

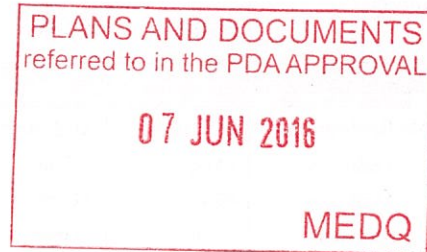
3 February 2016

Our Ref: 15BRT0678let-160203

Your Ref:

**Attention: Katherine Matthews**

Shayher Developments Pty Ltd  
C/- Urbis  
Level 7, 123 Albert Street  
BRISBANE QLD 4000



Dear Katherine,

**RE: "The Hamilton" Mixed Use Development  
15 – 33 Remora Road, Hamilton  
Traffic Engineering Supporting Letter for Stage 2 Development Application**

## 1. Introduction

TTM Consulting Pty Ltd (TTM) has been engaged by Shayher Developments Pty Ltd to provide a traffic engineering letter in support of a new development application for Stage 2 of "The Hamilton" mixed-use development at 15-33 Remora Road in Hamilton, to be submitted with Economic Development Queensland (EDQ). The original approval for the wider site (split into Stage 1 and Stage 2) was issued by EDQ on 27<sup>th</sup> June 2012, with subsequent changes the approval also made in September 2012 and May 2015 (EDQ Approval Ref DEV2012/254).

Stage 1 of the development was completed in 2015. It is now anticipated that Stage 2 will be started in 2016. Subsequent to the previous approvals, a number of changes have been made to the land uses for Stage 2; namely reconfiguration of the internal unit layouts to modify total unit numbers and mixture.

This letter investigates the car parking, access, servicing and bicycle provisions of the new Stage 2 development scheme against EDQ requirements and the existing approved development scheme.

## 2. Development Profile

The overall development scheme is largely consistent with the original approval. The new Stage 2 scheme still consists of shop/food premises uses on the ground floor and residential uses on ground and tower levels (within two buildings). The layouts of the residential buildings, however, have been amended slightly. A summary of the key characteristics of the new Stage 2 development scheme, and also a comparison to the approved development scheme, is provided in Table 1.

A copy of the development plans for the new Stage 2 scheme, prepared by JHA Architecture & Interior Pty Ltd, is provided in Attachment 1.

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**Table 1: Comparison of Approved and New Stage 2 Development Scheme Characteristics**

Characteristic	Approved Scheme			New Scheme			Difference
	Stage 1	Stage 2	Total	Stage 1 (Complete)	New Stage 2	Total	
Development Yield							
Multiple Residential	177 units	108 units	285 units	No change to that approved	95 units	272 units	-13 units
• 1 bedroom	84 units	49 units	133 units		-	84 units	- 49 units
• 2 bedroom	83 units	51 units	134 units		88 units	171 units	+ 37 units
• 3 bedroom	10 units	8 units	18 units		7 units	17 units	- 1 unit
Office	3,736m <sup>2</sup>	-	3,736m <sup>2</sup>		-	3,736m <sup>2</sup>	-
Shop/Food Premises	640m <sup>2</sup>	524m <sup>2</sup>	1,164m <sup>2</sup>		524m <sup>2</sup>	1,164m <sup>2</sup>	-
Parking Supply*							
Total Car Spaces	235 spaces	97 spaces	332 spaces	No change to that approved	97 spaces	332 spaces	No Change
• Standard spaces	229 spaces	93 spaces	322 spaces		93 spaces	322 spaces	
• PWD spaces	6 spaces	4 spaces	10 spaces		4 spaces	10 spaces	
Access Arrangements							
Internal Roadway				No change to that approved			
• Remora Road	6.2m /Type B2	-			-		-
• Finnegan Street	6.2m /Type B2	-			-		-
Basement Access							
• Finnegan Street	6.5m /Type B2	12m /Type B2 (modified)			14m /Type B2 (modified)		Modified Stage 2 access width
Servicing Provisions							
Service Area		RCV/MRV	RCV/MRV	No change to that approved	RCV/MRV	RCV/MRV	No Change
Loading Zone	12m zone (x2)	-	12m zone (x2)		-	12m zone (x2)	
Bicycle Provisions							
Total Bicycle Spaces	239 spaces	130 spaces	369 spaces	No change to that approved	130 spaces	356 spaces	No Change
• Resident	177 spaces	108 spaces	285 spaces		108 spaces	285 spaces	
• Employee	25 spaces	-	25 spaces		--	25 spaces	
• Visitors	25 spaces	34 spaces	59 spaces		34 spaces	59 spaces	

\*Parking split between Stage 1 and 2 is based on the staging line as per the approved "Staging Plan" (Drawing ASP, Revision 1, dated 8<sup>th</sup> April 2015).

Overall, the new Stage 2 scheme results in a reduction of 13 units. Given that a significant portion of the Stage 2 area (for example the basement car parking) was constructed as part of Stage 1, there is generally proposed to be no changes to parking, servicing and bicycle provisions for the wider site (and thus Stage 2 new Stage 2 provisions). It is noted, however, that minor modifications are proposed to the Stage 2 access arrangements which came about through the detailed design process.

Commentary in relation to each of these revised traffic engineering provisions is detailed in the following sections.



### 3. Car Parking Supply

The original approval for the wider site specified a provision of 332 parking spaces, including 319 spaces within the basement and 13 spaces on the ground floor (with 10 of the above spaces provided as PWD spaces either in basement or on ground floor). The original approval, however, did not distinguish the separation between Stage 1 and Stage 2. Based on the previous approved staging line, the parking allocations for the completed Stage 1 and proposed new Stage 2 scheme is generally as shown in Table 2.

**Table 2: Parking Allocations Between Stage 1 and Stage 2**

Parking	Basement	Ground	Total
Stage 1 (complete)	225 spaces (incl. 4 PWD)	10 spaces (incl. 2 PWD)^	235 spaces (incl. 6 PWD)
Stage 2 (new)	94 spaces (incl. 2 PWD)*	3 spaces (incl. 2 PWD)^	97 spaces (incl. 4 PWD)
<b>Total</b>	<b>319 spaces (incl. 6 PWD)</b>	<b>13 spaces (incl. 4 PWD)</b>	<b>332 spaces (incl. 10 PWD)</b>

\*Not including the car wash bay located in the north-west corner.

^Not including drop off spaces/zones and loading zones on the internal roadways.

Overall the parking provisions for the completed Stage 1 and new Stage 2 scheme is consistent with the total parking supply under the original approval.

Although the new Stage 2 scheme results in a reduction of 13 residential units, given the full extent of the basement car park (where the residential parking is to be located) was constructed as part of Stage 1 it is proposed that the approved parking supply will be retained. In essence, this would result in a total of 285 resident parking spaces being provided for 272 units (as opposed to 285 units under the original approval) which equates to a parking supply of 1.05 spaces per unit (as opposed to 1 space per unit under the original approval). This parking provision of 1.05 spaces per unit is only marginally more than the prescribed 1 space per unit rate detailed in the Northshore Hamilton Urban Development Area (NHUDA) Development Scheme.

This parking supply is still considered to be much lower than standard car ownership rates within the locality. TTM has reviewed information from the 2011 ABS Census Data can be used to identify car ownership rates for medium/high density dwellings based on types and sizes of units. Reviewing the data for the locality of the site (postcode area of 4007 which includes the suburbs of Ascot and Hamilton), the average car ownership rates for “flat” buildings equated to;

- 0.91 cars per unit for studio/1 bedroom units;
- 1.22 cars per unit for 2 bedroom units; and
- 1.59 cars per unit for 3 bedroom units.

Based on these average car ownership rates, the typically expected car ownership for a development site of this scale (with 84 one bedroom, 171 two bedroom and 17 three bedroom units) in this locality, if parking were not constrained, would equate to 312 cars. As such, the on-site parking provision of 285 cars represents 10% shortfall compared to expected car ownership demands; implying that residents of this site will exhibit lower-than-average car ownership trends.



This will lend itself to residents using alternative transportation methods such as walking, cycling and using public transport to cover the reduced availability of private vehicles for residents.

As such, this slightly increased resident parking provision is still considered to accord with the intent of the NHUDA Development Scheme in promoting/maximises usage of these alternative transportation means through restricting car ownership opportunities.

On this basis, the retaining the originally approved car parking provisions for the new Stage 2 scheme is considered acceptable.

## 4. Car Park Layout

The wider basement and ground floor car parking areas were constructed as part of Stage 1. Through the detailed design process, it is noted that minor changes were made to the layouts compared to that of the original approval (i.e. approved “Basement Plan” SK2200 Revision F and “Level 01 Plan” SK2201 Revision E drawings prepared by Woods Bagot Architects). Regardless, it is noted that the overall design parameters of the as-constructed basement car park are still in accordance with the respective design provisions of the *Australian Standard for Parking Facilities, Part 1: Off-street car parking* (AS2890.1:2004) and *Part 6: Off-street parking for people with disabilities* (AS2890.6:2009). This generally includes:

- Minimum 2.4m wide x 5.4m long standard resident parking spaces.
- Minimum 2.6m wide x 5.4m long standard visitor parking spaces.
- Minimum 2.3m wide x 5.0m long ‘small’ parking spaces.
- Minimum 2.4m wide x 5.4m long bay plus shared areas adjacent for PWD parking spaces.
- Minimum 5.8m wide parking aisles (although generally 6.2m).
- Minimum 3.0m (one-way) and 5.5m (two-way) circulation roads, plus appropriate kerbs/clearance to obstructions.
- Maximum ramp grades of 1:5 (20%) with 2m 1:8 (12.5%) transitions.
- Minimum 1.0m wide parking aisle extensions at dead-end aisles.

With respect to height clearance within the basement, this has been constructed to typically provide minimum 2.2m clearance (and 2.5m clearance over the PWD spaces) as per the provisions of AS2890.1:2004 and AS2890.6:2009. It is noted, however, that through the detailed design process resolution of additional provisions (i.e. building structure, mechanical ventilation, fire sprinklers) resulted in specific locations throughout the basement parking areas localised height clearance reductions at the noses of some parking spaces was apparent. It is expected that this is also likely to occur through the finalisation/fit-out of the Stage 2 basement parking areas. Allowance for such services intrusions at the front of PWD spaces is permitted in accordance with Figure 2.7 of AS2890.6:2009. There is, however, no allowance for services intrusions at the front of standard/small parking spaces within AS2890.1:2004. As such, over many years TTM has developed a suitable intrusion zone allowance in conjunction with local authorities (particularly BCC) for standard parking spaces, which has been adopted in numerous multi-level car parking facilities throughout SEQ region. This alternative allowance is shown in Figure 2. It is therefore proposed that this intrusion zone provision be accepted as an appropriate alternative solution to implement within the wider basement car park for standard/small parking spaces.

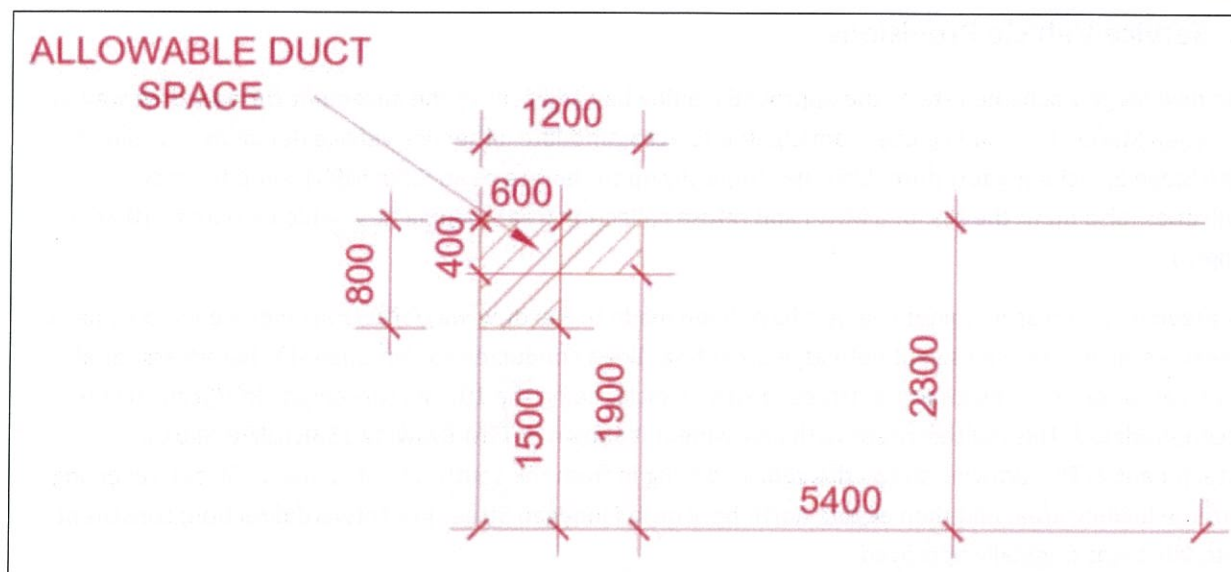


Figure 1: Proposed Acceptable Intrusion Zone for Services at front of Standard/Small Parking Spaces

It is recommended that any parking spaces impacted by such height clearance reductions be appropriately signed with "WARNING LOW HEIGHT CLEARANCE" signage on the back wall of the spaces and that this height clearance reduction be nominated in any sales and/or leasing contracts so that the respective users are aware of this height clearance limitations of their parking space.

Overall, the design provisions of the as-constructed car parking areas for Stage 2 are considered acceptable.

## 5. Site Access Arrangements

In general, the proposed access arrangements for the development remain unchanged. All driveway accesses have been constructed in conjunction with Stage 1, inclusive of the northern car park ramp to the basement which will service Stage 2 car park traffic.

The only notable difference is that a modified driveway arrangement is proposed for the Stage 2 access. Due to the resolution of the building structure an additional column in the middle of the car park driveway was needed. As such the driveway design has been modified to accommodate swept paths for the service vehicles accessing the loading area adjacent to the driveway. The resulting modified driveway is 14m wide at the boundary, tapering to a ~10m wide at the kerb crossover. By comparison, the approved Stage 2 access design documented in the original approval ("Level 01 Plan" SK2201 Revision E drawing prepared by Woods Bagot Architects) showed a slightly narrower 12m width at the boundary but a wider ~13m width at the kerb crossover. The widening at the boundary was considered necessary to allow service vehicles to manoeuvre clear of the new column, whilst the reduced kerb crossover width was resolved as being allowable in order to minimum crossing width across the footpath. This modified driveway design is documented in the ground floor plan included in Attachment 1.

Overall, the proposed site access arrangements for the new Stage 2 scheme are considered acceptable.



## 6. Service Vehicle Provisions

The new Stage 2 scheme retains the approved loading bay adjacent to the basement car park driveway on Finnegan Street. This loading bay is anticipated to accommodate all service vehicle demands associated with Stage 2, including furniture deliveries (typically up to the size of an 8.8m MRV), shop tenancy deliveries (also up to the size of a MRV) and refuse collection (rear-loading RCV, which are up to 10.3m in length).

As previously discussed, minor changes have been made to the driveway/access arrangements to Finnegan Street. As such, a revised swept path assessment has been conducted to demonstrate that access for all anticipated service vehicles (up to largest design vehicle, being the 10.3m rear-loading RCV) can still be accommodated. This revised swept path assessment is shown in TTM Drawing 15BRT0678-SK01 in Attachment 2. This drawing shows the vehicle driving in from the south side of Finnegan Street, reversing into the loading area, and then exiting north back onto Finnegan Street in a forward direction; consistent with what was originally approved.

Overall, the service vehicle provisions for the new Stage 2 scheme are considered acceptable.

## 7. Bicycle Provisions

The NHUDA Development Scheme requires bicycle parking provisions for residential developments at a rate of 1 space per unit for residents and 1 space per 400m<sup>2</sup> GFA for visitors. Similarly, bicycle parking requirements for non-residential uses (in this case the retail/shop tenancies) is 1 space per 200m<sup>2</sup> NLA for employees and 1 space per 1,000m<sup>2</sup> NLA for customers/visitors. Given that the only notable change to yield for the development scheme relates to a reduction in unit numbers (13 units total), the EDQ bicycle parking requirement for the site will be reduced. The total bicycle parking requirements for the wider site equates to 272 resident spaces (13 spaces less than approved), 25 employee spaces (same as approved) and 59 visitor spaces (same as approved).

As part of the construction of Stage 1, a total of 285 bicycle storage cages were provided within the basement area, to allow for one cage for each residential unit. With the reduced unit yield resulting from the new Stage 2 scheme, it is recognised that the constructed resident bicycle storage cages will result in an excess of resident bicycle parking. In addition to the resident store cages, a bicycle store room with 25 racks is provided within the south-east corner of the basement to satisfy the employee bicycle needs of the wider site, inclusive of Stage 2 shop/food premises uses. With respect to the visitor bicycle parking, a total of 25 bicycle spaces/racks were installed on the ground floor as part of Stage 1. As such, the new Stage 2 plans nominate a minimum additional 34 bicycle parking spaces/racks on the ground floor to satisfy the total 59 space visitor bicycle parking requirement.

Overall, the bicycle parking provisions for the new Stage 2 scheme are considered acceptable.

## 8. Conclusions

The car parking, access, servicing and bicycle provisions of the new Stage 2 development scheme are generally consistent with the relevant EDQ requirements and the as-constructed provisions in accordance with the original approval. As such, TTM see no traffic engineering reason why the new Stage 2 scheme not be granted the relevant approvals.

Should you have any questions in relation to the content of this letter, please contact myself on (07) 3327 9500.

Yours faithfully,



Ryan Bradley  
Lead Consultant - Traffic  
TTM Consulting Pty Ltd

**Attachment 1: Stage 2 Development Plans**

**Attachment 2: TTM Swept Path Drawing 15BRT0678-SK01**



The site plan shows a development bounded by MacArthur Avenue to the west, Remora Road to the north, and Finnegan Street to the south. The plan is divided into two main sections: Stage 1 - Construction Completed and Stage 2 - Revised Design Proposed.

**Stage 1 - Construction Completed:** This section includes Building 1, Building 2, Building 3, and Building 4. Building 1 is a large, irregularly shaped building. Building 2 is a rectangular building. Building 3 is a large, irregularly shaped building. Building 4 is a rectangular building. There are several parking areas and drop-off/pick-up zones indicated.

**Stage 2 - Revised Design Proposed:** This section includes Building 5 and Building 6. Building 5 is a large, rectangular building. Building 6 is a large, irregularly shaped building. There are several parking areas and bike racks indicated.

**Key Plan:** A small map of the city of Hamilton shows the location of the development within the city limits.

**Legend:** A legend defines the symbols used on the plan, including Building Footprint, Parking Space, Drop-off/Pick-up Zone, and Bike Rack.

**Scale:** The scale is 1" = 25'.

**North Arrow:** A north arrow is located in the bottom left corner of the plan.

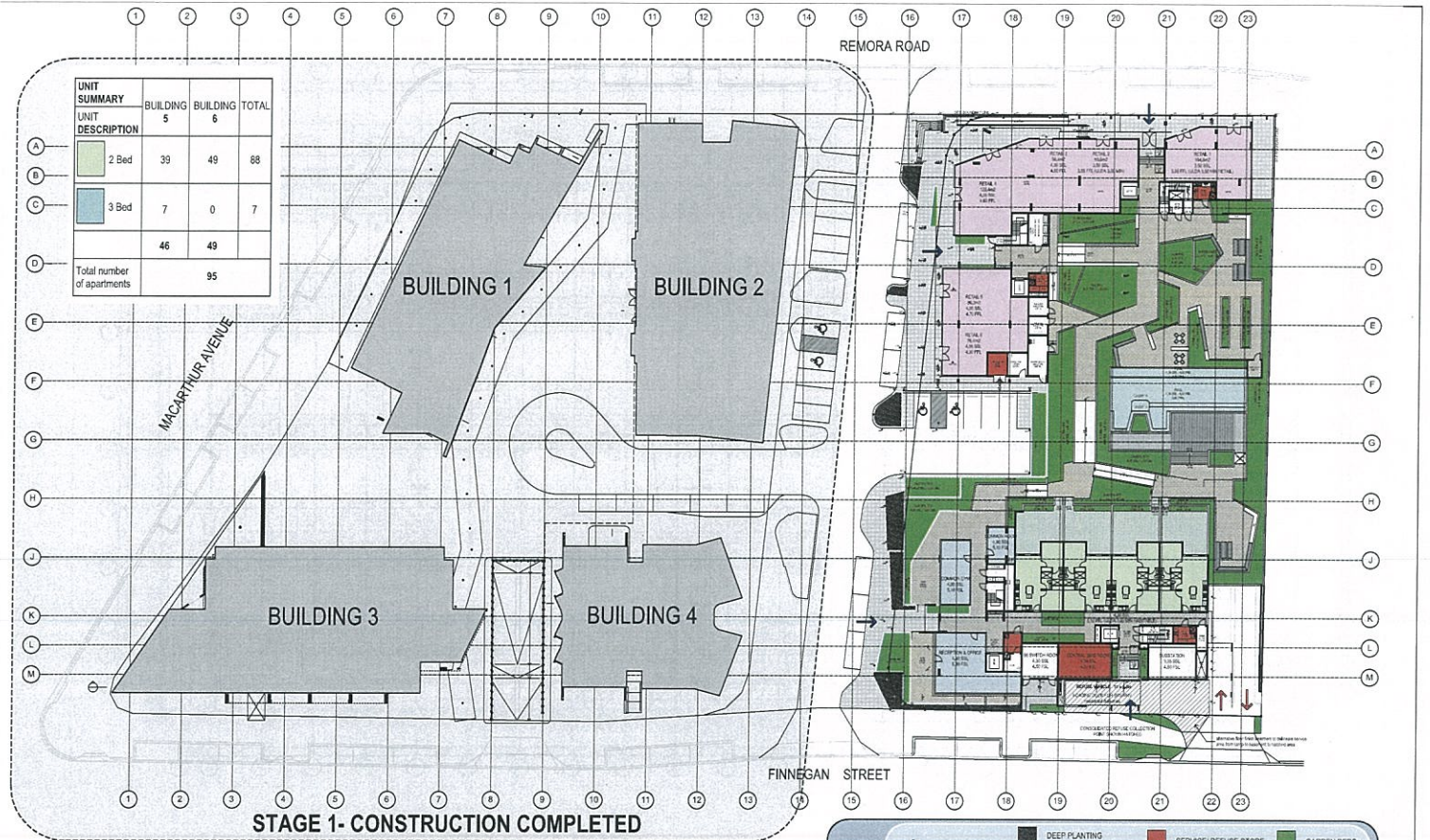
**Project Information:** The project is titled "HAMILTON COMMONS" and is located at "1000 REMORA ROAD, HAMILTON, ONTARIO L8N 4K1". The project is owned by "SHAYHER GROUP" and is being developed by "SHAYHER GROUP".





Note: • Do not scale (no zoning, use figure dimensions only). • Dimensions include all offsets and setbacks. • Check all dimensions on site plan to determine accuracy. • All dimensions to be carried out according to the Building Code of Australia & relevant Australian Standards.	4th <b>SPRINKLER DEVELOPMENT</b> (see attached drawings for info) <b>HAMILTON</b> <b>STAGE 2</b>	UNIT NO. <b>4H</b> FLOOR NO. <b>Basement</b>	UNIT NO. <b>4H</b> FLOOR NO. <b>Basement</b>
REF: LAL 402 ACQ 8406 on 5/10/17 PROJECT NO. <b>10000000000000000000</b>	REF: LAL 402 ACQ 8406 on 5/10/17 PROJECT NO. <b>10000000000000000000</b>	REF: LAL 402 ACQ 8406 on 5/10/17 PROJECT NO. <b>10000000000000000000</b>	REF: LAL 402 ACQ 8406 on 5/10/17 PROJECT NO. <b>10000000000000000000</b>





STAGE 1- CONSTRUCTION COMPLETED

1 GROUND FLOOR  
SCALE 1:250 @ A1



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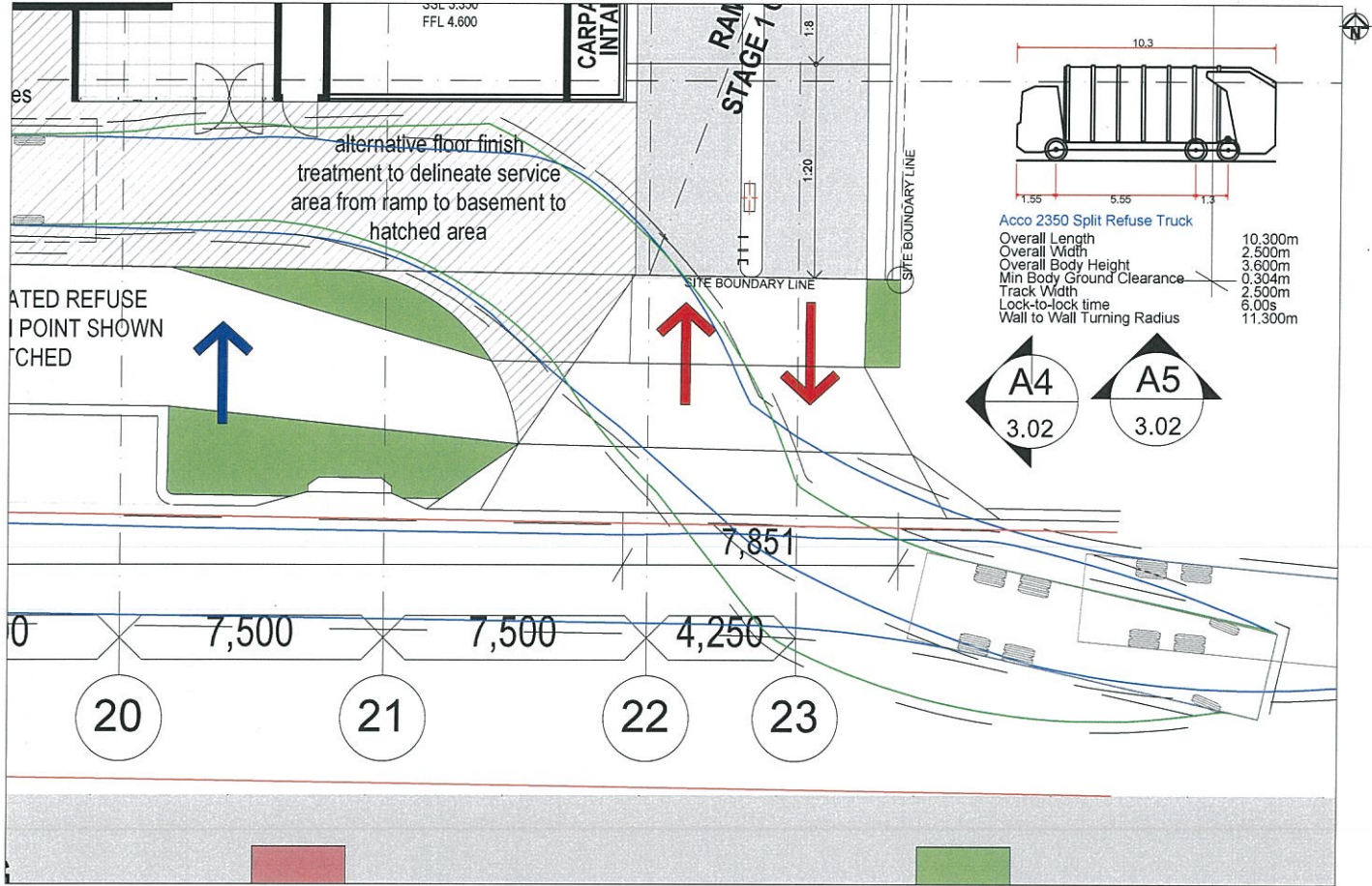
**shayhergroup**  
A PAU JAR GROUP AFFILIATE  
LEVEL 1, 200 KINGS ROAD, HAMILTON, QLD 4007



PROJECT	SHAYHER DEVELOPMENT	DATE	2017
CLIENT	HAMILTON STAGE 2	SCALE	1:250
DESIGNER	J H A	PROJECT NO.	SHAYHER/2017/01
DATE	2017-10-05	DESIGNED BY	SHAYHER
SCALE	1:250	CHECKED BY	SHAYHER
PROJECT NO.	SHAYHER/2017/01	DATE	2017-10-05



Attachment 2



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15-33 REMORA ROAD, HAMILTON  
**SWEPT PATH ANALYSIS**  
10.3m RCV DESIGN VEHICLE

15BRT0678-SK01  
CL RB  
16 DEC 2015



