

28 July 2022

Our Ref: 20GCT0106\_LT01

Your Ref:

Attention: Leo Mewing

Mewing Planning Consultants  
by email

Dear Leo,

**RE: 5 Hercules Street, Hamilton – Traffic Engineering**

## 1. Introduction

TTM Consulting has been engaged to prepare a traffic engineering report investigating a proposed mixed use development within the Northshore Hamilton PDA. This report has been prepared in support of an application to Economic Development Queensland (EDQ).

## 2. Existing Site Conditions

The site is located at 5 Hercules Street, Hamilton, on the north-east corner of the intersection between Hercules Street and Main Street.



Figure 1: Site location

The property is described as Lot 1 on SP231749 and has road frontage to Hercules Street and Main Street and is currently occupied by a commercial property.

### 3. Existing Transport Infrastructure

**Roads** - All roads within 200m of the site are administered by Council – the exception being Main Street which is a private road. Neighbourhood/local roads are subject to a 50kph speed limit and generally have two traffic lanes plus kerbside parking lanes. Kingsford Smith Drive is the nearest arterial road located 150m to the north of the site. Kingsford Smith Drive provides access to the broader Brisbane network, is subject to a 60kph speed limit and is 2/3 lanes wide in both directions. The intersections of Hercules Street with Kingsford Smith Drive are signalised.

**Public transport** - Doomben and Ascot train stations on the Doomben line are located approximately 1.2km to the northeast and northwest of the site respectively. Bretts Wharf Citycat ferry terminal is located 380m walk to the south west of the site.

The nearest on-street bus stop is located on Remora Road 350m west of the site. The stop services routes 302, 303 and 304, connecting the site with Eagle Farm, Pinkenba, Newstead and Brisbane CBD.

Located 450m away on Kingsford Smith Drive near the Bretts Wharf Citycat ferry terminal, additional stops are provided that service routes 300, 302 and 305, connecting the site with both Toombul Centro and the Brisbane CBD.

These routes provide a weekday service generally every 15-20 minutes, and weekend services generally every 30 minutes.

**Cyclists** - An off-road cycle path extends across the site frontage along Hercules Street and also from the nearby cruise ship terminal westward toward Newstead, between Kingsford Smith Drive and the river's edge. Other on-street routes connect Kingsford Smith Drive to Doomben and Ascot train stations.

**Pedestrians** - Formal pedestrian footpaths are located on both sides of all roads in the immediate vicinity of the site, and signalised pedestrian crossings are incorporated into nearby intersections with Kingsford Smith Drive.

**Planning** – Kingsford Smith Drive has recently undergone significant upgrade to six lanes between Cooksley Street, Hamilton to Theodore Street, Eagle Farm. Review of LGIP mapping shows no planned road upgrades in the immediate vicinity of the site, or other works which will impact upon or be impacted by the proposed development.

A new bus corridor is proposed along Hercules Street and MacArther Avenue - as per the proposed amendment to the Northshore Hamilton PDA Development Scheme.

An indicative pedestrian pathway is proposed along Main Street and a proposed indicative cross block link opposite the site, connecting to the Brisbane River as per proposed amendment to the Northshore Hamilton PDA Development Scheme

#### 4. Proposed Development

The development proposes a 97m<sup>2</sup> café and 114m<sup>2</sup> retail at ground level, with 100 residential units and 234m<sup>2</sup> of commercial office space on the levels above.

Two basement levels provide parking for 74 cars, and three podium levels provide parking for 80 cars – for a combined provision of 154 spaces. The site provides 117 bicycle spaces across the parking levels of which 12 freely accessible spaces are located at ground level. Standing for an MRV is also accommodated within the driveway.

The access arrangements include a 6.5m wide driveway crossover located on the southern boundary of the site direct to Main Street – to which the site has access easement rights. The access is priority controlled with all turns permitted.

#### 5. Car Parking Supply

The Northshore Hamilton UDA Development Scheme identifies expected car parking rates for development, and these are outlined in Table 1 below.

Table 1: Current Development Scheme Car Parking Supply Requirement

Land Use	Park Rates	Extent	Requirement Spaces
Residential	1 space per dwelling unit	100 units	100
Retail	1 space per 100m <sup>2</sup>	211m <sup>2</sup>	3
Commercial	1 space per 50m <sup>2</sup>	234m <sup>2</sup>	5
<b>Total</b>			<b>108</b>

The development is proposing to provide 154 parking spaces. The development scheme does not indicate whether this represents a minimum or a maximum. Notwithstanding this, in TTM's opinion the number of car parking spaces proposed reflects the expected demand for the development.

We are aware of the draft Development Scheme being prepared by EDQ, which contains emerging policy outcomes. As a means of confirming the suitability of car parking for the proposed development we have reviewed the draft development scheme and note that it includes a minimum and maximum parking rate for residential units. In this case the minimum would be 75 spaces and the maximum would be 200 spaces. The 154 spaces proposed sits comfortably within this band and confirms the suitability of the proposed car parking in the development.

PWD parking is required to be provided at a rate of 1 space per 100 standard spaces or part thereof. The site provides 2 PWD spaces which satisfies the minimum requirement.

## 6. Car Park Layout

The characteristics of the proposed car parking area with respect to the EDQ requirements are reviewed against AS2890.1. The key aspects of the parking area comply with the following designs standards:

- User class 1A Standard bays – 5.4m x 2.4m
- Parking and circulation aisles – 6.2m (minimum)
- One way ramps – minimum 3.0 plus 0.3m clearance to walls
- Ramp grades – 1:5 (20%) with 1:8 (12.5%) summit and sag transitions
- Height clearances are minimum 2.2m over aisles and standard spaces, and 2.5m over PWD spaces and adjacent shared area.
- 1.0m minimum aisle extension is provided to blind aisles

## 7. Ramp Operation

The site proposes a one way ramp from ground to basement and ground to podium. Both ramps will be signal controlled due to single lane width. It is proposed that inbound vehicles have priority, and therefore outbound vehicles will be required to stop on the basement and podium levels to allow inbound vehicles to enter.

The entry signal from Main Street will be default green to prioritise entry movements. When a vehicle on the podium approaches to exit, the ground entry signal and basement 1 exit signal will revert to red to allow the podium vehicle to exit. Upon exit the ground signal will revert back to green.

TTM have undertaken swept path analysis of the podium ramp entry and exit movement to demonstrate suitability of the proposed arrangement – refer to TTM Drawings 20GCT0017-01 to 03 attached.

A single lane ramp is also proposed between podium levels 2 and 3. This ramp will also be controlled via a signal with vehicles on podium level 2 on stop to allow podium level 3 vehicles to exit – and in reverse for the opposite direction. This signal will operate independent of the ground level system.

On entry from Main Street, the site provides a hold point that accommodates two queuing vehicles within the property boundary, whilst allowing vehicles to pass to exit.

The development trip generation is identified to be 19vph in peak periods – with the PM providing the highest inbound flow of 14vph – this is equivalent to 1 vehicle every 4 minutes. The travel time between the ground and next level is limited to less than 1 minute, therefore the potential for more than one vehicle queue at any one time is unlikely. Additionally, the signal defaults in the peak periods give priority to the peak flow movement further limiting incidents of queuing in the driveway.

## 8. Cycle Parking

The development cycle parking identified in the current development scheme as a deemed-to-comply outcome is presented in Table 2 below.

Table 2: Current Development Scheme Cycle Parking Supply Requirement

Land Use	Bicycle Parking Rates	Extent	Spaces
Residential	1 space per dwelling unit	100 units	100
Visitor	1 space per 400m <sup>2</sup>	6,200m <sup>2</sup>	15
Retail staff	1 space per 200m <sup>2</sup> NLA	211m <sup>2</sup>	1
Retail visitor	1 space per 1,000m <sup>2</sup> NLA	211m <sup>2</sup>	1
<b>Total</b>			<b>117</b>

Space for 117 bicycle parking spaces is provided throughout the development, of which 12 spaces are located at ground level for use by visitors and retail customers, and the remainder distributed over podium and basement carparking for residents and their legitimate visitors.

Cycle parking layout accords with AS2890.3 requirements of 500mm wide envelope per cycle and 1.5m access aisles.

## 9. Site Access Arrangements

The site is accessed from a local road and serves 154 low turnover car park spaces. The proposed access driveway requirements are identified in Table 4.

Table 3: Driveway requirements

Design Aspect	Requirement	Proposed Provision	Compliance
Distance from a minor intersection	6m (min) from tangent point.	60m	Compliant
Distance from another driveway	3.0m (min)	3.8m	Compliant
Sight Distance – 30kph (estimated for low speed road)	Desirable – 42m Minimum – 17m	60m in both directions	Compliant
Driveway Design Type (Local road, 25-100 spaces)	Category 2	Category 2	Compliant
Driveway Width	6.0m - 9.0m combined	6.5m combined	Compliant
Pedestrian Sight Triangle	2.5m by 2.0m	2.5m by 2.0m	Compliant

The site access arrangements are considered to be appropriate for the site use and location.

## 10. Service Vehicle Arrangements

The proposed development is comprised of multiple dwellings, retail and commercial land uses. Standing room for an MRV (8.8m L x 2.5m W x 4.5m H) on site is provided in the driveway – refer to TTM Drawing 20GCT0017-04 attached.

The site provides a 4.5m height clearance over the driveway which is sufficient to accommodate an MRV.

The bin room is located at ground level adjacent to the driveway. It is proposed that bins be moved to the collection on-site in the vicinity of the Main Street driveway entry for collection when required. Collection from the Hercules Street frontage is not considered appropriate due to the presence of the cycle network at this frontage.

### Refuse Collection

The expected refuse volumes generated by the mixed-use development are shown in the tables below. They are reflected in the proposed bin numbers required for the building. The residential refuse calculations are based on 3 collections per week for waste and recycling.

Table 4: Waste Generation Rates

Type	Measure	Source	General Waste	All Recycling
Residential Rates	Unit / Week	Brisbane City Council	240	240

Table 5: Residential Refuse Summary

Level	Description	Quantity	Measure	General Waste (L/Week)	Commingled Recycling (L/Week)
All Residential Levels	All Bedrooms	Units	100	24,000	24,000
<b>Volumes (L / Week)</b>				<b>27,360</b>	<b>27,360</b>
<b>Compacted Volumes (L / Week)</b>				<b>8,000</b>	<b>-</b>
<b>Collections Per Week</b>				<b>3</b>	<b>3</b>
<b>Collection Volumes</b>				<b>2,667</b>	<b>8,000</b>
<b>Bins required per collection (*+1 bin to remain on equipment.)</b>				<b>3 +1*</b>	<b>7 +1*</b>

Commercial refuse calculations are based on 2 collections per week for waste and recycling. Waste generation rates used are from Brisbane City Council WaRRS team. These are not published rates or audit verified.

Table 3: Waste Generation Rates

Type	Measure	General Waste	All Recycling	Days of Operation
Food and Beverage Outlets	L / 100m <sup>2</sup> / Day	300	200	7
Office	L / 100m <sup>2</sup> / Day	10	20	5

Table 4: Retail Refuse Summary

Level	Description	Quantity	Measure	General Waste (L/Week)	All Recycling (combined) (L/Week)
Ground Floor	Café	GFA (m <sup>2</sup> )	97	2,037	1,358
	Retail	GFA (m <sup>2</sup> )	108	2,268	1,512
Level 1	Office	GFA (m <sup>2</sup> )	85	43	85
Level 2	Office	GFA (m <sup>2</sup> )	125	63	125
Level 3	Office	GFA (m <sup>2</sup> )	85	43	85
Total Volumes (L / Week)				4,453	3,165
Collections Per Week				2	2
Collection Volumes				2,544	1,809
Bin size (Litres)				1100	1100
Bin numbers				3	2

### Refuse Collections

All refuse will be collected on-site. Refuse collection vehicles will enter the site via Main Street and park in the loading bay on the ground floor, the gradient of the loading bay is at least 1:20. Residential and commercial bins are collected from their respective storage areas adjacent to the loading area for emptying and returned once emptied.

Residential bins will be serviced by Council. Bin numbers have been calculated at 3 collections per week for waste and recycling.

Commercial bins will be serviced by a private contractor. Bin numbers have been calculated at 2 collections per week for waste and recycling.

Refer to the traffic management report for details about refuse collection vehicle site access and manoeuvring.

### Refuse Storage and Transfer

#### Residential

Based on 3 collections per week for general waste and recycling, the following bins and equipment are required:

- 3 x 1100L general waste bins, plus 1 x 1100L waste bin to remain on equipment.
- 2 x 1100L bin linear rotation system with under-chute waste compactor is recommended. (Compaction ratio 3:1, in line with BCC requirements).
- 7 x 1100L recycling bins, plus 1 x 1100L bin to remain on equipment.
- 3 x 1100L bin linear rotation system is recommended.

- Chain Mesh Fence, with gates, is recommended to be installed around the rotation systems, where contractors are required to enter the room.

All bins and equipment are stored within the refuse / chute discharge room located on ground floor adjacent to the RCV loading area.

#### Commercial Refuse

For the Commercial / Retail refuse, the following bins are recommended, based on 2 collections per week for waste and recycling:

- 3 x 1100L general waste bins.
- 2 x 1100L commingled recycling bin

The bin and equipment numbers above apply as a maximum requirement and depend on the operation of the building and the occupants' attitudes to waste disposal and recycling. All refuse bins are stored with the dedicated commercial / retail refuse room located on ground floor adjacent to the RCV loading area.

#### Refuse Disposal

##### Residential Refuse

Residents dispose their waste via the dual chute system which discharges into the respected equipment systems located in the chute discharge room on ground level.

##### Commercial Refuse

Staff or cleaners will transfer all refuse from the commercial / retail outlets directly into the retail bin room located on ground floor. Small (caddy) bins or refuse trolleys may be used for refuse transfer.

## **11. Impact Assessment**

TTM are aware that comprehensive planning was undertaken to inform the design of the upgraded road network in the vicinity of the site, which included accounting for traffic generated by the land uses and developments outlined within the sub-precinct plan. These upgrades were based on a Transport Study for the Hamilton Northshore PDA undertaken by Cardno in February 2016. The Transport Study details the Brookfield, Peleton, Pamada, Citimark, Wentworth (Precinct 3c) as generating a total of 1,020vph (including 306vph for residential, 221vph for commercial use, 359vph for retail use and 134vph for hotel) during the peak hour periods.

In the undertaken study, Cardno adopted the traffic generation rates outlined in RMS' Supplementary Guide to Traffic Generating Developments to calculate the traffic generating potential of the precinct. The AM and PM peak hour traffic generation rates adopted for the proposed residential land use were 0.19vph per unit.



The 306vph identified in the Cardno report represents 1,609 units, of which 132 units (25vph) were 'anticipated' across the development site.

The development proposes 100 residential units, which equates to a total trip generation in peak periods of 19vph. The development provides 32 less units, with an associative 6 less trips in the peak periods.

The development is therefore considered to be provided within acceptable limits and is not expected to impact on the design horizon of the local road network for which it has been designed. A detailed impact assessment is not warranted or required.

## 12. Conclusion

The development proposes 100 multiple dwelling units, with ancillary commercial and retail uses. TTM have reviewed the traffic and transport aspects of the development throughout this report and provide the following conclusions.

- The car parking provisions are compliant with EDQ requirements and the layout is geometrically compliant.
- The internal ramps and access will be controlled via a series of hold points and stop/go signals.
- The cycle parking provisions are considered suitable for the site and location.
- The site access arrangements are geometrically compliant with EDQ requirements.
- Service requirements for the site can be achieved via vehicles up to and including size MRV to stand on site.

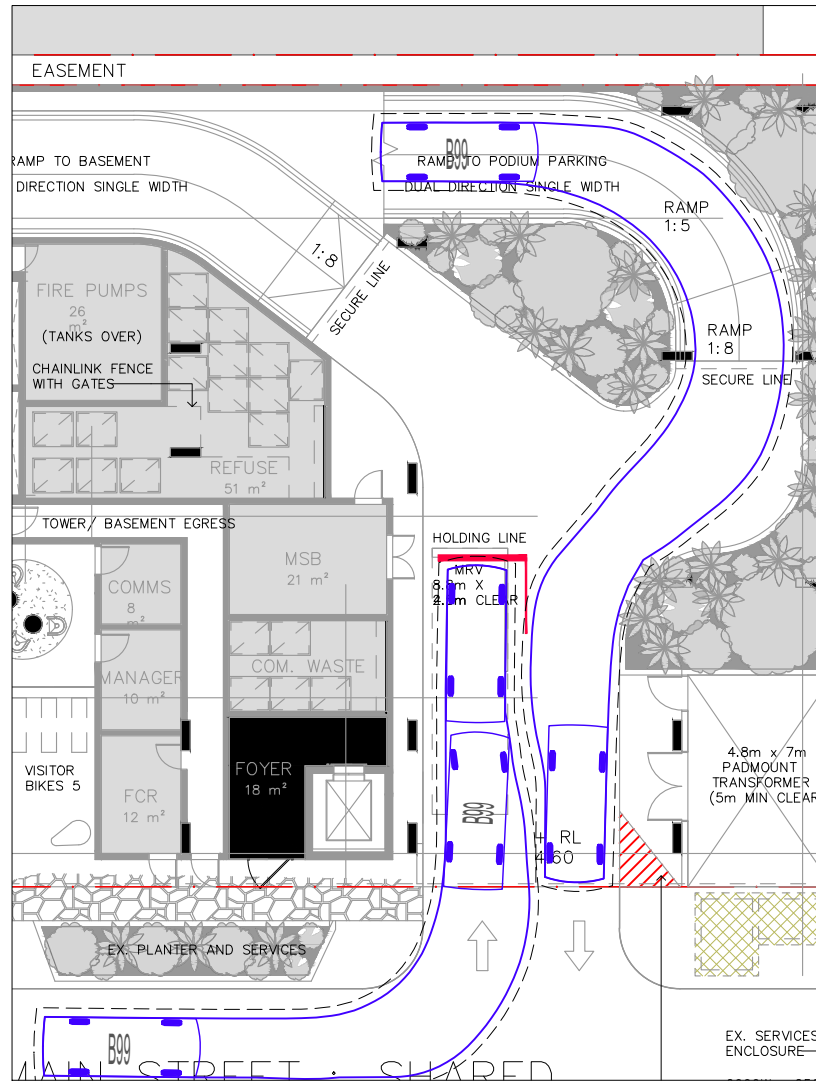
Based on this assessment, TTM see no traffic engineering reason why the relevant Development Approval cannot be granted.

Yours sincerely,

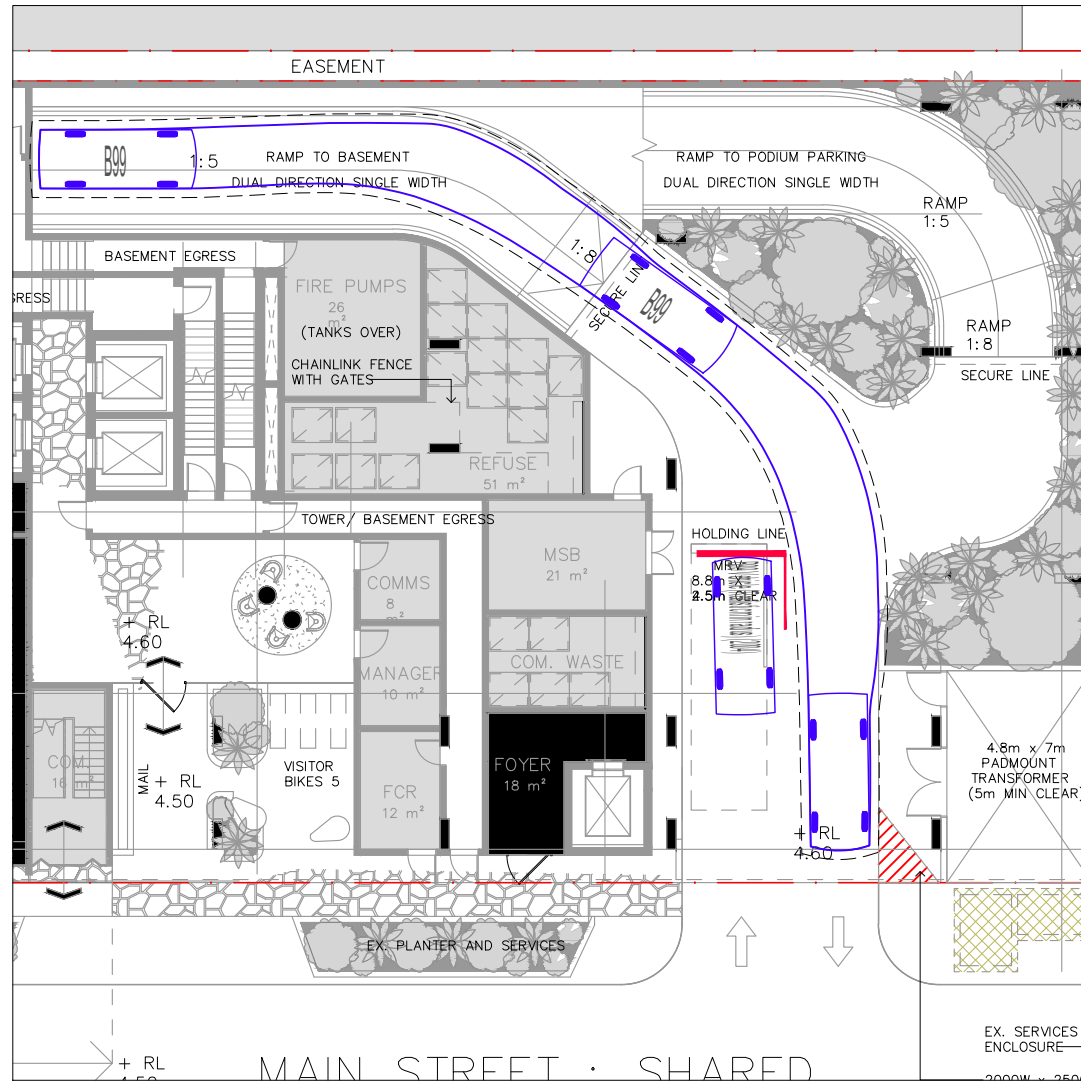


Ilona Blackburn  
Senior Associate Director | RPEQ 16879  
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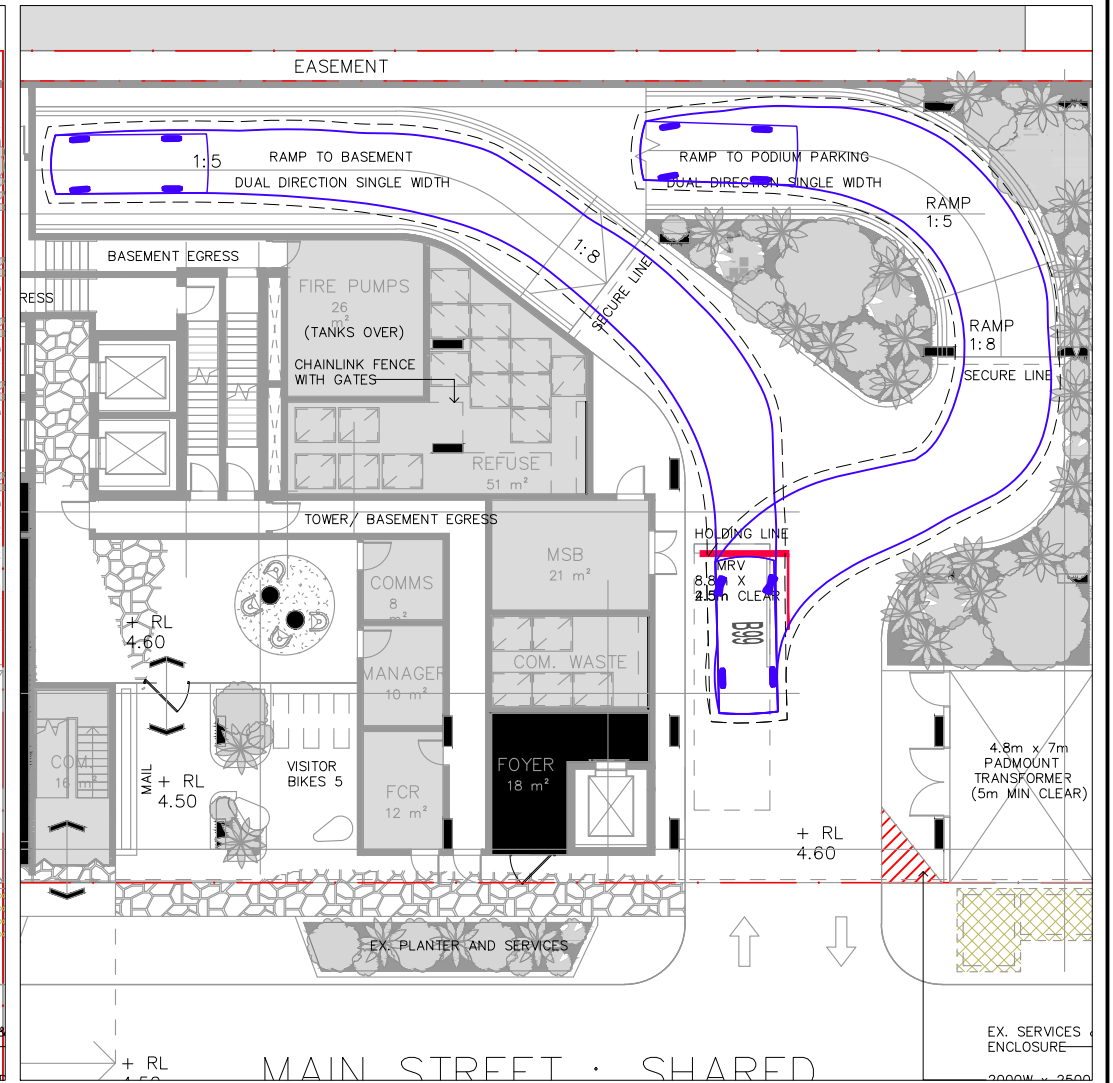
Attachment 1 – Swept Path Analysis



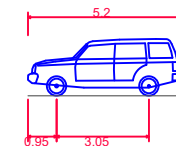
ENTRY TO HOLD POINT & PODIUM EXIT



BASEMENT EXIT WITH VEHICLE AT HOLD LINE

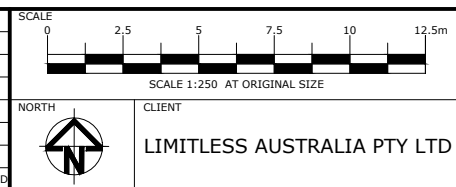


ENTRY TO BASEMENT & PODIUM FROM HOLD POINT



**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  
 Design Speed Forward 5.00km/h  
 Clearance Envelope 0.300m

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
A	20-07-22	ORIGINAL ISSUE	SM	IB	IB



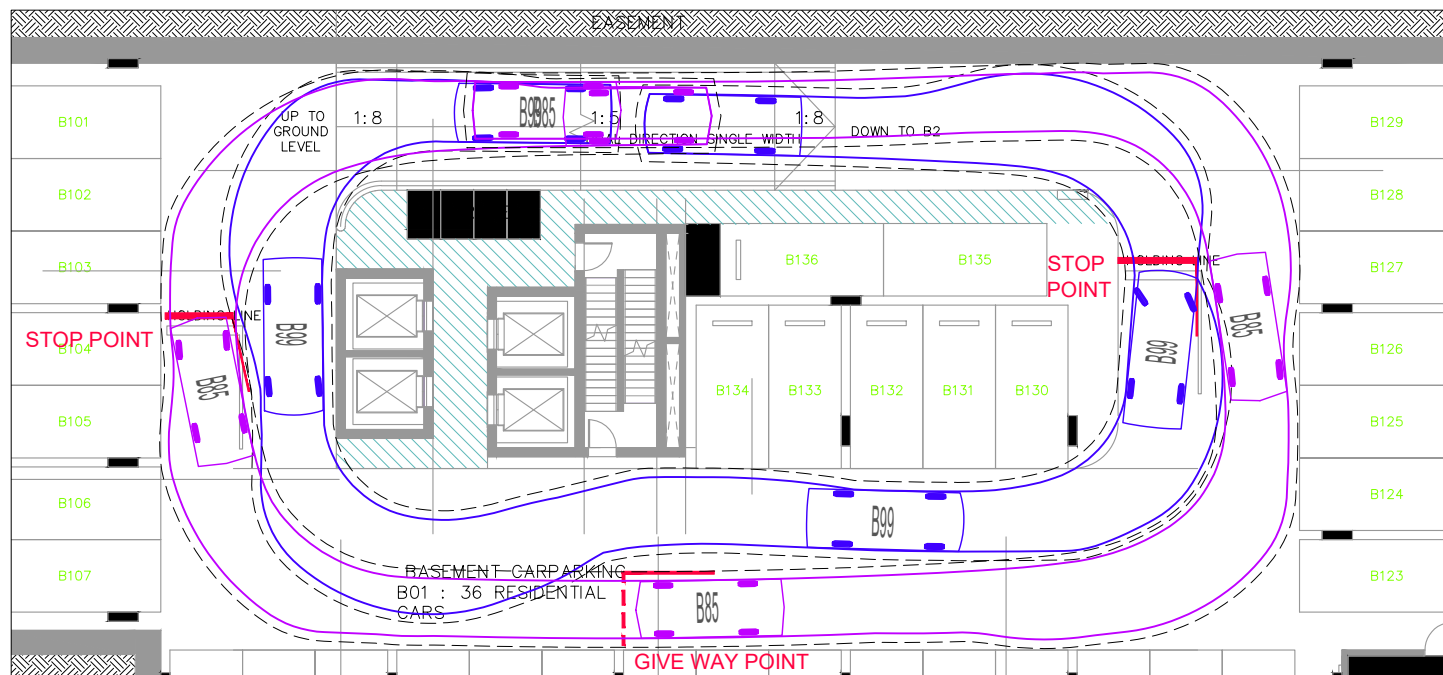
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**CLIENT**  
 LIMITLESS AUSTRALIA PTY LTD

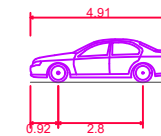
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 5 HERCULES ST, HAMILTON

**DRAWING TITLE**  
 SWEEP PATH ANALYSIS  
 GROUND LEVEL - RAMP HOLD POINT OPERATION

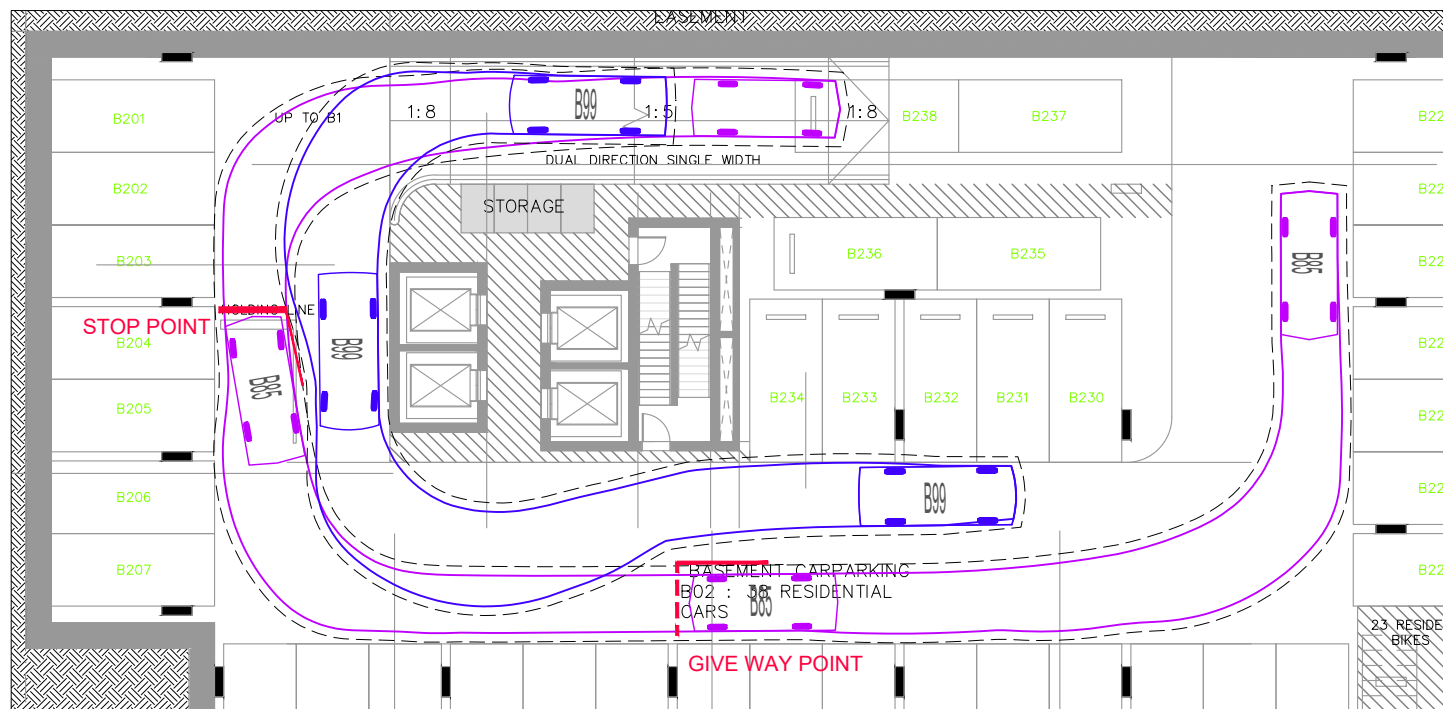
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20GCT0106	A3
DRAWING NUMBER	REVISION
20GCT0106-01	A
DATE	SHEET
20 Jul 2022	1 OF 1



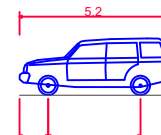
**BASEMENT 01**



**B85 Vehicle (Realistic min radius) (2004)**  
 Overall Length 4.910m  
 Overall Width 1.870m  
 Overall Body Height 1.421m  
 Min Body Ground Clearance 0.159m  
 Track Width 1.770m  
 Lock-to-lock time 4.00s  
 Curb to Curb Turning Radius 5.750m  
 Design Speed Forward 5.00km/h  
 Clearance Envelope 0.300m

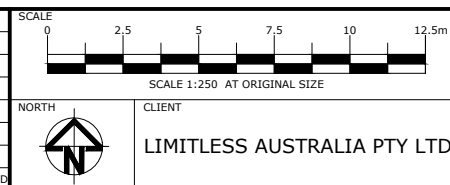


**BASEMENT 02**



**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  
 Design Speed Forward 5.00km/h  
 Clearance Envelope 0.300m

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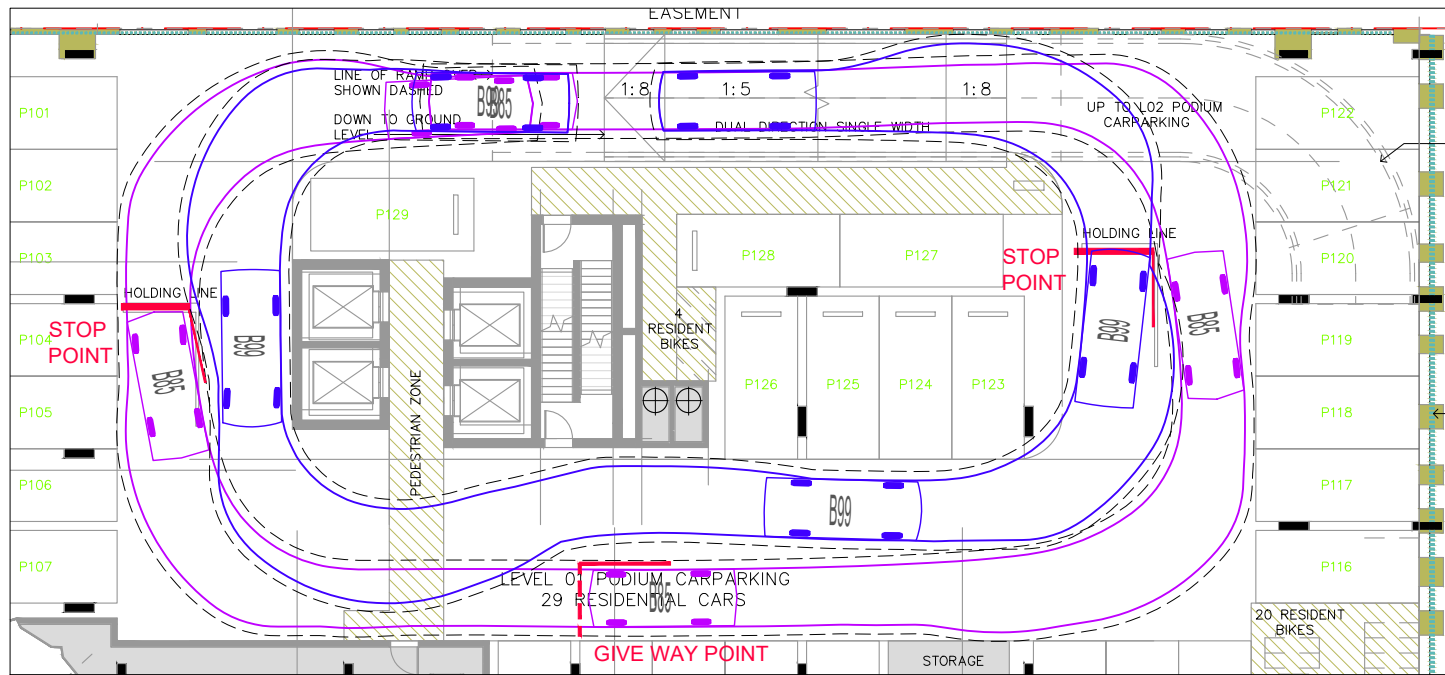
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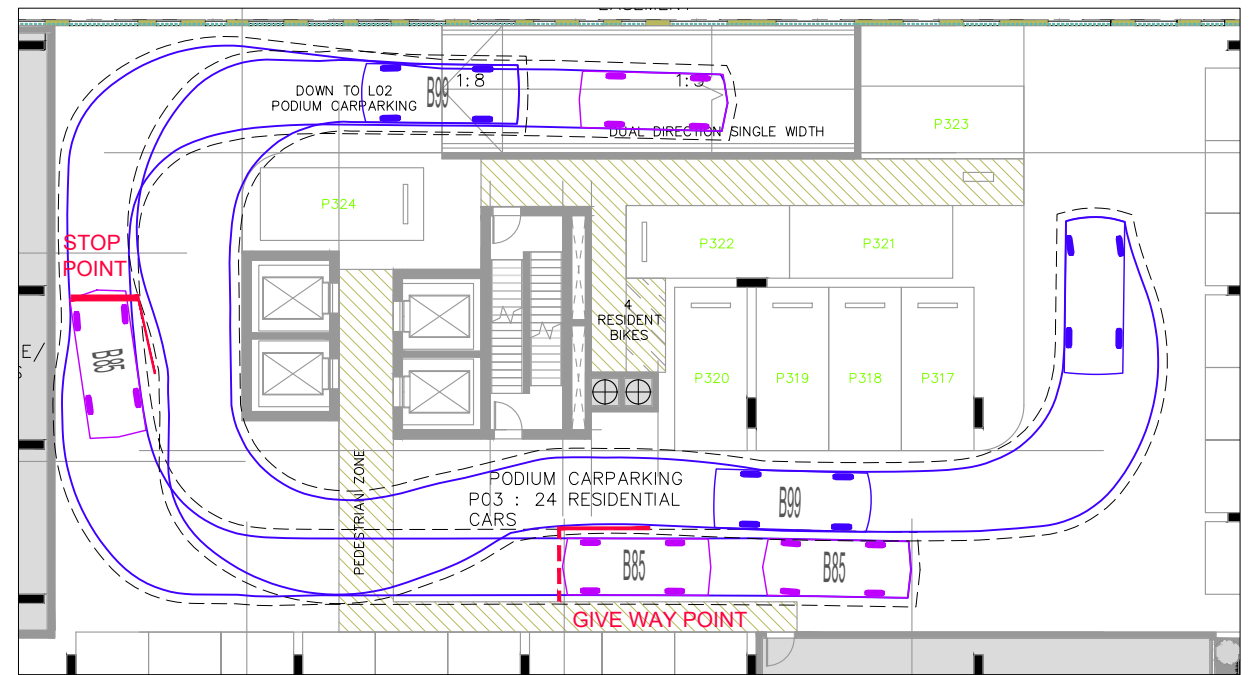
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 5 HERCULES ST, HAMILTON

**DRAWING TITLE**  
 SWEEP PATH ANALYSIS  
 BASEMENT LEVELS - HOLD POINT OPERATION

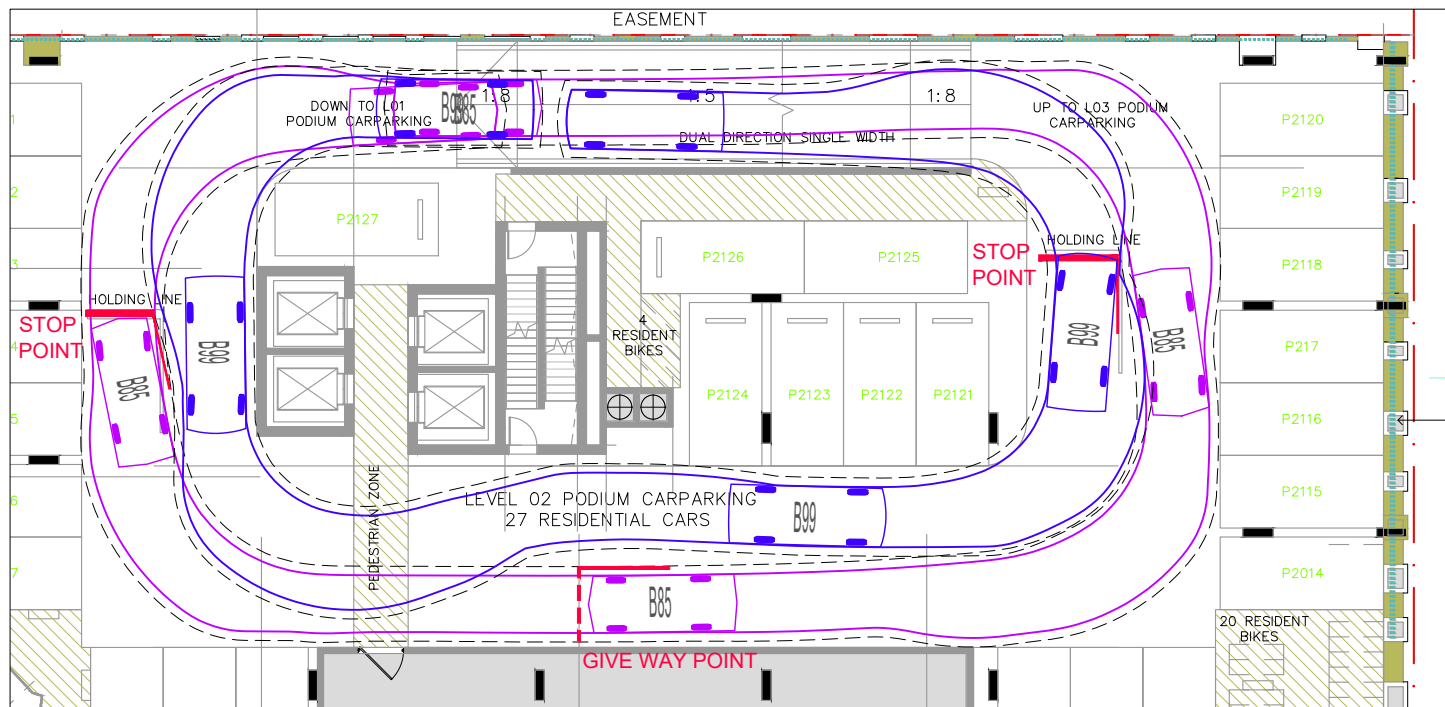
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DRAWING NUMBER	REVISION
20GCT0106-02	A
DATE	SHEET
20 Jul 2022	1 OF 1



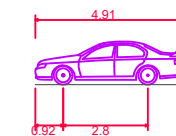
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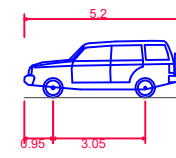
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PODIUM 02

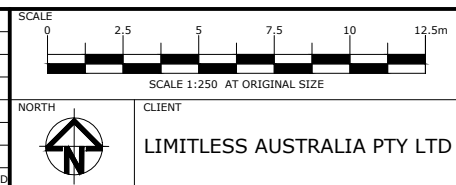


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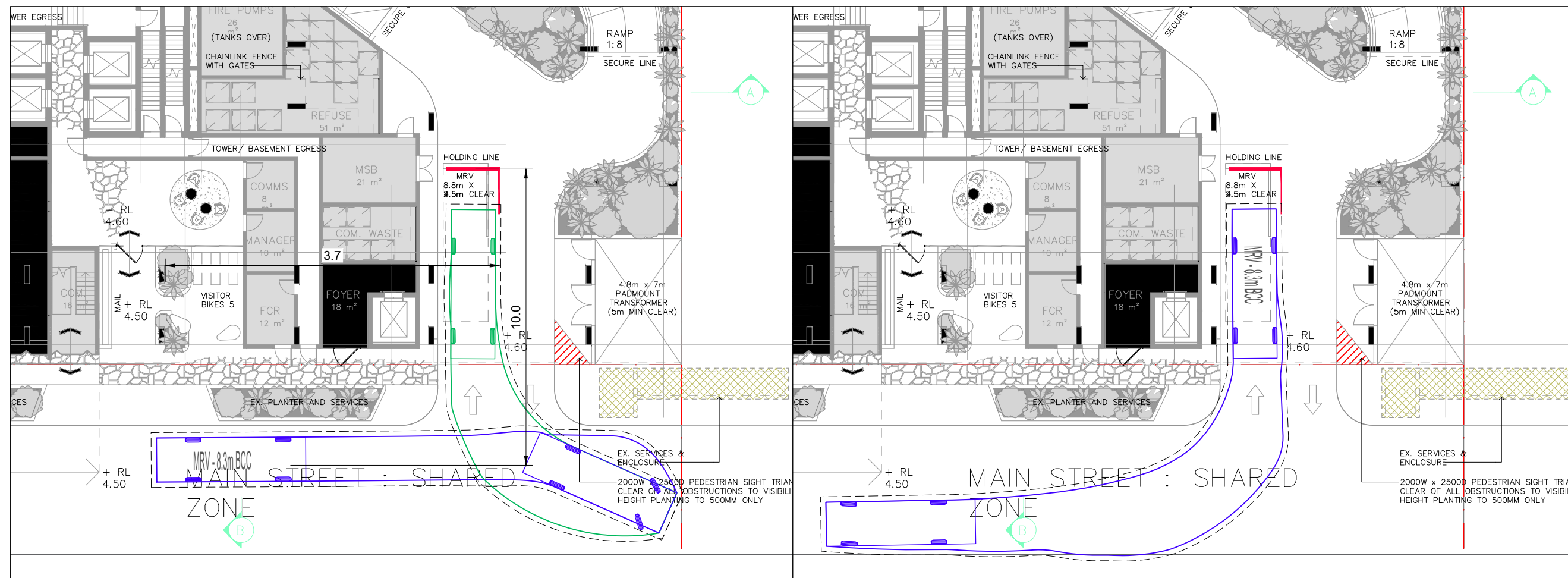
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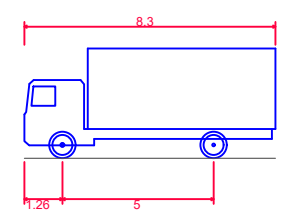
PROJECT  
**5 HERCULES ST, HAMILTON**  
 DRAWING TITLE  
**SWEPT PATH ANALYSIS**  
 PODIUM LEVELS - HOLD POINT OPERATION

PROJECT NUMBER	ORIGINAL SIZE
20GCT0106	A3
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20GCT0106-03	A
DATE	SHEET
20 Jul 2022	1 OF 1



REVERSE ENTRY

FORWARD EXIT



**MRV - 8.3m BCC**  
 Overall Length 8.300m  
 Overall Width 2.450m  
 Overall Body Height 3.633m  
 Min Body Ground Clearance 0.428m  
 Track Width 2.450m  
 Lock-to-lock time 4.00s  
 Curb to Curb Turning Radius 8.500m  
 Design Speed Forward XX.Xkm/h  
 Clearance Envelope 0.500m

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PROJECT  
**5 HERCULES ST, HAMILTON**  
 DRAWING TITLE  
**SWEPT PATH ANALYSIS**  
 GROUND LEVEL - MRV DESIGN VEHICLE

PROJECT NUMBER	ORIGINAL SIZE
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