

Transport Assessment

Ingleburn Logistics Park, Stage 3 Development Application

35 – 47 Stennett Road, Ingleburn

1/11/2021

P1805r01

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Glossary

Acronym	Description
AGRD	Austroads Guide to Road Design
AGTM	Austroads Guide to Traffic Management
CC	Construction Certificate
Council	Campbelltown Council
DA	Development Application
DCP	Development Control Plan
DoS	Degree of Saturation
DPIE	Department of Planning, Industry and Environment
FSR	Floor space ratio
GFA	Gross Floor Area
HRV	Heavy Rigid Vehicle (as defined by AS2890.2:2018)
LEP	Local Environmental Plan
LGA	Local Government Area
LoS	Level of Service
MOD	Section 4.55 Modification (also referred as a S4.55)
MRV	Medium Rigid Vehicle (as defined by AS2890.2:2018)
NHVR	National Heavy Vehicle Regulator
OC	Occupation Certificate
RMS Guide	Transport for NSW (formerly Roads and Traffic Authority), Guide to Traffic Generating Developments, 2002
S4.55	Section 4.55 Modification (also referenced as MOD)
S96	Section 96 Modification (former process terminology for an S4.55)
SRV	Small Rigid Vehicle (as defined by AS2890.2:2018)
TDT 2013/04a	TfNSW Technical Direction, Guide to Traffic Generating Developments – Updated traffic surveys, August 2013
TfNSW	Transport for New South Wales
TIA	Transport Impact Assessment
TIS	Transport Impact Statement
veh/hr	Vehicle movements per hour (1 vehicle in & out = 2 movements)

1 Introduction

1.1 Background

Ason Group has been engaged by Stockland to prepare a Traffic Assessment (TA) to support a Development Application for the proposed Ingleburn Logistics Park, Stage 3 development (the Proposal) located at 35-47 Stennett Road, Ingleburn (the Site).



Figure 1: Site Appreciation

1.2 Study Purpose

This TA provides an assessment of the potential impact of the Proposal on the surrounding road network and in accordance with Council's DCP, which addresses the following matters / aspects:

- Assessment of the proposed location and number of car parking spaces within the proposed development, including a breakdown of car parking numbers,
- Full details of the proposed location of any loading dock / servicing areas and waste storage and collection areas,
- Assessment of the performance of the existing road network / traffic environment, including the existing level of service of key intersections in the locality,
- Assessment of the anticipated traffic generation from the development,

- Cumulative impact assessment upon traffic flow movements in the locality (background growth) and considering the traffic generation of the development,
- Whether the proposed ingress / egress access arrangements of the development are satisfactory considering the proposed car parking and loading / servicing facilities within the development and the location of the proposed access points within the surrounding road network and proximity to key intersections in the locality,
- Whether the proposed master plan design is capable of accommodating the design vehicle, and
- Other relevant matters based on the locality or the nature of the proposed development

1.3 Key References

In preparing this TA, Ason Group has referenced the following key planning documents. These include:

- Campbelltown (Sustainable City) Development Control Plan (DCP 2015),
- Campbelltown (Sustainable City) Local Environmental Plan (LEP 2015), and

This TA also references general access, traffic and parking guidelines, including:

- Australian Standard 2890.1:2004 - Parking Facilities – Off Street Car Parking (AS 2890.1:2004);
- Australian Standard 2890.2:2018 - Parking Facilities – Off Street Commercial Vehicle Facilities (AS 2890.2:2018);
- Australian Standard 2890.3:2015 – Parking Facilities – Bicycle Parking (AS 2890.3:2015);
- Australian Standard 2890.6:2009 – Parking Facilities – Off Street Parking for People with Disabilities (AS2890.6:2009);
- Colston Budd Rogers & Kafes, Traffic Report For Proposed Industrial Development, Stennett Road, Ingleburn, September 2014
- Colston Budd Rogers & Kafes, Traffic Report For Proposed Stage 2 Industrial Development, Stennett Road, Ingleburn, January 2017
- Integrated Public Transport Service Planning Guidelines, Sydney Metropolitan Area, 2013 TfNSW (IPTSGuidelines);
- Roads and Maritime Services (RMS), Guide to Traffic Generating Developments, 2002 (RMS Guide); and
- Roads and Maritime Services (RMS), Guide to Traffic Generating Developments Updated Traffic Surveys, 2013.

2 Existing Conditions

2.1 Site & Location

The Site is located at 35-47 Stennett Road, Ingleburn and formally described as part of Lot 1 DP1092198 and Lot 26 DP863617. Under the provisions of the Campbelltown Local Environmental Plan 2015 (LEP), the land on which the Site is situated is zoned *IN1 – General Industrial*.

At the time of preparing this TA, the Site is not operational which was confirmed by a Site visit undertaken by Ason Group.

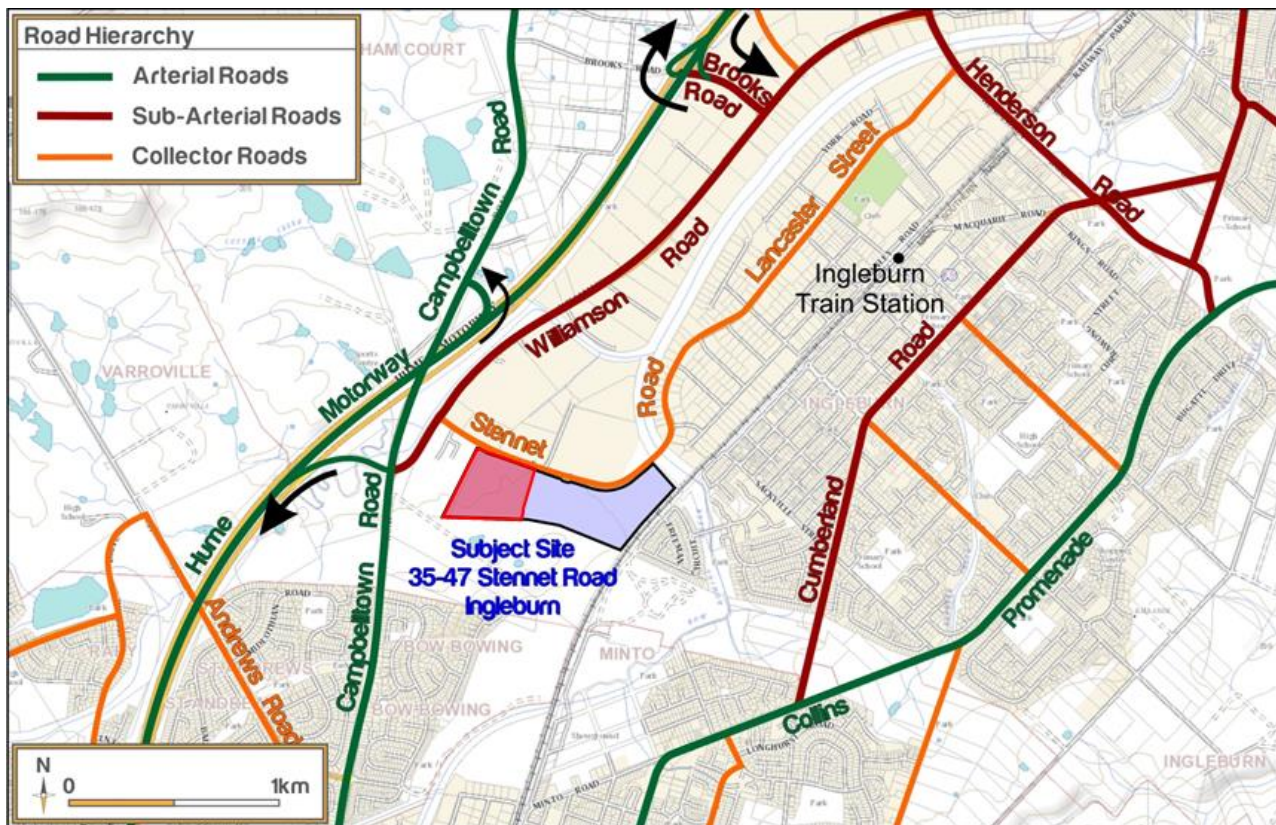


Figure 2: Site Location & Road Hierarchy

2.2 Road Hierarchy

With reference to **Figure 2**, the key local roads influenced by the application include:

- **Campbelltown Road** is an arterial road generally running in a north-south direction to the west of the Site. It provides 1 lane in each direction with no parking provisions on either side of the road. A posted speed limit of 70 km/h applies in both directions. Auxiliary turning lanes are provided at the roundabout intersection with Williamson Road.
- **Williamson Road** is a sub-arterial road generally running in a north-south direction to the west of the Site intersection Campbelltown Road. It provides 2 lanes in each direction with no parking provisions on

either side of the road. A posted speed limit of 60 km/h applies in both directions within the proximity of the Site.

- **Stennett Road** is classified as a local industrial collector road generally running in an east-west direction when fronting the Site. It provides a single lane in each direction plus dedicated on-street parking on either side. An auxiliary right turn lane is provided at the intersection with the existing Site Access in the eastbound direction. Signposted parking restrictions read as:

- *“5:00 pm to 7:00 pm Mon – Fri 24 Hours Sat – Sun, Long or Heavy Vehicles Permitted to Stop Longer than 1 Hour”.*

A sign posted speed limit of 60 km/h applies in both directions of Stennett Road in this vicinity.

- **Inglis Road** is classified as a local industrial road generally running in a north-south direction intersection. It intersects Stennett Road in the south and terminates in a cul-de-sac in the north. It provides one traffic lane in each direction plus dedicated on-street parking on either side. Signposted parking restrictions read as:

- *“5:00 pm to 7:00 pm Mon – Fri 24 Hours Sat – Sun, Long or Heavy Vehicles Permitted to Stop Longer than 1 Hour”. A default speed limit of 50 km/h applies in both directions.*

2.3 Existing Network Operation

Ason Group have also utilised TomTom data to show the existing traffic conditions around the Site, noting that at the time of this TA, the traffic conditions within NSW were influenced by the NSW mandated lockdowns. As such, we have not conducted any traffic counts at key intersections during this period.

Figure 3 and **Figure 4** provide heatmaps of the critical areas on the road network around the Site for the relevant critical periods in pre-Covid situation (October 2019). The LoS (or Level of Service) has been calculated on the basis of the posted speed limit versus the actual speed that vehicles are travelling through the network. Los “A” represents free flowing traffic with LoS “F” representing queuing traffic.



Figure 3: Speed Level of Service - Weekday in Pre-Covid Conditions: AM Peak (07:30 - 08:30)



Figure 4: Speed Level of Service - Weekday in Pre-Covid Conditions: PM Peak (15:30 - 16:30)

From the above figures, the following observations are noted:

- There are no significant traffic congestion pattern changes during the on-street peak periods in this general vicinity.
- There are minimal delays mid-block on Lancaster Street and Stennett Road, as vehicles can travel almost at free-flow speed.

2.4 Active and Public Transport

2.4.1 Bus Services

There are 2 existing bus services within 400 walking distance of the Site as shown in **Figure 5**. These bus stops are serviced by Route 868, which operates between Edmondson Park and Ingleburn every 30 minutes during peak hour periods and one every 2 hours in between during the off-peak periods.

TABLE 1: BUS SERVICE & FREQUENCY

Bus Route No.	Route Description	Frequency
868	Edmondson Park and Ingleburn	AM Peak ¹ : Every 30 minutes PM Peak ² : Every 30 minutes Off-Peak: Every 2 hours

Note: 1) 6:00am – 8:00am
2) 4:00pm – 6:00pm

2.4.2 Train Services

Ingleburn Train Station is located approximately 2km to the northeast of the Site. Train services operating through this station is the T8 Airport and Southern Line – Macarthur to City with the frequencies shown in **Table 2**.

TABLE 2: TRAIN SERVICE & FREQUENCY

Train Service	Description	Frequency
T8 Line	Macarthur to City	Every 10 minutes

2.4.3 Existing Pedestrian Accessibility

Pedestrian access is currently provided by a grass verge along the kerbside of Stennett Road fronting the Site.

2.4.4 Cycling Accessibility

A cycleway is provided in the form of a shared path section along the southbound side of Williamson Road for approximately 1.3km

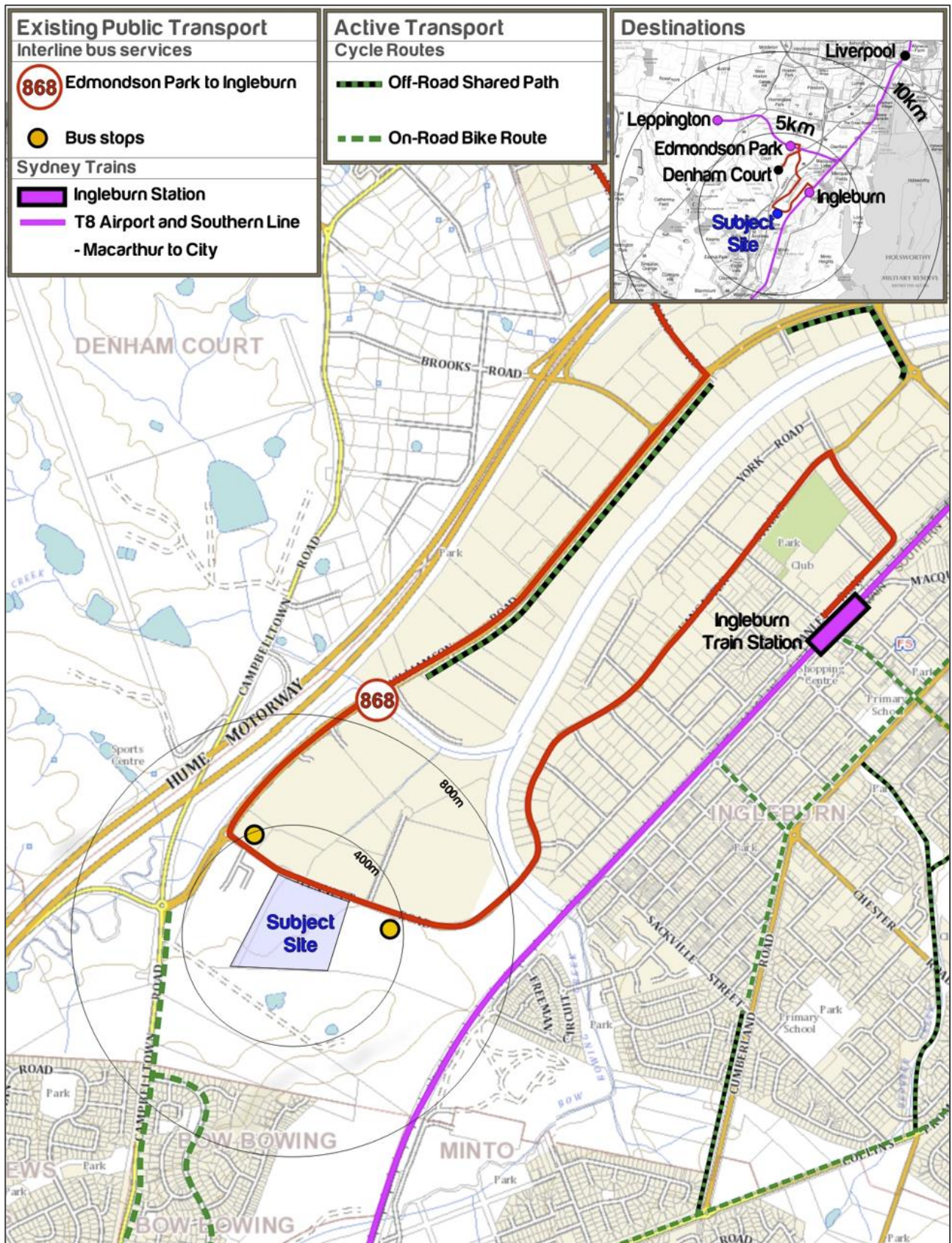


Figure 5: Public Transport Services & Cycling Routes

3 Overview of Proposed Work

3.1 Overview

A detailed description of the Proposal is included in the DA package, prepared separately. The development of this site incorporates 3 separated warehouses, which consists of the following area schedule:

TABLE 3: AREA SCHEDULE

Warehouse	Warehouse GFA (m ²)	Office GFA (m ²)	Total GFA (m ²)	Parking Spaces
Warehouse 5	17,311	645	17,956	127
Warehouse 6	13,433	450	13,883	75
Warehouse 7	10,163	450	10,613	71

A reduced copy of the plans is provided in **Figure 6** below for context.

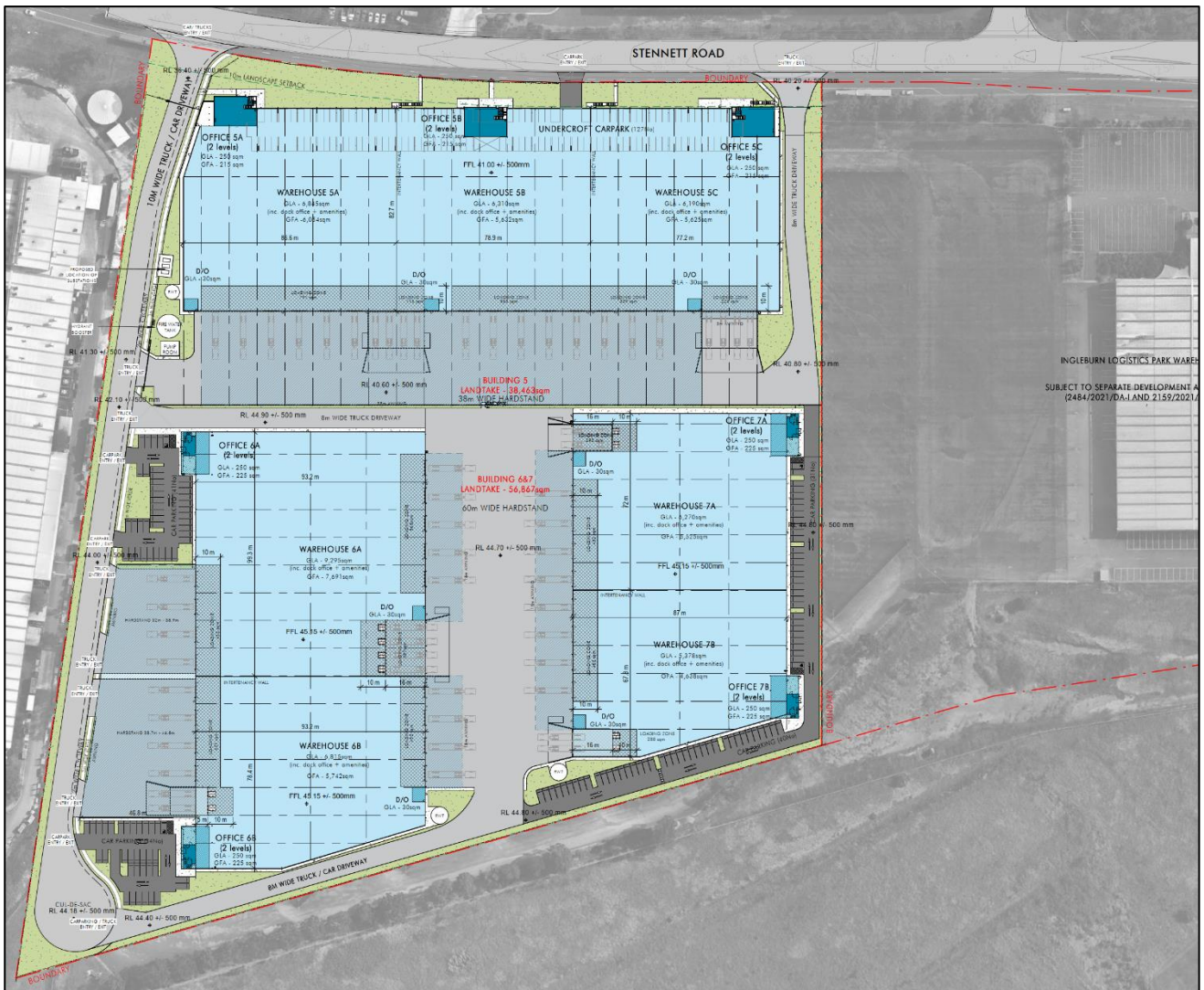


Figure 6: Proposed Site Plan

3.2 Site Access

Access to-and-from the Site is from Stennett Road via 2 access driveways and a new access road. See **Figure 7**

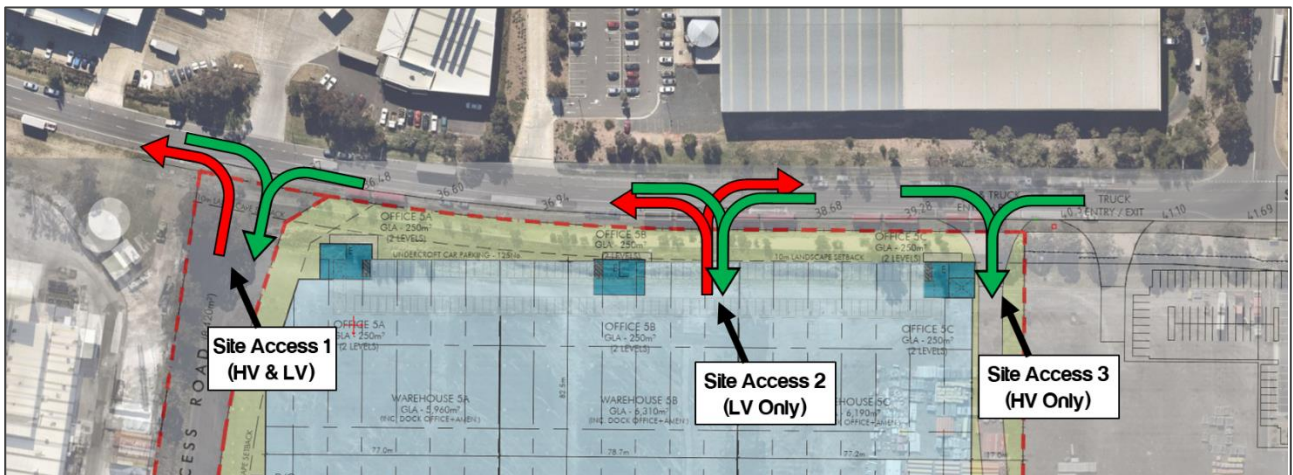


Figure 7: Access Arrangement

A review of the National Heavy Vehicle Regulator (NHVR) Restricted Access Map illustrates Stennett Road is currently classified as 26.0 metres B-Double approved road.

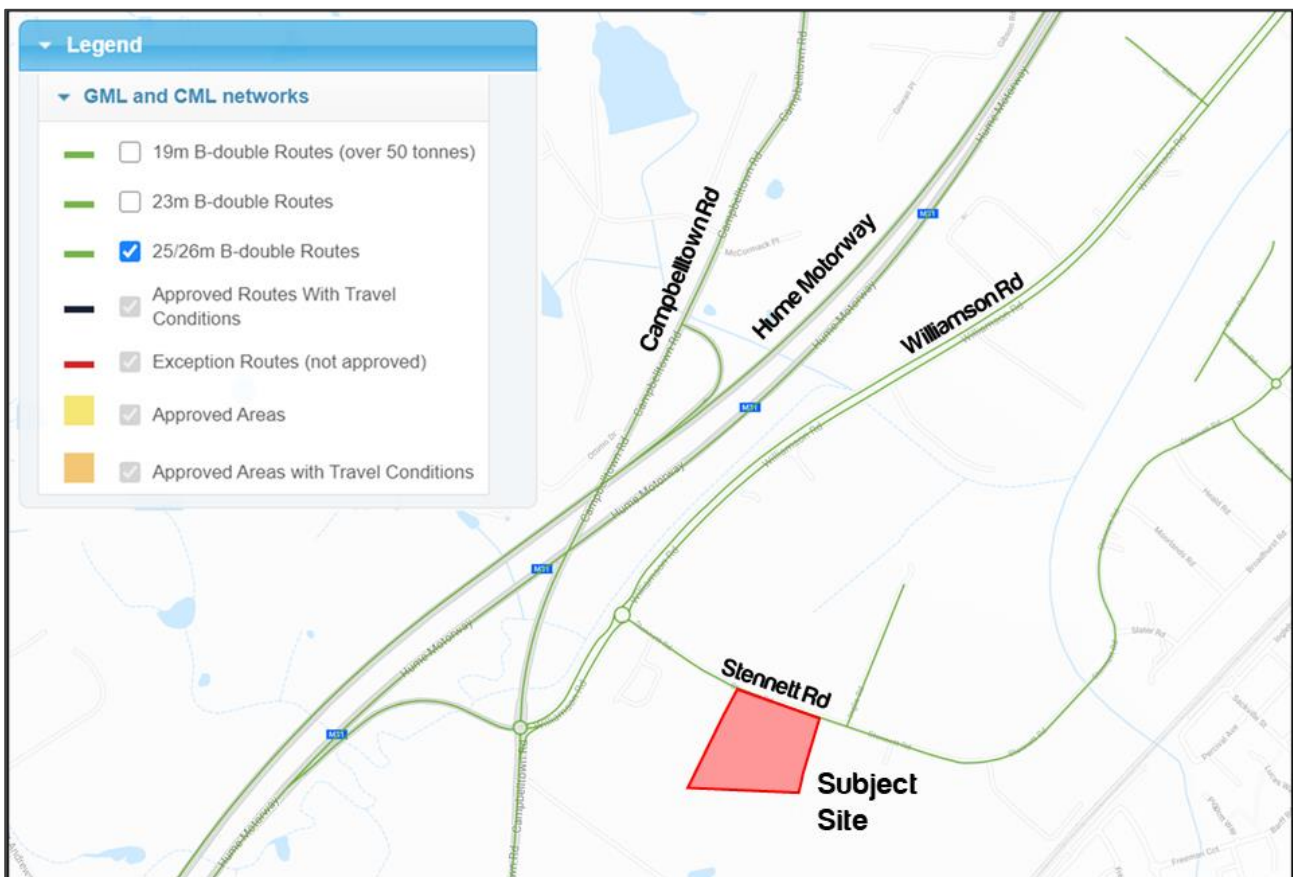


Figure 8: B-Double Approved Route

3.3 Development Traffic & Distribution

Reference is made to the RMS Guide to Traffic Generating Developments – Updated Traffic Surveys 2013 (TDT 2013/04a) which provides a catalogue of surveyed sites around Sydney. In this regard, the applicable trip generation rates have been developed by referring to the following 3 industrial sites for vehicles trips during the adjacent road AM and PM peak periods:

- Site 1: Erskine Park Industrial Estate, Erskine Park,
- Site 2: Wonderland Business Park, Eastern Creek, and
- Site 3: Riverwood Business Park, Riverwood

The aggregate trip generation from the above 3 industrial sites are considered appropriate and will provide an accurate reflection of the expected trip rates. As such, the following trip rates have been adopted:

- AM Rate: 0.25 trips per 100 m² GFA
- PM Rate: 0.25 trips per 100 m² GFA

Table 4 shows the forecast vehicular trip generation for each warehouse in the ultimate built-form.

TABLE 4: TRAFFIC GENERATION

Warehouse	Development Yield GFA (m ²)	Peak Hour Trip Generation	
		AM Peak	PM Peak
Warehouse 5	17,956	45	45
Warehouse 6	13,883	35	35
Warehouse 7	10,613	27	27
TOTAL	42,452	107	107

The following inbound and outbound assumptions have been made.

- 80% inbound traffic and 20% outbound traffic in AM Peak
- 20% inbound traffic and 80% outbound traffic in PM Peak

As such, the total number of inbound and outbound trips are as follows:

- AM peak hour – 99 in and 25 out
- PM peak hour – 25 in and 99 out

4 Traffic Assessment

4.1 Data Collection

Table 5 below outlines the various data sources which form the basis of this traffic assessment.

TABLE 5: DATA SOURCES

Data	Source
STFM Traffic Volume Plots 2019, 2026 and 2036	TfNSW
STFM Select Link Plots 2019, 2026, and 2036	TfNSW
STFM Land Use	TfNSW
2018 Traffic count for Campbelltown Road x Williamson and Stennett Road x Williamson Road	Traffic Survey

4.2 Assessment Approach

To analyse the performance of the Ingleburn logistic park SIDRA Network assessment has been undertaken for the identified key intersection and the Site's access points along Stennett Road.

For reference, the study area has been proposed to assess the following intersections:

- Williamson Road x Stennett Road roundabout,
- Stennett Road x Site Access 1 (HV & LV) (Estate Road),
- Stennett Road x Site Access 2 (LV Only) (Warehouse 5), and
- Stennett Road x Site Access 3 (HV Only) (Warehouse 5)

The performance of the key intersections has been analysed using the SIDRA Network computer program. SIDRA modelling outputs a range of performance measures, in particular:

- Average Vehicle Delay (AVD) –The AVD (or average delay per vehicle in seconds) for intersections also provides a measure of the operational performance of an intersection and is used to determine an intersection's Level of Service (see below). For signalised intersections, the AVD reported relates to the average of all vehicle movements through the intersection. For priority (Give Way, Stop & Roundabout controlled) intersections, the AVD reported is that for the movement with the highest AVD.
- Level of Service (LOS) –This is a comparative measure that provides an indication of the operating performance, based on AVD. The following table provides a recommended baseline for assessment as per the RMS Guide:

Table 6 summarises the assessment scenarios and model year.

TABLE 6: ASSESSMENT SCENARIOS		
Scenario	AM	PM
Scenario 1 - 2021 Existing	✓	✓
Scenario 2 - 2031 Without Development	✓	✓
Scenario 3 - 2031 With Development	✓	✓

4.2.1 Demand Calculation & Assumptions

Due to the recent COVID-19 lockdown and accompanying restrictions, we are limited in the number of suitable data sources; therefore, we adopted various assumptions based on our extensive local knowledge, previous approaches to the demand development, and available data. Table 7 outlines the stepped assumptions and demand calculation methodology adopted to this study.

TABLE 7: DEMAND CALCULATION METHODOLOGY	
Step No.	Methodology
Step 1	<i>Distribution</i> The existing Stennett Road traffic distribution calculated using 2019 SLA plots and it suggests that around 50% of traffic uses Brooks Road, 20% from Campbelltown north, 20% from Campbelltown Road south and 10% from the Henderson Road
Step 2	<i>Growth Rate</i> The STFM land use suggests that the growth is approximately 1% p.a.
Step 3	The Stennett Road midblock count was obtained from the 2014 TPM report, and a 1% p.a. growth rate was applied to calculate the 2021 midblock count.
Step 4	According to SLA trip distribution, the Stennett Road trips were distributed to Brooks Road, MacDonald Road, Campbelltown Road, and Henderson Road.
Step 5	The Williamson Road South and north of Stennett Road traffic was obtained from 2018 survey data. A growth rate of 1% was applied to calculate the 2021 turning volumes at these two midblock locations.
Step 6	<i>2021 demand</i> 2021 Williamson Road (north and south of Stennett Road) volumes have been adopted to balance with existing Stennett Road volume to determine the turning volume of the Williamson Road x Stennett Road intersection. Note: the neighbouring site, Warehouse 4 in Ingleburn Logistics Park is currently operational; therefore, the demand is included in Stennett Road background volume. The demand for Warehouse 4 in Ingleburn Logistics Park site is 38 vehicles for AM peak and 32 vehicles for PM peak.
Step 7	<i>2031 demand</i> 1% p.a growth rate applied to 2021 Williamson Road x Stennett Road turning the volume to determine the 2031 turning volume. This 2031 demand shall be known as the Future Baseline

In addition to the above, additional assumptions were adopted and are outlined below:

- The arrival and departure distribution profile adopted for the assessment is based on past surveys and assessments for industrial site across Western Sydney, being:
 - AM Peak Hour – 80% arrival and 20% departure
 - PM Peak Hour – 20% arrival and 80% departure

Further reference to the RMS Guide Update indicates that heavy vehicles constitute a significant percentage of the total trip generation of similar industrial sites; referring again to the surveys of the

Eastern Creek and Erskine Park industrial sites provided in the RMS Guide Update, heavy vehicles (for example: B-Triples) consist of 28% and 26% of the total peak hour vehicle flows respectively. Therefore, a heavy Vehicle percentage of 30% has been adopted for development traffic as part of this assessment.

4.3 Traffic Volumes

Traffic volumes have been assigned to the surrounding road network having regard for the likely catchment, traffic routes considering minimum travel time. To assess the impact of the Proposal, the forecast traffic volumes have been added to the future baseline traffic volumes. A comparison of the future forecast traffic volumes based on the above methodology is shown below in **Figure 9** and **Figure 10**.



Figure 9: 2031 Traffic Volumes Without Development



Figure 10: 2031 Background Traffic + Development

4.4 Traffic Impacts

SIDRA network assessment has been conducted to analyse the performance of the key intersections identified within Section 4.2. These key intersections along Stennett Road have been analysed for the two scenario year peak hour periods.

As such, the following sections outline the layouts and resulting performances of these identified intersections.

4.4.1 Scenario 1 – 2021 Existing

The general layout of Williamson Road x Stennett Road has been illustrated within, and presents the representative layout to be utilised within SIDRA modelling.

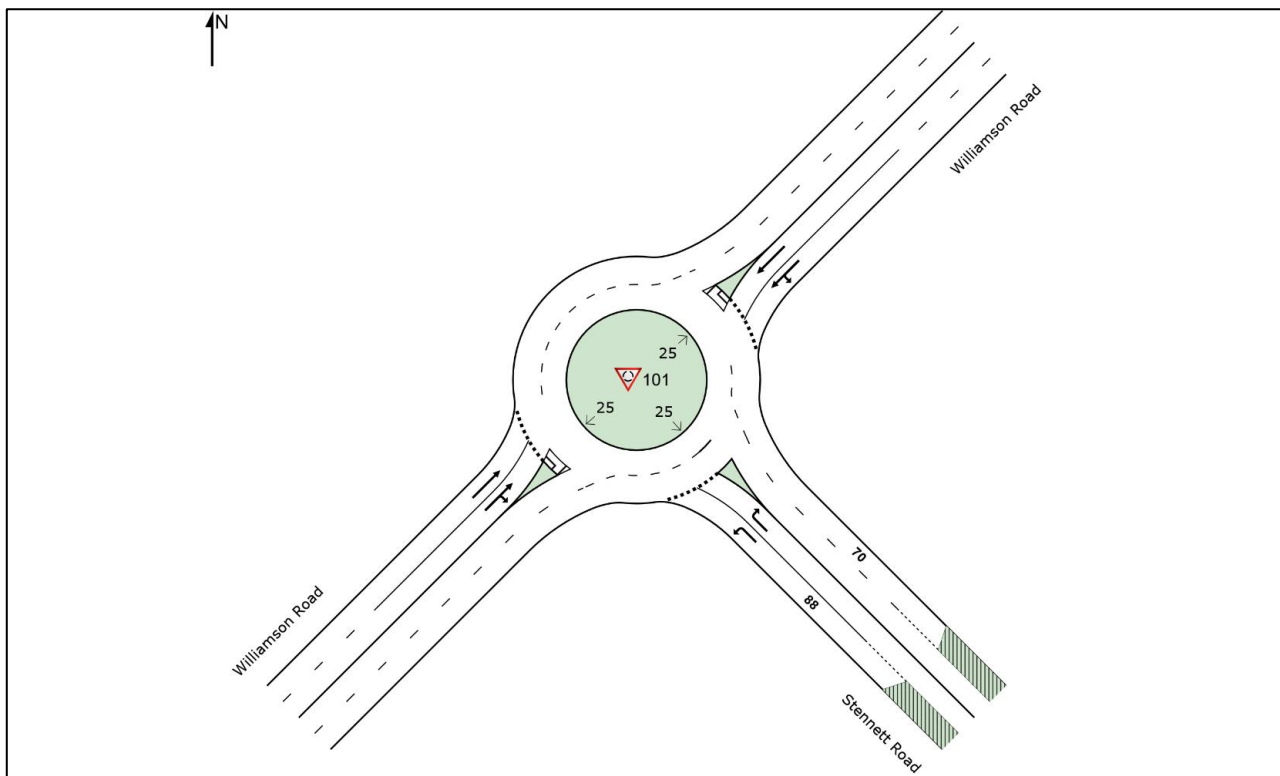


Figure 11: Williamson Road x Stennett Road Existing Intersection Layout

TABLE 8: WILLIAMSON RD X STENNET RD INTERSECTION PERFORMANCE - 2021

Warehouse		AM Peak				PM Peak			
		DoS	Delay (sec)	LoS	Queue (m)	DoS	Delay (sec)	LoS	Queue (m)
Stennett Road (East)	L	0.15	6.4	A	5	0.60	13.5	B	27
	R	0.20	11.1	B	7	0.69	17.7	B	39
Williamson Road (North)	L	0.34	5.3	A	19	0.54	4.6	A	42
	R	0.34	4.9	A	19	0.54	4.4	A	42
Williamson Road (South)	L	0.45	5.0	A	27	0.32	6.5	A	19
	R	0.45	10.4	B	26	0.32	12.2	B	17

These results have been summarised in **Table 8** for the 2021 Existing scenario. The analysis demonstrates that the intersection will perform at an acceptable level for both AM and PM peak periods.

4.4.2 Scenario 2 – 2031 Without Development

With the application of background growth, the 2031 Existing (without development) scenario has been provided within **Table 9**.

TABLE 9: WILLIAMSON RD X STENNETT RD INTERSECTION PERFORMANCE - 2031

Warehouse		AM Peak				PM Peak			
		DoS	Delay (sec)	LoS	Queue (m)	DoS	Delay (sec)	LoS	Queue (m)
Stennett Road (East)	L	0.17	6.7	A	6	0.74	18.5	B	39
	R	0.22	11.2	B	8	0.83	23.9	C	60
Williamson Road (North)	L	0.39	5.4	A	22	0.60	4.7	A	51
	R	0.39	5.1	A	22	0.60	4.5	A	51
Williamson Road (South)	L	0.58	5.3	A	41	0.38	6.9	A	23
	R	0.58	11	B	39	0.38	12.6	B	21

The SIDRA results demonstrates that the intersection will also perform at an acceptable level of service for the 2031 AM and PM peak periods, with only a slight increase in delay of 0.6 sec and 6.2 sec in the AM and PM Peak hours respectively. In addition, there is an increase in queue length of 13m and 21m in the AM and PM peak respectively, which equates to an increase in an approximate increase of 2 and 3 cars respectively.

4.4.3 Scenario 3 – 2031 With Development

The SIDRA network layout to be utilised in the development assessment has been provided within **Figure 12**. The layout includes the Stennett Road x Williamson Road intersection, and 3x additional accesses proposed as part of this development.

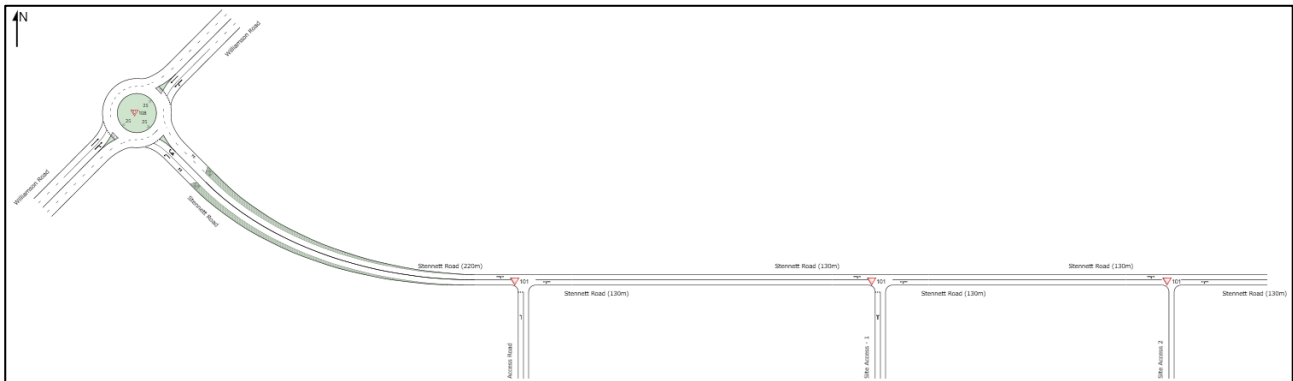


Figure 12: SIDRA Network Layout

Williamson Road x Stennett Road Intersection

Results of the SIDRA intersection assessment have been summarised in the below table for the 2031 Scenario year. The intersection analysis shows that the intersection will continue to perform at an acceptable level when considering the traffic associated from the development,

TABLE 10: WILLIAMSON RD X STENNETT RD INTERSECTION PERFORMANCE – 2031 WITH DEVELOPMENT

Warehouse		AM Peak				PM Peak			
		DoS	Delay (sec)	LoS	Queue (m)	DoS	Delay (sec)	LoS	Queue (m)
Stennett Road (East)	L	0.19	6.8	A	3	0.85	25.1	C	22
	R	0.24	11.3	B	4	0.97	45.2	D	53
	U	0.24	14.3	B	4	0.97	49.4	D	53
Williamson Road (North)	L	0.42	5.8	A	10	0.63	4.9	A	21
	R	0.42	5.4	A	10	0.63	4.8	A	21
Williamson Road (South)	L	0.60	5.5	A	18	0.42	7.4	A	11
	R	0.60	11.0	B	17	0.42	13.3	B	10

Site Access 1 (Estate Road) x Stennett Road

Figure 13 presents a SIDRA representative layout of Access Road x Stennett Road. Results of the SIDRA intersection assessment have been summarised in **Table 11** for 2031 Scenario years. The intersection analysis shows that the Access Road will perform acceptably in 2031 scenario years for both AM and PM peak periods.

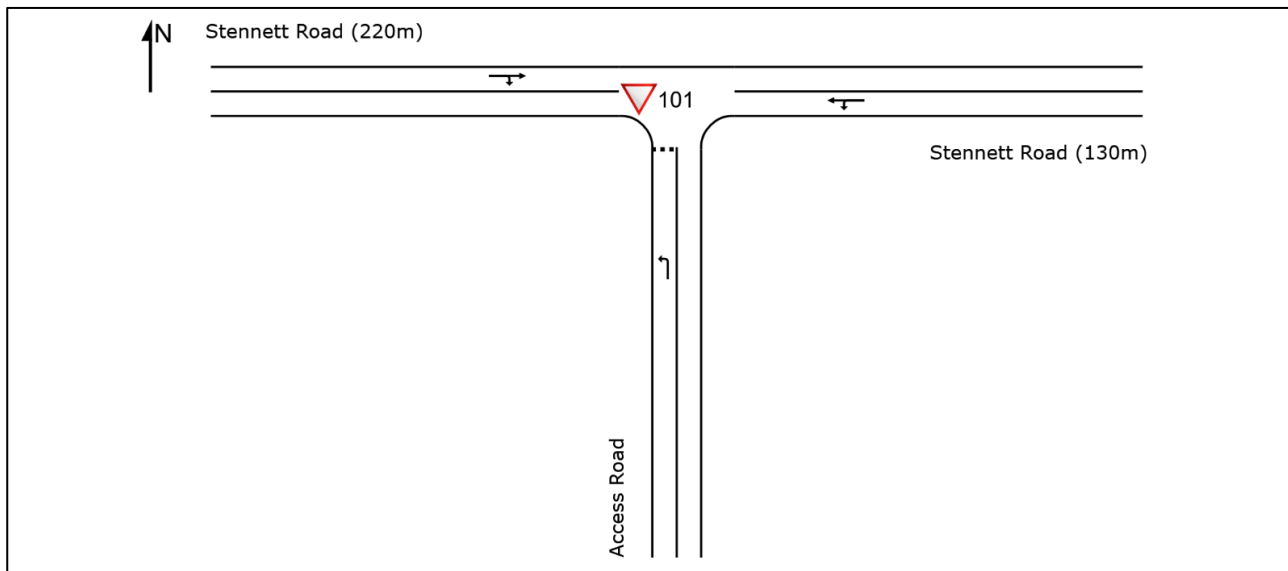


Figure 13: Site Access 1 (Estate Road) x Stennett Road SIDRA Layout

TABLE 11: SITE ACCESS 1 (ESTATE ROAD) X STENNETT RD INTERSECTION PERFORMANCE – 2031 WITH DEVELOPMENT

Warehouse		AM Peak				PM Peak			
		DoS	Delay (sec)	LoS	Queue (m)	DoS	Delay (sec)	LoS	Queue (m)
Access Road (South)	L	0.02	7.9	A	0	0.22	18.2	C	3
Stennett Road (East)	L	0.19	6.1	A	0	0.50	5.6	C	0
	T	0.19	0	A	0	0.50	0.1	A	0
Stennett Road (West)	T	0.35	0.4	A	2	0.15	2.0	A	2
	R	0.35	9.3	A	2	0.15	19.3	C	2

Site Access 2 x Stennett Road

Figure 14 presents a SIDRA representative layout of Site Access 2 x Stennett Road. Results of the SIDRA intersection assessment have been summarised in **Table 12** for 2031 Scenario year. The intersection analysis shows that the Access 2 will perform acceptably for 2031 scenario year for both AM and PM peak periods.

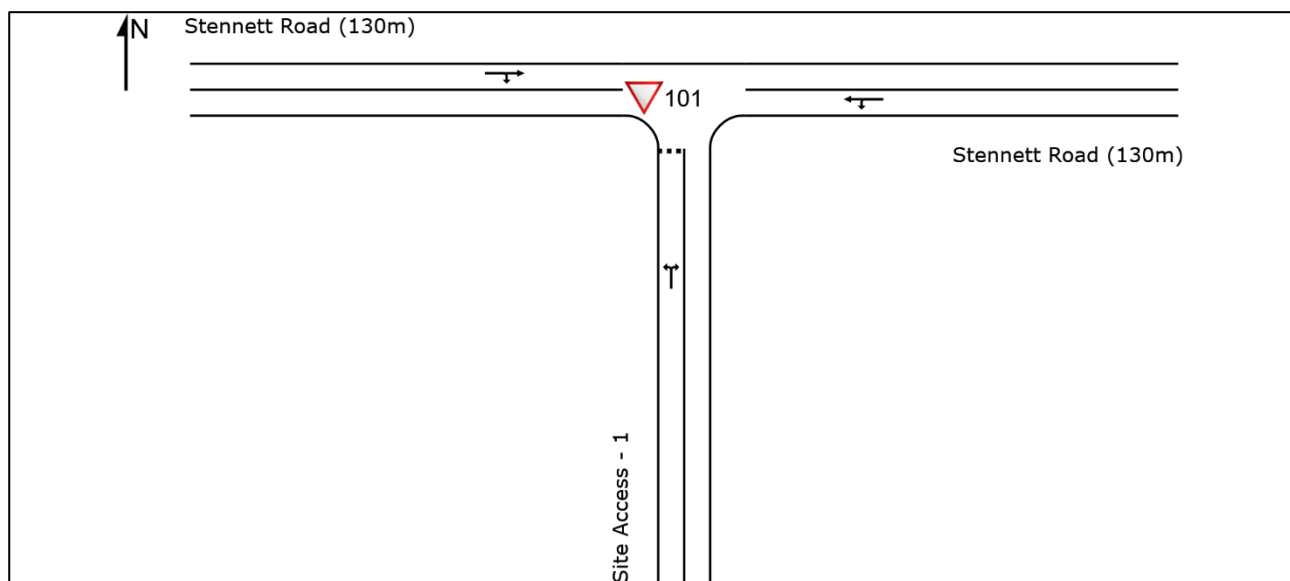


Figure 14: Site Access 2 x Stennett Road Assumed SIDRA Layout

TABLE 12: SITE ACCESS 3 X STENNETT RD INTERSECTION PERFORMANCE - 2031 WITH DEVELOPMENT

Warehouse		AM Peak				PM Peak			
		DoS	Delay (sec)	LoS	Queue (m)	DoS	Delay (sec)	LoS	Queue (m)
Site Access 1 (South)	L	0.01	6.7	A	0	0.06	11.3	B	1
	R	0.01	10.9	B	0	0.06	15.7	C	1
Stennett Road (East)	L	0.19	5.5	A	0	0.48	5.6	A	0
	T	0.19	0	A	0	0.48	0.1	A	0
Stennett Road (West)	T	0.30	0.1	A	1	0.13	0.4	A	0
	R	0.30	7.3	A	1	0.13	12.2	B	0

Site Access 3 x Stennett Road

The Below presents a SIDRA representative layout of Site Access 3 x Stennett Road. Results of the SIDRA intersection assessment have been summarised in below table for 2031. The intersection analysis shows that the Site Access 3 will perform acceptably at 2031 scenario year for both AM and PM peak periods.

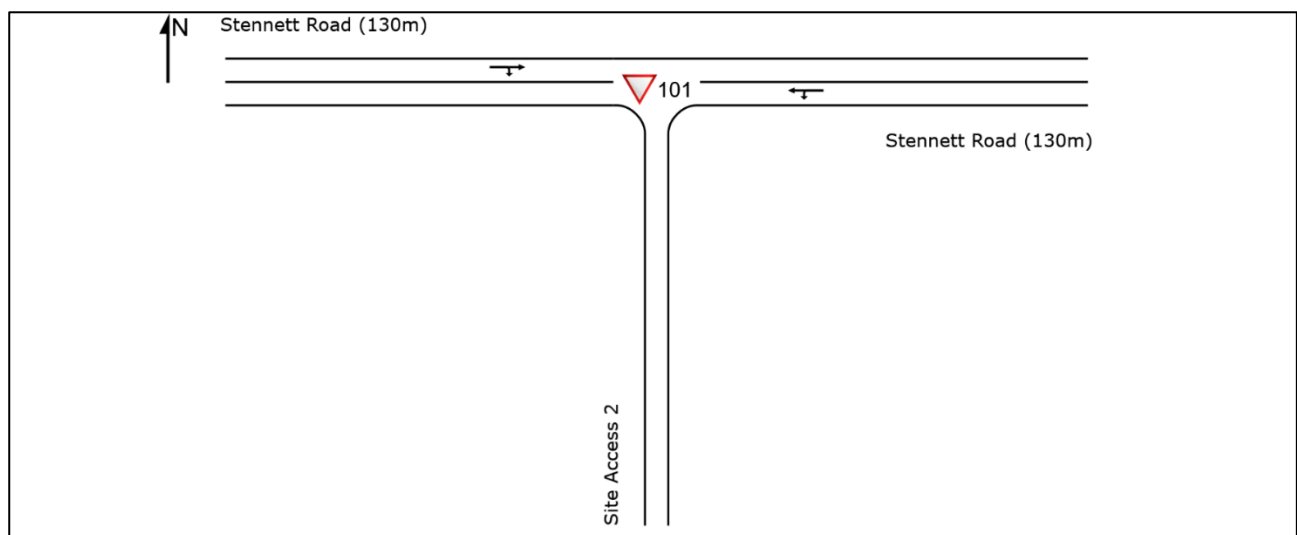


Figure 15: Site Access 1 x Stennett Road Assumed SIDRA Layout

TABLE 13: SITE ACCESS 3 X STENNETT RD INTERSECTION PERFORMANCE - 2031 WITH DEVELOPMENT

Warehouse		AM Peak				PM Peak			
		DoS	Delay (sec)	LoS	Queue (m)	DoS	Delay (sec)	LoS	Queue (m)
Stennett Road (East)	L	0.19	6.0	A	0	0.47	6.3	A	0
	T	0.19	0.1	A	0	0.47	0.2	A	0
Stennett Road (West)	T	0.30	0.2	A	0	0.13	0.9	A	1
	R	0.30	8.6	A	0	0.13	16.0	C	1

5 Parking & Servicing Requirements

5.1 Development Control Plan Parking Requirements

The Campbelltown (Sustainable City) Development Control Plan 2015 (DCP) provides car parking controls for all types of development including Industrial Developments. In this regard, Clause 7.3.1 provides car parking rates for Industrial Developments as presented in **Table 14**.

TABLE 14: DCP CAR PARKING RATES

Land Use	Parking Rate ¹
Warehouse	2 spaces + 1 / 100 m ² GFA ² (up to 2,000 m ²) + 1 / 250 m ² GFA (exceeding 2,000 m ²)
Office	1 / 35m ² GFA
Accessible Parking	1 / 100 parking spaces

Note: 1) Parking rates specified in the DCP are a minimum requirement

2) GFA = Gross Floor Area

Notwithstanding the above, previous stages within the Site have had a reduced parking rate approved by Campbelltown City Council, therefore a review of parking against this rate shall also be undertaken. For reference, this parking rate is 1 car parking space per 208 m² Gross Floor Area (GFA).

5.2 Parking Assessment

Application of the above rates to the proposed Site results in the following car parking requirements as shown in **Table 15**.

TABLE 15: CAR PARKING REQUIREMENT AND PROVISION FOR THE PROPOSED SITE

Land Use		Lot Yield (m ²)	Required (DCP)	Required (Previously Approved)	Provided
Warehouse 5	Warehouse	17,311	84	83	127
	Office	645	19	3	
	Sub-Total	17,956	103	86	
Warehouse 6	Warehouse	13433	68	65	75
	Office	450	13	2	
	Sub-Total	13,883	81	67	
Warehouse 7	Warehouse	10,163	55	49	71
	Office	450	13	2	
	Sub-Total	10,613	68	51	
Total	Warehouse	40,907	207	197	273
	Office	1545	45	7	
	Total	42,452	252	204	273

In response, the proposal includes a total provision of 278 car parking spaces. According to the DCP, this represents a shortfall of some 6 spaces, however, there is a surplus of 57 spaces when compared against the approved rate in the Estate. Accordingly, the proposed on-site car parking allocation is supportable and is not expected to result in any adverse on-street parking impacts.

5.3 Accessible Car Parking

Clause 7.3.3 refers to the Building Code Australia (BCA) for access requirements for people with disabilities. Noting the BCA now makes up the National Construction Code 2019 (NCC), reference is made to Part D3.5 – Accessible Carparking to establish the applicable requirements. In this regard, Class 7b buildings are defined as:

- *“Class 7b buildings are typically warehouses, storage buildings or buildings for the display of goods (or produce) that is for wholesale”*

Accordingly, the following parking rate for accessible parking space requirements.

- 1 space for people with disabilities for every 100 car parking spaces.

This equates to a required provision of 3 accessible spaces to be included within the development. In response, a total of 6 accessible spaces (2 per building) have been provided, satisfying the requirement.

5.4 End Of Trip Facilities

Although there is no direct requirements outlined within Council's DCP, End of Trip facilities shall be provided within the Site at the following rates;

- 1 female shower cubical per warehouse, and
- 2 male shower cubicles per warehouse.
- Ancillary lockers and change rooms shall also be provided.

Bicycle storage areas are provided for each warehouse in association with the proposed development.

5.5 Service Vehicle Parking

Separate hardstand areas are proposed for each warehouse development (Warehouse 5 – 7) which is expected to accommodate 26m B-Doubles. Nonetheless, Section 7.3.2 d) iii) within Council's DCP outlines that;

- For each building having more than 1,500m² shall provide a loading area to allow for a heavy rigid vehicle to manoeuvre on site.

Appendix A provides swept paths illustrating that vehicles up to 26m B-doubles can access and circulate around the Site, therefore satisfying the specific requirement.

6 Design Commentary

6.1 Design Standards

The proposed access, car park and loading areas have generally been designed with reference to the following Australian Standards:

- AS2890.1:2004 for car parking areas;
- AS2890.2:2018 for commercial vehicle loading areas; and
- AS2890.6:2009 for accessible (disabled) parking.

It is expected that any detailed construction drawings in relation to any modified areas of the car park or Site access would comply with these Standards. Furthermore, compliance with the above Standards would be expected to form a standard Condition of Consent prior to any development approval.

6.2 Access Driveways

All access driveways (to the internal road network) are to be designed with reference to AS2890.1:2004 and AS2890.2:2018, with service driveways to provide for vehicles up to and including a 26m B-double vehicle. It is anticipated that full access driveway design compliance with AS 2890.1 and AS 2890.2 would form a standard Condition of Consent further to approval.

6.3 Parking Areas

Staff and visitor parking – situated in proximity to tenancies – is demonstrated to generally comply with AS2890.1:2004 and is in line with the minimum User Class 1/1A required for staff parking. Accessible spaces generally comply with AS2890.6:2009.

6.4 Service Areas

The design review indicates that access and egress to recessed docks and roller shutter doors is demonstrated to generally comply with AS2890.2:2018. All commercial vehicles can enter and exit the site in a forward direction. In this regard, consideration shall be given to the design commentary and dock limitations included in **Appendix A**.

6.5 Fire Service Appliance Circulation

In line with Fire and Rescue NSW (FRNSW) Guidelines, circulation around the Site and through the fire path perimeter has been tested for a 12.5 m HRV, demonstrating sufficient access for 'General' and 'Specialist' fire appliances, as demonstrated in **Appendix A**.

7 Preliminary Construction Traffic Management Plan

7.1 Overview of Construction

It is expected that a detailed Construction Traffic Management Plan (CTMP) will be prepared following DA approval and in response to a suitable CoC. However, this section provides for a high-level CTMP principles related to this proposal.

While there is no Contractor engaged for the project, for the purposes of the preliminary CTMP, staging and duration of works has been based on similar developments in the wider area. Based on this, it is anticipated that construction works for the preliminary stages would commence in 2022 and be completed over a duration between 1-2 years, subject to authority approvals and inclement weather delays.

The following summarises “assumed” key aspects of the construction phases:

- Demolition works are anticipated to have a duration for 6-10 weeks.
- Excavation activities would continue for 3-6 months.
- General Construction works are estimated to continue concurrently to excavation activities for 12 months.

7.1.1 Worker Induction

All workers and subcontractors engaged on-site would be required to complete a site induction. The induction should include permitted access routes to and from the construction site for all vehicles, as well as standard environmental, work, health and safety (WHS), driver protocols and emergency procedures.

Any workers required to undertake works or traffic control within the public domain would be suitably trained and covered by adequate and appropriate insurances.

7.1.2 Construction Hours

The type of work being undertaken will remain consistent throughout the duration of construction and associated activities. All works are expected to be undertaken within the following hours:

- Monday to Friday (other than Public Holidays): 7:00am – 6:00pm.
- Saturday: 8:00am – 1:00pm
- Sunday & Public Holidays: No works to be undertaken.

Any work to be undertaken outside of the standard construction hours will be required to obtain an Out of Hours (OOH) approval; any such works would necessarily be undertaken in accordance with the appropriate OOH protocols and approval processes.

7.1.3 Construction Vehicle Access

All construction vehicles will enter and depart the Site from / to Stennett Road before heading to Williamson Road and then to the wider road network. It is anticipated that a temporary access driveway will be provided, along the alignment of the future access road.

During construction it is anticipated that the largest vehicle accessing the Site would be a 19.6m Truck & Dog combination, which will be catered for by the temporary access driveway. The figure illustrates the indicative Site access location and details the likely key access strategy into the routes between the Site and the regional road network.

A copy of the approved routes will be distributed by the Project Manager to all drivers as part of their induction process.

In the event that an oversized or over-mass vehicles is required to travel to and / or from the Site, a permit from TfNSW and / or the National Heavy Vehicle Register (NHVR) will be required prior to arrival to the site. Notwithstanding, this CTMP relates to general construction which does not seek the use of oversize vehicles; a separate application would be submitted if such access is required.

7.1.4 Emergency Vehicle Access

Emergency vehicle access to and from the Site will be available at all times while the Site is occupied by construction workers; emergency protocols during the works will be developed by the Project Manager for inclusion within the final CTMP.

7.1.5 Pedestrian Access

There are currently no pedestrian amenities or footpaths along Stennett Road adjacent to the Site. However, the grassed verge on both sides of the road remains usable for any pedestrian that may wish to walk use it.

Construction personnel will also be able to access the Site by foot via a secure access gate along Stennett Road, though with all construction staff (and vehicle) parking to be provided within the Site there is again little potential for such pedestrian demand.

7.1.6 Fencing Requirements

Security fencing will be erected along the entire boundary of the Site and will be maintained for the duration of the construction works to ensure that unauthorised persons are kept out of the Site. The fencing will either be ATF or 2.4m chain wires.

Site access gates would be provided at the temporary driveway which would remain closed at all times outside of the permitted construction hours.

7.1.7 Materials Handling

All material loading will be undertaken wholly within the Site, and all construction equipment, materials and waste will similarly be strictly kept within the Site.

While not anticipated, should any materials handling (or other constructed related activity) be required from the public roadway (i.e., Stennett Road) then prior approval shall be sought and obtained from the appropriate authorities.

7.1.8 Additional Site Management

Although it is not expected, in the event that any Site construction traffic management outside of that described in the implemented CTMP is required, the Project Manager will be required to notify adjacent properties of any temporary traffic restrictions (or the like) at least fourteen (14) days in advance.

7.1.9 Road Occupancy

There is a need for road occupancy requirements to facilitate the construction of the temporary driveways and new access roadway. Road occupancy permits will necessarily be procured prior to starting intersection construction works, while a detailed intersection-specific CTMP would be prepared in consultation with Council and TfNSW to ensure traffic along Stennett Road would continue to operate adequately during any such occupancy period.

7.1.10 CTMP – Monitoring & Review Process

This preliminary CTMP has been prepared referencing the existing Site conditions. Consultation with Council, TfNSW and neighbouring developments will continue to be undertaken to ensure that the cumulative traffic impacts of construction within the area do not adversely impact the operations of the neighbouring developments or the local road network.

7.2 Preliminary Assessment of Traffic Impacts

7.2.1 Construction Vehicle Traffic Generation

In lieu of a Contractor being onboard at this early stage, the specific construction requirements are not fully understood. Therefore, this section will need to be updated prior to implementation of the future CTMP, although it is anticipated that construction volumes will be less than the operational volumes outlined within Section 4.3. However, for the purposes of this assessment it is anticipated that the Construction traffic would generate less traffic volumes than the Proposal itself.

With respect to the potential impacts of light vehicle traffic, the overwhelming majority of trips would occur in the short workforce arrival and departure periods, being (based on the proposed construction hours) 6:30am – 7:00am and 6:00pm – 6:30pm respectively; as such, any light vehicle movements would occur outside of the existing (commuter) peak periods in the local network.

To ensure no cumulative impacts to the wider road network, prior to implementation of the final CTMP, a cumulative traffic generation assessment should be undertaken. It is anticipated that this could be included as a Condition of Consent.

7.2.2 Vehicle Management

In accordance with TfNSW requirements, all vehicles transporting loose materials would have the entire load covered and / or secured to prevent any large items, excess dust or dirt particles depositing onto the roadway during travel to and from the Site.

Further to covering / securing the load to prevent deposits onto the roadway, a Shaker Grid is proposed and installed at the point of vehicle egress to minimise the risk of dirt tracking out onto Stennett Road.

All construction staff and contractors will be required to park wholly within the Site, noting that there will be significant area available (at all times) to meet the peak parking demand.

7.2.3 Traffic Control

Having regard for the anticipated truck movements, it is expected that signage (e.g., "Trucks Turning") may be required at the site access points to advise other road users of changed traffic conditions. In this regard, it is expected that site-specific versions of the standard TGS D.4.7 (Formerly TCP 195) would be implemented during construction works.

Site-specific TGS's will be developed and will be submitted to TMC for approval, as required, to reflect specific work activities and / or changes to road conditions.

An authorised Traffic Controller(s) is to be present on-site throughout the proposed works. Responsibilities of the Traffic Controller will include:

- The supervision of all construction vehicle movements into and out of site at all times,
- The supervision of all loading and unloading of construction materials during the deliveries in the construction phase of the project, and
- Pedestrian management, to ensure that adverse conflicts between vehicle movements and pedestrians do not occur, while maintaining radio communication with construction vehicles at all times.

8 Conclusions

8.1 Key Findings

The key findings of this Transport Assessment are:

- Ason Group has been engaged by Stockland to prepare a Transport Assessment (TA) to support a Development Application (DA) for proposed warehouse developments at 35 – 47 Stennett Road, Ingleburn (the Site).
- The DA includes construction of -
 - Three (3) new warehouse developments with a total yield of 42,452 m² of gross floor area (GFA), consisting of 40,907 m² GFA of warehouse space and 1,545 m² GFA of ancillary office space.
 - 273 on-site car parking spaces,
 - Creation of 3x accesses driveways
- As a result of the proposal, the Site will generate the following traffic volumes:
 - 107 veh/hr during morning and evening peak periods; and
- Background traffic growth at the key intersection through to a future forecast year of 2031 was determined with reference to the RMS 2019, 2016 and 2036 Strategic Traffic Forecasting Model (STFM) outputs, historic traffic counts, and TomTom data.
- SIDRA intersection modelling analysis was undertaken to measure the performance of the Williamson Rd x Stennett Rd intersection, and new accesses along Stennett Rd during the AM and PM peak hours for below scenarios-
 - 2021 Existing,
 - 2031 Base (Future with No Development), and
 - 2031 Future (Future Scenario + Development).
- The SIDRA modelling outcomes indicate that the impact of the development traffic has no material impact on the surrounding network, as the intersection is expected to operate at LoS B and Los D in the AM and PM peaks of “2031 Base plus Development” scenario.
- Application of the parking rates indicate that the proposal can readily accommodate the anticipated parking demand, with no requirement for vehicles to parking on the public road network.
- Furthermore, it is proposed that parking rates – based on the RMS Guide and historical approvals – be adopted for the proposal. The application of these rates would result in a minimum parking requirement for the proposal of somewhere between 235 and 284 spaces. A total of 278 car parking spaces are proposed, thus readily accommodating this demand.
- The access and basement design have generally been designed having regard for relevant Australian Standards (AS2890 series). A standard condition of consent requiring compliance with AS2890 would be considered sufficient to ensure that any minor changes to the plans required, if any, could be undertaken as part of detailed Construction Certificate documentation.

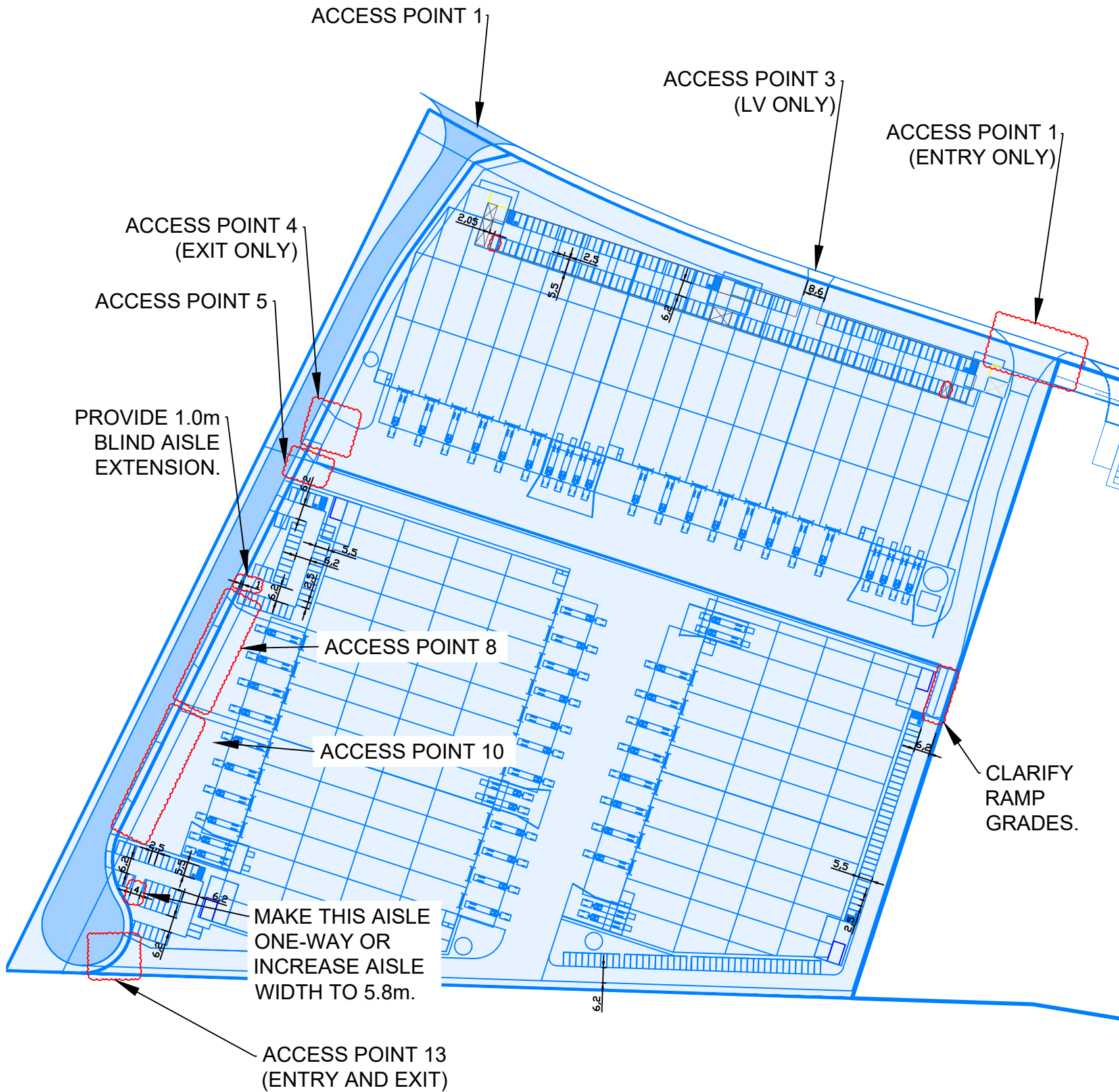
8.2 Summary

In summary, the Proposal is supportable on traffic planning grounds and will not result in any adverse impacts on the surrounding road network or the availability of on-street parking.

Appendix A. Swept Path Analysis

NOTE:

- THE SIX VEHICLE ACCESS POINTS (INDICATED ON THIS PAGE) HAVE BEEN REVIEWED AND IT IS IMPORTANT TO NOTE THE FOLLOWING:
 - ACCESS POINT 3 CAN ACCOMMODATE HEAVY VEHICLE (26.0 m B-DOUBLE TRUCKS) ENTRY MOVEMENTS AS INDICATED ON AG02. VEHICLES ENTERING FROM ACCESS POINT 1 WILL EXIT FROM ACCESS POINT 2.
 - ACCESS POINT 5 CAN ACCOMMODATE HEAVY VEHICLE (26.0 m B-DOUBLE TRUCKS) ENTRY MOVEMENTS AS INDICATED ON AG05 AND AG07. VEHICLES ENTERING FROM ACCESS POINT 3 WILL EXIT FROM ACCESS POINT 6.
 - ACCESS POINTS 8 AND 10 CAN ACCOMMODATE 20.0 m ARTICULATED VEHICLE MOVEMENTS (THROUGH THE SEPARATE ENTRY AND EXIT POINTS).
 - ACCESS POINT 13 CAN ACCOMMODATE SIMULTANEOUS 26.0 m B-DOUBLE TRUCK MOVEMENTS. HOWEVER, MINOR AMENDMENTS WILL BE REQUIRED TO THE LANDSCAPING AT THE HARDSTAND ENTRY POINT AS INDICATED IN AG04 AND AG06.
 - THE HARDSTAND AREAS ALLOW FOR 26.0 m B-DOUBLE TRUCKS TO SIDE LOAD AS REQUIRED. THIS IS SHOWN IN AG02 AND AG04 TO AG07.
 - THE NORTHERN WAREHOUSE ALLOWS FOR A 26.0 m B-DOUBLE TRUCK TO UNCOUPLE. REFER TO AG03 FOR FURTHER DETAILS.
- THE HARDSTAND AREAS HAVE BEEN REVIEWED. FEW RSDs AND RECESSED DOCKS HAVE TO BE LIMITED TO 12.5m HRVs. REFER TO AG08 TO AG11 FOR FURTHER DETAILS.
- THE PROPOSED CAR PARKING AREAS HAVE ALSO BEEN REVIEWED AND IT IS IMPORTANT TO NOTE THE FOLLOWING:
 - THE CLASS OF CAR PARKING SPACES HAS BEEN ASSESSED AND IT IS USER CLASS 2 (GREATER THAN USER CLASS 1/1A AS REQUIRED BY AS2890.1:2004).
 - ADJUSTMENTS NEED TO BE MADE IN ORDER TO ENSURE THAT THE PROPOSED CAR PARKS ARE COMPLIANT WITH THE REQUIREMENTS SET OUT IN AS2890.1:2004. THE ADJUSTMENTS ARE OUTLINED ON THIS PAGE.
 - THERE ARE SAFETY TRAFFIC IMPACTS AT ACCESS POINTS 1 AND 6, WITH CARS SHARING THE SAME ACCESS CROSSOVER AS HEAVY VEHICLES. TRAFFIC MANAGEMENT DEVICES SHALL BE PROPOSED TO REDUCE SAFETY RISKS AT THESE DRIVEWAYS.
- FIRE TRUCKS WILL BE ABLE TO ACCESS THE HARDSTAND AREAS IN BOTH A CLOCKWISE AND COUNTER CLOCKWISE DIRECTION. REFER TO AG14 AND AG15 FOR FURTHER DETAILS.



Notes:

Plans assessed were provided by Nettleton Tribe on 07.09.2021.
Nearmaps' aerial image was taken on 11.08.2021.
Swept path assessment was completed at 10 km/h with 300 mm clearances.

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Client:

STOCKLAND

Project:

1805
35-47 STENNETT ROAD, INGLEBURN

Drawing Title:

SITE PLAN

Date:

27-Oct-21

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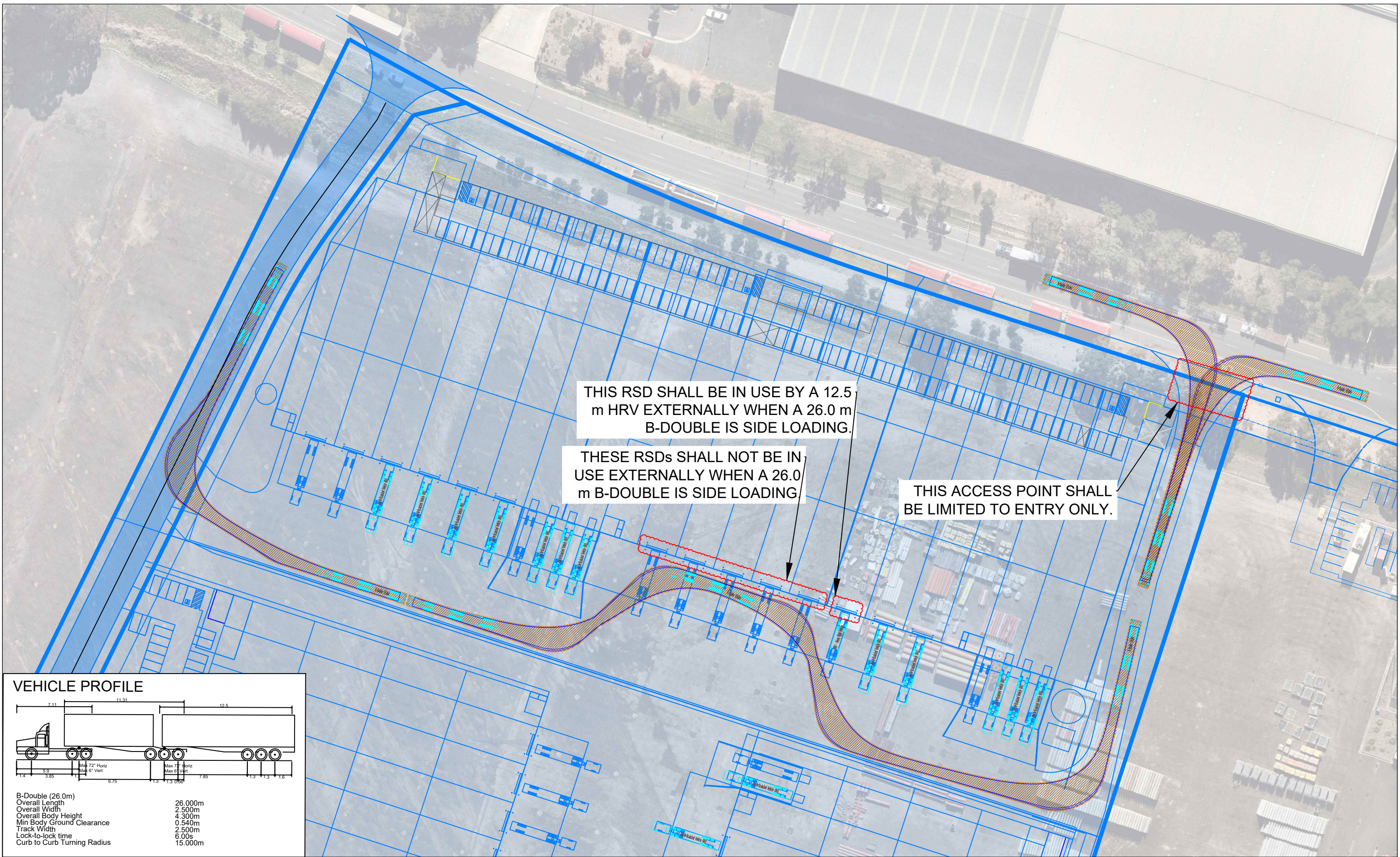
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AG01

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SWEPT PATH ASSESSMENT
ENTRY / EXIT AND SIDE LOADING ASSESSMENT

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27-Oct-21

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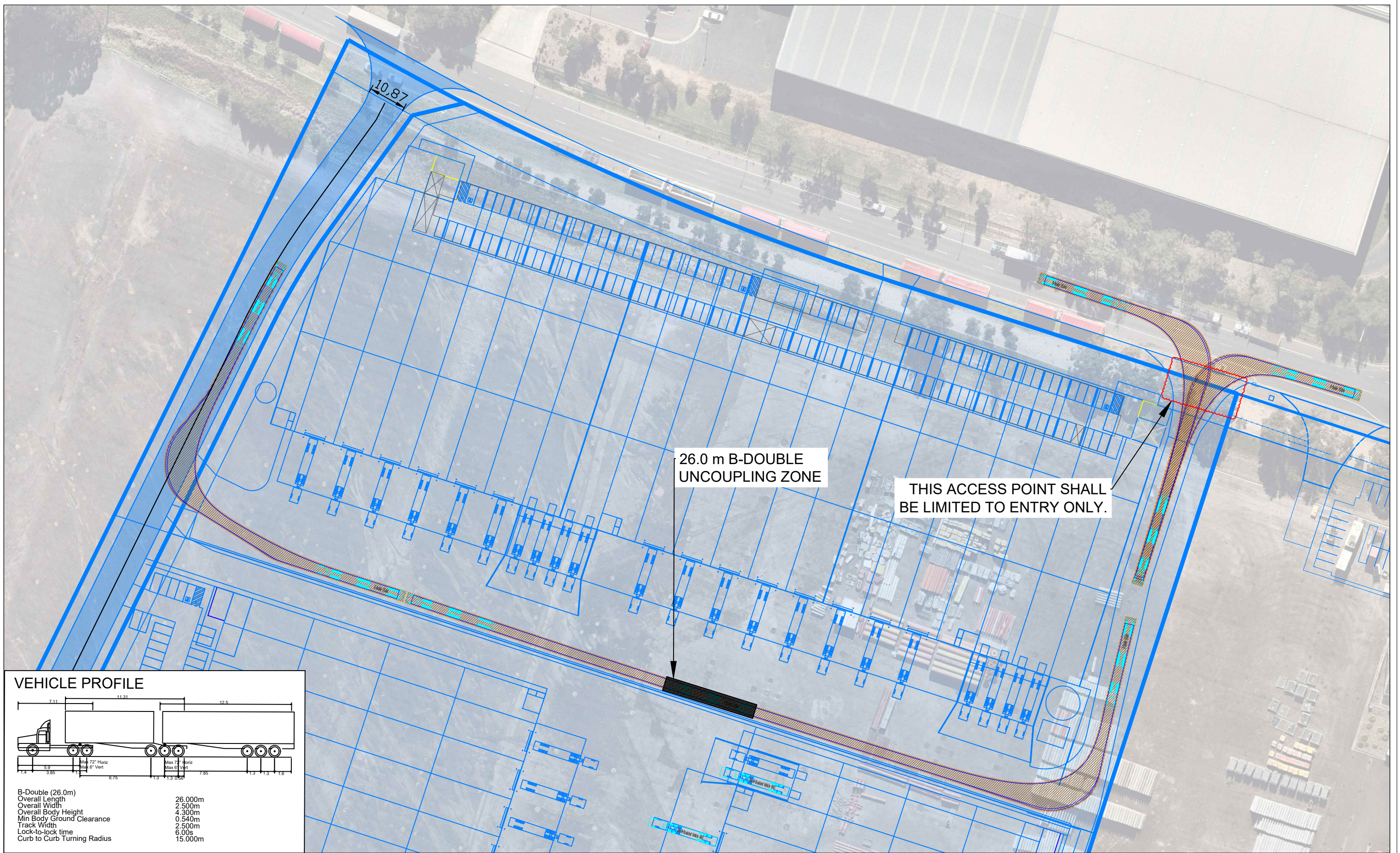
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STOCKLAND

Project:

1805
35-47 STENNETT ROAD, INGLEBURN

Drawing Title:

SWEPT PATH ASSESSMENT
ENTRY / EXIT AND SIDE LOADING ASSESSMENT

Date:

27-Oct-21

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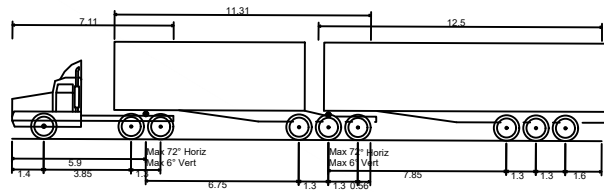
AG03

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VEHICLE PROFILE



B-Double (26.0m)	
Overall Length	26.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	15.000m

THESE RSDs SHALL NOT BE IN USE EXTERNALLY WHEN A 26.0 m B-DOUBLE IS SIDE LOADING.

THIS RSD SHALL BE IN USE BY A 12.5 m HRV EXTERNALLY WHEN A 26.0 m B-DOUBLE IS SIDE LOADING.

THIS RSD SHALL BE IN USE BY A 8.8 m MRV EXTERNALLY WHEN A 26.0 m B-DOUBLE IS SIDE LOADING.

CUT LANDSCAPING TO INDICATED LOCATION.

Notes:

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Swept path assessment was completed at 10 km/h with 300 mm clearances.

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Project:
1805
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Drawing Title:
SWEPT PATH ASSESSMENT
ENTRY / EXIT AND SIDE LOADING ASSESSMENT

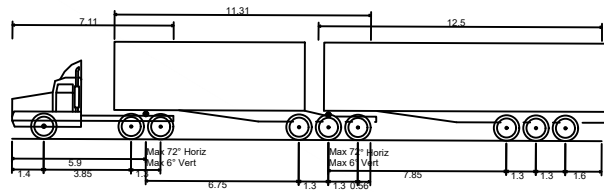
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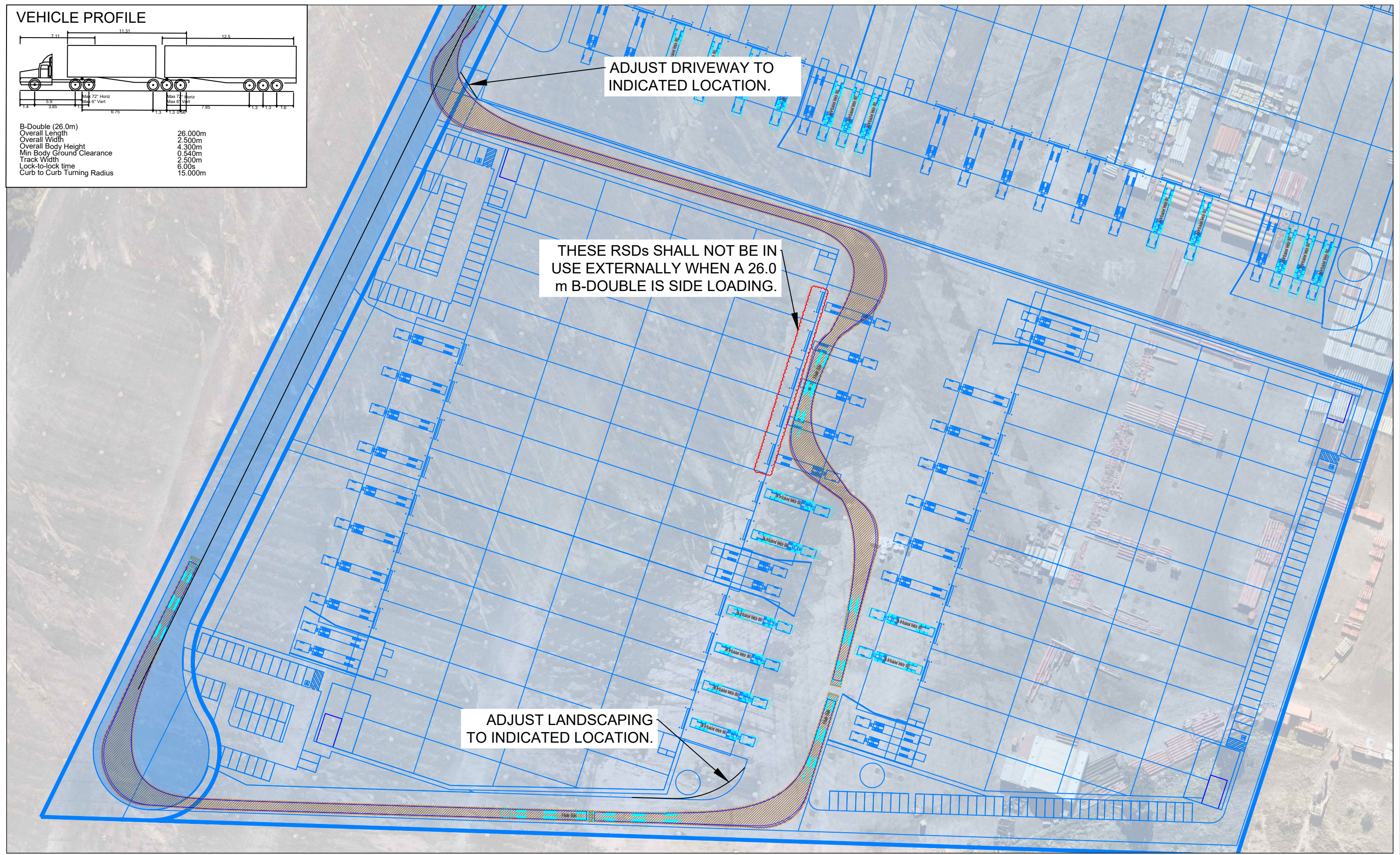
Drawing Number:
AG04

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VEHICLE PROFILE



B-Double (26.0m)	
Overall Length	26.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	15.000m



Notes:

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Nearmaps' aerial image was taken on 11.08.2021.
Swept path assessment was completed at 10 km/h with 300 mm clearances.

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STOCKLAND

Project:
1805
35-47 STENNETT ROAD, INGLEBURN

Drawing Title:
SWEPT PATH ASSESSMENT
ENTRY / EXIT AND SIDE LOADING ASSESSMENT

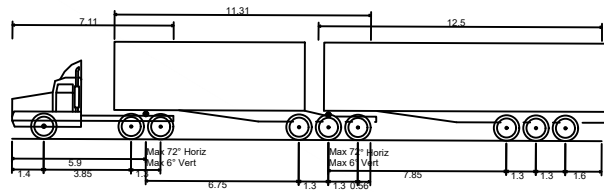
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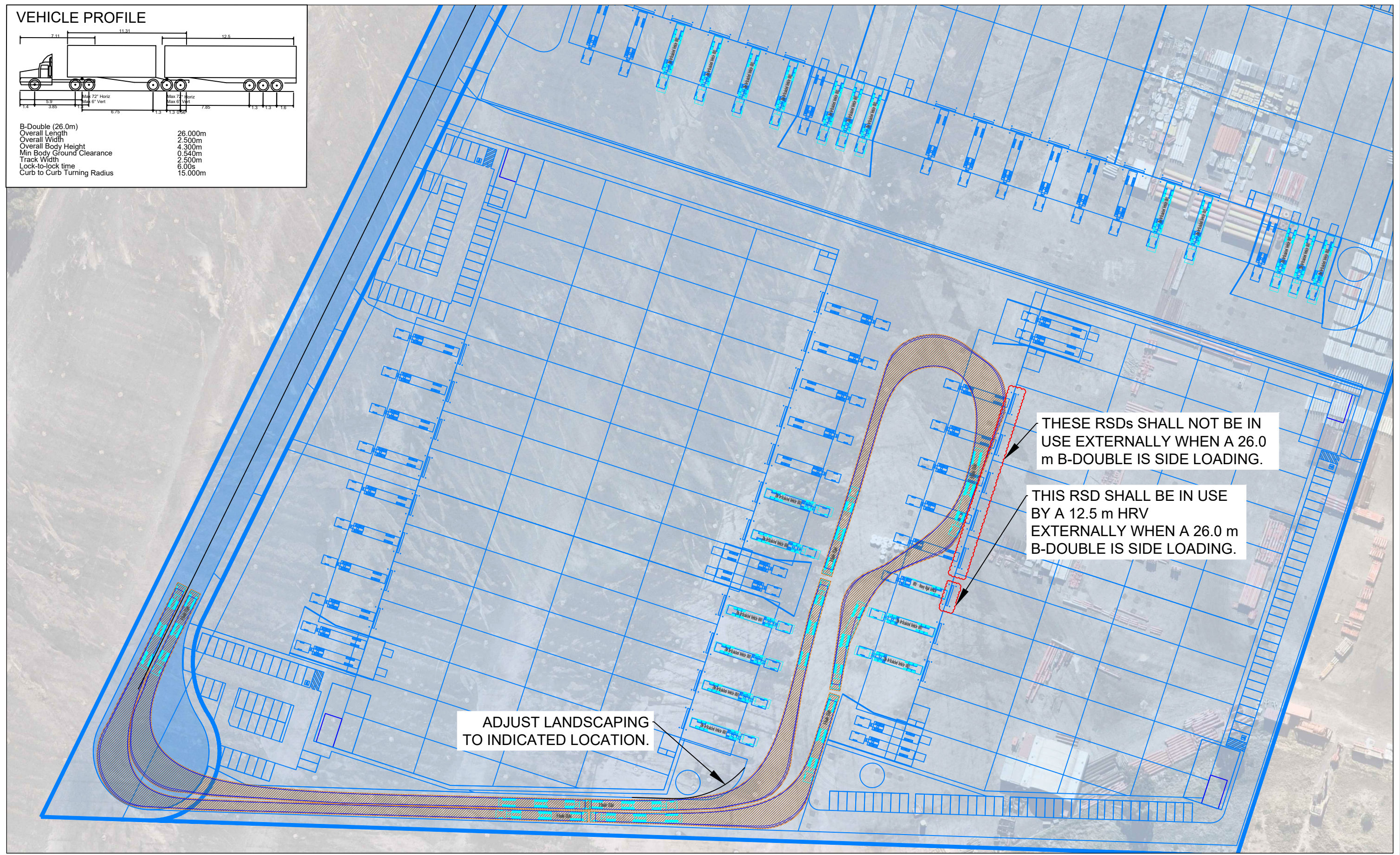
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VEHICLE PROFILE



B-Double (26.0m)	26.000m
Overall Length	26.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	15.000m



Notes:

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35-47 STENNETT ROAD, INGLEBURN

Drawing Title:

SWEPT PATH ASSESSMENT
ENTRY / EXIT AND SIDE LOADING ASSESSMENT

Date:

27-Oct-21

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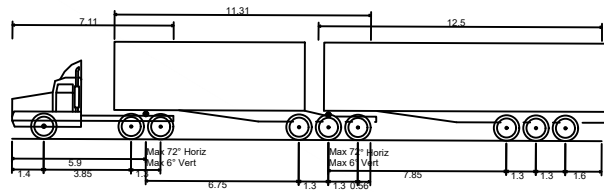
Drawing Number:

AG06

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VEHICLE PROFILE



B-Double (26.0m)
Overall Length 26.000m
Overall Width 2.500m
Overall Body Height 4.300m
Min Body Ground Clearance 0.540m
Track Width 2.500m
Lock-to-lock time 6.00s
Curb to Curb Turning Radius 15.000m

ADJUST DRIVEWAY TO INDICATED LOCATION.

THESE RSDs SHALL NOT BE IN USE EXTERNALLY WHEN A 26.0 m B-DOUBLE IS SIDE LOADING.

THIS RSD SHALL BE IN USE BY A 12.5 m HRV EXTERNALLY WHEN A 26.0 m B-DOUBLE IS SIDE LOADING.

ADJUST LANDSCAPING TO INDICATED LOCATION.

Notes:

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Date:
27-Oct-21

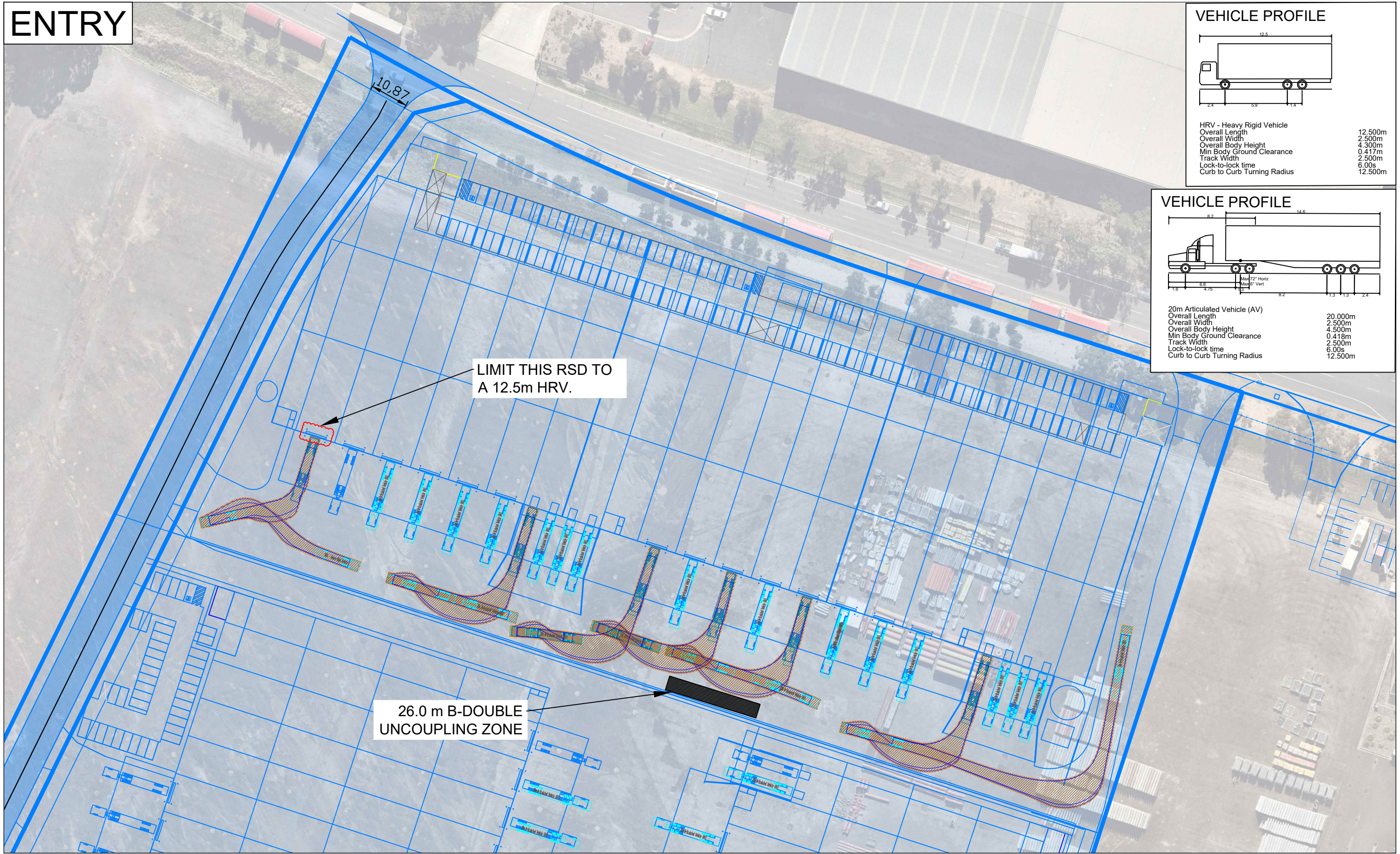
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Drawing Number:
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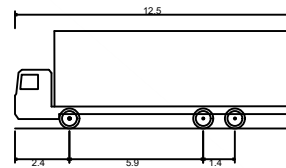


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Sydney NSW 2000
info@asongroup.com.au

ENTRY

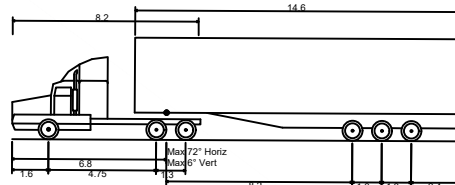


VEHICLE PROFILE



HRV - Heavy Rigid Vehicle	12.500m
Overall Length	2.500m
Overall Width	4.300m
Overall Body Height	0.417m
Min Body Ground Clearance	2.500m
Track Width	6.00s
Lock-to-lock time	12.500m
Curb to Curb Turning Radius	

VEHICLE PROFILE



20m Articulated Vehicle (AV)	20.000m
Overall Length	2.500m
Overall Width	4.500m
Overall Body Height	0.418m
Min Body Ground Clearance	2.500m
Track Width	6.00s
Lock-to-lock time	12.500m
Curb to Curb Turning Radius	

LIMIT THIS RSD TO
A 12.5m HRV.

26.0 m B-DOUBLE
UNCOUPLING ZONE

Notes:

Plans assessed were provided by Nettleton Tribe on 07.09.2021.
Nearmaps' aerial image was taken on 11.08.2021.
Swept path assessment was completed at 10 km/h with 300 mm clearances.

This drawing is provided for information purposes only and should not be used for construction.

Document Info:

Drawn by: O HASHMI
File name: AG1805-03-v01 (1).dwg

Client:

STOCKLAND

Project:

1805
35-47 STENNETT ROAD, INGLEBURN

Drawing Title:

SWEPT PATH ASSESSMENT
ENTRY INTO RSDs

Date:

27-Oct-21

Scale @ A3:

1:1000

Drawing Number:

AG08

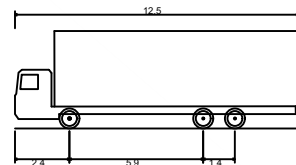
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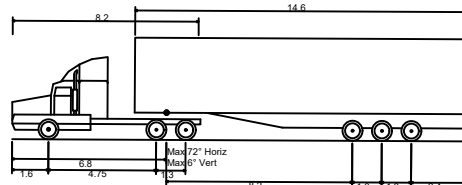
EXIT

VEHICLE PROFILE



HRV - Heavy Rigid Vehicle	12.500m
Overall Length	2.500m
Overall Width	4.300m
Overall Body Height	0.417m
Min Body Ground Clearance	2.500m
Track Width	6.00s
Lock-to-lock time	12.500m
Curb to Curb Turning Radius	

VEHICLE PROFILE



20m Articulated Vehicle (AV)	20.000m
Overall Length	2.500m
Overall Width	4.500m
Overall Body Height	0.418m
Min Body Ground Clearance	2.500m
Track Width	6.00s
Lock-to-lock time	12.500m
Curb to Curb Turning Radius	

26.0 m B-DOUBLE
UNCOUPLING ZONE

Notes:

Plans assessed were provided by Nettleton Tribe on 07.09.2021.
Nearmaps' aerial image was taken on 11.08.2021.
Swept path assessment was completed at 10 km/h with 300 mm clearances.

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Document Info:

Drawn by: O HASHMI
File name: AG1805-03-v01 (1).dwg

Client:

STOCKLAND

Project:

1805
35-47 STENNETT ROAD, INGLEBURN

Drawing Title:

SWEPT PATH ASSESSMENT
EXIT FROM RSDs

Date:

27-Oct-21

Scale @ A3:

1:1000

Drawing Number:

AG09

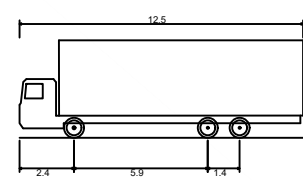
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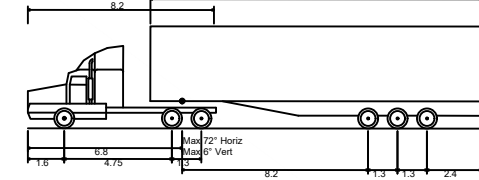
ENTRY

VEHICLE PROFILE



HRV - Heavy Rigid Vehicle	12.500m
Overall Length	2.500m
Overall Width	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

VEHICLE PROFILE



20m Articulated Vehicle (AV)	20.000m
Overall Length	2.500m
Overall Width	4.500m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

THIS RSD SHALL BE LIMITED TO 12.5 m HRVs EXTERNALLY.

EXIT

THIS RSD SHALL BE LIMITED TO 12.5 m HRVs EXTERNALLY.

Notes:
Plans assessed were provided by Nettleton Tribe on 07.09.2021.
Nearmaps' aerial image was taken on 11.08.2021.
Swept path assessment was completed at 10 km/h with 300 mm clearances.

This drawing is provided for information purposes only and should not be used for construction.

Document Info:
Drawn by: O HASHMI
File name: AG1805-03-v01 (1).dwg

Client:
STOCKLAND

Project:
1805
35-47 STENNETT ROAD, INGLEBURN

Drawing Title:
SWEPT PATH ASSESSMENT
ENTRY INTO / EXIT FROM RSDs

Date:
27-Oct-21

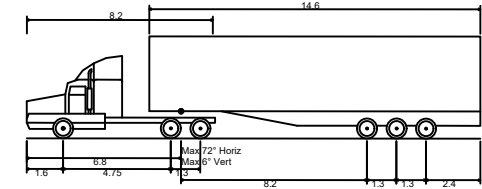
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Drawing Number:
AG10

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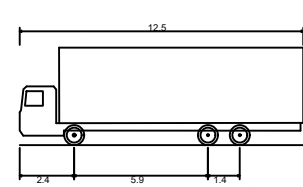
ENTRY

VEHICLE PROFILE

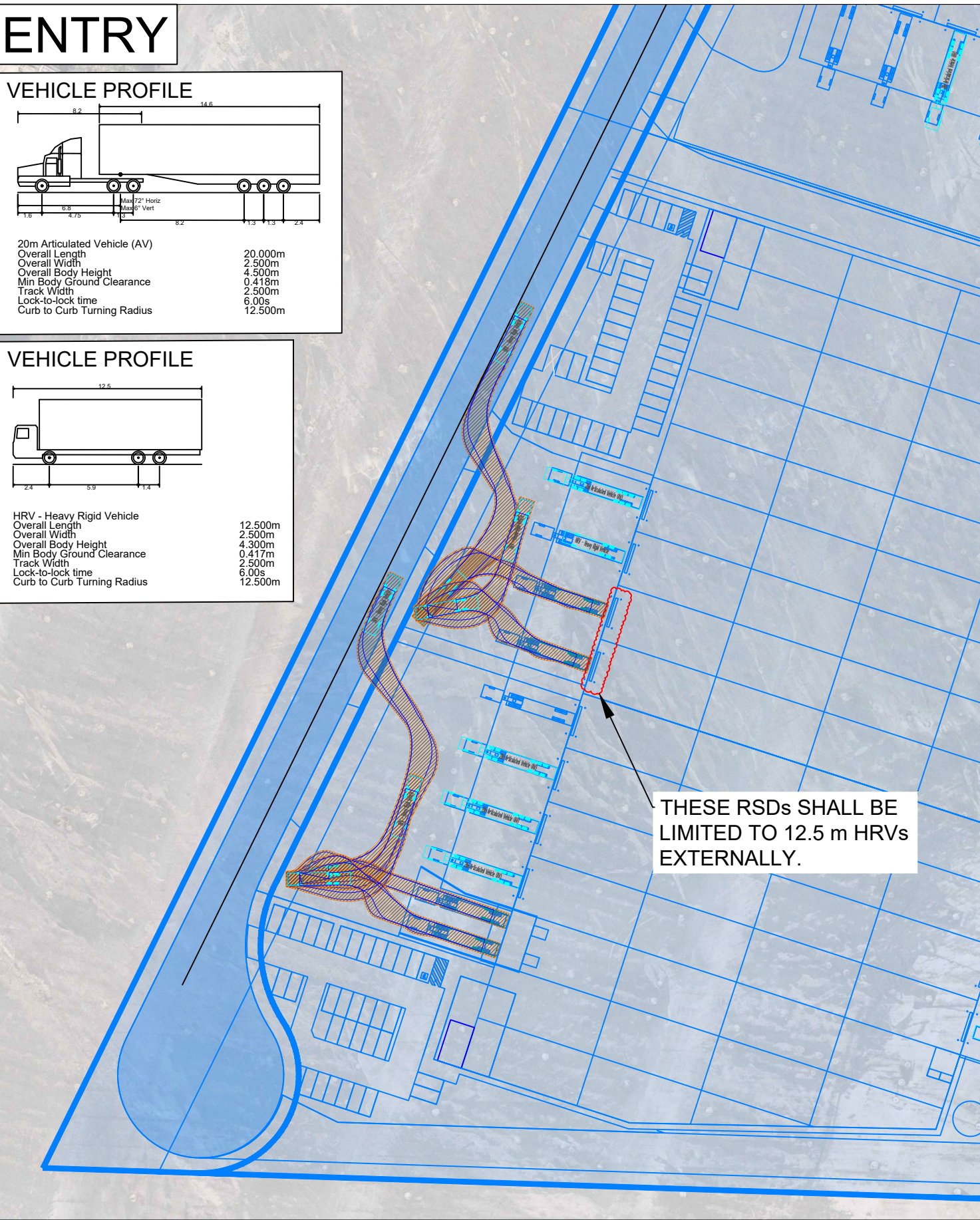


20m Articulated Vehicle (AV)	
Overall Length	20.000m
Overall Width	2.500m
Overall Body Height	4.500m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

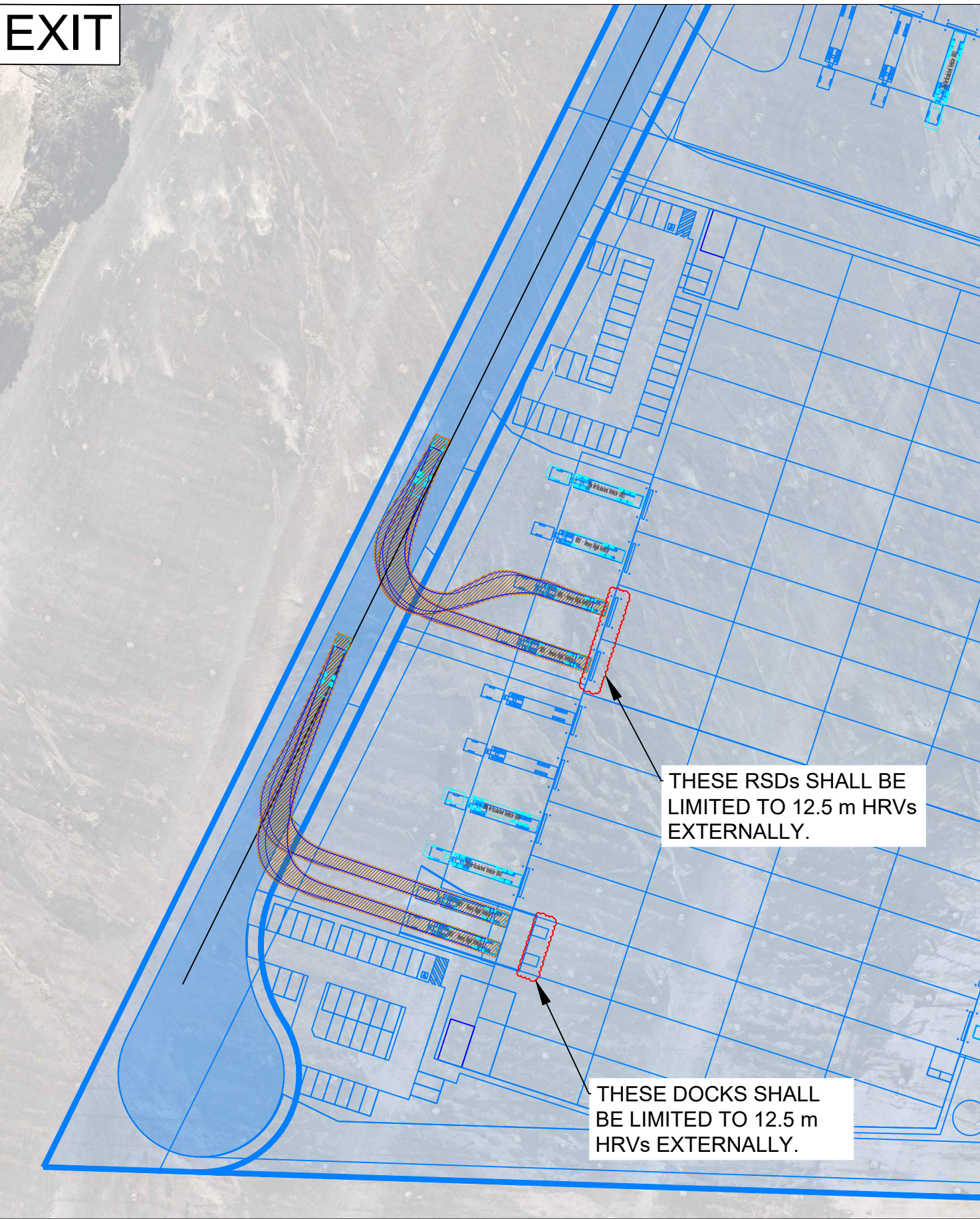
VEHICLE PROFILE



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



EXIT



Notes:

Plans assessed were provided by Nettleton Tribe on 07.09.2021.
Nearmaps' aerial image was taken on 11.08.2021.
Swept path assessment was completed at 10 km/h with 300 mm clearances.

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Document Info:

Drawn by: O HASHMI
File name: AG1805-03-v01 (1).dwg

Client:

STOCKLAND

Project:

1805
35-47 STENNETT ROAD, INGLEBURN

Drawing Title:

SWEPT PATH ASSESSMENT
ENTRY INTO / EXIT FROM RSDs

Date:

27-Oct-21

Scale @ A3:

1:1000

Drawing Number:

AG11

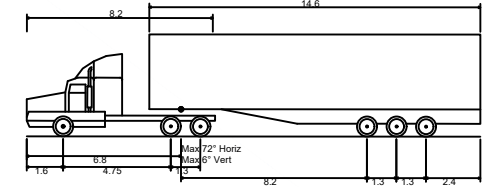
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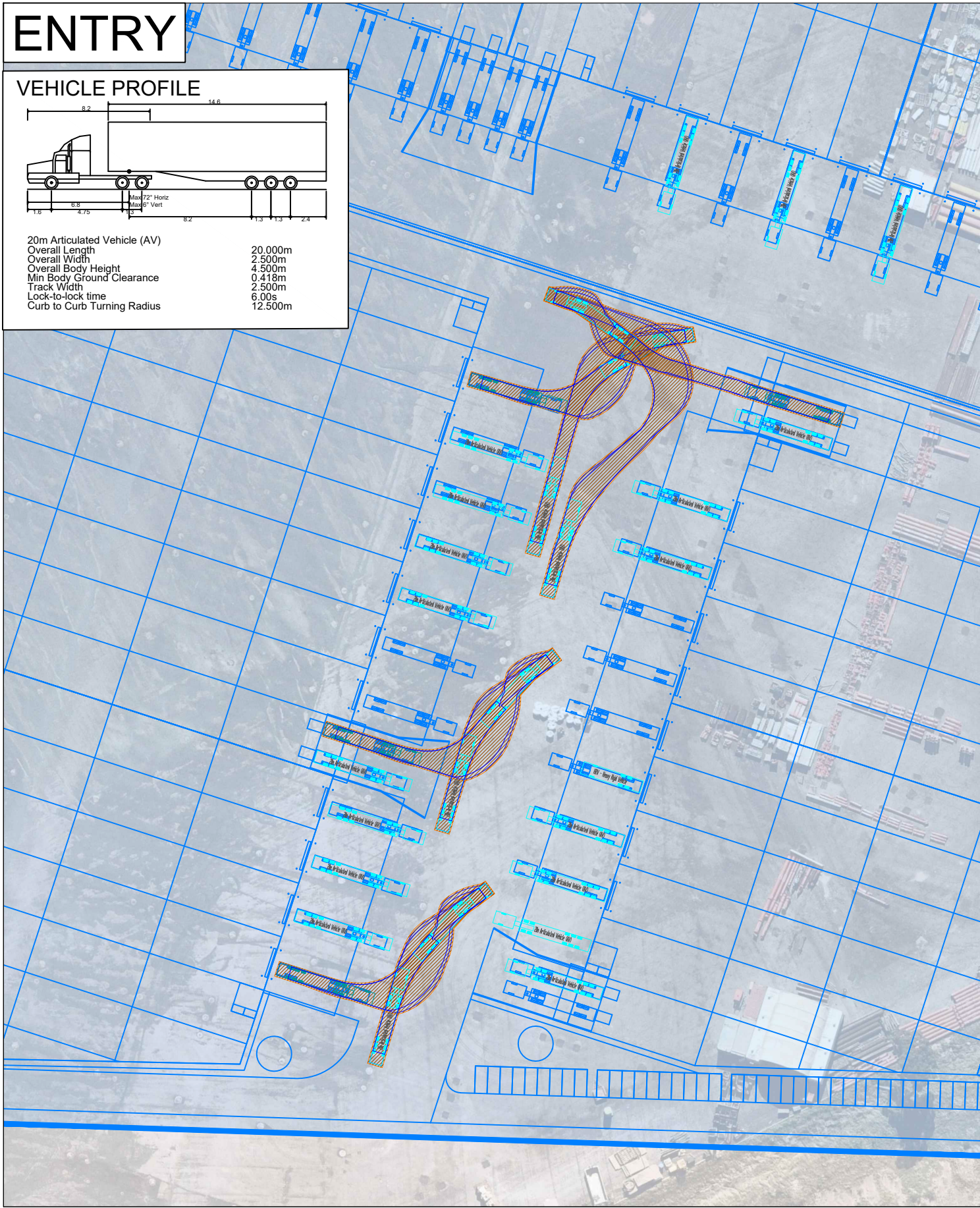
info@asongroup.com.au

ENTRY

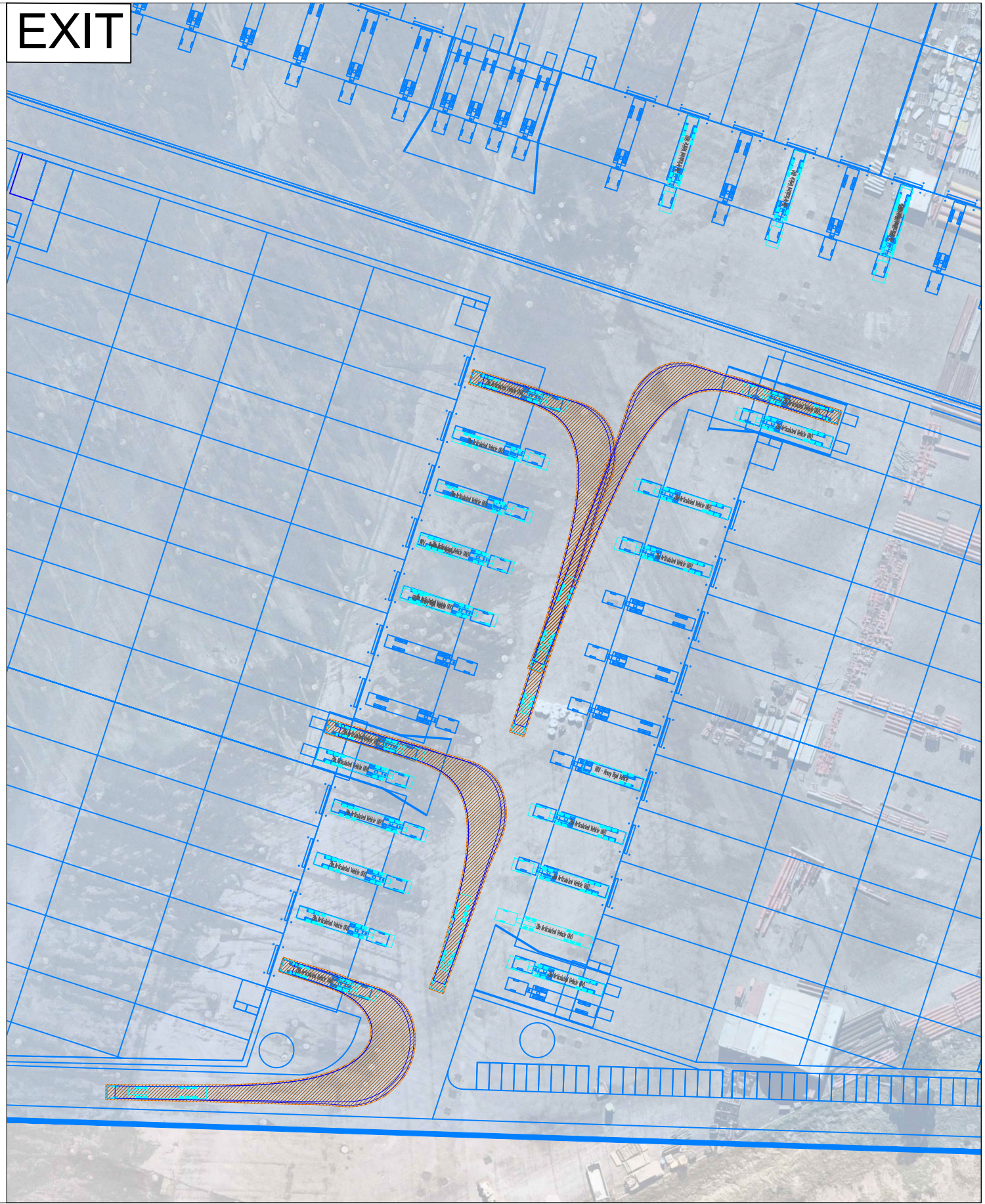
VEHICLE PROFILE



20m Articulated Vehicle (AV)
Overall Length 20.000m
Overall Width 2.500m
Overall Body Height 4.500m
Min Body Ground Clearance 0.418m
Track Width 2.500m
Lock-to-lock time 6.00s
Curb to Curb Turning Radius 12.500m



EXIT



Notes:

Plans assessed were provided by Nettleton Tribe on 07.09.2021.
Nearmaps' aerial image was taken on 11.08.2021.
Swept path assessment was completed at 10 km/h with 300 mm clearances.

This drawing is provided for information purposes only and should not be used for construction.

Document Info:

Drawn by: O HASHMI
File name: AG1805-03-v01 (1).dwg

Client:

STOCKLAND

Project:

1805
35-47 STENNETT ROAD, INGLEBURN

Drawing Title:

SWEPT PATH ASSESSMENT
ENTRY INTO / EXIT FROM RSDs

Date:

27-Oct-21

Scale @ A3:

1:1000

Drawing Number:

AG12

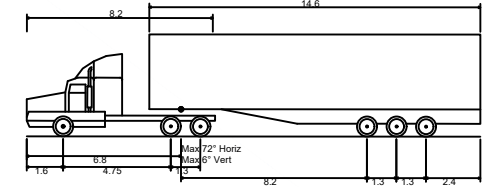
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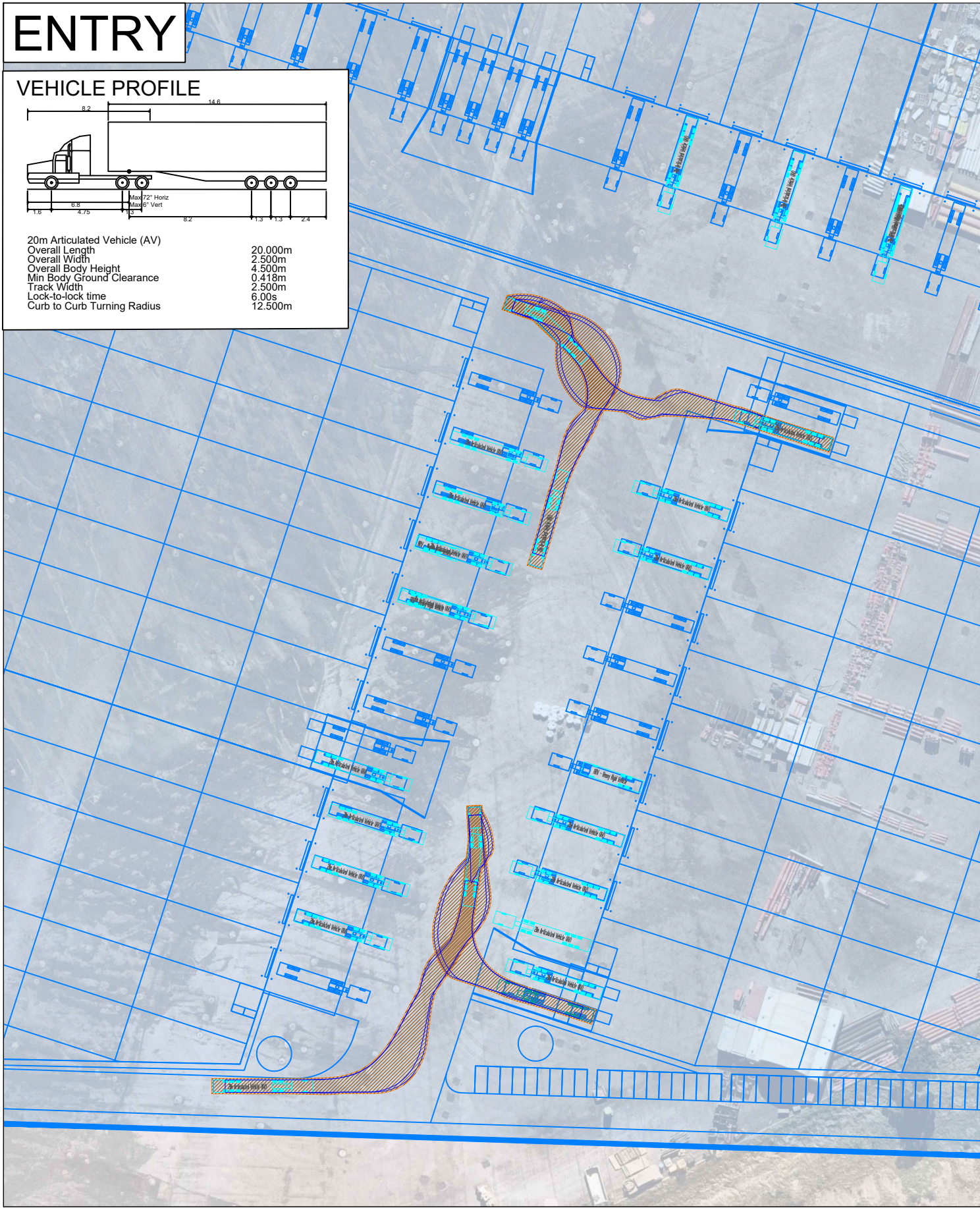
info@asongroup.com.au

ENTRY

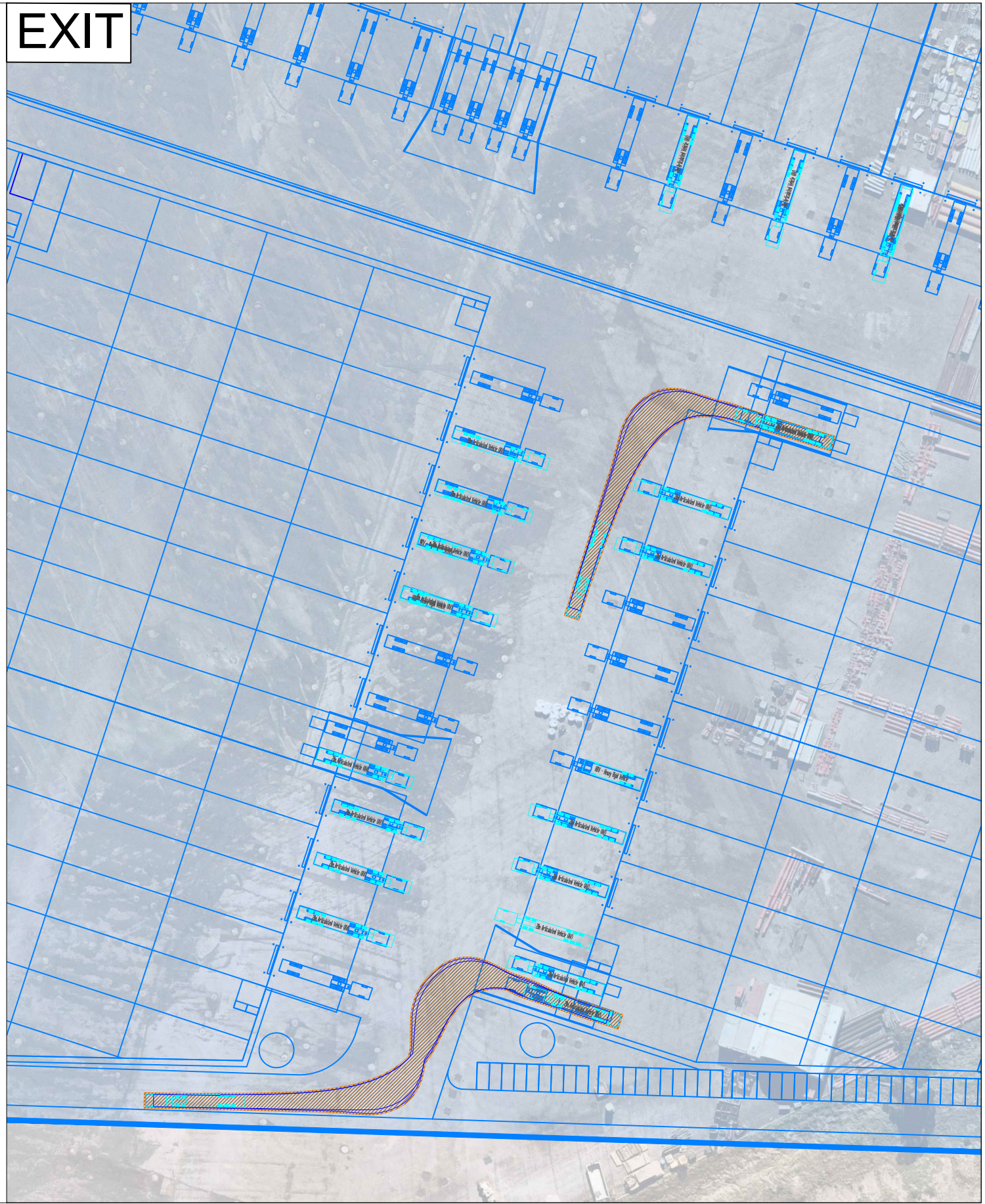
VEHICLE PROFILE



20m Articulated Vehicle (AV)
Overall Length 20.000m
Overall Width 2.500m
Overall Body Height 4.500m
Min Body Ground Clearance 0.418m
Track Width 2.500m
Lock-to-lock time 6.00s
Curb to Curb Turning Radius 12.500m



EXIT



Notes:

Plans assessed were provided by Nettleton Tribe on 07.09.2021.
Nearmaps' aerial image was taken on 11.08.2021.
Swept path assessment was completed at 10 km/h with 300 mm clearances.

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Document Info:

Drawn by: O HASHMI
File name: AG1805-03-v01 (1).dwg

Client:

STOCKLAND

Project:

1805
35-47 STENNETT ROAD, INGLEBURN

Drawing Title:

SWEPT PATH ASSESSMENT
ENTRY INTO / EXIT FROM RSDs

Date:

27-Oct-21

Scale @ A3:

1:1000

Drawing Number:

AG13

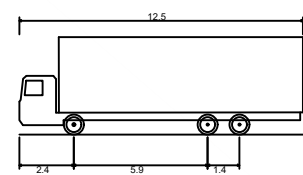
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CLOCKWISE

VEHICLE PROFILE



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



Notes:

Plans assessed were provided by Nettleton Tribe on 07.09.2021.
Nearmaps' aerial image was taken on 11.08.2021.
Swept path assessment was completed at 10 km/h with 300 mm clearances.

This drawing is provided for information purposes only and should not be used for construction.

Document Info:

Drawn by: O HASHMI
File name: AG1805-03-v01 (1).dwg

Client:

STOCKLAND

Project:

1805
35-47 STENNETT ROAD, INGLEBURN

Drawing Title:

SWEPT PATH ASSESSMENT
FIRE TRUCK (12.5 m HRV) CIRCULATION

Date:

27-Oct-21

Scale @ A3:

1:1250

Drawing Number:

AG14

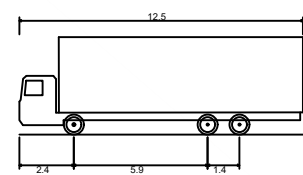
asongroup

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Sydney NSW 2000

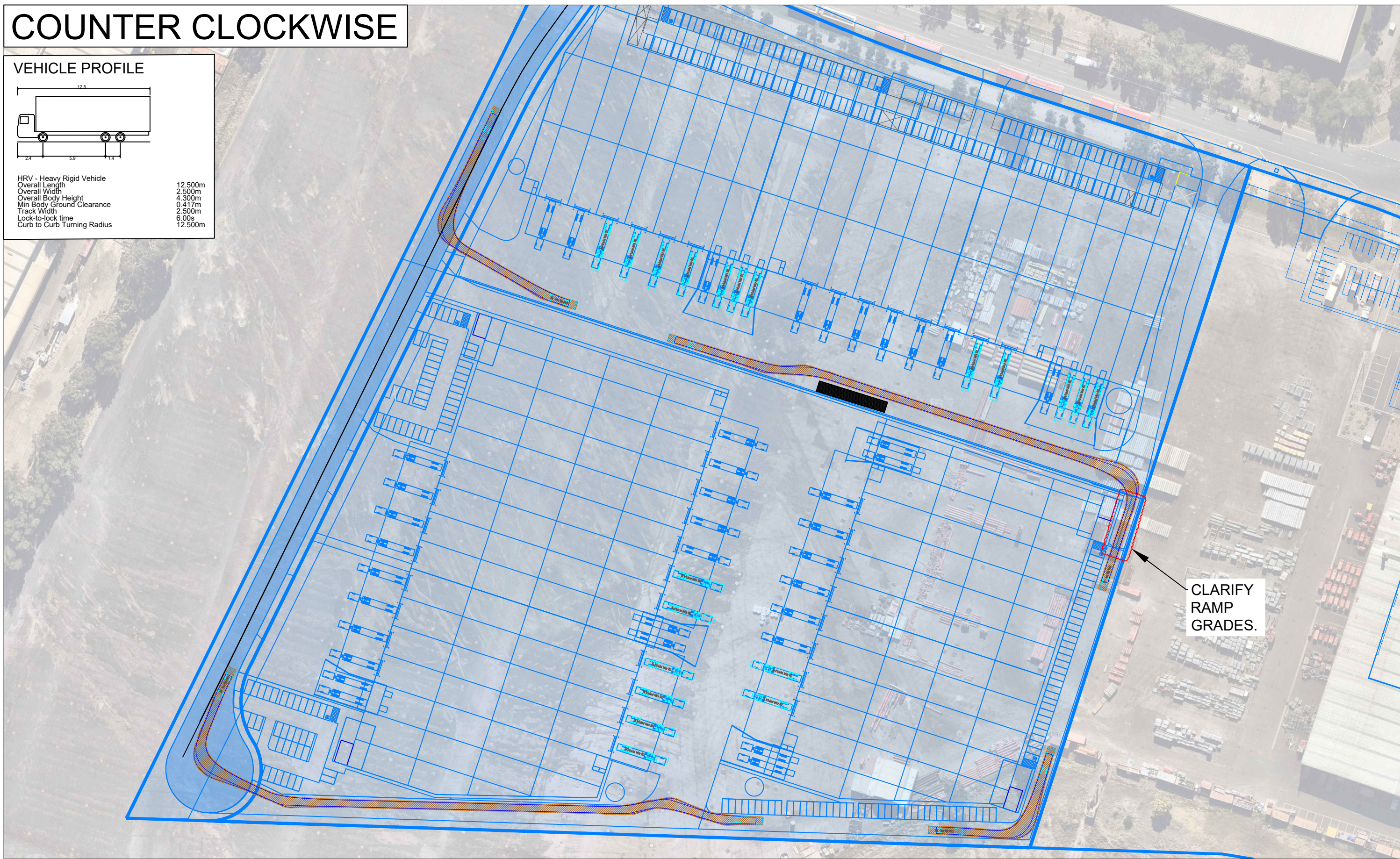
info@asongroup.com.au

COUNTER CLOCKWISE

VEHICLE PROFILE



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



Notes:

Plans assessed were provided by Nettleton Tribe on 07.09.2021.
Nearmaps' aerial image was taken on 11.08.2021.
Swept path assessment was completed at 10 km/h with 300 mm clearances.

This drawing is provided for information purposes only and should not be used for construction.

Document Info:

Drawn by: O HASHMI
File name: AG1805-03-v01 (1).dwg

Client:

STOCKLAND

Project:

1805
35-47 STENNETT ROAD, INGLEBURN

Drawing Title:

SWEPT PATH ASSESSMENT
FIRE TRUCK (12.5 m HRV) CIRCULATION

Date:

27-Oct-21

Scale @ A3:

1:1250

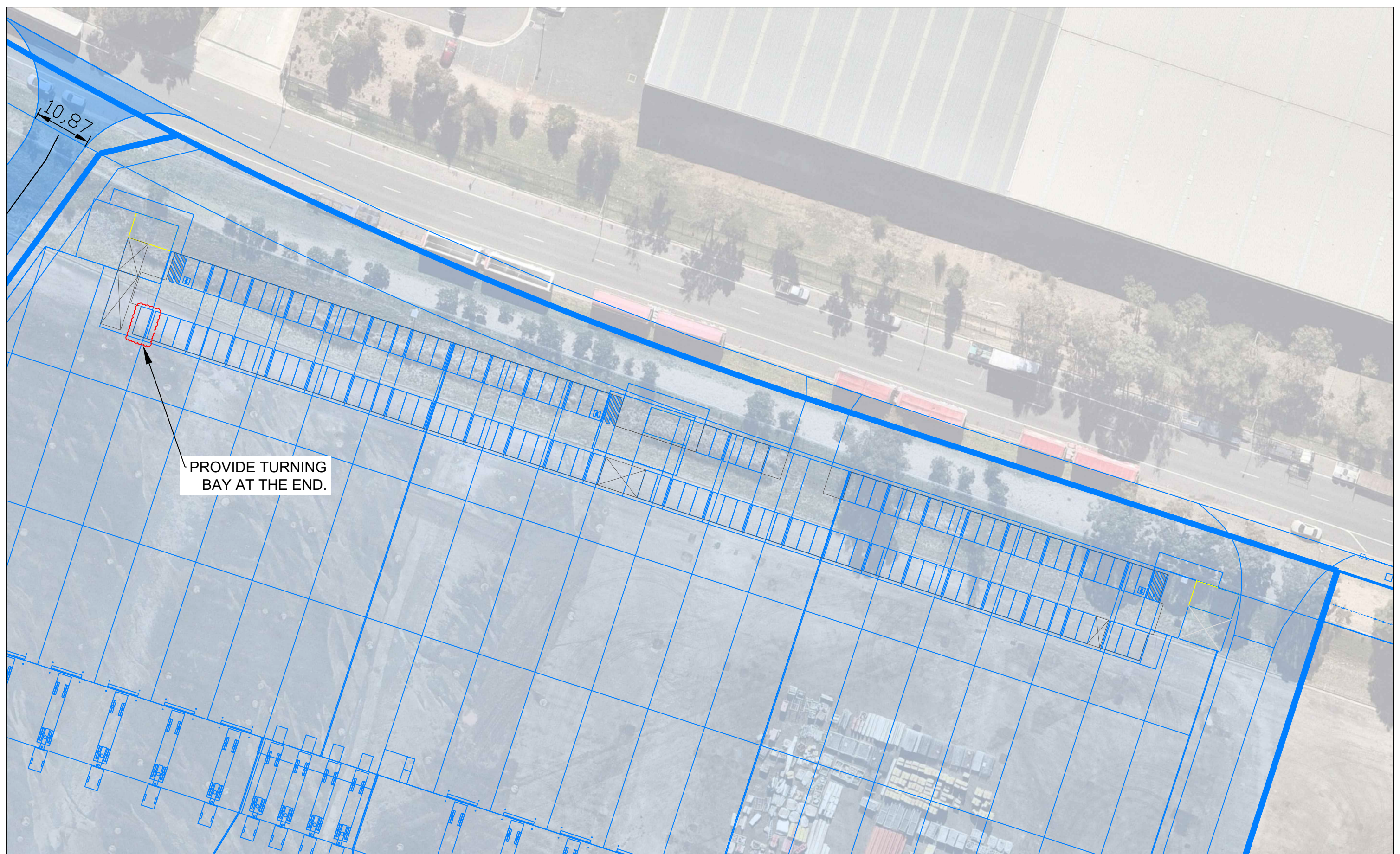
Drawing Number:


AG15

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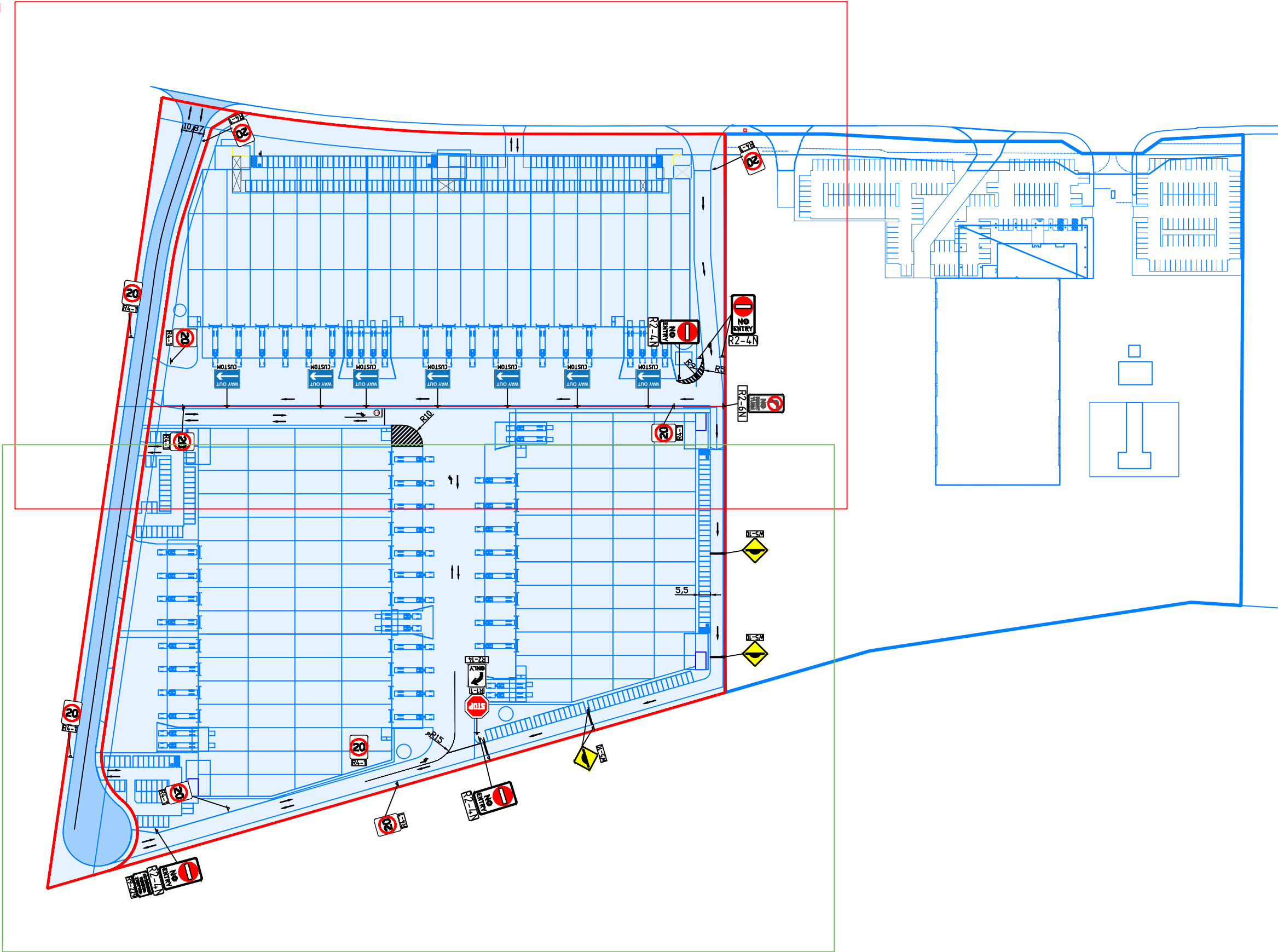


<div>Notes:</div> <div>Plans assessed were provided by Nettleton Tribe on 07.09.2021. Nearmaps' aerial image was taken on 11.08.2021. Swept path assessment was completed at 10 km/h with 300 mm clearances.</div> <div>This drawing is provided for information purposes only and should not be used for construction.</div>	<div>Document Info:</div> <div>Drawn by: O HASHMI File name: AG1805-03-v01 (1).dwg</div>	<div>Project:</div> <div>1805 35-47 STENNETT ROAD, INGLEBURN</div>	<div>Date:</div> <div>27-Oct-21</div>	<div></div> <div>Suite 17.02, Level 17, 1 Castlereagh St Sydney NSW 2000 info@asongroup.com.au</div>	
	<div>Client:</div> <div>STOCKLAND</div>	<div>Drawing Title:</div> <div>SITE PLAN CAR PARK DESIGN</div>	<div>Scale @ A3:</div> <div>1:750</div>		<div>Drawing Number:</div> <div>AG16</div>

Appendix B. Signage & Line Marking Plan

Sheet AG01

Sheet AG02



GENERAL NOTES
This drawing is provided for information purposes only and should not be used for construction.
Base Plan prepared by Nettleton Tribe received 07 Sept 2021.
Swept path assessments completed at 10 km/h and 300mm clearance.

DESIGNED Alan Tan	PAPER SIZE A3 OR A1
APPROVED BY D. CHOI	DATE 19.10.2021
SCALE 1:2000	

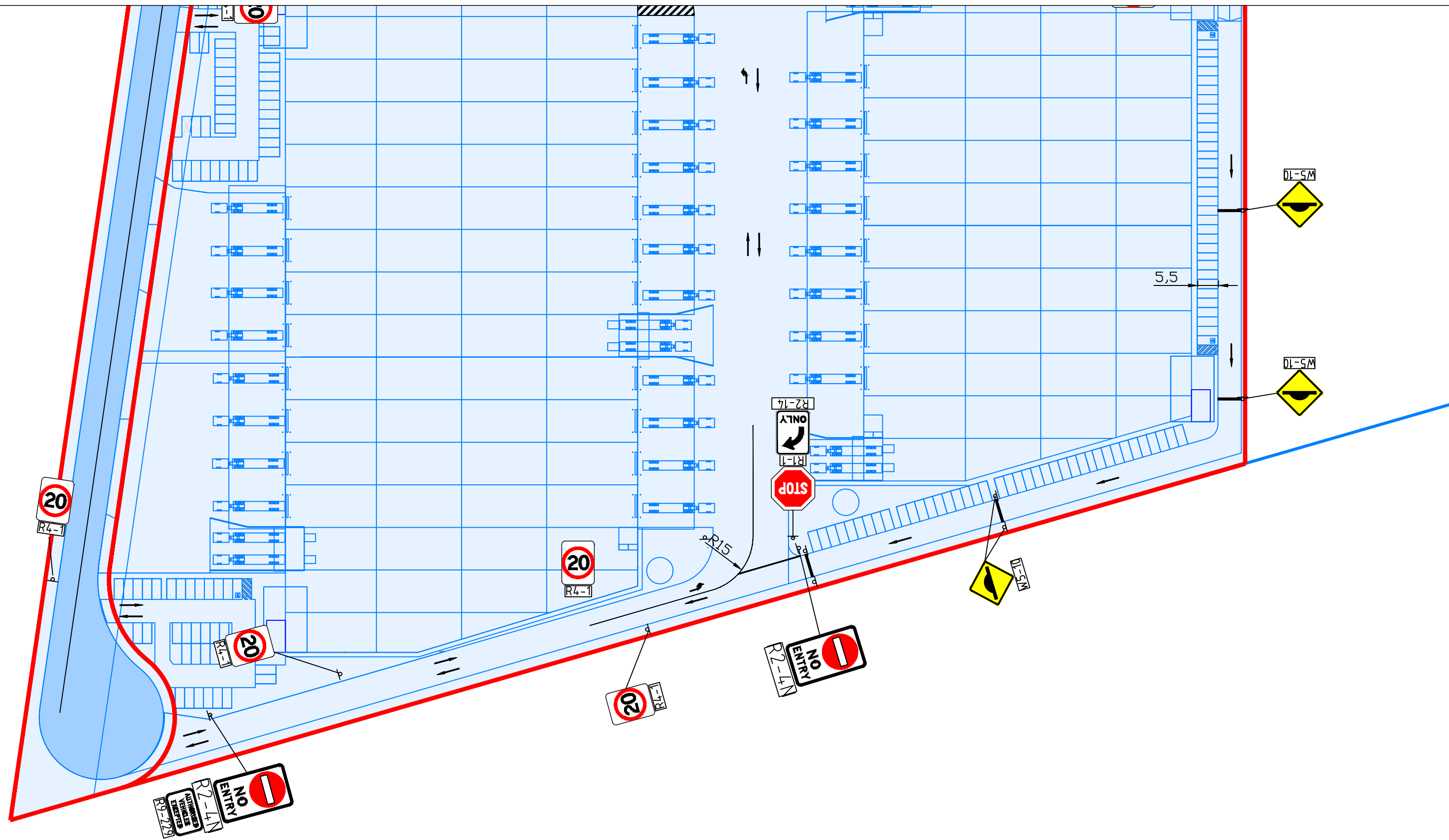
CLIENT STOCKLAND
PROJECT 1805
35-47 STENNETT ROAD, INGLEBURN


DOCUMENT INFORMATION	
SIGNAGE AND LINEMARKING PLAN	
OVERVIEW PLAN	
FILE NAME AG1805-04-v03.dwg	SHEET AG01

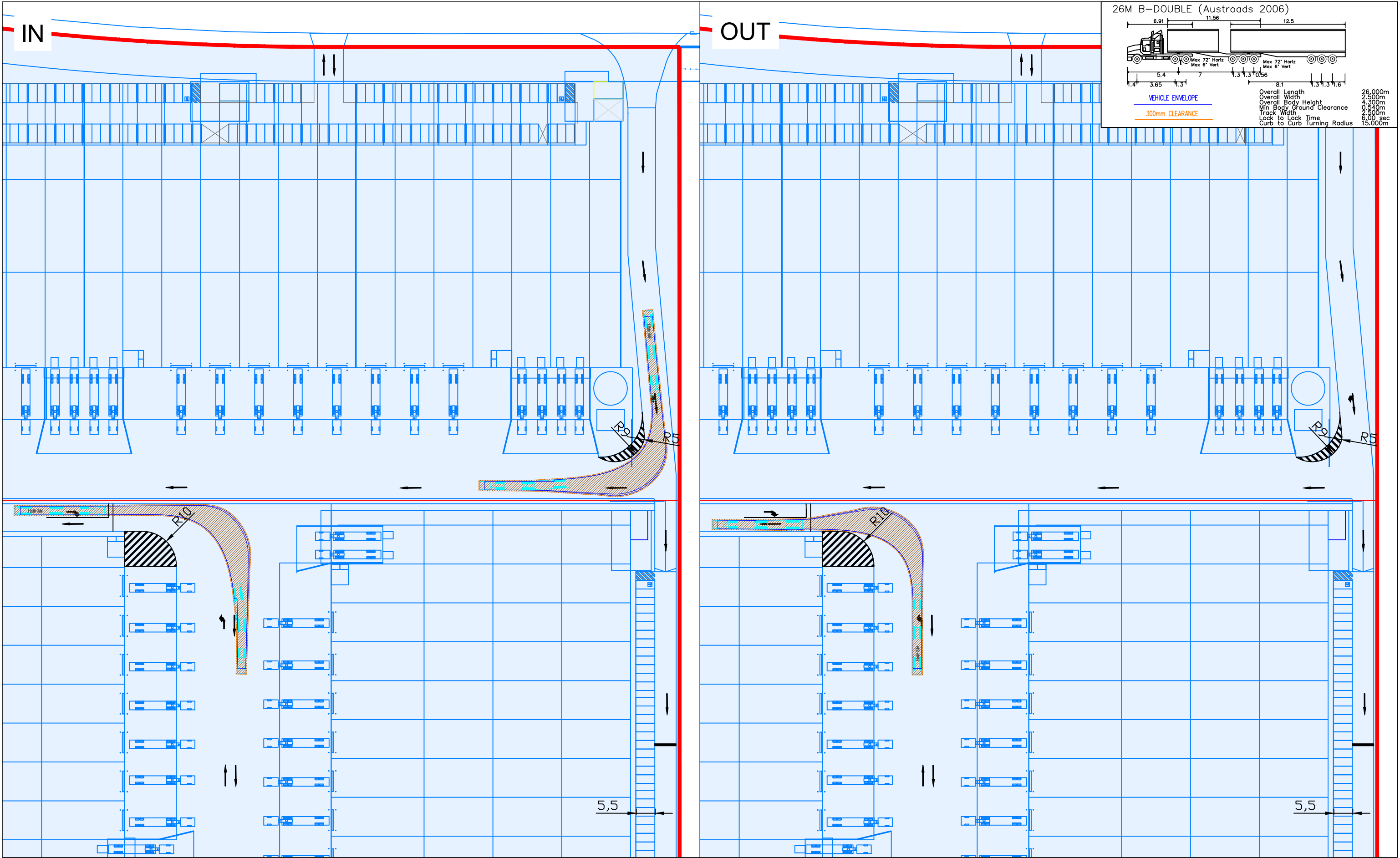
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GENERAL NOTES This drawing is provided for information purposes only and should not be used for construction. Base Plan prepared by Nettleton Tribe received 07 Sept 2021. Swept path assessments completed at 10 km/h and 300mm clearance.		DESIGNED Alan Tan	PAPER SIZE A3 OR A1	CLIENT STOCKLAND	DOCUMENT INFORMATION SIGNAGE AND LINEMARKING PLAN		 Suite 17.02, Level 17, 1 Castlereagh St Sydney NSW 2000 info@asongroup.com.au
		APPROVED BY D. CHOI	DATE 19.10.2021	PROJECT 1805			
		SCALE 1:1000	0 10 20	35-47 STENNETT ROAD, INGLEBURN	FILE NAME AG1805-04-v03.dwg	SHEET AG03	



GENERAL NOTES This drawing is provided for information purposes only and should not be used for construction. Base Plan prepared by Nettleton Tribe received 07 Sept 2021. Swept path assessments completed at 10 km/h and 300mm clearance.	DESIGNED Alan Tan	PAPER SIZE A3 OR A1	CLIENT STOCKLAND	DOCUMENT INFORMATION SIGNAGE AND LINEMARKING PLAN	
	APPROVED BY D. CHOI	DATE 19.10.2021	PROJECT 1805		
	SCALE 1:1000	0 10 20	35-47 STENNETT ROAD, INGLEBURN	FILE NAME AG1805-04-v03.dwg	SHEET AG04
				asongroup Suite 17.02, Level 17, 1 Castlereagh St Sydney NSW 2000 info@asongroup.com.au	