal separation between tree canopies;
- Minimise the storage of flammable materials such as firewood;
- Maintain vegetation clearance around vehicular access and water supply points;
- Use low-flammability plant species for landscaping purposes where possible;
- Clear out any accumulated leaf and other debris from roof gutters and other debris accumulation points.

It is not necessary to remove all vegetation from the hazard management area, trees and shrubs may provide protection from wind borne embers and radiant heat under some circumstances if other fuels are appropriately managed.

5.2 Public and firefighting Access

5.2.1 Public Roads

One new roadway terminating in a cul-de-sac is proposal for this subdivision. The new roadway will be required to conform with the following design and construction specifications.

Unless the development standards in the zone require a higher standard, the following apply:

two-wheel drive, all-weather construction;
load capacity of at least 20t, including for bridges and culverts;
minimum carriageway width is 7m for a through road, or 5.5m for a dead-end or cul-de-sac road;
minimum vertical clearance of 4m;
minimum horizontal clearance of 2m from the edge of the carriageway;
cross falls of less than 3 degrees (1:20 or 5%);
maximum gradient of 15 degrees (1:3.5 or 28%) for sealed roads, and 10 degrees (1:5.5 or 18%) for unsealed roads;
curves have a minimum inner radius of 10m;
dead-end or cul-de-sac roads are not more than 200m in length unless the carriageway is 7 metres in width;
dead-end or cul-de-sac roads have a turning circle with a minimum 12m outer radius; and
carriageways less than 7m wide have ‘No Parking’ zones on one side, indicated by a road sign that complies with Australian Standard AS1743-2001 Road signs-Specifications

5.2.2 Property access (for building compliance)

Property access will be required to be established to access static water supply connection points. The balance lot, with existing residential development, will require property access to be modified to achieve the following standards prior to the sealing of titles.

The following design and construction standards apply to property access:

All-weather construction;
Load capacity of at least 20 tonnes, including for bridges and culverts;
Minimum carriageway width of 4 metres;
Minimum vertical clearance of 4 metres;
Minimum horizontal clearance of 0.5 metres from the edge of the carriageway;
Cross falls of less than 3° (1:20 or 5%);
Dips less than 7° (1:8 or 12.5%) entry and exit angle;
Curves with a minimum inner radius of 10 metres;

Maximum gradient of 15° (1:3.5 or 28%) for sealed roads, and 10° (1:5.5 or 18%) for unsealed roads; and

Terminate with a turning area for fire appliances provided by one of the following:

i. A turning circle with a minimum inner radius of 10 metres;
ii. A property access encircling the building; or
iii. A hammerhead “T” or “Y” turning head 4 metres wide and 8 metres long.

5.3 Water supplies for firefighting (for building compliance)

The subdivision is not serviced by a reticulated water supply. In this circumstance, a static water supply dedicated for firefighting for each building area which is compliant with the specifications of table 1 is required. In the case of the Balance lot with existing residential development the static water supply will be required to be provided before the sealing of titles.

Table 1. Specifications for static water supplies for firefighting.

Element		Requirement
A	Distance between building area to be protected and water supply	The following requirements apply: (a) The building area to be protected must be located within 90 metres of the firefighting water point of a static water supply; and (b) The distance must be measured as a hose lay, between the firefighting water point and the furthest part of the building area.
B	Static Water Supplies	A static water supply: (a) May have a remotely located offtake connected to the static water supply; (b) May be a supply for combined use (firefighting and other uses) but the specified minimum quantity of firefighting water must be available at all times; (c) Must be a minimum of 10,000 litres per building area to be protected. This volume of water must not be used for any other purpose including firefighting sprinkler or spray systems; (d) Must be metal, concrete or lagged by non-combustible materials if above ground; and (e) If a tank can be located so it is shielded in all directions in compliance with Section 3.5 of AS 3959-2018, the tank may be constructed of any material provided that the lowest 400 mm of the tank exterior is protected by: (i) metal; (ii) non-combustible material; or (iii) fibre-cement a minimum of 6 mm thickness.
C	Fittings, pipework and accessories (including stands and tank supports)	Fittings and pipework associated with a fire fighting water point for a static water supply must: (a) Have a minimum nominal internal diameter of 50mm; (b) Be fitted with a valve with a minimum nominal internal diameter of 50mm; (c) Be metal or lagged by non-combustible materials if above ground; (d) Where buried, have a minimum depth of 300mm (compliant with AS/NZS 3500.1-2003 Clause 5.23); (e) Provide a DIN or NEN standard forged Storz 65 mm coupling fitted with a suction washer for connection to firefighting equipment; (f) Ensure the coupling is accessible and available for connection at all times; (g) Ensure the coupling is fitted with a blank cap and securing chain (minimum 220 mm length); (h) Ensure underground tanks have either an opening at the top of not less than 250 mm diameter or a coupling compliant with this Table; and (i) Where a remote offtake is installed, ensure the offtake is in a position that is: (i) Visible; (ii) Accessible to allow connection by firefighting equipment, (iii) At a working height of 450 – 600mm above ground level; and (iv) Protected from possible damage, including damage by vehicles.

Element		Requirement
D	Signage for static water connections	Signage for static water connections The firefighting water point for a static water supply must be identified by a sign permanently fixed to the exterior of the assembly in a visible location. The sign must: (a) comply with the water tank signage requirements within *Australian Standard AS2304-2011 Water storage tanks for fire protection systems*; or (b) comply with the Tasmania Fire Service Water Supply Guideline published by the Tasmania Fire Service
E	A hardstand area for fire appliances must be provided:	(a) no more than three metres from the firefighting water point, measured as a hose lay (including the minimum water level in dams, swimming pools and the like); (b) no closer than six metres from the building area to be protected; (c) a minimum width of three metres constructed to the same standard as the carriageway; and (d) connected to the property access by a carriageway equivalent to the standard of the property access.

6.0 Compliance

6.1 Planning Compliance

Table 2 summarises the compliance requirements for subdivisions in bushfire prone areas against Code E1 as they apply to this proposal. A planning certificate has been issued for the associated BHMP as being compliant with the relevant standards as outlined below and is located in appendix D.

Table 2. Compliance with Code E1 of the Scheme 2015

Clause	Compliance
E1.4 Use or development exempt from this code	Not applicable.
E1.5 1 Vulnerable Uses	Not applicable.
E1.5.2 Hazardous Uses	Not applicable
E1.6.1 Subdivision: Provision of hazard management areas	The Bushfire Hazard Management Plan is certified by an accredited person. Each lot within the subdivision has a building area and associated hazard management area shown which is suitable for BAL-12.5 construction standards. Hazard management areas are able to be contained within each individual lot, therefore there is no requirement for part 5 agreements or easements to facilitate hazard management. The proposal is compliant with the acceptable solution at A1, (b).
E1.6.2 Subdivision: Public and firefighting access	The Bushfire Hazard Management Plan specifies minimum standards for new public roadways and property access consistent with the requirements of table E1 and E2 respectively. There is no proposal for fire trails as part of this development. The Bushfire Hazard Management Plan is certified by an accredited person. The proposal is compliant with the acceptable solution at A1, (b).
E1.6.3 Subdivision: Provision of water supply for firefighting	The Bushfire Hazard Management Plan requires static water supplies to

purposes	be provided for all lots. The specifications for static water supplies are provided consistent with table E5. The proposal is compliant with the acceptable solution at A2, (b).

6.2 Building Compliance (for future development)

Future residential development may not require assessment for bushfire management requirements at the planning application stage. Subsequent building applications will require demonstrated compliance with the Directors Determination. If future development is undertaken in compliance with the Bushfire Hazard Management Plan associated with this report, a building surveyor may rely upon it for building compliance purposes if it is not more than 6 years old.

7.0 Summary

The proposed development occurs within a bushfire-prone area. The vegetation is classified as grassland with the highest risk presented by vegetation to the north and north-west of the building areas.

A bushfire hazard management plan has been developed and shows hazard management areas with building areas and construction standards, the location of new public roadways and proposed property access with specifications for their design and construction, and requirements for the provision of firefighting water supplies.

If future development for an individual lot is proposed and is compliant with all the specifications of the bushfire hazard management plan, it may be relied upon for building compliance purposes. If subsequent development does not comply with all the specifications a new assessment will be required.

8.0 Limitations Statement

This Bushfire Hazard Report has been prepared in accordance with the scope of services between Geo-Environmental Solutions Pty. Ltd. (GES) and the applicant. 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 described 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 bushfire hazard condition and does not provide a guarantee that no loss of property or life will occur as a result of bushfire. As stated in AS3959-2018 “It should be borne in mind that the measures contained in this Standard cannot guarantee that a building will survive a bushfire event on every occasion. This is substantially due to the degree of vegetation management, the unpredictable nature and behaviour of fire, and extreme weather conditions”. In addition, no responsibility is taken for any loss which is a result of actions contrary to AS3959-2018 or the Tasmanian Planning Commission Bushfire code.

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 party

9.0 References

Building Amendment (Bushfire-Prone Areas) Regulations 2014

Determination, Director of Building Control – Requirements for Building in Bushfire-Prone Areas, version 2.1 29th August 2017. Consumer, Building and Occupational Services, Department of Justice, Tasmania

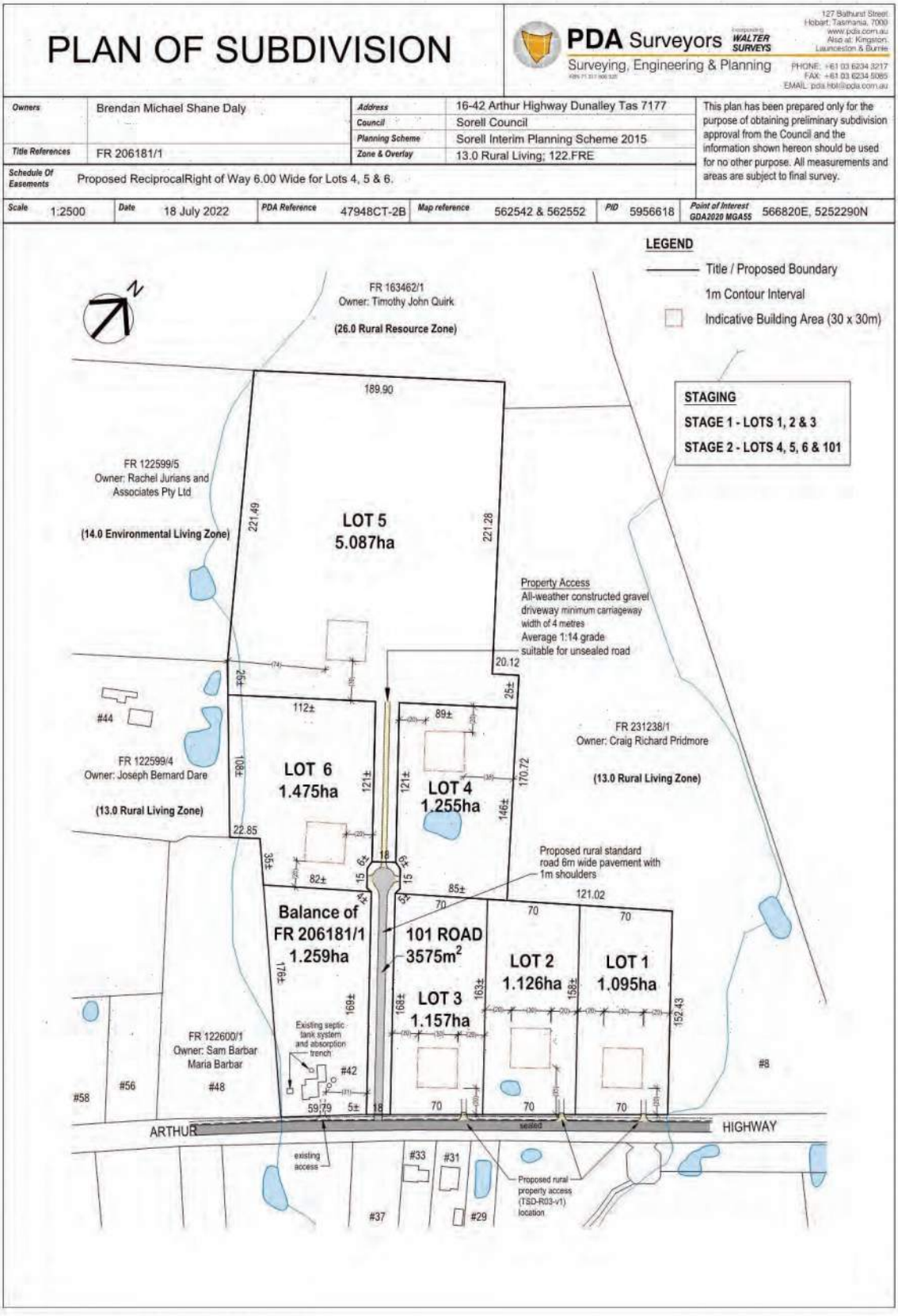
Standards Australia 2018, *Construction of buildings in bushfire prone areas,* Standards Australia, Sydney.

Tasmanian Planning Commission 2017, *Planning Directive No.5.1 – Bushfire prone Areas Code*. Tasmanian Planning Commission, Hobart. 1st September 2017.

The Bushfire Planning Group 2005, *Guidelines for development in bushfire prone areas of Tasmania – Living with fire in Tasmania,* Tasmania Fire Service, Hobart.

Sorell Interim Planning Scheme 2015.

Appendix A - Site Plan



Appendix B – Bushfire Attack Level assessment tables

Table 1. Bushfire Attack Level Assessment for the Balance Lot. (Existing development)

Azimuth	Vegetation Classification	Effective Slope	Distance to Bushfire-prone vegetation	Hazard management area width	Bushfire Attack Level
North-east	Grassland^	flat 0º	0 to >100 metres	14 metres	**BAL-12.5**
	--	--	--		
	--	--	--		
	--	--	--		
South-east	Exclusion 2.2.3.2 (e, f)^	>0 to 5º downslope	0 to 22 metres	4 metres	**BAL-12.5**
	Grassland^	>0 to 5º downslope	22 to >100 metres		
	--	--	--		
	--	--	--		
South-west	Grassland^	flat 0º	0 to >100 metres	14 metres	**BAL-12.5**
	--	--	--		
	--	--	--		
	--	--	--		
North-west	Grassland^	upslope	0 to >100 metres	14 metres	**BAL-12.5**
	--	--	--		
	--	--	--		
	--	--	--		

^ Vegetation classification as per AS3959-2018 and Figures 2.4(A) to 2.4 (H).
* Low threat vegetation as per Bushfire Prone Areas Advisory Note (BHAN) No.1-2014, version 3, 8/11/2017.
^^ Exclusions as per AS3959-2018, section 2.2.3.2, (a) to (f).

Table 2. Bushfire Attack Level Assessment for Lot 1

Azimuth	Vegetation Classification	Effective Slope	Distance to Bushfire-prone vegetation	Hazard management area width	Bushfire Attack Level
North-east	Grassland^	upslope	0 to >100 metres	14 metres	**BAL-12.5**
	--	--	--		
	--	--	--		
	--	--	--		
South-east	Grassland^	>0 to 5º downslope	0 to 20 metres	16 metres	**BAL-12.5**
	Exclusion 2.2.3.2 (e, f)^	flat 0º	20 to 32 metres		
	Grassland^	>0 to 5º downslope	32 to >100 metres		
	--	--	--		
South-west	Grassland^	>0 to 5º downslope	0 to >100 metres	16 metres	**BAL-12.5**
	--	--	--		
	--	--	--		
	--	--	--		
North-west	Grassland^	upslope	0 to >100 metres	14 metres	**BAL-12.5**
	--	--	--		
	--	--	--		
	--	--	--		

^ Vegetation classification as per AS3959-2018 and Figures 2.4 (A) to 2.4 (H).
* Low threat vegetation as per Bushfire Prone Areas Advisory Note (BHAN) No.1-2014, version 3, 8/11/2017.
^^ Exclusions as per AS3959-2018, section 2.2.3.2, (a) to (f).

Table 3. Bushfire Attack Level Assessment for Lot 2

Azimuth	Vegetation Classification	Effective Slope	Distance to Bushfire-prone vegetation	Hazard management area width	Bushfire Attack Level
North-east	Grassland^	upslope	0 to >100 metres	14 metres	**BAL-12.5**
	--	--	--		
	--	--	--		
	--	--	--		
South-east	Grassland^	>0 to 5º downslope	0 to 20 metres	16 metres	**BAL-12.5**
	Exclusion 2.2.3.2 (e, f)^	flat 0º	20 to 32 metres		
	Grassland^	>0 to 5º downslope	32 to >100 metres		
	--	--	--		
South-west	Grassland^	>0 to 5º downslope	0 to >100 metres	16 metres	**BAL-12.5**
	--	--	--		
	--	--	--		
	--	--	--		
North-west	Grassland^	upslope	0 to >100 metres	14 metres	**BAL-12.5**
	--	--	--		
	--	--	--		
	--	--	--		

^ Vegetation classification as per AS3959-2018 and Figures 2.4 (A) to 2.4 (H).
* Low threat vegetation as per Bushfire Prone Areas Advisory Note (BHAN) No.1-2014, version 3, 8/11/2017.
^^ Exclusions as per AS3959-2018, section 2.2.3.2, (a) to (f).

Table 4. Bushfire Attack Level Assessment for Lot 3

Azimuth	Vegetation Classification	Effective Slope	Distance to Bushfire-prone vegetation	Hazard management area width	Bushfire Attack Level
North-east	Grassland^	upslope	0 to >100 metres	14 metres	**BAL-12.5**
	--	--	--		
	--	--	--		
	--	--	--		
South-east	Grassland^	>0 to 5º downslope	0 to 20 metres	16 metres	**BAL-12.5**
	Exclusion 2.2.3.2 (e, f)^	flat 0º	20 to >100 metres		
	--	--	--		
	--	--	--		
South-west	Grassland^	flat 0º	0 to >100 metres	14 metres	**BAL-12.5**
	--	--	--		
	--	--	--		
	--	--	--		
North-west	Grassland^	upslope	0 to >100 metres	14 metres	**BAL-12.5**
	--	--	--		
	--	--	--		
	--	--	--		

^ Vegetation classification as per AS3959-2018 and Figures 2.4 (A) to 2.4 (H).
* Low threat vegetation as per Bushfire Prone Areas Advisory Note (BHAN) No.1-2014, version 3, 8/11/2017.
^^ Exclusions as per AS3959-2018, section 2.2.3.2, (a) to (f).

Table 5. Bushfire Attack Level Assessment for Lot 4

Azimuth	Vegetation Classification	Effective Slope	Distance to Bushfire-prone vegetation	Hazard management area width	Bushfire Attack Level
North-east	Grassland^	flat 0º	0 to >100 metres	14 metres	**BAL-12.5**
	--	--	--		
	--	--	--		
	--	--	--		
South-east	Grassland^	>0 to 5º downslope	0 to >100 metres	16 metres	**BAL-12.5**
	--	--	--		
	--	--	--		
	--	--	--		
South-west	Grassland^	flat 0º	0 to >100 metres	14 metres	**BAL-12.5**
	--	--	--		
	--	--	--		
	--	--	--		
North-west	Grassland^	upslope	0 to >100 metres	14 metres	**BAL-12.5**
	--	--	--		
	--	--	--		
	--	--	--		

^ Vegetation classification as per AS3959-2018 and Figures 2.4 (A) to 2.4 (H).
* Low threat vegetation as per Bushfire Prone Areas Advisory Note (BHAN) No.1-2014, version 3, 8/11/2017.
^^ Exclusions as per AS3959-2018, section 2.2.3.2, (a) to (f).

Table 6. Bushfire Attack Level Assessment for Lot 5

Azimuth	Vegetation Classification	Effective Slope	Distance to Bushfire-prone vegetation	Hazard management area width	Bushfire Attack Level
North-east	Grassland^	flat 0º	0 to >100 metres	14 metres	**BAL-12.5**
	--	--	--		
	--	--	--		
	--	--	--		
South-east	Grassland^	>0 to 5º downslope	0 to >100 metres	16 metres	**BAL-12.5**
	--	--	--		
	--	--	--		
	--	--	--		
South-west	Grassland^	flat 0º	0 to >100 metres	14 metres	**BAL-12.5**
	--	--	--		
	--	--	--		
	--	--	--		
North-west	Grassland^	upslope	0 to 32 metres	32 metres	**BAL-12.5**
	Forest^	upslope	32 to >100 metres		
	--	--	--		
	--	--	--		

^ Vegetation classification as per AS3959-2018 and Figures 2.4 (A) to 2.4 (H).
* Low threat vegetation as per Bushfire Prone Areas Advisory Note (BHAN) No.1-2014, version 3, 8/11/2017.
^^ Exclusions as per AS3959-2018, section 2.2.3.2, (a) to (f).

Table 7. Bushfire Attack Level Assessment for Lot 6

Azimuth	Vegetation Classification	Effective Slope	Distance to Bushfire-prone vegetation	Hazard management area width	Bushfire Attack Level
North-east	Grassland^	flat 0º	0 to >100 metres	14 metres	**BAL-12.5**
	--	--	--		
	--	--	--		
	--	--	--		
South-east	Grassland^	>0 to 5º downslope	0 to >100 metres	16 metres	**BAL-12.5**
	--	--	--		
	--	--	--		
	--	--	--		
South-west	Grassland^	flat 0º	0 to >100 metres	14 metres	**BAL-12.5**
	--	--	--		
	--	--	--		
	--	--	--		
North-west	Grassland^	upslope	0 to >100 metres	14 metres	**BAL-12.5**
	--	--	--		
	--	--	--		
	--	--	--		

^ Vegetation classification as per AS3959-2018 and Figures 2.4 (A) to 2.4 (H).
* Low threat vegetation as per Bushfire Prone Areas Advisory Note (BHAN) No.1-2014, version 3, 8/11/2017.
^^ Exclusions as per AS3959-2018, section 2.2.3.2, (a) to (f).

Appendix C

Bushfire Hazard Management Plan

BUSHFIRE HAZARD MANAGEMENT PLAN

Bushfire Hazard Management Plan, 42 Arthur Highway Dunalley.
August 2022. J5353v2.0
Sorell Interim Planning Scheme 2015

GES
GEO-ENVIRONMENTAL SOLUTIONS
29 Kirksway Place, Battery Point.
T| 62231839 E| office@geosolutions.net.au

Design and Specification Requirements
4.2 Standards for Property Access
Property access length is greater than 30 metres; or access is required for a fire appliance to access a water connection point.

The following design and construction requirements apply to property access:
(1) All-weather construction;
(2) Load capacity of at least 20 tonnes, including for bridges and culverts;
(3) Minimum carriageway width of 4 metres;
(4) Minimum vertical clearance of 4 metres;
(5) Minimum horizontal clearance of 0.5 metres from the edge of the carriageway;
(6) Cross falls of less than 3° (1:20 or 5%);
(7) Dips less than 7° (1:8 or 12.5%) entry and exit angle;
(8) Curves with a minimum inner radius of 10 metres;
(9) Maximum gradient of 15° (1:3.5 or 28%) for sealed roads, and 10° (1:5.5 or 18%) for unsealed roads; and
10) Terminate with a turning area for fire appliances provided by one of the following:
(a) A turning circle with a minimum inner radius of 10 metres;
(b) A property access encircling the building; or
(c) A hammerhead "T" or "Y" turning head 4 metres wide and 8 metres long.

C) Property access length is 200 metres or greater.
The following design and construction requirements apply to property access:
(a) The requirements for B above; and
(b) Passing bays of 2 metres additional carriageway width and 20 metres length provided every 200 metres

4.3B Static Water Supply for Fire fighting

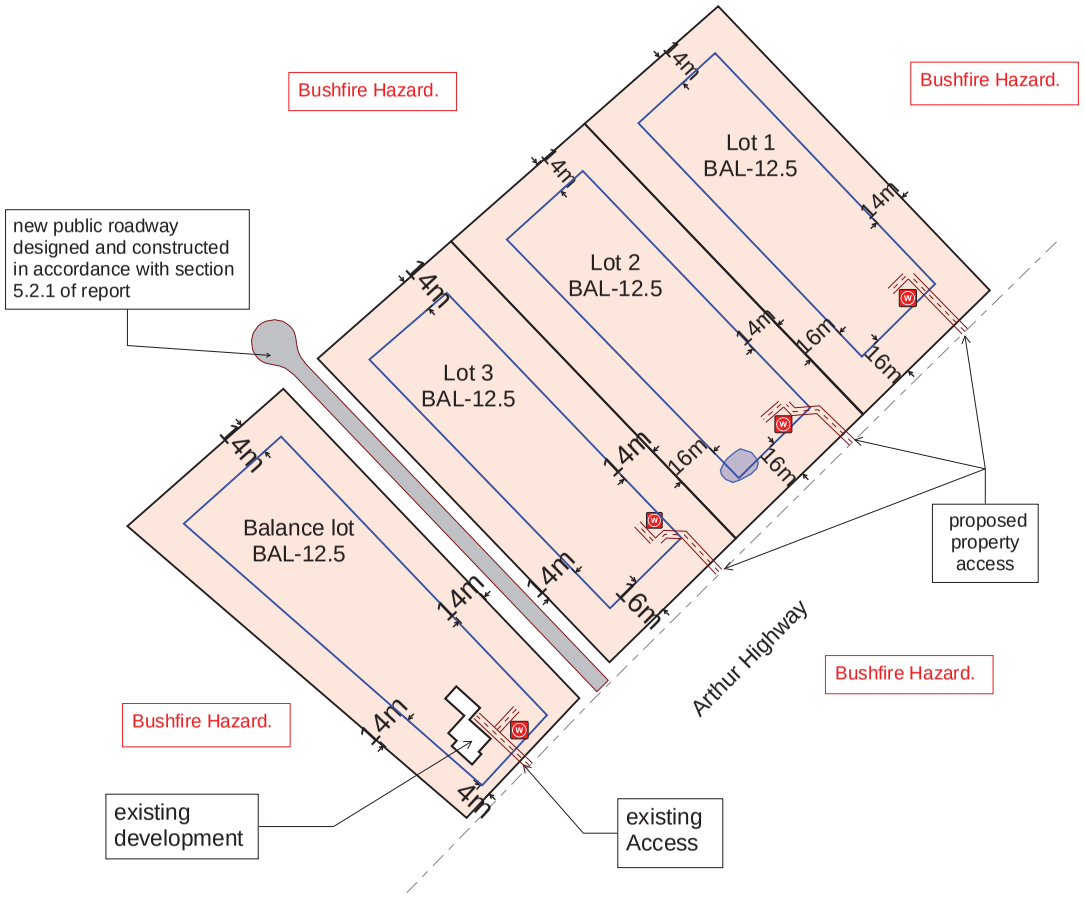
The site is not serviced by a reticulated water supply, therefore a dedicated, static firefighting water supply will be provided in accordance with the following;

Static water supplies and associated infrastructure for firefighting purposes will be provided in accordance with table 4.3B of the Determination, Director of Building Control – Requirements for Building in Bushfire-Prone Areas (transitional), version 2.2 6th February 2020

A Distance between building area to be protected and water supply
The following requirements apply:
(a) The building area to be protected must be located within 90 metres of the fire fighting water point of a static water supply; and
(b) The distance must be measured as a hose lay, between the fire fighting water point and the furthest part of the building area.

B) Static Water Supplies
A static water supply:
(a) May have a remotely located offtake connected to the static water supply;
(b) May be a supply for combined use (fire fighting and other uses) but the specified minimum quantity of fire fighting water must be available at all times;
(c) Must be a minimum of 10,000 litres per building area to be protected. This volume of water must not be used for any other purpose including fire fighting sprinkler or spray systems;
(d) Must be metal, concrete or lagged by non-combustible materials if above ground; and
(e) If a tank can be located so it is shielded in all directions in compliance with Section 3.5 of AS 3959-2009, the tank may be constructed of any material provided that the lowest 400 mm of the tank exterior is protected by:
(i) metal;
(ii) non-combustible material; or
(iii) fibre-cement a minimum of 6 mm thickness.

C) Fittings and pipework associated with a fire fighting water point for a static water supply must:
(a) Have a minimum nominal internal diameter of 50mm; (2) Be fitted with a valve with a minimum nominal internal diameter of 50mm;
(b) Be fitted with a valve with a minimum nominal internal diameter of 50mm;
(c) Be metal or lagged by non-combustible materials if above ground;
(d) Where buried, have a minimum depth of 300mm (compliant with AS/NZS 3500.1-2003 Clause 5.23);
(e) Provide a DIN or NEN standard forged Storz 65 mm coupling fitted with a suction washer for connection to fire fighting equipment;
(f) Ensure the coupling is accessible and available for connection at all times;
(g) Ensure the coupling is fitted with a blank cap and securing chain (minimum 220 mm length);
(h) Ensure underground tanks have either an opening at the top of not less than 250 mm diameter or a coupling compliant with this Table; and
(i) Where a remote offtake is installed, ensure the offtake is in a position that is:
(i) Visible;
(ii) Accessible to allow connection by fire fighting equipment,
(iii) At a working height of 450 – 600mm above ground level; and
(iv) Protected from possible damage, including damage by vehicles.



D) Signage for static water connections
The fire fighting water point for a static water supply must be identified by a sign permanently fixed to the exterior of the assembly in a visible location. The sign must comply with the Tasmania Fire Service Water Supply Signage Guideline published by the Tasmania Fire Service
E) Hardstand
A hardstand area for fire appliances must be provided:
(a) No more than three metres from the fire fighting water point, measured as a hose lay (including the minimum water level in dams, swimming pools and the like);
(b) No closer than six metres from the building area to be protected;
(c) With a minimum width of three metres constructed to the same standard as the carriageway; and
(d) Connected to the property access by a carriageway equivalent to the standard of the property access.

Hazard Management Area Requirements
A hazard management area is required to be established and maintained for the life of the building and is shown on this BHMP. Guidance for the establishment and maintenance of the hazard management area is also provided.

Hazard Management Area

Building Arrea

Approximate location of water point

Property Access with turning areas and hardstands

Sorell Council
Development Application: Response to Request for Information 16-42 Arthur Highway, Dunalley 7.2022.5.1 30/08/2022
Plans Reference: P4
Date Received: 30/08/2022

Note: the requirements of sections 5.1, 5.2, 5.3 of the Bushfire Hazard Report are required to be implemented for the balance lot prior to the sealing of titles.

Hazard Management Area
A hazard management area is the area, between a habitable building or building area and the bushfire prone vegetation, which provides access to a fire front for firefighting, which is maintained in a minimal fuel condition and in which there are no other hazards present which will significantly contribute to the spread of a bushfire. This can be achieved through, but is not limited to the following actions;

- •Remove fallen limbs, sticks, leaf and bark litter;
- •Maintain grass at less than a 100mm height;
- •Avoid the use of flammable mulches (especially against buildings);
- •Thin out under-story vegetation to provide horizontal separation between fuels;
- •Prune low-hanging tree branches (<2m from the ground) to provide vertical separation between fuel layers;
- •Remove or prune larger trees to establish and maintain horizontal separation between tree canopies;
- •Minimise the storage of flammable materials such as firewood;
- •Maintain vegetation clearance around vehicular access and water supply points;
- •Use low-flammability plant species for landscaping purposes where possible;
- •Clear out any accumulated leaf and other debris from roof gutters and other debris accumulation points.

It is not necessary to remove all vegetation from the hazard management area, trees may provide protection from wind borne embers and radiant heat under some circumstances.

Certification No. J5353

Mark Van den Berg
Acc. No. BFP-108
Scope 1, 2, 3A, 3B, 3C.

Do not scale from these drawings. Dimensions to take precedence over scale. Written specifications to take precedence over diagrammatic representations.	B. Daly 42 Arthur Highway Dunalley TAS 7177	C.T.: 206181/1 PID: 5956618	Date: 30/08/2022	Bushfire Hazard Management Plan 42 Arthur Highway Dunalley. August 2022. J5353v2.0 Bushfire Management Report 42 Arthur Highway Dunalley. August 2022. J5353v2.0	Drawing Number: A01	Sheet 1 of 2 Prepared by: MvdB

BUSHFIRE HAZARD MANAGEMENT PLAN

Bushfire Hazard Management Plan, 42 Arthur Highway Dunalley.
August 2022. J5353v2.0
Sorell Interim Planning Scheme 2015

Design and Specification Requirements
4.2 Standards for Property Access
Property access length is greater than 30 metres; or access is required for a fire appliance to access a water connection point.

The following design and construction requirements apply to property access:
(1) All-weather construction;
(2) Load capacity of at least 20 tonnes, including for bridges and culverts;
(3) Minimum carriageway width of 4 metres;
(4) Minimum vertical clearance of 4 metres;
(5) Minimum horizontal clearance of 0.5 metres from the edge of the carriageway;
(6) Cross falls of less than 3° (1:20 or 5%);
(7) Dips less than 7° (1:8 or 12.5%) entry and exit angle;
(8) Curves with a minimum inner radius of 10 metres;
(9) Maximum gradient of 15° (1:3.5 or 28%) for sealed roads, and 10° (1:5.5 or 18%) for unsealed roads; and
10) Terminate with a turning area for fire appliances provided by one of the following:
(a) A turning circle with a minimum inner radius of 10 metres;
(b) A property access encircling the building; or
(c) A hammerhead "T" or "Y" turning head 4 metres wide and 8 metres long.

C) Property access length is 200 metres or greater.
The following design and construction requirements apply to property access:
(a) The requirements for B above; and
(b) Passing bays of 2 metres additional carriageway width and 20 metres length provided every 200 metres

4.3B Static Water Supply for Fire fighting

The site is not serviced by a reticulated water supply, therefore a dedicated, static firefighting water supply will be provided in accordance with the following;

Static water supplies and associated infrastructure for firefighting purposes will be provided in accordance with table 4.3B of the Determination, Director of Building Control – Requirements for Building in Bushfire-Prone Areas (transitional), version 2.2 6th February 2020

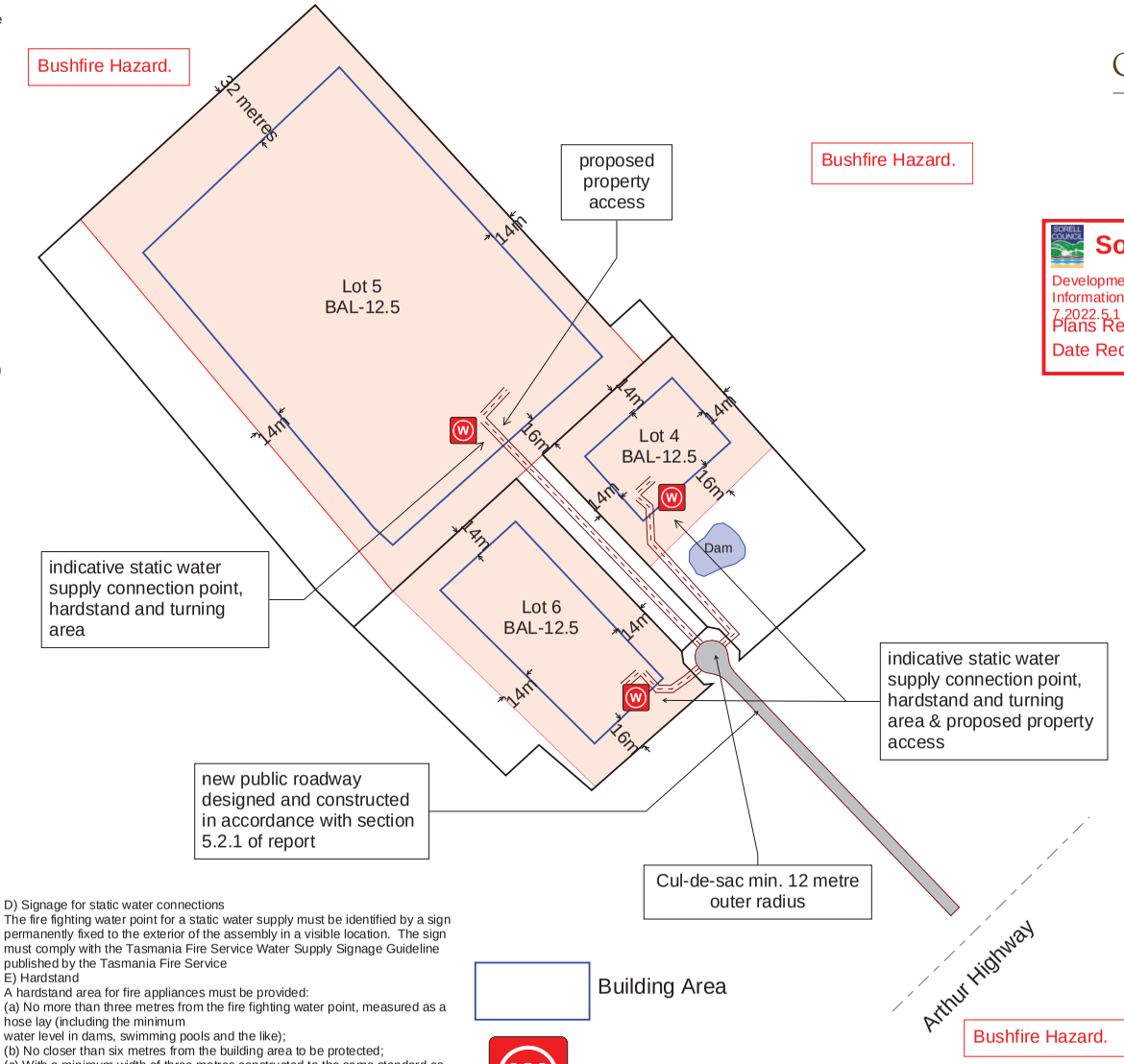
A Distance between building area to be protected and water supply
The following requirements apply:
(a) The building area to be protected must be located within 90 metres of the fire fighting water point of a static water supply; and
(b) The distance must be measured as a hose lay, between the fire fighting water point and the furthest part of the building area.

B) Static Water Supplies
A static water supply:
(a) May have a remotely located offtake connected to the static water supply;
(b) May be a supply for combined use (fire fighting and other uses) but the specified minimum quantity of fire fighting water must be available at all times;
(c) Must be a minimum of 10,000 litres per building area to be protected. This volume of water must not be used for any other purpose including fire fighting sprinkler or spray systems;
(d) Must be metal, concrete or lagged by non-combustible materials if above ground; and
(e) If a tank can be located so it is shielded in all directions in compliance with Section 3.5 of AS 3959-2009, the tank may be constructed of any material provided that the lowest 400 mm of the tank exterior is protected by:
(i) metal;
(ii) non-combustible material; or
(iii) fibre-cement a minimum of 6 mm thickness.

C) Fittings and pipework associated with a fire fighting water point for a static water supply must:
(a) Have a minimum nominal internal diameter of 50mm; (2) Be fitted with a valve with a minimum nominal internal diameter of 50mm;
(b) Be fitted with a valve with a minimum nominal internal diameter of 50mm;
(c) Be metal or lagged by non-combustible materials if above ground;
(d) Where buried, have a minimum depth of 300mm (compliant with AS/NZS 3500.1-2003 Clause 5.23);
(e) Provide a DIN or NEN standard forged Storz 65 mm coupling fitted with a suction washer for connection to fire fighting equipment;
(f) Ensure the coupling is accessible and available for connection at all times;
(g) Ensure the coupling is fitted with a blank cap and securing chain (minimum 220 mm length);
(h) Ensure underground tanks have either an opening at the top of not less than 250 mm diameter or a coupling compliant with this Table; and
(i) Where a remote offtake is installed, ensure the offtake is in a position that is:
(i) Visible;
(ii) Accessible to allow connection by fire fighting equipment,
(iii) At a working height of 450 – 600mm above ground level; and
(iv) Protected from possible damage, including damage by vehicles.

D) Signage for static water connections
The fire fighting water point for a static water supply must be identified by a sign permanently fixed to the exterior of the assembly in a visible location. The sign must comply with the Tasmania Fire Service Water Supply Signage Guideline published by the Tasmania Fire Service
E) Hardstand
A hardstand area for fire appliances must be provided:
(a) No more than three metres from the fire fighting water point, measured as a hose lay (including the minimum
water level in dams, swimming pools and the like);
(b) No closer than six metres from the building area to be protected;
(c) With a minimum width of three metres constructed to the same standard as the carriageway; and
(d) Connected to the property access by a carriageway equivalent to the standard of the property access.

Hazard Management Area Requirements
A hazard management area is required to be established and maintained for the life of the building and is shown on this BHMP. Guidance for the establishment and maintenance of the hazard management area is also provided.



GES
GEO-ENVIRONMENTAL
SOLUTIONS

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

Sorell Council
Development Application: Response to Request for Information 16-42 Arthur Highway, Dunalley
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Date Received: 30/08/2022

Hazard Management Area
A hazard management area is the area, between a habitable building or building area and the bushfire prone vegetation, which provides access to a fire front for firefighting, which is maintained in a minimal fuel condition and in which there are no other hazards present which will significantly contribute to the spread of a bushfire. This can be achieved through, but is not limited to the following actions;

- •Remove fallen limbs, sticks, leaf and bark litter;
- •Maintain grass at less than a 100mm height;
- •Avoid the use of flammable mulches (especially against buildings);
- •Thin out under-story vegetation to provide horizontal separation between fuels;
- •Prune low-hanging tree branches (<2m from the ground) to provide vertical separation between fuel layers;
- •Remove or prune larger trees to establish and maintain horizontal separation between tree canopies;
- •Minimise the storage of flammable materials such as firewood;
- •Maintain vegetation clearance around vehicular access and water supply points;
- •Use low-flammability plant species for landscaping purposes where possible;
- •Clear out any accumulated leaf and other debris from roof gutters and other debris accumulation points.

It is not necessary to remove all vegetation from the hazard management area, trees may provide protection from wind borne embers and radiant heat under some circumstances.

Certification No. J5353

Mark Van den Berg
Acc. No. BFP-108
Scope 1, 2, 3A, 3B, 3C.

Do not scale from these drawings. Dimensions to take precedence over scale. Written specifications to take precedence over diagrammatic representations.	B. Daly 42 Arthur Highway Dunalley TAS 7177	C.T.: 206181/1 PID: 5956618	Date: 30/08/2022	Bushfire Hazard Management Plan 42 Arthur Highway Dunalley. August 2022. J5353v2.0 Bushfire Management Report 42 Arthur Highway Dunalley. August 2022. J5353v2.0	Drawing Number: A01	Sheet 2 of 2 Prepared by: MvdB

Appendix D

Planning Certificate

BUSHFIRE-PRONE AREAS CODE

CERTIFICATE[1] UNDER S51(2)(d) *LAND USE PLANNING AND APPROVALS ACT 1993*

1. Land to which certificate applies

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

Street address:	42 Arthur Highway, Dunalley, TAS, 7177.
Certificate of Title / PID:	206181/1

2. Proposed Use or Development

Description of proposed Use and Development:	Subdivision of land resulting in 6 lots and balance lot
Applicable Planning Scheme:	Sorell Interim Planning Scheme 2015

3. Documents relied upon

This certificate relates to the following documents:

Title	Author	Date	Version
Subdivision Proposal Lot Layout Plan	PDA surveyors	20/10/2021	47948CT-2B
Bushfire Hazard Report 42 Arthur Highway Dunalley. August 2022. J5353v2.0	Mark Van den Berg	30/08/2022	1
Bushfire Hazard Management Plan 42 Arthur Highway Dunalley. August 2022. J5353v2.0	Mark Van den Berg	30/08/2022	1

[1] This document is the approved form of certification for this purpose and must not be altered from its original form.

4. Nature of Certificate

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

☐	**E1.4 / C13.4 – Use or development exempt from this Code**	
	Compliance test	**Compliance Requirement**
☐	E1.4(a) / C13.4.1(a)	Insufficient increase in risk

☐	**E1.5.1 / C13.5.1 – Vulnerable Uses**	
	Acceptable Solution	**Compliance Requirement**
☐	E1.5.1 P1 / C13.5.1 P1	***Planning authority discretion required. A proposal cannot be certified as compliant with P1.***
☐	E1.5.1 A2 / C13.5.1 A2	Emergency management strategy
☐	E1.5.1 A3 / C13.5.1 A2	Bushfire hazard management plan

☐	**E1.5.2 / C13.5.2 – Hazardous Uses**	
	Acceptable Solution	**Compliance Requirement**
☐	E1.5.2 P1 / C13.5.2 P1	***Planning authority discretion required. A proposal cannot be certified as compliant with P1.***
☐	E1.5.2 A2 / C13.5.2 A2	Emergency management strategy
☐	E1.5.2 A3 / C13.5.2 A3	Bushfire hazard management plan

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

☒	E1.6.2 / C13.6.2 Subdivision: Public and fire fighting access	
	Acceptable Solution	**Compliance Requirement**
☐	E1.6.2 P1 / C13.6.2 P1	***Planning authority discretion required. A proposal cannot be certified as compliant with P1.***
☐	E1.6.2 A1 (a) / C13.6.2 A1 (a)	Insufficient increase in risk
☒	E1.6.2 A1 (b) / C13.6.2 A1 (b)	Access complies with relevant Tables

☒	E1.6.3 / C13.1.6.3 Subdivision: Provision of water supply for fire fighting purposes	
	Acceptable Solution	**Compliance Requirement**
☐	E1.6.3 A1 (a) / C13.6.3 A1 (a)	Insufficient increase in risk
☐	E1.6.3 A1 (b) / C13.6.3 A1 (b)	Reticulated water supply complies with relevant Table
☐	E1.6.3 A1 (c) / C13.6.3 A1 (c)	Water supply consistent with the objective
☐	E1.6.3 A2 (a) / C13.6.3 A2 (a)	Insufficient increase in risk
☒	E1.6.3 A2 (b) / C13.6.3 A2 (b)	Static water supply complies with relevant Table
☐	E1.6.3 A2 (c) / C13.6.3 A2 (c)	Static water supply consistent with the objective

5. Bushfire Hazard Practitioner

Name:	Mark Van den Berg	**Phone No:**	03 62231839
Postal Address:	29 Kirksway Place Battery Point Tas. 7004	**Email Address:**	mvandenberg@geosolutions.net.au
Accreditation No:	BFP – 108	**Scope:**	1, 2, 3a, 3b & 3c

6. Certification

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

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

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

Signed:
certifier

Name: Mark Van den Berg **Date:** 30/08/2022

Certificate Number: J5353

(for Practitioner Use only)

Sorell Council

Development Application: Response to Request for Information 16-42 Arthur Highway, Dunalley
7.2022.5.1 30/08/2022
Plans Reference: P4
Date Received: 30/08/2022

Appendix E

Certificate of Others

CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

Form **55**

To: B. Daly *Owner /Agent*

c/- 42 Arthur Highway *Address*

Dunalley, TAS 7177 *Suburb/postcode*

Qualified person details:

Qualified person: Mark Van den Berg

Address: 29 Kirksway Place Phone No: 03 6223 1839

Battery Point TAS 7004 Fax No:

Licence No: BFP-108 Email address: mvandenberg@geosolutions.net.au

Qualifications and Insurance details: Accredited to report on bushfire hazards under Part IVA of the Fire Service Act.
BFP-108 scope 1, 2, 3a, 3b, 3c.
Sterling Insurance PI policy No. 17080170

(description from Column 3 of the Director's Determination - Certificates by Qualified Persons for Assessable Items

Speciality area of expertise: Analysis of bushfire hazards in bushfire prone areas

(description from Column 4 of the Director's Determination - Certificates by Qualified Persons for Assessable Items)

Details of work:

Address: 42 Arthur Highway

Lot No: 1 to 6 (inclusive) and balance lot

Dunalley, TAS. 7177

Certificate of title No: TBA

The assessable item related to this certificate: New building work in a bushfire prone area.

(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: Bushfire Hazard

(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: X

or

a building, temporary structure or plumbing installation:

In issuing this certificate the following matters are relevant –

Documents:	Bushfire Hazard Report 42 Arthur Highway Dunalley. August 2022. J5353v2.0 Bushfire Hazard Management Plan 42 Arthur Highway Dunalley. August 2022. J5353v2.0 and Form 55.
Relevant calculations:	N/A
Reference documents:	Determination, Director of Building Control Requirements for Building in Bushfire-Prone Areas, version 2.2 6th February 2020. Consumer, Building and Occupational Services, Department of Justice, Tasmania. Building Amendment (Bushfire-Prone Areas) Regulations 2014. Standards Australia 2018, Construction of buildings in bushfire prone areas, Standards Australia, Sydney.

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

The Bushfire Attack Level is **12.5** for lots 1 to 6 (inclusive) and the balance lot as marked on the Bushfire Hazard management plan. All specifications of report and BHMP required for compliance.

Scope and/or Limitations

Scope: This report was commissioned to identify the Bushfire Attack Level for the existing property. Limitations: The inspection has been undertaken and report provided on the understanding that;-1. The report only deals with the potential bushfire risk all other statutory assessments are outside the scope of this report. 2. The report only identifies the size, volume and status of vegetation at the time the site inspection was undertaken. 3. Impacts of future development and vegetation growth have not been considered.

I certify the matters described in this certificate.

Qualified person:

Signed:

Certificate No: J5353

Date: 30/08/2022

Attachments to item number 4.2-

Planning Report

Flood Hazard Report

Noise Assessment Report

Traffic Impact Assessment

Stormwater Report

AllUrbanPlanning PTY LTD

Planning Report

The Station

33 Dubs and Co Drive, Sorell

Date 28 May 2022

19 Mawhera Ave, Sandy Bay Tasmania 7005 Call 0400 109 582
Email frazer@allurbanplanning.com.au allurbanplanning.com.au

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1. Introduction

All Urban Planning Pty Ltd has been engaged by the Young Group Pty Ltd to prepare a planning assessment under the *Sorell Interim Planning Scheme 2015* (planning scheme) for development of the Station, a mixed-use commercial proposal at 33 Dubs and Co Drive, Sorell.

The proposal is accompanied by:

- Plans and elevations prepared by 1+2 Architects;
- Landscape plan prepared by Inspiring Place;
- Civil design and Stormwater Report prepared by Aldanmark;
- Flood Hazard Assessment prepared by Flussig; and
- Traffic Impact Assessment prepared by Joanne Fisher.

1.1Site & Surrounds

The site is 33 Dubs and Co Drive, Sorell

Address	***CT***	***Area***	***Owner***
33 Dubs and Co Drive	CT177607/2	4900m^2	Sorell 7172 Pty Ltd

Figure 1– Location Plan (source annotated plan from theList)

2. Proposal

The Station is a proposal for a new mixed use commercial development on a vacant site adjacent to the north of the Sorell Council Centre.

The proposal is for a pavilion form over three levels (two storeys plus basement) to be sited on the southern side of the lot fronting Dubs and Co Drive. The pavilion will be split into two halves east and west with an airbridge link.

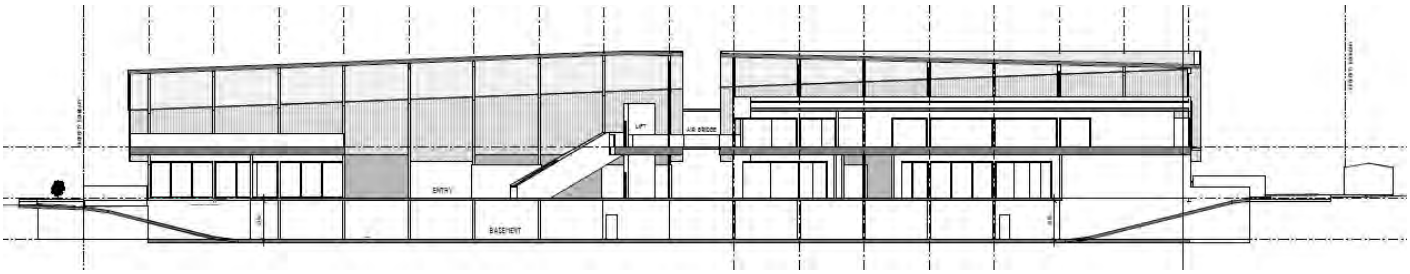


Figure 2 -Section A (Source: 1+2 Architects)

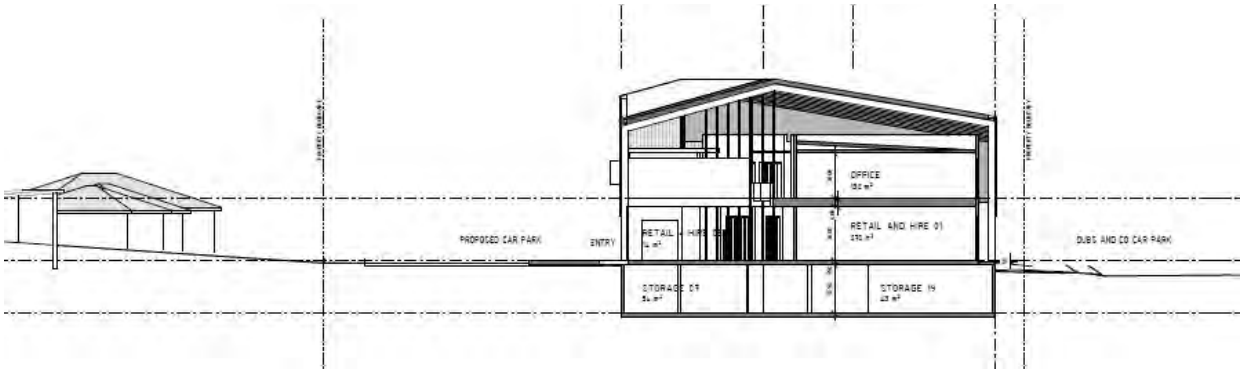


Figure 3 - Section B (Source: 1+2 Architects)

A landscaped carpark will be provided to the northern side of the building with space for 56 vehicles including 2x accessible spaces, 3 x electric vehicle charging spaces and 2 x loading spaces.

Basement Level

The basement level will accommodate a drive through self-storage use with a single lane of traffic entering at the eastern end of the site, down a ramp and exiting via a western ramp. A loading zone lane will provide short term parking for the service the self-storage units. A total of 27 individual storage units will be accommodated along with services and a stormwater retention tank.

Ground Level

The ground floor level will include the main pedestrian entry plaza and a mix of 8 x retail and 2 x food services tenancies of varying sizes. This level includes outdoor terrace spaces at the western end of the building, a northern forecourt and shared amenities.

First Floor Level

The first floor level will include a large open terrace area and food services tenancy at the western end of the building, void spaces to the ground floor below, 6 x office tenancies of varying sizes and shared amenities.

Floor areas

The total floor areas of the proposed uses are:

- Office space - 657m^2
- Retail and hire - 672m^2
- Storage - 1165m^2
- Food Services - 511m^2

Hours of operation

The proposed uses will operate within the hours of 6am to 10pm Monday to Saturdays and 7am to 9pm Sundays and public holidays except for office and administrative tasks.

Commercial vehicle movement to the site will be between the hours of 6.00 am to 10.00 pm Mondays to Saturdays and 7.00 am to 9.00 pm Sundays and public holidays.

Landscaping and lighting

The proposal includes a carefully considered landscape concept prepared by Inspiring Place including buffer planting along the northern boundary with adjacent residential properties, occupied spaces within the carpark and at the building interface with the carpark, access and street frontages as well along the eastern boundary adjacent to the childcare centre.

A concept lighting scheme is included with the proposal and has been designed to provide adequate light for the proposed carpark, pedestrian accessible areas without imposing on nearby residences.

Other

The proposal includes 2 x designated bin storage areas with adjacent loading areas.

The proposal include the removal of an existing crossover in the centre of the southern frontage to Dubs and Co Drive and a new simple one way traffic flow from east to west through the site with a single new crossover at the eastern end of the southern frontage and two exit crossovers at the western end (one for the main carpark and the other for the self storage exit ramp).

Two screened mechanical plant decks are proposed on the southern slope of the roof facing away from the adjacent residential neighbours.

3. Planning Scheme

The site is zoned General Business and adjoins a General Residential zoned area to the north.

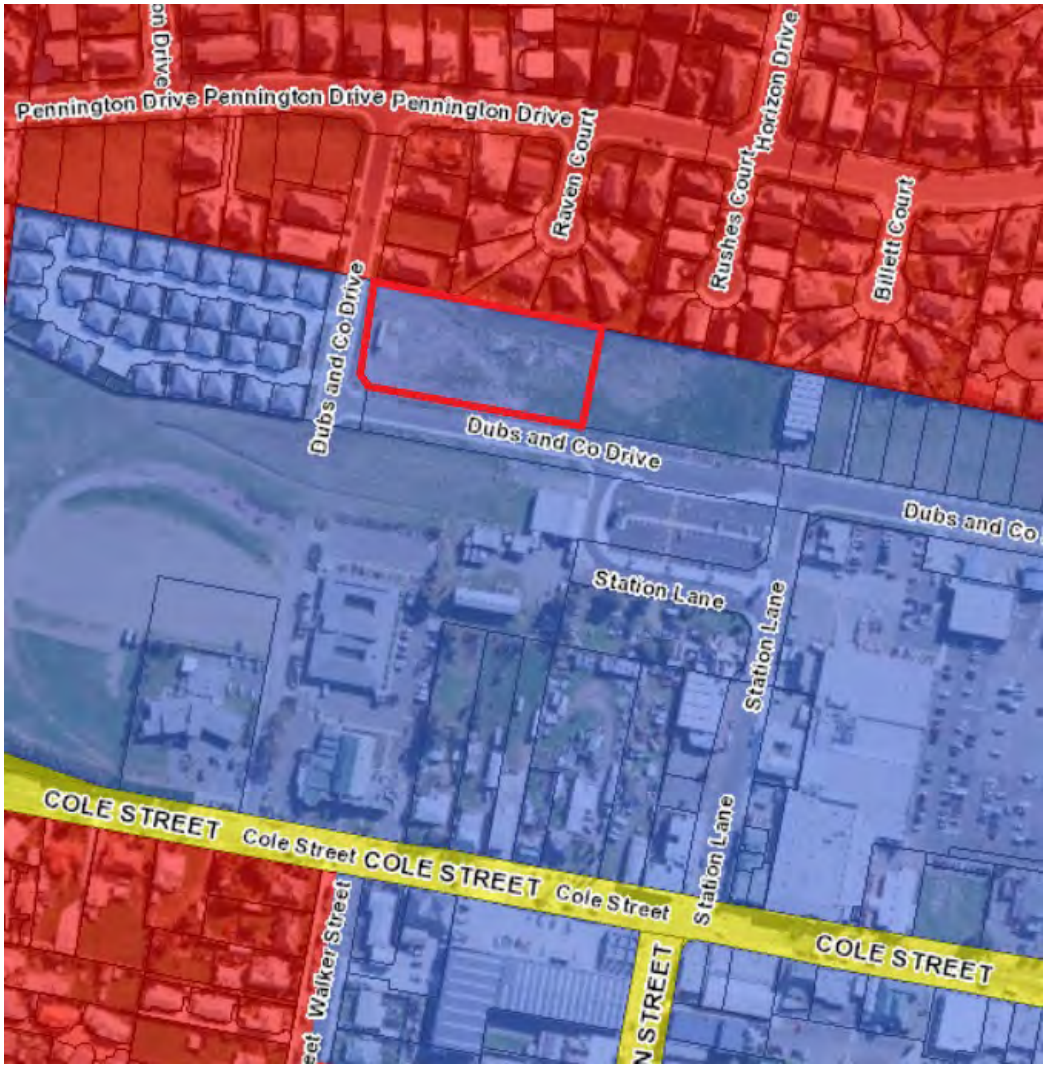


Figure 4 - Zoning Plan (Source: theList)

3.1 General Business Zone

21.1.1 Zone Purpose Statements

21.1.1.1 To provide for business, community, food, professional and retail facilities serving a town or group of suburbs.

21.1.1.2 To ensure the rural service centres provide for the daily and weekly needs of the community.

21.1.1.3 To provide for a mix of retail and office based employment servicing the local area including a supermarket and a range of specialty shops.

21.1.1.4 To provide a safe, comfortable and pleasant environment for workers, residents and visitors through the provision of high quality urban spaces and urban design.

21.1.1.5 To provide a focus for employment primarily in retailing but complemented by a range of office based employment mainly in professional and personal services for the municipality and surrounding sub-region.

21.1.1.6 To ensure that the Sorell township is the rural service centre providing for a range of convenience, goods and services as well as community services and facilities for the municipal area and surrounds including Tasman and lower East Coast sub-region

21.1.2 Local Area Objectives

To develop and enhance the Sorell township role as the rural services centre for the municipal area through a mix of retail, commercial, administrative, residential and community services that complement this function and provide for the needs of the local and sub-regional community.

21.1.3 Desired Future Character Statements

Future development of the Sorell township is to:

(a) provide active and attractive streetscapes;

(b) improve access / permeability to the town centre from the adjacent residential areas;

(c) provide an open space hierachy incorporating open spaces that are accessible and appropriately landscaped providing both passive and active recreation for social interaction with particular attention to enhancing the Sorell Rivulet;

(d) provide for sustainable development to optimise water and energy conservation;

(e) use scale, proportion, materials and colour to ensure building facades positively contribute to the streetscape.

The proposal is considered to provide an overwhelmingly positive contribution to furthering the Zone Purpose, Local Area Objectives and Desired Future Character Statements for Sorell in that:

- The proposal will provide for a diverse mix of office, retail and food services uses with an active ground floor frontage;
- The 'concealed' basement level self storage use will provide for an identified need for storage within the locality and sub-region in a manner that will not compromise the intended high quality landscaped urban spaces of the site and adjacent street frontages; and
- The proposal develops vacant land adjacent to the emerging community and commercial hub on the northern side of Sorell. It will complement the mixed use role of the Sorell township as identified in the Local Area Objectives at 21.1.2.

3.2 Use

The proposal involves *Business and professional services*, *Food services*, *General retail and hire* and *Storage* uses.

Business and professional services, Food services and General retail and hire uses are all Permitted in the Zone.

The proposed *Storage* use is discretionary.

Having regard to the relevant considerations for a discretionary use under Clause 8.10.2 and for the reasons set out in Section 3.1 above, the proposed basement level storage use below two levels of activated commercial spaces is considered acceptable.

3.3 Use Standards

The site is located adjacent and therefore within 50m of the General Residential zoned areas to the north of the site.

21.3.1 Hours of Operation

Use Standard	***Assessment***
A1 *Hours of operation of a use within 50 m of a residential zone must be within:* *(a) 6.00 am to 10.00 pm Mondays to Saturdays inclusive;* *(b) 7.00 am to 9.00 pm Sundays and Public Holidays.* *except for office and administrative tasks.*	The proposed uses will operate within the hours of 6am to 10pm Monday to Saturdays and 7am to 9pm Sundays and public holidays except for office and administrative tasks. The proposal complies.

21.3.2 Noise

Use Standard	***Assessment***
A1 *Noise emissions measured at the boundary of a residential zone must not exceed the following:* *(a) 55dB(A) (LAeq) between the hours of 7.00 am to 7.00 pm;* *(b) 5dB(A) above the background (LA90) level or 40dB(A) (LAeq), whichever is the lower, between the hours of 7.00 pm to 7.00 am;* *(c) 65dB(A) (LAmax) at any time.* *Measurement of noise levels must be in accordance with the methods in the Tasmanian Noise Measurement Procedures Manual, issued by the Director of Environmental Management, including adjustment of noise levels for tonality and impulsiveness.* *Noise levels are to be averaged over a 15 minute time interval.*	The proposal will not involve any significant noise generating uses or external amplified music. Having regard to these factors and that all mechanical plant will be appropriately located, installed and screened it is not considered likely that the proposal will result in noise emissions above the permitted standards set out in A1.

21.3.3 External Lighting

Use Standard	***Assessment***
A1 *External lighting within 50 m of a residential zone must comply with all of the following:* *(a) be turned off between 11:00 pm and 6:00 am, except for security lighting;* *(b) security lighting must be baffled to ensure they do not cause emission of light outside the zone.*	The proposal complies with all external lighting to be turned off between 11pm and 6am except for security lighting which will be baffled to prevent emission of light outside the zone.

21.3.4 Commercial Vehicle Movements

Use Standard	***Assessment***
A1 *Commercial vehicle movements, (including loading and unloading and garbage removal) to or from a site within 50 m of a residential zone must be within the hours of:* *(a) 6.00 am to 10.00 pm Mondays to Saturdays inclusive;* *(b) 7.00 am to 9.00 pm Sundays and public holidays.*	The proposal will not involve commercial vehicle movements outside these hours and complies with this Standard.

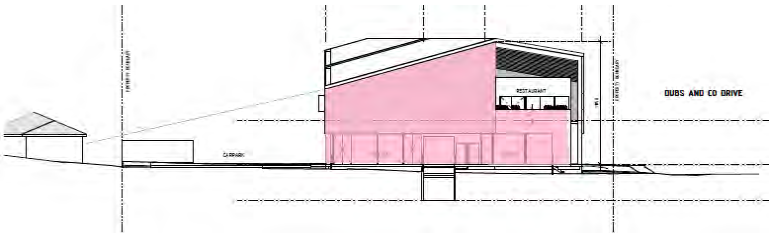
Development Standards

21.4.1 Building Height

Objective:

To ensure that building height contributes positively to the streetscape and does not result in unreasonable impact on residential amenity of land in a residential zone.

Development Standard	***Assessment***
A1 *Building height must be no more than:* *10 m.*	The proposal will have a maximum building height of approximately 12.8m and therefore exceeds the 10m permitted standard. The proposal is therefore to be assessed under P1.
P1 *Building height must satisfy all of the following:*	The proposed building height is considered acceptable under P1 in that:

(a) be consistent with any Desired Future Character Statements provided for the area; *(b) be compatible with the scale of nearby buildings;* *(c) not unreasonably overshadow adjacent public space;* *(d) allow for a transition in height between adjoining buildings, where appropriate;*	• The proposed building form, scale, proportion, materials and height will provide an attractive and active presentation to the evolving Dubs and Co Drive streetscape. • The wall height facing the residential zone to the north transitions from a height of 7.5m at the western end to 11m at the eastern end. The highest point of the building will pitch up and away from the nearby residential properties. This reduced wall height closest to the residential properties and roof form that pitches up and away, along with the substantial setback to the residential properties will ensure that the proposal is compatible with the scale of nearby buildings and provides an appropriate transition to adjoining buildings.   • The accompanying shadow diagrams show no tangible change in shadowing than would otherwise occur from a building of the same footprint that complies with the permitted 10m height limit. The building will therefore not unreasonably overshadow the adjacent public spaces of Dubs and Co Drive.
A2 *Building height within 10 m of a residential zone must be no more than 8.5 m.*	The proposed building is well setback from the boundary with the residential zone to the north and complies with A2.

21.4.2 Setback

Objective:

To ensure that building setback contributes positively to the streetscape and does not result in unreasonable impact on residential amenity of land in a residential zone.

Development Standard	***Assessment***

A1 *Building setback from frontage must be parallel to the frontage and must be no more than:* *nil m, if fronting Gordon Street or Cole Street.* *3 m, if fronting any other street.*	The proposal is setback 930mm from the southern, Dubs and Co frontage and the built terraces align the western street frontage. The southern alignment is slightly off parallel mainly because the title boundary is not perpendicular to the north-south frontage. The proposal is therefore to be assessed under P1.
P1 *Building setback from frontage must satisfy all of the following:* *(a) be consistent with any Desired Future Character Statements provided for the area;* *(b) be compatible with the setback of adjoining buildings, generally maintaining a continuous building line if evident in the streetscape;* *(c) enhance the characteristics of the site, adjoining lots and the streetscape;* *(d) provide for small variations in building alignment only where appropriate to break up long building facades, provided that no potential concealment or entrapment opportunity is created;* *(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 proposal is considered to be appropriately located close to the frontage to form the public street space and to satisfy P1. It is assessed that the setbacks meet the objective for a positive streetscape contribution that will enhance the characteristics of the site and the evolving Dubs and Co streetscape.
A2 *Building setback from a residential zone must be no less than:* *(a) 5 m;* *(b) half the height of the wall,* *whichever is the greater.*	The proposal is well setback from the adjacent residential zone to the north and comfortably complies with A2.

21.4.3 Design

Development Standard	***Assessment***
A1 *Building design must comply with all of the following:* *(a) provide the main pedestrian entrance to the building so that it is clearly visible from the road or publicly accessible areas on the site;* *(b) for new building or alterations to an existing facade provide windows and door openings at ground floor level in the front façade no less than 40% of the surface area of the ground floor level façade;* *(c) for new building or alterations to an existing facade ensure any single expanse of blank wall in the ground level front façade and facades facing other public spaces is not greater than 30% of the length of the facade;* *(d) screen mechanical plant and miscellaneous equipment such as heat pumps, air conditioning units, switchboards, hot water units or similar from view from the street and other public spaces;* *(e) incorporate roof-top service infrastructure, including service plants and lift structures, within the design of the roof;* *(f) provide awnings over the public footpath if existing on the site or on adjoining lots;* *(g) not include security shutters over windows or doors with a frontage to a street or public place.*	Complies. The proposal is considered to comply with A1 in that: • includes large glazed ground floor frontages and main pedestrian entries to Dubs and Co Drive. • The two screened mechanical plant decks will be integrated to the roof design. • Pedestrian awnings are not a characteristic feature of the area • No security shutters are included.
A2 *Walls of a building facing a residential zone must be coloured using colours with a light reflectance value not greater than 40 percent.*	The proposed cladding is to be predominantly zincalume treated with an oxidising solution or applied finish in order to achieve the required light reflectance value not greater than 40% and will satisfy this requirement. It is expected that the final detail and sample of this finish to achieve the above standard will be provided for the approval of Council prior to construction.

21.4.4 Passive Surveillance

Development Standard	***Assessment***
A1 *Building design must comply with all of the following:* *(a) provide the main pedestrian entrance to the building so that it is clearly visible from the road or publicly accessible areas on the site;* *(b) for new buildings or alterations to an existing facade provide windows and door openings at ground floor level in the front façade which amount to no less than 40 % of the surface area of the ground floor level facade;* *(c) for new buildings or alterations to an existing facade provide windows and door openings at ground floor level in the façade of any wall which faces a public space or a car park which amount to no less than 30 % of the surface area of the ground floor level facade;* *(d) avoid creating entrapment spaces around the building site, such as concealed alcoves near public spaces;* *(e) provide external lighting to illuminate car parking areas and pathways;* *(f) provide well-lit public access at the ground floor level from any external car park.*	The proposal complies with A1 in that: • The main public entrances to the building will be visible from the centre f the building on the southern Dubs and Co frontage and to the publicly accessible parking areas on the northern side of the building. • Extensive ground floor glazing and openings are proposed on both the street frontages that will exceed the 40% minimum requirement. • The building is designed to avoid entrapment spaces • External lighting is proposed as shown on the landscaping plans

21.4.5 Landscaping

Objective:

To ensure that a safe and attractive landscaping treatment enhances the appearance of the site and if relevant provides a visual break from land in a residential zone.

Development Standards	***Assessment***
A1 *Landscaping along the frontage of a site is not required if all of the following apply:*	The proposal includes a comprehensive landscaping plan including plantings along both frontages and complies with A1.

(a) the building extends across the width of the frontage, (except for vehicular access ways); *(b) the building has a setback from the frontage of no more than 1 m.*	
A2 *Along a boundary with a residential zone landscaping must be provided for a depth no less than:* *2 m.*	The proposal includes landscaping for a depth of 2m along the western rear boundary of the site adjoining the General Residential zone.

21.4.6 Outdoor Storage Areas

Development Standard	***Assessment***
A1 *Outdoor storage areas for non-residential uses must comply with all of the following:* *(a) be located behind the building line;* *(b) all goods and materials stored must be screened from public view;* *(c) not encroach upon car parking areas, driveways or landscaped areas.*	The proposal does not include outdoor storage areas and complies with this requirement.

21.4.7 Fencing

Development Standard	***Assessment***
A1 *Fencing must comply with all of the following:* *(a) fences, walls and gates of greater height than 1.5 m must not be erected within 4.5 m of the frontage;* *(b) fences along a frontage must be at least 50% transparent above a height of 1.2 m;* *(c) height of fences along a common boundary with land in a residential zone must be no more than 2.1 m and must not contain barbed wire.*	The proposal complies with A1 in that it does not involve a front fence or a rear fence exceeding 2.1m along the boundary with the residential zone.

3.4 Road and Railway Assets Code

The requirements of this Code are assessed in the accompanying Traffic Impact Assessment by Joanne Fisher and determined to comply.

3.5 Parking and Access Code

The requirements of this Code are assessed in the accompanying Traffic Impact Assessment by Joanne Fisher and determined to comply.

Landscaping of the carpark is integrated into the design as shown on the site plan.

3.6 Stormwater Management Code

The accompanying civil engineering design confirms that the proposal will connect by gravity to existing public stormwater infrastructure.

The requirements of the Stormwater Management Code have been addressed by Aldanmark in the accompanying Stormwater report.

3.7 Flooding

A flood assessment has been prepared by Flussig and accompanies the application to address the requirements of this Code.

4. Conclusion

The proposed mixed use development will make a contemporary and an overwhelmingly positive contribution to Sorell. It is consistent with the Zone Purpose, Local Area Objectives and Desired Future Character for the General Business Zone at Sorell with active frontages and high-quality urban spaces. The proposal has been thoughtfully designed to transition to the adjacent residential zone.

The proposal is accompanied by a traffic impact assessment by Joanne Fisher, flood assessment by Flussig and civil design and stormwater management report by Aldanmark.

In my assessment the proposal complies with the Planning Scheme and should be approved following public notification pursuant to Section 57 of the Act.

I would be pleased to discuss or clarify any aspects of the proposal as necessary.

Frazer Read

Principal

28 May 2022

The Station is a new mixed use development proposed for 33 Dubs and Co Drive , Sorell Tasmania. It is intended that this development will set a new benchmark for innovation and quality for Sorell's growing commercial precinct. It will provide vibrant, contemporary, and place-appropriate architecture, landscapes, and publicly accessible environments in support of a range of proposed commercial uses, along with significant off-street carparking facilities.

The building has been designed to create a variety of people-centric environments that are welcoming, safe and inviting to all users.

Externally the buildings form and expression is derived from an understanding of both its place within a developing streetscape and its broader context. The building has been sited to fulfil the civic potential of the vacant site, forming an extensively landscaped public edge to Dubs and Co Drive.

Heights and setbacks are configured to respect the broader streetscape pattern and the requirements of the Planning Scheme. The twin pavilion form and bridge link configuration has been designed to provide and overarching weather protection to the variously assembled indoor and outdoor uses provided within. These spaces have been configured in response to a pedestrian circulation network and supporting landscape designed to be permeable, active and equitably navigable.

External materials have been chosen as a contemporary response to the context. They have been configured to provide complexity and fragmentation of the larger façade elements through the use of complimentary yet varying textures colours and forms. External materials are compliant with the Design requirements specified under the Development Standards of Planning Schemes. These include; corrugated steel sheet for the upper level, chosen for texture, durability, and lightweight simple construction, light coloured brickwork at street level chosen for closer contact texture and scale, durability and vandal resistance, extensive shop front glazing for transparency to retail areas and an expressed galvanised steel structural frame. Integrated 'green wall' planting within façade elements is also proposed to soften architectural elements and contribute to habitable spaces.

External signage has been designed to present a unified graphical language for the development.

03rd May 2022
FE_22047

33 Dubs and Co Drive, Sorell
FLOOD HAZARD REPORT

Prepared for: The Young Group Pty Ltd

flussig ENGINEERS

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Document Information

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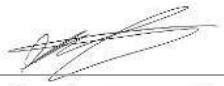
Document Initial Revision

REVISION 00	Staff Name	Signature	Date
Prepared by	Max W. Moller ***Principal Hydraulic Engineer***		04/05/2022
Prepared by	Christine Keane ***Water Resources Analyst***		04/05/2022
GIS Mapping	Damon Heather ***GIS Specialist***		04/05/2022
Reviewed by	John Holmes ***Senior Engineer***		04/05/2022
Reviewed by	Max W. Möller ***Principal Hydraulic Engineer***		04/05/2022
Authorised by	Max W. Moller ***Principal Hydraulic Engineer***		04/05/2022

Rev No.	Description	Prepared by	Authorised by	Date
01	Clarified ground floor and habitable floor definitions	Max W. Möller	Max W. Möller	05/05/2022

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1. Introduction

Flüssig Engineers has been engaged by **The Young Group Pty Ltd** to undertake a site-specific Flood Hazard Report for the development at number 33 Dubs and Co Drive, Sorell in the **Sorell Council** municipality. The purpose of this report is to determine the flood characteristics on the existing and post-development hazard scenarios for the 1% AEP plus climate change, for the purpose of development.

1.1 Development

The proposed development is a multi-unit development involving a two-storey building, raised driveway entrance and a protected storage level entrance. The proposed hardstand covers approximately 682 m^2 of the 986 m^2 lot. The site is currently vacant.

1.2 Objectives and Scope

This report is to assess the proposed development known as 'The Station' under the E15.0 Flood Prone Areas Hazard Code (E15.7.4 & E15.7.5) of the Sorell Interim Planning Scheme 2015 (SIPS 2015). The objectives of this study are:

- Provide an assessment of the site's flood characteristics under the combined 1% AEP plus climate change (CC) scenario.
- Provide comparison of flooding for post-development against acceptable solution and performance criteria.
- Provide flood mitigation recommendations for a potential future development, where appropriate.

1.3 Limitations

This study is limited to the objectives of the engagement by the clients, the availability and reliability of data, and including the following:

- The flood model is limited to a 1% AEP + CC worst case temporal design storm.
- All parameters have been derived from best practice manuals and available relevant studies (if applicable) in the area.
- All provided data by the client or government bodies for the purpose of this study is deemed fit for purpose and has not been checked for accuracy.
- The study is to determine the effects of the new development on flooding behaviour and should not be used as a full flood study outside the specified area without further assessment.

1.4 Relevant Planning Scheme Requirements

Table 1. Sorell Interim Planning Scheme Requirements

Planning Scheme Code	Objective	Document Reference
E15.7.4 Riverine Inundation Hazard Areas P1	A new habitable building must have a floor level that satisfies 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) risk to buildings and other works arising from riverine flooding is adequately mitigated through siting, structural or design methods; (d) need for future remediation works is minimised; (e) provision of any developer contribution required pursuant to policy adopted by Council for riverine flooding protection works.	Sections 3.1 & 4.1
E15.7.4 Riverine Inundation Hazard Areas P3	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;	Sections 3.1 & 4.1
E15.7.5 Riverine, Coastal Investigation Area, Low, Medium, High Inundation Hazard Areas P1	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.	Section 3

2. Model Build

2.1 Overview of Catchment

The contributing catchment for 33 Dubs and Co Drive, Sorell is approximately 8 ha stretching from the peak at Horizon Drive to the outlet at the development site with an average slope of 7.6%.

The land use of the catchment is General Residential, with the specific site being listed as General Business.

Figure 1 below outlines the approximate contributing catchment for the site at 33 Dubs and Co Drive.

Figure 1. Contributing Catchment, 33 Dubs and Co Drive, Sorell

2.2 Hydrology

The following Table 2 states the adopted hydrological parameters for the RAFTS catchment, as per best practice guidelines.

Table 2. Parameters for RAFTS catchment

Catchment Area (ha)	Initial Loss Perv/imp (mm)	Continuing Loss Perv/imp (mm/hr)	Manning's N pervious	Manning's N impervious	Non-linearity factor
8	18/1	2.5/0.0	0.045	0.02	-0.285

2.2.1 Design Rainfall Events

Figure 2 shows the box and whisker output of the model run. The model shows that the 1% AEP 10-min storm temporal pattern 5 was the worst-case median storm. Therefore, this storm event was used within the hydraulic model.

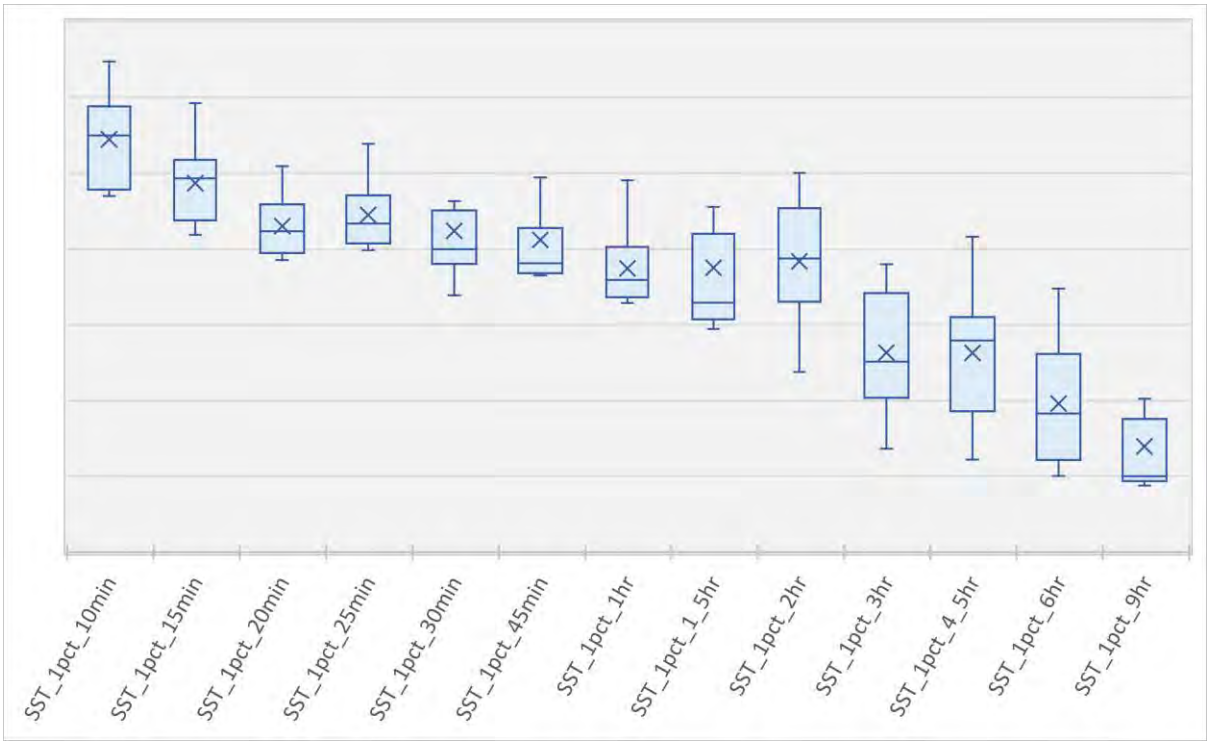

Figure 2. 1% AEP Flood Event Model, Box and Whisker Plot

2.2.2 Climate Change

As per ARR 2019 Guidelines, for an increase in rainfall due to climate change at 2100, it is recommended the use of RCP 8.5. However, ARR 2019 recommends that this figure be used in lieu of more local data being available.

The base scenario of the Climate Futures Tasmania (2010) study was revised following the ARR 2019 Australasia Climate Change study (undertaken by the University of Tasmania), resulting in the original increase in rainfall being reduced to 14.6% in cooler climates (Southern Tasmania). Table 3 shows the ARR 8.5 increased that has been adopted by Sorell Council and therefore used within the model.

Table 3. Climate Change Increases

Catchment	CFT increase @ 2100	ARR 8.5 increase @ 2100
Sorell	14.6%	16.3%

2.2.3 Calibration/Validation

This catchment has no stream gauge to calibrate the model against a real-world storm event. Similarly, there is little historical information available, and limited available past flood analysis undertaken to validate against the flows obtained in the model.

2.3 Hydraulics

2.3.1 Survey

The 2D surface model was taken from a combination of Greater Hobart LiDAR 2013 (Geoscience Australia) to create a 1m cell size DEM. For the purposes of this report, 1m cells are enough to capture accurate flow paths. The DEM with hill shading can be seen below (Figure 3).

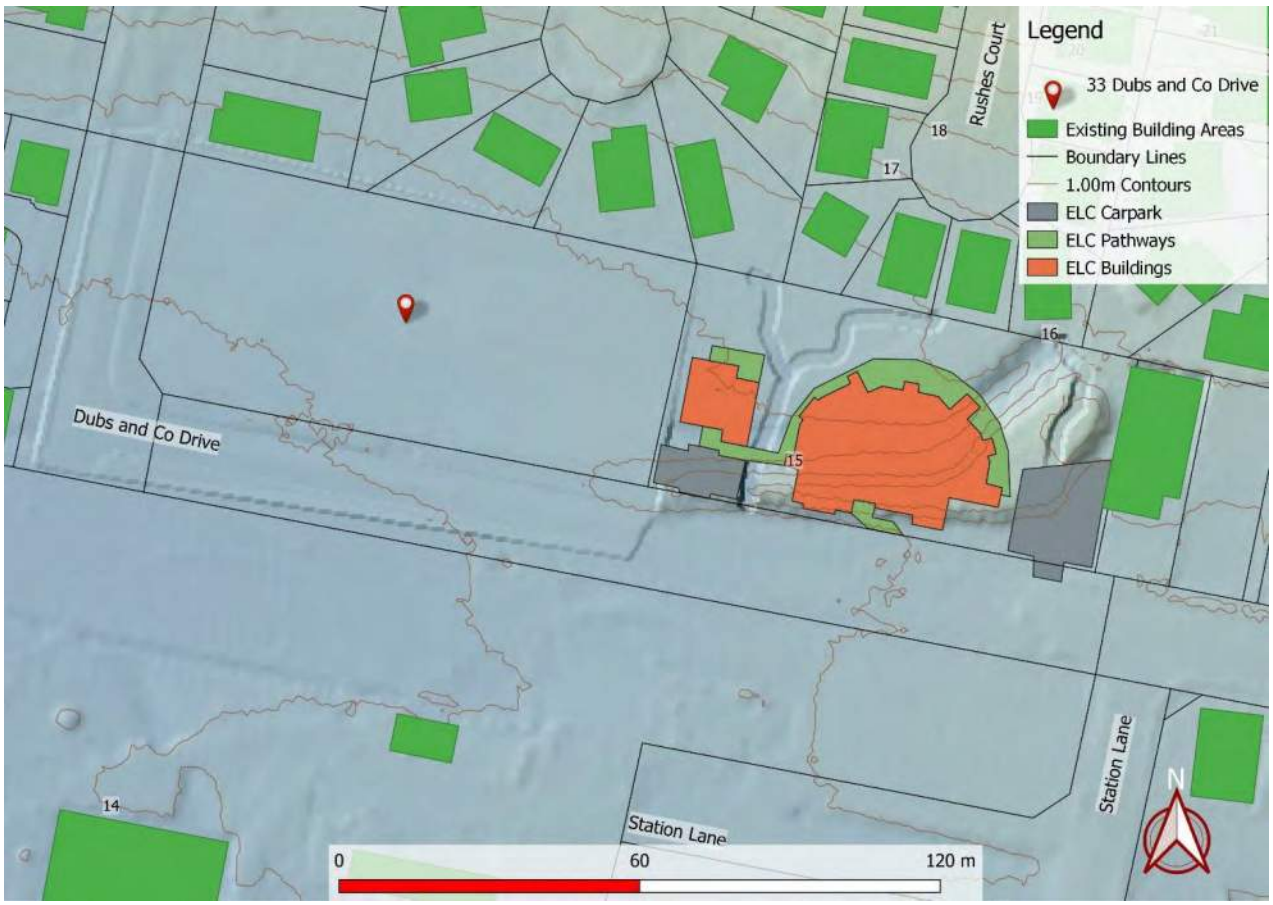

Figure 3. 1m DEM (Hill shade) of Lot Area

2.3.2 Roughness (Manning's n)

Roughness values for this model were derived from the ARR 2019 Guidelines. The Manning's values are listed in Table 4.

Table 4. Manning's Coefficients (ARR 2019)

Land Use	Roads	Open Channel	Rural	Residential	Parks	Buildings	Piped Infrastructure
Manning's n	0.018	0.035	0.04	0.045	0.05	0.3	0.013

2.3.3 Walls

Wall structures were included as base linear structures (walls) within the 2D model. The wall was set at 1.8 m off the ground level as per the design.

2.3.4 Buildings

Buildings were represented as mesh polygons with a high Manning's n value within the model. Buildings with unknown floor levels were set with a minimum 300mm above ground.

Proposed structures, including floors and driveway, were set as shown on Architectural Drawing "2110_The Station_draft_plans 29.03.2022".

3. Model Results

The result of 1% AEP + CC were run through the pre-development and post-development model scenarios to compare the changes to flooding onsite and to surrounding properties. It can be seen from the pre-development model runs (Figure 4), that there is a small ingress of flood water on the eastern lot boundary with the early learning centre. On this boundary there is a maximum depth of <0.084 m and velocity of <0.136 m/s in the pre-development scenario.

Figure 5 shows the effect that the inclusion of the proposed development has on the overland flood flow. It can be seen that construction of the proposed building would have a negligible impact on the overland flood path, with the minimal flow from a 1% AEP storm event continuing in a westerly direction across the driveway/ carpark and discharging on the north-western boundary to Dubs and Co Drive. This has little impact on the depth at the lot boundary, with the post-development model only increasing minimally by 0.01 m, and the velocity increasing to 0.173 m/s.

Figure 4. Pre-Development 1% AEP + CC Depth

Sorell Council

Development Application: 5.2022.166.1 33 Dubs & Co Drive, Sorell.pdf

Plans Reference: P1

Date Received: 8/06/2022

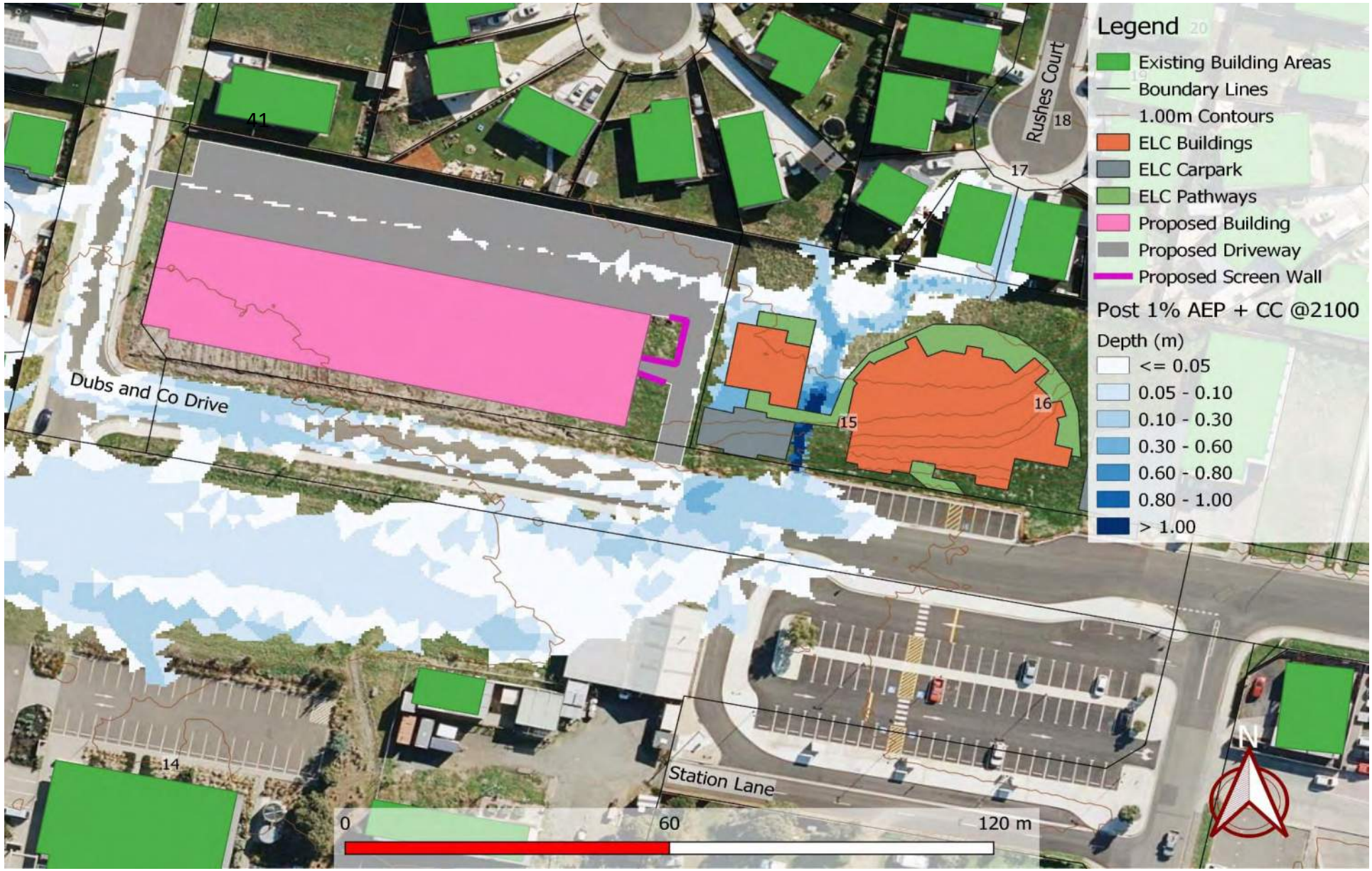

Figure 5. Post-Development 1% AEP + CC including Depth

Sorell Council

Development Application: 5.2022.166.1 33 Dubs & Co Drive, Sorell.pdf

Plans Reference: P1

Date Received: 8/06/2022

3.1 Displacement of Overland Flow on Third Party Property

Post-development flows in Figure 5 show that when compared against pre-development in Figure 4, there is only minimal increase in flood depths within the lot boundary, which is isolated to the carpark as the flood water follows the natural overland flow path to the western boundary of the lot.

This very minor increase in depths is due to the increase in impervious area following development and is contained within the lot boundaries therefore showing that the development does not have any effect on third party property.

3.2 Development Effects on Flooding

Due to the relatively shallow and slow-moving flood water seen in the pre-development scenario, although there are significant increases in the impervious area following development, this has little to no effect on flooding during a 1% AEP storm event, both within the lot and on surrounding areas. As described more in Section 4, velocities and depths in the post-development scenario are well within the lowest hazard band, and therefore the post development models show that there is no increase to the risk rating on surrounding properties or infrastructure.

3.3 Development Effects on Stormwater Discharge

Figure 6 below shows the discharge hydrograph from the property boundary for the overland flow through the development area. The graph was captured in the model for both pre- and post-development runs and combined in graph format to demonstrate the change in net discharge. It demonstrates a minor increase in flow from the pre-development of 0.029 m³/s to the post-development of 0.084 m³/s, and velocity increasing from 0.136 m/s to 0.173 m/s. Although there is a minor increase in discharge, most likely from the increased impervious area, these volumes would have negligible effect on public infrastructure and are most likely due to model sensitivity.

It is therefore deemed that the post development model does increase net discharge.

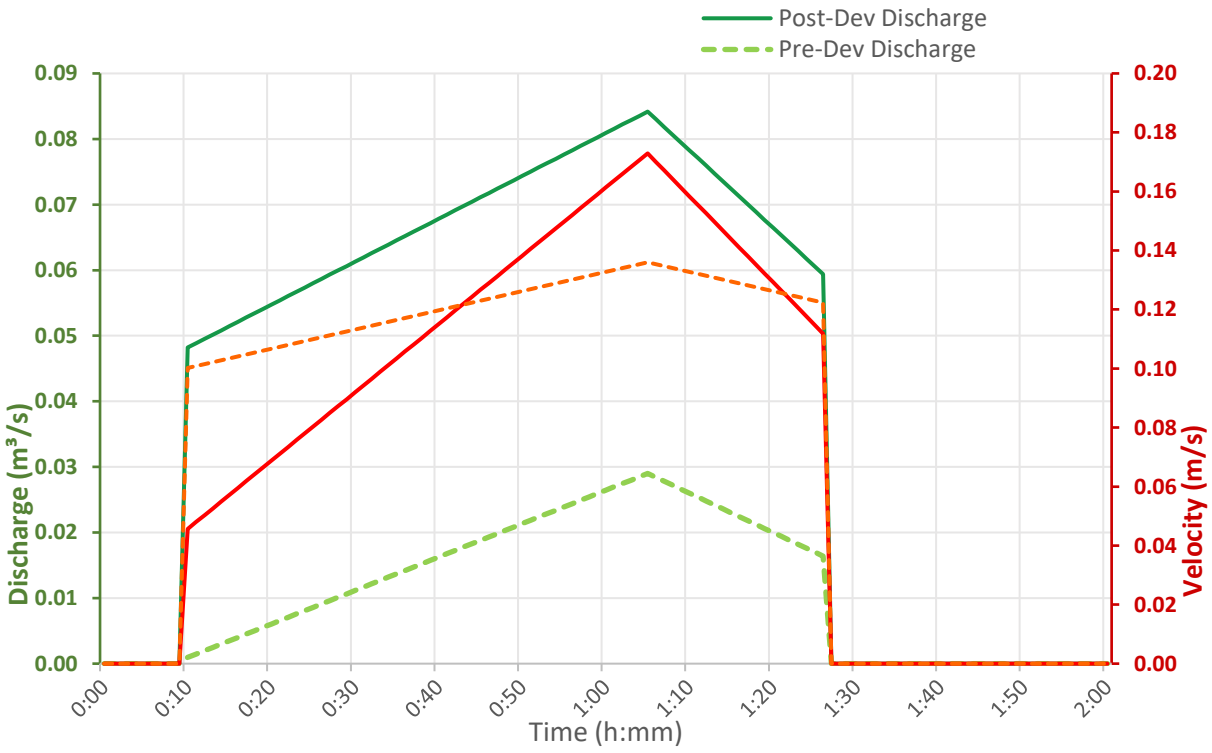

Figure 6. Pre and Post development net discharge and velocity 1% AEP + CC

3.4 New Habitable Building

To meet the performance criteria of the Building Regulations 2016 S.54, the construction of a new habitable building is required to have a habitable floor level >300mm above the >1% AEP + CC flood level. The new development at 33 Dubs and Co Drive, Sorell must meet this regulation as shown in Table 5. (The floor level >1% AEP + CC flood level + 300mm does not apply for non-habitable areas).

Table 5. Habitable Floor Construction Levels

33 Dubs and Co Drive, Sorell	1% AEP +CC flood level (mAHD)	Minimum Floor Level required (mAHD)	Proposed ground floor level (mAHD)
Habitable floor (ground floor)	14.45	14.75	15.00

A basement level is proposed in the design which is to be utilised for storage, however, as this is not considered a habitable level, it is not required to meet the minimum floor level to comply with the Building Regulation S.54. As this basement level may be subject to inundation during a 1% AEP + CC event, to prevent damage, all structures should be subjected to a hydrostatic/hydrodynamic analysis to ensure suitability as advised by a suitably qualified structural engineer.

It is also a requirement that future use of the basement level must be in accordance with Building Regulations S.54 ensuring that minimum habitable floor levels stated in Table 5 are met.

4. Flood Hazard

Under existing conditions prior to development, the proposed location of the building is subject to be inundated to <0.084 m flood depth and <0.136 m/s velocity. This places the hazard rating as adopted by Australian Flood Resilience and Design Handbook as a maximum H1 – *Generally safe for people, vehicles and buildings* as shown in Appendix A – Hazard maps. The post-development scenario only sees the depth at the lot boundary increase by 0.023 m and the velocity increase by 0.037 m/s. This has no effect on the hazard rating as the pre-development model is well within the lowest hazard band of H1.

As this study does not extend to the public access roads we cannot comment on the accessibility to the site, only within the site. Therefore, this report would advise that residents and visitors remain inside in the event of a flood unless instructed by emergency services.

A summary of the hazard ratings is shown in Figure 7.

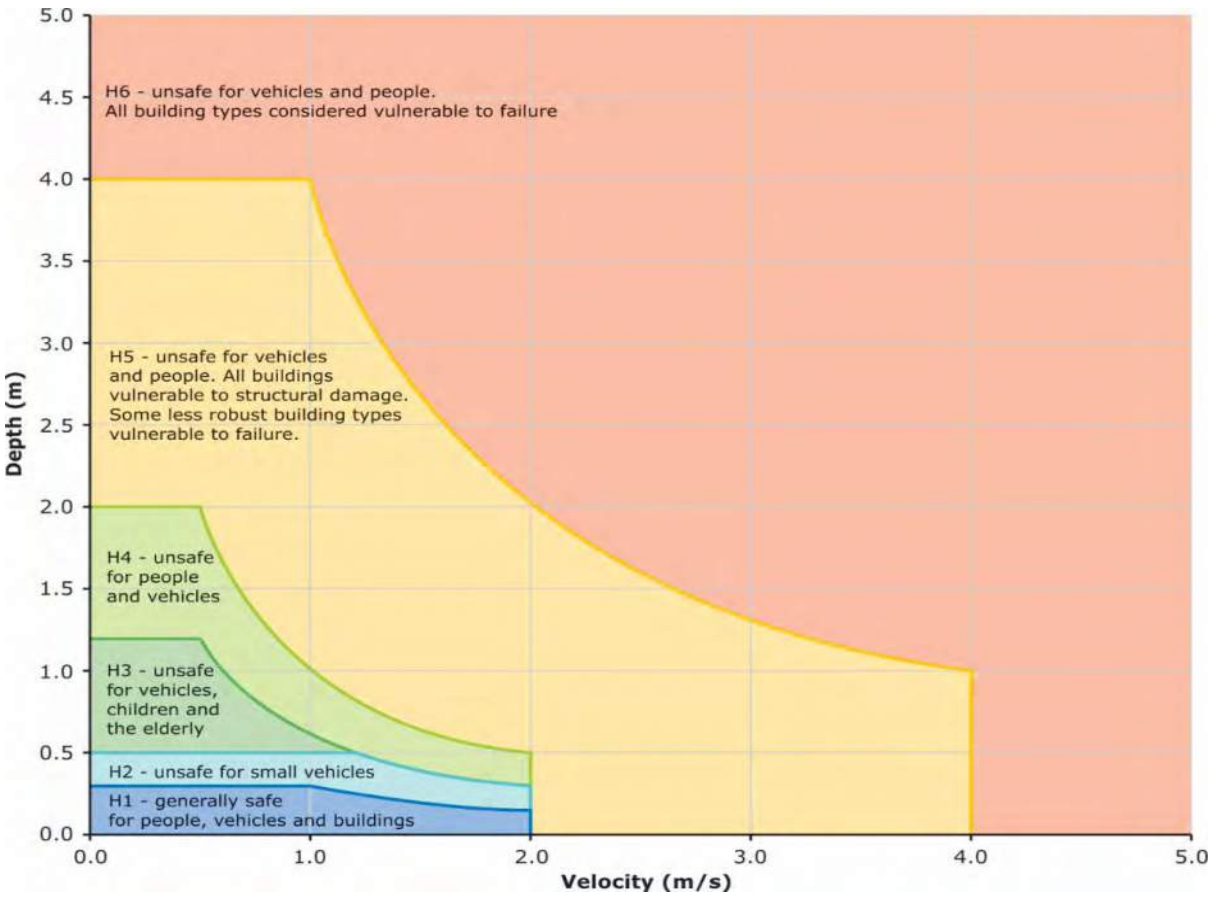

Figure 7. Hazard Categories Australian Disaster and Resilience Handbook

4.1 Tolerable Risk

The lot at 33 Dubs and Co Drive Sorell, is susceptible to a shallow, somewhat slow-moving flood plain flow, with the majority of the immediate surrounding region classified low (H1) hazard rating in the 1 % AEP + climate change event.

Even at minor velocity and depths during a storm event, erosion and debris movement nevertheless pose a threat. To ensure suitability, all structures should be subjected to a hydrostatic/hydrodynamic analysis. If the recommendations in this report are implemented, the proposed structure, which is intended to be a habitable possible class 4-9 structure with a 50-year asset life (BCA2019), can achieve a tolerable risk of flooding over its asset life.

Table 6. Sorell Interim Planning Scheme summary

E15.7.4 Riverine Inundation Hazard Areas			
Objective: That a habitable building can achieve and maintain a tolerable risk from flood.			
Acceptable Criteria		**Assessment**	
A1			
To ensure that risk from riverine, watercourse or inland flooding is appropriately managed and takes into account the use of the buildings.		Response from flood report	
(a)	A new habitable building must have a floor level no lower than the 1% AEP (100 yr ARI) storm event plus 300 mm.	(a)	Floor levels are set above 1% AEP event plus 300mm free board. Proposed ground floor of 15.00 mAHD complies with minimum levels stated in Table 5.
A3			
A non-habitable building, an outbuilding or a Class 10b building under the Building Code of Australia, must satisfy all of the following:		Response from flood report	
(a)	risk to users of the site, adjoining or nearby land is acceptable;	(a)	No increase to flood depths or extent on neighbouring properties
(b)	risk to adjoining or nearby property or public infrastructure is acceptable;	(b)	As above in (a)
(c)	need for future remediation works is minimised;	(c)	n/a
(d)	provision of any developer contribution required pursuant to policy adopted by Council for riverine flooding protection works;	(d)	n/a
E15.7.5 Uses within a flood prone area			
Objective: That a habitable building can achieve and maintain a tolerable risk from flood.			
Performance Criteria		**Assessment**	
A1			
For landfill, or solid walls greater than 5 m in length and 0.5 m in height, there is no acceptable solution:		Response from Flood Report	
(a)	no adverse effect on flood flow over other property through displacement of overland flows;	(a)	No increase in flood from the development causing risk to flooding on third party property during 1% AEP + CC storm event.
(b)	the rate of stormwater discharge from the property must not increase;	(b)	Some negligible increase in discharge from at the north-eastern boundary, but volumes have negligible effect on stormwater infrastructure.
(c)	stormwater quality must not be reduced from pre-development levels.	(c)	The inclusion of the proposed structures does not adversely affect the source of sedimentation into the flood waters including no increase in erosion potential.

5. Conclusion

The Flood Hazard Report for 33 Dubs and Co Drive, Sorell development site has reviewed the potential development flood scenario.

The following conclusions were derived in this report:

1. A comparison of the post-development peak flows for the 1% AEP at 2100 were undertaken against E15.7.4 (A1) & E15.7.5 (P1) of the SIPS Inundation Prone Areas code.
2. Building Regulations S.54 requires a habitable floor level of no less than level outlined in Table 5. (Proposed ground floor level of 15.00 mAHD meets this requirement).
3. Negligible changes in depth at the property boundary. Increase in depth within the lot to 0.003 – 0.01 m near the northern property boundary.
4. Peak discharge sees a 0.055 m^3/s increase from pre- to post-development, riverine flood scenarios.
5. Velocity shows an increase between pre- and post-development, riverine flood scenarios of 0.037 m/s.
6. Hazard from flooding within the lot remain at the majority category of H1 for both pre and post development riverine and coastal hazard flood scenarios on neighbouring properties.

6. Recommendations

Flüssig Engineers therefore recommends the following engineering design be adopted for the development and future use to ensure the works meets the Inundation Code:

1. The new building to have a minimum floor height as per Table 5 (Floor level =14.75mAHD).
2. Proposed structures, located in the inundation area, are to be designed to resist flood forces including debris to a maximum depth of 100mm and maximum velocity of 0.3 m/s at a NE flow direction.
3. The retaining structure is not required for flood mitigation, however the inclusion of the retaining wall will be required to meet the structural requirements above.
4. Carpark must be graded 1% minimum towards the north-western boundary and away from the building.
5. All future proposed structures within the flood extent not shown within this report will require a separate design and report addressing their impacts.

Under the requirements of this Flood Hazard Report, the proposed development will meet current acceptable solutions and performance criteria under the Sorell Interim Planning Scheme 2015.

7. Limitations

Flüssig Engineers were engaged by **The Young Group Pty Ltd** on behalf of the developer**,** for the purpose of a site-specific Flood Hazard Report for 33 Dubs and Co Drive, Sorell as per E15.0 of the Sorell Interim Planning Scheme 2015. This study is deemed suitable for purpose at the time of undertaking the study. If the conditions of the site should change, the report will need to be reviewed against all changes.

This report is to be used in full and may not be used in part to support any other objective other than what has been outlined within, unless specific written approval to do otherwise is granted by Flüssig Engineers.

Flüssig Engineers accepts no responsibility for the accuracy of third-party documents supplied for the purpose of this Flood Hazard Report.

8. References

1. Australian Disaster Resilience Guideline 7-3: Technical flood risk management guideline: Flood hazard, 2014, Australian Institute for Disaster Resilience CC BY-NC
2. Ball J, Babister M, Nathan R, Weeks W, Weinmann E, Retallick M, Testoni I, (Editors), 2019, Australian Rainfall and Runoff: A Guide to Flood Estimation, Commonwealth of Australia
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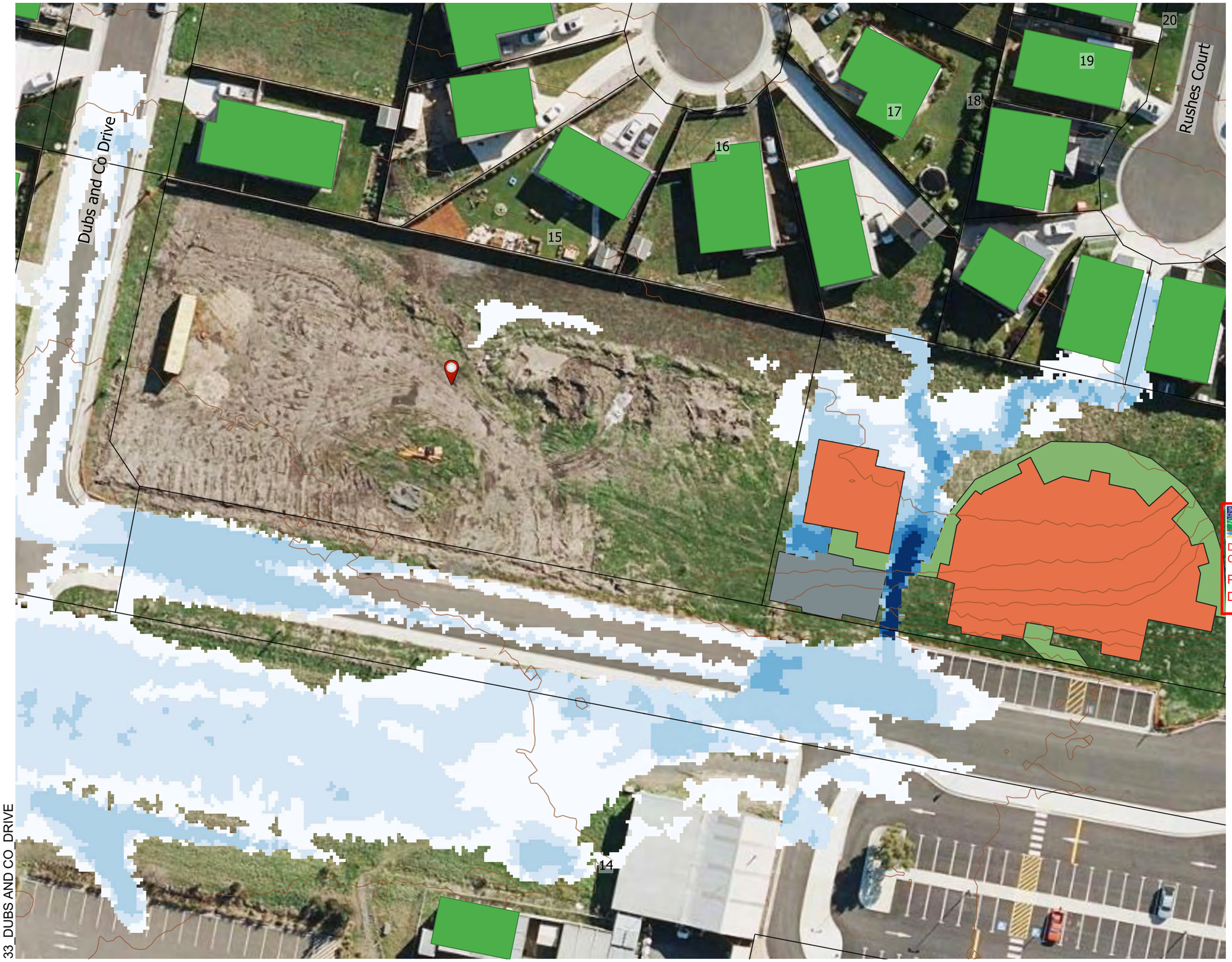
Appendices

Appendix A Flood Study Maps

PRE DEVELOPMENT 1%AEP + CC @2100



Legend

- 33 Dubs and Co Drive
- 1.00m Contours
- Boundary Lines
- Existing Building Areas
- ELC Carpark
- ELC Pathways
- ELC Buildings

Pre 1% AEP + CC @2100

Depth (m)

- <= 0.05
- 0.05 - 0.10
- 0.10 - 0.30
- 0.30 - 0.60
- 0.60 - 0.80
- 0.80 - 1.00
- > 1.00

Sorell Council

Development Application: 5.2022.166.1 33 Dubs & Co Drive, Sorell.pdf

Plans Reference: P1

Date Received: 8/06/2022

N

flussig ENGINEERS
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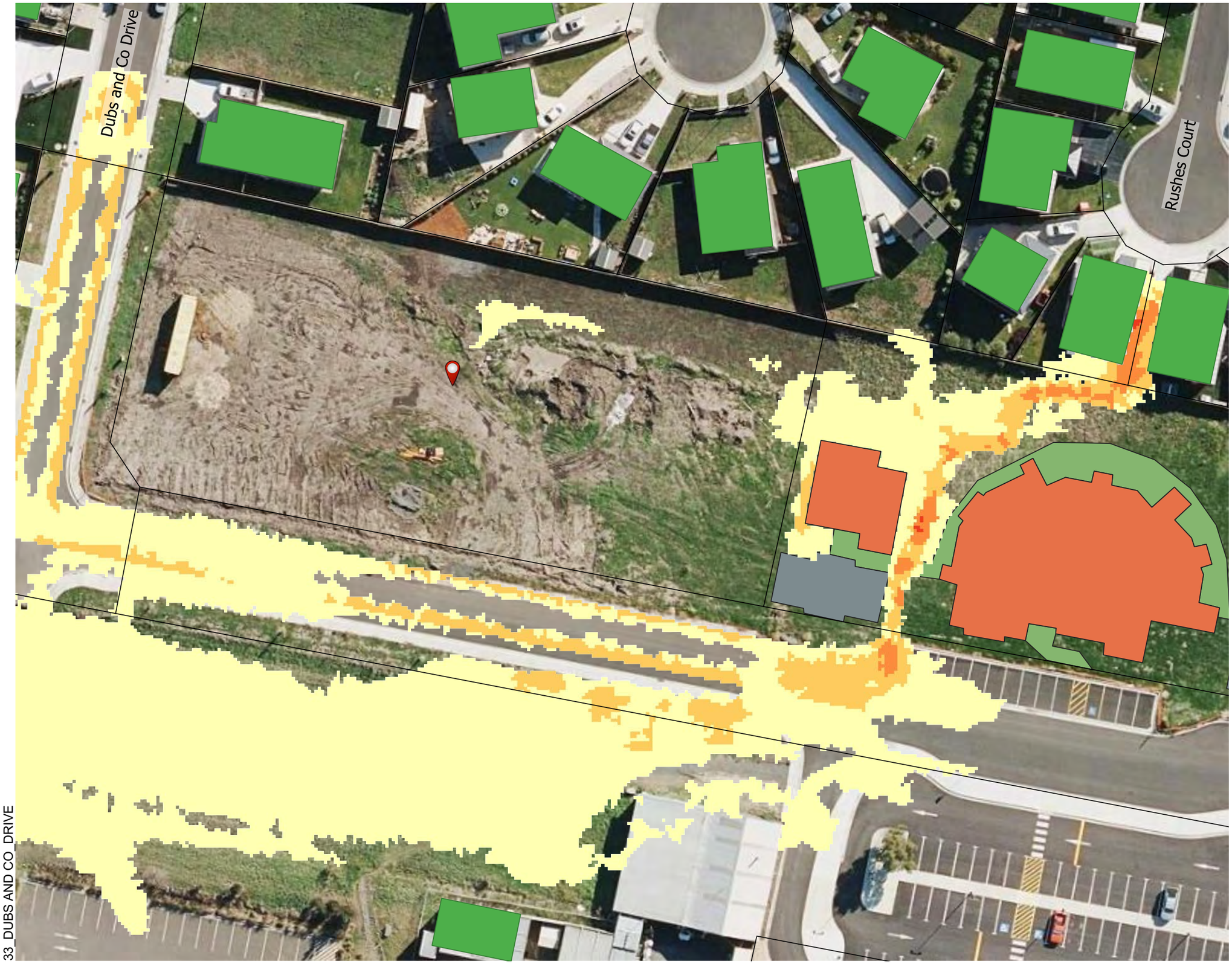
a: 116 Bathurst St, Level 4 Hobart, 7000, TASMANIA

33_DUBS AND CO_DRIVE

0 10 20 m

PRE DEVELOPMENT 1%AEP + CC @2100



Legend

- 33 Dubs and Co Drive
- Boundary Lines
- Existing Building Areas
- ELC Carpark
- ELC Pathways
- ELC Buildings

Pre 1% AEP + CC @2100

Velocity (m/s)

- <= 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- > 2.00

Sorell Council

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33_DUBS AND CO_DRIVE

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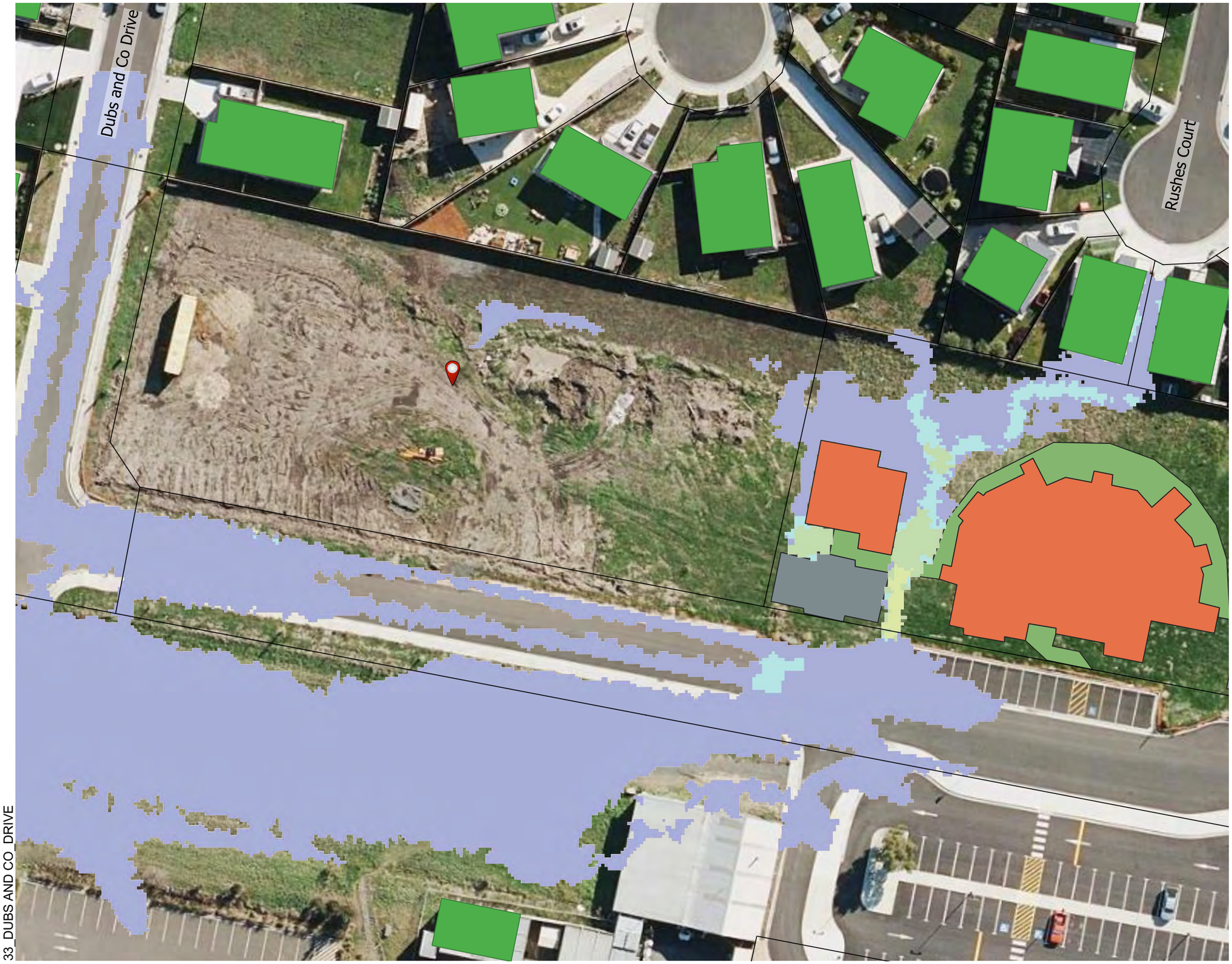

Legend

- 33 Dubs and Co Drive
- Boundary Lines
- Existing Building Areas
- ELC Carpark
- ELC Pathways
- ELC Buildings

Pre 1% AEP + CC @2100

Hazard

- H1
- H2
- H3
- H4
- H5
- H6

Sorell Council

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33_DUBS AND CO_DRIVE

0 10 20 m

POST DEVELOPMENT 1%AEP + CC @2100

Legend

- Existing Building Areas
- Boundary Lines
- 1.00m Contours
- ELC Buildings
- ELC Carpark
- ELC Pathways
- Proposed Building
- Proposed Screen Wall
- Proposed Driveway

Post 1% AEP + CC @2100

Depth (m)

- <= 0.05
- 0.05 - 0.10
- 0.10 - 0.30
- 0.30 - 0.60
- 0.60 - 0.80
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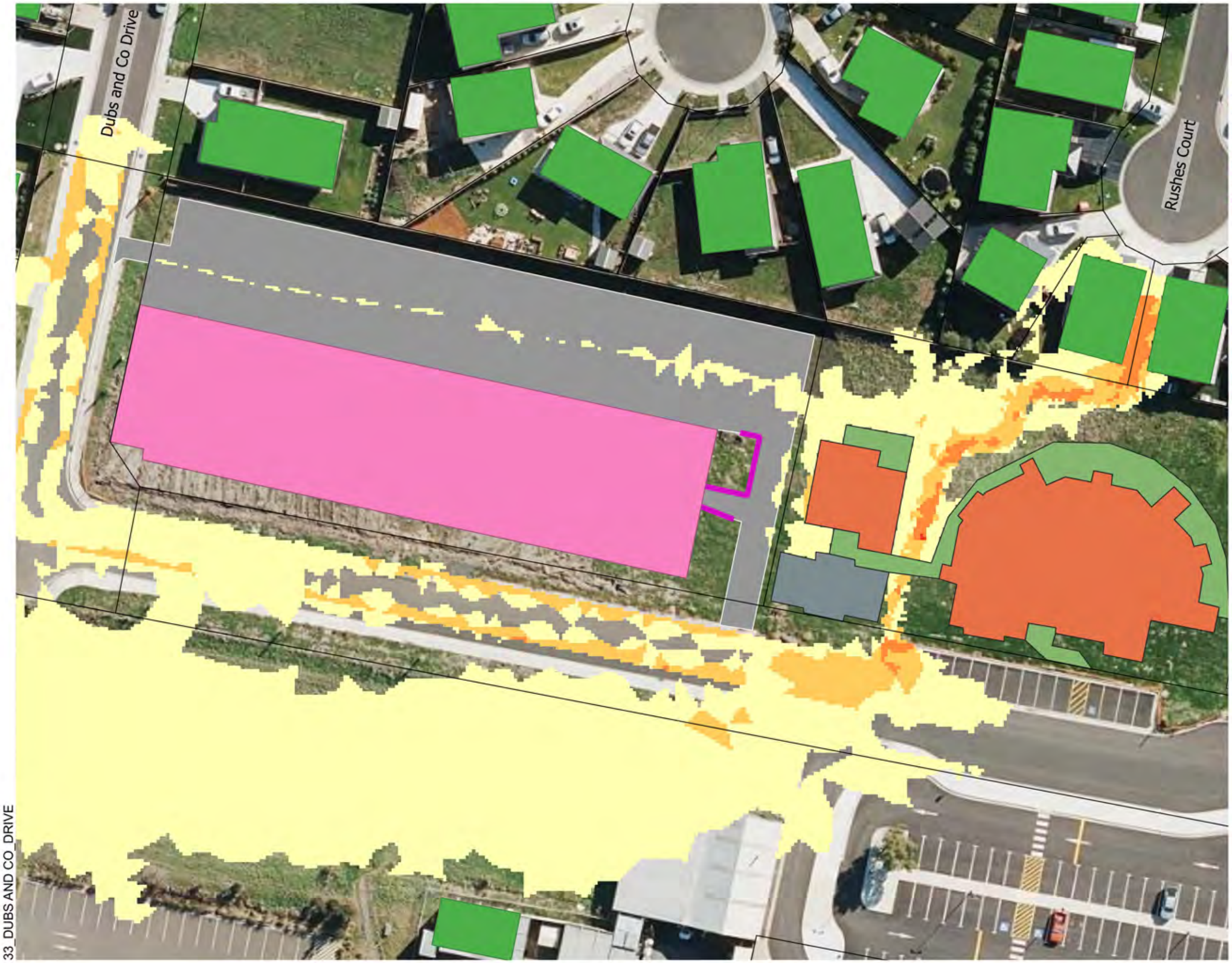

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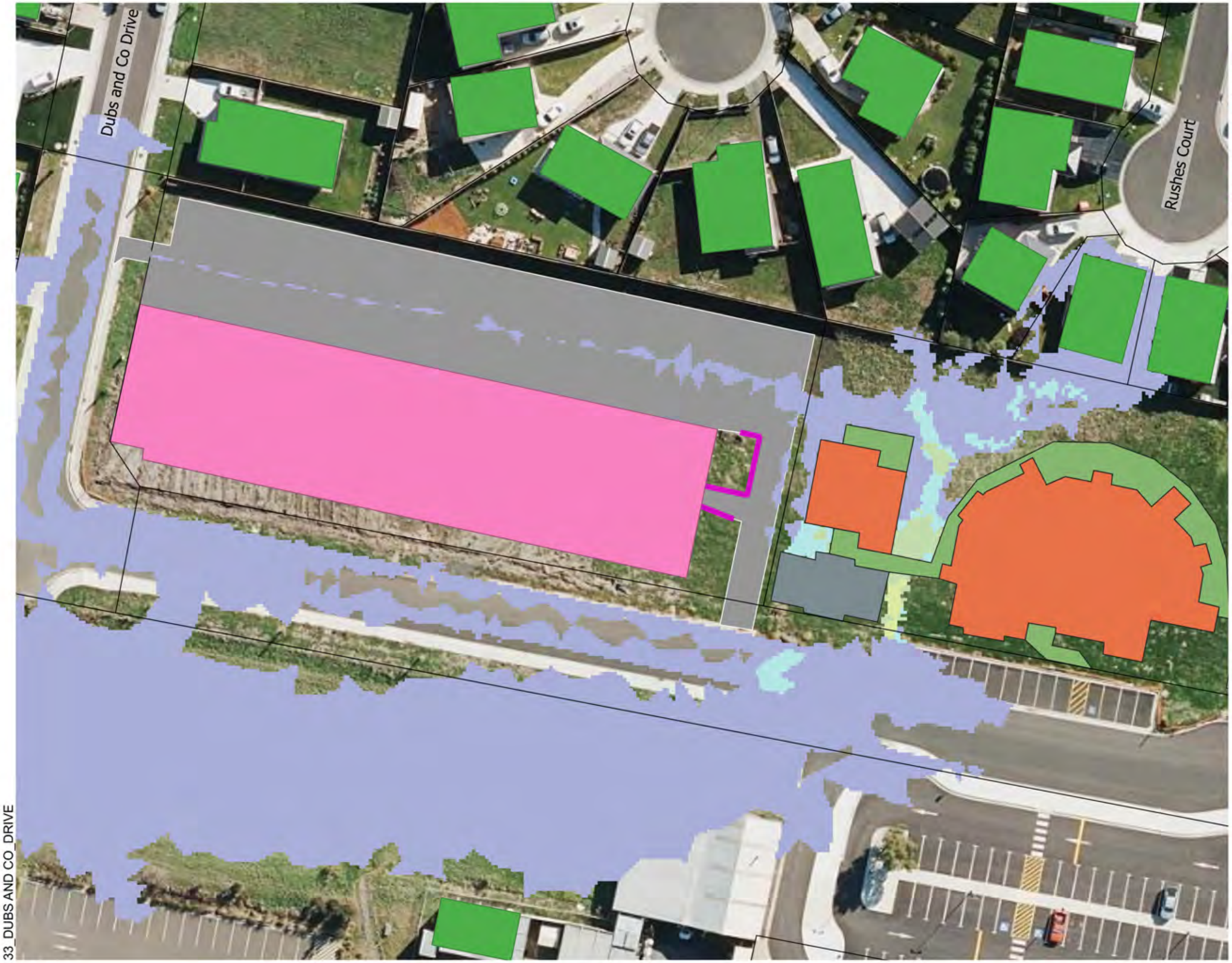

Legend

- Existing Building Areas
- Boundary Lines
- ELC Buildings
- ELC Carpark
- ELC Pathways
- Proposed Building
- Proposed Screen Wall
- Proposed Driveway

Post 1% AEP + CC @2100

Hazard

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- H6

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NVC
NOISE VIBRATION CONSULTING

The Young Group
1/6 Cessna Way
Cambridge, TAS

10 August 2022

Ref: 1624-1 Noise Assessment

Attention: Trent Young

THE STATION SORELL — NOISE ASSESSMENT

A new commercial building is proposed at 33 Dubs & Co Drive, Sorell. The proponent has submitted a planning application (DA 2022 / 166 - 1), to which the Sorell Council have responded with a request for a noise assessment, to demonstrate likely compliance with Clause 21.3.2 of the Sorell Interim Planning Scheme. This letter presents such an assessment of the proposed development, conducted by NVC in July 2022.

1. BACKGROUND

1.1. Site and Surrounding Area

The site is located at 33 Dubs & Co Drive, and is shown outlined in orange in Figure 1.

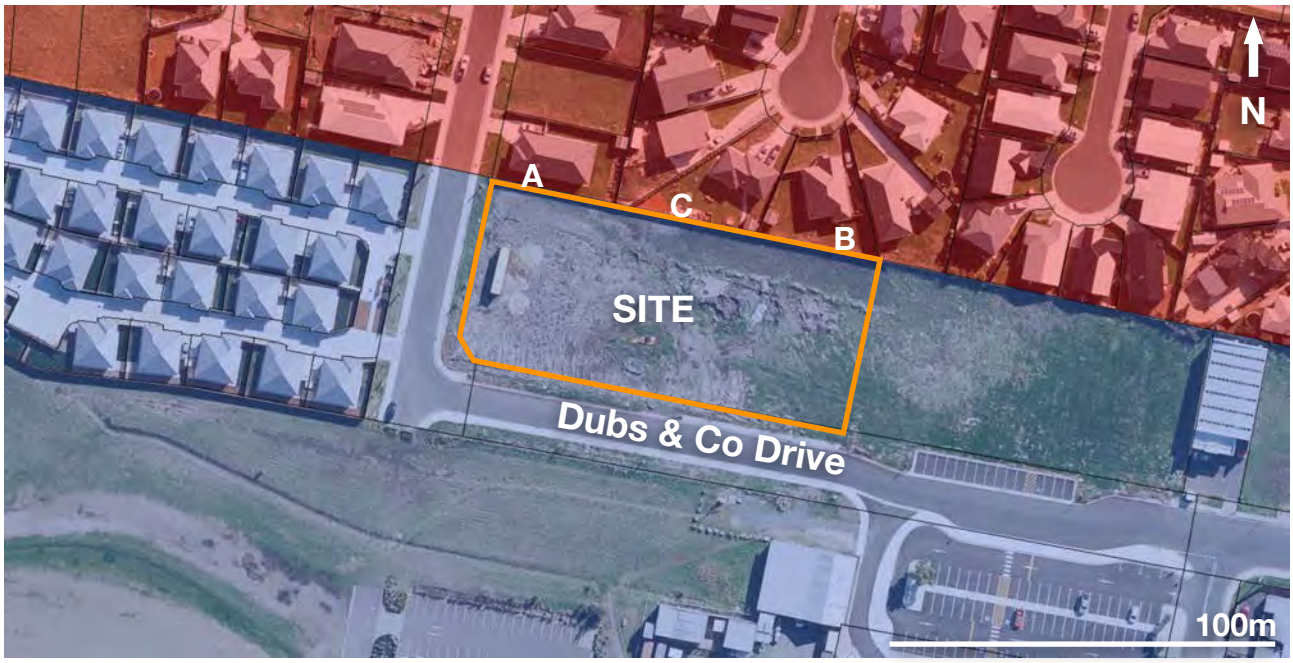

FIGURE 1: SITE AND SURROUNDING AREA

The site is located at the northern edge of the Sorell General Business Zone (blue overlay in figure), adjacent to a General Residential Zone (red overlay in figure).

To the south east is a shopping precinct, which is occupied by Woolworths, BWS and adjacent businesses. Located to the south are several businesses and office spaces consisting of The Sorell Council/ Memorial Hall, Mens shed, Train Shed, Bike and Scooter shop, Battery shop and Tech shop. To the east is a currently unoccupied lot within the General Business zone. To the west is a development comprising several dwellings, within the General Business zone.

The nearest residential zone boundary is the northern boundary of the site. Locations A, B and C (see Figure 1) denote the three nearest residential lot boundaries.

1.2. Proposed Development

The proposed building is a three storey commercial building, comprising a basement storage area and two above-ground levels.

The basement level comprises a drive-through self storage facility with 27 storage units, accessed via a single vehicle lane entering from the eastern end of the site and exiting to the west.

The ground floor of the building will consist of the main pedestrian entry plaza, eight retail tenancies and two food service tenancies. The two food service tenancies also have external outdoor terrace spaces along the western side of the building. A loading zone will be located on the eastern side of the building, with waste storage areas on the north-eastern corner.

The first floor of the building will consist of six office spaces, a restaurant/ bar, and a 'passive recreation' space, envisaged to be used either as a kids play area or additional dining space for the restaurant. The restaurant/ bar has an outdoor terrace on the south-western corner of the building.

Three mechanical plant decks will be located on the roof of the building. The roof is pitched, with a single central spine running diagonally from the south-west corner to the north-east corner. Two plant decks are on the southern slope, facing away from the adjacent residential neighbours, and comprise several large air-conditioning units, refrigeration units, and a kitchen exhaust fan. A single plant deck is located on the northern slope of the roof, comprising additional kitchen exhaust fans.

There will be no external amplified music from the proposed building.

The hours of operation for the building are as follows:

Operating Hours:

Mondays to Saturdays	6:00AM to 10:00PM
Sundays / Public Holidays	7:00AM to 9:00PM

Commercial vehicle movements on the site will operate within the hours of 7:00AM to 7:00PM.

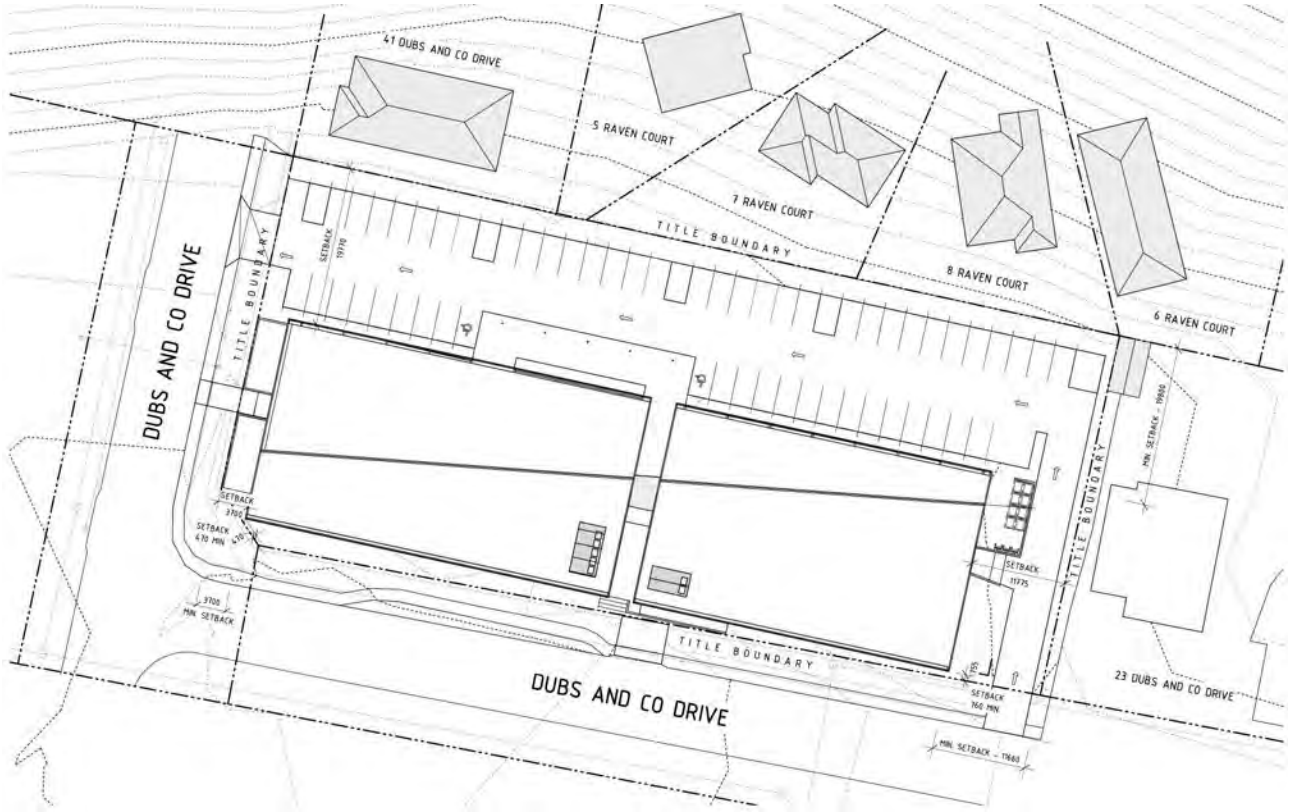

FIGURE 2: PROPOSED SITE PLAN

2. CRITERIA

Section 21 of the Sorell Interim Planning Scheme 2015 (the Scheme) contains criteria for a General Business zone. In particular, clause 21.3.2 details criteria specific to noise emissions from the use, the objective of which is:

> *"To ensure that noise emissions do not cause environmental harm and do not have unreasonable impact on residential amenity on land within a residential zone."*

To satisfy this objective, the following Acceptable Solutions criteria are stated under clause 21.3.2-A1:

> *"Noise emissions measured at the boundary of a residential zone must not exceed the following:*
>
> - *55 dB(A) (LAeq) between the hours of 7:00 am to 7:00 pm;*
> - *5 dB(A) above the background (LA90) or 40 dB(A) (LAeq), whichever is the lower, between the hours of 7:00 pm to 7:00 am;*
> - *65 dB(A) (LAmax) at any time.*
>
> *Measurements of levels must be in accordance with the methods in the Tasmanian Noise Measurement Procedures Manual, issued by the Director of Environmental Management, including adjustment of noise levels for tonality and impulsiveness.*
>
> *Noise levels are to be averaged over a 15 minute time interval."*

If the Acceptable Solutions criteria are not met, the following Performance Criteria are stated under 21.3.2-P1:

> *"Noise emissions measured at the boundary of a residential zone must not cause environmental harm within the residential zone."*

The Scheme further states, under clause 21.3.1, acceptable hours of operation. The following Acceptable Solutions are stated under clause 21.3.1-A1:

> *"Hours of operation of a use within 50 m of a residential zone must be within:*
>
> - *6:00 am to 10:00 pm Mondays to Saturdays inclusive;*
> - *7:00 am to 9:00 pm Sundays and Public Holidays;*
>
> *Except for office and administrative tasks."*

If the Acceptable Solutions criteria are not met, the following Performance Criteria are stated under 21.3.1-P1:

> *"Hours of operation of a use within 50 m of a residential zone must not have an unreasonable impact upon the residential amenity of land in a residential zone through commercial vehicle movements, noise or other emissions that are unreasonable in their timing, duration or extent."*

The proposed operating hours are within the Acceptable Solutions hours stated under clause 21.3.1-A1. However, it is noted that the hours of operation include the hours of 6:00AM to 7:00AM, and 7:00PM to 10:00PM, which are within the 'night time' period under clause 21.3.2-A1.

With the Woolworths and BWS complexes on the south-east side of the road, the background noise at night will be dominated by their mechanical plant and the distant Tasman Highway traffic. The background L90 is unlikely as such to be below 35 dBA, particularly within the hours of 6:0AM to 7:00AM and 7:00PM to 10:00PM. The night time criteria under the Scheme will then be 40 dBA.

To satisfy the Acceptable Solution at 21.3.2-A1, noise levels at the nearest residential zone boundaries must then be less than or equal to:

Day time	07:00AM - 07:00PM	55 dBA
Night time	07:00PM - 07:00AM	40 dBA

3. Noise Predictions

Noise emissions from the site have been predicted using the iNoise software, which implements the ISO9613 algorithms for environmental noise. The predictions account for geometric divergence, barrier attenuation, atmospheric absorption, reflections and screening from buildings, and ground absorption. The following assumptions have been made in the predictions

- 1m topographical contours (from LIDAR data) have been used for the site and surrounding area.
- The ground has been assumed to have a ground factor of 0 (100% reflective). Much of the surrounding area is grass, and as such will have significant absorption. This assumption is thus worst-case, and conservative.
- The building façades are modelled with a reflection factor 0.8 (80% reflective).
- The property fencing on the northern side is 2.1m high, as denoted on the drawing set[1], with a reflection factor 0.8 (80% reflective). It is assumed the fence is solid (no gaps) and constructed from 20mm ship lapped timber, or an alternative material with a surface mass of minimum 15kg/m^2.
- As per the Tasmanian Noise Measurement Manual, noise levels are predicted at a height of 1.2m above ground level.
- The mechanical plant details, including manufacturer sound power level data and the specific locations of the units, have been supplied by COVA[2].
  - The mechanical plant equipment includes seven air conditioning units and one kitchen exhaust fan located on the southern facing section of the roof.
  - The mechanical plant equipment includes three kitchen exhaust fans on the northern facing section of the roof.
- Traffic flow data has been taken from a Traffic Impact Assessment by Howarth Fisher Associates[3].
  - Traffic flow during the day time is modelled for peak-hour, with a flow of 78 vehicles per hour.
  - Traffic during the night time is modelled for peak-hour within this period, with a flow of 59 vehicles per hour.
- Traffic for storage units at basement level has been modelled for peak-hour flow of 6 vehicles per hour.
- Waste removal and loading is modelled as a single heavy vehicle movement, over a 15-minute period. The predicted number thus represents the predicted Leq over the time this vehicle is on site - i.e. worst-case. The remainder of the day will have no waste removal noise, and is thus not included in this model.
  - It is assumed this is to occur within the day time only (07:00AM to 07:00PM).
- Noise from within the building includes patrons and background music.
  - Internally, patron noise is modelled assuming full capacity of 150 patrons, based on one person per 1.5 m^2, where 90% of the patrons are using a normal speaking voice and 10% are using a raised voice.
  - The transmission loss of the facade has been calculated assuming worst-case (the entire facade being glazing). For these calculations it is assumed that windows are double glazed, 4mm float glass, 12mm air gap, 4mm float glass.

[1] Project drawings by 1 plus 2 Architecture Ref No. 177607/2, March 2022

[2] Mechanical Drawings by COVA Job No. 5454.003-SKM02 July 2022

[3] TRAFFIC IMPACT ASSESSMENT by Howarth Fisher and Associates July 2022

- Noise from the external terraces includes patrons only.
  - On the first floor, terrace patron noise is modelled assuming full capacity of 54 patrons based on one person per 1.5m^2, where 50% of patrons are using a normal speaking voice and 50% are using a raised voice.
  - On the ground floor, terrace patron noise is modelled assuming full capacity for both terraces of 29 patrons and 31 patrons, where 50% of patrons are using a normal speaking volume and 50% are using a raised voice.

The noise sources modelled are listen in Table 1 along with their sound power levels and when they are operating. The following is noted:

- The sound power levels are per item.
- The AAAC guidelines[4] are used to define sound power levels and spectra for raised voice and normal speech.
- The sound levels for mechanical plant uses manufactures data for the sound power levels.
- Music noise is modelled with an internal reverberant sound pressure level of 75 dBA. This level is taken from the AAAC guidelines and allows for conversation at normal vocal effort at 600 mm separation. This is typical of 'background' music.

TABLE 1: SOUND SOURCE DATA

Source	Sound Power Level, SWL, dBA
Patrons - internal	93
Music - internal	75 (SPL)*
Patrons - external	95
Light vehicle (per vehicle)	77
Heavy vehicle - waste / loading	102
Mechanical plant deck - south facing	83
Mechanical plant deck - north facing	80

* Note that the source data for the music is specified as an internal reverberant sound pressure level, rather than a sound power level as for the other sources.

[4] Licensed Premises Noise Assessment Technical Guideline V2, Association of Australasian Acoustic Consultants November 2020

The modelled results are summarised in Table 2.

TABLE 2: RESIDENTIAL ZONE NOISE LEVELS

Noise Source		Sound Pressure Level, SPL, dBA		
		A	B	C
Internal - Patrons & Music		24	< 20	< 20
External - Terrace Patrons		36	28	27
Light Vehicle Traffic	Day peak hour	27	28	28
	Night peak hour	26	27	27
Heavy vehicle - waste / loading		53	53	53
Mechanical Plant		25	21	22
Total - day time		53	53	53
Total - night time		37	31	31

The following comments are relevant to the predicted results:

- The strongest predicted noise emissions from the development are predicted to be from a heavy vehicle accessing site for waste disposal and/or loading in the same area. However, this is anticipated to happen once per day only, and thus this prediction is representative of the worst-case 15-minute period during which it is accessing the site.
- The internal noise is dominated by the patrons in the food service areas. Noise emissions from uses internal to the building are predicted to be minimal, with other sources being dominant.
- Light vehicle traffic - assuming a worst-case scenario of peak hour for both general traffic and traffic accessing the storage units below, the predicted maximum sound pressure level is 28 dBA at the worst affected receiver.
- Night time vehicle traffic - assuming a worst-case scenario of peak hour flow of 59 vehicles per hour. This is predicted maximum sound pressure level is 27 dBA at the worst affected receivers.
- Mechanical plant noise, assuming all plant equipment operating at full capacity simultaneously, is predicted to be a maximum of 25 dBA at the nearest residential receiver. Low power mode has not been modelled, but will further reduce noise emissions from this equipment outside of operating hours.

4. ASSESSMENT

Noise emissions from the proposed commercial building at 33 Dubs & Co Drive have been predicted with the modelled sources including building mechanical plant, patrons on the proposed terraces and internally, background music internally, proposed traffic generation, and heavy vehicle movements.

During the day time, the predicted worst-case noise levels (peak hour traffic as well as heavy vehicle movements) are 53 dBA at the worst affected receivers. During the night time, the predicted worst-case noise level is 37 dBA at the worst affected receiver. These levels are beneath the Scheme criteria of 55 and 40 dBA during the day and night time respectively, and thus comply with the Acceptable Solutions criteria under clause 21.3.2-A1.

The assessment indicates the proposed development complies with the Acceptable Solutions under clause 21.3.2-A1 of the Sorell Interim Planning Scheme 2015, provided:

- Heavy vehicle movements on site occur within day time hours only. 7:00AM to 7:00PM.
- The boundary fence on the northern boundary of site (to the residential zone) is to be 2.1m tall, has no gaps, and is constructed with a material with a minimum surface mass of 15 kg/m^2. 20mm ship-lapped timber, 12mm cement sheet, or commercial noise barrier products are examples of acceptable constructions.

Should you have any queries, please do not hesitate to contact me directly.

Kind regards,

Samuel Williamson

NOISE VIBRATION CONSULTING

Howarth Fisher and Associates
ACN 119 043 051
Structural, Civil and Traffic Engineering

Structural and Civil Engineering
Project Design and Management
Forensic Engineering and Structural Inspections
Research and Development Facilitators

Traffic Engineering
Traffic Management Studies and Traffic Impact Assessment
Expert Witness Representation
Road Safety Audits

The Station – Mixed Use Development
33 Dubs and Co Drive, Sorell

Traffic Impact Assessment
Incorporating RFI

Prepared for
The Young Group

Date
August 2022

Prepared by
Joanne Fisher

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Appendix A Development Plans
Appendix B Autotrack Paths and Civil Design Drawings

	Name	Signature	Date
Authorised by:	**Joanne Fisher**		**August 8th 2022**

1. Introduction

1.1 Client Details

This document has been prepared for the following:

Client Name:	The Young Group
Client Contact:	Mr. Trent Young and Mr. M Slater
Address:	1/6 Cessna Way CAMBRIDGE TAS 7170

1.2 Project Details

The report is undertaken for The Station mixed use development proposed at 33 Dubs and Co Drive, Sorell. Dubs and Co Drive is a local minor collector road providing a link between Weston Hill Road, Station Lane and Pennington Drive.

A copy of the proposed The Station mixed use development can be found at **Appendix A** of this report.

1.3 Traffic Impact Assessment

A traffic impact assessment (TIA) is a process of compiling and analysing information on the impacts that a specific development proposal is likely to have on the operation of the roads and transport networks and identify reasonable solutions to address these impacts. A TIA should not only include general impacts relating to traffic management but should also consider specific impacts on all road users, including sustainable transport modes such as bus, pedestrians and cycling, service vehicle requirements, trip generation rates and parking.

This TIA has been prepared in accordance with the Department of State Growth (DSG) publication, Traffic Impact Assessment Guidelines, August 2020. This TIA has also been prepared with reference to the:

- Austroads publication, Guide to Traffic Management, Part 12: Traffic Impacts of Developments, 28 April, 2020.
- Roads and Maritime Services, NSW, RTA, Guide to Traffic Generating Developments, 2002, NSW, RMS, TDT2013/04a.

- Australian/New Zealand Standard, AS/NZS 2890.1:2004, Parking facilities Part 1: Off-street car parking.
- Australian Standards, AS 2890.2:2018, Parking facilities Part 2: Off-street commercial vehicle facilities.
- Australian Standards, AS 2890.3:2015, Parking facilities Part 3: Bicycle parking
- Australian Standards, AS 2890.5:2020, Parking facilities Part 2: On street parking.
- Australian/New Zealand Standard AS/NZS 2890.6:2009, Parking facilities Part 6: Off-street parking for people with disabilities

Land use developments generate traffic movements as people move to, from and within a development. Without a clear understanding of the type of traffic movements (including cars, service vehicles, buses, taxis, bicycles and pedestrians), the scale of their movements, timing, duration and location, there is a risk that this traffic movement may contribute to safety issues, unforeseen congestion or other problems where the development connects to the road system or elsewhere on the road network. A TIA attempts to forecast these movements and their impact on the surrounding transport network.

A TIA must provide an impartial and objective description of the impacts and traffic effects of a proposed development. A full and detailed assessment of how vehicle and person movements to and from a development site might affect existing road and pedestrian networks is required. An objective consideration of the traffic impact of a proposal is vital to enable planning decisions to be based upon the principles of sustainable development.

This TIA seeks to address the relevant clauses within Code E5.0 Road and Railway Asset Code and E6.0 Parking and Access Code of the Sorell Interim Planning Scheme, 2015 as well as the RFI received from Sorell Council.

2. Scope of Consultancy

The scope of consultancy involves the following:

- To assess design, background information and plans.
- To undertake a site visit to obtain an indication of sight distance at access and proposed layout and surrounding land uses.
- Liaise with the client, architect, and planner.
- Assess Sorell Interim Planning Scheme, 2015 for the acceptable parking requirements and assess floor area which will best meet the discretion and performance criteria.
- Assess car parking layout and modify as required.
- Assess access provision in accordance with the Sorell Interim Planning Scheme, 2015 and the AS/NZS 2890.1:2004.
- Assess trip generation rates and environmental capacity of the network.
- Assess environmental capacity.
- Undertake traffic volume count during the morning or evening peak (outside school holidays).
- Run Autotrack for service vehicles and B99.
- Check grade of ramps and levels and ensure compliance with AS/NZS 2890.1:2004
- Assess access to the site by sustainable transport modes.
- Assess lighting requirement.
- Document findings in a TIA report.

3. Location of the Development

Figure 1 shows the location of the proposed development in the context of the surrounding street network.

Figure 1: Location (source: LISTmap) 33 Dubs and Co Drive, Sorell

4. Existing Situation

4.1 Site Details

The proposed development is located at 33 Dubs and Co Drive, Sorell. This is a local road under the control of Sorell Council. It provides a minor collector road function in terms of road hierarchy, providing a link to a major collector road from the local residential street network.

Photograph 1: The Development Site - 33 Dubs and Co Drive, Sorell.

As shown in the photograph above this is currently a greenfield site with residential development located to the north of the site and recently constructed commercial developments located to the south and the east of the site.

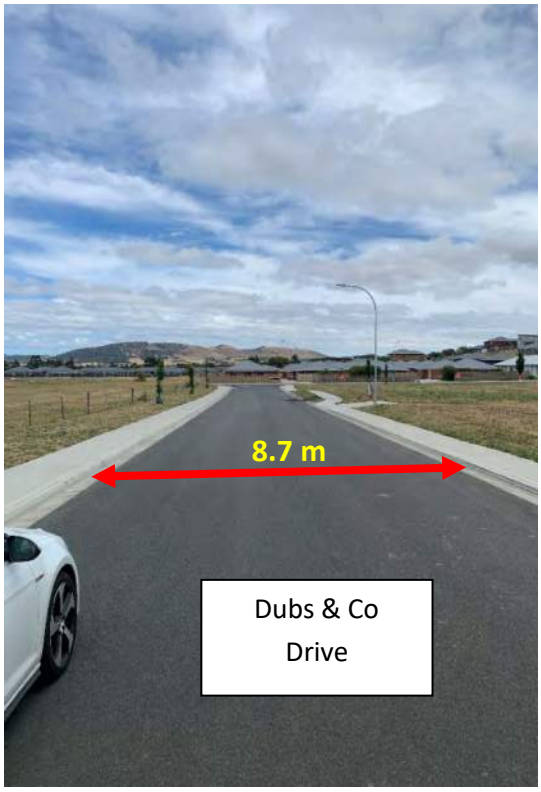
Photograph 2: Nearby parking provision

There are currently no parking restrictions on the frontage road of the development site.

Photograph 3: On street unrestricted parking available along development frontage road.

4.2 Road Width

Dubs and Co Drive has a road width of 8.7-metres measured between kerb faces in the vicinity of the site.



Photograph 4: Road width is 8.7-metres measured between kerb faces.

4.3 Traffic Volumes

Based on standard traffic engineering principles, peak hour traffic volumes represent 10% of Annual Average Daily Traffic (AADT) flows. Therefore, based on Howarth Fisher and Associates survey data of 49 vehicles counted in a morning peak hour survey (8am – 9am), there would be an anticipated traffic volume of 490 vehicles per day. Surveys were undertaken on Wednesday 16th February 2022 (which reflects typical flows during school term).

4.4 Posted Speed Limits

The speed limit along Dubs and Co Drive, in the vicinity of the proposed development site, is subject to the default urban speed limit of 50km/hr.

4.5 Accident History

In line with standard traffic engineering practice the accident history for the past five (5) years has been obtained from the Department of State Growth. There has been one (1) accident along the road network in the vicinity of the site within the last five (5) years. This was a single unit vehicle accident involving a person falling from a vehicle and requiring first aid. The other two (2) property damage only accidents occurred in the car park located across the road from the site.

Figure 2: 5-year Accident history in the vicinity of 33 Dubs and Co Drive, Sorell.

5. Proposed Development

The proposed mixed use development site comprises of:

- Office space (657m^2)
- Retail and hire (672m^2)
- Storage (1165m^2)
- Food Services (511m^2)
- Terrace areas (176m^2)
- Passive Recreation (231m^2)
- Services (118m^2)
- Car parking including accessible, bicycle and service vehicle provision.

6. Assessment of Trip Generation

6.1 Existing Trip Generation

Given this is currently a greenfield site, there are no trips associated with the existing site.

6.2 Proposed Trip Generation

The NSW, RTA, Guide to Traffic Generating Developments, 2002, is a nationally recognised reference document for determining trip generation rates. A new updated technical direction TDT 2013/04 has also been published providing updated guidance on some limited land uses. An assessment has been made on trip generation using these documents for reference purposes. The table below outlines the anticipated trip generation associated with the proposed land uses in The Station development. A worst-case scenario has been adopted for determining trip generation rates (notably an evening peak) given not all retail uses will be open in the morning peak period.

Proposed Developed Lane Use	Trip Generation Rates	Total Requirement
Office[1] Total combined area 657m^2	*Daily: 11 per 100m^2* *Evening Peak: 1.2 per 100m^2*	**Daily trips – 66** **Peak trips – 8**
Retail and Hire Total combined area 672m^2	*Daily[2]: 448 per 1000m^2* *Evening Peak: 56 Per 1000m^2*	**Daily trips – 301** **Peak trips – 38**
Storage[3] Total combined area 1165m^2	*Daily: 4 per 100m^2* *Peak: 0.5 per 100m^2*	**Daily trips – 47** **Peak trips - 6**
Food Services[4] Total combined area 511m^2	*Daily: 60 per 100m^2* *Peak: 5 per 100m^2*	**Daily trips – 307** **Peak trips – 26**
Terrace areas Total combined area 176m^2	*Ancillary use*	**Daily trips – 0** **Peak trips – 0**
Services Total combined area 118m^2	*Ancillary Use* *Will not generate any further trips*	Daily trips – 0 Peak trips - 0
Passive Recreation 231m^2	*Ancillary use*	**Daily trips – 0** **Peak trips – 0**
Total Increase		721 trips per day **<u>541 per day with 25% discount</u>** 78 trips during the peak hour **<u>59 with 25% discount</u>**

Table 1: Additional Trip Generation associated with the Mixed Use Development: Source NSW, Transport roads and Maritime Services, Guide to Traffic Generating Developments TDT 2013/04a

1 Based on office blocks TDT2013 /04a

[2] Daily calculation based on 8 x V(P) 56 (vehicle trips in the evening peak hour for specialty shops A(SS) Friday peak) NSW, RTA, Guide to Traffic Generating Developments, 2002

3 Based on warehouse in the NSW, RTA Guide to Traffic Generating Developments, 2002

[4] Based on restaurant in the NSW, RTA Guide to Traffic Generating Developments, 2002

6.2.1 Shared Trips and Multi-Purpose Trips

It should be noted that there will be a reduction in overall trip rates based on the likelihood of multipurpose trips and linked trips to the site.

It is unlikely that visitors to The Station development will only visit one land use or facility and will instead visit more. Linked trips are defined as side-track trips, for example, someone will visit the centre on their way home from work or the Sorell Park and Ride site. A multi-purpose trip is where more than one shop or facility is visited.

As expressed in the R.T.A Guide to Traffic Generating Developments, 2002, there will be an average discount in trip generation of 25% for centres less than 10,000m^2 in land uses. It is standard practice to discount the total number of trips.

Based on the reduction in trip rates associated with linked and multipurpose, shared trips, it is proposed that there will be 59 trips during the evening peak hour and 541 trips per day.

6.3 Environmental Capacity

Whilst Dubs and Co Drive is not solely a residential road, for purposes of completeness, an assessment has been made against the environmental capacity performance standards on residential streets as outlined in NSW, RTA, Guide to Traffic Generating Developments (2002). *Engineering standards are often based on concepts of good practice, with a concerted focus on safety factors. While it is generally accepted that a departure from this standard may be accommodated to a degree, developers must justify plans where designs significantly exceed the standard.*

Table 4.6
Environmental capacity performance standards on residential streets

Road class	Road type	Maximum Speed (km/hr)	Maximum peak hour volume (veh/hr)
Local	Access way	25	100
	Street	40	200 environmental goal
			300 maximum
Collector	Street	50	300 environmental goal
			500 maximum

Note: Maximum speed relates to the appropriate design maximum speeds in new residential developments. In existing areas maximum speed relates to 85th percentile speed.

Table 2: Table 4.6 Environmental Capacity performance standards on residential streets. NSW, RTA, Guide to Traffic Generating Developments (2002)

Howarth Fisher and Associates undertook a peak hour traffic volume count (on Dubs and Co Drive) and counted forty-nine (49) vehicles per hour. The anticipated evening peak hour trip generation rates associated with the proposed development, of fifty-nine (59) trips per hour, equate to a total peak hour volume of one-hundred and eight (108) vehicles per hour. This is within the 300-peak hour volume as an environmental goal and significantly less than the 500 maximum peak hour volume associated with a collector road, subject to the default speed limit of 50km/hr. Therefore, there would not be any environmental capacity issues associate with the proposed development.

6.4 Sorell Interim Planning Scheme, 2015.

An assessment has been made against the provisions of the Sorell Interim Planning Scheme, 2015 in relation to increases in trip generation at existing accesses or junctions.

A3	P3
The annual average daily traffic (AADT) of vehicle movements, to and from a site, using an existing access or junction, in an area subject to a speed limit of 60km/h or less, must not increase by more than 20% or 40 vehicle movements per day, whichever is the greater.	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; (b) the nature of the traffic generated by the use; (c) the nature and efficiency of the access or the junction; (d) the nature and category of the road; (e) the speed limit and traffic flow of the road; (f) any alternative access to a road; (g) the need for the use; (h) any traffic impact assessment; and (i) any written advice received from the road authority.

Given the trip generation is greater than forty (40) movements a day, an assessment has been made against the performance criteria,

a) Given this is a mixed-use development the increase in traffic will occur at different times of the day and week. The impact on the peak hour flows will be limited, given for example many of the retail specialty shops (and possibly some of the restaurants) are unlikely to be open before 9.30am - 10am typically outside the morning peak traffic hours. The restaurant / café bars will essentially peak after 6pm when most people would go out for a meal. Again, this is outside of the peak traffic periods. This temporal distribution of traffic flows throughout the course of the day will mitigate the impact of the trip generation on the surrounding road network.
b) There will be a significant amount of linked and multi-purpose trips associated with the proposed use. Many visitors to the proposed The Station development will already be working in Sorell and possibly parked elsewhere. Others are likely to be local residents who currently drive past the site and or can readily walk or access the site by sustainable transport modes. Users of the park and ride site would typically walk from the park and ride

car park on their way to and from the bus station to access the land uses contained within the proposed The Station development.

c) Howarth Fisher and Associates have undertaken a traffic volume count during the peak hour and with the proposed calculated trip generation the traffic volumes are within the environmental capacity limits. The traffic generation associated with The Station development will be distributed throughout the network and the impact of the traffic generation will be spread to a number of roads and intersections within the vicinity of the site. It is not envisaged there will be any issues associated with the trip distribution.

d) Dubs and Co Drive is a minor collector road. It provides both an access function to the various residential and commercial developments located along its length as well as a through traffic function to major collector roads and into the arterial road network. The development is in keeping with the nature and function of Dubs and Co Drive.

e) Dubs and Co Drive is subject to the urban default speed limit which is conducive to providing a safe road environment to those accessing and egressing the site.

f) The proposal provides a one way in and one way out circulation path. There are two proposed egresses (one from the basement and the other from the ground floor). They have been designed in such a way as to maximise sight distance and where sight distance cannot be achieved a left turn out only is proposed (notably from the basement car park). Subject to Council approval a physical median island will be implemented to prevent any right turn out movements being possible. Signage and line marking will also be implemented to advise drivers of the left turn out from the basement car park's egress.

g) The mixed-use development will provide a land use which will provide a high-quality development for residents and visitors to Sorell.

h) This report constitutes a Traffic Impact Assessment report.

i) There is no written advice. However preliminary consultation has occurred with Sorell Council.

7. Assessment of Parking

7.1 Existing Situation

Given this is currently a greenfield site, therefore there are no existing parking spaces associated with the site.

7.2 Proposed Parking Requirements

For assessment of the parking requirement for the development, the terrace has been included within the restaurant parking numbers. The table below represents the total number of indoor and outdoor seats which will be provided in each food tenancy.

Tenancy	Seats
Food tenancy 1	73 seats
Food tenancy 2	70 seats
Food tenancy 3	86 seats

The total seats for each tenancy have been calculated using the total floor area of the tenancy. Therefore, for assessment of parking numbers for each tenancy, one (1) parking space per three (3) seats has been adopted.

In line with the requirements of the '*Sorell Interim Planning Scheme, 2015, Table E6.1 Number of Car Parking Spaces Required*', the following parking is required:

Land Use	**Rate (spaces)**	**Car parking measure**	**Total Requirement**
Office Total combined area 657m^2	1	for each 30m^2 of floor area	**21.9 spaces**
General retail and hire, Total combined area 672m^2	1	for each 30m^2 of floor area.	**22.4 spaces**
Storage Total combined area 1165m^2	1	for each 100m^2 of floor area and 1 for each 40 m^2 of ancillary office floor area.	**11.65 spaces**
Food Services (indoor and outdoor seats) Total seats 229	15	for each 100m^2 of floor area or 1 space for each 3 seats, whichever is the greater.	**76.33 spaces**
Services (utilities) Total combined area 118m^2	0	No requirement	**0 spaces**
Passive Recreation	0	No requirement	**0 spaces**
Required Parking Spaces			**132.28**

Table 3: Extract from Sorell Interim Planning Scheme, 2015, Table E6.1 Number of Car Parking Spaces Required

7.3 Proposed Parking Provision

There are a total of forty-nine (49) spaces plus two (2) accessible spaces, plus two motorcycle spaces and . The proposed design does not comply with the requirements of the acceptable solution of Table E6.1 of the Sorell Interim Planning Scheme, 2015. There is therefore a shortfall of eighty-four (83) spaces associated with the proposed development. The proposal seeks to provide approximately thirty-seven (37) percent of the parking requirement on site.

7.4 Sorell Interim Planning Scheme, 2015

In line with the Sorell Interim Planning Scheme, 2015, E6.6.1 Number of Car Parking Spaces

Objective:
To ensure that:

(a) there is enough car parking to meet the reasonable needs of all users of a use or development, taking into account the level of parking available on or outside of the land and the access afforded by other modes of transport.
(b) a use or development does not detract from the amenity of users or the locality by:
i. preventing regular parking overspill;
ii. minimising the impact of car parking on heritage and local character.

Acceptable Solutions
A1

The number of on-site car parking spaces must be:
(a) no less than the number specified in Table E6.1;
except if:
i. the site is subject to a parking plan for the area adopted by Council, in which case parking provision (spaces or cash-in-lieu) must be in accordance with that plan;

Given there is a parking shortfall, the performance criteria of the Sorell Interim Planning Scheme, 2015 have been addressed. Each clause within the performance criteria has been addressed in turn below:

Performance Criteria
P1

The number of on-site car parking spaces must be sufficient to meet the reasonable needs of users, having regard to all of the following:

(a) car parking demand;

Given that the development makes provision for forty-nine (49) spaces and the required number of spaces, based on the provisions of the Sorell Interim Planning Scheme, 2015, is for one-hundred and thirty-two (132) spaces, there is therefore a shortfall of eighty-four (84) spaces.

It is extremely likely that most of the customers of The Station's mixed use development will not visit just one land use on the site. For example, a customer to the retail shop will also likely visit a restaurant or café. Similarly, someone working in one of the office developments is typically going to visit the shops and cafes on the site. Therefore, there will be some double, or even triple counting of parking provision, if all the land uses were calculated independently.

(b) the availability of on-street and public car parking in the locality;

A sixty-eight (68) space off-street Council carpark is located on the opposite side of the road to the proposed development. The council car park is subject to a 3-hour parking restriction on Saturday and Sunday only. This parking will be available to users of the proposed development site. In addition, there are a number of on and off street parking spaces available in reasonable walking distance of the site. This kerbside parking will also be available to users of The Station development.

Howarth Fisher and Associates have undertaken a day long on and off street parking survey at the Dubs and Co Drive site to assess the typical parking occupancy of this car park site. An assessment has been undertaken between 9:30am – 5.30pm on the 10th March 2022 which provides an indication of the average weekday parking demand. The parking zones are outlined below in Figure 3 and survey peak occupancy rates per zone are outlined in Table 4.

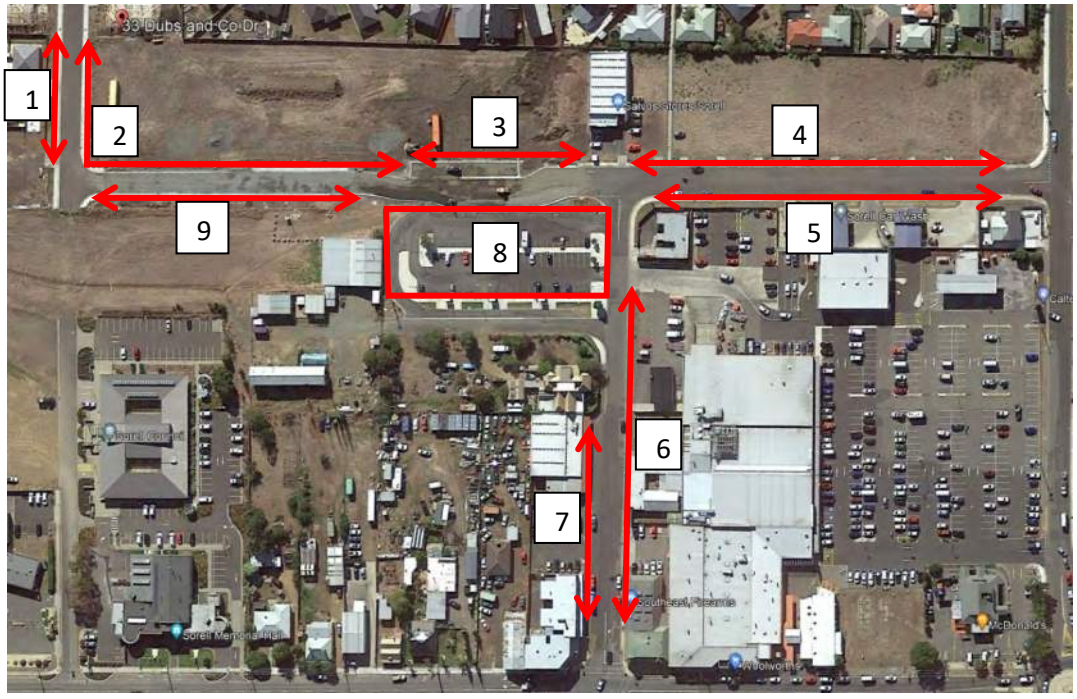


Figure 3: Parking Zone Plan

Peak Occupancy rate by Parking Zone

Parking Zone		1	2	3	4	5	6	7	8	9
Supply		7	19	18	18	17	14	8	68	17
Demand Peak Occupancy	9:30am	1| 14%	0| 0%	12| 67%	1| 6%	1| 6%	0| 0%	2| 25%	26| 38%	0| 0%
	10:30am	0| 0%	1| 5%	13| 72%	3| 17%	2| 12%	1| 7%	1| 13%	28| 41%	0| 0%
	11:30am	0| 0%	2| 11%	12| 67%	4| 22%	3| 18%	2| 14%	2| 25%	26| 38%	0| 0%
	12:30pm	0| 0%	2| 11%	12| 67%	3| 17%	3| 18%	2| 14%	3| 38%	27| 40%	0| 0%
	1:30pm	0| 0%	2| 11%	13| 72%	2| 11%	4| 24%	1| 7%	2| 25%	25| 37%	0| 0%
	2:30pm	0| 0%	1| 5%	12| 67%	4| 22%	5| 29%	3| 21%	3| 38%	32| 47%	0| 0%
	3:30pm	0| 0%	0| 0%	13| 72%	7| 39%	4| 24%	3| 21%	5| 63%	37| 54%	1| 6%
	4:30pm	0| 0%	0| 0%	3| 17%	4| 22%	2| 12%	3| 21%	2| 25%	26| 38%	0| 0%
	5:30pm	0| 0%	0| 0%	0| 0%	0| 0%	0| 0%	2| 14%	2| 25%	15| 22%	1| 6%
Peak Occupancy		14%	11%	72%	39%	29%	21%	63%	47%	6%

Table 4: Howarth Fisher and Associates Parking Survey undertaken 10th March 2022 Peak occupancy by zone

Supply		Vacant Spaces	Occupied spaces	Percentage Occupied
Demand Peak Occupancy	9:30am	143	43	23%
	10:30am	137	49	26%
	11:30am	135	51	27%
	12:30pm	134	52	28%
	1:30pm	137	49	26%
	2:30pm	126	60	32%
	3:30pm	116	70	38%
	4:30pm	146	40	22%
	5:30pm	166	20	11%

Table 5: Howarth Fisher and Associates Parking Survey undertaken 10th March 2022 Total Zone Peak occupancy by hour

From the day long parking survey undertaken by Howarth Fisher and Associates, there were a minimum of one-hundred and sixteen (116) spaces available in the on and off street car parking areas surveyed.

It should be noted that people who parked in private car parks in the vicinity of the site (which were not surveyed) are also able to walk to the site. Staff at Sorell Council, for example, who park within the Council car park may walk to the facility at lunchtime and would not necessarily drive and park at the site.

(c) the availability and frequency of public transport within a 400m walking distance of the site;

Sorell Park and Ride Station is located 200-metres away from the development site. This station is currently utilised by eight (8) bus services which include the services between Hobart and Sorell (X31, X33, 731, 732), Sorell and Carlton (X32, 732), Sorell and Nubeena (734) and Sorell and Swansea (736). This bus station currently includes hourly services to Hobart, every second hour for Carlton and daily bus trips for Nubeena.

(d) the availability and likely use of other modes of transport;

Given the location of the development site, it is very likely that people will utilise The Station before or after getting on or off the bus at the Sorell Park and Ride Station 200-metres away.

Due to the site being in the vicinity of a residential zone, the residents of nearby residential properties will be able to walk, cycle or scooter to the development site. This will be particularly convenient for customers to the restaurants and café land uses, who choose to drink alcohol (given strict drink driving laws) as well as for other local users of the mixed use development residing in the local residential catchment.

(e) the availability and suitability of alternative arrangements for car parking provision;

As outlined in the Howarth Fisher and Associates parking survey there is suitable provision of on and off street parking availability in the vicinity of the site which can be utilised by users of The Station development.

(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;

The mixed land uses on the site will result in temporal distribution of peak demand. For example, most of the office uses are likely to have parking demand between 9- 5pm weekdays whereas the peak demand for restaurants is likely to be in the evening and at weekends when the office parking

demand will not be required. Similarly, the food retail services typically peak in the early evening on Thursday and Friday and late morning on Saturday when the demand for spaces associate with the office uses and restaurants will be lower. The mixed land uses provide opportunities for the car parking supply to be shared given the peak demand occurs at different times of the day and week.

(g) any car parking deficiency or surplus associated with the existing use of the land;

Not applicable, given this is a greenfield site there is no car parking surplus or shortfall associated with this site.

(h) any credit which should be allowed for a car parking demand deemed to have been provided in association with a use which existed before the change of parking requirement, except in the case of substantial redevelopment of a site;

This is a substantial redevelopment of the site.

(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;

It is not anticipated that cash in lieu will be necessary given that the mixed use development will have peak parking demand associated with the various land uses occurring at different times of the day and week. There are good opportunities for people to use the development on their way to and from work, given the proximity of the site to the bus park and ride site.

Furthermore, The Station development is conveniently located in close proximity to a large residential catchment as well as the commercial centre of Sorell and incorporates land uses which are conducive to people walking, cycling and scootering to the site. There is also a large provision of on and off street parking availability in the vicinity of the site in the unlikely event that these are required.

(j) any verified prior payment of a financial contribution in lieu of parking for the land;

It is not deemed appropriate that a financial contribution is required given the mixed use development will result in a peak parking demand occurring at different times of the day and the week. Furthermore there are options for shared parking associated with this development

(k) any relevant parking plan for the area adopted by Council;

Not applicable

(l) the impact on the historic cultural heritage significance of the site if subject to the Local Heritage Code;

There is no impact of historical local heritage in the vicinity of 33 Dubs and Co Drive, Sorell.

(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 Schedule.

The provision of parking will not impact on any significant trees.

7.5 Parking Demand Assessment

In order to assess parking demand, the NSW, RTA Guide to Traffic Generating Developments, 2002 has been used to assess the anticipated parking demand. This is a nationally recognised reference source for determining trip generation rates and thereby parking demand.

Although The Station is not a typical shopping centre, the shopping centre land use formula provides, as outlined in the NSW, RTA Guide to Traffic Generating development an indication of the peak demand periods relating to different land uses. The formula shows that supermarket food retail peaks on a Thursday evening, whereas specialty shops and secondary retail uses peak on a Saturday in the late morning / lunchtime period.

As shown in the formula, offices do not typically attract any trips on a Saturday given most offices are not open on weekends, thereby making this parking available to the other land uses on the site.

Peak Period Traffic Generation.

Models.

For Thursdays and Fridays, the models are for the vehicle trips in the evening peak hour - V(P) - where this period has been taken as 4.30-5.30 pm.

For Saturday morning, the peak vehicle hour has been used - PVT. This is typically 11.00 am-12.00 pm. Localised variations in these peak hours can occur.

Thursday:

$V(P) = 20\ A(S) + 51\ A(F) + 155\ A(SM) + 46\ A(SS) + 22\ A(OM)$
(vehicle trips per $1000m^2$).

Friday:

$V(P) = 11\ A(S) + 23\ A(F) + 138\ A(SM) + 56\ A(SS) + 5\ A(OM)$
(vehicle trips per $1000m^2$).

Saturday:

$PVT = 38\ A(S) + 13\ A(F) + 147\ A(SM) + 107\ A(SS)$
(vehicle trips per $1000m^2$).

where:

A(S): Slow Trade gross leasable floor area (Gross Leasable Floor Area in square metres) includes major department stores such as David Jones and Grace Bros., furniture, electrical and whitegoods stores.

A(F): Faster Trade GLFA - includes discount department stores such as K-Mart and Target, together with larger specialist stores such as Fosseys.

A(SM): Supermarket GLFA - includes stores such as Franklins and large fruit markets.

A(SS): Specialty shops, secondary retail GLFA - includes specialty shops and take-away stores such as McDonalds. These stores are grouped as they tend to not be primary attractors to the centre.

A(OM): Office, medical GLFA: includes medical centres and general business offices.

Similarly, the guide notes that trip generation rates to restaurants for example (with the exception of take away shops) may not have **any** patrons arriving between 4.30pm -5.30pm on weekdays and in case, if take away options were offered by the restaurant uses, these typically occur toward the end of the evening peak period 5.30pm onwards. It is likely that specialty retail shops and office parking will be available for this purpose, given both uses will typically close between 4pm and 5pm. Similarly, on Saturdays, specialty retail stores often close between 3pm and 4pm, making all these spaces, in addition to the office spaces available to restaurant and food retail.

The section from the guide is outlined below:

The traffic generation rate in the evening peak period will depend on the type of restaurant. While suburban restaurants with take-away facilities often have significant levels of trading occurring near the end of the evening peak period, more traditional restaurants may not have any patrons arriving at this time. Average rates based on the sites surveyed by the RTA are given below, as indicative figures.

The NSW,RTA, Guide to Traffic Generating Developments also highlights, refer A(SS) above, that specialty shops and secondary retail tend not to be primary attractors to the site. The food retail, restaurant, and office predominantly peak at different times of the day and week, further facilitating shared parking.

It should also be noted that the extensive street frontage also provides parallel parking for 21 on street spaces (making the total provision 70 spaces). Whilst it is acknowledged that these bays are not within the site, they do and can provide a conveniently located parking supply.

Furthermore, some food retail bays may be signed for high turnover, short stay parking associated with food retail shopping, 10 x 15 minute bays. These time restrictions could operate during food retail hours only would encourage high turnover of spaces associated with a Hill Street, IGA food retail development. Subject to Council approval, some short term bays could be provided along the street frontage.

In line with the RTA Guide, it is not advisable to assume 100% seat occupancy, when assessing traffic generation. Ideally, the 85-percentile occupancy should be used. Therefore, for calculations of the parking space requirements for peak food services, a capacity of 85% for all food services on site will be utilised.

Given the location of the development, and the Sorell Park and Ride facility in the close vicinity of the development, there will be a large amount of available parking spaces in the off-street parking facility on the weekends. Between 10am and 2pm, visitors to the site will be able to utilise the off-street parking facility for parking. Additionally, on weekdays between 4pm and 8pm, it is likely that visitors to the site will be coming to the site through the bus services operating from the park and ride facility, therefore, given the mode of transport to the site, visitors to the site from the park and ride facility will not require a parking space.

For off peak periods, a parking space requirement of 50% capacity has been adopted for the parking demand assessment.

7.5.1 Monday – Friday

Period	Land use parking demand	Parking spaces required
8am – 10am	Storage (access and demand typically earlier than 8am, given they will be accessed by tradespeople) Peak office	22 spaces (in ground level car park facility) 34 spaces (in combined ground level and basement)

10am – 12pm	Peak office Off peak general retail and hire	33 spaces
12pm – 2pm	Peak office Off Peak general retail and hire	33 spaces
2pm – 4pm	Off peak office Off peak general retail and hire	22 spaces
4pm – 6pm	Off peak office Peak food retail	76 spaces*
6pm – 8 pm	Peak food services	65 spaces
8pm – 12am	Off peak food services	38 spaces

*It is anticipated that users of the Sorell Park and Ride facility will access the site after their bus service from work. Given the commuter accessed the site via a mode of sustainable transport, they will not require a parking space for their trip.

7.5.2 Weekends

Period	**Land use parking demand**	**Parking spaces required**
8am – 10am	Services	0 spaces
10am – 12pm	Off peak general retail and hire Peak food services	76 spaces*
12pm – 2pm	Off peak general retail and hire Peak food services	76 spaces*
2pm – 4pm	Off peak food services.	38 spaces
4pm – 6pm	Off peak food services	38 spaces
6pm – 8 pm	Peak food services	65 spaces
8pm – 12am	Off peak food services	38 spaces

*The park and ride facility will contain a large amount of vacant parking spaces given it is a weekend and the facility is not used by commuters to and from work.

7.6 On-Street Parking

It is proposed that there will be a no parking zone on the downstream at all access locations. Given all the accesses are one-way, there will be one designated no parking zone for each access. The no parking zone will be 2-metres in length and will provide a buffer for vehicles to manoeuvre in and out of the site. With the implementation of the no parking zones along the frontage road, there will be a resulting 21 parallel parking spaces along the frontage road of the development site. These parking spaces can be utilised by visitors to the site. The parking space locations are represented in the figure below.

Figure 4: On street parking

7.7 Accessible Parking

In line with the Sorell Interim Planning Scheme, 2015, requirements as outlined in section E6.6.2: Number of Accessible Car Parking Spaces for People with a Disability.

Objective
To ensure that a use or development provides sufficient accessible car parking for people with a disability.

Acceptable Solutions
A1
Car parking spaces provided for people with a disability must:

a) Satisfy the relevant provisions of the Building Code of Australia:

b) Be incorporated into the overall car park design;

c) Be located as close as practicable to the building entrance.

Performance Criteria
P1
No performance criteria.

In line with the requirements of the National Construction Code and following advice from the building surveyor, it has been advised that two (2) accessible bays need to be provided. Two (2) accessible bays have been indicated within the onsite car park, which meets with the acceptable solution.

7.8 Motorcycle Parking

Under the requirements of the acceptable solution of Sorell Interim Planning Scheme, 2015, there is a requirement to supply one (1) designated motorcycle parking space for each twenty (20) parking bays after the first nineteen (19). Therefore, two (2) motorcycle parking spaces have been provided and are represented on the plans to comply with the requirements of the acceptable solution.

7.9 Bicycle Parking

Proposed Developed Lane Use	Requirements	Total
Office Total combined area 657m^2	*Employee – 1 for each 250m^2 floor area after the first 250m^2 floor area.*	**Employee - 1** **Visitor - 0**

	Visitor – 1 for each 1000m² of floor area if the floor area exceeds 1000m².	
General Retail and Hire Total combined area 672m²	*Employee – 1 for each 500m² floor area after the first 500m² floor area.* *Visitor – 1 for each 500m² of floor area.*	**Employee - 0** **Visitor - 1**
Storage Total combined area 1165m²	*No Requirement*	**Employee - 0** **Visitor - 0**
Food Services (Restaurant) Total combined area 511m²	*Employee – 1 for each 100m² floor area available to the public.* *Visitor – 1 for each 200m² floor area after the first 200m² floor area (minimum 2).*	**Employee - 5** **Visitor - 2**
Terrace areas Total combined area 176m²	*No Requirement*	**Employee - 0** **Visitor - 0**
Services (utilities) Total combined area 118m²	*No Requirement*	**Employee - 0** **Visitor - 0**
Passive Recreation Total combined area 231m²	*No Requirement*	**Employee - 0** **Visitor - 0**
TOTAL		**Employee – 6** **Visitor - 3**

Table 6: Bicycle Parking Requirements IAW table E6.2 Sorell Interim Planning Scheme, 2015

Employee Bicycle Parking

For Employee parking, locked compounds with communal access using duplicate keys are required. There is a requirement for six (6) class 1 or 2 bicycle parking facilities to be provided for employees.

Visitor Bicycle Parking

For visitor parking facilities to which the bicycle frame and wheels can be locked are required. These bicycle parking facilities are required. There is a requirement for three (3) class 3 bicycle facilities to be provided for visitors.

Classification of Bicycle Parking Facilities

Class	Security Level	Description
1	High	Fully enclosed individual lockers
2	Medium	Locked compounds with communal access using duplicate keys
3	Low	Facilities to which the bicycle frame and wheels can be locked

Operation of Table E6.2

Indicative bicycle parking locations for both employees and visitors are identified on the plans.

7.10 Bicycle End of Trip Facilities

In line with the acceptable solution outlined in the Sorell Interim Planning Scheme 2015: E6.7.11 Bicycle End of Trip Facilities.

The acceptable solution states:

> *'For all new buildings where the use requires the provision of more than 5 bicycle parking spaces for employees under Table E6.2, 1 shower and change room facility must be provided, plus 1 additional shower for each 10 additional employee bicycle spaces thereafter.'*

Based on the requirement of the Sorell Council Interim Planning Scheme 2015, there is a requirement for bicycle end of trip facilities.

7.11 Design of Bicycle Parking Facilities

In line with the requirements of the '*Sorell Interim Planning Scheme, 2015, E6.7.10 'Design of Bicycle Parking Facilities'*, the following acceptable solution is required:

E6.7.10 Design of Bicycle Parking Facilities

Objective:	
To encourage cycling as a healthy and environmentally friendly mode of transport for commuter, shopping and recreational trips by providing secure, accessible and convenient bicycle parking spaces.	
Acceptable Solutions	**Performance Criteria**
A1 The design of bicycle parking facilities must comply with all the following; (a) be provided in accordance with the requirements of Table E6.2; (b) be located within 30 m of the main entrance to the building.	**P1** The design of bicycle parking facilities must provide safe, obvious and easy access for cyclists, having regard to all of the following: (a) minimising the distance from the street to the bicycle parking area; (c) providing clear sightlines from the building or the public road to provide adequate passive surveillance of the parking facility and the route from the parking facility to the building; (d) avoiding creation of concealment points to minimise the risk.
A2 The design of bicycle parking spaces must be to the class specified in table 1.1 of AS2890.3-1993 Parking facilities Part 3: Bicycle parking facilities in compliance with section 2 "Design of Parking Facilities" and clauses 3.1 "Security" and 3.3 "Ease of Use" of the same Standard. R1	**P2** The design of bicycle parking spaces must be sufficient to conveniently, efficiently and safely serve users without conflicting with vehicular or pedestrian movements or the safety of building occupants.

7.12 Dimensions and Manoeuvring

Based on the requirements of the Australian Standards AS/NZS 2890.1: Off street parking 2004, table 1.1 car parking at the proposed site requirements a class 3A. From Table 1.1 below, the type of the proposed parking facility is a user class 3A medium term, short term, high turnover parking at shopping centres.

The parking bay requirement for a user class 3A bay is 2.7-metre x 5.4-metre with 6.2-metre-wide aisles. The proposed development plans comply with the requirements of the *Australian Standard* AS/NZS 2890.1*: Off street parking 2004*.

TABLE 1.1

CLASSIFICATION OF OFF-STREET CAR PARKING FACILITIES

User class	Required door opening	Required aisle width	Examples of uses (Note 1)
1	Front door, first stop	Minimum for single manoeuvre entry and exit	Employee and commuter parking (generally, all-day parking)
1A	Front door, first stop	Three-point turn entry and exit into 90° parking spaces only, otherwise as for User Class 1	Residential, domestic and employee parking
2	Full opening, all doors	Minimum for single manoeuvre entry and exit	Long-term city and town centre parking, sports facilities, entertainment centres, hotels, motels, airport visitors (generally medium-term parking)
3	Full opening, all doors	Minimum for single manoeuvre entry and exit	Short-term city and town centre parking, parking stations, hospital and medical centres
3A	ull opening, all doors	Additional allowance above minimum single manoeuvre width to facilitate entry and exit	Short term, high turnover parking at shopping centres
4	Size requirements are specified in AS/NZS 2890.6 (Note 2)		Parking for people with disabilities

Table 7: AS/NZS :2890.1:2004 Off-street car parking facilities Table 1.1

7.13 Surface Treatment of Parking Areas

The landscape architect and civil design plans detail surface treatment for the car park area. All surfaces will be sealed and drained in accordance with the acceptable solution relating to E6.7.6 of the Sorell Interim Planning Scheme, 2015.

E6.7.6 Surface Treatment of Parking Areas

Objective:	
To ensure that parking spaces and vehicle circulation roadways do not detract from the amenity of users, adjoining occupiers or the environment by preventing dust, mud and sediment transport.	
Acceptable Solutions	**Performance Criteria**
A1 Parking spaces and vehicle circulation roadways must be in accordance with all of the following; (a) paved or treated with a durable all-weather pavement where within 75m of a property boundary or a sealed roadway; (b) drained to an approved stormwater system, unless the road from which access is provided to the property is unsealed.	**P1** Parking spaces and vehicle circulation roadways must not unreasonably detract from the amenity of users, adjoining occupiers or the quality of the environment through dust or mud generation or sediment transport, having regard to all of the following: (a) the suitability of the surface treatment; (b) the characteristics of the use or development; (c) measures to mitigate mud or dust generation or sediment transport.

7.14 Lighting of Parking Areas

In line with the performance criteria outlined in the Sorell Interim Planning Scheme 2015, E6.7.7 Lighting of Parking Areas:

Objective:
To ensure parking and vehicle circulation roadways and pedestrian paths used outside daylight hours are provided with lighting to a standard which:

(a) enables easy and efficient use;
(b) promotes the safety of users;
(c) minimises opportunities for crime or anti-social behaviour; and
(d) prevents unreasonable light overspill impacts.

Acceptable Solutions
A1

Parking and vehicle circulation roadways and pedestrian paths serving 5 or more car parking spaces, used outside daylight hours, must be provided with lighting in accordance with clause 3.1 "Basis of Design" and clause 3.6 "Car Parks" in AS/NZS 1158.3.1:2005 Lighting for roads and public spaces Part 3.1: Pedestrian area (Category P) lighting.

Based on the requirement of the Sorell Council Interim Planning Scheme 2015, there is a requirement for the parking design to include Category P11b lighting and this will be provided in the proposed design.

TABLE 2.5
LIGHTING CATEGORIES FOR OUTDOOR CAR PARKS (INCLUDING ROOF-TOP CAR PARKS)

1	2	3	4	5
	Selection criteria[a]			
Type of area	Night time vehicle or pedestrian movements	Night time occupancy rates (NTOR)	Risk of crime[b]	Applicable lighting subcategory[c]
Parking spaces, aisles and circulation roadways	High	>75%	High	P11a
	Medium	≥25%, ≤75%	Medium	P11b
	Low	<25%	Low	P11c
Designated parking spaces specifically intended for people with disabilities	N/A	N/A	N/A	P12

[a] The selection criteria of Columns 2 to 4 should be separately evaluated. The highest level of any of the selection criteria that is deemed appropriate for the area type will determine the applicable lighting subcategory.

[b] The risk levels 'High', 'Medium' and 'Low' correspond to the classifications of the same names in HB 436.

[c] Providing a lighting scheme that meets the requirements of more than one subcategory by the use of switching is permitted.

TABLE 3.1

SUMMARY OF ACCEPTABLE DESIGN METHODS

Item	Element	Design method
1	Local roads (Clause 3.2)	Illuminance-based computer calculations and design rules
2	Pathways for pedestrians or cyclists (Clause 3.3)	Illuminance-based computer calculations
3	Public activity areas (including outdoor car parks) (Clause 3.4)	Illuminance-based computer calculations
4	Connecting elements (Clause 3.5)	Illuminance-based computer calculations
5	Outdoor car parks (Clause 3.6)	Illuminance-based computer calculations and design rules

3.6 CAR PARKS

Compliance with the values of $\overline{E}_h$, E_{Ph} and U_{E2} and E_{Pv}, as applicable, in Table 2.9 shall be assessed using the methods set out in Clause 3.1.

The assessment shall take into account the various elements (refer to Figure 3.11) which shall be treated as follows:

(a) Design calculation areas containing parking spaces, parking aisles and areas where reversing vehicles and pedestrians are both expected (typically anywhere within 5 m of the mouth of a parking space) shall comply with all of the required LTP values of the relevant subcategory in Table 2.9. Areas of a car park containing these elements are generally referred to as 'parking modules' and, where two or more parking modules are adjacent to each other, they are to be considered as one for the purpose of defining the relevant design calculation area. Refer to Figure 3.11.

For areas of a car park where the calculation design area is narrower than 15 m values of EPv shall be calculated for a line of points at not greater than 5 m spacing located along the centre line of the applicable design calculation area, with the end points not less than 7.5 m from the extremities of that area.

(b) Sections of roadway that access parking aisles but do not directly access parking spaces (e.g. those areas marked 'circulation roadway' and 'ramp' in Figure 3.11) shall meet the requirements for of $\overline{E}_h$, E_{Ph} and U_{E2} for subcategory P11a, P11b or P11c as appropriate for the overall car park.

(c) Access roadways and similar long lengths of road such as those that link car parks or which adjoin or dissect a car park, but which are neither parking aisles nor circulation aisles or roadways, shall be illuminated to not less than 50% of each of the values $\overline{E}_h$, E_{Ph} and U_{E2} that are required for whichever of the subcategories P11a, P11b or P11c is appropriate for the adjacent car park.

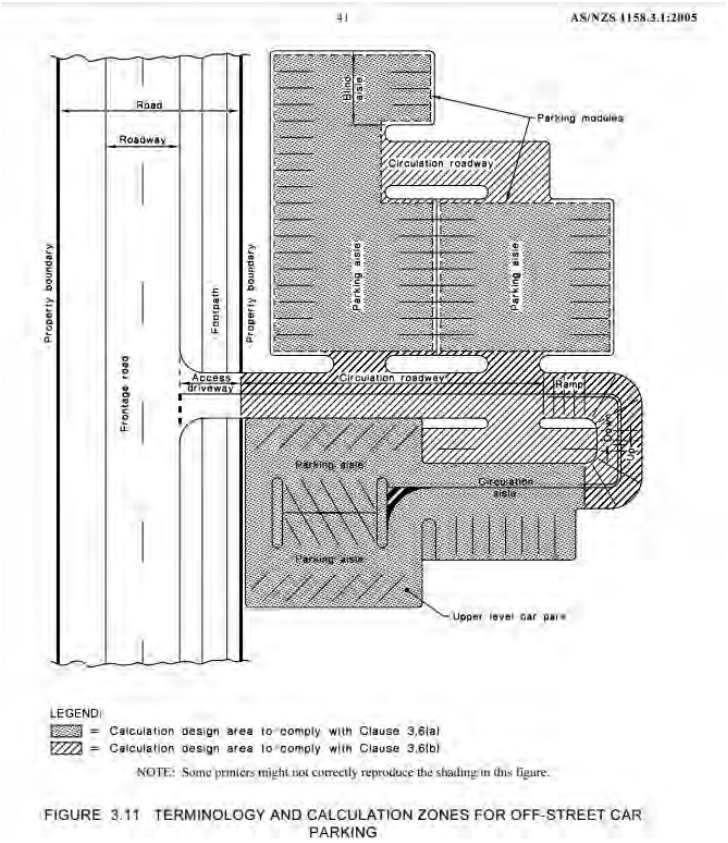


FIGURE 3.11 TERMINOLOGY AND CALCULATION ZONES FOR OFF-STREET CAR PARKING

7.15 Landscaping of Parking Area

In line with the performance criteria outlined in the Sorell Interim Planning Scheme 2015, E6.7.8 Landscaping of Parking Areas:

Objective:

To ensure that large parking and circulation areas are landscaped to:
(a) relieve the visual impact on the streetscape of large expanses of hard surfaces;
(b) screen the boundary of car parking areas to soften the amenity impact on neighbouring properties;
(c) contribute to the creation of vibrant and liveable places;
(d) reduce opportunities for crime or anti-social behaviour by maintaining clear sightlines.

Acceptable solution:
A1

'Landscaping of parking and circulation areas must be provided where more than 5 car parking spaces are proposed. This landscaping must be no less than 5 percent of the area of the car park, except in the Central Business Zone where no landscaping is required'

Performance criteria:
P1

'Landscaping of parking and circulation areas accommodating more than 5 cars must satisfy all of the following'

(a) relieve the visual impact on the streetscape of large expanses of hard surfaces;
(b) soften the boundary of car parking areas to reduce the amenity impact on neighbouring properties and the streetscape;
(c) *reduce opportunities for crime or anti-social behaviour by maintaining passive surveillance opportunities from nearby public spaces and buildings.*

In line with the performance criteria nominal areas of landscaping has been incorporated into the design. The design of this will be undertaken by others.

7.16 Siting of Car Parking

In line with the performance criteria outlined in the Sorell Interim Planning Scheme 2015, E6.7.12 Siting of Car Parking:

Objective:
To ensure that the streetscape, amenity and character of urban areas is not adversely affected by siting of vehicle parking and access facilities.

Acceptable Solution
A1

Parking spaces and vehicle turning areas, including garages or covered parking areas in the Inner Residential Zone, Urban Mixed Use Zone, Village Zone, Local Business Zone and General Business Zone must be located behind the building line of buildings located or proposed on a site except if a parking area is already provided in front of the building line of a shopping centre.

The siting of car parking complies with the acceptable solution of the Sorell Interim Planning Scheme, 2015. The location of the car park can be found on the Development plan at **Appendix A**.

8. Assessment of Access

8.1 Existing Situation Access Width

There is one (1) existing crossover on Dubs and Co Drive associated with this site. This cross over has an access width of 7.7-metres as indicated below:

Photograph 5: 7.7-metre crossover into the site from the frontage road (this will become a pedestrian only access into the site.

8.2 Sorell Interim Planning Scheme, 2015, Access Widths Requirement

Section E6.7.2 of the Sorell Interim Planning Scheme, 2015, outlines the design requirements for vehicular accesses.

E6.7.2 Design of Vehicular Accesses

Objective:	
To ensure safe and efficient access for all users, including drivers, passengers, pedestrians and cyclists by locating, designing and constructing vehicle access points safely relative to the road network.	
Acceptable Solutions	**Performance Criteria**
A1 Design of vehicle access points must comply with all of the following: (a) in the case of non-commercial vehicle access; the location, sight distance, width and gradient of an access must be designed and constructed to comply with section 3 – "Access Facilities to Off-street Parking Areas and Queuing Areas" of AS/NZS 2890.1:2004 Parking Facilities Part 1: Off-street car parking; (b) in the case of commercial vehicle access; the location, sight distance, geometry and gradient of an access must be designed and constructed to comply with all access driveway provisions in section 3 "Access Driveways and Circulation Roadways" of AS2890.2 - 2002 Parking facilities Part 2: Off-street commercial vehicle facilities.	**P1** Design of vehicle access points must be safe, efficient and convenient, having regard to all of the following: (a) avoidance of conflicts between users including vehicles, cyclists and pedestrians; (b) avoidance of unreasonable interference with the flow of traffic on adjoining roads; (c) suitability for the type and volume of traffic likely to be generated by the use or development; (d) ease of accessibility and recognition for users.

The access complies with section 3 of the access requirements of the AS/NZS 2890.1:2004 Access Facilities to Off street parking 2004. The given access widths, grade lines and sight distances (for the most part) are compliant with AS/NZS 2890.1:2004. Due to limited sight distances on the egress from the basement level, the egress will be a left turn only.

It should be noted that the sight distance requirements of the AS/NZS 2890.1:2004 are less than those in the Sorell Interim Planning Scheme,2015).

8.3 Australian Standard Requirement

8.3.1 Classification of Off-Street Car Parking Facility

In line with Australian Standard:2890.1:2004 Off-street car parking facilities the class of the proposed parking facility is determined from the table 1.1 below:

TABLE 1.1

CLASSIFICATION OF OFF-STREET CAR PARKING FACILITIES

User class	Required door opening	Required aisle width	Examples of uses (Note 1)
1	Front door, first stop	Minimum for single manoeuvre entry and exit	Employee and commuter parking (generally, all-day parking)
1A	Front door, first stop	Three-point turn entry and exit into 90° parking spaces only, otherwise as for User Class 1	Residential, domestic and employee parking
2	Full opening, all doors	Minimum for single manoeuvre entry and exit	Long-term city and town centre parking, sports facilities, entertainment centres, hotels, motels, airport visitors (generally medium-term parking)
3	Full opening, all doors	Minimum for single manoeuvre entry and exit	Short-term city and town centre parking, parking stations, hospital and medical centres
3A	Full opening, all doors	Additional allowance above minimum single manoeuvre width to facilitate entry and exit	Short term, high turnover parking at shopping centres
4	Size requirements are specified in AS/NZS 2890.6 (Note 2)		Parking for people with disabilities

Table 7: AS/NZS :2890.1:2004 Off-street car parking facilities Table 1.1

From Table 1.1, the type of the proposed parking facility is a user class 3A for mixed use shopping centres.

8.3.2 Category of Access Driveway

In line with AS/NZS 2890.1:2004, *to determine access driveway widths and restrictions on their location along frontage road table 3.1 categorizes driveways according to –*

a) the class of parking facility as shown in table 1.1;

b) the frontage road type, either arterial (including sub-arterial) or local (including collector):and

c) *the number of parking spaces served by the access driveway.*

TABLE 3.1

SELECTION OF ACCESS FACILITY CATEGORY

Class of parking facility (see Table 1.1)	Frontage road type	Access facility category				
		Number of parking spaces (Note 1)				
		<25	25 to 100	101 to 300	301 to 600	>600
1,1A	Arterial	1	2	3	4	5
	Local	1	1	2	3	4
2	Arterial	2	2	3	4	5
	Local	1	2	3	4	4
3,3A	Arterial	2	3	4	4	5
	Local	1	2	3	4	4

NOTES:

1 When a car park has multiple access points, each access should be designed for the number of parking spaces effectively served by that access.

2 This Table does not imply that certain types of development are necessarily suitable for location on any particular frontage road type. In particular, access to arterial roads should be limited as far as practicable, and in some circumstances it may be preferable to allow left-turn-only movements into and out of the access driveway.

Table 8: AS/NZS 2890.1:2004, Off-street car parking facilities Table 3.1

From Table 3.1 above it can be shown that the proposed driveway is of the user class 3A parking facility. In line with the requirements of the Sorell Interim Planning Scheme, 2015, the access driveway is a user class 3A access, which requires a width of between 6 to 9-metres combined.

The proposed development access width, location and gradient exceeds the minimum requirements of the AS/NZS 2890.1: 2004 Off street parking. There is one access into the site which is 5-metres wide and two egresses which are 3.2-metres (from the ground floor car park) and 3-metres (from the basement car park).

The access therefore complies with the acceptable solution of the Sorell Interim Planning Scheme, 2015.

The location of the access and egress points can be found on the Development plan at **Appendix A**.

8.4 Number of Accesses

There are two (2) egresses (one (1) solely connected with the storage use in the basement) and the other for all other light and heavy vehicular traffic. Both egresses are located on the western side of the development site.

There is one ingress located on the eastern side of the development.

E6.7.1 Number of Vehicular Accesses

Objective:

To ensure that:

(a) safe and efficient access is provided to all road network users, including, but not limited to: drivers, passengers, pedestrians, and cyclists, by minimising:

(i) the number of vehicle access points; and

(ii) loss of on-street car parking spaces;

(b) vehicle access points do not unreasonably detract from the amenity of adjoining land uses;

(c) vehicle access points do not have a dominating impact on local streetscape and character.

Acceptable Solutions	Performance Criteria
A1 The number of vehicle access points provided for each road frontage must be no more than 1 or the existing number of vehicle access points, whichever is the greater.	**P1** The number of vehicle access points for each road frontage must be minimised, having regard to all of the following: (a) access points must be positioned to minimise the loss of on-street parking and provide, where possible, whole car parking spaces between access points; (b) whether the additional access points can be provided without compromising any of the following: (i) pedestrian safety, amenity and convenience; (ii) traffic safety; (iii) residential amenity on adjoining land; (iv) streetscape; (v) cultural heritage values if the site is subject to the Local Historic Heritage Code; (vi) the enjoyment of any 'al fresco' dining or other outdoor activity in the vicinity.

Given there are three (3) access points throughout the road frontage, the performance criteria of the Sorell Planning Scheme, 2015 E6.7.1 has been addressed below:

a) The locations of access points to the site have been positioned to ensure that maximum on-street parking on the frontage road has been attained. A total of ~ 19 parking spaces can be provided along the frontage road (based on bay dimensions (AS2890.5:2020 On-street parking standards). To ensure on street bay provision, line marking could be used to designate bays.

b)

i) The crossovers will be clearly distinguishable to pedestrians travelling along the frontage footpath. The crossovers are limited to a width of 4-metres which has minimal impact on pedestrian amenity.

ii) The access points into and out of The Station site will be low speed environments (typically associated with shared pedestrian and vehicle spaces) and subject to 10km/hr speed restrictions. Pedestrians using the frontage footpath will therefore be afforded a safe low speed environment when using the crossovers.

iii) The access points will not impact residential amenity on adjoining land.

iv) The development is compatible with the streetscape given the site is situated in a general business zone.

v) The site is not subject to a local historical heritage code.

vi) Not applicable.

9. Assessment of Sight Distance

9.1 Existing Situation

Given this is a greenfield site there are no current access provisions that can be used to determine sight distances.

9.2 Sorell Interim Planning Scheme, 2015 Requirements

It is proposed that all vehicles access the site via the eastern access on Dubs and Co Drive and egress at the western side of the proposed mixed use development site.

The sight distances have been assessed in accordance with the requirements of the Sorell Interim Planning Scheme, 2015 as outlined below:

Table E5.1 Safe intersection sight distance

Vehicle Speed	Safe Intersection Sight Distance in metres, for speed limit of:	
km/h	60 km/h or less	Greater than 60 km/h
50	80	90
60	105	115
70	130	140
80	165	175
90		210
100		250
110		290

Where:

(a) Vehicle speed is the actual or recorded speed of traffic passing along the road and is the speed at or below which 85% of passing vehicles travel.

(b) For Safe Intersection Sight Distance:

(i) All sight lines (driver to object vehicle) are to be between points 1.2m above the road and access surface at the respective vehicle positions with a clearance to any sight obstruction of 0.5m to the side and below, and 2.0m above all sight lines;

(ii) These sight line requirements are to be maintained over the full sight triangle for vehicles at any point between positions 1, 2 and 3 in Figure E5.1 and the access junction;

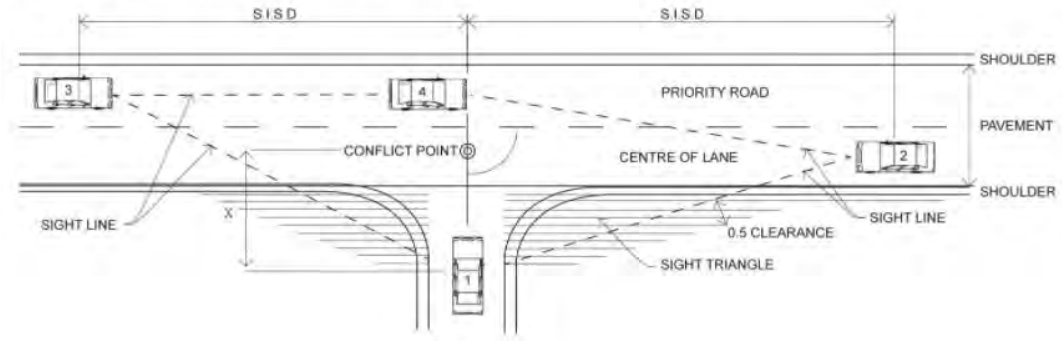
(iii) A driver at position 1 must have sight lines to see cars at any point between the access and positions 3 and 2 in Figure E5.1;

(iv) A driver at any point between position 3 and the access must have sight lines to see a car at position 4 in Figure E5.1;

(v) A driver at position 4 must have sight lines to see a car at any point between position 2 and the access in Figure E5.1; and

(vi) The distance of a driver from the conflict point in Figure E5.1 (X), is a minimum of. 7m for category 1 roads and category 2 roads, and 5m for all other roads.

Figure E5.1 Sight Lines for Accesses and Junctions



9.2.1 Northern Egress

The northern egress provides provision for left and right turns out of the ground level car park. This site egress will cater for light and heavy vehicles.

Photograph 6: Sight Distance at the exit was measured to be 92-metres towards the north.

This sight distance complies with the requirements of AS2890.1:2004 to the north.

Photograph 7: Sight Distance at the exit was measured to be 50-metres towards the south.

The sight distance does not comply with the sight distance requirements of the Sorell Planning Scheme, 2015 and therefore an assessment has been made against the performance criteria provisions of the Sorell Interim Planning Scheme, 2015.

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

Objective:	
To ensure that accesses, junctions and level crossings provide sufficient sight distance between vehicles and between vehicles and trains to enable safe movement of traffic.	
Acceptable Solutions	**Performance Criteria**
A1 Sight distances at: (a) an access or junction must comply with the Safe Intersection Sight Distance shown in Table E5.1; and (b) rail level crossings must comply with AS1742.7 Manual of uniform traffic control devices - Railway crossings, Standards Association of Australia.	**P1** The design, layout and location of an access, junction or rail level crossing must provide adequate sight distances to ensure the safe movement of vehicles, having regard to: (a) the nature and frequency of the traffic generated by the use; (b) the frequency of use of the road or rail network; (c) any alternative access; (d) the need for the access, junction or level crossing; (e) any traffic impact assessment; (f) any measures to improve or maintain sight distance; and (g) any written advice received from the road or rail authority.

Given that the requirements of the acceptable solution in relation to sight distance cannot be achieved the development has been assessed against the performance criteria:

a) The sight distance from the northern egress on the western side of the mixed-use development on Dubs and Co Drive is the maximum achievable sight distance that can be obtained. The predominant movement out of the egress will be left turn out, where the fully complaint sight distance can be obtained. The only right turn movements out will be undertaken by visitors to 'The Station' development residing in the residential development to the north. The only vehicles approaching the access to the egressing vehicles from the south will also have just manoeuvred through a 90-degree angle curve, which will further reduce vehicle speed.

b) The traffic volume on Dubs and Co Drive are low (especially in the vicinity of the northern egress). There will therefore be plenty of gaps in traffic flow to accommodate traffic turning into Dubs and Co Drive from the proposed egress.

c) It is proposed to provide a one-way ingress at the eastern end of the site and two egresses at the western side of the development.

d) The access will facilitate the one-way circulation of traffic through the site by all vehicles.

e) This report constitutes a traffic impact assessment report.

f) The access has been configured to locate its position onto the road network to maximise available sight distance.

9.2.2 Southern Egress

The southern egress serves the basement car park. Vehicles enter via the ingress on the eastern side and exit via Dubs and Co Drive. Given there are limitations to the sight distance, it is proposed that the southern egress onto Dubs and Co Drive be made a left out only.

Photograph 8: Sight Distance at the basement exit was measured to be 113-metres towards the north (which is complaint with the requirements of the Sorell Interim Planning Scheme, 2015 which notably requires a sight distance of 80-metres).

Photograph 9: Sight Distance at the basement exit was measured to be 27-metres towards the south which is not compliant.

Given it is proposed to make this egress left turn out only the sight distance to the south is irrelevant and therefore no assessment against the performance criteria is required.

9.2.3 Eastern Ingress

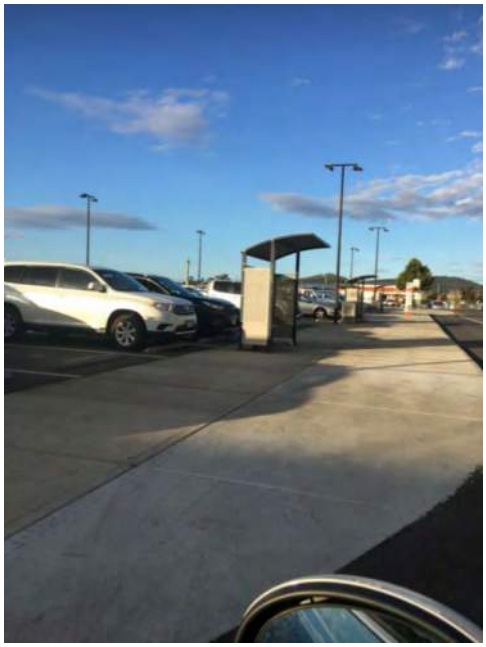
The access located at the eastern end of the site is an ingress only and therefore the measurement of sight distance is not relevant.

10. Sustainable Transport

10.1 Buses

The closest bus stop is a 200-metre walk away and is located on Station Lane, Sorell. The following link provides timetable information for the Sorell services. These are shown below.

https://www.transport.tas.gov.au/__data/assets/pdf_file/0017/219104/Sorell_to_Hobart_timetable.pdf



Photographs 10 and 11: Showing Bus Park and Ride site

The bus station is located 200-metres away from the proposed development. The bus station has a park and ride facility associated with it, whereby bus passengers park in a free long stay car park and use buses to travel to Hobart and elsewhere. The Station development site is well located to take advantage of access by bus and by users of this park and ride facility.

10.2 Bicycles/Electric Bicycles/Electric Scooters

The site is in a general business zone, approximately 500-metres away from Sorell town centre. The 8.7-metre wide road in the vicinity to the site, assists in providing a safe bicycle/car share environment of which the proposed residents could potentially benefit.

The site is conveniently located close to a residential zone as well as the main commercial centre of Sorell which will facilitate access via sustainable transport modes to the site, thereby making the development well placed to take advantage of access via sustainable transport modes.

10.3 Pedestrian Linkages

There is a good network of pedestrian footpaths in the vicinity of the development site. Footpaths in the vicinity of the site are 1.6-metres wide. Footpath provision is available on both sides of Dubs and Co Drive. A dedicated segregated pedestrian access is proposed into the site and a pram ramp has been provided to facilitate crossing of Dubs and Co Drive.

Photograph 12: Dubs & Co Drive including a 1.6-metre footpath outside the development site.

11. Service Vehicles

11.1 Sorell Interim Planning Scheme, 2015

In line with the provision of the Sorell Interim Planning Scheme, 2015, the Autotrack paths have been undertaken by Howarth Fisher and Associates and can be found at **Appendix B** of this report.

E6.7.13 Facilities for Commercial Vehicles

Objective:	
To ensure that facilities for commercial vehicles are provided on site, as appropriate.	
Acceptable Solutions	**Performance Criteria**
A1 Commercial vehicle facilities for loading, unloading or manoeuvring must be provided on-site in accordance with Australian Standard for Off-street Parking, Part 2 : Commercial. Vehicle Facilities AS 2890.2:2002, unless: (a) the delivery of all inward bound goods is by a single person from a vehicle parked in a dedicated loading zone within 50 m of the site; (b) the use is not primarily dependent on outward delivery of goods from the site.	**P1** Commercial vehicle arrangements for loading, unloading or manoeuvring must not compromise the safety and convenience of vehicular traffic, cyclists, pedestrians and other road users.

Service vehicle access has been assessed for various design vehicles assumed to be utilised at this development have been outlined in detail below.

The following service vehicle paths have been assessed and checked.

- Storage Area — Accommodates a 6.4-metre small rigid vehicle/ute.
- Food/Retail — Accommodates an 8.8 metre medium rigid vehicle.
- Refuse Collection — Accommodates an 8.8-metre medium rigid vehicle (waste disposal)
- Food Van — Accommodates a 6.4-metre small rigid vehicle
- B99 — Light vehicle for carport access.

A copy for the Autotrack paths for all the different design vehicles can be found at **Appendix B** of this report. It should be noted that the Autotrack paths included in the Appendix are not expressed on the latest plans. Given the changes to the plans only included the implementation of motorcycle parking spaces in the existing landscaping area, there has been no impact on the vehicle paths throughout the site. In line with the acceptable solution, all design vehicles can enter and exit the site in a forward direction. Given that the 8.8-metre swept path slightly travels over the kerb on the landscaping area, it is recommended that this area be made trafficable.

It should be noted that retractable bolslards will be used on the accessible bays to enable manoeuvres by service vehicles into the retail forecourt. As is standard practice servicing will be limited to early morning and late evening operations when pedestrian flows are lower. Spotters will be required to enable vehicle to safely reverse within these zones.

12. Conclusion and Recommendation

The proposed development has been assessed in relation to the following:

Trip Generation

The proposed trip generation by the development of the proposed design will result in an additional 541 trips per day and 59 during the peak hour. Based on traffic volume count surveys undertaken by Howarth Fisher and Associates there is a significant capacity on the road to cater for the increased trip generation. These rates have been discounted to reflect the likelihood of shared and multipurpose trips to the site.

Howarth Fisher and Associates undertook a peak hour traffic volume count (on Dubs and Co Drive) and counted forty-nine (49) vehicles per hour. The anticipated evening peak hour trip generation rates associated with the proposed development of fifty-nine (59) trips per hour equate to a total peak hour volume of ~ 108 vehicles per hour. This is within the 300-peak hour volume as an environmental goal and significantly less than the 500 maximum peak hour volume associated with a collector road.

Parking

There is a known parking shortfall of eighty-four (84) spaces associated with the proposed development. Given this shortfall Howarth Fisher and Associates undertook a parking survey to assess the supply and demand of on and off street parking within the vicinity of the site. There was a minimum supply of one-hundred and sixteen (116) on and off street spaces available in the vicinity of the site.

Given the shortfall in parking an assessment against the performance criteria has been made. There is likely to be some double or triple counting if all the parking demand requirements are calculated independently. Given the mixed use development there is likely to be users of the site who use more than one land use. Typically, office workers at the site will also use the cafes and restaurants and users of the retail land uses are likely to visit more than one retail use.

The mixed land uses on the site will result in some temporal distribution of peak demand. For example, most of the office uses are likely to generate parking demand between 9am - 5pm weekdays, whereas the peak demand for restaurants is likely to be in the evening and at weekends when the office parking demand will not be required. Similarly, the food retail services typically peak in the early evening on Thursday and Friday and late morning on Saturday when the demand for spaces associated with the office uses and restaurants will be lower. The mixed land uses provide opportunities for the car parking supply to be shared given the peak demand occurs at different times of the day and week.

Given the location of the development site, it is very likely that people will utilise The Station before or after getting on or off the bus at the Sorell Park and Ride Station 200-metres away. Due to the site being in the vicinity of a large residential and commercial zone, the residents of nearby housing and commercial will be easily able to walk to the development site. This will be particularly convenient for customers to the restaurants and café land uses who choose to drink alcohol, given the strict drink driving laws, as well as for other local users of the mixed use development residing in the local residential catchment

Access

The site contains an ingress and two (2) egresses throughout the frontage road. The access points have been positioned in strategic locations to ensure that on-street parking and pedestrian safety is prioritised. The access crossovers will include minimal widths to ensure that pedestrians can clearly determine site access locations.

The access provision will afford users with a one way circulation path into and out of the site.

Sight Distance

The sight distance for both the egresses have been measured and suggestions have been made to ensure compliance with the acceptable solution and or performance criteria of the Sorell Interim Planning Scheme, 2015. The accesses from the basement level egress has been made left turn out only whilst the ground floor carpark egress provides for both left and right turns manoeuvres out of the development.

Sustainable Transport

- **Buses/Coaches**

There is a park and ride facility located 200-metres away from the proposed development site. The bus station includes regular services which can be utilised by visitors to the new development. These bus services include a links between Sorell and Hobart, Carlton, Swansea, and Nubeena.

- **Bicycle**

Dubs and Co Drive is an 8.7-metre wide road which is subject to the default urban speed limit of 50km/hr which assists with providing a shared bicycle/car share environment of which some of the visitors to the site could potentially benefit. Bicycle parking will be provided for employees and visitors to the site.

The site is located in the vicinity of a large residential catchment as well as the commercial centre of Sorell which maximises opportunities for people to access the site via sustainable transport modes.

- **Pedestrians**

There is a strong pedestrian network in the surrounding vicinity of 33 Dubs and Co Drive. The frontage road of the development includes a footpath width of 1.6-metres on a both sides of the road with a pedestrian ramp located at the entrance to the proposed development.

- **Service Vehicles**

The access of different service vehicles has been evaluated to ensure that access is possible for all required vehicles. Autotrack modelling has been performed to ensure that vehicle movement throughout the development site is achievable. The expected vehicles utilising the site have been listed below:

- Storage Area — Accommodates a 6.4-metre small rigid vehicle/ute.
- Food/Retail — Accommodates an 8.8 metre medium rigid vehicle.
- Refuse Collection — Accommodates an 8.8-metre medium rigid vehicle (waste disposal)
- Food Van — Accommodates a 6.4-metre small rigid vehicle
- B99 — Light vehicle for carport access.

Autotrack paths are shown and can be found at **Appendix B** of this report. The service vehicles can enter and exit the site in a forward direction. Given that the 8.8-metre swept path slightly travels over the kerb on the landscaping area, it is recommended that this area be made trafficable.

Appendix A

DEVELOPMENT PLANS

Appendix B

AUTOTRACK PATHS

AllUrbanPlanning PTY LTD

14 July 2022

Shane Wells
Senior Planner
Sorell Council
PO Box 126
SORELL 7172
Ph: 6269 0000

Dear Shane

Development Application DA 2022/ 166-1 - 33 Dubs & Co Drive

I refer to your request for further information dated 1 July 2022 and respond in relation to each matter as follows:

Planning

1. Clarify the use and operation of the passive recreation floor space along with car parking demand generation.

The passive recreation area on the first floor is intended to be used as an informal play space for children. It is intended as an ancillary space for the complex.

2. Is the self-storage basement to be accessible 24hr?

The basement storage spaces will be used in a similar manner (but a smaller version) of a warehouse complex. The storage spaces will be used to provide storage for on site tenancies and otherwise available on a long term lease. The storage spaces will be accessed between the hours of 6am to 10pm Mondays to Saturdays and 7am to 9pm Sundays and Public Holidays.

3. The floor areas provided in the TIA and planning report exclude the terrace 01 and terrace 02. Please confirm if the terraces will include outdoor dining? If so, please update the TIA.

The outdoor terrace spaces do not constitute floor area for the purposes of the car parking calculations however they will be used for outdoor dining. The total seating numbers (inside and out) for each food tenancy will be as follows:

Tenancy	***seats***
Food tenancy 1	73 seats
Food tenancy 2	70 seats

Food tenancy 3	86 seats

Engineering

4. Provide further details on the proposed use of on street car parking, including the location for no parking areas and a plan showing all the on street car parking, complete with line marking, for the proposed development. Update the TIA to reflect any changes to the amount of on street parking.

A response to this request is being prepared.

5. Provide a parking demand assessment for the proposed development and identify the peak parking demand for the site. Parking demand should be calculation for 8am to 10am, 10am to 12pm, 12pm – 2pm, 2pm to 4pm, 4pm to 6pm, 6pm to 8pm and 8pm to 12am.

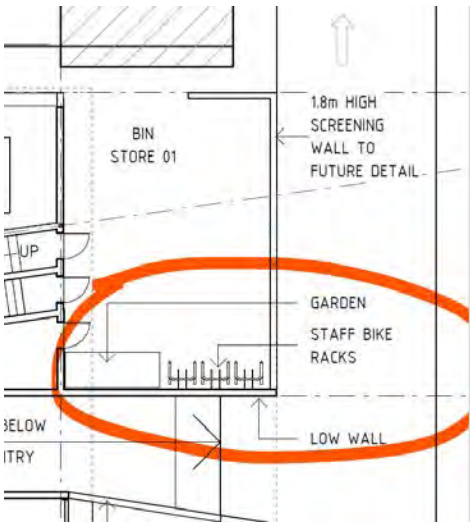
A response to this request is being prepared.

6. Provide an updated site plan showing the required motorcycle spaces, Council would potentially agree to a reduced landscaping area to facilitate these spaces.

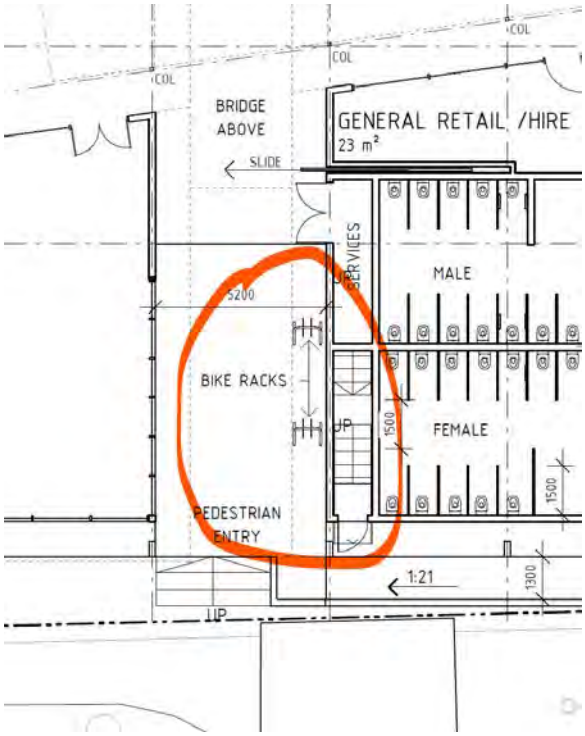
A response to this request is being prepared.

7. Show the location of the bicycle parking and end trip facilities on the site plan.

Bike racks shown on the proposed ground floor plan. There will be at least 6 employee (Class 2) spaces within a locked compound with a communal key located within the screened alcove at the eastern end of the building.



Other bike racks (more than the required 3) for visitors are noted on the Ground Floor Plan within the central pedestrian entry space.



The end of trip facilities including 2 x showers and change room facilities will be provided within one or two of the rooms adjacent to the central amenities area on the Level 1 Floor Plan.

8. Provide a lighting plan for the car parking areas complete with luminance based computer calculations and design rules, in accordance with clause E6.7.7 of the scheme

The supplied landscaping plan shows the proposed concept lighting layout which is considered sufficient to demonstrate that A1 of E6.7.7 can be met and that vehicle circulation areas and pedestrian paths can be adequately lit for safe and efficient use.

It is expected that a condition will be included on the permit requiring a detailed lighting design confirming luminance levels to be provided for Council's approval and for installation prior to commencement of the use.

9. Provide an updated SW report including a quality assessment which meets the targets identified in table E7.7.1 of the scheme.

Please see attached an updated stormwater report prepared by Aldanmark. Also attached is the MUSIC model file for Council's information.

Environmental Health

10. Provide an acoustic report prepared by a suitably qualified person to demonstrate compliance with Clause 21.3.2 A1 or P1 of the Sorell Interim Planning Scheme 2015. The report should include, but not be limited to noise emissions from mechanical plant, loading bay operations, and vehicles movements on-site.

The proposal will not involve any significant noise generating uses or external amplified music.

The proposed uses will also:

- operate within the hours of 6am to 10pm Monday to Saturdays and 7am to 9pm Sundays and public holidays except for office and administrative tasks; and
- will not involve commercial vehicle movements outside the hours of 7am to 7pm

Having regard to these factors and that all mechanical plant will be appropriately located, installed and screened it is not considered likely that the proposal will result in noise emissions above the permitted standards set out in A1.

It is suggested that the following two conditions be included on the permit. The first requiring compliance with these limits and the second requiring noise monitoring and compliance verification within 30 days of commencement of the use.

PLN 13

Noise emissions including from mechanical plant and deliveries measured at the boundary of the residential zone adjacent to the south east are not to exceed the following:

1. **55dB(A) (LAeq) between the hours of 7.00 am to 7.00 pm**
2. **5dB(A) above the background (LA90) level or 40dB(A) (LAeq), whichever is the lower, between the hours of 7.00 pm to 7.00 am;**
3. **65dB(A) (LAmax) at any time.**

Measurement of noise levels must be in accordance with the methods in the Tasmanian Noise Measurement Procedures Manual, issued by the Director of Environmental Management, including adjustment of noise levels for tonality and impulsiveness.

Reason for condition

To ensure noise emissions do not cause environmental harm and do not have an unreasonable impact on residential amenity.

PLN 14

Noise monitoring is to be undertaken within 30 days of commencement of the use verifying compliance with the limits under condition PLN 13 with a report to be provided to Council's Environmental Health Officer within a further 14 days.

Reason for the condition

To ensure noise emissions do not cause environmental harm and do not have an unreasonable impact on residential amenity.

11. Detail how construction impacts associated noise, sediment and dust will be managed.

It is premature to provide a detailed response in relation to these matters and they are not considered relevant to any of the matters that Council is to have regard to in the assessment of the application under the planning scheme. These matters would sensibly be the subject of a condition on the planning permit in the terms of Clause 8.11.3 of the planning Scheme which states:

> *8.11.3*
>
> *The planning authority may also impose conditions on a permit to minimise impact from construction works on the environment and infrastructure and to ensure that works will be undertaken in accordance with best practice management that limits the potential for significant impacts arising from the following:*
>
> *(a) soil loss and associated sedimentation of watercourses, wetlands and stormwater infrastructure;*
>
> *(b) the spread of weeds;*
>
> *(c) the spread of soil pathogens;*
>
> *(d) unsatisfactorily managed waste; and*
>
> *(e) carparking, traffic flow and circulation during construction.*

12. Proposed measures to ensure that light spillage from buildings, car park lighting and vehicles will not cause annoyance to neighbours.

Lighting will be located, orientated and baffled to avoid light spillage from buildings and car park lighting. The proposed garden bed landscaping (GB2) along the side and rear boundaries of the lot as shown on the Landscaping Plan DA-102 along with boundary fencing will also ensure that glare from vehicle headlights do not extend to the neighbouring properties.

13. Provide an estimate on the amount of soil to be extracted.

The project will involve approximately 8000m^3 of excavation that will be disposed of to an approved location. Similar to the response provided in relation to item 11 above, it is expected that Council may impose a condition requiring a construction management plan on the permit.

Yours sincerely,

Frazer Read
Principal
All Urban Planning Pty Ltd

STORMWATER REPORT

33 Dubs and Co Drive
SORELL TAS

1+2 Architecture

Aldanmark Reference: **21 E 29 - 12**

ALDANMARK CONSULTING ENGINEERS

Lower Ground
199 Macquarie Street
Hobart TAS 7000

GPO Box 1248
Hobart TAS 7001

03 6234 8666

mail@aldanmark.com.au
www.aldanmark.com.au

ABN 79 097 438 714

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2. DETENTION MODEL 3
3. STOMRWATER TREATMENT 5
4. STORMWATER SITE LAYOUT 6
5. CONCLUSION 7

DOCUMENT CONTROL

VERSION	DATE	AUTHOR		APPROVED	
1	13/07/2022	Danton Evans		Tim Watson	

1. INTRODUCTION AND SCOPE OF ENGAGEMENT

Aldanmark have been engaged to design a stormwater system for the proposed development at 33 Dubs and Co Drive, Sorell. As the request of Sorell Council and in accordance with E7 of the Sorell Interim Planning Scheme 2015 the sites post-development peak discharge must not exceed the pre-development peak discharge for stormwater runoff and the project must incorporate the principles of Water Sensitive Urban Design (WSUD). The following report outlines the methodology and assumptions used to ensure the proposed development complies with the permit conditions.

2. DETENTION MODEL

The following areas were determined from land survey conducted by Rogerson and Birch Surveyors and 1 + 2 Architecture:

Total site area:	≈ 4886m^2
Post-development Impervious Roof area:	≈ 2236.0m^2
Post-development Impervious Carpark area:	≈ 1745.0m^2
Post-development Pervious landscaping area:	≈ 905.0m^2

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

Pre-development entire site:	C = 0.40
Impervious Roof areas:	C = 1.00
Impervious Carpark areas:	C = 0.90
Landscaping areas:	C = 0.50
Pervious areas:	C = 0.40
5-minute duration - 5% AEP Sorell:	I = 86.9mm/hr (BOM IFD)
5-minute duration - 1% AEP Sorell:	I = 119.0mm/hr (BOM IFD)

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 Permissible Site Discharge (PSD):

$$Q_{PSD} = \frac{0.40 \times 4886 \times 86.9}{3600} = 47.17\ L/s$$

Post-Development:

$$Q_{Post} = \frac{(1.0 \times 2236.0 + 0.9 \times 1745.0 + 0.50 \times 905.0) \times 86.9}{3600} = 102.807\ L/s$$

As shown above the post development flow Q_{Post} is 55.63 L/s greater than the permissible site discharge Q_{PSD} and therefore on-site detention (OSD) is required. To determine the volume of storage required to reduce the post development peak discharge to the permissible site discharge Autodesk Software - Storm and Sanitary Analysis was utilised.

Due to the size of the site, and the large portion of roof and hard stand area, it was determined that an underground concrete detention tank was the most appropriate method of rainwater detention. As such, the SSA model was utilised to simulate a singular underground tank, connected to both the roof and carpark areas of the development. The results of the model showed that a detention tank sized to a volume of 25,000 L and fitted with 120mm low flow orifice is sufficient to detain the post development flow of the site below the pre-development for both a 20 year and 100-year event.

The outflow hydrographs for the site, as shown in Figure 1, demonstrate the post-development peak discharge (shown in orange) is below the pre-development (shown in blue).

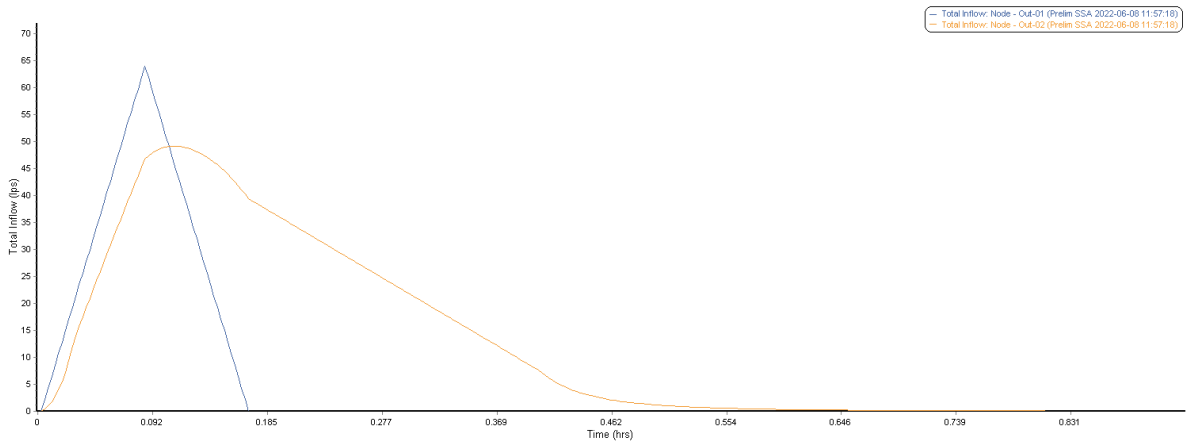


FIGURE 1: SITE OUTFLOW HYDROGRAPH (1 IN 100 EVENT)

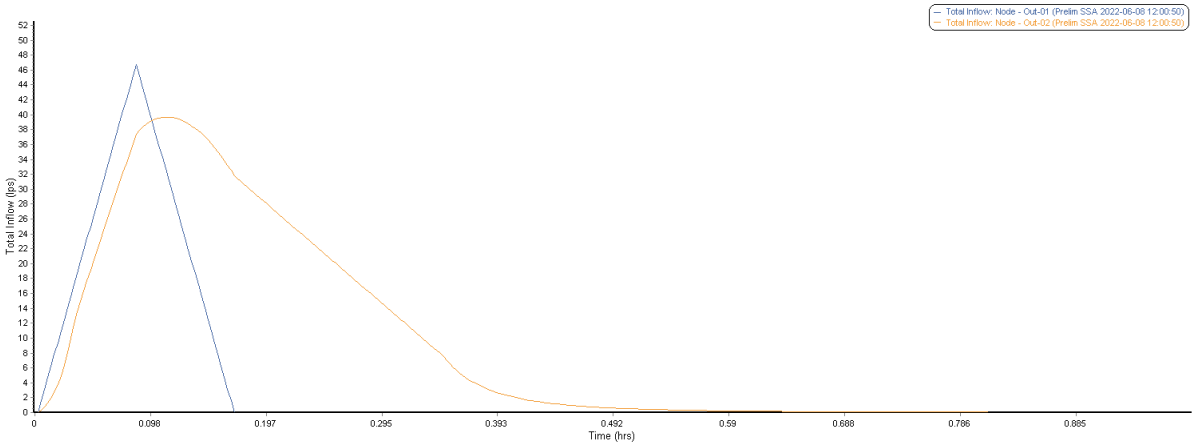


FIGURE 2: SITE OUTFLOW HYDROGRAPH (1 IN 20 EVENT)

3. STOMRWATER TREATMENT

Concept modelling for stormwater treatment has taken place. Due to the minimal space available, urbanised nature of the development and the presence of a large underground detention tank, proprietary stormwater treatment devices, specifically OceanProtect Stormfilter Cartridges have been specified for the project to meet the State Stormwater Strategy (2010) 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)

A MUSIC model has been produced in collaboration with OceanProtect with the results shown below in Figure 3. The model simulated the use of 6 OceanGuard pit baskets installed in the major drainage pits in the carparking area, followed by 3 Stormfilter Cartridges installed within the detention tank. A typical arrangement for a Stormfilter Installation in an underground tank is shown below in Figure 4.

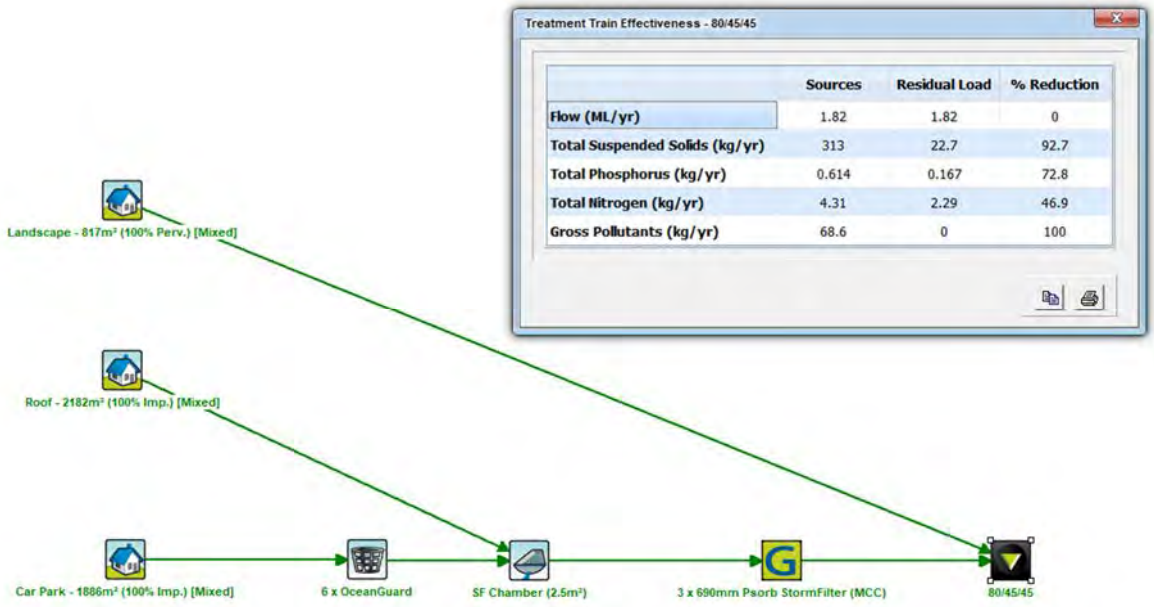


FIGURE 3: MUSIC MODEL SCREENSHOT

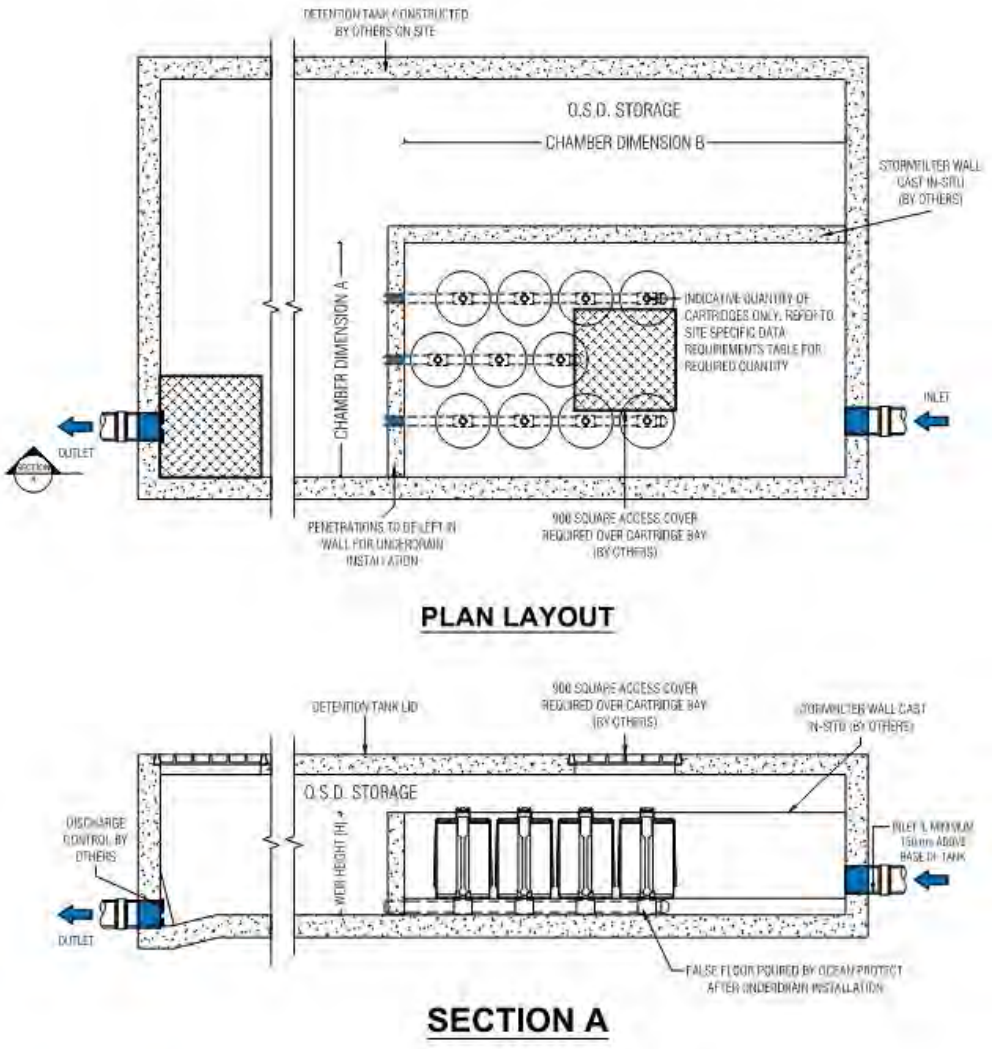


FIGURE 4: TYPICAL ARRANGMENT FOR STORMWATER TREATMENT

4. STORMWATER SITE LAYOUT

The concept layout of the stormwater system is shown on sheets C103 and C104 of the Aldanmark Consulting Engineers civil drawings '220405 CIV 21E29-12 PRELIM'.

5. CONCLUSION

This report has demonstrated that the proposed development at 33 Dubs and Co Drive, Sorell, is able to satisfy the stormwater quantity and quality conditions of the Sorell Interim Planning Scheme.

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 devans@aldanmark.com.au if you require any additional information.

Yours faithfully,

Danton Evans BEng (Hons)
Civil Engineer

THE STATION

DEVELOPMENT APPLICATION SUBMISSION - MARCH 2022

PROPOSED MIXED USE DEVELOPMENT

33 DUBS AND CO DRIVE, SORELL TASMANIA 7172

1+2 ARCHITECTURE

PROJECT DETAILS

CLIENT: CLIENT NAME
SITE TITLE REF: 177607/2
PID: XXXXXXXX
PROPERTY OWNER: PROPERTY OWNER
SITE ADDRESS: 33 DUBS AND CO DRIVE, SORELL TASMANIA 7172
LOCAL AUTHORITY: LOCAL AUTHORITY
PLANNING SCHEME: PLANNING SCHEME

DESIGN WIND SPEED: REFER TO STRUCTURAL ENGINEERS DOCUMENTATION
SOIL CLASSIFICATION: REFER TO STRUCTURAL ENGINEERS DOCUMENTATION
CLIMATE ZONE: REFER TO ENERGY REPORT
BAL RATING: N/A
ALPINE AREA: N/A
CORROSION ENVIRONMENT: N/A
OTHER KNOW HAZARDS: N/A

REGISTERED BUILDING PRACTITIONER:
EDWARD F WARD
(1+2 ARCHITECTURE PTY LTD)
ACCREDITATION NUMBER: CC4065F

AREA CALCULATIONS

TOTAL SITE AREA:	XXm²
TOTAL ROOFED AREA:	XXm²
TOTAL GROSS BASEMENT FLOOR AREA:	XXm²
TOTAL GROSS GROUND FLOOR AREA:	XXm²
TOTAL GROSS UPPER FLOOR AREA:	XXm²
TOTAL GROSS FLOOR AREA:	XXm²
PROPOSED SITE COVERAGE:	XXm²

DRAWING LIST

ARCHITECTURAL

NO.	REV.	TITLE
A0.00		COVER SHEET
A2.00		BASEMENT LEVEL
A2.01	A	GROUND FLOOR PLAN
A2.02	A	LEVEL 1 PLAN
A2.03		ROOF PLAN
A2.04		ELV 1 100
A2.05		ELV 1 100
A2.06		ELV 1 100
A2.07		Unnamed
A2.08		Unnamed
A2.09		Unnamed
A2.10		Unnamed
A2.11		3D diagram
A3.01		BUILDING ELEVATIONS 1
A3.02		BUILDING ELEVATIONS 2
A3.03		BUILDING SECTIONS 1
A5.01		SUN SHADOW DIAGRAMS JUNE 21
A5.02		SUN SHADOW DIAGRAMS DECEMBER 21
A5.03		Unnamed
A5.04		Unnamed
A5.05		Unnamed

LAND SURVEY

EXISTING CONTOUR AND LEVEL INFORMATION HAS BEEN PROVIDED BY ROGERSON & BIRCH SURVEYORS WITH SURVEY INFORMATION POSITION ON THE AUSTRALIAN HEIGHT DATUM.

PROJECT TEAM

UPDATE CONSULTANT DETAILS

REGISTERED BUILDING PRACTIONER:
UNKNOWN

PROJECT MANAGER:
UNKNOWN

ARCHITECT:
1 PLUS 2 ARCHITECTURE PTY. LTD.
FRED WARD
ACCREDITATION NUMBER: CC4065F
27 MELVILLE STREET, HOBART TAS 7000

BUILDING SURVEYOR:
LEE TYERS BUILDING SURVEYORS
LEE TYERS
PO BOX 364 KINGSTON TAS 7051

LAND SURVEYOR:
ROGERSON & BIRCH SURVEYORS
REF 13512-01 (REV A)

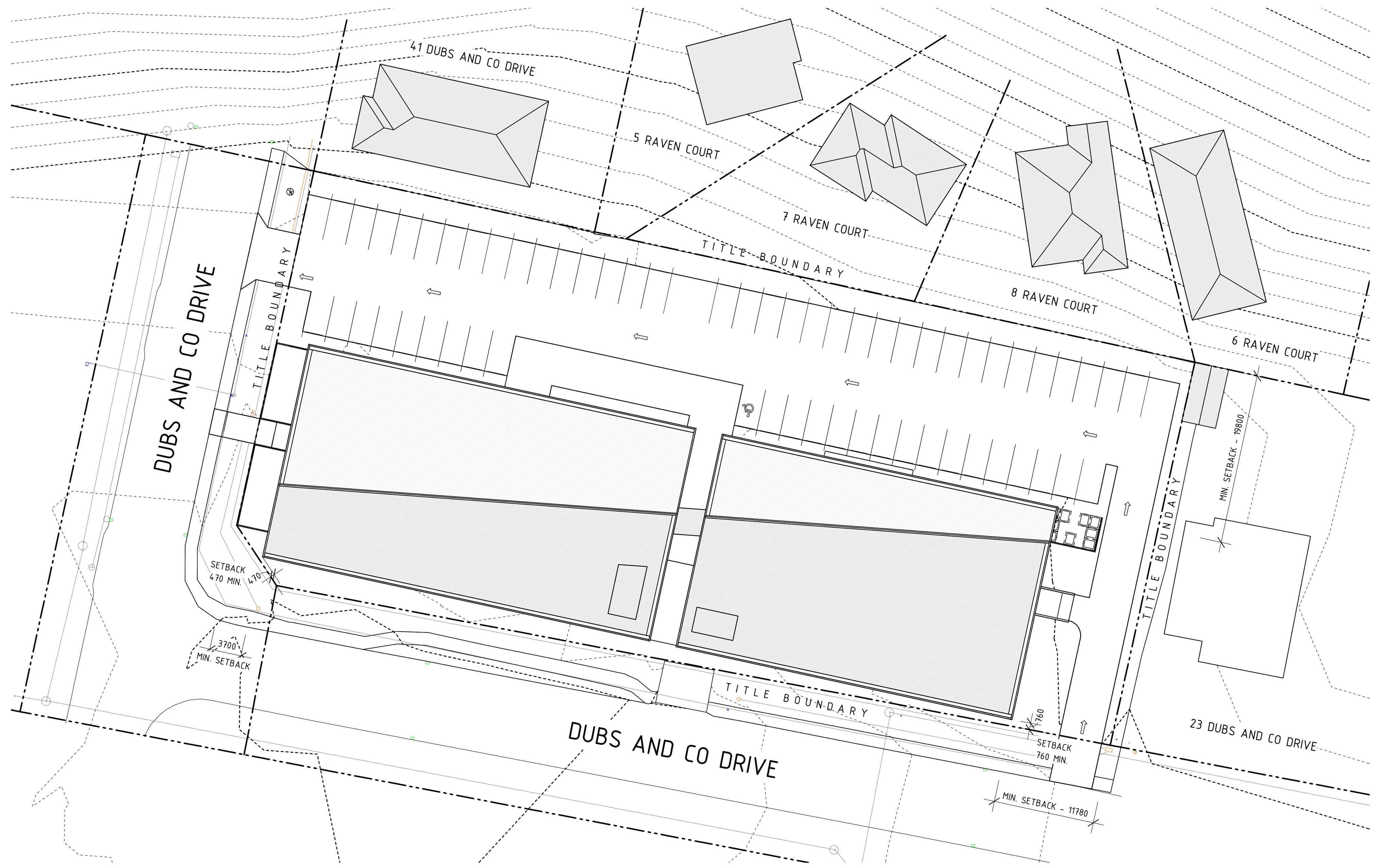
ENERGY CONSULTANT:
RED SUSTAINABILITY

GEOTECHNICAL ENGINEER:
GEO-ENVIRONMENTAL SOLUTIONS (GES)

STRUCTURAL & HYDRAULIC ENGINEER:
ALADANMARK PTY. LTD. CONSULTING ENGINEERS
TIM WATSON & STUART LAMOND
199 MACQUIRE STREET, HOBART TAS 7000
PROJECT NO.: 21E29-13

S001	COVER
S002	ENGINEERING NOTES
S003	ENGINEERING NOTES
S004	ENGINEERING NOTES
S005	WORKPLACE HEALTH & SAFETY NOTES
S101	FOOTING PLAN
S102	FLOOR FRAMING PLAN
S103	STRUCTURAL WALL PLAN
S104	ROOF FRAMING PLAN
S301	SECTION 01
S401	FOUNDATION/SUB-FLOOR DETAILS
H001	ENGINEERING DETAILS
H101	HYDRAULIC LAYOUT
H401	HYDRAULIC DETAILS

01 3D MODEL



02 PROPOSED SITE PLAN
1 : 500

PRELIMINARY

0 5 m 15 m 25 m 50 m

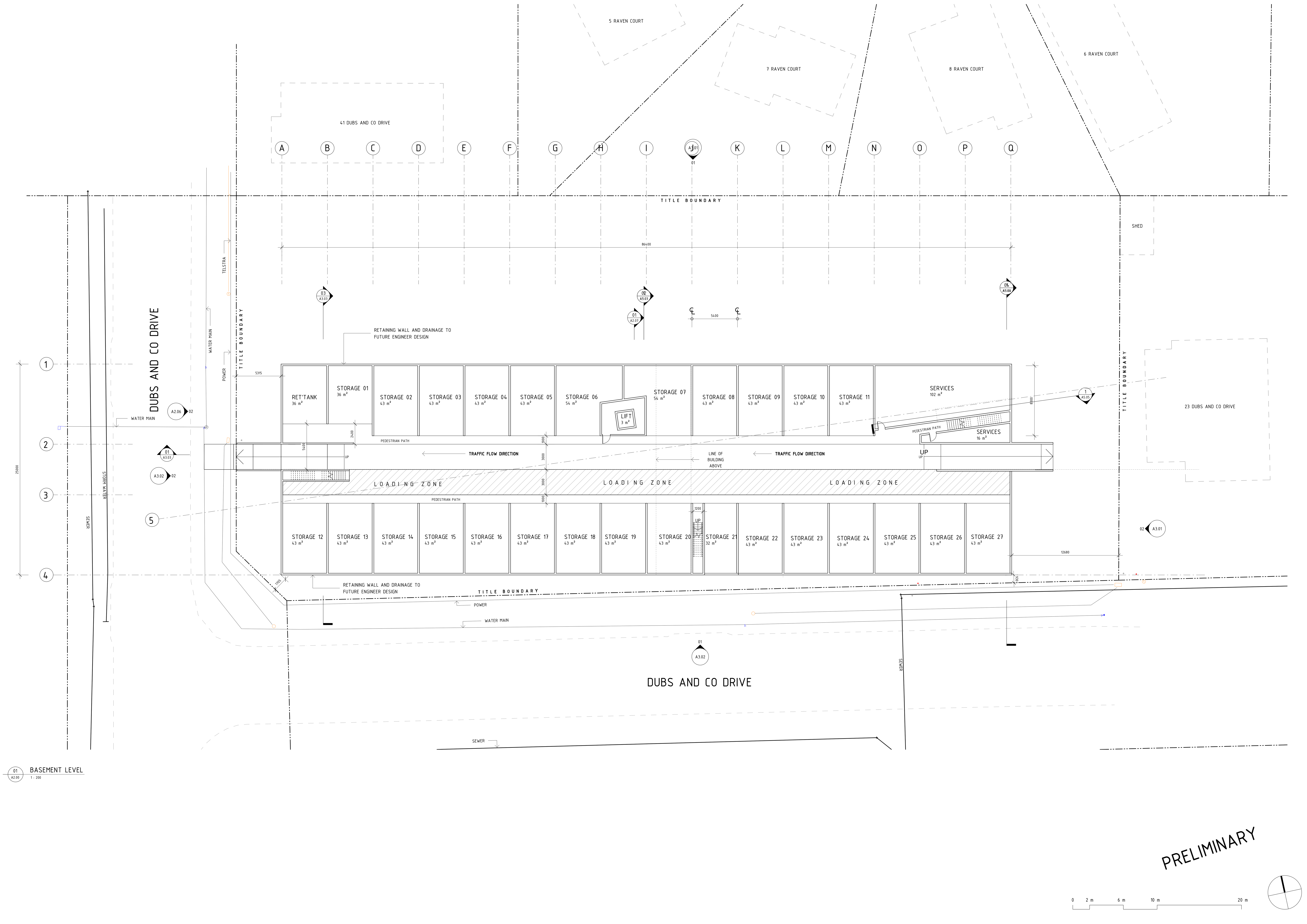
rev. desc.	date

27-29 MELVILLE STREET HOBART TASMANIA 7000
T 03 6234 8122
E MAIL@1PLUS2ARCHITECTURE.COM

project	THE STATION
client	CLIENT NAME
address	33 DUBS AND CO DRIVE, SORELL TASMANIA 7172
code	2110SCNS
drawing	COVER SHEET
scale	1 : 500 @ A1
number	A0.00

1+2 ARCHITECTURE

LEGEND.


5 RAVEN COURT
7 RAVEN COURT
8 RAVEN COURT
6 RAVEN COURT
41 DUBS AND CO DRIVE
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
TITLE BOUNDARY
SHED
86400
TELSTRA
WATER MAIN
POWER
DUBS AND CO DRIVE
RETAINING WALL AND DRAINAGE TO FUTURE ENGINEER DESIGN
5400
RET'TANK 36 m²
STORAGE 01 36 m²
STORAGE 02 43 m²
STORAGE 03 43 m²
STORAGE 04 43 m²
STORAGE 05 43 m²
STORAGE 06 54 m²
LIFT 3 m²
STORAGE 07 54 m²
STORAGE 08 43 m²
STORAGE 09 43 m²
STORAGE 10 43 m²
STORAGE 11 43 m²
SERVICES 102 m²
SERVICES 16 m²
23 DUBS AND CO DRIVE
PEDESTRIAN PATH
TRAFFIC FLOW DIRECTION
LINE OF BUILDING ABOVE
UP
LOADING ZONE
LOADING ZONE
LOADING ZONE
STORAGE 12 43 m²
STORAGE 13 43 m²
STORAGE 14 43 m²
STORAGE 15 43 m²
STORAGE 16 43 m²
STORAGE 17 43 m²
STORAGE 18 43 m²
STORAGE 19 43 m²
STORAGE 20 43 m²
STORAGE 21 32 m²
STORAGE 22 43 m²
STORAGE 23 43 m²
STORAGE 24 43 m²
STORAGE 25 43 m²
STORAGE 26 43 m²
STORAGE 27 43 m²
1
2
3
4
5
25000
12680
STORM WATER
SEWER
RETAINING WALL AND DRAINAGE TO FUTURE ENGINEER DESIGN
POWER
WATER MAIN
DUBS AND CO DRIVE
SEWER
PRELIMINARY
0 2 m 6 m 10 m 20 m

01 A2.00 BASEMENT LEVEL
1 : 200

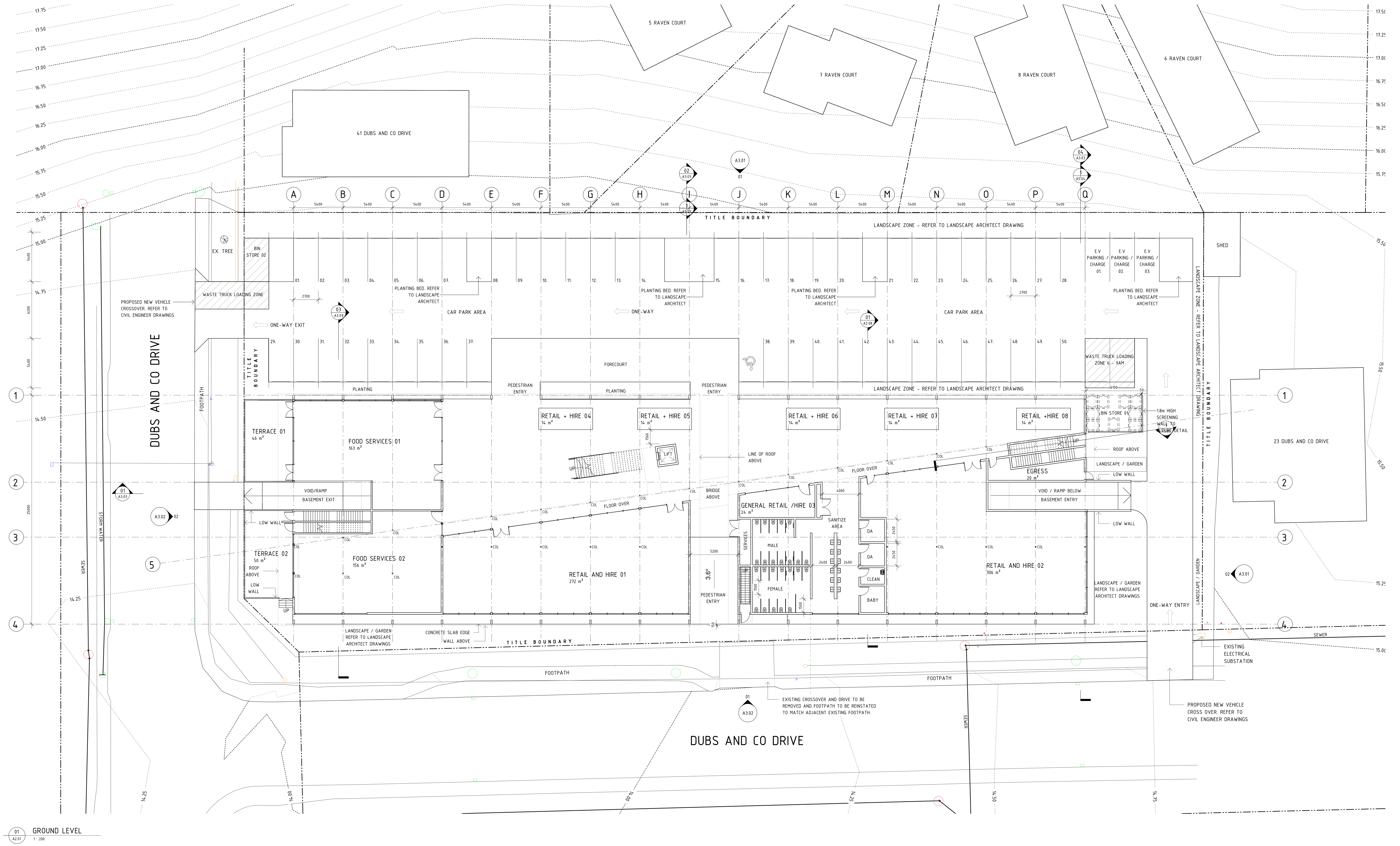
rev. desc. date

27-29 MELVILLE STREET HOBART TASMANIA 7000
T 03 6234 8122
E MAIL@1PLUS2ARCHITECTURE.COM

project	THE STATION
address	33 DUBS AND CO DRIVE, SORELL TASMANIA 7172
code	2110SCNS
drawing	BASEMENT LEVEL
scale	1 : 200 @ A1
number	A2.00

1+2 ARCHITECTURE

LEGEND.


5 RAVEN COURT
7 RAVEN COURT
8 RAVEN COURT
6 RAVEN COURT
41 DUBS AND CO DRIVE
23 DUBS AND CO DRIVE
TITLE BOUNDARY
LANDSCAPE ZONE - REFER TO LANDSCAPE ARCHITECT DRAWING
CAR PARK AREA
ONE-WAY
ONE-WAY EXIT
ONE-WAY ENTRY
E.V PARKING / CHARGE 01.
E.V PARKING / CHARGE 02.
E.V PARKING / CHARGE 03.
PLANTING BED. REFER TO LANDSCAPE ARCHITECT
WASTE TRUCK LOADING ZONE
WASTE TRUCK LOADING ZONE 6 - 9AM
PROPOSED NEW VEHICLE CROSSOVER. REFER TO CIVIL ENGINEER DRAWINGS
EX. TREE
BIN STORE 02
BIN STORE 01
SHED
FORECOURT
PLANTING
PEDESTRIAN ENTRY
RETAIL + HIRE 04
RETAIL + HIRE 05
RETAIL + HIRE 06
RETAIL + HIRE 07
RETAIL +HIRE 08
TERRACE 01
FOOD SERVICES 01
TERRACE 02
FOOD SERVICES 02
RETAIL AND HIRE 01
RETAIL AND HIRE 02
GENERAL RETAIL /HIRE 03
SANITIZE AREA
MALE
FEMALE
DA
CLEAN
BABY
SERVICES
EGRESS
LIFT
VOID/RAMP BASEMENT EXIT
VOID / RAMP BELOW BASEMENT ENTRY
BRIDGE ABOVE
LINE OF ROOF ABOVE
FLOOR OVER
ROOF ABOVE
LOW WALL
LANDSCAPE / GARDEN
1.8m HIGH SCREENING WALL TO FUTURE DETAIL
LANDSCAPE / GARDEN REFER TO LANDSCAPE ARCHITECT DRAWINGS
CONCRETE SLAB EDGE
WALL ABOVE
EXISTING ELECTRICAL SUBSTATION
EXISTING CROSSOVER AND DRIVE TO BE REMOVED AND FOOTPATH TO BE REINSTATED TO MATCH ADJACENT EXISTING FOOTPATH.
PROPOSED NEW VEHICLE CROSS OVER. REFER TO CIVIL ENGINEER DRAWINGS
FOOTPATH
SEWER
STORMWATER
DUBS AND CO DRIVE

01 A2.01 GROUND LEVEL
1 : 200

PRELIMINARY

0 2 m 6 m 10 m 20 m

rev.	desc.	date
A	PRELIMINARY ISSUE	01.07.21

27-29 MELVILLE STREET HOBART TASMANIA 7000
T 03 6234 8122
E MAIL@1PLUS2ARCHITECTURE.COM

project: THE STATION

address: 33 DUBS AND CO DRIVE, SORELL TASMANIA 7172

code: 2110SCNS

drawing: GROUND FLOOR PLAN

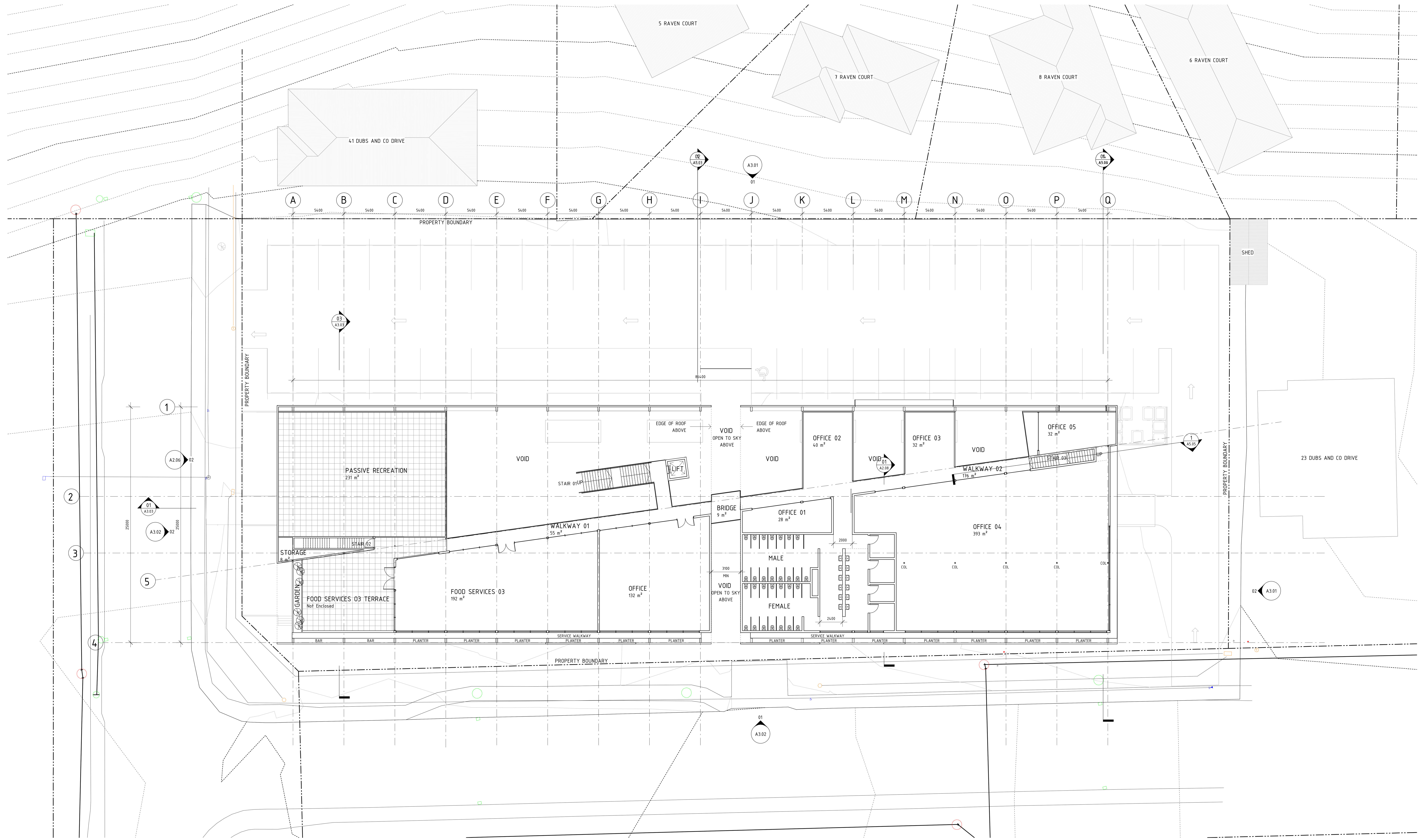
scale: 1 : 200 @ A1

number: A2.01 A

1+2 ARCHITECTURE

LEGEND.

COL COLUMN


5 RAVEN COURT
7 RAVEN COURT
8 RAVEN COURT
6 RAVEN COURT
41 DUBS AND CO DRIVE
23 DUBS AND CO DRIVE
PROPERTY BOUNDARY
SHED
PASSIVE RECREATION
231 m²
VOID
STAIR 01
LIFT
EDGE OF ROOF ABOVE
VOID OPEN TO SKY ABOVE
OFFICE 02
40 m²
OFFICE 03
32 m²
OFFICE 05
32 m²
WALKWAY 02
176 m²
STAIR 03
BRIDGE
9 m²
OFFICE 01
28 m²
OFFICE 04
393 m²
WALKWAY 01
55 m²
STAIR 02
STORAGE
GARDEN
FOOD SERVICES 03 TERRACE
Not Enclosed
FOOD SERVICES 03
192 m²
OFFICE
132 m²
MALE
FEMALE
SERVICE WALKWAY
BAR
PLANTER
COL

01 A2.02 LEVEL 1
1 : 200

PRELIMINARY

0 2 m 6 m 10 m 20 m

A PRELIMINARY ISSUE 01.07.21
rev. desc. date

27-29 MELVILLE STREET HOBART TASMANIA 7000
T 03 6234 8122
E MAIL@1PLUS2ARCHITECTURE.COM

project THE STATION

address 33 DUBS AND CO DRIVE, SORELL TASMANIA 7172

code 2110SCNS

drawing LEVEL 1 PLAN

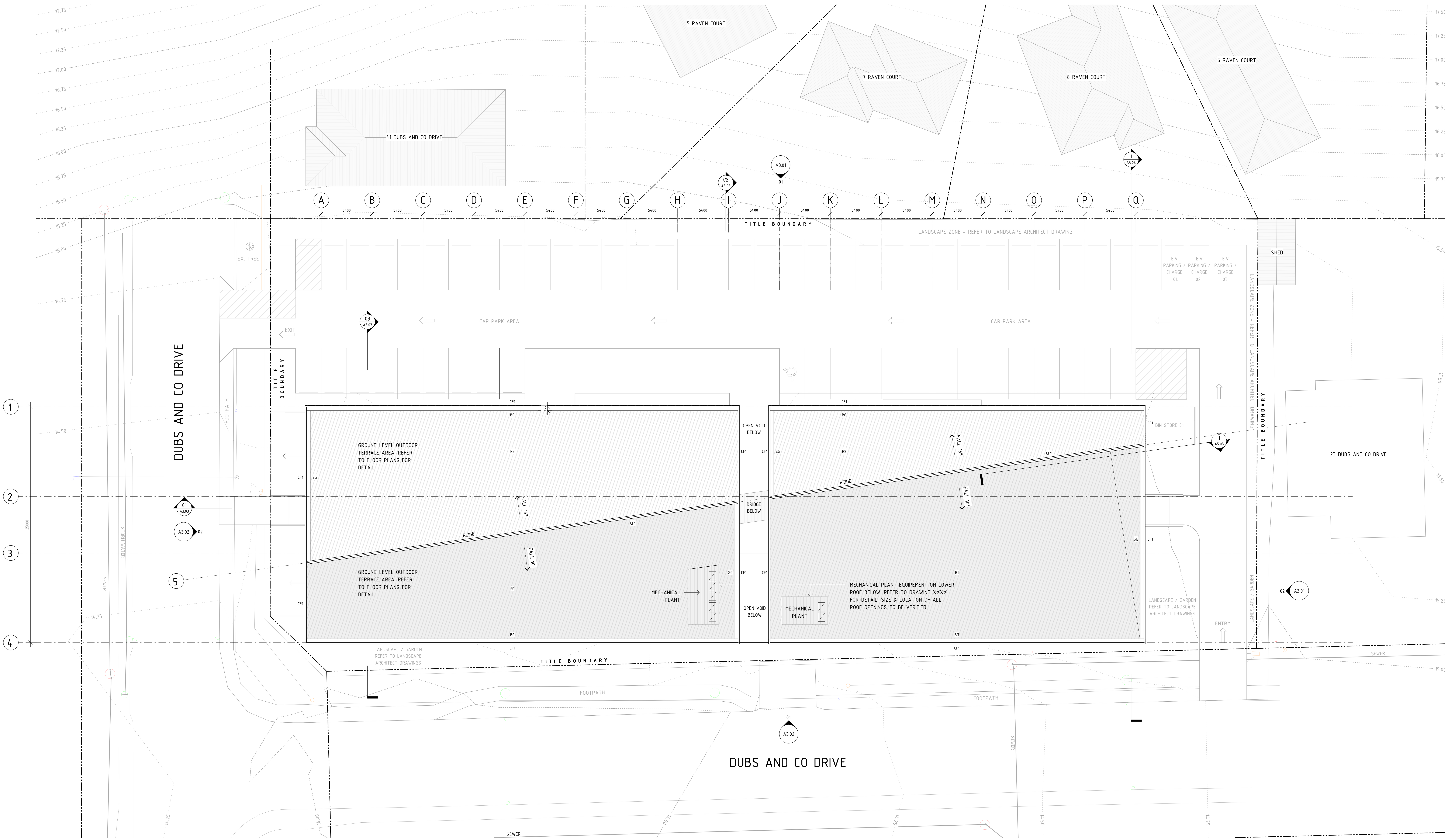
scale 1 : 200 @ A1

number A2.02 A

1+2 ARCHITECTURE

LEGEND.

BG	BOX GUTTER
CF1	FLASHING / CAPPING TYPE 01
R1	ROOFING TYPE 01
R2	ROOFING TYPE 02
SG	SOAKER GUTTER


5 RAVEN COURT
7 RAVEN COURT
8 RAVEN COURT
6 RAVEN COURT
41 DUBS AND CO DRIVE
23 DUBS AND CO DRIVE
DUBS AND CO DRIVE
TITLE BOUNDARY
LANDSCAPE ZONE - REFER TO LANDSCAPE ARCHITECT DRAWING
SHED
EX. TREE
EXIT
CAR PARK AREA
CAR PARK AREA
E.V PARKING / CHARGE 01
E.V PARKING / CHARGE 02
E.V PARKING / CHARGE 03
GROUND LEVEL OUTDOOR TERRACE AREA. REFER TO FLOOR PLANS FOR DETAIL
OPEN VOID BELOW
BRIDGE BELOW
RIDGE
FALL 10°
MECHANICAL PLANT
MECHANICAL PLANT EQUIPEMENT ON LOWER ROOF BELOW. REFER TO DRAWING XXXX FOR DETAIL. SIZE & LOCATION OF ALL ROOF OPENINGS TO BE VERIFIED.
BIN STORE 01
LANDSCAPE / GARDEN REFER TO LANDSCAPE ARCHITECT DRAWINGS
ENTRY
FOOTPATH
SEWER
STORM WATER

01 A2.03 ROOF PLAN
1 : 200

PRELIMINARY

rev. desc. date

27-29 MELVILLE STREET HOBART TASMANIA 7000
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E MAIL@1PLUS2ARCHITECTURE.COM

project: THE STATION

address: 33 DUBS AND CO DRIVE, SORELL TASMANIA 7172

code: 2110SCNS

drawing: ROOF PLAN

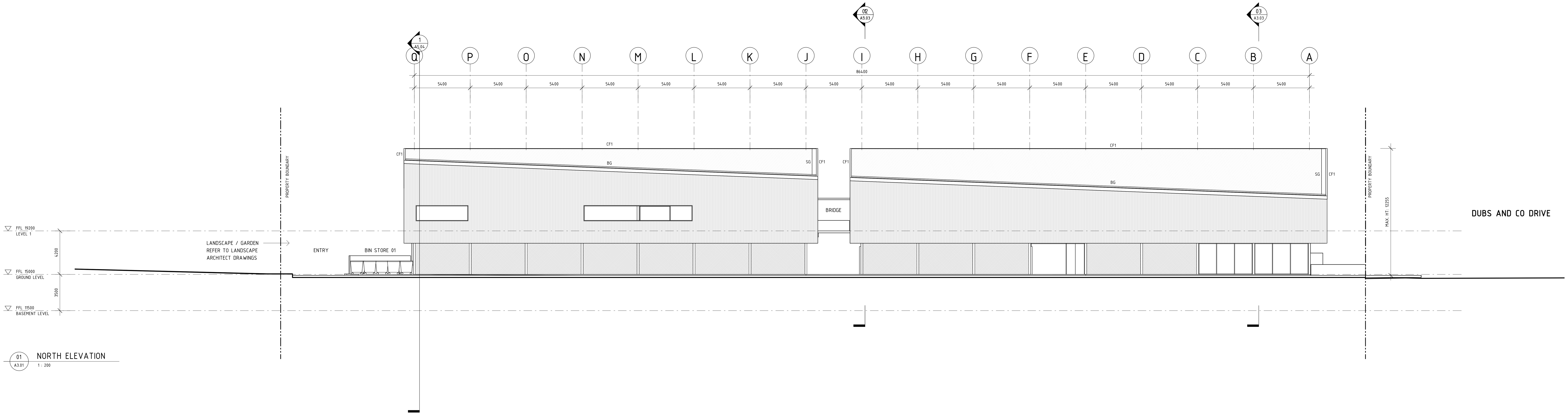
scale: 1 : 200 @ A1

number: A2.03

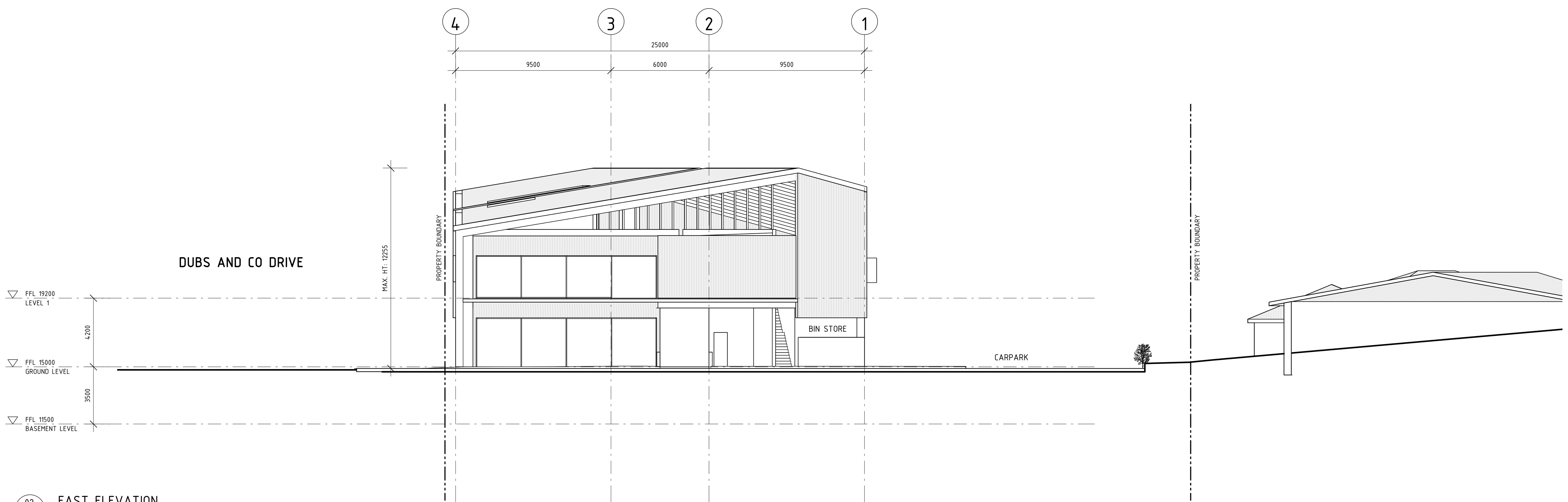
1+2 ARCHITECTURE

LEGEND.

BG	BOX GUTTER
CF1	FLASHING / CAPPING TYPE 01
SG	SOAKER GUTTER



01 / A3.01 NORTH ELEVATION
1 : 200



02 / A3.01 EAST ELEVATION
1 : 200

PRELIMINARY

0 2 m 6 m 10 m 20 m

rev. desc. date

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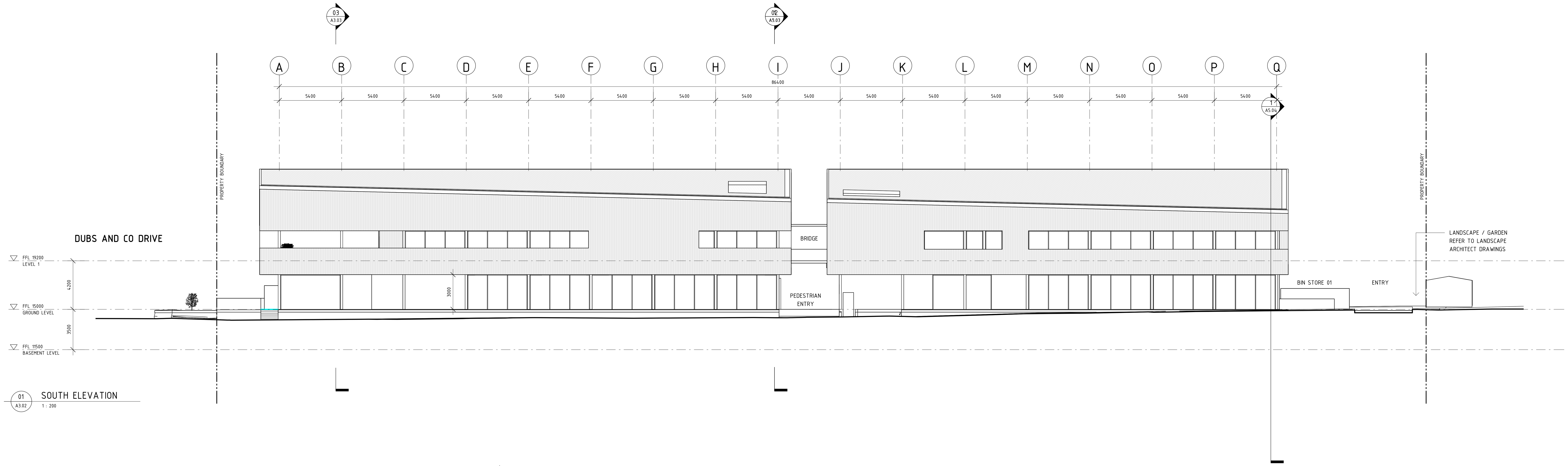
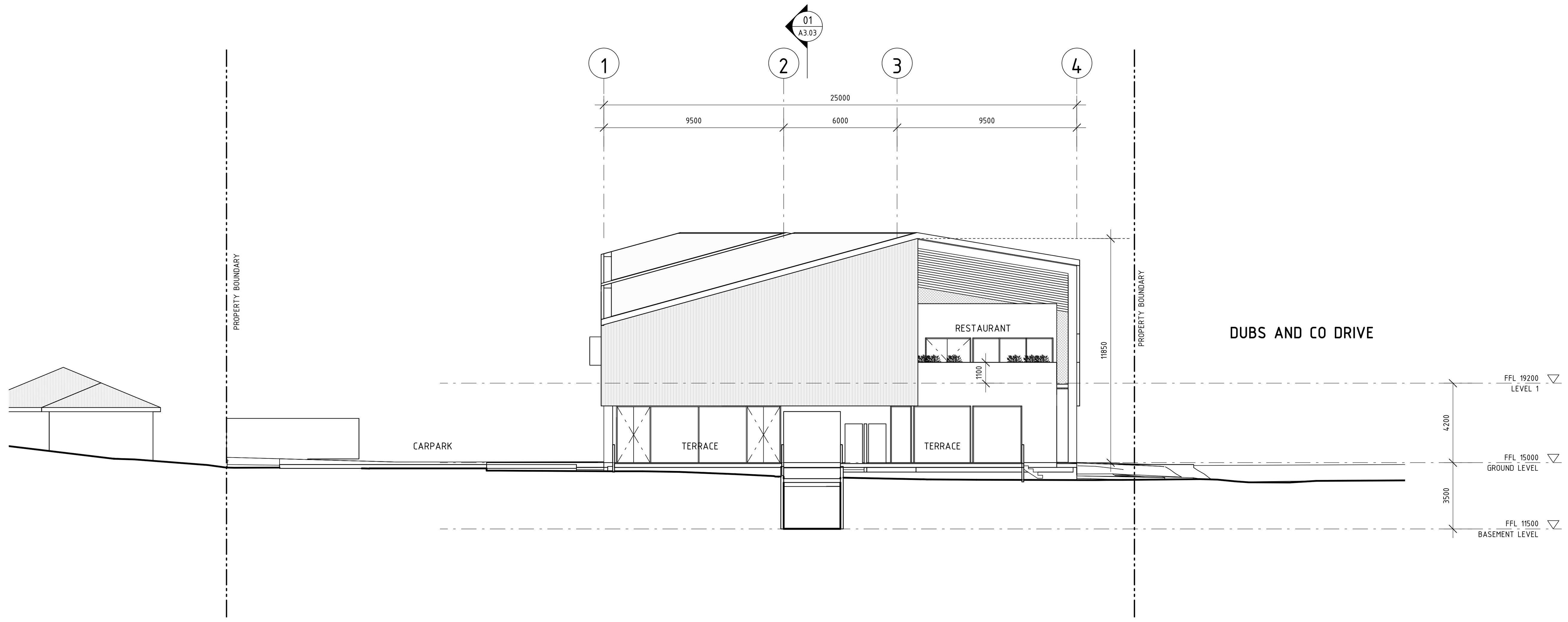
project	THE STATION
address	33 DUBS AND CO DRIVE, SORELL TASMANIA 7172
code	2110SCNS
drawing	BUILDING ELEVATIONS 1
scale	1 : 200 @ A1
number	A3.01

1+2 ARCHITECTURE

LEGEND.



01 A3.02 SOUTH ELEVATION
1 : 200



02 A3.02 WEST ELEVATION
1 : 200

PRELIMINARY

0 2 m 6 m 10 m 20 m

rev. desc. date

27-29 MELVILLE STREET HOBART TASMANIA 7000
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project THE STATION

address 33 DUBS AND CO DRIVE, SORELL TASMANIA 7172

code 2110SCNS

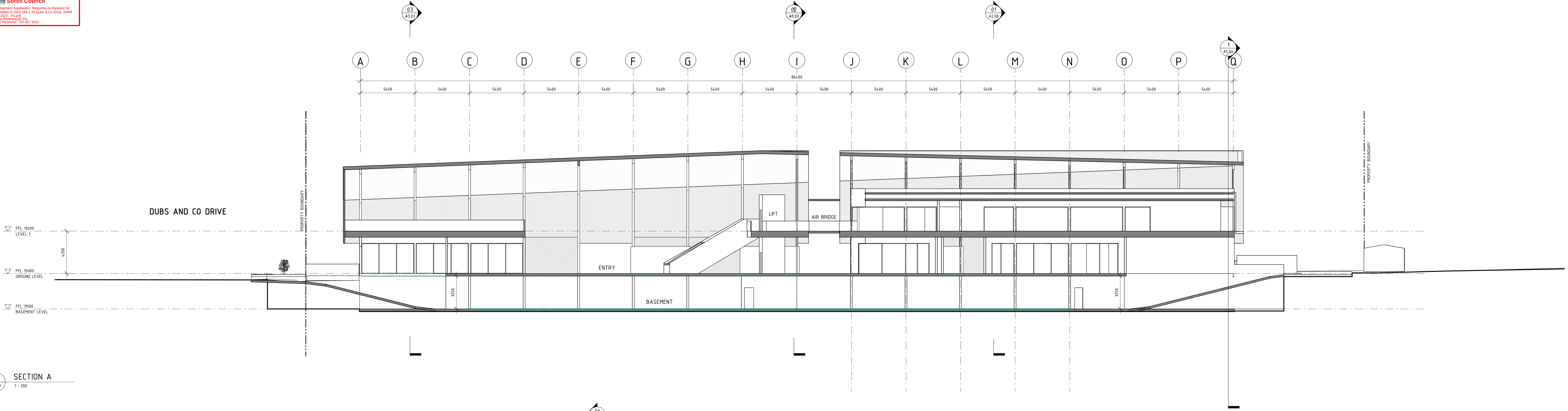
drawing BUILDING ELEVATIONS 2

scale 1 : 200 @ A1

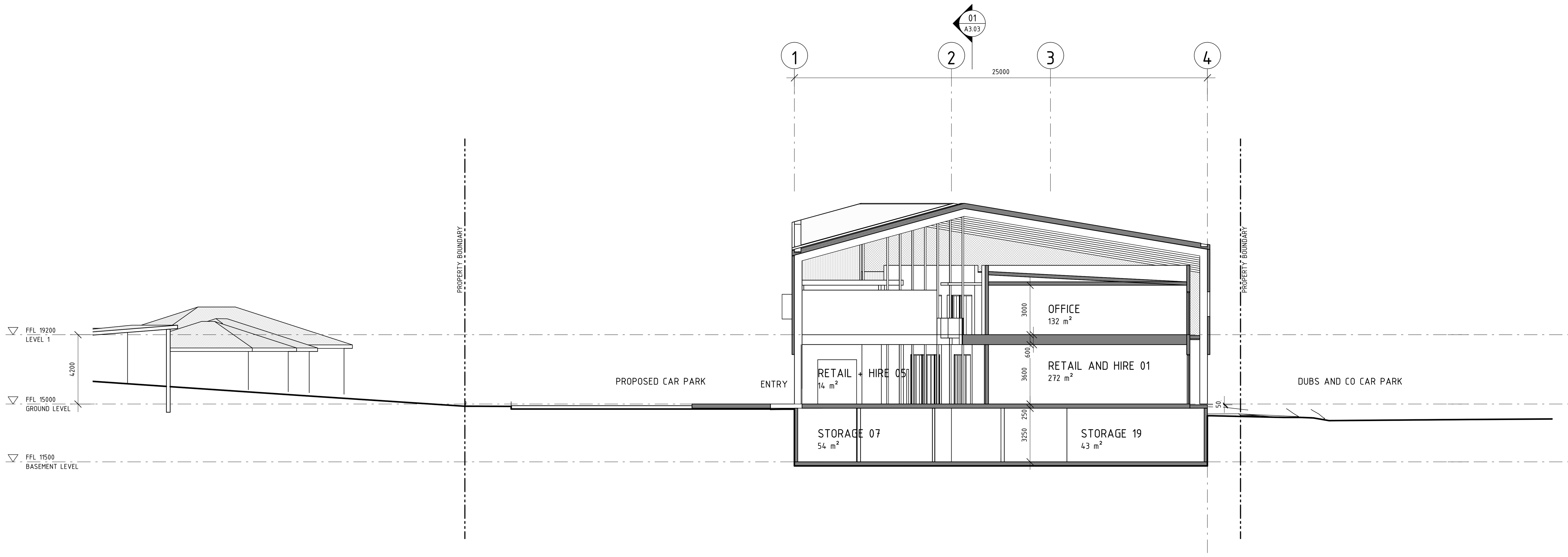
number A3.02

1+2 ARCHITECTURE

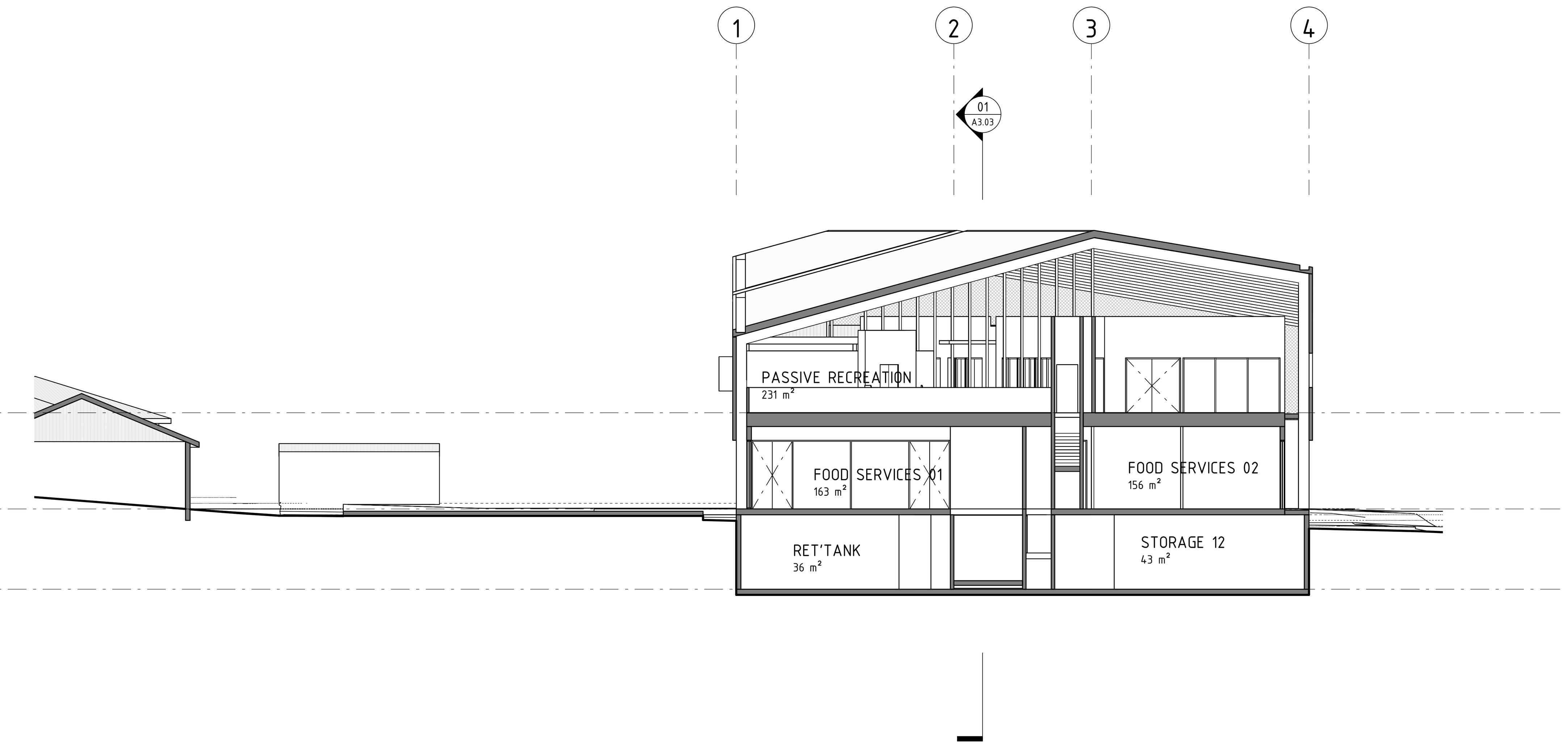
LEGEND.



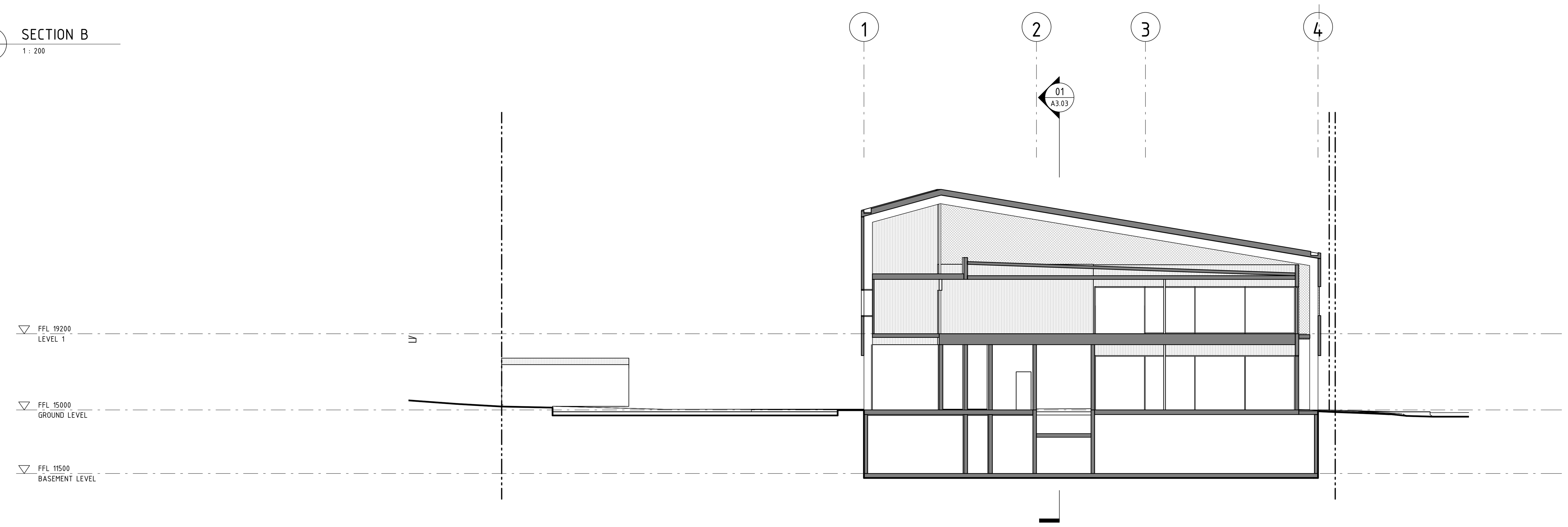
SECTION A
1 : 200



Section B
1 : 200



Section 11
1 : 200



Section 3
1 : 200

PRELIMINARY

0 2 m 6 m 10 m 20 m

rev. desc. date

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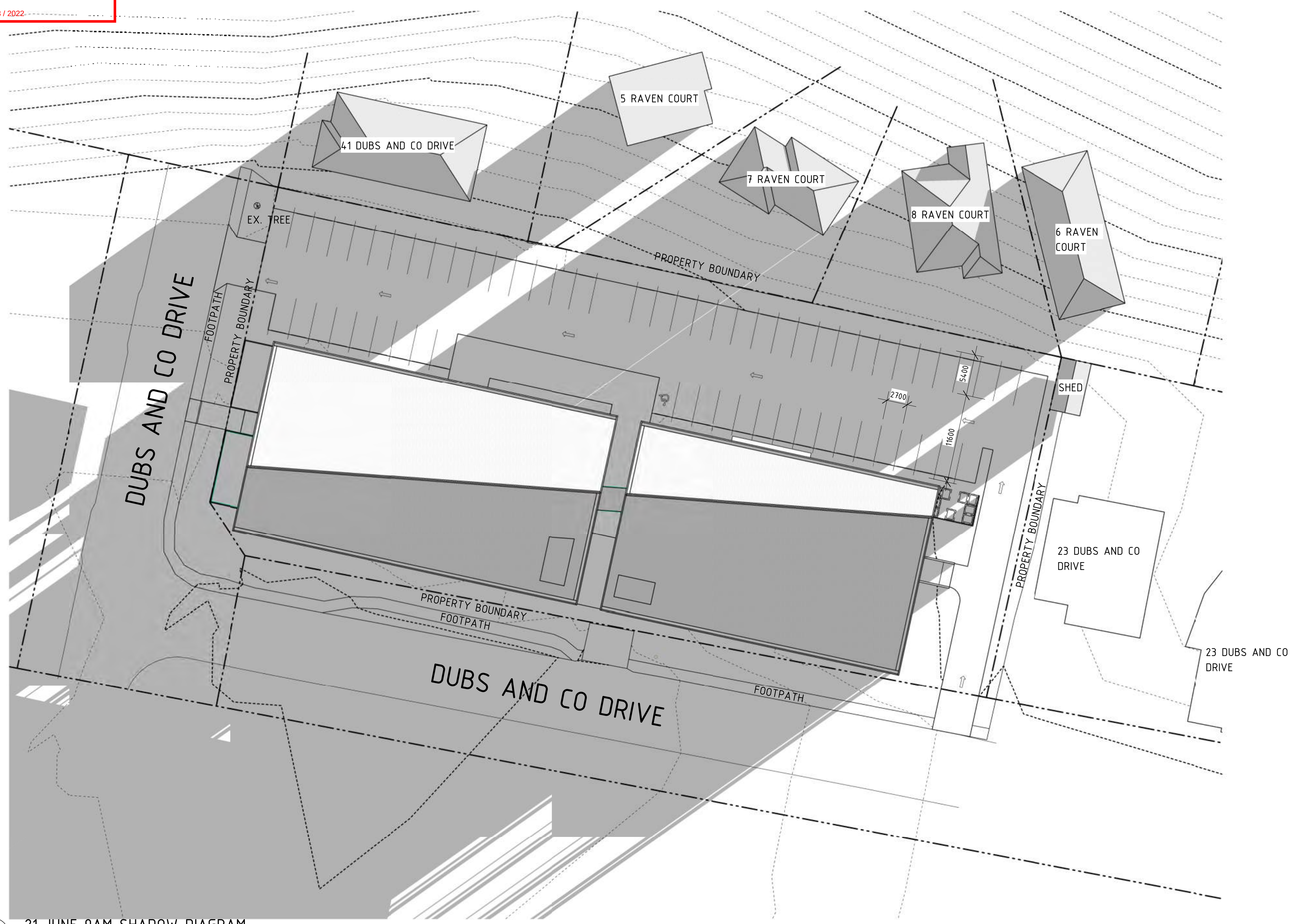
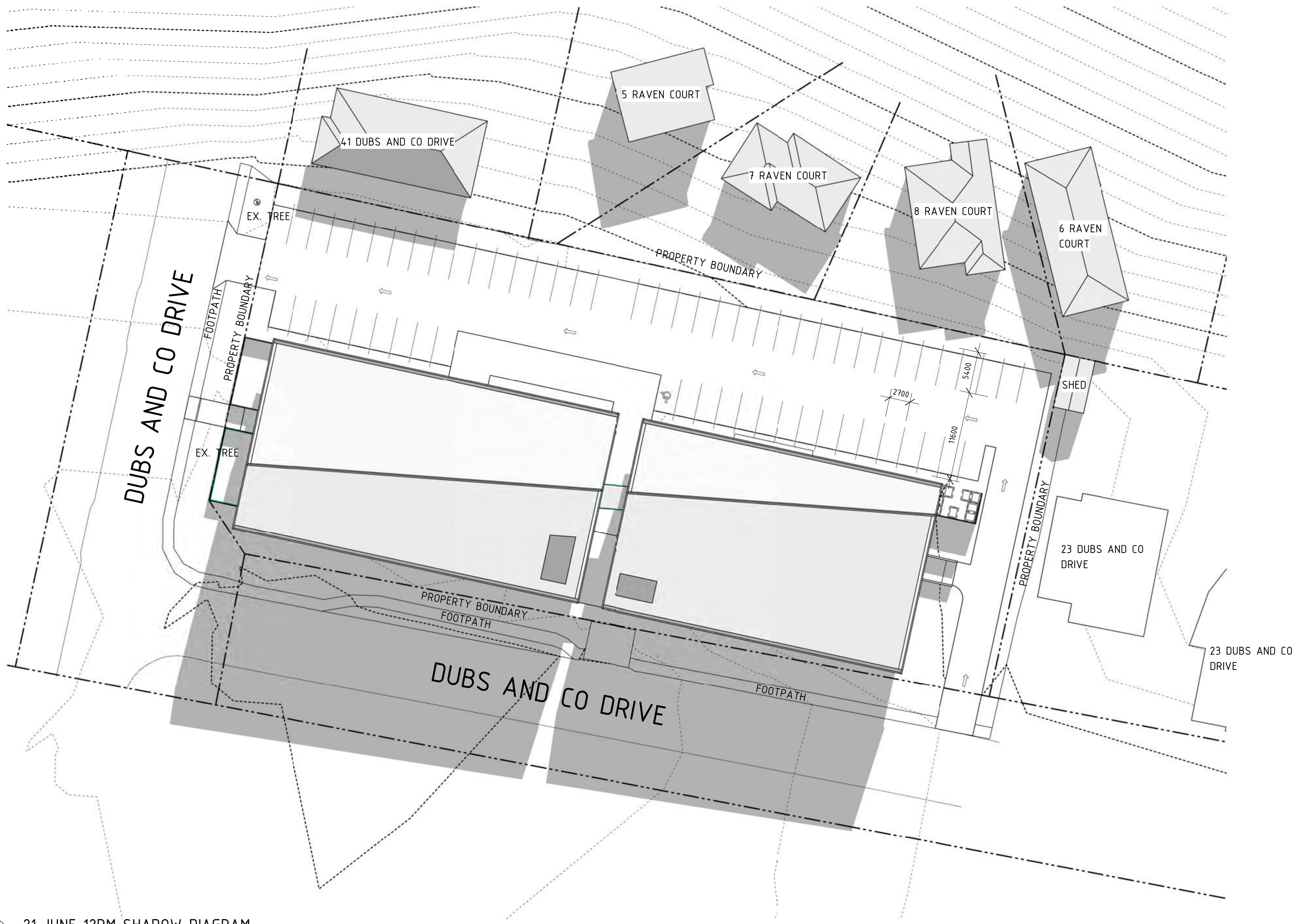
project	THE STATION
address	33 DUBS AND CO DRIVE, SORELL TASMANIA 7172
code	2110SCNS
drawing	BUILDING SECTIONS 1
scale	1 : 200 @ A1
number	A3.03

1+2 ARCHITECTURE

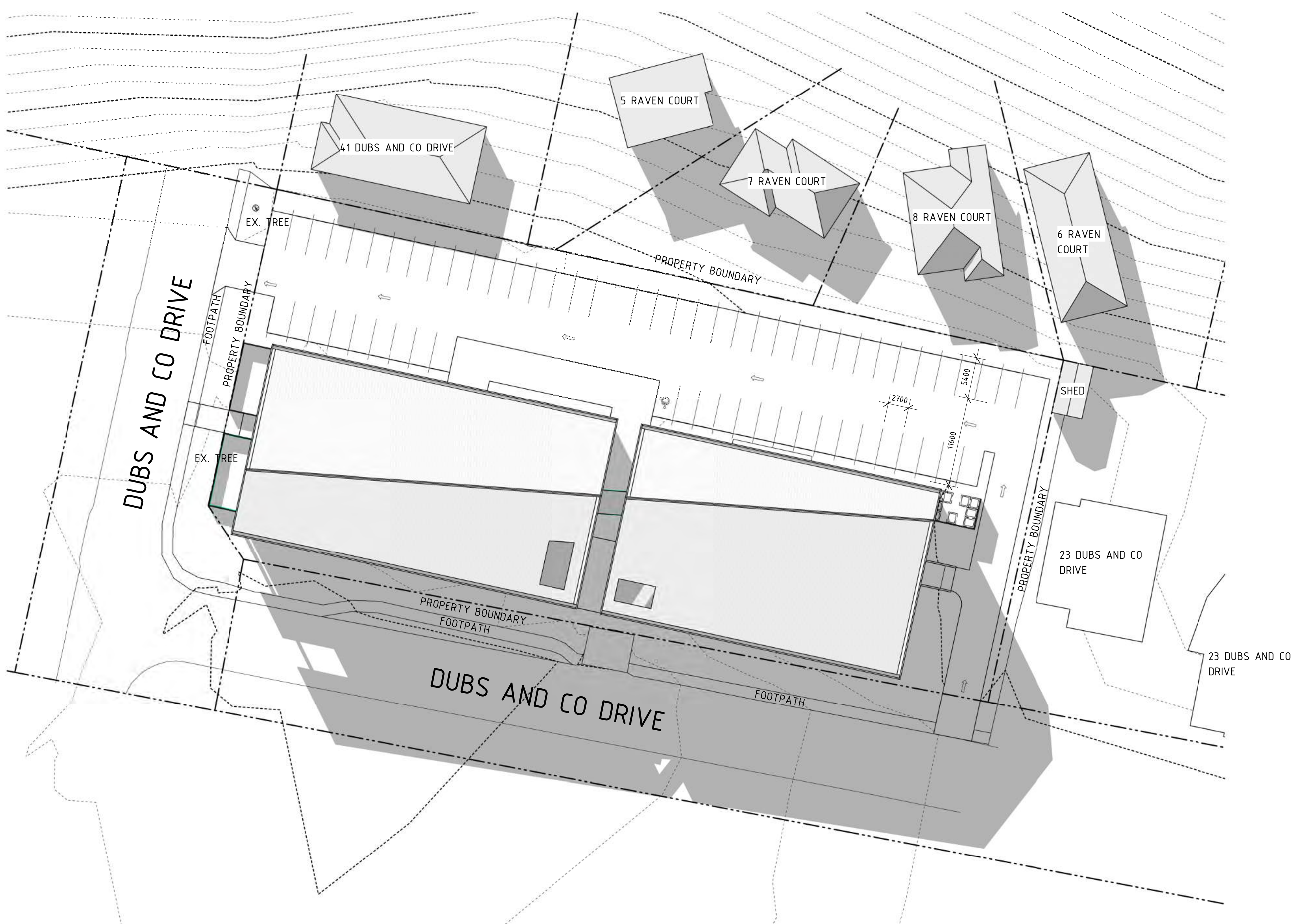
LEGEND.



01 A5.01 21 JUNE 9AM SHADOW DIAGRAM
1 : 500



02 A5.01 21 JUNE 12PM SHADOW DIAGRAM
1 : 500



03 A5.01 21 JUNE 3PM SHADOW DIAGRAM
1 : 500

PRELIMINARY

rev. desc. date

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project THE STATION

address 33 DUBS AND CO DRIVE, SORELL TASMANIA 7172

code 2110SCNS

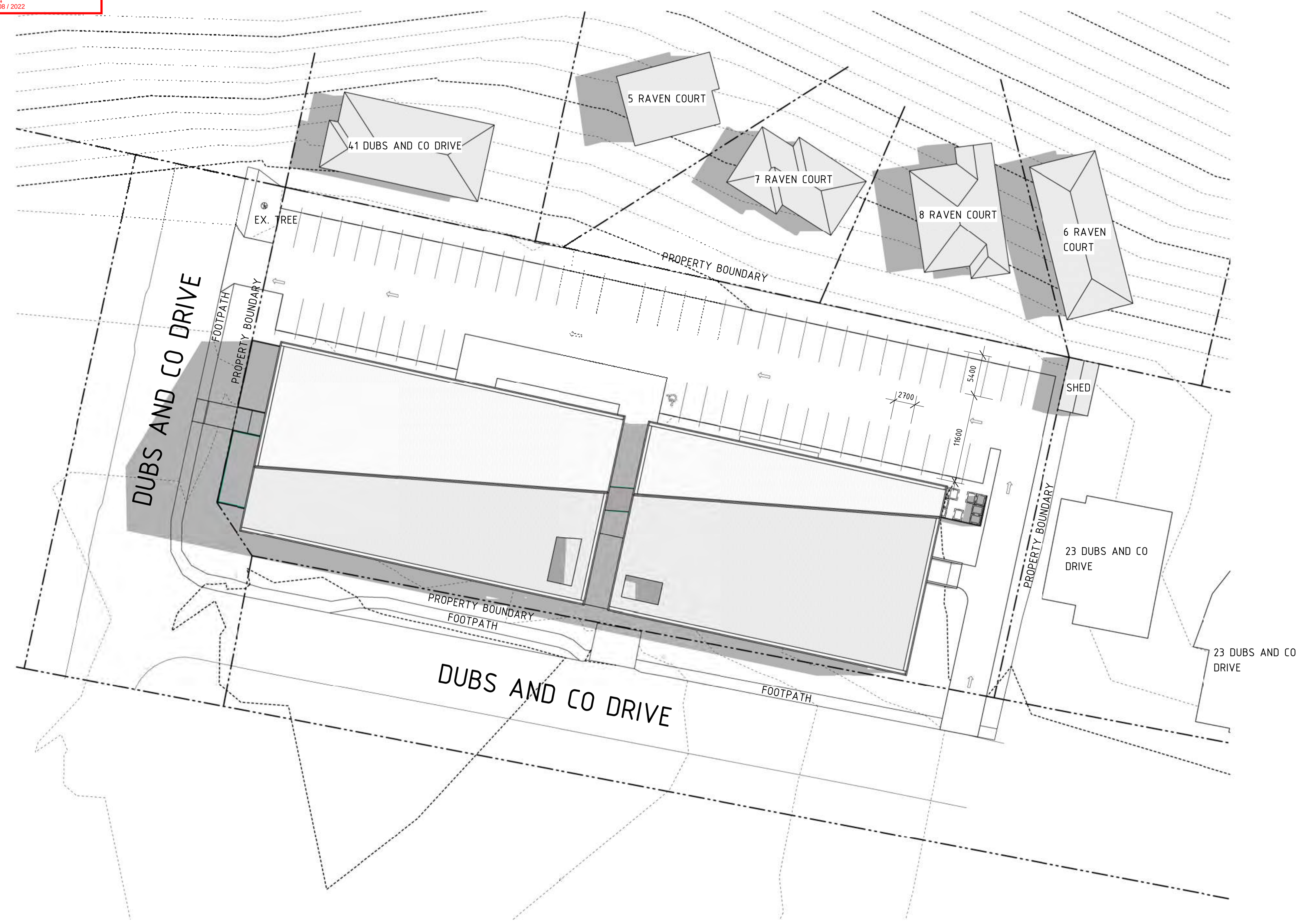
drawing SUN SHADOW DIAGRAMS JUNE 21

scale 1 : 500 @ A1

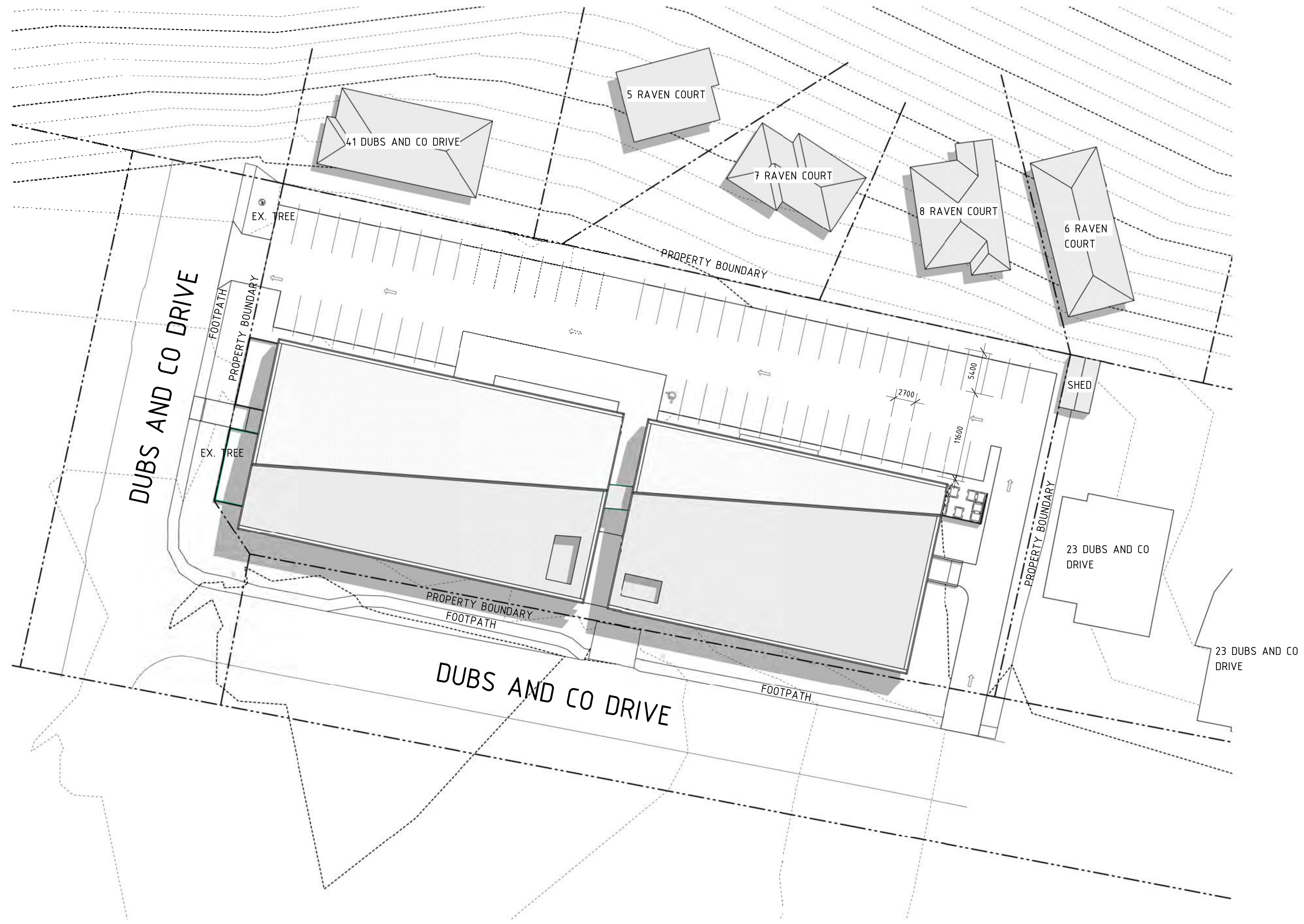
number A5.01

1+2 ARCHITECTURE

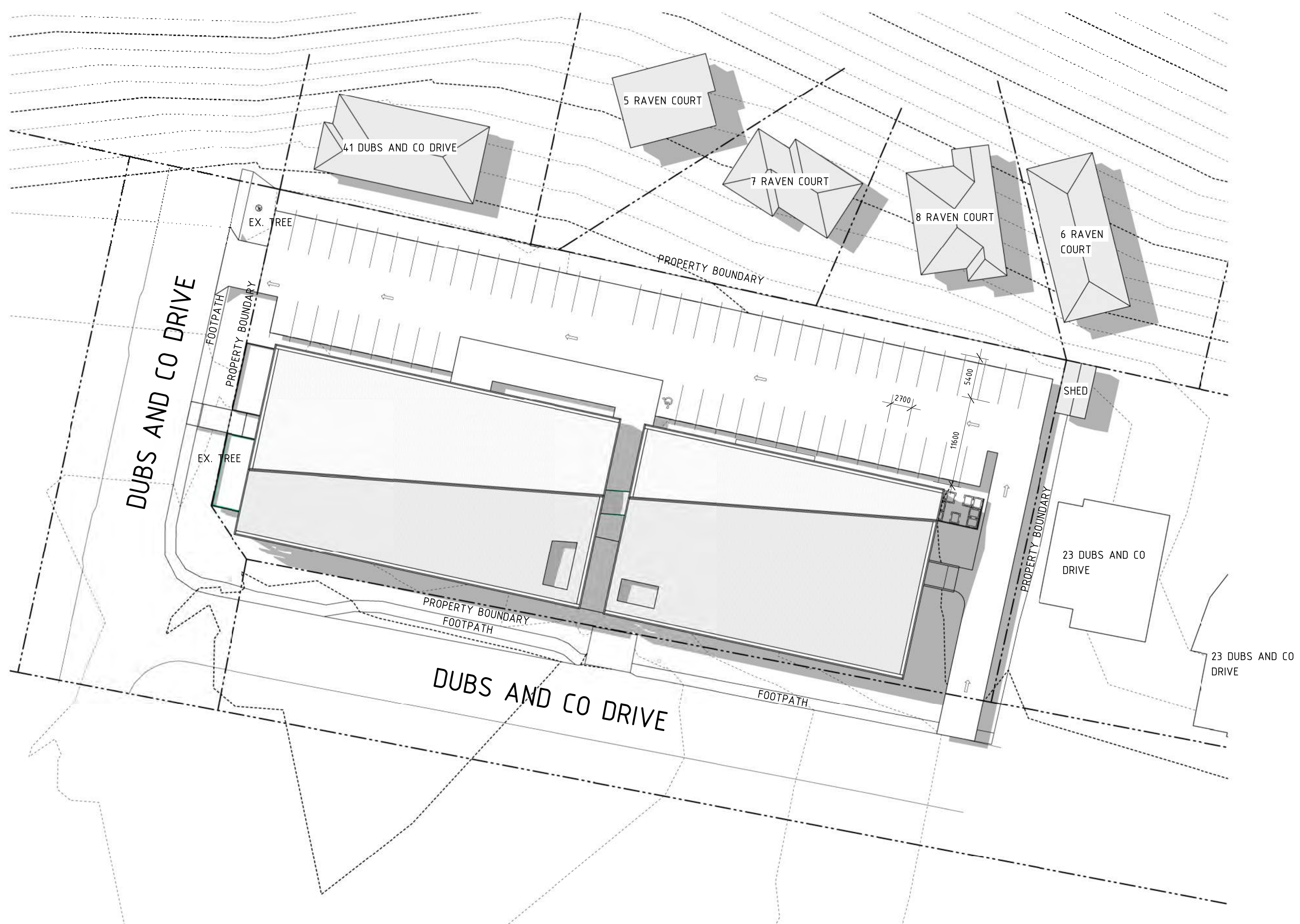
LEGEND.



01 A5.02 21 DECEMBER 9AM SHADOW DIAGRAM
1 : 500



02 A5.02 21 DECEMBER 12PM SHADOW DIAGRAM
1 : 500



03 A5.02 21 DECEMBER 3PM SHADOW DIAGRAM
1 : 500

PRELIMINARY

0 5 m 15 m 25 m 50 m

rev. desc. date

27-29 MELVILLE STREET HOBART TASMANIA 7000
T 03 6234 8122
E MAIL@1PLUS2ARCHITECTURE.COM

project THE STATION

address 33 DUBS AND CO DRIVE, SORELL TASMANIA 7172

code 2110SCNS

drawing SUN SHADOW DIAGRAMS DECEMBER 21

scale 1 : 500 @ A1

number A5.02

Howarth Fisher & Associates Pty Ltd
www.howarthfisher.com

THE STATION
33 DUBS AND CO, SORELL

TRAFFIC DRAWINGS

DRAWING No.	DRAWING NAME	REVISION No.
C1	COVER PAGE	1
A1	ACCESSIBLE PARKING	1
P1	AUTOTRACK PATHS	1
P2	AUTOTRACK PATHS	1
P3	AUTOTRACK PATHS	1
P4	AUTOTRACK PATHS	1
P5	AUTOTRACK PATHS	1

Traffic
Civil
Structural
Industrial
Engineering

ISSUED FOR
FOR APPROVAL
PRINT DATE: Mar 24, 2022 - 9:56am

PRELIMINARY - NOT FOR CONSTRUCTION

	ISSUE	BY	APPROVED	DATE
4	AUTOTRACK PATH CONCEPT ADDITIONAL ACCESSIBLE PARKING SPACE	GN	JF	23/03/22
3	AUTOTRACK PATH CONCEPT WIDENED BASEMENT ACCESS / REMOVAL OF HRV ACCESS TO SITE	GN	JF	17/03/22
2	AUTOTRACK PATH CONCEPT WIDENED ACCESS DRIVEWAY	GN	JF	11/03/22
1	AUTOTRACK PATH CONCEPT	AWH		06/02/22

HOWARTH FISHER & ASSOCIATES
Pty Limited ACN 119 043 051
STRUCTURAL, CIVIL, TRAFFIC ENGINEERS
AND PROJECT MANAGERS.
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FAX +61 (0)3 6225 0618
EMAIL: info@howarthfisher.com

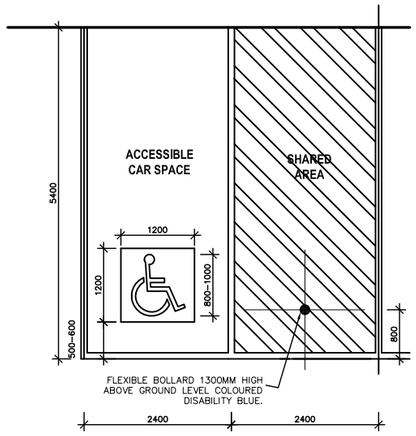
THE STATION
33 DUBS AND CO, SORELL

COVER PAGE

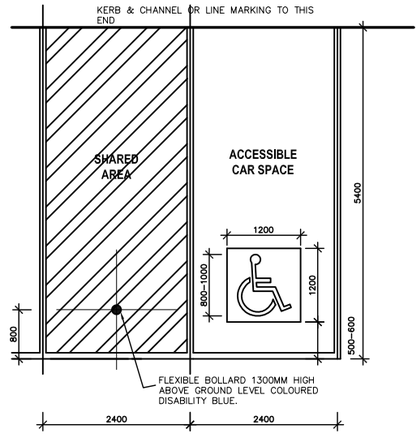
APPROVED BY:- DATE: 23/03/22
SCALES NTS
DRAWN DF
DESIGN JF
ISSUE: 1
PROJECT NO. 21J549
DOCUMENT IDENTIFICATION -D-
DRAWING NO. C1

0 50 100 150 200 300 on original

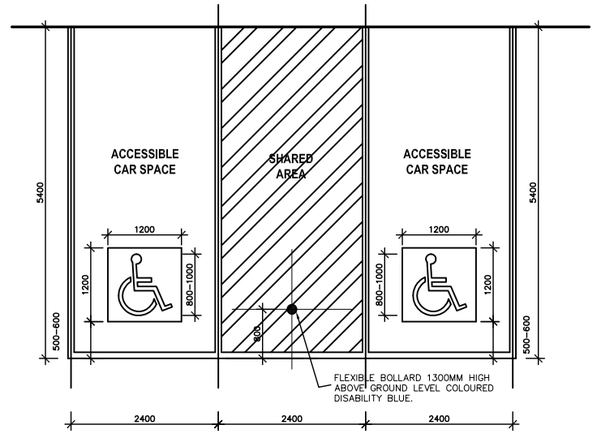
A3



LEFT HAND ACCESSIBLE CAR PARKING SPACES IN ACCORDANCE WITH AS2890.6



RIGHT HAND ACCESSIBLE CAR PARKING SPACES IN ACCORDANCE WITH AS2890.6



DOUBLE ACCESSIBLE CAR PARKING SPACES IN ACCORDANCE WITH AS2890.6

SPACE IDENTIFICATION

EACH DEDICATED SPACE SHALL BE IDENTIFIED BY MEANS OF A WHITE SYMBOL OF ACCESS IN ACCORDANCE WITH AS 1428.1 BETWEEN 800 MM AND 1000 MM HIGH PLACED ON A BLUE RECTANGLE WITH NO SIDE MORE THAN 1200 MM, PLACED AS A PAVEMENT MARKING IN THE CENTRE OF THE SPACE BETWEEN 500 MM AND 600 MM FROM ITS ENTRY POINT AS ILLUSTRATED

SPACE DELINEATION

PAVEMENT MARKINGS SPECIFIED IN ITEMS (A) AND (B) OF THIS CLAUSE SHALL BE YELLOW AND SHALL HAVE A SLIP RESISTANT SURFACE. RAISED PAVEMENT MARKERS SHALL NOT BE USED FOR SPACE DELINEATION.

PAVEMENT MARKINGS SHALL BE PROVIDED AS FOLLOWS:

1. LINEMARKING

1.1. DEDICATED PARKING SPACES SHALL BE OUTLINED WITH UNBROKEN LINES 80 TO 100 MM WIDE ON ALL SIDES EXCEPTING ANY SIDE DELINEATED BY A KERB, BARRIER OR WALL.

2. SHARED AREAS SHALL BE MARKED AS FOLLOWS:

2.1. WALKWAYS WITHIN OR PARTLY WITHIN A SHARED AREA SHALL BE MARKED WITH UNBROKEN LONGITUDINAL LINES ON BOTH SIDES OF THE WALKWAY EXCEPTING ANY SIDE DELINEATED BY A KERB, BARRIER OR WALL.

2.2. OTHER VACANT NON-TRAFFICKED AREAS, WHICH MAY BE INTENTIONALLY OR UNINTENTIONALLY OBSTRUCTED (E.G. BY UNINTENDED PARKING), SHALL BE OUTLINED WITH UNBROKEN LINES 80 TO 100 MM WIDE ON ALL SIDES EXCEPTING ANY SIDE DELINEATED BY A KERB, BARRIER OR WALL, AND MARKED WITH DIAGONAL STRIPES 150 TO 200 MM WIDE WITH SPACES 200 MM TO 300 MM BETWEEN STRIPES. THE STRIPES SHALL BE AT AN ANGLE OF 45 ±10 DEGREES TO THE SIDE OF THE SPACE.

2.3. NO SHARED AREA MARKINGS SHALL BE PLACED IN TRAFFICKED AREAS.

2.4. ALL LINEMARKING MUST BE NON SLIP

3. BOLLARDS:

3.1. MINIMUM HEIGHT 1300MM

3.2. RECOMMENDED COLOUR BLUE TO CONTRAST AGAINST YELLOW LINE MARKING

3.3. RECOMMEND FLEXIBLE BOLLARDS TO REDUCE MOTOR VEHICLE DAMAGE

LINE MARKINGS CODE

CODE (to be circled)	LINE TYPE	LINE MARKINGS	PAINT (P) (m)	GAP (G) (m)	WIDTH (W) (mm)	APART (A) (mm)
B1	BARRIER (One Way)		3	9	100	100
B2	BARRIER (Two Way)		ALL		100	100
B3	BARRIER (Two Way–Access)		ALL		100	
B4	BARRIER (Two Way–Access)		ALL		200	
C	CONTINUITY		1	3	200	
CC	CONTINUITY (Continuous)		ALL		200	
E	EDGE		ALL		100	
E2	AUDIBLE EDGE		ALL		150	
EI	EDGE Intermittent		1	3	100	
HL	HOLDING		0.6	0.6	300	
JC	JUNCTION Continuity		0.6	0.6	200	
L	LANE (Multi lane carriageway)		3	9	100	
L1	LANE (Traffic Signals)		3	6	100	
L3	LANE (Roundabouts)		9	3	100	
LC	LANE (Continuous)		ALL		100	
NS	YELLOW (No Stopping)		ALL**		100	
S	SEPARATION (2 Lane road)		3	9	100	
S2	SEPARATION (Refuge Lane)		3	3	100	Varies
S3	SEPARATION (Round corners)		9	3	100	
SL	STOP		ALL		300	
T	TURN WITH R.R.P.M.		0.6	0.6	100	
W	PEDESTRIAN (Traffic Signals)		1	0.5	100	2000min.

B1 Paint Gap W A W

EXAMPLE

ALL ROAD MARKINGS ARE WHITE EXCEPT FOR NS WHICH IS YELLOW.

** PAINT YELLOW

Sorell Council

Development Application: Response to Request for Information 5.2022.166.1 33 Dubs & Co Drive, Sorell 10-8-2022 - P4.pdf
Plans Referenced: P4
Date Received: 10/ 08 / 2022

PRELIMINARY - NOT FOR CONSTRUCTION

	ISSUE	BY	APPROVED	DATE
1	AUTOTRACK PATH CONCEPT	GN	JF	23/03/22

HOWARTH FISHER & ASSOCIATES
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THE STATION
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ACCESSIBLE PARKING

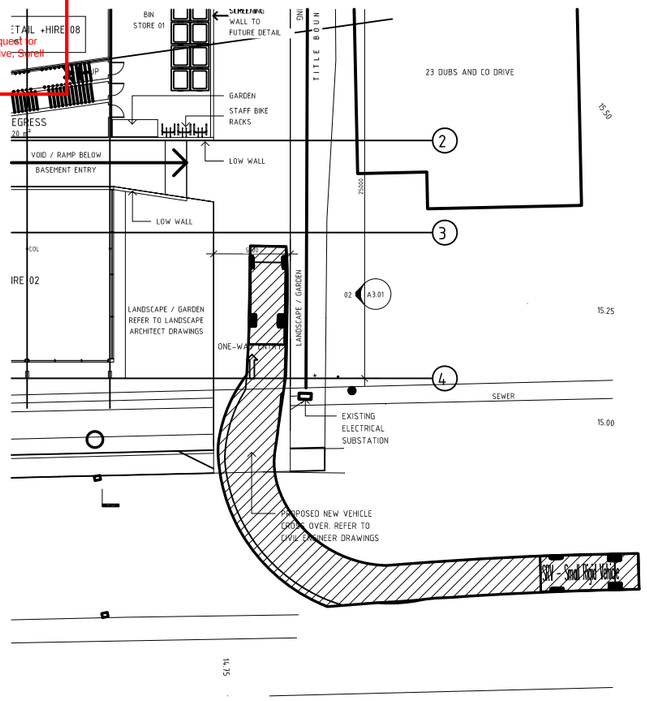
APPROVED BY:-		DATE: 23/03/22
SCALES	NTS	ISSUE: 1
DRAWN	DF	
DESIGN	JF	

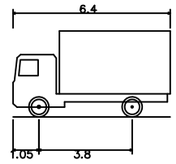
PROJECT NO. 21J549 | DOCUMENT IDENTIFICATION -D- | DRAWING NO. A1

A3

Mar 24, 2022 - 9:56am - C:\Users\jmm1\Howarth Fisher\Project Data - Documents\2 IJ549 - Young Group - The Station\DWG\COMPLETED ANALYSIS 412 IJ549.dwg 240322.dwg

0 50 100 150 200 300 on original

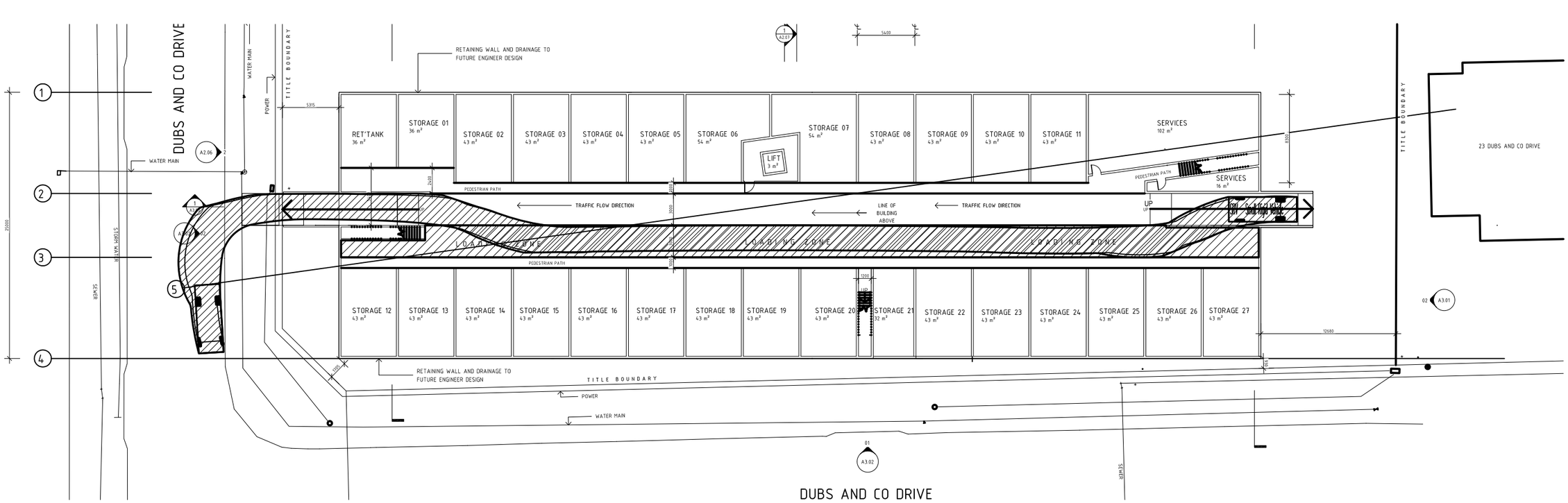




SRV – Small Rigid Vehicle

Overall Length	6.400m
Overall Width	2.330m
Overall Body Height	3.500m
Min Body Ground Clearance	0.398m
Track Width	2.330m
Lock–to–lock time	4.00s
Curb to Curb Turning Radius	7.100m

Storage access for SRV



DUBS AND CO DRIVE

Loading zone access for SRV

PRELIMINARY - NOT FOR CONSTRUCTION

	ISSUE	BY	APPROVED	DATE
1	AUTOTRACK PATH CONCEPT	GN	JF	23/03/22

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EMAIL: info@howarthfisher.com

THE STATION
33 DUBS AND CO, SORELL

AUTOTRACK PATHS

APPROVED BY:-	DATE: 23/03/22
SCALES 1:400 @ A3	ISSUE: 1
DRAWN DF	
DESIGN JF	
PROJECT NO. 21J549	DOCUMENT IDENTIFICATION -D-
	DRAWING NO. P1

A3

Mar 24, 2022 - 9:57am - C:\Users\jen\Howarth Fisher\Project Data - Documents\21J549 - Young Group - The Station\DWG\COMPLETED ANALYSIS #12\ 21J549 dwg 240322.dwg

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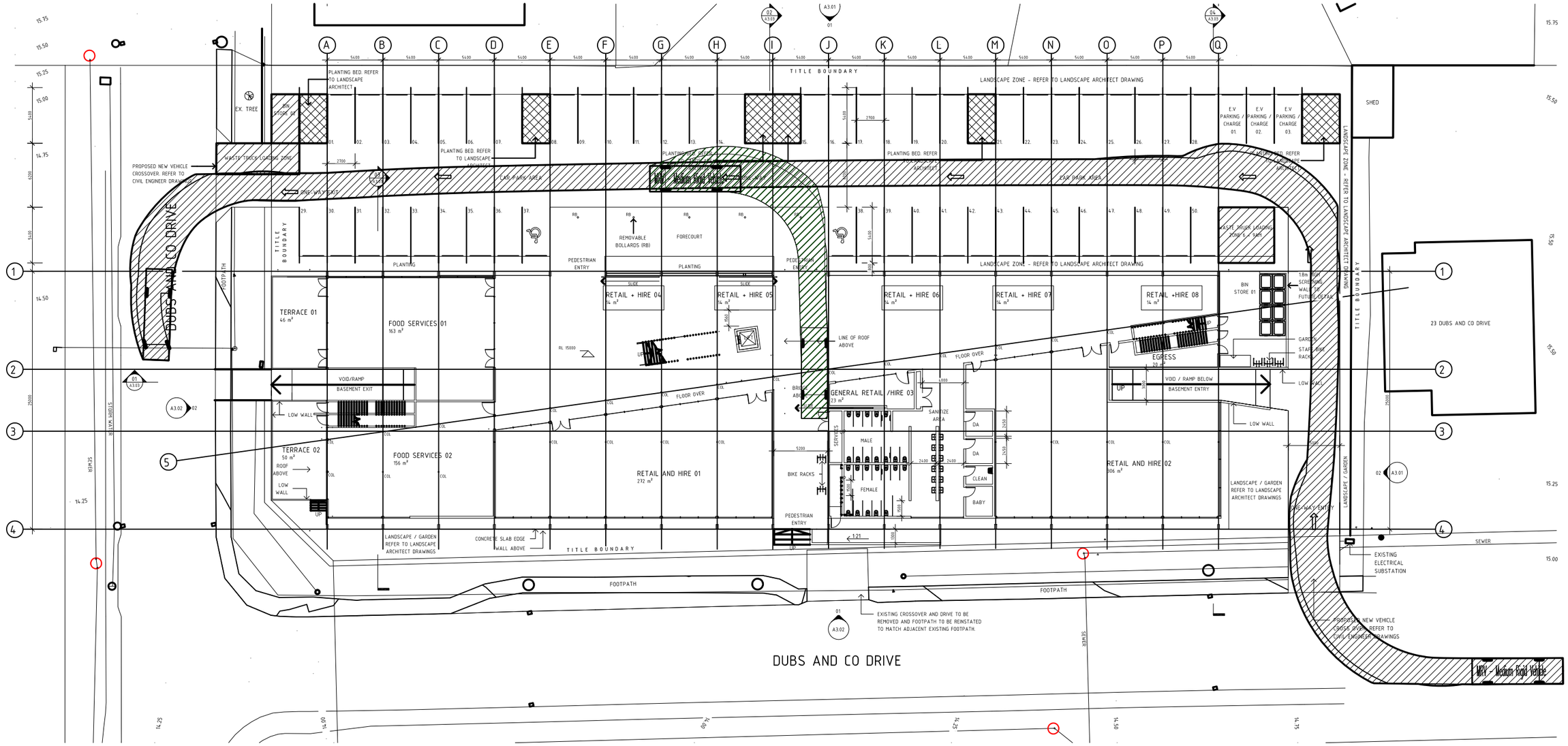
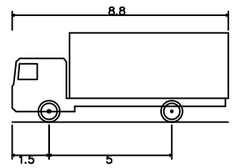
DO NOT SCALE OFF DRAWINGS



MRV (delivery vehicle) access to site



MRV – Medium Rigid Vehicle

Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	3.633m
Min Body Ground Clearance	0.428m
Track Width	2.500m
Lock–to–lock time	4.00s
Curb to Curb Turning Radius	10.000m

Sorell Council

Development Application: Response to Request for Information 5.2022.166.1 33 Dubs & Co Drive, Sorell 10-8-2022 - P4.pdf
Plans Referenced: P4
Date Received: 10/ 08 / 2022

PRELIMINARY - NOT FOR CONSTRUCTION

	ISSUE	BY	APPROVED	DATE
1	AUTOTRACK PATH CONCEPT	GN	JF	23/03/22

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EMAIL: info@howarthfisher.com

THE STATION
33 DUBS AND CO, SORELL

AUTOTRACK PATHS

APPROVED BY:-		DATE: 23/03/22
SCALES	1:400 @ A3	ISSUE: 1
DRAWN	DF	
DESIGN	JF	

PROJECT NO. 21J549 | DOCUMENT IDENTIFICATION -D- | DRAWING NO. P2

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A3

Mar 24, 2022 - 9:57am - C:\Users\jen\Howarth Fisher\Project Data - Documents\21J549 - Young Group - The Station\DWG\COMPLETED ANALYSIS 412\21J549.dwg 240322.dwg

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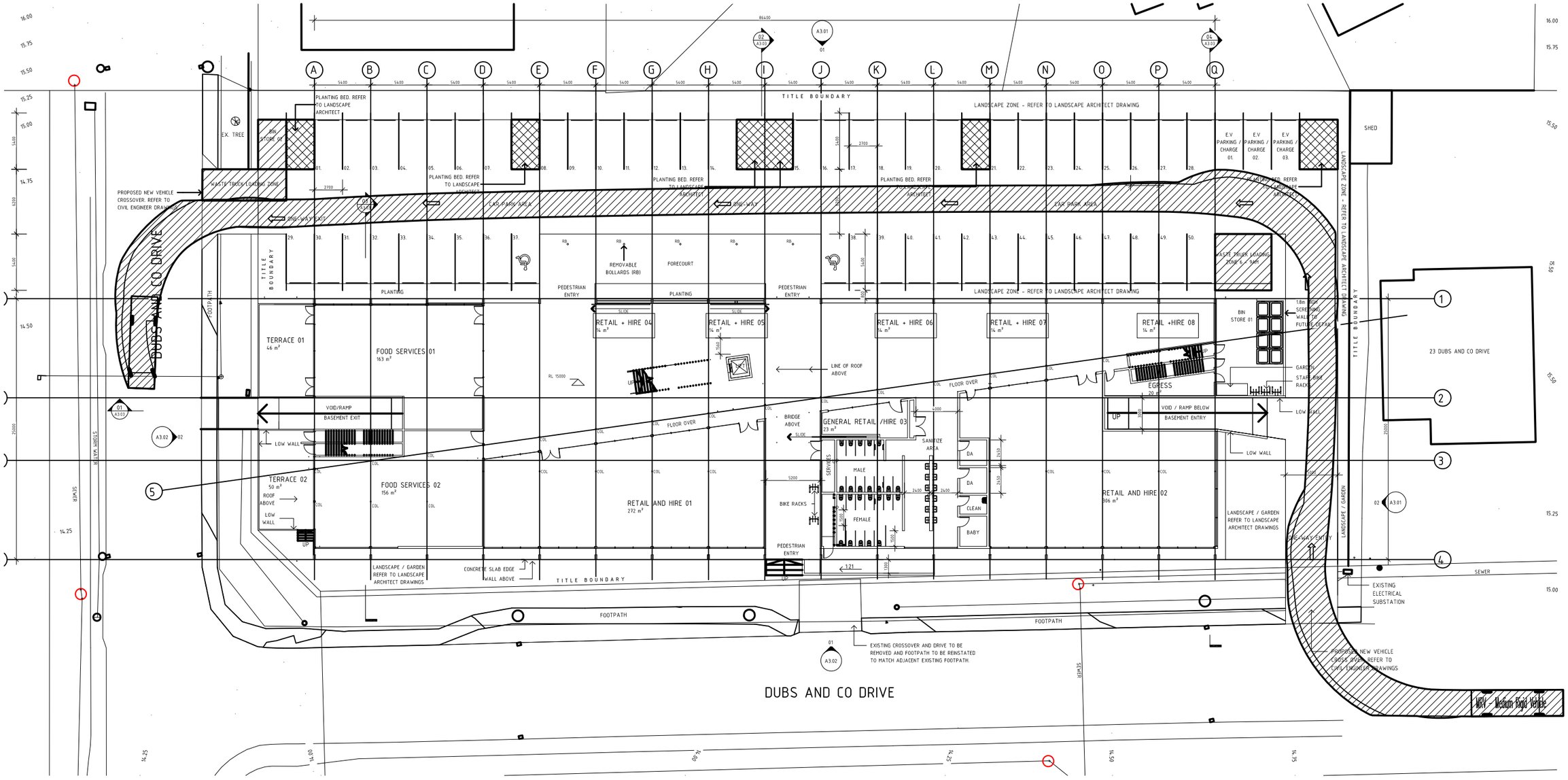
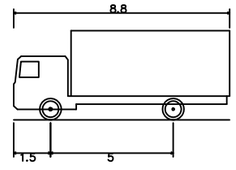


MRV (Waste Truck) access to refuse areas.



MRV – Medium Rigid Vehicle	
Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	3.633m
Min Body Ground Clearance	0.428m
Track Width	2.500m
Lock–to–lock time	4.00s
Curb to Curb Turning Radius	10.000m

PRELIMINARY - NOT FOR CONSTRUCTION

Sorell Council

Development Application: Response to Request for Information 5.2022.166.1 33 Dubs & Co Drive, Sorell 10-8-2022 - P4.pdf
Plans Referenced: P4
Date Received: 10/ 08 / 2022

	ISSUE	BY	APPROVED	DATE
1	AUTOTRACK PATH CONCEPT	GN	JF	23/03/22

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THE STATION
33 DUBS AND CO, SORELL

AUTOTRACK PATHS

APPROVED BY:-		DATE: 23/03/22
SCALES	1:400 @ A3	ISSUE: 1
DRAWN	DF	
DESIGN	JF	

PROJECT NO. 21J549 | DOCUMENT IDENTIFICATION -D- | DRAWING NO. P3

A3

Mar 24, 2022 - 9:57am - C:\Users\jm1\Howarth Fisher\Project Data - Documents\2 1J549 - Young Group - The Station\DWG\COMPLETED ANALYSIS 412 1J549.dwg 240322.dwg

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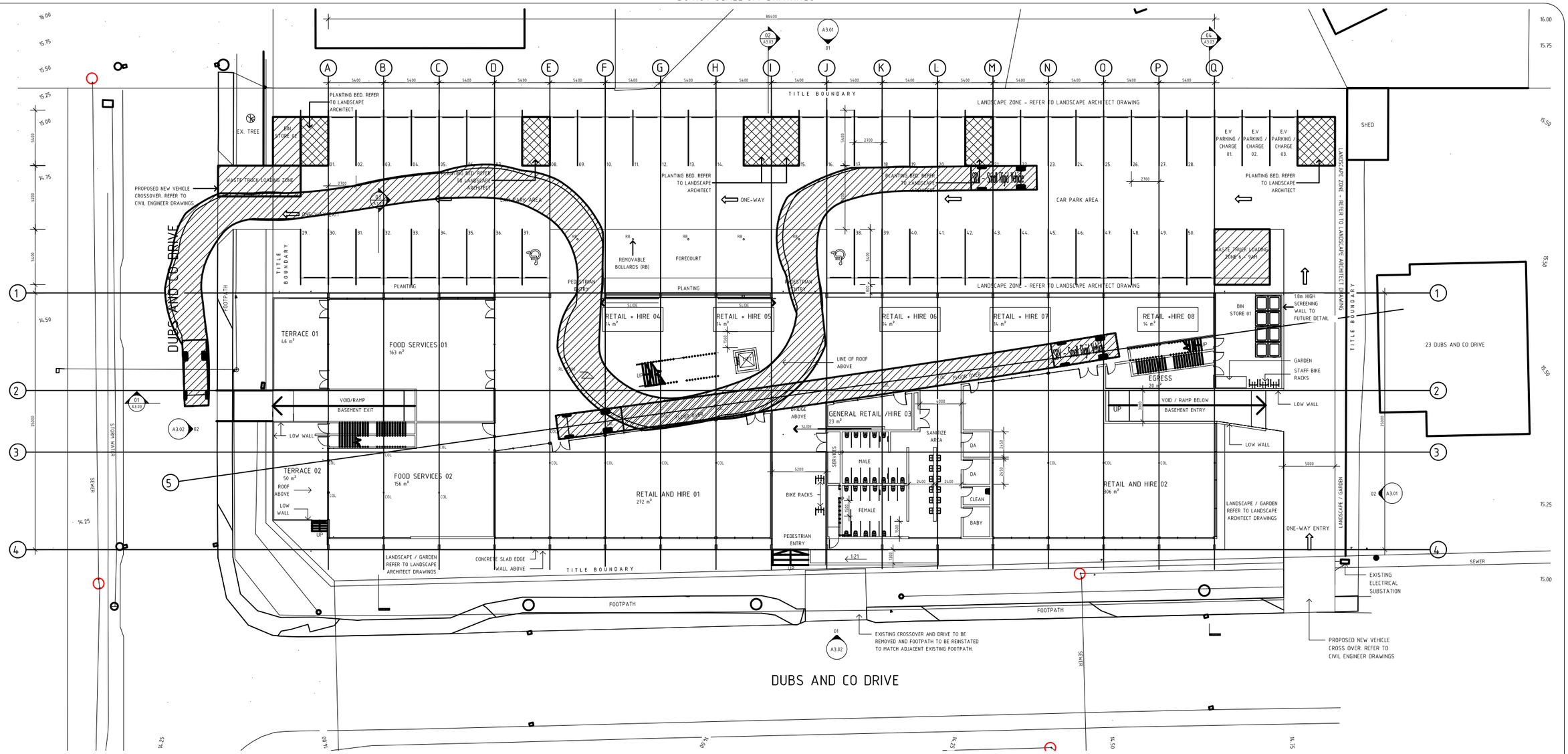
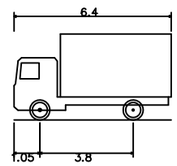


SRV (Food truck) access to site



SRV – Small Rigid Vehicle	
Overall Length	6.400m
Overall Width	2.330m
Overall Body Height	3.500m
Min Body Ground Clearance	0.398m
Track Width	2.330m
Lock–to–lock time	4.00s
Curb to Curb Turning Radius	7.100m

PRELIMINARY - NOT FOR CONSTRUCTION

	ISSUE	BY	APPROVED	DATE
1	AUTOTRACK PATH CONCEPT	GN	JF	23/03/22

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THE STATION
33 DUBS AND CO, SORELL

AUTOTRACK PATHS

APPROVED BY:-	DATE: 23/03/22
SCALES 1:400 @ A3	ISSUE: 1
DRAWN DF	
DESIGN JF	

PROJECT NO. 21J549 | DOCUMENT IDENTIFICATION -D- | DRAWING NO. P4

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A3

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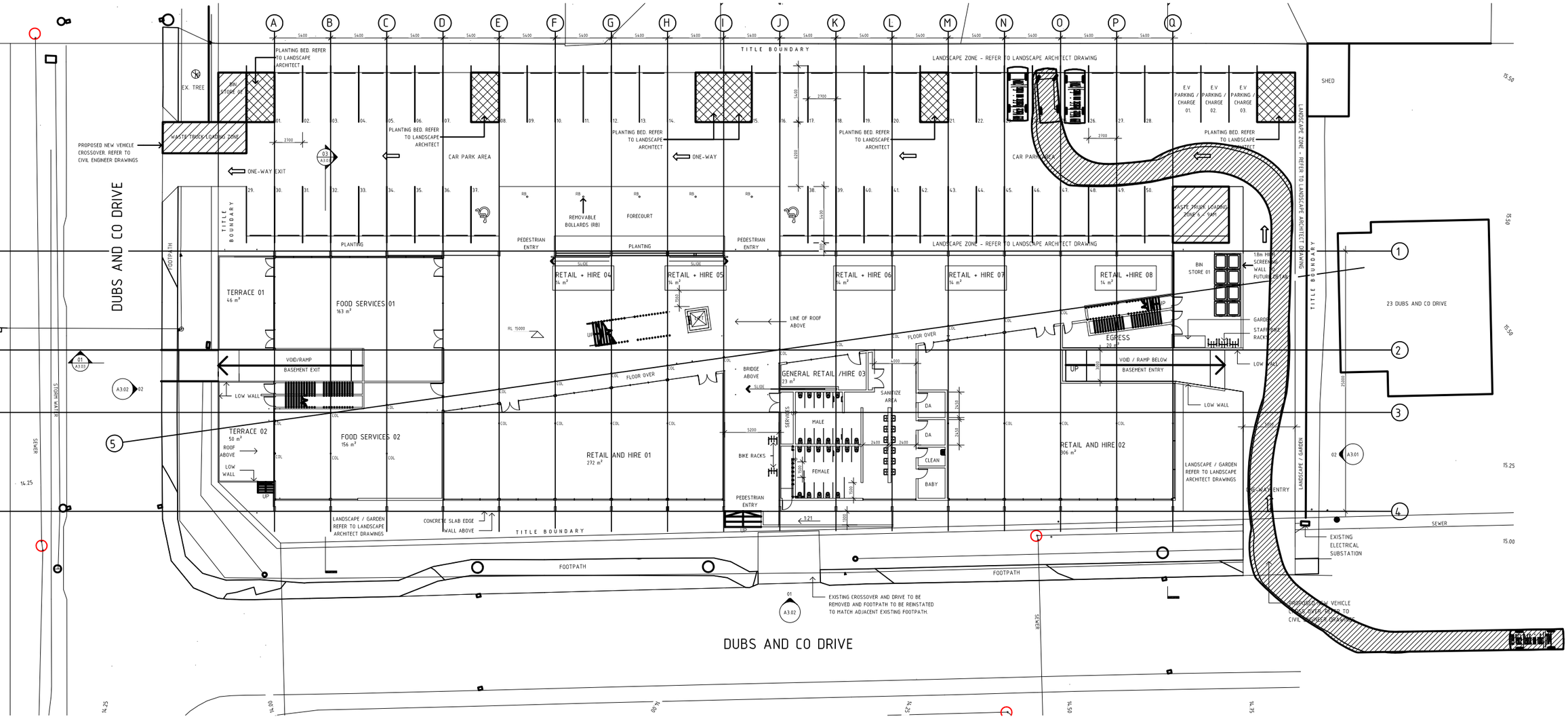
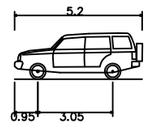


B99 (Car) access to parking spaces onsite



B99 Vehicle (Realistic min radius) (2004)	
Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

Sorell Council

Development Application: Response to Request for Information 5.2022.166.1 33 Dubs & Co Drive, Sorell 10-8-2022 - P4.pdf
Plans Referenced: P4
Date Received: 10/ 08 / 2022

PRELIMINARY - NOT FOR CONSTRUCTION

	ISSUE	BY	APPROVED	DATE
1	AUTOTRACK PATH CONCEPT	GN	JF	23/03/22

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THE STATION
33 DUBS AND CO, SORELL

AUTOTRACK PATHS

APPROVED BY:-		DATE: 23/03/22
SCALES	1:400 @ A3	ISSUE: 1
DRAWN	DF	
DESIGN	JF	

PROJECT NO. 21J549 | DOCUMENT IDENTIFICATION -D- | DRAWING NO. P5

A3

Mar 24, 2022 - 10:05am - C:\Users\jym1\Howarth Fisher\Project Data - Documents\21J549 - Young Group - The Station\DWG\COMPLETED ANALYSIS 4\21J549.dwg,240322.dwg

CIVIL DRAWINGS
THE STATION
33 DUBS AND CO DRIVE, SORELL TAS 7172

C001	COVER	A	5/04/2022
C002	ENGINEERING NOTES	A	5/04/2022
C101	LOCALITY PLAN	A	5/04/2022
C102	SITE PLAN	A	5/04/2022
C103	STORMWATER PLAN - GROUND - SHEET 1	A	5/04/2022
C104	STORMWATER PLAN - GROUND -SHEET 2	A	5/04/2022
C105	STORMWATER PLAN - BASEMENT	A	5/04/2022
C106	SEWER AND WATER PLAN	A	5/04/2022
C301	SECTIONS	A	5/04/2022

REV	ISSUE	DATE	APPROVAL
			DRAWN: DE
			CHECKED: -
			DESIGN: DE
			CHECKED: -
A	DEVELOPMENT APPROVAL	5/04/2022	VERIFIED: -

ALDANMARK CONSULTING ENGINEERS
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Hobart TAS 7000
03 6234 8666
mail@aldanmark.com.au
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PROJECT: THE STATION
ADDRESS: 33 DUBS AND CO DRIVE SORELL
CLIENT: THE YOUNG GROUP
SHEET: COVER
SCALE: AS INDICATED
TOTAL SHEETS: 9
SIZE: A1
PROJECT No: 21 E 29 - 12
SHEET: C001
REV: A

GENERAL NOTES:

1. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE ARCHITECTURAL, HYDRAULIC AND STRUCTURAL DRAWINGS AND SPECIFICATIONS. STANDARDS REFERENCED ARE TO BE THE MOST CURRENT VERSION.
2. THESE DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS ENDORSED 'FOR CONSTRUCTION' AND AUTHORISED FOR ISSUE ACCORDINGLY .
3. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH IPWEA/LGAT STANDARD DRAWINGS AND SPECIFICATIONS, AUSTRALIAN STANDARDS, (WSAA SEWERAGE CODE OF AUSTRALIA & WATER SUPPLY CODE OF AUSTRALIA) AND TO THE SATISFACTION OF COUNCIL'S DEVELOPMENT ENGINEER.
4. IPWEA/LGAT STANDARD DRAWINGS TO BE READ IN CONJUNCTION WITH COUNCIL EXCLUSION SHEETS TSD-E01-v1 & TSD-E02-v1.
5. ALL WORKS ARE TO BE MAINTAINED IN A SAFE CONDITION.
6. CONFIRM ALL LEVELS ON SITE PRIOR TO THE COMMENCEMENT OF WORKS
7. CONTRACTOR TO OBTAIN APPROVALS, SERVICE CLEARANCES AND COORDINATE WORK WITH ALL RELEVANT AUTHORITIES PRIOR TO COMMENCEMENT.
8. A "START OF WORKS NOTICE" MUST BE OBTAINED FROM COUNCIL PRIOR TO ANY WORKS COMMENCING.
9. SURVEY DATA UNDERTAKEN AND PROVIDED BY BROOKS LARK AND CARRICK SURVEYORS .
10. ARCHITECTURAL UNIT AND SITE LAYOUT UNDERTAKEN AND PROVIDED BY MICHAEL R COOPER & ASSOCIATES.
11. FLOOR LEVELS SET BY ARCHITECT. DRIVEWAY GRADING BASED ON THESE.

WORKPLACE HEALTH & SAFETY NOTES:

BEFORE THE CONTRACTOR COMMENCES WORK THE CONTRACTOR SHALL UNDERTAKE A SITE SPECIFIC PROJECT PRE-START HAZARD ANALYSIS / JOB SAFETY ANALYSIS (JSA) WHICH SHALL IDENTIFY IN DOCUMENTED FORM;

- THE TYPE OF WORK.
- HAZARDS AND RISKS TO HEALTH AND SAFETY.
- THE CONTROLS TO BE APPLIED IN ORDER ELIMINATE OR MINIMIZE THE RISK POSED BY THE IDENTIFIED HAZARDS.
- THE MANNER IN WHICH THE RISK CONTROL MEASURES ARE TO BE IMPLEMENTED.

THESE ARE TO BE SUBMITTED TO THE SUPERINTENDENT AND/OR OTHER RELEVANT WORKPLACE SAFETY OFFICERS.

FOR THIS PROJECT; POSSIBLE HAZARDS INCLUDE (BUT ARE NOT LIMITED TO):

- EXCAVATION OF ANY TYPE & DEPTHS
- CONTAMINATED SOILS
- CONSTRUCTION IN GROUND WITH HIGH WATER TABLE
- FELLING / LOPPING &/OR REMOVAL OF EXISTING TREES/VEGETATION
- UNDERGROUND STRUCTURES (MANHOLES / SUMPS / ETC)
- CONFINED SPACES
- OVERHEAD POWER LINES
- UNDERGROUND STORMWATER, WATER AND SEWER PIPES
- TELECOMMUNICATION CABLES - BOTH UNDERGROUND & OVERHEAD
- ELECTRICAL/POWER CABLES - BOTH UNDERGROUND & OVERHEAD
- WORKING AT HEIGHTS
- WORKING WITH ASBESTOS CONTAINING MATERIALS
- TRAFFIC MANAGEMENT

EARTHWORKS & DRIVEWAY NOTES:

1. ALL EARTHWORKS SHALL BE IN ACCORDANCE WITH AS3798 "GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS".
2. ALL VEGETATION AND TOPSOIL SHALL BE STRIPPED AND GRUBBED IN THE AREA OF PROPOSED WORKS.
3. NEW OR MODIFIED DRIVEWAY CROSSINGS SHALL BE IN ACCORDANCE WITH IPWEA STANDARD DRAWING TSD-R09-v2 AND MUST BE INSPECTED AND APPROVED BY COUNCIL.
4. EXCAVATED AND IMPORTED MATERIAL USED AS FILL IS TO BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
5. FILL MATERIAL SHALL BE WELL GRADED AND FREE OF BOULDERS OR COBBLES EXCEEDING 150mm IN DIAMETER UNLESS APPROVED TO BE OTHERWISE.
6. FILL REQUIRED TO SUPPORT DRIVEWAYS INCLUDING FILL IN EMBANKMENTS THAT SUPPORT DRIVEWAYS SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:
   - TOP SOIL AND ORGANIC MATTER SHALL BE STRIPPED TO A MINIMUM OF 100mm.
   - THE SUB GRADE SHALL HAVE A MINIMUM BEARING CAPACITY OF 100 kPa.
   - FILL IN EMBANKMENTS SHALL BE KEYED 150mm INTO NATURAL GROUND.
   - THE FILL SHALL BE COMPACTED IN HORIZONTAL LAYERS OF NOT MORE THAN 200mm.
   - EACH LAYER SHALL BE COMPACTED TO A MINIMUM DENSITY RATIO OF 95% STD, IT IS THE BUILDERS RESPONSIBILITY TO ENSURE THAT THIS IS ACHIEVED.
7. WHERE THE ABOVE REQUIREMENTS CANNOT BE ACHIEVED THE ENGINEER SHALL BE CONSULTED AND THE FORMATION SHALL BE PROOF ROLLED (UNDER SUPERVISION OF THE ENGINEER) TO CONFIRM AN APPROVED BASE.
8. CONCRETE PAVEMENTS SHALL BE CURED FOR A MINIMUM OF 3 DAYS USING A CURRENT BEST PRACTICE METHOD.
9. SAWN CONTROL JOINTS SHALL BE CONSTRUCTED AS SOON AS POSSIBLE WITHOUT RAVELLING THE JOINT, GENERALLY THIS SHALL BE WITHIN 24 HOURS.
10. BATTERS SHALL BE SET TO A SAFE ANGLE OF REPOSE IN ACCORDANCE WITH THE BCA VOL 2 AS INDICATED BELOW:

SOIL TYPE (* REFER BCA 3.2.4)		EMBANKMENT SLOPES H:L	
		COMPACTED FILL	CUT
STABLE ROCK (A*)		2:3	8:1
SAND (A*)		1:2	1:2
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

NOTE: WHERE SITE CONDITIONS ARE UNSUITABLE FOR A BATTERED BANK CONSULT THE ENGINEER FOR A SUITABLE RETAINING WALL DESIGN. EMBANKMENTS THAT ARE TO BE LEFT EXPOSED MUST BE STABILISED BY VEGETATION OR SIMILAR WORKS TO PREVENT SOIL EROSION.

DRAINAGE AND SERVICES NOTES:

1. ALL WORKS ASSOCIATED WITH PUBLIC STORMWATER INFRASTRUCTURE IS TO BE CARRIED OUT IN ACCORDANCE WITH IPWEA (TAS) LGAT STANDARD DRAWINGS AND SPECIFICATION AND TO THE SATISFACTION OF COUNCIL.
2. ALL WORKS ASSOCIATED WITH PUBLIC SEWER AND WATER IS TO BE CARRIED OUT IN ACCORDANCE WITH THE WSA PARTS 02 & 03 (WATER AND SEWERAGE CODES OF AUSTRALIA), TASWATER SUPPLEMENTS TO THE SAME, AND TO THE SATISFACTION OF TASWATER.
3. ALL CONNECTIONS TO EXISTING MAINS TO BE CARRIED OUT BY THE REGULATING AUTHORITY AT COST TO BUILDER UNLESS APPROVED OTHERWISE.
4. HYDRAULIC LAYOUT TO BE COORDINATED WITH OTHER SERVICES. HYDRAULIC LAYOUT AS SHOWN IS NOTIONAL, LAYOUT TO BE CONFIRMED ON SITE.
5. ALL EXISTING SERVICES TO BE LOCATED ON SITE PRIOR TO THE COMMENCEMENT OF WORKS.
6. GENERAL MATERIALS, INSTALLATION & TESTING SHALL COMPLY WITH AS3500 AND THE NCC VOLUME 3 (PCA)
7. INSTALL ALL SUB-SOIL DRAINS TO THE REQUIREMENTS OF AS3500, PART 3.1.3 OF THE NCC 2019 - VOLUME 2 AND PART FP2 OF THE NCC 2019 - VOLUME 3.
8. PAVEMENT AND HARDSTAND AREAS SHALL FALL AT A MINIMUM OF 1% (1:100) TOWARD AN APPROVED DISCHARGE POINT.
9. ALL PIPE WORK UNDER TRAFFICABLE AREAS, INCLUDING DRIVEWAYS, IS TO BE BACKFILLED WITH COMPACTED FCR.
10. DRAINAGE PIPES TO BE MIN. uPVC CLASS SN4, PIPES UNDER TRAFFICABLE AREAS TO BE SN8 U.N.O.
11. MINIMUM GRADES FOR PRIVATE DRAINAGE PIPES SHALL BE 1% FOR STORMWATER AND 1.67% FOR SEWER U.N.O.
12. MINIMUM COVER FOR PRIVATE DRAINAGE PIPES SHALL BE 300mm FOR STORMWATER AND 500mm FOR SEWER U.N.O.
13. TASWATER SEWER MAINS TO BE MINIMUM DWV CLASS SN8 DN150 RRJ WITH MINIMUM CLASS SN10 DN100 PROPERTY CONNECTIONS.
14. STORMWATER MAINS TO BE MINIMUM DWV CLASS SN8 DN225 RRJ OR APPROVED EQUIVALENT UNLESS NOTED OTHERWISE.
15. WATER PIPES TO BE MIN. DN20 POLY PN16 AND FITTINGS TO BE MIN. CLASS 16 U.N.O.
16. WATER CONNECTIONS SHALL BE PROVIDED WITH METERAGE AND BACKFLOW PREVENTION AS PER TASWATER STANDARD DRAWING TWS-W-0002.
17. ALL PIPEWORK TO BE INSPECTED BY COUNCIL PRIOR TO BACKFILL.
18. PIT DIMENSIONS SHOWN HAVE BEEN DESIGNED BY PIT CAPACITY TABLES. THESE PITS MAY NEED TO BE INCREASED IN MINIMUM INTERNAL SIZE DUE TO THE DEPTH AS PER AS3500.3 AS PER TABLE BELOW WHICH IS THE CONTRACTORS RESPONSIBILITY TO ENSURE COMPLIANCE TO AS3500:

DEPTH TO INVERT OF OUTLET		MINIMUM INTERNAL DIMENSIONS mm	
		WIDTH	LENGTH
	≤600	450	450
>600	≤900	600	600
>900	≤1200	600	900
>1200		900	900

REV		DATE		
			DRAWN:	DE
			CHECKED:	-
			DESIGN:	DE
			CHECKED:	-
A	DEVELOPMENT APPROVAL	5/04/2022	VERIFIED:	-

ISSUE — APPROVAL

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PROJECT: THE STATION
ADDRESS: 33 DUBS AND CO DRIVE SORELL
CLIENT: THE YOUNG GROUP
SHEET: ENGINEERING NOTES
SCALE: AS INDICATED
TOTAL SHEETS: 9
SIZE: A1
PROJECT No: 21 E 29 - 12
SHEET: C002
REV: A

LOCALITY PLAN

SCALE 1:1000 (A1)

DIAL BEFORE YOU DIG www.1100.com.au

THESE DRAWINGS SHALL BE APPROVED BY RELEVANT AUTHORITIES (INCL. COUNCIL & TASWATER) PRIOR TO CONSTRUCTION

THIS DRAWING MUST ONLY BE DISTRIBUTED IN FULL COLOUR. ALDANMARK CONSULTING ENGINEERS ACCEPTS NO LIABILITY ARISING FROM FAILURE TO COMPLY WITH THIS REQUIREMENT.

BEWARE OF UNDERGROUND SERVICES

THE LOCATION OF UNDER GROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT LOCATION SHOULD BE PROVEN ON SITE BY THE RELEVANT AUTHORITIES. NO GUARANTEE IS GIVEN THAT ALL SERVICES ARE SHOWN.

Sorell Council

Development Application: 5.2022.166.1 33 Dubs & Co Drive, Sorell.pdf

Plans Reference: P1

Date Received: 8/06/2022

REV	ISSUE	DATE	APPROVAL
			DRAWN: DE
			CHECKED: -
			DESIGN: DE
			CHECKED: -
A	DEVELOPMENT APPROVAL	5/04/2022	VERIFIED: -

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PROJECT: THE STATION

0 10 20 30 40 50 60 70 80 90 100m

ADDRESS: 33 DUBS AND CO DRIVE
SORELL

CLIENT: THE YOUNG GROUP

SHEET: LOCALITY PLAN

SCALE: AS INDICATED

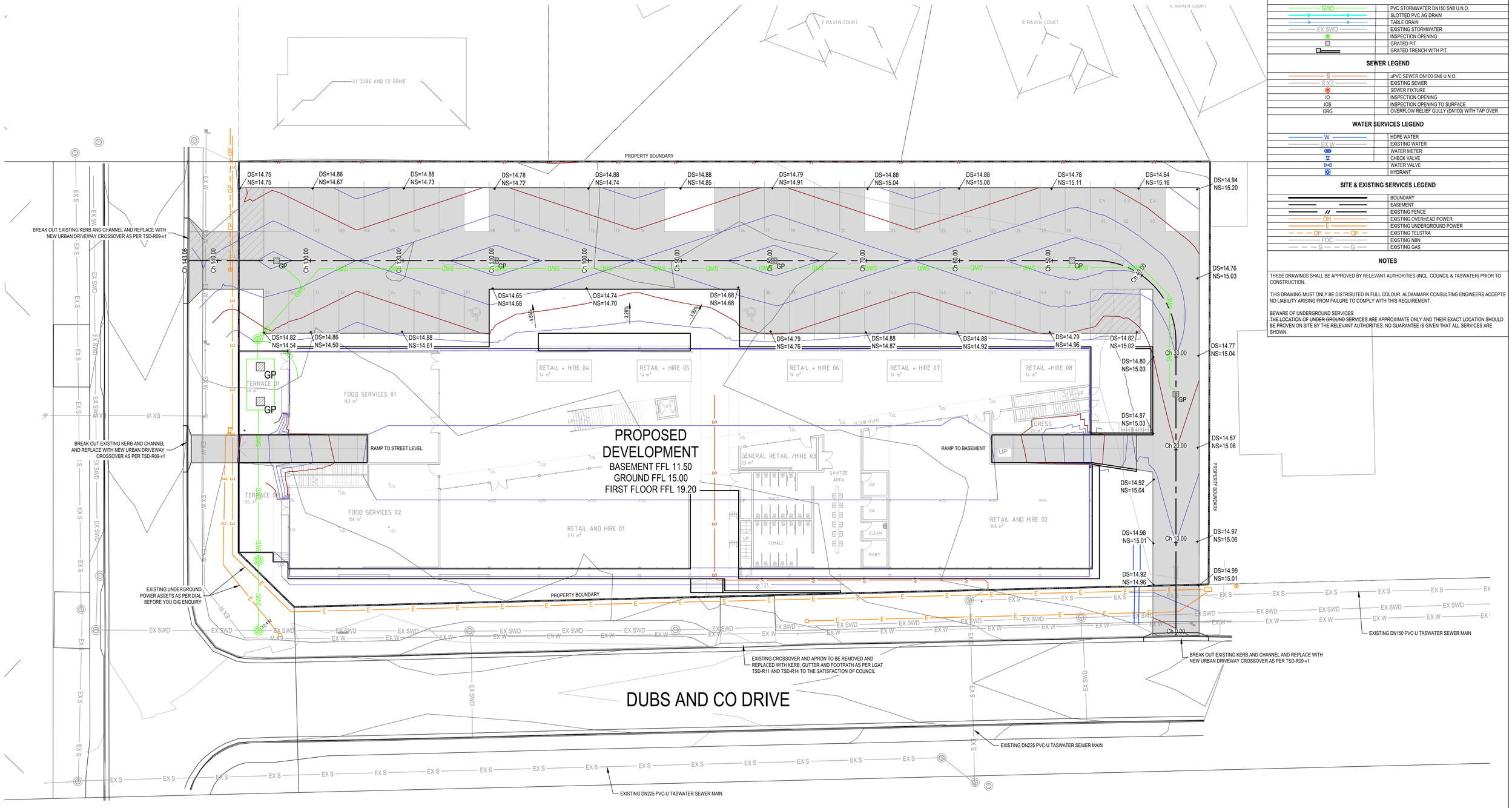
TOTAL SHEETS: 9

SIZE: A1

PROJECT No: 21 E 29 - 12

SHEET: C101

REV: A



STORMWATER LEGEND

SWD	PVC STORMWATER DN150 SN8 U.N.O.
	SLOTTED PVC AG DRAIN
	TABLE DRAIN
EX SWD	EXISTING STORMWATER
	INSPECTION OPENING
	GRATED PIT
	GRATED TRENCH WITH PIT

SEWER LEGEND

S	uPVC SEWER DN100 SN6 U.N.O.
S X∃	EXISTING SEWER
	SEWER FIXTURE
IO	INSPECTION OPENING
IOS	INSPECTION OPENING TO SURFACE
ORG	OVERFLOW RELIEF GULLY (DN100) WITH TAP OVER

WATER SERVICES LEGEND

W	HDPE WATER
EX W	EXISTING WATER
	WATER METER
	CHECK VALVE
	WATER VALVE
	HYDRANT

SITE & EXISTING SERVICES LEGEND

	BOUNDARY
	EASEMENT
	EXISTING FENCE
OH	EXISTING OVERHEAD POWER
E	EXISTING UNDERGROUND POWER
OP OP	EXISTING TELSTRA
FOC	EXISTING NBN
G G	EXISTING GAS

NOTES

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SITE PLAN

SCALE 1:200 (A1)

Sorell Council
Development Application: 5.2022.166.1 33 Dubs & Co Drive, Sorell.pdf
Plans Reference: P1
Date Received: 8/06/2022

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REV	ISSUE	DATE	APPROVAL
A	DEVELOPMENT APPROVAL	5/04/2022	VERIFIED: -
			CHECKED: -
			DESIGN: DE
			CHECKED: -
			DRAWN: DE

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0 2 4 6 8 10 12 14 16 18 20m

PROJECT:	THE STATION	ADDRESS:	33 DUBS AND CO DRIVE SORELL
CLIENT:	THE YOUNG GROUP	SHEET:	SITE PLAN
SCALE:	AS INDICATED	TOTAL SHEETS: 9	SIZE: A1
PROJECT No:	21 E 29 - 12	SHEET: C102	REV: A

DUBS AND CO DRIVE

DS=14.75
NS=14.75

DS=14.86
NS=14.67

DS=14.88
NS=14.73

DS=14.78
NS=14.72

DS=14.88
NS=14.74

DS=14.88
NS=14.85

DS=14.79
NS=14.91

600sq ACO POLYCRETE STORMWATER PIT WITH CLASS 'B' TRAFFICABLE GRATE INSTALLED AS PER MANUFACTURERS SPECIFICATIONS

600sq ACO POLYCRETE STORMWATER PIT WITH CLASS 'B' TRAFFICABLE GRATE INSTALLED AS PER MANUFACTURERS SPECIFICATIONS

600sq ACO POLYCRETE STORMWATER PIT WITH CLASS 'B' TRAFFICABLE GRATE INSTALLED AS PER MANUFACTURERS SPECIFICATIONS

Ch 143.08
Ch 130.00
Ch 130.00
Ch 120.00
Ch 120.00
Ch 120.00
Ch 120.00
Ch 120.00

DS=14.65
NS=14.68

DS=14.74
NS=14.70

DS=14.68
NS=14.68

-14.85%
-3.28%
-3.99%

NEW DN1050 STORMWATER MANHOLE AS PER LGAT TSD-SW02/TSD-SW03 TO RECEIVE BASEMENT RUNOFF VIA RISING MAIN

DS=14.82
NS=14.54

DS=14.86
NS=14.50

DS=14.88
NS=14.61

DS=14.79
NS=14.76

20,000 L UNDERGROUND CONCRETE DETENTION TANK INCORPORATING STORMWATER TREATMENT FILTERS

STORMWATER RISING MAIN FROM BASEMENT LEVEL

TERRACE 01
46 m²

FOOD SERVICES 01
163 m²

RETAIL + HIRE 04
14 m²

RETAIL + HIRE 05
14 m²

RETAIL + HIRE
14 m²

LIFT

UP

PROPOSED DEVELOPMENT
BASEMENT FFL 11.50
GROUND FFL 15.00
FIRST FLOOR FFL 19.20

GENERAL RETAIL /HIRE 03
23 m²

TERRACE 02
50 m²

FOOD SERVICES 02
156 m²

RETAIL AND HIRE 01
272 m²

MALE

FEMALE

1:21

NEW DN1050 STORMWATER MANHOLE AS PER LGAT TSD-SW02/TSD-SW03 TO ACT AS PROPERTY CONNECTION FOR DEVELOPMENT

NEW DN1050 STORMWATER MANHOLE TO BE PLACED OVER EXISTING SORELL COUNCIL STORMWATER MAIN AS PER LGAT TSD-SW02/TSD-SW03

12.432

Sorell Council
Development Application: 5.2022.166.1 33 Dubs & Co Drive, Sorell.pdf
Plans Reference: P1
Date Received: 8/06/2022

DIAL BEFORE YOU DIG www.1100.com.au

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BEWARE OF UNDERGROUND SERVICES
THE LOCATION OF UNDER GROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT LOCATION SHOULD BE PROVEN ON SITE BY THE RELEVANT AUTHORITIES. NO GUARANTEE IS GIVEN THAT ALL SERVICES ARE SHOWN.

STORMWATER PLAN - GROUND - SHEET 1

SCALE 1:100 (A1)

REV	ISSUE	DATE	APPROVAL
A	DEVELOPMENT APPROVAL	5/04/2022	VERIFIED: -
			CHECKED: -
			DESIGN: DE
			CHECKED: -
			DRAWN: DE

ALDANMARK CONSULTING ENGINEERS
Lower Ground
199 Macquarie Street
Hobart TAS 7000
03 6234 8666
mail@aldanmark.com.au
www.aldanmark.com.au

PROJECT: THE STATION

0 1 2 3 4 5 6 7 8 9 10m

ADDRESS: 33 DUBS AND CO DRIVE
SORELL

CLIENT: THE YOUNG GROUP

SHEET: STORMWATER PLAN - GROUND - SHEET 1

SCALE: AS INDICATED

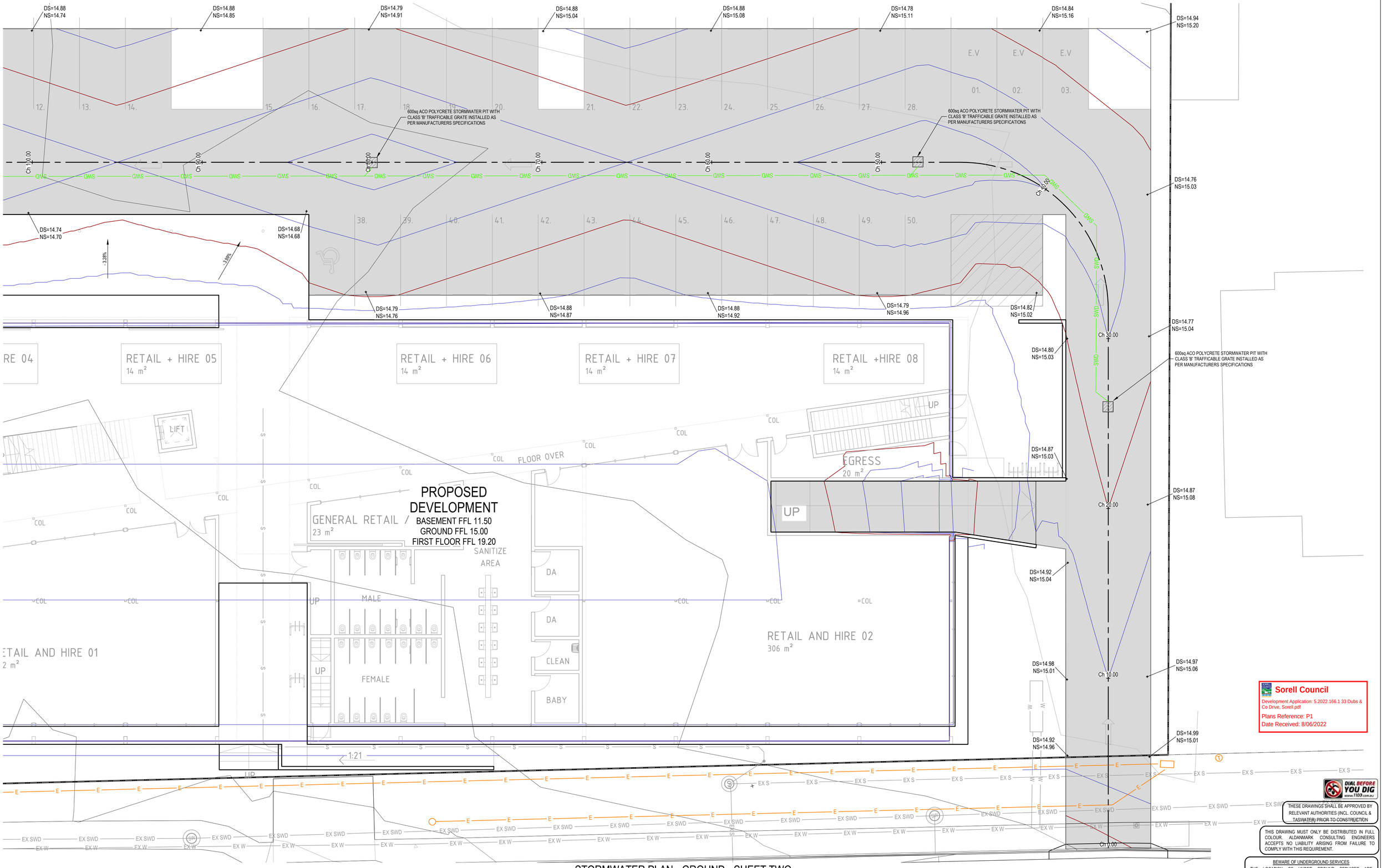
TOTAL SHEETS: 9

SIZE: A1

PROJECT No: 21 E 29 - 12

SHEET: C103

REV: A



Sorell Council
Development Application: 5.2022.166.1 33 Dubs & Co Drive, Sorell.pdf
Plans Reference: P1
Date Received: 8/06/2022

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STORMWATER PLAN - GROUND - SHEET TWO

SCALE 1:100 (A1)

REV	ISSUE	DATE	APPROVAL
A	DEVELOPMENT APPROVAL	5/04/2022	VERIFIED: -
			DESIGN: DE
			CHECKED: -
			DRAWN: DE

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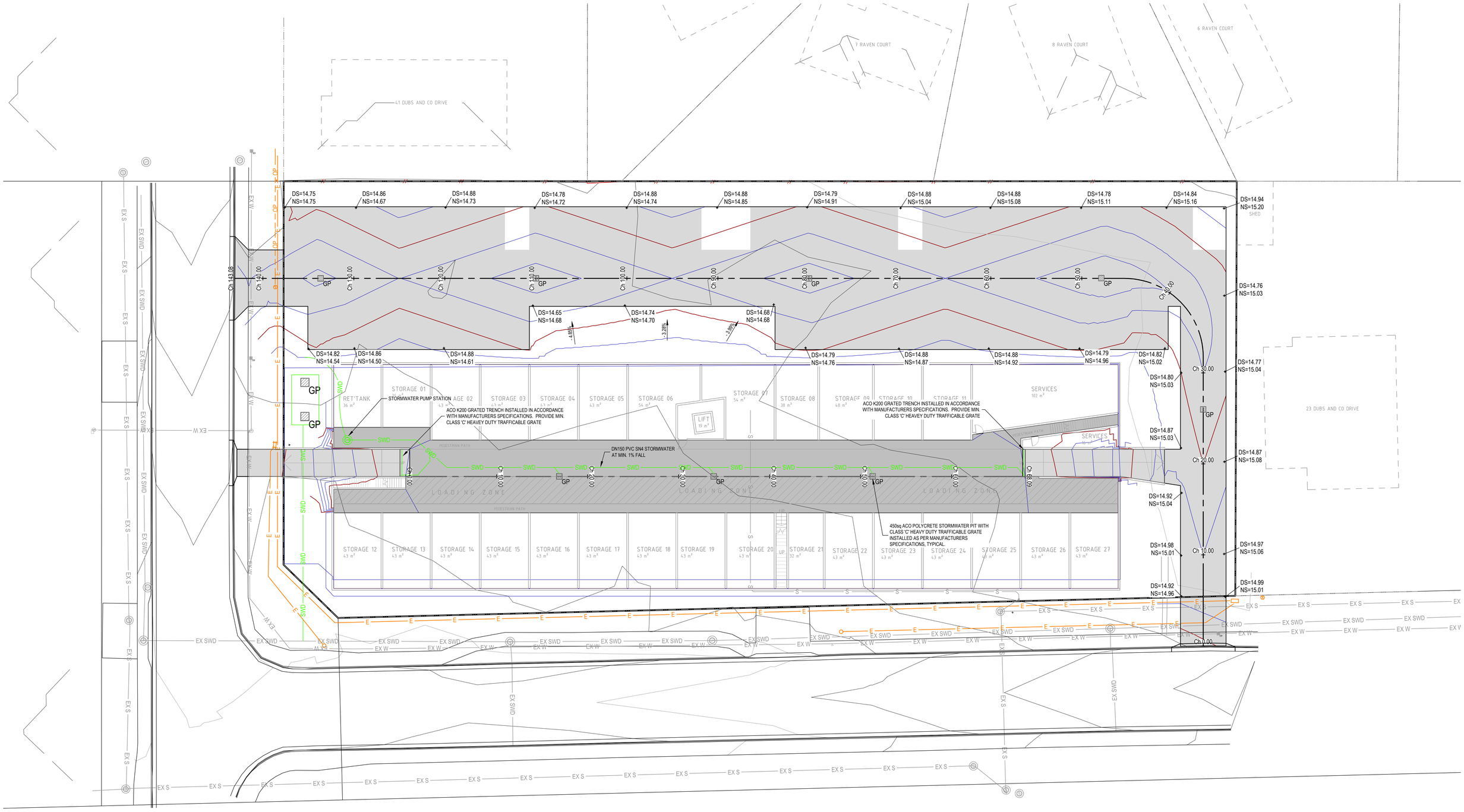
Lower Ground
199 Macquarie Street
Hobart TAS 7000
03 6234 8666
mail@aldanmark.com.au
www.aldanmark.com.au

PROJECT: THE STATION
ADDRESS: 33 DUBS AND CO DRIVE SORELL
CLIENT: THE YOUNG GROUP
SHEET: STORMWATER PLAN - GROUND -SHEET 2
SCALE: AS INDICATED
TOTAL SHEETS: 9
SIZE: A1
PROJECT No: 21 E 29 - 12
SHEET: C104
REV: A



STORMWATER PLAN - BASEMENT

SCALE 1:200 (A1)

THESE DRAWINGS SHALL BE APPROVED BY RELEVANT AUTHORITIES (INCL. COUNCIL & TASWATER) PRIOR TO CONSTRUCTION

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Sorell Council

Development Application: 5.2022.166.1 33 Dubs & Co Drive, Sorell.pdf

Plans Reference: P1

Date Received: 8/06/2022

REV	ISSUE	DATE	APPROVAL
			DRAWN: DE
			CHECKED: -
			DESIGN: DE
			CHECKED: -
A	DEVELOPMENT APPROVAL	5/04/2022	VERIFIED: -

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Lower Ground
199 Macquarie Street
Hobart TAS 7000
03 6234 8666
mail@aldanmark.com.au
www.aldanmark.com.au

PROJECT:	THE STATION	ADDRESS:	33 DUBS AND CO DRIVE SORELL
CLIENT:	THE YOUNG GROUP	SHEET:	STORMWATER PLAN - BASEMENT
SCALE:	AS INDICATED	TOTAL SHEETS:	9
SIZE:	A1	PROJECT No:	21 E 29 - 12
SHEET:	C105	REV:	A

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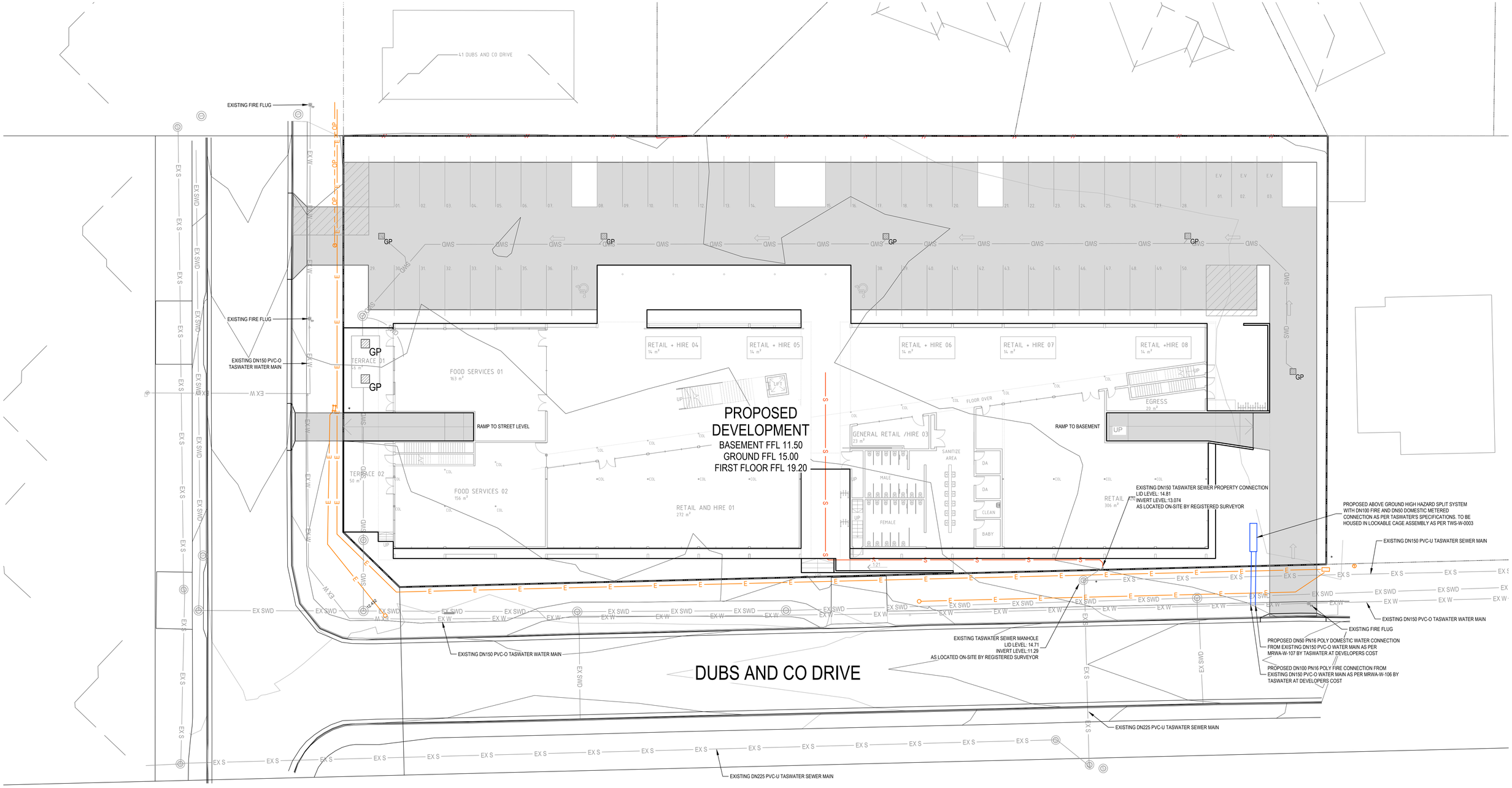

SEWER AND WATER PLAN

SCALE 1:200 (A1)

DIAL BEFORE YOU DIG www.1100.com.au

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Sorell Council

Development Application: 5.2022.166.1 33 Dubs & Co Drive, Sorell.pdf

Plans Reference: P1

Date Received: 8/06/2022

REV	ISSUE	DATE	APPROVAL
A	DEVELOPMENT APPROVAL	5/04/2022	VERIFIED: -
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			DESIGN: DE
			CHECKED: -
			DRAWN: DE

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199 Macquarie Street
Hobart TAS 7000
03 6234 8666
mail@aldanmark.com.au
www.aldanmark.com.au

PROJECT: THE STATION

0 2 4 6 8 10 12 14 16 18 20m

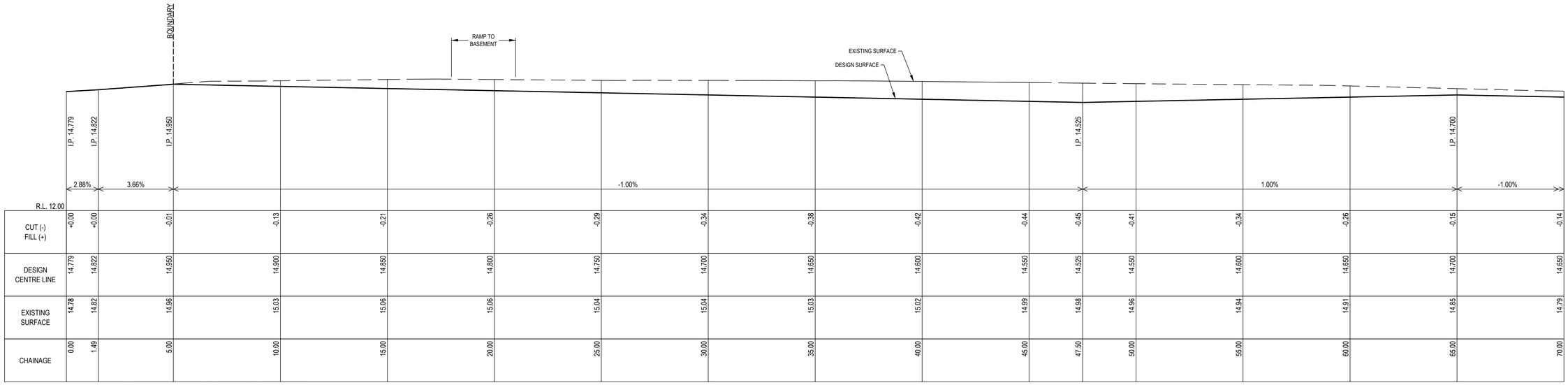
ADDRESS: 33 DUBS AND CO DRIVE
SORELL

CLIENT: THE YOUNG GROUP

SHEET: SEWER AND WATER PLAN

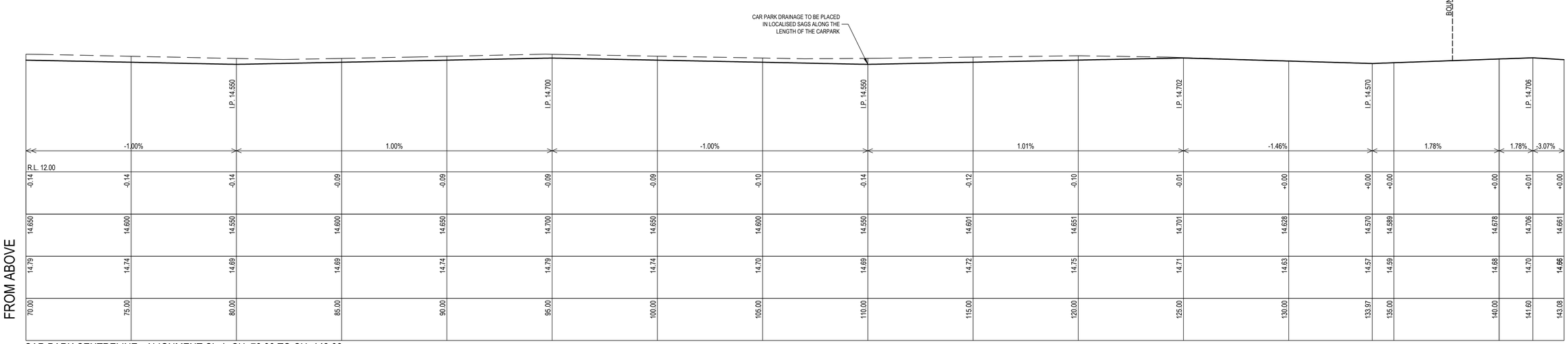
SCALE: AS INDICATED | TOTAL SHEETS: 9 | SIZE: A1

PROJECT No: 21 E 29 - 12 | SHEET: C106 | REV: A



CONTINUED BELOW

CAR PARK CENTRELINE - ALIGNMENT CL-1: CH. 0 TO CH. 70.00



CAR PARK CENTRELINE - ALIGNMENT CL-1: CH. 70.00 TO CH. 143.08

CAR PARK CENTRELINE - ALIGNMENT CL-1

SCALE
1:100 HORIZ (A1)
1:50 VERT (A1)

Sorell Council
Development Application: 5.2022.166.1 33 Dubs & Co Drive, Sorell.pdf
Plans Reference: P1
Date Received: 8/06/2022

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REV	ISSUE	DATE	APPROVAL	
			DRAWN:	DE
			CHECKED:	-
			DESIGN:	DE
			CHECKED:	-
A	DEVELOPMENT APPROVAL	5/04/2022	VERIFIED:	-

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Hobart TAS 7000
03 6234 8666
mail@aldanmark.com.au
www.aldanmark.com.au

PROJECT: THE STATION

0 1 2 3 4 5m
0 0.5 1.0 1.5 2.0 2.5m
H1:100
V1:50

ADDRESS: 33 DUBS AND CO DRIVE
SORELL

CLIENT: THE YOUNG GROUP

SHEET: SECTIONS

SCALE: AS INDICATED
TOTAL SHEETS: 9
SIZE: A1
PROJECT No: 21 E 29 - 12
SHEET: C301
REV: A

LANDSCAPE DEVELOPMENT APPLICATION DOCUMENTATION SET

21-22 THE STATION

33 DUBS AND CO. DRIVE, SORELL
TASMANIA 7172

DWG NO.	REV.	DRAWING TITLE	DATE ISSUED
DA000	-	TITLE SHEET	06.05.22
DA100	-	SURFACES SCHEDULE	06.05.22
DA101	-	PLANTING SCHEDULE	06.05.22
DA102	-	LANDSCAPE PLAN GROUND LEVEL	06.05.22
DA103	-	LANDSCAPE PLAN FIRST LEVEL	06.05.22

1 DA-000 SITE PLAN
1:2000

inspiring place
210 Collins Street, Hobart, Tasmania 7000
ph (03) 6231 1818 email: jerrydegryse@inspiringplace.com.au

REV	AMENDMENTS	DATE

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Project.
The Station

Client
PREPARED FOR THE YOUNG GROUP TASMANIA

Address
33 Dubs and Co. Drive, Sorell TAS

Drawing No. **DA-000**
Title **TITLE SHEET**

Project No.	Drawn	Date Printed
21-22	EH/SR	6/5/22
North	Approved JDeg	Scale 1:2000@A3
	Revision.	Stage **Development Application**

SURFACES SCHEDULE

HARD SURFACES

C1 **Exposed aggregate concrete**
Vehicle grade. Warm, sandstone tones. Refer engineer drawings for levels and darinage. Refer traffic engineer drawings for car park information.

C2 **General purpose concrete**
Pedestrian grade.

P1 **Pedestrian Paver**
Exposed aggregate masonry paver or similar. Warm sandstone tones.

P2 **Pedestrian Paver**
To external terrace areas. Warm sandstone tones.

P3 **Pedestrian Paver**
Exposed aggregate masonry paver or similar. Warm sandstone tones. Paving to extend over council owned footpath to back of kerb. Works to be completed in collaboration with Sorell council.

MW Masonry wall. Refer to Architects drawings.

Bollard
Powdercoat black bollard.

Light Post
Powdercoat black pole 6m high. Right fittings to adhere to Dark Sky lighting principles. Lighting subcategory to AS1158.3.1:2000 PC3

Bike Rack
Public bike rack.

Park Bench
Proposed bench location.

Bins
Public bins.

SOFT SURFACES

GB1 **Garden Bed 01: Entry planting**
Refer to DA-102 Planting Schedule

GB2 **Garden Bed 02: Car park/ Boundary planting**
Refer to DA-102 Planting Schedule

GB3 **Garden Bed 03: WSUD planting**
Refer to DA-102 Planting Schedule

GB4 **Garden Bed 04: Green wall/ Indoor planting**
Refer to DA-102 Planting Schedule

AT1 **Advanced tree in Garden Bed 01**
Refer to DA-102 Planting Schedule

AT2 **Advanced tree in Garden Bed 02**
Refer to DA-102 Planting Schedule

AT3 **Advanced tree in Garden Bed 02**
Refer to DA-102 Planting Schedule

AT4 **Advanced tree in Garden Bed 03**
Refer to DA-102 Planting Schedule

AT5 **Advanced street tree in tree grate**
Proposed street tree to council owned pavement area. Tree locations approximate only- subject to underground service locations.

ET **Existing tree**

1 DA-100 SURFACES SCHEDULE

Sorell Council
Development Application: 5.2022.166.1 33 Dubs & Co Drive, Sorell.pdf
Plans Reference: P1
Date Received: 8/06/2022

inspiring place
210 Collins Street, Hobart, Tasmania 7000
ph (03) 6231 1818 email: jerrydegryse@inspiringplace.com.au

REV	AMENDMENTS	DATE

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Project.
The Station

Client
PREPARED FOR THE YOUNG GROUP TASMANIA

Address
33 Dubs and Co. Drive, Sorell TAS

Drawing No. **DA-100**
Title **SURFACES SCHEDULE**

Project No.	Drawn	Date Printed
21-22	EH/SR	6/5/22
North	Approved JDeg	Scale
	Revision.	Status **Development Application**

PLANTING SCHEDULE

Plant ID	Botanical Name	Common Name	Size (Height x Spread)
GARDEN BED 01- ENTRY PLANTING		GB1	
Cp	*Callistemon pallidus*	Lemon bottlebrush	3 x 2m
Da	*Dichondra argentea*	Silver falls	Groundcover
Dv	*Dodonaea viscosa*	Native hop bush	3 x 1.5m
Ep	*Eucalyptus pauciflora ssp.* (A1)	Little snowman	7.5 x 3.6m
Pl	*Poa labillardieri*	Silver tussock	0.9 x 0.6m
Wf	*Westringia fruticosa*	Coastal rosemary	2 x 1.5m
GARDEN BED 02- CAR PARK/ BOUNDARY PLANTING		GB2	
As	*Adenanthos sericeus*	Silver streal woolly bush	3 x 3m
Av	*Allocasuarina verticillata* (A2)	Drooping sheoak	4 x 3m
Be	*Banksia ericifolia*	Heath banksia	5 x 2.5m
Bm	*Banksia marginata*	Silver banksia	2 x 2m
Ec	*Eucalyptus caesia* (A3)	Silver princess	8 x 4m
Ll	*Leptospermum lanigerum*	Wooly tea tree	3 x 2m
Mp	*Myoporum parvifolium*	Creeping boobialla	Groundcover
GARDEN BED 03- WSUD PLANTING		GB3	
Ca	*Correa alba*	White correa	1.5 x 1.5m
Dr	*Dichondra repens*	Kidney weed	Groundcover
Ka	*kunzea ambigua*	Tick bush	0.6 x 1.5m
Ms	*Melaleuca squarrosa* (A4)	Coastal carpet	5 x 4m
GARDEN BED 04- GREEN WALL/ INDOOR PLANTING		GB4	
Cm	*Clematis microphylla*	Small leaved clematis	Climber
Dr	*Dichondra repens*	Kidney weed	Groundcover
Ea	*Epiphyllum anguliger*	Fishbone cactus	0.8 x 0.8m
Eau	*Epipremnum aureum*	Devil's ivy	Climber
Fp	*Ficus pumila*	Climbing fig	Climber
Mc	*Muehlenbeckia complexa*	Maidenhair vine	Climber
STREET TREE PLANTING			
Et	*Eucalyptus torquata* (A5)	Coral gum	10 x 6m

PLANTING PALETTE

GB1: Entry and street planting

Callistemon pallidus
Lemon bottlebrush

Dichondra argentea
Silver falls

Dodonaea viscosa
Native hop bush

Eucalyptus pauciflora ssp. Little snowman

Poa labillardieri
Silver tussock

Westringia fruticosa
Coastal rosemary

GB2: Car park/ boundary planting

Adenanthos sericeus
Silver streak woolly bush

Allocasuarina verticillata Drooping sheoak

Banksia ericifolia
Heath banksia

Banksia marginata
Silver banksia

Eucalyptus caesia
Silver princess

Leptospermum lanigerum
Wooly tea tree

Myoporum parvifolium
Creeping boobialla

GB3: WSUD planting

Correa alba
White correa

Dichondra repens
Kidney weed

Kunzea ambigua
Tick bush

Melaleuca squarrossa
Coastal carpet

GB4: Green wall/ indoor planting

Clematis microphylla
Small leaved clematis

Dichondra repens
Kidney weed

Epiphyllum anguliger
Fishbone cactus

Epipremnum aureum
Devil's ivy

Ficus pumila
Climbing fig

Muehlenbeckia complexa
Maidenhair vine

Street tree planting

Eucalyptus torquata
Coral gum

inspiring place
210 Collins Street, Hobart, Tasmania 7000
ph (03) 6231 1818 email: jerrydegryse@inspiringplace.com.au

REV	AMENDMENTS	DATE

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Project.
The Station

Client
PREPARED FOR THE YOUNG GROUP TASMANIA

Address
33 Dubs and Co. Drive, Sorell TAS

Drawing No. **DA-101**
Title **PLANTING SCHEDULE**

Project No.	Drawn	Date Printed
21-22	EH/SR	6/5/22
North	Approved JDeg	Scale
	Revision.	Status **Development Application**

HARD SURFACES

C1 **Exposed aggregate concrete**
Vehicle grade. Warm, sandstone tones. Refer engineer drawings for levels and darinage. Refer traffic engineer drawings for car park information.

C2 **General purpose concrete**
Pedestrian grade.

P1 **Pedestrian Paver**
Exposed aggregate masonry paver or similar. Warm sandstone tones.

P2 **Pedestrian Paver**
To external terrace areas. Warm sandstone tones.

P3 **Pedestrian Paver**
Exposed aggregate masonry paver or similar. Warm sandstone tones. Paving to extend over council owned footpath to back of kerb. Works to be completed in collaboration with Sorell council.

MW Masonry wall. Refer to Architects drawings.

Bollard
Powdercoat black bollard.

Light Post
Powdercoat black pole 6m high. Right fittings to adhere to Dark Sky lighting principles. Lighting subcategory to AS1158.3.1:2000 PC3

Bike Rack
Public bike rack.

Park Bench
Proposed bench location.

Bins
Public bins.

SOFT SURFACES

GB1 **Garden Bed 01: Entry planting**
Refer to DA-102 Planting Schedule

GB2 **Garden Bed 02: Car park/ Boundary planting**
Refer to DA-102 Planting Schedule

GB3 **Garden Bed 03: WSUD planting**
Refer to DA-102 Planting Schedule

GB4 **Garden Bed 04: Green wall/ Indoor planting**
Refer to DA-102 Planting Schedule

AT1 **Advanced tree in Garden Bed 01**
Refer to DA-102 Planting Schedule

AT2 **Advanced tree in Garden Bed 02**
Refer to DA-102 Planting Schedule

AT3 **Advanced tree in Garden Bed 02**
Refer to DA-102 Planting Schedule

AT4 **Advanced tree in Garden Bed 03**
Refer to DA-102 Planting Schedule

AT5 **Advanced street tree in tree grate**
Proposed street tree to council owned pavement area. Tree locations approximate only- subject to underground service locations.

ET **Existing tree**

1 DA-102 LANDSCAPE PLAN GROUND LEVEL
1:350

Sorell Council
Development Application: 5.2022.166.1 33 Dubs & Co Drive, Sorell.pdf
Plans Reference: P1
Date Received: 8/06/2022

inspiring place
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ph (03) 6231 1818 email: jerrydegryse@inspiringplace.com.au

REV	AMENDMENTS	DATE

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Project.
The Station

Client
PREPARED FOR THE YOUNG GROUP TASMANIA

Address
33 Dubs and Co. Drive, Sorell TAS

Drawing No.	Title
DA-102	**LANDSCAPE PLAN GROUND LEVEL**

Project No.	Drawn	Date Printed
21-22	EH/SR	6/5/22
North	Approved	Scale
	JDeg	1:350@A3
	Revision.	Status
		Development Application

HARD SURFACES

C1 **Exposed aggregate concrete**
Vehicle grade. Warm, sandstone tones. Refer engineer drawings for levels and darinage. Refer traffic engineer drawings for car park information.

C2 **General purpose concrete**
Pedestrian grade.

P1 **Pedestrian Paver**
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MW Masonry wall. Refer to Architects drawings.

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Light Post
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Bike Rack
Public bike rack.

Park Bench
Proposed bench location.

Bins
Public bins.

SOFT SURFACES

GB1 **Garden Bed 01: Entry planting**
Refer to DA-102 Planting Schedule

GB2 **Garden Bed 02: Car park/ Boundary planting**
Refer to DA-102 Planting Schedule

GB3 **Garden Bed 03: WSUD planting**
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GB4 **Garden Bed 04: Green wall/ Indoor planting**
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AT1 **Advanced tree in Garden Bed 01**
Refer to DA-102 Planting Schedule

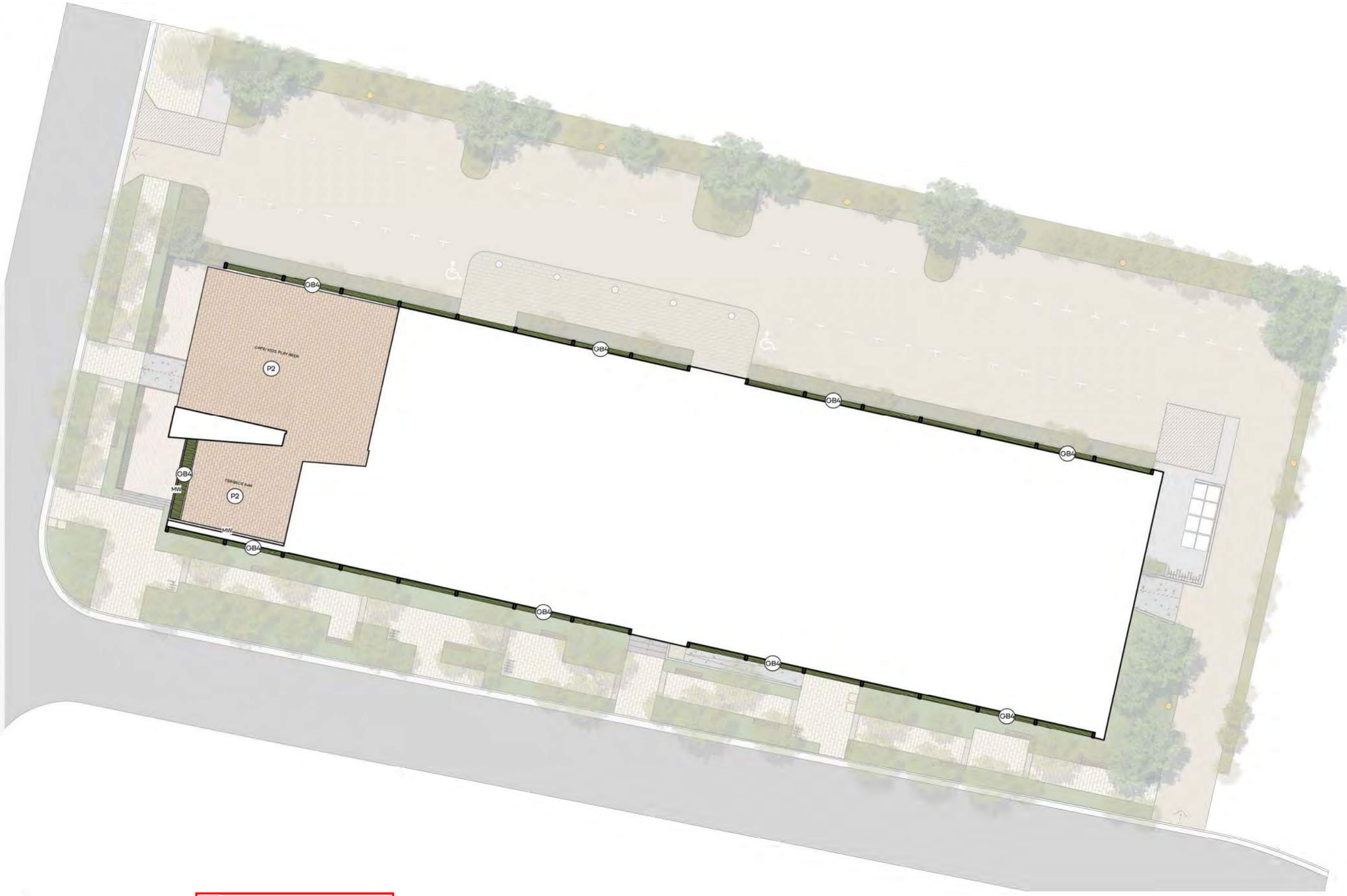
AT2 **Advanced tree in Garden Bed 02**
Refer to DA-102 Planting Schedule

AT3 **Advanced tree in Garden Bed 02**
Refer to DA-102 Planting Schedule

AT4 **Advanced tree in Garden Bed 03**
Refer to DA-102 Planting Schedule

AT5 **Advanced street tree in tree grate**
Proposed street tree to council owned pavement area. Tree locations approximate only- subject to underground service locations.

ET **Existing tree**



1 DA-103 LANDSCAPE PLAN FIRST LEVEL
1:350

Sorell Council
Development Application: 5.2022.166.1 33 Dubs & Co Drive, Sorell.pdf
Plans Reference: P1
Date Received: 8/06/2022

inspiring place
210 Collins Street, Hobart, Tasmania 7000
ph (03) 6231 1818 email: jerrydegryse@inspiringplace.com.au

REV	AMENDMENTS	DATE

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Project.
The Station

Client
PREPARED FOR THE YOUNG GROUP TASMANIA

Address
33 Dubs and Co. Drive, Sorell TAS

Drawing No.
DA-103

Title
LANDSCAPE PLAN FIRST LEVEL

Project No.	Drawn	Date Printed
21-22	EH/SR	6/5/22
North	Approved	Scale
	JDeg	1:350@A3
	Revision.	Status
		Development Application

Sorell Council

Development Application: Response to Request for Information 5.2022.166.1 33 Dubs & Co Drive, Sorell 25/08/2022 - P5

Plans Reference: P5

Date Received: 25/08/2022

Calculation Summary						
Label	CalcType	Units	Avg	Max	Min	Max/Avg
Carpark Eh	Illuminance	Lux	13.74	45.1	1.5	3.28
Carpark Ev1	Illuminance	Lux	N.A.	11.5	1.6	N.A.
Carpark Ev2	Illuminance	Lux	N.A.	11.2	1.0	N.A.
ObtrusiveLight_1_Cd_Seg1	Obtrusive Light - Cd	N.A.	N.A.	492	0	N.A.
ObtrusiveLight_1_lll_Seg1	Obtrusive Light - lll	Lux	N.A.	1.7	0.0	N.A.
ObtrusiveLight_2_Cd_Seg1	Obtrusive Light - Cd	N.A.	N.A.	473	0	N.A.
ObtrusiveLight_2_lll_Seg1	Obtrusive Light - lll	Lux	N.A.	1.6	0.0	N.A.
DDA1	Illuminance	Lux	26.80	30.9	22.7	1.15
DDA2	Illuminance	Lux	30.90	32.5	29.9	1.05

LIGHTING SCHEDULE

Type	Manufacturer	Description	Image	Product Cat No.	LAMP(s)			IP Rating	Control Gear	Mounting Details
					Type	Lamp Wattage (W)	Colour Temp			
W1	Advanced Lighting Technologies (Cree)	ADLT CREE XSPW TYPE 4ME OPTIC 4000K WALL MOUNTED AT 4.8M AFFL		XSPW-B-WM-4ME-6L-40K	LED	47W	4000K	65	Fixed	WALL SURFACE
W2	Advanced Lighting Technologies (Cree)	ADLT CREE XSPW TYPE 3ME OPTIC 4000K WALL MOUNTED AT 4.8M AFFL		XSPW-B-WM-3ME-6L-40K	LED	47W	4000K	65	Fixed	WALL SURFACE

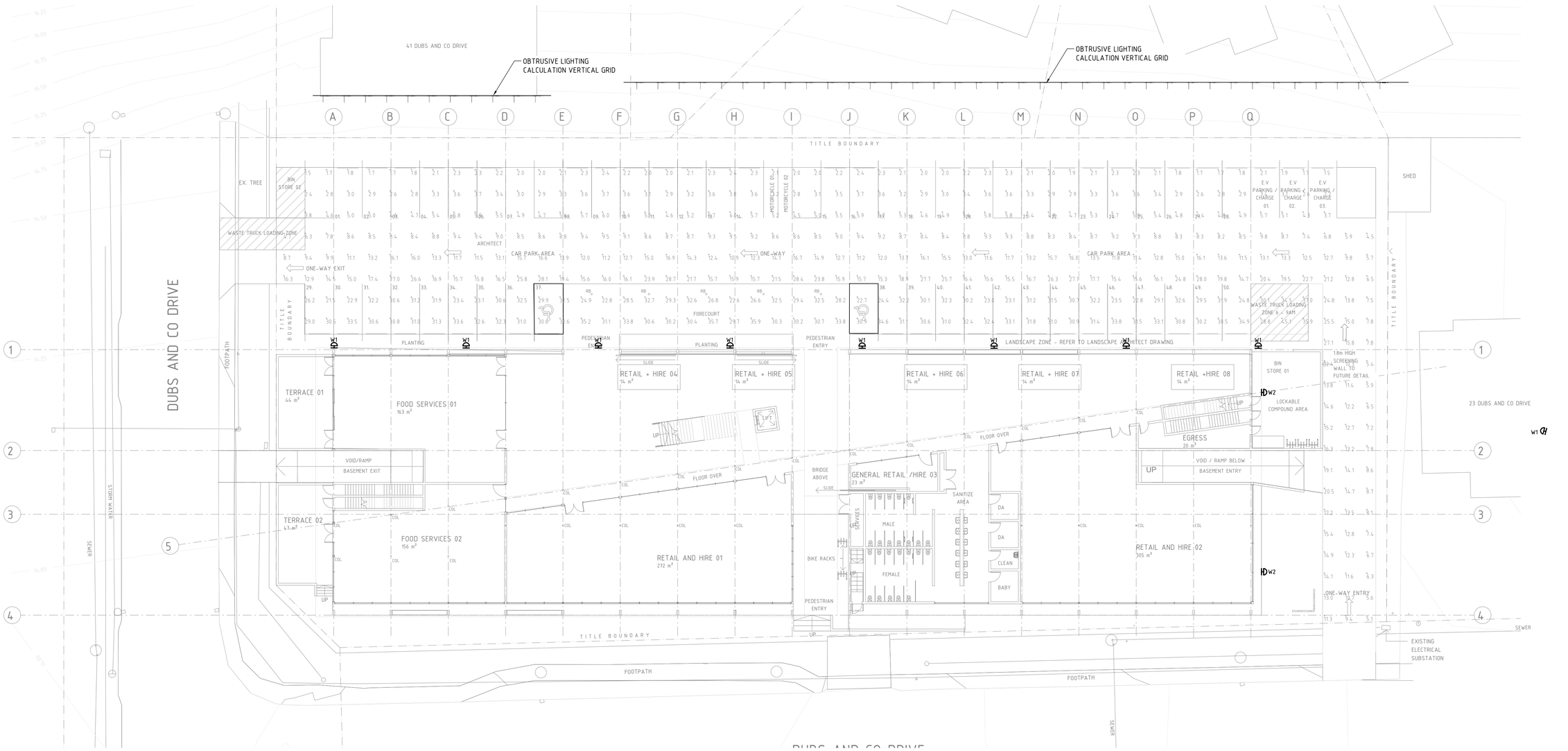
LIGHTING DESIGN PARAMETERS

EXTERNAL LIGHTING HAS BEEN DESIGN AND CERTIFIED FOR THE FOLLOWING AUSTRALIAN STANDARDS.

- AS1158.3.1-2020 – LIGHTING SUBCATEGORY PC2 (PCD FOR DISABLED PARKING) FOR CAR SPACES, AISLES AND CIRCULATION ROADWAYS.
- AS4282-2019 – ENVIRONMENTAL ZONE A4 (HIGH DISTRICT BRIGHTNESS

GENERAL NOTES:

1. EXTERNAL TYPE LUMINAIRE BODIES ARE THE SAME FOR ALL LIGHT TYPES, BUT THE LENS OPTICS LIGHT DISTRIBUTION DIFFERS. IT IS ESSENTIAL THAT THERE IS NO SUBSTITUTION BETWEEN ANY LUMINAIRE TYPES COORDINATED WITH THE LAYOUT.
2. LUMINAIRE MOUNTING BRACKETS AND POLE FOOTINGS AS PER MANUFACTURERS RECOMMENDATIONS AND STRUCTURAL DRAWINGS DETAIL
3. CAR PARK LIGHTING TO BE CONTROLLED FROM PE CELL WITH TIME CLOCK CONTROL. ALLOW TO SET TIME CLOCK TO TURN LIGHTS OFF AS DIRECTED BY COUNCIL REPRESENTATIVE.
4. PIT LOCATIONS INDICATIVE ONLY, ALLOW TO INSTALL PITS WITHIN 2.5m OF LOCATION SHOWN. CONTRACTOR SHALL LOCATE PITS WITHIN GARDEN/LANSCAPING WHERE POSSIBLE/ WHERE PITS MUST BE INSTALLED WITHIN PATHS OR ROADWAYS THE CONTRACTOR MUST ENSURE THE PITS, SUPPORT AND LIDS PROVIDED MEET EXPECTED TRAFFIC LOADINGS. ALL PIT LIDS WITHIN PATHS OR ROAD SURFACES MUST BE FINISHED TO MATCH THE SURROUND SURFACE MATERIAL.
5. COORDINATE NEW ALL IN GROUND SERVICES.



REV.	DESCRIPTION	DRN	CHK	APP.	DATE
A	ISSUED FOR BUILDING APPROVAL	TK	AM	SJL	19.08.22

DRAWING CHECK	SIGNATURE	DATE
DRAWN	TJK	18.08.22
DESIGNED		
CHECKED		
CLIENT		

CO-ORDINATION CHECK	SIGNATURE	DATE
STRUCT.		
MECH.		
ELECT.		
HYDR./CIVIL		
FIRE/ENV.		

CLIENT: 1+2 ARCHITECTURE

COVA Stronger Together
1300 35 7363 covathinking.com
ACN 117 492 814

PROJECT: THE STATION
MIXED USE DEVELOPMENT
33 DUBS AND CO DRIVE
SORELL, TAS, 7172

TITLE: ELECTRICAL SERVICES
OVERALL SITE PLAN

4000 0 4000 8000 12000 A1

STATUS: BUILDING APPROVAL
NOT TO BE USED FOR CONSTRUCTION

SCALE @ A1: 1:200 DIMENSIONS IN: MILLIMETRES

DRAWING No.: 5454.003-E100 REV.: A