



Traffic Impact Assessment on Sheppard Street Block 45

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Prepared by JJ Ryan Consulting Pty Ltd for Forestrack Pty Ltd

www.jjryan.com.au

ABN: 69 145 797 726

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Version History

Version Number	Prepared By	Revision Date	Approved By	Approval Date	Description
1	N. Stone	12/07/2021	M. Patmore	7/09/2021	Traffic Impact Assessment
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1. Background

JJ Ryan Consulting Pty Ltd (JJR) were engaged by Forestrack to prepare a Traffic Impact Assessment (TIA) for a relocation of an Emergency Services, Maintenance and Training Facility on Sheppard Street Block 45 Section 3 Hume.

The proposed subject site is located within the north-eastern corner of the existing Monaro Industrial Estate (Refer to Figure 1 and Figure 2).

Intended Use

The proposal involves an application to purchase land for the purposes of developing a base to provide support for emergency services, forestry, educational institution and ancillary use supporting these functions.

Specifically, the services (air and ground) to be provided from the new headquarters will commonly relate to the following activities:

- Emergency search and rescue operations;
- Strategic and tactical operational support (Police);
- Airborne surveillance and airborne operations management support;
- Firefighting and tactical support;
- Community education;
- Helicopter maintenance and engineering services; and
- Forestry Site Preparation Services to Government and Private Forest Owners.

Block 45 Section 3 Hume is zoned NUZ1 Broadacre and is subject to the Main Avenues and Approach Routes overlay in the ACT Territory Plan. The proposed development and use of the site are permissible uses in this zone under the Lite/General Industry, Emergency Services Facility and Educational Establishment uses definitions in the Territory Plan.

Relocation from 78 Sheppard Street, Hume

It is understood that an existing facility for Emergency Services (currently operating under Forestrack) currently exists on 78 Sheppard Street, Hume and the existing traffic and personnel will be shifted to the new facility on Block 45 Section 3 once constructed (refer to Figure 1). The operational traffic is anticipated to be relatively similar to the existing traffic once the location change takes place.

Proposed Development

Based on a preliminary concept plan for the site (Figure 2), the future development would likely involve the following features

- 4,400m² of buildings for offices, training and associated uses;
- 3,600m² hardstand, for vehicle parking and manoeuvring;
- 3,000m² storage yard for Forestrack;
- 2,000m² Emergency Services Training Area;
- 7,600m² identified for future possible development (longer term planning to ensure site remains viable in a changing city, regional and global context).



Figure 1 Existing site location and new site location



Figure 2 Site Concept Plan

Scope of Report

In preparation of this report, the following has been completed:

- Reviewed existing transport infrastructure within proximity to the subject site (I.e. road network, active network, public transport and existing higher limit mass routes etc.)
- Review the safe intersection sight distance (SISD) of the access and egress arrangement proposed
- Estimated peak hour traffic demands generated by the proposed development.
- Reviewed potential operational impacts on the surrounding network.

2. Existing Conditions

Road Network

The existing site location, proposed new site location, key roads and intersections are displayed in Figure 3.

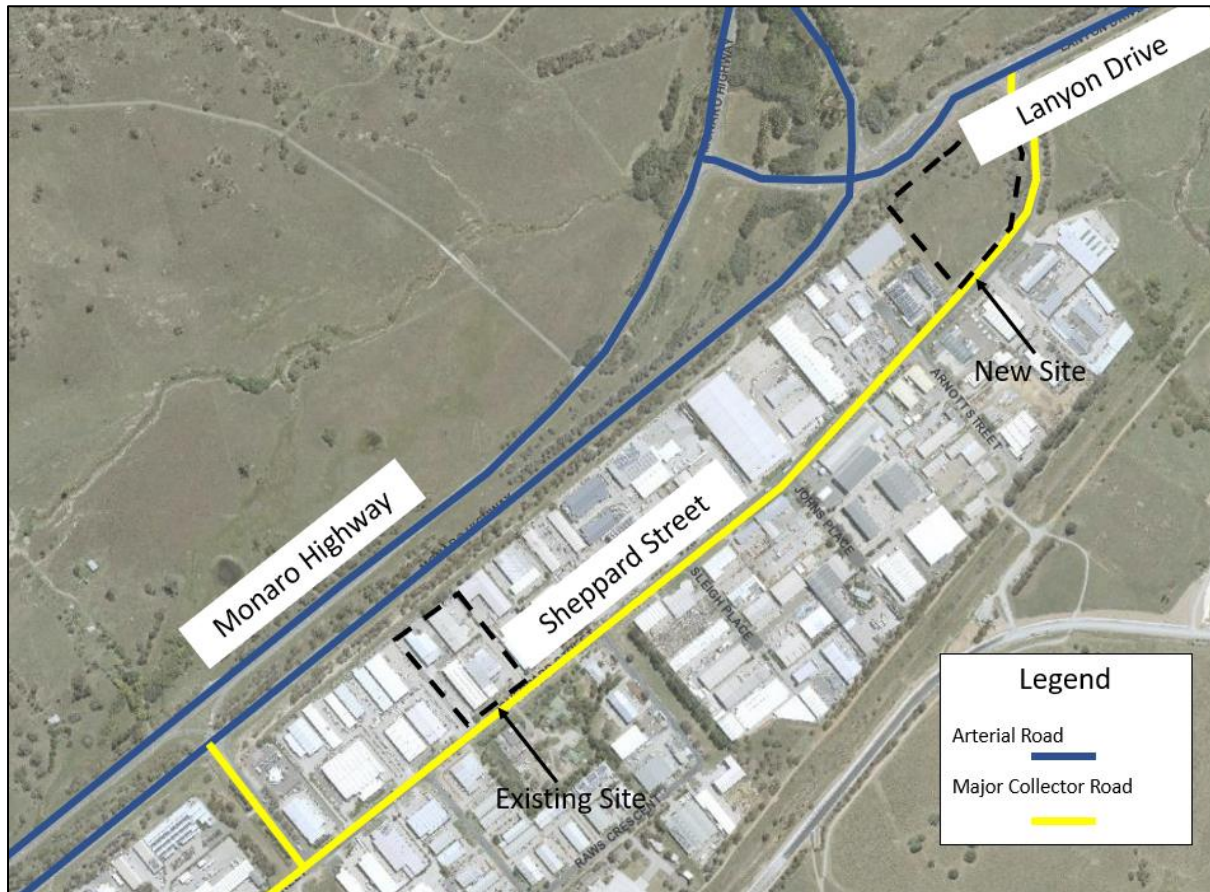


Figure 3 Existing network

Public Transport Network

No public transport services operate close to the subject site. It is unlikely that the development would generate any significant demand for public transport if services did operate.

Active Transport Network

Whilst industrial developments do not generate high walking and cycling demands it is noted that:

- No pathways currently exist on Sheppard Street
- No pedestrian activity is prohibited on Lanyon Drive or the Monaro Highway.

Existing Haulage Routes

Figure 4 and 5 illustrate the existing National Heavy Vehicle Regulator (NVHR) approved Higher Mass Limit routes in proximity to the subject site.

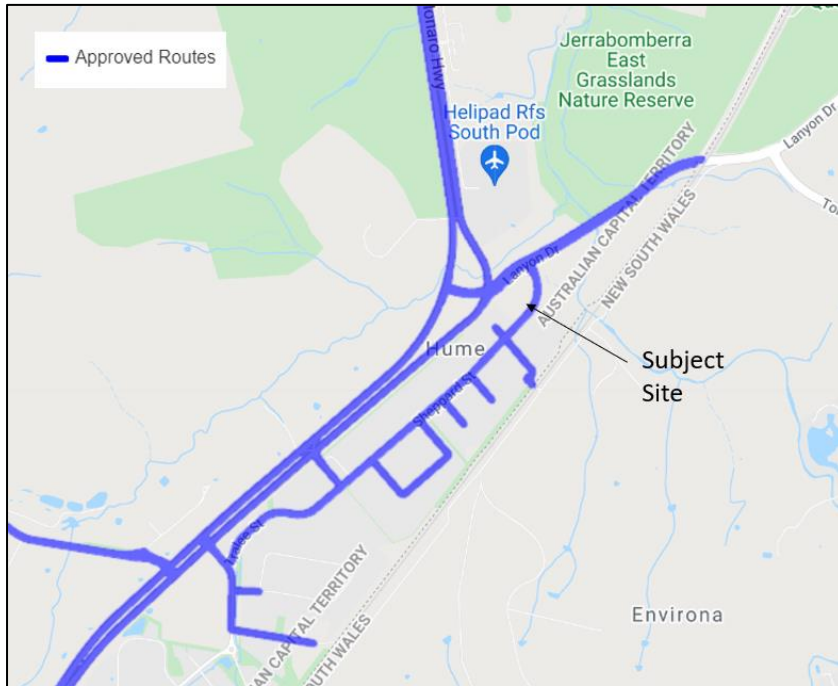


Figure 4 Approved Higher Mass Limit Routes

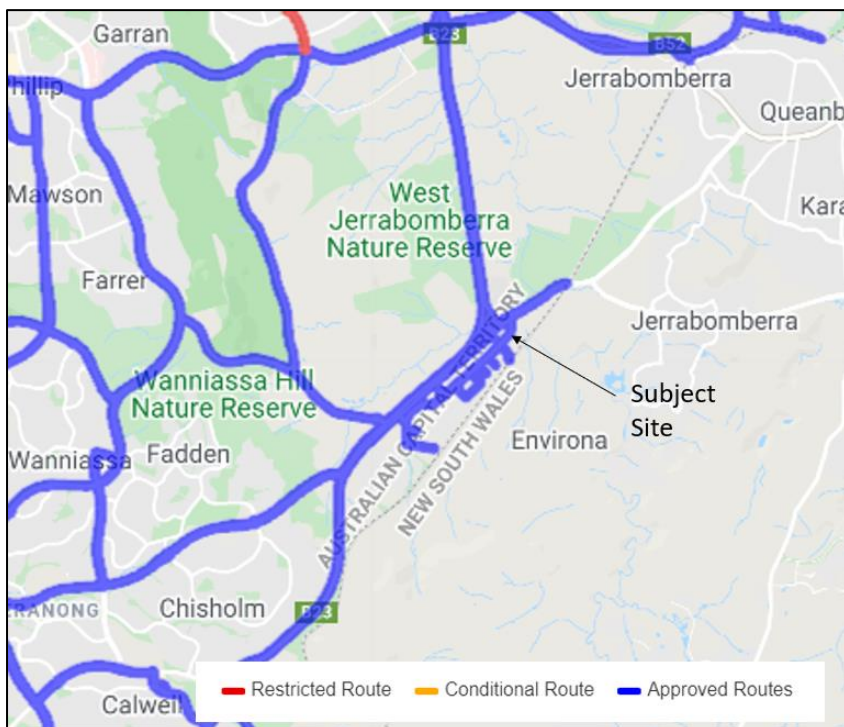


Figure 5 Approved Higher Mass Limits (Broader Network)

3. Traffic Design Review

Refer to appendix to see Swept Path onto Sheppard Street (from property access).

Sight Distance

Sight distance appears adequate in both directions and consistent with Austroads (AGRD4A) requirements from a desktop analysis.

4. Current Upgrades

JJR understand upgrades of the Monaro Highway and Lanyon Drive are currently in the works. Figure 6 illustrates the potential upgrades, it is clear the Lanyon Drive / Sheppard Street intersection will be upgraded as well as the Monaro Highway on and off ramps, and Monaro Highway / Lanyon Drive intersection.

JJR and Forestrack have requested further information in regard to the upgrades for modelling purposes however it is understood this information is not yet available for external viewing.

As upgrades are currently underway along the Monaro Highway / Lanyon Drive and Monaro Highway intersections, JJR will not model the existing layouts as this will be superseded and irrelevant.



Figure 6 Monaro Highway and Lanyon Drive upgrades

5. Traffic Impact Assessment Inputs

Background Traffic Volumes

Traffic Survey Data (SCATS)

SCATS data was requested from the Australian Capital Territory (ACT) government traffic department for 4 individual sites for a 1 week period in May 2021. The aim of obtaining the data was to establish existing background traffic volume and distribution patterns. Figure outlines the locations of the SCATS data sites. The SCATS data were retrieved prior to JJR understanding of the Monaro Highway upgrades.

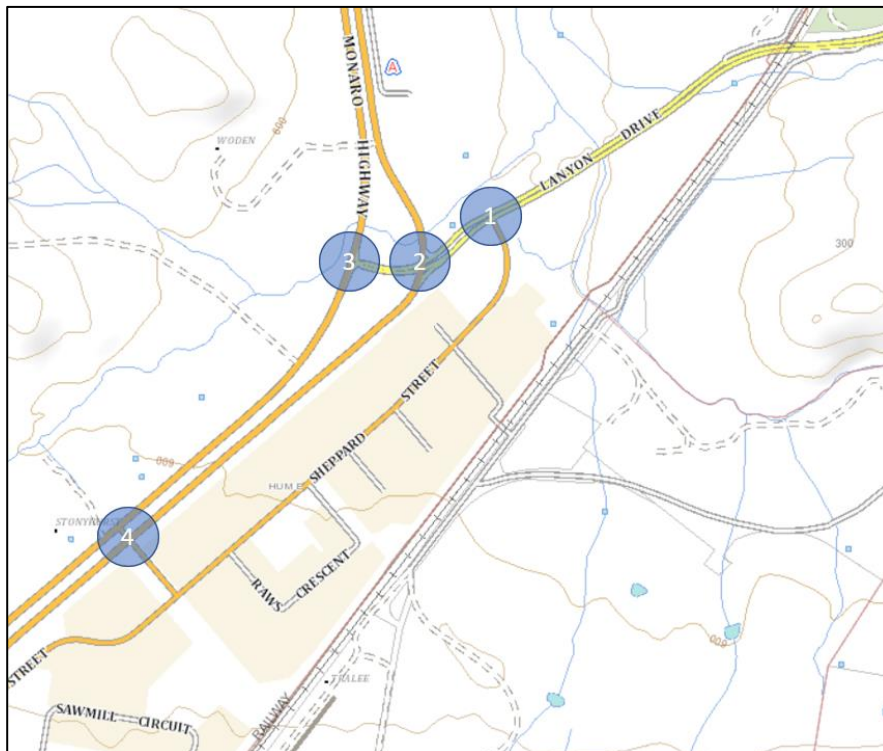


Figure 7 SCATS sites

The peak hour periods for the entire four site network was recorded as:

- Weekday AM peak period – 7:30am-8:30am
- Weekday PM peak period – 4:30pm-5:30pm

Traffic Growth Rate

The Australian Capital Territory (ACT) 2020-2021 Budget Outlook has indicated population grew by 4,800 people, or 1.1% in 2019-2020. The document has indicated due to current travel restrictions, population is expected to be minimal at 1% p.a. Traffic growth and population are relatively similar and therefore a traffic growth of 1% p.a. is adopted.

Development Traffic

Assessment Scenarios

Development traffic impacts of the following design horizons have been assessed:

- Baseline 2021, 2022 and 2032
- Baseline 2022 and Development (Year of opening, late 2022)
- Baseline 2032 and Development (10 years post opening, 2032)

Traffic Generation – Construction

Peak construction traffic impacts have not specifically been considered as part of this report. However, cut and fill quantities of construction have been calculated as a net zero. Therefore the level of traffic generated by the construction activities is anticipated to be relatively low and comparable to typical traffic levels generated by industrial developments.

Given the subject site is located within an industrial area, and the construction period will be relatively short, it is not anticipated that the peak construction traffic will significantly impact the safety and efficiency of the surrounding road network.

Traffic Generation – Operations

The proposed operating hours of the site is from 7:00am to 6:00pm, Monday to Friday, 50 weeks per year.

It is worth noting that the peak periods have been measured during 7:30AM-8:30AM and 4:30-5:30PM, therefore this is a conservative assessment by overlapping the peak hour operational trips during the peak hour time frames. It is anticipated that the operational movements will not impact on the overall peak hour movements as the operational hours do not sit directly on the peak hour period.

Table 5-1 illustrates the normal operational movements provided by Forestrack and Table 6-1 illustrate the emergency response traffic movements. It is typically standard practice to assume 20% of the daily movements operate in the peak hour. This development however will operate whenever an emergency response is required which may occur off peak. The assessment herein will assess during the peak AM or PM conditions for a worst case traffic scenario.

Table 5-1 Normal operations

Vehicle Type	Daily Trips	% of Daily Trips in Peak	AM Peak Trips	PM Peak Trips
Staff / cars / utes / SUV / 4WD	12	20%	2	2
Low Loader	2	20%	1*	1*
Delivery Vehicles	12	20%	2	2
Public / Training	6	20%	1	1

*, denotes rounded to nearest whole number.

Table 6-1 Emergency/Active Bushfire Operations

Vehicle Type	Daily Trips	% of Daily Trips in Peak	AM Peak Trips	PM Peak Trips
Staff / cars / utes / SUV / 4WD	12	20%	2	2
Low Loader	3	20%	1	1
Delivery Vehicles	15	20%	3	3
Public / Training	12	20%	2	2

Traffic Distribution

In order to best model the movements generated by the proposed relocation, Forestrack have advised that the existing route currently being undertaken from 78 Sheppard Street will be the same route for future operations. Figure 7 illustrates the existing path currently used for operations and the future route for operations.

The new route illustrates the only major intersection the operational traffic will utilise will be the Monaro Highway / Sheppard Street intersection. As construction works will be to the North the south option will be the preferred route.

The SIDRA sections below will assess the capacity and operation of the Monaro Highway / Sheppard Street intersection illustrated in Figure 7.



Figure 8 Traffic Distribution (Existing and new)

Design Traffic Volumes

Table 3 outlines the design volumes inputted into SIDRA for assessment of the Monaro Highway / Sheppard Street intersection. Assumptions made on traffic volumes are outlined in Table 3.

Table 2 Design traffic volumes at Monaro Highway / Sheppard Street

Scenario						
2021 Baseline <i>(italic and underline indicates PM volume)</i>	<u>133</u>	158	R	Monaro Highway South		
	L	R	T	1496	<u>2977</u>	
	202	202	L	75	<u>149</u>	
	<u>203</u>	<u>203</u>				
	Sheppard St			Assumptions Left Turn Movement is 5% of through movement Left Turns out = Right turns out		
2022 Baseline <i>(italic and underline indicates PM volume)</i>	<u>136</u>	161	R	Monaro Highway South		
	L	R	T	1526	<u>3037</u>	
	206	206	L	76	<u>152</u>	
	<u>207</u>	<u>207</u>				
	Sheppard St			Assumptions Left Turn Movement is 5% of through movement Left Turns out = Right turns out		
2032 Baseline <i>(italic and underline indicates PM volume)</i>	<u>148</u>	175	R	Monaro Hwy		
	L	R	T	1661	<u>3304</u>	
	224	224	L	83	<u>165</u>	
	<u>225</u>	<u>225</u>				
	Sheppard St			Assumptions Left Turn Movement is 5% of through movement Left Turns out = Right turns out		
2022 Baseline + Dev <i>(italic and underline indicates PM volume)</i>	<u>134</u>	160	R	Monaro Hwy		
	L	R	T	1511	<u>3007</u>	
	204	209	L	76	<u>155</u>	
	<u>205</u>	<u>205</u>				
	Sheppard St			Assumptions Left Turn Movement is 5% of through movement Left Turns out = Right turns out		
2032 Baseline + Dev <i>(italic and underline indicates PM volume)</i>	<u>148</u>	175	R	Monaro Highway South		
	L	R	T	1661	<u>3304</u>	
	224	229	L	83	<u>170</u>	
	<u>225</u>	<u>225</u>				
	Sheppard St			Assumptions Left Turn Movement is 5% of through movement Left Turns out = Right turns out		

6. Intersection Performance Analysis

Section 5 outlines all the reasoning behind choosing to model the Monaro Highway / Sheppard Street intersection. The SCATS layout is also included in Figure 9 with the phasing plan of the intersection.

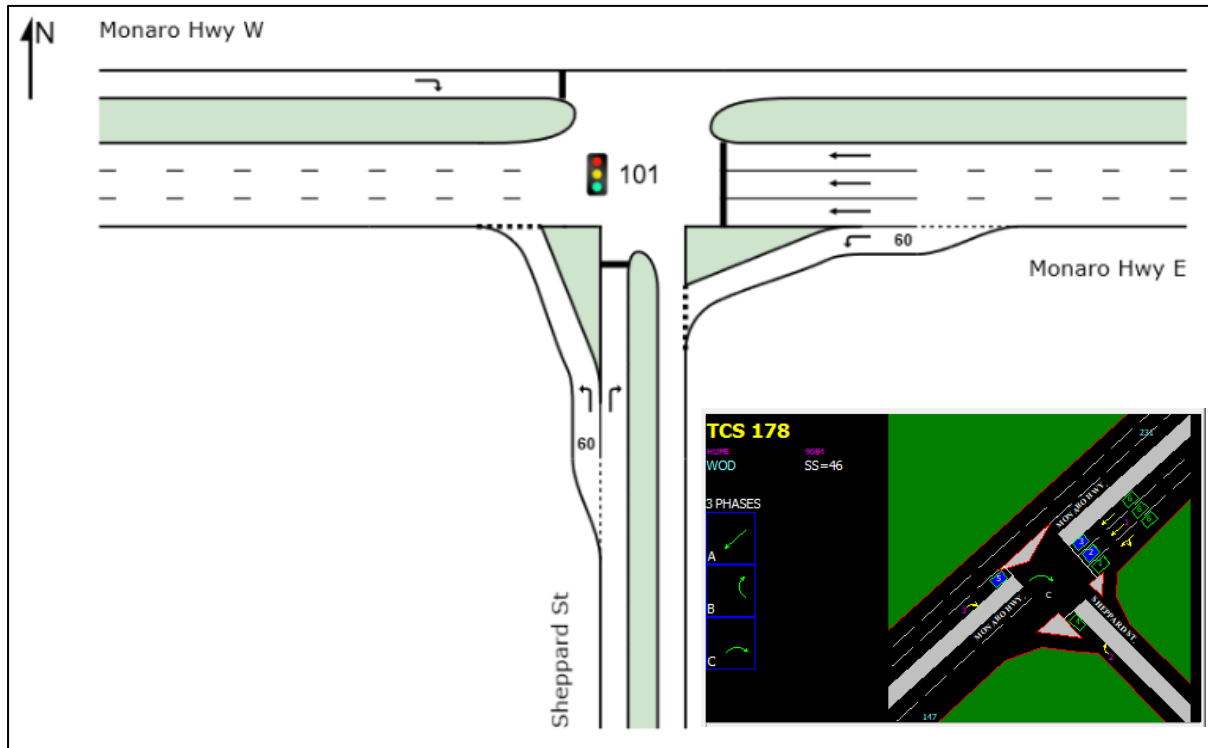


Figure 9 SIDRA Geometry of Monaro Highway / Sheppard Street

Table 4 illustrates the results of the above layout with the design volumes in Table 3.

Table 3 SIDRA results summary of Monaro Highway / Sheppard Street

Scenario	AM Peak			PM Peak		
	DOS (veh/cap)	Delay* (s)	Queue (m)	DOS (veh/cap)	Delay* (s)	Queue (m)
2021 Baseline	0.773	18.9	87.1	0.898	31.9	397.7
2022 Baseline	0.783	19.1	88.9	0.907	33.7	416.3
2032 Baseline	0.856	22.3	110.3	0.978	59.5	734.0
2022 + Development	0.783	19.2	88.9	0.908	33.8	417.6
2032 + Development	0.856	22.4	110.3	0.978	59.8	736.8

*, Average Delay

The results indicate that all AM scenarios are within typical thresholds of DOS (DOS<0.9 for signalised intersections). The 2022 Baseline, and 2032 Baseline in the PM however do go above DOS thresholds. This indicates that despite the development relocation and additional trips, the intersection will already

go over capacity. The proposed relocation of the emergency services facility does not exacerbate the current forecast of traffic conditions in the future.

7. Summary

In light of the above, key findings are summarised below:

- The proposed site will be a relocation from the existing site to improve training facilities and ancillary amenities
- Upgrades are currently underway along the Lanyon Drive and Monaro Highway
- The proposed travel route will go south toward Monaro Highway / Sheppard Street intersection (like the current route from 78 Sheppard Street)
- The peak hour traffic generation will be approximately 5-6 trips in the peak hours
- The existing background traffic along the Monaro Highway / Sheppard Street will put the intersection above capacity thresholds in the future regardless of the relocated development trips
- The proposed relocation of the emergency services facility does not exacerbate the current forecast of traffic conditions in the future.

8. Appendices



MGA 94
ZONE 55

925m²
R.L. 589.5
BUILDING C

10m

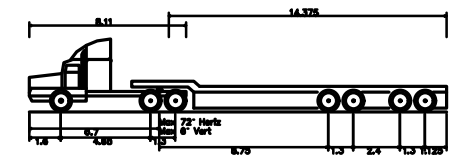
5.00

25m

2

587

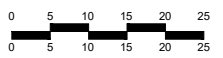
SHEPPARD



Prime mover and low loader	21.575m
Overall Length	2.500m
Overall Width	3.750m
Overall Body Height	0.750m
Min Body Ground Clearance	2.500m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

NOT FOR CONSTRUCTION

1:500@A1
SCALE
1:1000@A3



**SHEPPARD STREET
VEHICLE TRACKING
SITE ENTRY**

INFORMATION DOCUMENT

JJR-3210409A-ID001



AT A3 SIZE DRAWING