

MAY 2020

# 480 SWAN STREET, RICHMOND WASTE MANAGEMENT PLAN

wsp



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480 SWAN STREET, RICHMOND  
Waste Management Plan

WSP




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REV	DATE	DETAILS
A	03/12/2019	Draft Waste Management Plan
B	19/12/2019	Waste Management Plan
C	21/02/2020	Waste Management Plan
D	17/04/2020	Waste Management Plan
E	20/05/2020	Waste Management Plan

	NAME	DATE	SIGNATURE
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Approved by:	Brad Parker	20/05/2020	

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# 1 SUMMARY

The below is a summary of the waste management strategy proposed for the subject site. The complete report must be read in detail prior to implementing the operational waste management plan.

Located at 480 Swan Street, Richmond, the development will span 12 storeys, generally providing retail space across the ground floor and office spaces from level 01 upwards.

The following waste systems are proposed for the development:

**Table 1 Waste Collection Summary**

Waste Stream	Equipment	Collection Frequency	Collection Operator
Garbage	9 x 1100L Bins	Three times per week	Private Contractor
Recycling	10 x 1100L Bins	Three times per week	Private Contractor
Food Organics	Food Digester	<i>Not Required</i>	<i>Not Required</i>

Collections will be undertaken directly from the loading bay provided at ground level via a standard SRV sized collection vehicle or smaller. Collection vehicles will enter the site via the Swan Street access ramp, and will exit the site in a forwards direction via the same access ramp.

The collection vehicle will prop within the loading bay with operators collecting bins directly from the waste room and returning them immediately upon emptying. Bins will not be stored outside of the title boundary or presented to kerb for collection at any time.

Building management will ensure sufficient access is provided for collection vehicle operators during collection times. Typically, operators are provided with keypad/swipe card access to the service doors.

Food organic waste generated throughout the site will be disposed of via an aerobic digester provided at ground level. These units decompose organic matter into a product of just CO<sub>2</sub> and greywater, with no residual waste generated which requires collections.

## 2 INTRODUCTION

The following Waste Management Plan has been prepared for the proposed commercial development at 480 Swan Street, Richmond.

This Waste Management Plan (WMP) and the waste generation rates therein have been prepared based on the City of Yarra document *Waste Management Plan Policy for Multi-Unit Developments (2018)* and current best practice waste management methodology and technologies commonly available in Australia.

The waste services proposed throughout this Waste Management Plan will be reviewed with respect to any change in the operational requirements of the subject development over time. Revised waste management plans will be issued to Council for approval prior to adoption.

---

### 2.1 LAND USE

<b>Client:</b>	Charter Hall
<b>Town Planning Application:</b>	PLN20/0006
<b>Land Use Type:</b>	Commercial
<b>Number of Levels:</b>	12 levels (with 2 additional basement levels)

**Table 2 Development Summary**

Development Summary	
Use	Net Leasable Area
Retail	1,626m <sup>2</sup>
Office	32,052m <sup>2</sup>

# 3 WASTE MANAGEMENT PLAN

## 3.1 WASTE GENERATION

Waste generation rates per week are shown in Table 3. A waste generation assessment prepared in accordance with these rates is shown in Table 4. Calculations are based on a 5 day per week operation for the office spaces and a 7 day per week operation for the retail spaces.

As per direction from the project team, an allowance has been made for several of the retail spaces provided at ground level have been to operate as food and beverage. This will provide for a conservative waste generation assessment.

Any areas considered ancillary to the active uses of the site (circulation, bathrooms, terrace, etc.) are not considered to generate additional waste. Waste generated by these areas is created in service of the active uses of the site and is therefore incorporated into the rates shown below.

**Table 3 Waste Generation Rates**

Use	Garbage (L/100m <sup>2</sup> /week)	Recycling (L/100m <sup>2</sup> /week)	Food Organics (L/100m <sup>2</sup> /week)
Retail (food and beverage)	1,050	1,400	1,050
Retail (non food)	350	350	-
Office	45	50	5

**Table 4 Waste Generation Assessment**

Use	NLA	Garbage (L/week)	Recycling (L/week)	Food Organics (L/week)
Retail (food and beverage)	957m <sup>2</sup>	10,049	13,398	10,049
Retail (non food)	669m <sup>2</sup>	2,342	2,342	-
Office	32,052m <sup>2</sup>	14,423	16,026	1,603
<b>TOTAL</b>		<b>26,814</b>	<b>31,766</b>	<b>11,652</b>

## 3.2 WASTE SYSTEMS

Waste shall be sorted on-site by staff / cleaners as appropriate into the following streams:

- Garbage (General Waste)
- Commingled Recycling
- Food Organics
- Hard Waste
- Electronic Waste



Throughout the development it will be ensured that it is as easy to dispose of recyclable materials as it is garbage. This will be achieved by ensuring the development is appropriately furnished with bin stations throughout the various tenancies, ancillary spaces and communal areas. The bin stations are to be clearly signed such that waste stream separation is easily identifiable and correct use of the bins is upheld.

Bin stations encourage the separation of recyclable materials. This system incorporates the provision of multiple bins for different waste streams at central locations and common areas for ease of disposal. This system is beneficial, as users are required to make a conscious decision as to which bin they place their items. This typically results in a reduced volume of garbage (landfill). In addition, the use of bin stations minimises the number of locations cleaners are required to service throughout the development.

**Figure 1 Example Bin Station Application**



Brand: *Ecobins*



Brand: *Method Bins*

Staff/cleaners will utilise the goods lift and/or back of house (BoH) access corridor in accessing the waste room (and the appropriate equipment therein) as required. All waste transfer paths are to be exclusively within the site title boundary and do not require cleaners/tenants to exit title to perform operations. Transfer routes for waste collections do not include stairs or gradients greater than 1:14.

### 3.2.1 GARBAGE AND COMMINGLED RECYCLING

Each space of the development shall have provision for plastic lined garbage and commingled recycling bins for the temporary holding of waste, to have minimum cumulative holding capacities as shown in Table 5.

The “Transfer Rate” refers to the frequency at which waste should be transferred by cleaners/staff from the temporary holding bins to the waste room ground level for disposal per day.

**Table 5 Garbage & Commingled Recycling – Temporary Waste Storage Requirements**

Use	Garbage Capacity	Recycling Capacity	Transfer Rate
Retail (food and beverage)	50L/100m <sup>2</sup>	70L/100m <sup>2</sup>	Three times per day
Retail (non food)	50L/100m <sup>2</sup>	50L/100m <sup>2</sup>	Once per day
Office	10L/100m <sup>2</sup>	10L/100m <sup>2</sup>	Once per day



In disposing of waste generated throughout the office spaces, cleaning staff will generally utilise service trolleys to collect and transfer waste from these bins to the appropriate waste room at ground level, with waste from the service trolleys to be decanted into the larger 1100L bins provided therein (see Appendix A).

In disposing of waste generated throughout the retail spaces, staff/cleaners will transfer waste from these bins directly to the appropriate waste room at lower ground level and into the larger 1100L bins provided therein (see Appendix A).

Garbage is to be disposed of bagged. Commingled recyclables are to be disposed of loosely, with any plastic liners to be disposed of within the garbage bins.

### 3.2.2 FOOD ORGANICS

#### *DIGESTER UNIT*

An aerobic digester unit will be used for the processing of food waste generated throughout the development as appropriate, to be stored within the waste room at ground level (see Appendix A).

Digesters utilise natural microorganisms and the presence of oxygen to decompose organic substances. The microorganisms feed on the organic substances within the digester unit, decomposing them into a product of just CO<sub>2</sub> and greywater (with no residual food waste). As such, no residual waste bins for organic material will be required for collection. Any greywater discharge is stable and permitted to be discharged into the local sewerage network.

At the time of which this report is dated, digesters are required to be registered with the local water authority as part of the trade waste agreement for the development.

**Figure 2 Example Food Organics Equipment – Digester (Left), Organics Trolley (Right)**



#### *DISPOSAL METHODOLOGY - RETAIL*

Retail spaces (those operating with food and beverage) shall be furnished with plastic tubs (typically 20L in size) for the temporary holding of organic waste. These plastic tubs will be stored within the respective back of house areas of each tenant. Tubs can be stacked and transferred via trolleys if desired (see Figure 2).

Staff and/or cleaners will manually empty organic waste from these bins directly into the digester unit provided within the waste room at ground level (see Appendix A). Organic waste is to be disposed of loosely into the digester.

## DISPOSAL METHODOLOGY – OFFICE

To assist in the transfer of organic waste, areas of the office spaces in which food is either prepared or eaten shall have provision for “kitchen caddys” (see Figure 2) for the temporary holding of food organics. Kitchen caddys may be lined with paper (i.e. newspaper) if desired.

Cleaning staff will manually empty organic waste from these kitchen caddys directly into the digester unit provided within the ground level waste room (see Appendix A) on a daily basis. Organic waste is to be disposed of loosely into the digester.

### 3.2.3 HARD WASTE, ELECTRONIC WASTE

A dedicated hard waste area of 5.00m<sup>2</sup> is to be provided within the waste room at ground level, to be accessed directly by commercial tenants (both office and retail) as appropriate (see Appendix A).

Of the area provided, approximately half will be dedicated to the disposal of e-waste. It is recommended a 240L E-waste bin be incorporated into this area for the disposal of smaller e-waste goods (such as phones and computer keyboards), with larger goods (such as televisions and computer monitors) being disposed of across the remaining floor space.

Hard waste and electronic waste will be collected as separate streams by a private collection contractor on an as required basis.

---

## 3.3 BIN QUANTITY, SIZE AND COLLECTION FREQUENCY

Table 6, Table 7 and Table 8 contain information regarding bin quantity, size and frequency of collection.

It is noted that due to the variance between capacities and actual volumes from time to time fewer bins than those specified may be required to be collected. Only full bins will be presented for collection.

**Table 6 Garbage Bin Information and Capacity**

Garbage			
No. Bins	Collections Per Week	Weekly Capacity	Weekly Volume
9 x 1100L	3	29,700L	26,814L

**Table 7 Commingled Recycling Bin Information and Capacity**

Commingled Recycling			
No. Bins	Collections Per Week	Weekly Capacity	Weekly Volume
10 x 1100L	3	33,000L	31,766L

**Table 8 Typical Bin Dimensions**

Typical Bin Dimensions (mm)			
Capacity	Width	Depth	Height
1100 litre	1240	1070	1330

## 3.4 DIGESTER SIZE AND CAPACITY

Table 9 and Table 10 contain information regarding the processing capacity and size of the food digester to be utilised by the development.

Due to their operational processes and low energy consumption, digester units generally remain operational across the entirety of the day. As such, the weekly digester capacity has been calculated under the assumption of a 24 hour per day, 7 day per week operation. There exists sufficient capacity within the digester to operate under fewer hours per day if required.

Note that the specifications listed within Table 9 and Table 10 are for reference only and must be confirmed with the nominated supplier prior to any works commencing.

**Table 9 Digester Size and Capacity**

Food Organics			
Equipment	Processing Capacity	Weekly Capacity	Weekly Volume
1 x Digester	500kg/day	13,200L	11,652L
<i>*As the digester unit will decompose organic matter into a product of just CO<sub>2</sub> and greywater, no residual waste bins for organic material will be required for collection.</i>			

**Table 10 Typical Digester Dimensions**

Typical Digester Dimensions			
Capacity	Width (mm)	Depth (mm)	Height (mm)
500kg/day	1740	900	1250

## 3.5 WASTE STORAGE AREA & LOCATION

Table 11 demonstrates the cumulative area requirements (excluding circulation) and provision of waste areas.

**Table 11 Waste Storage Area Requirement**

Waste Store	Usage	Area Required	Area Provided
Waste Room (Ground Level)	9 x 1100L Garbage Bins	11.88m <sup>2</sup>	136.00m <sup>2</sup>
	10 x 1100L Recycling Bins	13.20m <sup>2</sup>	
	1 x Food Digester	1.57m <sup>2</sup>	
	Hard Waste / E-Waste	5.00m <sup>2</sup>	
<b>TOTAL</b>		<b>31.65m<sup>2</sup></b>	<b>136.00m<sup>2</sup></b>

Please refer to scaled waste room drawing shown in Appendix A.

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## 3.6 BIN COLOUR AND SUPPLIER

All bins will be provided by private supplier. The below bin colours are specified by Australian Standard AS4123.7 2006, however due to the private nature of the collection, these are only recommendations and are not mandatory:

- Garbage (general waste) bins shall have red lids with dark green or black body.
- Recycle bins shall have yellow lids with dark green or black body.
- E-Waste bins shall have white lids with dark green or black body

Private collection contractors often supply their own bins for collection.

---

## 3.7 SIGNAGE

Waste storage areas and bins will be clearly marked and signed with the industry standard signage approved by Sustainability Victoria (such as that illustrated in Figure 3 below) or equivalent.

Users will be instructed by building management to adhere to these requirements.

**Figure 3 Sustainability Victoria Waste Signage**



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## 3.8 WASTE COLLECTION METHODOLOGY

Waste will be collected by a private contractor as outlined in Table 12.

**Table 12 Waste Collection Summary**

Waste Stream	Equipment	Collection Frequency	Collection Operator
Garbage	9 x 1100L Bins	Three times per week	Private Contractor
Recycling	10 x 1100L Bins	Three times per week	Private Contractor
Food Organics	Food Digester	<i>Not Required</i>	<i>Not Required</i>

Collections will be undertaken directly from the loading bay provided at ground level via a standard SRV sized collection vehicle or smaller. Collection vehicles will enter the site via the Swan Street access ramp, and will exit the site in a forwards direction via the same access ramp (see Appendix B for swept path diagrams).

The collection vehicle will prop within the loading bay with operators collecting bins directly from the waste room and returning them immediately upon emptying (see Appendix A). Bins will not be stored outside of the title boundary or presented to kerb for collection at any time.

Building management will ensure sufficient access is provided for collection vehicle operators during collection times. Typically, operators are provided with keypad/swipe card access to the service doors.

Food organic waste generated throughout the site will be disposed of via an aerobic digester provided at ground level. These units decompose organic matter into a product of just CO<sub>2</sub> and greywater, with no residual waste generated which requires collections.

## 4 ADDITIONAL INFORMATION

### 4.1 STANDARDS & COMPLIANCE

#### 4.1.1 VENTILATION

Ventilation will be provided in accordance with Australian Standard AS1668.

#### 4.1.2 WASHING AND VERMIN PROTECTION

An appropriately drained wash down area will be provided within the loading bay in which each bin is to be washed regularly by building management. Bin washing areas or bin wash bays must discharge to a grease trap.

Alternatively, a third party bin washing service can be engaged to perform this service. Bin washing suppliers must retain all waste water to within their washing apparatus and not impact on the drainage provisions of the site.

#### 4.1.3 NOISE REDUCTION

All waste areas shall meet BCA and AS2107 acoustic requirements as appropriate with operational hours and collection times assigned to minimise acoustic impact on surrounding premises.

### 4.2 RISK ASSESSMENT

Table 13 outlines waste items for consideration for the formation of a site risk register by building management. Note that the below is not intended (or to be considered) as a complete list of risks for the site.

**Table 13 Risk Assessment**

Risk	Risk Category (Likelihood; Impact)	Mitigation Measure
Injury sustained through improper waste handling.	Possible; Moderate	Training should be provided to staff / cleaners addressing correct manual handling techniques in accordance with <i>Occupational Health and Safety Act (2004)</i> and associated regulations. Staff / cleaners should be further provided with personal protective equipment as appropriate.  A suitable path of travel between the waste room, loading dock and commercial facilities is available throughout the site. Staff / cleaners will not be required to transverse steps or any grades greater than 1:14 in disposing of waste.
Injury sustained through waste collection operations.	Possible; Moderate	Garbage and recycling bin size limited to a <u>maximum</u> 1100L specified for both garbage and recycling, as per common industry practice.  Loading dock provided at grade within waste room. Collection operators will <b>not</b> need to transfer bins across improper grades.  Further separation of food organics will further minimise garbage bin weight.
Overflow of waste (i.e. bins filled to over-capacity) resulting in slipping / tripping hazard for users.	Possible; Moderate	Waste design provided such that adequate bin capacity is provided for all streams, as to avoid bin overflow.



		<p>Waste transfer paths and storage facilities will be sealed and cleaned routinely.</p> <p>Building management (or equivalent) to ensure that an appropriate cleaning/maintenance regime is implemented to maintain the slip rating of floor surfaces as appropriate, and to remove any water or waste spillages when required.</p>
Equipment damage resulting from untrained staff using equipment, resulting in equipment down time.	Possible; Low	<p>Only trained personnel as nominated by building management (or equivalent) should be permitted to utilise waste equipment.</p> <p>The organic digester should be operated in accordance with the equipment supplier guidelines / requirements.</p>
Conflict between pedestrians (public and/or staff) and collection vehicle.	Unlikely; High	<p>Collection vehicles will both enter and exit the site in a forwards direction, providing a direct line of site for pedestrian interference.</p> <p>Collections will be undertaken outside typical development operational hours, during which pedestrian activity throughout the surrounding areas will be minimal.</p> <p>Loading dock layout should cater for nominated vehicle sizes, clear zones and loading areas.</p>
Improper ventilation measures provided.	Unlikely; Low	Refer Section 4.1.1
Improper measures vermin protection measures provided.	Unlikely; Low	Refer Section 4.1.2
Improper noise reduction measures provided.	Unlikely; Low	Refer Section 4.1.3

## 4.3 HIGH LEVEL PURCHASING SCHEDULE

Table 14 lists the waste equipment required for the development under the conditions proposed within this report. A complimentary list of suppliers is provided for convenience.

**Table 14 Equipment Supply Schedule**

Item	Supplier	Typical Services Requirement(s)**	Quantity / Notes
1100L Bin	Private Supplier* ( <i>SULO or equivalent</i> )	nil	9 No. Garbage 10 No. Recycling
Food Digester	Private Supplier ( <i>ORCA or equivalent</i> )	<p><b>Power:</b> 240V 10A per unit</p> <p><b>Water:</b> Cold ½" water connection</p> <p><b>Drain:</b> Min. 3" sanitary drain connection (via grease trap to authority requirement)</p>	1 No. 500kg/day capacity Regular maintenance required
<p>*Private waste collection contractors often supply their own bins for collection.</p> <p>**Services requirements are indicative only and must be confirmed with the manufacture prior to commencement of construction</p>			

## 4.4 SUPPLIER CONTACT INFORMATION

A complimentary listing of contractors and equipment suppliers is provided in Table 15 below for your reference. You are not obligated to procure goods/services from these companies. This is not, nor is it intended to be, a complete list of available suppliers. WSP does not warrant (or make representations for) the goods/services provided by these suppliers.

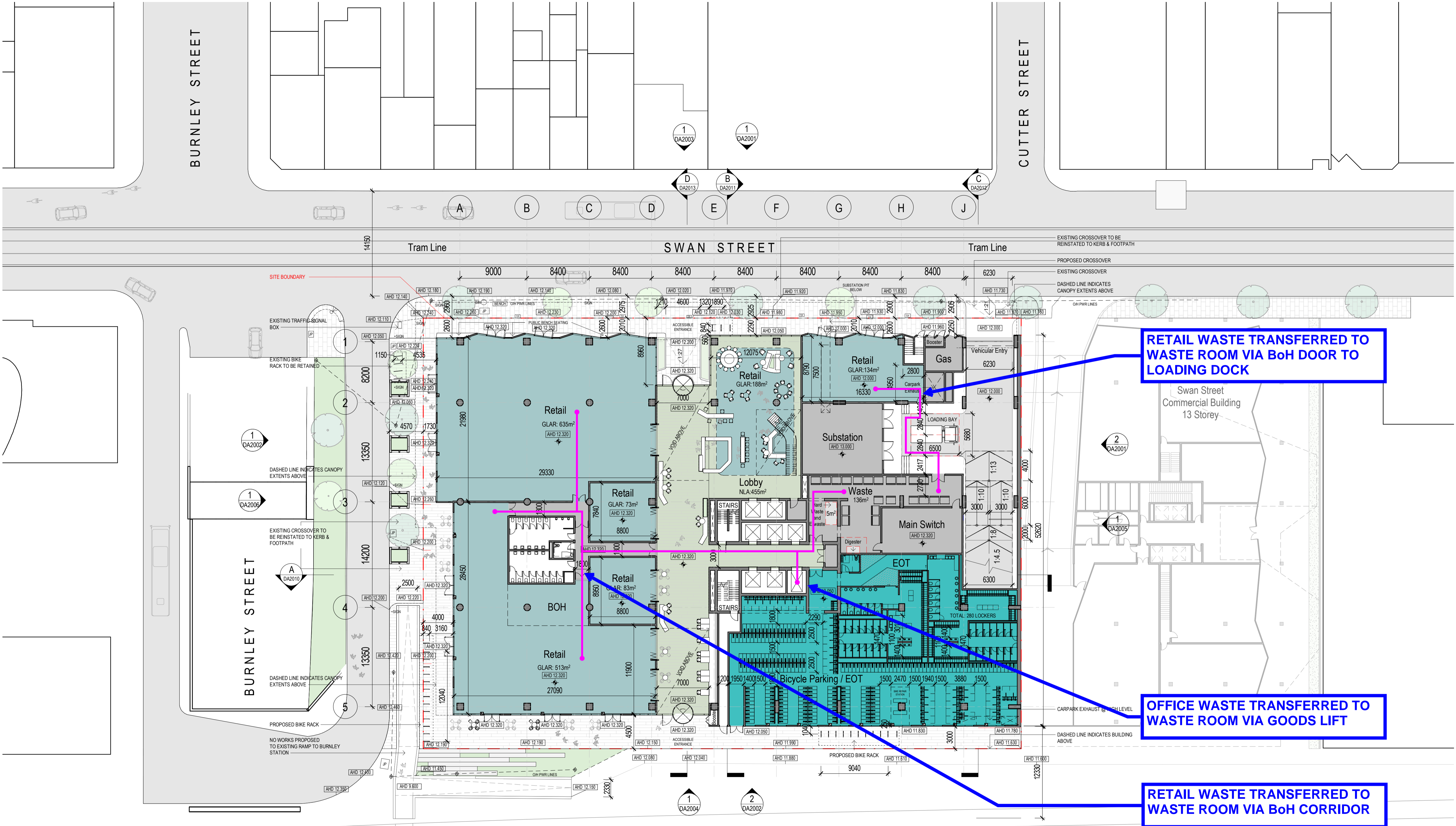
**Table 15 Supplier Contact List**

Service Type	Contractor / Supplier Name	Phone	Website
Private Waste Collectors	Citywide Service Solutions	(03) 9261 5000	<a href="http://www.citywide.com.au">www.citywide.com.au</a>
	SUEZ Environment	13 13 35	<a href="http://www.sita.com.au">www.sita.com.au</a>
	Cleanaway	13 13 39	<a href="http://www.cleanaway.com.au">www.cleanaway.com.au</a>
	Veolia	132 955	<a href="http://www.veolia.com">www.veolia.com</a>
Equipment Suppliers	ORCA (Food Digesters)	1855 355 6722	<a href="http://www.feedtheorca.com">www.feedtheorca.com</a>
	PowerKnot (Food Digesters)	(02) 6627 6360	<a href="http://www.powerknot.com">www.powerknot.com</a>
	Waste to Water (WTW) (Food Digesters)	1300 552 460	<a href="http://www.wastetowater.com.au">www.wastetowater.com.au</a>
	Sulo Australia (Bins)	1300 364 388	<a href="http://www.sulo.com.au">www.sulo.com.au</a>
Bin Washing Services	The Bin Butlers	1300 788 123	<a href="http://www.thebinbutlers.com.au">www.thebinbutlers.com.au</a>
	Kerbside Clean-A-Bin	(03) 9830 7381	<a href="http://www.kerbsidecleanabin-srp.com.au">www.kerbsidecleanabin-srp.com.au</a>
	Calcorp Services	1800 225 267	<a href="http://www.calcorpservices.com.au">www.calcorpservices.com.au</a>
	WBCM Environmental Australia	1300 800 621	<a href="http://www.wbcm-aust.com.au">www.wbcm-aust.com.au</a>
E-waste Collection Services	TechCollect	1300 229 837	<a href="http://www.techcollect.com.au">www.techcollect.com.au</a>
	Mobile Muster (Mobile Phones)	1800 249 113	<a href="http://www.mobilemuster.com.au">www.mobilemuster.com.au</a>
	ToxFree (Secure E-waste Destruction)	1300 869 373	<a href="http://www.toxfree.com.au">www.toxfree.com.au</a>

# APPENDIX A

SCALED WASTE ROOM  
DRAWINGS





**RETAIL WASTE TRANSFERRED TO WASTE ROOM VIA BoH DOOR TO LOADING DOCK**

**OFFICE WASTE TRANSFERRED TO WASTE ROOM VIA GOODS LIFT**

**RETAIL WASTE TRANSFERRED TO WASTE ROOM VIA BoH CORRIDOR**

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 Nominated Architect  
 Ray Brown, NSWARB 6359

issue	amendment	date
A	Issue for Town Planning Submission	18/12/2019
B	RFI Issue for Town Planning Submission	19/02/2020
C	RFI #2 Issue for Town Planning Submission	16/04/2020

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project 480 Swan Street

drawing Ground Floor

drawing no. **DA1003** issue **C**

checked RA scale 1 : 250@A1  
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Do not scale drawings. Verify all dimensions on site

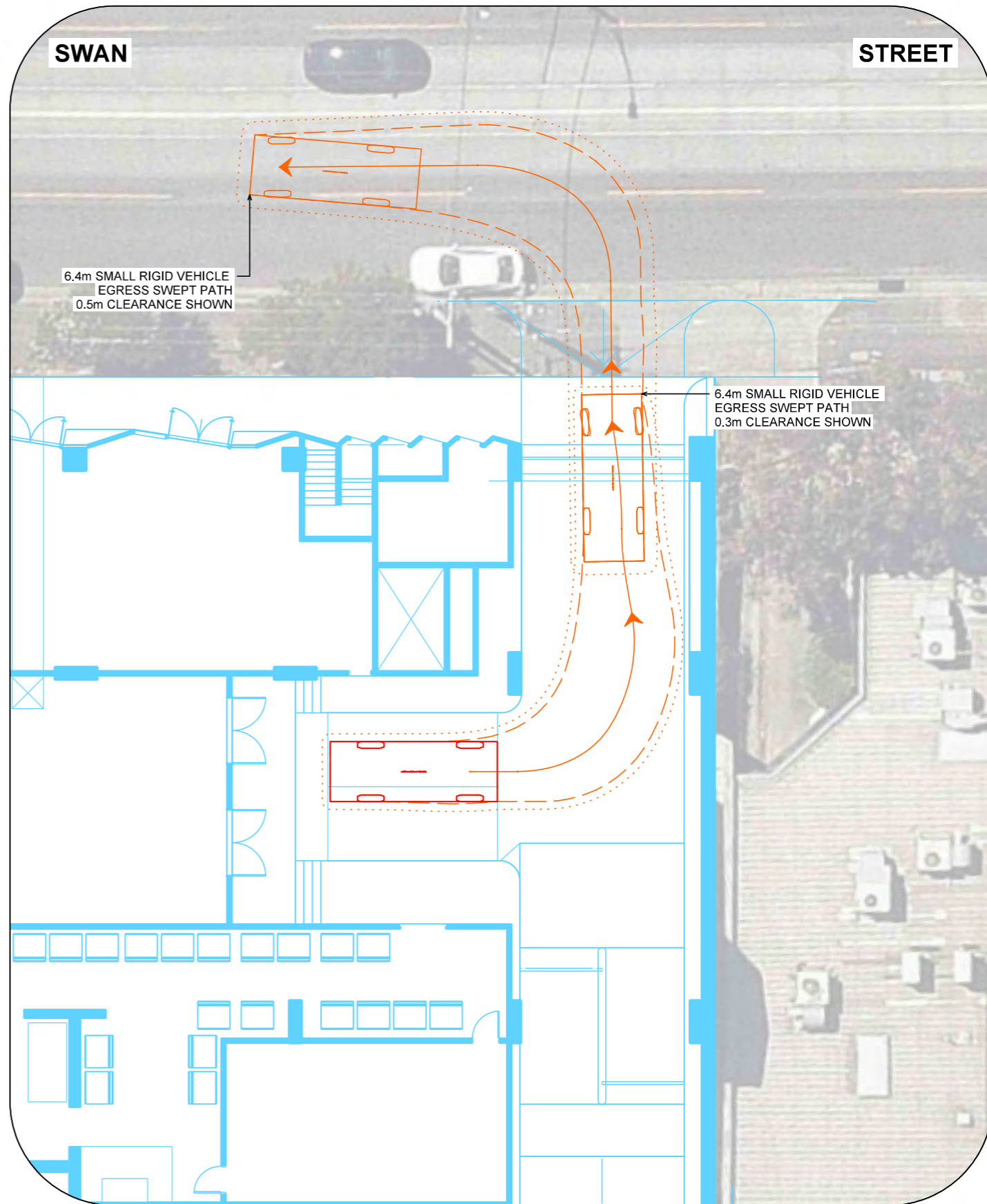
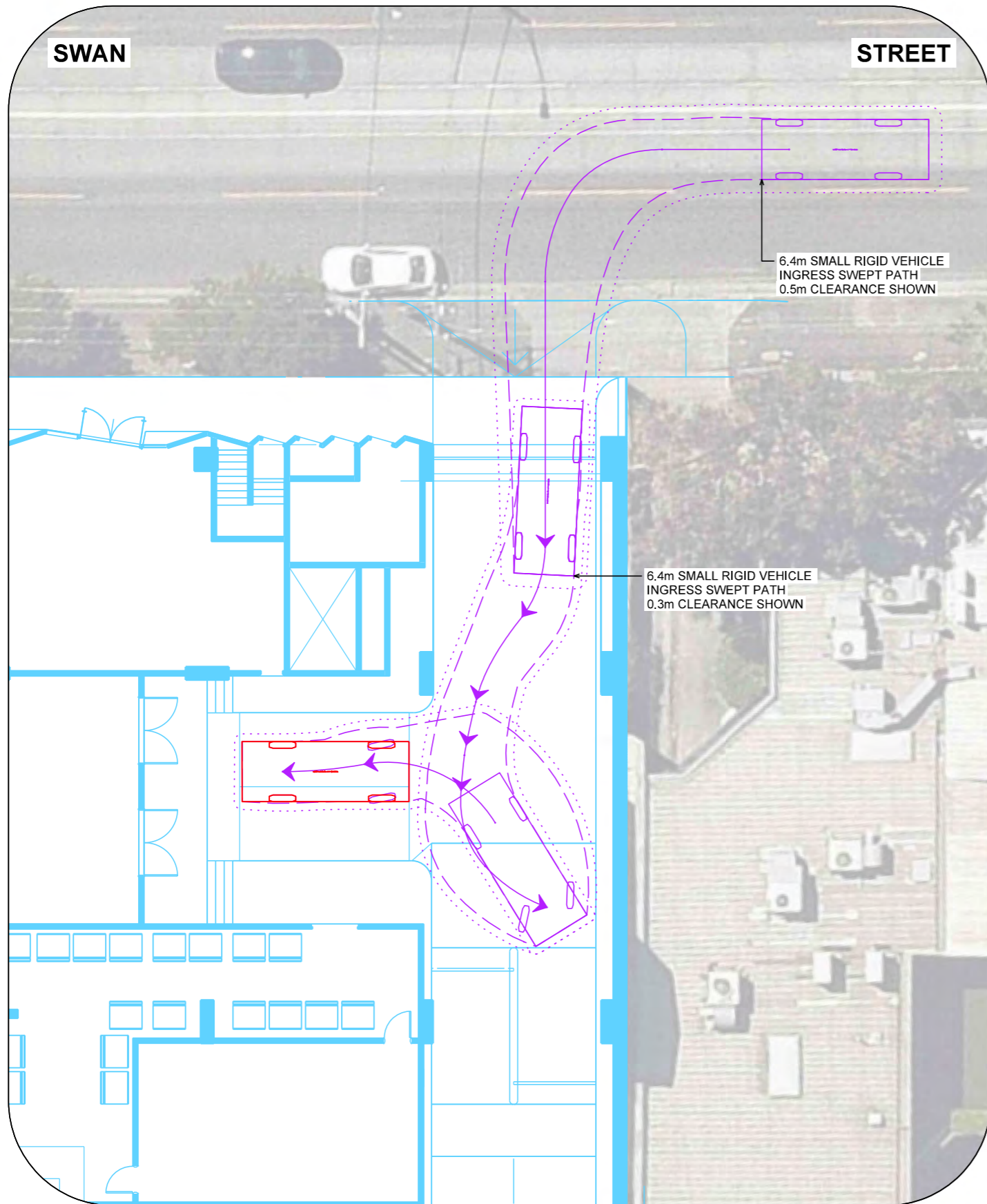
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# APPENDIX B

## SWEPT PATH DIAGRAMS

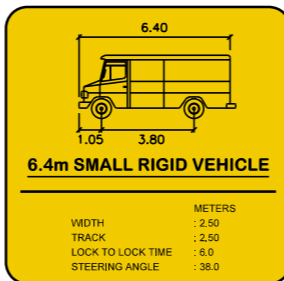






GENERAL NOTES:  
 1. ALL DIMENSIONS ARE TO FACE OF KERB AND CHANNEL UNLESS NOTED OTHERWISE.  
 2. DECLARED ROAD - SWAN STREET (SPEED ZONE 40KM/H).  
 3. BASE INFORMATION FROM NEARMAP AERIAL PHOTOGRAPHY DATED 23.02.2019 AND ARCHITECTUS DA1003[B]\_Ground Floor.dwg DATED 19.02.2020

21/02/2020 11:53:01 AM



**Charter Hall**

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**N**

MELWAY ONLINE REF: MAP 2H E10

SCALE  
 1:200 @ A3

Date 2020-02-21	Status <b>PRELIMINARY</b>
Project MIXED USE DEVELOPMENT	
Title SWEPT PATH ANALYSIS	
Drawing Number <b>IMP191103 - DG-01-02 E</b>	