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

St Joseph's Affordable Home (SJAH) Factory Development

Traffic Impact Assessment Report

FINAL REPORT

ADDRESSING RFI

Prepared for

St Joseph's Affordable Homes

Date

APRIL 2024

Prepared by

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	Name	Signature	Date
Authorised by:	**Joanne Fisher**		April 8th 2024

1. Introduction

1.1 Client Details

This document has been prepared for the following:

Client Name:	St Joseph's Affordable Homes (SJAH)
Client Contact:	Adrian Broomhall
Address:	35 Tower Road
	New Town
	7008

1.2 Project Details

The report is undertaken for the proposed development of St Joseph's Affordable Home (SJAH) modular home factory at 115 Cove Hill Road, Bridgewater.

A copy of the proposed development plans can be found at **Appendix A.**

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, ferry, pedestrians and cycling networks as well as service and heavy vehicles 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/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 addresses the relevant clauses within Code C2, Parking and Sustainable Transport Code and C3.0 Road and Railway Asset Code, Tasmanian Planning Scheme – Brighton.

2. Scope of Consultancy

The scope of consultancy involves the following:

- Obtain background information and plans.
- Attend project initiation meeting (and others as required).
- Undertake site visit.
- Obtain background information (accident history, traffic volume and road parameters).
- Assess existing network constraints.
- Assess trip generation associated with the proposed uses.
- Review ongoing designs.
- Access parking requirements.
- Assess road capacity and assess traffic flows against environmental capacity.
- Assess any upgrade required to intersection.
- Model critical intersections using SIDRA intersection to determine capacity limits.
- Assess servicing requirements and ensure design can accommodate the turning paths.
- Run Autotrack to ensure road infrastructure can cater for typical truck flows.
- Undertake a Traffic Impact Assessment Report to meet the DSG requirements to accompany Development Application.

3. Howarth Fisher Limitations

This document was prepared for the purpose described herein and as agreed to by Howarth Fisher (HF) and the SJAH. This document was prepared for the sole use of the SJAH, the only intended beneficiaries of our work. HF accepts no duty of care or liability to any third parties who may use or rely on this report, other than as expressly agreed by HF.

Without limiting the foregoing sentence in any way, in no circumstances will HF be liable to any third party whether that liability arises in contract, tort (including negligence or breach of statutory duty) or otherwise for any loss whatsoever arising out of or in any way related to this report.

4. Location of the Development

Figure 1 shows the location of the proposed development of the St Joseph Affordable Homes (SJAH) facilities as part of the Point B Master development in the context of the surrounding street network.

Figure 1: Location of SJAH facilities (source: LISTmap)

5. Existing Situation

5.1 Site Details

The site is located at 115 Cove Hill Road, Bridgewater. The site area for proposed SJAH facilities is 4,539m^2.

The overall site also has a road frontage onto Cove Hill Road and Cowle Road and a pedestrian access provision onto Taylor Crescent. The land is zoned light industrial[1]. The development is located on the Certificate of Title 176216/103.

A plan showing the concept development of the various stages is located at **Appendix A** of this report.

Figure 2: Showing the indicative location of proposed SJAH facilities at Cowle Road frontage.

5.2 Road Width

Cove Hill Road is 5.8 metres wide measured in the vicinity of the proposed development site. There is no kerb and channel along Cove Hill Road.

[1] https://maps.thelist.tas.gov.au/listmap/app/list/map

Figure 3: Showing Cove Hill Road in the vicinity of the site.

Cowle Road is 9.2 metres wide measured at the location of the proposed access. There is a kerb and channel along Cowle Road.

Figure 4: Showing Cowle Road in the vicinity of the site.

Taylor Crescent is 8.2 metres wide at the location of the existing crossover.

Figure 5: Showing Taylor Crescent in the vicinity of the site.

5.3 Traffic Volumes

To obtain an indication of the trip rates currently to the existing site at 115 Cove Hill Road, Bridgewater, Brighton Council provided data from a metro count that showed the following traffic volumes on 55 Cove Hill Road. It should be noted that these counts were undertaken between morning peak of 11:45am – 12:45pm and evening peak of 15:30 – 16:30pm. Howarth Fisher has also undertaken traffic counts on Cowle Road on Thursday, 30th June 2022 in the evening peak during 4-5pm. The survey results are tabulated below:

Location	Time	Traffic Volume Count Peak hour	*Annual Average Daily Traffic AADT*
55 Cove Hill Road (Brighton Council)	***Morning Peak*** *11.00am-12.00pm*	**168 vehicles**	***2522***
	Evening Peak *15.30pm-16.30pm*	**265 vehicles**	
Cowle Road (Howarth Fisher)	***Evening Peak*** *4.00pm – 5.00pm*	**125 vehicles**	***1250 (estimated)***

Table 1: Traffic Volume Count Data (Sources: Brighton Council Metro Count data and Howarth Fisher and Associates survey)

Based on standard traffic engineering principles, peak hour traffic volumes typically represent approximately 10% of Annual Average Daily Traffic (AADT) flows. Therefore, based on Howarth Fisher and Associates survey data of 125 vehicles counted in the peak hour, there would be an anticipated traffic volume of 1250 vehicles per day on Cowle Road.

5.4 Posted Speed Limits

The speed limit along Cove Hill Road, Bridgewater, in the vicinity of the proposed development site, is 60km/hr.

Figure 6: Speed limit sign along Cove Hill Road within the vicinity of the site.

Cowle Road and Taylor Crescent are subject to the default urban speed limit of 50km/hr.

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5.5 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 have been nine (9) accidents in the surrounding street network in the vicinity of the site. In terms of accident severity there were:

- Seven (7) property damage only accidents;
- One (1) was reported as a serious accident;
- One (1) was reported as a first aid accident.

Majority of the accidents involved a light vehicle, with;

- Six (6) accidents involved an additional light vehicle.
- One (1) involved a heavy vehicle.

The accident history is listed below.

- Four (4) accidents occurred midblock on Taylor Crescent. (it should be noted that there will be no vehicular access via Taylor Crescent).
- Two (2) accidents occurred at the intersection of Cove Hill Road and Cowle Road.
- One (1) accident occurred at the intersection of Taylor Crescent and Cowle Road.

A plan showing the location of the accidents in the vicinity of the site is shown overleaf:

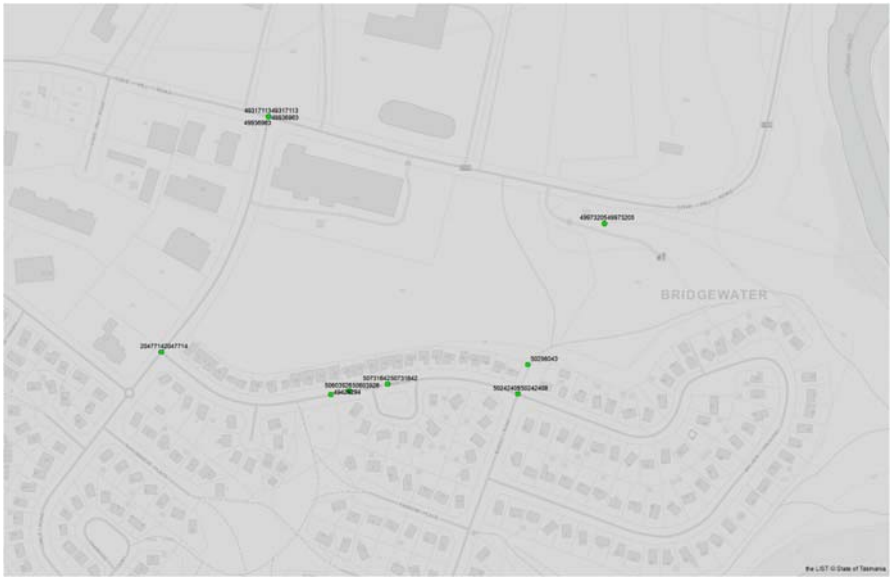


Figure 7: Five-year accident history for the surrounding street network. (Source: Department of State Growth)

5.5.1 Cove Hill Road and Cowle Road

Cove Hill Road and Cowle Road are both minor collector roads[2] providing links to the arterial road network at the East Derwent Highway. They provide both a through traffic and access function within the road network.

5.5.2 East Derwent Highway

The East Derwent Highway is an arterial road (and therefore not part of the residential road network). The East Derwent Highway is a regional access road and of strategic importance to regional and local communities and economies; they link important towns to the category 1 and category 2 roads. Whilst they are used by heavy freight vehicles, this use is less than that of regional freight roads. Together with regional freight roads, the regional access roads also provide safe and efficient access to Tasmania's Regions. Regional Access Roads facilitate:

- Connection of smaller regional resource bases with truck and regional freight roads
- Local commercial interaction
- Sub regional and inter regional freight movement by connecting with truck and regional freight roads.
- Sub regional passenger's vehicle movements and connection to truck and regional freight roads; and
- Sub regional tourist movement and connection to truck and regional freight roads.

It is assumed that most of the traffic generated by the proposed land use would utilise the East Derwent Highway to access the site.

5.5.3 Taylor Crescent

It is not proposed that there will be any vehicular access via Taylor Crescent and will be exclusively used for pedestrian access.

5.6 Proposed Development

The details of the proposed development of SJAH facilities can be found on the plans at **Appendix A** of this report. The modular homes factory will access from Cove Hill Road and Cowle Road and will utilise the approved internal roadway with some minor modification to the road alignment.

[2] https://www.transport.tas.gov.au/__data/assets/pdf_file/0005/108509/State_road_hierarchy_December_1.pdf

The manufacturing process involved the assembly of prefabricated materials into modular homes. The factory involves several work bays where each part of the assembly process is undertaken.

It is intended that the training facility is run in conjunction with the manufacturing facility to train apprentices on site. The total number of staff is expected to be a maximum of 67 which consist of 7 full time office staff and 60 factory staff. The training facility will be used by groups of 15 trainees / apprentices.

Hours of operation is proposed to be 7am to 9pm Monday to Saturday and 8am to 9pm Sunday and public holidays.

It has been advised that the commercial vehicle servicing will occur between:

- 7am to 9pm Monday to Saturday and
- 8am to 9pm Sunday and public holidays.

6. Assessment of Trip Generation

6.1 Existing Trip Rates

At the master planning stage, the following table outlined the trips associated with the whole of the site.

The trip generation rates have been assessed based on the NSW, TDT 13/04a 2013, Trip for bulky goods retail stores. This is a nationally recognised reference document for determining trip generation rates and has been used in the formulation of the table below:

LAND USE	FLOOR AREA	TRIP GENERATION RATE	Estimated daily peak hourly generation rate
Bulky Goods Sales	1350.6m^2 (GFA) Bulky goods sales – 975m^2	Daily trip rates 17 average / 100m^2 of GFA AM peak is outside of opening hours. PM Peak is 2.7 per 100m^2 of GFA	230 trips per day 0 trips 37 trips (PM Peak Hour)
Warehouse (41 Units) Storage[1]	4087.5m^2 Amenities 375m^2 [2]	Daily Trip Rates 7.83 per 100m^2 AM PEAK 0.7 per 100m^2 PM PEAK HOUR 0.78 per 100m^2	320 Trips 28.6 trips 31.8 trips
TOTAL TRIP GENERATION			**550 Daily Trips** **28.6 (29) morning peak hour trips** **68.8 (69) evening peak hour trips**

On a pro rata basis the SJAH development involves the replacement of

- 13 x A3 (90m^2)units = 1170m^2
- 5 x A2 (112.5m$^{2)\ units}$ = 562.5m^2
- 3 x A1 (135m^2) units = 405m^2

TOTAL 2137.5m^2 which equates to 168 trips per day (14.9 trips am peak / 17 trips pm peak)
Plus the bulky goods store - 975m^2 (230 trips per day / 37 pm peak trips)

The daily trip generation at the master planning stage equates to 398 daily trips and 54 evening peak hour trips.

By comparison the SJAH development and training facility with office results in fewer trips, notably 302 daily trips and 37 peak hourly trips. Therefore, the impact of the proposed SJAH development is less than those anticipated during the master planning stage (outlined in Table 2 below).

6.2 Proposed Trip Generation

The proposed trip generation rates have been calculated based on the NSW, RMS, Guide to Traffic Generating Developments (NSW, TDT 13/04a 2013). This is a nationally recognised reference document for determining trip generation rates and has been used in the formulation of the table below. Note that it does not take precedence over the Tasmanian Planning Scheme – Brighton. The following traffic generation rates have been calculated.

Figure 8: Trip generation requirements for industrial estates (average regional) (Source: RMS Guide to generating traffic developments, NSW, RMS TDT 2013/04a).

LAND USE	FLOOR AREA	TRIP GENERATION RATES	ESTIMATED DAILY PEAK HOURLY GENERATION RATE
SJAH factory	3791.9m^2	Daily trip rates 7 average / 100m^2 of GFA	265 trips per day
		PM Peak is 0.78 per 100m^2 of GFA	30 trips during the peak hour
SJAH Training Centre Ancillary use	639.2m^2	Daily Trip rates 7 /100m2 of GFA	45 trips per day
		PM Peak is 0.78 per 100m^2 of GFA	5 trips during the peak hour

Office and amenity Ancillary Use	264m^2	Ancillary Use 7 average / 100m^2 PM Peak is 0.78 per 100m^2 of GFA	19 trips per day 2 trips peak hour
TOTAL TRIP GENERATION			**302 Daily Trips** **37 peak hour trips**

Table 2: Estimated Trip Generation associated with SJAH facilities development. (Source: Guide to Traffic Generating Developments (NSW, RMS TDT 2013/04a)).

6.3 Traffic Generation Rate Requirements

Given both Cove Hill Road and Cowle Road are minor collector roads, the amount of acceptable increase in AADT to and from the site is 20% or 40 vehicle movements per day in accordance with the Tasmanian Planning Scheme – Brighton.

Location of vehicular traffic	**Amount of acceptable increase in annual average daily traffic to and from the site (total of ingress and egress)**	
	Vehicles up to 5.5m long	**Vehicles longer than 5.5m long**
Vehicle crossing on major roads and private level crossings	10% or 10 vehicle movements per day, whichever is the greater	10%
Vehicle crossings on other roads	20% or 40 vehicle movements per day, whichever is the greater	20% or 5 vehicle movements per day, whichever is the greater

Table 3: Acceptable increase in annual average daily traffic to and from the site (Source: Table C3.1 - Tasmanian Planning Scheme - Brighton).

In line with the Tasmanian Planning Scheme – Brighton, the trip generation has been assessed against the provisions of the performance criteria of the Tasmanian Planning Scheme, Brighton from C3.5.1 below.

6.3.1 C3.5.1 Traffic generation at a vehicle crossing, level crossing or new junction

Objective:

<table>
<tr><td colspan="2">To minimise any adverse effects on the safety and efficiency of the road or rail network from vehicular traffic generated from the site at an existing or new vehicle crossing or level crossing or new junction.</td></tr>
<tr><td>Acceptable Solutions</td><td>Performance Criteria</td></tr>
<tr><td>A1.1
For a category 1 road or a limited access road, vehicular traffic to and from the site will not require:</td><td rowspan="5">P1
Vehicular traffic to and from the site must minimise any adverse effects on the safety of a junction, vehicle crossing or level crossing or safety or efficiency of the road or rail network, having regard to:
(a) any increase in traffic caused by the use;
(b) the nature of the traffic generated by the use;
(c) the nature of the road;
(d) the speed limit and traffic flow of the road;
(e) any alternative access to a road;
(f) the need for the use;
(g) any traffic impact assessment; and
(h) any advice received from the rail or road authority.</td></tr>
<tr><td>(a) a new junction;
(b) a new vehicle crossing; or
(c) a new level crossing.</td></tr>
<tr><td>A1.2
For a road, excluding a category 1 road or a limited access road, written consent for a new junction, vehicle crossing, or level crossing to serve the use and development has been issued by the road authority.</td></tr>
<tr><td>A1.3
For the rail network, written consent for a new private level crossing to serve the use and development has been issued by the rail authority.</td></tr>
<tr><td>A1.4
Vehicular traffic to and from the site, using an existing vehicle crossing or private level crossing, will not increase by more than:
(a) the amounts in Table C3.1; or
(b) allowed by a licence issued under Part IVA of the Roads and Jetties Act 1935 in respect to a limited access road.</td></tr>
<tr><td>A1.5
Vehicular traffic must be able to enter and leave a major road in a forward direction.</td></tr>
<tr><td colspan="2">Response:

Given the development will result in an increase of more than 40 vehicle movements per day and a likely increase of more than 5 small rigid vehicles to the site per day, the performance criteria has been addressed below.

a) any increase in traffic caused by the use;</td></tr>
</table>

The SJAH site is expected to generate 302 trips daily based upon the regional averages for industrial estates, contained within the NSW, RMS, TDT 2013/ 4a, Guide to Traffic Generating Developments, updated traffic surveys.

It is anticipated that there will be an increase of 37 trips in the peak hours.

b) the nature of the traffic generated by the use;

The staff traffic is likely to be predominantly via light vehicles and utility truck vehicles. The training centre is not likely to generate many heavy vehicle trips.

However, there will also be a combination of heavy and light vehicles associated with the SJAH facility. There will be a requirement for 19m semi-trailers to service the SJAH for transportation purposes, predominantly for the movement of the modular homes but also for building supplies. Provision has been made for these and other heavy vehicles to enter and exit the site. It should be noted that the Autotrack paths for a 19metre semi-trailer with an extra wide load (4.1m wide) has been provided to accommodate the transport requirements of the site, notably for vehicle egressing the site.

c) the nature of the road;

The road design will support and encourage a low-speed environment. There will be traffic calming and reduced posted speed limit signs. It has been advised that the access road will be subject to a 20km/hr speed restriction. The higher degree angled curve located in the middle of the road will reduce the vehicle speed and has been designed to accommodate a 19m semi-trailer. A proposed large speed table at the major horizontal curve will further reduce vehicular speed near to the proposed Traders Square.

d) the speed limit and traffic flow of the road;

It is essentially a low-speed shared environment subject to low vehicular speeds. It has been advised that a 20km/hr posted speed limit will be adopted in the vicinity the SJAH.

e) any alternative access to a road;

There are three accesses into the site from the main access road. One will provide access to the training facility and the other to the factory and the other to the lower ground parking area. The access to the lower ground parking facility will result in the use of an access outside the site boundary.

f) the need for the use;

There is demand for affordable homes in the whole of the State. In addition, there is a demand for training facilities which will assist in potential job opportunities as well as the provision for vocation-based education and training to employees and apprentices at the SJAH facility.

g) any traffic impact assessment; and

This report constitutes a traffic impact assessment report.

h) any advice received from the rail or road authority.

This report will ultimately address the impact on the local road network. However, given its impact on the East Derwent Highway as the main means of access, Howarth Fisher and Associates have undertaken Sidra Intersection modelling to assess the impact of the SJAH facility on the State Road network. The traffic modelling based on recent Howarth Fisher study demonstrates there is not an issue with capacity onto the state road network.

7. Intersection Analysis

An assessment of the critical intersections in the vicinity of the site has been undertaken using Sidra Intersection software.

Sidra Intersection is a software package used for assessing intersection and network capacity, level of service and performance analysis in Australia and New Zealand. Sidra Intersection is endorsed by Austroads. It is a micro – analytical traffic evaluation tool for intersection and network design, operations planning and signal timings. The definitions of the output data are expressed below in the respective section.

7.1.1 Degree of Saturation

The degree of saturation (DOS) is defined as the ratio of demand flow to capacity, also known as the volume / capacity ratio. The movement degree of saturation is the largest degree of saturation for any lane or movement. If there is no lane underutilisation the degrees of saturation for all lanes and the movement lane group are the same Movements in shared lanes will have the same degree of saturation except in the case of de facto exclusive lanes. The approach degree of saturation is the largest value for any movement (or any lane) in the approach, and the intersection degree of saturation.

7.1.2 Level of Service

Level of service is a standardised performance measure used in the US Highway Capacity Manual and Austroads to assess changes in the operating speed with various factors. The original procedures were used to determine the maximum service flow that can be carried at a said level of service, or the level of service given for the said flow road and traffic conditions. The latest procedures are based primarily on traffic bunching, through speed, capacity and safety and are used in the determination of adjustment factors.

Table 1: SIDRA Level of Service

LOS	Delay per Vehicle (secs)		
	Signals	Roundabout	Sign Control
A	10 or less	10 or less	10 or less
B	10 to 20	10 to 20	10 to 15
C	20 to 35	20 to 35	15 to 25
D	35 to 55	35 to 50	25 to 35
E	55 to 80	50 to 70	35 to 50
F	Greater than 80	Greater than 70	Greater than 50

It is generally accepted that an intersection in an urban environment operates well at a level of service D or higher.

7.1.3 Control Delay

This is the sum of the stop line and geometric delay thus it includes all deceleration and acceleration delays experienced in negotiating the intersection.

7.2 Traffic Modelling Layout

Howarth Fisher and Associates undertook a site visit on Thursday, 19th May 2022, to collect the measurement and parameters required in the Sidra Intersection model, typically the number, width and length of trafficable lanes and speeds.

7.3 Turning Movement Count Data

Howarth Fisher and Associates have undertaken turning movement counts to provide accurate input data into the Sidra Intersection model. Given the impact of the proposed traffic generation on the State Road network, a Sidra Intersection analysis has been undertaken for the two intersections off the East Derwent Highway which will typically be the main access routes to the site.

7.4 Cove Hill Road Roundabout

There are two main intersections in the vicinity of the development which have been assessed which provide a link to the State Road network, (East Derwent Highway), to ensure there is sufficient capacity for the traffic associated with the trip generation associated with the SJAH facility at 115 Cove Hill Road.

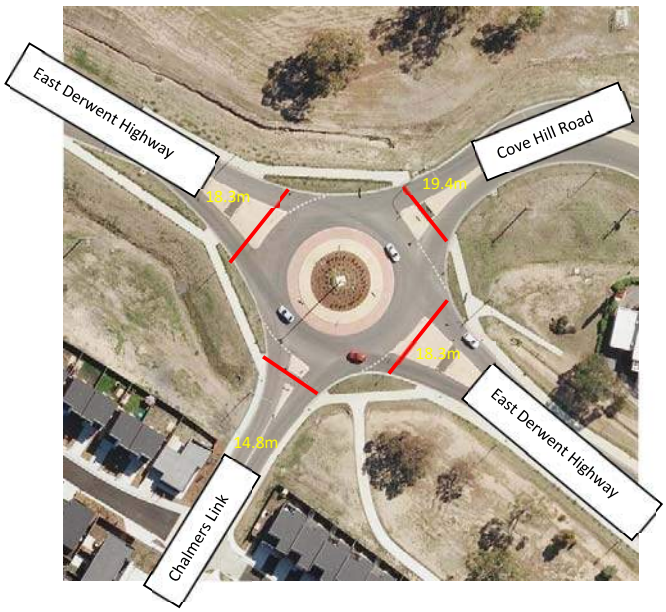


Figure 9: Roundabout intersection forming the intersection of Cove Hill Road / East Derwent Highway / Chalmers Link.

7.5 Scott Road / Paice Street / East Derwent Highway

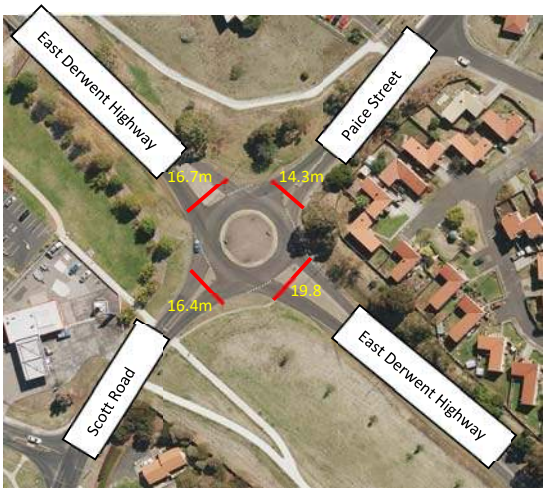


Figure 10: Roundabout intersection of Scott Road, Paice Street, and the East Derwent Highway.

7.6 Sidra Intersection Results

Howarth Fisher and Associates have undertaken Sidra Intersection analysis for the existing and proposed traffic volumes. Given the traffic generation associated with the development peaks in the evening (the sidra analysis has been undertaken in the evening pea to be representative of the worst case scenario flows). It has been assumed a worst-case situation of all traffic generated by the development using the East Derwent Highway for access with 50% exiting via the Cove Hill Road roundabout and 50% exiting via the Paice Street roundabout. An additional 18 trips were assigned to each roundabout exiting in the same proportions as the existing flows. The SJAH factory and training centre trips have been added onto the trips associated with Mitre 10 (which has been subject to a recent Development Application).

The SJAH facility will operate for the most part outside the main peak periods, with staff predominantly arriving before 7am. The hours of operation for the SJAH facility is proposed to be 7am to 9pm Monday to Saturday and 8am to 9pm Sunday and public holidays. Commercial Vehicles movements, including the loading and unloading commercial vehicles, will remain within the hours mentioned above.

It has been advised that the commercial vehicle servicing will occur between:

- 7am to 9pm Monday to Saturday and
- 8am to 9pm Sunday and public holidays.

The results of the Sidra Intersection analysis are outlined overleaf:

7.6.1 Existing Evening Peak Situation – Cove Hill Road / East Derwent Highway/ Chalmers Link

MOVEMENT SUMMARY

Site: 101 [Cove Hill Road / East Derwent Highway PM Peak Existing]

Cove Hill Road / East Derwent Highway PM Peak
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Chalmers Link											
1	L2	69	0.0	0.094	5.7	LOS A	0.4	3.1	0.49	0.62	53.3
2	T1	9	0.0	0.094	5.8	LOS A	0.4	3.1	0.49	0.62	54.6
3	R2	17	0.0	0.094	10.6	LOS B	0.4	3.1	0.49	0.62	54.6
3u	U	1	0.0	0.094	12.7	LOS B	0.4	3.1	0.49	0.62	55.7
Approach		97	0.0	0.094	6.6	LOS A	0.4	3.1	0.49	0.62	53.7
East: East Derwent Highway											
4	L2	11	0.0	0.272	4.6	LOS A	1.0	7.2	0.28	0.46	54.2
5	T1	338	0.0	0.272	4.6	LOS A	1.0	7.2	0.28	0.46	55.6
6	R2	1	0.0	0.272	9.4	LOS A	1.0	7.2	0.28	0.46	55.6
6u	U	1	0.0	0.272	11.5	LOS B	1.0	7.2	0.28	0.46	56.7
Approach		351	0.0	0.272	4.7	LOS A	1.0	7.2	0.28	0.46	55.6
North: Cove Hill Road											
7	L2	6	0.0	0.125	5.1	LOS A	0.5	3.2	0.36	0.68	51.3
8	T1	12	0.0	0.125	5.2	LOS A	0.5	3.2	0.36	0.68	52.6
9	R2	126	0.0	0.125	9.9	LOS A	0.5	3.2	0.36	0.68	52.6
9u	U	1	0.0	0.125	12.0	LOS B	0.5	3.2	0.36	0.68	53.5
Approach		145	0.0	0.125	9.3	LOS A	0.5	3.2	0.36	0.68	52.5
West: East Derwent Highway											
10	L2	156	0.0	0.366	4.0	LOS A	2.2	15.4	0.14	0.45	54.5
11	T1	334	0.0	0.366	4.1	LOS A	2.2	15.4	0.14	0.45	55.9
12	R2	89	0.0	0.366	8.9	LOS A	2.2	15.4	0.14	0.45	55.9
12u	U	1	0.0	0.366	11.0	LOS B	2.2	15.4	0.14	0.45	57.0

7.6.2 Proposed Evening Peak Situation– Cove Hill Road / East Derwent Highway / Chalmers Link

MOVEMENT SUMMARY

Site: 101 [Cove Hill Road / East Derwent Highway PM Peak with Development -with Mitre 10 and SJAH]

Cove Hill Road / East Derwent Highway PM Peak
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Chalmers Link											
1	L2	69	4.0	0.104	6.2	LOS A	0.5	3.7	0.54	0.65	52.9
2	T1	12	4.0	0.104	6.4	LOS A	0.5	3.7	0.54	0.65	54.3
3	R2	17	4.0	0.104	11.1	LOS B	0.5	3.7	0.54	0.65	54.2
3u	U	1	0.0	0.104	13.1	LOS B	0.5	3.7	0.54	0.65	55.4
Approach		99	4.0	0.104	7.1	LOS A	0.5	3.7	0.54	0.65	53.3
East: East Derwent Highway											
4	L2	11	4.0	0.294	5.0	LOS A	1.2	8.7	0.36	0.50	53.7
5	T1	338	4.0	0.294	5.0	LOS A	1.2	8.7	0.36	0.50	55.2
6	R2	1	4.0	0.294	9.7	LOS A	1.2	8.7	0.36	0.50	55.1
6u	U	1	0.0	0.294	11.8	LOS B	1.2	8.7	0.36	0.50	56.3
Approach		351	4.0	0.294	5.0	LOS A	1.2	8.7	0.36	0.50	55.1
North: Cove Hill Road											
7	L2	11	4.0	0.202	5.3	LOS A	0.8	5.7	0.40	0.70	51.1
8	T1	19	4.0	0.202	5.4	LOS A	0.8	5.7	0.40	0.70	52.4
9	R2	198	4.0	0.202	10.1	LOS B	0.8	5.7	0.40	0.70	52.4
9u	U	1	0.0	0.202	12.2	LOS B	0.8	5.7	0.40	0.70	53.5
Approach		228	4.0	0.202	9.5	LOS A	0.8	5.7	0.40	0.70	52.3
West: East Derwent Highway											
10	L2	198	4.0	0.401	4.0	LOS A	2.6	18.7	0.16	0.45	54.3
11	T1	334	4.0	0.401	4.2	LOS A	2.6	18.7	0.16	0.45	55.8
12	R2	89	4.0	0.401	8.9	LOS A	2.6	18.7	0.16	0.45	55.7
12u	U	1	0.0	0.401	11.0	LOS B	2.6	18.7	0.16	0.45	57.0
Approach		622	4.0	0.401	4.8	LOS A	2.6	18.7	0.16	0.45	55.3
All Vehicles		1300	4.0	0.401	5.9	LOS A	2.6	18.7	0.28	0.52	54.5

7.6.3 Proposed Evening Peak Hour Situation with 15 year growth– Cove Hill Road / East Derwent Highway / Chalmers Link

MOVEMENT SUMMARY

Site: 101 [Cove Hill Road / East Derwent Highway PM Peak with Development Mitre 10 and SJAH 1.5% growth]

Cove Hill Road / East Derwent Highway PM Peak compound growth 1.5%
Roundabout
Design Life Analysis (Practical Capacity): Results for 15 years

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Chalmers Link											
1	L2	87	4.0	0.146	7.2	LOS A	0.8	5.7	0.64	0.72	52.2
2	T1	14	4.0	0.146	7.4	LOS A	0.8	5.7	0.64	0.72	53.6
3	R2	21	4.0	0.146	12.1	LOS B	0.8	5.7	0.64	0.72	53.5
3u	U	1	0.0	0.146	14.1	LOS B	0.8	5.7	0.64	0.72	54.7
Approach		124	4.0	0.146	8.1	LOS A	0.8	5.7	0.64	0.72	52.6
East: East Derwent Highway											
4	L2	13	4.0	0.384	5.4	LOS A	1.8	13.1	0.45	0.54	53.3
5	T1	422	4.0	0.384	5.4	LOS A	1.8	13.1	0.45	0.54	54.7
6	R2	1	4.0	0.384	10.1	LOS B	1.8	13.1	0.45	0.54	54.6
6u	U	1	0.0	0.384	12.2	LOS B	1.8	13.1	0.45	0.54	55.9
Approach		438	4.0	0.384	5.4	LOS A	1.8	13.1	0.45	0.54	54.7
North: Cove Hill Road											
7	L2	13	4.0	0.270	5.9	LOS A	1.2	8.7	0.49	0.74	50.8
8	T1	24	4.0	0.270	6.0	LOS A	1.2	8.7	0.49	0.74	52.1
9	R2	247	4.0	0.270	10.7	LOS B	1.2	8.7	0.49	0.74	52.1
9u	U	1	0.0	0.270	12.7	LOS B	1.2	8.7	0.49	0.74	53.1
Approach		286	4.0	0.270	10.1	LOS B	1.2	8.7	0.49	0.74	52.0
West: East Derwent Highway											
10	L2	247	4.0	0.505	4.1	LOS A	3.9	28.1	0.21	0.45	54.1
11	T1	417	4.0	0.505	4.3	LOS A	3.9	28.1	0.21	0.45	55.5
12	R2	112	4.0	0.505	9.0	LOS A	3.9	28.1	0.21	0.45	55.5
12u	U	1	0.0	0.505	11.1	LOS B	3.9	28.1	0.21	0.45	56.7
Approach		778	4.0	0.505	4.9	LOS A	3.9	28.1	0.21	0.45	55.1
All Vehicles		1625	4.0	0.505	6.2	LOS A	3.9	28.1	0.36	0.55	54.2

7.6.4 Existing Situation – Scott Road / Paice Street / East Derwent Highway PM PEAK

MOVEMENT SUMMARY

Site: 101 [Paice Street / EDH / Scott Street]

Paice Street / East Derwent Highway / Scott Street
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Scott Street											
1	L2	39	0.0	0.128	4.5	LOS A	0.4	3.0	0.26	0.57	53.2
2	T1	59	0.0	0.128	4.6	LOS A	0.4	3.0	0.26	0.57	54.6
3	R2	63	0.0	0.128	9.3	LOS A	0.4	3.0	0.26	0.57	54.6
3u	U	1	0.0	0.128	11.4	LOS B	0.4	3.0	0.26	0.57	55.6
Approach		162	0.0	0.128	6.4	LOS A	0.4	3.0	0.26	0.57	54.2
East: East Derwent Highway											
4	L2	83	0.0	0.213	4.4	LOS A	1.2	8.6	0.31	0.50	53.7
5	T1	136	0.0	0.213	4.6	LOS A	1.2	8.6	0.31	0.50	55.0
6	R2	59	0.0	0.213	9.4	LOS A	1.2	8.6	0.31	0.50	55.0
Approach		278	0.0	0.213	5.6	LOS A	1.2	8.6	0.31	0.50	54.6
North: Paice Street											
7	L2	69	0.0	0.137	4.9	LOS A	0.6	4.3	0.38	0.57	53.4
8	T1	52	0.0	0.137	5.1	LOS A	0.6	4.3	0.38	0.57	54.7
9	R2	39	0.0	0.137	9.8	LOS A	0.6	4.3	0.38	0.57	54.7
Approach		160	0.0	0.137	6.1	LOS A	0.6	4.3	0.38	0.57	54.1
West: East Derwent Highway											
10	L2	49	0.0	0.223	4.6	LOS A	1.1	7.5	0.32	0.50	53.8
11	T1	200	0.0	0.223	4.8	LOS A	1.1	7.5	0.32	0.50	55.2
12	R2	32	0.0	0.223	9.5	LOS A	1.1	7.5	0.32	0.50	55.2
Approach		281	0.0	0.223	5.3	LOS A	1.1	7.5	0.32	0.50	55.0
All Vehicles		881	0.0	0.223	5.7	LOS A	1.2	8.6	0.32	0.53	54.6

7.6.5 Proposed Evening Peak Hour Situation with Development SJAH and Mitre 10 – Scott Road/ Paice Street / East Derwent Highway

MOVEMENT SUMMARY

Site: 101 [Paice Street / EDH / Scott Street - with SJAH and Mitre 10 rev01]

Paice Street / East Derwent Highway / Scott Street.
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Scott Street											
1	L2	39	4.0	0.146	4.7	LOS A	0.5	3.7	0.29	0.57	53.1
2	T1	75	4.0	0.146	4.7	LOS A	0.5	3.7	0.29	0.57	54.5
3	R2	63	4.0	0.146	9.4	LOS A	0.5	3.7	0.29	0.57	54.4
3u	U	1	0.0	0.146	11.5	LOS B	0.5	3.7	0.29	0.57	55.6
Approach		178	4.0	0.146	6.4	LOS A	0.5	3.7	0.29	0.57	54.1
East: East Derwent Highway											
4	L2	83	4.0	0.237	4.7	LOS A	1.4	10.2	0.36	0.53	53.3
5	T1	136	4.0	0.237	4.9	LOS A	1.4	10.2	0.36	0.53	54.6
6	R2	75	4.0	0.237	9.6	LOS A	1.4	10.2	0.36	0.53	54.5
Approach		294	4.0	0.237	6.0	LOS A	1.4	10.2	0.36	0.53	54.2
North: Paice Street											
7	L2	87	4.0	0.179	5.1	LOS A	0.8	6.0	0.40	0.59	53.2
8	T1	65	4.0	0.179	5.2	LOS A	0.8	6.0	0.40	0.59	54.5
9	R2	49	4.0	0.179	9.9	LOS A	0.8	6.0	0.40	0.59	54.5
Approach		202	4.0	0.179	6.3	LOS A	0.8	6.0	0.40	0.59	53.9
West: East Derwent Highway											
10	L2	63	4.0	0.246	4.8	LOS A	1.2	8.8	0.37	0.53	53.6
11	T1	200	4.0	0.246	5.0	LOS A	1.2	8.8	0.37	0.53	55.0
12	R2	32	4.0	0.246	9.7	LOS A	1.2	8.8	0.37	0.53	54.9
Approach		295	4.0	0.246	5.5	LOS A	1.2	8.8	0.37	0.53	54.7
All Vehicles		968	4.0	0.246	6.0	LOS A	1.4	10.2	0.36	0.55	54.3

7.6.6 Proposed Evening Peak Hour Situation with Development and 15-year growth[3] – Scott Road / Paice Street / East Derwent Highway

MOVEMENT SUMMARY

Site: 101 [Paice Street / EDH / Scott Street - with SJAH and Mitre 10 rev01 - with 15yr design life]

Paice Street / East Derwent Highway / Scott Street based on 1.5% compound growth
Roundabout
Design Life Analysis (Practical Capacity): Results for 15 years

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Scott Street											
1	L2	49	4.0	0.189	4.9	LOS A	0.7	5.3	0.35	0.59	52.9
2	T1	93	4.0	0.189	4.9	LOS A	0.7	5.3	0.35	0.59	54.3
3	R2	79	4.0	0.189	9.7	LOS A	0.7	5.3	0.35	0.59	54.2
3u	U	1	0.0	0.189	11.7	LOS B	0.7	5.3	0.35	0.59	55.4
Approach		222	4.0	0.189	6.6	LOS A	0.7	5.3	0.35	0.59	53.9
East: East Derwent Highway											
4	L2	104	4.0	0.307	4.9	LOS A	2.0	14.2	0.43	0.56	53.0
5	T1	170	4.0	0.307	5.2	LOS A	2.0	14.2	0.43	0.56	54.3
6	R2	93	4.0	0.307	9.9	LOS A	2.0	14.2	0.43	0.56	54.3
Approach		367	4.0	0.307	6.3	LOS A	2.0	14.2	0.43	0.56	53.9
North: Paice Street											
7	L2	109	4.0	0.236	5.5	LOS A	1.2	8.6	0.48	0.63	52.9
8	T1	82	4.0	0.236	5.6	LOS A	1.2	8.6	0.48	0.63	54.3
9	R2	62	4.0	0.236	10.4	LOS B	1.2	8.6	0.48	0.63	54.2
Approach		253	4.0	0.236	6.7	LOS A	1.2	8.6	0.48	0.63	53.6
West: East Derwent Highway											
10	L2	79	4.0	0.320	5.2	LOS A	1.7	12.4	0.44	0.56	53.3
11	T1	250	4.0	0.320	5.3	LOS A	1.7	12.4	0.44	0.56	54.6
12	R2	39	4.0	0.320	10.1	LOS B	1.7	12.4	0.44	0.56	54.6
Approach		368	4.0	0.320	5.8	LOS A	1.7	12.4	0.44	0.56	54.3
All Vehicles		1211	4.0	0.320	6.3	LOS A	2.0	14.2	0.43	0.58	54.0

[3]A 1.5% compound growth rate was added to all legs of the intersection, based in historical trends.

7.7 Conclusions

There is sufficient spare capacity in the surrounding intersections to cater for the minimal trip generation associated with the development. A worst case scenario has been modelled notably the evening peak when the demand for land uses is greatest (as determined by NSW, RMS, TDT 2013/04a, Guide to Traffic Generating Developments, Updated Traffic Surveys) fort he proposed SJAH and the Mitre 10 store.

Even based on 1.5% compound growth rates over a 15 year design period there are no issues with the trips generation at the two roundabouts. The output data shows that the highest level of service for the roundabouts was a level of service B in the evening peak hour when the site will generate the greatest number of trips.

7.8 Wider Network Implications

A worst-case scenario has been modelled at the site, whereby all traffic entering and exiting the site will do so from the East Derwent Highway. It is more likely that some trips associated with the proposed development will do so from the surrounding residential subdivision and or be a multi-purpose or linked trip from other trips in the area.

Howarth Fisher and Associates undertook several site visits at various times of the day and there were no observed issues with capacity on the surrounding road network. It is acknowledged that the cross section width of Cove Hill Road in the vicinity of the proposed access reduces to 5.5metres.

7.9 Previously Agreed Road Changes

After considering the Council's initial response to the masterplan the developer has agreed to widen the frontage road (notably Cove Hill Road), along the development frontage to ensure that the 8.8metre Medium Rigid Vehicle (MRV) can undertake manoeuvres into and out of the development access road without crossing the centre line of Cove Hill Road. The Australian Standard template for an 19metre semi-trailer has been utilised for the Autotrack paths in line with standard practice. The cross-section width shown on the survey is approximately 11metre wide. The specific design detail of the road pavement and cross section detail will be provided to Council for approval.

A nominal centre line was drawn on the Howarth Fisher drawing at the masterplan stage to show that these MRV movements can occur without crossing the centre line.

The developer is also proposing to build and maintain the new development access road as part of the development application including ongoing maintenance. There will be no ongoing maintenance for the Council associated with the development road.

8. Assessment of Parking

8.1 Existing Situation

There is no existing parking at the site.

8.2 Parking Requirements

8.2.1 Car and Bicycle Parking Requirements

Based on the requirements of the Tasmanian Planning Scheme – Brighton, the parking requirements are outlined below:

	Car Parking Requirement	Bicycle parking
Manufacturing and Processing	1 space per 200m² of floor area or 2 spaces per 3 employees, whichever is greater	1 space per 5 employees

Notes to Table C2.1:

(1) The number of parking spaces required is to be calculated based on the proposed use or development.

(2) Parking spaces must be individually accessible, excluding tandem parking spaces which may be used to serve a dwelling.

(3) Excluding visitor parking for multiple dwellings in the General Residential Zone, fractions of a space are to be rounded to the nearest whole number, so that a full number of spaces is provided for any fraction of a quota of floor area or number of employees.

(4) Where a proposal contains multiple Use Classes, the car parking requirements must be calculated as the sum of the requirements for each individual use component.

(5) Reference to an employee is equivalent to 1 full-time employee.

Table 4: Number of car and bicycle parking requirements (Source: Table C2.1 - Tasmanian Planning Scheme - Brighton).

In accordance with Tasmanian Planning Scheme – Brighton, there is a requirement of one car parking space per 200m^2 of floor area or 2 spaces per 3 employees. This equates to a requirement of 24 spaces, based on floor area and a requirement of 45 car parking spaces based on a maximum of 67 staff.

The proposal provides a total of 60 car parking spaces and therefore exceeds the requirement of the acceptable solution.

8.2.2 Bicycle Parking

Based on the 67 staff there is a requirement for 14 bicycle parking spaces. 8 parking spaces are proposed which is less than the acceptable solution therefore compliance against the performance criteria has been undertaken.

<table>
<tr><td colspan="2">Objective:

That an appropriate level of bicycle parking spaces are provided to meet the needs of the use.</td></tr>
<tr><td>Acceptable Solutions</td><td>Performance Criteria</td></tr>
<tr><td>A1
Bicycle parking spaces must:</td><td>P1
Bicycle parking spaces must be provided to meet the reasonable needs of the use, having regard to:</td></tr>
<tr><td>(a) be provided on the site or within 50m of the site; and
(b) be no less than the number specified in Table C2.1.</td><td>(a) the likely number of users of the site and their opportunities and likely need to travel by bicycle; and
(b) the availability and accessibility of existing and any planned parking facilities for bicycles in the surrounding area.</td></tr>
<tr><td colspan="2">Response:

There is a requirement to provide 14 bicycle parking and therefore a shortfall of 6 bicycle parking spaces. The performance criteria has therefore been addressed.

a) the likely number of users of the site and their opportunities and likely need to travel by bicycle; and

Given there is a local residential catchment it is likely that there may be some shorter distance trips by employees and apprentices may be undertaken by bicycle. However, given the nature of the work it is likely that most tradies will drive to the site thereby reducing the typical bicycle parking demand.

b) the availability and accessibility of existing and any planned parking facilities for bicycles in the surrounding area.

There may be other generally available bicycle parking facilities in the surrounding light industrial area, however given the site is evolving there is no certainty for further additional bicycle parking provision.</td></tr>
</table>

8.2.3 Motorcycle Parking Requirements

Based on the requirements of the Tasmanian Planning Scheme – Brighton, the parking requirements are outlined below:

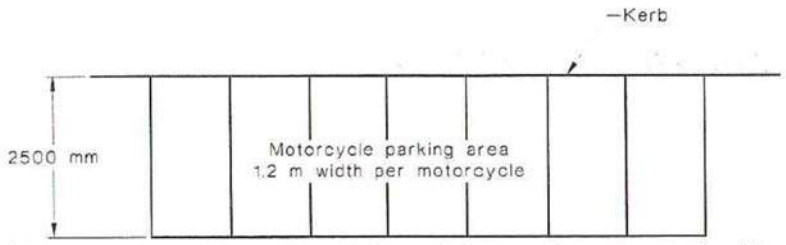
Number of car parking spaces required for a use	Number of motorcycle parking spaces required for a use
0-20	No requirement
21-40	1 space
41 or more	1 space for every additional 20 car parking spaces required

Table 5: Motorcycle parking spaces requirements (Source: Table C2.4 - Tasmanian Planning Scheme - Brighton).

With a required number of 60 car parking spaces, there is a requirement of motorcycle parking spaces for one (1) space for every additional 20 car parking spaces, which equates to two (2) required motorcycle parking spaces on site.

The recommended minimum provision for motorcycles is shown in Figure 2.7.

Motorcycle parking areas should not be located so that parked motorcycles are vulnerable to being struck by a manoeuvring car.



NOTE: Transverse bay markings will usually be needed to control space usage and parking angle.

FIGURE 2.7 MOTORCYCLE PARKING PROVISION

Figure 11: Parking requirements for motorcycle (Source: Figure 2.7 of AS/NZS 2890.1:2004).

There are no proposed motorcycle bays proposed. There is an oversupply of parking bays which can be used for this purpose if demand exists.

8.3 Dimensions and Manoeuvring

The following table shows the required dimensions as required by the Tasmanian Planning Scheme – Brighton.

Angle of car spaces to manoeuvring space	Combined access and manoeuvring width	Car park widths	Car park length
Parallel	3.6m	2.3m	6.7m
45 degrees	3.5m	2.6m	5.4m
60 degrees	4.9m	2.6m	5.4m
90 degrees	6.4m	2.6m	5.4m
90 degrees	5.8m	2.8m	5.4m
90 degrees	5.2m	3m	5.4m
90 degrees	4.8m	3.2m	5.4m

Table 6: Dimensions of car parking spaces and manoeuvring spaces (Source: Table C2.3 - Tasmanian Planning Scheme - Brighton).

For 90 degrees parking, there is a requirement of 2.6m wide x 5.4m long bays with 6.4 metre aisles in accordance with Tasmanian Planning Scheme – Brighton (Table 6).

The carpark layout provided in **Appendix A** meets the dimensions requirements of the Tasmanian Planning Scheme – Brighton and therefore the acceptable solution.

8.3.1 Accessible Parking

There is a requirement for the dimension of accessible parking space with a shared area of 2.4m wide x 5.4m long in accordance with AS2890.6:2009: Parking for people with Disabilities.

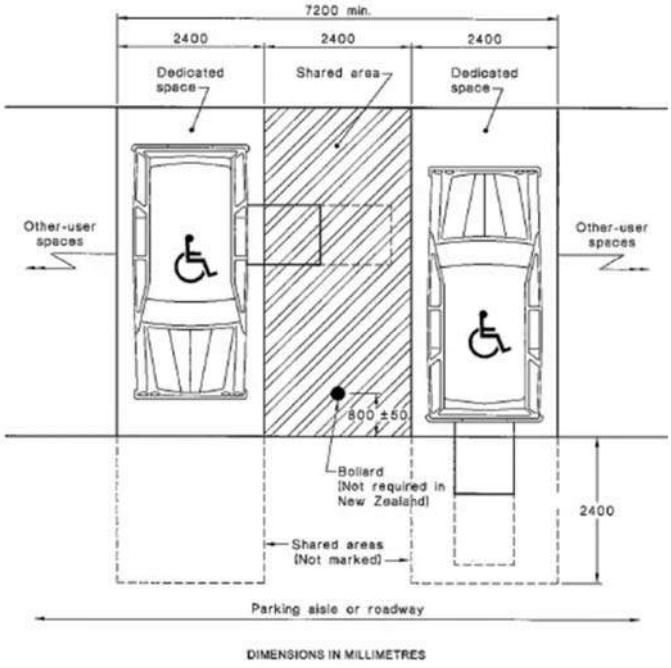


Figure 12: Example of two parking spaces with a common shared area (Source: Figure 2.3 of AS/NZS 2890.6:2009).

According to National Construction Code (NCC) 2019, the proposed development is considered as Class 6[4]. The required number of accessible carparking spaces with reference to NCC2019 is outlined below.

Class of building to which the carpark or carparking area is associated	Number of accessible carparking spaces required
Class 6	
(a) Up to 1000 carparking spaces; and	1 space for every 50 carparking spaces or part thereof.

Table 7: Carparking spaces for people with a disability (Source: Table D3.5 – National Construction Code 2019).

The carpark layout provided in **Appendix A** meets the dimensions requirements, therefore it is In line with AS2890.6:2009. Two accessible parking bays have been integrated into the design of the car park.

[4] https://www.abcb.gov.au/sites/default/files/resources/2022/UTNCC-Building-classifications.PDF

8.3.2 C2.5.3 Motorcycle parking numbers

Objective: That the appropriate level of motorcycle parking is provided to meet the needs of the use.	
Acceptable Solutions	**Performance Criteria**
A1 The number of on-site motorcycle parking spaces for all uses must:	**P1** Motorcycle parking spaces for all uses must be provided to meet the reasonable needs of the use, having regard to:
(a) be no less than the number specified in Table C2.4; and (b) if an existing use or development is extended or intensified, the number of on-site motorcycle parking spaces must be based on the proposed extension or intensification, provided the existing number of motorcycle parking spaces is maintained.	(a) the nature of the proposed use and development; (b) the topography of the site; (c) the location of existing buildings on the site; (d) any constraints imposed by existing development; and (e) the availability and accessibility of motorcycle parking spaces on the street or in the surrounding area.

Response:

There is a requirement to provide two (2) motorcycle parking spaces to comply with the requirements of the Tasmanian Planning Scheme – Brighton. Given there is no motorcycle parking spaces provided on the site plan, there is a shortfall in the provision of spaces and the following address the performance criteria.

a) the nature of the proposed use and development;

This is a factory use predominantly staffed with tradies, who are unlikely to arrive on site without their tools. There is an oversupply of seven car parking spaces which can also be used for motorcycle parking as and when required.

b) the topography of the site;

There are no issues with site topography, the vertical grade has been indicated on the civil engineering drawing set and is compatible with use by all vehicles.

c) the location of existing buildings on the site;

There are no existing buildings.

d) any constraints imposed by existing development; and

There is a residential subdivision to the west of the site and therefore access from this industrial zoned area is limited to pedestrian access only (via Taylor Crescent).

e) the availability and accessibility of motorcycle parking spaces on the street or in the surrounding area There are no other motorcycle facilities in the surrounding area. However, motorcyclists can utilise the residential/ industrial on-street parking spaces in the vicinity of the site.

8.3.3 C2.6.1 Construction of parking areas

Objective: That parking areas are constructed to an appropriate standard.	
Acceptable Solutions	**Performance Criteria**
A1.1 All parking, access ways, manoeuvring and circulation spaces must:	**P1** All parking, access ways, manoeuvring and circulation spaces must be readily identifiable and constructed so that they are useable in all weather conditions, having regard to:
(a) be constructed with a durable all weather pavement; (b) be drained to the public stormwater system, or contain stormwater on the site;and (c) excluding all uses in the Rural Zone, Agriculture Zone, Landscape Conservation Zone, Environmental Management Zone, Recreation Zone and Open Space Zone, be surfaced by a spray seal, asphalt, concrete, pavers or equivalent material to restrict abrasion from traffic and minimise entry of water to the pavement.	(a) the nature of the use; (b) the topography of the land; (c) the drainage system available; (d) the likelihood of transporting sediment or debris from the site onto a road or public place; (e) the likelihood of generating dust;and (f) the nature of the proposed surfacing.
Response: The proposed development is in line with the acceptable solution and will be paved and drained in line with the acceptable solutions above. SJAH in consultation with the Young Group and civil designer have proposed a durable all-weather pavement which is drained within the site.	

8.3.4 C2.6.2 Design and layout of parking areas

<table>
<tr><td colspan="2">Objective:

That parking areas are designed and laid out to provide convenient, safe and efficient parking.</td></tr>
<tr><td>Acceptable Solutions</td><td>Performance Criteria</td></tr>
<tr><td>A1.1
Parking, access ways, manoeuvring and circulation spaces must either:</td><td>P1
All parking, access ways, manoeuvring and circulation spaces must be designed and readily identifiable to provide convenient, safe and efficient parking, having regard to:</td></tr>
<tr><td>(a) comply with the following:
(i) have a gradient in accordance with Australian Standard AS 2890 - Parking facilities, Parts 1-6;
(ii) provide for vehicles to enter and exit the site in a forward direction where providing for more than 4 parking spaces;
(iii) have an access width not less than the requirements in Table C2.2;
(iv) have car parking space dimensions which satisfy the requirements in Table C2.3;
(v) have a combined access and manoeuvring width adjacent to parking spaces not less than the requirements in Table C2.3 where there are 3 or more car parking spaces;
(vi) have a vertical clearance of not less than 2.1m above the parking surface level; and
(vii) excluding a single dwelling, be delineated by line marking or other clear physical means; or

(b) comply with Australian Standard AS 2890- Parking facilities, Parts 1-6.</td><td>(a) the characteristics of the site;
(b) the proposed slope, dimensions and layout;
(c) useability in all weather conditions;
(d) vehicle and pedestrian traffic safety;
(e) the nature and use of the development;
(f) the expected number and type of vehicles;
(g) the likely use of the parking areas by persons with a disability;
(h) the nature of traffic in the surrounding area;
(i) the proposed means of parking delineation;and
(j) the provisions of Australian Standard AS 2890.1:2004 Parking facilities, Part 1: Off-street car parking and AS 2890.2 -2002 Parking facilities, Part 2: Offstreet commercial vehicle facilities.</td></tr>
<tr><td colspan="2">Response:

The proposed development is in line with the acceptable solution.</td></tr>
<tr><td>A1.2
Parking spaces provided for use by persons with a disability must satisfy the following:</td><td></td></tr>
</table>

(a) be located as close as practicable to the main entry point to the building; (b) be incorporated into the overall car park design; and (c) be designed and constructed in accordance with *Australian/New Zealand Standard AS/NZS 2890.6:2009 Parking facilities, Off-street parking for people with disabilities*	
Response: **There are two accessible bays proposed.** The proposed accessible car parking spaces are located in the closest vicinity of the main entry to SJAH factory and training facility store and are located within the main car park design. In line with the requirement of the Tasmanian Planning Scheme – Brighton and AS/NZS 2890.6:2009, the 2 accessible parking bays has been designed in accordance with the acceptable solution which are dimensioned as 2.4m x 5.4m per space with a shared space.	

8.3.5 C2.6.5 Pedestrian access

Objective: That pedestrian access within parking areas is provided in a safe and convenient manner.	
Acceptable Solutions	**Performance Criteria**
A1.2 In parking areas containing accessible car parking spaces for use by persons with a disability, a footpath having a width not less than 1.5m and a gradient not steeper than 1 in 14 is required from those spaces to the main entry point to the building.	**P1** Safe and convenient pedestrian access must be provided within parking areas, having regard to:
	(a) the characteristics of the site; (b) the nature of the use; (c) the number of parking spaces; (d) the frequency of vehicle movements; (e) the needs of persons with a disability; (f) the location and number of footpath crossings; (g) vehicle and pedestrian traffic safety;

	(h) the location of any access ways or parking aisles; and (i) any protective devices proposed for pedestrian safety.
Response: In line with the requirement of the Tasmanian Planning Scheme – Brighton, a pedestrian footpath is provided, to the main entrance of SJAH factory and training facility. There is no issue with the gradient from the parking spaces to the main entry of SJAH factory and training facility with a minimum 1.5m wide footpath and a gradient not steeper than 1 in 14 from the bays to the entry points. Therefore, it has been designed in accordance with the acceptable solution.	

9. Assessment of Access

9.1 Existing Situation

There is a currently a single point of access to Brighton Council Waste Disposal and Recycling Centre at Cove Hill Road frontage (Figure 15). The development site has an existing unsealed driveway along Cove Hill Road. It currently has restricted entry enforced by The Young Group (Figure 13 and Figure 14).

Figure 13: Existing access to the site from the frontage of Cove Hill Road.

Figure 14: Existing access to the site from the frontage of Cove Hill Road.

Figure 15: Existing sealed access to Brighton Council Waste Disposal and Recycling Centre.

9.2 Access Width Requirements

Number of parking spaces served	Internal access way widths	Passing bay dimensions for two-way traffic in addition to the access way width
1 to 5	A width not less than 3m.	2m wide by 5m long, plus entry and exit tapers, every 30m, unless on land within the Rural Zone, Agriculture Zone, Landscape Conservation Zone, Environmental Management Zone or Open Space Zone.
6 to 20	(a) A width not less than 4.5m for the first 7m from the road carriageway and 3m thereafter, and (b) At changes of direction or intersections have: (i) an internal radius of not less than 4m, or (ii) a width more than 4.2m.	2m wide by 5m long, plus entry and exit tapers, every 30m.
21 and over	A width not less than 5.5m.	Not applicable

Table 8: Internal access way widths for vehicles (Source: Table C2.2 - Tasmanian Planning Scheme - Brighton).

Given there are over 21 car parking spaces served, an access width of not less than 5.5 metres is required. The design of the access points from the linkage road will be based on the Autotrack paths of the largest design vehicles that are using the road.

The access off Cove Hill Road and Stage 01 Road are both 8 metres, whereas the internal access to the carpark is 6.6 metres. Therefore, the access widths meet the acceptable solution of Tasmanian Planning Scheme – Brighton, based on the number of parking bays the access serves.

9.2.1 C2.6.3 Number of accesses for vehicles

Objective:

That:

(a) access to land is provided which is safe and efficient for users of the land and all road network users, including but not limited to drivers, passengers, pedestrians and cyclists by minimising the number of vehicle accesses;
(b) accesses do not cause an unreasonable loss of amenity of adjoining uses; and
(c) the number of accesses minimise impacts on the streetscape.

Acceptable Solutions	Performance Criteria
A1 The number of accesses provided for each frontage must:	**P1** The number of accesses for each frontage must be minimised, having regard to:
(a) be no more than 1; or (b) no more than the existing number of accesses, whichever is the greater.	(a) any loss of on-street parking; and (b) pedestrian safety and amenity; (c) traffic safety; (d) residential amenity on adjoining land; and (e) the impact on the streetscape.

Response:

There are three new accesses proposed for SJAH facility, notably one into the factory site, one into the training facility and one into the under cover parking area. Therefore, the performance criteria have been addressed in line with the requirements of the Tasmanian Planning Scheme – Brighton.

(a) any loss of on-street parking; and

There will be some minor loss of on street parking associated with the proposed SJAH facility development however given the site provides for the full on-site parking supply the on street parking is incidental.

(b) pedestrian safety and amenity;

This is a low speed environment, subject to a 20km/hr speed restriction and a traffic calmed road environment. Spotters will be used to manage reversing movements to and from the site where necessary.

(c) traffic safety;

Predominantly there is a separation of the light and heavy vehicle movements, with the main carparking area sited in the lower ground level. The parking area within the hardstand provides access for pedestrian to the factory access via segregated footpath thereby promoting traffic safety. Users of the site will be inducted to the safe operation of the site and spotters will be used to ensure vehicle movements within the hardstand are undertaken safely with spotters.

(d) residential amenity on adjoining land; and

The accesses are in a light industrial zone and thereby not impact on residential amenity .

(e) the impact on the streetscape.

The streetscape with landscaping and pedestrian footpaths will be developed along with the proposed SJAH facility development. The streetscape facilitates a safe access by providing a clear segregation between vehicle and pedestrian access.

9.2.2 C2.6.5 Pedestrian Access

Objective: That pedestrian access within parking areas is provided in a safe and convenient manner.	
Acceptable Solutions	**Performance Criteria**
A1.1 Uses that require 10 or more car parking spaces must:	**P1** Safe and convenient pedestrian access must be provided within parking areas, having regard to:
(a) have a 1m wide footpath that is separated from the access ways or parking aisles, excluding where crossing access ways or parking aisles, by: (i) a horizontal distance of 2.5m between the edge of the footpath and the access way or parking aisle; or	(a) the characteristics of the site; (b) the nature of the use; (c) the number of parking spaces; (d) the frequency of vehicle movements; (e) the needs of persons with a disability; (f) the location and number of footpath crossings; (g) vehicle and pedestrian traffic safety;

(ii) protective devices such as bollards, guard rails or planters between the footpath and the access way or parking aisle; and (b) be signed and line marked at points where pedestrians cross access ways or parking aisles.	(h) the location of any access ways or parking aisles; and (i) any protective devices proposed for pedestrian safety.
A1.2 In parking areas containing accessible car parking spaces for use by persons with a disability, a footpath having a width not less than 1.5m and a gradient not steeper than 1 in 14 is required from those spaces to the main entry point to the building.	

Response:

Given the acceptable solution cannot be obtained, the performance criteria has been addressed.

a) The characteristics of the site.

The hardstand area will be utilised by manoeuvring vehicles and therefore the footpath access has been located on the outside of the sites manoeuvring area to minimise potential conflict and provide a safer access route for pedestrians.

b) The nature of the use.

The main use is manufacturing and processing with training and office as an ancillary use. Given there are service vehicle trips associated with the manufacture of the affordable homes the pedestrian facilities have been located off the site with a separate pedestrian access provided to the main pedestrian entry to the SJAH facility.

c) The number of parking spaces.

There are 60 spaces provided.

d) The frequency of vehicle movements

Most of the trips will be associated with staff, these will be low turnover and long stay trips. The visitor and service component will attract higher turnover shorter stay trips.

e) The needs of people with disability.

Two accessible bays have been provided in the immediate vicinity of the main accesses to the sites. This is line with the provisions of the NCC.

f) The location and number of footpath crossings.

There will be two footpath crossing associated with the layout associated with the training and office facility connecting to the factory land use.

g) Vehicle and pedestrian safety.

Where possible the vehicle manoeuvring will be undertaken on site. In order to avoid conflict a dedicated pedestrian linkages have been provided. The car park will

operate as a low speed environment with spotters to manage any reversing movements.

h) The location of any accessways or parking aisles.

The pedestrian will be encouraged to walk on the dedicated footpaths (on the wheel stop end of the parking bays, thereby minimising he use of the aisles. There are pedestrian markings over the accessways to provide a safe path of travel.

i) Any protective devices proposed for pedestrian safety

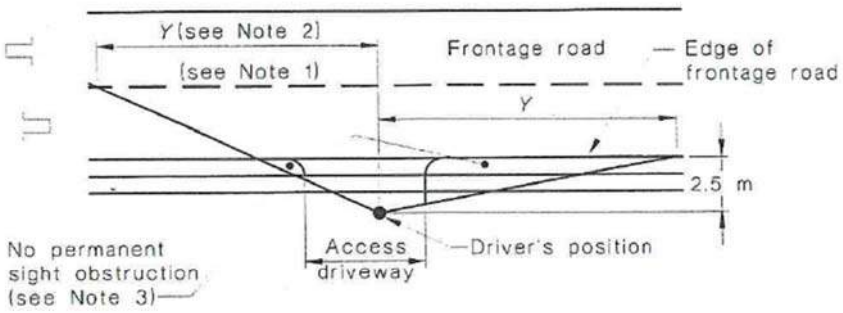
Pedestrian footpaths and crossing points have been provided to provide a safe path of travel to the factory and office / training facility.

10. Assessment of Sight Distance

The Tasmanian Planning Scheme – Brighton, makes reference to accesses being designed in accordance with the Australian Standards. These standards have therefore been used in the assessment of the sight distances at the various access locations both onto the existing road network and within the new access road.

10.1 Sight Distance Requirements

Sight distance is a function of vehicle speed. As outlined in the Tasmanian Planning Scheme – Brighton, sight distance requirements must be in line with the requirements of AS2890.1:2004. The section of AS2890.1 relating to sight distance can be found below.



Frontage road speed (Note 4) km/h	Distance (Y) along frontage road m		
	Access driveways other than domestic (Note 5)		Domestic property access (Note 6)
	Desirable 5 s gap	Minimum SSD	
40	55	35	30
50	69	45	40
60	83	65	55
70	97	85	70
80	111	105	95
90	125	130	Use values from 2nd and 3rd columns
100	139	160	
110	153	190	

Figure 16: Sight distances requirements (Source: Figure 3.2 in AS2890.1: Off street parking 2004).

Given Cove Hill Road is subject to a speed limit of 60km/hr, a minimum gap of 5 seconds for a road with an 83 metres sight distance is required.

The internal road network at the proposed site is subject to a speed limit of 20 km/hr, therefore the calculation for safe stopping distance (SSD) has been performed using the formula below.

$$SSD = \frac{R_T V}{3.6} + \frac{V^2}{254\,(d + 0.01\,a)}$$

R_T = reaction time (sec)
V = operating speed (km/h)
d = coefficient of deceleration (longitudinal friction factor)
a = longitudinal grade (%, + for upgrades and - for downgrades).

Figure 17: Safe stopping distance formula (Source: Australian Road Research Board (ARRB)

Given the internal road network is a low speed environment, a reaction time (R_T) of 1.5 seconds has been adopted. The coefficient of deceleration for a truck is 0.29, and the anticipated velocity of the vehicle, given It is a 20km/hr speed zone, is 20 km/hr. Given the internal network includes a level grade, a level grade has been utilised for calculations.

$$SSD = \frac{(1.5)(20)}{(3.6)} + \frac{(20^2)}{(254)(0.27)} = 13.76\ m$$

The required sight distance for all the required lots must be greater than 14-metres to meet the required SSD. All accesses within the site are to meet with this requirement and provide safe stopping distance.

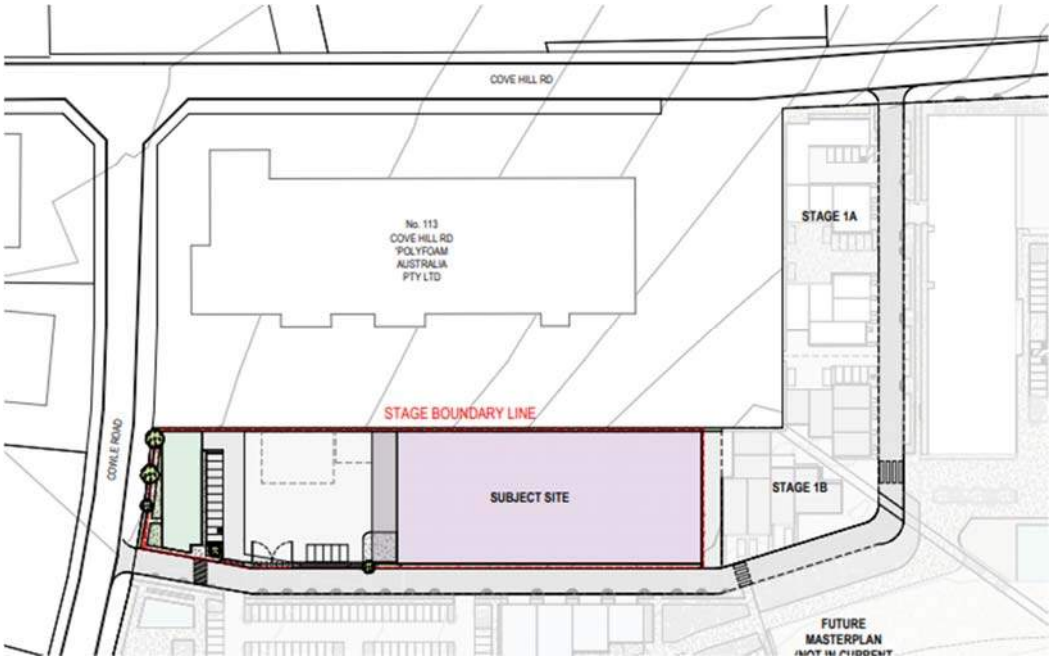


Figure 18: Site layout showing the indicative accesses at the proposed SJAH facility store.

10.1.1 Cove Hill Road (Stage 01 Road) Access Development (A1)

Figure 19: Sight distance to the left along Cove Hill Road within the vicinity of the site.

Figure 20: Sight distance to the right along Cove Hill Road within the vicinity of the site.

The sight distance at the proposed Stage 01 Road access along Cove Hill Road is greater than 120-metres in both directions. Note that there is a slight crest in the distance in both directions along Cove Hill Road. Therefore, the access meets the requirement of 83-metres for a road subject to a speed limit of 60km/hr in line with AS2890.1.

10.1.2 Cove Hill Road Access Development (A2)

Figure 21: Sight distance to the left along Cove Hill Road within the vicinity of the site.

Figure 22: Sight distance to the right along Cove Hill Road within the vicinity of the site.

The sight distance to the left at the proposed Cove Hill Road access is greater than 120 metres, whereas the sight distance to the right is 102 metres. Note that there is a slight crest in the distance in both directions along Cove Hill Road. Therefore, the access meets the requirement of 83-metres for a road subject to a speed limit of 60km/hr in line with AS2890.1.

10.1.3 SJAH: Cowle Road Access Development (A4)

Figure 23: Sight distance to the left along Cowle Road within the vicinity of the site.

Figure 24: Sight distance to the right along Cowle Road within the vicinity of the site.

The sight distance at the intersection between Cove Hill Road and Cowle Road is greater than 140 metres in both directions. Therefore, the access meets the requirement of 83-metres for a road subject to a speed limit of 60km/hr / 50km/hr road respectively in line with AS2890.1:2004 Off street parking and AS2890.2:2018 Off street Commercial Vehicle Facilities.

10.2 Access Road – Sight distances

The following sight distances have been measured along the access road which will be subject to a 20km/hr posted speed limit.

10.2.1 Access 1 into the office and training land use

The sight distance towards Cowle Road was measured to be 45 metres.

The sight distance towards the Traders Square area was measured to be 175metres.

10.2.2 Access into the factory forecourt and parking area

The sight distance towards Cowle Road was 63 metres.

The sight distance towards Traders Square was 159 metres.

10.2.3 Access into the lower ground car park

The sight distance towards Cowle Road was measured to be 185 metres.

The sight distance towards Traders Square was measured to be 55 metres.

It has been advised that the access road will be subject to a 20km/hr posted speed limit therefore all sight distances will be compliant and significantly exceed the SSD calculated.

11. Sustainable Transport

11.1 Buses

The closest bus stops are located in Cowle Road and Taylor Crescent. The following link provides timetable information for the X20, 520, and 522 Metro bus service. These are shown below.

DSG_tt_520_web2.pdf (metrotas.com.au)

To summarise, the 520 Metro bus service between Bridgewater and Hobart includes three (3) trips per day, there is one (1) trip in the morning and two (2) in the evening period. The 522-bus service between Gagebrook and Hobart include three (3) trips per day which include one (1) morning trip and two (2) evening trips. Finally, the X20 Metro bus service between Bridgewater and Hobart include half hourly bus trips between the 09:00am and 07:30pm. The location and frequency of these services reduces the parking demand associated with the site.

11.2 Bicycles/Electric Bicycles/Electric Scooters

The proposed development site is positioned in an industrial zone which borders a residential zone. Taylor Crescent and Cowle Road are 8.4metres and 9.3metres respectively. Both Taylor Crescent and Cowle Road are subject to the default urban speed limit of 50 km/hr which assists in providing a safe bicycle/car share environment which the users of the site could potentially benefit from. The site is in proximity to a large residential catchment which potentially provides opportunity for local residents to access the site via these sustainable modes.

11.3 Pedestrian Linkages

There is a good network of pedestrian footpaths in the vicinity of the proposed SJAH development site. Footpaths within the vicinity of the site on Taylor Crescent are 1.4-metres wide. The wide footpaths allow for visitors to the site a safe method of access to and from the centre of Bridgewater as well as from the local residential catchment.

12. Service Vehicles

The SJAH facility has advised that the vehicles to service the site are a 19m semi-trailer vehicle (AV) Heavy Rigid Vehicle 12.5m and an 8.8m Medium Rigid Vehicle (MRV) as well as 6.4m SRV. It is proposed that the semi-trailer vehicle access the site from Cove Hill Road and Cowle Road. The Autotrack paths have been evaluated and are included in **Appendix B** of this report.

Autotrack has been used to demonstrate the swept paths of the various vehicle types throughout the car park and within the internal road network site.

In line with the Tasmanian Planning Scheme – Brighton, the service vehicles have been assessed against the provisions of the performance criteria of the Tasmanian Planning Scheme – Brighton from C2.6.6 below.

12.1 C2.6.6 Loading Bays

<table>
<tr><td colspan="2">Objective:

That the area and dimensions of loading bays are adequate to provide safe and efficient delivery and collection of goods.</td></tr>
<tr><td>Acceptable Solutions</td><td>Performance Criteria</td></tr>
<tr><td>A1
The area and dimensions of loading bays and access way areas must be designed in accordance with Australian Standard AS 2890.2–2002, Parking facilities, Part 2: Offstreet commercial vehicle facilities, for the type of vehicles likely to use the site.</td><td>P1
Loading bays must have an area and dimensions suitable for the use, having regard to:</td></tr>
<tr><td></td><td>(a) the types of vehicles likely to use the site;
(b) the nature of the use;
(c) the frequency of loading and unloading;
(d) the area and dimensions of the site;
(e) the topography of the site;
(f) the location of existing buildings on the site; and
(g) any constraints imposed by existing development.</td></tr>
<tr><td colspan="2">Response:

a) The types of vehicles likely to use the site.</td></tr>
</table>

The site has been designed to cater for an 19m semi-trailer to the SJAH facility site. Spotters will be used to ensure that any manoeuvring on site occurs safely, preferably before and after customers arrive and leave the site. Autotrack paths has been used to demonstrate the swept paths of the various vehicle types throughout the car park and within the loading bays within the site.

The following autotrack paths are shown and located at **Appendix B**.

- 6.4metre Small rigid truck (SRV) – driving in and out in a forward direction.
- 12.5metre Heavy rigid truck (MRV) – driving in and out in a forward direction.
- 19m semi-trailer – driving in and out of the site in a forward direction.
- Utes and B99 vehicles – driving in and out of the main carpark clusters in a forward direction.

a) The nature of the use

The manoeuvring paths will be undertaken in a low speed environment (subject to a 20km/hr posted speed restriction). Spotters will be used to manage the reverse movements of traffic into the warehouse clusters in line with standard traffic management practice. For the most part, typical users will be able to drive into and out of the loading areas in a forward direction as demonstrated in the Autotrack paths located at **Appendix B** of this report.

b) The frequency and loading and unloading.

SJAH facility has advised that there are likely to be 2 x 19 metre semi-trailer movements per week and 1 x 8.8 metres MRV and 1 x 12.5m HRV movement per day.

c) The area and dimensions of the site.

Fully scaled architectural plans have been sent with the development application package and provide floor areas and dimensions. Some dimensions are shown on the plans located at **Appendix A and Appendix B**.

d) The topography of the site.

There are no issues with site topography, the vertical grade has been indicated on the civil engineering drawing set and is compatible with use by commercial vehicles.

For the most part typical users will be able to drive into and out of the site in a forward direction as demonstrated in the auto track paths located at Appendix B of this report.

e) **The location of existing buildings on the site**.

There are no existing buildings.

f) Any constraints imposed by existing developments.

There are no constraints.

A2	**P2**
The type of commercial vehicles likely to use the site must be able to enter, park and exit the site in a forward direction in accordance with *Australian Standard AS 2890.2 – 2002, Parking Facilities, Part 2: Parking facilities Offstreet commercial vehicle facilities.*	Access for commercial vehicles to and from the site must be safe, having regard to:
	(a) the types of vehicles associated with the use; (b) the nature of the use; (c) the frequency of loading and unloading; (d) the area and dimensions of the site; (e) the location of the site and nature of traffic in the area of the site; (f) the effectiveness or efficiency of the surrounding road network; and (g) site constraints such as existing buildings, slope, drainage, vegetation, parking and landscaping.

Response:

a) The types of vehicles associated with the use.

The Autotrack paths of the various vehicle types are shown on the plans located at **Appendix B** of this report. The main commercial vehicles using the hardstand area will be 6.4 metre small rigid trucks and B99 (4WD) and utes. Provision has also been made for 8.8 metre medium rigid trucks, 12.5 HRV and 19m semi-trailers. all vehicles can enter and exit in a forward direction.

b) The nature of the use.

For the most part, the factory will be utilised by familiar professional service vehicle drivers, employers, and employees.

c) The frequency of loading and loading

It is assumed that there will be twice weekly loading to the SJAH factory by 19m semi-trailers. It is assumed that for the most part there will be loading and unloading by smaller MRV and HRV's to deliver materials to the site daily.

d) The areas and dimensions on the site.

Fully scaled architectural plans form part of the D/A package that provide floor areas and dimensions. Refer to the plans located at **Appendix A and Appendix B** of this report.

e) The location of the site and the nature of the traffic in the area of the site.

The site is located within a light industrial zone and much of the traffic in the area is associated with these uses as well as residential uses located to the west of the subject site.

f) The effectiveness or efficiency of the surrounding road network.

The traffic volumes on the surrounding road network have been assessed and there is no issue with gaps in traffic flow on the immediate road network. Furthermore, the Sidra Intersection analysis show that the increased trips can be accommodated to a high level of service onto the state road network.

g) Site constraints such as existing buildings

N/A

13. Conclusion and Recommendations

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

Trip Generation

The development is anticipated to generate 307 trips daily of which 37 trips will occur during the evening peak hour reflecting the peak demand given there is commensurately higher traffic impacts in the evening peaks (as determined by NSW, RMS, TDT 2013/4a). It should be noted that the trip generation associated with the proposed SJAH development is less than the trips assumed with the warehouse units, bulky goods store and office during the master planning process.

Modelling of these trips has been undertaken at the 2 roundabouts accessing the state road network. There is no issue with the operation of the roundabout with the associated trip generation and a growth factor of 1.5% compound growth applied to all legs of the roundabout.

There is not an issue with the increased trip generation on capacity of the existing road network based on existing Council traffic volume data and Howarth Fisher traffic counts undertaken in the vicinity of the site. Most of the trips associated with the development will be staff trips (which are typically low turnover, long stay).

Parking

The vehicle parking requirements are satisfied in line with Tasmanian Planning Scheme – Brighton. There is a provision of 60 car parking spaces and two accessible car parking spaces on site, exceeding the requirement of the scheme. There are fewer bicycle parking spaces associated with the development and therefore the performance criteria have been addressed in the body of the report, given the anticipated lower demand for bicycle and motorcycle parking spaces. The performance criteria have been addressed and it is not anticipated that there will be any issue with parking at the site.

Access

All accesses have been designed to accommodate the vehicles which will be predominantly using the development site. Accesses into and out of the development site (located at the frontage of Cove Hill Road, Cowle Road and Stage 01 Road) can be made for light and heavy vehicle manoeuvres.

For some larger vehicles access off, there will be a requirement for reverse in and forward out movements to be made (depending on where the modular homes are located). It is

anticipated that these will be infrequent, and spotters will be required to manage the reverse movements as is standard practice.

Sight Distance

The sight distances have been calculated based on the safe stopping sight distance requirement for a 20km/hr. There are no issues with sight distance given the low frontage road speed. Vehicle access has been designed to maximise sight distances in line with Australian standard requirements.

There are no issues with sight distance on to Cowle Road and Cove Hill at the new intersections.

Sustainable Transport

Buses/Coaches

To summarise, the 520 Metro bus service between Bridgewater and Hobart includes three (3) trips per day, there is one (1) trip in the morning and two (2) in the evening period. The 522-bus service between Gagebrook and Hobart include three (3) trips per day which include one (1) morning trip and two (2) evening trips. Finally, the X20 Metro bus service between Bridgewater and Hobart include half hourly bus trips between 09:00am and 07:30pm.

Electric Bicycle/Scooter

The proposed development site is positioned in an industrial zone which borders a residential zone. Taylor Crescent and Cowle Road are 8.2 metres and 9.2 metres respectively. Both Taylor Crescent and Cowle Road are subject to the default urban speed limit of 50 km/hr which assists in providing a safe bicycle/car share environment which the users of the site could potentially benefit from. The site is located in proximity to a large residential catchment which potentially provides opportunity for local residents to access the site via these sustainable modes.

Pedestrians

There is a good network of pedestrian footpaths in the vicinity of the proposed SJAH facility store development site. Footpaths within the vicinity of the site on Taylor Crescent are 1.4-metres wide. The wide footpaths allow for visitors to the site a safe method of access to and from the centre of Bridgewater as well as from the local residential catchment.

Service Vehicles

The following Autotrack paths are shown and found at **Appendix A**.

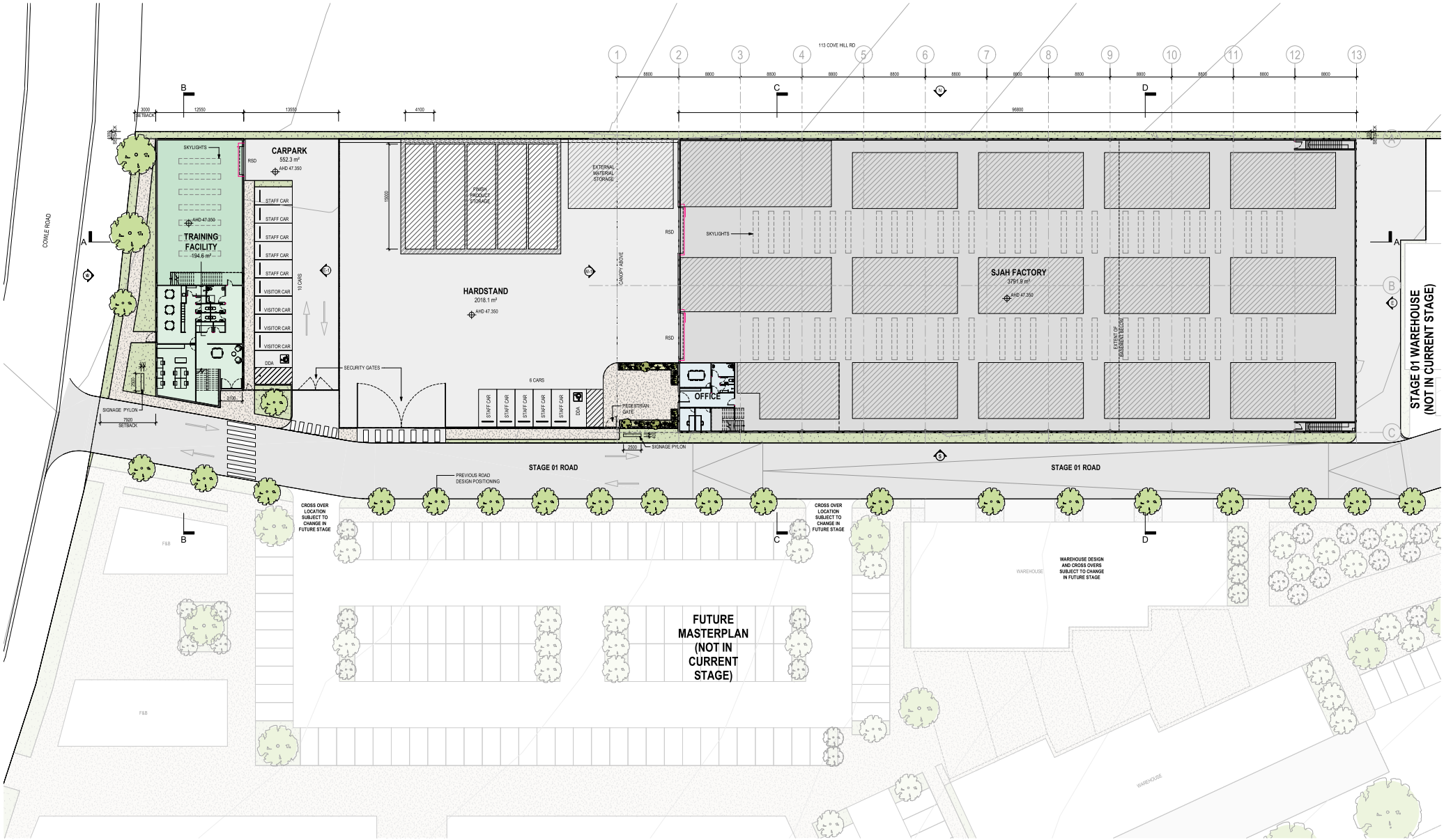
- B99 vehicle - Entering, parking and leaving both the hardstand and secondary carpark

- 6.4metre Small rigid vehicle (SRV) - Driving in, performing a three point turn, and driving out of the training centre carpark in a forward direction.
- 19metre semi-trailer – driving in and out of Cowle Road
- 19metre semi-trailer – driving into the hardstand, turning around, and parking at the roller door.
- 19metre semi trailer with 4.1m wide load– driving out of the site in a forward direction.
- 12.5metre Heavy rigid vehicle (HRV) – driving into the hardstand, turning around, and parking at the roller door.
- 12.5metre Heavy rigid vehicle (HRV) – driving out of the site in a forward direction.

In line with the performance criteria, the manoeuvring paths will be undertaken in a low speed environment (subject to a 20km/hr posted speed restriction). Spotters will be used to manage the reverse movements of traffic into the warehouse clusters in line with standard traffic management practice. For the most part, vehicles will enter and exit the site in a forward direction. As is standard traffic engineering practice, spotters will be used to manage the reversing of vehicles into the loading areas where required.

Appendix A

DEVELOPMENT PLANS



Revisions				
A	22.01.24	DA Submission	ND	

22/01/2024 12:39:22 PM

Project: **SJAH Manufacturing & Training Facility**
BRIDGEWATER, TASMANIA

Drawing: **Ground**

Project No.: **223229** Author: **BG** Scale: @ A1: **1 : 250** Drawing No.: **TP01.02** **A**

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Revisions / A 31.01.24 DA Submission ND

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Project / **SJAH Manufacturing & Training Facility**
BRIDGEWATER, TASMANIA

Drawing / **Lower Ground**

Project No. / **223229**

Author / **BG**

Scale: @ A1 / **1 : 250**

Drawing No. / **TP01.01**

A

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Appendix B

AUTOTRACK PATHS

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ST JOSEPH AFFORDABLE HOMES

115 COVE HILL ROAD. BRIDGEWATER

FACTORY DEVELOPMENT VEHICLE PATHS

TRAFFIC DRAWINGS

Traffic
Civil
Structural
Industrial
Engineering

ISSUED FOR
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ST JOSEPH AFFORDABLE HOMES
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FACTORY DEVELOPMENT VEHICLE PATHS

COVER PAGE

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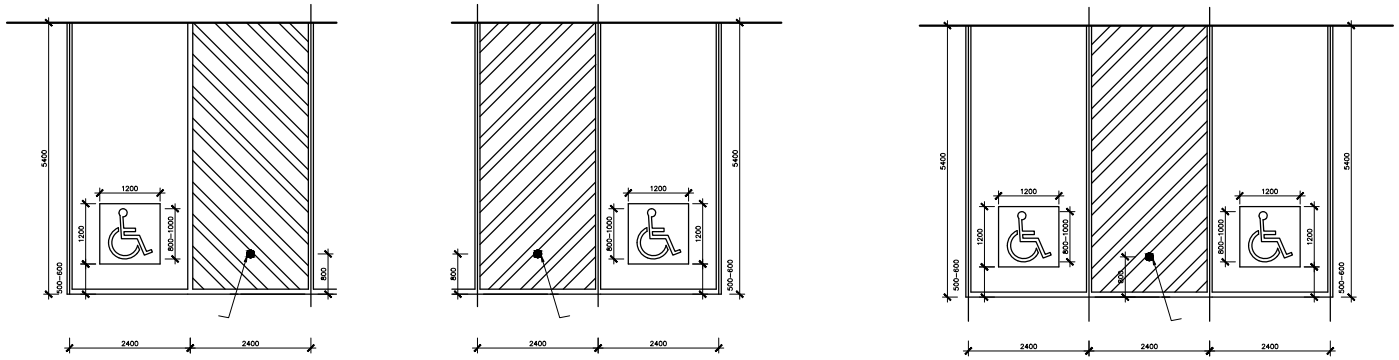
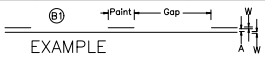


LINE MARKINGS CODE

circled)	LINE TYPE	LINE MARKINGS	PAINT (P)	GAP (G)	WIDTH (W)	APART (A)
			(m)	(m)	(mm)	(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.



EXAMPLE

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

** PAINT YELLOW

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ACCESSIBLE PARKING

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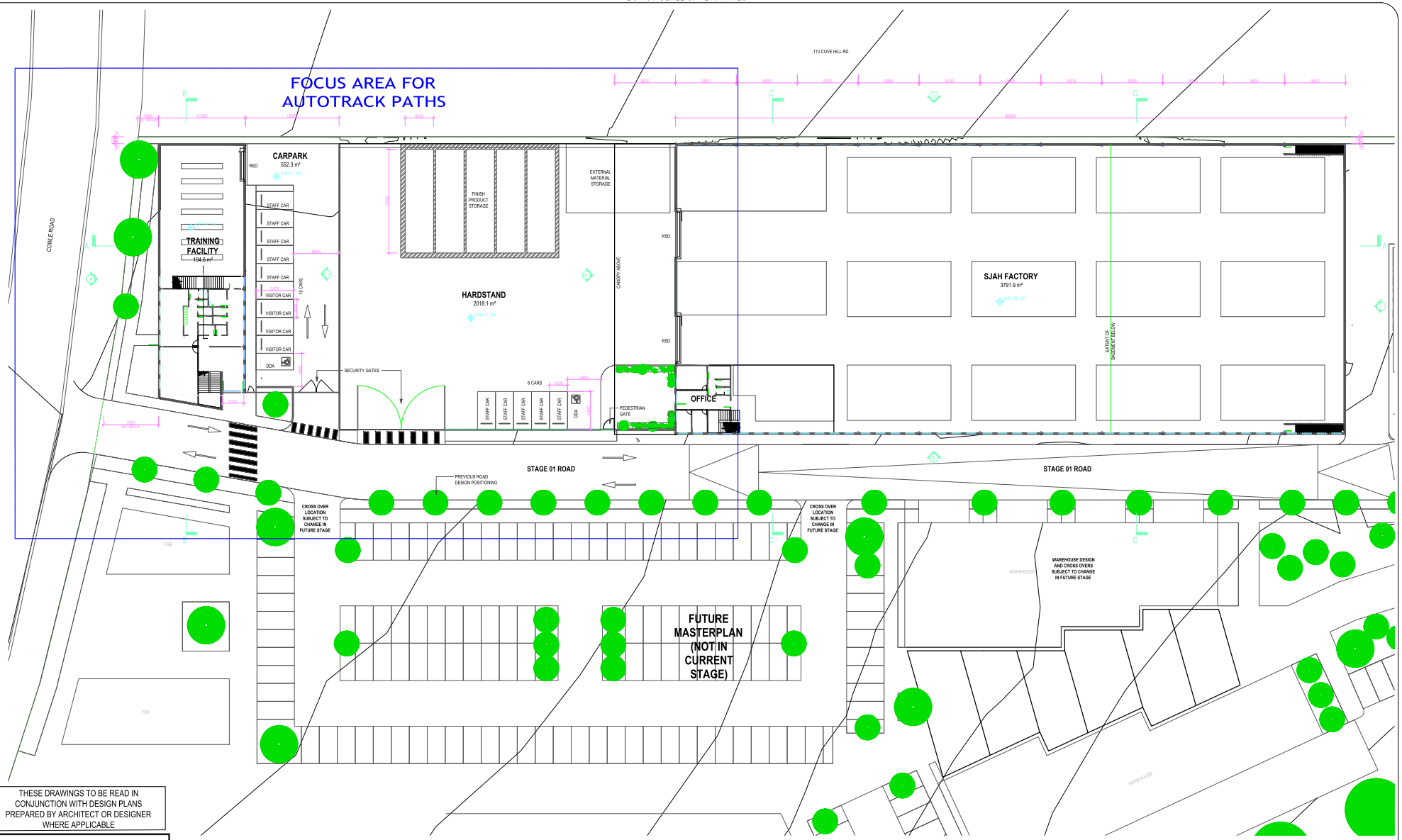

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WARNING

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115 COVE HILL ROAD. BRIDGEWATER
FACTORY DEVELOPMENT VEHICLE PATHS

GROUND FLOOR

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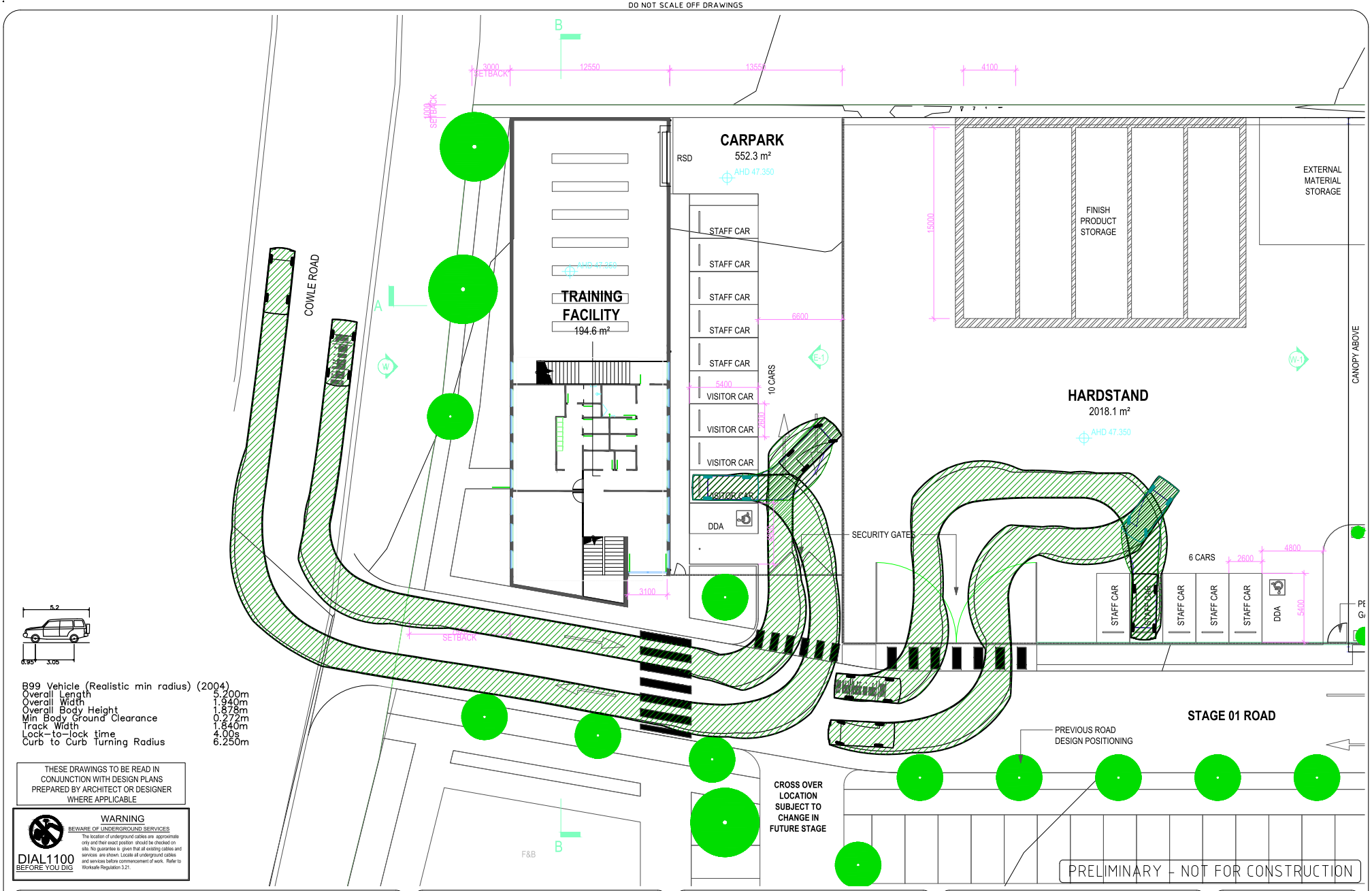

B99 Vehicle (Realistic min radius) (2004)

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

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AUTOTRACKPATH (ATP)-B99 ACCESS

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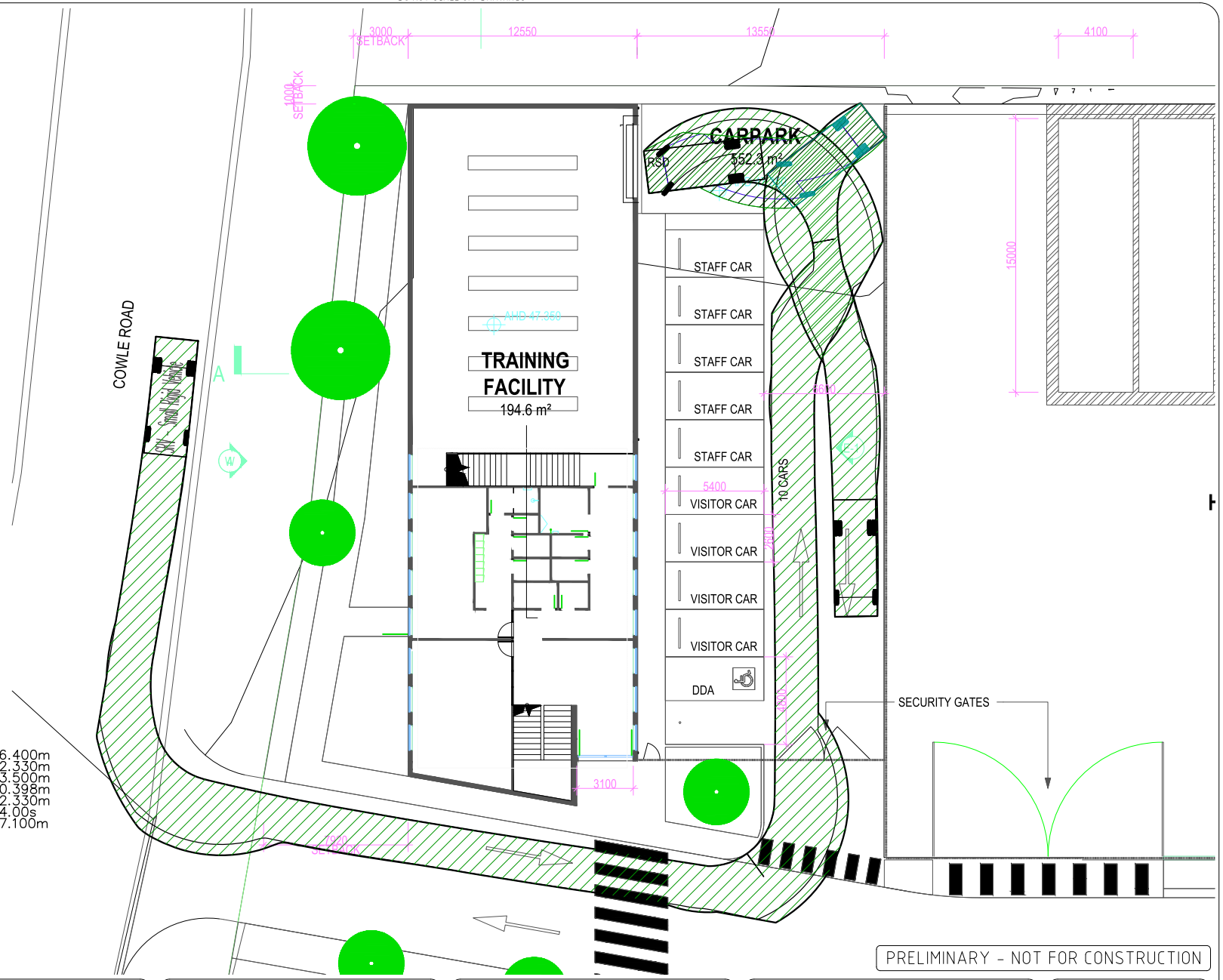

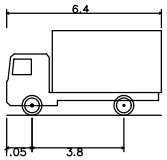

SRV – Small Rigid Vehicle

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

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ATP - SRV ACCESS

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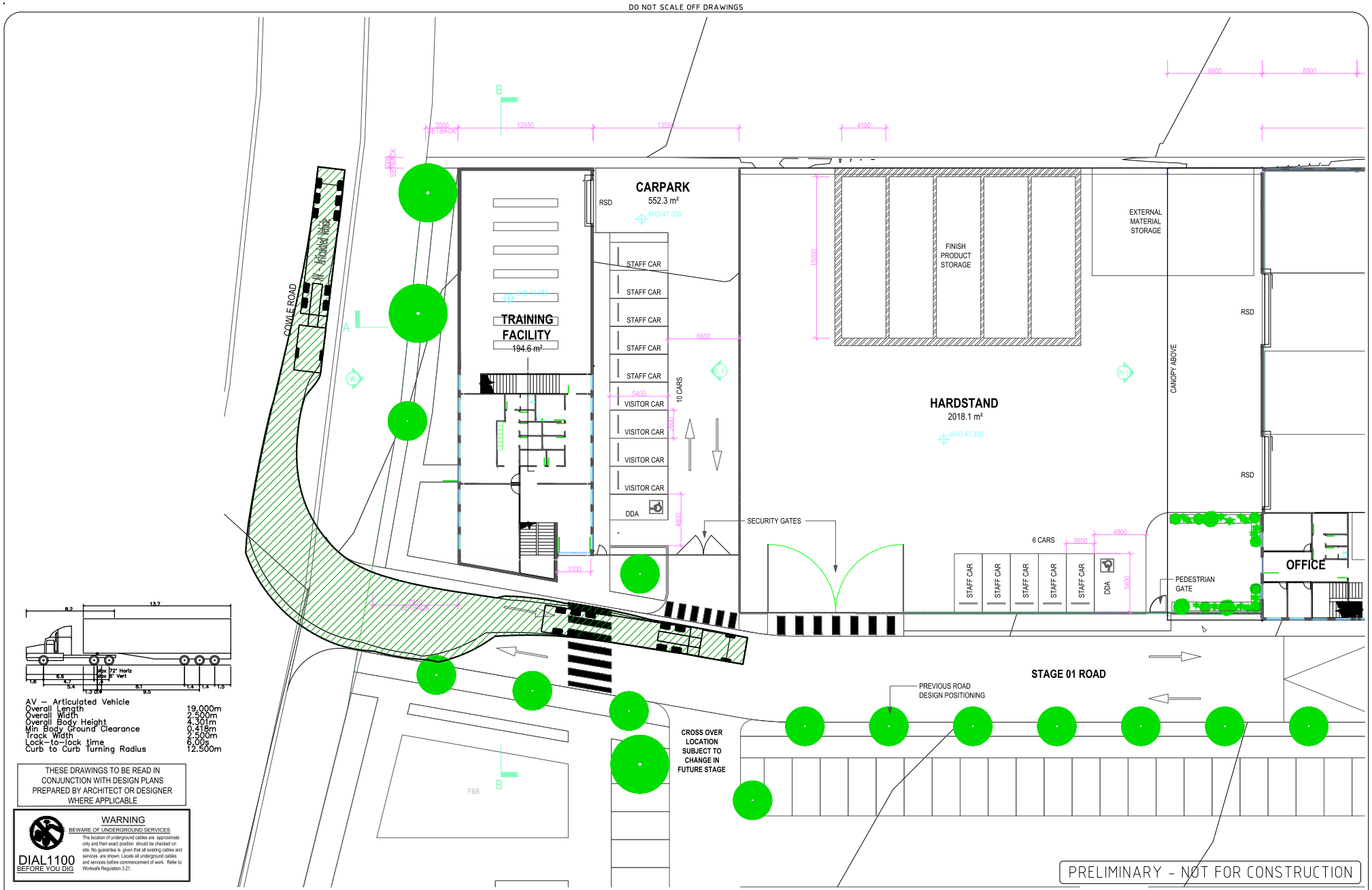

AV – Articulated Vehicle

Overall Length	19.000m
Overall Width	2.500m
Overall Body Height	4.301m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock–to–lock time	6.00s
Curb to Curb Turning Radius	12.500m

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115 COVE HILL ROAD. BRIDGEWATER
FACTORY DEVELOPMENT VEHICLE PATHS

ATP - 19M SEMI STREET INGRESS

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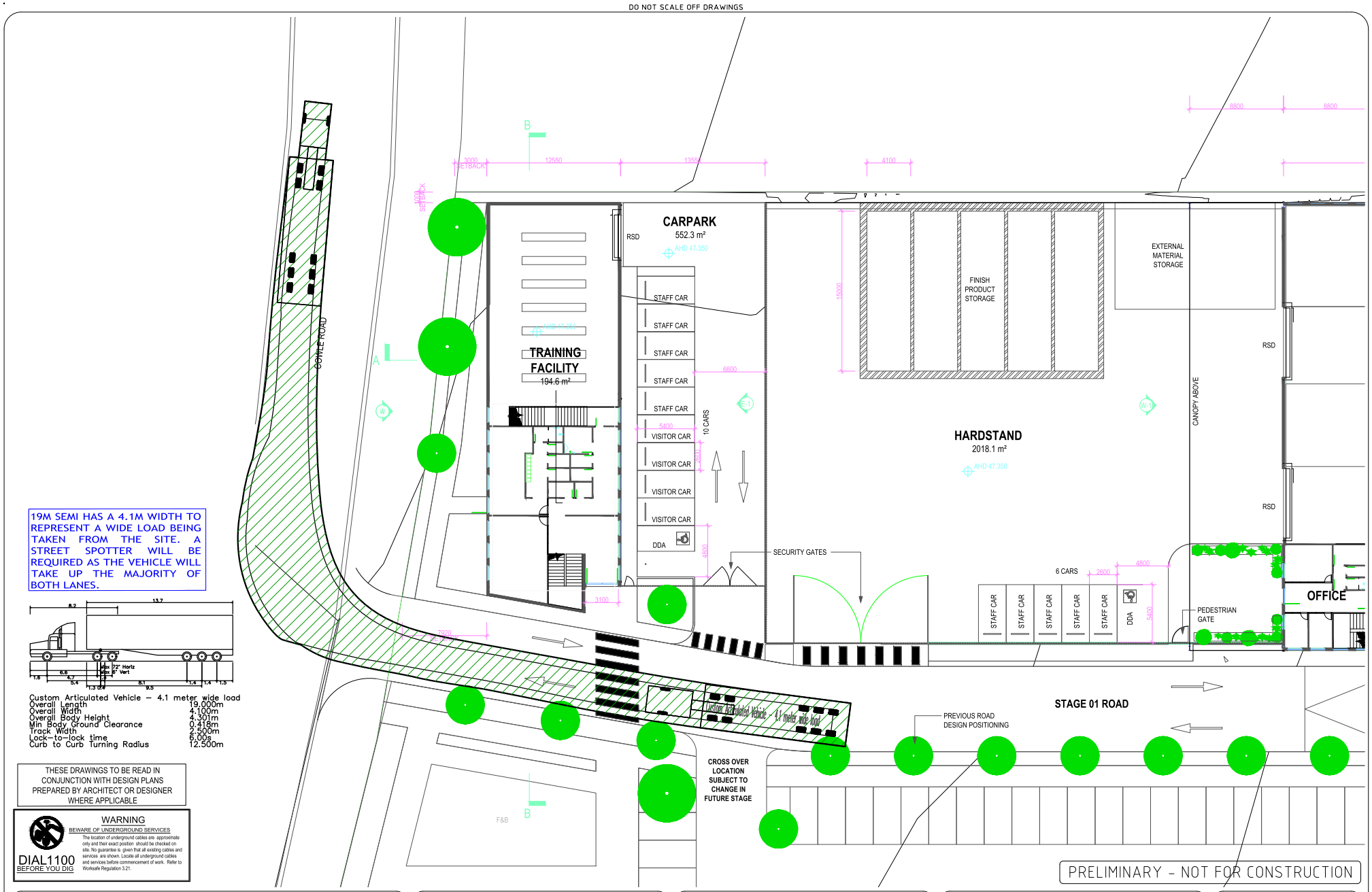

19M SEMI HAS A 4.1M WIDTH TO REPRESENT A WIDE LOAD BEING TAKEN FROM THE SITE. A STREET SPOTTER WILL BE REQUIRED AS THE VEHICLE WILL TAKE UP THE MAJORITY OF BOTH LANES.

Custom Articulated Vehicle – 4.1 meter wide load

Overall Length	19.000m
Overall Width	4.100m
Overall Body Height	4.301m
Min Body Ground Clearance	0.415m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

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ATP - 19M SEMI STREET EGRESS

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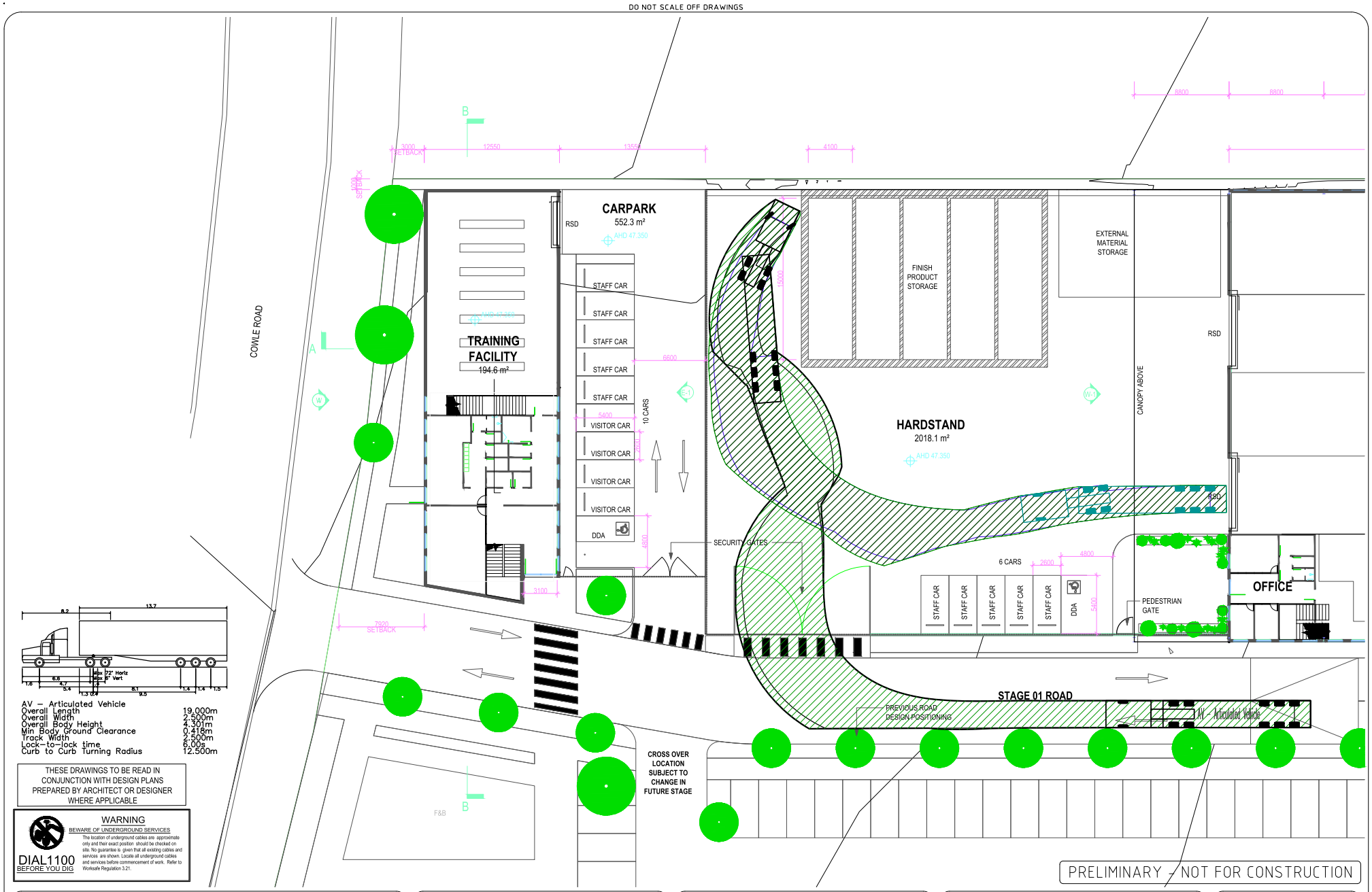

AV – Articulated Vehicle

Overall Length	19.000m
Overall Width	2.500m
Overall Body Height	4.301m
Min Body Ground Clearance	0.416m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

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115 COVE HILL ROAD. BRIDGEWATER
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ATP - 19M SEMI SITE INGRESS

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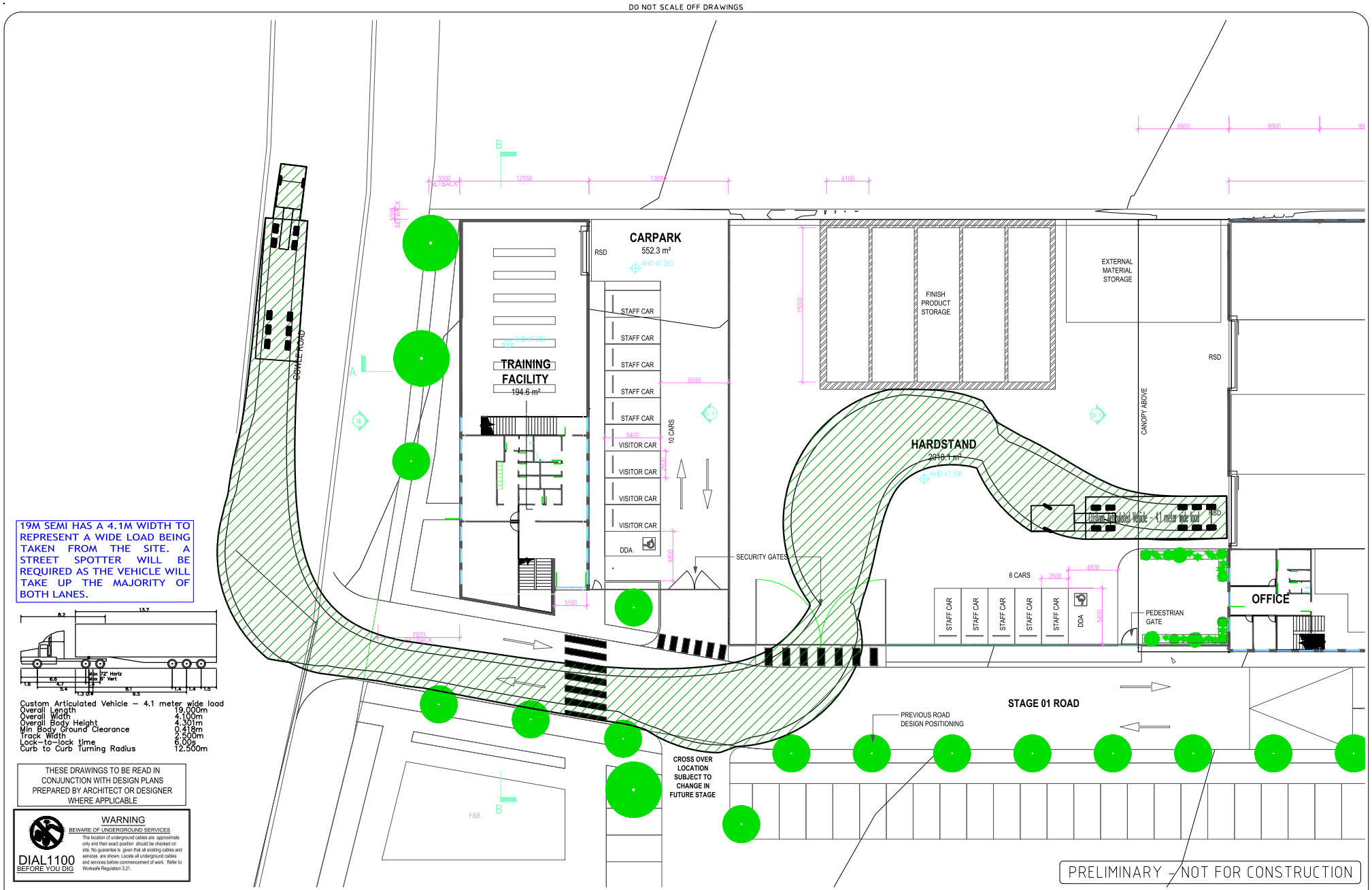

19M SEMI HAS A 4.1M WIDTH TO REPRESENT A WIDE LOAD BEING TAKEN FROM THE SITE. A STREET SPOTTER WILL BE REQUIRED AS THE VEHICLE WILL TAKE UP THE MAJORITY OF BOTH LANES.

Custom Articulated Vehicle – 4.1 meter wide load

Overall Length	19.000m
Overall Width	4.100m
Overall Body Height	4.301m
Min Body Ground Clearance	0.416m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

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115 COVE HILL ROAD. BRIDGEWATER
FACTORY DEVELOPMENT VEHICLE PATHS

ATP - 19M SEMI SITE EGRESS

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DO NOT SCALE OFF DRAWINGS

HRV – Heavy Rigid Vehicle

Overall Length	12.500m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.417m
Track Width	2.500m
Lock–to–lock time	6.00s
Curb to Curb Turning Radius	12.500m

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FACTORY DEVELOPMENT VEHICLE PATHS

ATP - HRV SITE INGRESS

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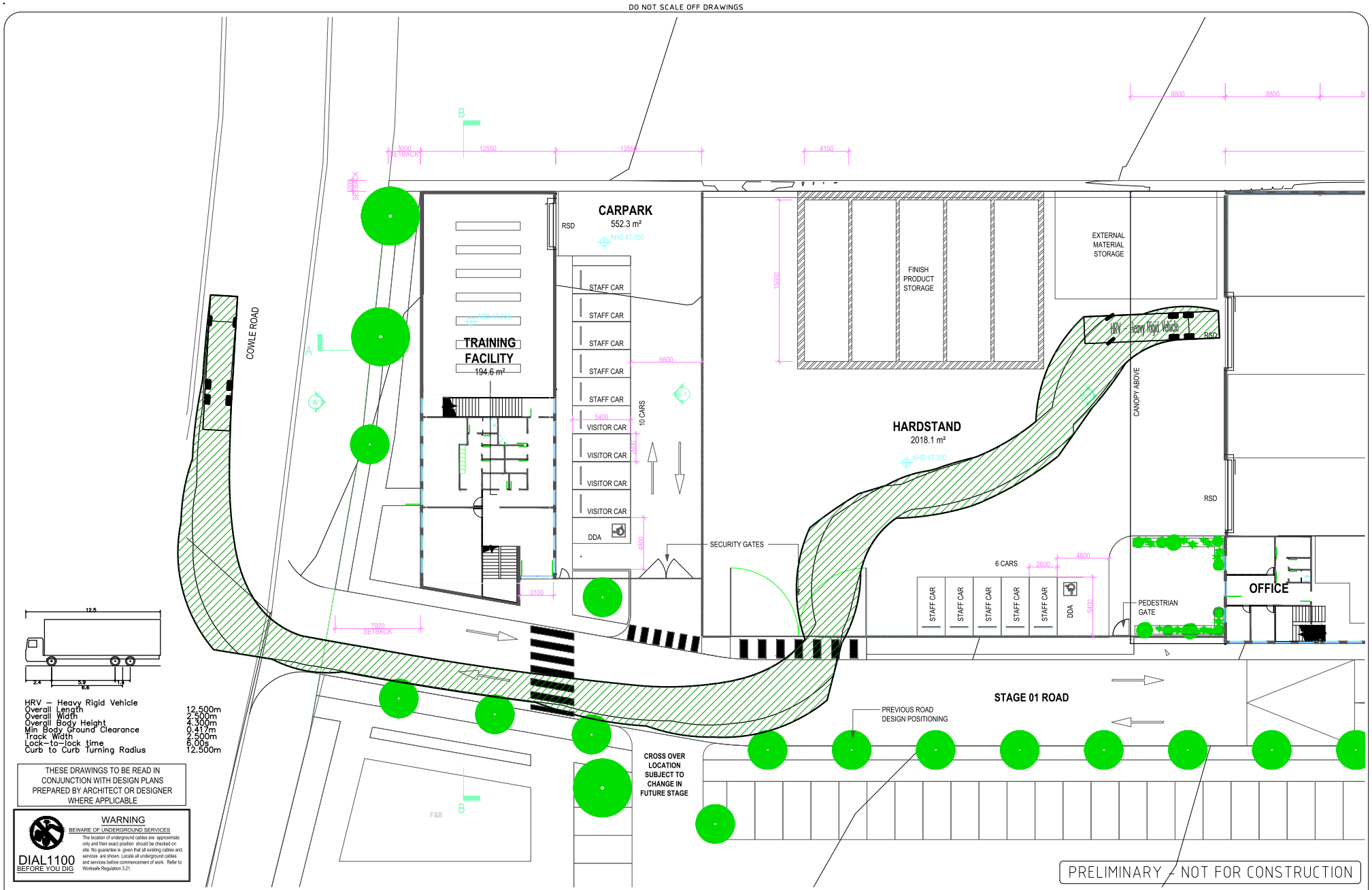

HRV – Heavy Rigid Vehicle

Overall Length	12.500m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.417m
Track Width	2.500m
Lock–to–lock time	6.00s
Curb to Curb Turning Radius	12.500m

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FACTORY DEVELOPMENT VEHICLE PATHS

ATP – HRV SITE EGRESS

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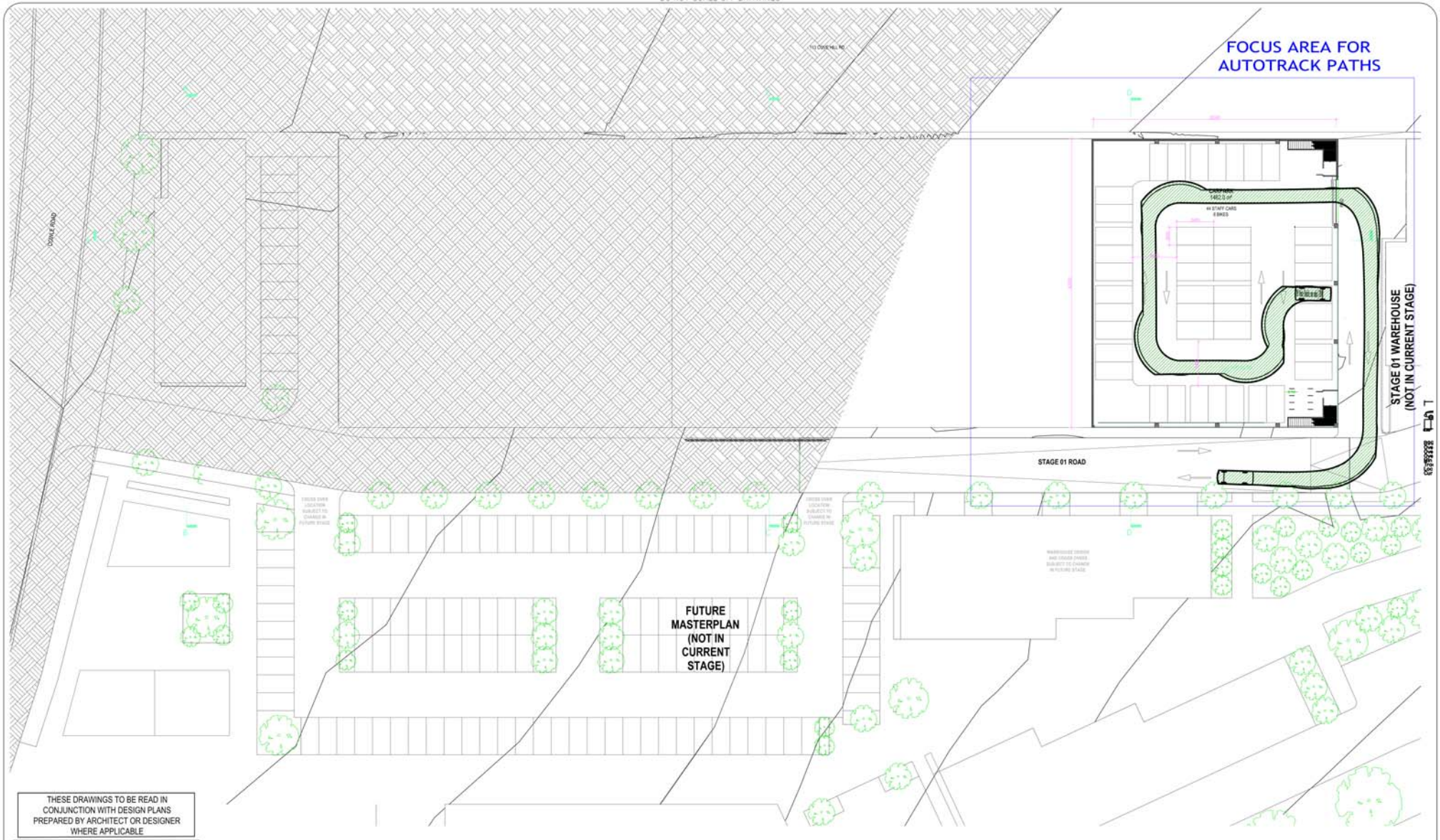

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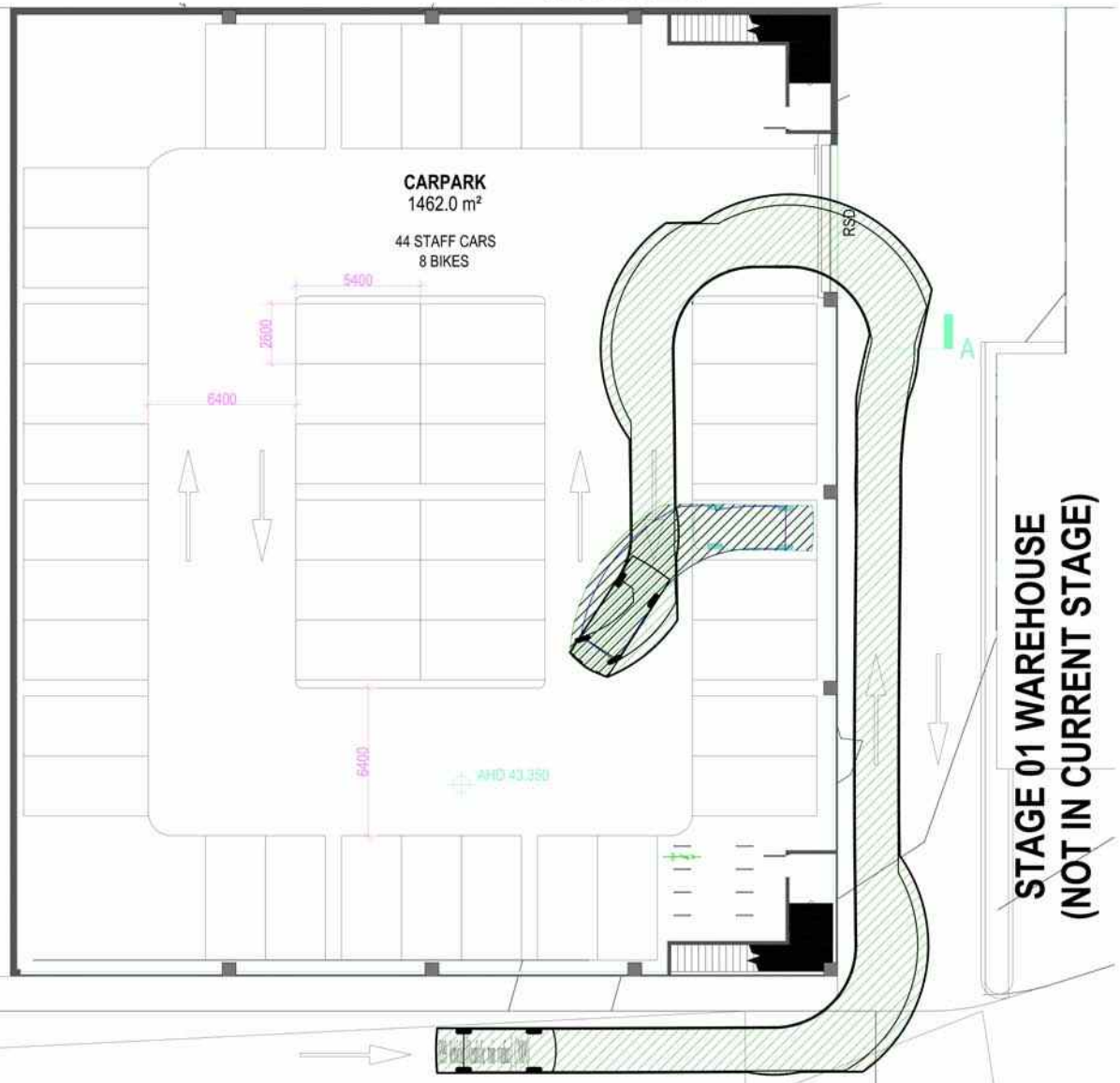
FAX +61 (0)3 6225 0618
EMAIL: info@howarthfisher.com

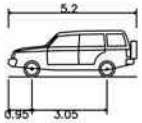
ST JOSEPH AFFORDABLE HOMES
115 COVE HILL ROAD, BRIDGEWATER
FACTORY DEVELOPMENT VEHICLE PATHS

LOWER GROUND FLOOR

APPROVED BY:-	DATE: / /
SCALES: NTS	ISSUE: 1
DRAWN: DF	
DESIGN: JF	
PROJECT NO.: 23J672	DOCUMENT IDENTIFICATION: -D-
DRAWING NO.: P10	

DO NOT SCALE OFF DRAWINGS





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

THESE DRAWINGS TO BE READ IN CONJUNCTION WITH DESIGN PLANS PREPARED BY ARCHITECT OR DESIGNER WHERE APPLICABLE

WARNING
BEWARE OF UNDERGROUND SERVICES
The location of underground cables are approximate only and their exact position should be checked on site. No guarantee is given that all existing cables and services are shown. Locate all underground cables and services before commencement of work. Refer to Worksafe Regulation 3.21.
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PRELIMINARY - NOT FOR CONSTRUCTION

ISSUE		BY	APPROVED	DATE
1	FOR DEVELOPMENT APPLICATION	DF	JF	01/02/24

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Pty Limited ACN 119 043 051
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ST JOSEPH AFFORDABLE HOMES
115 COVE HILL ROAD, BRIDGEWATER
FACTORY DEVELOPMENT VEHICLE PATHS

ATP - B99 LOWER GROUND INGRESS

APPROVED BY:		DATE: / /
SCALES	NTS	ISSUE: 1
DRAWN	DF	
DESIGN	JF	

PROJECT NO. 23J672 | DOCUMENT IDENTIFICATION -D- | DRAWING NO. P11

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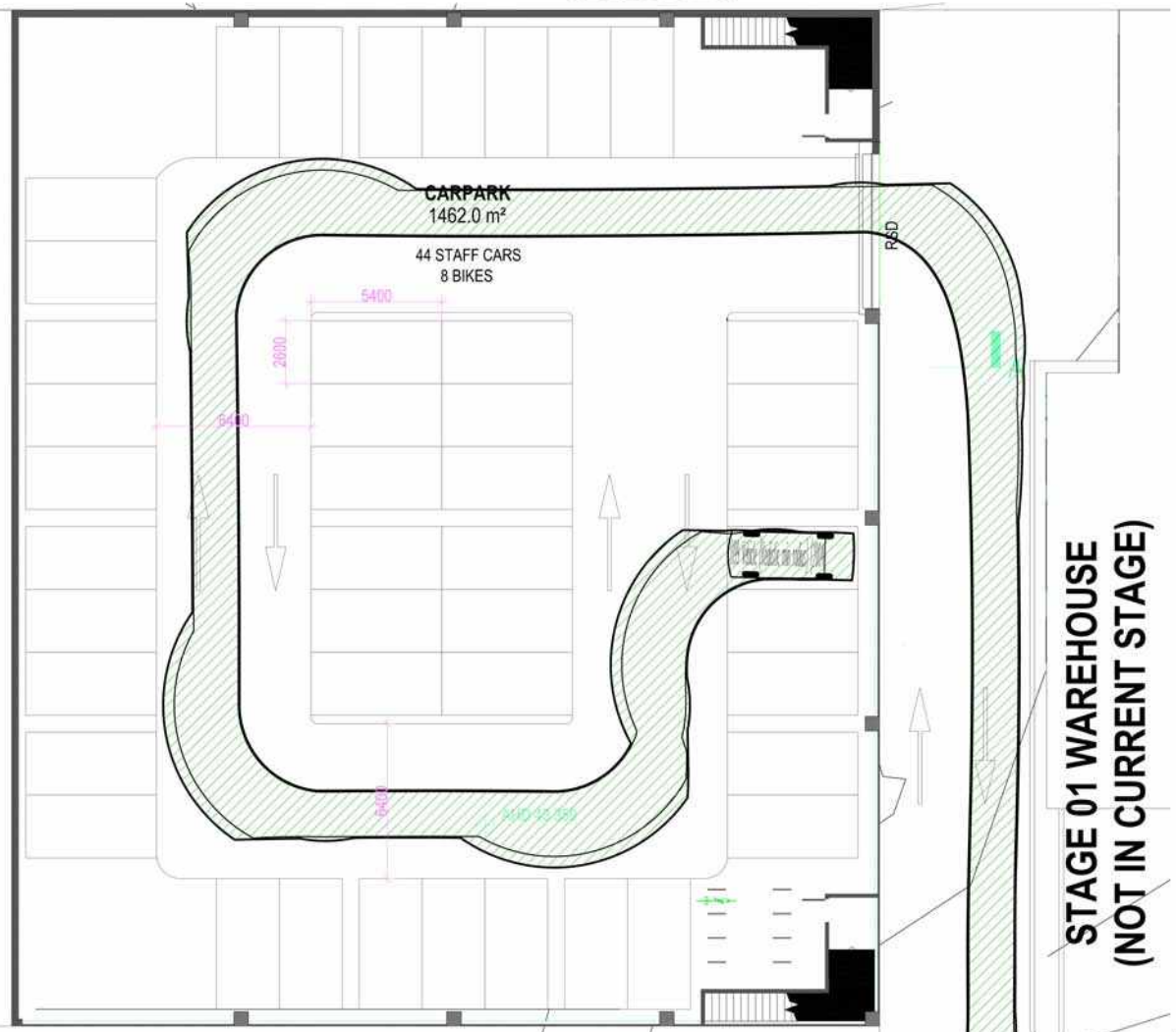

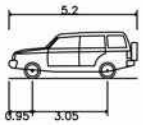

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FACTORY DEVELOPMENT VEHICLE PATHS

ATP - B99 LOWER GROUND EGRESS

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DESIGN	JF		
PROJECT NO.	DOCUMENT IDENTIFICATION	DRAWING NO.	
23J672	-D-	P11	

2. Scope of Consultancy

The scope of consultancy involves the following:

- Obtain background information and plans.
- Attend project initiation meeting (and others as required).
- Undertake site visit.
- Obtain background information (accident history, traffic volume and road parameters).
- Assess existing network constraints.
- Assess trip generation associated with the proposed uses.
- Review ongoing designs.
- Access parking requirements.
- Assess road capacity and assess traffic flows against environmental capacity.
- Assess any upgrade required to intersection.
- Model critical intersections using SIDRA intersection to determine capacity limits.
- Assess servicing requirements and ensure design can accommodate the turning paths.
- Run Autotrack to ensure road infrastructure can cater for typical truck flows.
- Undertake a Traffic Impact Assessment Report to meet the DSG requirements to accompany Development Application.

3. Howarth Fisher Limitations

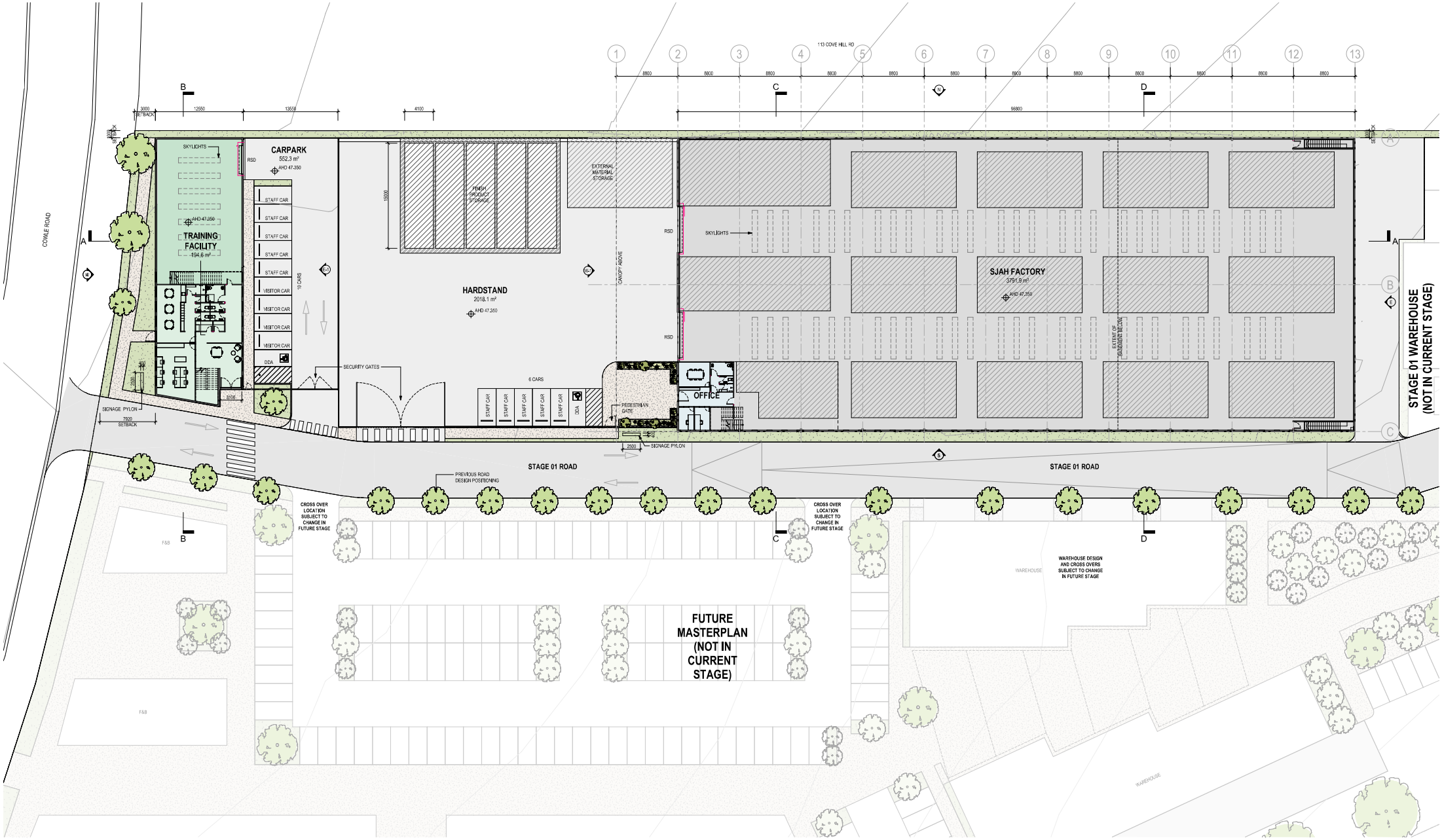
This document was prepared for the purpose described herein and as agreed to by Howarth Fisher (HF) and the SJAH. This document was prepared for the sole use of the SJAH, the only intended beneficiaries of our work. HF accepts no duty of care or liability to any third parties who may use or rely on this report, other than as expressly agreed by HF.

Without limiting the foregoing sentence in any way, in no circumstances will HF be liable to any third party whether that liability arises in contract, tort (including negligence or breach of statutory duty) or otherwise for any loss whatsoever arising out of or in any way related to this report.

4. Location of the Development

Figure 1 shows the location of the proposed development of the St Joseph Affordable Homes (SJAH) facilities as part of the Point B Master development in the context of the surrounding street network.

Figure 1: Location of SJAH facilities (source: LISTmap)



Revisions				
A	22.01.24	DA Submission	ND	

22/01/2024 12:39:22 PM

Project: **SJAH Manufacturing & Training Facility**
BRIDGEWATER, TASMANIA

Drawing: **Ground**

Project No: **223229** Author: **BG** Scale: @ A1 **1 : 250** Drawing No: **TP01.02** **A**

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Revisions
A 31.01.24 DA Submission ND

31/01/2024 1:15:24 PM

Project
SJAH Manufacturing & Training Facility
BRIDGEWATER, TASMANIA

Drawing
Lower Ground

Project No.
223229

Author
BG

Scale: @ A1
1 : 250

Drawing No.
TP01.01

A

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Melbourne, Perth, Sydney
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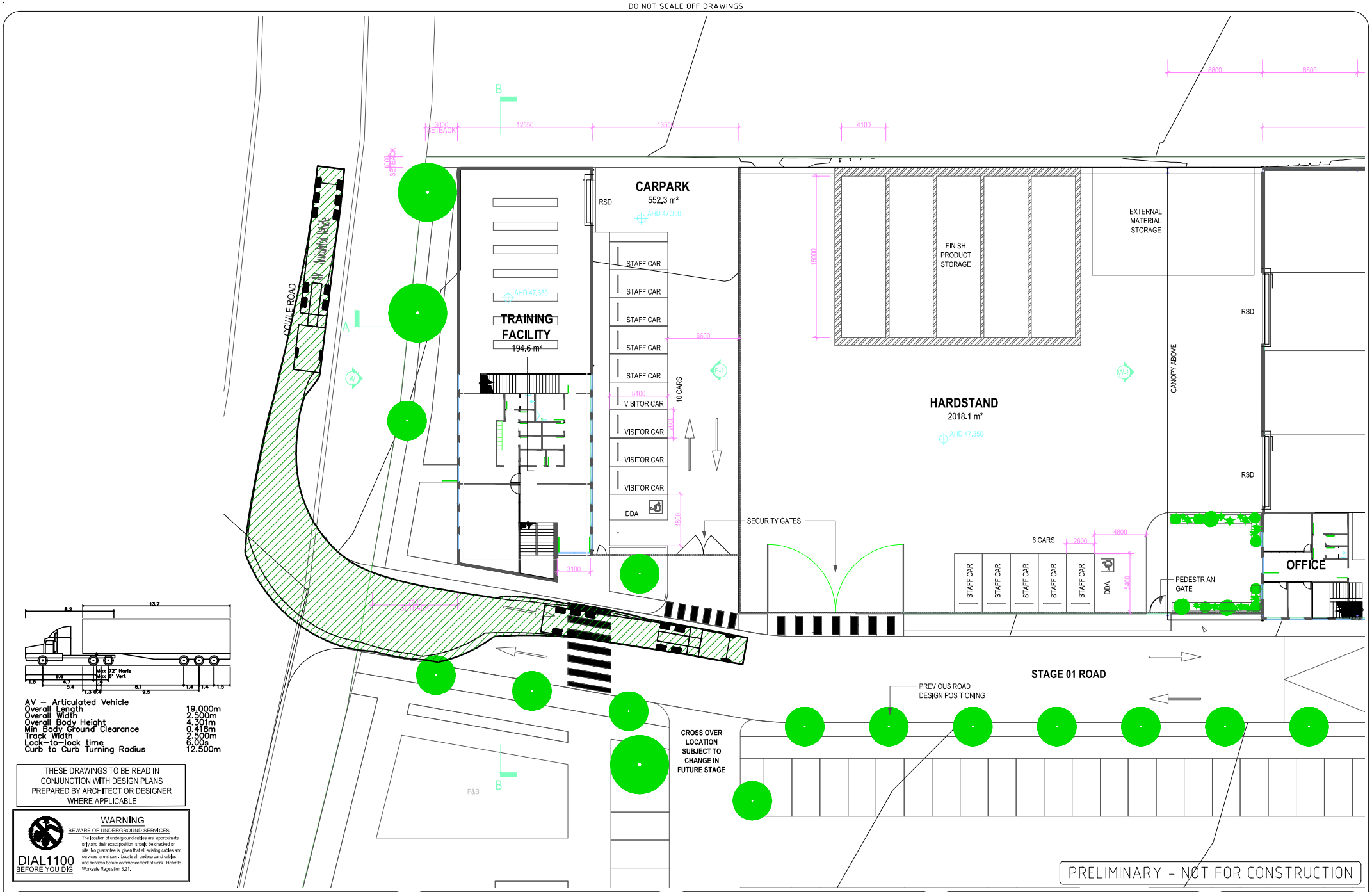

AV – Articulated Vehicle

Overall Length	19.000m
Overall Width	2.500m
Overall Body Height	4.301m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

THESE DRAWINGS TO BE READ IN CONJUNCTION WITH DESIGN PLANS PREPARED BY ARCHITECT OR DESIGNER WHERE APPLICABLE

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ST JOSEPH AFFORDABLE HOMES

115 COVE HILL ROAD. BRIDGEWATER
FACTORY DEVELOPMENT VEHICLE PATHS

ATP - 19M SEMI STREET INGRESS

APPROVED BY:-	DATE: / /
SCALES NTS	ISSUE: 1
DRAWN DF	
DESIGN JF	
PROJECT NO. 23J672	DOCUMENT IDENTIFICATION -D-
DRAWING NO. P4	

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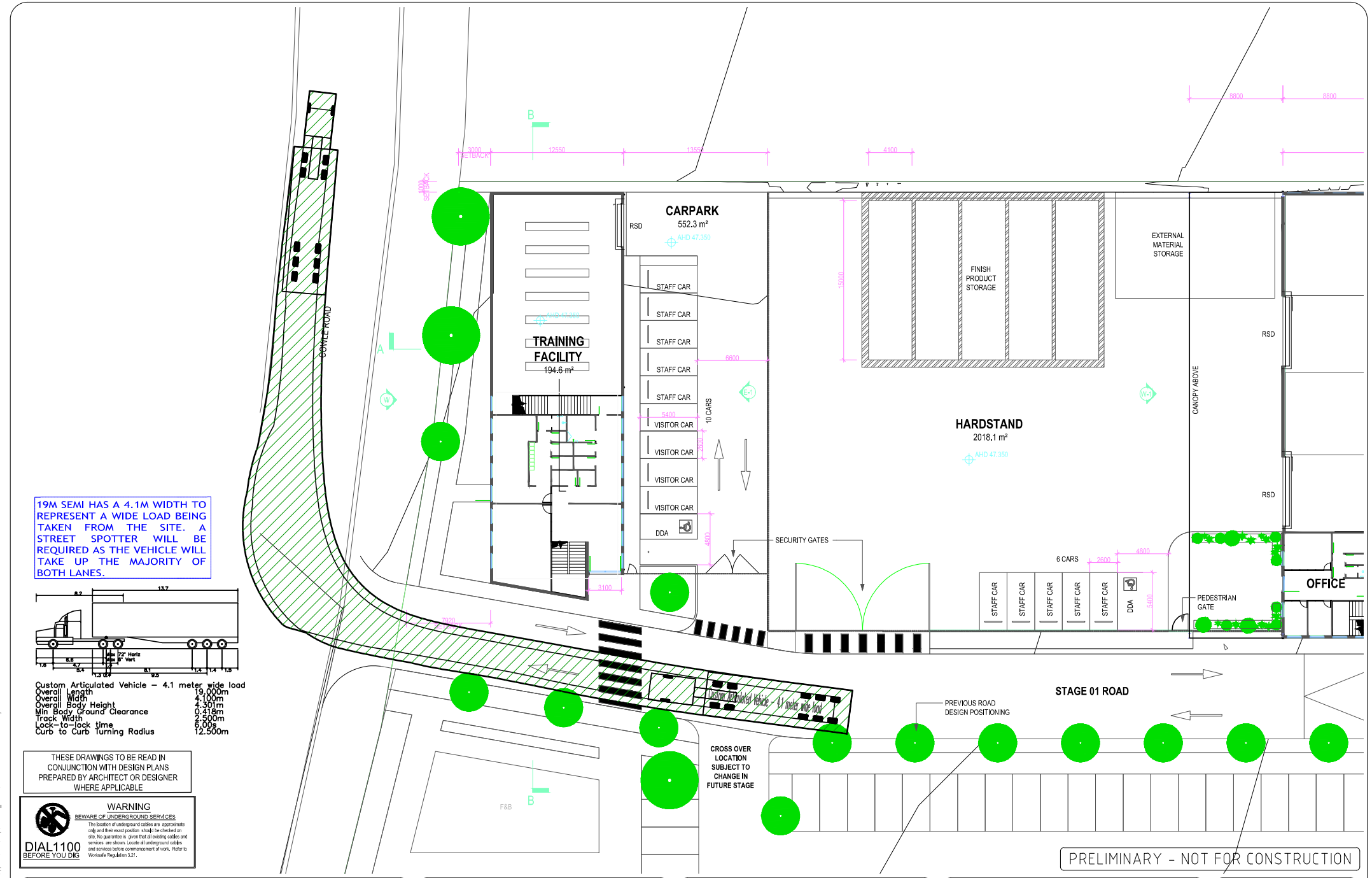

19M SEMI HAS A 4.1M WIDTH TO REPRESENT A WIDE LOAD BEING TAKEN FROM THE SITE. A STREET SPOTTER WILL BE REQUIRED AS THE VEHICLE WILL TAKE UP THE MAJORITY OF BOTH LANES.

Custom Articulated Vehicle – 4.1 meter wide load

Overall Length	19.000m
Overall Width	4.100m
Overall Body Height	4.301m
Min Body Ground Clearance	0.418m
Track Width	2.500m
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ST JOSEPH AFFORDABLE HOMES

115 COVE HILL ROAD. BRIDGEWATER
FACTORY DEVELOPMENT VEHICLE PATHS

ATP - 19M SEMI STREET EGRESS

APPROVED BY:-	DATE: / /
SCALES NTS	ISSUE: 1
DRAWN DF	
DESIGN JF	
PROJECT NO. 23J672	DOCUMENT IDENTIFICATION -D-
DRAWING NO. P5	

Brisbane Office
596 Milton Road
Toowong QLD 4066, Australia
PO Box 1492, Toowong BC QLD 4066

1300 657 402

www.adgce.com

16 February 2024

The Young Group
Attention: Trent Young
1/6 Cessna Way
CAMBRIDGE TASMANIA 7170

Dear Trent,

Re: ST JOSEPHS AFFORDABLE HOUSING, BRIDGEWATER
CIVIL PLANNING PERMIT APPLICATION
26717.003 / C L001, BRISBANE

This letter has been prepared with a concept civil engineering design in support of a Planning Permit application to Brighton Council for a new warehouse development located at Point B at 115 Cove Hill Road, Bridgewater. This letter is intended to be read in conjunction with the Stormwater Management Plan Rev 03 prepared for Stage 1 by ADG Engineers (ADG) dated January 2024 (the SMP). Point B is a multi-stage commercial and industrial development, Stage 1 of which includes master-planned stormwater quality and quantity infrastructure. Refer to the Concept Civil Site Plan in Attachment 1 for further information regarding the proposed staging.

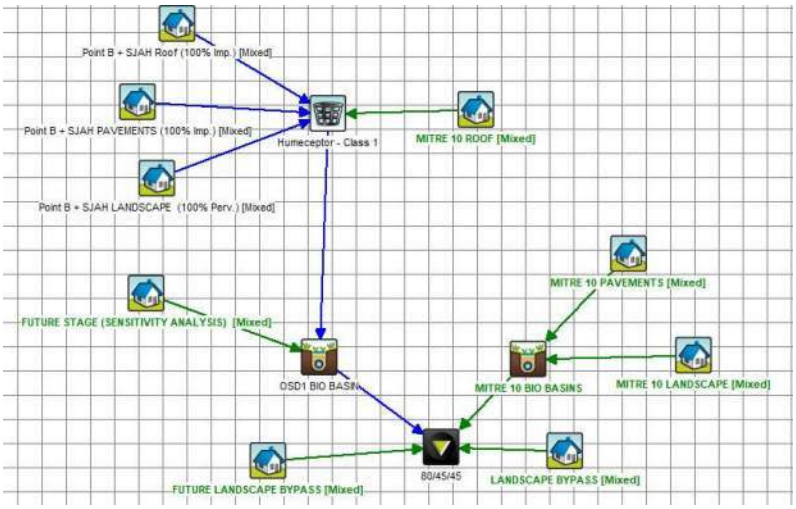
This application has been prepared in coordination with the Architectural drawings by Rothelowman Architects dated 19.12.23. Refer to attachments 1 to 5 for the plans, including Concept Civil Engineering Plans. It is noted that this design is subject to approvals by Council and subsequent detailed design.

Stormwater Quantity

It is proposed to direct stormwater runoff from the development towards On Site Detention Basin 1 (OSD1). As detailed in the SMP, OSD1 has been sized to allow for the post-development runoffs from the SJAH development for rain events up to and including the 1% AEP event. For further details, refer to the SMP. The proposed lawful point of discharge is an existing stormwater pit in the intersection of Bisdee Road and Taylor Crescent (identified as LPD1 in the SMP).

Stormwater Quality

Point B has a water quality treatment train consisting of a Humeceptor STC7 and a rain garden. A MUSIC model was developed to verify that the state's water quality targets have been achieved with the proposed development. The results of the modelling are shown in Figure 1:



	Sources	Residual Load	% Reduction
Flow (ML/yr)	20.1	19.3	3.8
Total Suspended Solids (kg/yr)	5750	432	92.5
Total Phosphorus (kg/yr)	9.8	2.99	69.5
Total Nitrogen (kg/yr)	49.2	21.1	57.1
Gross Pollutants (kg/yr)	750	0	100

Figure 1 MUSIC Modelling Results

The modelled catchment areas are provided in SK05. The MUSIC modelling demonstrates that the proposed treatment train (STC7 and 255m^2 bio basin) are adequate to service the SJAH and Point B developments. The model includes conservative estimates of future stages finished types to show that the proposed rain garden can service all the flows going to OSD1. For further information regarding OSD1 catchments, refer to the SMP.

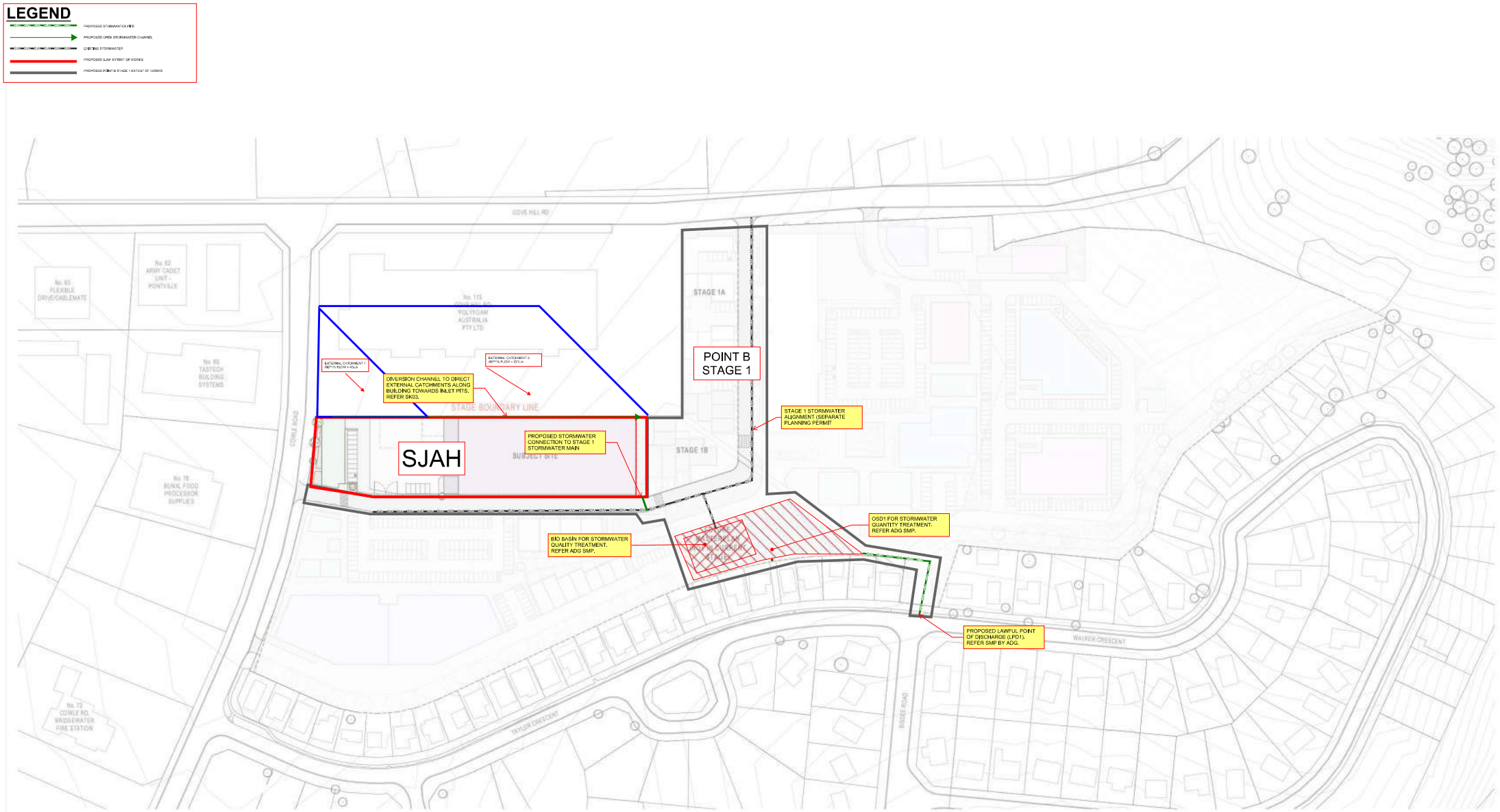
Kind regards,

Kieran Jackson

Engineer – Civil

Attachments

1. *SK01 CONCEPT DRAINAGE SITE PLAN*
2. *SK02 CONCEPT DRAINAGE AND GRADING 1*
3. *SK03 CONCEPT DRAINAGE AND GRADING 2*
4. *SK04 CONCEPT SITE SECTIONS*
5. *SK05 MUSIC MODELLING CATCHMENT*



ADG ENGINEERS (AUST) PTY LTD

SK01 CONCEPT CIVIL SITE PLAN

SIGNATURE: .....
PROJECT NAME: POINT B SJAH
PROJECT NUMBER: 26717.003
DATE: 06.02.24

PRELIMINARY
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g & | Drawing: Site Plan - Proposed | Project No: 223229 | Author: CG | Size: @ A1 | 1 : 1000 | Drawing No: TP00.02 | A

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SK02 CONCEPT DRAINAGE AND GRADING 1

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PROJECT NAME: POINT B SJAH

PROJECT NUMBER: 26717.003

DATE: 06.02.24

PRELIMINARY

NOT FOR CONSTRUCTION

g & | Drawing: Lower Ground | Project No: 223229 | Author: BG | Scale: @ A1: 1 : 250 | Drawing No: TP01.01 | A

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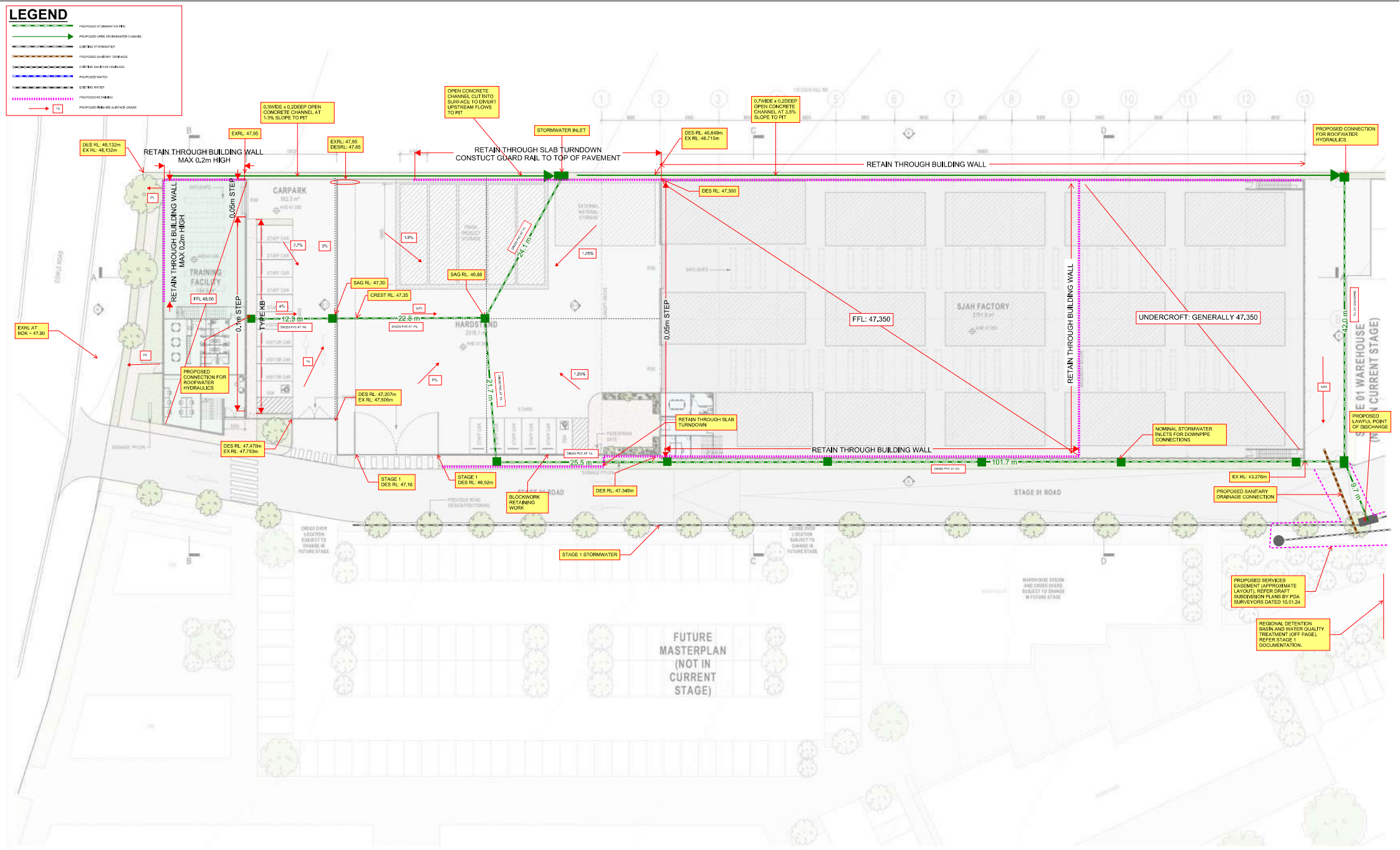

ADG ENGINEERS (AUST) PTY LTD

SK03 CONCEPT DRAINAGE AND GRADING 2

SIGNATURE: .....

PROJECT NAME: POINT B SJAH

PROJECT NUMBER: 26717.003

DATE: 06.02.24

PRELIMINARY

NOT FOR CONSTRUCTION

Drawing: Ground | Project No: 223229 | Author: BG | Scale: @ A1: 1 : 250 | Drawing No: TP01.02 | A

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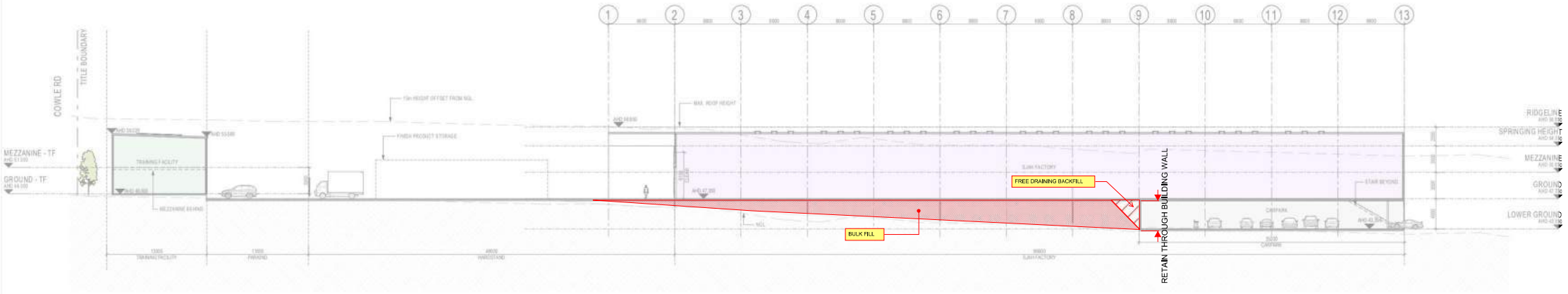
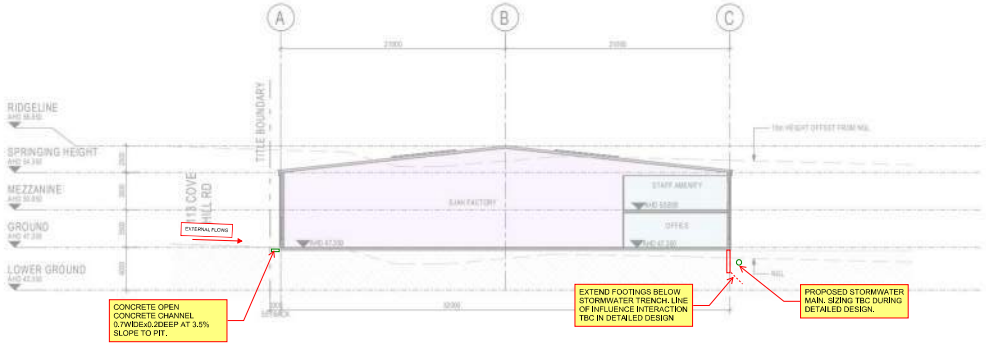
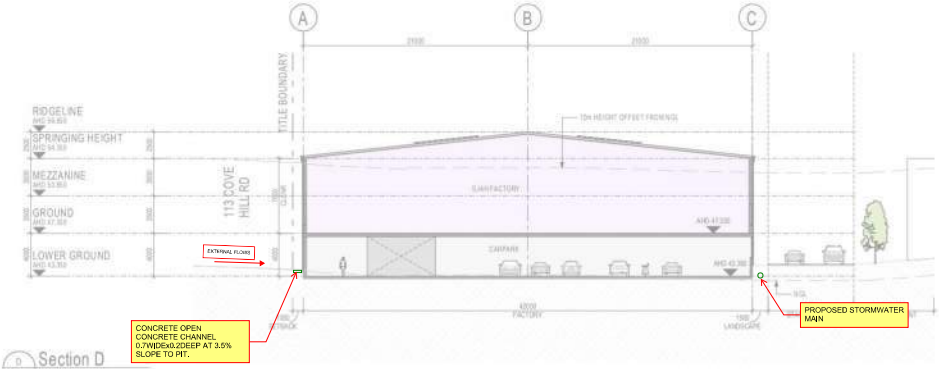


Section A
SCALE 1 : 250



Section C
SCALE 1 : 250



Section D
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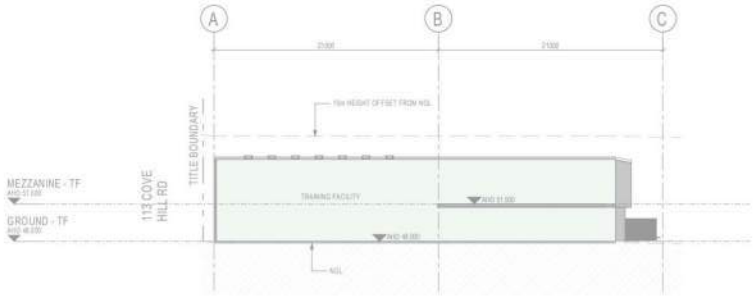

Section B
SCALE 1 : 250

ADG ENGINEERS (AUST) PTY LTD

SK04 CONCEPT SITE SECTIONS

SIGNATURE: .....
PROJECT NAME: POINT B SJAH
PROJECT NUMBER: 26717.003
DATE: 06.02.24

PRELIMINARY
NOT FOR CONSTRUCTION

Drawing: Sections
Project No: 223229
Author: FM
Scale: @ A1: 1 : 250
Drawing No: TP03.01
A

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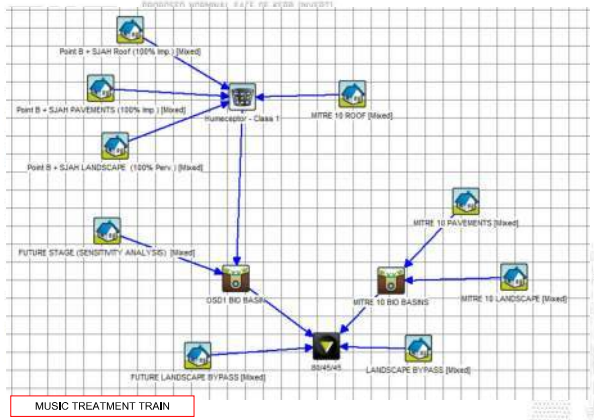
LEGEND

ROOF AREA = 6931sq.m

ROAD AREA = 7920sq.m

FOOTPATH AREA = 1235sq.m

LANDSCAPE AREA = 3854sq.m



MUSIC TREATMENT TRAIN

LANDSCAPE ARCHITECT COORDINATION

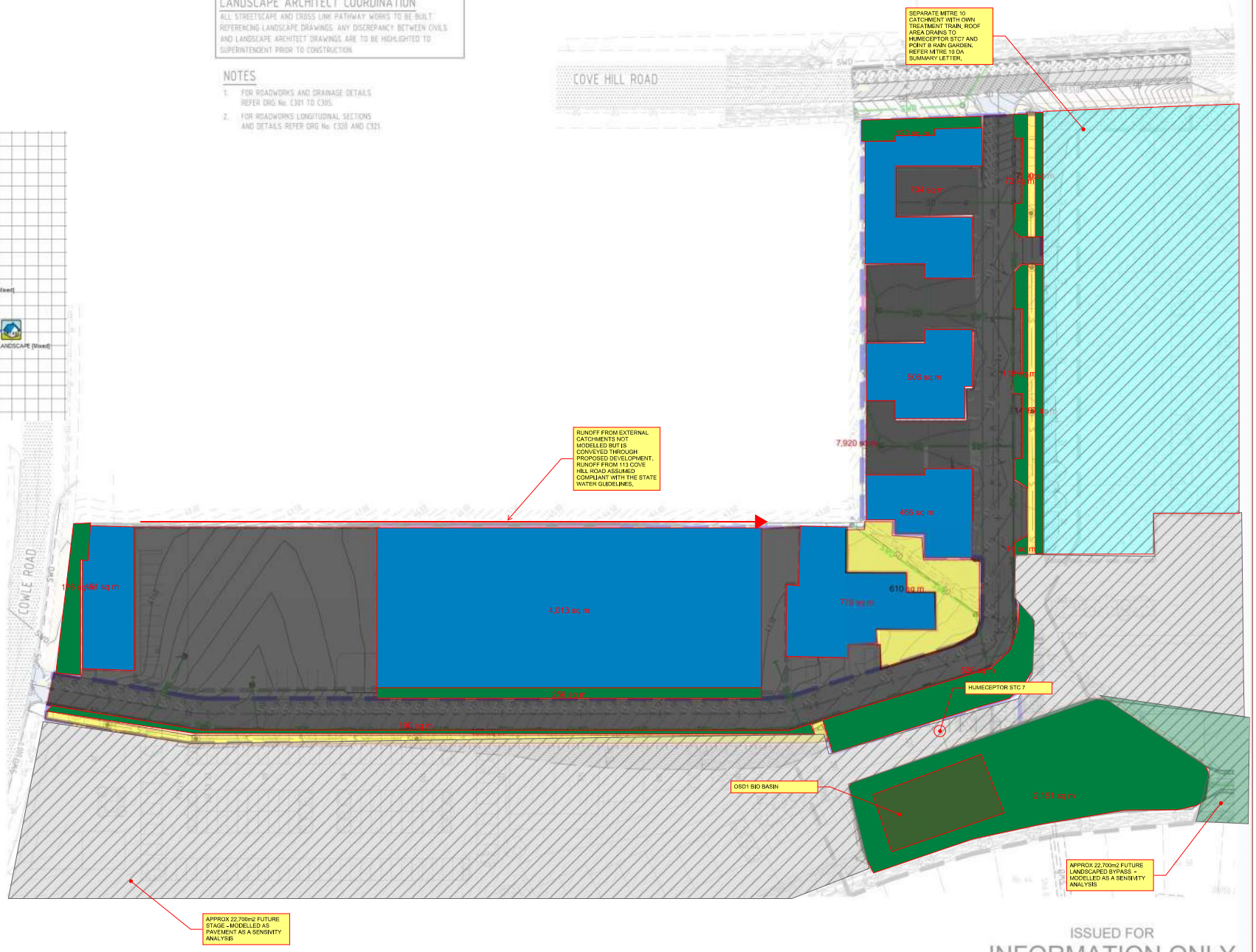
ALL STREETSCAPE AND CROSS LINK PATHWAY WORKS TO BE BUILT REFERENCING LANDSCAPE DRAWINGS. ANY DISCREPANCY BETWEEN CIVILS AND LANDSCAPE ARCHITECT DRAWINGS ARE TO BE HIGHLIGHTED TO SUPERINTENDENT PRIOR TO CONSTRUCTION.

NOTES

1. FOR ROADWORKS AND DRAINAGE DETAILS REFER DRG No. C301 TO C305.
2. FOR ROADWORKS LONGITUDINAL SECTIONS AND DETAILS REFER DRG No. C320 AND C321

ROADWORKS AND DRAINAGE NOTES

1. FOR GENERAL NOTES REFER DRG No. C001, WHICH IS TO BE REQUESTED AND VIEWED PRIOR TO COMMENCEMENT OF CONSTRUCTION IF NOT SUPPLIED.
2. REFER HYDRAULIC DRAWINGS FOR ROOF DRAINAGE LAYOUT. PROVIDE STUB FOR ROOFWATER CONNECTION 50mm ABOVE INVERT OF CIVIL PIT ROOFWATER CONNECTIONS. REFER HYDRAULICS DRAWINGS FOR CONTINUATION.
3. ALL ROADWORKS AND DRAINAGE (EXTERNAL TO SITE BOUNDARIES AND/OR COUNCIL OWNED DRAINAGE PIPES INTERNAL TO THE SITE BOUNDARIES) CONSTRUCTION AND TESTING TO BE IN ACCORDANCE WITH CITY OF BRIGHTON DEVELOPMENT GUIDELINES, DRAWINGS AND SPECIFICATIONS.
4. ALL DRAINAGE CONSTRUCTION (PRIVATELY OWNED DRAINAGE LINES INTERNAL TO THE SITE BOUNDARIES) CONSTRUCTED AND TESTED TO BE IN ACCORDANCE WITH RELEVANT AUSTRALIAN STANDARDS.
5. ALL STORMWATER PIPES ARE TO BE MANUFACTURED TO RELEVANT AUSTRALIAN STANDARDS INCLUDING BUT NOT LIMITED TO AS4058 AND AS3992.
6. ALL STORMWATER PITS TO BE IPEA TYPE 6. REFER LGAT STANDARD DRAWING TSD-SW16-v2.
7. STORMWATER DRAINAGE AND PAVEMENT STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL LOADS ONLY. CONTRACTOR TO CONSIDER CONSTRUCTION LOADINGS AND ENSURE NO EXCESSIVE LOADS ARE PLACED ON STORMWATER DRAINAGE OR STRUCTURES.
8. CONTRACTOR TO CONFIRM LOCATION AND LEVEL OF EXISTING STORMWATER DRAINAGE WHERE CONNECTING ON TO EXISTING.
9. CONTRACTOR TO NOTIFY THE SUPERINTENDENT OF ANY UNSUITABLE FOUNDING MATERIAL WITHIN DRAINAGE TRENCH OR STORMWATER STRUCTURES AND AWAIT DIRECTION PRIOR TO LAYING OF PIPES.
10. TRENCH BACKFILL UNDER PAVEMENT TO BE COMPACTED TO 100% STANDARD DRY DENSITY (AS1289 5.1.1) IN LAYERS NOT EXCEEDING 150mm OF CBR 15 MATERIAL OR APPROVED EQUIVALENT. TRENCH BACKFILL IN ROADS TO BE MINIMUM CBR15 MATERIAL UP TO ROAD SUBGRADE LEVEL.
11. ALL STORMWATER GRATES/LIDS WITHIN TRAFFICABLE AREAS TO BE CLASS "D" IN ACCORDANCE WITH AS3996 (TBC WITH FORKLIFT REQUIREMENTS). ALL STORMWATER GRATES IN PEDESTRAIN AREAS TO BE HEEL PROOF.
12. ALL GRATES AND LIDS SHALL SIT FLAT WITH ITS SURROUND AND NOT BE LOOSE OR MOVE UNDER WHEEL LOADS.
13. CONTRACTOR TO INSTALL STEP IRONS WITHIN MANHOLES/FIELD INLETS WHERE REQUIRED BY LOCAL AUTHORITY.
14. FOOTPATHS TO BE CONSTRUCTED WITH MAXIMUM 2% CROSSFALL. SHOULD CONSTRUCTED FOOTPATHS EXCEED 2.5% CROSSFALL, THE CONTRACTOR WILL BE REQUIRED TO RECTIFY BY REMOVING AND REPLACING AT THEIR COST.
15. WHERE A STORMWATER DRAINAGE TRENCH HAS BEEN CONSTRUCTED LONGITUDINALLY IN THE ROAD, THEN THE FINAL PAVEMENT SURFACE REPAIR WIDTH IS TO MATCH THE EXISTING LANE WIDTH AND TERMINATE 50mm CLEAR OF THE ROAD CENTERLINE OR LANE LINE LINEMARKING TO ALLOW FOR THE BITUMEN EMULSION JOINT SEAL. REINSTATEMENT OF SURFACE ADJACENT TO THE KERB OR ROAD PAVEMENT EDGE TO EXTEND FULLY TO THE KERB LINE OR EDGE OF PAVEMENT.
16. THE CONTRACTOR IS TO CONFIRM THE LOCATION OF SERVICE CONDUITS WITH THE SUPERINTENDENT PRIOR TO LAYING STORMWATER DRAINAGE. ALL TRENCH EXCAVATION AND CONSTRUCTION SHALL COMPLY WITH THE REQUIREMENTS OF THE QUEENSLAND WORKPLACE HEALTH AND SAFETY ACT 2011.
17. CONTRACTOR TO UNDERTAKE ROADWORKS TESTING IN ACCORDANCE WITH CITY OF BRIGHTON GUIDELINES, DRAWINGS AND SPECIFICATIONS.
18. CONTRACTOR TO UNDERTAKE AND PROVIDE CCTV OF ALL STORMWATER LINES AT ON MAINTENANCE AND OFF MAINTENANCE. SHOULD THE CCTV IDENTIFY DAMAGE OR CRACKING WITHIN THE STORMWATER PIPES, THE CONTRACTOR WILL RECTIFY THE DAMAGE WITHIN THE PIPES BY MEANS DIRECTED BY THE SUPERINTENDENT WHICH MAY INCLUDE BUT NOT BE LIMITED TO PIPE RELINING OR PIPE REPLACEMENT.



ISSUED FOR
INFORMATION ONLY

ADG ENGINEERS (AUST) PTY LTD

SK05 MUSIC MODELLING CATCHMENTS

SIGNATURE: .....

PROJECT NAME: POINT B SJAH

PROJECT NUMBER: 26717.003

DATE: 06.02.24

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T 1300 657 402 E: info@adgce.com W: www.adgce.com
Quality Assurance: ISO 9001:2015 | Work Health Safety ISO 45001:2018
Environmental Management ISO 14001:2015

Client: THE YOUNG GROUP TASMANIA PTY LTD	Discipline: CIVIL		Status: INFO
Project Name: POINT B STAGE 1 - BRIDGEWATER 115 COVE HILL RD BRIDGEWATER, TAS, 7030	Designed By: KJ	Checked By: MVI	Approved By: MVI
	Project No: 26717	Drawn By: MB	Scale at A1: 1:500
			Title: ROADWORKS AND DRAINAGE OVERALL LAYOUT PLAN
			Drawing No: C300
			Revision: 03