

Transport for Tomorrow

Construction Traffic Management Plan

Project	Sydney Metro – West Sydney Airport Enabling Works
Document No.	TFT_TMP_0001_ST MARYS_1.0
Revision Date	24 May 2022

Document Approval

Rev	Date	Prepared by	Reviewed by	Approved by	Remarks
0.2	29/04/2022	Paul Szubert	Michael Clegg, Tahli Moore, Michael Ng		Internal Review
0.0	3/05/2022	Paul Szubert	Michael Clegg	Martin Bibb	Initial Issue
1.0	24/05/2022	Paul Szubert	Michael Clegg	Martin Bibb	Stakeholder comments & RSA close-out

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
Figure 6 - Piles & capping beam	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 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 existing 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.

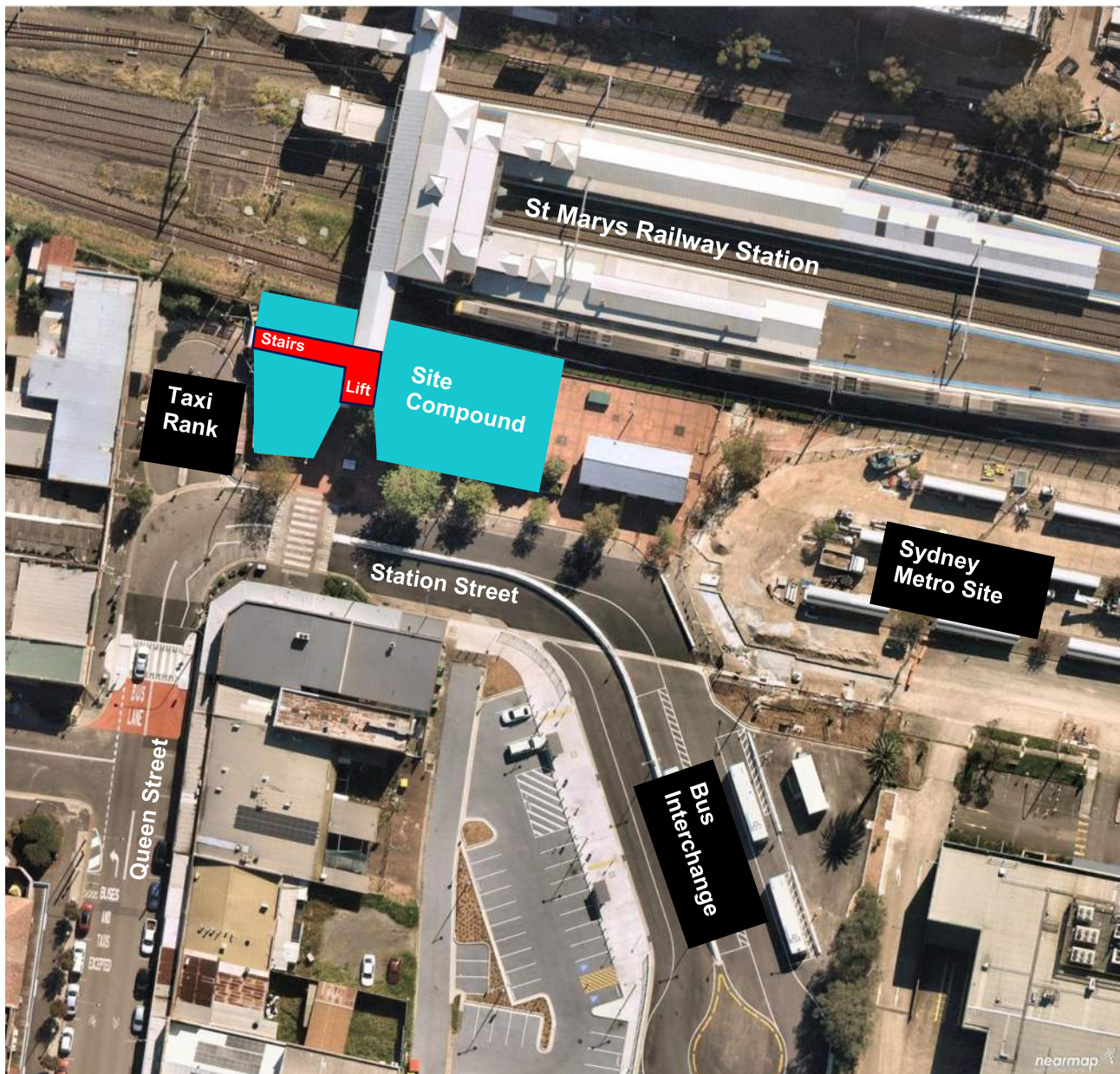


Figure 1 – Lift shaft and stairs to be relocated at St Marys station

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 and 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	

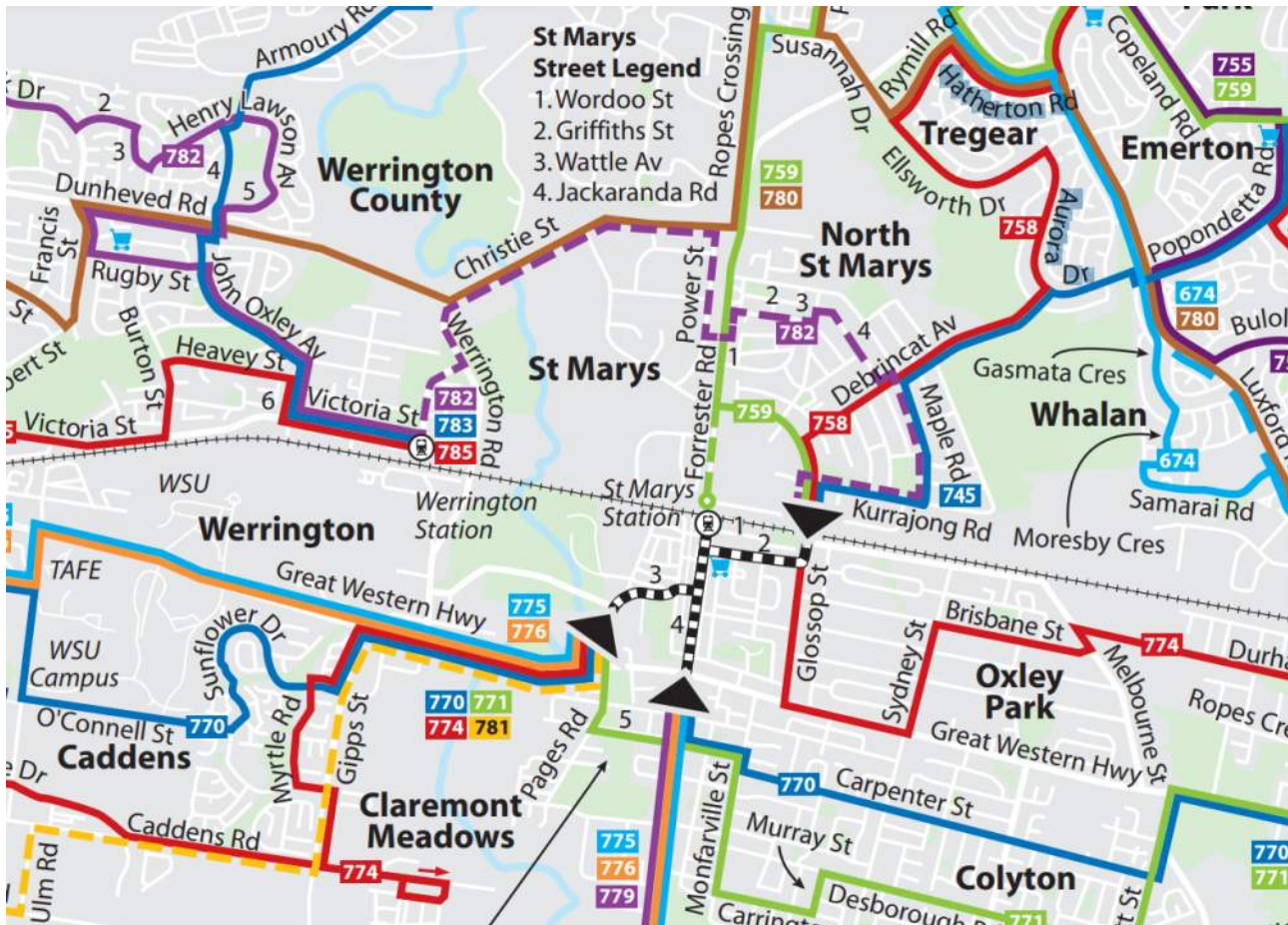


Figure 2 Greater Western Sydney Bus Network Map - Busways. (Source: Transport NSW)



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.

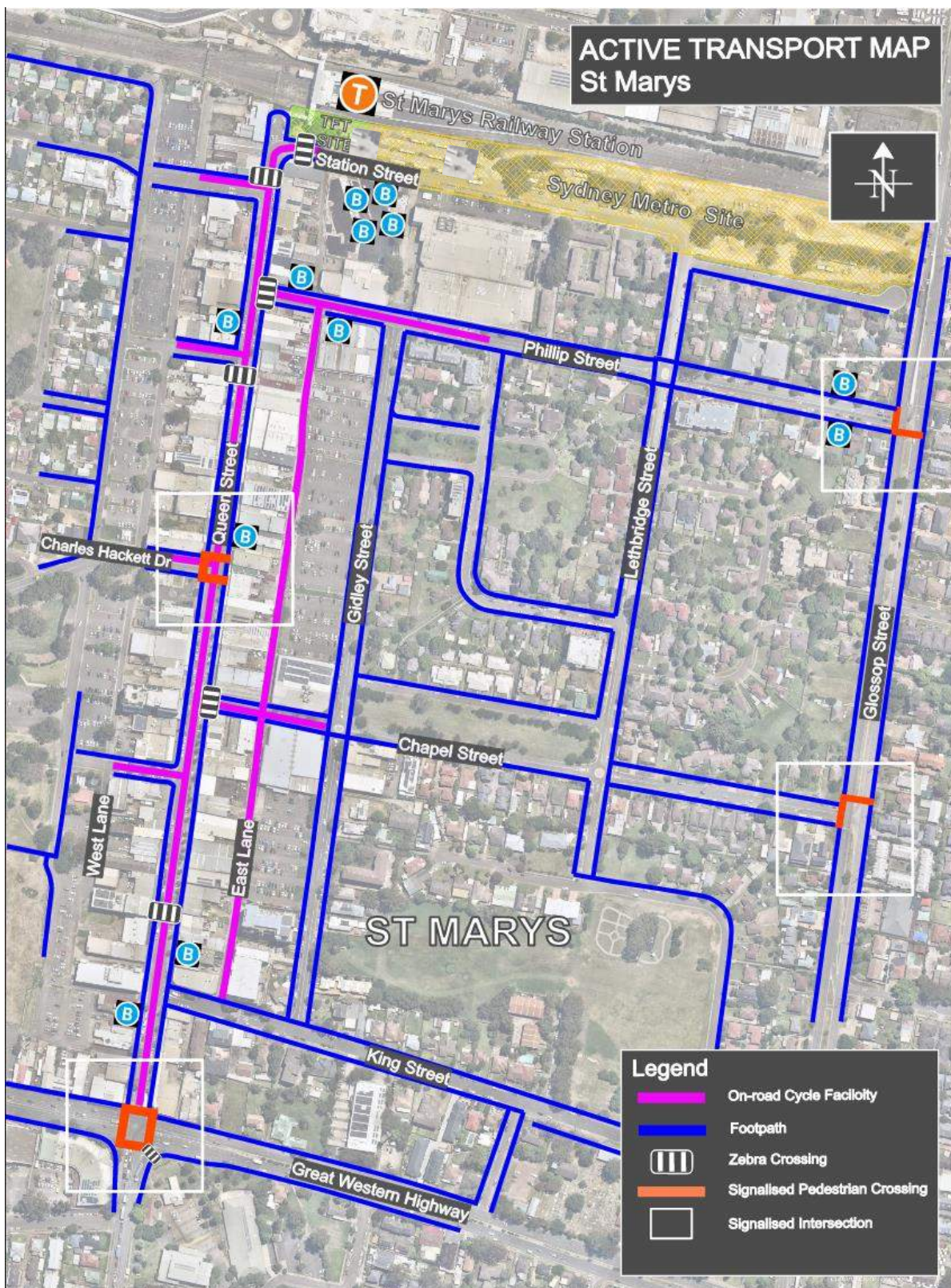


Figure 4 Existing walking and cyclist routes for St Marys Station

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 50m³ of concrete in total from a line pump positioned within the site, generating total of sixteen one-way heavy vehicle movements over 2-3days.

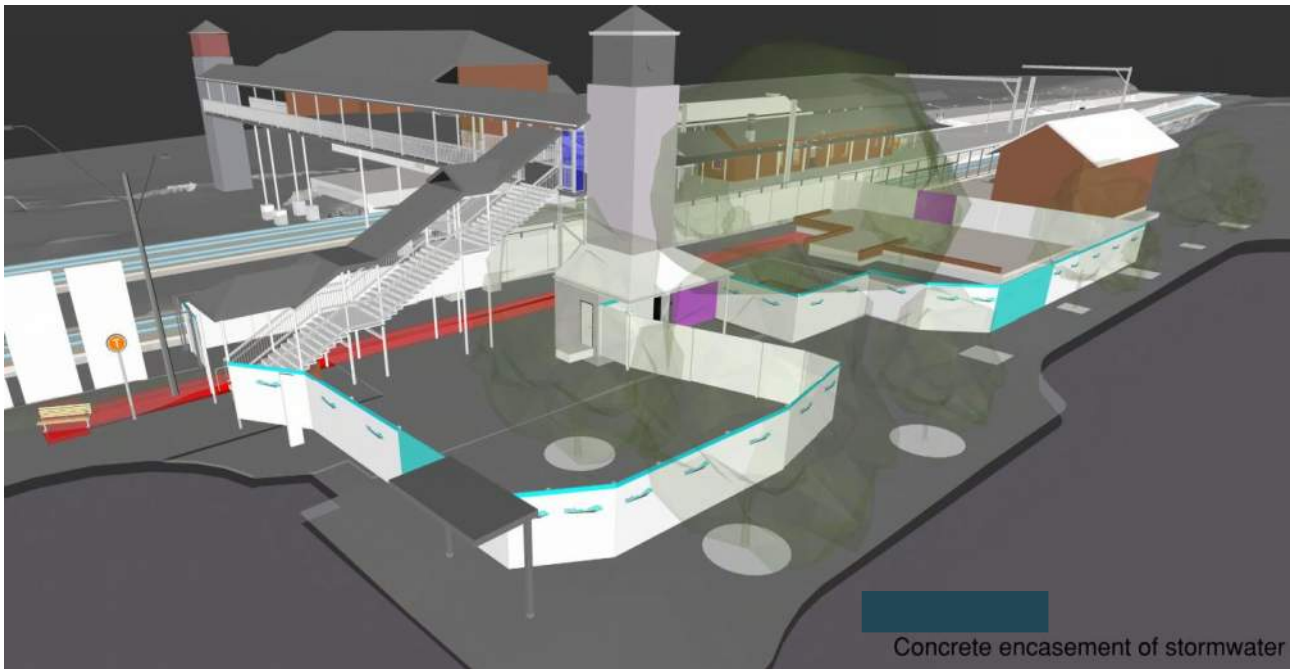


Figure 5 – Services to be identified and protected (in red)

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 21m³ 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 existing 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.

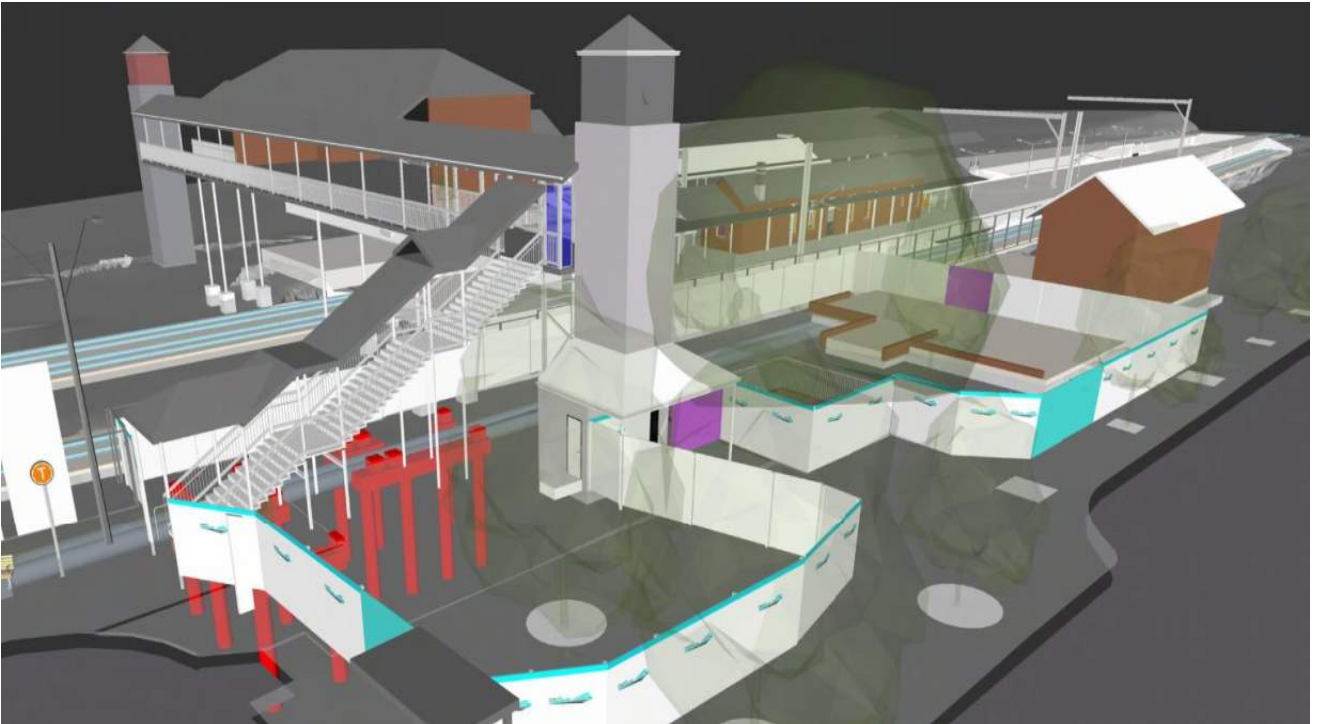


Figure 6 - Piles & capping beam



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 exiting 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 25m³ 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. Lifttronics – 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

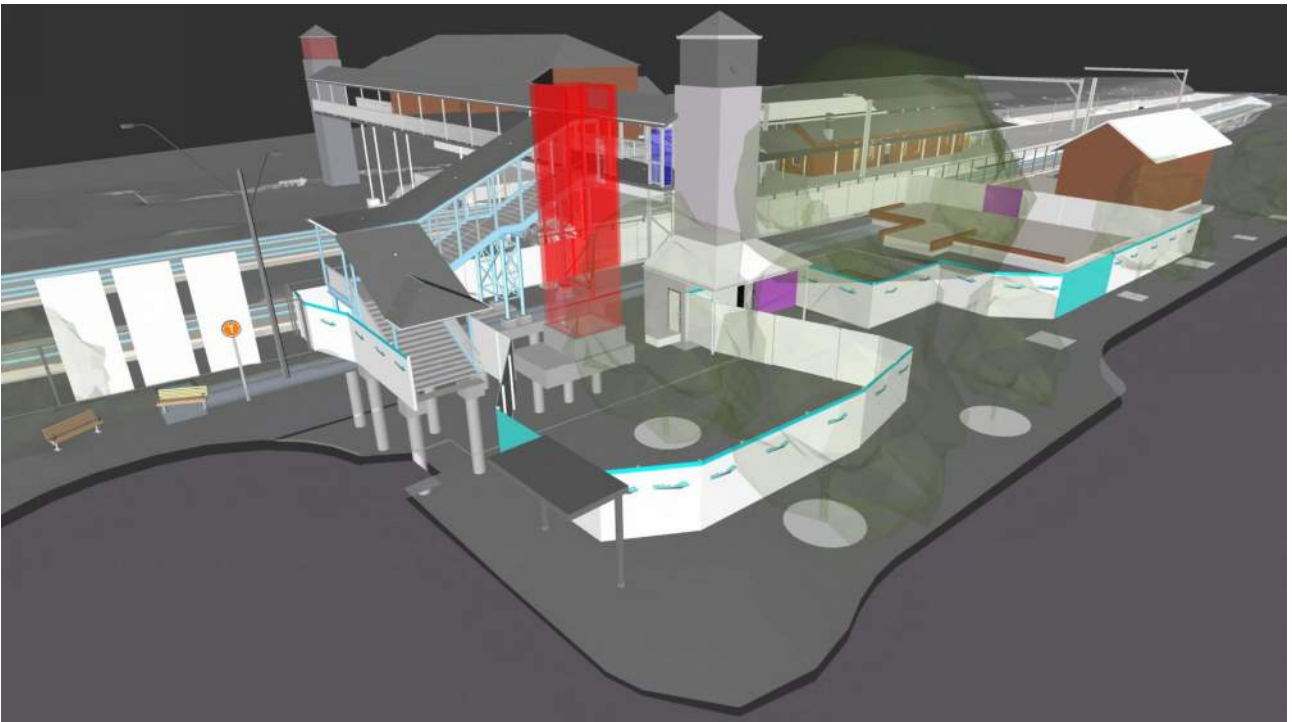


Figure 13 - Lift shaft installation

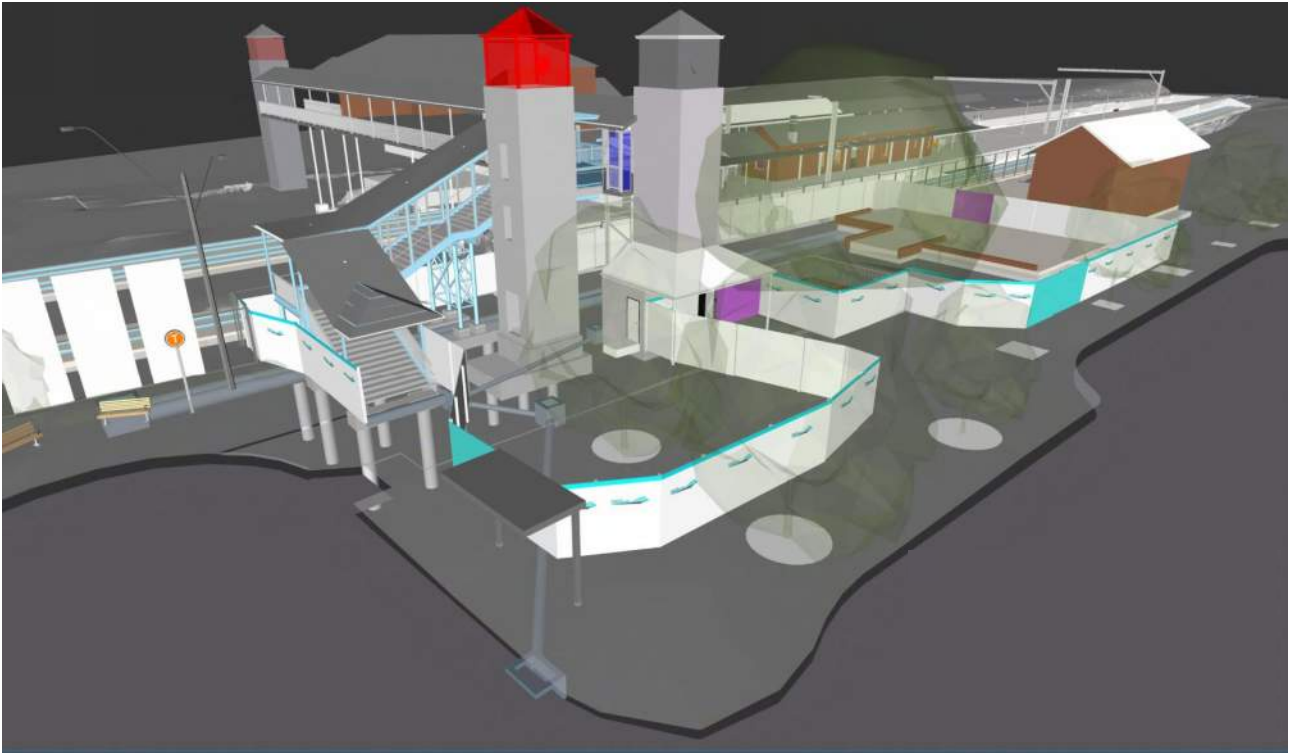


Figure 14 - Clocktower installation

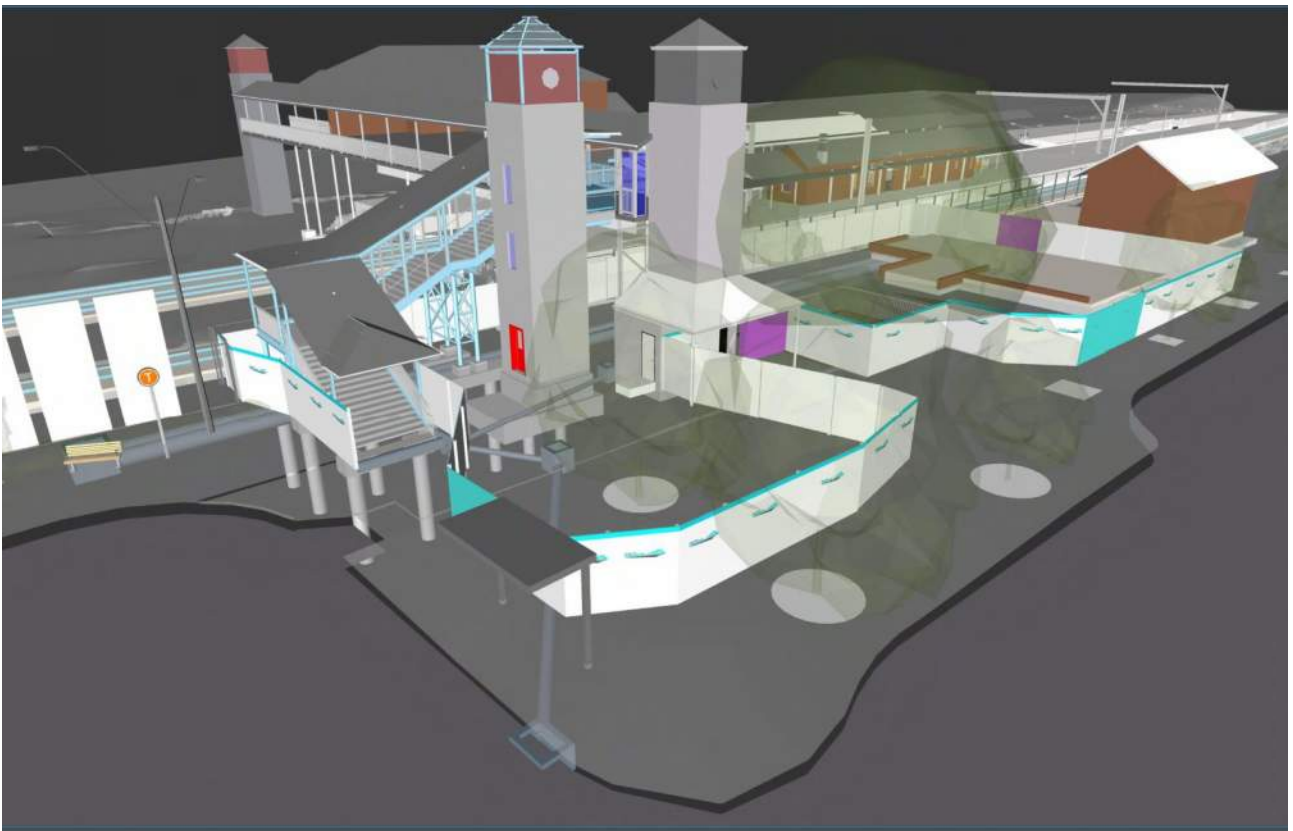


Figure 15 - Lift installation and commissioning



Figure 16 - Canopy installation

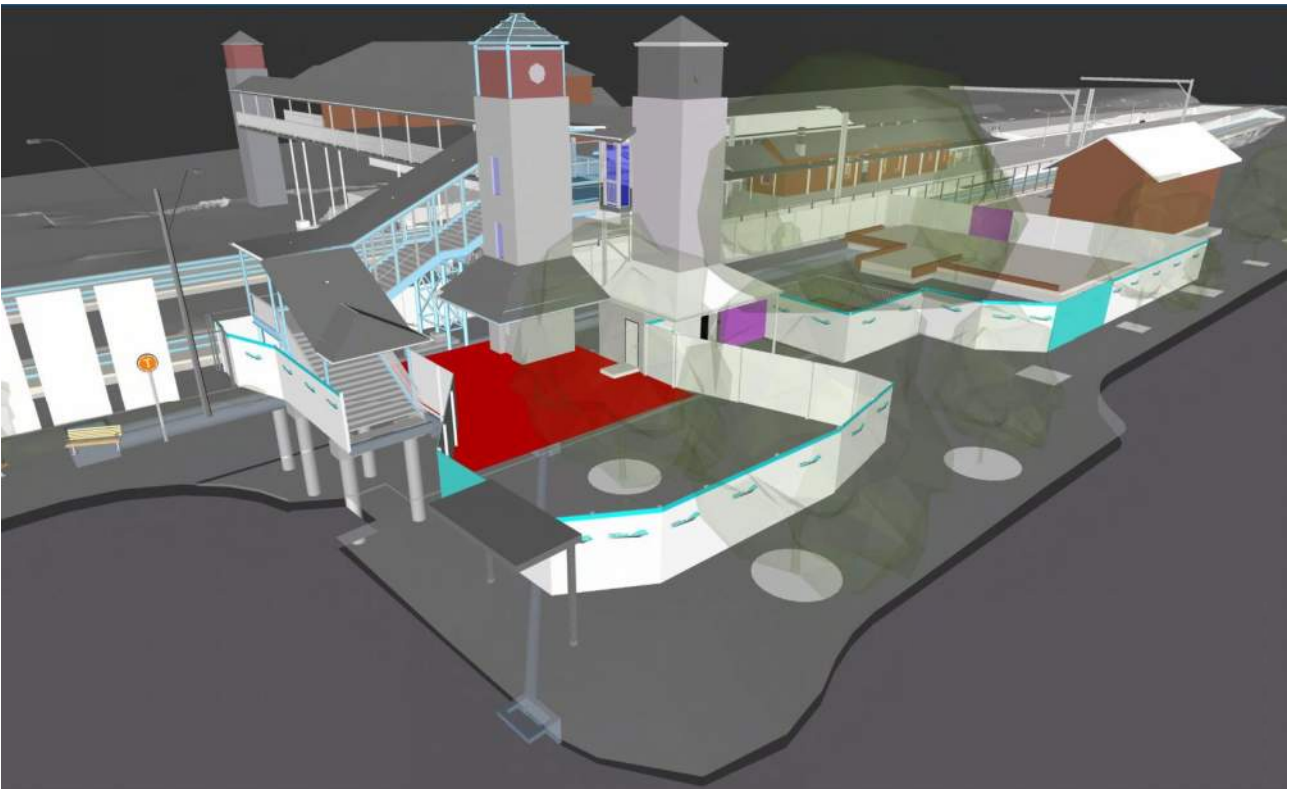


Figure 17 - Pavement works

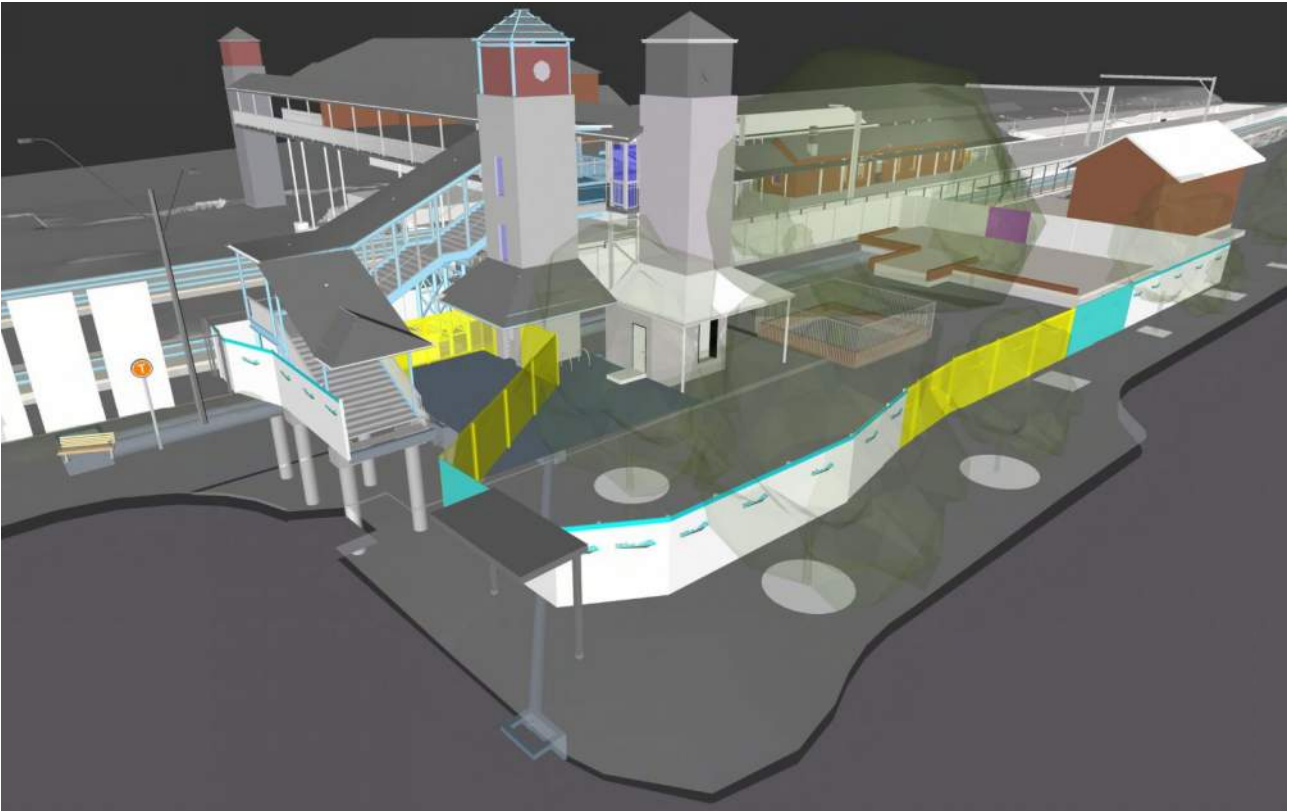


Figure 18 - Hoarding change, switch to new lift

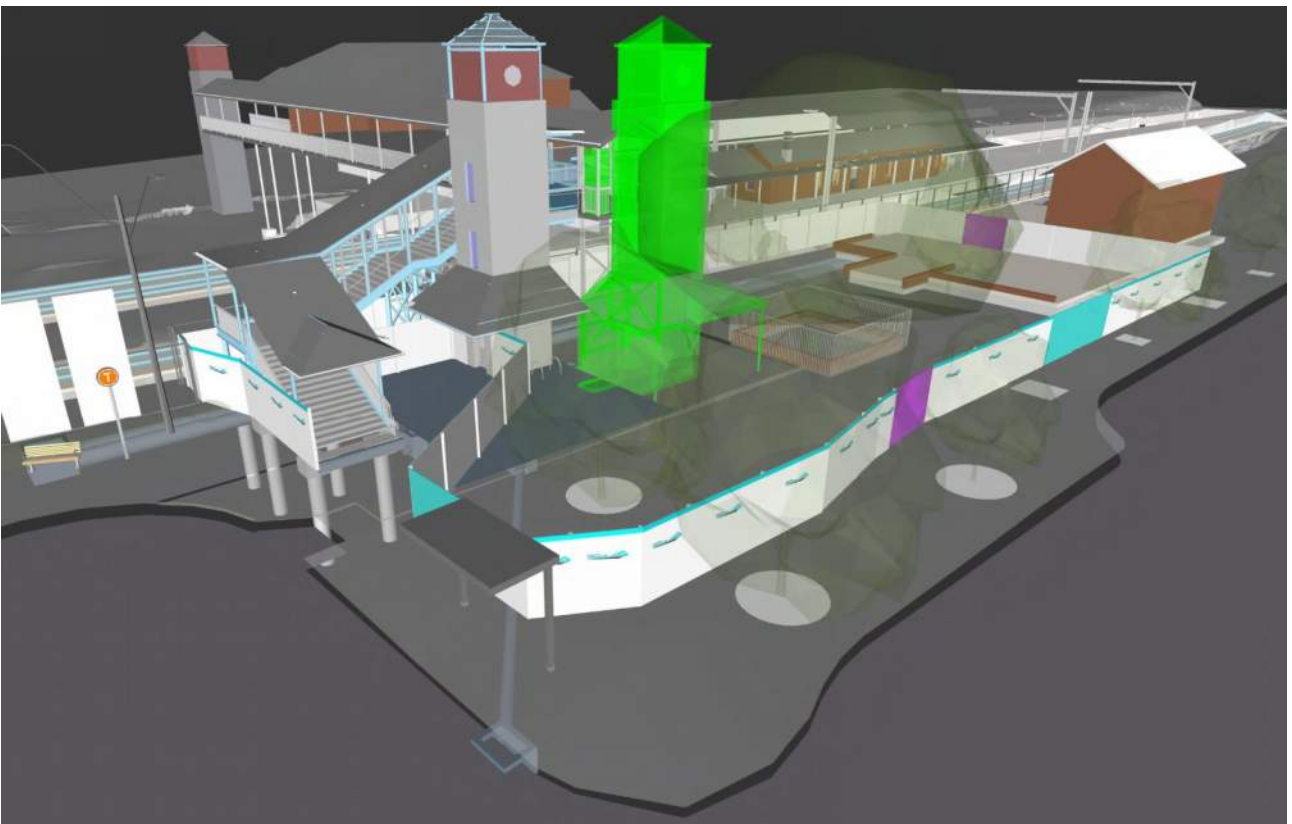


Figure 19 - Lift demolition

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.
1	Service Identification and Protection Works	8/04/22	3/05/22
2	Stair Works		
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
3	Lift Works		
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
4	Finishing Works & Demobilisation	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

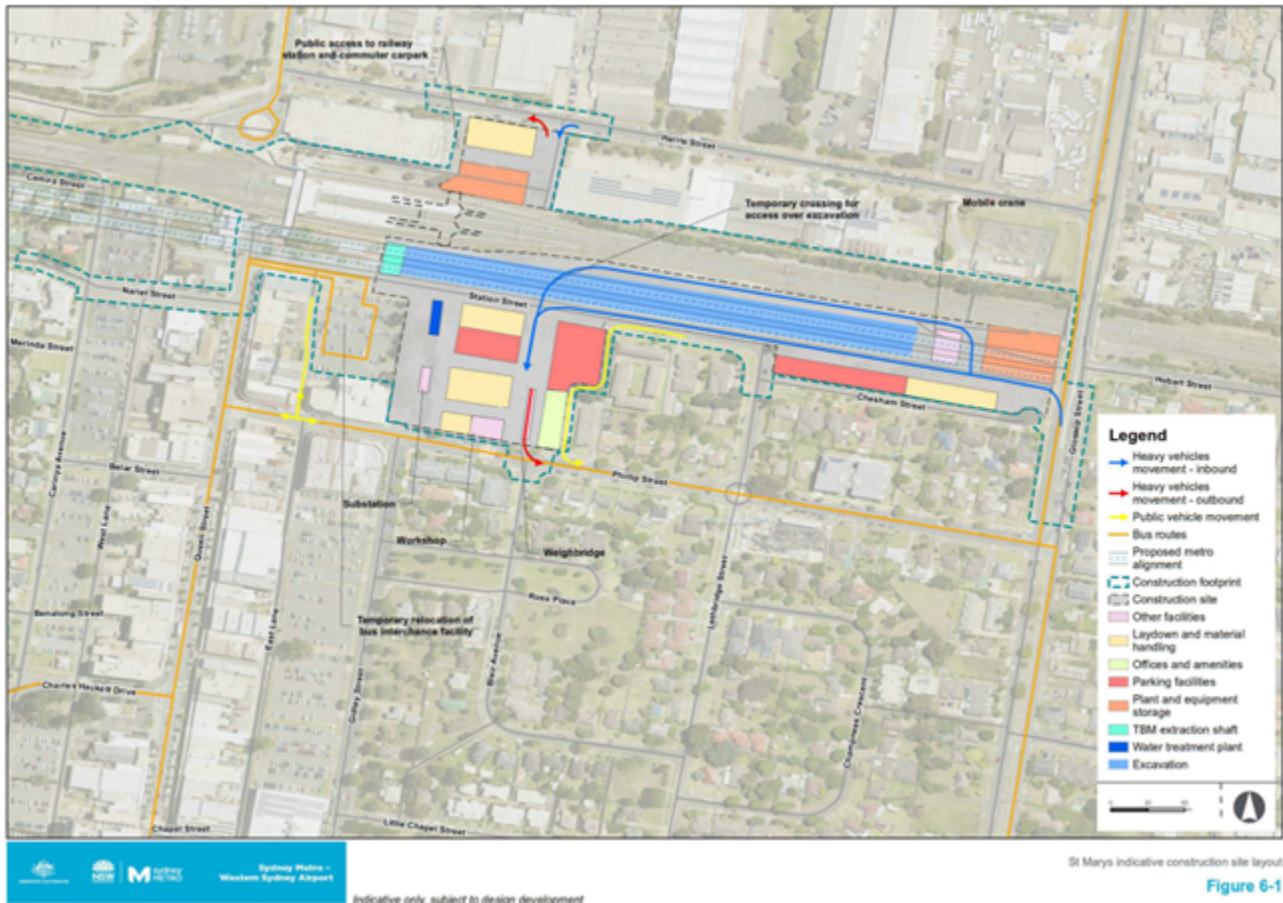


Figure 22 - Site Compound

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.

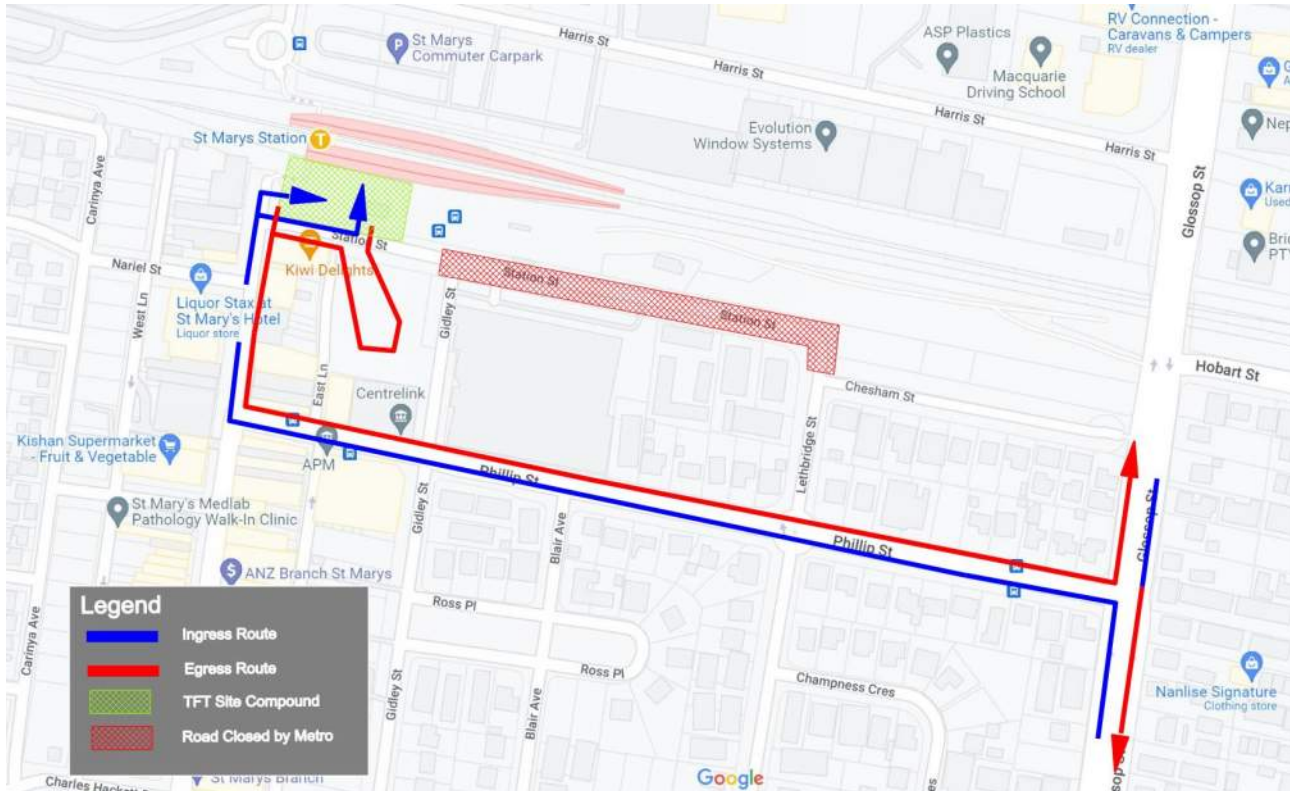


Figure 24 Construction Vehicle Routes

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	Service Identification and Protection Works	25 Days	Plant Float (Rigid) NDD/Vac Truck Concrete Agitator	TOTAL: 28 AVG/Daily: >1 Daily max: 8
2	Stair Works			

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
3	Lift Works			
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
4	Finishing Works & Demobilisation	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
Michael Clegg	Construction Manager	0436 304 810
Michael Ng	Stakeholder & Community Manager	0405 084 666
Tahli Moore	Environmental Manager	0439 217 046
Ayse Mateo	Safety Manager	0448 248 847
James Larkham	Senior Project Engineer	0436 859 603
Matthew Applebee	Superintendent	0448 817 058

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 910m² 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.

4.3. Loading & Unloading

4.4. Construction Traffic Signage

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).

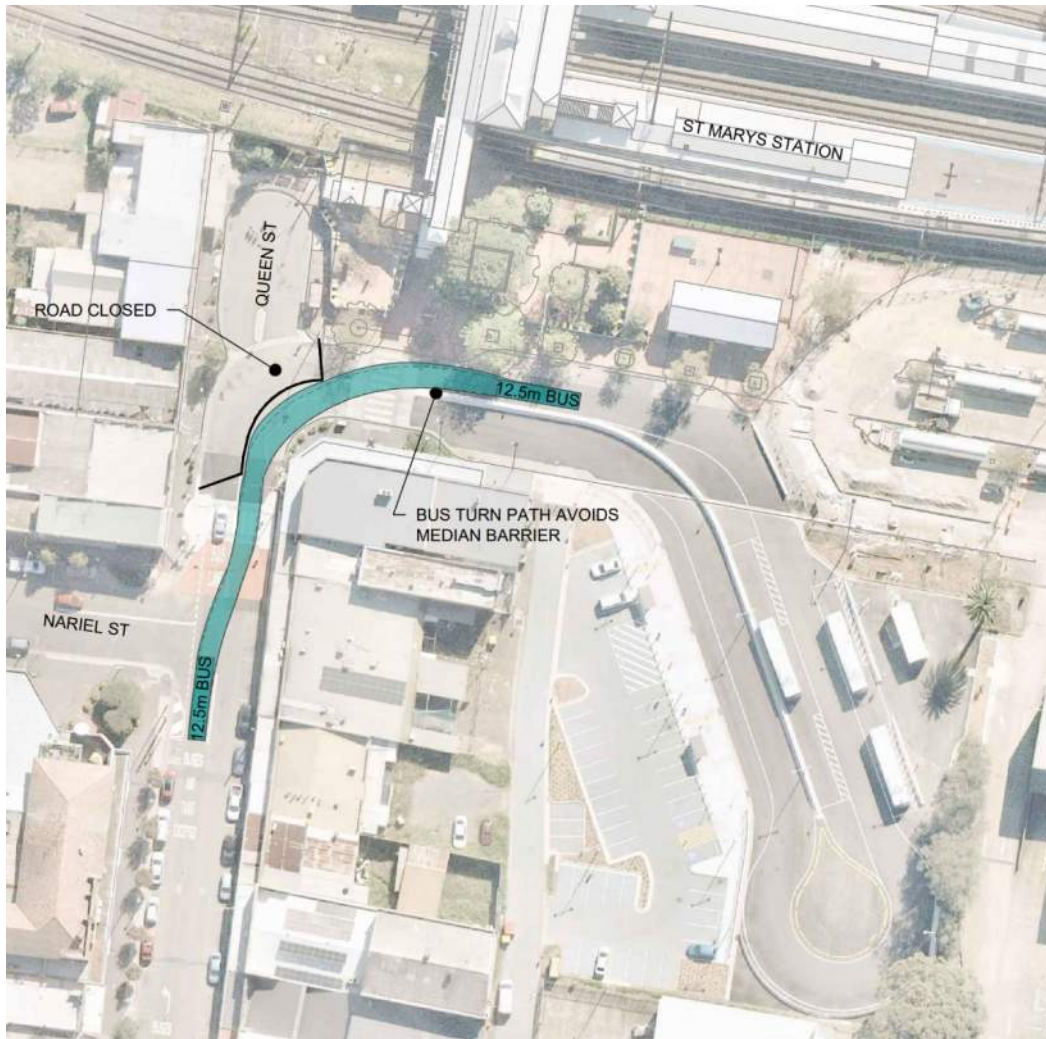


Figure 26 - 12.5m bus swept path around half road closure

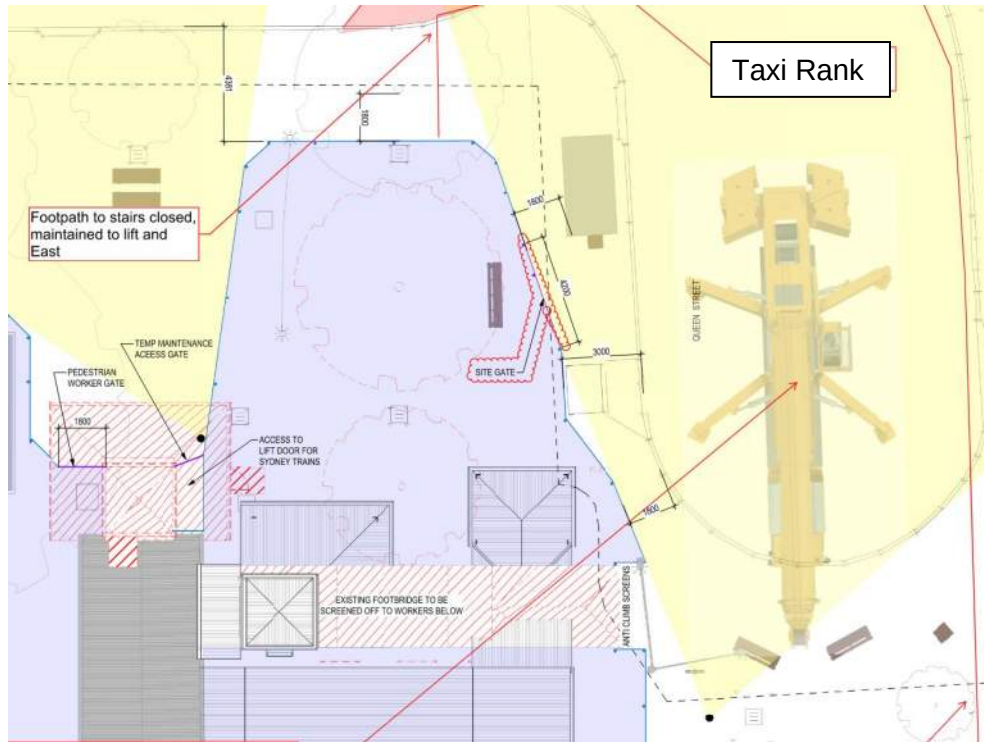


Figure 27 - Crane footprint



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.](#)

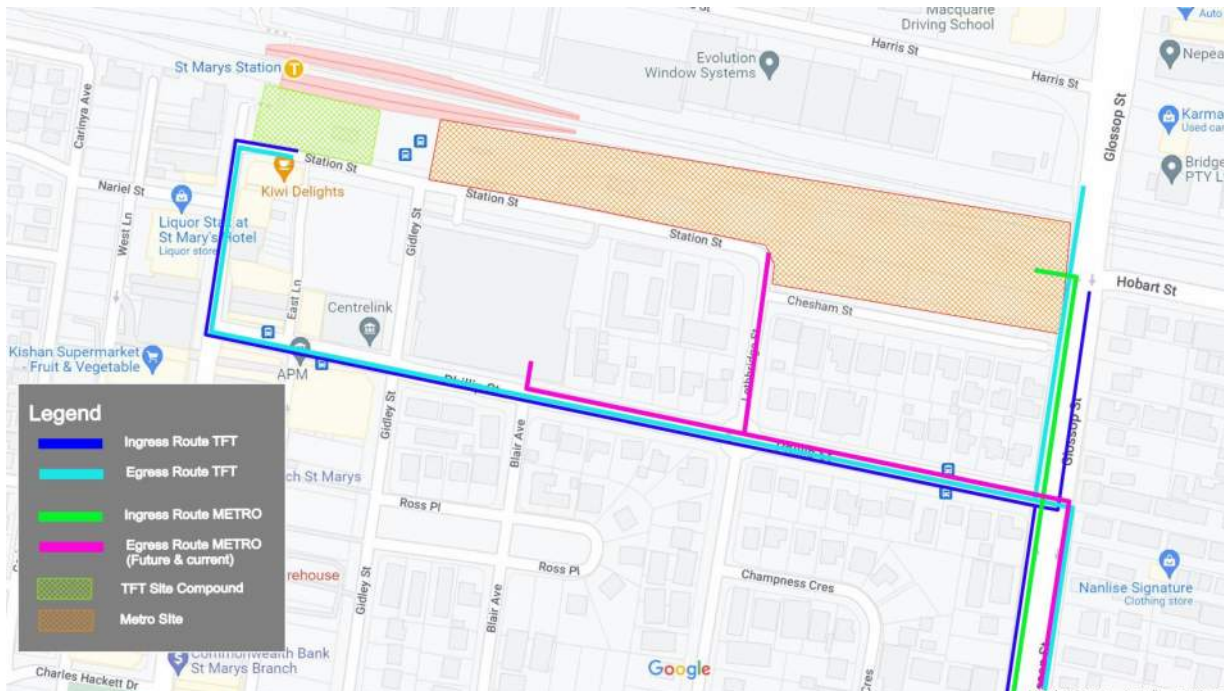


Figure 29 - TFT/Metro combined heavy vehicle routes

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
Community	• Neighbours • Residents and resident groups • People with languages other than English (LOTE) • Culturally and linguistically diverse communities (CALD) • Aboriginal and Torres Strait Islander Communities (ATSI) • Businesses, tenants and business groups • Property owners and tenants • Interest groups • Land owners • Educational and religious facilities • Transport users/customers • Cyclists
Government	• Federal Minister for Infrastructure, Transport and Regional Development • Federal Minister for Population, Cities and Urban Infrastructure • NSW Minister for Transport and Roads • NSW Minister for Jobs, Investment, Tourism and Western Sydney • State elected members and their electoral offices • Local elected members • Local Council General Managers/CEOs • Department of Infrastructure, Transport, Regional Development and Communications • Department of Energy and Environment • Western Sydney Airport • Transport for NSW • Department of Planning, Industry and Environment • Infrastructure NSW • Department OF Premier and Cabinet • Council officers
Emergency services	• Police • Ambulance • NSW Fire and Rescue • Rural Fire Services • State Emergency Services
Neighbouring projects	• Parramatta Light Rail • Westmead redevelopment • Western Sydney International Airport • M12 Motorway • TfNSW Transport Access Program, St Marys • TfNSW Commuter Car Park Program, St Marys

Sector	Stakeholders
Service providers	• Sydney Water • Water NSW • Power utilities • Telecommunication providers • Local Councils
Transport services	• Sydney Trains (station staff and crew) • Bus companies • Local transport operators • Taxi Council
Media	• All media

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
Residents, businesses, customers, and communities		
Community Including businesses	• Noise and vibration • Visual amenity • Vegetation removal • Access changes • Dust • Increased traffic • Reduced parking • Business impacts • Construction timeframe • Maintenance of amenity • Out of hours work • Property damage	• Meetings and consultation • Notifications • TfNSW and Sydney Metro website updates • Signage • Door knock • 24hr and general Infoline • Project email addresses • Business management strategy, if required • Property Management Plan • Pre and post condition surveys
Train customers and pedestrians using the concourse footbridges	• Access to station • Access to the local precinct • Sections of station may be temporarily closed at various times • Noise and vibration • Station closures during possessions • Congestion on the concourse • Temporary diversions / access arrangements • Impacts to parking including kiss and ride locations	• Notifications • Notifications printed and displayed at the stations • Project information signage at the stations • Directional signage • Support staff to provide directions and assistance • Infoline and projects email • Website updates • Meetings with Sydney Trains • Supply of mini-bus at stations (if required) • Traffic control
Bus and Taxi operators and customers	• Temporary relocation of services • Temporary diversions • Delays due to temporary road or lane closures	• Meetings with transport operators • Directional and information signage • Notifications/handouts for bus customers

Stakeholder groups	Anticipated key concerns, impacts or interest points	Engagement methods
	Increased traffic due to construction vehicles	- Support staff to provide directions and assistance - Traffic control - Website updates
Cyclists	- Temporary diversions / access arrangements - Temporary road and lane closures - Relocation of bike lockers/racks - Station closures during possessions	- Liaison with Cycling NSW - Notification emails to cycling groups - Signage - Traffic control
Pedestrians	- Temporary diversions / access arrangements - Temporary road and lane closures - Increased safety risks - Station closures during possessions	- Notifications - Notifications printed and displayed at the stations - Project information signage at the stations - Directional signage - Support staff to provide directions and assistance - Infoline and projects email - Website updates - Meetings with Sydney Trains - Supply of mini bus at stations (if required) - Traffic control
Motorists	- Delays due to temporary road or lane closures - Temporary diversions / access arrangements - Impacts to parking including kiss and ride bay relocation - Increased traffic due to construction vehicles	- Notifications - Electronic sign boards - Static signage - Line marking - Traffic control
Stakeholder organisations		
Sydney Trains Station staff: Station Managers Bus operators Taxi Council/Operators	- Construction timeframe - Passenger information - Customer experience - Operations - Noise and vibration - Dust - Maintenance of amenity - Facilities and assets maintenance - Temporary relocation of bus / taxi services - Temporary road / lane diversions - Delays due to temporary road or lane closures - Increased traffic due to construction vehicles	- Phone - Meetings as required - Station staff updates, as required - Directional and information signage - Notifications/handouts for bus customers - Support staff to provide directions and assistance - Traffic control - Website updates
Utility providers		
Telstra Optus	- Construction timeframe - Construction impacts - Maintenance of amenity	Meetings as required to conduct work adjacent to these assets

Stakeholder groups	Anticipated key concerns, impacts or interest points	Engagement methods
Jemena Energy Australia Ausgrid TransGrid, etc		- Obtaining Dial Before You Dig and DSS records - Phone calls - Provide email notifications to utility contact for their call centres at least 7 days prior to work commencing
Political bodies (including Council departments)		
Minister for Transport and Roads	- Construction timeframe - Impacts to the community, pedestrians, motorists and cyclists - Train operations	Briefings as required
Councils	- Construction timeframe - Consultation methods - Road and lane closures - Access changes - Impacts to the community, pedestrians, motorists and cyclists - Impacts to parking - Property damage	- Briefings as required - Project update emails - Traffic plans - Traffic control - Information and directional signage - Property Management Plan - Pre and post road and property/asset condition surveys, as required

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
Briefings/meetings	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.
Door knock	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
Written correspondence	All complaints will be closed out with written correspondence
Notifications	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
Website updates	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
Translation services	Notifications will contain the translation service telephone number, providing the community with access for those who do not speak English as a first language
Signage	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.
Business Management Strategy	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
Email distribution list	Stakeholders registered for project updates will receive monthly email updates, managed by Sydney Metro
Project Infoline	All enquiries will be directed to the Sydney Metro or TfNSW Project Infolines
Complaints line	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 project specific webpages
Media liaison/Press release	Media releases will be prepared for key milestones
Advertisements in local paper	As required
Social media updates	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.

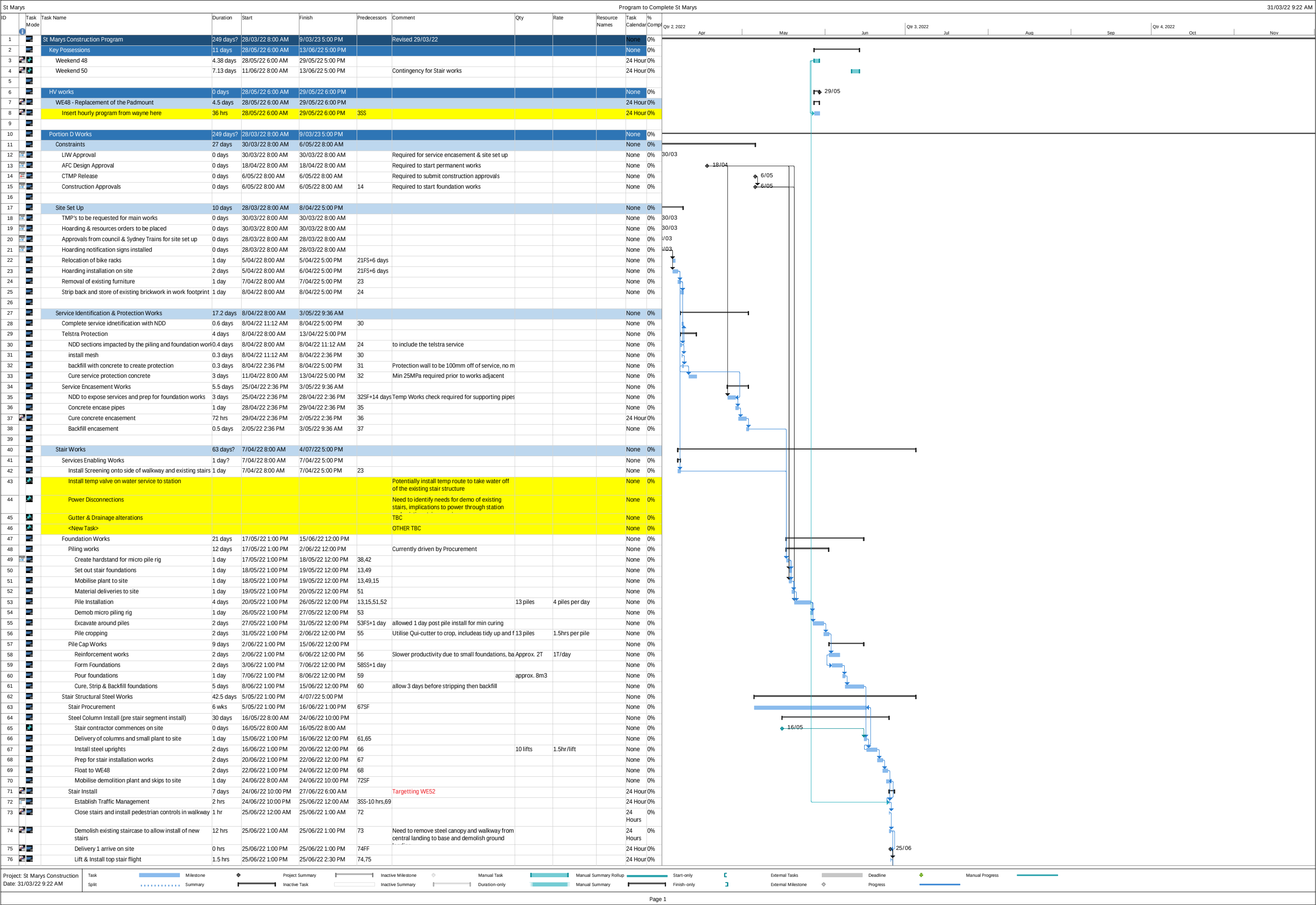
Annexure A Ministers Conditions of Approval

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: (a) a swept path analysis; (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; (c) details as to the date of completion of the road dilapidation surveys for the subject local roads; and (d) 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 (e) 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): (a) compensate the Relevant Road Authority for the damage so caused; or (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: (a) minimise parking on public roads; (b) minimise idling and queueing on state and regional roads; (c) not carry out marshalling of construction vehicles near sensitive land use(s); (d) not block or disrupt access across pedestrian or shared user paths at any time unless alternate access is provided; and (e) 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.

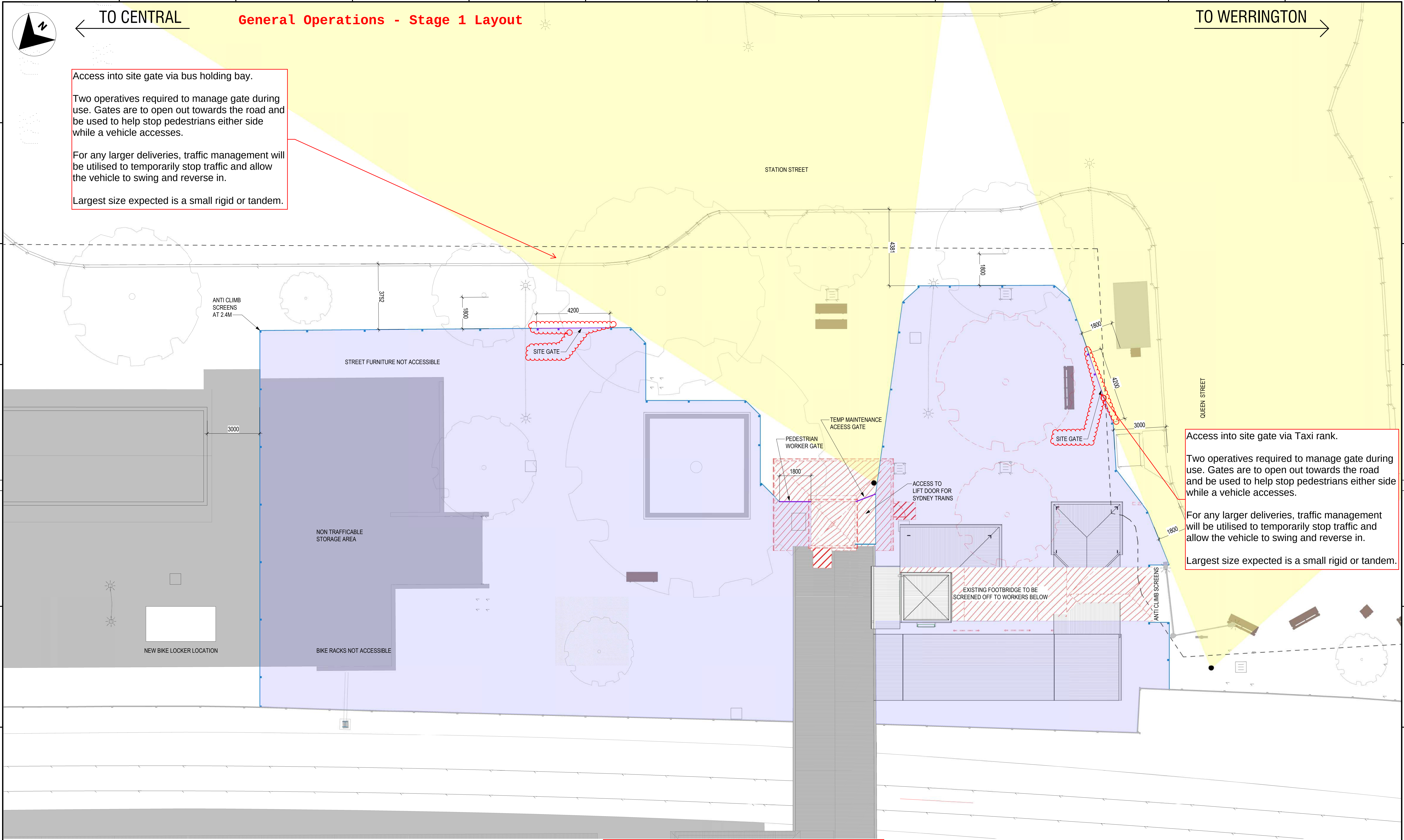
Traffic and Transport - Road Traffic and Safety	E118	As part of Condition E117 the Traffic and Transport Liaison Group(s) is to identify opportunities to improve the intersection performance during operation at: (a) Queen Street/Great Western Highway/Mamre Road in St Marys; (b) Glossop Street/ Forrester 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.
Traffic and Transport - Road Traffic and Safety	E119	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.

Annexure B Detailed Work Program



St Marys													Program to Complete St Marys													31/03/22 9:22 AM																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Comment	Qty	Rate	Resource Names	Task Calendar	% Comp	Qtr 2, 2022													Qtr 3, 2022													Qtr 4, 2022													Qtr 1, 2023																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
77		Delivery 2 arrive on site	0 hrs	25/06/22 1:00 PM	25/06/22 1:00 PM	75						24 Hour	0%																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										

Annexure C Site Plan



TO CENTRAL

TO WERRINGTON

Access into site gate via bus holding bay.

Two operatives required to manage gate during use. Gates are to open out towards the road and be used to help stop pedestrians either side while a vehicle accesses.

For any larger deliveries, traffic management will be utilised to temporarily stop traffic and allow the vehicle to swing and reverse in.

Largest size expected is a small rigid or tandem.

Access into site gate via Taxi rank.

Two operatives required to manage gate during use. Gates are to open out towards the road and be used to help stop pedestrians either side while a vehicle accesses.

For any larger deliveries, traffic management will be utilised to temporarily stop traffic and allow the vehicle to swing and reverse in.

Largest size expected is a small rigid or tandem.

COLOUR LEGEND

- EXISTING TO BE RETAINED
- EXISTING TO BE DEMOLISHED/REMOVED
- HOARDING EXTENTS
- CCTV

REV	DESCRIPTION	DESIGNER INITIAL/DATE	VERIFIED INITIAL/DATE	APPROVED INITIAL/DATE

CO-ORDINATE SYSTEM:

HEIGHT DATUM:

SCALE: 1:100

NSW GOVERNMENT

Transport for NSW

Transport for TOMORROW

This drawing and the related information have been prepared by, or at the request of, Transport for NSW for a specific purpose and may not be used for any purpose other than the purpose intended by Transport for NSW. Transport for NSW does not provide any warranties and accepts no liability arising out of the use of this drawing or any of the related information for any purpose other than the intended purpose. This drawing is protected by copyright and no part of this drawing may be reproduced in any form without the express written permission of Transport for NSW.

DesignInc

ABN 89 085 562 901
PTY LIMITED ACN 003008820
www.designinc.com.au

DRAWN _____
DESIGNED _____
DRG CHECK _____
DESIGN CHECK _____
APPROVED _____

ST MARYS
MAIN WEST LINE - 47.420 km
HOARDING LAYOUT
CONSTRUCTION
SITE PLAN

FILE No.	SHEET: 0F
STATUS:	
DRG No.	REV VER EDMS No. AMD No.

FOR REVIEW AND COMMENT

C:\Users\jordan\Documents\ST Marys\DESIGN\STM-AR-M3D-000001_A2\Drawings\H1.dwg
File Path
22/03/2022 4:00:50 PM
Pkg Date & Time
OF 801*354

Annexure D Traffic Guidance Schemes (TGS)

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 controller position (centreline or edge line)	All cases	4
Merge tapers	55 to 75 greater than 75	9 12
Lateral shift tapers	55 to 75 greater than 75	12 18
Protecting freshly painted lines	55 to 75 greater than 75	24 60*
All other purposes	less than or equal to 55 56 to 75 greater than 75	4 12 18

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	greater than 65 km/h
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.

Edge of traffic lane to:	Edge clearances
Road safety barrier system	0.3 m for traffic speeds 45 km/h or less 0.5 m for traffic speeds 45 to 65 km/h 1.0 m for traffic speeds 65 to 85 km/h 2.0 m for traffic speeds greater than 85 km/h

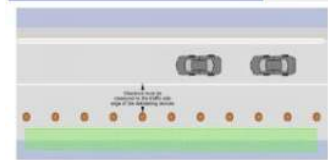


Figure 6-1. Clearance measurement from delineating device (cones)

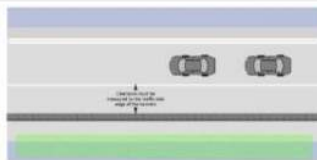


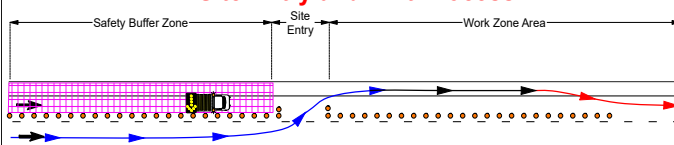
Figure 6-2. Clearance measurement from delineating device (barrier)

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

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

- Site Entry & Exit Process not applicable to Gate Control, Pedestrian Management or Dynamic Works set ups

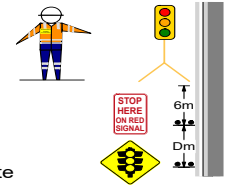
Dimension 'D'
AS 1742.3: A distance expressed in metres, determined in accordance with Clause 4.1.5 and used for positioning of advance signs and related purposes.

Speed of Traffic km/h	Dimension m
55 or less	15
56 to 65	45
Greater than 65	speed of traffic, in Km/h

Taper Lengths

Approximate speed of traffic at beginning of taper	Traffic control taper	Lateral shift taper	Merge taper
45 or less	15	15	15
46 - 55	15	15	30
56 - 65	30	30	60
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

When PTC's are utilised signs must be installed as illustrated here in accordance with TCAWS V6.
TC's to operate PTC's 1.5mtrs from live traffic with clear escape route

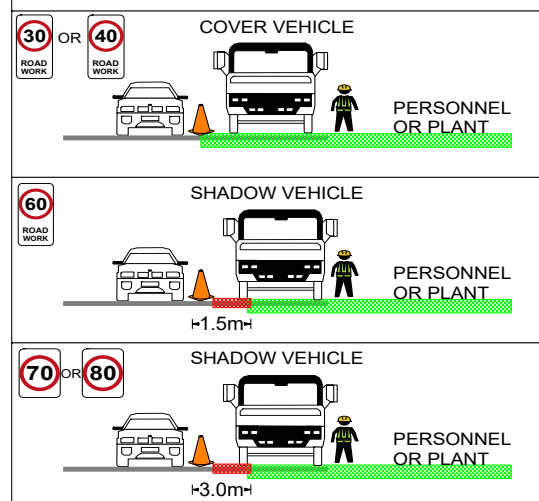


Pedestrian Movement Plan

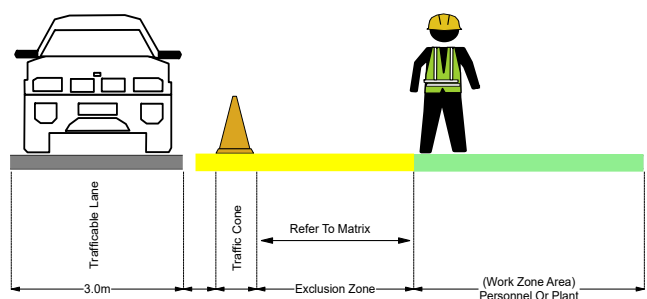
NOTE:

1. Traffic Controllers to be positioned on footpaths in appropriate positions throughout work area to assist with pedestrian movements
2. Pedestrian Barriers and/or Tiger Tails to be utilised where appropriate to provide separation to pedestrians and work areas
3. Work areas not to obstruct footpaths unless appropriate controls in place in accordance with AS1742.3 and TCAWS and minimum 1.5mtr clearances for pedestrians maintained
4. Pedestrians shall not be directed onto roadway unless appropriate controls are in place in accordance with AS1742.3 and TCAWS Manual
5. Ensure that the requirements of Traffic Control at Work Sites, Section 9.3 are met for pedestrians

SAFE DISTANCES BETWEEN WORKERS AND LIVE TRAFFIC



CROSS SECTION DIAGRAM



CLIENT: CASE CIVIL AND STRUCTURE ENGINEERING TGS DRAWN BY: Ashley Kelly TGS APPROVED BY: Mason Burgess DATE OF DESIGN: 23/05/2022 DATE OF APPROVAL: 23/05/2022 DRAWING NUMBER: TGS-CASE-QUEEN_ST_ST_MARYS-001 SHEET NO: 1 OF 3				PROJECT: QUEEN ST, ST MARYS CITY OF PENRITH TITLE: TRAFFIC GUIDANCE SCHEME 3-WAY INTERMITTENT STOPPAGES SCALE: 1:750 TIME OF DESIGN: 08:00 DATE OF APPROVAL: 23/05/2022 DRAWING NUMBER: TGS-CASE-QUEEN_ST_ST_MARYS-001 SHEET NO: 1 OF 3			
SIGNATURE: DATE OF ISSUE: 10th July 2018				SIGNATURE: LEVEL 3 EXP DATE: 12th Nov 2022			
ISSUE: DESG APPD DATE AMENDMENT DESCRIPTION				Call Altus Traffic Toll Free (Australia) 1300 TRAFFIC (872 334) ABN 84 102 768 061 			

IMPLEMENTATION INSTRUCTIONS

- Before work commences, signs and devices at the approaches to and within the work area SHALL be implemented in accordance with the approved Traffic Guidance Schemes and the Traffic Control Companies Safe Work Method Statements, in the following sequence:
- 1) Traffic Controllers implementing signage are to ensure all signage is available for implementation prior to shift.
 - 2) Signs & devices in side streets leading into the works are to be implemented first. Where required, detours are to be in place before commencing any closures.
 - 3) All signage on arterial and main road alignments to be implemented with the flow of traffic.
 - 4) Signs are to be implemented in all non affected lane(s) first and all conflicting signs are to be covered.
 - 5) Signs in the affected lane to be implemented: Taper, Speed Reduction, Safety buffer (if applicable), and Delineation to be implemented with the traffic flow. Conflicting signs to be covered in process.
 - 6) Ensure signs & devices are correct before works commence.
 - 7) Once works have finished, Traffic Control are to pick up delineation and taper's in reverse. Then pick up advance warning signs with the flow of traffic.
 - 8) 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)
 - 9) Signs and traffic control devices must be installed in a sequence via GPS, survey, landmarks, side streets or chainage in accordance with TCAWS V6.1 Section 6.4 and AGTTM Section 6.2
 - 10) 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 the date of practical completion. In the event of a traffic related incident within the site, The Contractor SHALL immediately notify the principal's representative, the police, and any necessary emergency services.

RECORDING & MONITORING

Regular inspections of traffic control devices SHALL be carried out a minimum of twice daily and recorded in The Daily Traffic Diary. These records SHALL be available for inspection during the project. These records will be held on site by The Contractor. Details of all changes in traffic movements shall be recorded and maintained throughout the construction period and submitted within 7 days of the date of practical completion. In the event of a traffic related incident within the site, The Contractor SHALL immediately notify the principal's representative, the police, and any necessary emergency services.

PEDESTRIAN & CYCLIST MANAGEMENT

All pedestrian & cyclist control measures, for the duration of the construction works will be monitored as required for effectiveness & improvements. Appropriate warning signage and directional signage will be in place and monitored throughout the works as per the provided TGS's attached to this document. Where current documented control measures are ineffective, A PWZTMP qualified person(s) should be contacted to suggest changes.

GENERAL NOTES

- The Designer preparing this plan has ensured it complies with the TNSW TCAWS (Version 6.1, 28 February 2022). Any unapproved variations to the design will negate the Designers liability. Variations and amendments to this TGS are to be recorded on this TGS with the changes noted, along with the date and time of the change and the accreditation details of the TMD making the change.
- The attached TGS's SHALL be read in conjunction with this notes page and the associated risk assessments and an on site risk assessment SHALL be performed before any implementation works takes place.
- It is the Clients responsibility to ensure they have a copy of the permits (in date) for the closure being implemented.
- This TGS SHALL only be implemented by a competent person(s) with a current Traffic Management Implementation (TMI) qualification.
- A toolbox talk is to take place before works commencing.
- Work Site Safety Management Checklist to be filled out prior to implementation, and upon completion.
- Traffic Controllers to identify and make note of escape routes prior to commencement of works.
- Hand held UHF radios are to be utilized where required to communicate between traffic control & site vehicles.
- Principal Contractor to notify local Emergency Services in advance of commencing works.
- Traffic Controller's to ensure ROLS has been activated prior to each shift via the TMC website. ROL must also be deactivated once shift has ended.
- Advance signs SHALL be mounted at a minimum height of 200mm displayed as prominently as possible by selecting the longitudinal location of the sign for best sight distance for approaching traffic. Signs continuously required for works which will be in progress for periods longer than 2 weeks should be erected in a permanent manner, e.g. on posts sunk into the ground, and duplicated on the right side of the road.
- Traffic volumes should be monitored throughout the implementation of the TGS(s). In the event queue lengths become unmanageable, works should cease if possible and traffic cleared before recommending.

SITE SPECIFIC NOTES

- 1) Workman symbolic SHALL be removed or covered when workers are no longer visible to traffic. (TCAWS Ver.5, 5.2.3)
- 2) Speed of the traffic SHALL be reduced to 40km/h when workers on foot will be within 1.5m of traffic. (TCAWS Ver.6.1, 4.5.2 Table 4-8)
- 3) Signals Symbolic/Prepare to Stop sign MUST be used to give advance warning of the presence of traffic control. The signs must only be used when the traffic control is in operation and must be removed or covered up when traffic control is discontinued or during breaks. (TCAWS Ver.6.1, 5.4.3 Table 5-11)
- 4) Access to local businesses and driveways will be maintained during works. Unless otherwise shown on the TGS(s) and site specific notes. It is the Principal Contractors responsibility to seek permission prior to blocking public and private access.
- 5) Access to bus stops to be maintained where possible. If not possible, the client is to consult and gain written approval from Buses.
- 6) 700mm traffic cones will be positioned at a maximum 4m apart. (TCAWS V6.1 Clause 6.2.5)
- 7) At the start of a roadwork speed zone the Roadwork Speed Limit (see Rd 212) signs shall be erected on both sides of the carriageway. (TCAWS Ver.5, 8.2.5)
- 8) Wherever traffic is required to slow significantly or stop, particularly at active traffic control positions, long queues can form, depending on traffic volumes and the length of delay. Depending on the speed of traffic and sight distance to the end of queue, additional advance warning or other mitigation measures should be implemented. (TCAWS Ver.6.1, 4.6.3)
- 9) Existing 3.0m lane width shall be maintained. A clearance area between the edge of traffic lane and delineation SHALL be provided. Measurements for this clearance are outlined under AGTTM03 CL 2.5.8 Table 2.5.
- 10) Pedestrians to be escorted through the work area when safe, as required.
- 11) 10 - Workers to remain greater than 1.5m at all times.
- 12) Existing or Conflicting signage SHALL be covered or removed when this TGS is operational. (TCAWS Ver.6.1, 4.5.5 Table 4-9)

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.

Site Specific Desktop Risk Assessment to develop Site Specific TGS

Location Of Works:

QUEEN ST, ST MARYS

Description Of Works:

INTERMITTENT STOP ALLOW SEMI MOVEMENTS

Designer & PCB undertaking RA: Ashley Kelly

PWZTMP Qual #: TCT0006840
Signature: 
Date: 10th JULY 2016

#	TASK	HAZARD	RISK RATING	CONTROL MEASURES	RESIDUAL RISK RATING	STAFF RESPONSIBLE FOR CONTROL MEASURES
1	Implementation of approved traffic devices	Struck by vehicle Manual Handling Slips, Trips & Falls Cuts & Abrasions	4B	- Follow safe work methods outlined in SWMS - Set up off drop deck, use cover vehicle & or TMA at all times - Clear communication with spotter/driver with potential oncoming motorists - Must use fall restraint when on drop deck	3C	All Site Staff
2	Working on foot implementing delineation as per TGS	Struck by vehicle Manual Handling Slips, Trips & Falls Cuts & Abrasions	4B	- Follow safe work methods outlined in SWMS - Set up off drop deck, use cover vehicle & or TMA at all times - Clear communication with spotter/driver with potential oncoming motorists	3C	All Site Staff
3	Stopping traffic at stoppage or cross over point	Struck by vehicle Slips, Trips & Falls	4C	- Only stop traffic with approved PCTD - Select safe stopping distance - Ensure correct amount of TC's are onsite to safely & effectively manage traffic flow as per TGS - TC'S MUST HAVE ESCAPE ROUTE	3D	All Site Staff
4	Dealing with irate MOP / Motorist	Struck by vehicle Verbal, Physical, Mental Abuse	3C	- Do not engage with irate MOP/ Motorist - Report incident to TL immediately - Deescalate the situation by continuing with your duties, until TL or representative is available to handle the situation - TC'S MUST HAVE ESCAPE ROUTE	3D	All Site Staff
5	Pedestrian interaction with work zones / exclusion zones	Struck by vehicle Verbal, Physical, Mental Abuse Slips, Trips & Falls	4B	- Where practical use physical barrier or delineation to guide MOP / WOF safely around exclusion zone - Ensure the correct amount of TC's are onsite to effectively manage the work site	3C	All Site Staff
6	Performing Dynamic Works (Mobile Works) including set up & Pack down	Vehicle collision Vehicle Interaction with WOF / MOP	4C	- Abide by safe distances outlined in TCAWS V 6.1 between vehicles - Use Cover/all/shadow vehicle & Or TMA where possible - Avoid WOF if possible - Follow Safe Work Methods outlined in SWMS	4D	All Site Staff

1. RISK RATING TABLE (USE FOR INITIAL AND RESIDUAL RISK ASSESSMENTS).

		CONSEQUENCE				
		1. Insignificant	2. Minor	3. Major	4. Severe	5. Catastrophic
DAMAGE	A. Almost Certain	Medium (1A)	High (2A)	Extreme (3A)	Extreme (4A)	Extreme (5A)
	B. Likely	Medium (1B)	High (2B)	High (3B)	Extreme (4B)	Extreme (5B)
	C. Possible	Low (1C)	Medium (2C)	High (3C)	High (4C)	Extreme (5C)
	D. Unlikely	Low (1D)	Low (2D)	Medium (3D)	High (4D)	Extreme (5D)
	E. Rare	Low (1E)	Low (2E)	Low (3E)	Medium (4E)	High (5E)

4 Extreme	URGENT - Stop work immediately, the risk requires immediate attention
3 High	Continue with supervision and control measures in SWMS or site risk assessment
2 Medium	Use control measures to ensure risk is low as reasonably possible
1 Low	Manage by routine procedures and safe practices

Traffic Guidance Scheme installation:

Date: / / 20

TGS Modification Notes:**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

SCALE:	PROJECT:	TGS DRAWN & SIGNED BY:	CLIENT:
1:750	QUEEN ST, ST MARYS CITY OF PENRITH	ASHLEY KELLY 	CASE CIVIL AND STRUCTURE ENGINEERING
DATE OF DESIGN 23/05/2022	TITLE:	TICKET NUMBER & DATE OF ISSUE:	 Call Altus Traffic Toll Free (Australia) 1300 TRAFFIC (872 334) ABN 84 102 768 061  
DATE OF APPROVAL: 23/05/2022	TRAFFIC GUIDANCE SCHEME 3-WAY INTERMITTENT STOPPAGES	TGS APPROVED & SIGNED BY:	
DRAWING NUMBER: TGS-CASE-QUEEN ST, ST MARYS-001	MASON BURGESS 	TICKET NUMBER & EXPIRY:	
SHEET NO: 2 Of 3	0052225722 12th Nov. 2022		

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 2024.
- 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 AGTSM 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 (system)

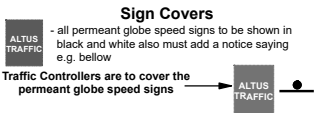


Figure 6-2: Clearance measurement from delineating device (barrier)

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 greater than 75	9 12
Lateral shift tapers	55 to 75 greater than 75	12 18
Protecting freshly painted lines	55 to 75 greater than 75	24 60*
All other purposes	less than 55 55 to 75 greater than 75	4 12 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
		45 or less	15	15	15
Speed of Traffic km/h	Dimension m	46 - 55	15	15	30
55 or less	15	56 - 65	30	30	60
56 to 65	45	66 - 75	N/A	70	115
Greater than 65	speed of traffic, in Km/h	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'.

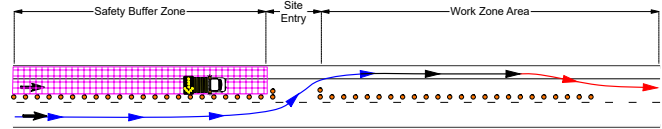
Table 6-3: Sign spacing requirements

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

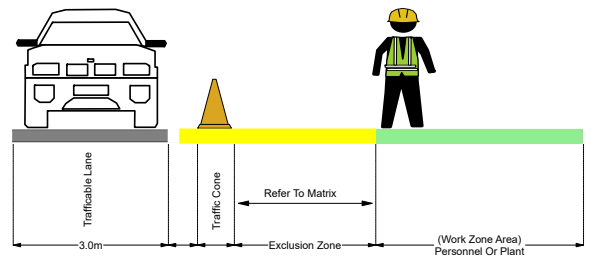
Signature: _____

Date: / / 20

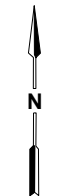
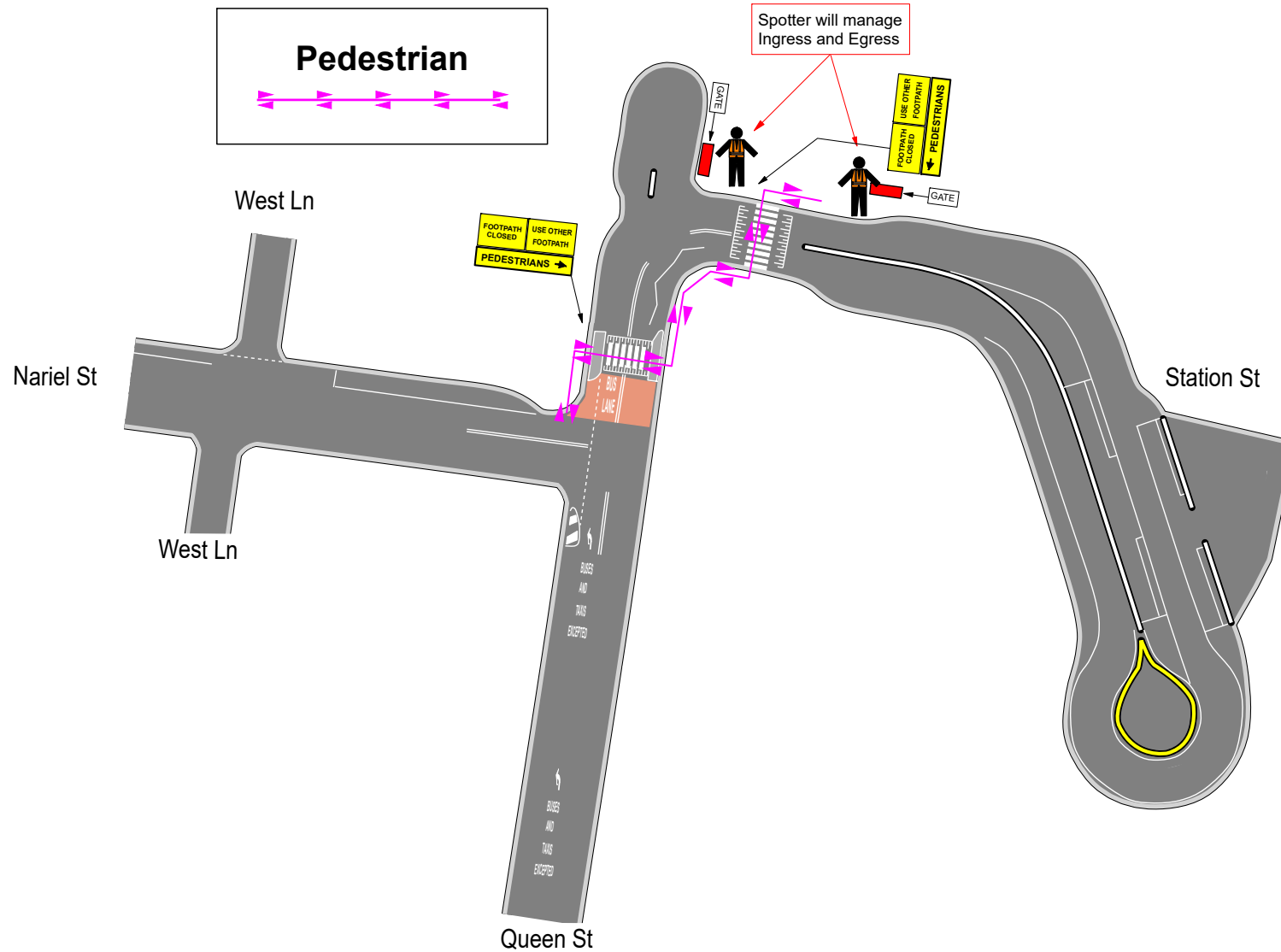
Site Inspection Date
Prior to Implementation: / / 20

TGS Modification Notes:

CROSS SECTION DIAGRAM



					CLIENT: CASE TOMORROW	TCP DRAWN BY: ASHLEY KELLY	TCP APPROVED BY: Syed Hamdan	SCALE: 1:750	PROJECT: ST MARYS STATION, ST MARYS CITY OF PENRITH	 Call Altus Traffic Toll Free (Australia) 1300 TRAFFIC (872 334) ABN 84 102 768 061	
						TRAFFIC CONTROL WORK NUMBER: TCT0006840	LEVEL 3 TICKET NUMBER (NSW): 0052008983	DATE OF DESIGN: 26-APR-2022	TIME OF DESIGN: 15:00		TITLE: TRAFFIC GUIDANCE SCHEME SITE COMPOUND
						SIGNATURE:	SIGNATURE:	DATE OF APPROVAL: 26-APR-2022			
						DATE OF ISSUE: 10th JULY 2016	LEVEL 3 EXP DATE: 10th May 2022	TGS NUMBER: TGS-CASE-ST_MARYS_STATION-000			
ISSUE	DESG	APPD	DATE	AMENDMENT DESCRIPTION				SHEET NO: 1 OF 2	ISSUE: 00		



MAP REF

LEGEND:

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

					CLIENT: CASE TRANSPORT FOR TOMORROW	TCP DRAWN BY: ASHLEY KELLY	TCP APPROVED BY: Syed Hamdan	SCALE: 1:750	PROJECT: ST MARYS STATION, ST MARYS CITY OF PENRITH	 Call Altus Traffic Toll Free (Australia) 1300 TRAFFIC (872 334) ABN 84 102 768 061 	
						TRAFFIC CONTROL WORK NUMBER: TCT0006840	LEVEL 3 TICKET NUMBER (NSW): 0052008983	DATE OF DESIGN: 26-APR-2022	TIME OF DESIGN: 15:00		
						SIGNATURE:	SIGNATURE:	DATE OF APPROVAL: 26-APR-2022			
						DATE OF ISSUE: 10th JULY 2016	LEVEL 3 EXP DATE: 10th May 2022	TGS NUMBER: TGS-CASE-ST_MARYS_STATION-000			
ISSUE	DESIG	APPD	DATE	AMENDMENT DESCRIPTION				SHEET NO: 2 OF 2	ISSUE: 00	TITLE: TRAFFIC GUIDANCE SCHEME SITE COMPOUND	

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 2024.
- 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 AGTSM 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 (system)

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

ALTUS TRAFFIC



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

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 greater than 75	9 12
Lateral shift tapers	55 to 75 greater than 75	12 18
Protecting freshly painted lines	55 to 75 greater than 75	24 60*
All other purposes	less than 55 55 to 75 greater than 75	4 12 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'.

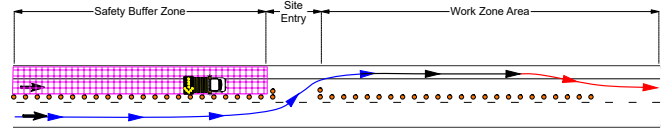
Table 6-3: Sign spacing requirements

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: _____

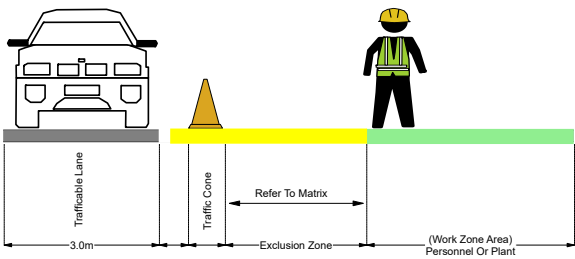
Date: / / 20

Site Inspection Date

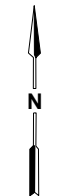
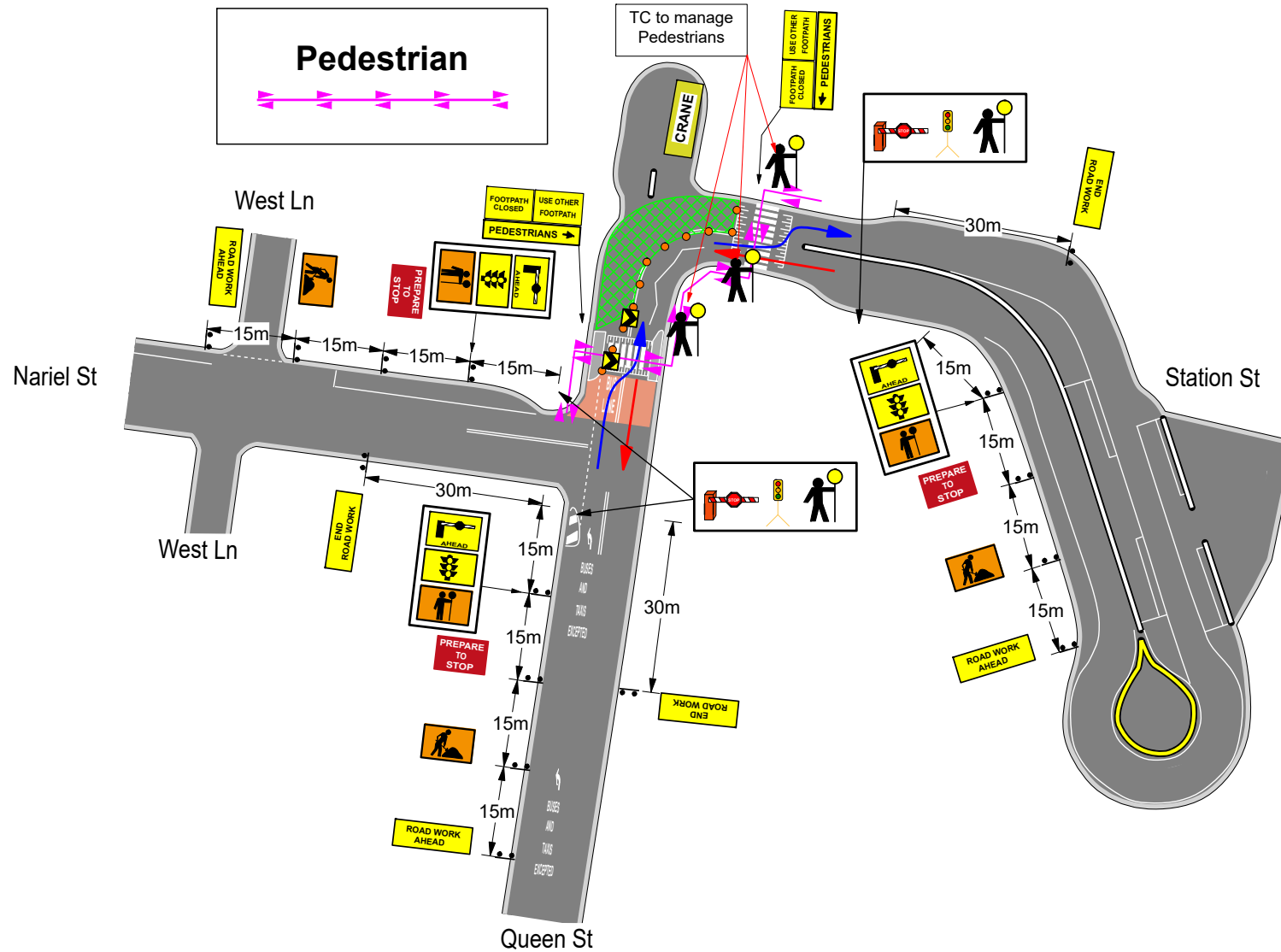
Prior to Implementation: / / 20

TGS Modification Notes:

CROSS SECTION DIAGRAM



					CLIENT: CASE TOMORROW	TCP DRAWN BY: ASHLEY KELLY	TCP APPROVED BY: Syed Hamdan	SCALE: 1:750	PROJECT: ST MARYS STATION, ST MARYS CITY OF PENRITH	 Call Altus Traffic Toll Free (Australia) 1300 TRAFFIC (872 334) ABN 84 102 768 061 	
						TRAFFIC CONTROL WORK NUMBER: TCT0006840	LEVEL 3 TICKET NUMBER (NSW): 0052008983	DATE OF DESIGN: 26-APR-2022	TIME OF DESIGN: 15:00		TITLE: TRAFFIC GUIDANCE SCHEME STOP SLOW
						SIGNATURE:	SIGNATURE:	DATE OF APPROVAL: 26-APR-2022			
						DATE OF ISSUE: 10th JULY 2016	LEVEL 3 EXP DATE: 10th May 2022	TGS NUMBER: TGS-CASE-ST_MARYS_STATION-001			
ISSUE	DESG	APPD	DATE	AMENDMENT DESCRIPTION				SHEET NO: 1 OF 2	ISSUE: 00		



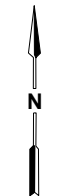
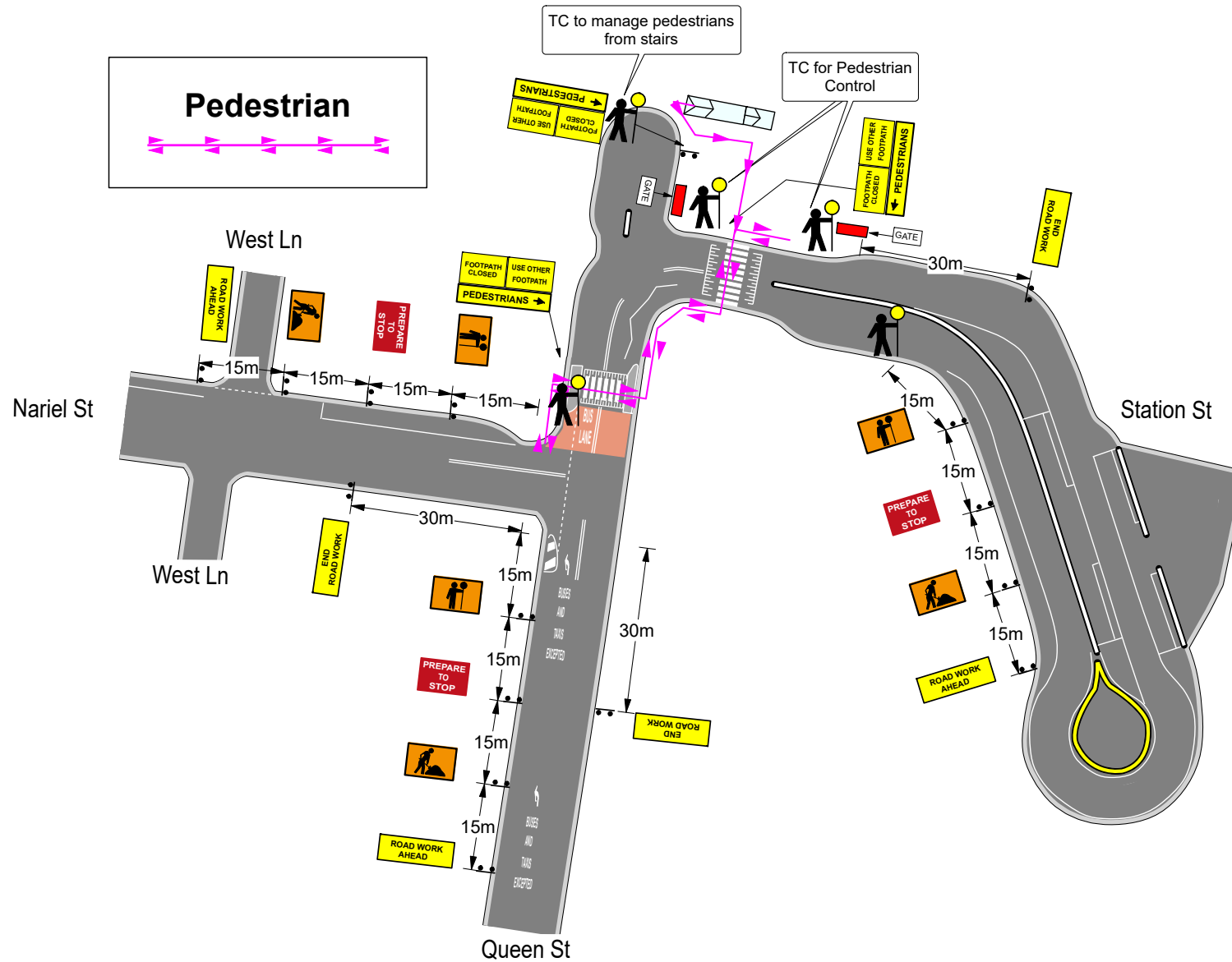
MAP REF

LEGEND:

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

						CLIENT: CASE TRANSPORT FOR TOMORROW	TCP DRAWN BY: ASHLEY KELLY	TCP APPROVED BY: Syed Hamdan	SCALE: 1:750	PROJECT: ST MARYS STATION, ST MARYS CITY OF PENRITH	 Call Altus Traffic Toll Free (Australia) 1300 TRAFFIC (872 334) ABN 84 102 768 061 SCI QUAL THE QUALITY CONNECTION		
						 Civil and Structural Engineering Transport for TOMORROW	TRAFFIC CONTROL WORK NUMBER: TCT0006840	LEVEL 3 TICKET NUMBER (NSW): 0052008983	DATE OF DESIGN: 26-APR-2022 TIME OF DESIGN: 15:00	DATE OF APPROVAL: 26-APR-2022		TITLE: TRAFFIC GUIDANCE SCHEME STOP SLOW	
							SIGNATURE:	SIGNATURE:	TGS NUMBER: TGS-CASE-ST_MARYS_STATION-001				
							DATE OF ISSUE: 10th JULY 2016	LEVEL 3 EXP DATE: 10th May 2022	SHEET NO: 2 OF 2	ISSUE: 00			
ISSUE	DESG	APPD	DATE	AMENDMENT DESCRIPTION									

The diagram shows a cross-section of a road layout for a work zone. On the left, a car is in a 'Trafficable Lane' which is 3.0m wide. To the right of the lane is a 'Traffic Cone'. Further right is the 'Exclusion Zone', indicated by a double-headed arrow and the text 'Refer To Matrix'. To the right of the exclusion zone is the 'Work Zone Area' (Personnel Or Plant), where a worker is standing. The work zone area is shaded green, the exclusion zone is yellow, and the trafficable lane is grey.



MAP REF

LEGEND:

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

						CLIENT: CASE TRANSPORT FOR TOMORROW	TCP DRAWN BY: ASHLEY KELLY	TCP APPROVED BY: Syed Hamdan	SCALE: 1:750	PROJECT: ST MARYS STATION, ST MARYS CITY OF PENRITH	 Call Altus Traffic Toll Free (Australia) 1300 TRAFFIC (872 334) ABN 84 102 768 061 	
						 Civil and Structural Engineering	TRAFFIC CONTROL WORK NUMBER: TCT0006840	LEVEL 3 TICKET NUMBER (NSW): 0052008983	DATE OF DESIGN: 26-APR-2022 TIME OF DESIGN: 15:00	DATE OF APPROVAL: 26-APR-2022		TITLE: TRAFFIC GUIDANCE SCHEME INTERMITTENT STOPPAGES
						 Transport for TOMORROW	SIGNATURE:	SIGNATURE:	TGS NUMBER: TGS-CASE-ST_MARYS_STATION-002			
							DATE OF ISSUE: 10th JULY 2016	LEVEL 3 EXP DATE: 10th May 2022	SHEET NO: 2 OF 2	ISSUE: 00		
ISSUE	DESIG	APPD	DATE		AMENDMENT DESCRIPTION							

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 2024.
- 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 AGTSM 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.

Edge of traffic lane to:	Edge clearances
Road safety barrier system	• 0.3 m for traffic speeds less than 40 km/h • 0.8 m for traffic speeds 40 to 65 km/h • 1.0 m for traffic speeds 65 to 85 km/h • 2.0 m for traffic speeds greater than 85 km/h

Figure 6-1: 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



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

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 greater than 75	9 12
Lateral shift tapers	55 to 75 greater than 75	12 18
Protecting freshly painted lines	55 to 75 greater than 75	24 60*
All other purposes	less than 55 55 to 75 greater than 75	4 12 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
		45 or less	15	15	15
Speed of Traffic km/h	Dimension m	46 - 55	15	15	30
55 or less	15	56 - 65	30	30	60
56 to 65	45	66 - 75	N/A	70	115
Greater than 65	speed of traffic, in Km/h	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'.

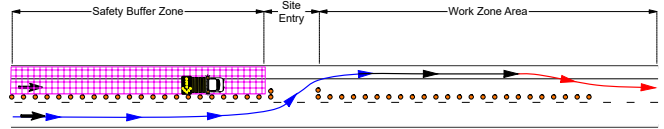
Table 6-3: Sign spacing requirements

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

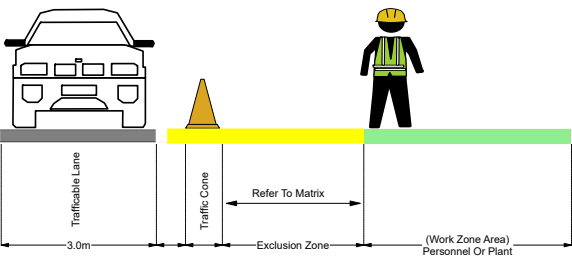
Signature: _____

Date: / / 20

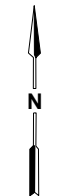
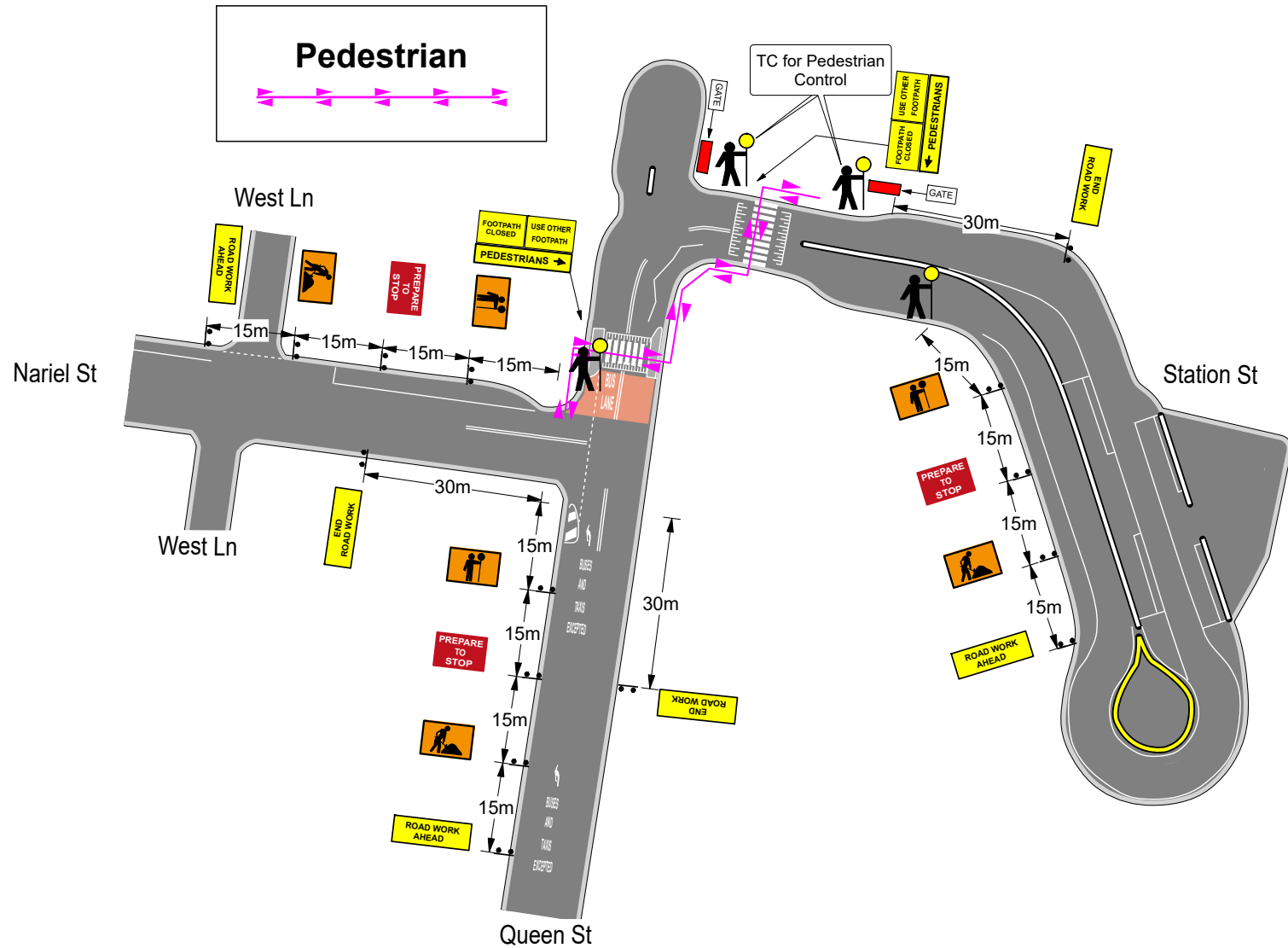
Site Inspection Date
Prior to Implementation: / / 20

TGS Modification Notes:

CROSS SECTION DIAGRAM



					CLIENT: CASE TOMORROW	TCP DRAWN BY: ASHLEY KELLY	TCP APPROVED BY: Syed Hamdan	SCALE: 1:750	PROJECT: ST MARYS STATION, ST MARYS CITY OF PENRITH	 Call Altus Traffic Toll Free (Australia) 1300 TRAFFIC (872 334) ABN 84 102 768 061	
						TRAFFIC CONTROL WORK NUMBER: TCT0006840	LEVEL 3 TICKET NUMBER (NSW): 0052008983	DATE OF DESIGN: 26-APR-2022	TIME OF DESIGN: 15:00		TITLE: TRAFFIC GUIDANCE SCHEME INTERMITTENT STOPPAGES
						SIGNATURE:	SIGNATURE:	DATE OF APPROVAL: 26-APR-2022			
						DATE OF ISSUE: 10th JULY 2016	LEVEL 3 EXP DATE: 10th May 2022	TGS NUMBER: TGS-CASE-ST_MARYS_STATION-002			
ISSUE	DESG	APPD	DATE	AMENDMENT DESCRIPTION				SHEET NO: 1 OF 2	ISSUE: 00		



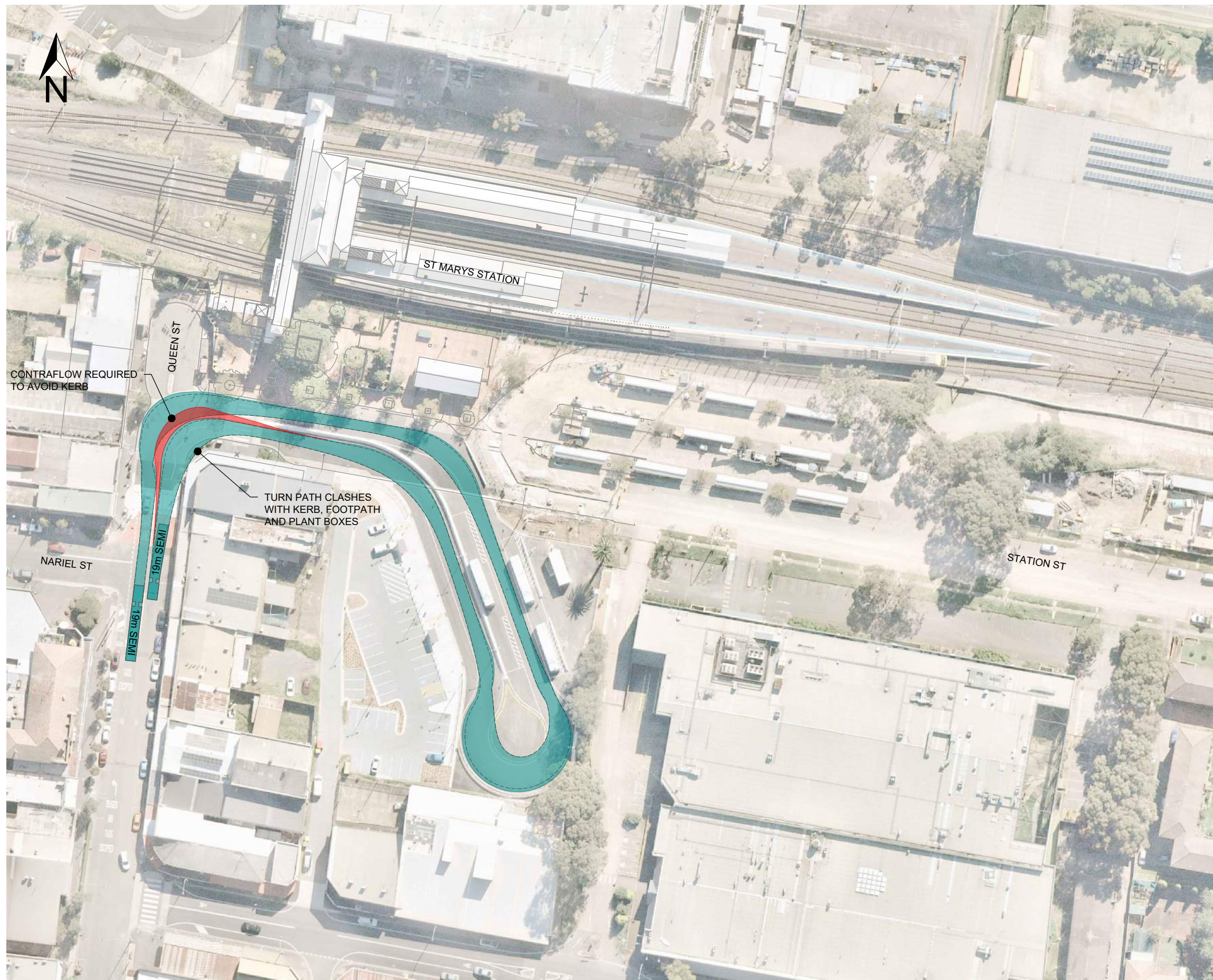
MAP REF

LEGEND:

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

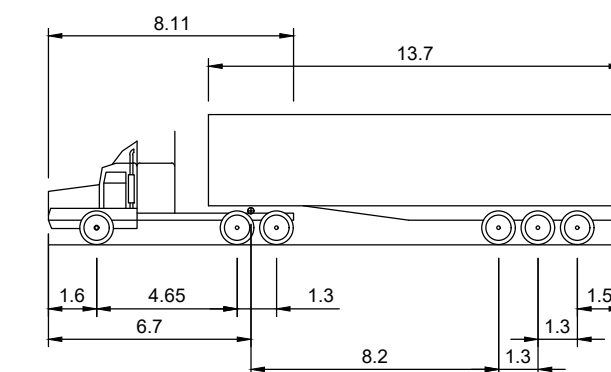
					CLIENT: CASE TRANSPORT FOR TOMORROW	TCP DRAWN BY: ASHLEY KELLY	TCP APPROVED BY: Syed Hamdan	SCALE: 1:750	PROJECT: ST MARYS STATION, ST MARYS CITY OF PENRITH	 Call Altus Traffic Toll Free (Australia) 1300 TRAFFIC (872 334) ABN 84 102 768 061 	
						TRAFFIC CONTROL WORK NUMBER: TCT0006840	LEVEL 3 TICKET NUMBER (NSW): 0052008983	DATE OF DESIGN: 26-APR-2022	TIME OF DESIGN: 15:00		
					SIGNATURE:	DATE OF ISSUE: 10th JULY 2016	SIGNATURE:	DATE OF APPROVAL: 26-APR-2022			
							LEVEL 3 EXP DATE: 10th May 2022	TGS NUMBER: TGS-CASE-ST_MARYS_STATION-002			
ISSUE	DESIG	APPD	DATE	AMENDMENT DESCRIPTION				SHEET NO: 2 OF 2	ISSUE: 00	TITLE: TRAFFIC GUIDANCE SCHEME INTERMITTENT STOPPAGES	

Annexure E Swept Paths

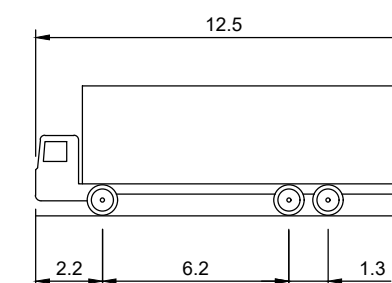


LEGEND

- 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

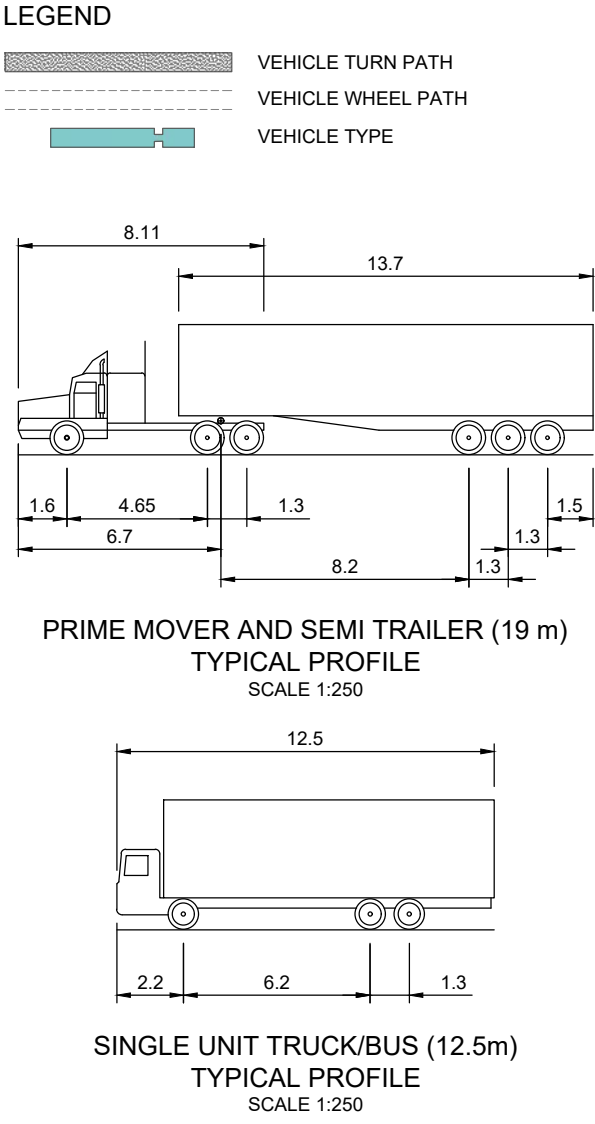
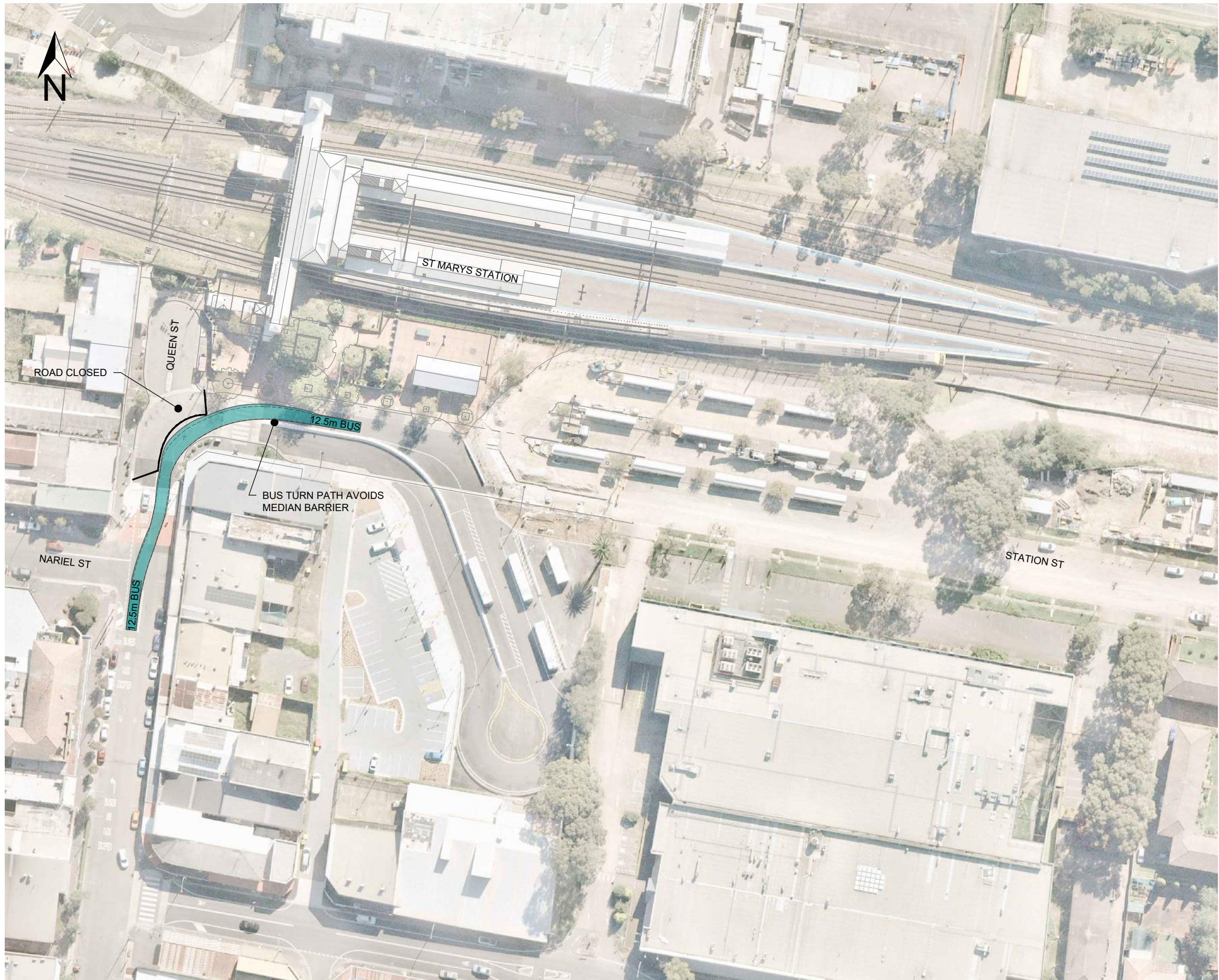
NOT FOR CONSTRUCTION

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

INFORMATION DOCUMENT

D0081-DRG-CS-01-1104_[ID]

SCALE 5 0 5 10 15 20 25 1:1000

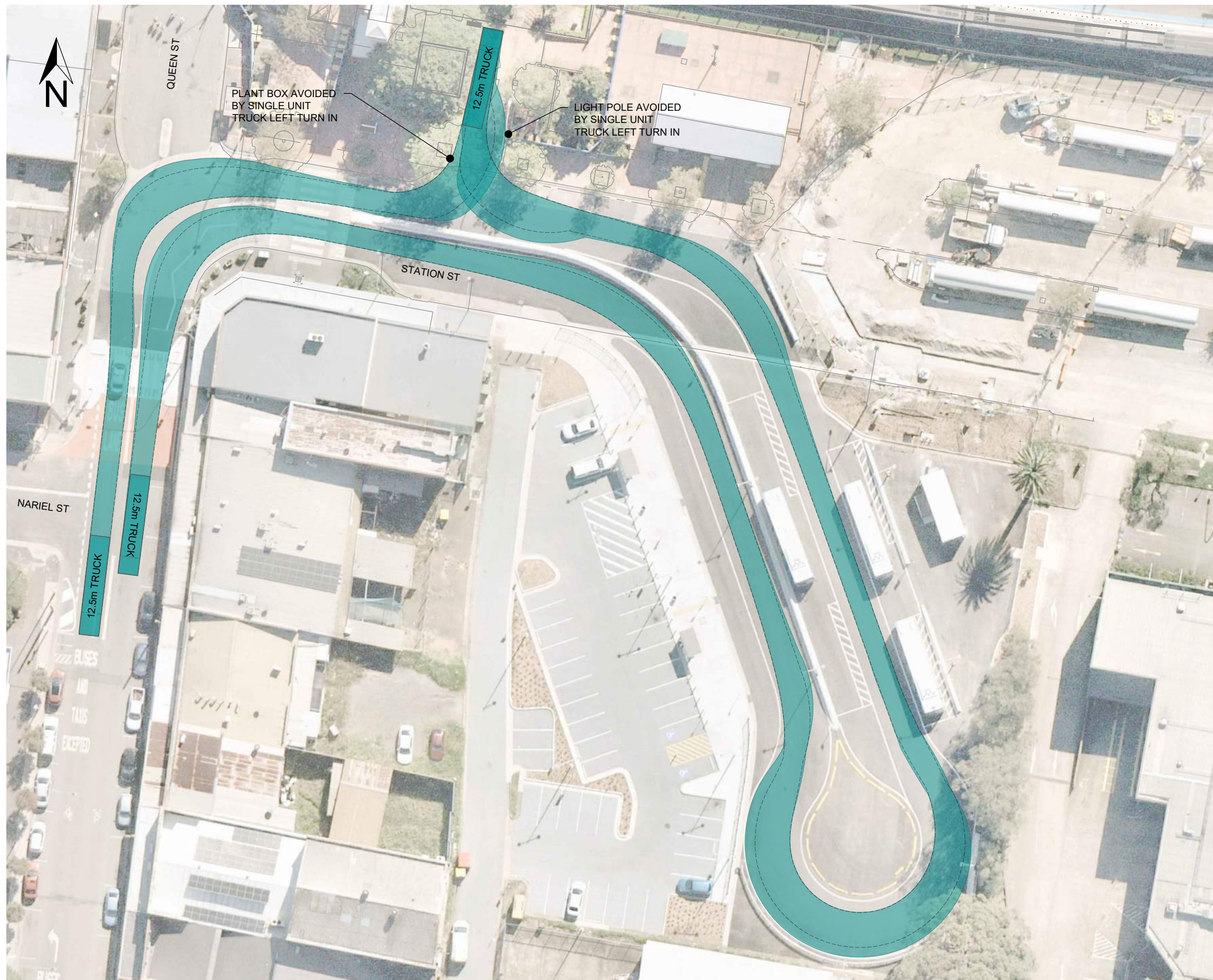


NOT FOR CONSTRUCTION

SCALE 5 0 5 10 15 20 25 1:1000

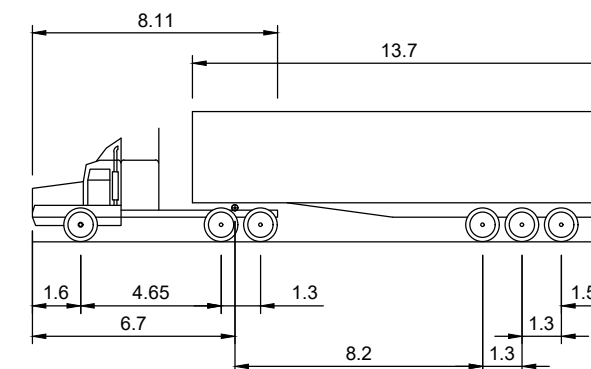
**ST MARY'S STATION
ROAD CLOSED, BUS ENTRY
TURN PATH PLAN**

INFORMATION DOCUMENT
D0081-DRG-CS-01-1105_ID]

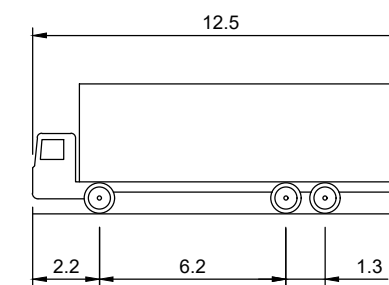


LEGEND

- VEHICLE TURN PATH
- VEHICLE WHEEL PATH
- VEHICLE TYPE



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



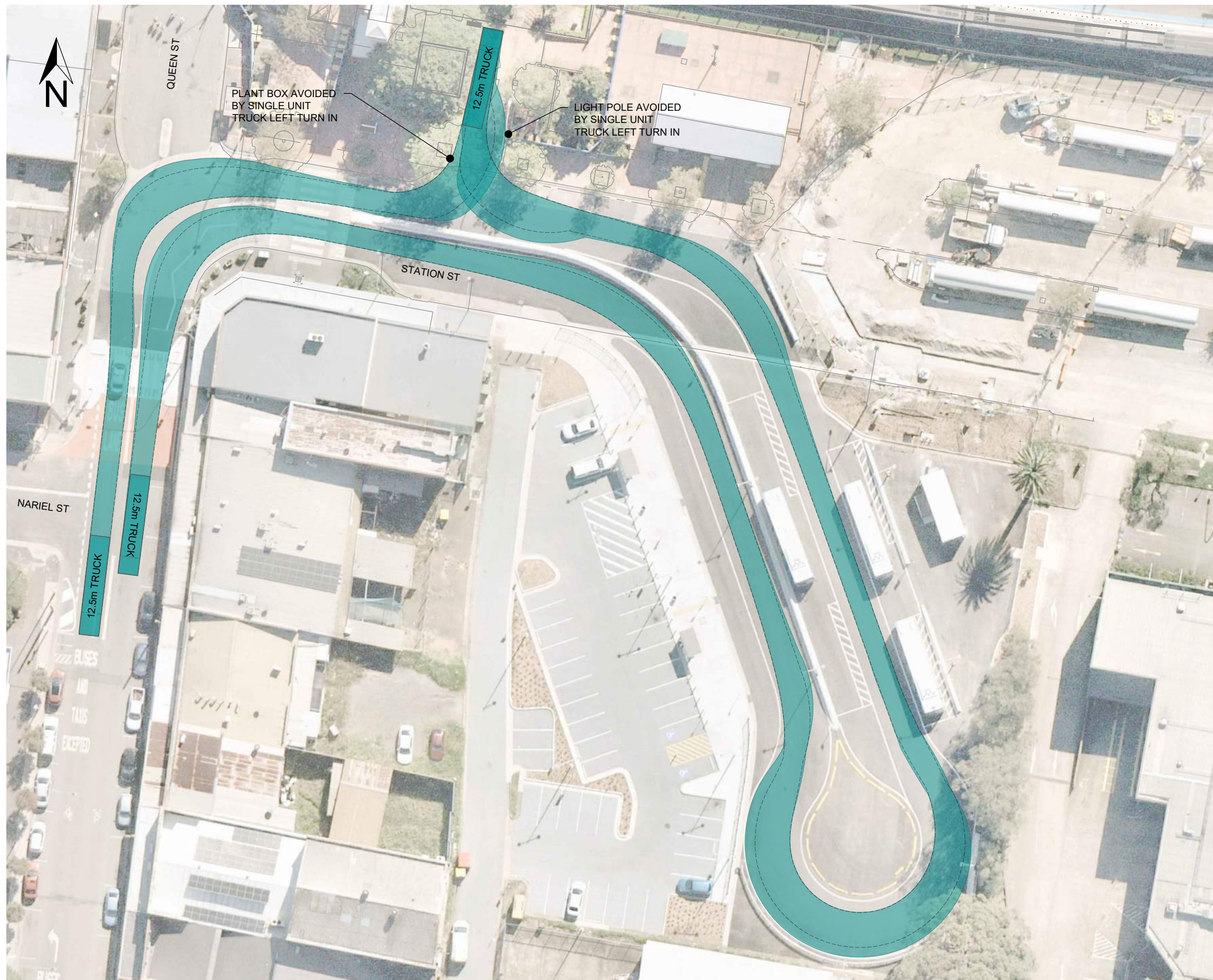
SINGLE UNIT TRUCK/BUS (12.5m)
TYPICAL PROFILE
SCALE 1:250

NOT FOR CONSTRUCTION

SCALE 1:500

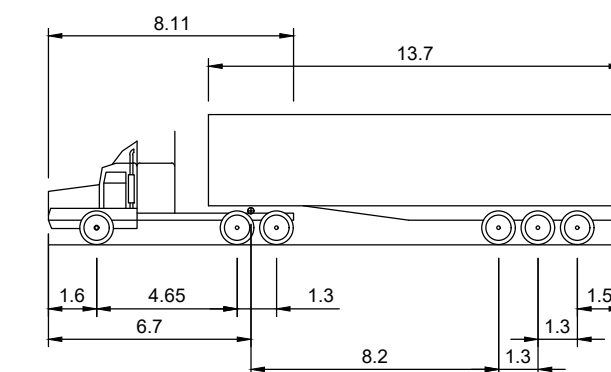
ST MARY'S STATION (TEMPORARY LAYOUT)
SINGLE UNIT TRUCK ENTRY (LEFT IN / LEFT OUT)
TURN PATH PLAN

INFORMATION DOCUMENT
D0081-DRG-CS-01-1106 [ID]

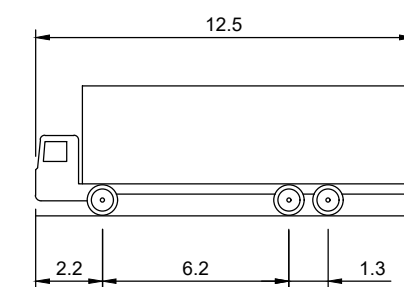


LEGEND

- 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 (TEMPORARY LAYOUT) SINGLE UNIT TRUCK ENTRY (LEFT IN / LEFT OUT) TURN PATH PLAN

INFORMATION DOCUMENT

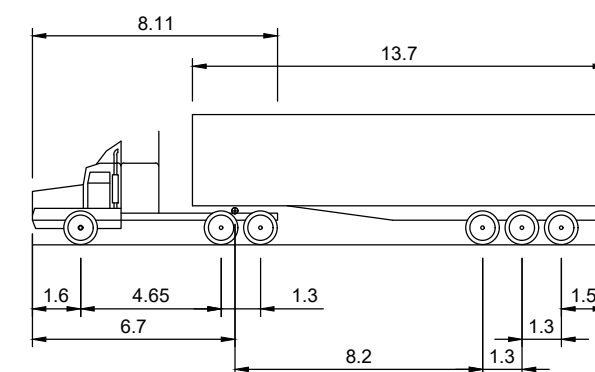
D0081-DRG-CS-01-1107_[ID]

SCALE 5 0 5 10 1:500

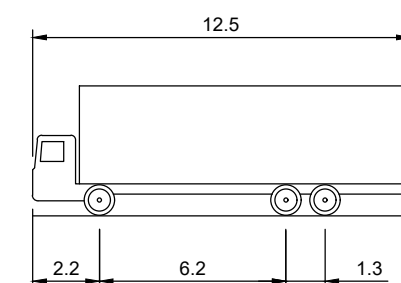


LEGEND

- 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

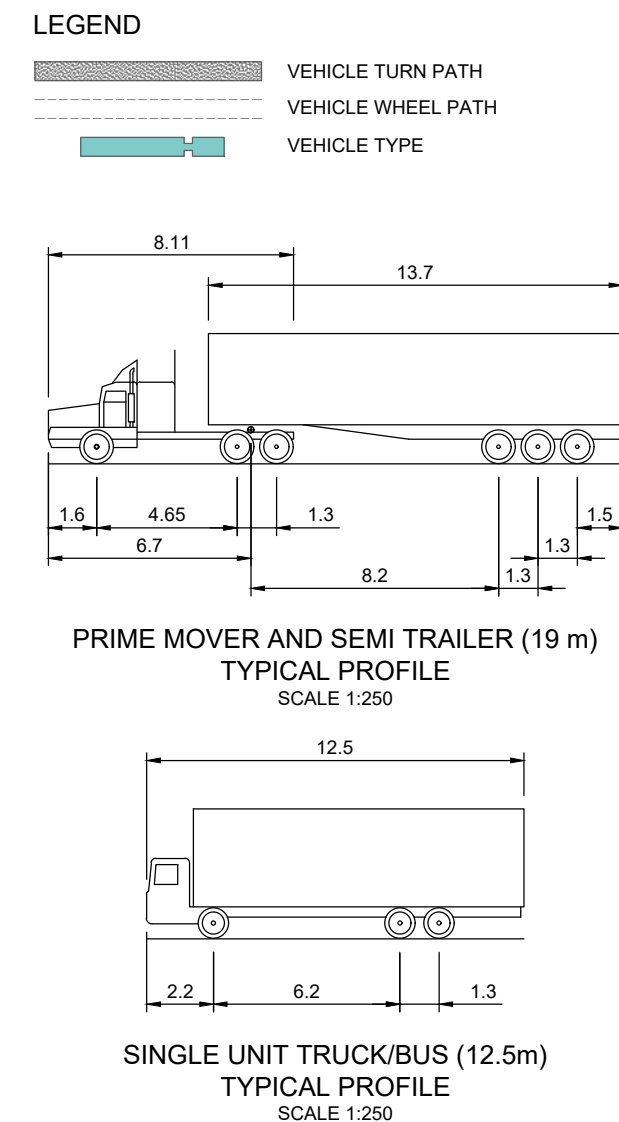
NOT FOR CONSTRUCTION

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]





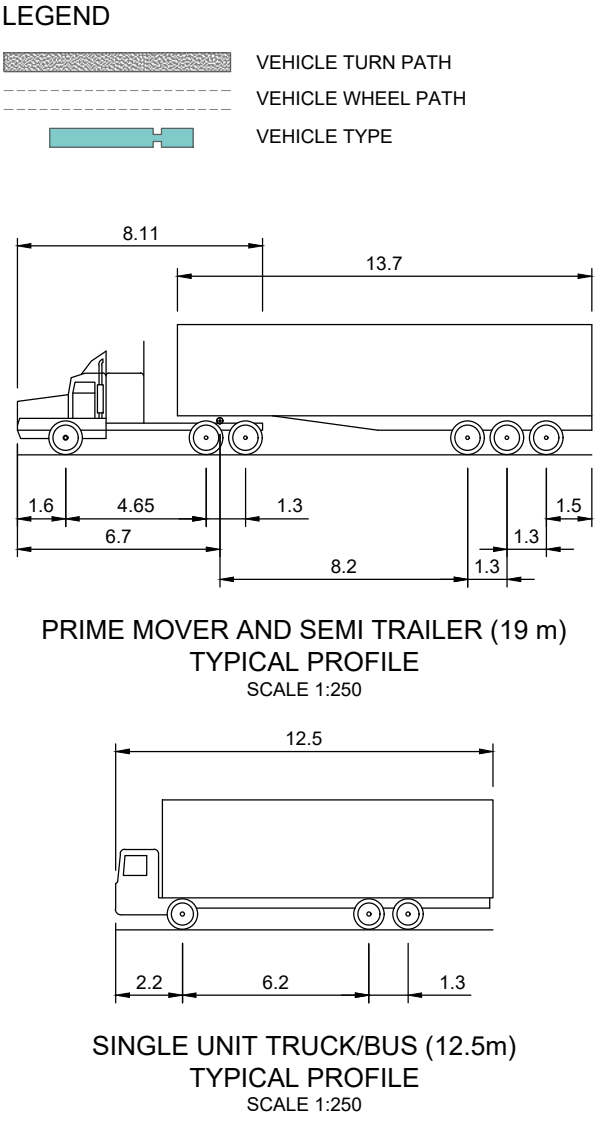
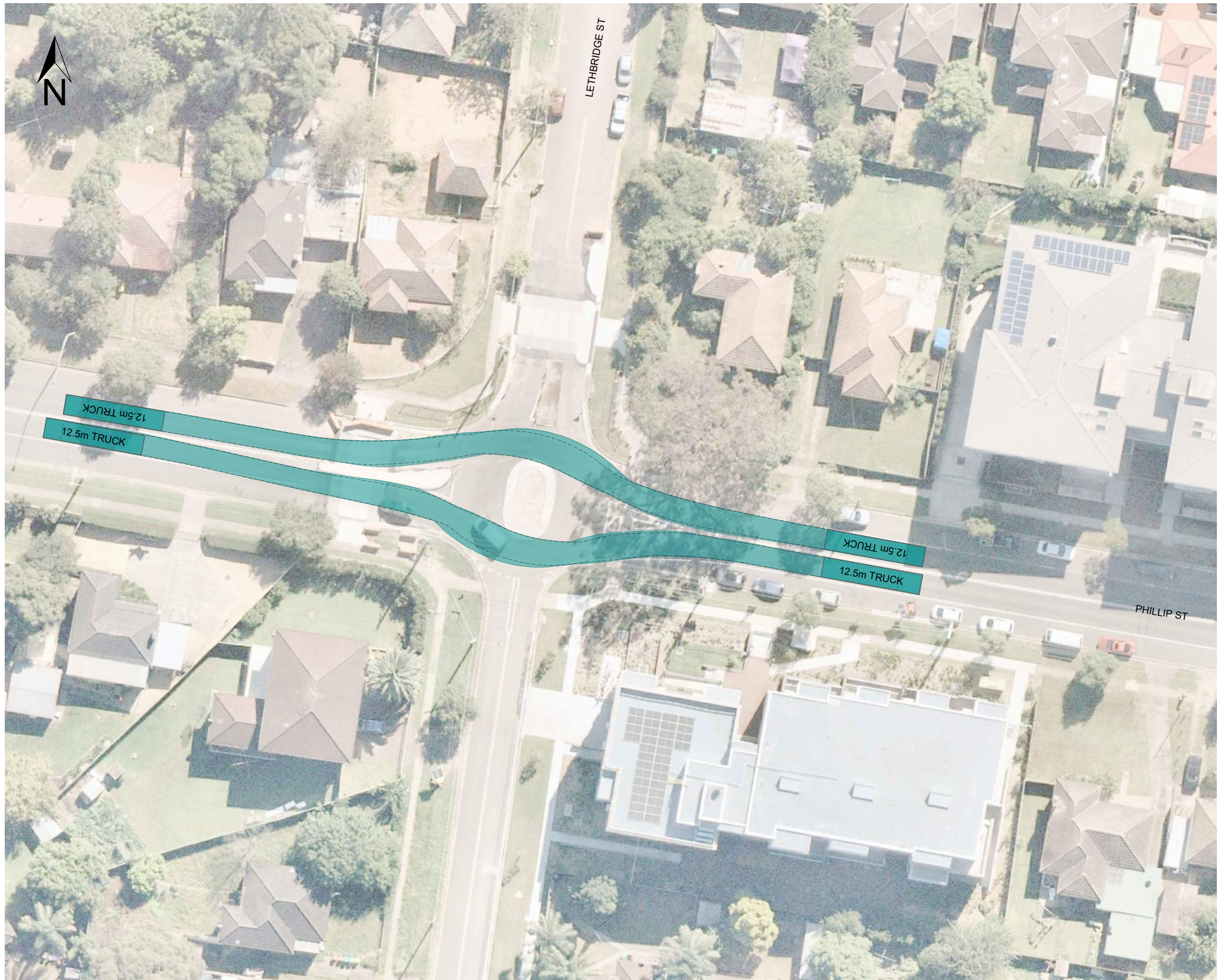
NOT FOR CONSTRUCTION

SCALE 5 0 5 10 1:500

QUEEN ST / PHILLIP ST
19m SEMI
TURN PATH PLAN

INFORMATION DOCUMENT
D0081-DRG-CS-01-1116 [ID]





NOT FOR CONSTRUCTION



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

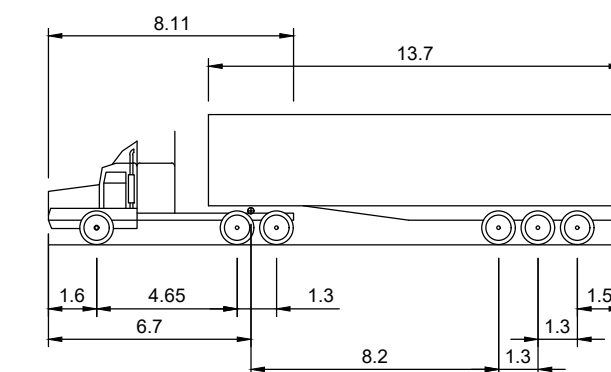
INFORMATION DOCUMENT
D0081-DRG-CS-01-1117_[ID]



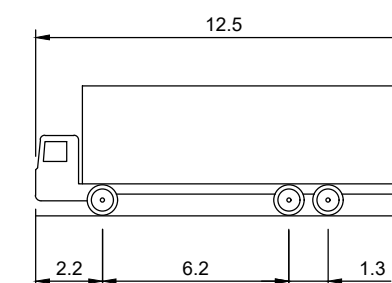


LEGEND

- 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

SCALE 5 0 5 10 1:500

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

INFORMATION DOCUMENT

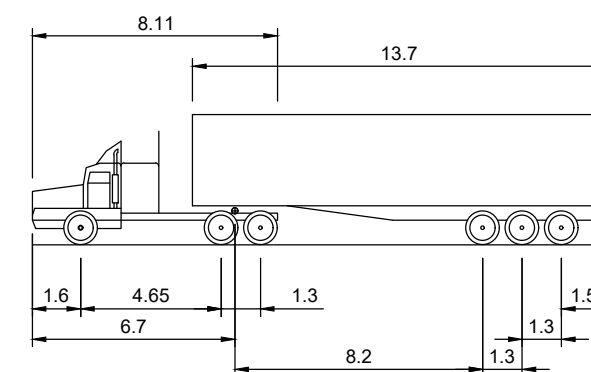
D0081-DRG-CS-01-1118 [ID]



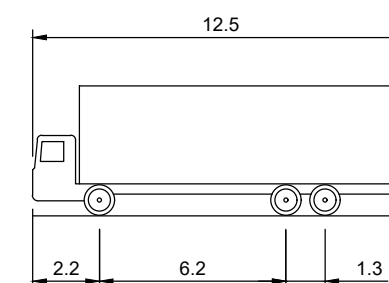


LEGEND

- 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

SCALE 5 0 5 10 1:500

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

INFORMATION DOCUMENT

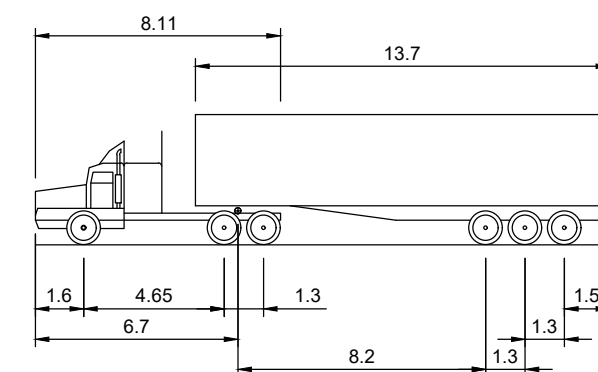
D0081-DRG-CS-01-1119_[ID]



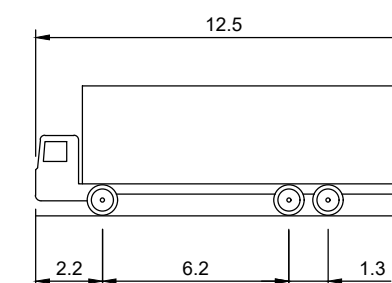


LEGEND

- 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

SCALE 5 0 5 10 1:500

PHILLIP ST / GLOSSOP ST
19m SEMI
TURN PATH PLAN

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

NSW GOVERNMENT Transport Roads & Maritime Services

Transport for TOMORROW

Annexure F Road Safety Audit



Sydney Metro West Sydney Airport Enabling Works – St Marys

Design CTMP Road Safety Audit Report

May 2022



Samsa Consulting Pty Ltd

Transport Planning & Traffic Engineering

ABN: 50 097 299 717

46 Riverside Drive, Sandringham, NSW 2219, AUSTRALIA

Phone: (+61) 414 971 956

E-mail: alansamsa@gmail.com

Skype: alan_samsa

Web: www.samsaconsulting.com

© Samsa Consulting Pty Ltd

This document is and shall remain the property of Samsa Consulting Pty Ltd. The document may only be used for the purposes for which it was commissioned and in accordance with the Terms of Engagement for the commission. Unauthorised use of this document in any form whatsoever is prohibited.

Contents

EXECUTIVE SUMMARY

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

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 TfT 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	- High-speed, multi-vehicle crash on a freeway - Car runs into crowded bus stop - Bus and petrol tanker collide - Collapse of a bridge or tunnel
Serious (S)	Likely death or serious injury	- High or medium-speed vehicle / vehicle collision - High or medium-speed collision with a fixed roadside object - Pedestrian struck at high speed - Cyclist is hit by a car
Minor (M)	Likely minor injury	- Some low-speed vehicle collisions - Cyclist falls from bicycle at low speed - Left-turn rear-end crash in a slip lane
Limited (L)	Likely trivial injury or property damage only	- Some low speed collisions - Pedestrian walks into object (no head injury) - Car reverses into post

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).

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

Figure 3.3: Risk Matrix

Risk	Suggested treatment approach
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

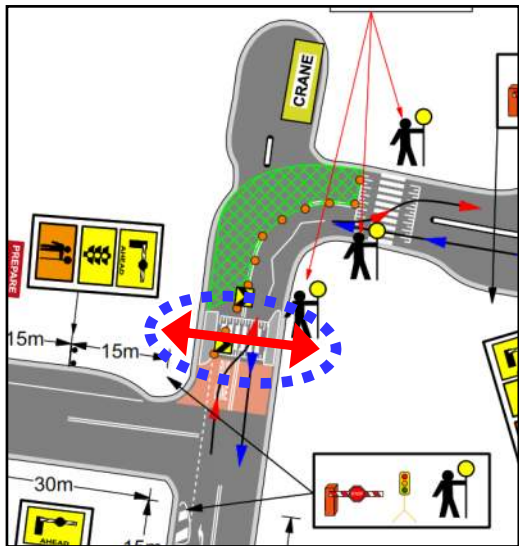
Figure 3.4: Treatment Approach

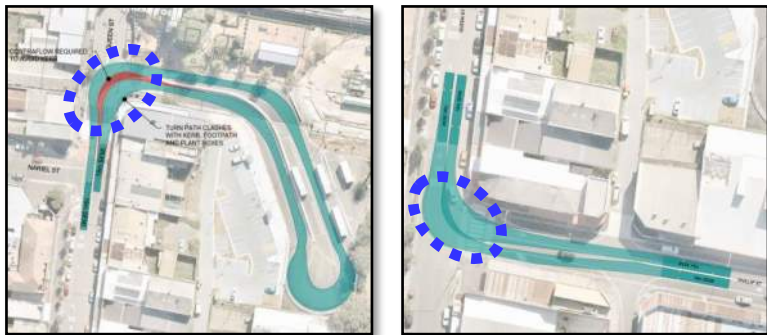
This report may provide recommendations about possible remedial measures in response to identified deficiencies. Any remedial actions recommended are based on current standards and practices. However, it should be noted that it is ultimately the responsibility of *CTS / Tft* to determine how to respond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

No.	Description of Road Safety Issue	Risk Rating	For completion by CTS / TfT		
			Response	Action by	Close-Out Date
1.	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. 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. 	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.	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. 	Low	Noted. TGS-CASE-QUEEN ST_PHILLIP ST_ST_MARYS-001 TGS-CASE-ST_MARYS_STATION-002 Cater for required movements.	TFT	23/05/2022
3.	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.	Low	Noted. Traffic Control checklists require such checks to be completed prior to and during works and as such will be monitored.	TFT Traffic Control	Ongoing
4.	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.	Note only	Noted. TGS-CASE-QUEEN ST_PHILLIP ST_ST_MARYS-001 Cater for required movements.	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.

 18 May 2022

ALAN SAMSA

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

 18 May 2022

CAROLYN SAMSA

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

Annexure G Consultation Register