

HARBOURSIDE

Demolition Traffic Management Plan Report

Mirvac

26 June 2020

MIRVAC HARBOURSIDE

Traffic Management Plan

Draft Report

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REVISIONS

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1 INTRODUCTION

1.1 Purpose

Arcadis Australia Pacific Pty Ltd (Arcadis) has been engaged by Mirvac to prepare a Demolition Traffic Management Plan for the Stage 1 Development Application (DA) for demolition works associated with the Harbourside Redevelopment Project (the Project) in Darling Harbour, Sydney. This report addresses the requirements for site vehicles access and egress to undertake haulage and delivery activities during the Stage 1 DA works.

As per the Mirvac Construction and Environmental Management Plan (CEMP), a detailed Traffic Management Plan will be developed separately that details temporary traffic management required for all works associated with the Project that has interface with road users including respective Traffic Control Plans.

Alongside this report, a separate technical advice memo was prepared that documents the existing traffic flows and anticipated increased traffic volumes resulting from the Project.

The purpose of this report is to document the site vehicle access and egress plan for Stage 1 DA works including assessment of affected road users and measures to mitigate impacts to traffic, public transport, emergency vehicles, pedestrians and cyclists. The report will provide an overview and guidance on the following transport related matters for Stage 1 DA works:

- Identification of the project extents.
- Description of the surrounding road network including transport modes and land uses.
- Overview of heavy vehicle requirements including vehicle size, route options and volumes.
- Details of the site access and egress plan (including road safety assessment) and the objectives of vehicular and pedestrian traffic management.
- Preparation of site access and egress and route plan swept paths.
- Description of site car parking and loading arrangements for the subject site.
- Assessment of traffic impacts on all road users and the surrounding road network.

1.2 Objectives

The aim of this Demolition Traffic Management Plan is to evaluate the routes options to outline their viability and advise mitigation measures and upgrade work to allow for the viable transport of deliveries, demolition waste, material and equipment. The assessment aims to:

- Identify key constraint areas along the route.
- Conduct a high-level swept path analysis at pinch points or constrained areas in order to determine potential conflicts.
- Evaluate the conflict points and quantify the mitigation works potentially required to resolve constraints.
- Identify affected road user groups and mitigations treatments to maintain road safety.

1.3 Assumptions and Limitations

This desktop Traffic Management Plan has been based on information either publicly available or provided by Mirvac with no consultation undertaken with regulatory authorities or other stakeholders in the assessment of route options.

The route assessment does not take the following matters into account:

- Pavement impact analysis due to the transport of construction material.
- Any degree of impact to structure such as bridges, culverts or kerbs.
- Vertical geometry.
- Any operating licenses, if required.
- Road safety audit.

1.4 Description of Works Activity

This demolition traffic management plan is for the facilitation of access for heavy vehicles used to deliver materials and equipment to the subject site and for the removal of waste associated with the demolition works under the Stage 1 DA. **Figure 1-1** outlines the indicative areas of proposed demolition associated with the development. Demolition areas are indicated by the solid hatch areas within this plan. Future design development will determine of the existing substation located beneath Darling Drive will be demolished or retained.

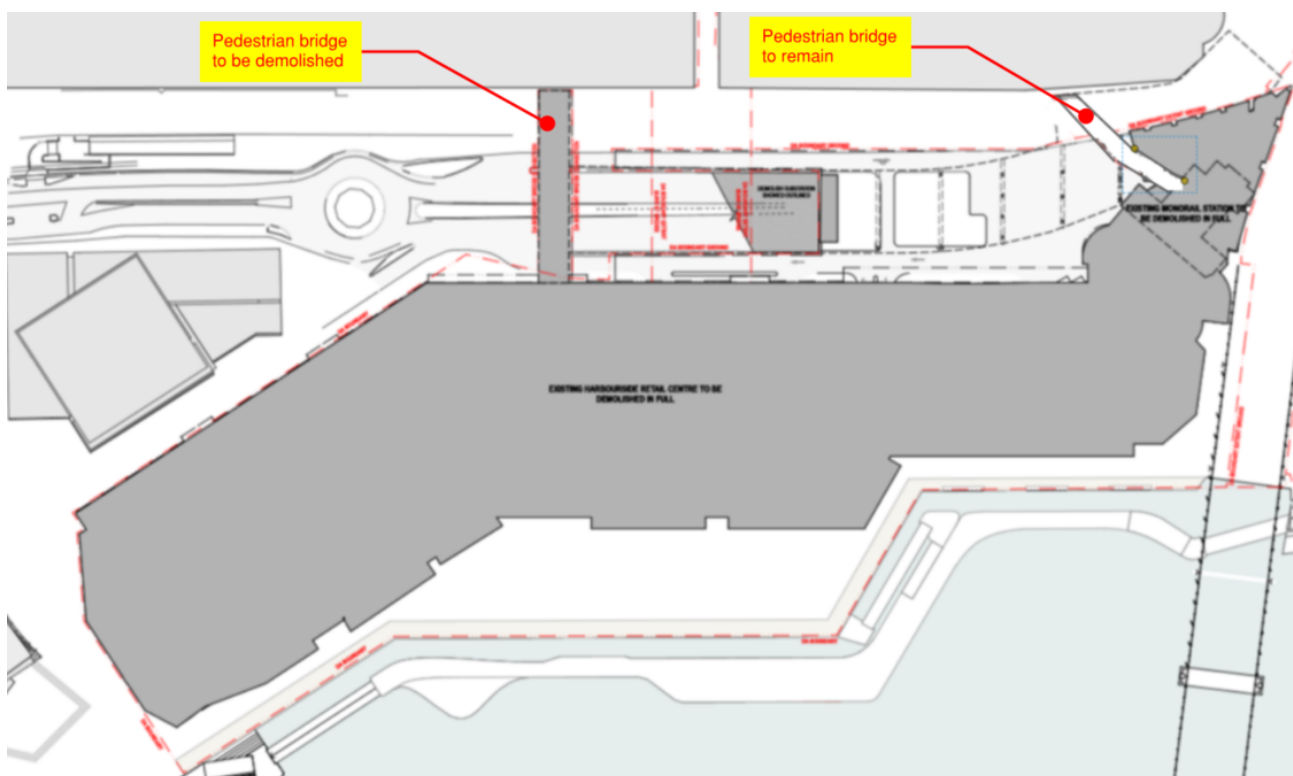


Figure 1-1 Indicative areas of site development demolition

The demolition scope of works includes:

- Demolition and removal of all structures and materials from site inclusive of any above ground services, internal fixtures, fittings, furniture, internal finishes and building fabric at the site.

- Demolition of existing Monorail station and the southern pedestrian bridge over Darling Drive light rail corridor. Existing northern pedestrian bridge is to remain (Refer to Figure 1-1 above for pedestrian bridge location details).
- Hard ground surfaces, paths, external stairs, and planter boxes etc.
- Installation of hoarding and scaffolding.
- Complete site clearing of rubbish, waste and rubble.
- Provide all sediment control measures to the site during demolition.
- Removal of all redundant services back to site perimeter.

1.5 Hours of Work

The anticipated hours of work pending approval for construction works, including the delivery of materials to and from the sites within the precinct, are as follows:

- Between 7:00 am and 6:00 pm, Mondays to Fridays inclusive.
- Between 7:00 am and 5:00 pm, Saturdays.
- No work will be carried out on Sundays and Public Holidays.

Works outside these times are subject to agreement and approval by Council or the relevant approving authority, such as TransDev for works associated in the vicinity or over the light rail corridor.

2 BACKGROUND AND EXISTING CONDITIONS

2.1 Location and Land Use

The subject site is located at 2-10 Darling Drive, Darling Harbour as shown in 1.

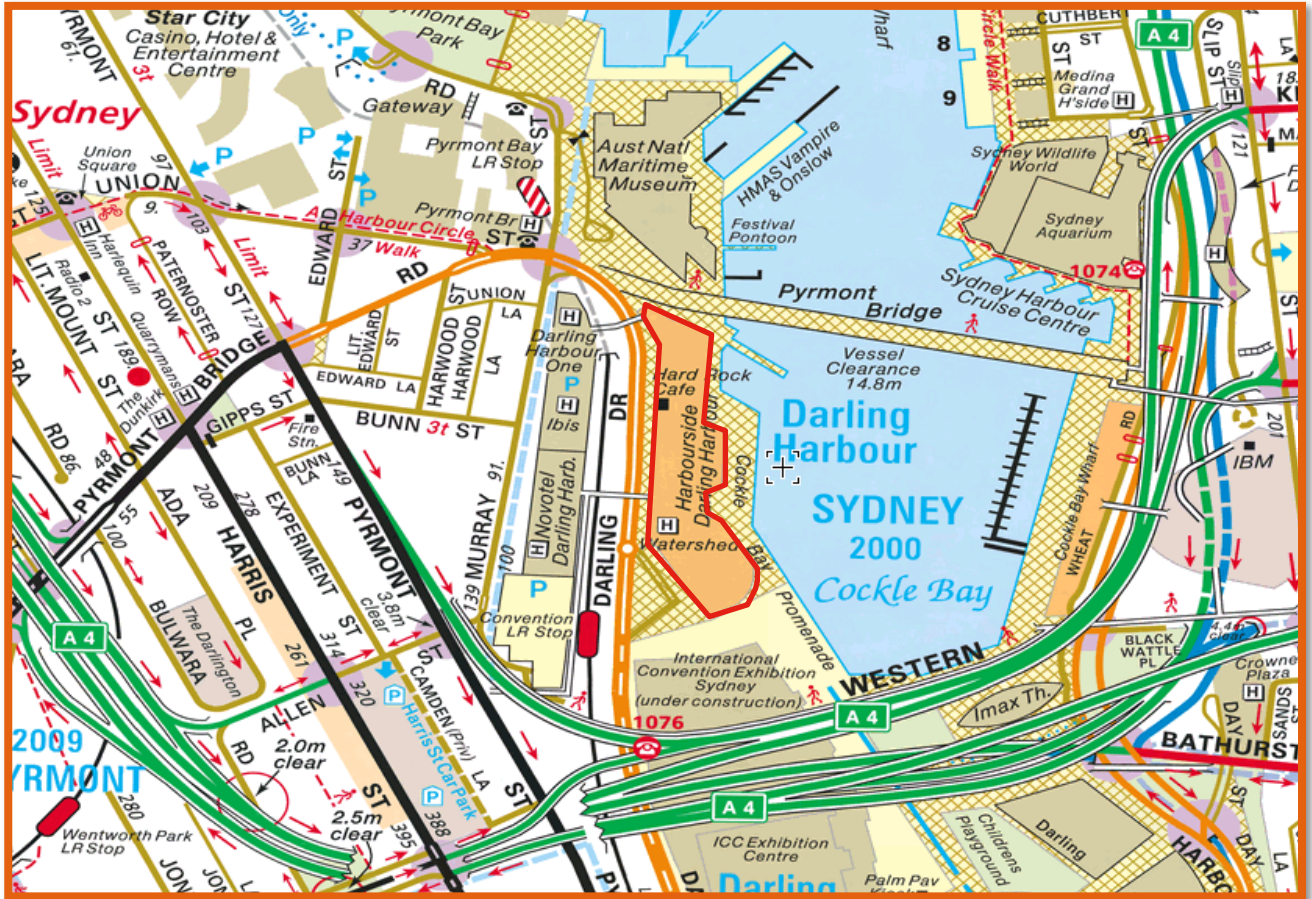


Figure 2-1 Site location

Land use surrounding the site is mixed in nature, with various uses located in the immediate area (2).



Figure 2-2 Surrounding land uses

Harbourside is immediately surrounding by the International Convention Centre (ICC) Sydney and the Sofitel Hotel to the south, Novotel and Ibis Hotels to the West and Australian National Maritime Museum to the north, across the Pyrmont Bridge.

2.2 Road Network

The subject site is bordered by Darling Drive which plays a vital role for Harbourside providing access to the car park, loading docks, hotels, local traffic distribution and access to Pyrmont. The northern portion of Darling Drive is connected to the Western Distributor via Pyrmont Bridge Road. Darling Drive is linked to the west with Harbour Street via the on and off ramp at Pier Street roundabout.

The key roads in the vicinity of the subject site include:

- **Darling Drive** – an arterial road running north-south along the west frontage of the site. It has two lanes in each direction.
- **Pier Street** – is a key sub-arterial road between Harbour Street to the east and William Henry Street to the west. Pier Street provides a vital connection to/from the Southern Arterial (wattle Street / Harris Street) to the southern CBD.
- **Western Distributor** – is predominantly an elevated freeway linking the Western end of the Sydney CBD, distributing traffic between the Harbour Bridge, the CBD and Western Suburbs. Traffic bound for the CBD can access the Western Distributor from Pyrmont Street. Outbound traffic from the CBD can exit the Western Distributor at Harris Street.

There are four key intersections that lie along the main access routes to Harbourside including:

- Darling Drive / Pier Street roundabout.
- Union Street / Pyrmont Street intersection.
- Darling Drive/ Murray Street signalised intersection.
- Pier Street / Harbour Street intersection.

2.3 Current Transport Infrastructure

Current transport infrastructure and services that interface with Harbourside is summarised in 3.

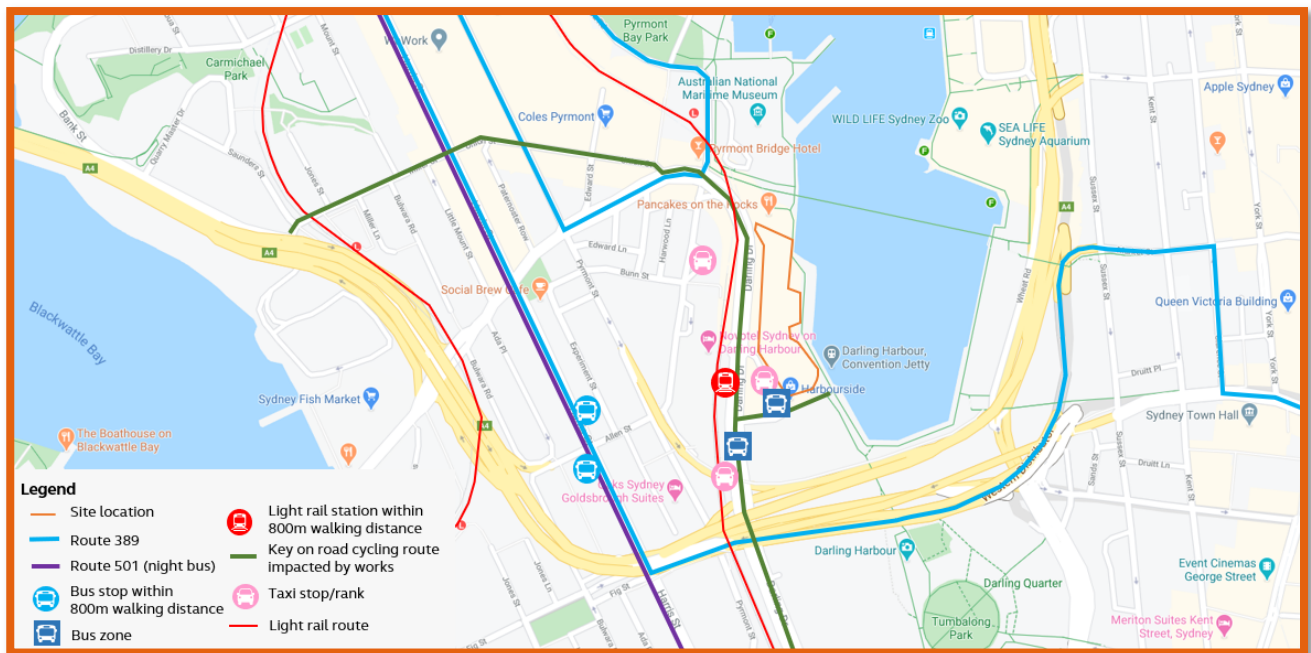


Figure 2-31 Current transport infrastructure and key routes impacted by demolition

Public Transport

Two bus routes service Harris Street stops near Allen Street, which is approximately 10-minute walk from Harbourside:

- Route 389 - Bondi Junction to Pyrmont with a frequency of 6 minutes in the AM peak, 10 minutes in the off peak and 5-8 minute in the PM peak.
- Route 501 - West Ryde to Central Pitt St via Pyrmont & Ultimo with a frequency of 20 minutes in the AM peak, 30 minutes in the off peak and 5-10 minutes in the PM peak.

Harbourside is serviced by light rail service L1 at the Exhibition Centre Light Rail station on Darling Drive approximately 100 metres away. This service runs between Central Station and The Star, 24 hours a day, 7 days a week.

Harbourside is also serviced by Captain Cook Cruises which operates services between Darling Harbour Convention Wharf, Barangaroo King Street Wharf No.1 and Circular Quay.

Pedestrians and Cyclists

Pyrmont Bridge is a high use walking and cycling route that provides access to Harbourside.

An at-grade pedestrian crossing exists at both the Exhibition and Convention Centre Light Rail Stations.

A pedestrian link across Darling Drive between exists Harbourside Shopping Centre and Novotel Sydney.

There are bicycle lanes along Darling Drive in both directions. The bicycle lane travelling northbound is a shared use path in sections, whereas the bicycle lane travelling southbound is on the road shoulder.

Parking, Taxi and Bus Zones

Secure parking is available for retail and commercial access to Harbourside from Murray St or parking at the ICC. There are five on street parking bays available southbound on Darling Drive.

There are numerous taxi zones in the Harbourside vicinity including a taxi zone on Darling Drive opposite the ICC, a secure taxi rank outside Harbourside between Harbourside and the Sofitel Hotel and a taxi rank outside the Ibis hotel on Murray Street.

There are bus zones on both sides of Darling Drive outside the ICC and outside Harbourside beside the taxi rank between Harbourside and the Sofitel Hotel.

3 SITE ACCESS AND TRAFFIC IMPACTS

3.1 Heavy Vehicle Types and Frequency

For the transport of waste resulting from demolition works, it is anticipated that 12.5m rigid tipper trucks will be used.

For deliveries of site equipment and material, the largest truck is assumed to be a 19.0m AV. This vehicle has therefore been used for the purposes of the swept path assessment. AutoCAD and its vehicle tracking software have been used to produce the swept paths, and to determine the potential impacts on infrastructure in terms of vehicle manoeuvrability through intersections.

Figure 3-1 below illustrates the profile view dimensions of the trucks used. It is noted that a 20km/h design speed has been selected for all swept paths.

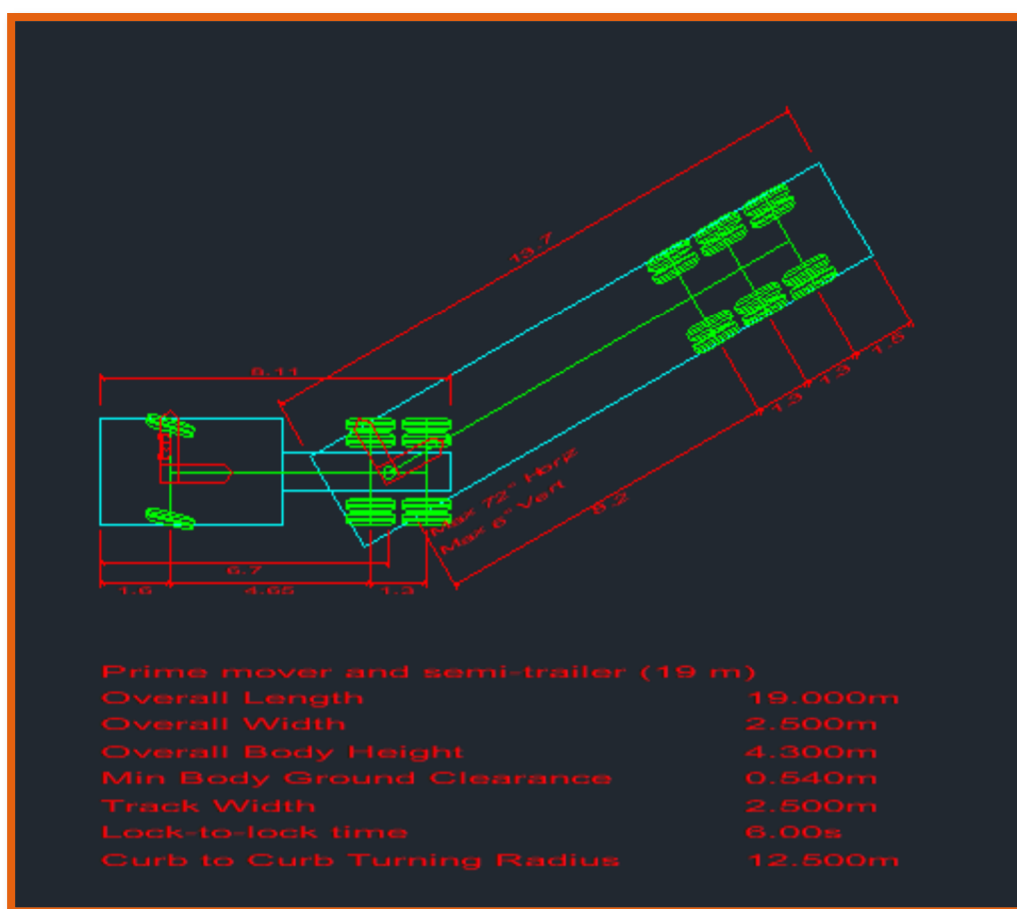


Figure 3-1 19.0m Design Vehicle Dimensions

The Stage 1 DA works will involve approximately 1,480 total truck loads. This will result in (on average) 20 heavy vehicles each workday accessing and egressing the site.

3.2 Heavy Vehicle Routes

There are two possible routes for heavy vehicles (either 12.5m rigid tipper truck or 19.0m AV) to access the subject site.

The first route is for trucks to arrive to site via Darling Drive southbound as shown in **Figure 3-2** overleaf. Trucks arrive via the Western Distributor, turn left onto Pymont Bridge Road then continue until reaching

the site. To egress the site, trucks will turn right out onto Darling Drive heading northbound, left onto Pyrmont Bridge Road and then merge onto the Western Distributor.

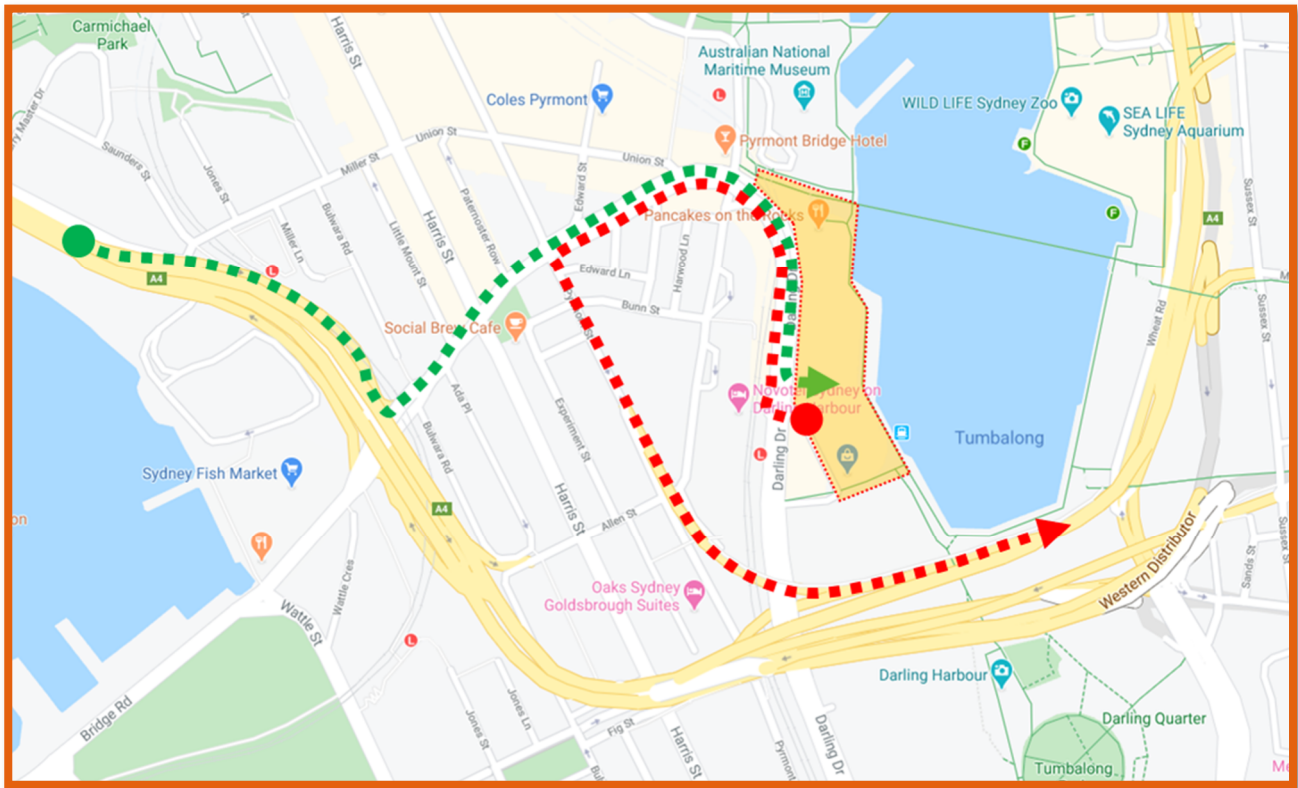


Figure 3-2 Route 1, Darling Drive Southbound

12.5m rigid trucks can also access and access the site for demolition purposes via the existing loading dock access road, **Figure 3-3** shows the routes for trucks to access the loading dock via the slip lane on Darling Drive northbound. It is noted that a 19.0m AV can not access the loading dock.

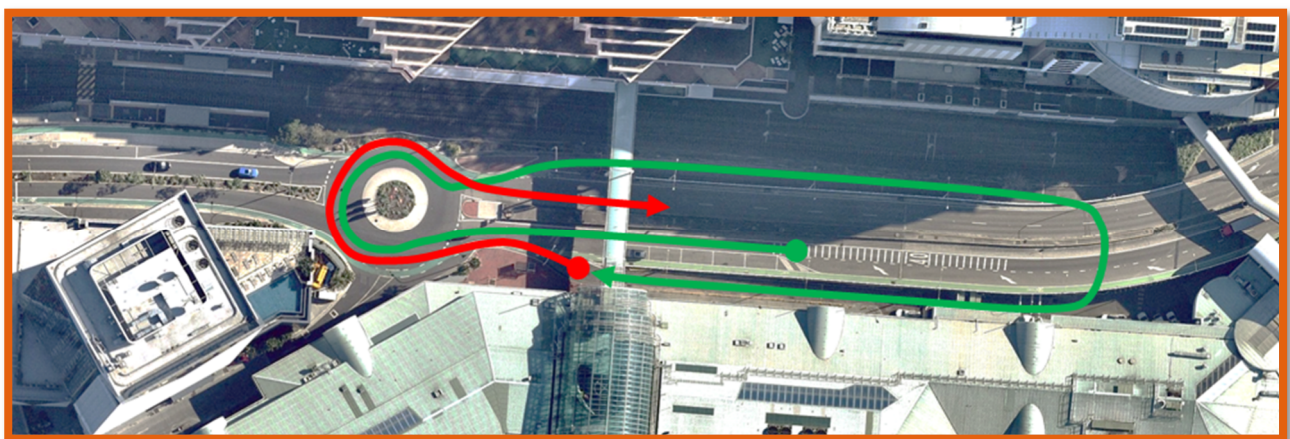


Figure 3-3 Route 1, Loading Dock Access (12.5m rigid tipper trucks only)

The second route is for trucks to arrive via Darling Drive northbound as shown in **Figure 3-4** below. Trucks arrive via the Western Distributor southbound, merge into Harbour Street, turn right onto Pier Street and then turn right onto Darling Drive through to the site.

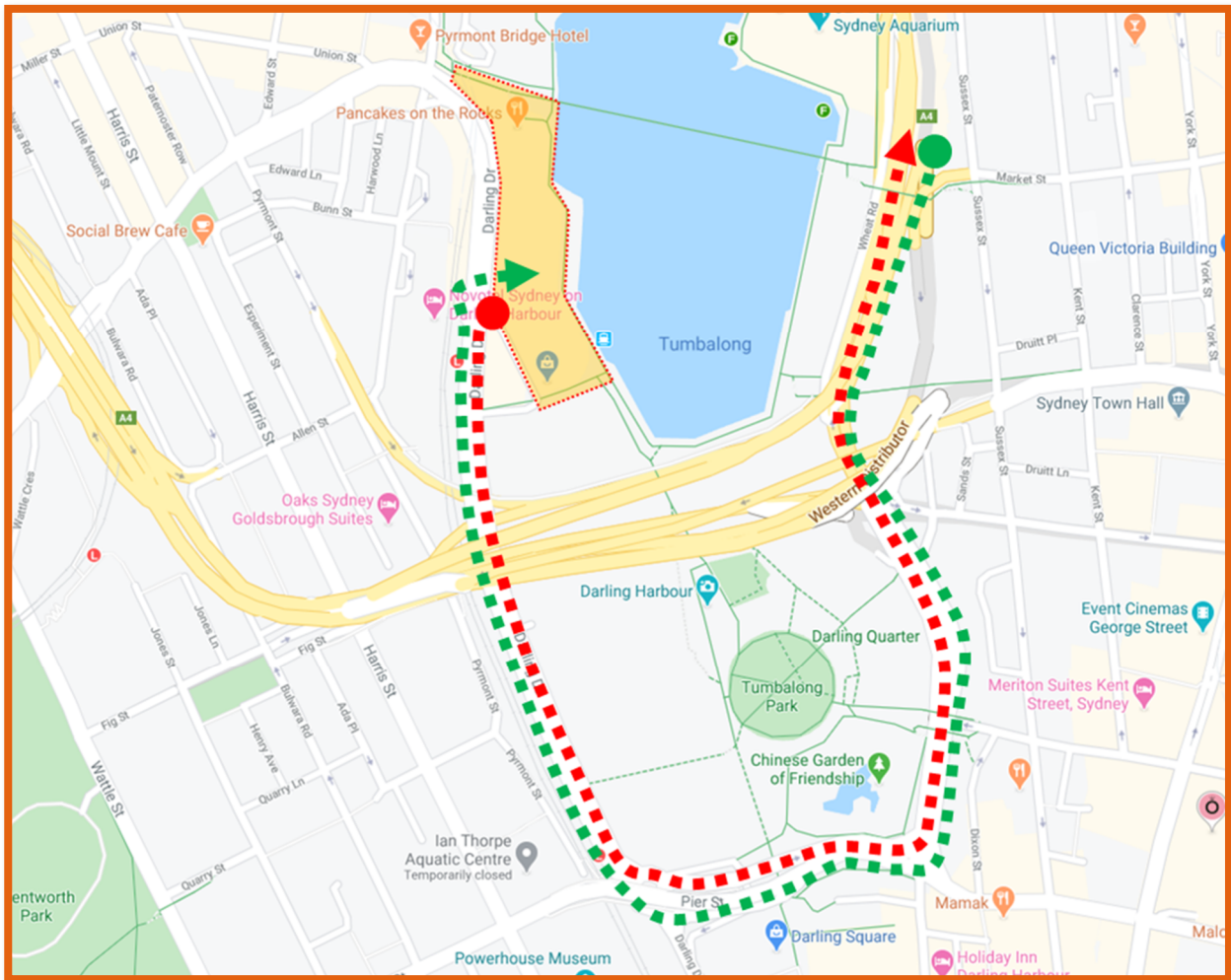


Figure 3-4 Route 2, Darling Drive Northbound

For 12.5m rigid tipper truck access to the site via the loading dock, trucks will enter via Darling Drive northbound and exit via Darling Drive southbound as shown in **Figure 3-5** below.

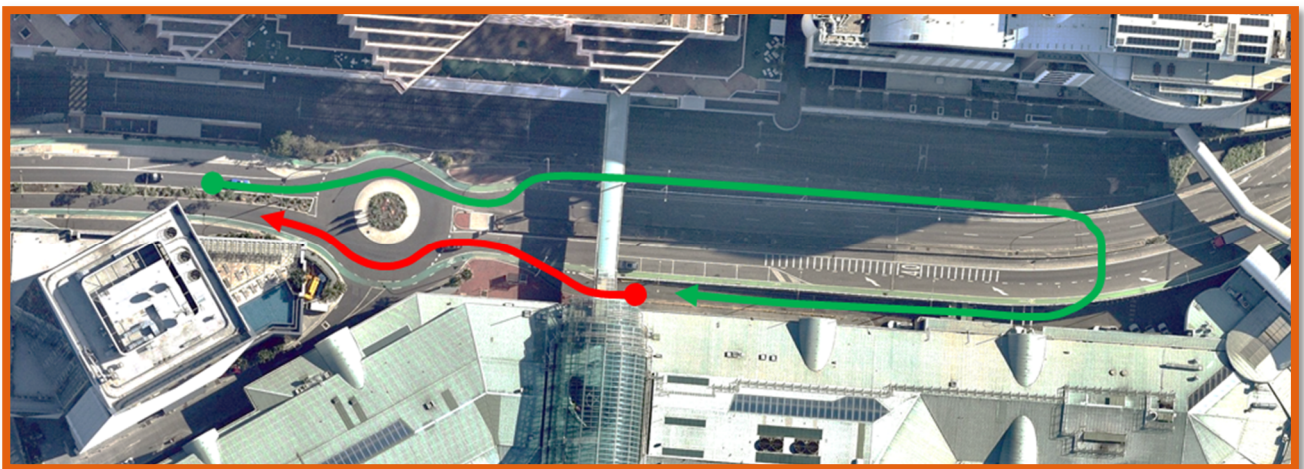


Figure 3-5 Route 2, Loading Dock Access (12.5m rigid tipper trucks only)

3.3 Vehicle Access Management and Traffic Control Measures

The primary access point for the site is situated on the corner of Darling Drive roundabout and a secondary access point for demolition waste material transport (via 12.5m rigid tipper trucks only) is via the existing loading dock. These access arrangements and respective vehicle movements are shown in **Figure 3-6** below.

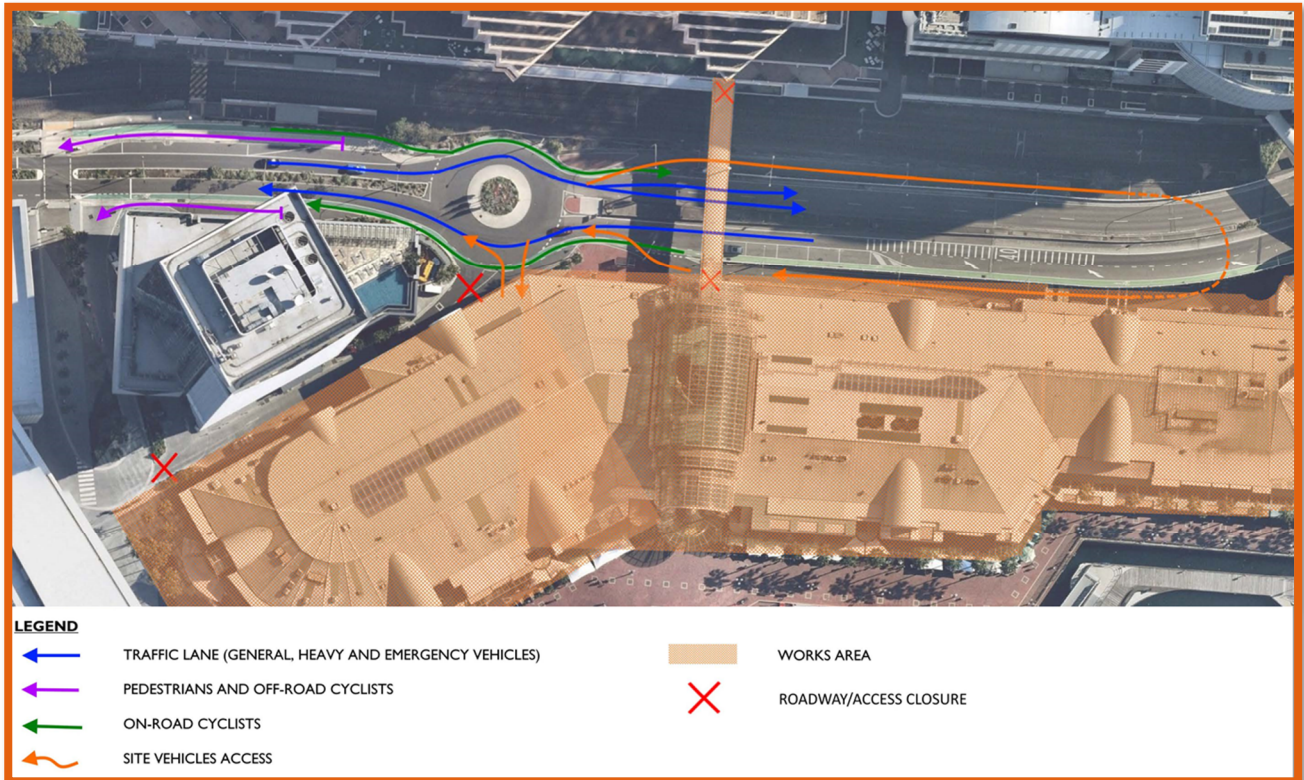


Figure 3-6 Site Access Layout

It is noted that access to the loading dock is restricted to 12.5m rigid trucks only due to the presence of columns and other infrastructure restricting turning movements underneath the elevated portion of Darling Drive.

Vehicle Access Management

Swept path analysis has been undertaken for 19.0m AV entering and exiting the primary access point and are provided in **Appendix A**. The site access point has been checked for forward in/forward out manoeuvres and it is assumed that sufficient space has been made to accommodate these vehicles to turn around internally.

The following findings were made based on the swept path assessment:

- Both route 1 (Darling Rd southbound) and route 2 (Darling Rd northbound) are viable options for both a 19.0m AV and 12.5m rigid truck to enter the primary site access point.
- The entry manoeuvre for a 19.0m AV via Darling Drive southbound (route 1) is viable but is the more difficult manoeuvre to make than a right turn from Darling Drive northbound (route 2).
- A 19.0m AV will cross the centre vegetated portion of the roundabout when turning right toward Darling Drive northbound (route 1) and a temporary traversable surface will need to be installed to allow this manoeuvre to be completed safely.

Site specific Traffic Control Plans will be developed that identify the necessary temporary traffic control devices required to safely operate the site access points which minimise impacts to all roads users and affected stakeholders. It is considered that to operate the site access point safely, traffic controllers will be required on both approaches of the Darling Drive roundabout to stop and hold traffic for trucks to both enter and exit the site. This will ensure that any conflict points are suitably eliminated and the likelihood of incidents with either cyclists or vehicles is significantly reduced.

There will be no requirement to block any traffic lanes during the demolition works for site vehicle access, for the demolition works associated with the main building development. Nearby accesses for businesses, hotels, residents and other stakeholder will be maintained at all times.

Temporary road closures along Darling Drive and associated permits will be required for the demolition works associated with the removal of the two existing pedestrian bridges. Site specific Traffic Control Plans will be developed for these works in consultation with the relevant authorities.

Signage will be installed within the precinct to direct all deliveries to the correct sites. All vehicles upon entry to the precinct for the first time must complete a truck driver's declaration or complete a site induction to ensure compliance with the site rules.

The arrival and departure of trucks associated with the demolition works will be carefully managed and controlled by site personnel using two-way radios. Trucks will be called onto the site when required and enter and exit from Darling Drive.

The western area of the site will be utilised to access site for personnel, plant and vehicles including loading out of debris generated by the demolition works. All vehicles will enter and exit in a forward direction along Darling Drive.

During mobilisation, demolition, earthworks and construction, the construction related traffic will enter the site via the loading dock. The temporary construction access route (i.e. the loading dock) runs adjacent to the light rail line then under Darling Drive. By implementing this access, Darling Drive will remain open for the duration of the project (except potentially for the demolition of the Monorail Station and bridges).

Pedestrian Access Management

All pedestrian travel within the site for site workers will be confined to designated walkways identified by safety signs and paraweb or alternate temporary fencing.

All site workers and visitors shall enter and exit the sites via one of the following entry/exit points:

- Secured door on eastern side of Darling Drive adjacent to light rail line.
- Secured door on western side of Darling Drive adjacent to current shopping centre site.

No unauthorised personnel will be permitted within the demolition zone unless accompanied by the site supervisor. Whilst within the confines of the demolition works, all personnel will attire in Hi-Viz vests to ensure visibility to moving traffic. The site perimeter will be bound by hoardings to prevent unauthorised access to the site.

It is considered that there will be no public pedestrian access in the vicinity of the site access point due to the closures associated with the Stage 1 works.

3.4 Traffic Impacts/Intersection Assessments

Route 1

Ingress:

There are two intersections in the ingress direction for route 1 which trucks will be required to manoeuvre through. The considerations for the traffic impacts of these intersection is as follows:

- **Western Distributor/Pymont Bridge Road** (see Figure 3-7) – there are no anticipated impacts to this intersection given the relatively low volume of trucks and the low entry angle approach to Pymont Bridge Road allowing for large vehicles to turn.



Figure 3-7 Western Distributor/Pymont Bridge Road Intersection

- **Darling Drive Roundabout** (see Figure 3-8) – there are no anticipated impacts to the performance or safety of the intersection as it will be under the control of traffic controllers to stop and hold approaching traffic (including cyclists). Swept path checks have also confirmed that the turning manoeuvre is viable.



Figure 3-8 Darling Drive Roundabout

Egress:

There are two intersections in the egress direction for route 1 which trucks will be required to manoeuvre through. The considerations for the traffic impacts of these intersection is as follows:

- **Darling Drive Roundabout** (see Figure 3-9) – there are no anticipated impacts to the performance or safety of the intersection as it will be under the control of traffic controllers to stop and hold approaching traffic (including cyclists). Swept path checks have also confirmed that the turning manoeuvre is viable.

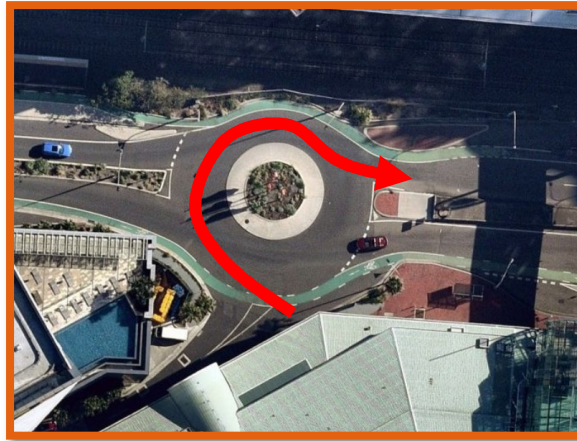


Figure 3-9 Darling Drive Roundabout

- **Pymont Bridge Road/Pymont Street** (see Figure 3-10) – there are no anticipated impacts to this intersection given the relatively low volume of trucks and the ease for a 19.0m AV to turn into Pymont Street given it is one-way and the carriageway is four lanes wide.

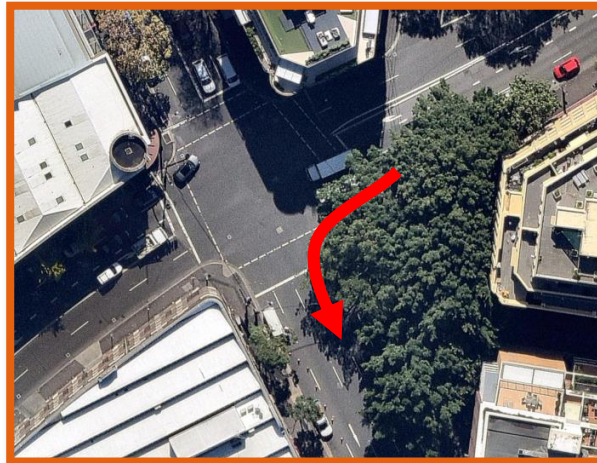


Figure 3-10 Western Distributor/Pymont Bridge Road Intersection

Route 2

Ingress:

There are three intersections in the ingress direction for route 2 which trucks will be required to manoeuvre through. The considerations for the traffic impacts of these intersections is as follows:

- **Harbour Street/Pier Street** (see Figure 3-11) – there are no anticipated impacts to this intersection given the relatively low volume of trucks and the large turning radius for manoeuvrability.

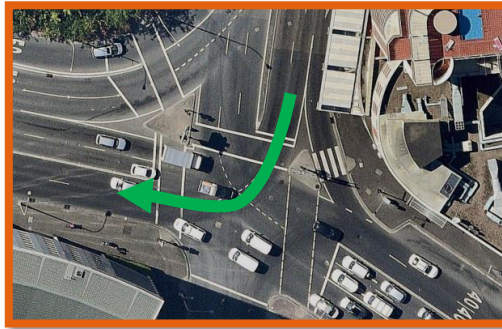


Figure 3-11 Harbour Street/Pier Street Intersection

- **Pier Street/Darling Drive** (see Figure 3-12) – there are no anticipated impacts to this intersection given the relatively low volume of trucks and the large turning radius to complete the entry and exit of the roundabout as indicated in Figure 3-12 below.



Figure 3-12 Pier Street/Darling Drive

- **Darling Drive Roundabout** (see Figure 3-13) – there are no anticipated impacts to the performance or safety of the intersection as it will be under the direction of traffic controllers to stop and hold approaching traffic. Swept path checks have also confirmed that the turning manoeuvre is viable.

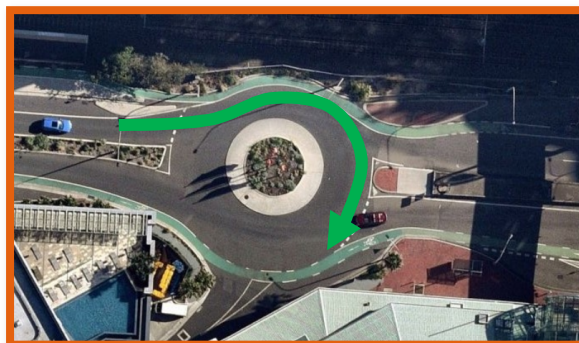


Figure 3-13 Darling Drive Roundabout

Egress:

There are three intersections in the egress direction for route 2 which trucks will be required to manoeuvre through. The considerations for the traffic impacts of these intersection is as follows:

- **Darling Drive Roundabout** (see Figure 3-14) – there are no anticipated impacts to the performance or safety of the intersection as it will be under the direction of traffic controllers to stop and hold approaching traffic. Swept path checks have also confirmed that the turning manoeuvre is viable.



Figure 3-14 Darling Drive Roundabout

- **Pier Street/Darling Drive** (see Figure 3-15) – there are no anticipated impacts to this intersection given the relatively low volume of trucks and the low entry and exit angle as shown in Figure 3-15 below.



Figure 3-15 Pier Street/Darling Drive

- **Harbour Street/Pier Street** (see Figure 3-16) – there are no anticipated impacts to this intersection given the relatively low volume of trucks and the large turning radius for manoeuvrability.



Figure 3-16 Harbour Street/Pier Street Intersection

3.5 On-site Car Parking and Access Arrangements

Site personnel shall be encouraged to use public transport including trains, buses, light rail and ferries since no site parking will be provided available due to the limited room available. Town Hall train station is located approximately 800 metres of the site and Exhibition Centre Light Rail station is located approximately 100 metres of the site will enable the majority of site workers to travel by public transport. There are also bus services which run regularly from surrounding streets as outline in Section 2.3.

All work areas will be barricaded, and warning signs posted to ensure access is restricted to the working crew only.

4 CONCLUSION

Two route options have been presented in this report that detail access and egress to the Stage 1 demolition works for the Harbourside Redevelopment project. A swept path assessment for the two routes was completed and found that:

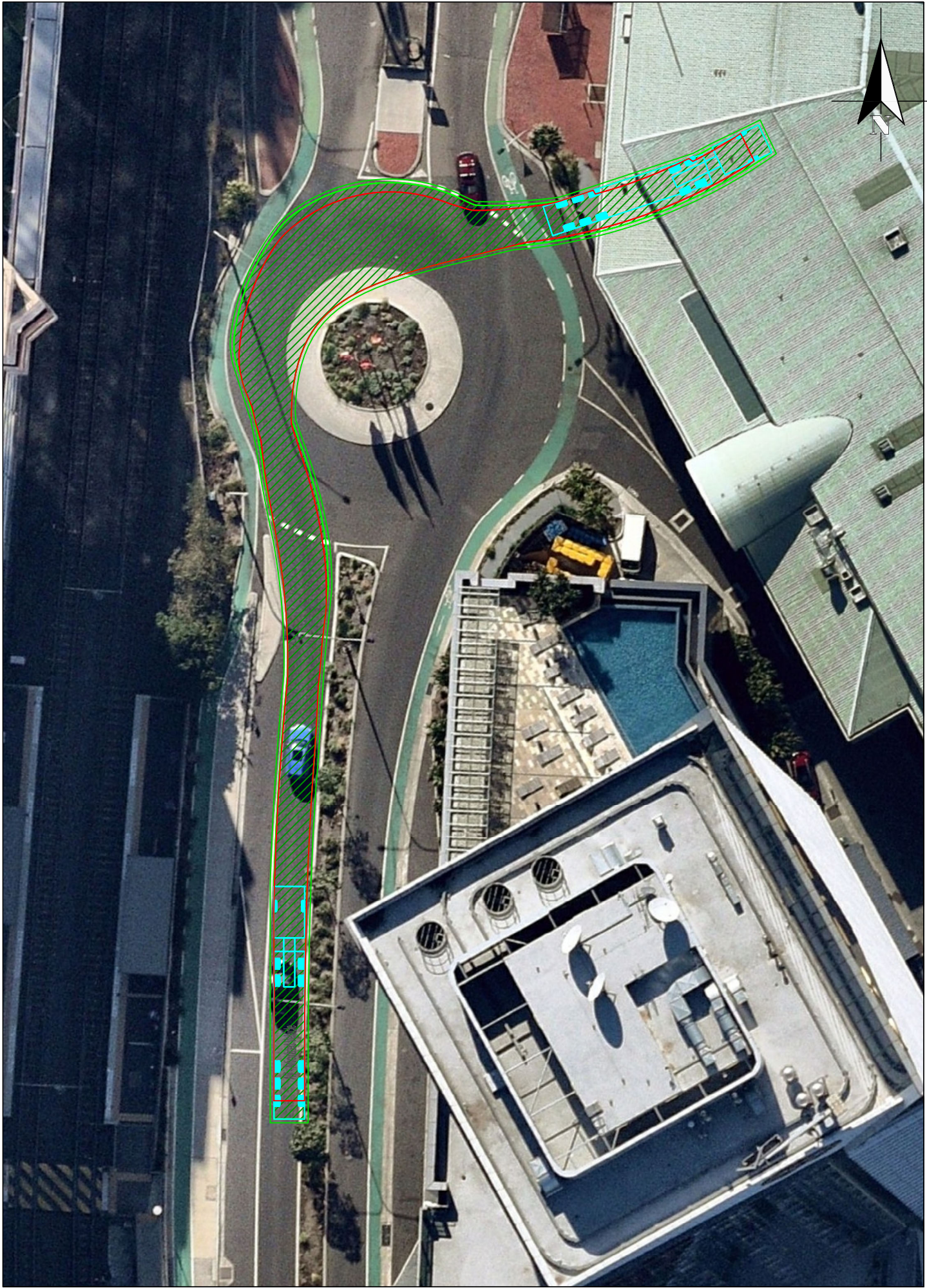
- Both route 1 (Darling Rd southbound) and route 2 (Darling Rd northbound) are viable options for both a 19.0m AV and 12.5m rigid truck to enter the primary site access point.
- The entry manoeuvre for a 19.0m AV via Darling Drive southbound (route 1) is viable but is the more difficult manoeuvre to make than a right turn from Darling Drive northbound (route 2).
- A 19.0m AV will cross the centre vegetated portion of the roundabout when turning right toward Darling Drive northbound (route 1) and a temporary traversable surface will need to be installed to allow this manoeuvre to be completed safely.

An assessment of intersections along both routes found that there were no significant issues that would affect the operational performance, safety or have consequential impacts to any particular road user groups. It is noted however that no consultation has been undertaken as part of this desktop study with regulatory authorities or potentially affected stakeholders.

It is recommended that consultation is undertaken with regulatory authorities or potentially affected stakeholders, such as the Sofitel Hotel and NSW Taxi Council, to ensure that the demolition site access is coordinated with the operation of road user groups, associated with the slip lane located between the development site and the Sofitel Hotel.

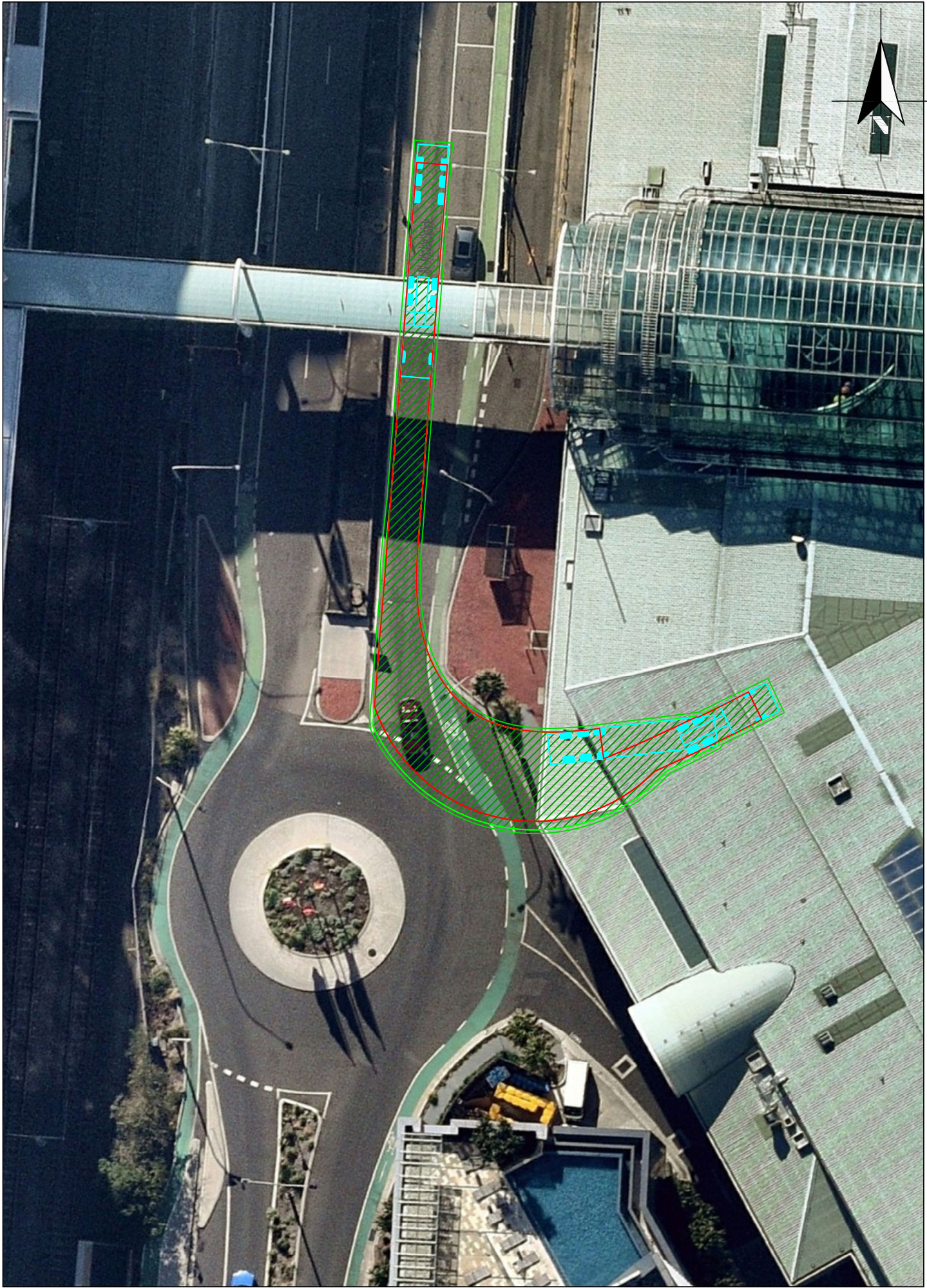
It is considered that the findings of this report should be considered in preparation of the detailed Traffic Management Plan and the corresponding Traffic Control Plans. It is noted that this assessment has been based on a maximum design vehicle being at 19.0m AV and does not constitute the transport of any over dimension overmass loads or vehicles configurations above what has been identified in this report.


APPENDIX A – **SWEPT PATHS FOR 19.0M ARTICULATED VEHICLE**



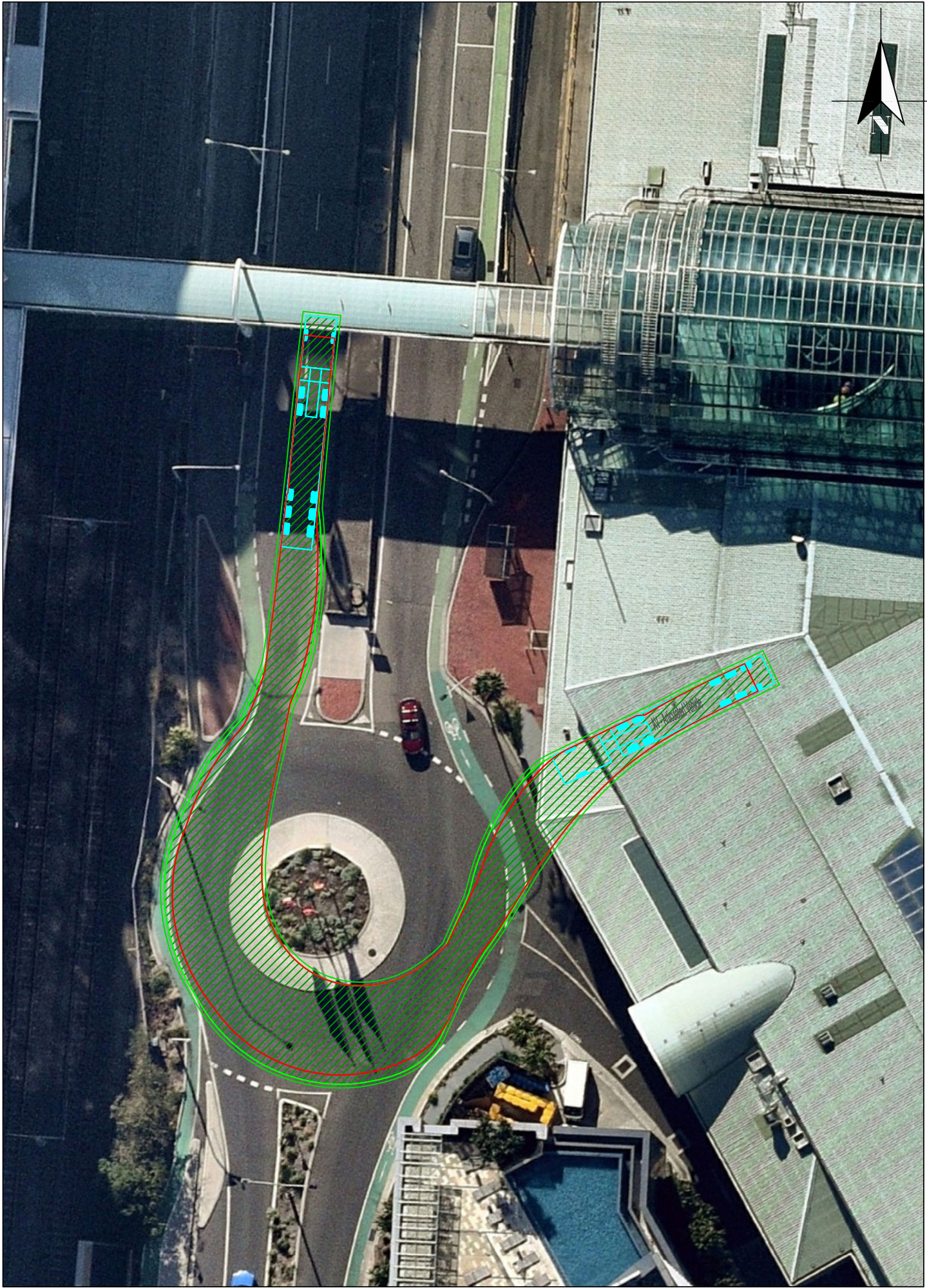
<div><div>ARCADIS</div><div>Level 16 518 George Street NSW 2000 Sydney Tel: +61 28907 9000</div><div>aus@arcadis.com www.arcadis.com</div></div>	<div>CLIENT:</div> <div>Mirvac</div>	<div>PROJECT:</div> <div>Harbourside Demolition Traffic Management Plan</div>	<div>SCALE:</div> <div>1:1</div>	<div>REV:</div> <div>1</div>
		<div>DRAWING TITLE:</div> <div>AS/NZS 2890.1:2004 Articulated Vehicle (19m) Ingress Swept Path</div>	<div>DRAWING NUMBER:</div> <div>01</div>	<div>DATE:</div> <div>2020/06/24</div>

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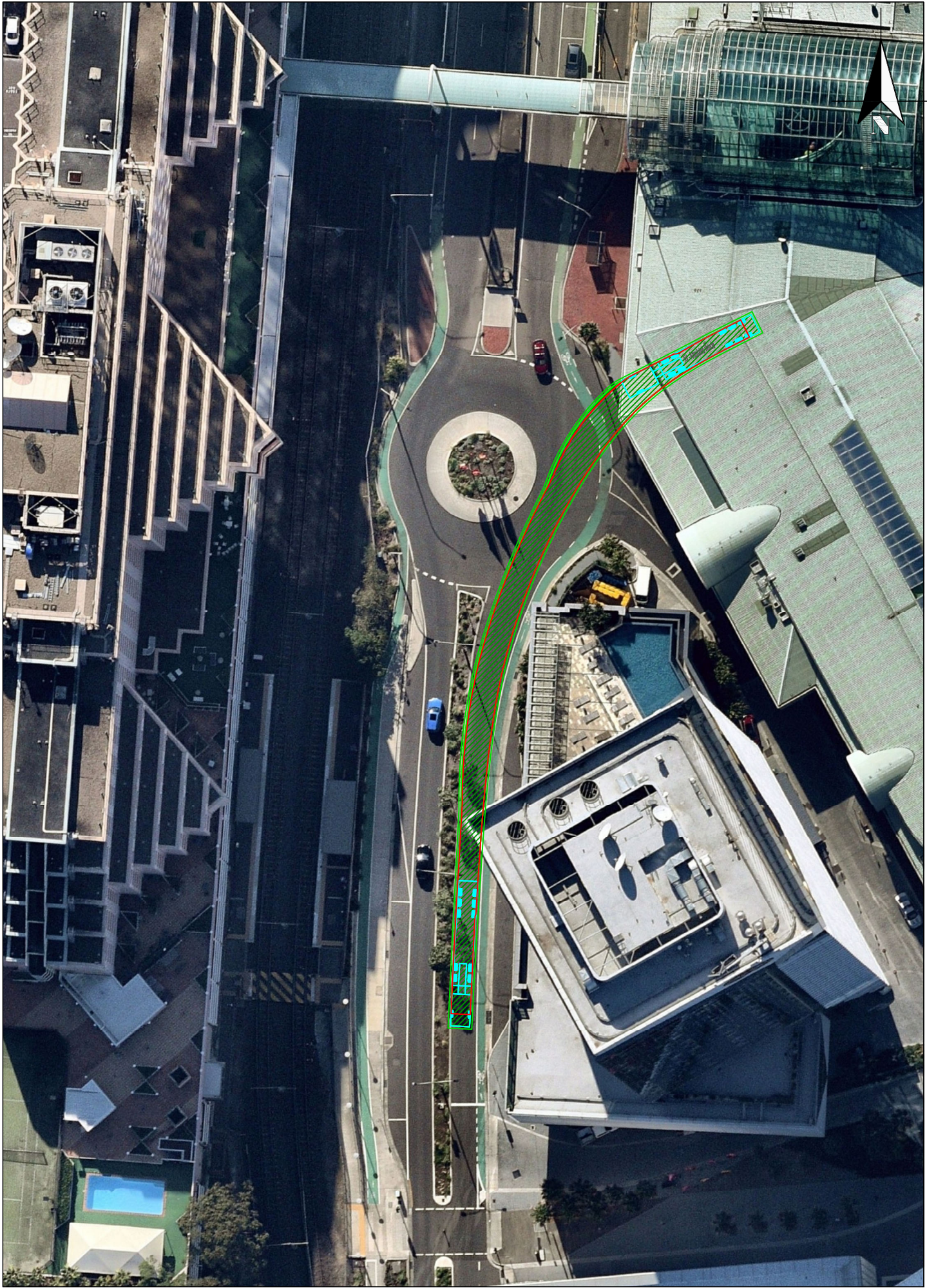
 <div>Level 16 518 George Street NSW 2000 Sydney Tel: +61 28907 9000</div> <div>aus@arcadis.com www.arcadis.com</div>	CLIENT: Mirvac	PROJECT: Harbourside Demolition Traffic Management Plan	SCALE: 1:1	REV: 1
		DRAWING TITLE: AS/NZS 2890.1:2004 Articulated Vehicle (19m) Ingress Swept Path	DRAWING NUMBER: 02	DATE: 2020/06/24


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		DRAWING TITLE: AS/NZS 2890.1:2004 Articulated Vehicle (19m) Egress Swept Path	DRAWING NUMBER: 03	DATE: 2020/06/24

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