

Transport for Tomorrow

# Construction Traffic Management Plan

<b>Project</b>	Sydney Metro – West Sydney Airport Enabling Works
<b>Document No.</b>	TFT_TMP_0001_ST MARYS_1.0
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## Document Approval

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## Contents

1. Introduction.....	1
1.1. Project Background.....	1
1.2. Scope of Work and Location.....	1
1.3. Scope of this plan & Purpose.....	2
1.4. Objectives.....	3
1.5. Compliance.....	3
2. Existing Traffic Conditions.....	4
2.1. General Site Description.....	4
2.2. Existing road network.....	4
2.2.1. Queen Street.....	4
2.2.2. Station Street.....	4
2.2.3. Philip Street.....	4
2.2.4. Glossop Street.....	4
2.3. Public transport network.....	5
2.4. Pedestrian and cyclist routes.....	8
3. Construction Details.....	9
3.1. Overview.....	9
3.1.1. Service Identification & Protection.....	9
3.1.2. Stair Works.....	10
3.1.3. Lift Works.....	14
3.1.4. Finishing Works & Demobilisation.....	19
3.2. Works Programme.....	19
3.3. Working hours.....	19
3.3.1. Out of Hours Work.....	19
3.4. Site Compound & Access.....	20
3.4.1. Site Offices.....	20
3.4.2. Site Compound.....	20
3.5. Heavy Vehicle Routes.....	22
3.5.1. EIS routes.....	22
3.5.2. Proposed Heavy Vehicle Routes.....	22
3.6. Construction traffic volumes.....	23
3.6.1. Heavy Vehicles.....	23
3.6.2. Light Vehicles.....	25
3.7. Key site contacts.....	25
4. Traffic Management.....	26
4.1. Traffic Management Overview.....	26

4.2.	Site Area, Gates and Access .....	26
4.2.1.	Vehicle Routes & Swept Paths .....	26
4.3.	Loading & Unloading .....	27
4.4.	Construction Traffic Signage .....	27
4.5.	Speed Zones.....	28
4.6.	Pedestrians & Cyclists.....	28
4.7.	Public Transport .....	28
4.8.	Road Capacity & Traffic Modelling .....	31
4.9.	Implementation of Short-Term Traffic Management.....	31
4.9.1.	Traffic Guidance Schemes.....	31
4.9.2.	Council Permits.....	32
4.9.3.	TfNSW Road Occupancy Licences .....	32
4.10.	Management of Cumulative Impacts.....	32
4.11.	Road Safety Audits .....	33
5.	Communication and Dissemination of Information .....	34
5.1.	Stakeholder and Community Engagement .....	34
5.2.	Stakeholder mapping .....	35
5.3.	Community engagement tools .....	37
5.1	Key messages .....	38
5.4.	Traffic and Transport Liaison Group .....	38
6.	Conclusion.....	39

## Table of Figures

Figure 1 – Lift shaft and stairs to be relocated at St Marys station .....	2
Figure 2 Greater Western Sydney Bus Network Map - Busways. (Source: Transport NSW) .....	6
Figure 3 - Parramatta, Fairfield & Liverpool Region Network - Transit Systems .....	7
Figure 4 Existing walking and cyclist routes for St Marys Station .....	8
Figure 5 – Services to be identified and protected (in red) .....	10
<i>Figure 6 - Piles &amp; capping beam</i> .....	11
Figure 7 - Piling rig used for the works .....	11
Figure 8 - Structural steel support columns.....	12
Figure 9 - Installation of new stair modules with 200t crane .....	12
Figure 10 - Pedestrian switch to new staircase .....	13
Figure 11 - Demolition of exiting stairs .....	13
Figure 12 - Lift shaft slab installation .....	15
Figure 13 - Lift shaft installation .....	15

Figure 14 - Clocktower installation .....	16
Figure 15 - Lift installation and commissioning .....	16
Figure 16 - Canopy installation.....	17
Figure 17 - Pavement works .....	17
Figure 18 - Hoarding change, switch to new lift.....	18
Figure 19 - Lift demolition.....	18
Figure 20 - Site offices and parking.....	20
Figure 21 - Class A hoarding installed at St Marys Station.....	21
Figure 22 - Site Compound .....	21
Figure 23 - EIS Heavy vehicle routes .....	22
Figure 24 Construction Vehicle Routes .....	23
Figure 25 - Site Plan .....	27
Figure 26 - 12.5m bus swept path around half road closure.....	29
Figure 27 - Crane footprint .....	30
Figure 28 - TFT/Metro combined heavy vehicle routes .....	33

## Table of Tables

Table 1 - Bus Routes, St Marys .....	5
Table 2 - High-Level Works Programme .....	19
Table 3 - Key site contact details .....	25
Table 4 - Traffic Guidance Scheme Summary.....	32

## Annexures

Annexure A Ministers Conditions of Approval
Annexure B Detailed Work Program
Annexure C Site Plan
Annexure D Traffic Guidance Schemes (TGS)
Annexure E Swept Paths
Annexure F Road Safety Audit
Annexure G Consultation Register



## 1. Introduction

### 1.1. Project Background

The Sydney Metro – Western Sydney Airport project comprises a new 23km railway line that will link the new Western Sydney Aerotropolis business hub and Airport to the south, with the rest of Sydney's public transport network via St Marys to the north. The Project includes six new metro stations along the route including one at the Western Sydney Aerotropolis, two at the new Airport site, one at Luddenham, Orchard Hills, and St Marys.

Enabling works at the existing St Marys railway station are required to prepare for the for the construction of the new Metro Station at St Marys. The Enabling Works component has been awarded to, and will be undertaken by, Transport for Tomorrow.

### 1.2. Scope of Work and Location

The scope of the Enabling Works at the St Marys railway station consists of four main components:

1. HV/LV relocations which clash with the Sydney Metro bridge structure.
2. Sydney Trains signals and communications cable replacement/relocation which clash with the Sydney Metro station box.
3. Construction of a new access track within the rail corridor to provide access to the new Sydney Metro station box; and
4. Relocation of the existing lift shaft and stairway at St Marys railway station to remove obstruction to the Tunnel Boring Machine used for the excavation of the new Sydney Metro Tunnels

At the time of writing this report, the HV/LV relocations, signals/communication cable relocations and access track work have been completed. The remaining scope of work, being the relocation of the exiting stairs and lift shaft is the scope of this plan. Figure 1 below provides the location of the existing lift shaft and stairs at St Marys Station.

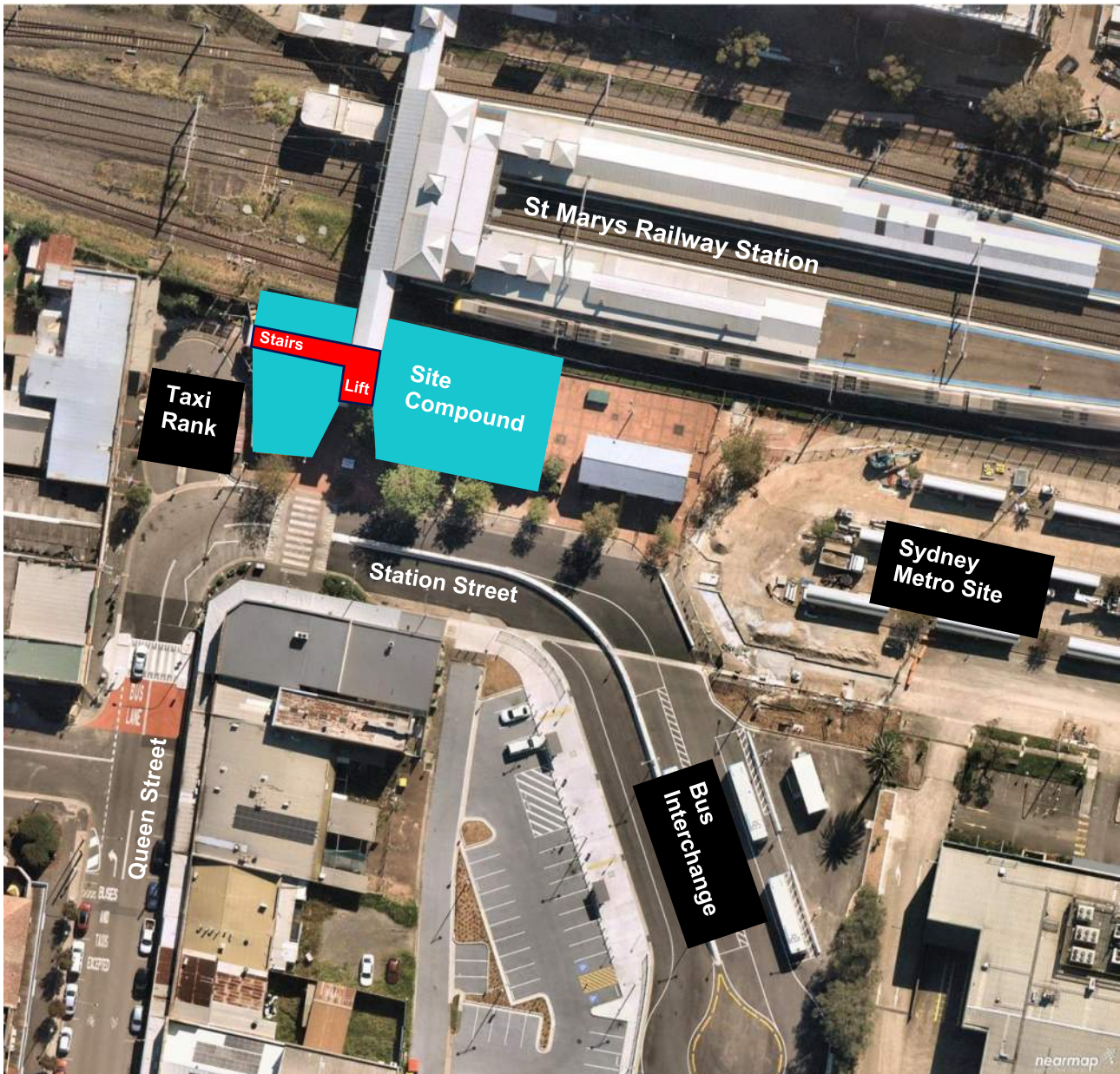


Figure 1 – Lift shaft and stairs to be relocated at St Marys station

### 1.3. Scope of this plan & Purpose

This Construction Traffic Management Plan (CTMP) assess the impact of the lift shaft and stair relocation works at St Marys Station and provide traffic management measures to adequately manage those impacts. This CTMP describes the long- and short-term traffic management required to facilitate the works in a safe a compliant manner.

This Construction Traffic Management Plan (CTMP) has been prepared to meet the requirements of the Ministers Conditions of Approval for Traffic & Transport and the Sydney Metro Construction Traffic Management Framework. A copy of the Ministers Conditions of Approval related to Traffic and Transport is provided in Appendix A.

## 1.4. Objectives

The primary objectives and principles of this CTMP are:

- Keep traffic delays to a minimum
- Minimise disruption to businesses
- Minimise disturbance to the environment
- Ensure traffic impacts are within the scope permitted by Local Council and CJP
- Ensure the safety of employees, contractors, **members of the public** and **all** road users

## 1.5. Compliance

This plan has been prepared to be compliant with the following legislative and other requirements:

### Legislation

The main legislation relevant to traffic management for the Project includes:

- Environmental Planning and Assessment Act 1979
- Roads Act 1993
- Road Transport (Safety and Traffic Management) Act 1999
- Roads Regulation 2008.

### Guidelines and standards

The main guidelines, specifications, and policy documents relevant to this TMP include:

- Transport for NSW Traffic Control at Worksites Manual version 6 (2020)
- Australian Standard 1742.3-2009 Traffic control devices for works on roads
- Transport for NSW Road Occupancy Manual (2018)
- AUSTROADS Guide to Road Safety - Parts 1-9

### Contractual

The main contractual documents relevant to this TMP include:

- Western Sydney Airport – Ministers Conditions of Approval
- Sydney Metro Construction Traffic Management Framework

## 2. Existing Traffic Conditions

### 2.1. General Site Description

The site is located on the northern side of Station Street, adjacent St Marys Railway Station's Southern entrance and borders the T1 Western line rail corridor along its northern boundary. Surrounding land use is primarily commercial with a local business adjoining both Station Street and Queen Street to the south. There is a new bus interchange immediately to the east and a taxi rank to the west. Given the public transport facilities and commercial land uses, the area generates substantial pedestrian traffic during commuter peak periods. Road user and bus traffic are on the immediate area.

### 2.2. Existing road network

#### 2.2.1. Queen Street

Queen Street is a classified local road but provides a collector function, joining St Marys station to the north with the Great Western Highway to the south. It is a two-lane two-way road with restricted on-street parking on both sides. It has a sign posted speed limit of 40 km/h and an on-road cycle facility along its length. Adjacent land use is primarily commercial. There are four marked zebra crossings along its length, two of which are in the vicinity of the construction compound, a signalised intersection at Charles Hackett Drive and one unmarked crossing just north of the signalised intersection. It is a public transport route with bus stops on both sides of the road. Only buses and Taxis are permitted north of Nariel Street heading toward St Marys Station. It also has a 3t load limit imposed along its length.

#### 2.2.2. Station Street

Station Street is a classified local road which serves to provide access for Taxis and buses to St Marys Railway Station and the new bus interchange. It joins Queen Street to the west and terminates at a roundabout at the bus interchange. It has a sign posted speed limit of 40km/h. Parking is not permitted in the vicinity of the bus interchange and St Marys Station.

#### 2.2.3. Philip Street

Phillip Street is a two-lane two-way classified local road joining Queen Street to the west and Glossop Street to the east. Phillip Street provides access to both residential premises and local businesses. It has a sign posted speed limit of 40 km/h between Queens Street and Blair Avenue, and a 50km/h speed limit east of Blair Avenue to Glossop Street. On-street parking is generally permitted within its carriageway which is unrestricted east of Blair Street and restricted west of Blair Street up to Queen Street. There is also an on-road cycle facility west of Blair Street approaching Queen Street.

#### 2.2.4. Glossop Street

Glossop Street is classified regional road providing a collector/sub-arterial function. It joins The Great Western Highway to the south with Forester Road to the North. It is a four-lane two-way divided carriageway with sign posted speed limit of 60km/h. It is a public transport route with bus stops on both sides of the road.



## 2.3. Public transport network

Twelve (12) bus routes operate through the St Marys interchange which primarily provide local coverage and operate at low frequency, between one to five services predominantly in the morning and afternoon peak periods. The routes are summarised in table 1 and figures 2 and 3 below.

Table 1 - Bus Routes, St Marys

Route	Description	Operator	Key Roads
745	St Marys to Norwest Hospital via Stanhope Gardens	Busways	Station Street, Lethbridge Street, Glossop Street, Gidley Street
758	St Marys to Mount Druitt via Tregear and Shalvey	Busways	Station Street, Lethbridge Street, Phillip Street, Glossop Street, Gidley Street
759	St Marys via Mount Druitt via Ropes Crossing	Busways	Station Street, Lethbridge Street, Phillip Street, Glossop Street, Forrester Road, Gidley Street
770	Mount Druitt to Penrith via St Marys	Busways	Mamre Road, Queen Street, Station Street, Charles Hackett Drive, Great Western Highway
771	St Marys to Mount Druitt via Colyton	Busways	Station Street, Queen Street, Charles Hackett Drive
774	Mount Druitt to Penrith via Nepean Hospital	Busways	Great Western Highway, Glossop Street, Phillip Street, Gidley Street, Station Street, Queen Street, Charles Hackett Drive, Lethbridge Street
775	Mount Druitt to Penrith via Erskine Park	Busways	Great Western Highway, Charles Hackett Drive, Queen Street, Station Street, Mamre Road
776	Mount Druitt to Penrith via St Clair	Busways	Mamre Road, Queen Street, Station Street, Charles Hackett Drive, Great Western Highway
779	St Marys to Erskine Park	Busways	Stations Street, Queen Street, Mamre Road
781	St Marys to Penrith via Glenmore Park	Busways	Station Street, Queen Street, Charles Hackett Drive, Great Western Highway, Gipps Street
782	St Marys to Penrith via Werrington	Busways	Station Street, Lethbridge Street, Phillip Street, Glossop Street, Gidley Street
835	University of Western Sydney to Prairiewood	Transit Systems	Great Western Highway, Charles Hackett Drive, Queen Street, Station Street, Lethbridge Street, Phillip Street, Glossop Street, Gidley Street
N70	Nightrider Town Hall to Penrith	CDC	

S11	St Marys to St Clair shopping village	Busways	
School Services	4115, 4157, 4512, 4556, 4566, 4616, 4637 & 4657	Busways	

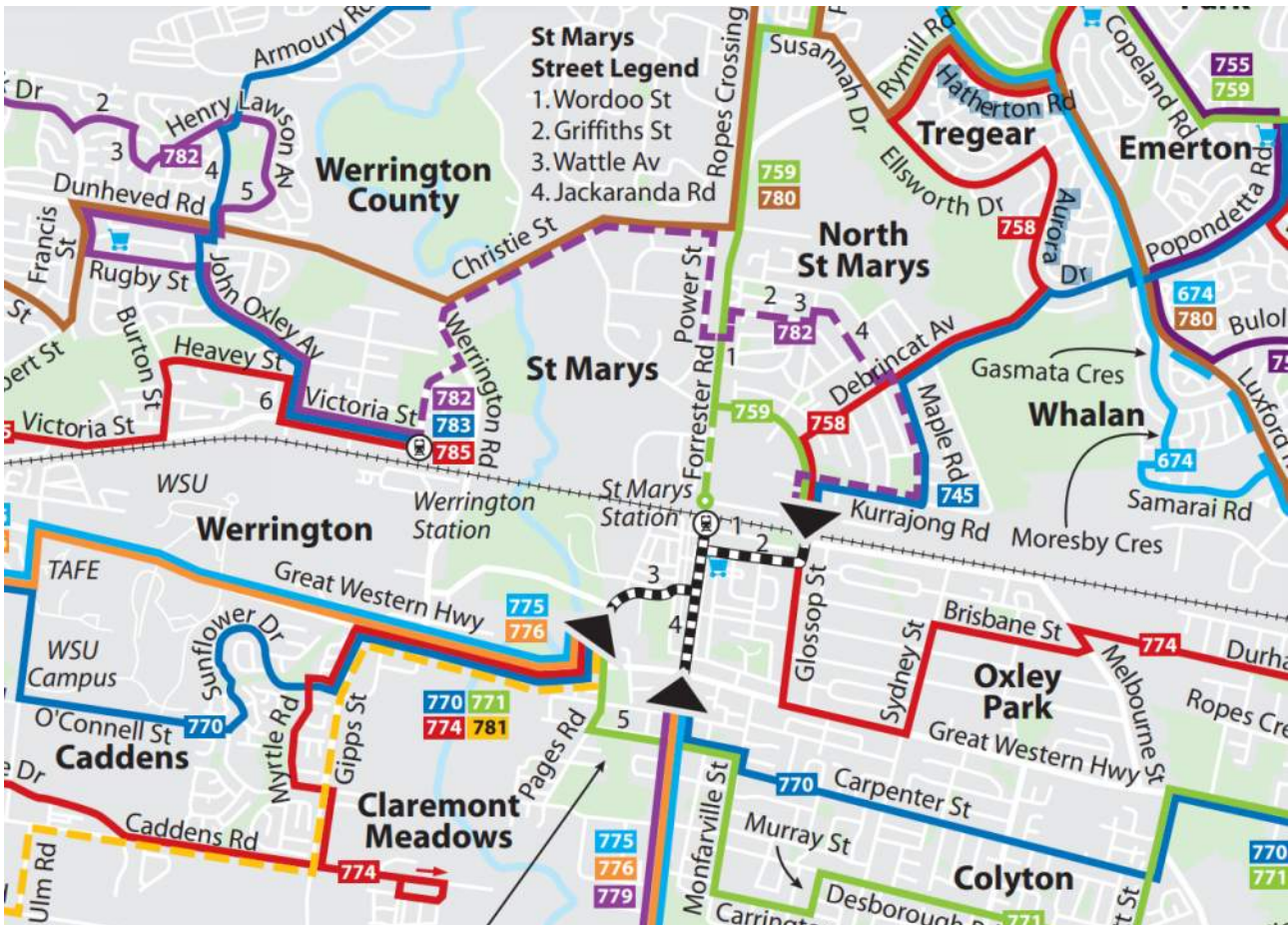


Figure 2 Greater Western Sydney Bus Network Map - Busways. (Source: Transport NSW)

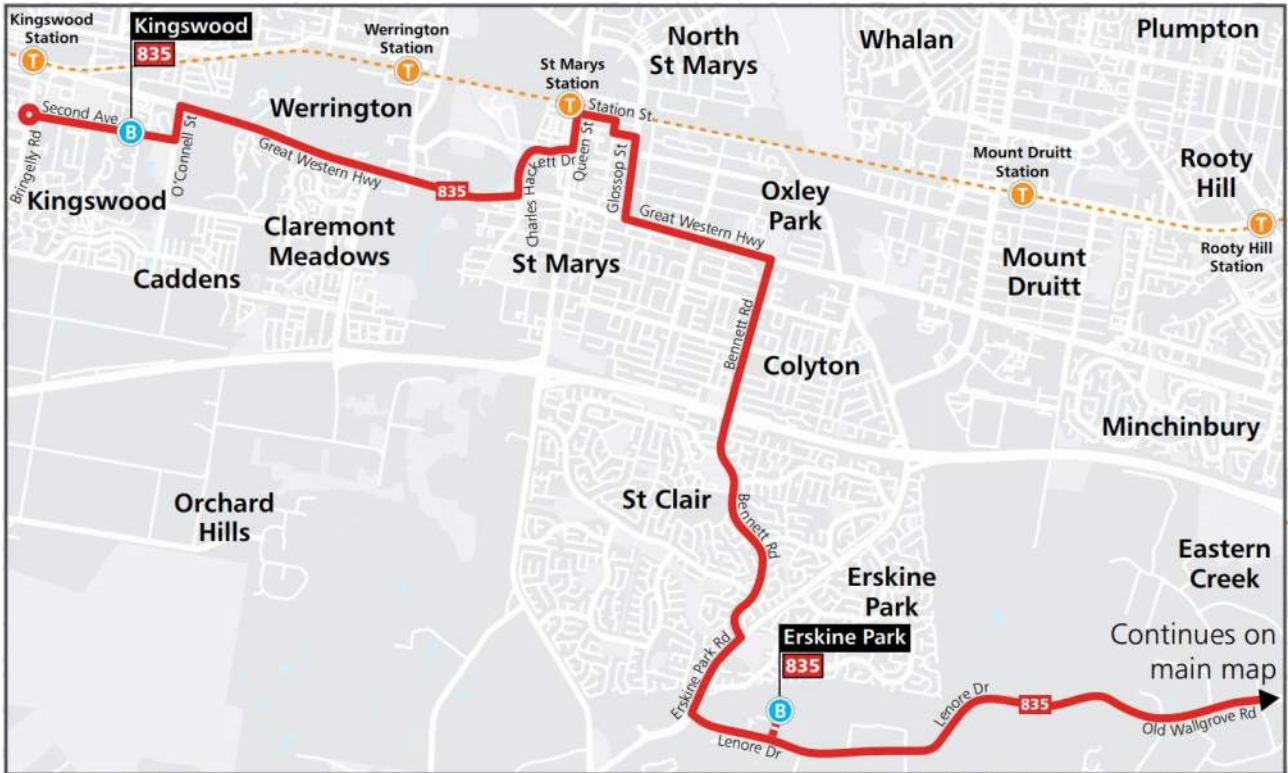


Figure 3 - Parramatta, Fairfield & Liverpool Region Network - Transit Systems



## 2.4. Pedestrian and cyclist routes

The existing bicycle network and pedestrian paths are shown in Figure 4 below.

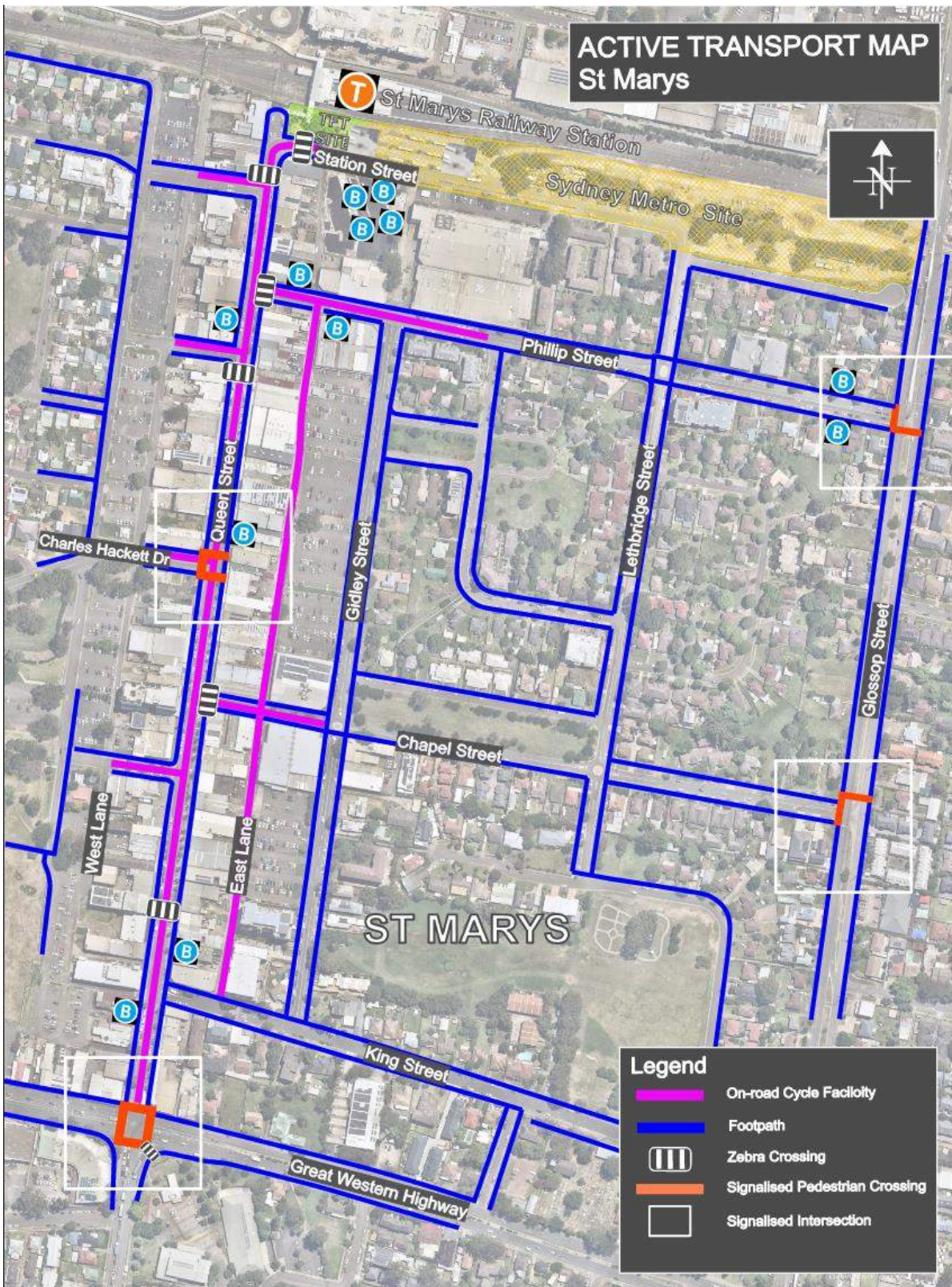


Figure 4 Existing walking and cyclist routes for St Marys Station



## 3. Construction Details

### 3.1. Overview

The work to relocate/replace the existing lift shaft and stairs can be divided into four main components in sequential order:

1. Services identification & protection
2. Stair Works
3. Lift Works
4. Finishing work and demobilisation

Each component is further explained below.

Key points to note for the Project are:

1. At the time of writing this report, the site compound has already been established using a wooden Class A type hoarding around the work area
2. Most of the work will occur within the confines of the site (existing hoarded area)
3. The work will generate minimal construction traffic volumes, averaging one (1) one-way heavy vehicle movement per day with no movements at all on some days
4. Lifting activities outside the site boundary that have potential safety implications or the potential to impact traffic (both road user and pedestrian) will occur at night to reduce impacts and risks
5. Two very minor pedestrian switches (relocation of the hoarding) will be required to maintain access to the rail platforms during construction, being 1) switch to newly constructed staircase to allow demolition of the exiting staircase and 2) switch to new lift shaft to allow demolition of the exiting lift shaft
6. There is an existing site compound for TFT support/office staff adjacent the commuter car park from Harris Street
7. Overall, the works have been assessed to have a minimal impact on traffic and the local community

#### 3.1.1. Service Identification & Protection

The initial scope of work involves positively identifying services in the area where the new stairs and lift will be installed. There is also an existing stormwater service that runs along the boundary of the rail corridor which will need to be protected (concrete encased). Figure 5 shows the approximate alignment of the existing stormwater run. The work will involve a Non-destructive digging (NDD) crew operating within the confines of the site. Once services have been positively identified and the area around the stormwater service has been excavated, work will begin to encase the stormwater drain. This will involve pouring circa 50m<sup>3</sup> of concrete in total from a line pump positioned within the site, generating total of sixteen one-way heavy vehicle movements over 2-3days.

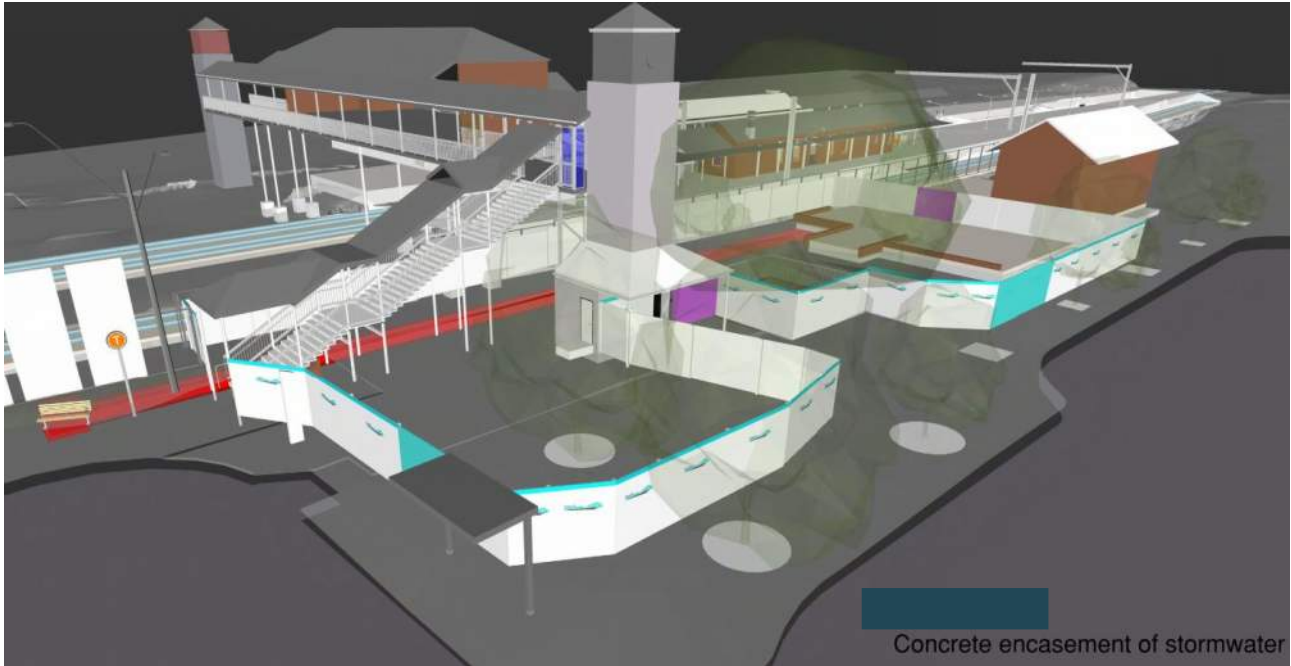


Figure 5 – Services to be identified and protected (in red)

### 3.1.2. Stair Works

The next phase of construction involves installation and demolition of the new and existing staircase. Firstly, the new stairs will be installed which once completed will allow pedestrian traffic to be switched and the demolition works to commence. Construction will occur in six general phases, complete over 63 days, mostly within the confines of the site:

1. Foundation preparation works. The foundations comprise thirteen (13) small diameter piles and capping beam. A micro-piling rig will be used to excavate the piles as shown in figure 7 from within the site. Spoil will be loaded from within the site confines and carted off site using heavy rigid tippers (12.5t). The foundations require approximately 21m<sup>3</sup> of concrete, generating roughly eight (8) concrete agitator one-way movements.
2. Installation of prefabricated steel support columns. The support columns will be fabricated off-site and delivered in one day (approximately 2-3 deliveries) and installed from within site using an excavator to lift the columns into place.
3. Installation of prefabricated stair modules (to occur during a rail possession). The staircase comprises four prefabricated modules and separate canopy sections which will be delivered to site on semi-trailers and lifted into position from the roadway using a 200t crane positioned in the cul-de-sac adjacent the site. The work will occur during night shifts and rail possessions. A half road closure, and closure of access to the stairs will be required to facilitate the work.
4. Finishing works, installation of handrails, stair treads, gutter connections, electrical work etc. will occur the following day.
5. Switch pedestrians to the new staircase
6. Demolition of the exiting stairs will occur over 6 days from within site with the use of an excavator. Partial demolition will occur during installation as at point 3 above. Remaining foundations and any other required works will be demolished at this stage. Debris will be loaded into skip bins from within site before being carted off by heavy rigid trucks.

3D renders of the stair works are provided in Figures 6 to 11 below.

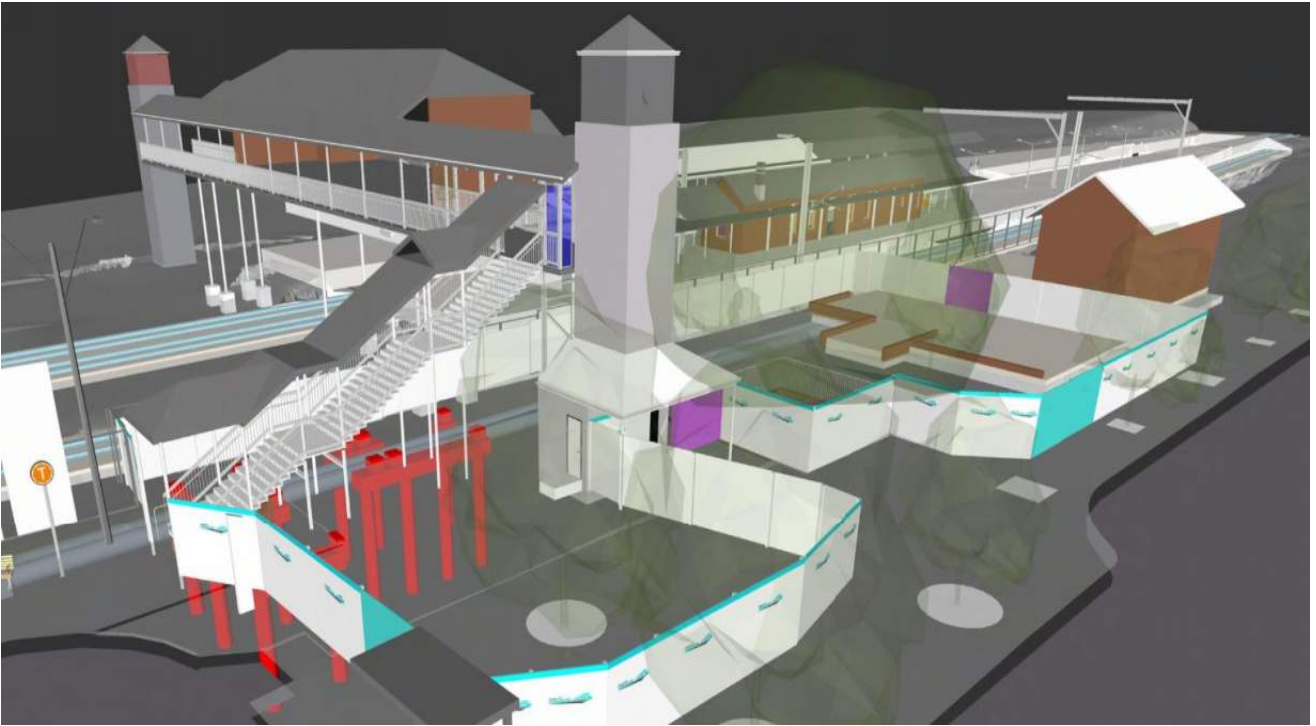


Figure 6 - Piles & capping beam



Figure 7 - Piling rig used for the works





Figure 8 - Structural steel support columns

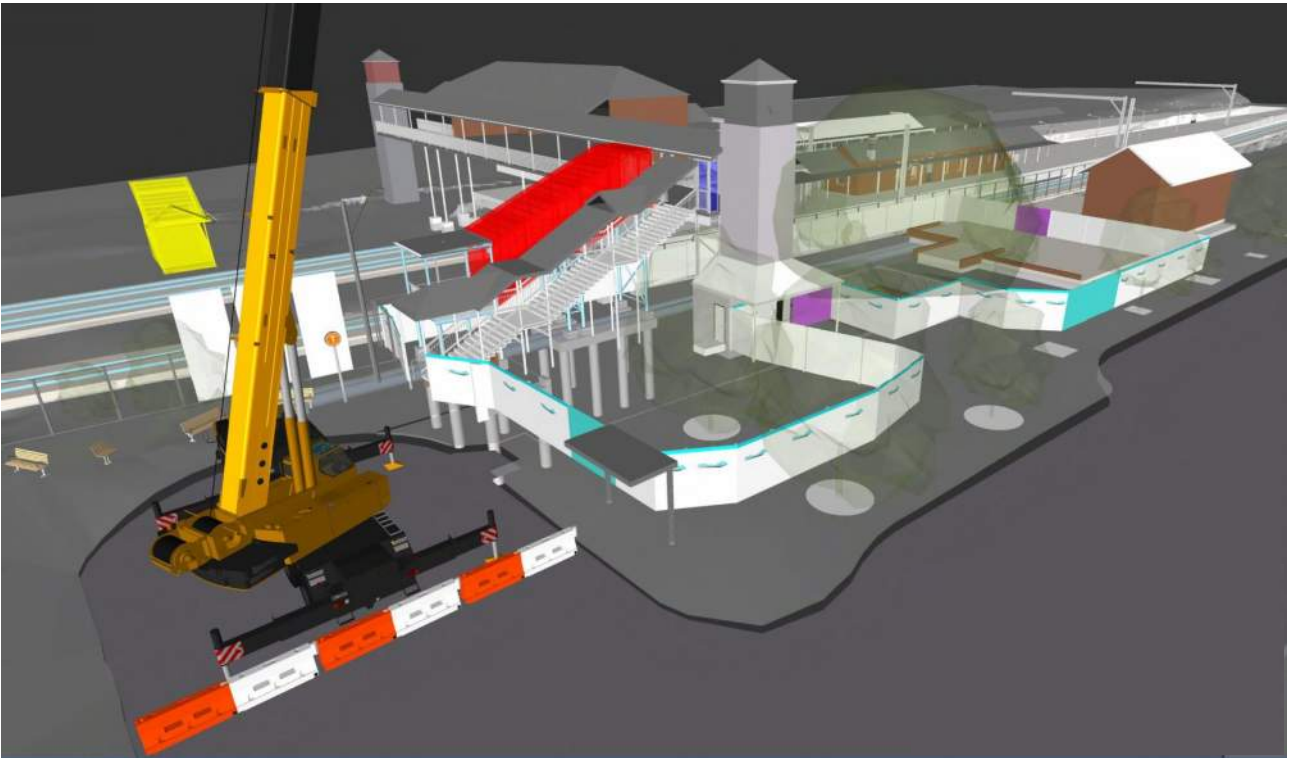


Figure 9 - Installation of new stair modules with 200t crane



Figure 10 - Pedestrian switch to new staircase



Figure 11 - Demolition of existing stairs

### 3.1.3. Lift Works

As with the stair works, the new lift will first be constructed to maintain access throughout construction. The lift works will occur over seven general phases, complete over 235 days, mostly within the confines of the site:

1. Foundation preparation works. The foundation for the new lift comprises a pad concrete footing. Installation of temporary sheet piles will be required initially which will be installed using an excavator with sheet pile attachment. Once the sheet piles are installed, excavation can occur to the underside of the slab. FRP works will then take place requiring approximately 25m<sup>3</sup> of concrete to be brought to sight, roughly four concrete trucks. The concrete pour will occur from within the site using a line pump.
2. Precast & steel works (to occur during a rail possession). The lift shaft comprises three precast segments which will be brought to site on rigid trucks and lifted from the roadway, along with the new pedestrian walkway and clock tower. A similar crane setup will be used as for the stair segments with a 200t crane positioned in the cul-de-sac adjacent the site. A half road closure shuttle flow arrangement will be required to facilitate the lift.
3. Lift shaft services and structural fit-out. This includes glazing and services fit-out.
4. Liftronics – lift install and commissioning.
5. Canopy works, pavements & finishings. The canopy segments will be brought to site on a rigid delivery truck. Following that, some minor pavement works will take place at the base of the new lift.
6. Switch to new lift – minor hoarding change to provide access to the new lift.
7. Demolition. Demolition will occur from within the site confines using a smaller crane and excavator. Debris will be loaded into skip bins onsite before being carted off – approximately five bins in total.

3D renders of the lift works are provided in Figures 12 to Figures 19 below.





Figure 12 - Lift shaft slab installation

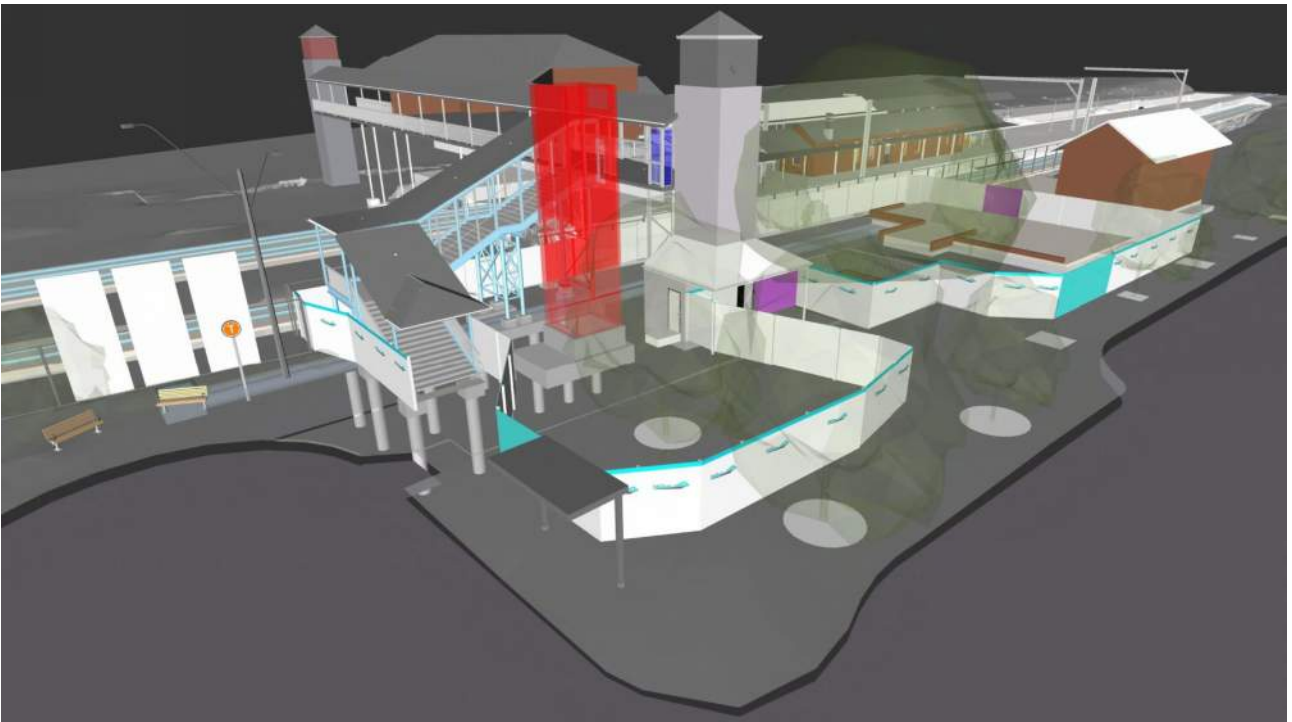


Figure 13 - Lift shaft installation

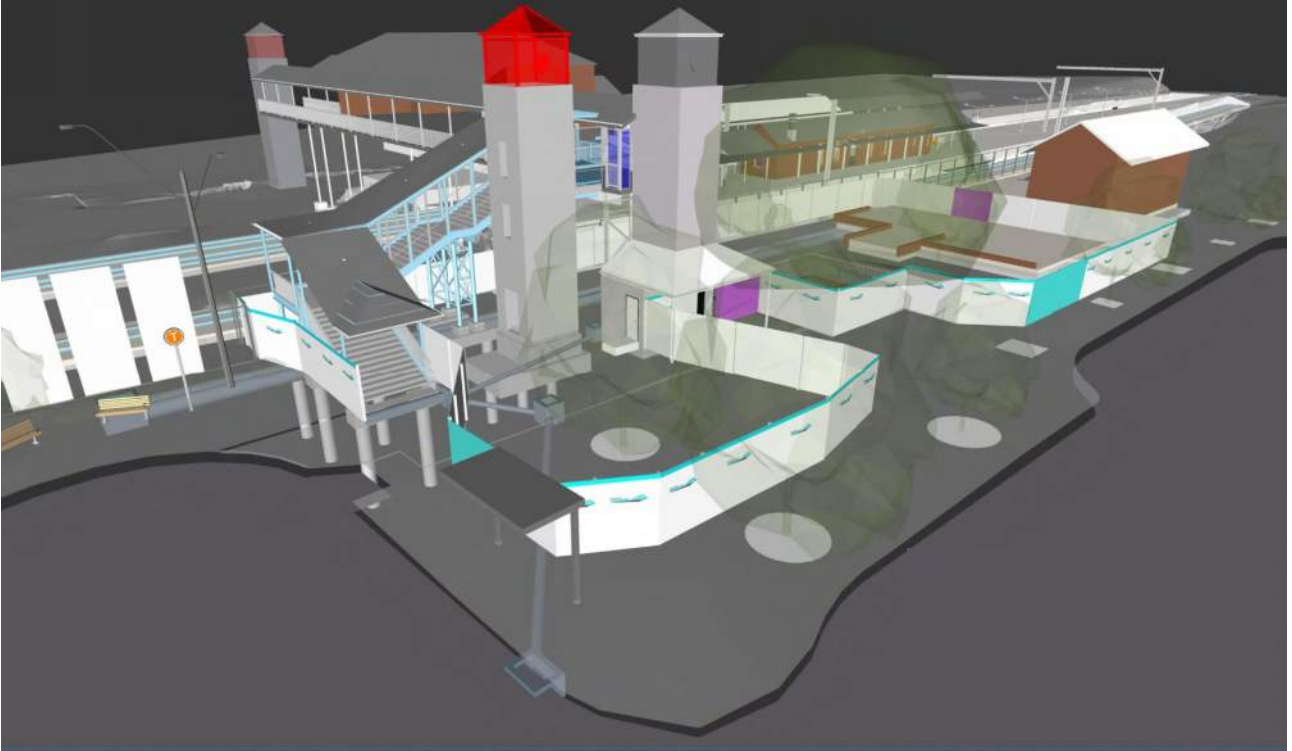


Figure 14 - Clocktower installation

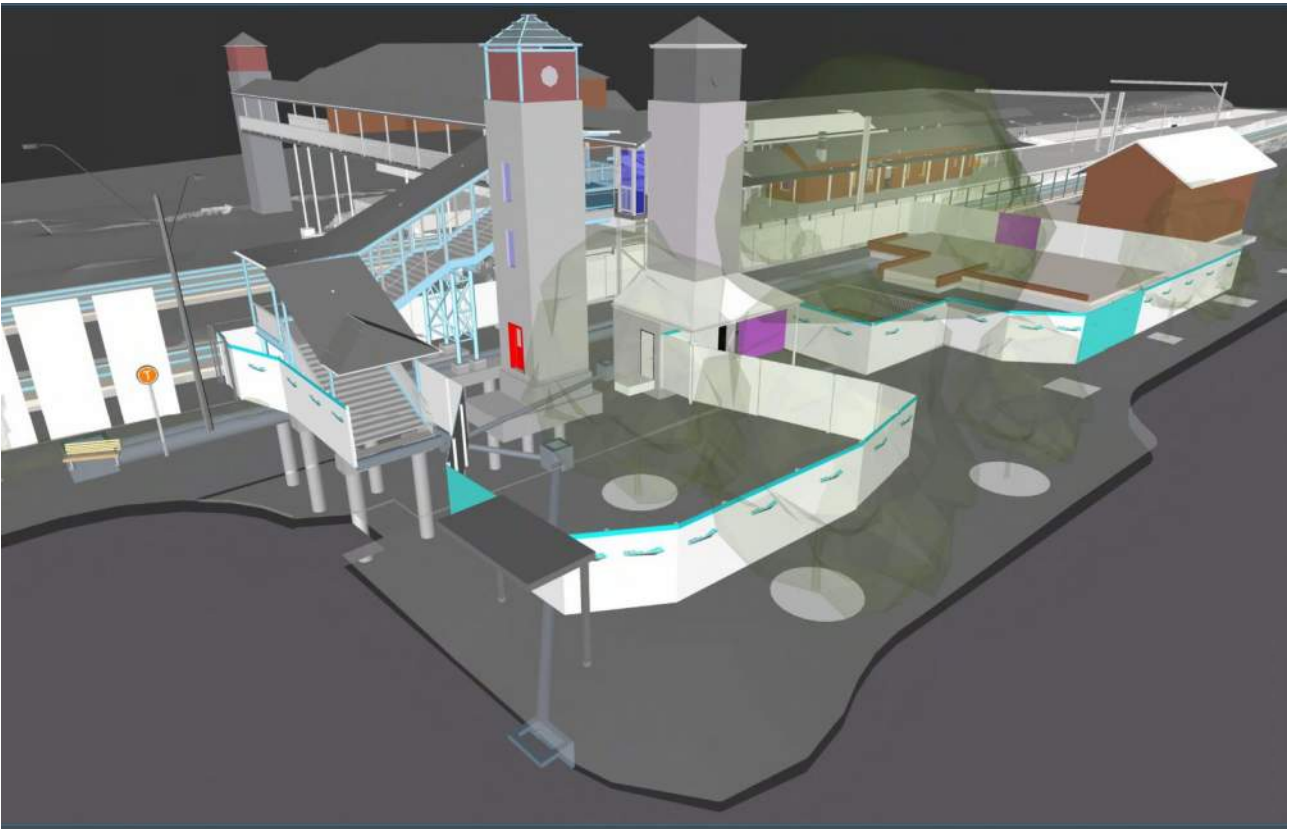


Figure 15 - Lift installation and commissioning





Figure 16 - Canopy installation

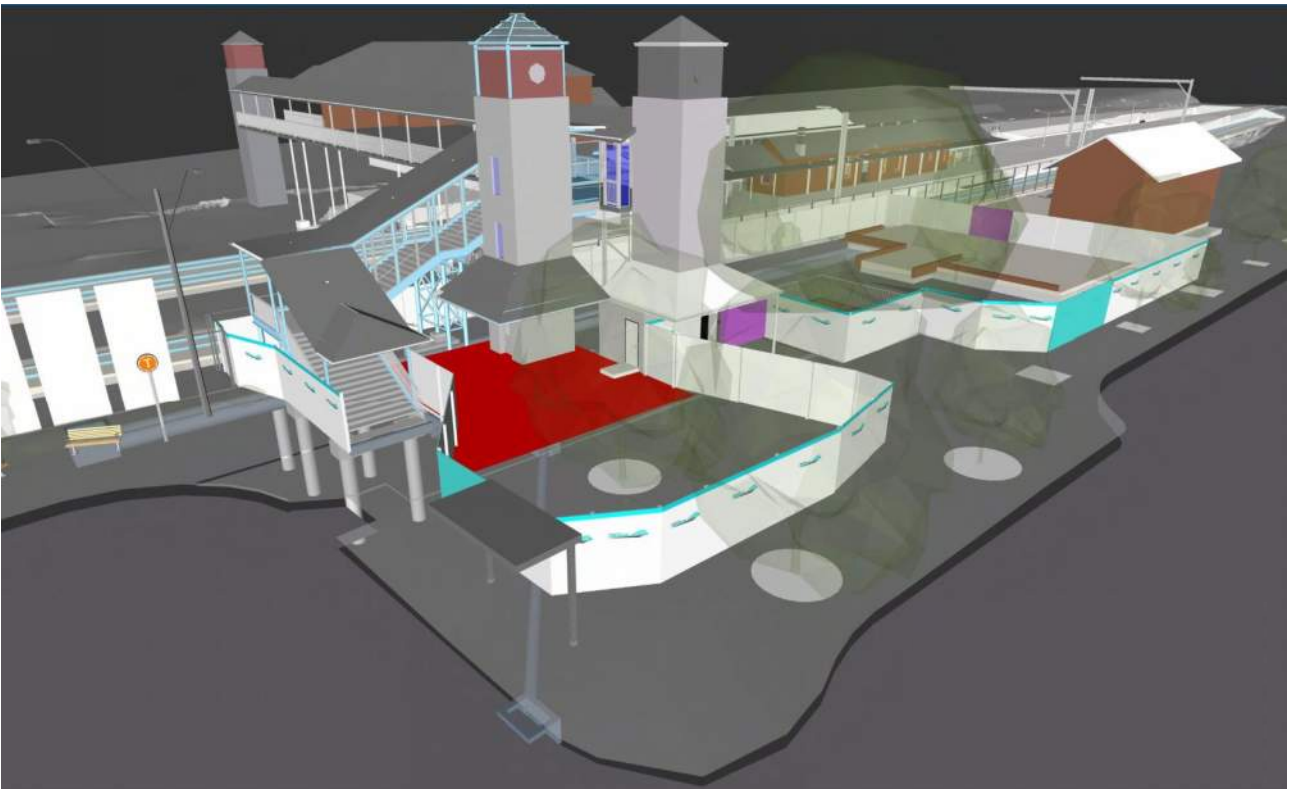


Figure 17 - Pavement works

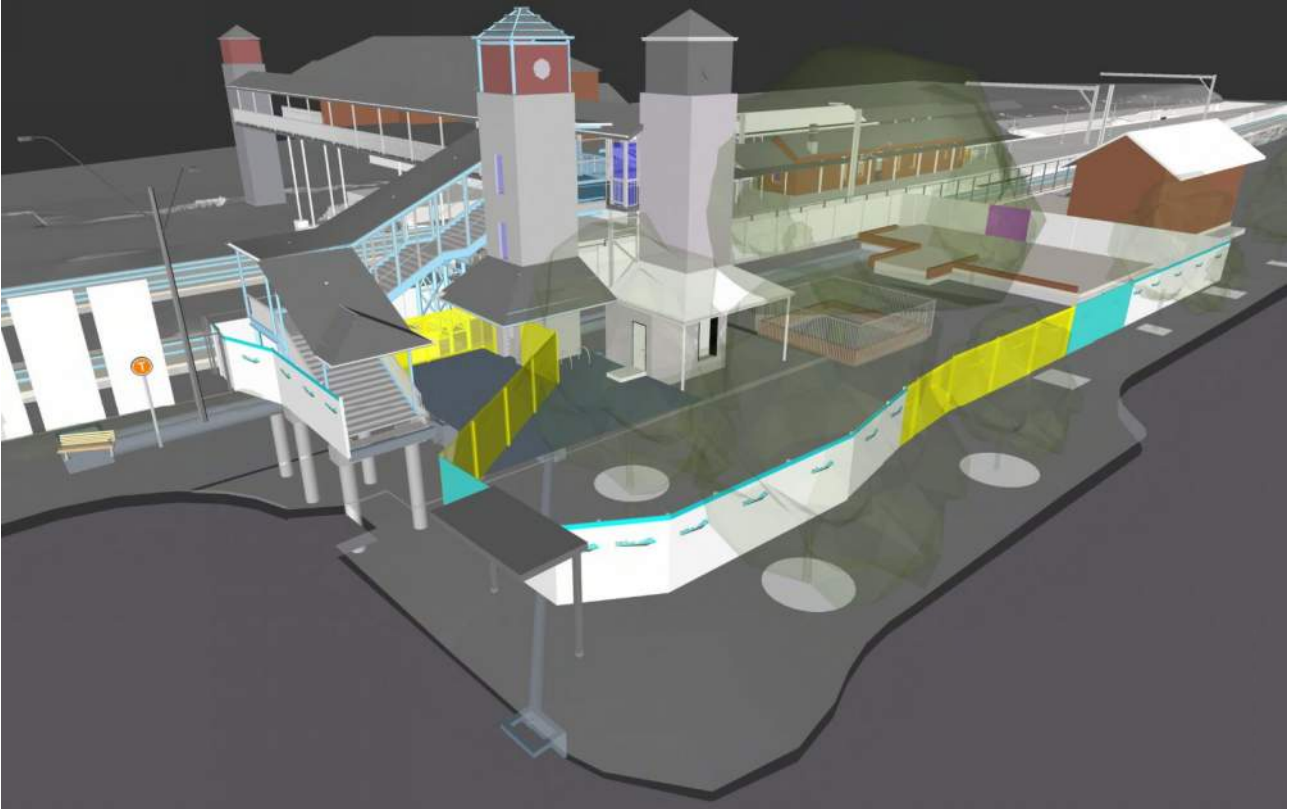


Figure 18 - Hoarding change, switch to new lift

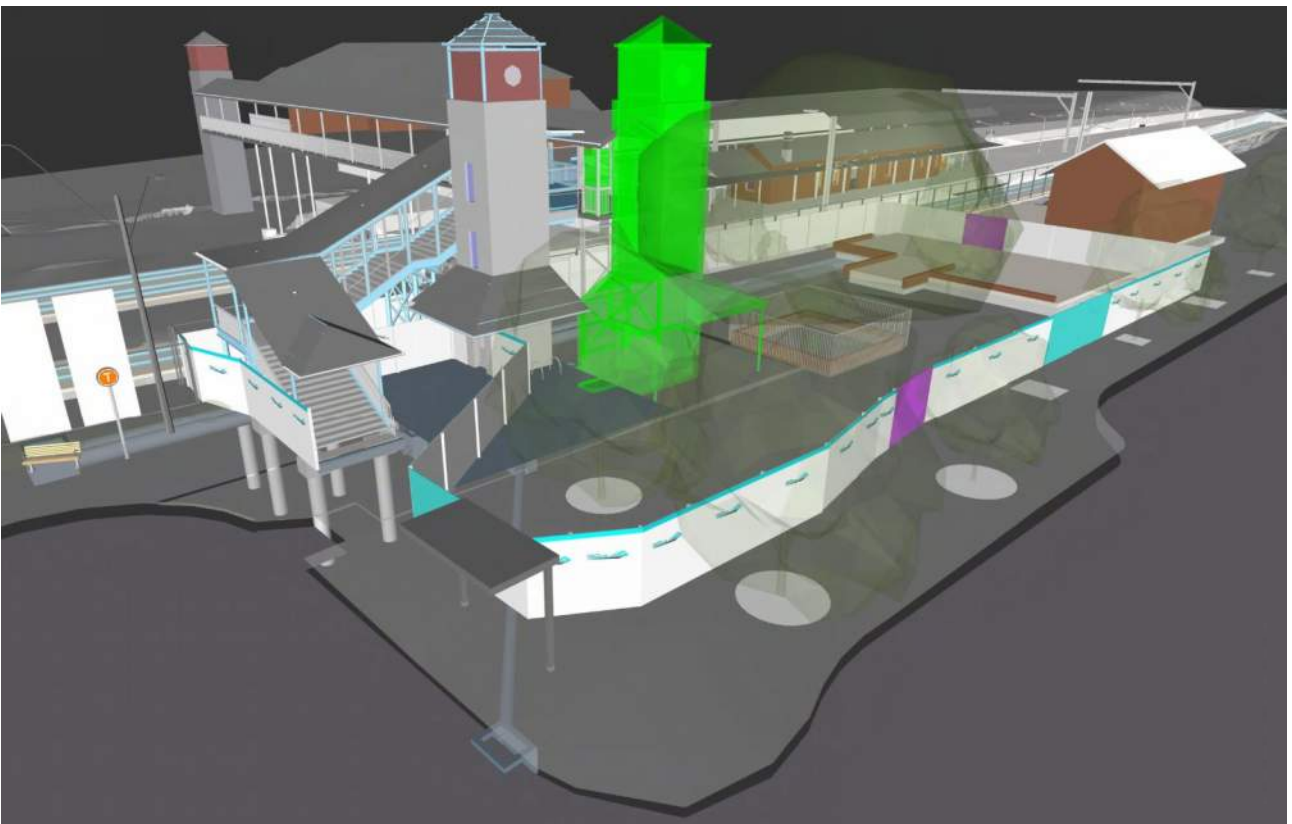


Figure 19 - Lift demolition

### 3.1.4. Finishing Works & Demobilisation

Final paving works and reinstatement of street furniture will occur at the location of the former lift. The work will take place from within the confines of the site and generate minimal construction traffic volumes in form of 1-2 concrete deliveries and 1-2 asphalt deliveries. Once this work is completed, the site will be demobilised. Demobilisation will occur from within the site footprint. Localised traffic controls will be established around the perimeter of the hoarding to allow for progressive removal and loading onto transport vehicles. Demobilisation will take two days to complete.

## 3.2. Works Programme

A high-level program of work is provided in Table 2 - High-Level Works Programme below. A detailed program is provided in Appendix B

Table 2 - High-Level Works Programme

Stage	Works	Indicative Start Date	Indicative finish date.
<b>1</b>	<b>Service Identification and Protection Works</b>	8/04/22	3/05/22
<b>2</b>	<b>Stair Works</b>		
2.1	Foundations	17/05/22	15/06/22
2.2	Structural Steel columns	16/05/22	24/06/22
2.3	Stair install	24/06/22	27/06/22
2.4	Demolish existing stairs	27/06/22	04/07/22
<b>3</b>	<b>Lift Works</b>		
3.1	Foundations	5/07/22	27/07/22
3.2	Precast & Steel works (lift segments)	27/07/22	18/08/22
3.3	Lift shaft services and fit-out	19/08/22	28/10/22
3.4	Lift install and commissioning	1/12/22	Early 2023
3.5	Pavement, canopy & finishing work	3/02/23	Early 2023 (*new lift open)
3.6	Demolition	17/02/23	Early 2023
<b>4</b>	<b>Finishing Works &amp; Demobilisation</b>	24/02/23	Early 2023

## 3.3. Working hours

The works will generally be undertaken during the following working hours:

- Monday – Friday: 07:00 – 18:00
- Saturdays: Some Saturdays will be required if needed (falling behind).
- Lifting activities associated with the stair install and lift install will be undertaken at night in accordance with approved OOH work approvals and Council permits

### 3.3.1. Out of Hours Work

Out of hours work approvals will be managed by TFT's Environmental Representative in accordance with OOHW requirements and processes.



### 3.4. Site Compound & Access

#### 3.4.1. Site Offices

Site offices for office-based staff have been established in the existing commuter carpark on the northern side of the rail corridor from Harris Street St Marys. The offices hold space for 8 no. of staff including 8 no. of parking spaces. Refer to Figure 20 below.



Figure 20 - Site offices and parking

#### 3.4.2. Site Compound

A site compound has been established around the construction footprint using a wooden class A type hoarding. Refer to Figure 21 below. There are two site access points for vehicles, one from Station Street and one from Queen Street cul-de-sac as shown in figure 22. Kerb ramps have been constructed from asphalt to allow construction vehicles to mount the kerb. These site access points will remain unchanged throughout the duration of construction, however, the hoarded area will be adjusted slightly upon commissioning of the new staircase and new lift to allow pedestrian access. There is one pedestrian access point for construction staff at the location of the exiting lift which will also change upon commissioning of the new lift. A site plan is provided in Appendix C.



Figure 21 - Class A hoarding installed at St Marys Station



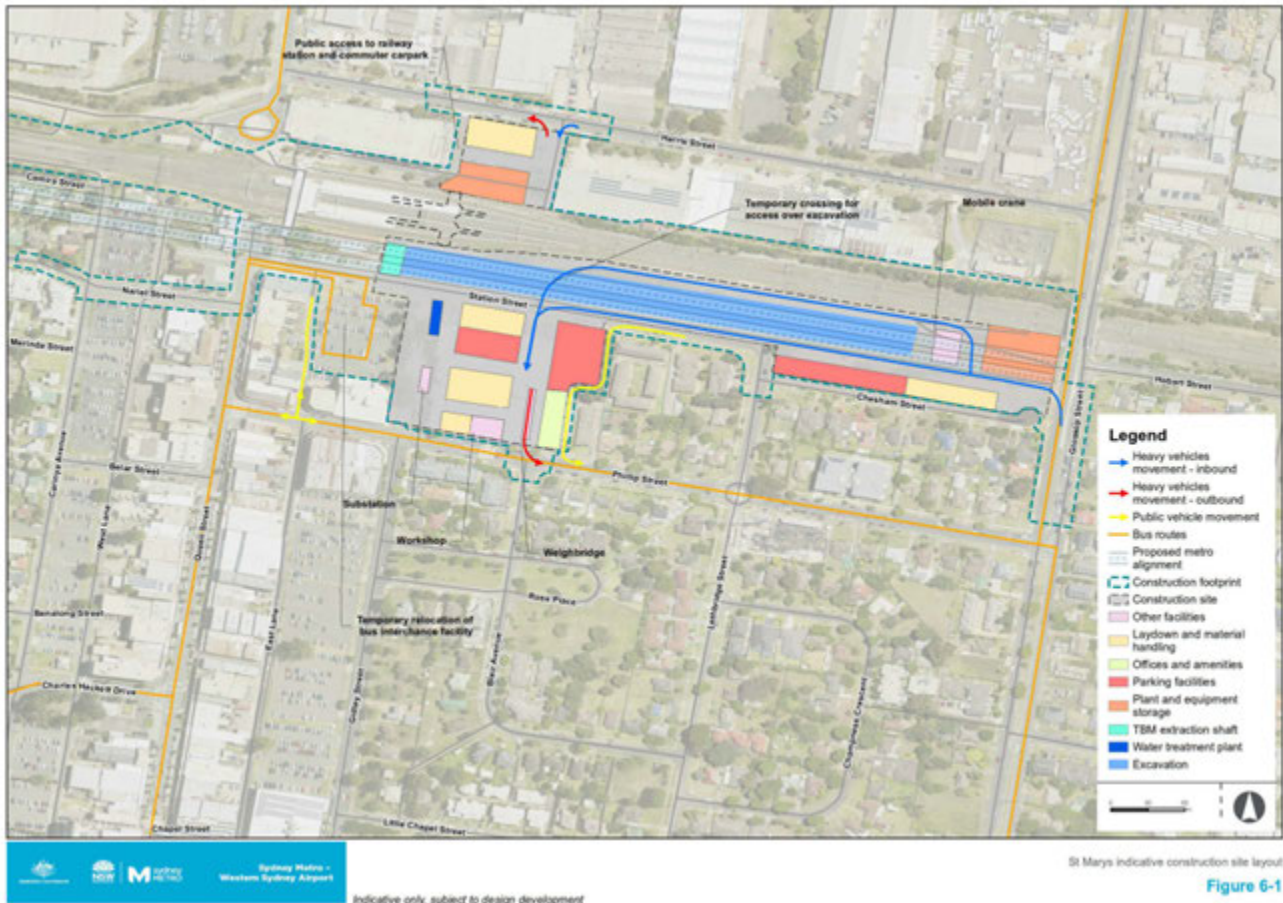
Figure 22 - Site Compound



### 3.5. Heavy Vehicle Routes

#### 3.5.1. EIS/ Submission Report HV route

The EIS heavy vehicle routes are provided below which show vehicles turning directly into site



#### 3.5.2. Proposed Heavy Vehicle Routes

The proposed heavy vehicle routes for the enabling works match the EIS route as closely as possible and have been assessed as being the most appropriate access and egress routes for the work. The proposed heavy vehicle routes are as follows:

##### Ingress

1. Left or right turn from Glossop Street to Phillip Street
2. Right turn from Phillip Street onto Queen Street
3. Continue along Queen Street to Station Street
4. Enter site (left or right turn)

##### Egress

1. Either left from site onto Station Street and turn around via the new bus interchange or Left turn onto Queen Street from site gate
2. Continue along Queen Street
3. Left turn onto Phillip Street
4. Left or right turn onto Glossop Street

Figure 24 below show the proposed access and egress routes. It should be noted that the alternate route is to turn left or right from Great Western Highway onto Queen Street and travel the

length of Queen Street until Station Street. This was assessed as an inferior route due to greater potential for conflicts with cyclists, pedestrians *and swept path issues so will not be used*. Access to Lethbridge Street from Phillip Street is no longer possible due to Sydney Metro construction works.

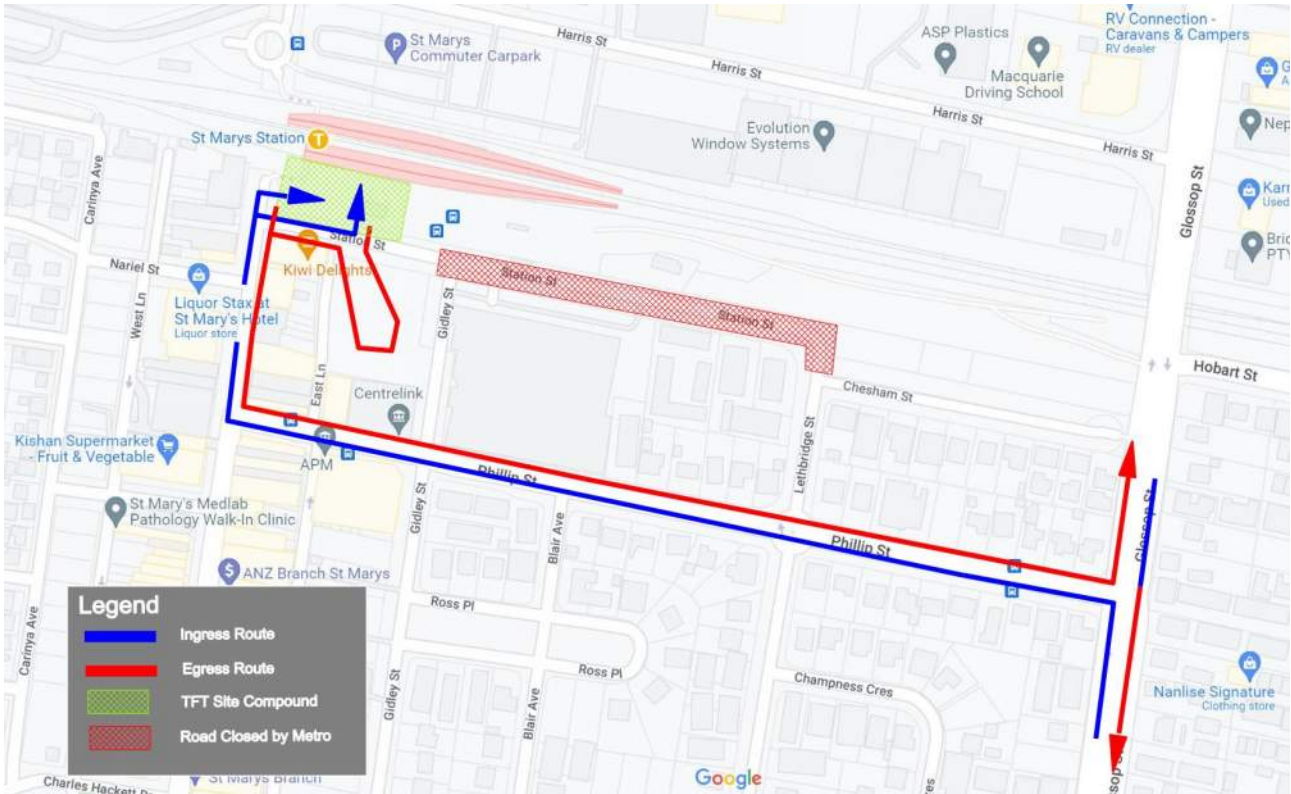


Figure 24 Construction Vehicle Routes

### 3.6. Construction traffic volumes

#### 3.6.1. Heavy Vehicles

The work will generate on average a maximum of eight (8) one-way heavy vehicle movement on any given workday, however, there will consistently be days with no heavy vehicle movements. Daily averages are therefore expected to be lower, averaging an approximate total of one (1) to two (2) movements per day. *There is one instance during the installation of the staircase modules that heavy vehicle movements will exceed the average maximum movements, generating a total of 16 movements during the one shift*. A summary of the expected construction traffic volumes by vehicle and construction stage is provided in Table 3 below. General plant items onsite include an excavator and elevated working platforms. *It should also be noted that where possible, heavy vehicles will be fitted with side underrun protection and blind-spot mirrors in addition to their standard safety features.*

Construction Stage	Description	Duration	Heavy Vehicle Types	One-Way Movements (Estimated)
1	<b>Service Identification and Protection Works</b>	25 Days	Plant Float (Rigid) NDD/Vac Truck Concrete Agitator	TOTAL: 28 AVG/Daily: >1 Daily max: 8
2	<b>Stair Works</b>			

Construction Stage	Description	Duration	Heavy Vehicle Types	One-Way Movements (Estimated)
2.1	Foundations	29 Days	Plant Float (Rigid) 12.5t Rigid Bogie Tipper Concrete Agitator	TOTAL: 24 AVG/Daily: <1 Daily max: 8
2.2	Structural Steel columns	39 Days	Plant Float (Rigid) Flatbed	TOTAL: 12 AVG/Daily: <1 Daily max: 4
2.3	Stair install	3 Days	200t Crane 19m Semi-trailer Flatbed	TOTAL: 18 AVG/Daily: 6 Daily max: 16
2.4	Demolish existing stairs	7 Days	200t Crane Skip bin (heavy rigid)	TOTAL: 15 AVG/Daily: 2 Daily max: 6
<b>3</b>	<b>Lift Works</b>			
3.1	Foundations	22 Days	Flatbed 12.5t Rigid Bogie Tipper Concrete Agitator	TOTAL: 22 AVG/Daily: 1 Daily max: 8
3.2	Precast & Steel works (lift segments)	22 Days	Flatbed 19m-Semi 200t Crane	TOTAL: 14 AVG/Daily: <1 Daily max: 6
3.3	Lift shaft services and fit-out	70 Days	Flatbed Rigid delivery vehicles	TOTAL: 20 AVG/Daily: <1 Daily max: 6
3.4	Lift install and commissioning	63 Days	Flatbed Rigid delivery vehicles	TOTAL: 20 AVG/Daily: <1 Daily max: 6
3.5	Pavement, canopy & finishing work	13 Days	Flatbed 12.5t Rigid Bogie Tipper Concrete Agitator	TOTAL: 24 AVG/Daily: 2 Daily max: 8
3.6	Demolition	6 Days	150t crane (onsite) Skip bins (Heavy Rigid) Flatbeds	TOTAL: 14 AVG/Daily: 2 Daily max: 6
<b>4</b>	<b>Finishing Works &amp; Demobilisation</b>	13 Days	Flatbed 12.5t Rigid Bogie Tipper Concrete Agitator	TOTAL: 14 AVG/Daily: 2 Daily max: 6



### 3.6.2. Light Vehicles

A maximum workforce of up to 30 construction staff and contractors will be required at any one time. Light vehicles will be used for small deliveries to the site and construction workforce travelling to work. It is anticipated that there will be up to 6 light vehicle movements (1-way) during the day.

It is expected that workers that drive to work will park at the St Marys Commuter Car Park on Harris Street. Parking will generally not be permitted within the work zone itself.

### 3.7. Key site contacts

Key site contact details are listed in Table 3 - Key site contact details.

Table 3 - Key site contact details

Name	Role	Contact Details
[REDACTED]	Construction Manager	[REDACTED]
[REDACTED]	Stakeholder & Community Manager	[REDACTED]
[REDACTED]	Environmental Manager	[REDACTED]
[REDACTED]	Safety Manager	[REDACTED]
[REDACTED]	Senior Project Engineer	[REDACTED]
[REDACTED]	Superintendent	[REDACTED]
[REDACTED]		[REDACTED]

## 4. Traffic Management

### 4.1. Traffic Management Overview

The Traffic Management Strategy for this project primarily involves short-term and intermittent traffic controls to manage larger vehicle movements and deliveries. As the site is fully contained within a hoarded area and heavy vehicle movements are infrequent, an intricate Traffic Management Strategy is not required.

### 4.2. Site Area, Gates and Access

The site area approximately 910m<sup>2</sup> and fully contained with a class A type hoarding. There are two vehicle access gates, one from Station Street and one from Queen Street cul-de-sac. A site plan is provided in Appendix C and figure 25 below. General access for vehicles up to medium rigid trucks (with GVM of up to 8t), will occur with the use of two spotters. Upon approach or when a vehicle is ready to depart, the spotters will open the relevant site gate toward the road which will block most of the footpath. The second spotter will then guide the vehicle into or out of the site whilst monitoring pedestrians and advising of the moving vehicle. General access/egress will only occur in a forward direction.

Access and egress for Heavy rigid vehicles will be managed with traffic controllers. Upon approach or departure of a Heavy vehicle, traffic controllers will stop road user and pedestrian traffic to allow the vehicle to enter or exit. Due to space constraints within the site, heavy vehicles may be required to reverse into and out of the site. All reverse manoeuvres will be managed in the same way with traffic controllers stopping traffic. The Traffic Guidance Scheme (TGS) for this activity is provided in Appendix D.

The largest vehicles to access the site will be 19m-semi trailers for the delivery of the precast/prefabricated stair and lift components. These vehicles will not be able to enter the site but instead will pull into a lane closure on Queen Street/Station Street specifically in place for this activity. The TGS for this activity is provided in Appendix D

#### 4.2.1. Vehicle Routes & Swept Paths

All construction vehicles will travel to and from site along the construction vehicle routes outlined in section 3.5.2. Vehicles using Gate 2 (Queen Street) will be able to continue straight on Queen Street after exiting. Vehicles using Gate 1 (Station Street) will need to make a left turn movement out of the site when exiting and use the roundabout at the new bus interchange to turn around before making a left turn onto Queen Street and travel along the egress route.

Swept path analysis was undertaken of the nominated construction vehicle routes to determine if the routes were appropriate for larger vehicles and identify any potential issues. The swept paths were compliant for vehicles up to 12.5m (Heavy rigid – Agis, Bogie tippers etc), indicating that these vehicles could navigate the route without issue. The swept paths for the 19m semi-trailer were not compliant at the intersections of Phillip Street/Queen Street and Queen Street/Station Street, indicating that these vehicles would cross the centre line of the road when making turning movements. As such, traffic control will be required at the intersection of Queen Street/Station Street and the intersection of Queen Street/Phillip Street to manage turning movements from 19m semi-trailers. The TGS for this activity are provided in Appendix D. The remaining swept paths were shown to be compliant. The swept paths are provided in Appendix E.

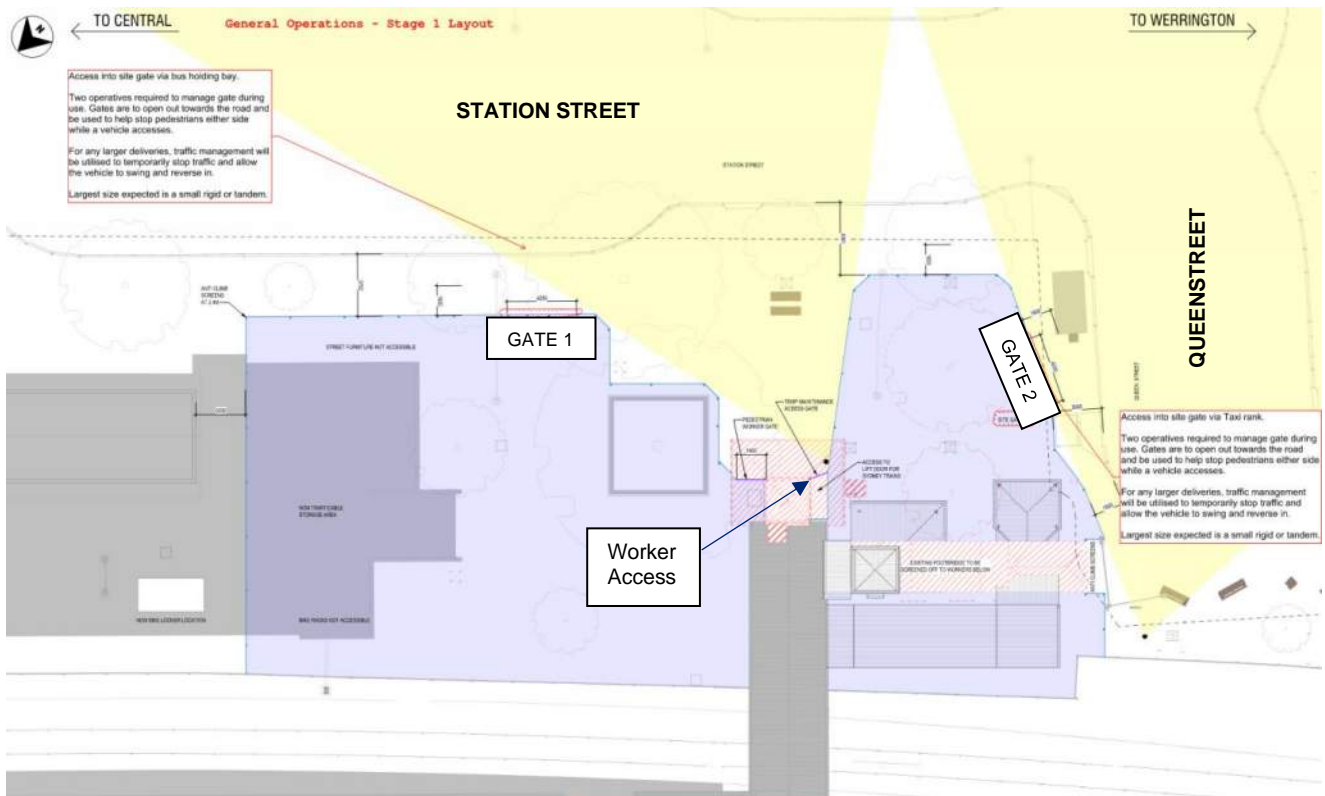


Figure 25 - Site Plan

### 4.3. Loading & Unloading

With the exception of the precast/prefabricated stair and lift components, all loading/unloading will occur within the confines of the site. Loading/unloading areas within the site may change with the particular work activity. Unloading of the precast/prefabricated stair and lift components will occur from the roadway adjacent the site utilising a 200t crane. Refer to section 4.9.1 and Appendix C for details of the Traffic Guidance Schemes used to manage this activity.

### 4.4. Construction Traffic Signage

There is no long-term construction traffic signage proposed to be installed for this work. The TCWS criteria for the installation of W5-22 (TRUCKS CROSSING or ENTERING) signs is not met due to the low construction traffic volumes. Other long-term signs typically seen at roadwork sites such as T1-1 (ROADWORK AHEAD) or T1-5 (WORKER SYMBOLIC) signs are also not applicable in this instance (as long-term signs).

Worksite signage identifying the compound as a construction site and containing information on the builder or construction company and personal protective equipment requirements will be installed at all gates (both vehicle and pedestrian). Sydney Trains wayfinding signs will also be installed on the hoarding to direct people to the train platforms. In addition, R1-1 (STOP) regulatory signage will be installed at the exit of both vehicle gates.

Excerpts from TCWS manual v6.1 are provided below for completeness.

Trucks symbolic (W5-22) Trucks symbolic (T2-25)	Must be used where roadworks generate greater than 20 truck turning movements per day.	The sign (T2-25) is restricted to short term work only. These signs may be used in conjunction with ___ m ON LEFT/RIGHT (W8-207).
--	--	--

#### 4.5. Speed Zones

The exiting speed zones of 50km/h along Phillip Street and 40km/h along Queen Street and Station Street will maintained throughout the duration of construction. Temporary Roadwork speed zones are not required.

#### 4.6. Pedestrians & Cyclists

Existing pedestrian and cycle routes will be maintained throughout the duration of construction. Intermittent stoppages of pedestrians and cyclists will be required to manage ingress and egress of heavy vehicles which will be infrequent, refer to section 3.6.1. The TCP/TGS for this operation is provided in Appendix D.

Access to the existing staircase on the southern side of the railway line will be restricted between the hours of 22:00 Friday to 05:00 Monday, during the WE52 June rail possession to install and demolish of the new and existing staircases. People wishing to cross the railway line will be directed to use the lift adjacent the stairs. The TCP/TGS for this temporary closure is provided in Appendix D.

#### 4.7. Public Transport

Existing public transport routes and access to the bus interchange will be maintained at all times. A swept path analysis had been undertaken to ensure that buses can navigate the short-term half road closure required for the installation of the new stair segments and lift shaft segments. Refer to Figure 26 below. Intermittent stoppages of buses will be required during ingress and egress of heavy vehicles which will be infrequent, refer to section 3.6.1. The stop/slow operation during the installation of the staircase and lift shaft should cause minimal if any disruption to buses due to the timing of it.

Access to the taxi rank at the end of Queen Street will be restricted between the hours of 22:00 Friday to 05:00 Monday, during the WE52 June rail possession to allow for the mobilisation of the 200t crane required install and demolish the new and existing staircases. Access will once again be restricted for the same time period in July to install the lift shaft stair segments. The crane footprint is provided in Figure 27 below.

During this time, the taxi rank will be relocated to the southern side of Nariel Street adjacent the Liquor Stax dive-in. The relocation of the taxi-rank will be marked with custom signs as shown in Figure 28 below. Traffic Control will also be present to direct people to the relocated Taxi rank. It should be noted that this mitigation has been consulted and agreed by both Local Council (email dated (17/05) and the Deputy CEO of NSW Taxi Council Limited (email dated 19/05).

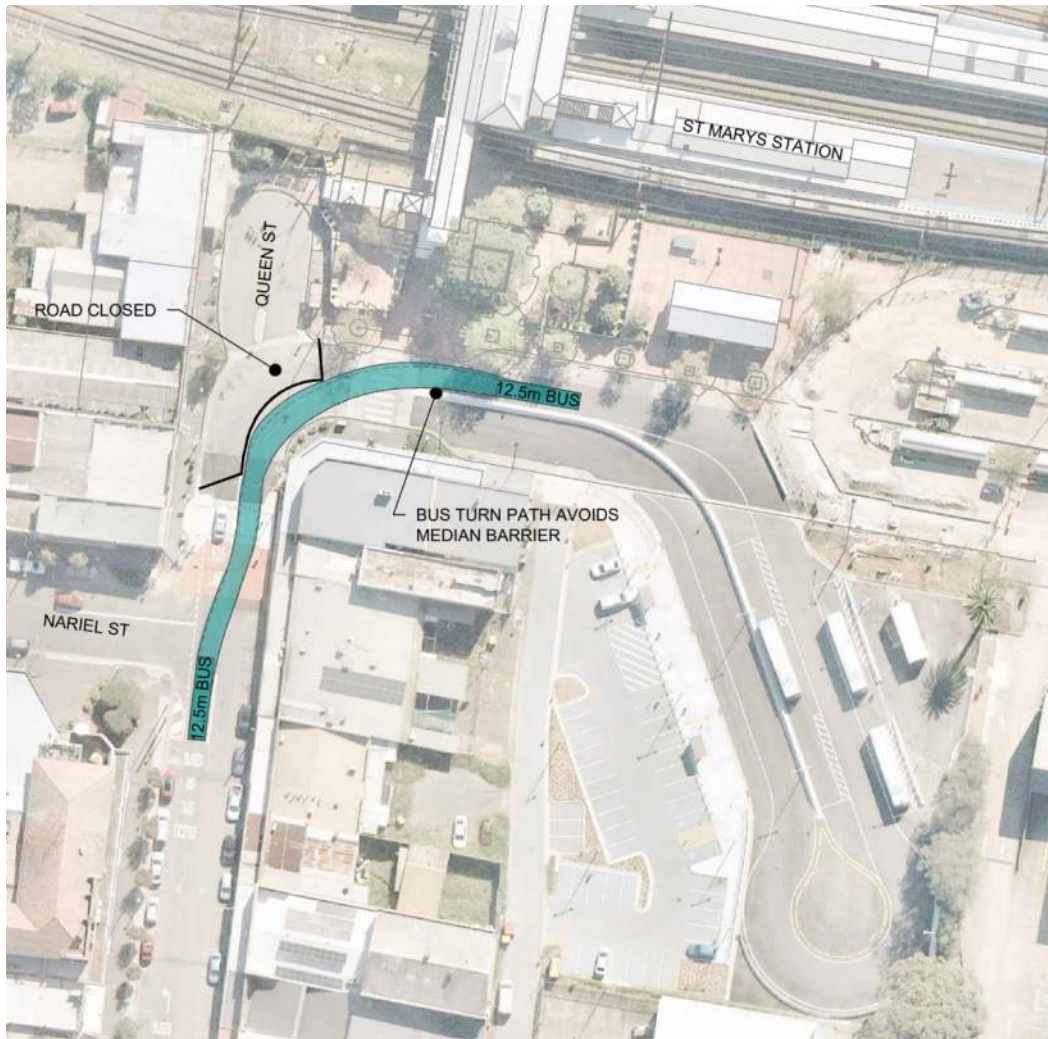


Figure 26 - 12.5m bus swept path around half road closure



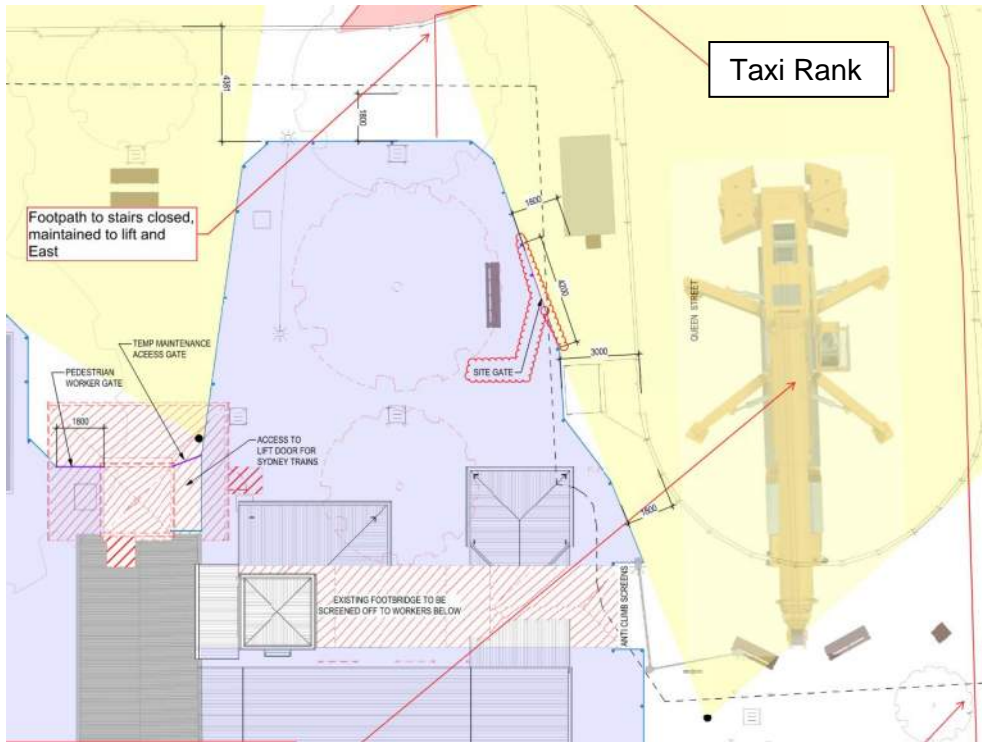


Figure 27 - Crane footprint

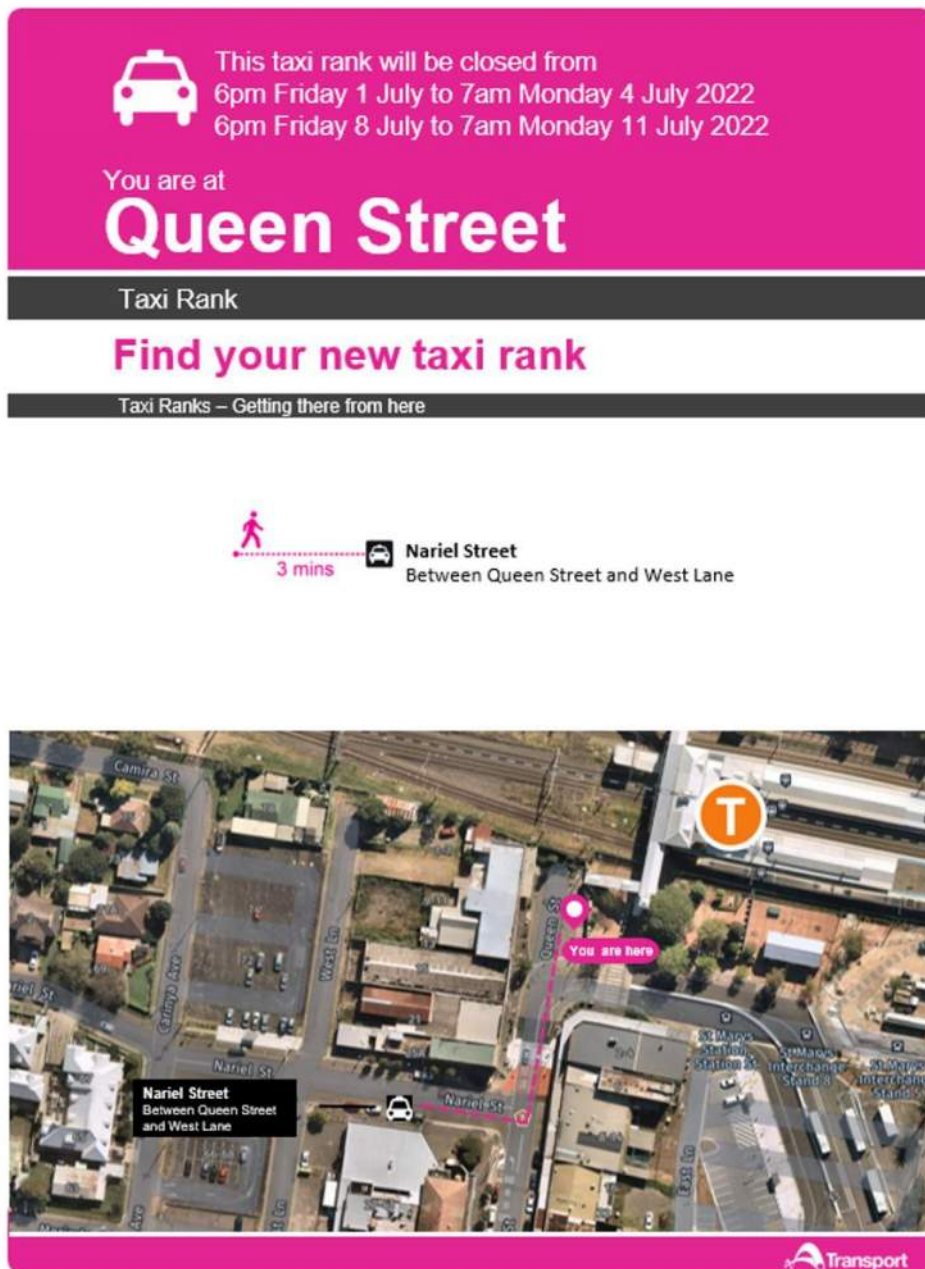


Figure 28 - Taxi relocation sign example

## 4.8. Road Capacity & Traffic Modelling

Due to the infrequent vehicle movements generated by this Project, further capacity analysis or traffic modelling is not required.

## 4.9. Implementation of Short-Term Traffic Management

### 4.9.1. Traffic Guidance Schemes

All Traffic Guidance Schemes (TGS) (formerly Traffic Control Plans) used to facilitate short-term works will be prepared in accordance with TfNSW Traffic Control at Worksite Manual version 6.1 submitted to Council with the Temporary Road Reserve Occupancy application. A table of the

current Traffic Guidance Schemes for the project are provided in Table 4 below. The TGS are provided in Appendix D.

Table 4 - Traffic Guidance Scheme Summary

TGS Number	Description	Uses/Activities	Times in use	Permit required ?
TGS-CASE-ST_MARYS_STATION-000	Spotters	General vehicle ingress/egress	Daily/ Day shift	No
TGS-CASE-ST_MARYS_STATION-001	Half road closure/ Shuttle flow & Pedestrian management	Lifting activities – Stair & Lift segment install	Night Shift Only. 4 Shifts in June & July 2022	Yes
TGS-CASE-ST_MARYS_STATION-001	Intermittent stops	Heavy Vehicle entry/egress	Ad hoc – generally day shift	Yes

#### 4.9.2. Council Permits

It is envisaged that only Temporary Road Reserve Occupancy applications will be required to be submitted for this work. [It has been confirmed with Council that this proposal does not trigger referral via the Local Traffic Committee.](#)

#### 4.9.3. TfNSW Road Occupancy Licences

[Given the nature of the Project and as advised by CJP, TFT will obtain Road Occupancy Licences in accordance with TMC's Road Occupancy Manual.](#)

### 4.10. Management of Cumulative Impacts

Sydney Metro is currently operating in the area and may utilise or impact the local roads surrounding St Marys Station. The primary access to the Metro site is via Glossop Street, [with egress currently via Lethbridge Street and Phillip Street. With the exception of Phillip Street \(egress\), it is envisaged that their usage/occupation of the local roads in the area will be infrequent.](#) Given the low frequency of construction traffic generated by this Project, cumulative impacts will not be significant. [TFT will need to coordinate with Metro with respect to critical activities to ensure access in the area is maintained.](#) TFT will communicate with Metro' Contractor through TTLG meetings and by direct contact with their Traffic Manager to ensure cumulative impacts are minimised. [Figure 28 shows the combined TFT and Metro heavy vehicle routes.](#)



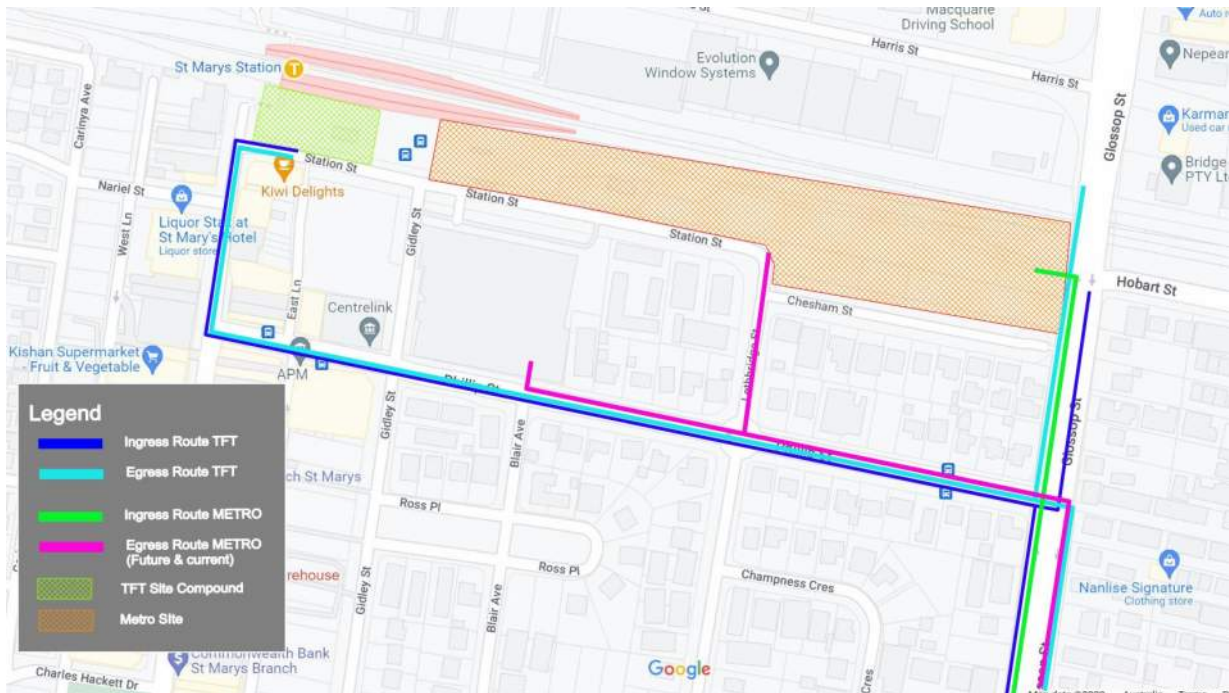


Figure 29 - TFT/Metro combined heavy vehicle routes

#### 4.11. Road Safety Audits

A desktop road safety audit will be conducted for this Construction Traffic Management Plan by a suitably qualified and independent auditor with a Level 3 certification and another auditor with Level 2 or higher certification.

Where road safety deficiencies are identified through these audits, the relevant design/implementation will be amended to address the deficiencies, where required. The Road Safety Audit is provided in Appendix E.

## 5. Communication and Dissemination of Information

### 5.1. Stakeholder and Community Engagement

An analysis of stakeholders which may be affected by or have a specific interest in the Projects has been undertaken to identify the target audiences for community engagement. Key stakeholders are summarised below followed by tables that list key issues and communication tools for each stakeholder group.

Table 6: Details of stakeholder groups

Sector	Stakeholders
<b>Community</b>	<ul style="list-style-type: none"> <li>• Neighbours</li> <li>• Residents and resident groups</li> <li>• People with languages other than English (LOTE)</li> <li>• Culturally and linguistically diverse communities (CALD)</li> <li>• Aboriginal and Torres Strait Islander Communities (ATSI)</li> <li>• Businesses, tenants and business groups</li> <li>• Property owners and tenants</li> <li>• Interest groups</li> <li>• Land owners</li> <li>• Educational and religious facilities</li> <li>• Transport users/customers</li> <li>• Cyclists</li> </ul>
<b>Government</b>	<ul style="list-style-type: none"> <li>• Federal Minister for Infrastructure, Transport and Regional Development</li> <li>• Federal Minister for Population, Cities and Urban Infrastructure</li> <li>• NSW Minister for Transport and Roads</li> <li>• NSW Minister for Jobs, Investment, Tourism and Western Sydney</li> <li>• State elected members and their electoral offices</li> <li>• Local elected members</li> <li>• Local Council General Managers/CEOs</li> <li>• Department of Infrastructure, Transport, Regional Development and Communications</li> <li>• Department of Energy and Environment</li> <li>• Western Sydney Airport</li> <li>• Transport for NSW</li> <li>• Department of Planning, Industry and Environment</li> <li>• Infrastructure NSW</li> <li>• Department OF Premier and Cabinet</li> <li>• Council officers</li> </ul>
<b>Emergency services</b>	<ul style="list-style-type: none"> <li>• Police</li> <li>• Ambulance</li> <li>• NSW Fire and Rescue</li> <li>• Rural Fire Services</li> <li>• State Emergency Services</li> </ul>
<b>Neighbouring projects</b>	<ul style="list-style-type: none"> <li>• Parramatta Light Rail</li> <li>• Westmead redevelopment</li> <li>• Western Sydney International Airport</li> <li>• M12 Motorway</li> <li>• TfNSW Transport Access Program, St Marys</li> <li>• TfNSW Commuter Car Park Program, St Marys</li> </ul>

Sector	Stakeholders
<b>Service providers</b>	<ul style="list-style-type: none"> <li>• Sydney Water</li> <li>• Water NSW</li> <li>• Power utilities</li> <li>• Telecommunication providers</li> <li>• Local Councils</li> </ul>
<b>Transport services</b>	<ul style="list-style-type: none"> <li>• Sydney Trains (station staff and crew)</li> <li>• Bus companies</li> <li>• Local transport operators</li> <li>• Taxi Council</li> </ul>
<b>Media</b>	<ul style="list-style-type: none"> <li>• All media</li> </ul>

## 5.2. Stakeholder mapping

The table below outlines the key stakeholders identified in relation to the enabling work:

Table 7: Stakeholder mapping

Stakeholder groups	Anticipated key concerns, impacts or interest points	Engagement methods
<b>Residents, businesses, customers, and communities</b>		
<b>Community Including businesses</b>	<ul style="list-style-type: none"> <li>• Noise and vibration</li> <li>• Visual amenity</li> <li>• Vegetation removal</li> <li>• Access changes</li> <li>• Dust</li> <li>• Increased traffic</li> <li>• Reduced parking</li> <li>• Business impacts</li> <li>• Construction timeframe</li> <li>• Maintenance of amenity</li> <li>• Out of hours work</li> <li>• Property damage</li> </ul>	<ul style="list-style-type: none"> <li>• Meetings and consultation</li> <li>• Notifications</li> <li>• TfNSW and Sydney Metro website updates</li> <li>• Signage</li> <li>• Door knock</li> <li>• 24hr and general Infoline</li> <li>• Project email addresses</li> <li>• Business management strategy, if required</li> <li>• Property Management Plan</li> <li>• Pre and post condition surveys</li> </ul>
<b>Train customers and pedestrians using the concourse footbridges</b>	<ul style="list-style-type: none"> <li>• Access to station</li> <li>• Access to the local precinct</li> <li>• Sections of station may be temporarily closed at various times</li> <li>• Noise and vibration</li> <li>• Station closures during possessions</li> <li>• Congestion on the concourse</li> <li>• Temporary diversions / access arrangements</li> <li>• Impacts to parking including kiss and ride locations</li> </ul>	<ul style="list-style-type: none"> <li>• Notifications</li> <li>• Notifications printed and displayed at the stations</li> <li>• Project information signage at the stations</li> <li>• Directional signage</li> <li>• Support staff to provide directions and assistance</li> <li>• Infoline and projects email</li> <li>• Website updates</li> <li>• Meetings with Sydney Trains</li> <li>• Supply of mini-bus at stations (if required)</li> <li>• Traffic control</li> </ul>
<b>Bus and Taxi operators and customers</b>	<ul style="list-style-type: none"> <li>• Temporary relocation of services</li> <li>• Temporary diversions</li> <li>• Delays due to temporary road or lane closures</li> </ul>	<ul style="list-style-type: none"> <li>• Meetings with transport operators</li> <li>• Directional and information signage</li> <li>• Notifications/handouts for bus customers</li> </ul>

Stakeholder groups	Anticipated key concerns, impacts or interest points	Engagement methods
	<ul style="list-style-type: none"> <li>Increased traffic due to construction vehicles</li> </ul>	<ul style="list-style-type: none"> <li>Support staff to provide directions and assistance</li> <li>Traffic control</li> <li>Website updates</li> </ul>
<b>Cyclists</b>	<ul style="list-style-type: none"> <li>Temporary diversions / access arrangements</li> <li>Temporary road and lane closures</li> <li>Relocation of bike lockers/racks</li> <li>Station closures during possessions</li> </ul>	<ul style="list-style-type: none"> <li>Liaison with Cycling NSW</li> <li>Notification emails to cycling groups</li> <li>Signage</li> <li>Traffic control</li> </ul>
<b>Pedestrians</b>	<ul style="list-style-type: none"> <li>Temporary diversions / access arrangements</li> <li>Temporary road and lane closures</li> <li>Increased safety risks</li> <li>Station closures during possessions</li> </ul>	<ul style="list-style-type: none"> <li>Notifications</li> <li>Notifications printed and displayed at the stations</li> <li>Project information signage at the stations</li> <li>Directional signage</li> <li>Support staff to provide directions and assistance</li> <li>Infoline and projects email</li> <li>Website updates</li> <li>Meetings with Sydney Trains</li> <li>Supply of mini bus at stations (if required)</li> <li>Traffic control</li> </ul>
<b>Motorists</b>	<ul style="list-style-type: none"> <li>Delays due to temporary road or lane closures</li> <li>Temporary diversions / access arrangements</li> <li>Impacts to parking including kiss and ride bay relocation</li> <li>Increased traffic due to construction vehicles</li> </ul>	<ul style="list-style-type: none"> <li>Notifications</li> <li>Electronic sign boards</li> <li>Static signage</li> <li>Line marking</li> <li>Traffic control</li> </ul>
<b>Stakeholder organisations</b>		
Sydney Trains Station staff: Station Managers Bus operators Taxi Council/Operators	<ul style="list-style-type: none"> <li>Construction timeframe</li> <li>Passenger information</li> <li>Customer experience</li> <li>Operations</li> <li>Noise and vibration</li> <li>Dust</li> <li>Maintenance of amenity</li> <li>Facilities and assets maintenance</li> <li>Temporary relocation of bus / taxi services</li> <li>Temporary road / lane diversions</li> <li>Delays due to temporary road or lane closures</li> <li>Increased traffic due to construction vehicles</li> </ul>	<ul style="list-style-type: none"> <li>Phone</li> <li>Meetings as required</li> <li>Station staff updates, as required</li> <li>Directional and information signage</li> <li>Notifications/handouts for bus customers</li> <li>Support staff to provide directions and assistance</li> <li>Traffic control</li> <li>Website updates</li> </ul>
<b>Utility providers</b>		
Telstra Optus	<ul style="list-style-type: none"> <li>Construction timeframe</li> <li>Construction impacts</li> <li>Maintenance of amenity</li> </ul>	<ul style="list-style-type: none"> <li>Meetings as required to conduct work adjacent to these assets</li> </ul>



Stakeholder groups	Anticipated key concerns, impacts or interest points	Engagement methods
Jemena Energy Australia Ausgrid TransGrid, etc		<ul style="list-style-type: none"> <li>• Obtaining Dial Before You Dig and DSS records</li> <li>• Phone calls</li> <li>• Provide email notifications to utility contact for their call centres at least 7 days prior to work commencing</li> </ul>
<b>Political bodies (including Council departments)</b>		
<b>Minister for Transport and Roads</b>	<ul style="list-style-type: none"> <li>• Construction timeframe</li> <li>• Impacts to the community, pedestrians, motorists and cyclists</li> <li>• Train operations</li> </ul>	<ul style="list-style-type: none"> <li>• Briefings as required</li> </ul>
<b>Councils</b>	<ul style="list-style-type: none"> <li>• Construction timeframe</li> <li>• Consultation methods</li> <li>• Road and lane closures</li> <li>• Access changes</li> <li>• Impacts to the community, pedestrians, motorists and cyclists</li> <li>• Impacts to parking</li> <li>• Property damage</li> </ul>	<ul style="list-style-type: none"> <li>• Briefings as required</li> <li>• Project update emails</li> <li>• Traffic plans</li> <li>• Traffic control</li> <li>• Information and directional signage</li> <li>• Property Management Plan</li> <li>• Pre and post road and property/asset condition surveys, as required</li> </ul>

### 5.3. Community engagement tools

Opportunities to provide feedback would be available at different times, places and through different mediums. To ensure the engagement process is convenient and comfortable for a range of different stakeholders, a variety of engagement methods tools will be used to facilitate proactive communication.

Existing communication channels managed by external stakeholders such as councils and chambers of commerce will also be used to circulate information, if applicable. A driven focus will be placed on identifying ways to keep key stakeholders and the community informed of potential impacts and engaged throughout the project lifecycle.

The complete suite of communication tools that would be used are described in Table 8.

Table 8: Community engagement tools

Community engagement tool	Details
<b>Briefings/meetings</b>	Briefings/meetings with key stakeholders including councils, government agencies and station staff. Sydney Metro will lead the Government agency briefings. Meetings held with directly affected businesses and residents as needed.
<b>Door knock</b>	Doorknocks to advise businesses and residents of any specific impacts. Doorknocks during construction if noise and vibration exceeds the limits identified in the Noise and Vibration Strategy
<b>Written correspondence</b>	All complaints will be closed out with written correspondence
<b>Notifications</b>	Notifications will be distributed with a minimum 7 days' notice providing project progress and updates (construction updates each month) and include project name, phone numbers, email and web address to enable feedback to be received
<b>Website updates</b>	Transport for Tomorrow will provide Sydney Metro and/or TfNSW with a list of upcoming construction activities for inclusion on the project webpage. All Sydney Metro communication materials uploaded online will adhere to Web Content Accessibility Guidelines (WCAG 2.0).

Community engagement tool	Details
<b>Translation services</b>	Notifications will contain the translation service telephone number, providing the community with access for those who do not speak English as a first language
<b>Signage</b>	Site signage will be installed identifying the project names and contact details. Signage or signage requirements to be provided by Sydney Metro or TfNSW. Project information signage, directional, notification of changes to existing parking or bus location signage will be installed at least seven (7) days prior to any changes occurring.
<b>Business Management Strategy</b>	To be produced where there are identified impacts on local businesses such as temporary fencing in front of business, traffic changes that will impact customer access to businesses, production of directional or information signage for the business
<b>Email distribution list</b>	Stakeholders registered for project updates will receive monthly email updates, managed by Sydney Metro
<b>Project Infoline</b>	All enquiries will be directed to the Sydney Metro or TfNSW Project Infolines
<b>Complaints line</b>	All construction related complaints will be directed to the Sydney Metro or TfNSW 24/7 complaints line, which will be made available on monthly notifications and the <a href="#">project specific webpages</a>
<b>Media liaison/Press release</b>	Media releases will be prepared for key milestones
<b>Advertisements in local paper</b>	As required
<b>Social media updates</b>	Social media updates (Twitter and Facebook) may be published at key milestones

## 5.1 Key messages

Metro enabling work will be carried out in the Western Sydney region on the Sydney Metro West and Metro Western Sydney Airport projects. The enabling work involves the relocation of existing rail services to remove any conflict with the new Sydney Metro tunnels and station boxes. Services to be installed and/or relocated include new high and low voltage electrical supply at the stations; identification and relocation of existing utilities; design, construction and commissioning of new signalling and communication cables and infrastructure; removal of redundant infrastructure; provision of access roads to support construction of the Sydney Metro within the rail corridor. The Sydney Metro West is a new 24-kilometre metro line with stations at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays, Pyrmont, and Hunter Street in the Sydney CBD. The new underground railway line will connect Greater Parramatta and the Sydney CBD. Sydney Metro – Western Sydney Airport, from St Marys through to the new airport and the Western Sydney Aerotropolis, will provide major economic stimulus for western Sydney. The 23-kilometre new railway will link residential areas with job hubs including the new Aerotropolis and connect travellers from the new airport to the rest of Sydney public transport system. Metro enabling work started in July 2021 and is expected to take approximately one and a half years to complete.

The community and stakeholders will be kept informed in advance of construction activities taking place.

Every effort will be made to minimise any construction impacts on the local community, and we will continue to keep the community informed about upcoming activities through regular updates.

## 5.4. Traffic and Transport Liaison Group

In accordance with Ministers Conditions, TFT will participate in Traffic and Transport Liaison Group (TTLG) Meetings as required by Sydney Metro.

An authorised representative for the Project will provide information to the TTLG on traffic related matters which may include:

- Construction staging (existing or proposed)

- Traffic operations, including changes in regulatory traffic controls
- Community concerns and comments or feedback
- Impacts on road-based transport operations
- Issues related to pedestrians and cyclists or mobility impaired road users
- Communication strategies and actions to be taken

## 6. Conclusion

The work to relocate/replace the existing lift shaft and stairs can be divided into four main components in sequential order:

1. Services identification & protection
2. Stair Works
3. Lift Works
4. Finishing work and demobilisation

On average, Project will generate in order of one heavy vehicle movement per day with a maximum of sixteen heavy vehicles movements in one shift for its most high impact activities, being the installation of the new stair case and lift shaft segments.

The heavy vehicles routes provided in the EIS did not consider the enabling works component of Sydney Metro and as such could not be followed. The proposed heavy vehicle routes follow the EIS routes as much as possible and have been selected to minimise interface between heavy vehicles and vulnerable road users.

As most of the work for this Project occurs within the confines of the site compound, and given the low frequency of construction traffic, long term traffic management measures such as construction traffic signage has not been suggested and is not recommended in accordance with TCWS manual v6.1. The traffic management strategies in this report primary focus on short-term traffic controls such as short term lane closures and intermittent stops to manage heavy vehicle movements.

The overall impact of the project is considered to be low.

## Annexure A Ministers Conditions of Approval

Traffic and Transport	E103	Construction Traffic Management Plans (CTMPs) must be prepared in accordance with the Construction Traffic Management Framework. A copy of the CTMPs must be submitted to the Planning Secretary for information before the commencement of any construction in the area identified and managed within the relevant CTMP.
Traffic and Transport - Management of Heavy Vehicle Movements	E104	The locations of all Heavy Vehicles used for spoil haulage must be monitored in real time and the records of monitoring be made available electronically to the Planning Secretary and the EPA upon request for a period of no less than one (1) year following the completion of construction
Traffic and Transport - Management of Heavy Vehicle Movements	E105	Local roads proposed to be used by Heavy Vehicles to directly access ancillary facilities / construction sites that are not identified in the documents listed in Condition A1 must be approved by the Planning Secretary and be included in the CTMP.
Traffic and Transport - Management of Heavy Vehicle Movements	E106	All requests to the Planning Secretary for approval to use local roads under Condition E105 above must include the following: <b>(a) a swept path analysis;</b> <b>(b)</b> demonstration that the use of local roads by Heavy Vehicles for the CSSI will not compromise the safety of pedestrians and cyclists of the safety of two-way traffic flow on two-way roadways; <b>(c)</b> details as to the date of completion of the road dilapidation surveys for the subject local roads; and <b>(d)</b> measures that will be implemented to avoid where practicable the use of local roads past schools, aged care facilities and child care facilities during their peak operation times; and <b>(e)</b> written advice from an appropriately qualified professional on the suitability of the proposed Heavy Vehicle route which takes into consideration items (a) to(d) of this condition.
Traffic and Transport - Road Dilapidation	E107	Before any local road is used by a Heavy Vehicle for the purposes of construction of the CSSI, a Road Dilapidation Report must be prepared for the road. A copy of the Road Dilapidation Report must be provided to the Relevant Road Authority(s) within three (3) weeks of completion of the survey and at no later than one (1) month before the road being used by Heavy Vehicles associated with the construction of the CSSI.
Traffic and Transport - Road Dilapidation	E108	If damage to roads occurs as a result of the construction of the CSSI, the Proponent must either (at the Relevant Road Authority's discretion): <b>(a)</b> compensate the Relevant Road Authority for the damage so caused; or <b>(b)</b> rectify the damage to restore the road to at least the condition it was in pre-work as identified in the Road Dilapidation Report.
Traffic and Transport - Construction Parking and Access Management	E109	Vehicles associated with the project workforce (including light vehicles and Heavy Vehicles) must be managed to: <b>(a)</b> minimise parking on public roads; <b>(b)</b> minimise idling and queueing on state and regional roads; <b>(c)</b> not carry out marshalling of construction vehicles near sensitive land use(s); <b>(d)</b> not block or disrupt access across pedestrian or shared user paths at any time unless alternate access is provided; and <b>(e)</b> ensure spoil haulage vehicles adhere to the nominated haulage routes identified in the CTMP.

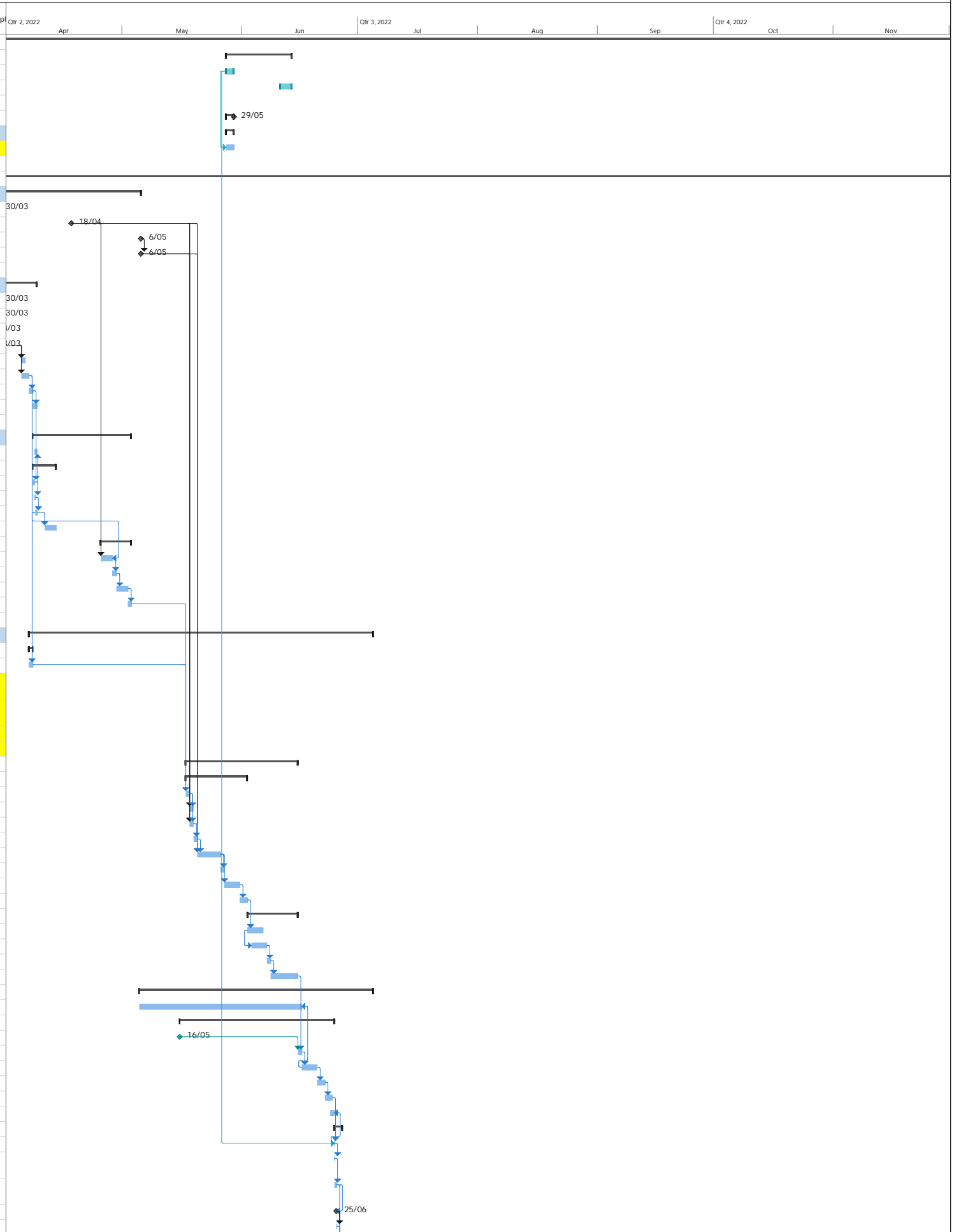


Traffic and Transport - Property Access	E110	Access to all utilities and properties must be maintained during works, unless otherwise agreed with the relevant utility owner, landowner or occupier.
Traffic and Transport - Property Access	E111	The Proponent must maintain access to properties during the entirety of works unless an alternative access is agreed in writing with the landowner(s) whose access is impacted by the CSSI works.
Traffic and Transport - Property Access	E112	Where construction of the CSSI restricts a property's access to a public road, the Proponent must, until their primary access is reinstated, provide the property with temporary alternate access to an agreed road decided through consultation with the landowner, at no cost to the property landowner, unless otherwise agreed with the landowner.
Traffic and Transport - Property Access	E113	Any property access physically affected by the CSSI must be reinstated to at least an equivalent standard, unless otherwise agreed by the landowner or occupier. Property access must be reinstated within one (1) month of the work that physically affected the access is completed or in any other timeframe agreed with the landowner or occupier.
Traffic and Transport - Property Access	E114	During construction, all reasonably practicable measures must be implemented to maintain pedestrian, cyclist and vehicular access to, and parking in the vicinity of, businesses and affected properties. Disruptions are to be avoided, and where avoidance is not possible, minimised. Where disruption cannot be avoided, alternative pedestrian, cyclist and vehicular access, and parking arrangements must be developed in consultation with affected businesses and landowners and implemented before the disruption. Adequate signage and directions to businesses must be provided before, and for the duration of, any disruption.
Traffic and Transport - Pedestrian and Cyclist Access	E115	Safe pedestrian and cyclist access must be maintained around the St Marys construction site during construction. In circumstances where pedestrian and cyclist access is restricted or removed due to construction activities, a proximate alternate route which complies with the relevant standards, must be provided and signposted before the restriction or removal of the impacted access.
Traffic and Transport - Road Traffic and Safety	E116	A Traffic and Transport Liaison Group(s) must be established in accordance with the Construction Traffic Management Framework to inform the development of CTMP.
Traffic and Transport - Road Traffic and Safety	E117	Supplementary analysis and modelling as required by TfNSW and / or the Traffic and Transport Liaison Group(s) must be undertaken to demonstrate that construction and operational traffic can be managed to minimise disruption to traffic network operations, including changes to and the management of pedestrian, bicycle and public transport networks, public transport services, and pedestrian and cyclist movements. Revised traffic management measures must be incorporated into the CTMP. Permanent road works included in the CSSI must be designed, constructed and operated with the objective of integrating with existing and proposed road and related transport networks and minimising adverse changes to the safety, efficiency and accessibility of the network. Design and assessment of related traffic, parking, pedestrian and cycle accessibility impacts and changes shall be undertaken: (a) in consultation with, and to the reasonable requirements of the relevant Traffic and Transport Liaison Group; (b) in consideration of existing and future demand, connectivity (in relation to permanent changes), performance and safety requirements; (c) to minimise and manage local area traffic impacts; (d) to, where possible and appropriate, retain or reinstate parking in St Marys; (e) to ensure access is maintained to property and infrastructure (f) to address relevant design, engineering and safety guidelines, including Austroads, Australian Standards and TfNSW requirements. Copies of civil, structural and traffic signal design plans shall be submitted to the Relevant Road Authority for consultation during design development and before completion of construction of the CSSI.

<p>Traffic and Transport - Road Traffic and Safety</p>	<p>E118</p>	<p>As part of Condition E117 the Traffic and Transport Liaison Group(s) is to identify opportunities to improve the intersection performance during operation at:            (a) Queen Street/Great Western Highway/Mamre Road in St Marys;            (b) Glossop Street/ Forrester Road in St Marys; and            (c) Glossop Street / Great Western highway in St Marys.            Identified improvements must be implemented prior to the commencement of operation.</p>
<p>Traffic and Transport - Road Traffic and Safety</p>	<p>E119</p>	<p>Permanent road works, including vehicular access, signalised intersection works, and works relating to pedestrians, cyclists, and public transport users must be subject to safety audits demonstrating consistency with relevant design, engineering and safety standards and guidelines. Safety audits must be prepared in consultation with the relevant Traffic and Transport Liaison Group before the completion and use of the subject infrastructure and must be made available to the Planning Secretary upon request.</p>

## **Annexure B Detailed Work Program**

ID	Task Name	Duration	Start	Finish	Predecessors	Comment	Qty	Rate	Resource Names	Task Calendar	% Comp
1	St Marys Construction Program	249 days?	28/03/22 8:00 AM	9/03/23 5:00 PM		Revised 29/03/22				None	0%
2	Key Possessions	11 days	28/05/22 6:00 AM	13/06/22 5:00 PM						None	0%
3	Weekend 48	4.38 days	28/05/22 6:00 AM	29/05/22 5:00 PM						24 Hour	0%
4	Weekend 50	7.13 days	11/06/22 8:00 AM	13/06/22 5:00 PM		Contingency for Stair works				24 Hour	0%
5											
6	HV works	0 days	28/05/22 6:00 AM	29/05/22 6:00 PM						None	0%
7	WE48 - Replacement of the Padmount	4.5 days	28/05/22 6:00 AM	29/05/22 6:00 PM						24 Hour	0%
8	Insert hourly program from wayne here	36 hrs	28/05/22 6:00 AM	29/05/22 6:00 PM	35S					24 Hour	0%
9											
10	Portion D Works	249 days?	28/03/22 8:00 AM	9/03/23 5:00 PM						None	0%
11	Constraints	27 days	30/03/22 8:00 AM	6/05/22 8:00 AM						None	0%
12	LIW Approval	0 days	30/03/22 8:00 AM	30/03/22 8:00 AM		Required for service encasement & site set up				None	0%
13	AFC Design Approval	0 days	18/04/22 8:00 AM	18/04/22 8:00 AM		Required to start permanent works				None	0%
14	CTMP Release	0 days	6/05/22 8:00 AM	6/05/22 8:00 AM		Required to submit construction approvals				None	0%
15	Construction Approvals	0 days	6/05/22 8:00 AM	6/05/22 8:00 AM	14	Required to start foundation works				None	0%
16											
17	Site Set Up	10 days	28/03/22 8:00 AM	8/04/22 5:00 PM						None	0%
18	TMP's to be requested for main works	0 days	30/03/22 8:00 AM	30/03/22 8:00 AM						None	0%
19	Hoarding & resources orders to be placed	0 days	30/03/22 8:00 AM	30/03/22 8:00 AM						None	0%
20	Approvals from council & Sydney Trains for site set up	0 days	28/03/22 8:00 AM	28/03/22 8:00 AM						None	0%
21	Hoarding notification signs installed	0 days	28/03/22 8:00 AM	28/03/22 8:00 AM						None	0%
22	Relocation of bike racks	1 day	5/04/22 8:00 AM	5/04/22 5:00 PM	21FS+6 days					None	0%
23	Hoarding installation on site	2 days	5/04/22 8:00 AM	6/04/22 5:00 PM	21FS+6 days					None	0%
24	Removal of existing furniture	1 day	7/04/22 8:00 AM	7/04/22 5:00 PM	23					None	0%
25	Strip back and store of existing brickwork in work footprint	1 day	8/04/22 8:00 AM	8/04/22 5:00 PM	24					None	0%
26											
27	Service Identification & Protection Works	17.2 days	8/04/22 8:00 AM	3/05/22 9:36 AM						None	0%
28	Complete service identification with NDD	0.6 days	8/04/22 11:12 AM	8/04/22 5:00 PM	30					None	0%
29	Telstra Protection	4 days	8/04/22 8:00 AM	13/04/22 5:00 PM						None	0%
30	NDD sections impacted by the piling and foundation work	0.4 days	8/04/22 8:00 AM	8/04/22 11:12 AM	24	to include the telstra service				None	0%
31	install mesh	0.3 days	8/04/22 11:12 AM	8/04/22 2:36 PM	30					None	0%
32	backfill with concrete to create protection	0.3 days	8/04/22 2:36 PM	8/04/22 5:00 PM	31	Protection wall to be 100mm off of service, no m				None	0%
33	Cure service protection concrete	3 days	11/04/22 8:00 AM	13/04/22 5:00 PM	32	Min 25MPa required prior to works adjacent				None	0%
34	Service Encasement Works	5.5 days	25/04/22 2:36 PM	3/05/22 9:36 AM						None	0%
35	NDD to expose services and prep for foundation works	3 days	25/04/22 2:36 PM	28/04/22 2:36 PM	32SF+14 days	Temp Works check required for supporting pipes				None	0%
36	Concrete encase pipes	1 day	28/04/22 2:36 PM	29/04/22 2:36 PM	35					None	0%
37	Cure concrete encasement	72 hrs	29/04/22 2:36 PM	2/05/22 2:36 PM	36					24 Hour	0%
38	Backfill encasement	0.5 days	2/05/22 2:36 PM	3/05/22 9:36 AM	37					None	0%
39											
40	Stair Works	63 days?	7/04/22 8:00 AM	4/07/22 5:00 PM						None	0%
41	Services Enabling Works	1 day?	7/04/22 8:00 AM	7/04/22 5:00 PM						None	0%
42	Install Screening onto side of walkway and existing stairs	1 day	7/04/22 8:00 AM	7/04/22 5:00 PM	23					None	0%
43	Install temp valve on water service to station					Potentially install temp route to take water off of the existing stair structure				None	0%
44	Power Disconnections					Need to identify needs for demo of existing stairs, implications to power through station				None	0%
45	Gutter & Drainage alterations					TBC				None	0%
46	<New Task>					OTHER TBC				None	0%
47	Foundation Works	21 days	17/05/22 1:00 PM	15/06/22 12:00 PM						None	0%
48	Piling works	12 days	17/05/22 1:00 PM	2/06/22 12:00 PM		Currently driven by Procurement				None	0%
49	Create hardstand for micro pile rig	1 day	17/05/22 1:00 PM	18/05/22 12:00 PM	38,42					None	0%
50	Set out stair foundations	1 day	18/05/22 1:00 PM	19/05/22 12:00 PM	13,49					None	0%
51	Mobilise plant to site	1 day	18/05/22 1:00 PM	19/05/22 12:00 PM	13,49,15					None	0%
52	Material deliveries to site	1 day	19/05/22 1:00 PM	20/05/22 12:00 PM	51					None	0%
53	Pile Installation	4 days	20/05/22 1:00 PM	26/05/22 12:00 PM	13,15,51,52	13 piles 4 piles per day				None	0%
54	Demob micro piling rig	1 day	26/05/22 1:00 PM	27/05/22 12:00 PM	53					None	0%
55	Excavate around piles	2 days	27/05/22 1:00 PM	31/05/22 12:00 PM	53FS+1 day	allowed 1 day post pile install for min curing				None	0%
56	Pile cropping	2 days	31/05/22 1:00 PM	2/06/22 12:00 PM	55	Utilise Qui-cutter to crop, include ties tidy up and f 13 piles	1.5hrs per pile			None	0%
57	Pile Cap Works	9 days	2/06/22 1:00 PM	15/06/22 12:00 PM						None	0%
58	Reinforcement works	2 days	2/06/22 1:00 PM	6/06/22 12:00 PM	56	Slower productivity due to small foundations, ba	Approx. 2T 1T/day			None	0%
59	Form Foundations	2 days	3/06/22 1:00 PM	7/06/22 12:00 PM	58SS+1 day					None	0%
60	Pour foundations	1 day	7/06/22 1:00 PM	8/06/22 12:00 PM	59	approx. 8m3				None	0%
61	Cure, Strip & Backfill foundations	5 days	8/06/22 1:00 PM	15/06/22 12:00 PM	60	allow 3 days before stripping then backfill				None	0%
62	Stair Structural Steel Works	42.5 days	5/05/22 1:00 PM	4/07/22 5:00 PM						None	0%
63	Stair Procurement	6 wks	5/05/22 1:00 PM	16/06/22 1:00 PM	67SF					None	0%
64	Steel Column Install (pre stair segment install)	30 days	16/05/22 8:00 AM	24/06/22 10:00 PM						None	0%
65	Stair contractor commences on site	0 days	16/05/22 8:00 AM	16/05/22 8:00 AM						None	0%
66	Delivery of columns and small plant to site	1 day	15/06/22 1:00 PM	16/06/22 12:00 PM	61,65					None	0%
67	Install steel uprights	2 days	16/06/22 1:00 PM	20/06/22 12:00 PM	66	10 lifts 1.5hr/lift				None	0%
68	Prep for stair installation works	2 days	20/06/22 1:00 PM	22/06/22 12:00 PM	67					None	0%
69	Float to WE48	2 days	22/06/22 1:00 PM	24/06/22 12:00 PM	68					None	0%
70	Mobilise demolition plant and skips to site	1 day	24/06/22 8:00 AM	24/06/22 10:00 PM	72SF					None	0%
71	Stair Install	7 days	24/06/22 10:00 PM	27/06/22 6:00 AM		Targetting WE52				24 Hour	0%
72	Establish Traffic Management	2 hrs	24/06/22 10:00 PM	25/06/22 12:00 AM	35S-10 hrs,69					24 Hour	0%
73	Close stairs and install pedestrian controls in walkway	1 hr	25/06/22 12:00 AM	25/06/22 1:00 AM	72					24 Hours	0%
74	Demolish existing staircase to allow install of new stairs	12 hrs	25/06/22 1:00 AM	25/06/22 1:00 PM	73	Need to remove steel canopy and walkway from central landing to base and demolish ground				24 Hours	0%
75	Delivery 1 arrive on site	0 hrs	25/06/22 1:00 PM	25/06/22 1:00 PM	74FF					24 Hour	0%
76	Lift & Install top stair flight	1.5 hrs	25/06/22 1:00 PM	25/06/22 2:30 PM	74,75					24 Hour	0%





ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Comment	Qty	Rate	Resource Names	Task Calendar	% Comp	Gantt Chart (Apr to Nov)											
77		Delivery 2 arrive on site	0 hrs	25/06/22 1:00 PM	25/06/22 1:00 PM	75					24 Hour	0%	[Gantt bar]											
78		Lift & Install middle stair flight	1.5 hrs	25/06/22 2:30 PM	25/06/22 4:00 PM	76,77					24 Hour	0%	[Gantt bar]											
79		Delivery 3 arrive on site	0 hrs	25/06/22 1:00 PM	25/06/22 1:00 PM	77					24 Hour	0%	[Gantt bar]											
80		Lift & Install lower landing	1.5 hrs	25/06/22 4:00 PM	25/06/22 5:30 PM	78,79					24 Hour	0%	[Gantt bar]											
81		Delivery 4 arrive on site	0 hrs	25/06/22 1:00 PM	25/06/22 1:00 PM	79					24 Hour	0%	[Gantt bar]											
82		Lift & Install lower stair flight	1.5 hrs	25/06/22 5:30 PM	25/06/22 7:00 PM	80,81					24 Hour	0%	[Gantt bar]											
83		Delivery 5 arrive on site	0 hrs	25/06/22 1:00 PM	25/06/22 1:00 PM	81					24 Hour	0%	[Gantt bar]											
84		Lift & Install top canopy section	1.5 hrs	25/06/22 7:00 PM	25/06/22 8:30 PM	82,83					24 Hour	0%	[Gantt bar]											
85		Delivery 6 arrive on site	0 hrs	25/06/22 1:00 PM	25/06/22 1:00 PM	83					24 Hour	0%	[Gantt bar]											
86		Lift & Install middle canopy section	1.5 hrs	25/06/22 8:30 PM	25/06/22 10:00 PM	84,85					24 Hour	0%	[Gantt bar]											
87		Delivery 7 arrive on site	0 hrs	25/06/22 1:00 PM	25/06/22 1:00 PM	85					24 Hour	0%	[Gantt bar]											
88		Lift & Install lower landing canopy section	1.5 hrs	25/06/22 10:00 PM	25/06/22 11:30 PM	86,87					24 Hour	0%	[Gantt bar]											
89		Delivery 8 arrive on site	0 hrs	25/06/22 1:00 PM	25/06/22 1:00 PM	87					24 Hour	0%	[Gantt bar]											
90		Lift & Install lower canopy section	1.5 hrs	25/06/22 11:30 PM	26/06/22 1:00 AM	88,89					24 Hour	0%	[Gantt bar]											
91		Finishes on structural works	4 hrs	26/06/22 1:00 AM	26/06/22 5:00 AM	90					24 Hour	0%	[Gantt bar]											
92		Flashing, Roof Repairs, Gutter connections	6 hrs	26/06/22 5:00 AM	26/06/22 11:00 AM	91					24 Hour	0%	[Gantt bar]											
93		Stair treads, Handrails, nosings and tactile install	8 hrs	26/06/22 11:00 AM	26/06/22 7:00 PM	92					24	0%	[Gantt bar]											
94		Electrical connections and lighting works	8 hrs	26/06/22 11:00 AM	26/06/22 7:00 PM	93SS					24 Hour	0%	[Gantt bar]											
95		Finishes	8 hrs	26/06/22 7:00 PM	27/06/22 3:00 AM	94					24 Hour	0%	[Gantt bar]											
96		Walkthroughs with Station Staff	1 hr	27/06/22 3:00 AM	27/06/22 4:00 AM	95					24 Hour	0%	[Gantt bar]											
97		Clear area & Rearrange hoarding	1 hr	27/06/22 4:00 AM	27/06/22 5:00 AM	96					24 Hour	0%	[Gantt bar]											
98		Open new stairs to public	1 hr	27/06/22 5:00 AM	27/06/22 6:00 AM	97					24 Hour	0%	[Gantt bar]											
99		Demolish Remainder of Existing Stairs	6 days	27/06/22 8:00 AM	4/07/22 5:00 PM	98					None	0%	[Gantt bar]											
100		Services finishes to new stairs	5 days	27/06/22 8:00 AM	1/07/22 5:00 PM	98	This can only be around maintaining pedestrian traffic, may require off-peak works				None	0%	[Gantt bar]											
101																								
102		Lift Works	235 days	1/04/22 8:00 AM	23/02/23 5:00 PM						None	0%	[Gantt bar]											
103		Foundation & Drainage Works	84 days	1/04/22 8:00 AM	27/07/22 5:00 PM						None	0%	[Gantt bar]											
104		Design Temp Works	10 wks	1/04/22 8:00 AM	9/06/22 5:00 PM		Allowing for Sydney Trains Risk Reviews				None	0%	[Gantt bar]											
105		Procure Shoring for Ground Retention	2 wks	10/06/22 8:00 AM	23/06/22 5:00 PM	104					None	0%	[Gantt bar]											
106		Install Sheet Pile Retention	4 days	5/07/22 8:00 AM	8/07/22 5:00 PM	99,105	Required to protect existing lift & trestle foundat				None	0%	[Gantt bar]											
107		Excavate to underside of slab	2 days	11/07/22 8:00 AM	12/07/22 5:00 PM	106					None	0%	[Gantt bar]											
108		FRP lift slab base	5 days	13/07/22 8:00 AM	19/07/22 5:00 PM	107					None	0%	[Gantt bar]											
109		Cure lift slab base and strip	3 days	20/07/22 8:00 AM	22/07/22 5:00 PM	108					None	0%	[Gantt bar]											
110		Excavate and install drainage assets	3 days	25/07/22 8:00 AM	27/07/22 5:00 PM	109					None	0%	[Gantt bar]											
111		Precast & Steel Works	16 days	27/07/22 11:00 PM	18/08/22 5:00 PM						None	0%	[Gantt bar]											
112		Lift & Position precast lift shaft segments	3 days	27/07/22 11:00 PM	30/07/22 8:00 AM	110	Assumed lifting can be done during nights withoi5 segments	2/day			Night S	0%	[Gantt bar]											
113		Post tension, grout and finish lift segments	6 days	1/08/22 8:00 AM	8/08/22 5:00 PM	112					None	0%	[Gantt bar]											
114		Backfill around lift shaft base to underside of pavement	2 days	9/08/22 8:00 AM	10/08/22 5:00 PM	113					None	0%	[Gantt bar]											
115		Install walkway and connection to existing walkway	3 days	11/08/22 8:00 AM	15/08/22 5:00 PM	114					None	0%	[Gantt bar]											
116		Install steel top section to precast	1 day	16/08/22 8:00 AM	16/08/22 5:00 PM	115					None	0%	[Gantt bar]											
117		Finishes to structural elements	2 days	17/08/22 8:00 AM	18/08/22 5:00 PM	116					None	0%	[Gantt bar]											
118		Lift Shaft Services and Structural Fit Out	51 days	19/08/22 8:00 AM	28/10/22 5:00 PM						None	0%	[Gantt bar]											
119		Install glazing to lift shaft	5 days	19/08/22 8:00 AM	25/08/22 5:00 PM	117					None	0%	[Gantt bar]											
120		Install service routes, elec, CCTV, etc	6 days	26/08/22 8:00 AM	2/09/22 5:00 PM	119					None	0%	[Gantt bar]											
121		Provide Access for Sydney Trains to complete CCTV	6 days	5/09/22 8:00 AM	12/09/22 5:00 PM	120					None	0%	[Gantt bar]											
122		Prep works for Liftronics	4 days	5/09/22 8:00 AM	8/09/22 5:00 PM	120	To be confirmed				None	0%	[Gantt bar]											
123		Site available for Liftronics	0 days	8/09/22 5:00 PM	8/09/22 5:00 PM	122					None	0%	[Gantt bar]											
124		Services finishes and commissioning	10 days	13/09/22 8:00 AM	26/09/22 5:00 PM	121,120					None	0%	[Gantt bar]											
125		Weather Allowance	21 days	30/09/22 8:00 AM	28/10/22 5:00 PM	124					None	0%	[Gantt bar]											
126		All service works completed	0 days	28/10/22 5:00 PM	28/10/22 5:00 PM	125					None	0%	[Gantt bar]											
127		LIFTRONICS	45 days	1/12/22 5:00 PM	2/02/23 5:00 PM						None	0%	[Gantt bar]											
128		Liftronics Mobilise to site	0 days	1/12/22 5:00 PM	1/12/22 5:00 PM	123,125					None	0%	[Gantt bar]											
129		Lift Install & Commissioning	9 wks	2/12/22 8:00 AM	2/02/23 5:00 PM	128	Liftronics to confirm				None	0%	[Gantt bar]											
130		Pavement & Canopy Works	5 days	3/02/23 8:00 AM	9/02/23 5:00 PM	129					None	0%	[Gantt bar]											
131		General finishes, flashing, gutter works	5 days	10/02/23 8:00 AM	16/02/23 5:00 PM	130					None	0%	[Gantt bar]											
132		Open lift to public	0 days	16/02/23 5:00 PM	16/02/23 5:00 PM	131					None	0%	[Gantt bar]											
133		Demolish the existing lift & Foundation	5 days	17/02/23 8:00 AM	23/02/23 5:00 PM	132					None	0%	[Gantt bar]											
134																								
135		Trestle Foundation Works	95 days	21/10/22 8:00 AM	2/03/23 5:00 PM						None	0%	[Gantt bar]											
136		Temp Works	65 days	21/10/22 8:00 AM	19/01/23 5:00 PM						None	0%	[Gantt bar]											
137		Design Temp Works	12 wks	21/10/22 8:00 AM	13/01/23 8:00 AM	138SF	Allowing for Sydney Trains Risk Reviews				None	0%	[Gantt bar]											
138		Install TW to support walkway	5 days	13/01/23 8:00 AM	19/01/23 5:00 PM	129FF-2 wks					None	0%	[Gantt bar]											
139		New Trestle Foundation Works	19 days	20/01/23 8:00 AM	15/02/23 5:00 PM						None	0%	[Gantt bar]											
140		Excavate for new foundation	2 days	20/01/23 8:00 AM	23/01/23 5:00 PM	138					None	0%	[Gantt bar]											
141		FRP new foundations	10 days	24/01/23 8:00 AM	6/02/23 5:00 PM	140					None	0%	[Gantt bar]											
142		Cure & Strip new foundations	7 days	7/02/23 8:00 AM	15/02/23 5:00 PM	141					None	0%	[Gantt bar]											
143		Disconnect Trestle from the Existing Lift footings	5 days	24/02/23 8:00 AM	2/03/23 5:00 PM	142,133					None	0%	[Gantt bar]											
144																								
145		Portion D Finishes	10 days	24/02/23 8:00 AM	9/03/23 5:00 PM						None	0%	[Gantt bar]											
146		Reinstate paving in area	5 days	24/02/23 8:00 AM	2/03/23 5:00 PM	143SS					None	0%	[Gantt bar]											
147		Reinstate street furniture	3 days	3/03/23 8:00 AM	7/03/23 5:00 PM	146					None	0%	[Gantt bar]											
148		Remove Hoarding & Demob from site	2 days	8/03/23 8:00 AM	9/03/23 5:00 PM	147					None	0%	[Gantt bar]											

## Annexure C Site Plan





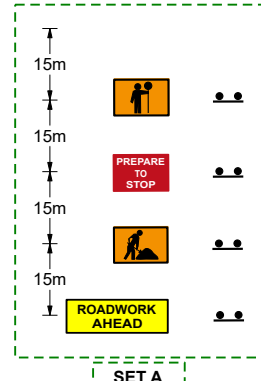
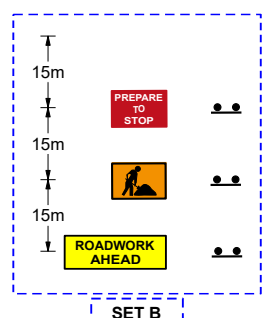
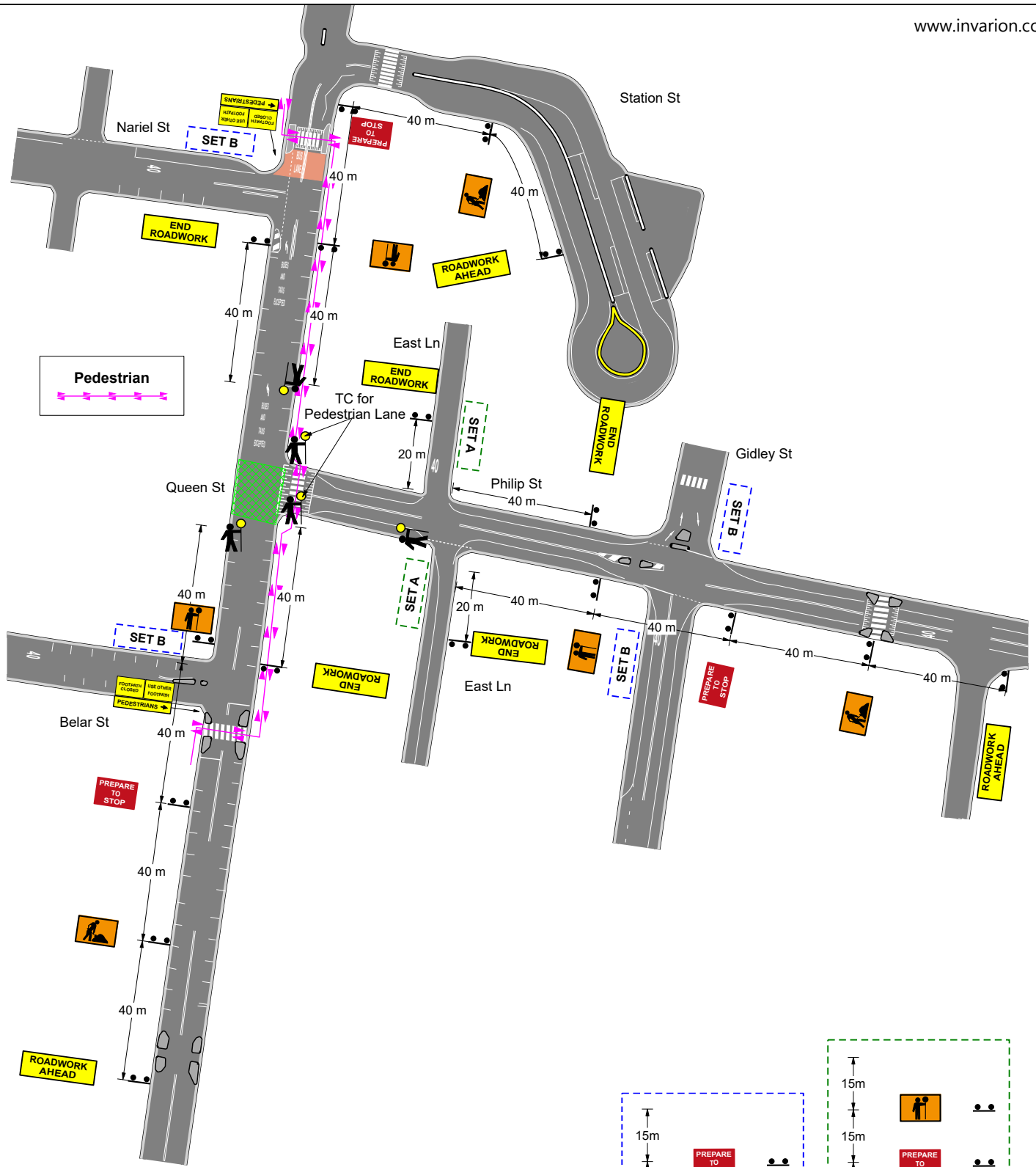


## **Annexure D Traffic Guidance Schemes (TGS)**









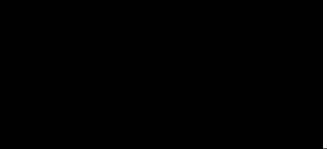
Legend	
	Cone
	Lane Marker
	Pedestrian Barrier / Tiger Tails (AS REQUIRED)
	PTCD
	Safety Zone
	Work Area

Manifest	
9 x T1-1	ROADWORK AHEAD
9 x T1-18	PREPARE TO STOP
9 x T1-5	WORKERS AHEAD
5 x T1-34	TRAFFIC CONTROLLER AHEAD
5 x T2-16	END ROADWORK
5 x	Traffic Controller



ISSUE	DESC	APPD	DATE	AMENDMENT DESCRIPTION

CLIENT: CASE CIVIL AND STRUCTURE ENGINEERING



SCALE:	1:750
DATE OF DESIGN:	23/05/2022
TIME OF DESIGN:	08:00
DATE OF APPROVAL:	23/05/2022
DRAWING NUMBER:	TCS-CASE-QUEEN_ST_ST_MARYS-001
SHEET NO:	3 OF 3
ISSUE:	00

PROJECT:	QUEEN ST, ST MARYS CITY OF PENRITH
TITLE:	TRAFFIC GUIDANCE SCHEME 3-WAY INTERMITTENT STOPPAGES

Call Altus Traffic Toll Free (Australia) 1300 TRAFFIC (872 5344) ABN 84 102 768 061









**NOTES:**

- This Traffic Guidance Scheme is developed by competent and experienced persons in accordance with the requirements outlined in the TNSW TCAWS Version 6.1, AS1742.3 and the Road Management Act 2004.
- Prior to implementation of the TGS, Altus will carry out an inspection and risk assessment.
- A signed copy of the SWMS will be available on-site at all times.
- This plan is developed in conjunction with vehicle and pedestrian movement plans access management and other measures. A PWZTMP and/or ITCP qualified person must ensure the TGS is implemented, maintained as per attached TGS. Otherwise, any adjustment and modification will be captured in the checklist and work pack.
- Pedestrian management is to be overseen by onsite crew and supported by a risk assessment. If additional signage (TCAWS 6.5.2 - Table 6.5) is required it is subject to modifying TGS criteria, see below.
- All amendments will be outlined and recorded in a work pack and checklist.
- Signs to be installed on high legs if sight obstruction is present (for example behind guardrails/barriers .etc.)
- Site Specific TGS is drafted for nominated works that is noted on the TGS. TGS must be formally reviewed and signed off by PWZTMP qualified person (a minimum of every 12 months from the drafted date) as per TCAWS 7.11.2. Details refer to the amendment box below.
- Altus Traffic does not accept responsibility of this plan if it is implemented or modification by external parties.

**Adjusting / Modifying TGS:**

**ITCP Holder-**  
 - ITCP qualified person must ensure that the TGS is implemented as approved. Minor adjustments can be completed in accordance with Section 7.10.3 Tolerances on positioning of signs and devices (Table below). Modifications will be recorded on the TGS checklist and a signed copy will be available on-site.

**PWZTMP Holder-**  
 - Modifications to a Site Specific TGS must be approved by the PWZTMP or relevant qualification holder, and must be supported by a TMP or risk assessment to ensure all TGSs considers and mitigate identified site-specific conditions and risks.  
 - If risk is identified during the implementation of the TGS and requires modification outside of the tolerance listed below, the works must be stopped until an updated TGS is drafted and approved by a PWZTMP qualified person prior to works recommencing. (refer to TCAWS 7.10.4)

- Any anomalies or inconsistencies found in the TGSs being used must be recorded and reported back to the TGS designer who is PWZTMP qualified.

**Implementing A TGS**

- A TGS must be installed, maintained and removed in a planned and safe manner. The implementation of a TGS must only be undertaken by an ITCP qualified person. (Refer To TCAWS 7.10.1)

- Signs and traffic control devices must be installed in a sequence via GPS, survey, landmarks, side streets or chaining in accordance with TCAWS V6.1 Section 6.4 and AGTTM Section 6.2

- An implementation TGS should be provided if the risk of implementation is deemed high. The sequence of implementation should be determined as part of the drafting process in TGS or SWMS, rather than being determined on-site. (Refer To TCAWS 7.10.2)

**Tolerances on positioning of signs and devices**

- Local constraints might not allow signs and devices to be placed exactly in accordance with the designed and approved TGS. Where a specific distance is provided for the longitudinal positioning of signs or devices with respect to other items or features, the tolerances to adjust are:

Tolerance	Positioning of signs, length of tapers or markings	Spacing of delineating devices
Minimum	10% less than the distances or lengths given	Nil
Maximum	25% more than the distances or lengths given	10% more than the spacing shown

**Clearances and spacing of signs and devices**

- Clearances between the edge of traffic lane and delineating devices or a road safety barrier system must be in accordance with in Table 6-1. Clearances must be measured to the traffic side edge of delineating devices or barrier. This edge must also be the line from which clearances to the work area are measured for the purpose of determining treatments.



**Sign Covers**  
 - all permeant globe speed signs to be shown in black and white also must add a notice saying e.g. below  
 Traffic Controllers are to cover the permeant globe speed signs

Table 6-2. Required maximum spacing of cones and bollards

Purpose and usage	Speed zone of device location km/h	Maximum spacing m
On approach to a traffic control position (centreline or edge line)	All cases	4
Merge tapers	55 to 75	9
	greater than 75	12
Lateral shift tapers	55 to 75	12
	greater than 75	18
Protecting freshly painted lines	55 to 75	24
	greater than 75	60*
All other purposes	less than 55	4
	55 to 75	12
	greater than 75	18

Dimension 'D'		Taper Lengths			
AS 1742.3: A distance 'D' expressed in metres, determined in accordance with Clause 4.1.5 and used for positioning of advance signs and related purposes.		Approximate speed of traffic at beginning of taper	Traffic control lateral taper	Merge taper	
Speed of Traffic km/h	Dimension m	45 or less	15	15	15
55 or less	15	46 - 55	15	15	30
56 to 65	45	56 - 65	30	30	60
Greater than 65	speed of traffic, in Km/h	66 - 75	N/A	70	115
		76 - 85	N/A	80	130
		86 - 95	N/A	90	145
		96 - 105	N/A	100	160
		Greater than 105	N/A	110	180

**6.2.6 Spacing of signs**

Signs must be spaced in accordance with Table 6-3. The value of 'Dimension D' is used to determine the placement of signs, see Section 7.3 Dimension D for determining 'Dimension D'.

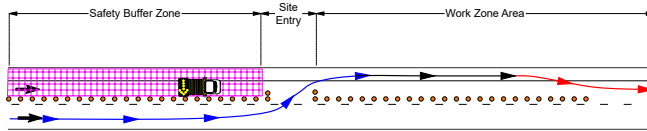
Table 6-3: Sign spacing requirements

Number of signs	Approach speed	
	less than 65 km/h	65 km/h or greater
One advanced sign	D	2D
Multiple advanced signs	D	D

Where there is more than one advance sign position, the advance sign nearest the work area must be placed D from the beginning of the taper area or diversion and other advance sign positions at successive spacing of D further in advance of the work area.

Tolerances for positioning on signs and devices is detailed in Section 7.10.3 Tolerances on positioning of signs and devices.

**Site Entry and Exit Process**



- Highlight entry point with double cones and leaving a small break,
- Prior Entering Worksite:
  - Turn on the flashing lights
  - Radio the traffic controller a minimum 100m prior
- If miss or fail above procedures, Traffic Controllers are to direct the vehicle to loop around and attempt reentry.
- Traffic Controllers are to ensure that no local traffic follows work vehicles in the work area

**Traffic Guidance Scheme installation**

Date: \_\_\_\_ / \_\_\_\_ / 20\_\_

**Traffic Guidance Scheme Installer:**

Full Name: \_\_\_\_\_  
 ITCP or TCT Number: \_\_\_\_\_  
 Expiry Date or Issue Date: \_\_\_\_ / \_\_\_\_ / 20\_\_  
 Signature: \_\_\_\_\_  
 Date: \_\_\_\_ / \_\_\_\_ / 20\_\_

**Traffic Guidance Scheme Modifications:**

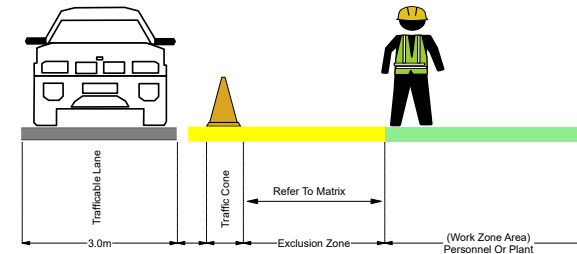
Full Name: \_\_\_\_\_  
 PWZTMP or TCT Number: \_\_\_\_\_  
 Expiry Date or Issue Date: \_\_\_\_ / \_\_\_\_ / 20\_\_  
 Signature: \_\_\_\_\_  
 Date: \_\_\_\_ / \_\_\_\_ / 20\_\_

Site Inspection Date  
 Prior to Implementation: \_\_\_\_ / \_\_\_\_ / 20\_\_

**TGS Modification Notes:**

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

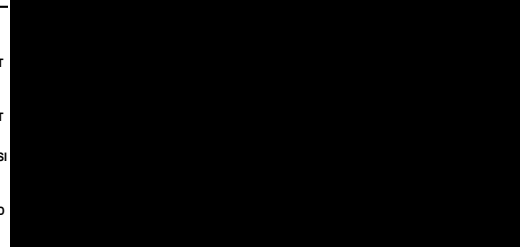
**CROSS SECTION DIAGRAM**



ISSUE	DESG	APPD	DATE	AMENDMENT DESCRIPTION

CLIENT: **CASE TRANSPORT FOR TOMORROW**

Prepared for TOMORROW



SCALE: **1:750**

DATE OF DESIGN: 26-APR-2022 TIME OF DESIGN: 15:00

DATE OF APPROVAL: 26-APR-2022

TGS NUMBER: TGS-CASE-ST\_MARYS\_STATION-001

SHEET NO: 1 OF 2

PROJECT: **ST MARYS STATION, ST MARYS CITY OF PENRITH**

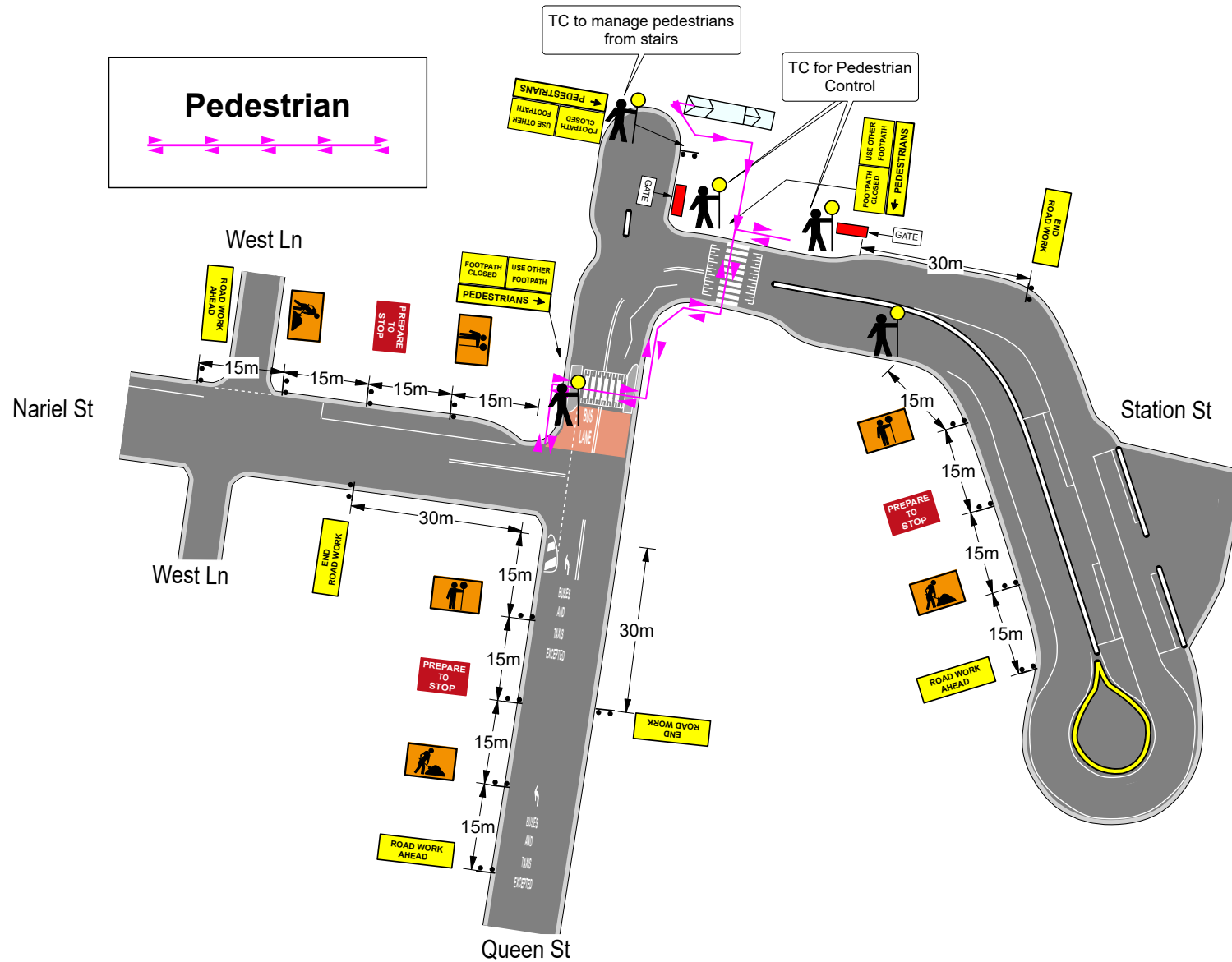
TITLE: **TRAFFIC GUIDANCE SCHEME STOP SLOW**

Call Altus Traffic Toll Free (Australia) 1300 TRAFFIC (872 334) ABN 84 102 768 061



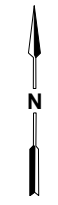






**Pedestrian**

← → ← → ← → ← → ← →



MAP REF

**LEGEND:**

- Arrow Board
- Light TMA
- TC Vehicle
- Drop Deck Vehicle
- Work Area
- Clear Zone
- Work Zone
- No Parking
- Cones

ISSUE	DESG	APPD	DATE	AMENDMENT DESCRIPTION

CLIENT: **CASE TRANSPORT FOR TOMORROW**



supported by **TOMORROW**



SCALE: **1:750**

DATE OF DESIGN: 26-APR-2022    TIME OF DESIGN: 15:00

DATE OF APPROVAL: 26-APR-2022

TGS NUMBER: TGS-CASE-ST\_MARYS\_STATION-002

SHEET NO: 2 OF 2    ISSUE: 00

PROJECT: **ST MARYS STATION, ST MARYS CITY OF PENRITH**

TITLE: **TRAFFIC GUIDANCE SCHEME INTERMITTENT STOPPAGES**



Call Altus Traffic Toll Free (Australia) 1300 TRAFFIC (872 334) ABN 84 102 768 061




**NOTES:**

- This Traffic Guidance Scheme is developed by competent and experienced persons in accordance with the requirements outlined in the TNSW TCAWS Version 6.1, AS1742.3 and the Road Management Act 2004.
- Prior to implementation of the TGS, Altus will carry out an inspection and risk assessment.
- A signed copy of the SWMS will be available on-site at all times.
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**Adjusting / Modifying TGS:**

**ITCP Holder-**  
 - ITCP qualified person must ensure that the TGS is implemented as approved. Minor adjustments can be completed in accordance with Section 7.10.3 Tolerances on positioning of signs and devices (Table below). Modifications will be recorded on the TGS checklist and a signed copy will be available on-site.

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 - If risk is identified during the implementation of the TGS and requires modification outside of the tolerance listed below, the works must be stopped until an updated TGS is drafted and approved by a PWZTMP qualified person prior to works recommencing. (refer to TCAWS 7.10.4)

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- Signs and traffic control devices must be installed in a sequence via GPS, survey, landmarks, side streets or chaining in accordance with TCAWS V6.1 Section 6.4 and AGTTM Section 6.2

- An implementation TGS should be provided if the risk of implementation is deemed high. The sequence of implementation should be determined as part of the drafting process in TGS or SWMS, rather than being determined on-site. (Refer To TCAWS 7.10.2)

**Tolerances on positioning of signs and devices**

- Local constraints might not allow signs and devices to be placed exactly in accordance with the designed and approved TGS. Where a specific distance is provided for the longitudinal positioning of signs or devices with respect to other items or features, the tolerances to adjust are:

Tolerance	Positioning of signs, length of tapers or markings	Spacing of delineating devices
Minimum	10% less than the distances or lengths given	Nil
Maximum	25% more than the distances or lengths given	10% more than the spacing shown

**Clearances and spacing of signs and devices**

- Clearances between the edge of traffic lane and delineating devices or a road safety barrier system must be in accordance with in Table 6-1. Clearances must be measured to the traffic side edge of delineating devices or barrier. This edge must also be the line from which clearances to the work area are measured for the purpose of determining treatments.

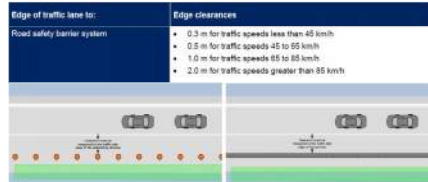


Figure 6-1: Clearance measurement from delineating device (device) Figure 6-2: Clearance measurement from delineating device (barrier)

**Sign Covers**  
 - all permeant globe speed signs to be shown in black and white also must add a notice saying e.g. below  
 Traffic Controllers are to cover the permeant globe speed signs

Table 6-2. Required maximum spacing of cones and bollards

Purpose and usage	Speed zone of device location km/h	Maximum spacing m
On approach to a traffic control position (centreline or edge line)	All cases	4
Merge tapers	55 to 75	9
	greater than 75	12
Lateral shift tapers	55 to 75	12
	greater than 75	18
Protecting freshly painted lines	55 to 75	24
	greater than 75	60*
All other purposes	less than 55	4
	55 to 75	12
	greater than 75	18

Dimension 'D'		Taper Lengths			
AS 1742.3: A distance expressed in metres, determined in accordance with Clause 4.1.5 and used for positioning of advance signs and related purposes.		Approximate speed of traffic at beginning of taper	Traffic control taper	Lateral shift taper	Merge taper
Speed of Traffic km/h	Dimension m	45 or less	15	15	15
55 or less	15	46 - 55	15	15	30
56 to 65	45	56 - 65	30	30	60
Greater than 65	speed of traffic, in Km/h	66 - 75	N/A	70	115
		76 - 85	N/A	80	130
		86 - 95	N/A	90	145
		96 - 105	N/A	100	160
		Greater than 105	N/A	110	180

**6.2.6 Spacing of signs**

Signs must be spaced in accordance with Table 6-3. The value of 'Dimension D' is used to determine the placement of signs, see Section 7.3 Dimension D for determining 'Dimension D'.

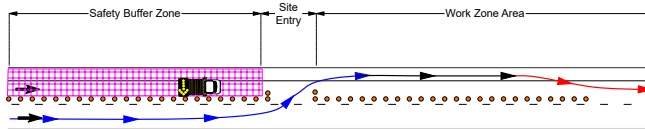
Table 6-3: Sign spacing requirements

Number of signs	Approach speed	
	less than 65 km/h	65 km/h or greater
One advanced sign	D	2D
Multiple advanced signs	D	D

Where there is more than one advance sign position, the advance sign nearest the work area must be placed D from the beginning of the taper area or diversion and other advance sign positions at successive spacing of D further in advance of the work area.

Tolerances for positioning on signs and devices is detailed in Section 7.10.3 Tolerances on positioning of signs and devices.

**Site Entry and Exit Process**



- Highlight entry point with double cones and leaving a small break,
- Prior Entering Worksite:
  - Turn on the flashing lights
  - Radio the traffic controller a minimum 100m prior
- If miss or fail above procedures, Traffic Controllers are to direct the vehicle to loop around and attempt reentry.
- Traffic Controllers are to ensure that no local traffic follows work vehicles in the work area
- Flip the Setup for Fast Lane Closures

**Traffic Guidance Scheme Installation**

Date: \_\_\_\_ / \_\_\_\_ / 20 \_\_\_\_

**Traffic Guidance Scheme Installer:**

Full Name: \_\_\_\_\_  
 ITCP or TCT Number: \_\_\_\_\_  
 Expiry Date or Issue Date: \_\_\_\_ / \_\_\_\_ / 20 \_\_\_\_  
 Signature: \_\_\_\_\_  
 Date: \_\_\_\_ / \_\_\_\_ / 20 \_\_\_\_

**Traffic Guidance Scheme Modifications:**

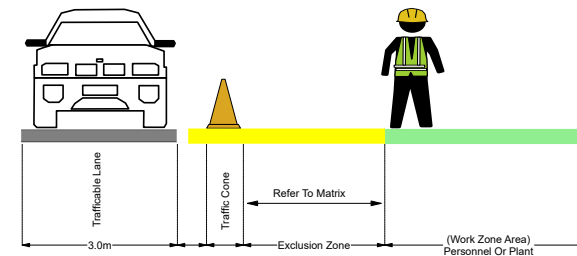
Full Name: \_\_\_\_\_  
 PWZTMP or TCT Number: \_\_\_\_\_  
 Expiry Date or Issue Date: \_\_\_\_ / \_\_\_\_ / 20 \_\_\_\_  
 Signature: \_\_\_\_\_  
 Date: \_\_\_\_ / \_\_\_\_ / 20 \_\_\_\_

Site Inspection Date  
 Prior to Implementation: \_\_\_\_ / \_\_\_\_ / 20 \_\_\_\_

**TGS Modification Notes:**

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**CROSS SECTION DIAGRAM**



ISSUE	DESG	APPD	DATE	AMENDMENT DESCRIPTION

CLIENT: **CASE TRANSPORT FOR TOMORROW**

SCALE: **1:750**

DATE OF DESIGN: 26-APR-2022 TIME OF DESIGN: 15:00

DATE OF APPROVAL: 26-APR-2022

TGS NUMBER: TGS-CASE-ST\_MARYS\_STATION-002

SHEET NO: 1 OF 2

PROJECT: **ST MARYS STATION, ST MARYS CITY OF PENRITH**

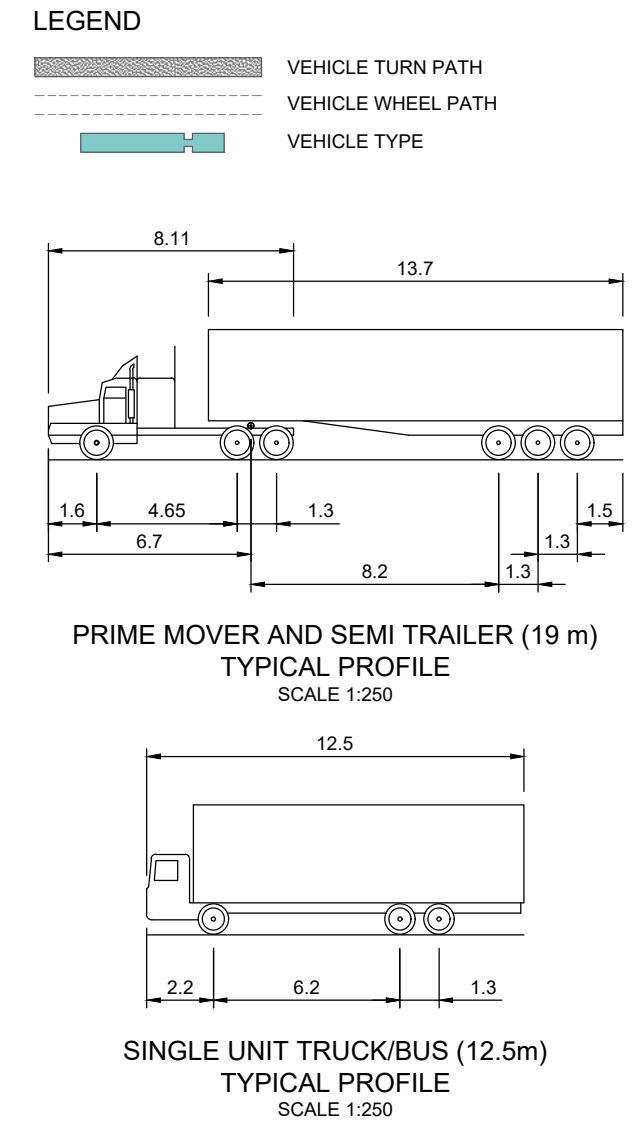
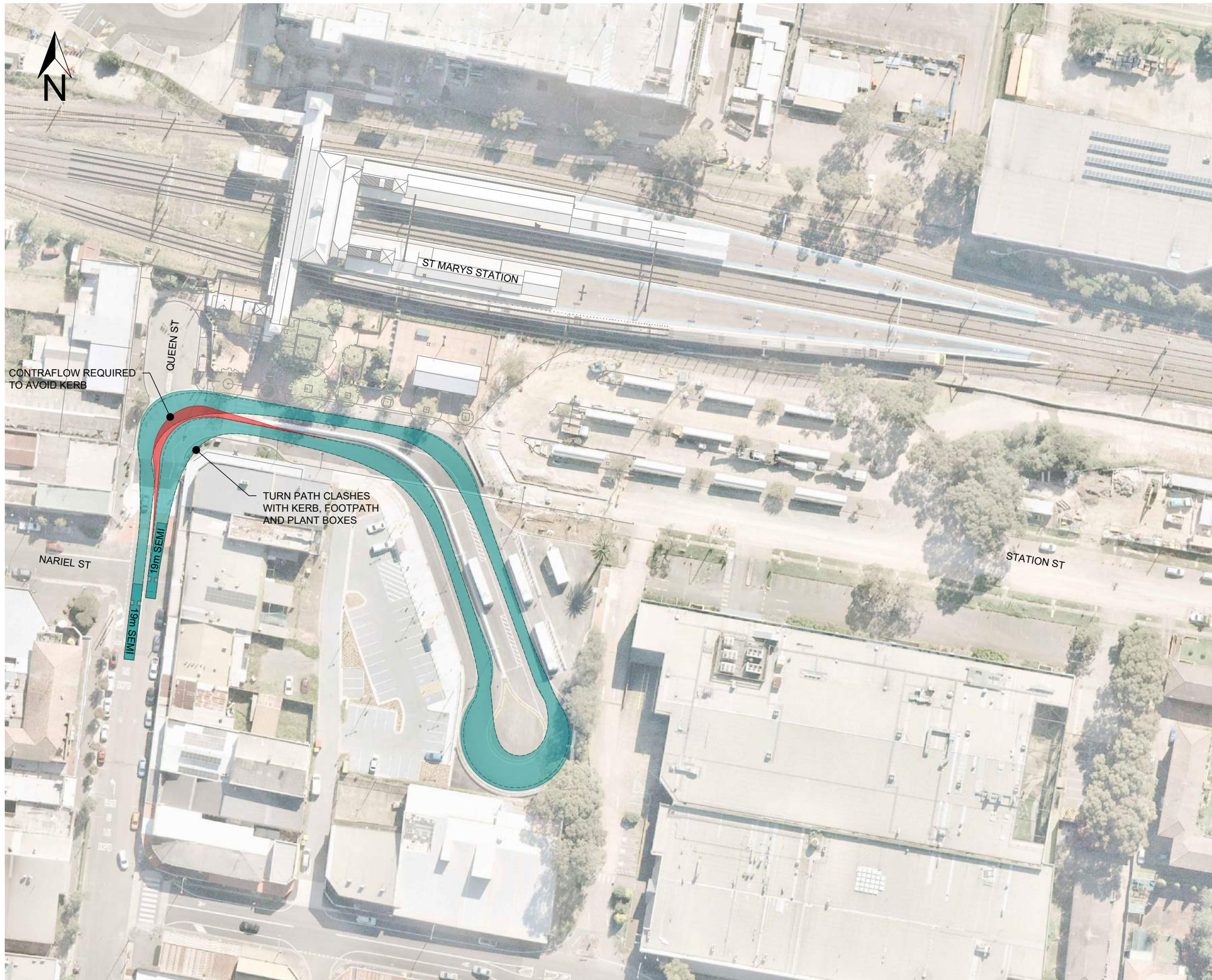
TITLE: **TRAFFIC GUIDANCE SCHEME INTERMITTENT STOPPAGES**

Call Altus Traffic Toll Free (Australia) 1300 TRAFFIC (872 334) ABN 84 102 768 061

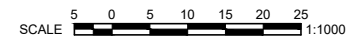


## Annexure E Swept Paths





**NOT FOR CONSTRUCTION**

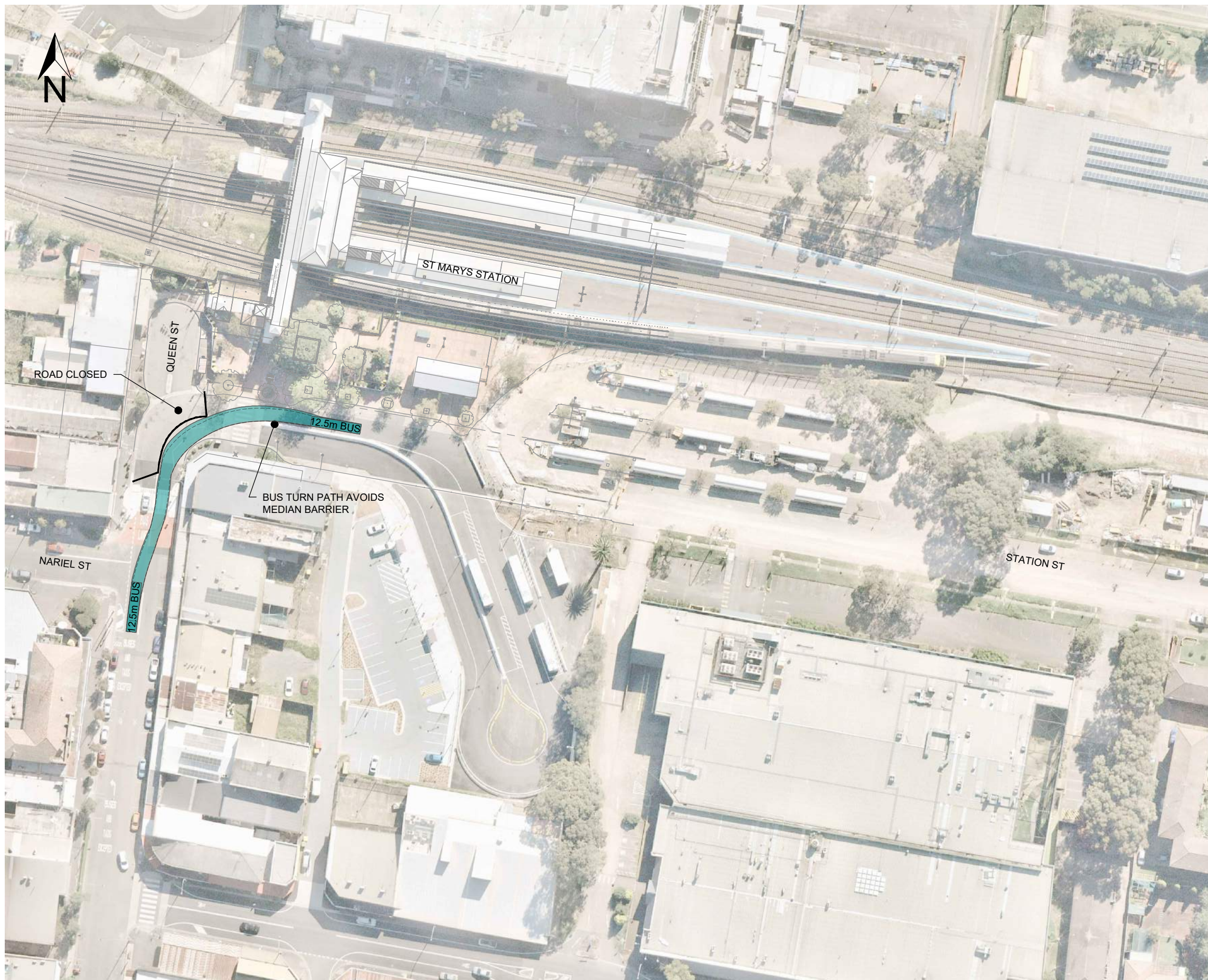


**ST MARY'S STATION  
TURNAROUND AREA, 19m SEMI  
TURN PATH PLAN**




**INFORMATION DOCUMENT  
D0081-DRG-CS-01-1104\_[ID]**

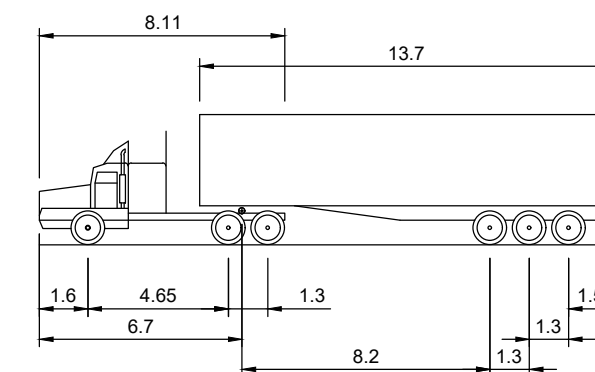




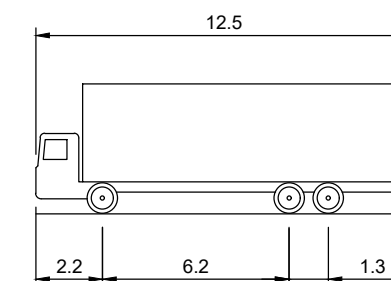


**LEGEND**

-  VEHICLE TURN PATH
-  VEHICLE WHEEL PATH
-  VEHICLE TYPE

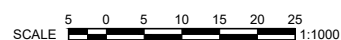


**PRIME MOVER AND SEMI TRAILER (19 m)**  
TYPICAL PROFILE  
SCALE 1:250



**SINGLE UNIT TRUCK/BUS (12.5m)**  
TYPICAL PROFILE  
SCALE 1:250

**NOT FOR CONSTRUCTION**



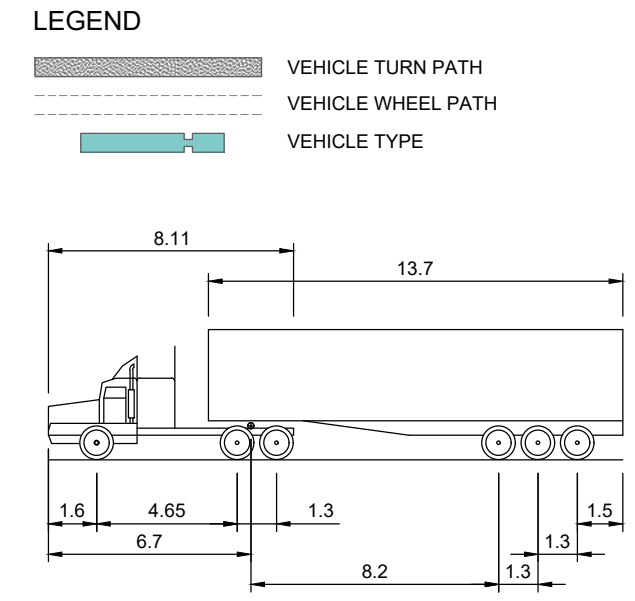
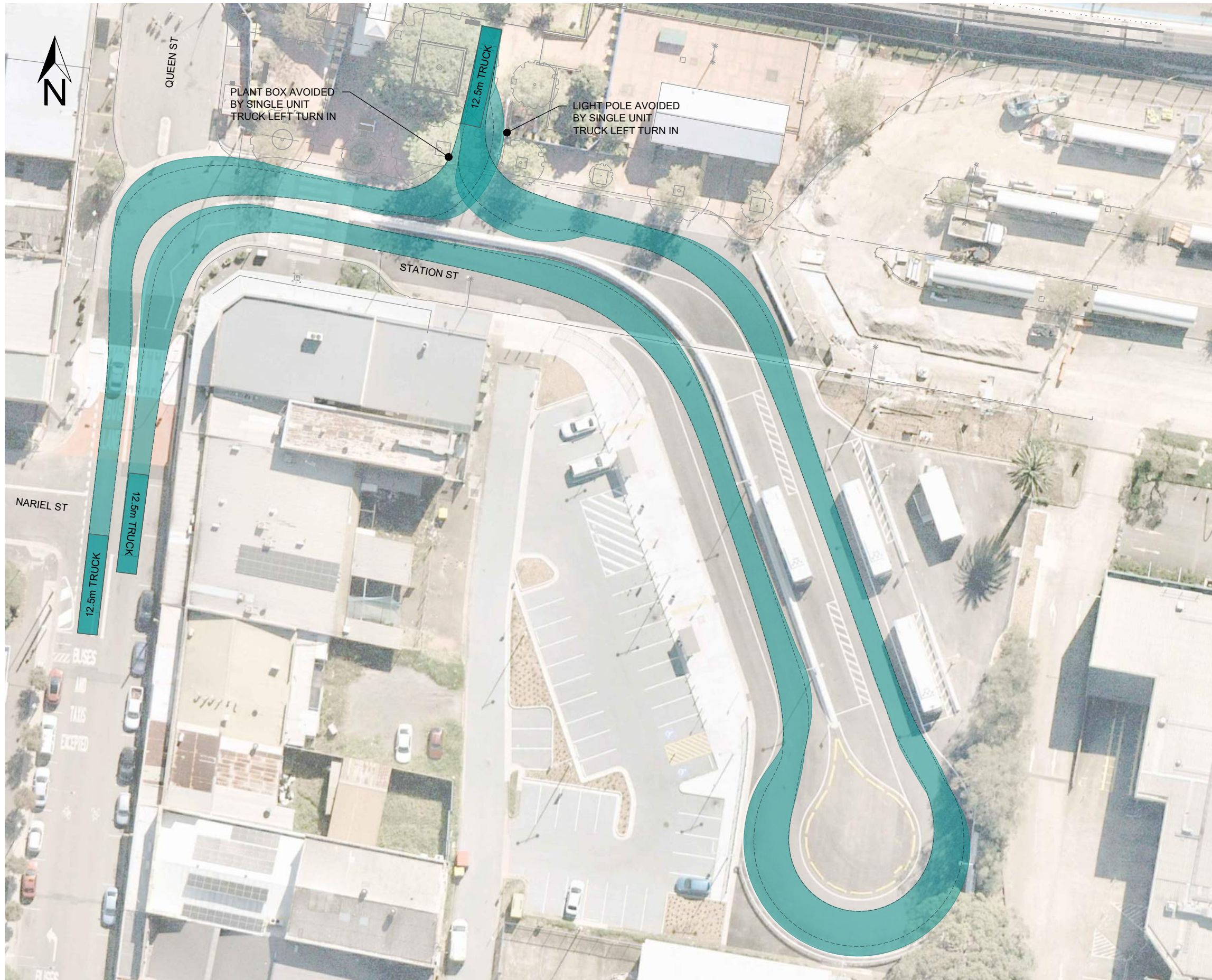
**ST MARY'S STATION  
ROAD CLOSED, BUS ENTRY  
TURN PATH PLAN**

**INFORMATION DOCUMENT**

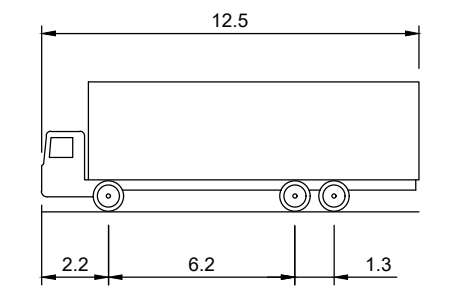
D0081-DRG-CS-01-1105 [ID]







PRIME MOVER AND SEMI TRAILER (19 m)  
TYPICAL PROFILE  
SCALE 1:250



SINGLE UNIT TRUCK/BUS (12.5m)  
TYPICAL PROFILE  
SCALE 1:250

**NOT FOR CONSTRUCTION**

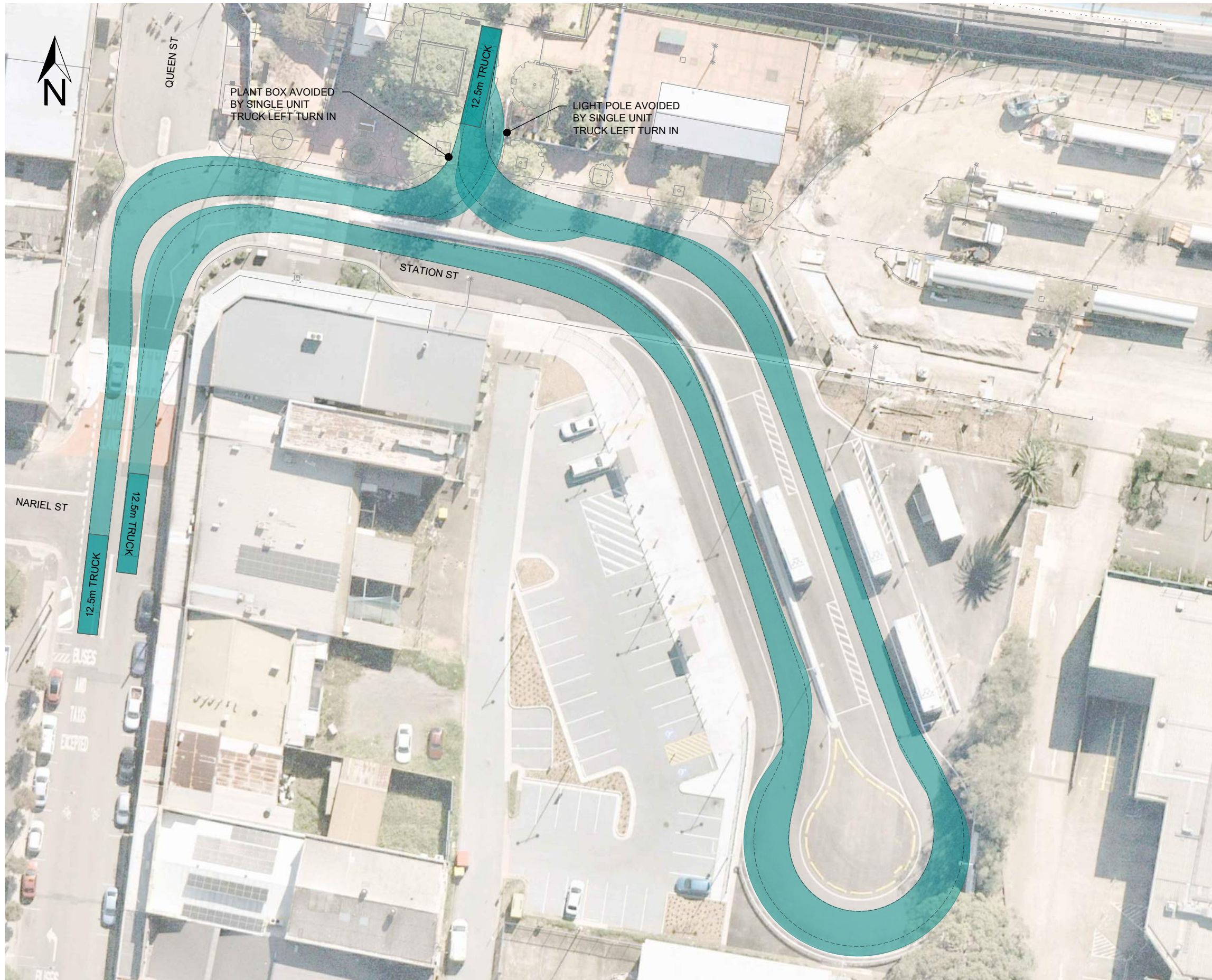


**ST MARY'S STATION (TEMPORARY LAYOUT)  
SINGLE UNIT TRUCK ENTRY (LEFT IN / LEFT OUT)  
TURN PATH PLAN**


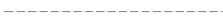

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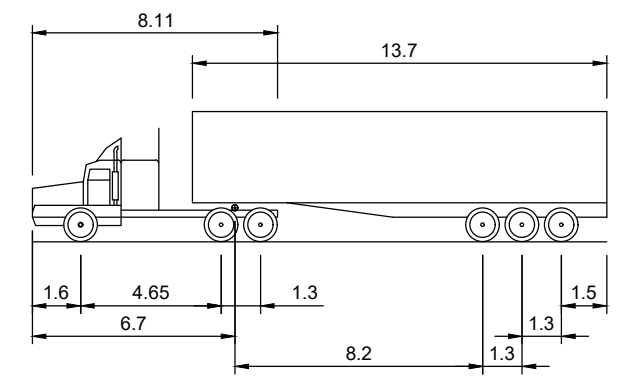




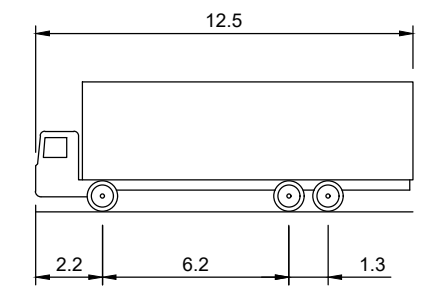


**LEGEND**

-  VEHICLE TURN PATH
-  VEHICLE WHEEL PATH
-  VEHICLE TYPE



**PRIME MOVER AND SEMI TRAILER (19 m)**  
TYPICAL PROFILE  
SCALE 1:250



**SINGLE UNIT TRUCK/BUS (12.5m)**  
TYPICAL PROFILE  
SCALE 1:250

**NOT FOR CONSTRUCTION**

**ST MARY'S STATION (TEMPORARY LAYOUT)**  
**SINGLE UNIT TRUCK ENTRY (LEFT IN / LEFT OUT)**  
**TURN PATH PLAN**




**INFORMATION DOCUMENT**  
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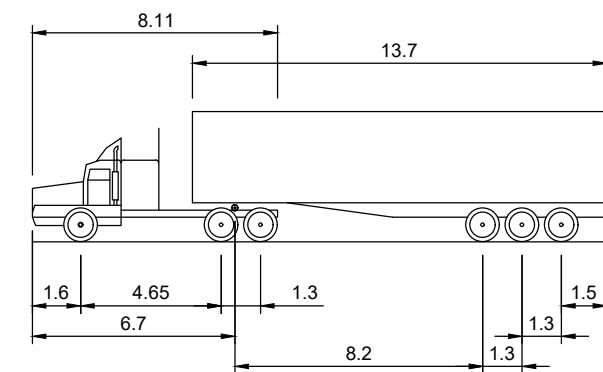




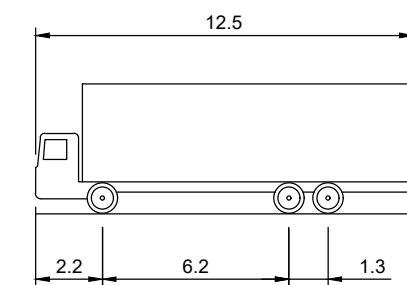


**LEGEND**

-  VEHICLE TURN PATH
-  VEHICLE WHEEL PATH
-  VEHICLE TYPE



**PRIME MOVER AND SEMI TRAILER (19 m)**  
TYPICAL PROFILE  
SCALE 1:250



**SINGLE UNIT TRUCK/BUS (12.5m)**  
TYPICAL PROFILE  
SCALE 1:250

**NOT FOR CONSTRUCTION**

SCALE 5 0 5 10 1:500

**QUEEN ST / PHILLIP ST**  
**SINGLE UNIT TRUCK**  
**TURN PATH PLAN**

**INFORMATION DOCUMENT**




**D0081-DRG-CS-01-1115\_[ID]**

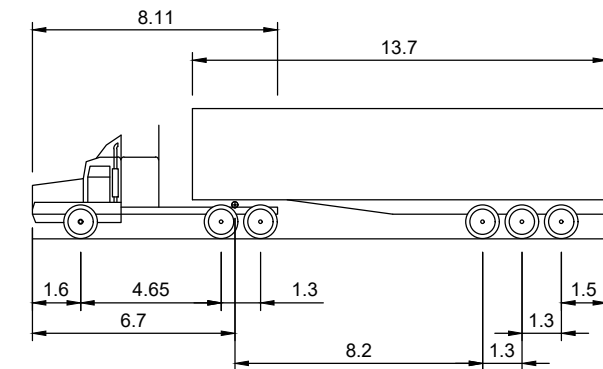




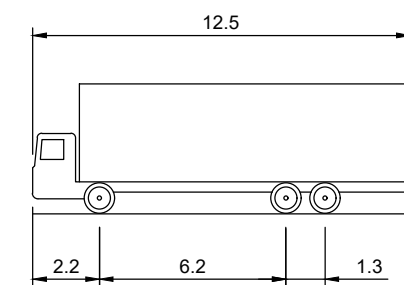


**LEGEND**

-  VEHICLE TURN PATH
-  VEHICLE WHEEL PATH
-  VEHICLE TYPE



**PRIME MOVER AND SEMI TRAILER (19 m)**  
TYPICAL PROFILE  
SCALE 1:250



**SINGLE UNIT TRUCK/BUS (12.5m)**  
TYPICAL PROFILE  
SCALE 1:250

**NOT FOR CONSTRUCTION**



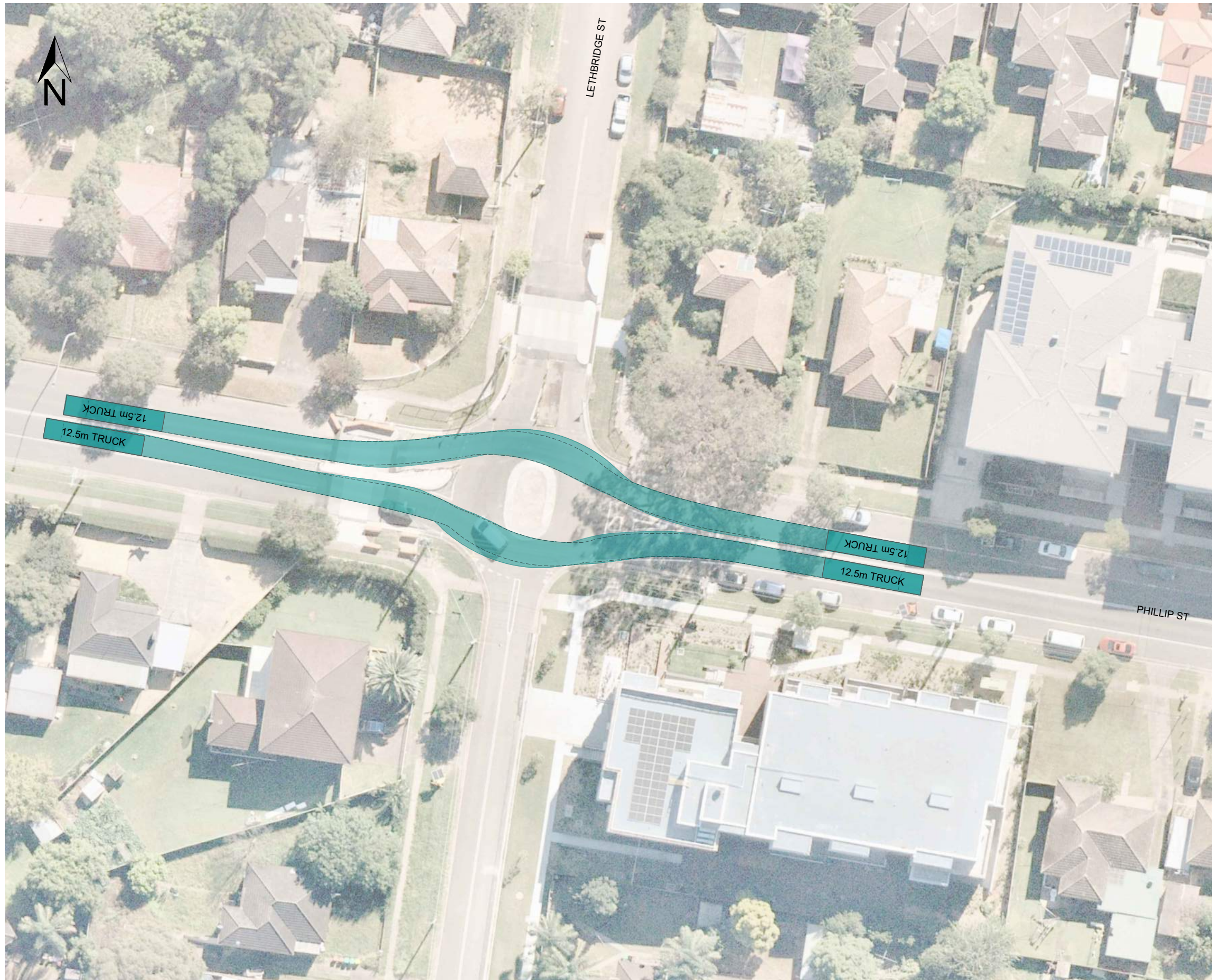
**QUEEN ST / PHILLIP ST**  
**19m SEMI**  
**TURN PATH PLAN**

**INFORMATION DOCUMENT**




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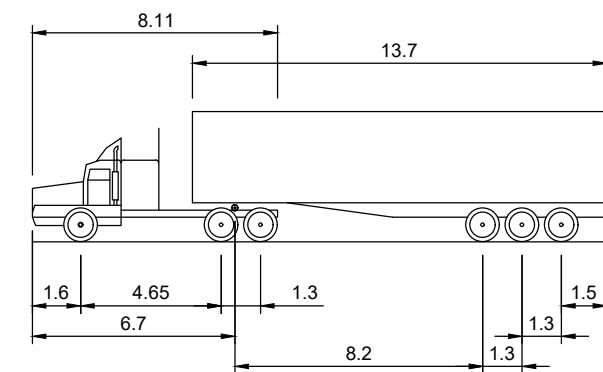




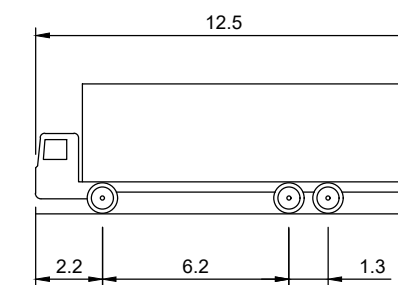


**LEGEND**

-  VEHICLE TURN PATH
-  VEHICLE WHEEL PATH
-  VEHICLE TYPE

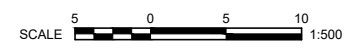


**PRIME MOVER AND SEMI TRAILER (19 m)**  
TYPICAL PROFILE  
SCALE 1:250



**SINGLE UNIT TRUCK/BUS (12.5m)**  
TYPICAL PROFILE  
SCALE 1:250

**NOT FOR CONSTRUCTION**



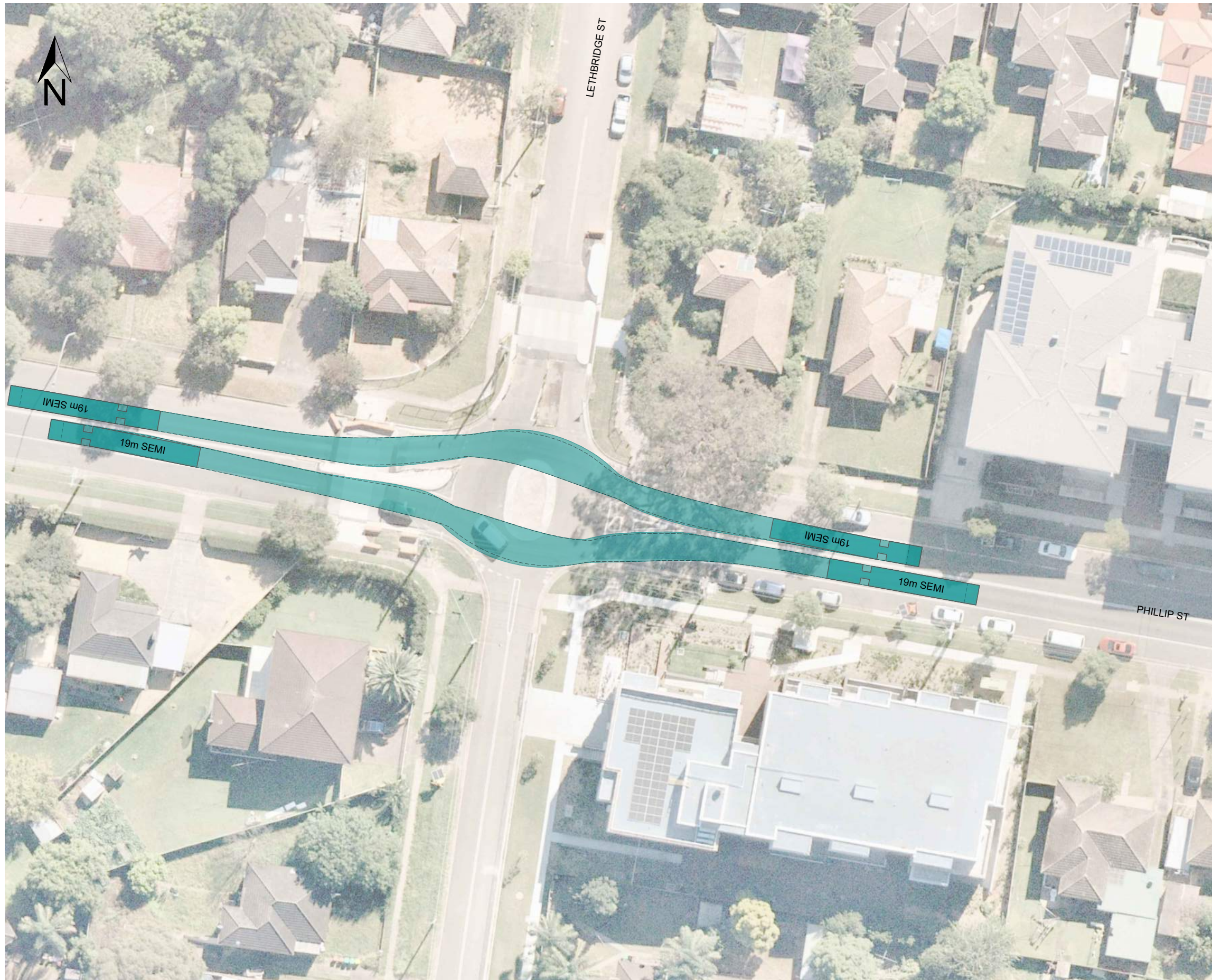
**PHILLIP ST  
SINGLE UNIT TRUCK  
TURN PATH PLAN**

**INFORMATION DOCUMENT**




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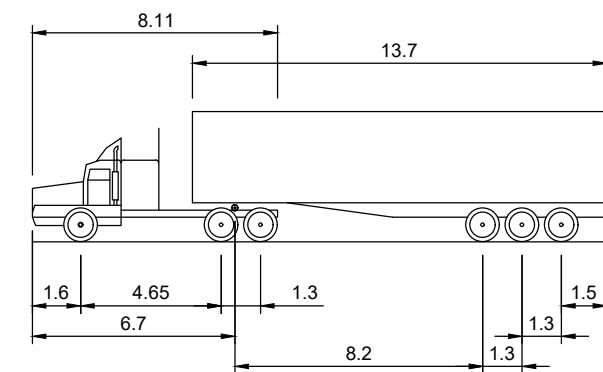




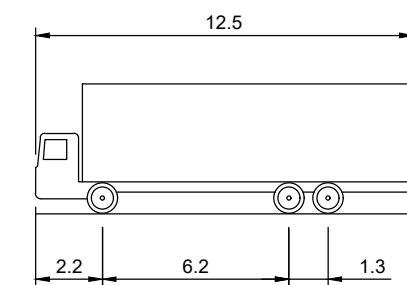


**LEGEND**

-  VEHICLE TURN PATH
-  VEHICLE WHEEL PATH
-  VEHICLE TYPE



**PRIME MOVER AND SEMI TRAILER (19 m)**  
TYPICAL PROFILE  
SCALE 1:250



**SINGLE UNIT TRUCK/BUS (12.5m)**  
TYPICAL PROFILE  
SCALE 1:250

**NOT FOR CONSTRUCTION**

SCALE 5 0 5 10 1:500

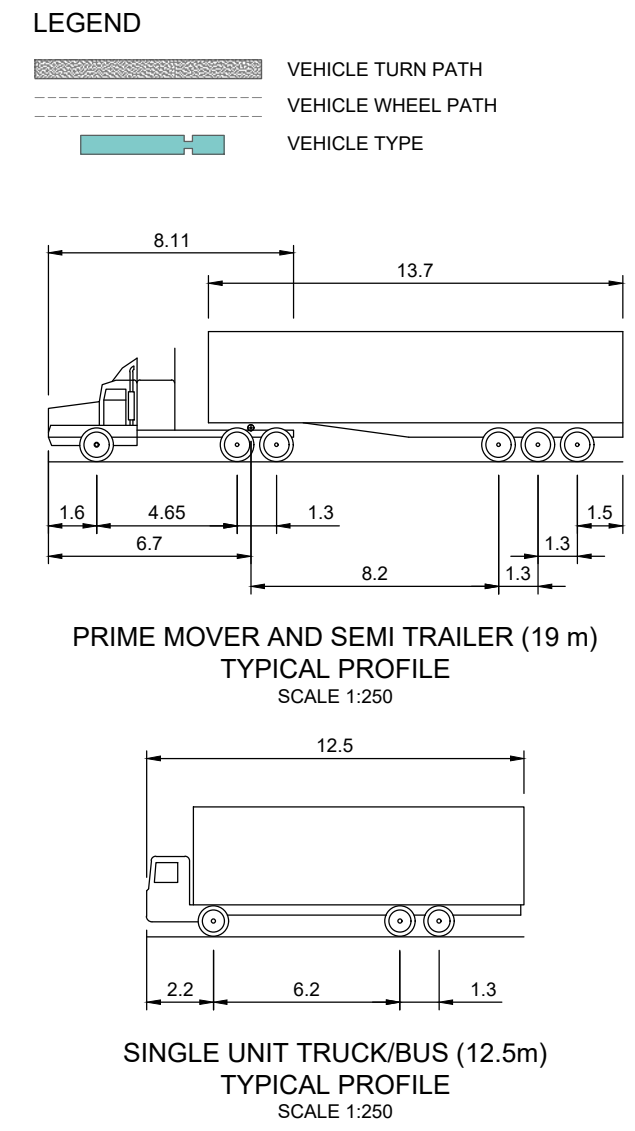
**PHILLIP ST  
19m SEMI  
TURN PATH PLAN**

**INFORMATION DOCUMENT**

**D0081-DRG-CS-01-1118\_[ID]**







**NOT FOR CONSTRUCTION**



**PHILLIP ST / GLOSSOP ST  
SINGLE UNIT TRUCK  
TURN PATH PLAN**


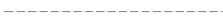

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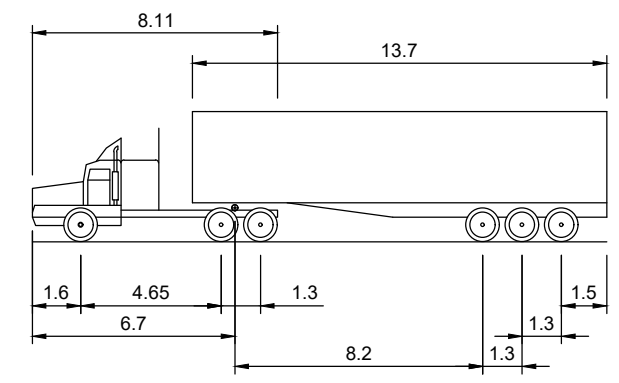




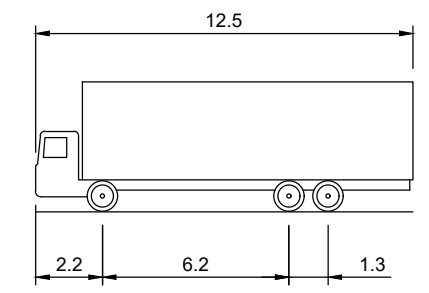


**LEGEND**

-  VEHICLE TURN PATH
-  VEHICLE WHEEL PATH
-  VEHICLE TYPE



**PRIME MOVER AND SEMI TRAILER (19 m)**  
TYPICAL PROFILE  
SCALE 1:250



**SINGLE UNIT TRUCK/BUS (12.5m)**  
TYPICAL PROFILE  
SCALE 1:250

**NOT FOR CONSTRUCTION**

SCALE 5 0 5 10 1:500

**PHILLIP ST / GLOSSOP ST**  
**19m SEMI**  
**TURN PATH PLAN**

**INFORMATION DOCUMENT**  
**D0081-DRG-CS-01-1120\_[ID]**





## Annexure F Road Safety Audit



# Sydney Metro West Sydney Airport Enabling Works – St Marys

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**Design CTMP Road Safety Audit Report**

May 2022





**Samsa Consulting Pty Ltd**  
**Transport Planning & Traffic Engineering**

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# Contents

## EXECUTIVE SUMMARY

<b>1. Introduction .....</b>	<b>1</b>
1.1 Background .....	1
1.2 Subject Project Works .....	1
1.3 Report Structure .....	3
<b>2. Audit Details .....</b>	<b>4</b>
2.1 Audit Methodology.....	4
2.2 Audit Administration.....	4
2.3 References & Documentation Audited .....	4
<b>3. Identified Road Safety Issues .....</b>	<b>6</b>
<b>4. Formal Audit Statement.....</b>	<b>10</b>

## **EXECUTIVE SUMMARY**

This report details an independently undertaken road safety audit of the design CTMP for the Sydney Metro West Sydney Airport Enabling works around St Marys rail station.

While a number of minor risk road safety issues were identified, the principal concern of the audit team relates to the following issue:

- There are minimal details for pedestrian control, especially in the vicinity of the two site access locations including warning / advisory signage. Moreover, there is no diversion route for the marked pedestrian crossing across Queen Street (north of Nariel Street), which is proposed to be used as a lane closure.

---

# 1. Introduction

## 1.1 Background

---

The Sydney Metro – Western Sydney Airport project comprises a new 23-km railway line that will link the new Western Sydney Aerotropolis business hub and Airport to the south, with the rest of Sydney’s public transport network via St Marys to the north. The Project includes six new metro stations along the route including one at the Western Sydney Aerotropolis, two at the new Airport site, and one each at Luddenham, Orchard Hills and St Marys.

Enabling works at the existing St Marys railway station are required to prepare for the for the construction of the new Metro Station at St Marys. The Enabling Works component has been awarded to, and will be undertaken by, Transport for Tomorrow (TfT). Case Traffic Solutions (CTS) are preparing construction traffic management plan (CTMP) documentation for the works

## 1.2 Subject Project Works

---

The scope of the Enabling Works at the St Marys railway station consists of four main components:

1. HV / LV relocations, which clash with the Sydney Metro bridge structure.
2. Sydney Trains signals and communications cable replacement / relocation, which clash with the Sydney Metro station box.
3. Construction of a new access track within the rail corridor to provide access to the new Sydney Metro station box.
4. Relocation of the existing lift shaft and stairway at St Marys railway station to remove obstruction to the Tunnel Boring Machine used for the excavation of the new Sydney Metro tunnels.

The HV/LV relocations, signals / communication cable relocations and access track work have been completed. The remaining scope of work, being the relocation of the exiting stairs and lift shaft is covered by the scope of the subject CTMP.

The site is located on the northern side of Station Street, adjacent St Marys Railway Station’s southern entrance and borders the rail corridor along its northern boundary.

Surrounding land use is primarily commercial with a local business adjoining both Station Street and Queen Street to the south. There is a new bus interchange immediately to the east and a taxi rank to the west. Given the public transport facilities and commercial land uses, the area generates substantial pedestrian traffic during commuter peak periods. Road user and bus traffic are in the immediate area. The location of the subject project area is shown in *Figure 1* following.





**Figure 1: St Marys Project Area**

The primary objectives and principles of the CTMP are:

- Keep traffic delays to a minimum.
- Minimise disruption to businesses.
- Minimise disturbance to the environment.
- Ensure traffic impacts are within the scope permitted by Local Council and CJP.
- Ensure the safety of employees, contractors and road users.

This road safety audit report details an independently undertaken road safety audit of the design CTMP for the Sydney Metro West Sydney Airport Enabling works around St Marys rail station. The road safety audit was undertaken by *Samsa Consulting Pty Ltd*, Transport Planning & Traffic Engineering Consultants.

### 1.3 Report Structure

---

The remainder of this report is presented as follows:

**Chapter 2** describes details of the audit undertaken including the methodology, administration and documentation audited.

**Chapter 3** details the road safety issues identified and audit findings.

**Chapter 4** provides a formal audit statement.

## 2. Audit Details

### 2.1 Audit Methodology

---

A road safety audit is "... a formal examination of a future road or traffic project or an existing road, in which an independent, qualified team reports on the project's crash potential and safety performance" (Austroads 2009).

This audit followed a standard practice in identifying road safety related issues of a design CTMP. It involved a desktop assessment of the design CTMP documents with reference to any background issues on site during previous day and night inspections.

The road safety audit focussed on road safety issues such as temporary warning signage and linemarking, delineation, work site accesses, pedestrian facilities, sight distances, appropriateness of traffic control for the predicted traffic volumes, and overall road legibility adjacent and through proposed work zones (amongst other issues).

The scope of the audit is in accordance with the requirements in Austroads' "*Guide to Road Safety, Part 6*" and is structured around prompt lists provided in that manual as well as RTA's "*Accident Reduction Guide – Part 2: Road Safety Audits*".

An audit entry meeting was held with the CTS Project Director / Traffic Manager prior to the audit, where background information on the design CTMP and project area were discussed.

The site inspections were undertaken on Tuesday 17 May 2022. An audit exit meeting was held at the completion of the road safety audit report.

### 2.2 Audit Administration

---

CTS Project Director: Paul Szubert

CTS Traffic Manager: Scott McMichael

Road Safety Auditors: Alan Samsa (*RMS Accredited Level 3 Lead Road Safety Auditor*)  
(Auditor ID: RSA-02-0056)

Carolyn Samsa (*RMS Accredited Level 3 Lead Road Safety Auditor*)  
(Auditor ID: RSA-02-0585)

### 2.3 References & Documentation Audited

---

- Austroads "*Guide to Road Design Part 3: Geometric Design (Edition 3.3)*", April 2020
- Austroads "*Guide to Road Design Part 4: Intersections and Crossings – General*", 2017
- Austroads "*Guide to Road Design Part 4A: Unsignalised and Signalised Intersections*", October 2017
- Austroads "*Guide to Road Safety, Part 6: Road Safety Audit (Edition 6.0)*", January 2022
- RTA "*Accident Reduction Guide – Part 2: Road Safety Audits*", 2005
- RTA "*Road Safety Audit Technical Direction TD2003/RS03, Version 2*", August 2005
- RTA "*Delineation Guidelines: Parts 1 to 19 & Appendices A & B*", assorted dates
- RTA "*Guidelines for Road Safety Audit Practices – Part 1: Road Safety Audit*", July 2011

- Standards Australia “AS 1742.1 – 2003: *Manual of uniform traffic control devices, Part 1: General introduction and index of signs*”, 2003
- Standards Australia “AS 1742.3 – 2009: *Manual of uniform traffic control devices, Part 3: Traffic control for works on roads*”, 2009
- Transport for NSW “*Traffic Control at Work Sites, Technical Manual – Issue 6.0*”, 14 September 2020
- Transport for Tomorrow / Case Traffic Solutions “*Sydney Metro – West Sydney Airport Enabling Works: Construction Traffic Management Plan (Doc No. TFT\_TMP\_0001\_ST MARYS\_1.0)*”, 3 May 2022



### 3. Identified Road Safety Issues

The audit of the design CTMP focussed on providing an independent identification of potential safety hazards, regardless of current practices, standards and operations, to allow CTS and TTT to identify remedial measures as part of the Project preparation.

In categorising and prioritising identified road safety issues, a risk assessment process was adopted. Risk assessment is the overall process of risk identification, analysis and evaluation. Preliminary risk ratings for each identified road safety issue are assessed based on subjective professional judgement by the Road Safety Audit team with guidance from Section 10.5 of Austroads "Guide to Road Safety, Part 6: Road Safety Audit". The Austroads' document provides an indication of the level of risk and what response may be appropriate. The identified road safety issue is first categorised based on its likely frequency of occurrence and severity ('likelihood' and 'consequence' of crash potential) – refer to Figures 3.1 and 3.2 below (extracted from the Austroads' document).

Crash frequency	Description
Frequent (F)	Once or more per week
Probable (P)	Once or more per year but less than once per week
Occasional (O)	Once every five to ten years
Improbable (I)	Less than once every ten years

Figure 3.1: Likely Frequency of Issue

Severity	Description	Examples
Catastrophic (C)	Likely multiple deaths	<ul style="list-style-type: none"> <li>High-speed, multi-vehicle crash on a freeway</li> <li>Car runs into crowded bus stop</li> <li>Bus and petrol tanker collide</li> <li>Collapse of a bridge or tunnel</li> </ul>
Serious (S)	Likely death or serious injury	<ul style="list-style-type: none"> <li>High or medium-speed vehicle / vehicle collision</li> <li>High or medium-speed collision with a fixed roadside object</li> <li>Pedestrian struck at high speed</li> <li>Cyclist is hit by a car</li> </ul>
Minor (M)	Likely minor injury	<ul style="list-style-type: none"> <li>Some low-speed vehicle collisions</li> <li>Cyclist falls from bicycle at low speed</li> <li>Left-turn rear-end crash in a slip lane</li> </ul>
Limited (L)	Likely trivial injury or property damage only	<ul style="list-style-type: none"> <li>Some low speed collisions</li> <li>Pedestrian walks into object (no head injury)</li> <li>Car reverses into post</li> </ul>

Figure 3.2: Likely Severity of Issue

An appropriate risk rating is then selected from the risk categories in the risk matrix with a preferred treatment approach for each risk rating (refer to *Figures 3.3 and 3.4* below, both extracted from Austroads).

	<b>Frequent (F)</b>	<b>Probable (P)</b>	<b>Occasional (O)</b>	<b>Improbable (I)</b>
<b>Catastrophic (C)</b>	Intolerable (I)	Intolerable (I)	Intolerable (I)	High (H)
<b>Serious (S)</b>	Intolerable (I)	Intolerable (I)	High (H)	Medium (M)
<b>Minor (M)</b>	Intolerable (I)	High (H)	Medium (M)	Low (L)
<b>Limited (L)</b>	High (H)	Medium (M)	Low (L)	Low (L)

**Figure 3.3: Risk Matrix**

<b>Risk</b>	<b>Suggested treatment approach</b>
Intolerable (I)	Must be corrected
High (H)	Should be corrected or the risk significantly reduced, even if the treatment cost is high
Medium (M)	Should be corrected or the risk significantly reduced, if the treatment cost is moderate, but not high
Low (L)	Should be corrected or the risk reduced, if the treatment cost is low

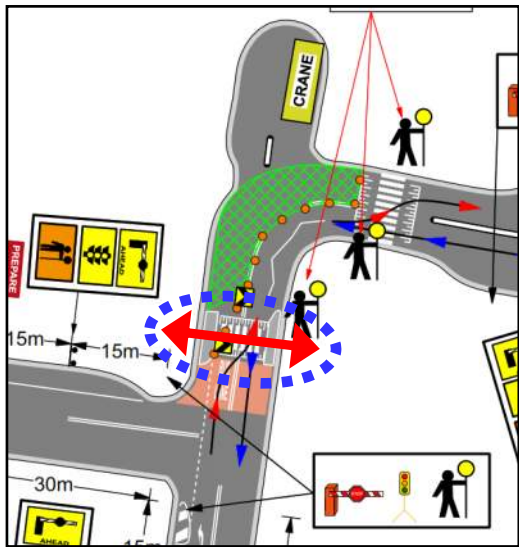
**Figure 3.4: Treatment Approach**

This report may provide recommendations about possible remedial measures in response to identified deficiencies. Any remedial actions recommended are based on current standards and practices. However, it should be noted that it is ultimately the responsibility of *CTS / Tft* to determine how to respond to each identified road safety deficiency.

The audit of the design CTMP identified a number of potential road safety issues. The safety audit process requires that the road safety issues identified during an audit be acknowledged by the Audit Team and accordingly responded to by *CTS / Tft*. The issues are characterised according to their risk, and detailed in *Table 3.1* following.

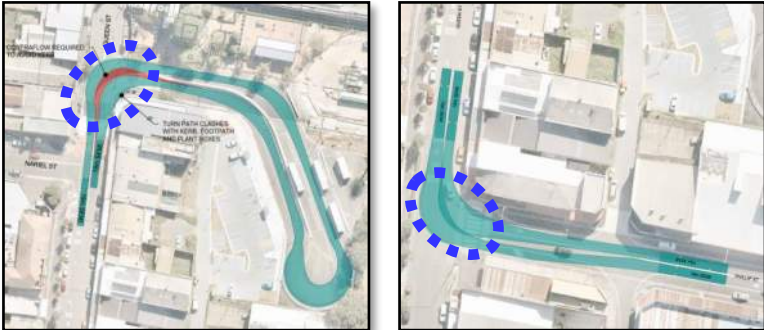
It should be noted that not all road safety issues identified may necessarily be within the scope of the design area. This is because while the scope of the audit is generally within the project area described earlier, to complete a full audit of the project, the approaches and transitions to the project area were also audited to identify potential issues that may affect road safety within the project area. Therefore, some road safety issues that are outside the project area may be the responsibility of the relevant controlling road authority.

Table 3.1: Identified Road Safety Issues

			<i>For completion by CTS / Tft</i>		
No.	Description of Road Safety Issue	Risk Rating	Response	Action by	Close-Out Date
1.	<p>The TGSs do not indicate any details for pedestrian control, especially in the vicinity of the two site access locations including warning / advisory signage of the traffic controllers and heavy vehicle movements into and out of the site accesses, eg. on outward opening site gates.</p> <p>Moreover, there is no diversion route for the marked pedestrian crossing across Queen Street (north of Nariel Street), which is proposed to be used as a lane closure.</p> 	Medium - High	Noted. TGS updated to include pedestrian paths and signage.	TFT	23/05/2022



For completion by CTS / Tft

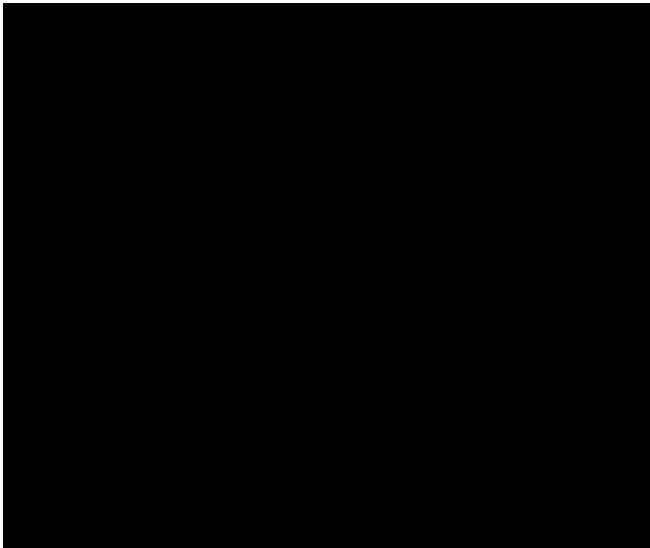
No.	Description of Road Safety Issue	Risk Rating	Response	Action by	Close-Out Date
2.	<p>The swept paths for a 19 m semi-trailer indicate potential conflicts between vehicles and across kerbs and other roadside obstructions, eg. at the Phillip Street / Queen Street and Queen Street / Station Street intersections, longer vehicles would cross the centre-line of the road when making turning movements. It is acknowledged that these movements are proposed to be managed by traffic controllers.</p> 	Low	<p>Noted. TGS-CASE-QUEEN ST_PHILLIP ST_ST_MARYS-001 TGS-CASE-ST_MARYS_STATION-002 Cater for required movements.</p>	TFT	23/05/2022
3.	<p>The issue of sun-glare during certain periods of the year at sunrise and sunset may be applicable to the general east-west alignments, eg. along the Station St approaches to the subject work site. Consequently, the temporary traffic conditions including signage and delineation may be difficult to sight due to sun glare.</p>	Low	<p>Noted. Traffic Control checklists require such checks to be completed prior to and during works and as such will be monitored.</p>	TFT Traffic Control	Ongoing
4.	<p>The CTMP document mentions that traffic control is to be used at the Queen Street / Phillip Street intersection to manage longer vehicles crossing the centre-lines when turning, however no TGS has been provided to detail this.</p>	Note only	<p>Noted. TGS-CASE-QUEEN ST_PHILLIP ST_ST_MARYS-001 Cater for required movements.</p>	TFT	23/05/2022

## 4. Formal Audit Statement

This road safety audit has been undertaken by *Samsa Consulting Pty Ltd*, using the references and documentation detailed previously and site inspections of the subject project area during daylight and night conditions.

While the road safety audit may provide recommendations about possible remedial measures in response to identified road safety issues, it is ultimately the responsibility of *CTS / TfT* to determine how best to respond to each identified safety issue.

The audit has been undertaken for the sole purpose of identifying any safety-deficient features and road safety risks of the design CTMP. Every effort was made to ensure that all relevant road safety issues were considered and the findings are the opinion and judgement of the audit team.



## **Annexure G    Consultation Register**