

CONSTRUCTION TRAFFIC & TRANSPORT MANAGEMENT PLAN

Sydney Metro West – Western Tunnelling Package

Westmead Site Operations

January 2023 to December 2025

Document Reference #: **SMWSTWTP-GLO-WMD-TF-PLN-000002**

Current Revision: **E**

Issue Date: **6 September 2023**

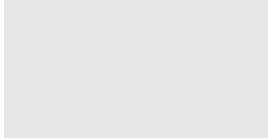
Document Details

Document Title	Westmead Site Operations
Project Name	Sydney Metro West – Western Tunnelling Package
Client	Sydney Metro
Document Reference No.	SMWSTWTP-GLO-WMD-TF-PLN-000002
Revision Date	6 September 2023

Revision History

Rev	Date	Comments
A	18 November 2022	Initial submission
B	9 January 2023	Updated from SM Comments – Refer to Appendix F for details
C	18 January 2023	Added Design Report RSA to Appendix E
D	7 August 2023	Updated completed with works. Added section 3.1.5 – Night Site Access Route Updated TCS designs with the latest design
E	6 September 2023	3.1.1 and 3.1.2 updated as works are now completed. Updated Design Drawings to remove Chevron. Added Speed reduction to TGS 37, 38, 40 & 41

Document Authorisation

Action Type	Position	Name	Signature	Date Signed
Prepared by	Traffic Manager			6 Sept 23
Reviewed by	Project Manager			6 Sept 23
<p>I hereby confirm this activity and all associated work, have been appropriately planned and the relevant resources are available to conduct the work in accordance with the agreed method.</p> <p>I hereby approve this activity to commence, as the stated controls applications are the most appropriate and are in accordance with the Risk Matrix.</p>				
Approved by	Deputy Project Director			6 Sept 23

NOTES:

Once all signatures have been obtained, the Document Author is responsible for ensuring the signed and approved hard and soft copies are uploaded on to the project share drive or passed to the Responsible Person for filing.

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1 INTRODUCTION

Sydney Metro is Australia's biggest public transport project, with the vision "to transform Sydney with a world-class metro." In 2024, Sydney will have 31 metro stations and more than 66 kilometres of new metro rail, revolutionising the way Australia's biggest city travels. By the end of the decade, the network will be expanded to include 46 stations and more than 113 kilometres of world-class metro for Sydney.

Sydney Metro West is a new 24-kilometre metro line with stations confirmed at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays, Pyrmont and Hunter Street in the Sydney CBD.

On completion in 2030, the Sydney Metro West project will support a growing city and deliver world-class metro services to more communities. This new underground railway will connect Greater Parramatta and the Sydney CBD.

This once-in-a-century infrastructure investment will transform Sydney for generations to come, doubling rail capacity between the two CBDs, linking new communities to rail services, and supporting employment growth and housing supply. The Sydney Metro West project is expected to create about 10,000 direct and 70,000 indirect jobs during construction.

The new 24-kilometre Sydney Metro West tunnel and excavation works for nine new stations will be delivered in three contracts—the Western Tunnelling Package (WTP), the Central Tunnelling Package (CTP) and the Eastern Tunnelling Package (ETP).

The Gamuda Australia and Laing O'Rourke Consortium (GLC) will deliver the Sydney Metro West (SMW) Western Tunnelling Package (WTP), which includes:

- Westmead Station box excavation, including temporary support, stub tunnels, partially mined station cavern and crossover cavern including permanent lining and support
- Parramatta Station, including excavation of station box and associated support
- Clyde Maintenance and Stabling Facility (MSF), including permanent dive structure, portal, spur running tunnels, spur tunnel junction cavern, bulk earthworks, civil structures, utilities corridor, road crossing and creek diversion
- Rosehill Services Facility, including shaft excavation, permanent lining and lateral support
- A precast segment manufacturing facility at Eastern Creek
- Demolition and site clearance works

Tunnelling between Sydney Olympic Park (SOP) and Westmead. Tunnelling will be undertaken by placing the tunnel boring machines (TBMs) at the Rosehill Services Facility box and retrieved out at the SOP Station Box and then placed back at the Rosehill Services Facility and retrieved at the Westmead Station Box. No surface works are proposed at SOP except for the retrieval of the TBM.

1.1 Purpose

This Westmead site specific Construction Traffic Management Plan (CTMP or this plan) has been developed by Gamuda Laing O'Rourke (GLC) to identify the traffic management measures at the Westmead worksite for site establishment associated with the Sydney Metro West Western Tunnelling Package (WTP Works).

This plan sets out the traffic management initiatives that will be deployed to minimise disruption and ensure the safety of the wide range of stakeholders potentially affected by the station box and tunnelling works including but not limited to motorists, pedestrians, cyclists, public transport users, local residents, property owners, business owners and workers/ staff.

1.2 Westmead Construction Traffic Management Plans

Plan #	Plan name	Description	Status
SMWSTWTP-GLO-1NL-NL000-TF-PLN-00001	Project Wide CTMP	Overarching Traffic Management Plan	Approved
SMWSTWTP-GLO-WMD-TF-PLN-00001	Westmead Site Establishment	For works to establish the Westmead site	Approved
SMWSTWTP-GLO-WMD-TF-PLN-00002	Westmead Site Operations	Local Area Works & Site Operating Conditions at Westmead	THIS PLAN

Plans have been prepared in accordance with SSI 10038 Planning Approval Condition D85 and will be submitted to the Planning Secretary of the NSW Department of Planning and Environment for information prior to the commencement of any construction in the area identified and managed within this CTMP

Table 1 - Westmead CTMP status

1.3 Objectives

GLC are committed to striving to achieve the objectives as outlined in the CTMF and the environmental performance outcomes, namely:

- Minimising disruption and eliminate, where possible, any safety risks to pedestrian, cyclists, motorists and public transport users and providers
- Ensuring construction traffic access to the arterial network as soon as practicable on route to and immediately after leaving the construction site
- Minimising change to traffic operations and kerbside access
- Minimising construction traffic generation during network peak periods, as outlined in the EIS
- Maintaining access to properties, businesses, and utility providers/ maintainers
- Remain incident and injury free to workers and members of the public
- Working collaboratively with other stakeholders and other major projects to mitigate traffic and transport impacts

2 LOCATION OF WORKS

The site is located south of the health precinct in Westmead and is bounded by Hawkesbury Road to the west, Bailey Street to the south, Hassall Street to the east and Alexandra Avenue to the north, as shown on Figure 2-1.

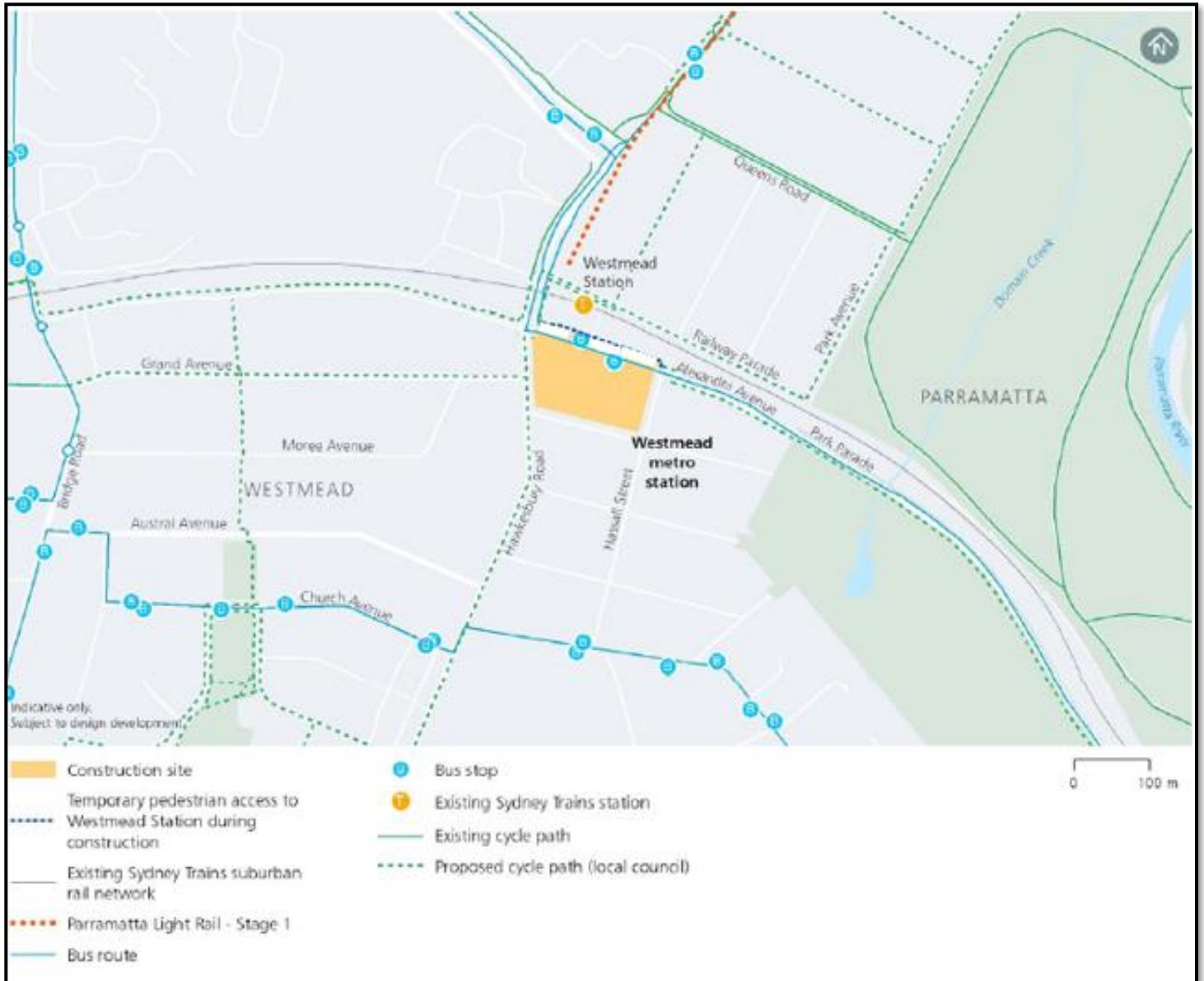


Figure 2-1: Site locality

3 SCOPE OF WORKS

Time: November 2022 through to December 2025

Duration: 38 months

The Local Area Works and Site Operations will consist of the following:

Task	Proposed Dates	Refer to
Removal of unused driveways on Hawkesbury Rd and Bailey St and reinstating the kerb	Completed	Section 3.1.1 & CTMP Rev D
Site Driveway Heavy Vehicle access and egress construction	Completed	Section 3.1.2 & CTMP Rev D
Changes at the intersection of Hawkesbury Rd and Priddle St	TBC – Waiting on TCS approval from TfNSW	Section 3.1.3
Implementing Traffic Signals at the intersection of Bailey St and Hassall St	Works to commence towards the end of 2023	Section 3.1.4
Extending pedestrian fencing at the intersection of Great Western Highway and Pitt St	Completed	CTMP Rev C
Night deliveries into and out of Hawkesbury Rd gate	From August 2023 to March 2025	Section 3.1.5
Site operating conditions (box excavation, tunnelling and demobilisation)	From November 2022 to December 2025	Section 3.2.1

Table 2- Scope of Works

3.1 Local Area Works

In order to access and egress the site during full operations Local Area Works need to be completed in various locations.

The following locations have been identified as requiring Local Area Works.

3.1.1 Removal of unused driveways on Hawkesbury Rd and Bailey St and reinstating the kerb

Due to the demolition of dwellings to establish the Westmead site several driveways remained, that are not required. We have removed these driveways and reinstated the kerb to create five (5) parking spots on Bailey St and two (2) on Hawkesbury Rd.

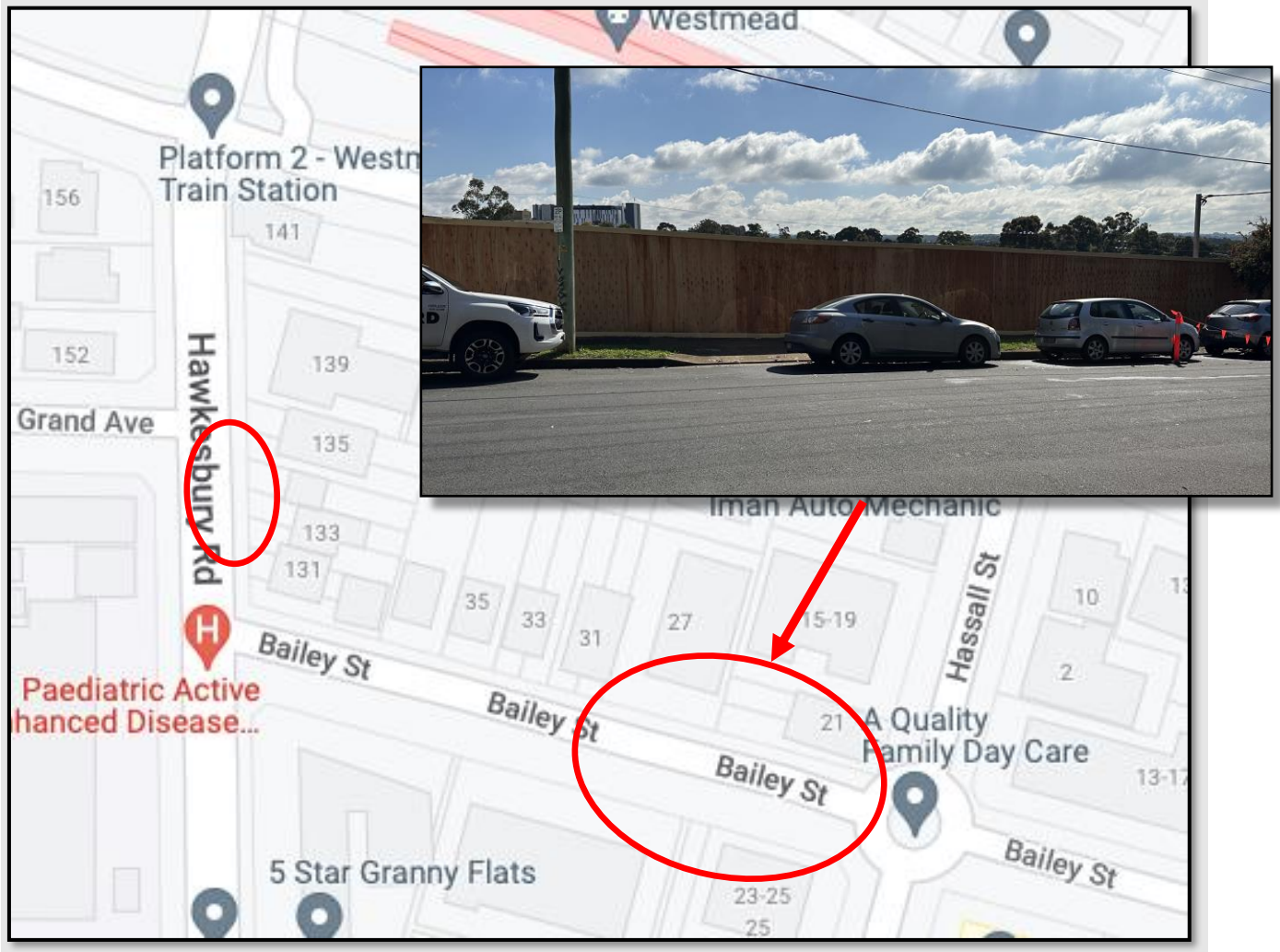


Figure 3-1: Driveways to be removed on Hawkesbury and Bailey St

3.1.2 Site Driveway Heavy Vehicle access construction

The site, during site operations, is accessed via Hassall St. Parking has been removed and driveway constructed.

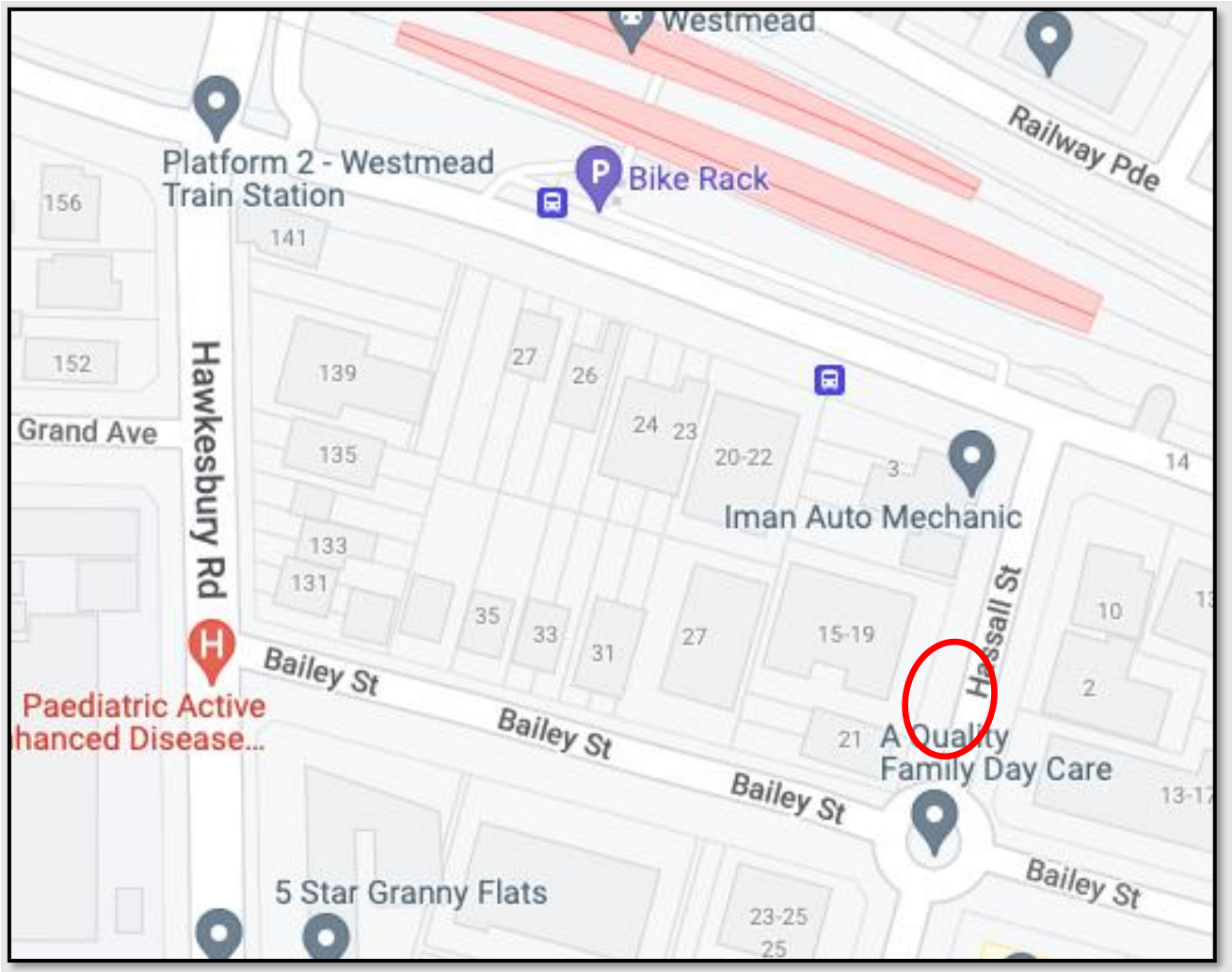


Figure 3-2: Site Driveway locations

3.1.2.1 Hassall St Site Entry

The heavy vehicle site access driveway has been constructed on Hassall St on the western side just north of Bailey St. And parking on Hassall St has been removed. As per current arrangements site entry will be managed under TGS arrangements stopping pedestrians for safe site entry. This TGS will be in place whenever the gate is in operation.

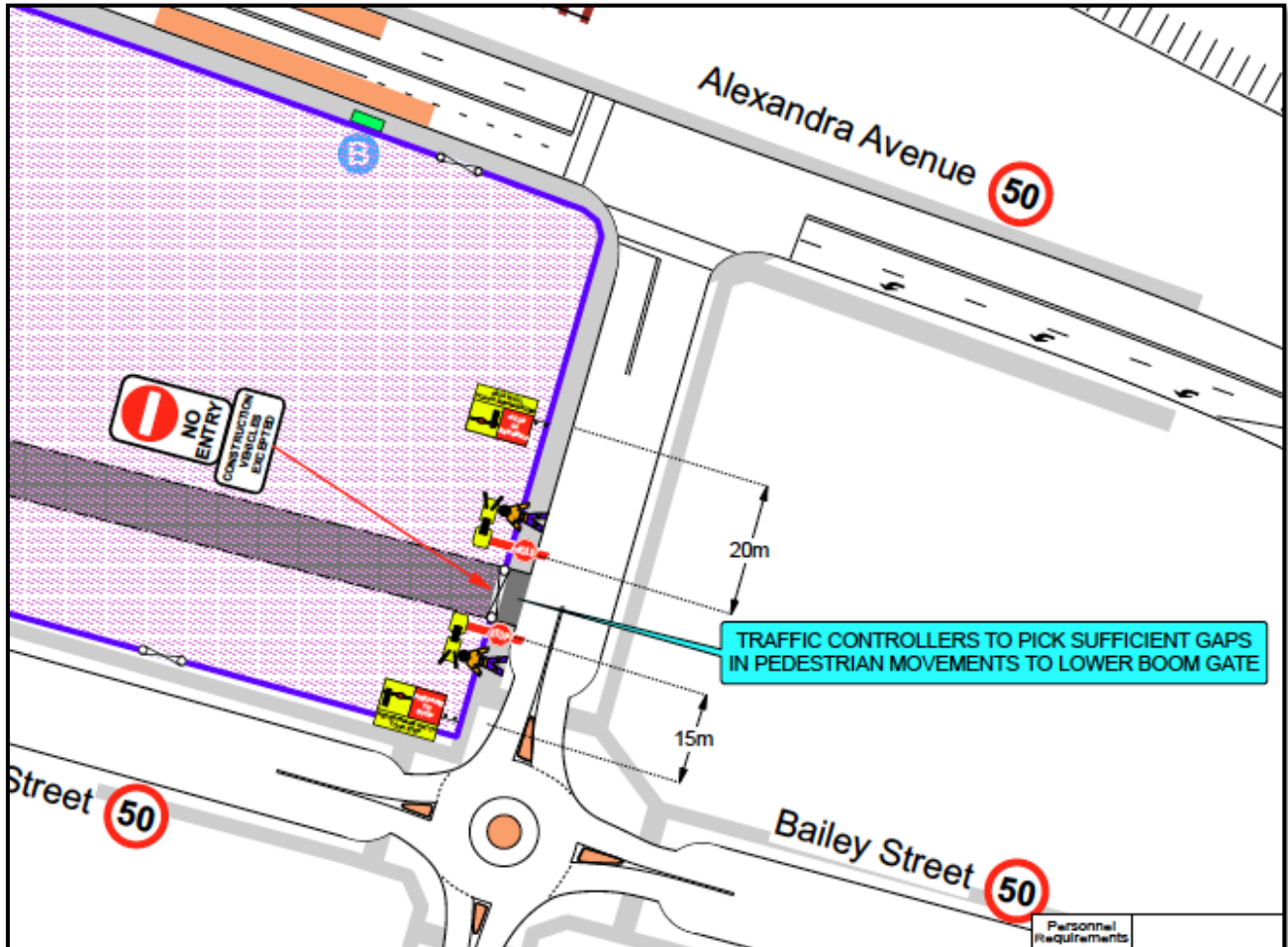


Figure 3-3: Entry Site Driveway TGS Hassall St

3.1.3 Changes at the intersection of Hawkesbury Rd and Priddle St

The east/west and eastern crossings, including pram ramps, on Hawkesbury Rd at Priddle St will be widened to 4.5m to increase the volume of pedestrians that can cross in a signal phase of the pedestrian crossing. To accommodate these works signal posts on the north/east, south/western corners and Priddle St will have to be moved. The guard rail on the western side of the intersection will have Type 1 pedestrian fencing installed behind the guardrail to replicate what is in place to the south of the intersection. Prior to any works commencing an approved TCS design must be signed off by TfNSW.

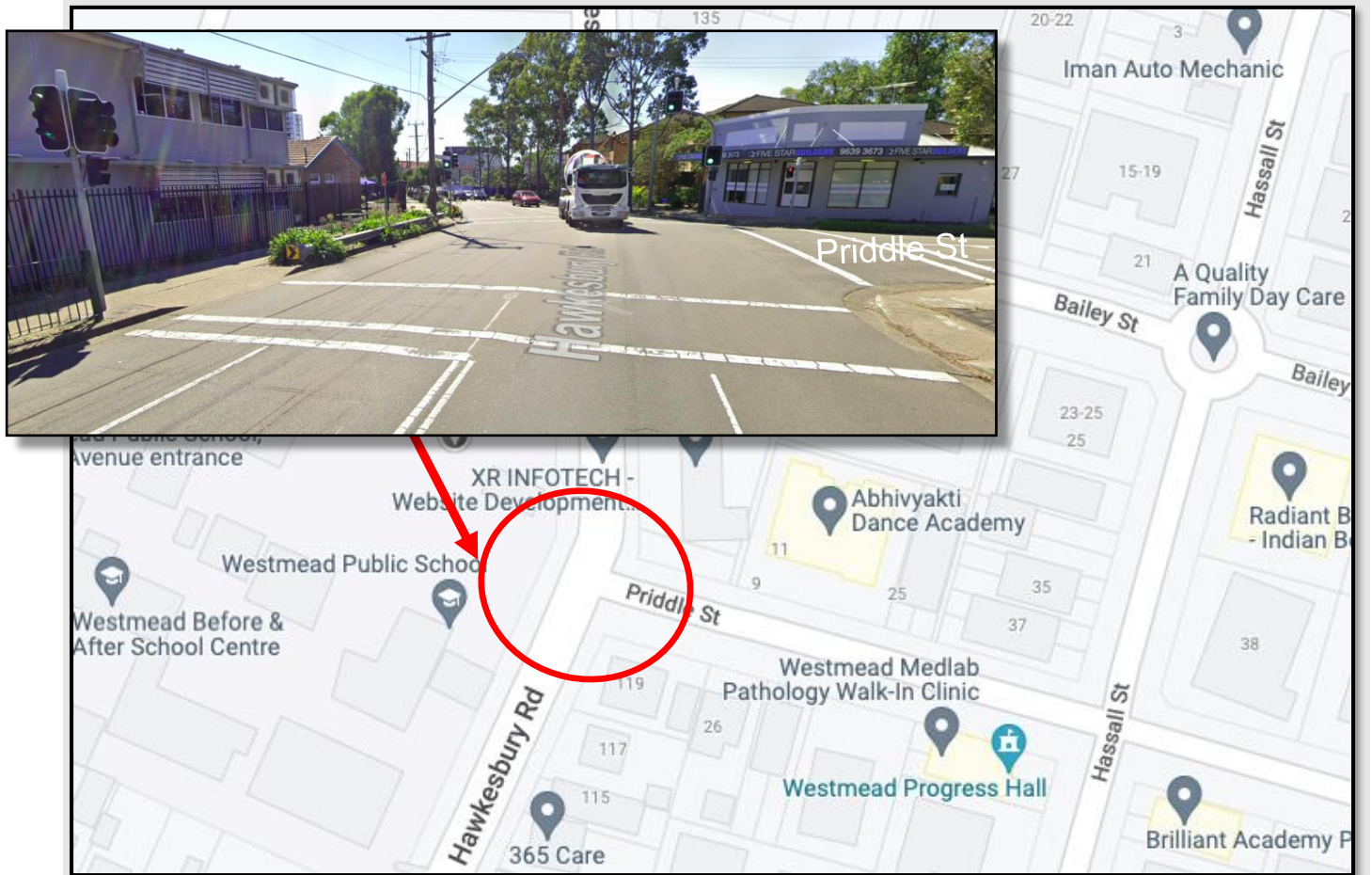
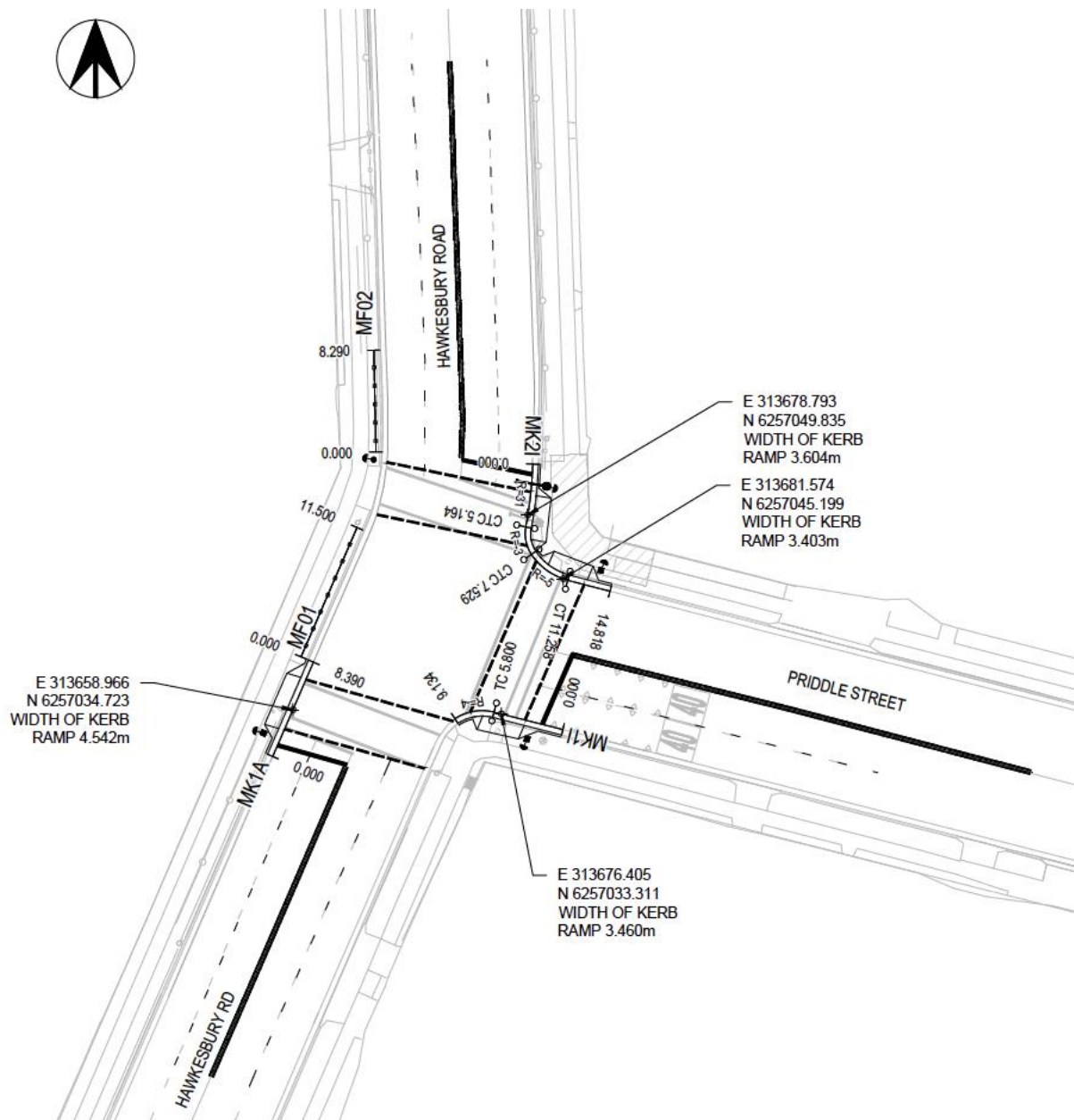


Figure 3-4: Overview Map Hawkesbury Rd at Priddle St



Due to the changes in line marking and possibly the recutting of loops sections of the pavement around the intersection will be required to be milled and repaved in accordance with Figure 3-6

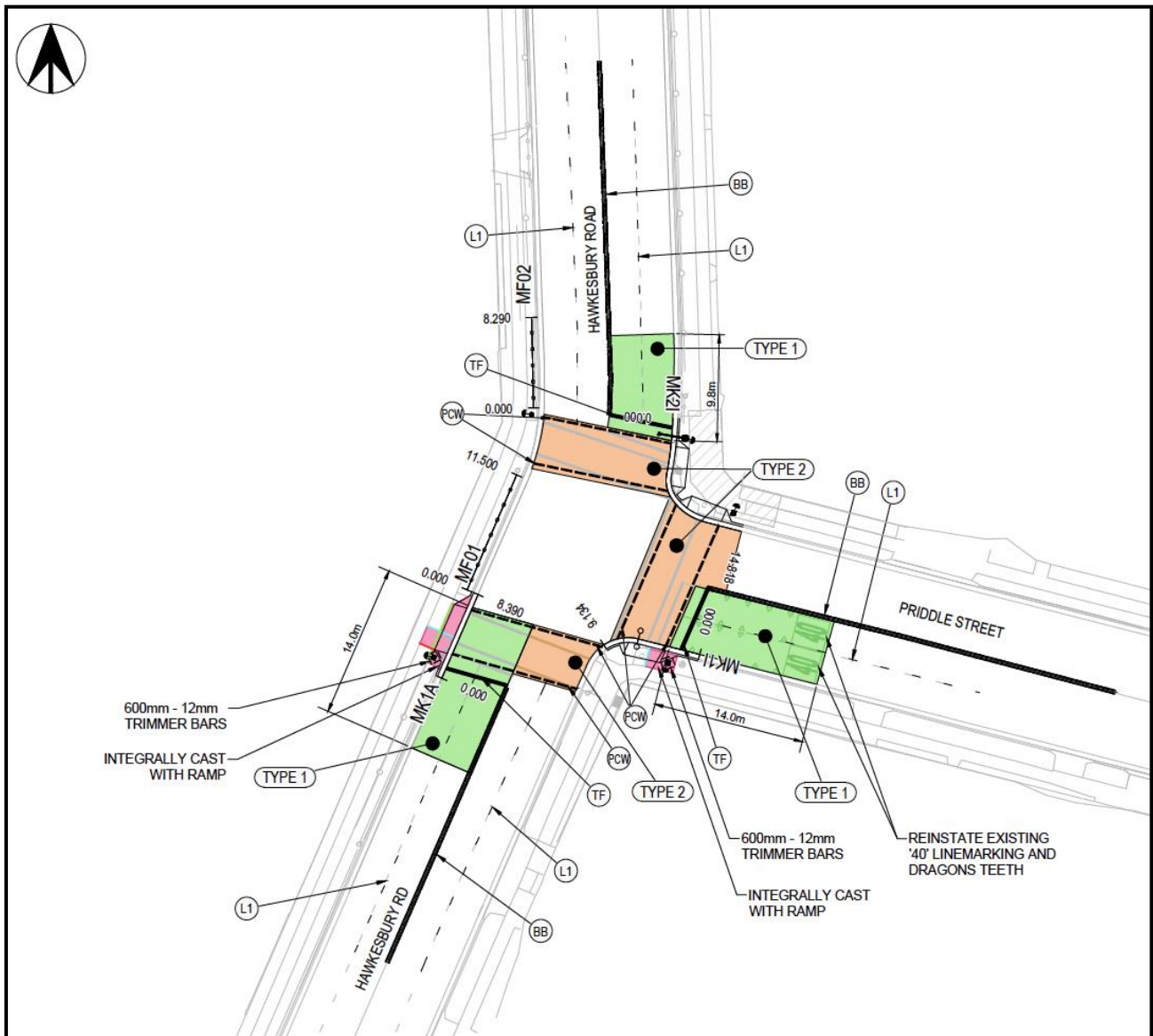


Figure 3-6: Hawkesbury Rd at Priddle St Pavement works

Due to the close proximity to Westmead Public School these works will be scheduled for night and off peak works during a school holiday period to ensure works do not impact normal term-time operations of the school. See Figure 3-4 for an overview of the location.

Traffic impacts will be minimal as the works will be completed on nights and off peak times with lane closures. The crossings east/west on Hawkesbury Rd may be closed in stages, with one always remaining open, to allow for concrete pours of the pram ramps and signal post footings.

The works will be broken up into activities as shown in Table 3. A more detailed hour by hour program will be provided with the ROL and Council permit applications.

Activities	Shifts																		
		MON	TUE	WED	THU	FRI	SAT	SUN	MON	TUE	WED	THU	FRI	SAT	SUN	MON	TUE	WED	THU
Pothole Services for extension of pram ramps & TCS Posts	1																		
Excavation & Installation of TCS post footibgs, pits & conduits	6																		
Break out existing pram ramps	2																		
Pour pram ramp	2																		
Install pedestrian fencing	2																		
Milling / profiling if required	4																		
Line marking & signage	2																		
Remove existing TCS & install TCS poles, lanterns & control system	1																		

Table 3- Hawkesbury Rd and Priddle St Proposed TCS Works Schedule

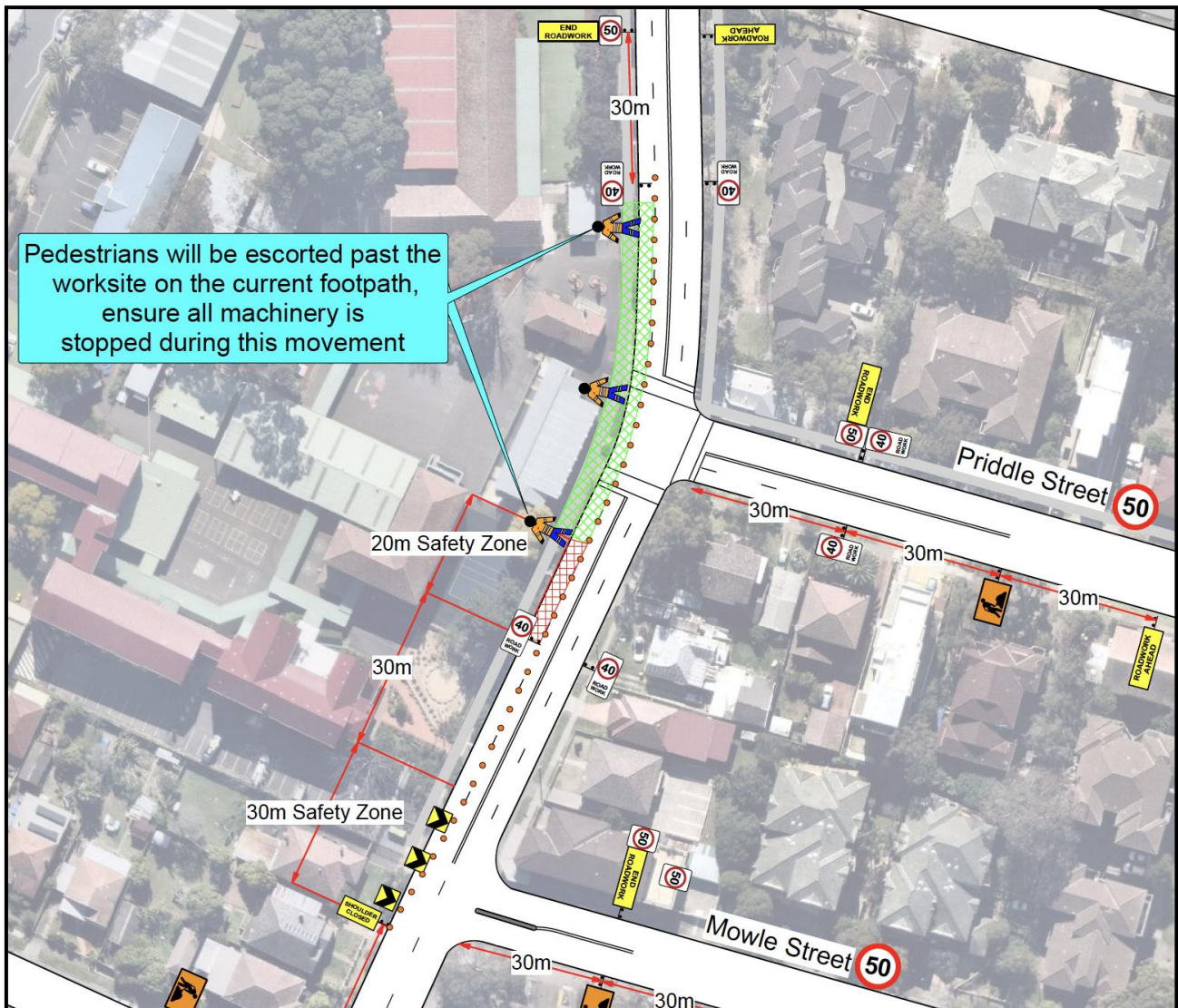


Figure 3-7: TGS Hawkesbury Rd at Priddle St Lane 1 NB Closure (refer to Appendix B for full TGS)

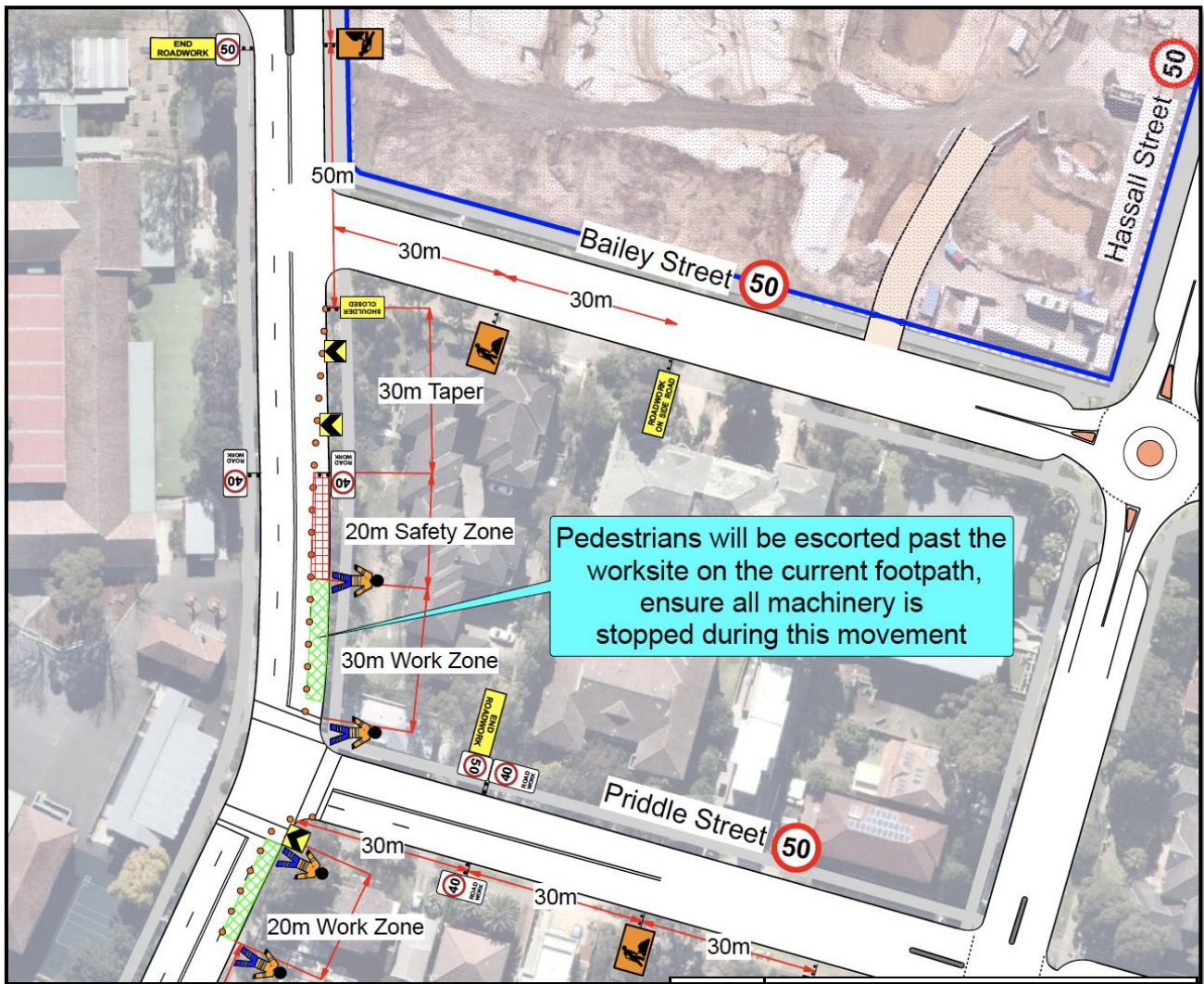


Figure 3-8: TGS Hawkesbury Rd at Priddle St Lane 1 SB Closure (refer to Appendix B for full TGS)

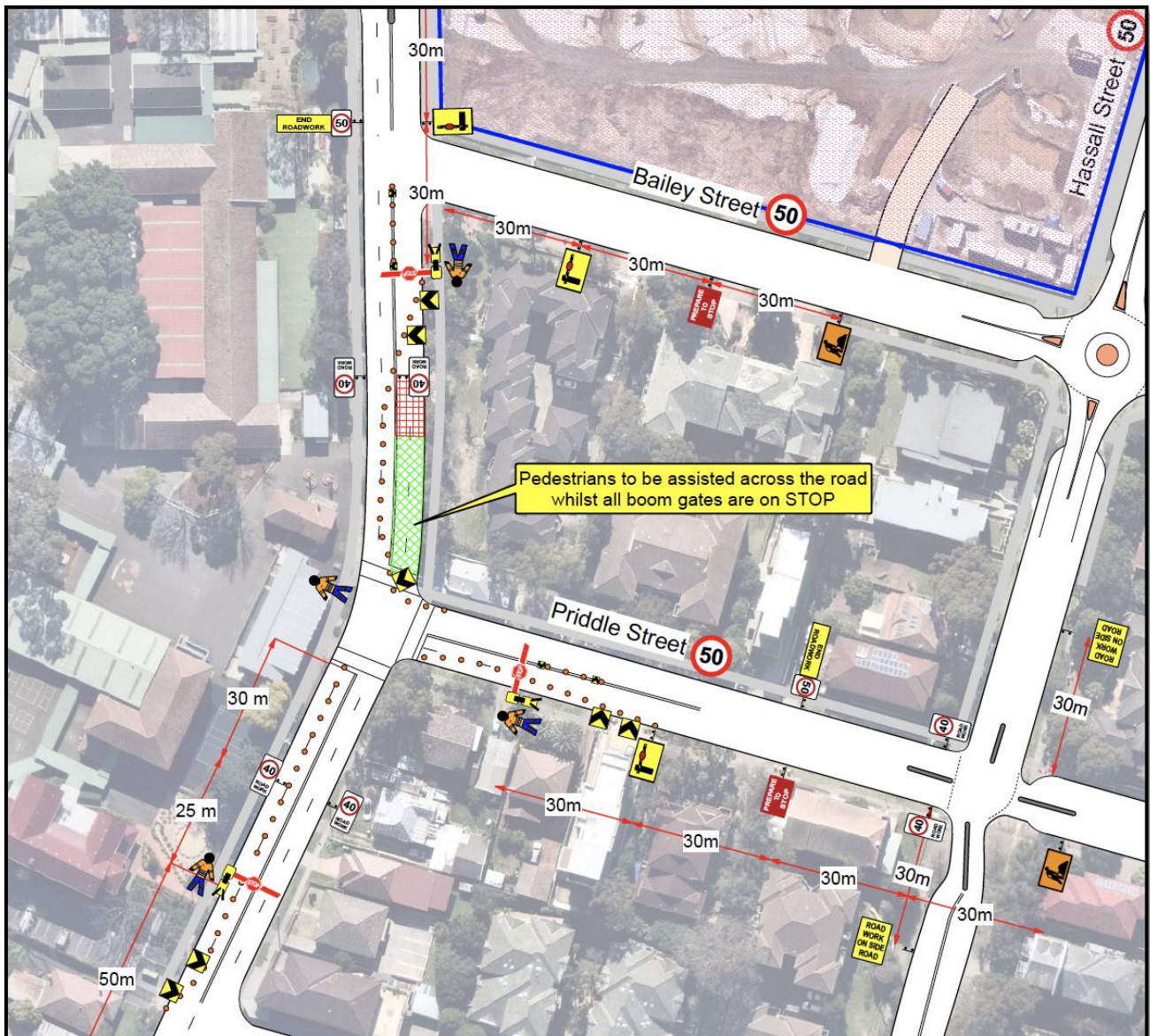


Figure 3-9: TGS Hawkesbury Rd at Priddle St Stop Slow SB Works (refer to Appendix B for full TGS)

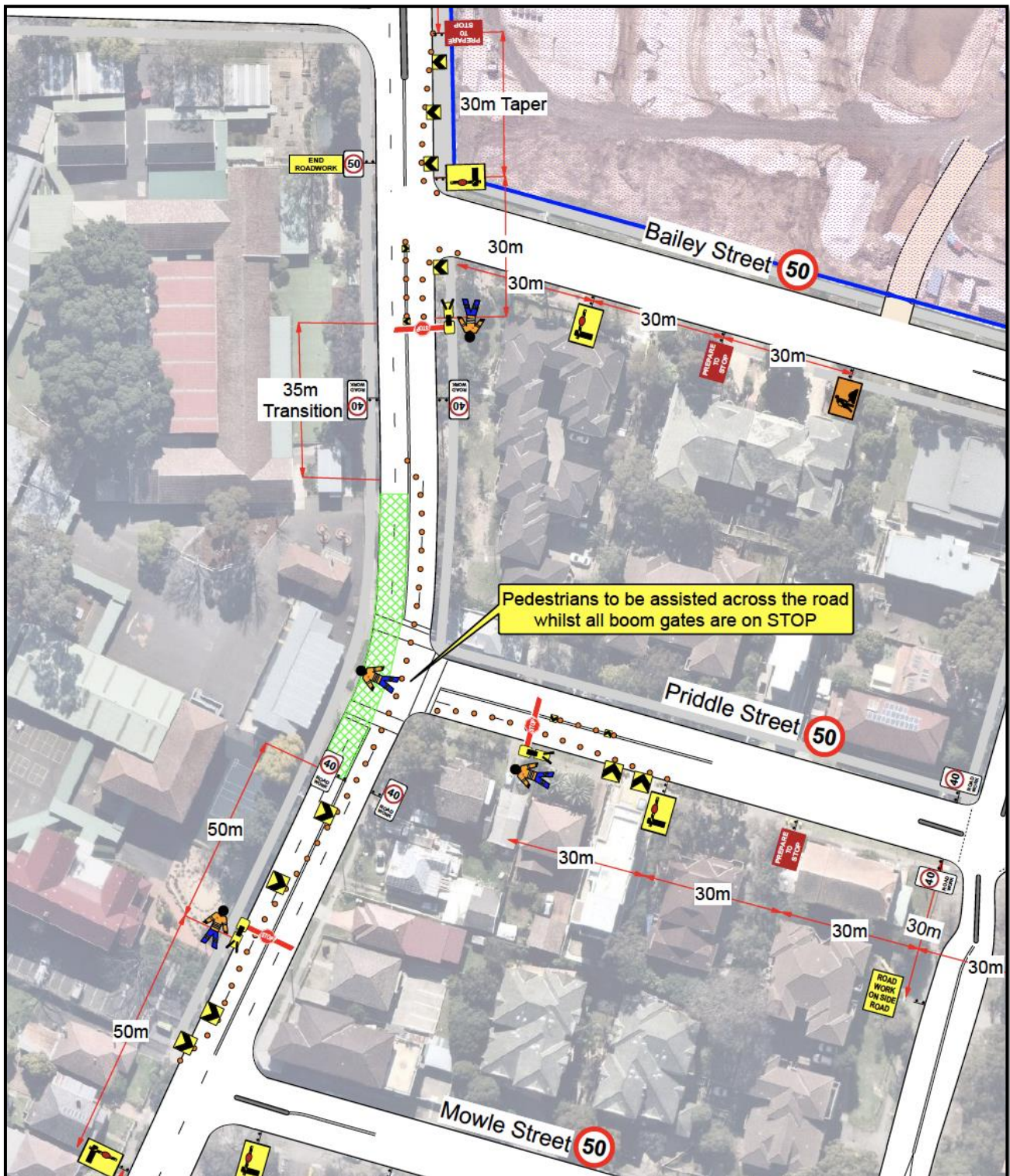


Figure 3-10: TGS Hawkesbury Rd at Priddle St Stop Slow NB Works (refer to Appendix B for full TGS)

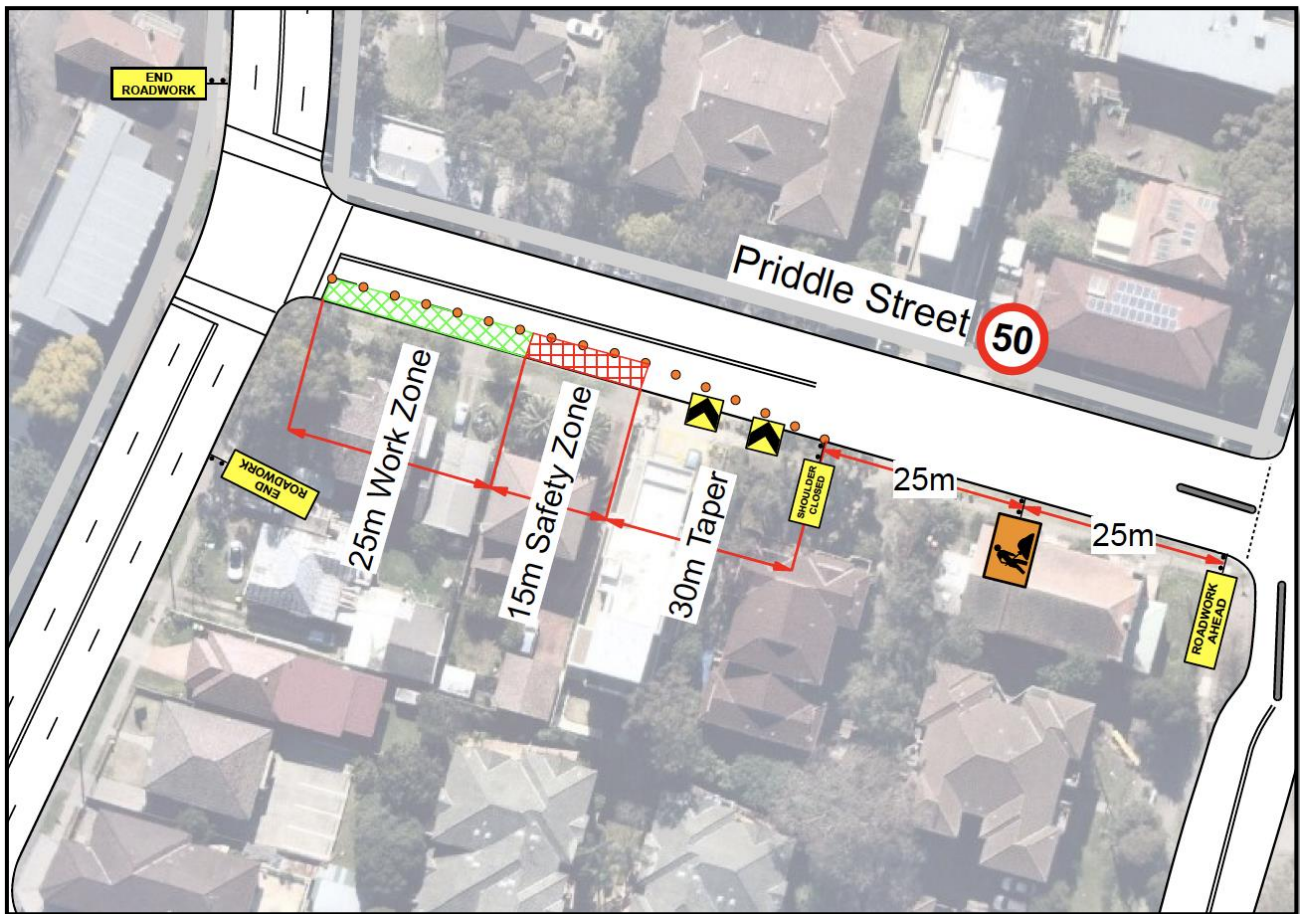


Figure 3-11: TGS Priddle St at Hawkesbury Rd Lane 1 WB Closure (refer to Appendix B for full TGS)

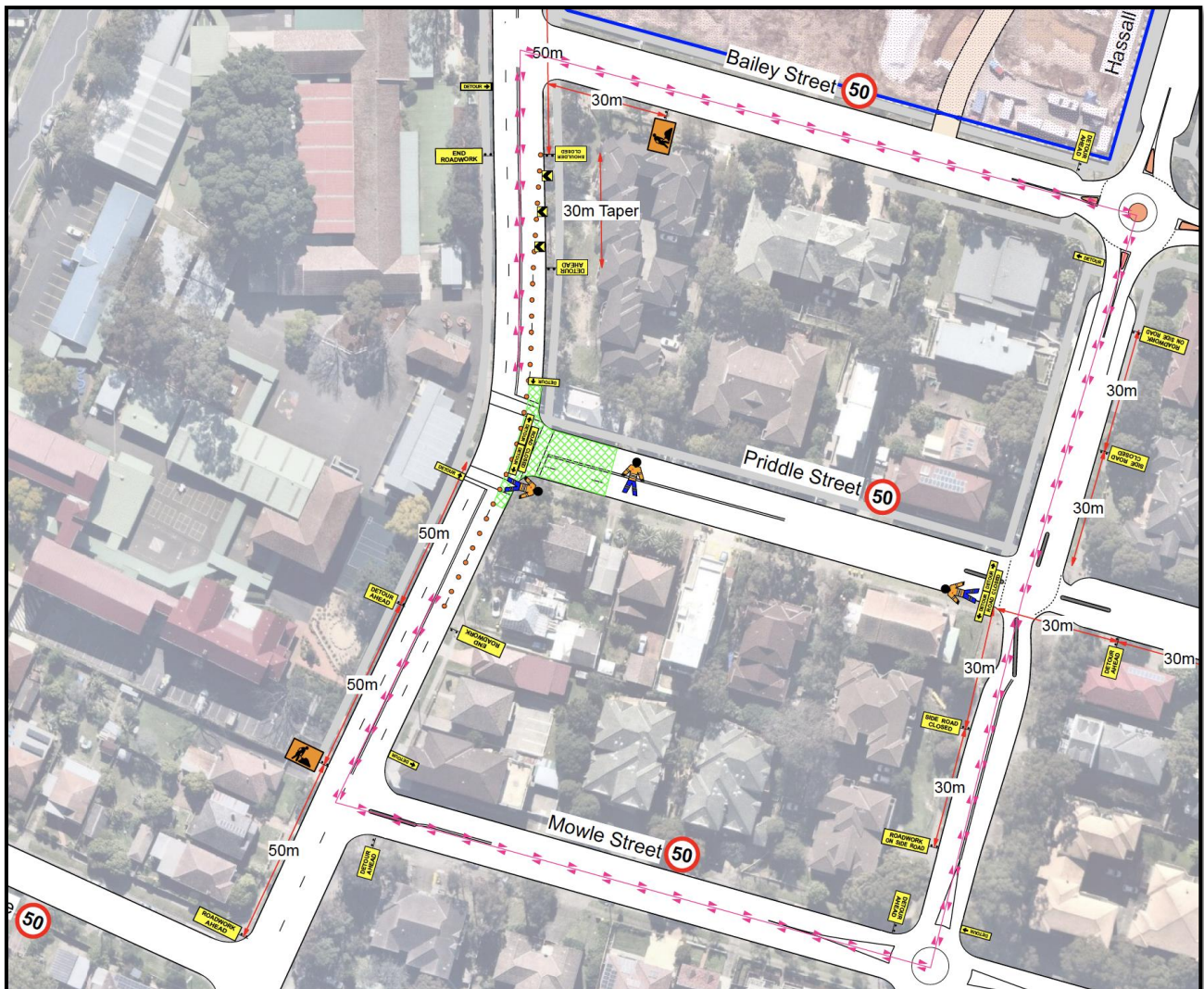


Figure 3-12: TGS Priddle St at Hawkesbury Rd Lane 1 SB & Priddle St Closure (refer to Appendix B for full TGS)

3.1.4 Implementing Traffic Signals at the intersection of Bailey St and Hassell St

The intersection of Bailey St and Hassall St is currently running as a roundabout. It is proposed to remove the roundabout and install a permanent set of traffic signals towards the end of the site operations works giving us time to gain the approval of the proposed TCS plan for the site and to ensure the TCS does not impact on the site entry lane. The signals will introduce a dedicated left turn lane and straight through lane southbound. The roundabout will remain in operation until the night of the switch to the signals. Portable VMS will be placed on all approaches notifying of the dates the signals will become operational and will remain onsite for a two (2) week period after notifying of the changed traffic conditions. A detailed schedule of works will be submitted with the ROL and Council permit applications.

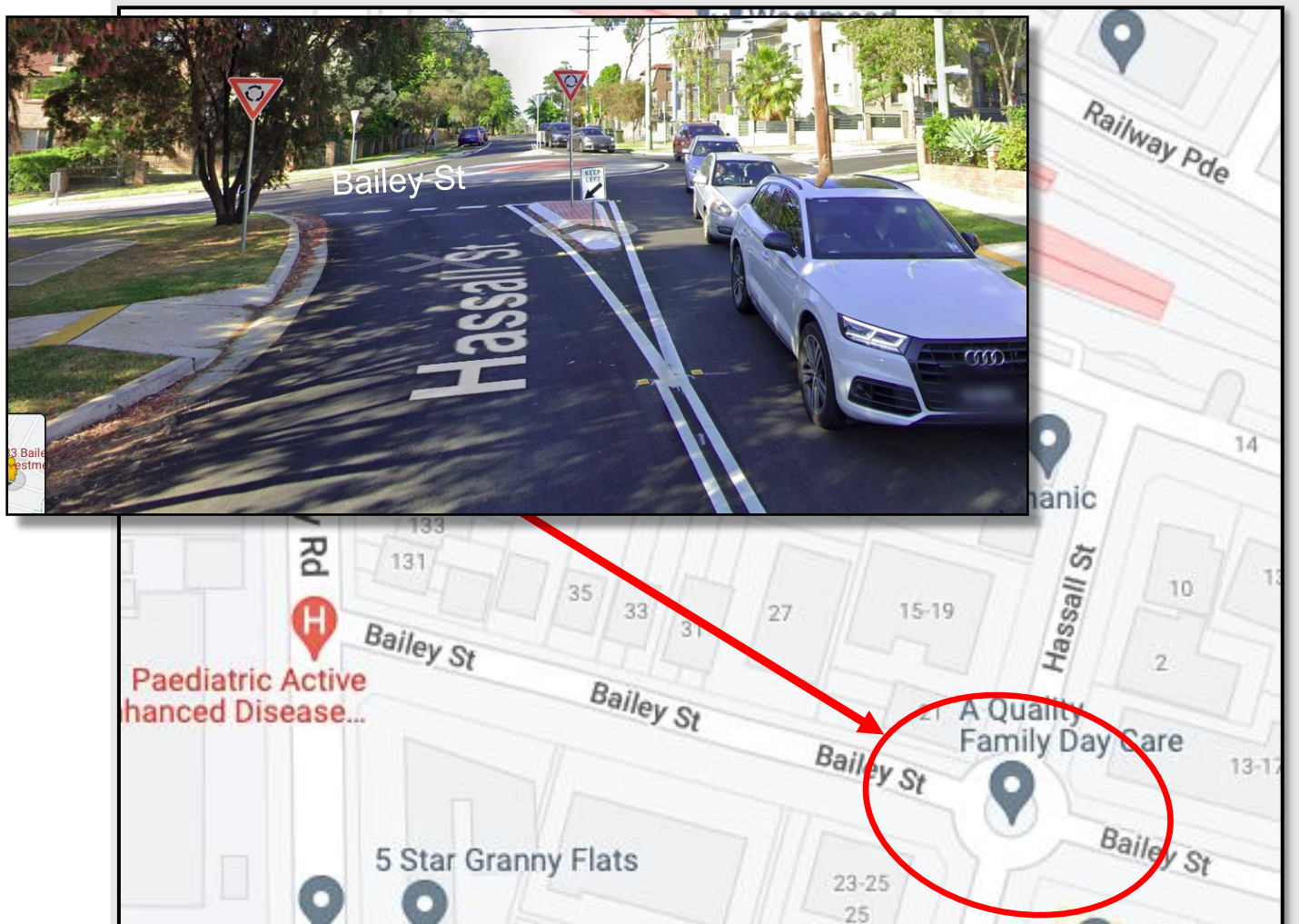


Figure 3-13: Overview Map of Hassall St and Bailey St TCS location

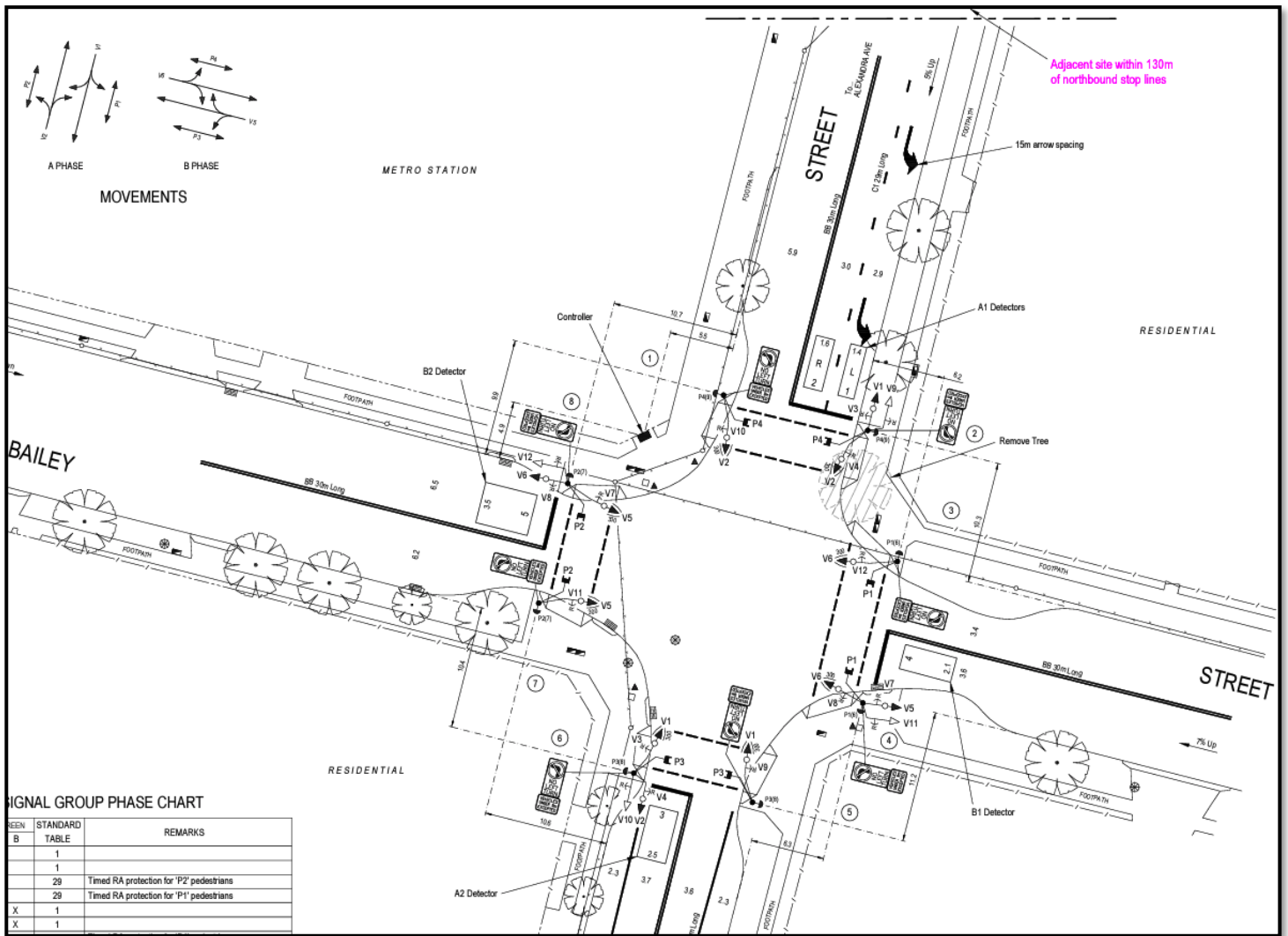


Figure 3-14: Overview Map of Hassall St and Bailey St TCS location

The construction will be carried out in stages under TGS arrangements with approved ROL and Council permits. All works will leave the site operational under the roundabout conditions until the final shift for TCS turn on. Pavement works may occur after signals are operational. Once the TCS design has been signed off a detailed construction plan will be developed and form a part of the application for permits and any TCG and TTLG presentations.

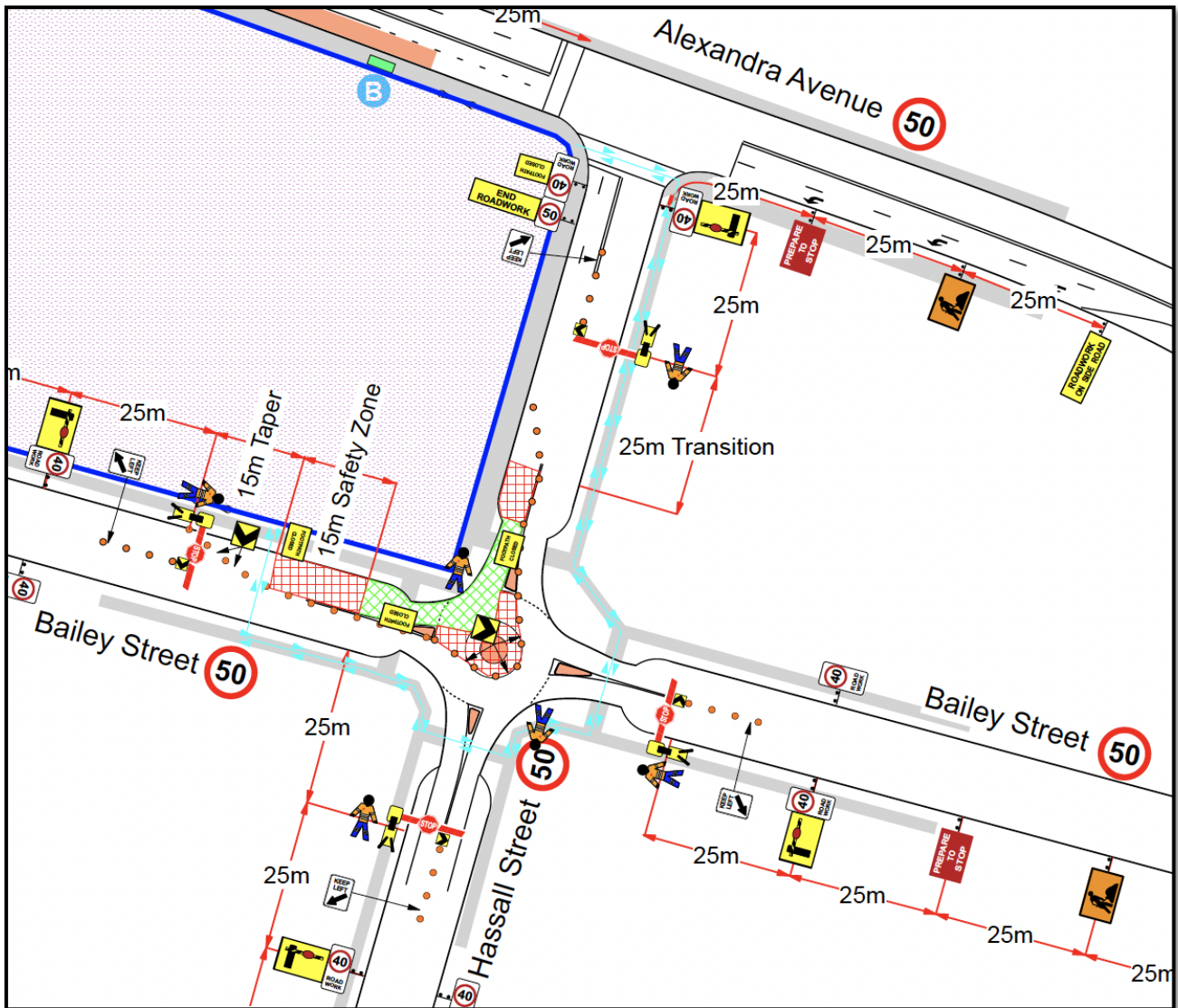


Figure 3-15: TGS Hassall St and Bailey St north western corner stop slow (refer to Appendix B for full TGS)

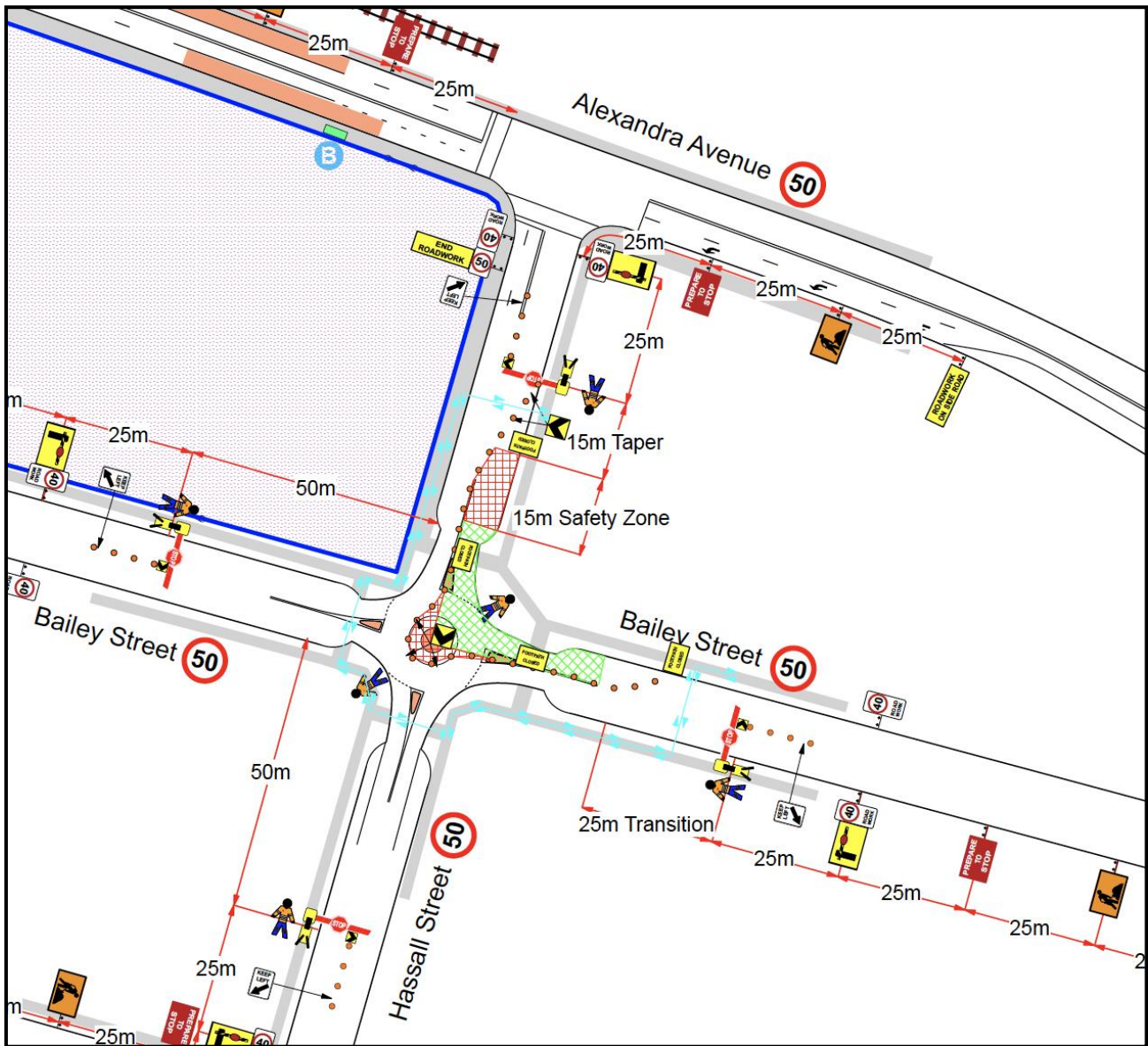


Figure 3-16: TGS Hassall St and Bailey St northeastern corner stop slow (refer to Appendix B for full TGS)

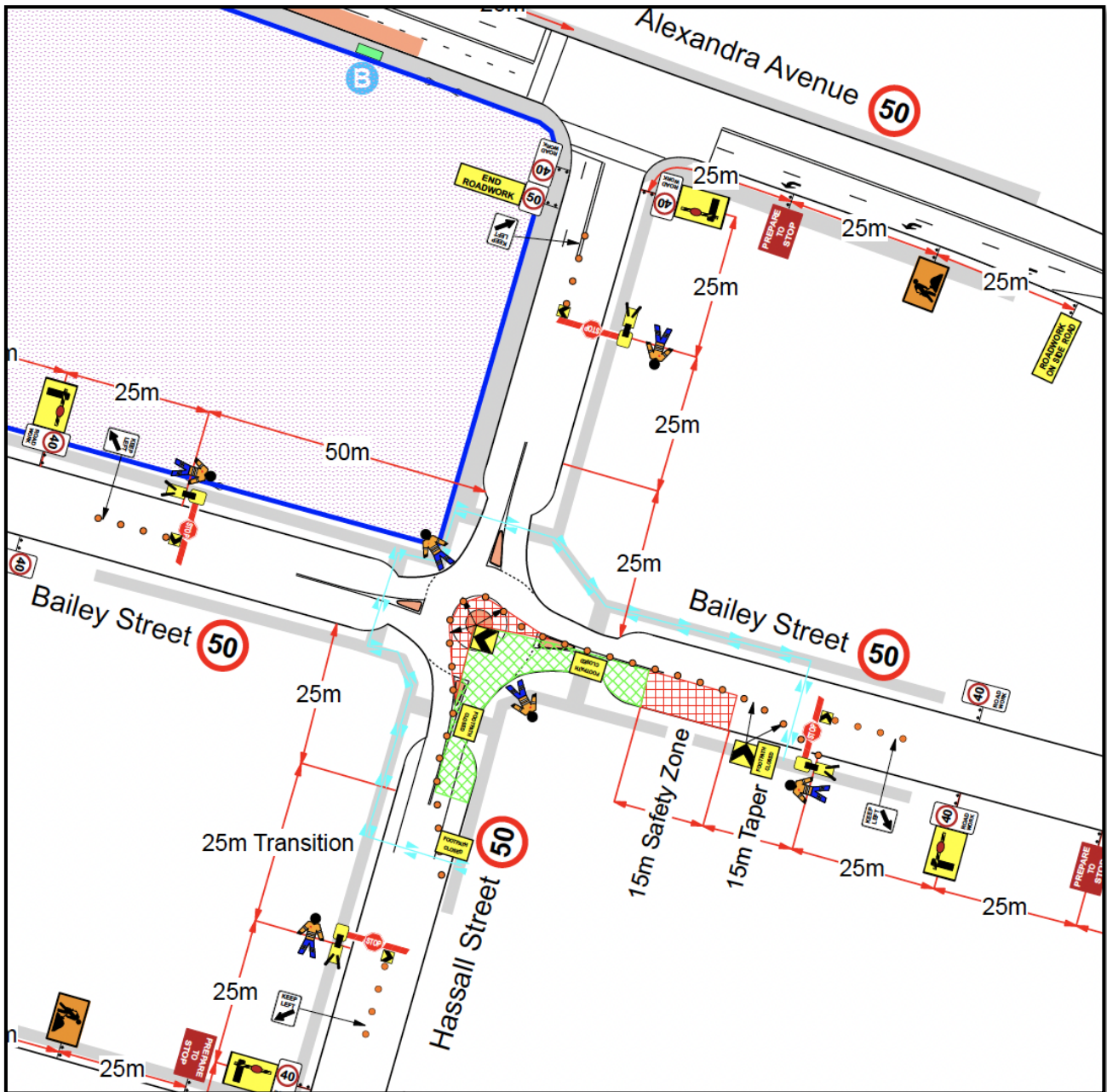


Figure 3-17: TGS Hassall St and Bailey St south eastern corner stop slow (refer to Appendix B for full TGS)

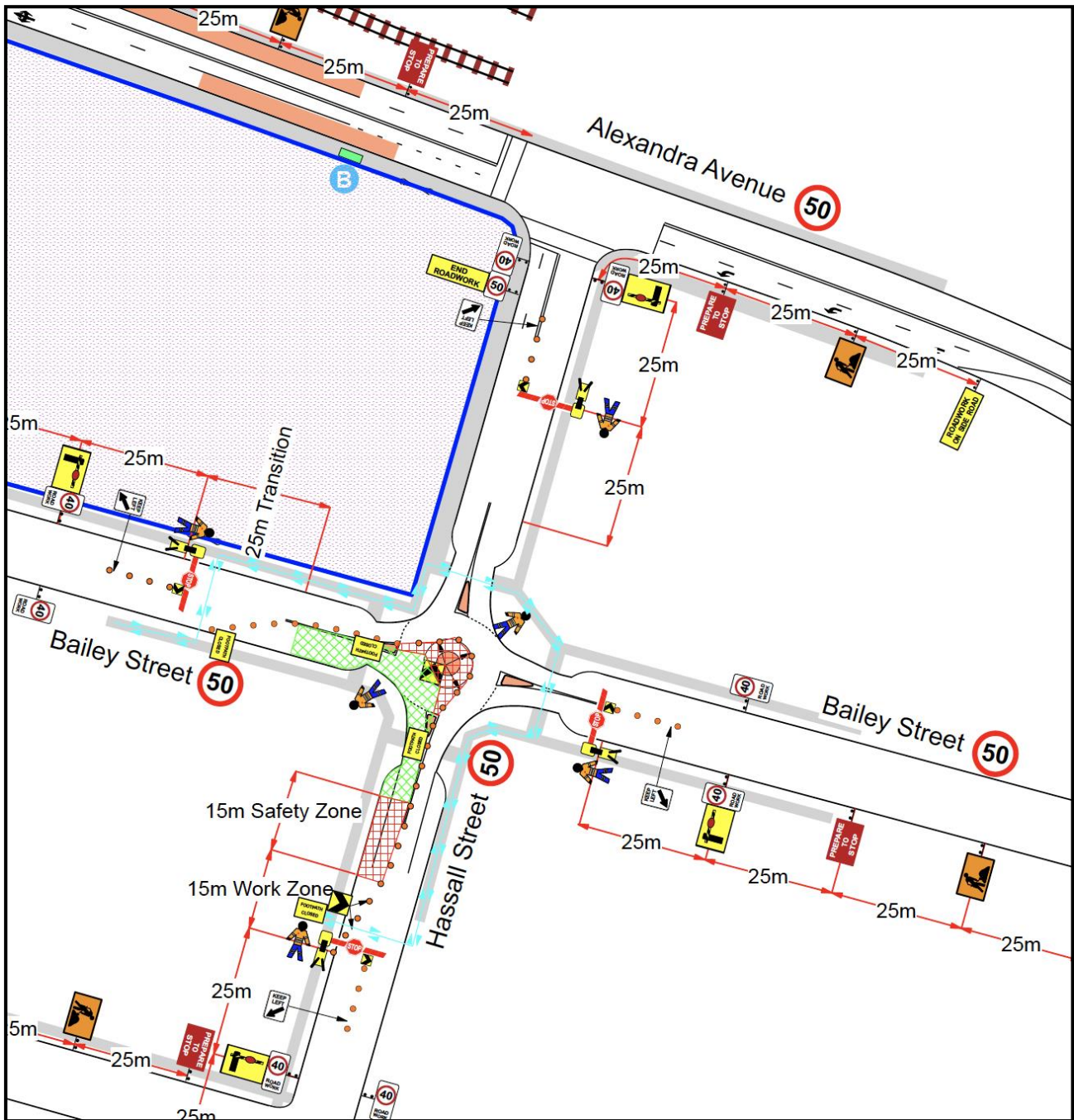


Figure 3-18: TGS Hassall St and Bailey St south western corner stop slow (refer to Appendix B for full TGS)

The roundabout will be removed and reinstated with line marking at its current alignment.
 Emergency Services can access the road closure at any time through the traffic controller.

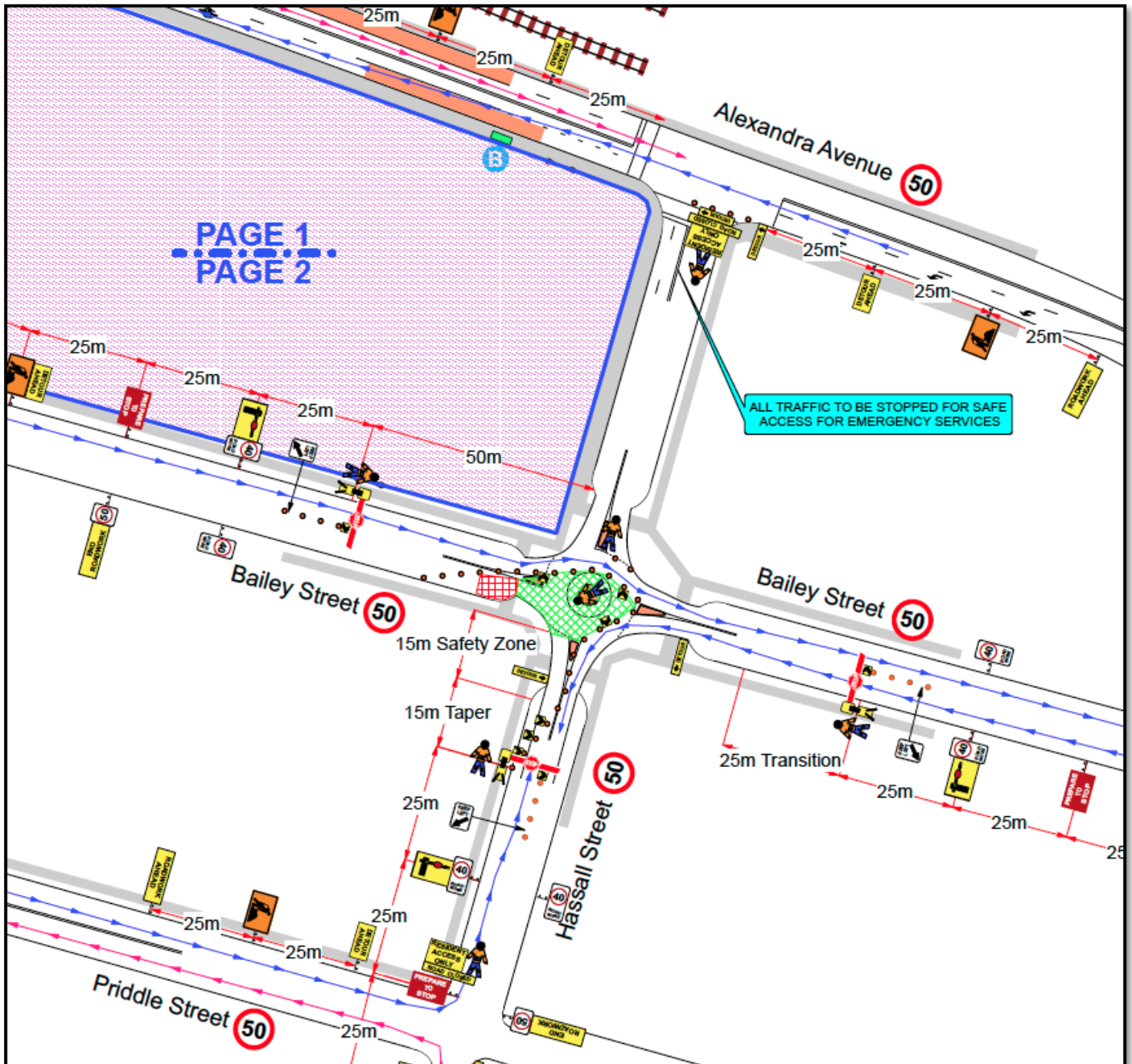


Figure 3-19: TGS Hassall St and Bailey St roundabout removal stop slow (refer to Appendix B for full TGS and detour route)

3.1.5 Night deliveries into and out of Hawkesbury Rd gate

During the primary and secondary lining of the tunnels at Westmead there is a continuous need to apply shotcrete and or concrete to unstable ground to prevent tunnel collapse.

Due to the noise restrictions on Park Parade GLC are proposing to bring the concrete agis in and out via the EIS route on Hawkesbury Rd. It is proposed to be 10 movements in and 10 movements out per hour between the hours of 10pm and 6am, 7 days a week. Traffic controllers at the gate will manage the pedestrians as per the TGS in Appendix B to ensure the right turn movement can be made safely and any no entry signage will be covered for the duration of the shift.

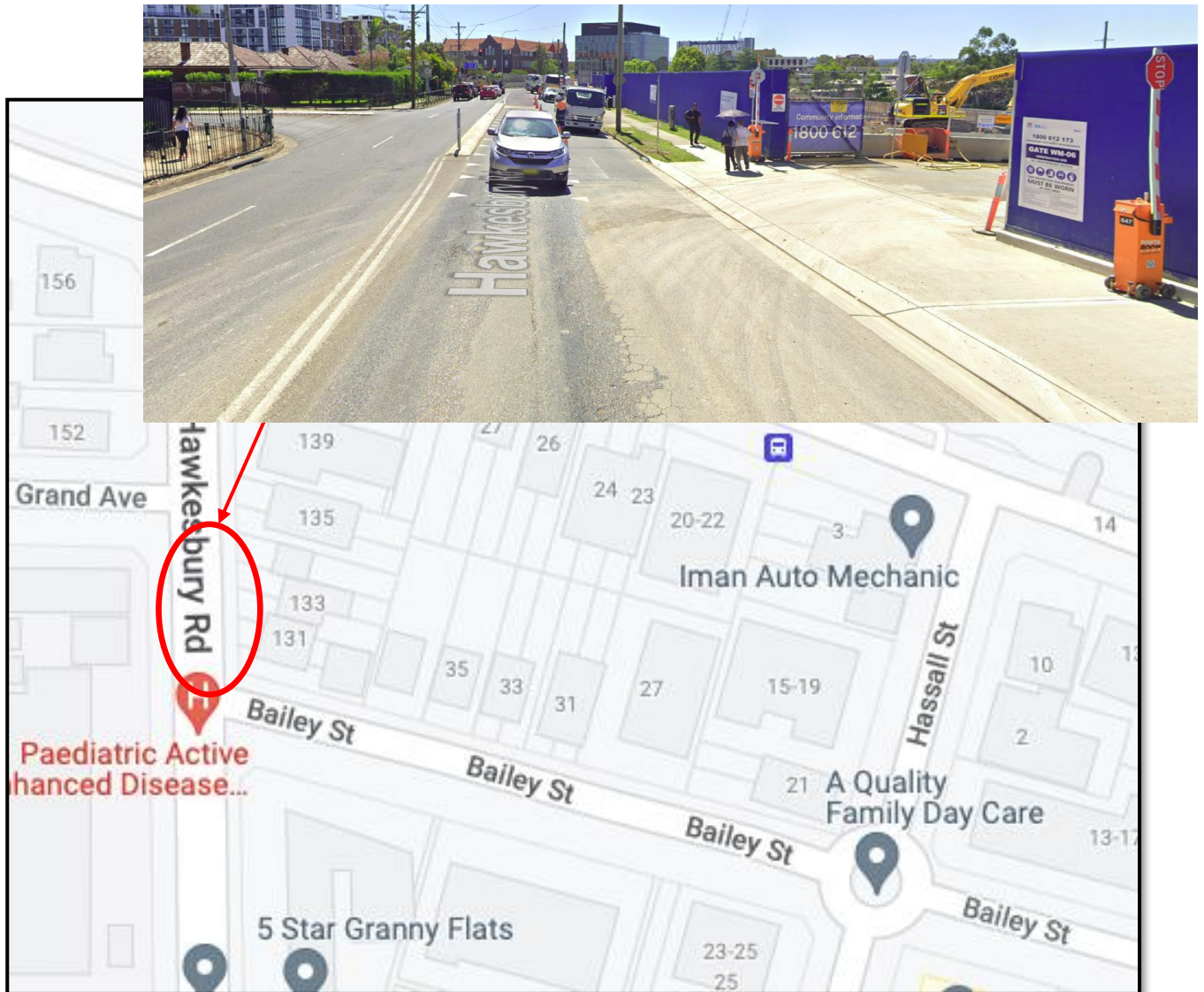


Figure 3-21: Overview Map Hawkesbury Rd Exit Gate

Due to the close proximity to Westmead Public School these movements will be scheduled for night works to ensure works do not impact anyone accessing the school. Traffic impacts will be minimal as the works will be completed on night shift with no lane closures allowing for vehicles to pass construction vehicles turning right into site from Hawkesbury Rd in lane 1.

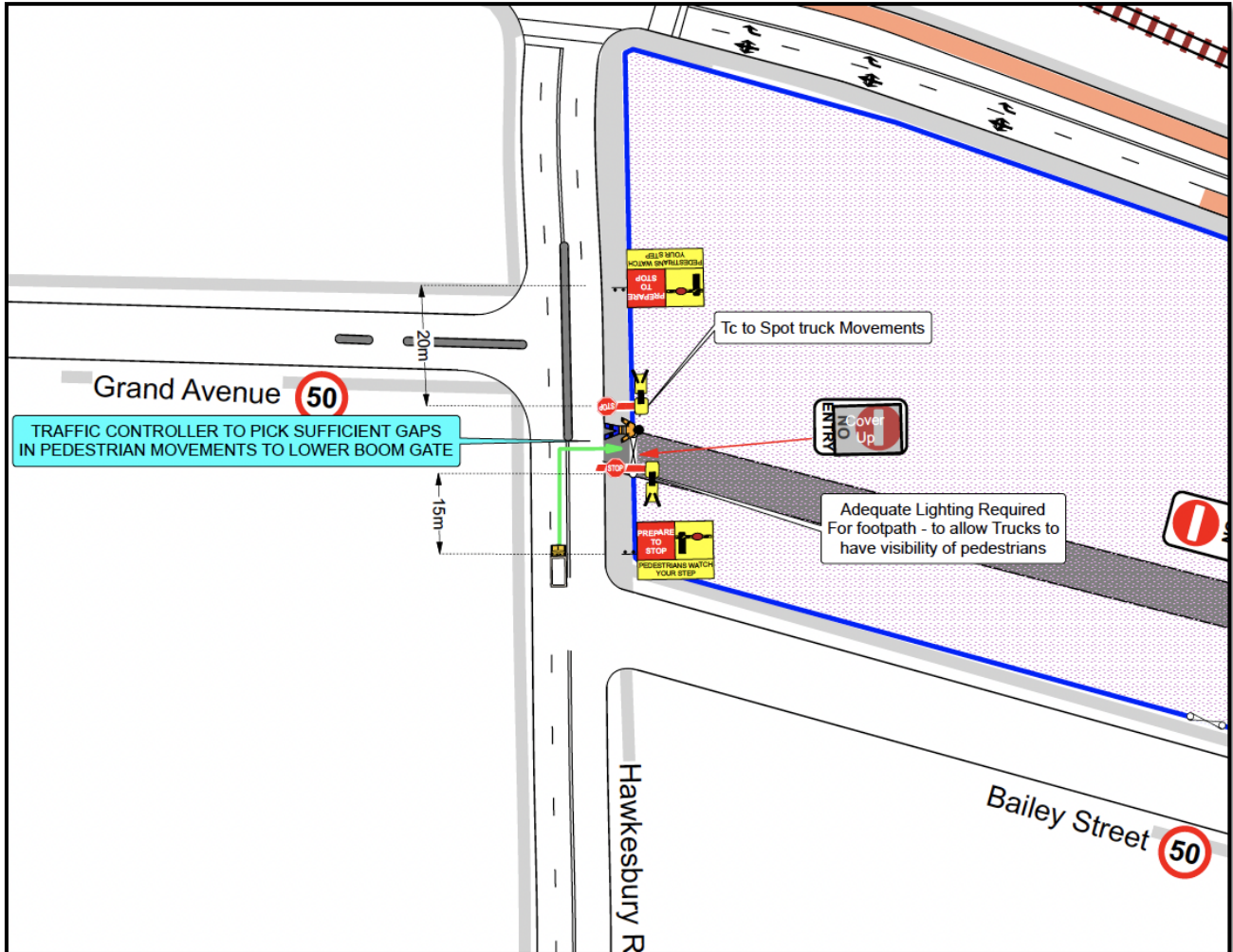


Figure 3-22: TGS Hawkesbury Rd Gate Management for Night shift (refer to Appendix B for full TGS)



Figure 3-23: Night shift VMP

3.2 Site Operations

3.2.1 Site Operating Conditions

Site Operating conditions include the box excavation, tunnelling and the demobilisation of the GLC site. Heavy vehicles follow the proposed heavy vehicle route and will entry site from Hassall St southbound right turn and exit via left turn on to Hawkesbury Rd. Light vehicles will have limited parking within the site off Bailey St. During night shifts between 10pm and 6am vehicles detailed in section 3.1.5 will enter and exit site from Hawkesbury Rd which is the approved EIS route.

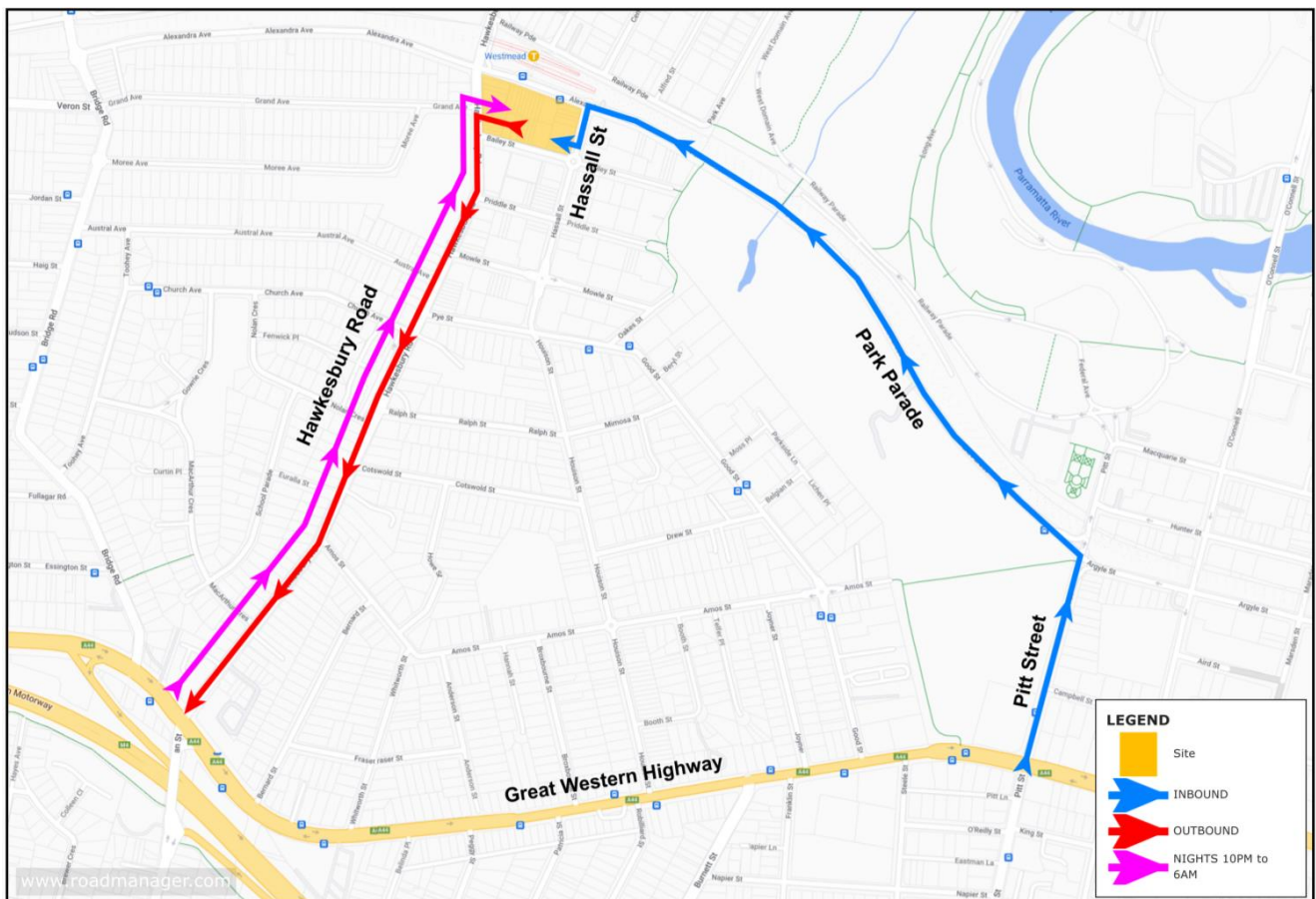


Figure 3-24: Proposed Heavy Vehicle route to and from the Westmead site

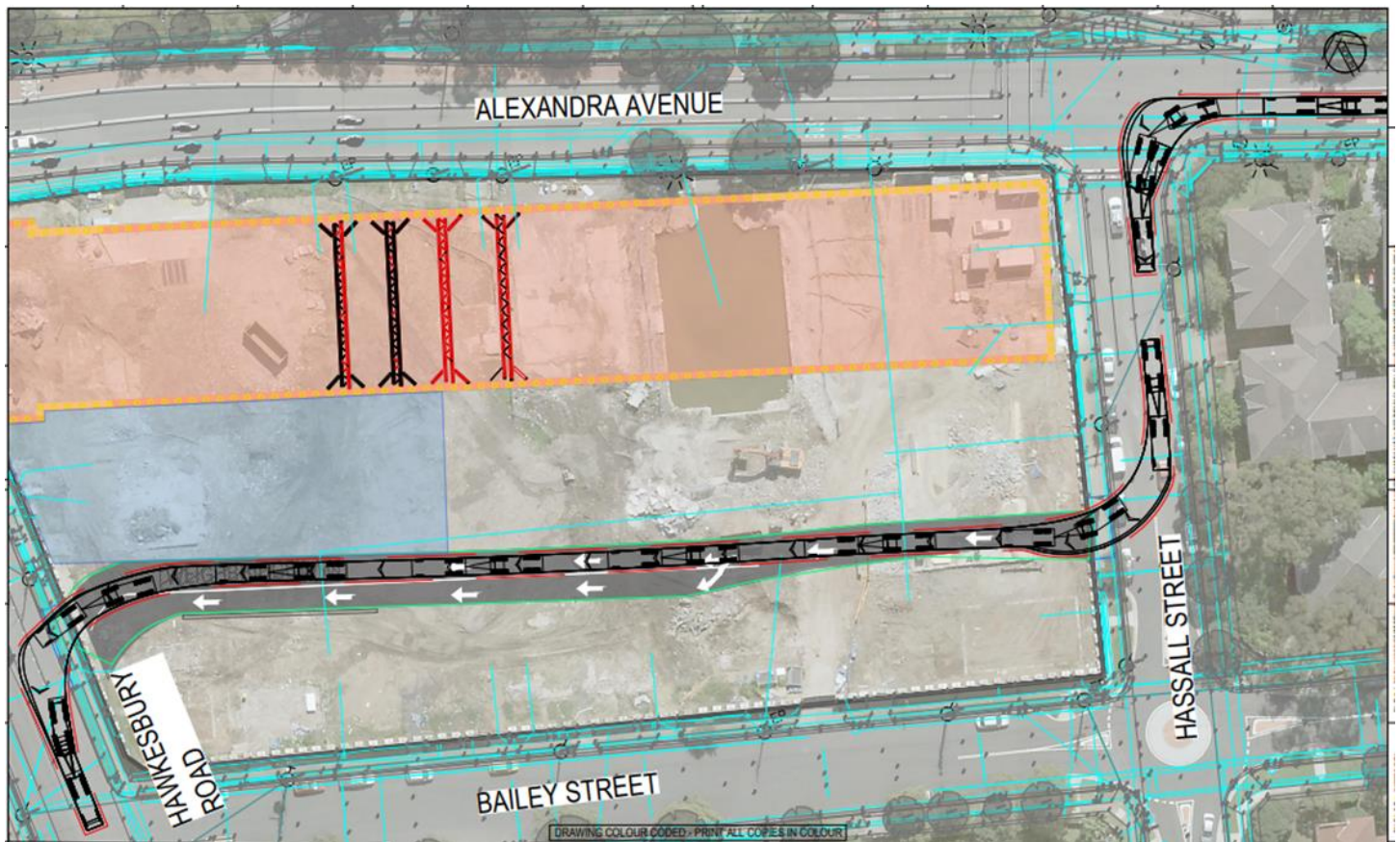


Figure 3-25: Westmead site internal vehicle movements

Site access off Hassall St southbound will be via Hassall St right turn into the site. The gate will have 'No Entry' - 'Construction Vehicles Excepted' and the gate number signage installed. See Figure 3-26: Westmead Site Entry

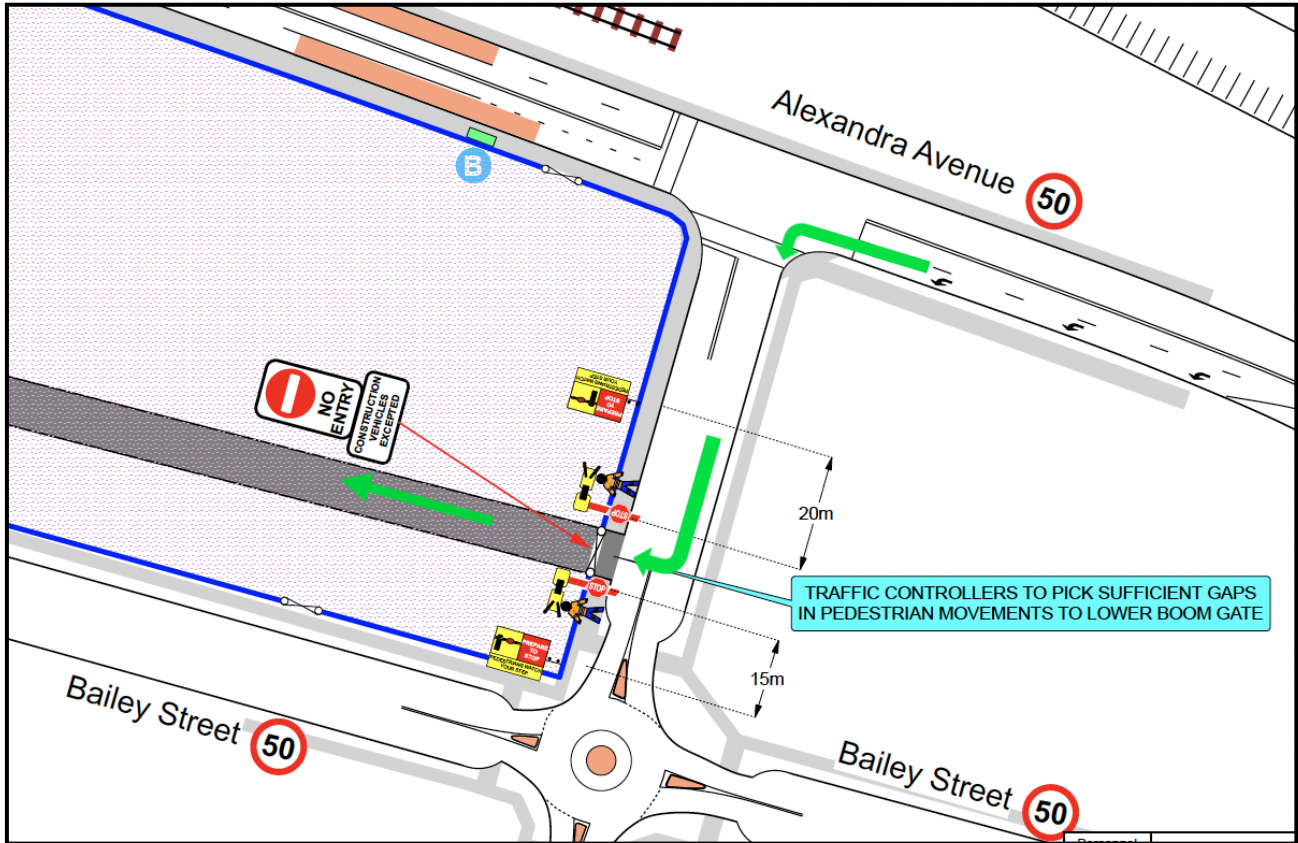


Figure 3-26: Westmead Site Entry

Site egress onto Hawkesbury Rd will be left only out of the site. The gate will display 'No Entry' from Hawkesbury Rd. See Figure 3-27: Westmead Site Exit

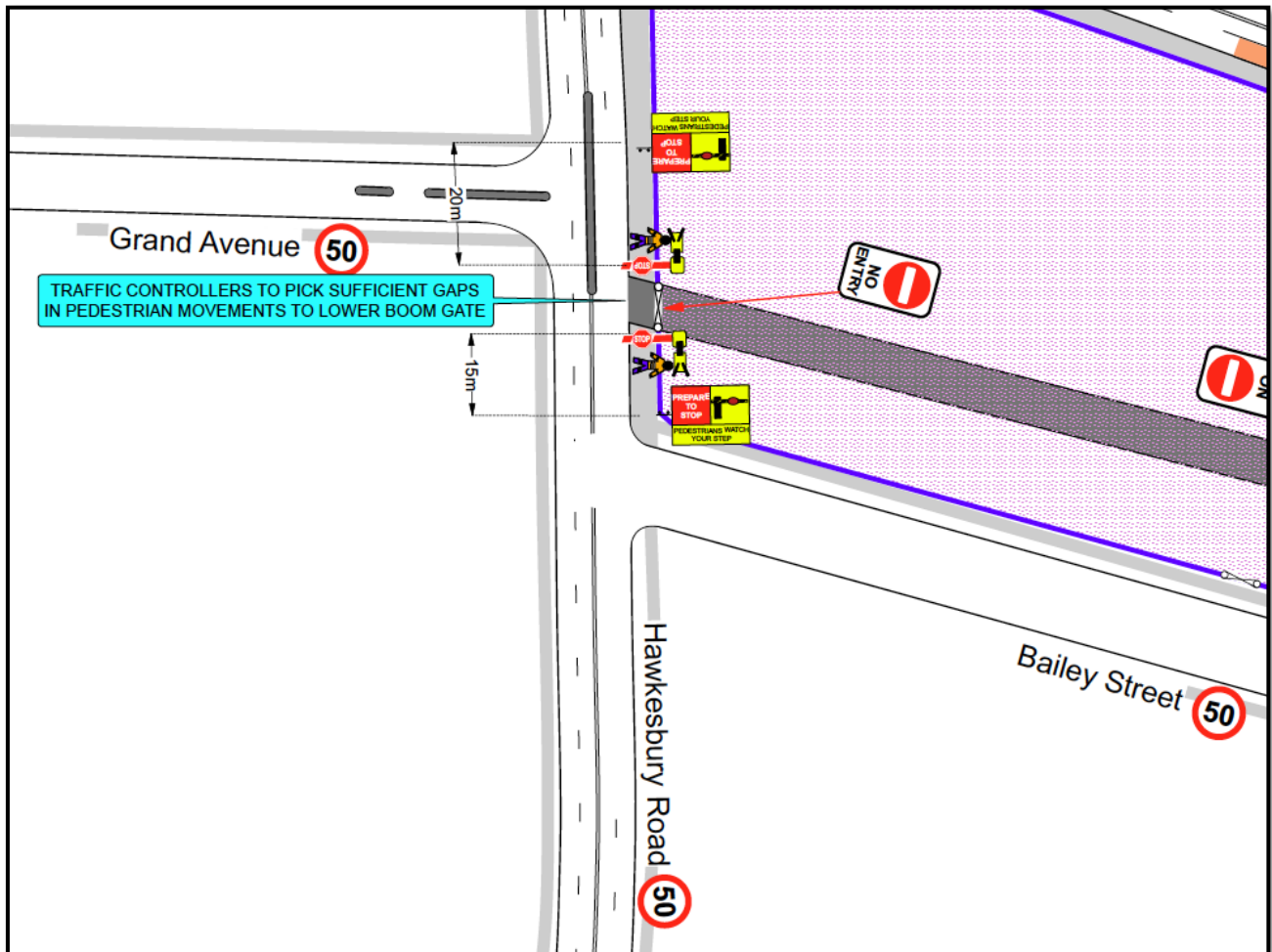


Figure 3-27: Westmead Site Exit

Vehicle access to and from the construction site will be managed to maintain pedestrian, cyclists, and motorist safety. At the Westmead site, pedestrian management will be in place to facilitate heavy vehicle movements.

Vehicle access into the site for heavy vehicles is proposed via Alexandra Avenue and Hassall St with egress proposed via Hawkesbury Road, refer to Figure 3-24: Proposed Heavy Vehicle route to and from the Westmead site. Driveways will be constructed in the Local Area Works to access and egress the site, refer to Local Area Works.

3.2.2 Swept Paths

Swept paths have been assessed for the Heavy Vehicles entering and exiting the site. The driveway in and out of the Westmead site will be constructed to accommodate the swept path requirements. 19m semi-trailers entering the site from Alexandra Ave left turn into Hassall St. Swept paths can be found in Appendix H.

3.2.3 Traffic Control Signal Design and Approval

Traffic Control Signal designs have been developed for the changes at TCS1583 at Hawkesbury Rd and Priddle St, TCS 3894 Alexandra Ave and Hassall St and for the new signals at TCS #TBC Hassall St and Bailey St. These designs will be approved through a separate TCS design review process with TfNSW prior to any works commencing onsite. The proposed TCS designs can be found in Appendix I.

3.3 All Works Impacts

3.3.1 Impact on public transport

There will be no impacts on the existing bus routes or stops along Alexandra Ave due to the local area works or site operations.

Access to Westmead train station will be maintained at all times.

3.3.2 Impact on active transport

There are a number of locations where impacts to pedestrian paths are required.

As noted in Section 3.1, the Traffic Control Signal works at Hassall St, Priddle St and Pitt St, pedestrians will be either managed through the worksite or detoured via existing crossings with works carried out on approved off peak or night shifts only to limit the impacts to pedestrians.

Cyclists utilising the road network will be managed through and around the site as per the general traffic. Cyclists using the footpath will follow any pedestrian detour routes, if the path is restricted cyclists will be asked to dismount and walk through the area.

TfNSW have also implemented a [Be truck aware](#) campaign which aims to show road users, the challenges that truck drivers face every day. Truck aware decals will be placed on either side of the existing driveways to be used. Decals will be audited on a biannual basis and replaced when required.

GLC will not block or disrupt access across pedestrian or shared user paths at any time unless alternate access is provided which complies with the applicable standard and an approved ROL and Council permit has been obtained.

The proposed locations of decals can be found in Figure 3-28



Figure 3-28: Be Truck Aware Decals

3.3.3 Impact on properties and utilities

There will be no impact to existing properties during the local area works or the site operations.

GLC will ensure that access to all utilities and properties will be maintained during works, unless otherwise agreed with the relevant utility owner, landowner, or occupier. Where access is affected, GLC will reinstate the access to an equivalent standard within one month of the completion of works, or as agreed by the landowner or occupier.

3.3.5 Cumulative impacts

There are a number of adjacent construction sites near the GLC works.

- Parramatta Light Rail work site is located at the Children's Hospital about 900m north of the existing rail line. The Light Rail is currently in the commissioning stages and PLR does not affect or interface with any traffic management of this project.
- Parramatta Council is building a new aquatic centre off Park Pde just west of Pitt St with no current impacts.

Regular contact will be maintained throughout the life of the project, through attendance at the Traffic Control Group (TCG) and Traffic and Transport Liaison Group (TTLG). And regular discussions/meetings with PLR and Cumberland Councils.

3.3.6 Impact on traffic flow

The EIS for the Sydney Metro West Stage 1 project, noted for light vehicles that the site operations phase of the works would have distinct peak travel periods, typically prior to post the standard construction hours and that light vehicle numbers would be fairly constant over the work day, refer to Figure 3-30.

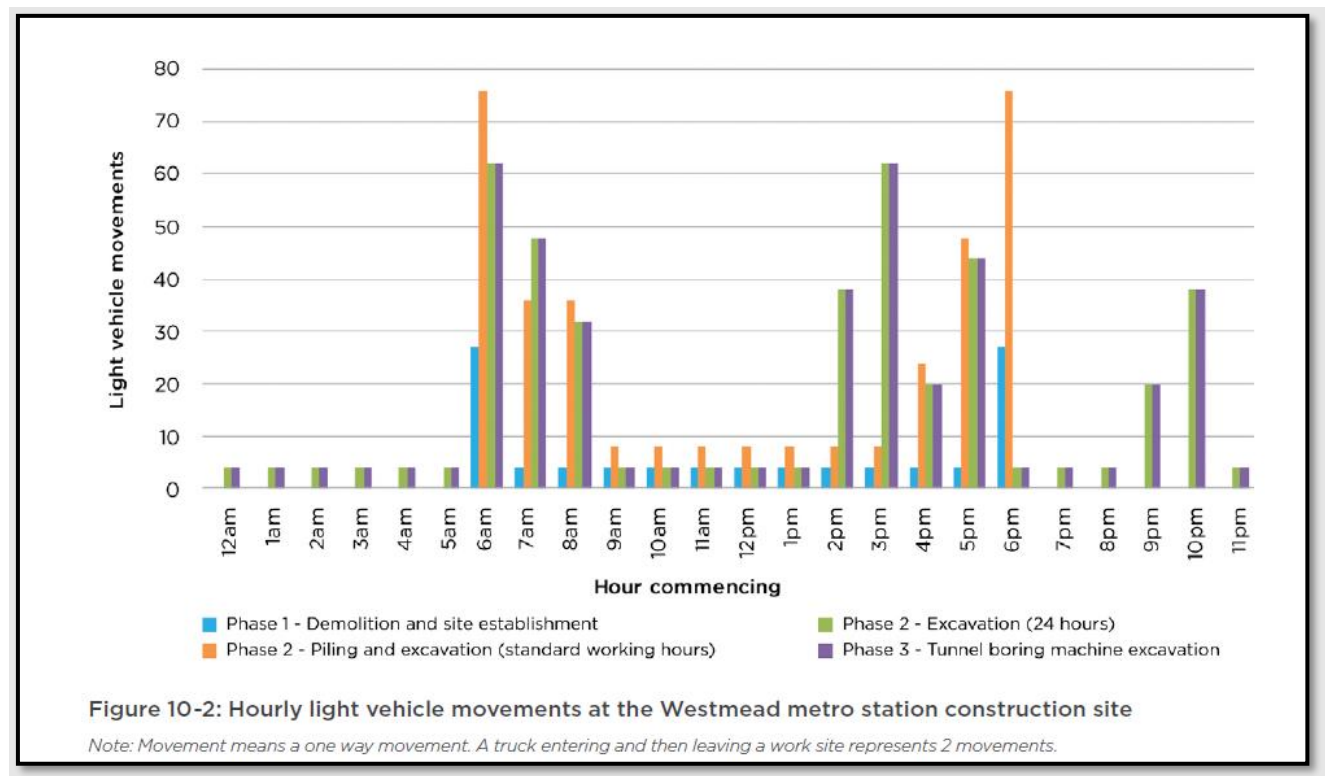


Figure 3-30: EIS light vehicle movements

For heavy vehicle movements, the EIS predicted movements were reduced during the AM and PM peak periods and evenly spread over the course of the rest of the work day, refer to *Figure 3-31*

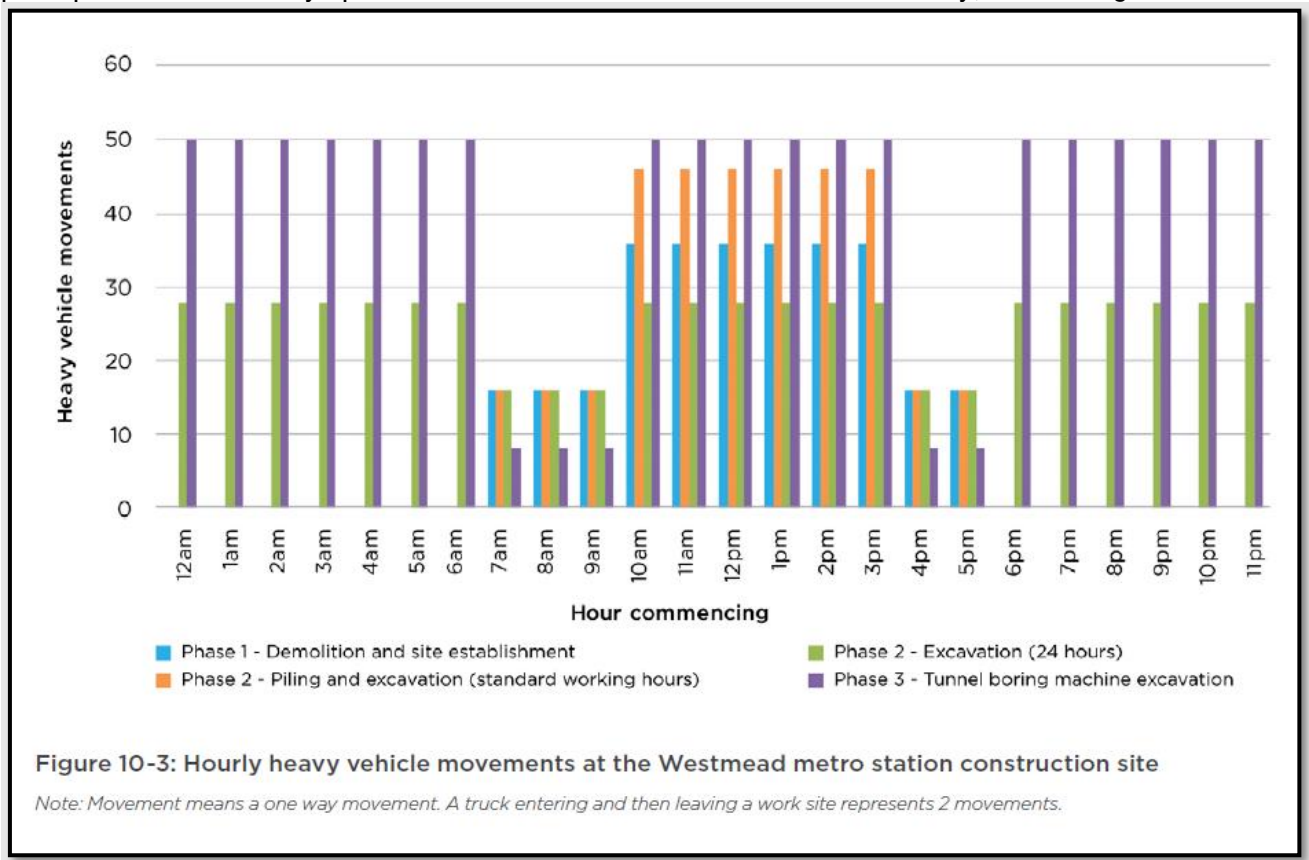


Figure 3-31: EIS hourly heavy vehicle movements (source: EIS Chapter 10 page 10-13)

During the phase 2 & 3 piling works at Westmead there is no change to the proposed EIS arrangements, see *Figure 3-31*.

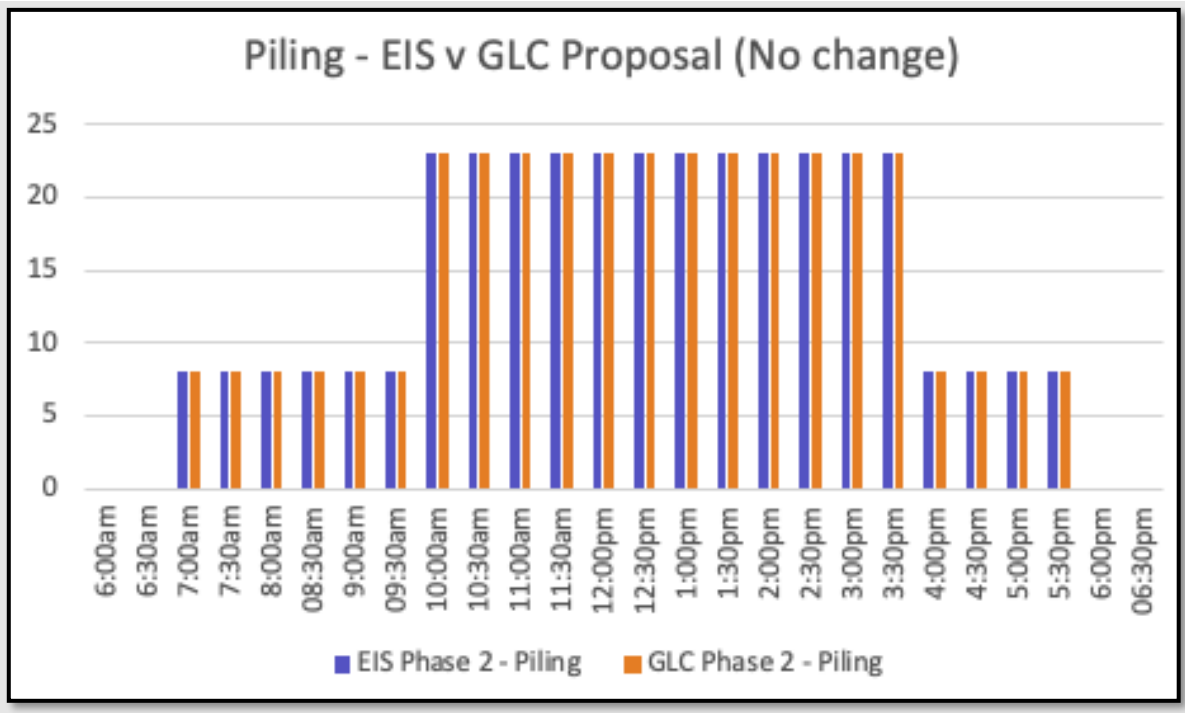


Figure 3-32: Proposed **30 minute** heavy vehicle movements during piling (no change to EIS)

To allow for reduced heavy vehicle movement numbers around the peak school times at Westmead Public School GLC are proposing to adjust the heavy vehicle movement timings for the excavation to reflect Figure 3-33. This does not increase the number of truck movements across the day although it does see the movement of heavy vehicles reduced during the peak school arrival and departure times.

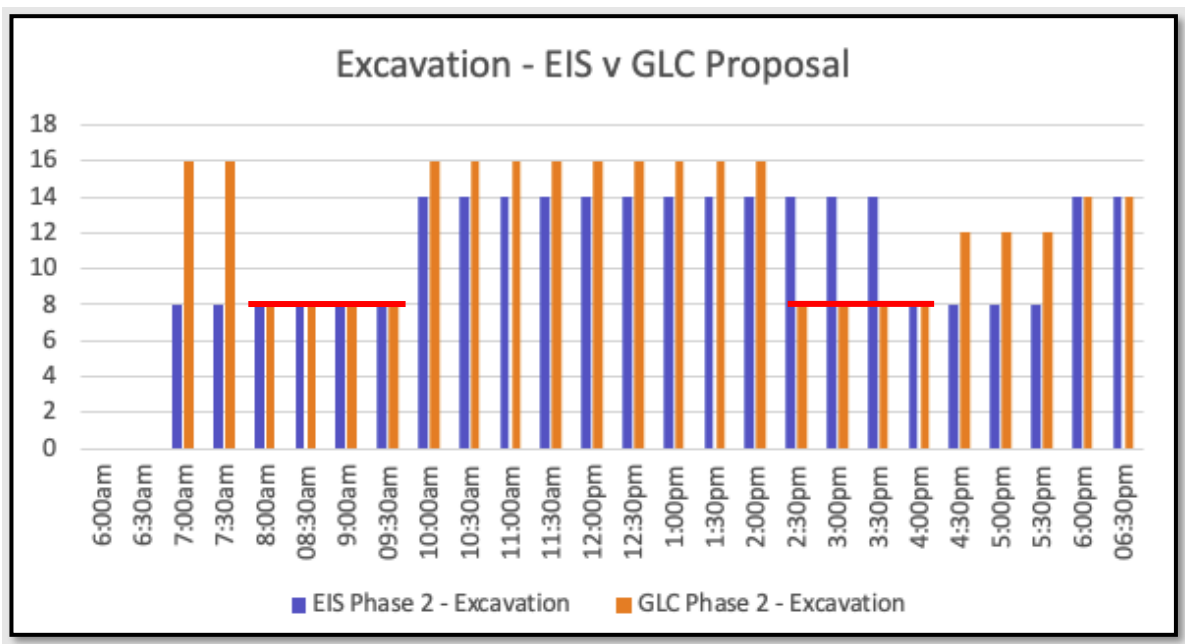


Figure 3-33: Proposed **30 minute** heavy vehicle movements during excavation

3.4 Special events

There are no known special events in Westmead that will impact the site. GLC will continue to interrogate the event and Cumberland Council websites that provide details on upcoming events.

3.5 Staff transport and parking

All staff parking during the site operations of the works will be catered for within the site. Additional overflow parking is available at the Clyde/Rosehill site where staff can get a GLC minibus to Parramatta train station for access to Westmead via Sydney Trains.

3.6 Temporary Works Approvals

3.6.1 Road occupation and restoration

For any works that involve an occupation of the road/ footpath a TGS will be developed and an Road Occupancy License (ROL) will be sought from the Transport Management Centre (TMC) will be applied for prior to the submission of a ROL from the Cumberland Council. ROL through the TMC will be applied for a minimum of 10 business days from the proposed start date. Electronic lodgement of the ROL will be undertaken using TfNSW's OpLinc system.

Council permits will be lodged electronically in accordance with the Cumberland Council requirements. For any works where parking is temporary impact, GLC will ensure that the parking removal is staged to minimise the time of parking space occupation.

For any road opening required, the relevant Road Opening Permit (ROP) will be applied for through the existing Cumberland Council website. The ROP will also be accompanied by a ROL. Details on the permits required are found at [Cumberland Council](#).

4 HEAVY VEHICLE ROUTES

Trucks to be used on the project will be compliant with NSW legislation, Sydney Metro's Principal Contractor Health and Safety Standard, relevant Australian Design Rules and vehicle standards and the Heavy Vehicle National Legislation. All heavy vehicle operations will be conducted in accordance with GLC's Chain of Responsibility (CoR) Management Plan, including monitoring of compliance with nominated haulage routes.

A combination of truck types will be used during the site operations works, with trucks being truck and dog, 12.5m Single Unit trucks and low loaders. All trucks will enter and exit the site in a forward direction, where reasonable and feasible. Where there is a requirement to undertake reversing movements on the public road system, appropriate traffic control will be implemented.

Construction site traffic will be managed to minimise movements during peak periods and movements through school zones during pick up and drop off times. This will be achieved through scheduling of vehicles and staggered start and finish times. GLC will provide sufficient onsite parking for heavy vehicles. This will ensure that vehicles are not idling or queuing on public roads. GLC will provide sufficient onsite parking for heavy vehicles associated with the works. This will ensure that vehicles are not idling or queuing on state, regional and local roads. In the event that vehicles are unable to be accommodated, vehicles will be directed to the Clyde site as an extended marshalling facility. Given the amount of space available at the Clyde site there is no requirement for any further marshalling facilities.

4.1 Heavy vehicle routes and compliance

Generally, the heavy vehicle routes will be via arterial roads/ freeways/ tollways. Where possible the routes have considered the requirements of the Environmental Impact Statement (EIS). It is noted that the EIS for this site shows access via Hawkesbury Road and Bailey Street, however, this route is based on a right turn into Bailey Street, which is not favoured. As noted, we proposed to use Hawkesbury Rd and right turn directly into site during the nightshifts from 10pm to 6am for the works detailed in section 3.1.5. The EIS also notes the egress out of site via Hawkesbury Road, refer to Figure 4-1. The Westmead Heavy Vehicle Load Report (HVLR) document has been approved by the Department of Planning and Environment (DPE).

All routine heavy vehicle drivers will undergo Sydney Metro Heavy Haulage Training and complete the heavy vehicle GLC driver induction which includes the risks driving around schools. Geo fences have been setup in the truck telematics systems to notify drivers of the school on Pitt St and Hawkesbury Rd and to use caution. A routine delivery is defined as a vehicle and or driver that makes 5 or more visits to the site. A heavy vehicle is defined as a vehicle over 4.5T.

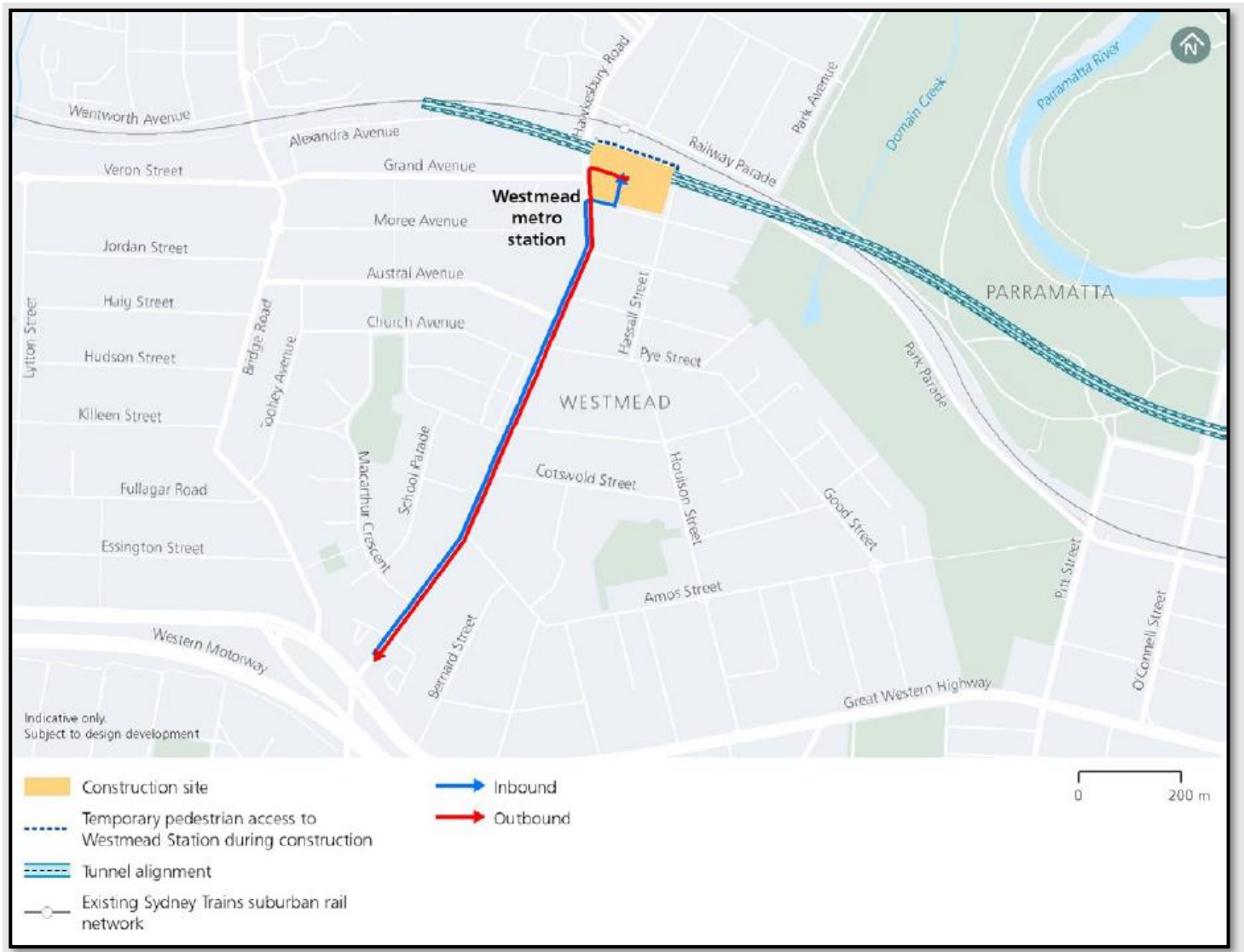


Figure 4-1: EIS nominated heavy vehicle routes

The route proposed by GLC into the site is via The Great Western Highway on to Pitt St northbound, left into Park Parade, left into Hassall St and right into the Westmead site, the egress route will follow the EIS route. During night shifts between 10pm and 6am vehicles detailed in section 3.1.5 will enter and exit site from Hawkesbury Rd which is the approved EIS route. Refer to Figure 4-2.

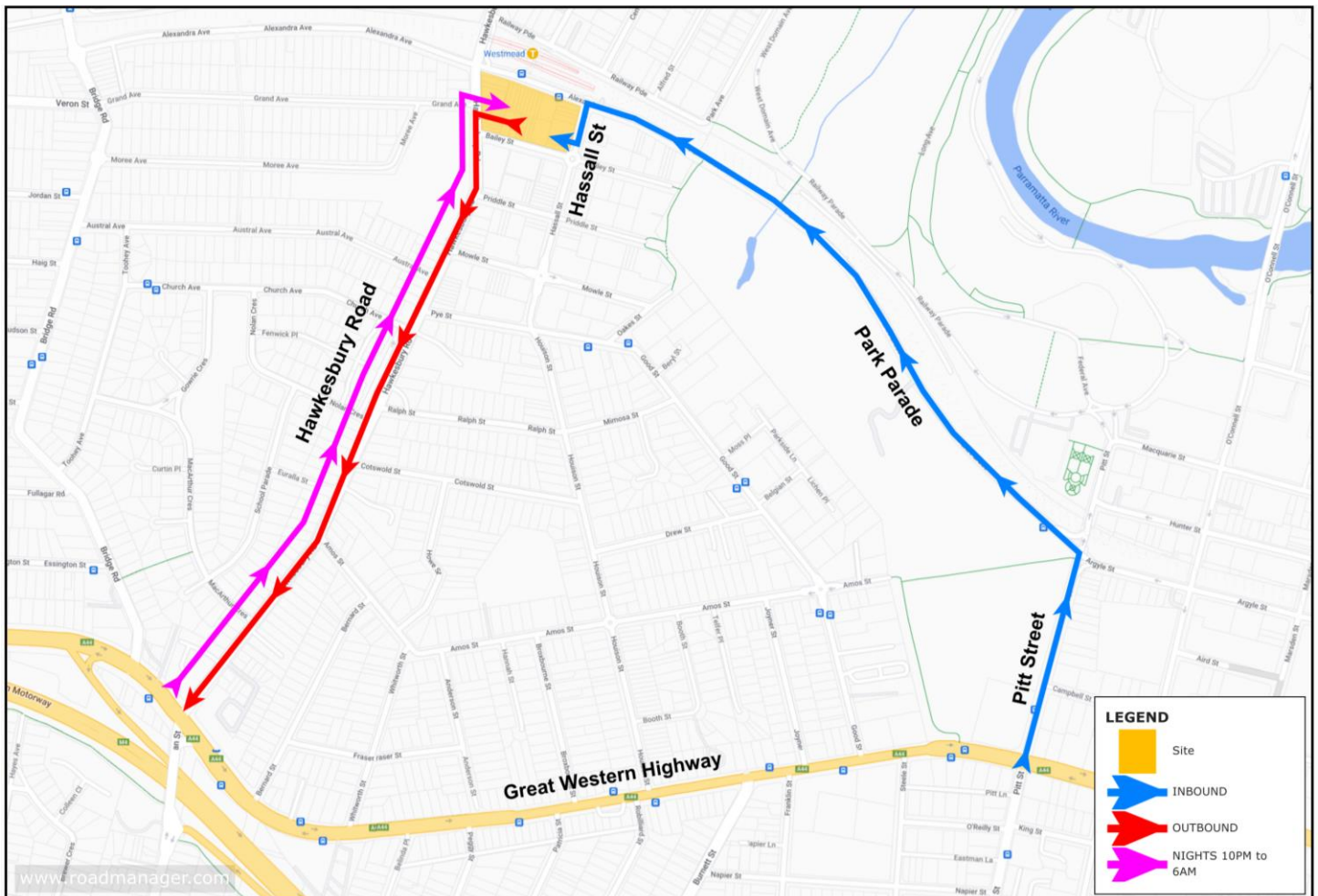


Figure 4-2: Proposed heavy vehicle route

4.2 Permits / Over dimensional vehicles

Permit issue for vehicles greater than 4.5 tonnes is through the National Heavy Vehicle Regulator (NHVR). This applies to particular special purpose vehicles (SPV) such as mobile cranes and other oversize/ over mass (OSOM) vehicles. At present, TfNSW is currently undertaking this permit issue.

For over dimensional vehicles, generally vehicles that are greater than 25m in length or 3.5m width require a pilot(s). Extremely long or wide vehicles will require an escort (fee payable). Permits will be applied for by the transport operator.

Oversize vehicles will be required at this site for the delivery of large plant, tunnel boring machine and piling rigs. These deliveries will occur outside of peak hours. Contractors will manage their own permits.

5 MINISTERIAL CONDITIONS OF APPROVAL

There are a number of plans/ reports that are required under the Ministerial Conditions of Approval (MCoA) as noted in Appendix A and included in subsequent appendices of this CTMP.

5.1 Heavy Vehicle Local Road (HVLR) report

A Heavy Vehicle Local Road is to be provided to the Planning Secretary for approval, for use of local roads not identified in the EIS or other planning documents. The report includes 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).

Local roads that are proposed to be used include:

- Hassall St between Bailey St and Alexandra Ave and Bailey St between Hawkesbury Rd and Hassall St

Refer to Appendix C Heavy Vehicle Local Road Report

5.2 Construction Parking and Access Strategy (CPAS)

A Construction Parking and Access Strategy is to be provided to the Planning Secretary for approval at least one (1) month before the commencement of construction that reduces the availability of existing parking. The approved strategy will be implemented before impacting on street parking. The CPAS identifies and provides mitigation measures to alleviate the impacts from on and off street parking changes during construction. The CPAS includes the following:

- f) Achieving the requirements of MCoA D90 which includes:
 - a) Minimise parking on public roads
 - b) Minimise idling and queuing on state and regional roads
 - c) Not carry out marshalling of construction vehicles near sensitive land user(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 CTMPs
- g) Confirmation and timing of the removal of on and off street parking associated with construction of stage 1 of the CSSI
- h) Parking surveys of all parking spaces to be removed or occupied by the project workforce to determine current demand during peak, off peak, school drop off and pickup, weekend periods and during special events
- i) Consultation with affected stakeholders utilising exiting on and off street parking stock which will be impacted as a result of construction

- j) Assessment of the impacts to on and off-street parking stock taking into consideration occupation by the project workforce, outcomes of consultation with affected stakeholders and considering the impacts of special events
- k) Identification of reasonable and practicable mitigation measures to manage impacts to stakeholders as a result of on and off-street parking changes including but not necessarily limited to, staged removal and replacement of parking, provision of alternative parking arrangements, managed staff parking arrangements and working with relevant council(s) to introduce parking restrictions adjacent to work sites and compounds or appropriate residential parking schemes.
- l) Where resident parking schemes already exist, off road parking facilities must be provided for the project workforce
- m) Mechanisms for monitoring, over appropriate intervals (not less than six (6) months), to determine the effectiveness of implemented mitigation measures
- n) Details of shuttle bus service(s) to transport the project workforce to construction sites from public transport hubs and off-site car parking facilities, where these are provided, and between construction sites
- o) Provision of contingency measures should the results of mitigation or monitoring indicate implemented measures are ineffective and
- p) Provision of reporting of monitoring results to the Planning Secretary and relevant Council(s) at six (6) monthly intervals

A copy of that CPAS is provided in Appendix D.

5.3 Road dilapidation report

Road dilapidation reports will be provided for the local roads used by construction vehicles. These reports will be undertaken prior to the use of these roads. A copy of the report(s) will be provided to the relevant road authority within three (3) of complement of the survey and no later than one (1) month before the road is used.

If damage to roads occurs as a result of heavy vehicle use associated with the construction works, GLC, will, at the relevant road authority's discretion:

- Compensate the relevant road authority for the damage so caused or
- Rectify the damage to restore the road to at least the condition it was in pre-work as identified in the road dilapidation report

A copy of the Road Dilapidation Report transmittal to the Cumberland Council is provided in Appendix C of the HVLR included in this CTMP.

6 COMMUNITY AND CONSULTATION

6.1 Communications and the community

Table 4 notes the notifications to be provided to the local community and travelling public for the site operations works, associated with this CTMP.

Any enquiries, compliments or complaints will be directed to GLC's communications team via

- Information line 1800 612 173
- Email metrotunnels@transport.nsw.gov.au
- Mailing address Sydney Metro West, PO BOX K659, Haymarket, NSW 1240

Table 4: Proposed community notifications

Notification	Applicable?
Newsletters	Yes
Construction email updates	Yes
Fact sheets	Yes
Site signage	Yes
GLC website	Pending
Sydney Metro website	Pending

6.2 Stakeholders

Various stakeholders will be consulted for further development of this CTMP. Stakeholder details that have been consulted are provided in Table 5.

Table 5: Stakeholder consultation details

Stakeholder	Date	Consultation type
Sydney Metro Traffic Control Group TfNSW-Customer Journey Planning	18 th August 2022	Presentation
TfNSW Customer Journey Planning	18 Nov 22, 9 Jan 23, 18 Jan 23, 4 Aug 23 & 6 Sept 23	Submission of CTMP
Sydney Metro West	18 Nov 22, 9 Jan 23, 18 Jan 23, 4 Aug 23 & 6 Sept 23	Submission of CTMP
Cumberland Council	18 Nov 22, 9 Jan 23, 18 Jan 23, 4 Aug 23 & 6 Sept 23	Submission of CTMP
School	30 May 2022, July 2022, 21 Sept 2022	Meetings
Residents	Oct 4 th to Oct 11 th	Doorknocking
Cumberland Council	10 th Oct 2022	Meeting presentation
	2 nd Nov 2022	Local Council Traffic Committee

Stakeholder	Date	Consultation type
Additional Stakeholder communications can be found in Appendix F		

7 OTHER CONSIDERATIONS

7.1 Road safety audits

Road safety audits will be undertaken during the development of the CTMP and upon implementation of the long term work site, refer to Appendix E.

7.2 Inspections and monitoring

Typical inspections and monitoring are as per Table 6.

Table 6: inspections and frequency

Stage	Activity	Timetable
Planning	TGS verification	Carried out by the Traffic Manager all TGS
	Road Safety Audit	Desktop RSA carried out on all CTMPs
During temporary traffic management	Weekly inspections	Carried weekly onsite
	Shift inspection	Carried out by Lack Group on the commencement of any works
	CTMP review	Overarching CTMP is reviewed monthly by the Traffic Manager
	Road Safety Audits	Carried out on new CTMP arrangements onsite
Post completion	Post completion inspection	Carried out by the Traffic Manager and site representative prior to a new road or footpath opening to the public

7.3 Emergency services and incident management

7.3.1 Emergency Services Impacts

Emergency services will not be directly impacted by our works at Westmead. Access to properties for emergency vehicles will be provided at all times.

Relevant Emergency Services will be informed, in a timely manner of relevant activities proposed within this CTMP. The initial communication to these stakeholders will be via the TTLG. Regular updates will be provided to Emergency Services representatives noting changes to the road network, changes to road conditions and worksite access locations.

7.3.2 Incident Management

In the event of an incident that has the potential to impact traffic or public transport, at sites managed by GLC, GLC will ensure that traffic control resources are provided through our traffic control contractors to assist. These resources include:

- Traffic control personnel
- Traffic control vehicle containing:
 - Barrier boards
 - Cones/ bollards
 - Flashing arrow
 - Signs
 - Spill kit

GLC, after contacting the relevant emergency services and the Transport Management Centre (13 17 00), will report all traffic incidents to Sydney Metro and Customer Journey Planning within the first hour of becoming aware of the incident. In the event that an incident occurs outside of normal working hours the onsite contact list in section 7.4 can be used to arrange resources required.

7.4 On site contacts

Site contacts who can be contacted 24/7

Table 7: Site contacts

Name	Position	Organisation	Contact #	Email
Brendan McNally	Traffic Manager	GLC	0411 114 953	brendan.mcnally@glcwtp.com.au
Tom Olorenshaw	Project Manager	GLC	0419 209 064	tom.oloreshaw@glcwtp.com.au
Paul Hurley	Superintendent	GLC	0448 915 545	paul.hurley@glcwtp.com.au
Andy Thompson	Surface Works Construction Manger	GLC	0423 479 033	andy.thompson@glcwtp.com.au
Tania Harper	Place Manager	GLC	0419 182 048	tania.harper@glcwtp.com.au

A COMPLIANCE TABLES

Table 8: Relevant Ministerial Conditions of Approval

Requirement	Details	Where addressed
MCoA D80	Access to all utilities and properties must be maintained during works, unless otherwise agreed with the relevant utility owner, landowner or occupier	Section 3.3.3
MCoA D81	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 time frame agreed with the landowner or occupier	Section 3.3.3
MCoA D85	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	This plan
MCoA D86	Local roads proposed to be used by Heavy Vehicles to directly access construction sites that are not identified in the documents listed in Condition A1 of this schedule must be approved by the Planning Secretary and be included in the CTMP	Section 4.1 Appendix C
MCoA D87	All requests to the Planning Secretary for approval to use local roads under Condition D86 must include the following: <ul style="list-style-type: none"> 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 or 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) Measure 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 	Appendix C Appendix H Section 3.3.6 Section 5.1

Requirement	Details	Where addressed
	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	
MCoA D88	Before any local road is used by a Heavy Vehicle for the purposes of construction of Stage 1 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 Stage 1 of the CSSI	Section 5.3 and Appendix C
MCoA D89	If damage to roads occurs as a result of the construction of Stage 1 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	Section 5.3
MCoA D90	Vehicles associated with the project workforce (including light vehicles and Heavy Vehicles) must be managed to: a) Minimise parking on public roads	Section 3.5
	b) Minimise idling and queuing on state and regional roads	Section 4
	c) Not carry out marshalling of construction vehicles near sensitive land user(s)	Section 4
	d) Not block or disrupt access across pedestrian or shared user paths at any time unless alternate access is provided and	Section 3.3.2
	e) Ensure spoil haulage vehicles adhere to the nominated haulage routes identified in the CTMP	Section 4.1
MCoA D91	A Construction Parking and Access Strategy must be prepared to identify and mitigate impacts resulting from on and off-street parking changes during construction. The Construction Parking and Access Strategy must include, but not necessarily limited to:	Appendix D

Requirement	Details	Where addressed
	<ul style="list-style-type: none"> a) Achieving the requirement of Condition D90 above b) Confirmation and timing of the removal of on and off-street parking associated with construction of Stage 1 of the CSSI c) Parking surveys of all parking spaces to be removed or occupied by the project workforce to determine current demand during peak, off peak, school drop off and pick up, weekend periods and during special events d) Consultation with affected stakeholder utilising existing on and off-street parking stock which will be impacted as a result of construction e) Assessment of the impacts to on and off-street parking stock taking into consideration, occupation by the project workforce, outcomes of consultation with affected stakeholders and considering the impacts of special events. f) Identification of reasonable and practicable mitigation measures to manage the impacts to stakeholders as a result of on and off-street parking changes including but not necessarily limited to, staged removal and replacement of parking, provision of alternative parking arrangements, managed staff parking arrangements and working with relevant council(s) to introduce parking restrictions adjacent to work sites and compounds or appropriate residential parking schemes g) Where residential parking schemes already exist, off road parking facilities must be provided for the project workforce h) Mechanisms for monitoring, over appropriate interval (not less than 6 months) to determine the effectiveness of implemented mitigation measures i) Details of shuttle bus service(s) to transport the project workforce to construction sites from public transport bubs and off-site car parking facilities (where these are provided) and between construction sites j) Provision of contingency measures should the results of mitigation or monitoring indicate implemented measures are ineffective and k) Provision of reporting or monitoring results to the Planning Secretary and Relevant Council(s) at six (6) monthly intervals 	

Requirement	Details	Where addressed
MCoA D92	The Construction Parking and Access Strategy must be submitted to the Planning Secretary for approval at least one (1) month before the commencement of any construction that reduces the availability of existing parking. The approved Construction Parking and Access Strategy must be implemented before impacting on on-street parking and incorporated into the CTMPs	Section 5.2 and Appendix D
MCoA D93	During construction, all reasonably practicable measures must be implemented to maintain pedestrian, cyclists 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 minimised, alternate pedestrian, cyclists and vehicular access, and parking arrangements must be developed in consultation with affected businesses and implemented before the disruption. Adequate signage and directions to businesses must be provided before, and for the duration of any disruption	Section 3.3.2
MCoA D94	A Traffic and Transport Liaison Group(s) must be established in accordance with the Construction Traffic Management Framework to inform the development of CTMPs	Refer to the latest overarching CTMP SMWSTWTP-GLO-1NL0NL00-TF-PLN-000001 Section 9.3.1
MCoA D95	Supplementary analysis and modelling as required by Sydney Metro 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 pedestrians, bicycle and public transport networks, public transport services, and pedestrian and cyclist movements. Revised traffic management measures must be incorporated into the CTMPs	Refer to the latest overarching CTMP SMWSTWTP-GLO-1NL0NL00-TF-PLN-000001 Section 9.3.1
MCoA D96	The permanent road works at Clyde/ Rosehill 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 networks and avoid deterioration in peak period levels of service in relation to permanent and operational changes. Design and assessment of related traffic, parking, pedestrian and cycle accessibility impacts and changes shall be undertaken in:	Not relevant to the CTMP – Refer to Design process

Requirement	Details	Where addressed
	<ul style="list-style-type: none"> 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) and performance and safety requirements c) To minimise and manage local area traffic impacts d) To ensure access is maintained to property and infrastructure and e) To meet relevant design, engineering and safety guidelines, including Austroads, Australian Standards and TfNSW requirements <p>Copies of civil, structure and traffic signal design plans shall be submitted to the Relevant Road Authority for consultation during design development and before completion of construction of Stage 1 of the CSSI</p>	
MCoA D97	Permanent road works, including vehicular access, signalised intersection works, and works relating to pedestrians, cyclist 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	Not relevant to the CTMP – Refer to Design process
MCoA D98	Safe pedestrian and cyclist access must be maintained around construction sites 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	Section 3.3.2
MCoA D99	Opportunities to maximise spoil material removal by non-road methods must be investigated and implemented where reasonably practicable to minimise movements by road	Not practical for Westmead site

Table 9: Relevant Revised Environmental Management Measures

Requirement	Impact/ issue	Details	Where addressed
TT1	Changes to the network	The community would be notified in advance of proposed road and pedestrian network changes through appropriate forms of community liaison	Section 6
TT2	Traffic incidents	In the event of a traffic related incident coordination would be carried out with Transport for NSW including Transport Coordination and/ or Traffic Management Centre's Operations Manager	Section 7.3
TT3	Emergency vehicle access	Access to properties for emergency vehicles would be provided for at all times	Section 7.3.1
TT4	Road safety	Vehicle access to and from construction sites would be managed to maintain pedestrian, cyclists and motorist safety. Depending on the location this may require manual supervision, physical barriers, temporary traffic signals and modifications to existing signals or on occasions police presence	Section 3.1 Section 3.2
TT5	Road safety	Additional enhancements for pedestrian, cyclist and motorist safety near the construction sites would be implemented during construction. This would include measures such as:	Appendix C
		<ul style="list-style-type: none"> Assessing the suitability of construction haulage routes through sensitive land use areas with respect to road safety 	Refer to Appendix B TGS for details of where speed signage and if required, any supporting VMS are implemented.
		<ul style="list-style-type: none"> Deployment of speed awareness signs in conjunction with variable message signs near construction sites to provide alerts to drivers 	
		<ul style="list-style-type: none"> Providing community education and awareness about sharing the road safely with heavy vehicles 	Appendix C

Requirement	Impact/ issue	Details	Where addressed
		<ul style="list-style-type: none"> Specific construction driver training to understand the route constraints, safety and environmental considerations such as sharing the road safety with other road users and limiting the use of compression braking 	Appendix C
		<ul style="list-style-type: none"> Requiring technology and equipment to improve vehicle safety, eliminate heavy vehicle blind spots and motor vehicle location and driver behaviour 	Appendix C
TT6	Road safety	<ul style="list-style-type: none"> All trucks would enter and exit construction sites in a forward direction, where reasonable and feasible 	Section 4
TT7	Congestion	Construction site traffic would be managed to minimise movements during peak periods	Section 4
TT8	Congestion	Construction site traffic immediately around construction sites (WMS, PMS, BNS and FDS) would be managed to minimise vehicle movements through school zones during pick up and drop off times	Applicable to Westmead (WMS), Parramatta (PMS), Burwood North (BNS) and Five Dock (FDS) only as noted in the REMM Section 3.3.6/Figure 3.43
TT9	Congestion	Opportunities to minimise impacts at the Alexandra Avenue/ Bridge Road intersection would be determined in consultation with Transport for NSW	Applicable to Westmead site as noted in the REMM Section 3.3.6/Figure 3.43
TT10	Loss of parking	Where existing parking is removed to facilitate construction activities, consultation would occur with the relevant local council to investigate opportunities to provide alternative parking facilities	Section 6 Appendix F Table 5 – Local Traffic Committee meeting
TT11	Loss of parking	<p>Construction sites would be managed to minimise the number of construction workers parking on surrounding streets by:</p> <ul style="list-style-type: none"> Encouraging workers to use public or active transport Encouraging ride sharing 	Appendix D

Requirement	Impact/ issue	Details	Where addressed
		<ul style="list-style-type: none"> Provision of alternative parking locations and shuttle bus transfers where feasible and reasonable 	
TT12	Change of bus stop locations	Any temporary closure or relocation of bus stops and kiss and ride facilities would be carried out in consultation with Transport for NSW including Transport Coordination (for relevant locations), the relevant local council and bus operators. Wayfinding and customer information would be provided to notify customers of relocated bus stops	Applicable to Westmead (WMS), North Strathfield (NSMS), Burwood North (BNS) and The Bays (TBS) only as noted in the REMM
TT13	Bus priority	Opportunities to improve bus priority along the temporary detour at Westmead metro station construction site would be investigated during detailed design	Applicable to Westmead site design drawing review process as noted in the REMM
TT14	Active transport	Pedestrian and cyclist access would be maintained during the temporary closure of Alexandra Avenue at Westmead. Wayfinding and customer information would be provided to guide pedestrians and cyclists to alternative routes	Applicable to Westmead site as noted in the REMM and there are no plans on temporarily closing Alexandra Ave at Westmead
TT15	Impacts on active transport	Where existing cyclists facilities, (eg: bicycle parking) would be temporary unavailable to facilitate construction activities, suitable replacements facilities would be provided for this duration	Section 3.3.2
TT17	Impacts on special events	<p>During major special events, impacts to the transport and traffic network would be reduced by, (as necessary)</p> <ul style="list-style-type: none"> Minimising the level of construction activity and, if necessary, ceasing all construction activity Maintaining appropriate access to all areas within the event precinct Erection of hoardings, site fencing and gates at key locations with the construction site boundary, to permit pedestrian movements adjacent to the construction site and separate pedestrians from construction vehicles 	Section 3.4

Requirement	Impact/ issue	Details	Where addressed
		<ul style="list-style-type: none"> Scheduling deliveries to the construction site outside of special event periods 	
TT18	Property access	Access to existing properties and buildings would be maintained in consultation with property owners	Section 3.3.3
TT19	Construction vehicle impacts	Traffic control measures required at the Parramatta metro station construction site access on George Street would be determined in consultation with Transport for NSW	Applicable to the latest Parramatta site CTMP as noted in the REMM
C11	Occurrence of cumulative impacts	<p>Coordination and consultation with the following stakeholders would occur, where required, to manage the interface of projects under construction at the same time:</p> <ul style="list-style-type: none"> Transport for NSW including Transport Coordination Department of Planning, Industry and Environment Sydney Trains NSW Trains Sydney Buses Sydney Water Port Authority of NSW Sydney Motorways Corporation Emergency Services providers Utility providers Construction contractors <p>Coordination and consultation with these stakeholders would include:</p> <ul style="list-style-type: none"> Provision of regular updates to the detailed construction program, construction sites and haul routes Identification of key potential conflict points with other construction projects 	Section 6

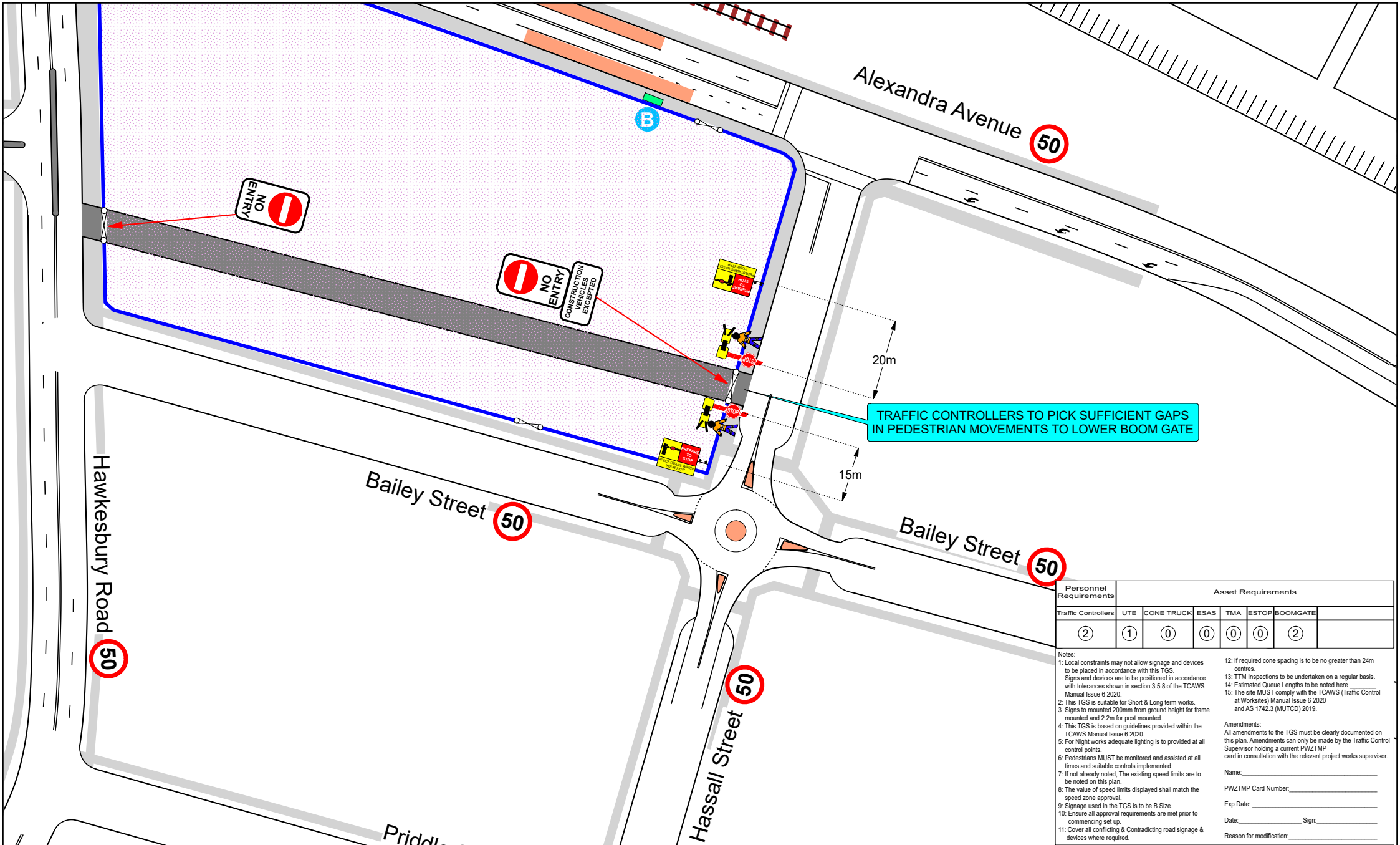
Requirement	Impact/ issue	Details	Where addressed
		<ul style="list-style-type: none">• Developing mitigation strategies in order to manage conflicts. Depending on the nature of the conflict this could include:<ul style="list-style-type: none">– Adjustments to the Sydney Metro construction program work activities or haul routes or adjustments to the program activities or haul routes of other construction projects– Coordination of traffic management arrangements between projects	

B TGS

Table 10: TGS

TGS#	Location	Time of Day	Works	Impacts	Section
Site Driveway Gate Operations					
GLC -065	Hassall St Gate Operation	Site hours	Ped Management	Low impact to pedestrians	3.2.1
GLC -066	Hawkesbury Rd Gate Operation	Site hours	Ped Management	Low impact to pedestrians	
LGP-42478	Hawkesbury Rd night entry gate operation	10pm to 6am	Ped Management	Low impact to pedestrians	3.1.5
New TCS site at Hassall St and Bailey St Intersection					
32547	Intersection of Hassall St and Bailey Sts	Off peak	Kerb adjustments, NW corner works	Temporary Stop/slow	3.1.4
32552		Off peak	Kerb adjustments, SW corner works	Temporary Stop/slow	
32553		Off peak	Kerb adjustments, SE corner works	Temporary Stop/slow	
32564		Off peak	Kerb adjustments, NE corner works	Temporary Stop/slow	
32625		Night	Roundabout removal	Temporary Stop/slow	
32647		Night	Centre islands	Temporary Stop/slow	
Changes at the intersection of Hawkesbury Rd and Priddle St					
GLC-041	Hawkesbury Rd at Priddle St southbound	Off peak & Night shift	TCS post footing, pram ramps	Lane 1 closure	3.1.3
GLC-040	Hawkesbury Rd at Priddle St northbound	Off peak & Night shift	TCS post footing, pram ramps, type 1 pedestrian fencing	Lane 1 closure	

TGS#	Location	Time of Day	Works	Impacts	Section
GLC-038	Hawkesbury Rd at Priddle St southbound	Night shift	TCS post, paving and line marking	Stop slow in the northbound lane 1 lane	
GLC-037	Hawkesbury Rd at Priddle St northbound	Night shift	TCS post, paving and line marking	Stop slow in the southbound lane 1 lane	
GLC-039	Hawkesbury Rd & Priddle St	Night shift	TCS post, paving and line marking	Lane 1 SB closed Priddle St closed at Hawkesbury Rd	
GLC-042	Priddle St at Hawkesbury Rd	Off peak & Night shift	Pram ramps, paving and line marking	Lane 1 closed WB on Priddle St	



Personnel Requirements		Asset Requirements						
Traffic Controllers	UTE	CONE TRUCK	ESAS	TMA	ESTOP	BOOMGATE		
2	1	0	0	0	0	2		

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Name: _____


PWZTMP Card Number: _____

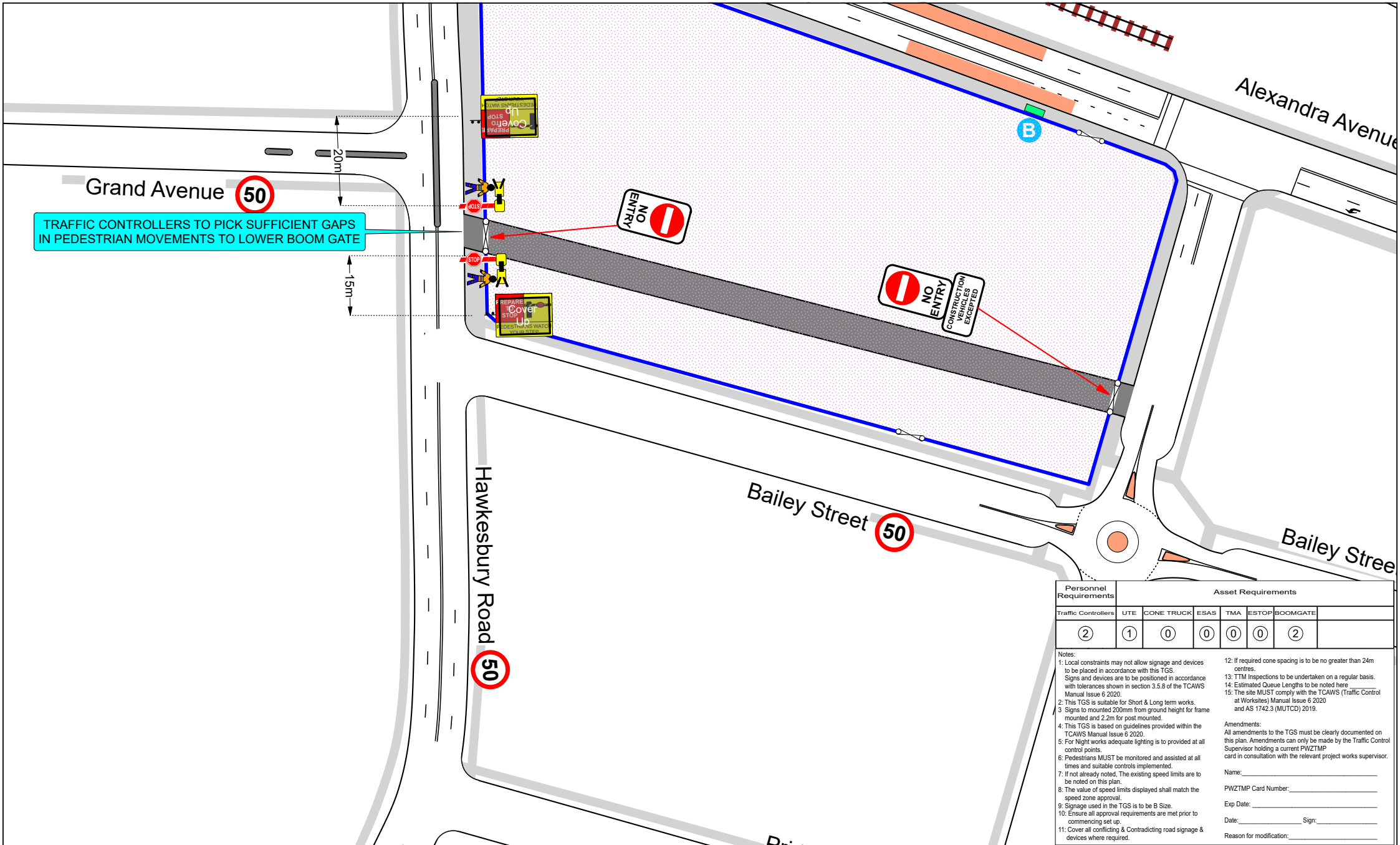
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Date: _____ Sign: _____

Reason for modification: _____

Revisions	No:	Date:	Time:	Description:	Appr:	CLIENT:	SCALE:	PROJECT:		WORK ACTIVITY:		
	0	20/12/22	10:15pm	Issued for Implementation	MC	GAMUDA / LAING O'ROUKE CONSORTIUM	1:750	GLC - SYDNEY METRO WEST - WTP		Pedestrian Management		
	1	16/08/23	1:40pm	Amended as per comments	AC		Original Size A3	TITLE: HASSALL ST WESTMEAD		TGS NUMBER: 065	PAGE NO: 1 of 1	
	1	22/08/23	12:18pm	Amended as per comments			 	 Planning Division Ph: 02 8319 4898 Email : LGP@Lackgroup.com.au	Drawn By: Peter Ingram	Certification Type : PWZ	Certification Number: 0051 721 258	Signed: 
					Approved By: Morgan Cross				Certification Type : PWZ	Certification Number: TCT0052862	Signed: 	
					Implemented by:				Certification Type :	Certification Number:	Signed:	





Personnel Requirements		Asset Requirements						
Traffic Controllers	UTE	CONE TRUCK	ESAS	TMA	ESTOP	BOOMGATE		
2	1	0	0	0	0	2		

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
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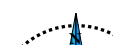
PWZTMP Card Number: _____

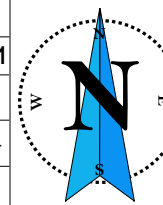
Exp Date: _____

Date: _____ Sign: _____

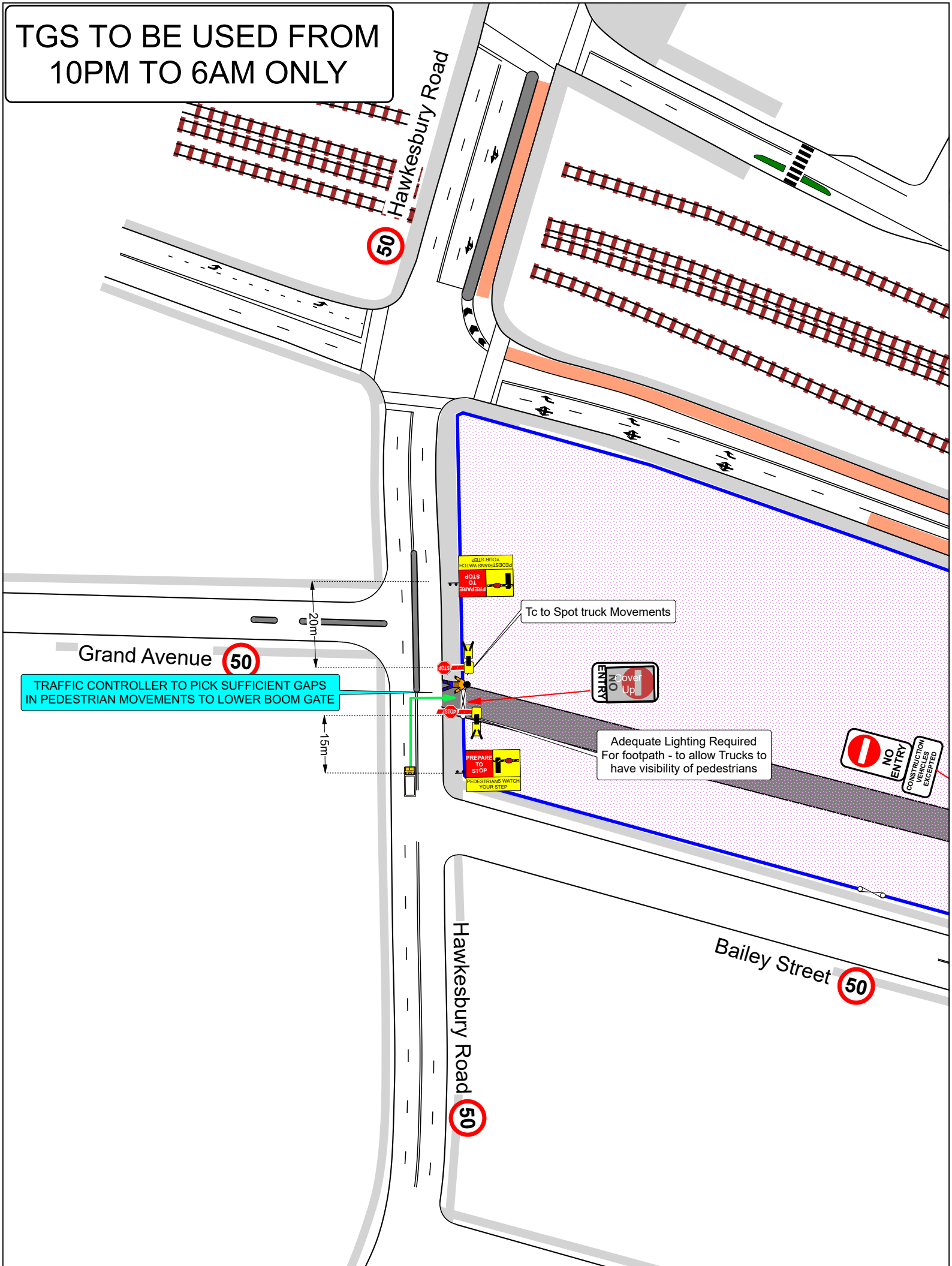
Reason for modification: _____

Revisions	No:	Date:	Time:	Description:	Appr:	CLIENT:	SCALE:	PROJECT:	WORK ACTIVITY:		PAGE NO: 1 of 1
	0	20/12/22	10:15pm	Issued for Implementation	MC	GAMUDA / LAING O'ROUKE CONSORTIUM	1:750	PROJECT: GLC - SYDNEY METRO WEST - WTP	TGS NUMBER: 066		
	1	28/08/23	08:00AM	Amended as per comments	AC		Original Size A3	TITLE: HASSALL ST WESTMEAD			
								Drawn By: Peter Ingram	Certification Type : PWZ	Certification Number: 0051 721 258	Signed: 
							Planning Division Ph: 02 8319 4898 Email : LGP@Lackgroup.com.au	Approved By: Morgan Cross	Certification Type : PWZ	Certification Number: TCT0052862	Signed: 
								Implemented by:	Certification Type :	Certification Number:	Signed:





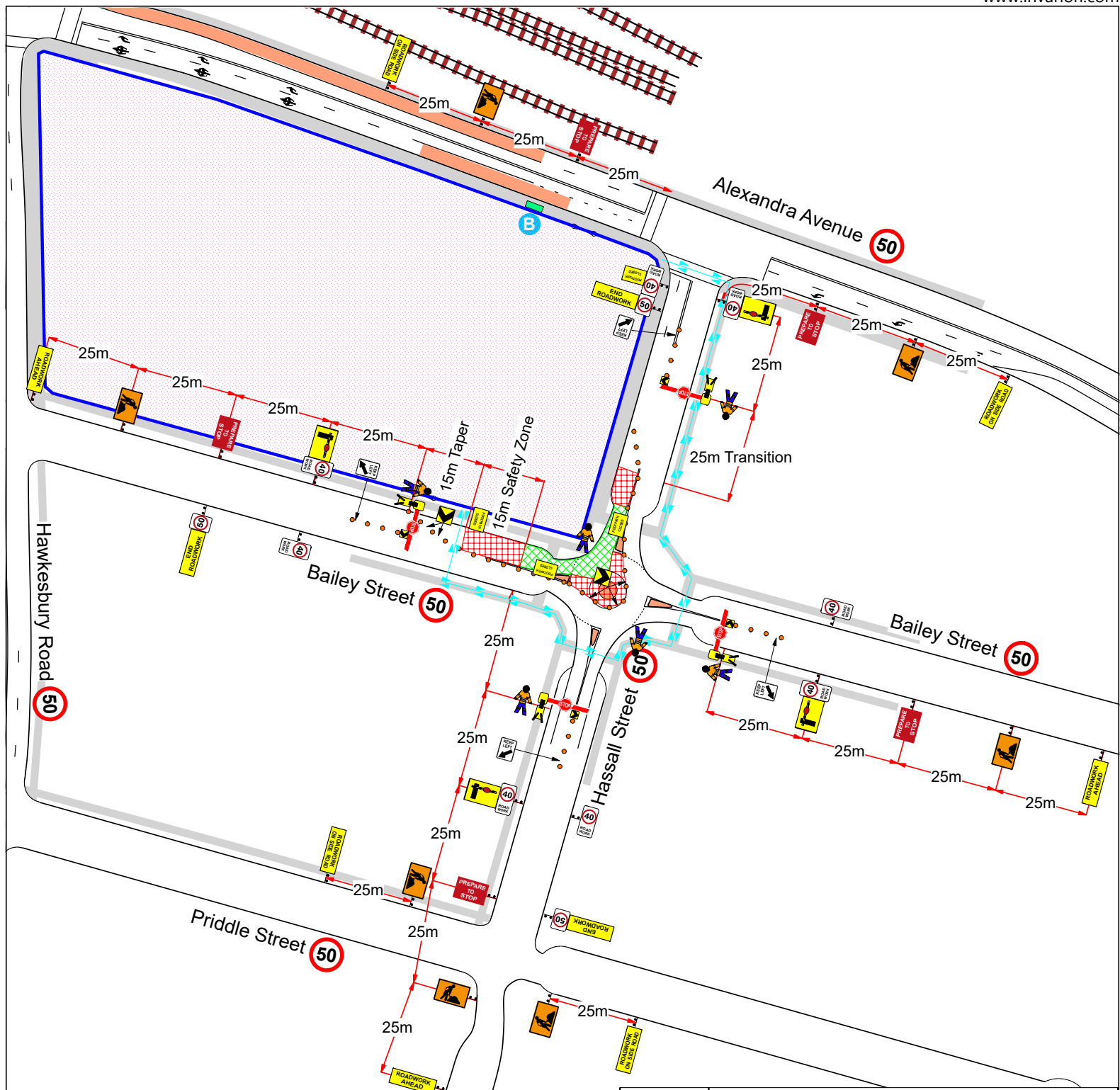
TGS TO BE USED FROM
10PM TO 6AM ONLY



Issue	Desg	Appd	Date & Time	Amendment Description	TGS Name & Number:	TGS Designed By:	PWZTMP:	Exp:	Signature:	Date of Approval:
01	KD	PL	06/09/2022 22:11	Original Issue	LGP - 42478	Karisa Dwyer	TCT0039102	N/A		06/09/2022
02	KD	PL	04/07/2023 - 4.07.2023	Boom Gates Added		Peter Lozano	TCT0058486	N/A		
03										
04										
05										

Works Location: Hawkesbury Rd, Westmead NSW 2145, Australia		TGS Implemented By: PWZTMP: Exp: Signature:			Client Company: Gamuda Australia Client Contact: Brendan McNally Contact Number: 0411114953
Project name & Description: Nightshift Site Entry					

Scale: 1 : 750	Page 2 / 1	ORIGINAL SIZE A4	Lack Group acknowledges the traditional owners of country throughout Australia and recognises their continuing connection to land, waters and community. We pay our respect to them and their cultures, and to elders both past and present.			
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Personnel Requirements		Asset Requirements					
Traffic Controllers	UTE	CONE TRUCK	ESAS	TMA	ESTOP	BOOMGATE	
6	2	0	0	0	0	4	

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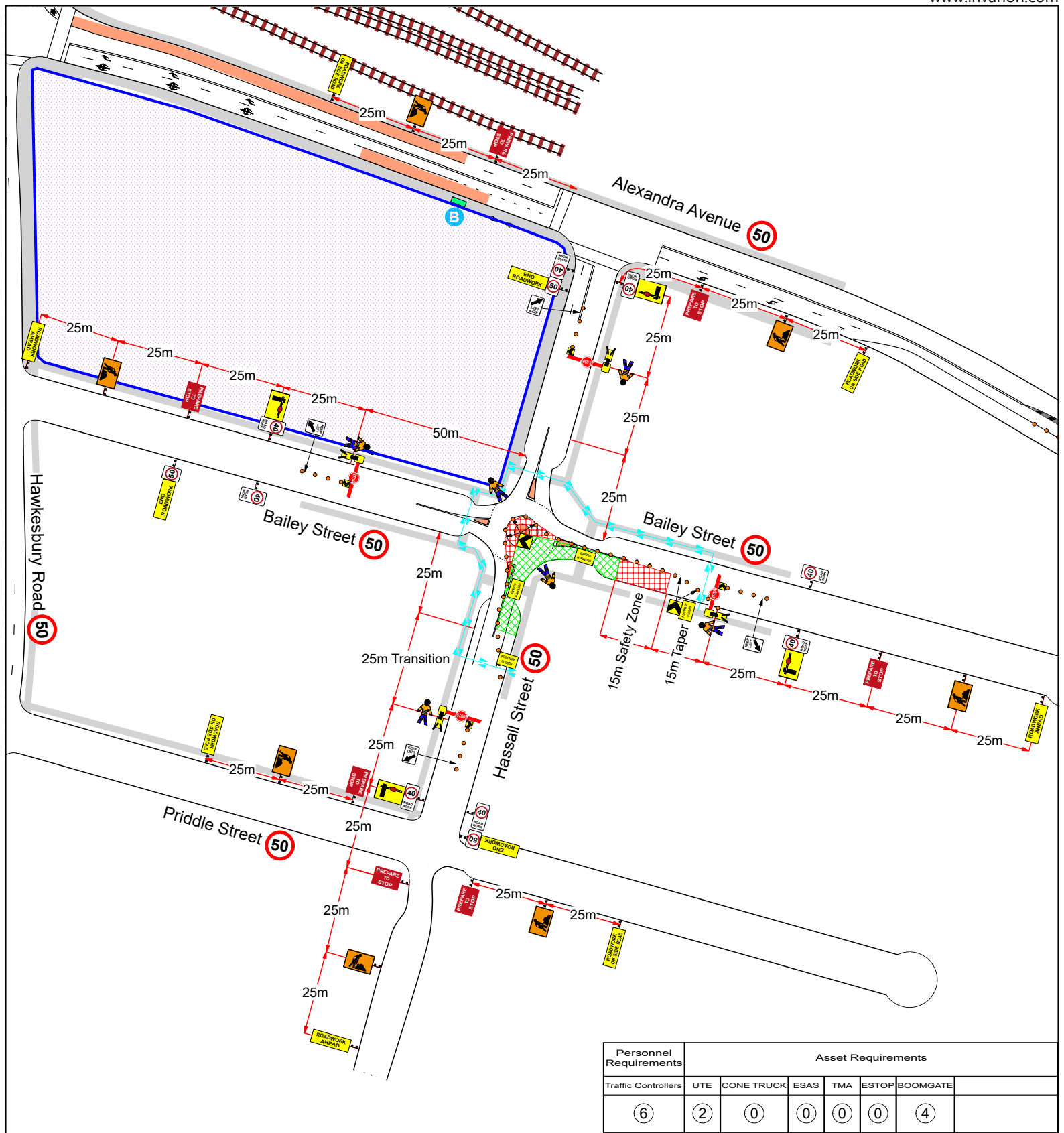
Reason for modification: _____

Manifest			
44 x	Traffic Cone		
8 x	R4-212 (40) SPEED LIMIT 40 ROAD WORK		
7 x	T1-5 WORKERS AHEAD		
6 x	T5-5 (L) HAZARD WARNING MARKER LEFT		
5 x	T1-18 PREPARE TO STOP		
4 x	Portable boom barrier position		
4 x	R2-3 (L) KEEP LEFT		
4 x	T1-25 ROADWORK ON SIDE ROAD		
4 x	TM2-52A Boom Barrier		
3 x	R4-1 (50) SPEED LIMIT 50		
3 x	T1-1 ROADWORK AHEAD		
3 x	T2-16 END ROADWORK		

PEDESTRIAN MANAGEMENT TO INCLUDE SIGNAGE AND DELINIATION OF WORK SITE



Revisions	No:	Date:	Time:	Description:	Appr:	CLIENT:	SCALE: 1:750	PROJECT: GLC - SYDNEY METRO WEST - WTP	WORK ACTIVITY: 1 Lane Alternate Flow
	0	03/08/22	09:30am	Issued for Implementation	MC	GAMUDA - GLC	Original Size A3	TITLE: BAILEY & HASSALL ST WESTMEAD	TGS NUMBER: 32547
	1	03/09/22	09:30am	Add Boom Gates	MC			Drawn By: Peter Ingram	Certification Type : PWZ
	2	17/11/22	09:30am	Amend as per CTMP - RSA	MC			Approved By: Morgan Cross	Certification Type : PWZ
	3							Implemented by:	Certification Type :
	4								
								Planning Division Ph: 02 8319 4888 Email : LGP@lackgroup.com.au	



Personnel Requirements	Asset Requirements					
	Traffic Controllers	UTE	CONE TRUCK	ESAS	TMA	ESTOP
	6	2	0	0	0	4

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Name: _____

PWZTMP Card Number: _____

Exp Date: _____

Date: _____ Sign: _____

Reason for modification: _____

Manifest			
49 x	Traffic Cone		
8 x	R4-212 (40) SPEED LIMIT 40 ROAD WORK		
7 x	T1-18 PREPARE TO STOP		
7 x	T1-5 WORKERS AHEAD		
6 x	T5-5 (L) HAZARD WARNING MARKER LEFT		
4 x	Portable boom barrier position		
4 x	R2-3 (L) KEEP LEFT		
4 x	T1-25 ROADWORK ON SIDE ROAD		
4 x	TM2-52A Boom Barrier		
3 x	R4-1 (50) SPEED LIMIT 50		
3 x	T1-1 ROADWORK AHEAD		
3 x	T2-16 END ROADWORK		

PEDESTRIAN MANAGEMENT TO INCLUDE SIGNAGE AND DELINIATION OF WORK SITE



Revisions

No.	Date	Time	Description	Appr.
0	03/08/22	09:30am	Issued for Implementation	MC
1	03/09/22	09:30am	Add Boom Gates	MC
2	17/11/22	09:30am	Amend as per CTMP - RSA	MC
3				
4				
5				
6				

CLIENT:

GAMUDA - GLC

LAING O'ROURKE

SCALE: 1:750

Original Size A3

PROJECT: GLC - SYDNEY METRO WEST - WTP

TITLE: BAILEY & HASSALL ST WESTMEAD

Drawn By: Peter Ingram

Approved By: Morgan Cross

Implemented by:

WORK ACTIVITY: 1 Lane Alternate Flow

TGS NUMBER: 32553

CERTIFICATION TYPE: PWZ

CERTIFICATION NUMBER: 0051 721 258

CERTIFICATION NUMBER: TCT0052862

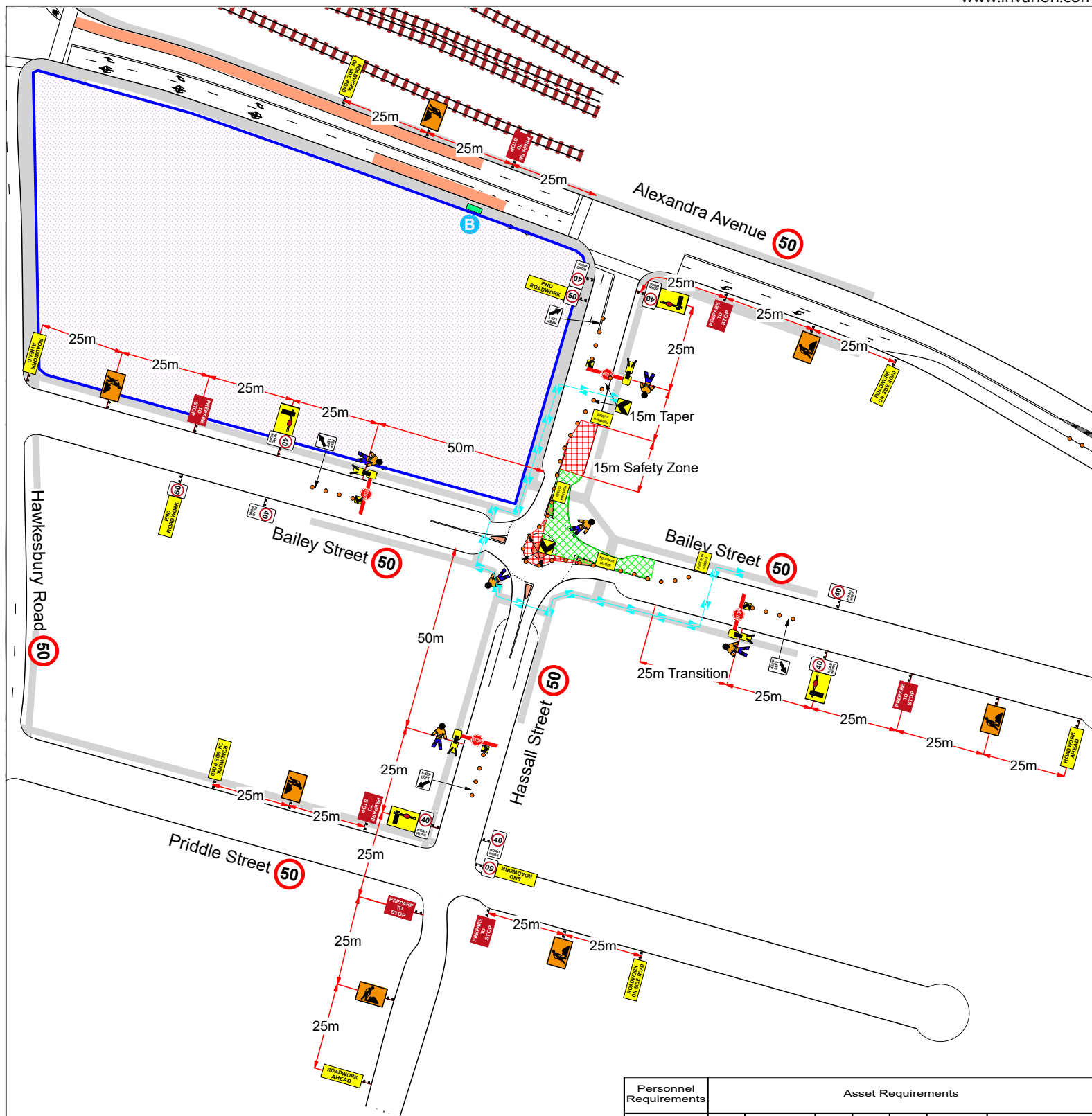
CERTIFICATION NUMBER:

PAGE NO: 1 of 1

Signed:

Signed:

Signed:



Manifest

47 x	Traffic Cone
8 x	R4-212 (40) SPEED LIMIT 40 ROAD WORK
7 x	T1-18 PREPARE TO STOP
7 x	T1-5 WORKERS AHEAD
6 x	T5-5 (L) HAZARD WARNING MARKER LEFT
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3 x	R4-1 (50) SPEED LIMIT 50
3 x	T1-1 ROADWORK AHEAD
3 x	T2-16 END ROADWORK

PEDESTRIAN MANAGEMENT TO INCLUDE SIGNAGE AND DELINEATION OF WORK SITE



Personnel Requirements	Asset Requirements					
	Traffic Controllers	UTE	CONE TRUCK	ESAS	TMA	ESTOP
	6	2	0	0	0	4

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Reason for modification: _____

Revisions	No:	Date:	Time:	Description:	Appr:	CLIENT:		SCALE: 1:750	PROJECT: GLC - SYDNEY METRO WEST - WTP		WORK ACTIVITY: 1 Lane Alternate Flow	
	0	03/08/22	09:30am	Issued for Implementation	MC	GAMUDA - GLC		Original Size A3	TITLE: BAILEY & HASSALL ST WESTMEAD		TGS NUMBER: 32564	PAGE NO: 1 of 1
	1	03/09/22	09:30am	Add Boom Gates	MC	GAMUDA Australia			Drawn By: Peter Ingram		Certification Number: 0051 721 258	Signed: <i>Peter Ingram</i>
	2	17/11/22	09:30am	Amend as per CTMP - RSA	MC	Lack group			Approved By: Morgan Cross		Certification Number: TCT0052862	Signed: <i>Morgan Cross</i>
	3					LAING O'ROURKE			Implemented by:		Certification Type :	Signed:
	4					Planning Division Ph: 02 8319 4898			Certification Type :		Certification Number:	



VMS DISPLAY

SCREEN 1

SCREEN 2

HASSALL STREET CLOSED

USE BAILEY STREET

VMS DISPLAY

SCREEN 1

SCREEN 2

HASSALL STREET CLOSED

USE BAILEY STREET

Grand Avenue 50

PAGE 1
PAGE 2

PEDESTRIAN MANAGEMENT TO INCLUDE SIGNAGE AND DELINIATION OF WORK SITE

USE OTHER FOOTPATH	PEDESTRIANS →	FOOTPATH CLOSED	PEDESTRIANS WATCH YOUR STEP
	← PEDESTRIANS		

Personnel Requirements	Asset Requirements					
Traffic Controllers	UTE	CONE TRUCK	ESAS	TMA	ESTOP	BOOMGATE
8	2	1	0	0	0	4

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- Exp Date: _____
- Date: _____ Sign: _____
- Reason for modification: _____

No.	Date	Time	Description	Appr.
0	03/08/22	09:30am	Issued for Implementation	MC
1	03/09/22	09:30am	Add Boom Gates	MC
2	17/11/22	09:30am	Amend as per CTMP - RSA	MC
3	14/12/22	09:30pm	Remove NB Road Closure signage	MC
4	15/12/22	11:30am	Remove NB Road Closure signage	MC
5				
6				

GAMUDA - GLC



SCALE: 1:750

Original Size A3



PROJECT: GLC - SYDNEY METRO WEST - WTP

TITLE: BAILEY & HASSALL ST WESTMEAD

Drawn By: Peter Ingram

Approved By: Morgan Cross

Implemented by:

Certification Type : PWZ

Certification Type : PWZ

Certification Type :

WORK ACTIVITY: ROAD CLOSURE / DETOUR

TGS NUMBER: 32625

Certification Number: 0051 721 258

Certification Number: TCT0052862

Certification Number:

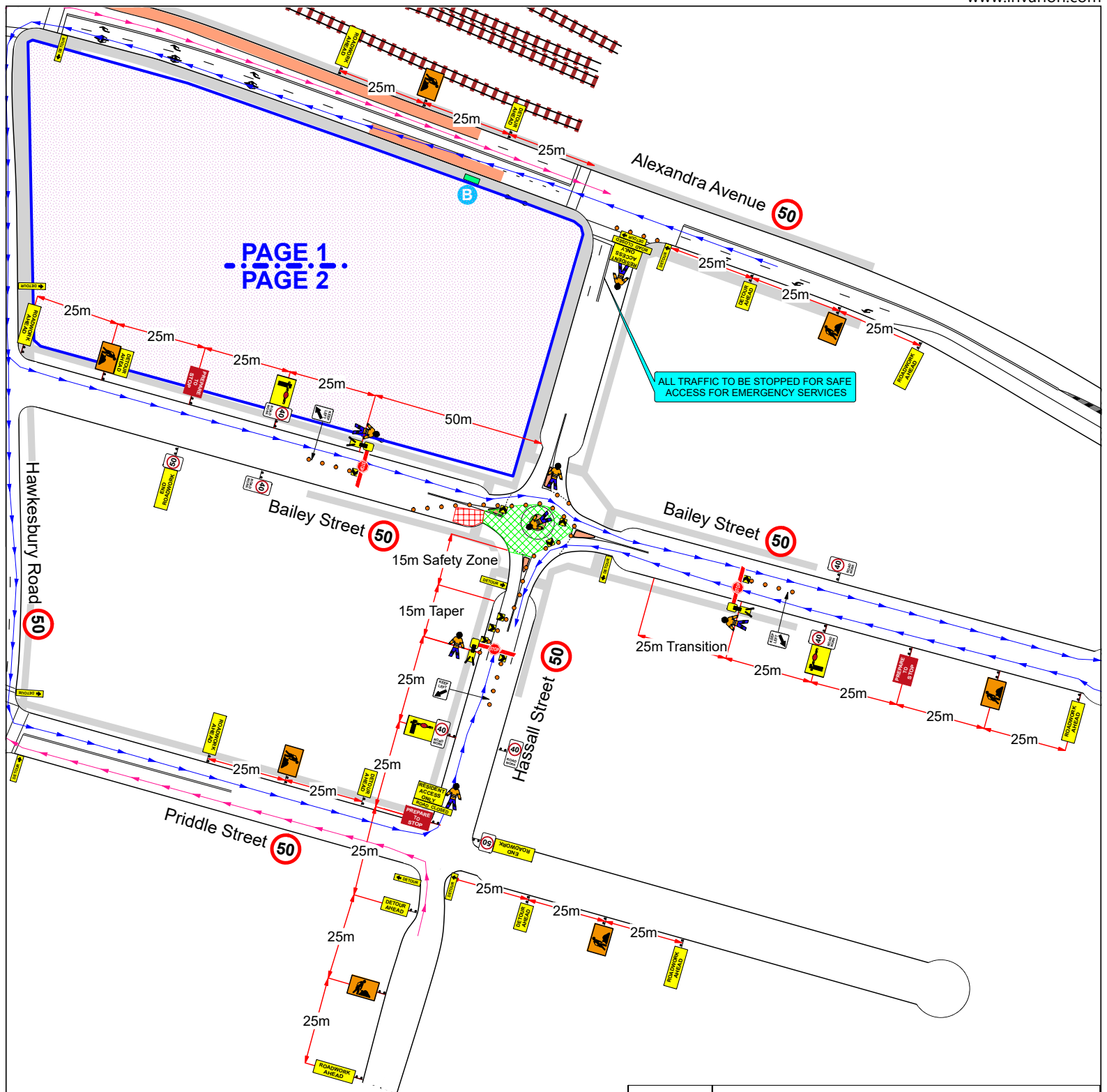
PAGE NO: 1 of 2

Signed: *Peter Ingram*

Signed: *Morgan Cross*

Signed:





Personnel Requirements	Asset Requirements					
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Name: _____

PWZTMP Card Number: _____

Exp Date: _____

Date: _____ Sign: _____

Reason for modification: _____

PEDESTRIAN MANAGEMENT TO INCLUDE SIGNAGE AND DELINEATION OF WORK SITE



Revisions	No:	Date:	Time:	Description:	Appr:	CLIENT:	SCALE:	PROJECT:	WORK ACTIVITY:
0	03/08/22	09:30am		Issued for Implementation	MC	GAMUDA - GLC	1:750	GLC - SYDNEY METRO WEST - WTP	ROAD CLOSURE / DETOUR
1	03/09/22	09:30am		Add Boom Gates	MC		Original Size A3	TITLE: BAILEY & HASSALL ST WESTMEAD	TGS NUMBER: 32625
2	17/11/22	09:30am		Amend as per CTMP - RSA	MC	GAMUDA Australia		Drawn By: Peter Ingram	Certification Type: PWZ
3	14/12/22	09:30pm		Remove NB Road Closure signage	MC			Approved By: Morgan Cross	Certification Type: PWZ
4	15/12/22	11:30am		Remove NB Road Closure signage	MC	LAING O'ROURKE		Implemented by:	Certification Type:
5									
6									

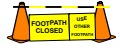
Planning Division Ph: 02 8319 4888
Email: LGP@lackgroup.com.au

Certification Number: 0051 721 258
Certification Number: TCT0052862
Certification Number:

PAGE NO: 2 of 2

Signed: *Peter Ingram*
Signed: *Morgan Cross*
Signed:


COMBINATION OF SIGNS
AND DEVICES TO BE
USED TO CLOSE FOOTPATH



Location:	HASSALL & BAILEY STS WESTMEAD SPLITTER		
Description:	STOP SLOW SPLITTER ISLAND REMOVAL		
Plan Number:	32647	Revision Number & Date	REV 2 11/09/2022
Date Drawn:	05/08/2022		

Plan Drafted By:	Rodney Popovic	NOT TO SCALE NORTH TCP BEST VIEWED WHEN PRINTED IN A3
Prepare Work Zone TMP:	TCT0063315	
Checked and approved for use By PWZ Holder:	Corey Bolton	
Prepare Work Zone TMP:	TCT0015387	

- NOTES:**
- Traffic Control works shall be installed and maintained in accordance with Australian Standards 1742.3 (Traffic Control Devices for Work on Roads) &/or TCAWS (Traffic Control at Work Sites Manual Issue 6.1 March 2022)
 - Pedestrian signage to be temporarily installed and removed each shift
 - Delineation in tapers to be at a maximum of 9m centres.
 - Signs are to be Class 1 retro-reflective, positioned adjacent to footpath or where vehicle parking occurs place signs in the parking lane or elevated on posts. They must be positioned so that they are in clear view of passing motorists
 - All signage must be in accordance Australian Standards 1742.3 (Traffic Control Devices for Work on Roads) &/or TCAWS (Traffic Control at Work Sites Manual Issue 6.1 March 2022)

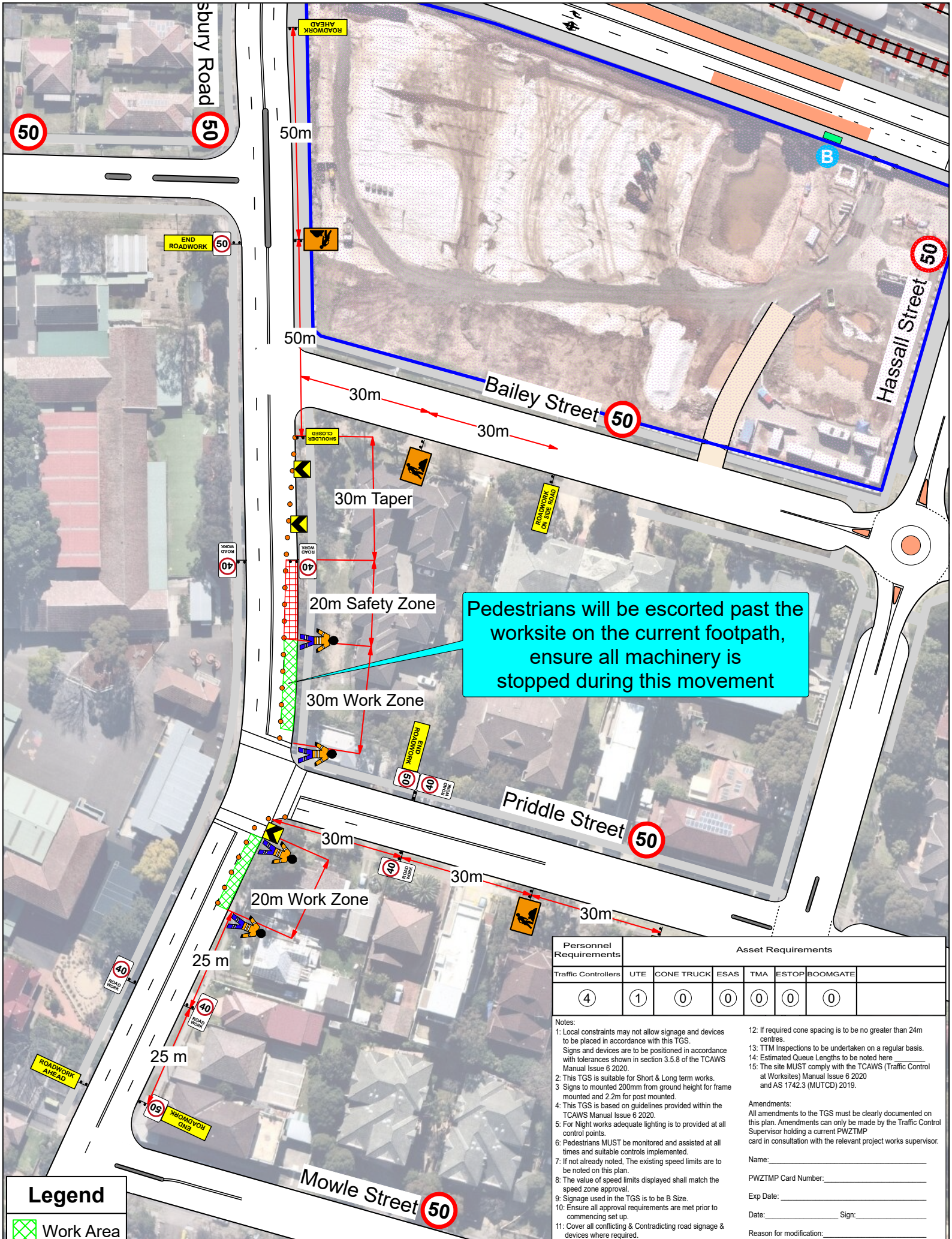
 Lack <i>group</i> <small>100% Australian Family Owned</small>	Personnel Requirements	Asset Requirements				
	Traffic Controllers	UTE	VMS UTE	CONE TRUCK	TMA	BOOMGATE
2/13 Stanton Rd, Seven Hills NSW	⑥	②	①	①	①	④

Manifest

40 x Traffic Cone
 12 x T5-5 (L) HAZARD WARNING MARKER LEFT
 8 x R4-212 (40) SPEED LIMIT 40 ROAD WORK
 7 x T1-18 PREPARE TO STOP
 7 x T1-5 WORKERS AHEAD
 4 x Portable boom barrier position
 4 x R4-1 (50) SPEED LIMIT 50
 4 x T1-25 ROADWORK ON SIDE ROAD
 4 x T2-16 END ROADWORK
 4 x TM2-52A Boom Barrier
 3 x T1-1 ROADWORK AHEAD

PEDESTRIAN MANAGEMENT TO INCLUDE SIGNAGE AND DELINEATION OF WORK SITE

USE OTHER FOOTPATH	PEDESTRIANS →	FOOTPATH CLOSED	PEDESTRIANS WATCH YOUR STEP
	← PEDESTRIANS		

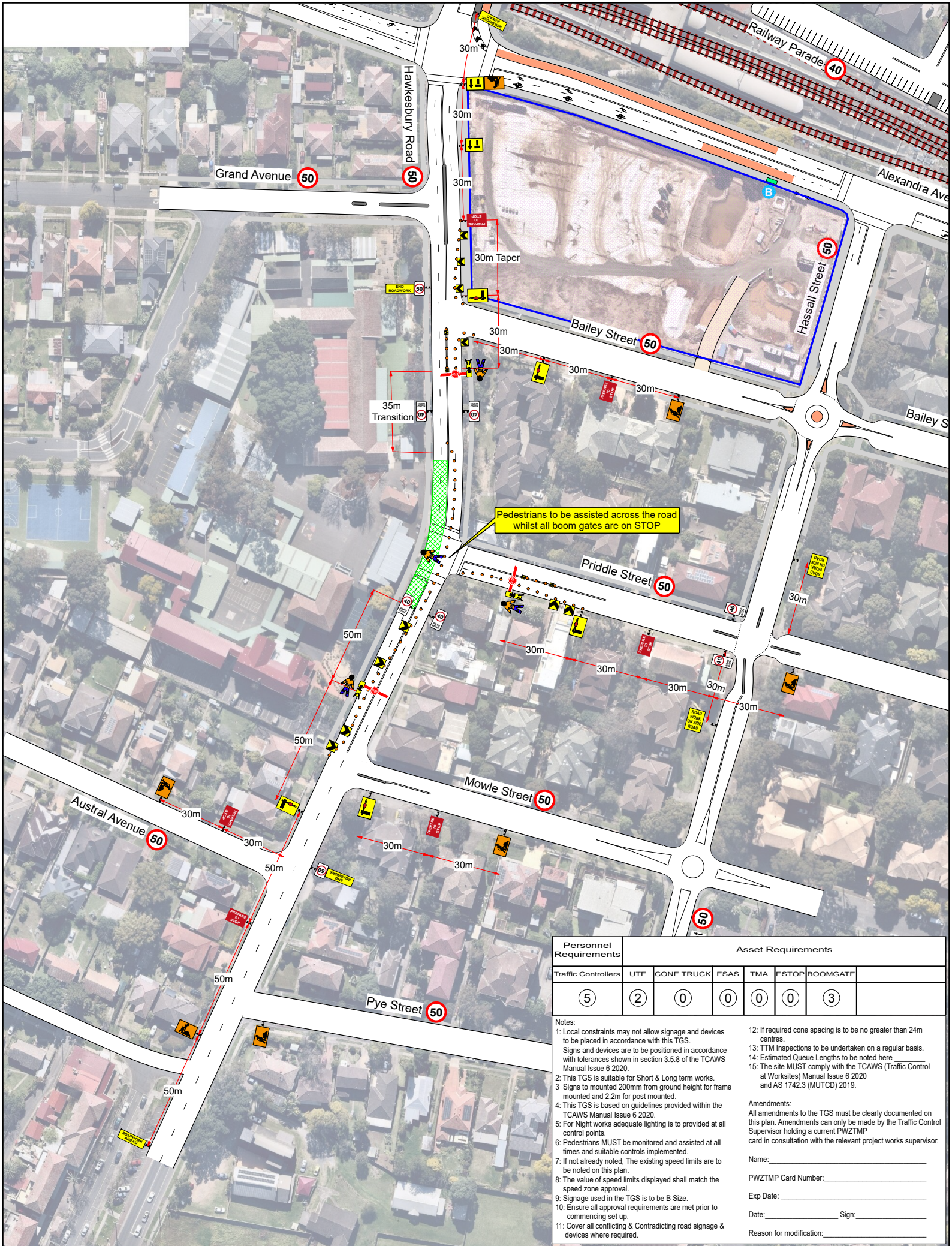


Pedestrians will be escorted past the worksite on the current footpath, ensure all machinery is stopped during this movement

Personnel Requirements		Asset Requirements					
Traffic Controllers	UTE	CONE TRUCK	ESAS	TMA	ESTOP	BOOMGATE	
4	1	0	0	0	0	0	
<div>Notes:</div> <div>1: Local constraints may not allow signage and devices to be placed in accordance with this TGS. Signs and devices are to be positioned in accordance with tolerances shown in section 3.5.8 of the TCAWS Manual Issue 6 2020. 2: This TGS is suitable for Short & Long term works. 3: Signs to be mounted 200mm from ground height for frame mounted and 2.2m for post mounted. 4: This TGS is based on guidelines provided within the TCAWS Manual Issue 6 2020. 5: For Night works adequate lighting is to be provided at all control points. 6: Pedestrians MUST be monitored and assisted at all times and suitable controls implemented. 7: If not already noted, The existing speed limits are to be noted on this plan. 8: The value of speed limits displayed shall match the speed zone approval. 9: Signage used in the TGS is to be B Size. 10: Ensure all approval requirements are met prior to commencing set up. 11: Cover all conflicting & Contradicting road signage & devices where required.</div> <div>12: If required cone spacing is to be no greater than 24m centres. 13: TTM Inspections to be undertaken on a regular basis. 14: Estimated Queue Lengths to be noted here 15: The site MUST comply with the TCAWS (Traffic Control at Worksites) Manual Issue 6 2020 and AS 1742.3 (MUTCD) 2019.</div> <div>Amendments: All amendments to the TGS must be clearly documented on this plan. Amendments can only be made by the Traffic Control Supervisor holding a current PWZTMP card in consultation with the relevant project works supervisor.</div> <div>Name: _____ PWZTMP Card Number: _____ Exp Date: _____ Date: _____ Sign: _____ Reason for modification: _____</div>							

Legend

Work Area



Personnel Requirements		Asset Requirements					
Traffic Controllers	UTE	CONE TRUCK	ESAS	TMA	ESTOP	BOOMGATE	
5	2	0	0	0	0	3	

Notes:

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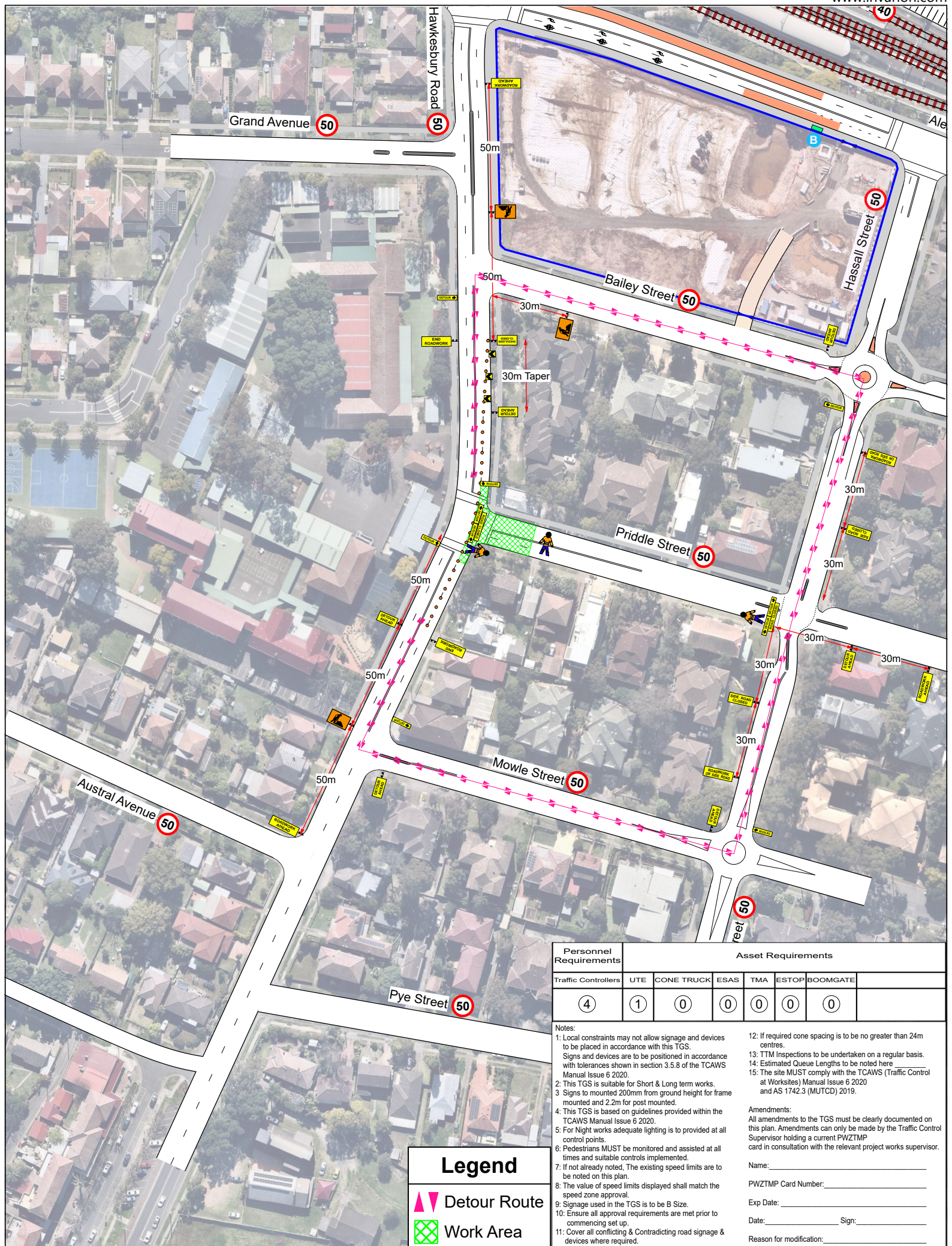
Name: _____


PWZTMP Card Number: _____


Exp Date: _____

Date: _____ Sign: _____

Reason for modification: _____



**Detour Route**

**Work Area**

Legend

Personnel Requirements		Asset Requirements					
Traffic Controllers	UTE	CONE TRUCK	ESAS	TMA	ESTOP	BOOMGATE	
4	1	0	0	0	0	0	

Notes:

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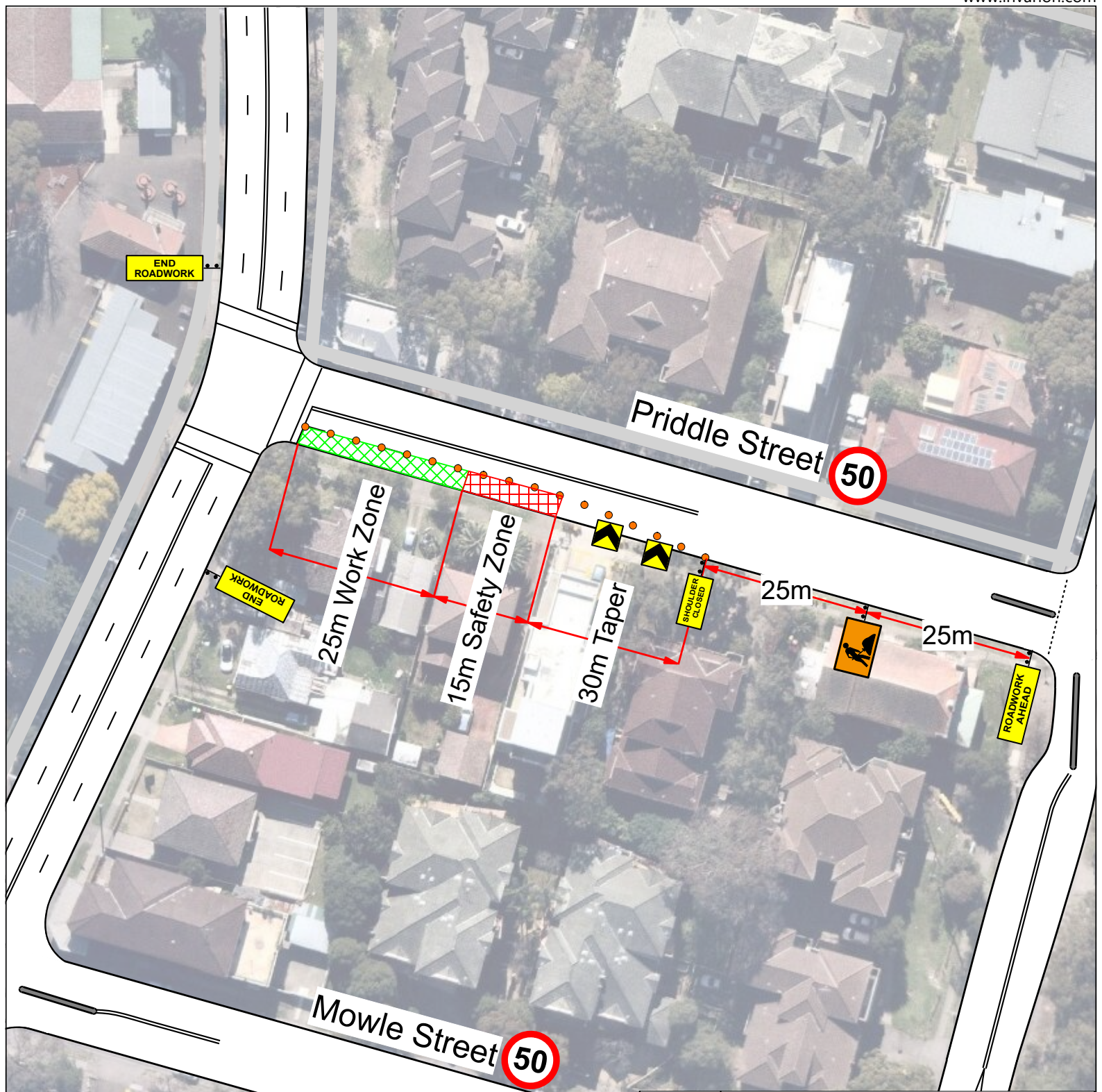
Name: _____

PWZTMP Card Number: _____

Exp Date: _____

Date: _____ Sign: _____

Reason for modification: _____



Legend

 Work Area

Personnel Requirements		Asset Requirements					
Traffic Controllers	UTE	CONE TRUCK	ESAS	TMA	ESTOP	BOOMGATE	
(2)	(1)	(0)	(0)	(0)	(0)	(0)	

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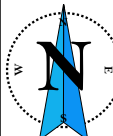
PWZTMP Card Number: _____

Exp Date: _____

Date: _____ Sign: _____

Reason for modification: _____

Revisions		No:	Date:	Time:	Description:	Appr:	CLIENT:	SCALE:	1:750	PROJECT:	GLC - SYDNEY METRO WEST - WTP	WORK ACTIVITY:	LANE CLOSURE
		0	26/10/22	08:10pm	Issued for Implementation	MC	GAMUDA - GLC	Original Size A3		TITLE: HAWKESBURY RD & PRIDDLE ST WESTMEAD		TGS NUMBER: 042	
		1								DRAWN BY: Peter Ingram		PAGE NO: 1 of 1	
		2					GAMUDA Australia			Certification Type : PWZ		Certification Number: 0051721258	
		3								Certification Type : PWZ		Certification Number: TCT0052862	
		4					LAING O'ROURKE			Approved By: Morgan Cross		Signed: <i>Morgan Cross</i>	
		5								Implemented by:		Signed: _____	
		6								Certification Type :		Certification Number:	



C HEAVY VEHICLE LOCAL ROAD REPORT

(Provided separately)

D CONSTRUCTION PARKING AND ACCESS STRATEGY

(Provided separately)

E ROAD SAFETY AUDIT REPORT

RSA #	Name
20221108	Roadworks Road Safety Audit
304100777	Detailed Design Road Safety Audit, SID Register & Hazard Transfer form



**Sydney Metro Westmead – 70%
Detailed Design Road Safety
Audit**

304100777

Report Date

22 July 2022

Prepared for:

Cardno now Stantec (on behalf of the
Gamuda Laing O'Rourke Joint Venture)

Prepared by:

Cardno now Stantec




SYDNEY METRO WESTMEAD – 70% DETAILED DESIGN ROAD SAFETY AUDIT

Revision	Description	Author		Quality Check		Independent Review	
A	Rev A submission	C. White	21/7/22	S. Shahsavaripour	22/7/22	H. Calvey	22/7/22

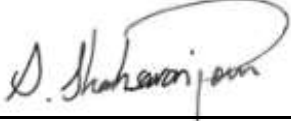


SYDNEY METRO WESTMEAD – 70% DETAILED DESIGN ROAD SAFETY AUDIT

This document entitled Sydney Metro Westmead – 70% Detailed Design Road Safety Audit was prepared by Stantec Consulting Services Inc. ("Stantec") for the account of the Gamuda Laing O'Rourke Joint Venture (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by 
(signature)

Chris White

Reviewed by 
(signature)

Siavash Shahsavaripour

Approved by 
(signature)

Hayden Calvey



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SYDNEY METRO WESTMEAD – 70% DETAILED DESIGN ROAD SAFETY AUDIT

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Project Summary

Project Number:	304100777
Final Report Date:	TBC
Draft Report Date:	22/07/2022
Title of Audit:	Sydney Metro Westmead – 70% Detailed Design Road Safety Audit
Location of Audit:	Westmead, NSW
Project Description:	The purpose of this project is to establish the Westmead Metro Station construction site, and minimise the impacts of construction traffic movements around the site. This project is part of the Western Tunnelling Package needed to enable the construction of Sydney Metro West.
Purpose of Audit:	The aim of this Road Safety Audit (RSA) is to assess the proposed design in the context of the existing conditions, design plans and the interface between the existing and proposed works. The audit aims to identify current risks across the area within the scope with due regard to all transport modes.
State:	NSW
Stage of Audit:	Detailed Design
Client Company:	Cardno now Stantec (on behalf of the Gamuda Laing O'Rourke Joint Venture)
Client Contact:	Jason Fong
Client Phone:	+61 2 9496 7721
Client Email:	jason.fong@cardno.com.au
Audit Date:	Wednesday 13 July 2022
Audit Team:	Hayden Calvey (Level 3) Siavash Shahsavaripour (Level 2) Chris White (Level 0)



1.0 PROJECT DESCRIPTION

The Gamuda Australia and Laing O'Rourke Consortium (GALC) have engaged Cardno now Stantec (Cardno) to undertake a Detailed Design stage Road Safety Audit (RSA) for the Westmead Metro Station Local Area Works (the Project).

The Project is understood to be delivered over five phases in five locations around the future Westmead Metro Station site (the Site):

- Phase 1A: Establishment of heavy vehicle entry from Hassall Street into the Site
- Phase 1B: Kerb adjustments at the Alexandra Avenue / Hassall Street intersection
- Phase 2A: Establishment of heavy vehicle exit onto Hawkesbury Road from the Site
- Phase 2B: Widening of pram ramps and relocation of traffic signal posts at the Hawkesbury Road / Priddle Street intersection
- Phase 3: Upgrade of roundabout at the Hassall Street / Bailey Street intersection to traffic signals.

The Detailed Design RSA has been prepared based on the 70% Detailed Design plans and the existing conditions that were present during the site visit.

1.1 AUDIT STAGE

A site inspection of the audit sites was carried out during day and night conditions on Wednesday 13 July 2022. The weather conditions during the day and night inspections were cloudy, but dry.

A summary of the different types of audit stages is described below.

Table 1 Audit Stages

Project Phase	Type of Road Safety Audit	Project Stage Description	Typical Considerations
Pre-construction	Strategic Design	Conducted at the completion of the strategic design stage of the project life cycle. The strategic design stage is where broad options for a proposed project are determined. Also known as the feasibility stage.	<ul style="list-style-type: none"> ▪ Route choice ▪ Continuity of road network ▪ Intersection / interchange type
	Concept Design	Conducted at the completion of the concept design stage of the project life cycle. The concept stage is where options are examined for a proposed project and a preferred option is selected. Also known as the preliminary design stage.	<ul style="list-style-type: none"> ▪ Horizontal and vertical alignments ▪ Intersection layouts ▪ Access locations ▪ Road user groups
	Detailed Design	Conducted at the completion of the detailed design stage of the project life cycle. The detailed design stage is where a design is	<ul style="list-style-type: none"> ▪ General road layout and alignment ▪ Intersection layouts



SYDNEY METRO WESTMEAD – 70% DETAILED DESIGN ROAD SAFETY AUDIT

		completed to sufficient detail to commence construction.	<ul style="list-style-type: none"> ▪ Signage / linemarking ▪ Drainage / lighting ▪ Roadside furniture
Construction	Roadworks	Conducted at the commencement of each stage of the roadworks where changes affect traffic operations, traffic travel path characteristics, or traffic roadside characteristics during the construction stage of the project life cycle. This may be a one-off. Also known as a road work traffic scheme stage.	<ul style="list-style-type: none"> ▪ Changed traffic conditions ▪ Speed zone schemes ▪ Signage / linemarking ▪ Hazards / barriers
	Pre-opening	Conducted immediately after the completion of construction of the entire project works or the construction of roadworks stage and where possible prior to the road / path being used by traffic.	<ul style="list-style-type: none"> ▪ Detailed inspection of new scheme and tie ins with existing road ▪ All user groups
Post-construction	Finalisation	Conducted on an existing road, path or road network some time after the completion of the construction of road infrastructure works. It is typically conducted once road user patterns have settled following the works, or immediately prior to the change-over of ownership or responsibility in regard to the assets or network operations following the works. Also known as post-opening stage.	<ul style="list-style-type: none"> ▪ Design standards ▪ Road condition / dilapidation ▪ Horizontal / vertical alignment ▪ Driver behaviour
	Existing Road	Conducted on an existing road, path or road network where no recent construction works were undertaken.	

The audit was generally undertaken in accordance with TfNSW's Guidelines for Road Safety Audit Practices (2011) and the Austroads Guide to Road Safety Part 6: Road Safety Audit (2022).

To the best of the auditors' ability, the audit has taken into consideration traffic volume / classification, climatic impacts and all road user groups where applicable.



1.2 STUDY AREA

The study area locations and site locality is shown below in **Figure 1**.

Figure 1 Locality Plan



1.3 AUDIT TEAM

The audit team and client details are shown in **Table 2**.

Table 2 Audit Team and Client Details

Role		
Client (Sponsor)	Cardno now Stantec (on behalf of GALC)	
Client Contact	Jason Fong	Senior Civil Engineer
Client Email	jason.fong@cardno.com.au	
Lead Auditor	Hayden Calvey	Level 3 Auditor
Lead Auditor Email	hayden.calvey@cardno.com.au	
Team Member	Siavash Shahsavari	Level 2 Auditor
Team Member	Chris White	Level 0 Auditor

1.4 AUDIT PROGRAM

The audit program details are shown in **Table 3**.

Table 3 Audit Program

Activity	Date	Attendees
Opening Meeting	4/07/2022	Hayden Calvey, Jason Fong, Lachlan Nichols, Anson Chang
Site Inspection	13/07/2022	Hayden Calvey, Chris White
Draft Report	22/07/2022	RSA Report (DRAFT for comment)
Completion Meeting	TBC	TBC
Final Report	TBC	RSA Report (Final for issue)

1.5 BACKGROUND INFORMATION

A copy of the supplementary report entitled *Design Report, Sydney Metro West – Western Tunnelling Package, Westmead Local Area Works* (Cardno, 2022) was supplied to the audit team.

1.6 REFERENCE PLANS

To undertake the audit, 70% detailed design plans entitled *Alexandra Avenue, Hawkesbury Road - Sydney Metro - Westmead Enabling Works (Rev 1, Issued for 70% Design GLO Review, dated 29/06/22)* were reviewed, inclusive of the sheets shown below in **Table 4**.



Table 4 Design Documentation

Drawing No.	Revision	Title
SMWSTWTP-GLO-WMD-SN650-CV-DRG-000001	1	COVER SHEET
SMWSTWTP-GLO-WMD-SN650-CV-DRG-000002	1	LAYOUT PLAN
SMWSTWTP-GLO-WMD-SN650-CV-DRG-000003	1	DRAWING INDEX
SMWSTWTP-GLO-WMD-SN650-CV-DRG-000004	1	GENERAL NOTES
SMWSTWTP-GLO-WMD-SN650-CV-DRG-000005	1	SURVEY LEGEND
SMWSTWTP-GLO-WMD-SN650-CV-DRG-000010	1	TYPICAL SECTIONS
SMWSTWTP-GLO-WMD-SN650-CV-DRG-000101	1	GENERAL ARRANGEMENT - PLAN SHEET 1
SMWSTWTP-GLO-WMD-SN650-CV-DRG-000102	1	GENERAL ARRANGEMENT - PLAN SHEET 2
SMWSTWTP-GLO-WMD-SN650-CV-DRG-000103	1	GENERAL ARRANGEMENT - PLAN SHEET 3
SMWSTWTP-GLO-WMD-SN650-CV-DRG-000104	1	GENERAL ARRANGEMENT - PLAN SHEET 4
SMWSTWTP-GLO-WMD-SN650-CV-DRG-000501	1	TURNING PATH PLAN - SHEET 1
SMWSTWTP-GLO-WMD-SN650-CV-DRG-000502	1	TURNING PATH PLAN - SHEET 2

1.7 ASSUMPTIONS AND EXCLUSIONS

At the time of the audit, the following considerations were not presented to the audit team and have been excluded from the audit:

- Setout Plan
- Longitudinal Sections
- Cross Sections
- Stormwater & Utilities plans
- Pavement plans
- Signage & Linemarking plans
- TCS (Traffic Control Signal) plans
- SMWSTWTP-GLO-WMD-SN650-CV-DRG-000010 (could not be assessed as unable to determine the locations of Cross Sections MK20 and MK10).

It is also assumed that redundant infrastructure at the Hassall Street / Bailey Street intersection, such as the roundabout splitter islands, kerb extensions and circulating centre island, will be removed as part of the works. Any risks associated with this item have not been addressed.



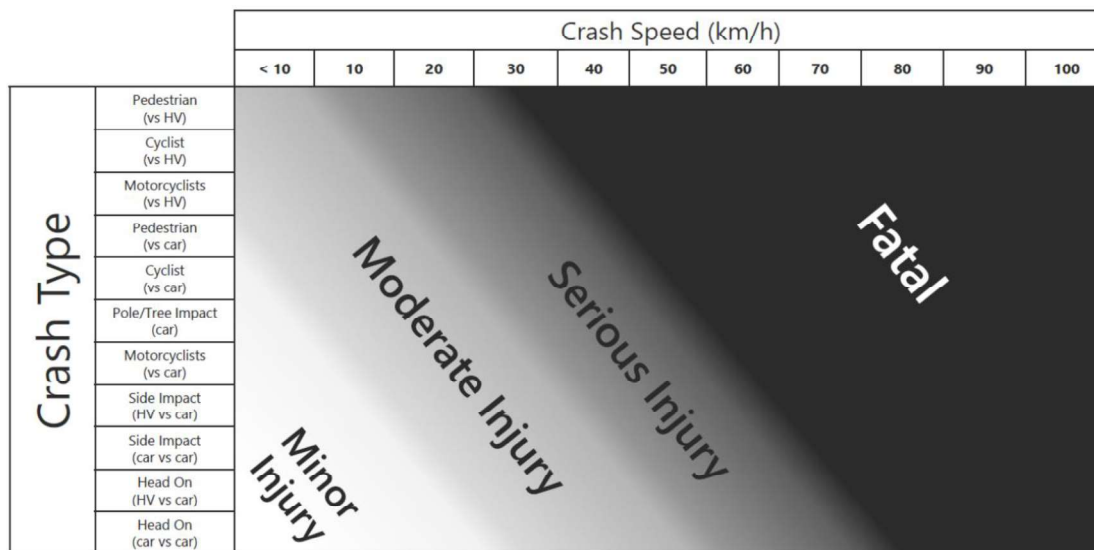
2.0 AUDIT RISK ASSESSMENT TECHNIQUE

For each of the safety issues identified, the level of risk with each has been determined. **Table 5** and **Figure 2** are extracted from the *Austrroads Guide to Road Safety Part 6: Road Safety Audit* (2022) and have been used in the assessment of risk for this audit.

Table 5 Road Safety Audit Risk Matrix (Austroads 2022)

Road Safety Audit Risk Matrix			Severity				
			Insignificant	Minor	Moderate	Serious	Fatal
			Property damage	Minor first aid	Major first aid and/or presents to hospital (not admitted)	Admitted to hospital	Death within 30 days of the crash
Likelihood	Almost certain	Once per quarter	Medium	High	High	Extreme (FSI)	Extreme (FSI)
	Likely	Every quarter to 1 year	Medium	Medium	High	Extreme (FSI)	Extreme (FSI)
	Possible	Every 1 to 3 years	Low	Medium	High	High (FSI)	Extreme (FSI)
	Unlikely	Every 3 to 7 years	Negligible	Low	Medium	High (FSI)	Extreme (FSI)
	Rare	7 years+	Negligible	Negligible	Low	Medium (FSI)	High (FSI)

Figure 2 Severity Guidance Sheet (Austroads 2022)



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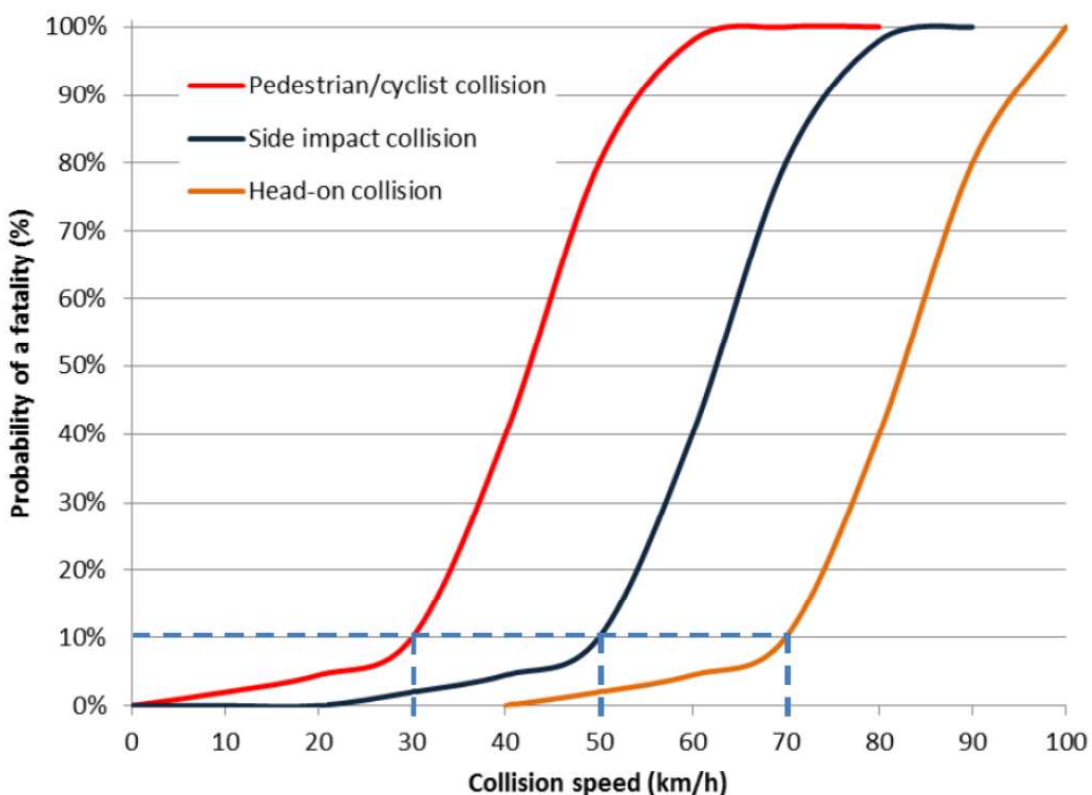
The corresponding priorities for mitigation are categorised as:

- Negligible – no action required
- Low – should be corrected or the risk reduced if the treatment cost is low
- Medium – should be corrected or the risk significantly reduced, if the treatment cost is moderate, but not high
- High – should be corrected or the risk significantly reduced, even if the treatment cost is high
- Extreme – must be corrected regardless of cost.

Austrroads also provides guidance on the relationship between travel speeds, vehicle stopping distances and the resulting impact forces with respect to the human body and its tolerances. This is further explained by the chance of survival for some crash examples below and in

- | | |
|---|--------------|
| • Pedestrian struck by vehicle | 20 to 30km/h |
| • Motorcyclist struck by vehicle (or falling off) | 20 to 30km/h |
| • Side-impact vehicle striking a pole or tree | 30 to 40km/h |
| • Side-impact vehicle to vehicle crash | 50km/h |
| • Head-on vehicle to vehicle (equal mass) crash | 70km/h. |

Figure 3 Relationship between Collision Speed and Probability of Fatality



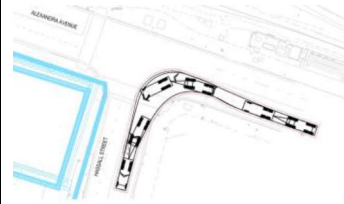
Source: Integrating Safe System with Movement and Place for Vulnerable Road Users (Austrroads, 2020)



3.0 AUDIT FINDINGS

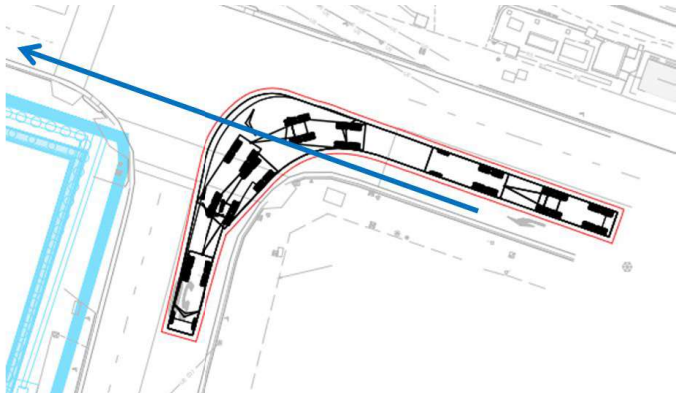
The audit findings are listed in **Table 6** below. It should be noted that all reference locations refer to one of the five site locations (1A, 1B, 2A, 2B or 3) as shown in **Figure 1**.

Table 6 Audit Findings

Audit Finding Reference and Location	Safety Hazard Findings	Likelihood	Severity	Level Of Risk	Project Managers Response
1. Conflict between buses and trucks turning from central lane Site 1B	<p>The swept path at Alexandra Avenue / Hassall Street shows that a truck-and-dog needs to be completely in Lane 2 to facilitate the left turn into Hassall Street.</p> <p>Lane 1 is a dedicated left turn lane with buses excepted. There is a risk that a bus or a left turning vehicle may not observe a heavy vehicle seeking to turn left from the centre lane (Lane 2). Vehicle speeds in this location are likely to be similar to the posted 50km/h.</p> <p>This may result in a left-turn side swipe accident between a heavy vehicle and a car or bus.</p> <p>The severity of the hazard is increased when buses are travelling at higher speeds.</p>	Possible	Serious	High	<p>Intention is for turning trucks to straddle the turn lane to avoid the likelihood of buses overtaking. Turn path has been updated.</p> 




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	<p>Figure 4 Bus / turning truck conflict</p> 				
<p>2. Sightlines to pedestrians at exit driveway Site 2A</p>	<p>The sightline from a vehicle exiting the construction site driveway to any pedestrians to the north is likely to be restricted by the temporary construction site fencing.</p> <p>There is a risk that a truck driver may not be aware of a southbound pedestrian about to cross the driveway, and this may result in a low-speed heavy vehicle / pedestrian collision.</p> <p>The likelihood of a pedestrian accident occurring is increased at this location due to higher pedestrian volumes induced by the close proximity of Westmead Public School and Westmead Train Station.</p>	Possible	Serious	High	<p>Pedestrian movements will be managed as part of the Construction Traffic Environment Management Plan (CTEMP). Hoarding to be splayed to improve sight distance.</p>

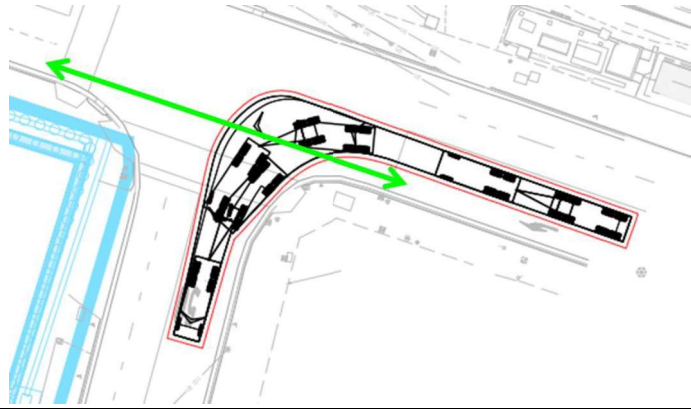


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	<p>Figure 5 Restricted visibility of pedestrians to the north</p> 				
<p>3. Conflict between cyclists and trucks turning from central lane</p> <p>Site 1B</p>	<p>The swept path at Alexandra Avenue / Hassall Street shows that a truck-and-dog will turn left into Hassall Street across the kerbside lane.</p> <p>On site it was observed that Alexandra Avenue is commonly used as a cycle route by cyclists. There is a risk that cyclists travelling straight through the intersection may be in the blind spot of a truck and could get struck by a truck-and-dog turning left.</p> <p>The likelihood of an accident occurring is increased when cyclists are less visible during night conditions.</p>	Unlikely	Serious	High	<p>Construction and haulage vehicle movements will likely occur during day light hours. Proposed left turn watch for cyclists sign (g9-245n) to be placed on the westbound verge on Alexandra Avenue.</p>




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	<p>Figure 6 Cyclist / turning truck conflict</p> 				
<p>4. No lighting in Bailey Street (east) Site 3</p>	<p>Both the north-eastern and south-eastern corners of the intersection of Hassall Street / Bailey Street have no street lighting.</p> <p>There is a risk that pedestrians on the eastern side of Hassall Street and vehicles on the eastern Bailey Street approach may not be seen by other road users at the intersection. This could potentially result in various vehicle / pedestrian or vehicle / vehicle types of accidents. Some examples include:</p> <ul style="list-style-type: none"> • Vehicle turning out of Bailey Street (east) impacts with a pedestrian crossing Hassall Street (east to west) • Vehicle turning into Bailey Street (east) impacts with a pedestrian crossing Bailey Street (east) • Vehicle turning right from Bailey Street (west) impacts with an oncoming vehicle from Bailey Street (east). <p>The likelihood of an accident occurring is increased during times of higher pedestrian volumes (e.g. evening peak commuter times).</p>	Unlikely	Serious	High	<p>Street lighting design package is to be assessed and/or updated by a qualified designer and undertaken as a separate package.</p>

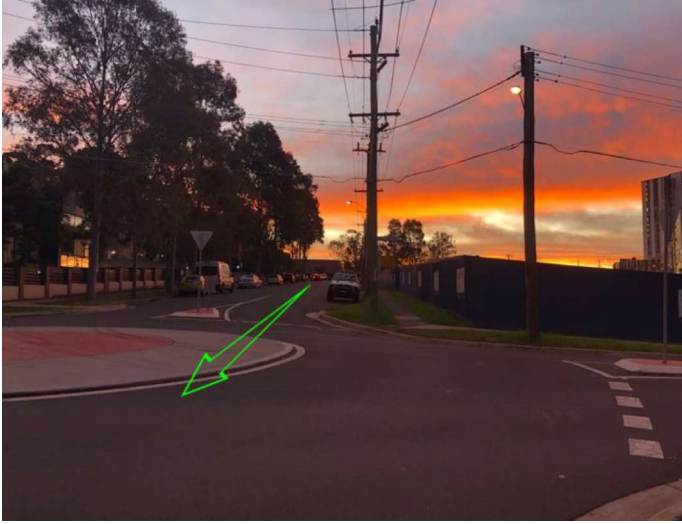


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	<p>Figure 7 No lighting in Bailey Street (east)</p> 				
<p>5. Downhill gradient at intersection Site 3</p>	<p>There is a natural downhill slope approaching the intersection of Hassall Street / Bailey Street travelling west to east on Bailey Street.</p> <p>There is a risk that removing the roundabout and installing signals may encourage higher speeds on the downhill slope though the intersection and may encourage drivers to drive through on amber and red lights. This may result in side-impact accidents involving vehicles travelling in adjacent directions.</p>	Unlikely	Serious	High	<p>Crash data has been reviewed and there has only been one minor injury crash at this location in the last five years. As the grades of the intersection are being retained, this is considered a rare occurrence.</p>




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	<p>Figure 8 Downhill gradient</p> 				
<p>6. Unprotected power pole near kerb Site 3</p>	<p>There is an unprotected power pole close to the kerb on the north-western corner of the intersection of Hassall Street / Bailey Street.</p> <p>There is a risk that an errant northbound vehicle may impact with this non-frangible hazard.</p> <p>The severity of the hazard is increased with the removal of the roundabout, which may create higher travel speeds of vehicles and more severe outcomes if a collision were to occur.</p>	Unlikely	Serious	High	<p>Relocation of existing poles is outside the scope of works for this design package. Turnpaths have been undertaken to ensure that turning movements can be undertaken without impacting the pole. The likelihood of the pole being impacted is considered to be unlikely.</p>



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	<p>Figure 9 Unprotected power pole</p> 				
<p>7. Sightlines at north-western corner of intersection Site 3</p>	<p>There is blue temporary construction site fencing and two power poles on the north-western corner of the Hassall Street / Bailey Street intersection restricting sightlines, especially between drivers and pedestrians.</p> <p>Drivers waiting to turn left from the western approach of Bailey Street are unlikely to have visibility of pedestrians waiting to cross the northern approach of Hassall Street from west to east. Similarly, drivers waiting to turn right from the northern approach of Hassall Street are unlikely to have visibility of pedestrians waiting to cross the western approach of Bailey Street from north to south.</p> <p>There is a risk that a vehicle may be unaware of a pedestrian crossing the road, resulting in a vehicle / pedestrian collision.</p>	Unlikely	Serious	High	<p>Hoarding is proposed for removal prior to installation of signalised intersection. TCS signal phasing has included timed protection for pedestrian.</p>



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Figure 10 Vehicle to pedestrian sightlines

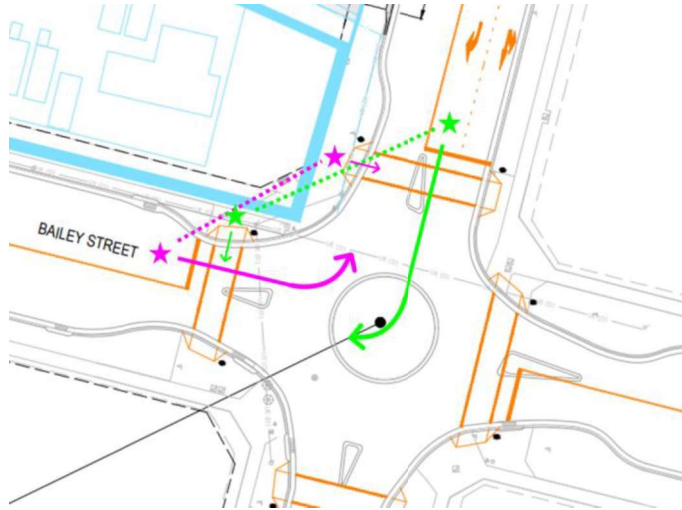
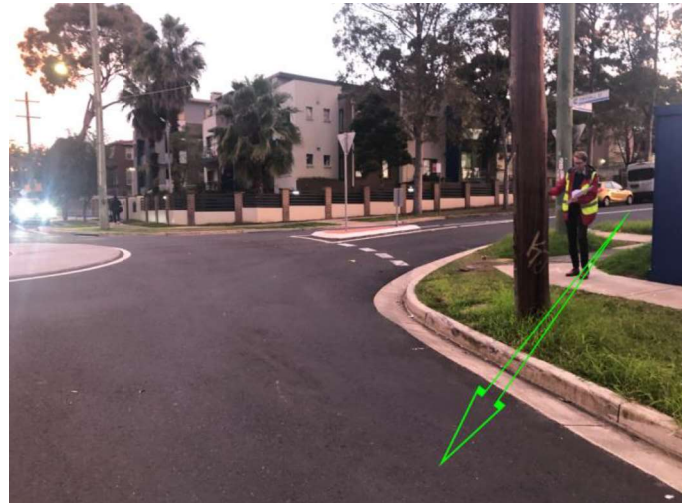
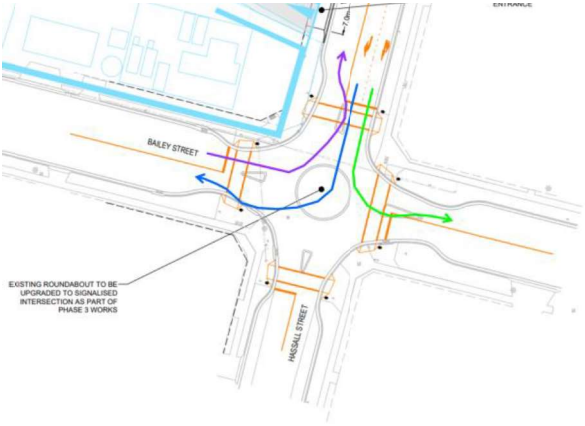


Figure 11 Restricted sightlines around north-west corner




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<p>8. No swept paths at Hassall Street / Bailey Street Site 3</p>	<p>There are no swept paths included for the intersection of Hassall Street / Bailey Street. It is predicted that the inclusion of a second northern approach lane could make the left turn into Bailey Street (east) more difficult for larger vehicles. There may also be a turning path conflict between the left turn from Bailey Street (west) and the right turn from Hassall Street (north).</p> <p>There is a risk that larger vehicles that cannot make the turn could be forced to mount the kerb, potentially hitting a pedestrian on the verge, or travel over the centre line and collide with another vehicle.</p> <p>Figure 12 Possible swept path conflicts</p> 	<p>Unlikely</p>	<p>Serious</p>	<p>High</p>	<p>Swept paths have been checked, there are no conflicts for the turning path between the left turn from Bailey Street (west) and the right turn from Hassall Street (north).</p> <p>Vehicles greater than 9m length will not be permitted to perform left turns to avoid turn path conflicts and prevent vehicles from mounting kerbs.</p>
<p>9. Steep gradient at proposed kerb ramp location Site 3</p>	<p>The location of a proposed pram ramp in Bailey Street on the south-eastern corner of the Hassall Street / Bailey Street intersection is next to the drainage pit where there is a significant gradient.</p> <p>There is a risk that positioning a pram ramp in a location with a steep gradient may result in pedestrian slips, trips and falls, especially for the elderly and people with a disability.</p> <p>The likelihood of an accident occurring is increased during wet conditions when the surface is more slippery.</p>	<p>Possible</p>	<p>Minor</p>	<p>Medium</p>	<p>All proposed pram ramps have been designed to a maximum grade of 12.5%.</p>



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	<p>Figure 13 Proposed kerb ramp location</p> 				
<p>10. Illegal right turn out of driveway Site 2A</p>	<p>The proposed 12.0m exit driveway from the construction site goes beyond the southern end of the central median island in Hawkesbury Road.</p> <p>There is a risk that smaller construction vehicles (such as Small Rigid Vehicles) exiting the site may be able to manoeuvre around the median island to make illegal right turns onto Hawkesbury Road. This may result in side-impact or rear-end types of accidents.</p> <p>The likelihood of an accident occurring is increased during wet and night time conditions.</p>	Unlikely	Moderate	Medium	<p>Haulage route is for vehicles turning left only. Existing median prevents right hand turn from the proposed driveway.</p>




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	<p>Figure 14 Illegal right turn</p>				
<p>11. Shadows near proposed driveway Site 1A</p>	<p>There is a tree with dense foliage just south of the proposed entry driveway off Hassall Street.</p> <p>During night time conditions, there is a risk that a pedestrian may not be visible to the driver of a construction vehicle entering the site, potentially resulting in a heavy vehicle / pedestrian collision.</p> <p>The severity of the accident is increased when larger vehicles (i.e. Heavy Rigid Vehicles or truck-and-dogs) are involved.</p>	Rare	Serious	Medium	<p>Street lighting to be assessed and/or updated by a qualified designer and undertaken as a separate package.</p>




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	<p>Figure 15 Shadows near proposed driveway</p> 				
<p>12. Parked vehicles restricting driveway sightlines Site 2A</p>	<p>The extent of parking on the eastern side of Hawkesbury Road is unclear to the audit team.</p> <p>There is a risk that parked vehicles north of the exit driveway may restrict the sightlines of drivers exiting the construction site, potentially resulting in a side-impact turning accident.</p> <p>The likelihood of an accident occurring may be increased during school pick-up time (approximately 2.30pm-3.30pm) when parents are more likely to park on the eastern side of Hawkesbury Road.</p> <p>The hazard would not be present during signposted periods of No Stopping along the eastern side of Hawkesbury Road between 6.30am-9.30am and 3.30pm-6.30pm.</p>	Rare	Serious	Medium	2 hour parking is to be removed in the vicinity of the driveway.




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	<p>Figure 16 Sightline from proposed exit driveway</p> 				
<p>13. Removal of guard rail safety barrier Site 2B</p>	<p>There is proposed pedestrian fencing on the western side of Hawkesbury Road opposite Priddle Street where there are existing guard rail safety barriers.</p> <p>There is a risk that westbound drivers on Priddle Street may not perceive the upcoming signalised intersection and crash head-on into the proposed pedestrian fencing. As pedestrian fencing generally cannot withstand as much force as a safety barrier, an errant vehicle may cause more severe injury to pedestrians and/or students in Westmead Public School.</p> <p>The severity of the hazard is increased because pedestrian fencing generally provides less protection than safety barriers.</p> <p>The likelihood of an accident occurring is increased during wet and night time conditions.</p> <p>The likelihood of an accident occurring is also increased during power outages or when there is an electrical fault in the signals.</p>	Rare	Serious	Medium	Barrier to be retained and fence to be positioned behind barrier.




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	<p>Figure 17 Head-on crash into safety barrier</p> 				
<p>14. Low power line Site 2B</p>	<p>There is a low power line attached to the business on the north-eastern corner of the intersection of Hawkesbury Road / Priddle Street which extends across to the western side of Hawkesbury Road.</p> <p>There is a risk that relocating the traffic signal post may create an unsafe working clearance between the signal lantern and the power line for servicing of the signal lantern. If maintenance work needs to be carried out on the signal lantern, there is risk that a maintenance worker may come into contact with the power line and be electrocuted.</p> <p>The severity of the hazard is increased when the power line carries a higher voltage.</p>	Rare	Serious	Medium	Compliant clearance has been provided between TCS and overhead assets.



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	<p>Figure 18 Low power line</p> 				
<p>15. Restricted visibility of signal lanterns Site 2B</p>	<p>With the relocation of the traffic signal posts at the intersection of Hawkesbury Road / Priddle Street, there are three corners where driver visibility of the signal lanterns may be impeded:</p> <ul style="list-style-type: none"> • North-west corner: visibility may be blocked by the power pole and street sign • South-west corner: visibility may be blocked by the T-way sign • South-east corner: visibility may be blocked by overhanging vegetation. <p>There is a risk that drivers may pass through the intersection on a red light if they cannot see the signal lantern, possibly resulting in a side-impact accident.</p>	Rare	Serious	Medium	<p>Vegetation removal has been proposed for removal to ensure sight lines to TCS lanterns are not obstructed.</p>



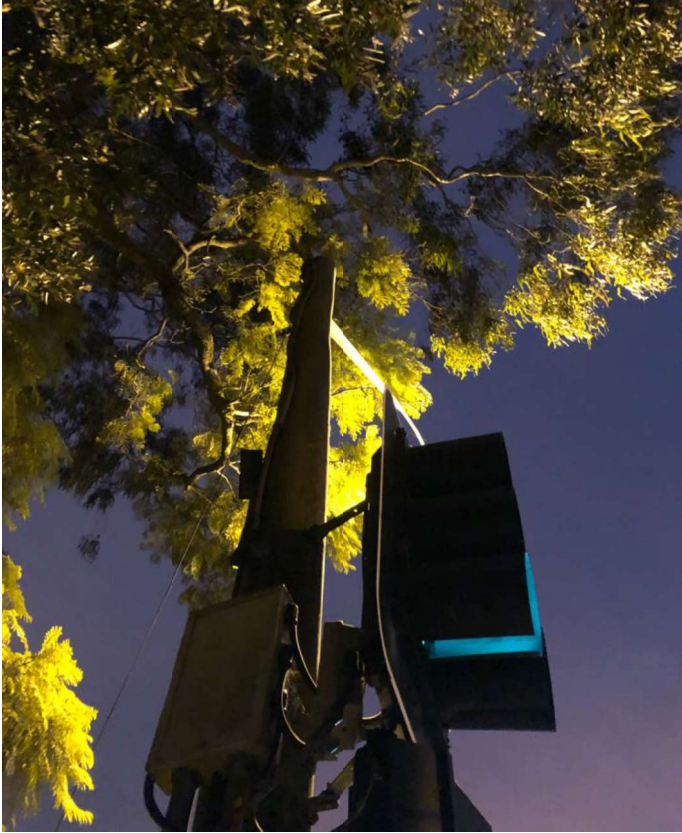
	<p>Figure 19 North-west corner of Hawkesbury Road / Priddle Street</p>  <p>Figure 20 South-west corner of Hawkesbury Road / Priddle Street</p>			
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	<p>Figure 21 South-east corner of Hawkesbury Road / Priddle Street</p> 				
<p>16. Sun glare at sunset Site 3</p>	<p>The geometric layout of the intersection of Hassall Street / Bailey Street forces drivers on the eastbound approach to almost face due west. With the construction site located on the north-western corner, there is no vegetation or urban infrastructure to block sun glare at sunset for westbound drivers.</p> <p>There is a risk that the proposed signal lantern on the north-western corner will be directly in the line of sight to the sun, potentially resulting in side-impact accidents at the intersection.</p>	Rare	Serious	Medium	<p>A TCS lantern is proposed on the south-western corner in case the north-west lantern is not visible due to sun glare.</p>




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	<p>The likelihood of an accident occurring is increased on sunny days without any rain or overcast conditions.</p> <p>Figure 22 Potential sun glare at sunset</p> 				
<p>17. Redundant warning sign Site 2A</p>	<p>There is a redundant pedestrian crossing warning sign located on a power pole near the proposed site exit driveway. The sign is redundant due to the existing centre median island removing any possibility of a southbound vehicle on Hawkesbury Road turning right into Grand Avenue.</p> <p>There is a risk that pedestrians may interpret this sign as a desired crossing location and utilise the central median to cross Hawkesbury Road, resulting in a vehicle to pedestrian crash.</p>	Rare	Serious	Medium	Existing sign to be removed.

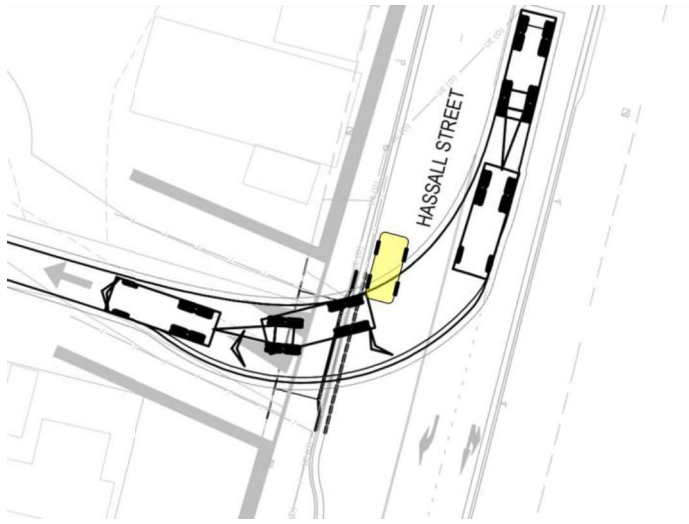
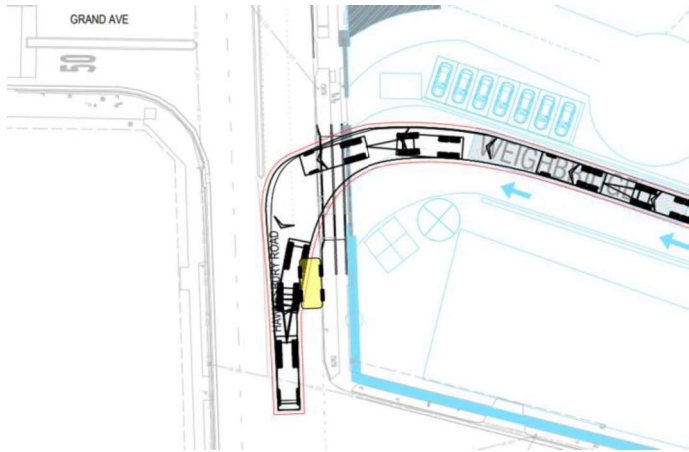


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	<p>Figure 23 Pedestrian crossing warning sign</p> 				
<p>18. Parking next to proposed driveway Site 1A Site 2A</p>	<p>There is potential for vehicles to park on-street right up to the driveway layback of the proposed entry and exit driveways to the construction site (including across remaining laybacks from former driveways).</p> <p>There is a risk that a truck-and-dog may scrape the back corner of a parked vehicle, resulting in a side swipe type of accident.</p> <p>The likelihood of an accident occurring is increased in night time conditions and when street lighting is inadequate.</p>	Unlikely	Minor	Low	No stopping signage will be provided to allow for turnpaths.

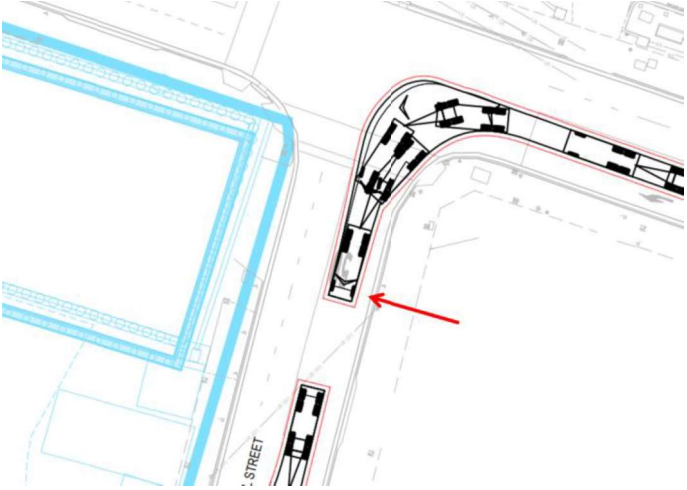


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	<p>Figure 24 Parking next to entry driveway</p>  <p>Figure 25 Parking next to exit driveway</p> 			
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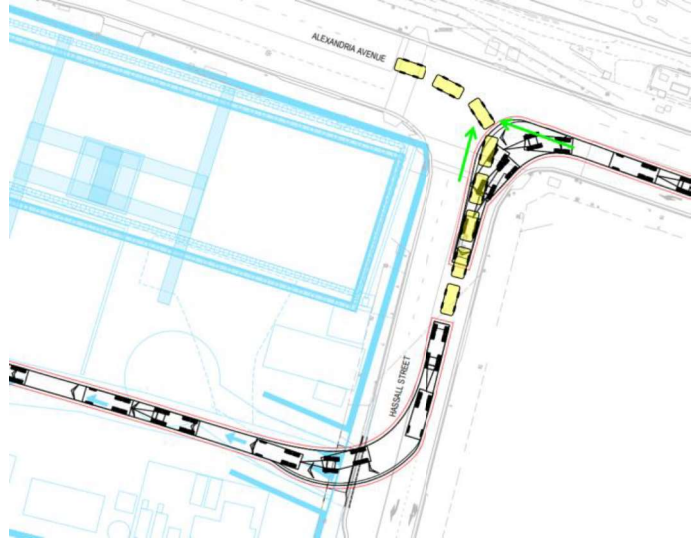


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<p>19. Narrow parking lane width Site 1B</p>	<p>The swept path of a left turning truck-and-dog at Alexandra Avenue / Hassall Street appears to only allow for a narrow parking lane width on the eastern side of Hassall Street.</p> <p>There is a risk that a truck-and-dog may side swipe a parked car, potentially resulting in an occupant requiring minor first aid.</p> <p>Figure 26 Unclear parking lane width</p> 	<p>Unlikely</p>	<p>Minor</p>	<p>Low</p>	<p>On street parking is to be removed and no stopping signage to be provided.</p>
<p>20. Queuing behind vehicle turning right into the site Site 1A Site 1B</p>	<p>Given that construction vehicles turning right into the site have to give way to any oncoming northbound traffic in Hassall Street, there is a possibility that queuing may extend back to the Alexandra Avenue / Hassall Street signalised intersection (approximately 45m away).</p> <p>If drivers get impatient and frustrated with the queuing, there is a risk that drivers turning right from Alexandra Avenue into Hassall Street may join the queue and block the intersection. This may result in side-impact types of accidents from vehicles travelling in the adjacent or opposite direction.</p>	<p>Rare</p>	<p>Moderate</p>	<p>Low</p>	<p>A dedicated right turn facility into the construction site to be provided. This will allow vehicles travelling through to pass the turning vehicle.</p>




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	<p>Figure 27 Extensive queuing</p> 				
<p>21. Faded linemarking Site 1B</p>	<p>There is faded linemarking of the Stop line and pedestrian cross walk lines in Hassall Street at the signalised intersection of Hassall Street / Alexandra Avenue.</p> <p>There is a risk that drivers may not clearly see the fading linemarking and stop their vehicles past the Stop line on a red signal. This may result in a vehicle hitting a pedestrian on the crossing at low speed.</p> <p>The likelihood of a crash occurring is increased when linemarking is less visible during night conditions.</p>	Rare	Moderate	Low	Line marking issues to be raised with the maintainer of the intersection.




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	<p>Figure 28 Faded linemarking</p> 				
Notes					
<p>Approach direction of construction vehicles</p> <p>Site 1A</p>	<p><i>Turning Path Plan – Sheet 2</i> shows a southbound 19m truck-and-dog swept path turning right to enter the construction site from Hassall Street. It is unclear if northbound construction vehicles will be permitted to turn left into the site.</p> <p>Any risks associated with this item have not been addressed.</p>			Note	
<p>Left in / left out access point on Hawkesbury Road</p> <p>Site 2A</p>	<p><i>Turning Path Plan – Sheet 1</i> shows a left in/left out access point as part of the proposed site layout, just north of the proposed heavy vehicle exit onto Hawkesbury Road.</p> <p>It is unclear to the audit team if this access point will be operational and has been excluded from the scope of works.</p> <p>Any risks associated with this item have not been addressed.</p>			Note	
<p>Signal lantern outage</p> <p>Site 2B</p>	<p>On site it was observed that there was a signal lantern outage facing the southern approach to the intersection of Hawkesbury Road / Priddle Street.</p> <p>It is recognised that this is only a short-term fault and is recommended to be reported immediately to the relevant authority.</p>			Note	



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	<p>Figure 29 Signal lantern outage</p> 				
Depth of Station Box construction	The depth of construction and vehicle containment ability of the site hoarding is unknown. Risk associated with errant vehicles encroaching into the work area have not been assessed.			Note	



4.0 RESPONDING TO THE AUDIT REPORT

A project manager is under no obligation to accept the findings outlined in this audit report. This report simply provides the opportunity for the project manager to review potential problems highlighted by the auditors.

A formal road safety audit report should be responded to in writing.

It should be noted that this audit will be recorded on the NSW Register of Road Safety Auditors and the project manager should expect email notification from the register to confirm the audit has been carried out.

4.1 FORMAL STATEMENT

We, the undersigned, declare that we have reviewed the material and data listed in this report and identified the safety and operational deficiencies above.

It should be noted that while every effort has been made to identify potential safety hazards, no guarantee could be made that every deficiency has been identified.

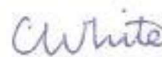
We recommend that points of concern be investigated and necessary corrective actions are undertaken.



Hayden Calvey
Level 3 Road Safety Auditor
Team Leader



Siavash Shahsavaripour
Level 2 Road Safety Auditor
Team Member




Chris White
Level 0 Road Safety Auditor
Team Member

Phase 1A 2A SD SMWSTWTP-GLO /WIND SM650 CY-REG-001001.A.53.A.01.xlsx

HAZARDS/ SAFETY CONTROLS TRANSFER FORM

Control Transfer to be applied in the management of engineering safety risks

Hazard Controller (Transferor of hazard)			
Form ID Number	WTP-WMD08-HZT-001		
Name	Jason Fong	Role	Civil Lead
Organisation	STAN	Date	5/10/2022
Design Package No.	WMD-08		
Hazard Details (Multiple hazards may be transferred – Complete as Required)			
Hazard ID(s)	SMW-WMD-HAZ-TW2		
DOORS ID(s)	N/A – Third Party Works derived safety requirements managed in compliance matrix		
Hazard(s)	Restricted sight lines		
Restricted sight lines for driver exiting site looking north up Hawksbury Rd. for approaching pedestrians			
Potential Cause(s)			
Obstruction of sight due to temporary hoarding			
Potential Consequence(s)			
Collision between construction vehicle and pedestrian (1 Major Injury)			
Safety Control(s) to be Considered			
CC1 - Pedestrian movements will be managed as part of the Construction Traffic Environment Management Plan (CTEMP). CC2 - Hoarding to be splayed at the site exit to improve sight distance.			
Reason(s) for transfer			
Hazard could not be mitigated adequately through design.			
Hazard Acceptance (Completed by new Hazard Controller)			
Name	Tom Olorenshaw	Role	Westmead Construction Manager
Organisation	GLC	Date	5/10/22
Signed			
Hazard ID	SMW-WMD-HAZ-TW2	Design Package No.	WMD-08
DOORS ID	N/A		
Adopt Hazard		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Reason for Rejection (If applicable)			

Attachment(s) – Project Safety Hazard Log (Abstract)

Hazard ID	Source Reference	System / activity	Location	Top Level Hazard	Hazard	Hazard Cause/s	End Consequence	Existing Controls	Initial Risk Ranking			Proposed Safety Control	Adopt / Reject Control	Reasons for Rejection	Safety Requirement ID (Refer to Requirements Database)	Safety Requirement	Safety Requirement Status	Residual Risk			Overall SFAIRP Argument for Hazard	SFAIRP finalised in Design ??	Assumption / Dependency	Further Actions	Hazard Owner	Hazard Status	Hazard Change Control History	Notes
							How does it cause injury or fatality to a human		Likelihood	Consequence	Risk Ranking								Likelihood	Consequence	Risk Ranking							
SMW-WMD-HAZ-TW2	Road Safety Audit	Road	WMD-08 HAWKESBURY ROAD DRIVEWAY EXIT	N/A	Restricted sight lines	Obstruction of sight due to temporary hoarding	Collision between construction vehicle and pedestrian (1 Major Injury)	None	Possible - L3	Major - C3	B	CC1 - Pedestrian movements will be managed as part of the Construction Traffic Environment Management Plan (CTEMP). CC2 - Hoarding to be played at the site exit to improve sight distance.	Investigate	NIL	NIL	NIL	NIL	Unlikely - L4	Major - C3	C	<ul style="list-style-type: none">All regulatory requirements met.All applicable GS/PS requirements met or resolved.All applicable standards are met or resolvedThe right combination of reasonably practicable safety controls representing contemporary good practice have been identified and implemented.The risk has been managed to an adequate level of safety, and the residual risk is considered SFAIRP.	Yes	NIL	Pedestrian movements and hoarding to be managed by construction team	GLC Westmead Construction Manager	Transferred	New	NIL

ROADWORKS ROAD SAFETY AUDIT

GLC-WTP – Westmead Traffic Control Works – TGS Audit



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ROADWORKS - ROAD SAFETY AUDIT

GLC-WTP – Westmead Traffic Guidance Schemes



Document Control

Title:	Description
Ref No.:	20221108 – GLC – WTP – RSA 0002 - 00
Description:	Roadworks road safety audit on the selection of Traffic Guidance Schemes provided for the Westmead precinct works. Specifically works on Pitt Street, Hassall Street and Hawkesbury Road (including side roads and connections). The plans were provided as part of the Western Tunnel Package construction works at the Westmead Station

Role	Name	Position	Date	Signed
Author:	ALEX GOSPER	LEVEL 3 ROAD SAFETY AUDITOR	08.11.2022	
Approved by:	ALEX GOSPER	LEVEL 3 ROAD SAFETY AUDITOR	08.11.2022	

Document Revisions

No.	Date	Issue / Description
00	08.11.2022	ORIGINAL ISSUE

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Author: Alex Gosper

Reviewer: Anthony Swann

Approved by: Alex Gosper

Date 08.11.2022

Distribution: Sue Lewis (Sue Lewis Consulting)



Executive Summary

Audited Project:	Sydney Metro – Western Tunnel Package
Audit for:	Gamuda Australia and Laing O'Rourke Construction (Western Tunnel Package)
Address:	N/A
Email Address:	Daniel.Kelly@glcwtp.com.au
Clients Contact:	Daniel Kelly
Auditors:	Alex Gosper (Level 3 Road Safety Auditor – ID:0908), Director / Senior Civil Engineer – Civlink Consulting Pty Ltd Anthony Swann (Level 2 Road Safety Auditor – ID:1475) Traffic Engineer
Audit Type:	Roadworks road safety audit
Commencement Meeting:	2 nd November 2022
Site Visit:	N/A – no site visit conducted as part of this audit
Completion Meeting:	To be advised
Previous Audit:	Nil

This Roadworks Road Safety Audit reviewed the selection of Traffic Guidance Schemes provided for the Westmead precinct works. Specifically works on Pitt Street, Hassall Street and Hawkesbury Road (including side roads and connections). The plans were provided as part of the Western Tunnel Package construction works at the Westmead Station. The audit checked that the proposed arrangements are suitable for the intended purpose and so conducive to a safe road environment for all types of road users.

This report documents the identified audit findings dated 8.11.2022

The road safety audit identified a number of possible deficiencies, each of which have had a risk classification as high, medium and low and are listed in Section 4 - Audit Findings.



1. Introduction

1.1 Purpose of Audit

This report presents findings of a roadworks road safety audit. The audit will review the Traffic Guidance Schemes proposed for use around the Westmead Station precinct as part of the Sydney Metro - Western Tunnel Package construction works.

The audit is conducted to verify the implemented site arrangement for the works, and within the specified area affected by the project works. The audit scrutinizes the 'safe system' approach to road design and the traffic management planning, targeting roadside hazards including (but not limited to) signage and pavement marking, pedestrian & cyclists' facilities, delineation, sight distances, intersection controls and safety barriers.

The Traffic Guidance Schemes being audited are located in the areas highlighted in red as shown in Figure 1, below;



Figure 1: Desktop Road Safety Audit Scope

[Source: Nearthmap]

1.2 Audit Objectives

The objective of this road safety audit was to identify relevant road safety deficiencies in the site which, if addressed, would improve safety for road users.

The other objectives of this Roadworks Road Safety Audit were to:

- Check the compatibility between the traffic management's safety features and the functional classification of the roads.



- Identify any design feature's that can, either now or with time, create a traffic safety issue.
- identify additional design's features at the site that pose a safety hazard or risk to any of the road users
- Determine the extent of the deficiencies in the design, considering all road user groups.

1.3 Procedures and reference material

The procedures used are those in the Austroads Guide to Road Safety Part 6: Road Safety Audit (2022) and RTA Guidelines for Road Safety Audit Practices 2011.

Technical reference documents for Traffic Guidance Schemes is the Traffic Control at Worksites Manual (TCAWS) Version 6.1, 2021.

1.4 Audit Team

This Audit Team consisted of:

- a) **Alex Gosper** (Civlink Consulting Director / Traffic Manager / Senior Civil Engineer). Alex is a registered Road Safety Auditor with the Institute of Public Works Engineers Australia, NSW and Senior auditor in both VIC & QLD. Alex is a registered Level 3 Road Safety Auditor in NSW.
- b) **Anthony Swann** (Traffic Engineer). Anthony has 11 Years' experience within the Traffic Management industry, specialising in all aspects of long & short-term Traffic Management on Construction Sites.

2. Road Safety Audit Program

2.1 Commencement Meeting

Wednesday the 2nd of November a commencement email was received from Sue Lewis requesting a desktop audit be conducted on the traffic guidance schemes provided as part of the Westmead precinct Sydney Metro station construction works. The audit was to be conducted by Alex Gosper, Lead Road Safety Auditor (Civlink Consulting) with the assistance of Anthony Swann. The audit was to be conducted on the provided Traffic guidance Schemes which included works on Pitt Street, Hassall Street and Hawkesbury Road.

2.2 Completion meeting

Project representatives are to advise of the need for a Completion meeting.

2.3 Responding to the audit report

The responsibility for the design and implementation of this project rests with the client's project management team, not with the auditors. The project manager is under no obligation to accept the audit findings. Also, it is not the role of the auditor to agree or to approve the project manager's responses to the audit. Rather, the audit provides the opportunity to highlight potential road safety problems and have them formally considered by the project manager or design manager in conjunction with all other project considerations.

2.4 Corrective action response

The road safety audit is a formal process. The road safety audit report is by no means the end of the audit process. The audit report documents the audit teams' identified concerns made to improve the safety of the roads. This report must be responded to by the client with a written response to each audit finding.



2.5 Disclaimer

The findings and opinions in the report are based on the examination of the site and might not address all concerns existing at the time of the audit. The auditors have endeavoured to identify features of the site that could be modified or removed in order to improve safety, although it must be recognised that safety cannot be guaranteed since no road can be regarded as safe.

The problems identified have been noted in this report and should be considered for improving road safety. Where corrective actions are not taken, this should be reported in writing, providing the reason for the decision. Readers are urged to seek specific advice on matters and not to rely solely on this report. While every effort has been made to ensure the accuracy of this report, it is made available strictly on the basis that everyone relying on it does so at their own risk without any liability to the Auditors.



3. Risk Assessment Approach

This audit identified and rated risks per the Austroads recommendation using the assessment process below. Potential safety hazards were identified and categorised based on the frequency of occurrence and severity (consequence of crash). A preliminary risk rating for each identified issue has been assigned in Section 4 which were determined via a subjective judgement by the Auditor guided by the Austroads "Guide to Road Safety, Part 6: Road Safety Audit".

Austroads' provides an indication of the level of risk and what response may be appropriate – refer to the tables below.

3.1 Likelihood

Description	
Almost Certain	Occurrence once per quarter
Likely	Occurrence once per quarter to once per year
Possible	Occurrence once per year to once every three years
Unlikely	Occurrence once every three years to once every seven years
Rare	Occurrence less than once every seven years

3.2 Severity

Description	
Insignificant	Property damage
Minor	Minor first aid
Moderate	Major first aid and/or presents to hospital (not admitted)
Serious	Admitted to hospital
Fatal	At scene or within 30 days of the crash

3.3 Risk Rating


		Severity				
		Insignificant	Minor	Moderate	Serious	Fatal
Likelihood	Almost Certain	Medium	High	High	Extreme	Extreme
	Likely	Medium	Medium	High	Extreme	Extreme
	Possible	Low	Medium	High	High	Extreme
	Unlikely	Negligible	Low	Medium	High	Extreme
	Rare	Negligible	Negligible	Low	Medium	High

3.4 Treatment

Risk	Suggested treatment approach
Negligible	No action required
Low	Should be corrected or the risk reduced if the treatment cost is low
Medium	Should be corrected or the risk significantly reduced, if the treatment cost is moderate but not high
High	Should be corrected or the risk significantly reduced, even if the treatment cost is high
Extreme	Must be corrected regardless of cost



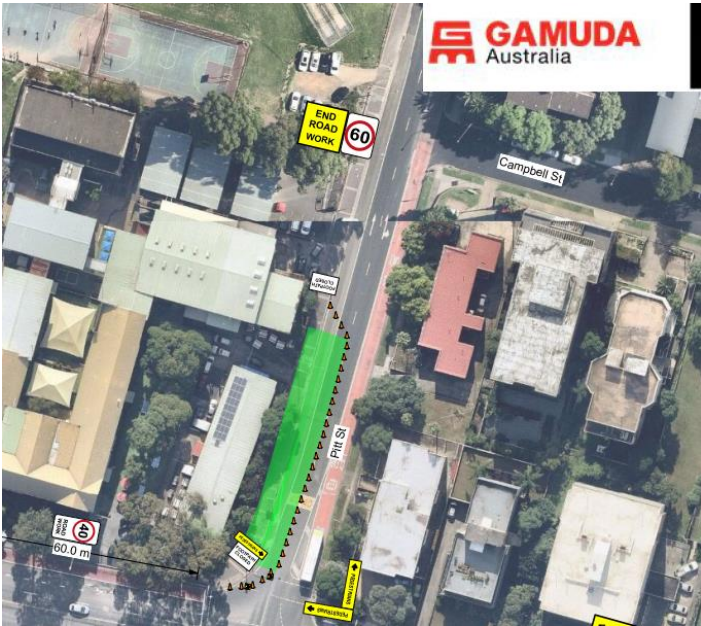
4. Audit Findings

					For completion by Project
No.	Site / reference	Description of Deficiency / Observation	Risk level	Accept Y/N	Action
1	Great Western Hwy & Pitt St, Parramatta NSW 2150 TSG-32394	<p>It's proposed to close the footpath on Pitt Street, the nearest controlled pedestrian detour to the North, is located approximately 200m away.</p> <p>Within this 200m there's also a school and public parkland, meaning some pedestrians may not see the "footpath closed ahead" signage at Argyle Street. And, some pedestrian approaching from the South are unlikely to walk to Argyle Street to cross back to the Western side of Pitt Street.</p> <p>This may result in pedestrians crossing the road at uncontrolled locations, this may contribute to an increased risk of a pedestrian being struck by a vehicle, this risk is likely to be further increased during school pick-up & drop-off times.</p> 	<p>Likelihood – Possible Severity – Moderate Risk Rating – High</p>	Y	TGS Updated, footpath to remain open

ROADWORKS - ROAD SAFETY AUDIT

GLC-WTP – Westmead Traffic Guidance Schemes



<p>2 Great Western Hwy & Pitt St, Parramatta NSW 2150 TSG-32394</p>	<p>While Pitt Street is a one way street for general traffic, Buses are still permitted to travel in a Southerly direction.</p> <p>There's no advance warning signage for these buses. As per TCAWS Section 6.5.9, a workers symbolic sign must be installed where workers are on foot and visible to traffic.</p> <p>Inadequate advance warning may lead to an increased risk to workers, with drivers being unaware of the changes to road conditions.</p> 	<p>Note only</p>	<p>Y</p>	<p>TGS Updated. Added advanced warning signage for the buses southbound</p>
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ROADWORKS - ROAD SAFETY AUDIT

GLC-WTP – Westmead Traffic Guidance Schemes



3	<div>Great Western Hwy & Pitt St, Parramatta NSW 2150</div> <div>TGS- 32395</div>	<p>It's proposed to close the footpath on Pitt Street, the nearest controlled pedestrian detour to the North, is located approximately 200m away.</p> <p>Within this 200m there're many residential buildings, meaning number of pedestrians likely won't see the "footpath closed ahead" signage at Argyle Street. Pedestrians approaching from the North are unlikely to turn around and cross at the controlled location at Argyle Street.</p> <p>This may result in pedestrians crossing the road at uncontrolled locations, this may contribute to an increased risk of a pedestrian being struck by a vehicle, this risk is likely to be further increased during school pick-up & drop-off times.</p>	<div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div> 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ROADWORKS - ROAD SAFETY AUDIT

GLC-WTP – Westmead Traffic Guidance Schemes



<p>4 Great Western Hwy & Pitt St, Parramatta NSW 2150</p> <p>TGS- 32395</p>	<p>There doesn't appear to be any controls in place for buses traveling in a Southbound direction. A bus travelling Southbound is likely to continue into the work area or cross onto the incorrect side of the road.</p> <p>This may lead to an increased risk of head-on type accidents or workers being struck by a bus.</p> <div data-bbox="432 453 1296 829"> </div>	<p>Likelihood – Possible</p> <p>Severity – Moderate</p> <p>Risk Rating – High</p>	<p>Y</p>	<p>TGS Updated</p>
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ROADWORKS - ROAD SAFETY AUDIT

GLC-WTP – Westmead Traffic Guidance Schemes

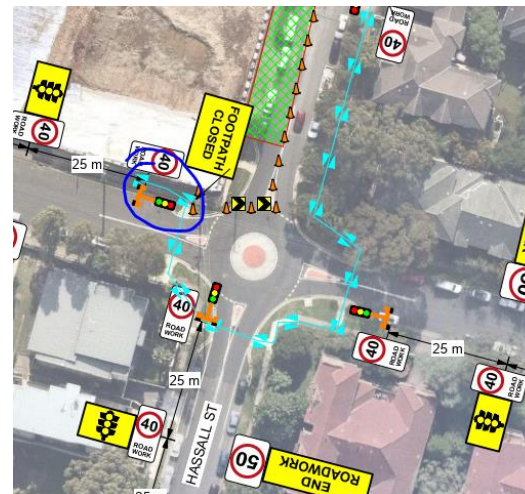
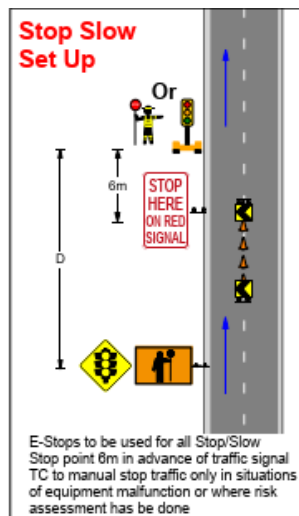


5 HASSALL ST W
ESTMEAD DRIV
EWAY CONSTR
UCTION
TGS- 32546

It's understood this TGS allows the possible use of Traffic Controllers instead of Traffic Signals.

In the event of a Traffic Controller being used, it's noted that according to map provided in the TGS, hoarding appears as though it will prevent the TC from having a clear escape route.

This may increase the risk of a Traffic Controller being struck by a vehicle.



Likelihood – Unlikely
Severity – Moderate
Risk Rating – Medium

Y

TGS Updated

ROADWORKS - ROAD SAFETY AUDIT

GLC-WTP – Westmead Traffic Guidance Schemes



6 HASSALL & BAI
LEY STS WEST
MEAD NORTHW
EST TGS -
32547

The Taper and Buffer length has not been clearly defined on this TGS, there appears there is insufficient distance for a compliant taper and buffer length.

An insufficient taper and buffer length may increase the likelihood of a vehicle entering the work area and colliding with a worker.

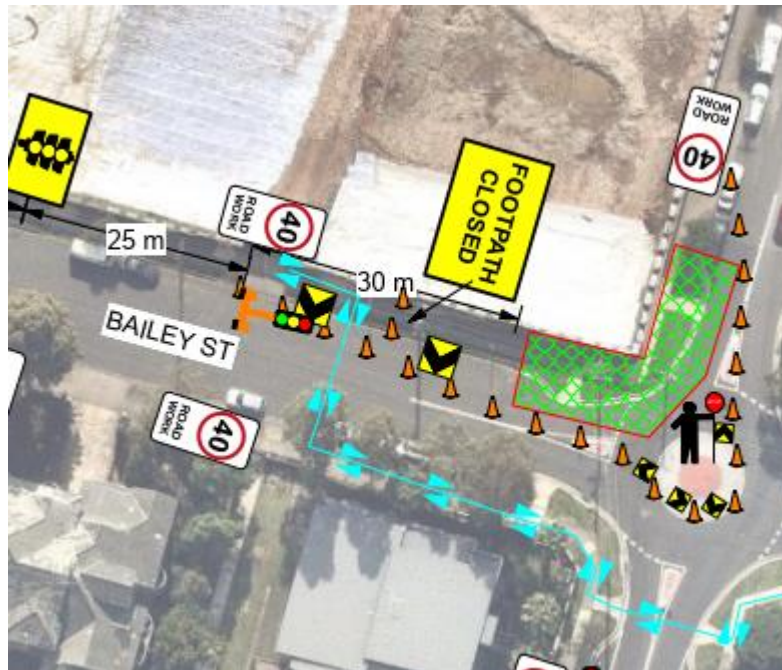
HASSALL & BAI
LEY STS WEST
MEAD SOUTHW
EST TGS -
32552

HASSALL & BAI
LEY STS WEST
MEAD SOUTHE
AST TGS -
32553

HASSALL & BAI
LEY STS WEST
MEAD NORTHE
ASTT GS -
32564

HASSALL ST &
BAILEY STS WE
STMEAD TGS -
32625

HASSALL & BAI
LEY STS WEST
MEAD SPLITER
TGS - 32647



Likelihood – Unlikely
Severity – Minor
Risk Rating – Low

Y

TGS Updated

ROADWORKS - ROAD SAFETY AUDIT

GLC-WTP – Westmead Traffic Guidance Schemes



7 HASSALL ST W
ESTMEAD DRIV
EWAY CONSTR
UCTION TGS -
32546

HASSALL & BAI
LEY STS WEST
MEAD NORTHE
AST TGS -
32564

HASSALL & BAI
LEY STS WEST
MEAD SPLITER
TGS-32647

The PTCO is placed within close proximity to the Alexandra Avenue.

This may increase the likelihood of a Southbound vehicle failing to stop, increasing the risk of head on type accidents.



Likelihood – Unlikely

Severity – Minor

Risk Rating – Low

Y

TGS Updated. Changed the signal operations to boom gates to remove the risk of vehicles failing to stop.

ROADWORKS - ROAD SAFETY AUDIT

GLC-WTP – Westmead Traffic Guidance Schemes



- 8 HASSALL ST W
ESTMEAD DRIV
EWAY CONSTR
UCTION TSG –
32546
- It's unclear if there's sufficient space provided between the lane closure and PTCO.
- Insufficient space for vehicles to merge back to the correct side of the road, may increase the risk of side-swipe and head-on type accidents.

HASSALL & BAI
LEY STS WEST
MEAD NORTHW
EST TGS -
32547

HASSALL & BAI
LEY STS WEST
MEAD SOUTHW
EST TGS -
32552

HASSALL & BAI
LEY STS WEST
MEAD SOUTHE
AST TGS -
32553

HASSALL & BAI
LEY STS WEST
MEAD NORTHE
AST TGS -
32564

HASSALL ST &
BAILEY STS WE
STMEAD TGS –
32625



Likelihood – Unlikely
Severity – Minor
Risk Rating – Low

Y

TGS Updated

ROADWORKS - ROAD SAFETY AUDIT

GLC-WTP – Westmead Traffic Guidance Schemes



HASSALL ST & BAILEY STS WE STMEAD TGS - TGS NUMBER: 0 37			
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RSA REF 413 / REVISION 00
As at 08.11.2022

Page: 18 of 20

ROADWORKS - ROAD SAFETY AUDIT

GLC-WTP – Westmead Traffic Guidance Schemes



<p>10 TGS NUMBER: 038</p> <p>TGS NUMBER: 037</p>	<p>Exiting line marking of the roadway of this area is unclear. Heading Southbound, there's two trafficable lanes, after the school zone there appears to be one wide lane, then two lanes again a short distance further South. There's no signage advising of a lane reduction.</p> <p>According to google maps (imaged below), this may create public confusion - red car driving to the left and the white car to the right.</p> <p>If this occurs at the time of the proposed TGS, it may have a similar affect as attempting to stop two lanes of traffic, and may lead to an increased risk of a public vehicle not stopping at the PTCD. This may increase the risk of a head-on type accident.</p>	<p>Likelihood – Unlikely</p> <p>Severity – Minor</p> <p>Risk Rating – Low</p>	<p>Y</p>	<p>Updated TGS with lane closure</p>
<p>11 NOTE</p>	<p>It's noted there're some arrangements within the various TGSs that may present difficulty for larger vehicles to navigate. Swept paths and expected vehicles sizes to use the roads has not been provided for this audit.</p>			





5. Conclusion

The report outlines where potential deficiencies have been identified for consideration by the project manager, designer and/or engineer.

The findings and opinions in the report are based on the examination of the site at Westmead and associated project work as part of the Sydney Metro West construction project. The Auditors have endeavoured to identify features of the design that could be modified or removed to improve safety, although it must be recognised that safety cannot be guaranteed since no road can be regarded as safe. While every effort has been made to ensure the accuracy of this report, it is made available strictly on the basis that anyone relying on it does so at their own risk without any liability to the Auditors.

Date: 08.11.2022

Alex Gosper

Director | Level 3 Road Safety Auditor
Civlink Consulting Pty Ltd
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Alex@civlink-consulting.com.au

Date: 08.11.2022

Anthony Swann

Traffic Engineer | Level 2 Road Safety Auditor
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F STAKEHOLDER CONSULTATION

GLC Community Consultation with residents in relation to parking space removal in Hassall Street and Bailey Street and intersection signalisation

Date/Time	Properties doorknocked Answered	Properties doorknocked No answer	Points of discussion
Tuesday 4 October – 3pm	12 Hassall Street Units 1, 2, 4, 5, 9, 11, 12 13-17 Bailey Street Units 1, 5, 8 8-12 Alexander Ave Units 1, 4, 5, 6 Total Answered on 4/10 = 14	12 Hassall Street Units 3, 6, 7, 8, 10, 13 13-17 Bailey Street Units 2, 3, 4, 6, 7 8-12 Alexander Ave Units 2, 3	Advised residents: <ul style="list-style-type: none"> - Permanent removal of car spaces on Hassall Street - Right hand turn lane into site - Construction of driveway access into site - installation of new traffic lights at the intersection of Hassall and Bailey Streets - removal of petrol tanks from the old service station.
Wednesday 5 October – 6pm	12 Hassall Street Units 3, 6, 8, 13 13-17 Bailey Street Unit 3 Total Answered on 6/10 = 5	12 Hassall Street – no answer at Units 7, 10 13-17 Bailey Street Unit 2	
Tuesday 11 October – 8:30am	12 Hassall Street Unit 7 13-17 Bailey Street Units 2, 4 8-12 Alexandra Avenue Unit 2, 3 Total Answered on 11/10 – 5	12 Hassall Street Unit 10 13-17 Bailey Street Units 6, 7	

GLC Community Consultation with residents in relation to parking space removal in Bailey Street as part of the Hassall Street and Bailey Street intersection signalisation.

Undertaken as identified as above	13-17 Bailey Street Units 1, 2, 3, 4, 5, 8	13-17 Bailey Street Units 6, 7	As above
Monday 10 October – 3:00pm	23-27 Hassall Street Units 2, 3, 4, 7 Total Answered on 10/10 – 4	23-27 Hassall Street Units 1, 5, 6 23-27 Hassall Street Units 9-14 Building separate to units 1-8. This block has been fenced off with no residents	<ul style="list-style-type: none">- Right hand turn lane into site and road reconfiguration works- installation of new traffic lights at the intersection of Hassall and Bailey Streets requiring car parking removal
	23-24 Bailey Street Units 1, 2, 4, 7, 9, 12, 15 Total Answered on 10/10 – 7	23-24 Bailey Street Units 3, 5, 6, 8, 10, 11, 13, 14	
GLC Community Consultation in relation to signalisation changes at the intersection of Priddle Street and Hawkesbury Road			
Tuesday 11 October – 2:00pm Commencing 11 October	117, 119, 121 Hawkesbury Road Units at 123 Hawkesbury Road Units at 26 Priddle Street (5 units) Units at 23-25 Priddle Street (13 units)		<ul style="list-style-type: none">- Widening of pedestrian crossing at traffic lights at the intersection of Hawkesbury Road and Priddle Street.- Associated relocation of light pole, power pole, signalisation posts and installation of pedestrian fencing (on the school side) between the signalised pedestrian travel paths.
30 May 2022 July 2022 21 September	Meetings with Westmead Public School		<ul style="list-style-type: none">- Widening of pedestrian crossing at traffic lights at the intersection of Hawkesbury Road and Priddle Street.- General overview of construction activities and vehicle movements

Westmead School Communications

GLC had a meeting with the Principal to discuss ideas for educating the students, parents and carers on safe road practices. Our discussions included the following. Note that we are waiting on a call back from the school at the moment to progress this. GLC will contact them again the week commencing 5 Dec 2022 to chase up.

- Producing and installing posters around the school area about safe road crossing practices in the languages provided by the school, Telugu, Hindi, Tamil and Gujarati
- Signs to be installed for a week at a time and directed at parents/carers regarding crossing safety. Signs would then be randomly removed and or/relocated to ensure they do not become background info and ignored. This will be an ongoing process
- Wording on signs will come from the Safetytown website (the TfNSW road and school safety info website)
- Principal advised that it was the parents and guardians who need educating as they come from countries where the interface between traffic and people is a lot looser and more organic. He believes the children are more aware of the road rules.
- Footpath decals for the children about traffic awareness
- Community Hub Australia. This is a Govt funded support network that has representation at the school, Kimberley. Waiting call back from her at this time. Kimberley may be able to provide guidance on additional ways to inform the local community.
- Boral Truck and Fire Truck at school. Principal keen to have the trucks come to the school to educate kids about lack of vision around the trucks. To be scheduled for the new year
- Flyers to be provided in languages listed above about road safety, again from Safety Hub and/or Truck Aware campaign, and handed out to parents/carers.
- Project staff to go to school to talk to kids about the project and general safety on crossing roads

G INSPECTIONS AND CHECKLISTS

Audit Details

Audit Date:		Audit Time:	
Address:			
WTP Site:		Subcontractor:	
Person completing the audit:			
GLC Supervisor on site:		Position:	

Traffic Control Crew Details

Crew Members:			
Are all the workers inducted on WTP?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Comments:
Are all the workers inducted on the currently Site?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Comments:

Work zone Inspection

TGS:		ROL:	
Is a copy of the location TMP and relevant TGS available?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Is the TGS implemented on the correct way?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Comments or details of action taken:			
Have any adjustments been made to the approval TGS?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
If yes, provide details:	Are changes within tolerance? If no, TGS must be reviewed by a PWZTMP	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Have changes been approved? If no, TGS must be approved	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Comments or details of action taken:			
Have all signs and devices been installed in accordance with approval TGS?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Comments or details of action taken:			
Are the PTCs positioned as prescribed on TGS?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	

Comments or details of action taken:			
Are sign and devices in good condition, clearly visible to road users?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Comments or details of action taken:			
Are all signs mounted level and suitably clear of travel lanes?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Comments or details of action taken:			
Are conflicting or non-applicable signs covered or removed?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Comments or details of action taken:			
Is temporary delineation installed as prescribed i.e., straight line forming taper?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Comments or details of action taken:			
Are manual traffic controllers clear of travel lane, have suitable escape route?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Comments or details of action taken:			
Are site accesses and egresses well defined and safe for work vehicles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Comments or details of action taken:			
Are registered trailers i.e., VMS / light towers; suitably clear of travel lanes and delineated?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>

Comments or details of action taken:			
Are temporary speed zones operating as prescribed?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Comments or details of action taken:			
Are workers on foot / plant clearances been applied / observed?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
Comments or details of action taken:			
Is the TGS valid for the site activity and operating safely as intended?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Comments or details of action taken:			
Is TGS appropriate for the current traffic conditions?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Comments or details of action taken:			
Have potential hazards identified in TGS been addressed? i.e., end-of-queue management	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Comments or details of action taken:			
Has the team leader completed the daily pre-start and risk assessment? Please attach a copy to this audit	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Comments or details of action taken:			
Is the Traffic Control crew with adequate PPE?	Hi Vis Long Sleeves	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Pants	Yes <input type="checkbox"/>	No <input type="checkbox"/>

	Hard Hat	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Steel cap boots	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Gloves (clipped when not in use)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Safety Glasses	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Is the crew equipped with 2-way radios	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Is the communication between crew members clear?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Is any of the crew members showing fatigue signs?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	

General overview

Is the job site safe to continue the works

Yes ☐

No ☐

If not, what was the immediate corrective action implemented

Audit Team

Name:

Position:

Company:

Signature:

Traffic Control company representative

Name:

Position:

Company:

Signature:

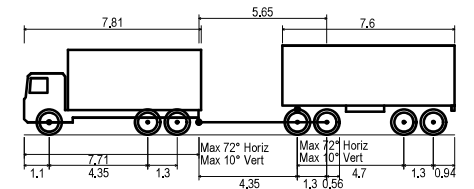
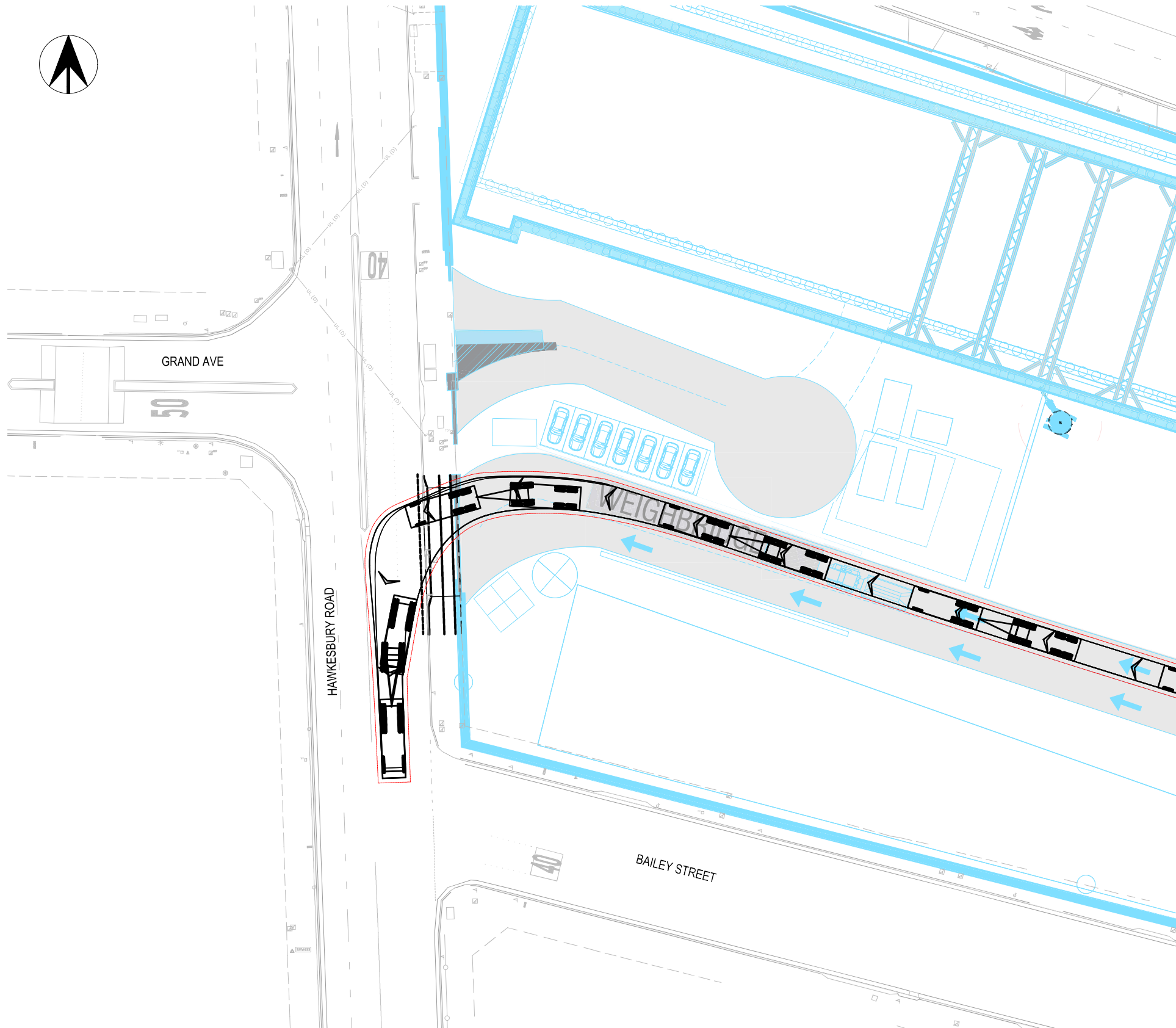
H SWEPT PATHS

Cad File: C:\pwworket\SMWSTWTP\Plans\043\SMWSTWTP-GLO-WMD-SN650-CV-DRG-080501.dwg

Plot Date: 19/08/22 - 11:03

100mm AT FULL SIZE

100mm AT FULL SIZE



Overall Length 19.000m
Overall Width 2.500m
Overall Body Height 3.940m
Min Body Ground Clearance 0.550m
Track Width 2.500m
Lock to lock time 6.00s
Kerb to Kerb Turning Radius 9.000m

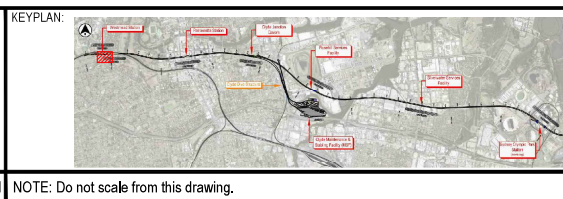
TRUCK AND DOG (19m-50t) PROFILE



NOT FOR CONSTRUCTION

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01.0	STAGE 3 DETAILED DESIGN - 100%	R.C.	D.G.	L.N.	18/08/22
NA	Co-ordinate System: MGA94, Z56	Height Datum:	This sheet may be prepared using colour and may be incomplete if copied		

SCALES:				
1:1	1:1	1:1	1:1	1:1



CLIENT:

NSW GOVERNMENT

sydney METRO

PRINCIPAL AEO:

GHD

SMC

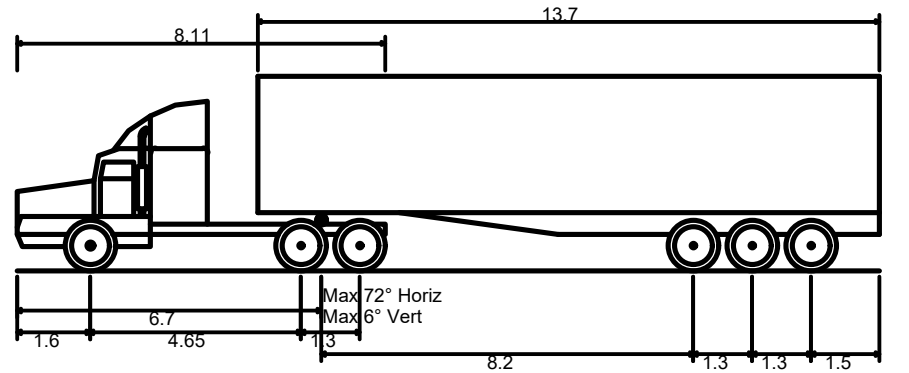
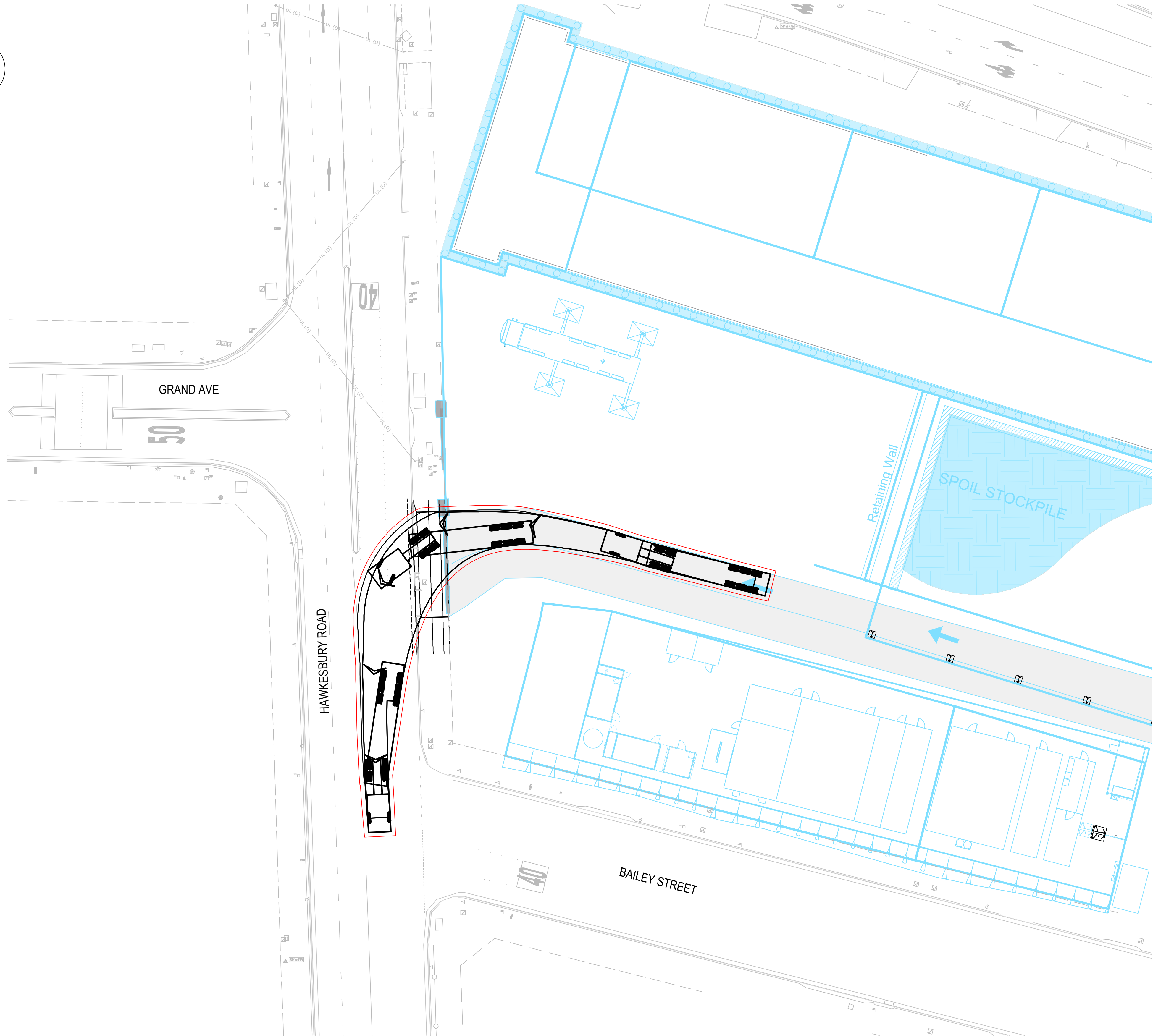
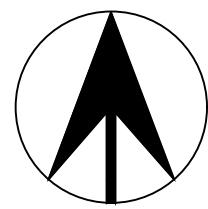
SERVICE PROVIDERS			
DRAWN	J. CURLEY	18/08/22	
DESIGNED	B. CROWLEY	18/08/22	
DRG CHECK	L. NICHOLS	18/08/22	
DESIGN CHECK	D. GEERLINGS	18/08/22	
APPROVED	J. FONG	18/08/22	

SYDNEY METRO WEST			
PHASE 2A - HAWKESBURY ROAD SITE DRIVEWAY EXIT			
WESTMEAD ENABLING WORKS			
ROADWORKS			
TURNING PATH PLAN			
DOCUMENT No:	SHEET: 01	OF: 01	©
STATUS: STAGE 3 DETAILED DESIGN - 100%			
DRG No.	SMWSTWTP-GLO-WMD-SN650-CV-DRG-080501	REV: A	VER: A01.01

Card File: C:\pwwork\smwstwp\smwstwp\GLO-WMD-SN650-CV-DRG-080502.dwg

Plot Date: 02/11/22 - 16:45

100mm AT FULL SIZE



Prime mover and semi-trailer (19 m)
Overall Length 19.000m
Overall Width 2.500m
Overall Body Height 4.300m
Min Body Ground Clearance 0.540m
Track Width 2.500m
Lock to lock time 6.00s
Kerb to Kerb Turning Radius 12.500m

19m SEMI-TRAILER PROFILE



NOT FOR CONSTRUCTION

No.		Amendment Description	Design by	Verified by	Approved by	Date
A		STAGE 3 DETAILED DESIGN - 100% RESUBMISSION	R.C.	D.G.	LN	27.10.22

NA		Co-ordinate System: MGA94, Z56	Height Datum:	This sheet may be prepared using colour and may be incomplete if copied
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KEYPLAN:

CLIENT:

NSW GOVERNMENT | sydney METRO

PRINCIPAL AEO:

GHD | SMEC

Service Providers

GAMUDA Australia | LAND OROURKE

Cardno | Startec

DESIGNED: R.CROWLEY 25.10.22

DRG CHECK: L.NICHOLS 25.10.22

DESIGN CHECK: D.GEERLINGS 25.10.22

APPROVED: J.FONG 25.10.22

SYDNEY METRO WEST

PHASE 2A - HAWKESBURY ROAD SITE DRIVEWAY EXIT

WESTMEAD ENABLING WORKS

ROADWORKS

TURNING PATH PLAN - SHEET 2

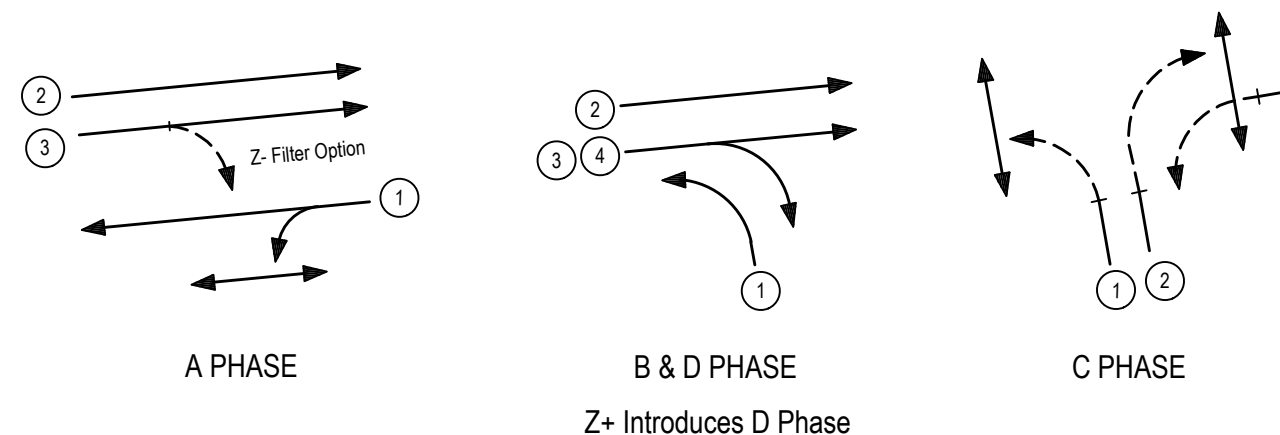
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STATUS: STAGE 3 DETAILED DESIGN EDMS NO:

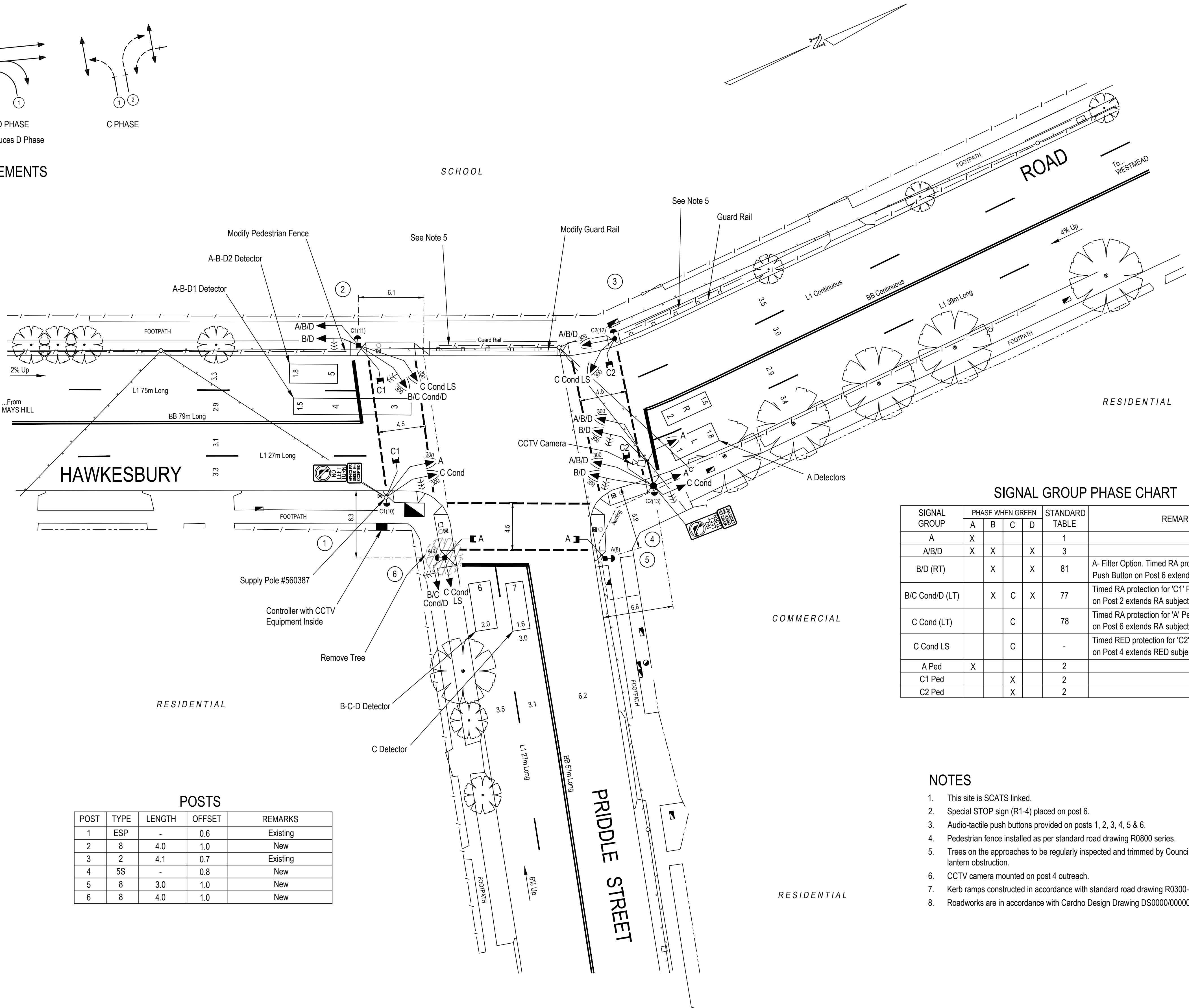
DRG No. SMWSTWTP-GLO-WMD-SN650-CV-DRG-080502 REV A VER



I TCS DESIGNS



MOVEMENTS



DETECTOR SPECIFICATION

DETECTOR	SPECIFICATION				
A	FN	A(L)	A(E1)		
	SG/PS	A	A		
	DS	—	—		
A-B-D1	FN	B(PR)	D(PR)	B(E4)	D(E4)
	SG/PS	A	A	B	D
	DS	—	Z+	A(NEXT)	A(NEXT)
A-B-D1	FN	A(L),B(L)	D(L)	A(E3)	
	SG/PS	A/B/D	A/B/D	A	
	DS	—	Z+	A-B-D1(PR),B(NEXT),D(NEXT)	
A-B-D1	FN	B(E3)		D(E3)	
	SG/PS	B		D	
	DS	A(NEXT),D(NEXT)		A(NEXT),B(NEXT)	
A-B-D2	FN	A(L)	A(E2)		
	SG/PS	A/B/D	A		
	DS	B.D	B(NEXT),D(NEXT)		
A-B-D2	FN	B(E2)		D(E2)	
	SG/PS	B		D	
	DS	A(NEXT),D(NEXT)		A(NEXT),B(NEXT)	
B-C-D	FN	B(PR)	D(PR)	B(E1)	
	SG/PS	B.C.D	B.C.D	B	
	DS	C	Z+ C	C(NEXT),D(NEXT)	
B-C-D	FN	C(E1)		D(E1)	
	SG/PS	C		D	
	DS	B(NEXT),D(NEXT)		B(NEXT),C(NEXT)	
C	FN	C(L)	C(E2)		
	SG/PS	C	C		
	DS	—	—		
A P.B.	FN	A(PB)		C(L)	
	SG/PS	A(WALK)		A.A(WALK)	
	DS	—		B.C.D	
C1 P.B.	FN	C(PB)		A(L)	
	SG/PS	C1(WALK)		C.C1(WALK)	
	DS	—		A.B.D	
C2 P.B.	FN	C(PB)		A(L)	
	SG/PS	C2(WALK)		C.C2(WALK)	
	DS	—		A.B.D	

SIGNAL GROUP PHASE CHART

SIGNAL GROUP	PHASE WHEN GREEN				STANDARD TABLE	REMARKS
	A	B	C	D		
A	X				1	
A/B/D	X	X		X	3	
B/D (RT)		X		X	81	A- Filter Option. Timed RA protection for 'A' Pedestrians. Push Button on Post 6 extends RA subject to timer.
B/C Cond/D (LT)		X	C	X	77	Timed RA protection for 'C1' Pedestrians. Push button on Post 2 extends RA subject to timer.
C Cond (LT)			C		78	Timed RA protection for 'A' Pedestrians. Push button on Post 6 extends RA subject to timer.
C Cond LS			C		-	Timed RED protection for 'C2' Pedestrians. Push button on Post 4 extends RED subject to timer.
A Ped	X				2	
C1 Ped			X		2	
C2 Ped			X		2	

NOTES

- This site is SCATS linked.
- Special STOP sign (R1-4) placed on post 6.
- Audio-tactile push buttons provided on posts 1, 2, 3, 4, 5 & 6.
- Pedestrian fence installed as per standard road drawing R0800 series.
- Trees on the approaches to be regularly inspected and trimmed by Council to minimise lantern obstruction.
- CCTV camera mounted on post 4 outreach.
- Kerb ramps constructed in accordance with standard road drawing R0300-11.
- Roadworks are in accordance with Cardno Design Drawing DS0000/000000.

POSTS

POST	TYPE	LENGTH	OFFSET	REMARKS
1	ESP	-	0.6	Existing
2	8	4.0	1.0	New
3	2	4.1	0.7	Existing
4	5S	-	0.8	New
5	8	3.0	1.0	New
6	8	4.0	1.0	New

A ORIGINAL ISSUE

PUBLIC UTILITY LEGEND		REFERENCE PLANS		U.B.D. Ref. Map 210 M1	
HYDRANT	□	SYMBOLS/ABRVS	VD003-6	I.S.G.	E: 236 680
STOP VALVE	▲	STD POSN CMPT	VD003-5	CO-ORDS	N: 1 257 400
GAS VALVE	⊕	INSTL STOP DET	VC005-17	DESIGNED : R BATES CHECKED : J BATES SITE CHECKED : J BATES RECOMMENDED : J BATES	
SEWER MANHOLE	⊗	VEH GROUP OP	TS-TN-019		
COMMS PIT	⊗	DET LOGIC OP	TS-TN-020		
ELECT LIGHT POLE	⊗	PED MVT OP	TS-TN-021		
POWER POLE	⊗				
STAY POLE	⊗			DESIGN PREPARED BY B-Line Drafting on behalf of Cardno	
TELEPHONE BOX	⊗	SURVEYOR : Cardno			
COMMS PILLAR	⊗	DATE : 2022			

DESIGN APPROVAL
APPROVED
NAME POSITION DATE
MANAGER 15/12/22

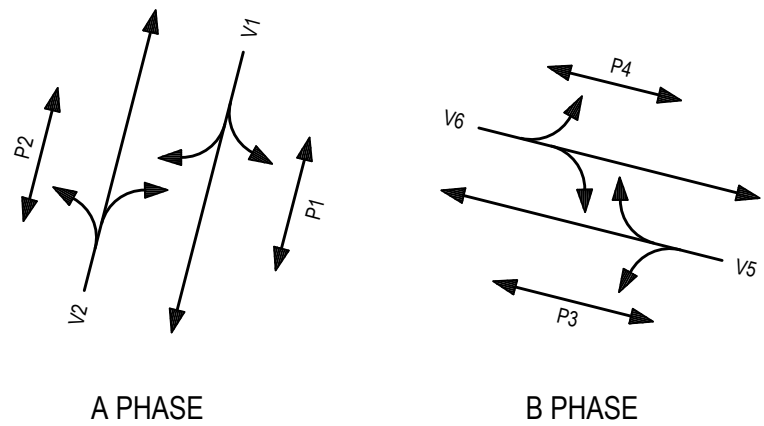
TFNSW RECOMMENDATION
ROAD DESIGN ENGINEERING
NAME POSITION DATE
MANAGER 15/12/22

TFNSW ACCEPTANCE
ACCEPTED
NAME POSITION DATE
MANAGER 15/12/22

TRANSPORT FOR NEW SOUTH WALES
CUMBERLAND COUNCIL AREA
TRAFFIC SIGNALS AT
HAWKESBURY ROAD AND
PRIDDLE STREET
WESTMEAD

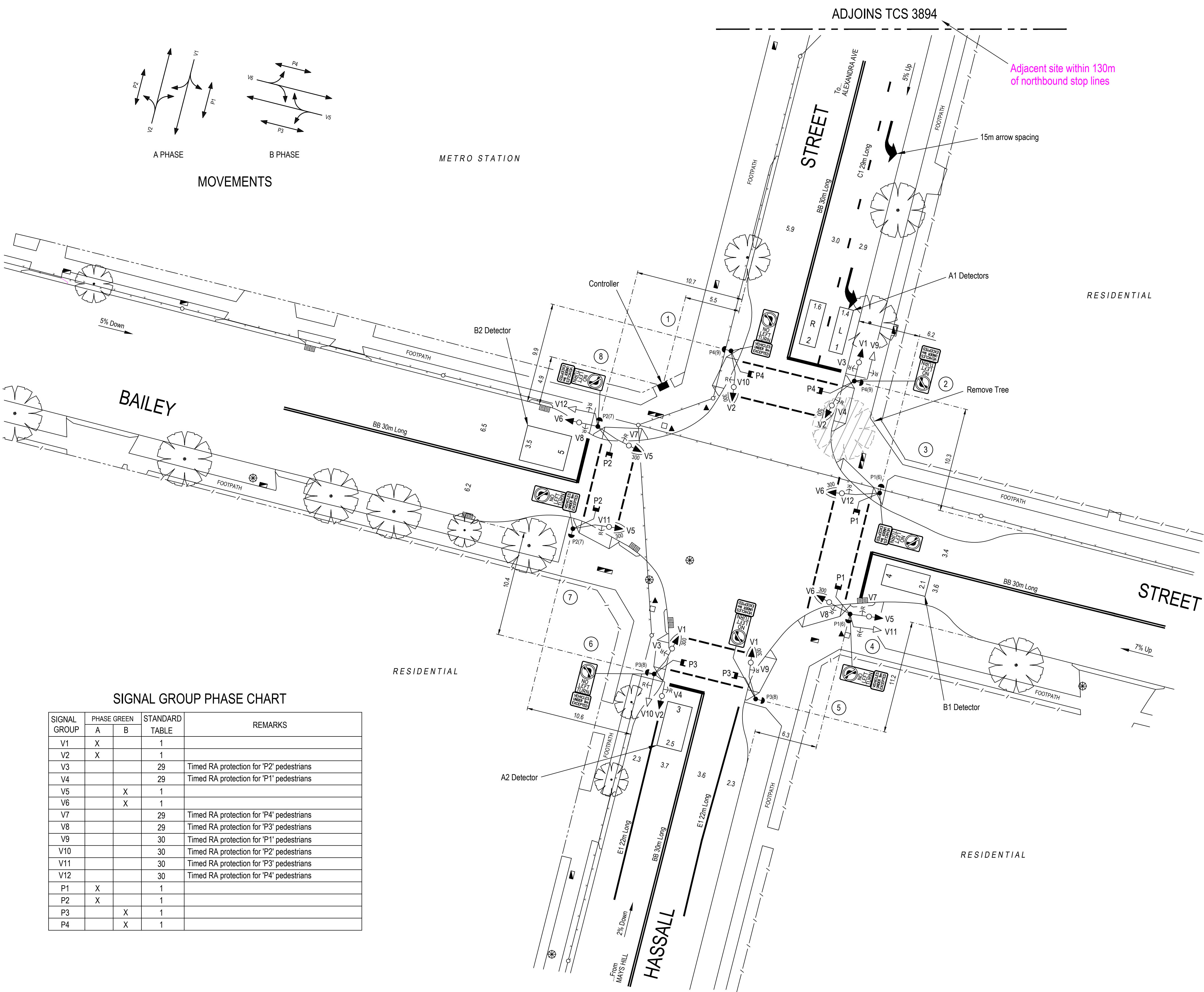
DESIGN LAYOUT

EXISTING		PROPOSED	
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SCALE	5 0 (1:200) 5 10	ISSUE	
FILE	SF0000/000000	SUPERSEDES SHEET/ISSUE	2/C
REG No.	DS0000/000000	TCS No.	1583
		SHEET	
		X	



MOVEMENTS

METRO STATION



POSTS

POST	TYPE	LENGTH	OFFSET	REMARKS
1	2	4.1	1.0	New
2	2	4.1	1.0	New
3	2	4.1	1.0	New
4	2	4.1	1.0	New
5	2	4.1	1.0	New
6	2	4.1	1.0	New
7	2	4.1	1.0	New
8	2	4.1	1.0	New

SIGNAL GROUP PHASE CHART

SIGNAL GROUP	PHASE GREEN		STANDARD TABLE	REMARKS
	A	B		
V1	X		1	
V2	X		1	
V3			29	Timed RA protection for 'P2' pedestrians
V4			29	Timed RA protection for 'P1' pedestrians
V5		X	1	
V6		X	1	
V7			29	Timed RA protection for 'P4' pedestrians
V8			29	Timed RA protection for 'P3' pedestrians
V9			30	Timed RA protection for 'P1' pedestrians
V10			30	Timed RA protection for 'P2' pedestrians
V11			30	Timed RA protection for 'P3' pedestrians
V12			30	Timed RA protection for 'P4' pedestrians
P1	X		1	
P2	X		1	
P3		X	1	
P4		X	1	

NOTES

- This site is SCATS linked.
- Special STOP sign (R1-4) placed on posts 4 & 8.
- Audio-tactile push buttons provided on posts 1, 2, 4, 5, 6, 7 & 8.
- Red runner software added for detectors 1-5.
- Trees on the approaches to be regularly inspected and trimmed by Council to minimise lantern obstruction.
- Kerb ramps constructed in accordance with standard road drawing R0300-11.
- Roadworks are in accordance with Cardno Design Drawing DS0000/000000.
- Power supply to be nominated, within 30m of the controller, by a level 2/3 service provider, including asset number and ASP supporting documentation, prior to design approval.

A ORIGINAL ISSUE

PUBLIC UTILITY LEGEND		REFERENCE PLANS	
HYDRANT	□	SYMBOLS/ABRVS	VD003-6
STOP VALVE	▲	STD POSN CMPT	VD001-5
GAS VALVE	⦿	INSTL STOP DET	VC005-17
SEWER MANHOLE	⊕	VEH GROUP OP	TS-TN-019
COMMS PIT	⊗	DET LOGIC OP	TS-TN-020
ELECT LIGHT POLE	○	PED MVT OP	TS-TN-021
POWER POLE	○		
STAY POLE	○		
TELEPHONE BOX	⊞	SURVEYOR : Cardno	
COMMS PILLAR	●	DATE : 2022	

U & D Ref. Map 210 M1	I.S.G. E : 236 835	CO-ORDS N : 1 257 460
DESIGNED : J BATES	CHECKED : J BATES	SITE CHECKED : J BATES
		RECOMMENDED

DESIGN APPROVAL
APPROVED
NAME :
POSITION : MANAGER
DATE : 07/07/22
DESIGN PREPARED BY : B-Line Drafting
on behalf of Cardno

TFNSW RECOMMENDATION
ROAD DESIGN ENGINEERING
NAME : _____
POSITION : _____
DATE : _____
NETWORK OPERATIONS
NAME : _____
POSITION : _____
DATE : _____

TFNSW ACCEPTANCE
ACCEPTED
NAME : _____
POSITION : _____
DATE : _____
ACCEPTED BY : _____
SECTION : _____

TRANSPORT FOR NEW SOUTH WALES

CUMBERLAND COUNCIL AREA
TRAFFIC SIGNALS AT
HASSALL STREET AND
BAILEY STREET
WESTMEAD

DESIGN LAYOUT

EXISTING ☐ PROPOSED ☒

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SCALE 5 0 (1:200) 5 10

FILE SF0000/000000

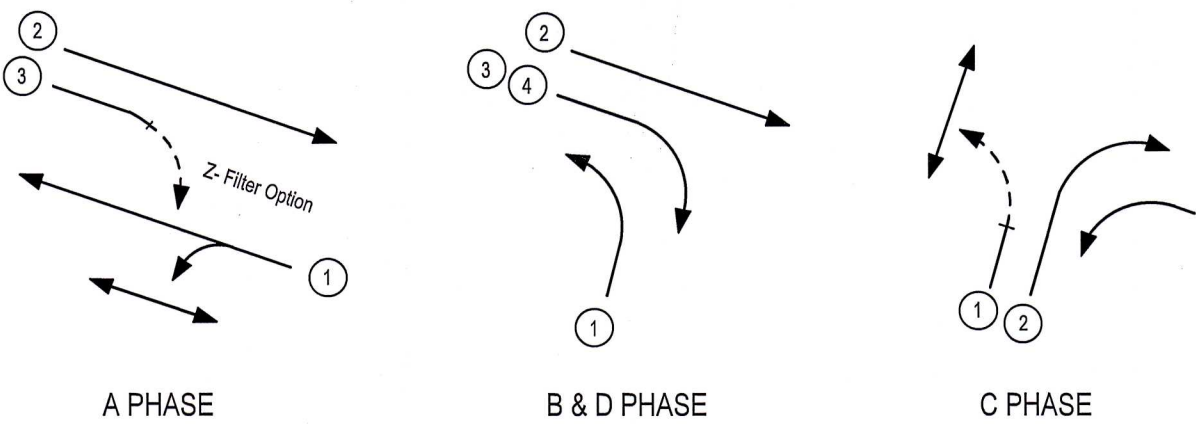
REG No.
DS0000/000000

SUPERSEDES SHEET/ISSUE -/-

TCS No.
0000

ISSUE
A

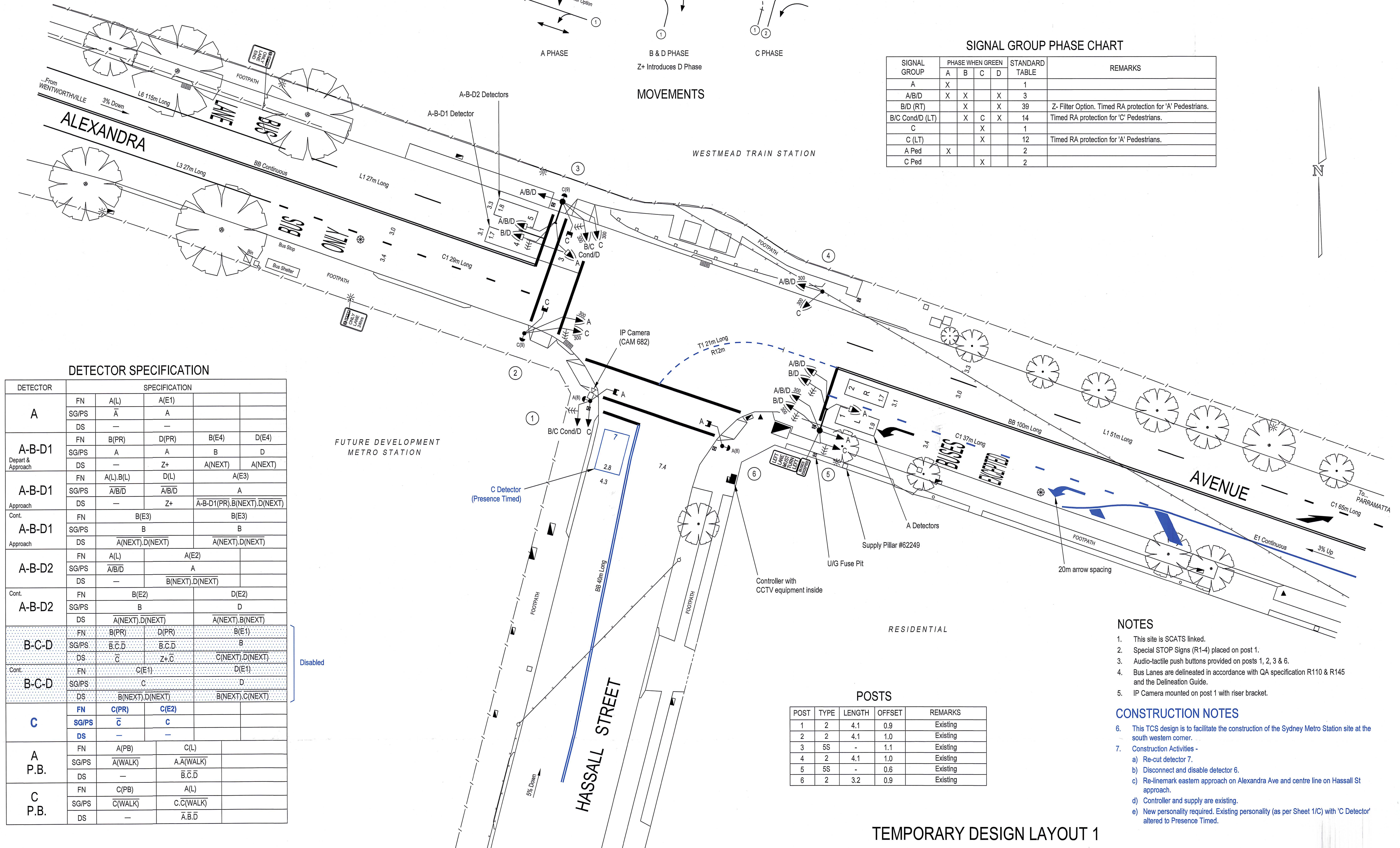
SHEET
1



MOVEMENTS

SIGNAL GROUP PHASE CHART

SIGNAL GROUP	PHASE WHEN GREEN				STANDARD TABLE	REMARKS
	A	B	C	D		
A	X				1	
A/B/D	X	X		X	3	
B/D (RT)		X	X	X	39	Z- Filter Option. Timed RA protection for 'A' Pedestrians.
B/C Cond/D (LT)		X	C	X	14	Timed RA protection for 'C' Pedestrians.
C			X		1	
C (LT)			X		12	Timed RA protection for 'A' Pedestrians.
A Ped	X				2	
C Ped			X		2	



DETECTOR SPECIFICATION

DETECTOR	SPECIFICATION				
A	FN	A(L)	A(E1)		
	SG/PS	A	A		
	DS	—	—		
A-B-D1 Depart & Approach	FN	B(PR)	D(PR)	B(E4)	D(E4)
	SG/PS	A	A	B	D
	DS	—	Z+	A(NEXT)	A(NEXT)
A-B-D1 Approach	FN	A(L),B(L)	D(L)		A(E3)
	SG/PS	A/B/D	A/B/D		A
	DS	—	Z+	A-B-D1(PR),B(NEXT),D(NEXT)	
A-B-D1 Cont.	FN	B(E3)		B(E3)	
	SG/PS	B		B	
	DS	A(NEXT),D(NEXT)		A(NEXT),D(NEXT)	
A-B-D2	FN	A(L)		A(E2)	
	SG/PS	A/B/D		A	
	DS	—		B(NEXT),D(NEXT)	
A-B-D2 Cont.	FN	B(E2)		D(E2)	
	SG/PS	B		D	
	DS	A(NEXT),D(NEXT)		A(NEXT),B(NEXT)	
B-C-D	FN	B(PR)	D(PR)		B(E1)
	SG/PS	B,C,D	B,C,D		B
	DS	C	Z+ C	C(NEXT),D(NEXT)	
B-C-D Cont.	FN	C(E1)		D(E1)	
	SG/PS	C		D	
	DS	B(NEXT),D(NEXT)		B(NEXT),C(NEXT)	
C	FN	C(PR)	C(E2)		
	SG/PS	C	C		
	DS	—	—		
A P.B.	FN	A(PB)		C(L)	
	SG/PS	A(WALK)		A,A(WALK)	
	DS	—		B,C,D	
C P.B.	FN	C(PB)		A(L)	
	SG/PS	C(WALK)		C,C(WALK)	
	DS	—		A,B,D	

Disabled

POSTS

POST	TYPE	LENGTH	OFFSET	REMARKS
1	2	4.1	0.9	Existing
2	2	4.1	1.0	Existing
3	5S	-	1.1	Existing
4	2	4.1	1.0	Existing
5	5S	-	0.6	Existing
6	2	3.2	0.9	Existing

NOTES

- This site is SCATS linked.
- Special STOP Signs (R1-4) placed on post 1.
- Audio-tactile push buttons provided on posts 1, 2, 3 & 6.
- Bus Lanes are delineated in accordance with QA specification R110 & R145 and the Delineation Guide.
- IP Camera mounted on post 1 with riser bracket.

CONSTRUCTION NOTES

- This TCS design is to facilitate the construction of the Sydney Metro Station site at the south western corner.
- Construction Activities -
 - Re-cut detector 7.
 - Disconnect and disable detector 6.
 - Re-linemark eastern approach on Alexandra Ave and centre line on Hassall St approach.
 - Controller and supply are existing.
 - New personality required. Existing personality (as per Sheet 1/C) with 'C Detector' altered to Presence Timed.

TEMPORARY DESIGN LAYOUT 1

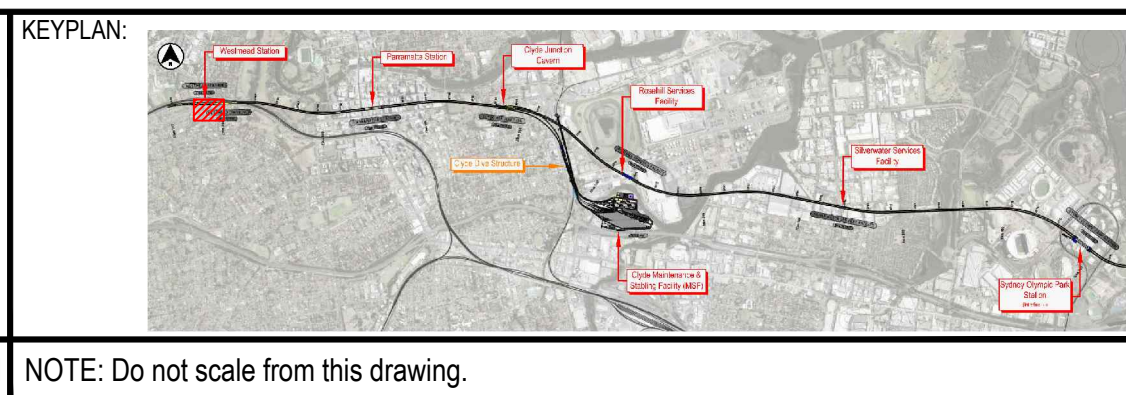
A ORIGINAL ISSUE	PUBLIC UTILITY LEGEND	REFERENCE PLANS	U.B.D. Ref. Map 210 M1	DESIGN APPROVAL	TFNSW RECOMMENDATION	TFNSW ACCEPTANCE	TRANSPORT FOR NEW SOUTH WALES	EXISTING <input type="checkbox"/> PROPOSED <input checked="" type="checkbox"/>
	HYDRANT	SYMBOLS/ABRVS	VD003-6	APPROVED	ROAD DESIGN ENGINEERING	ACCEPTED	CUMBERLAND COUNCIL AREA	CADD FILE: VV3894_TDL-1_A.dgn
	STOP VALVE	6TD POSN CMPT	VD001-5	NAME	NAME	NAME	TRAFFIC SIGNALS AT	SCALE 5 0 5 10 (1:200)
	GAS VALVE	INSTL STOP DET	VC005-17	POSITION	POSITION	POSITION	ALEXANDRA AVENUE AND	FILE SF2014/013459
	SEWER MANHOLE	VEH GROUP OP	TS-TN-019	DATE	DATE	DATE	HASSALL STREET	SUPERSEDES SHEET/ISSUE 1/C
	COMMS PIT	DET LOGIC OP	TS-TN-020	DESIGN PREPARED BY	NETWORK OPERATIONS	ACCEPTED BY	WESTMEAD	REG No. DS2014/004281
	ELECT LIGHT POLE	PED MVT OP	TS-TN-021	DATE	DATE	SECTION		TCS No. 3894
	POWER POLE							SHEET TDL-1
	STAY POLE							
	TELEPHONE BOX	SURVEYOR: Cardno	DATE: 2022					
	COMMS PILLAR							

J DESIGN PLANS

SYDNEY METRO WEST			
PHASE 2B - HAWKESBURY ROAD AND PRIDDLE STREET			
WESTMEAD ENABLING WORKS			
ROADWORKS			
SETOUT PLAN			
DOCUMENT No:		SHEET:	7 OF 12
STATUS: STAGE 3 DETAILED DESIGN		EDMS No:	(C)
DRG No. SMWSTWTP-GLO-WMD-SN650-CV-DRG-110020			REV C
			VER

No.	Amendment Description	Design by	Verified by	Approved by	Date
01.01	STAGE 3 100% DETAILED DESIGN RESUBMISSION	R.C.	D.G.	LN	18.01.23
D	STAGE 3 100% DETAILED DESIGN RESUBMISSION	R.C.	D.G.	LN	02.12.22
C	STAGE 3 DETAILED DESIGN RESUBMISSION	R.C.	D.G.	LN	10.11.22
B	STAGE 3 DETAILED DESIGN - 100%	R.C.	D.G.	LN	23.09.22
A	STAGE 3 DETAILED DESIGN - 100%	R.C.	D.G.	LN	20.09.22

NA	Co-ordinate System: MGA94, Z56	Height Datum:	This sheet may be prepared using colour and may be incomplete if copied
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CLIENT:

NSW GOVERNMENT | sydney METRO

PRINCIPAL AEO:

GHD | SMEC

<p>Service Providers</p> <p>GAMUDA Australia</p> <p>LAND GROUPS</p> <p>Stantec</p>	<p>DRAWN: K. CURLEY 18.01.23</p> <p>DESIGNED: R. CROWLEY 18.01.23</p> <p>DRG CHECK: L. NICHOLS 18.01.23</p> <p>DESIGN CHECK: D. GEERLINGS 18.01.23</p> <p>APPROVED: J. FONG 18.01.23</p>
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NOT FOR CONSTRUCTION

SYDNEY METRO WEST

PHASE 2B - HAWKESBURY ROAD AND PRIDDLE STREET

WESTMEAD ENABLING WORKS

ROADWORKS

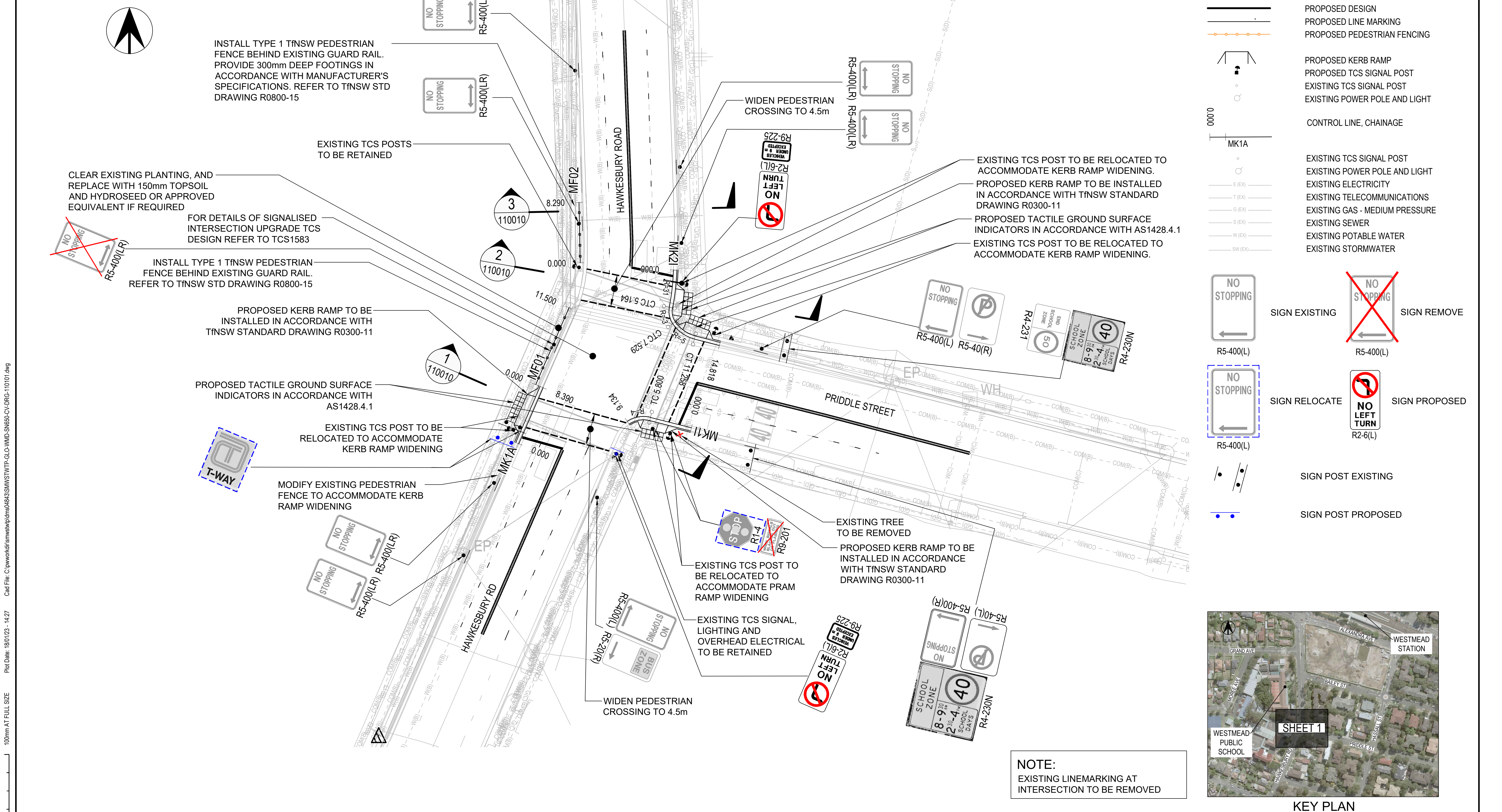
GENERAL ARRANGEMENT PLAN

DOCUMENT No: SHEET: 8 OF 12

STATUS: STAGE 3 DETAILED DESIGN EDMS NO:

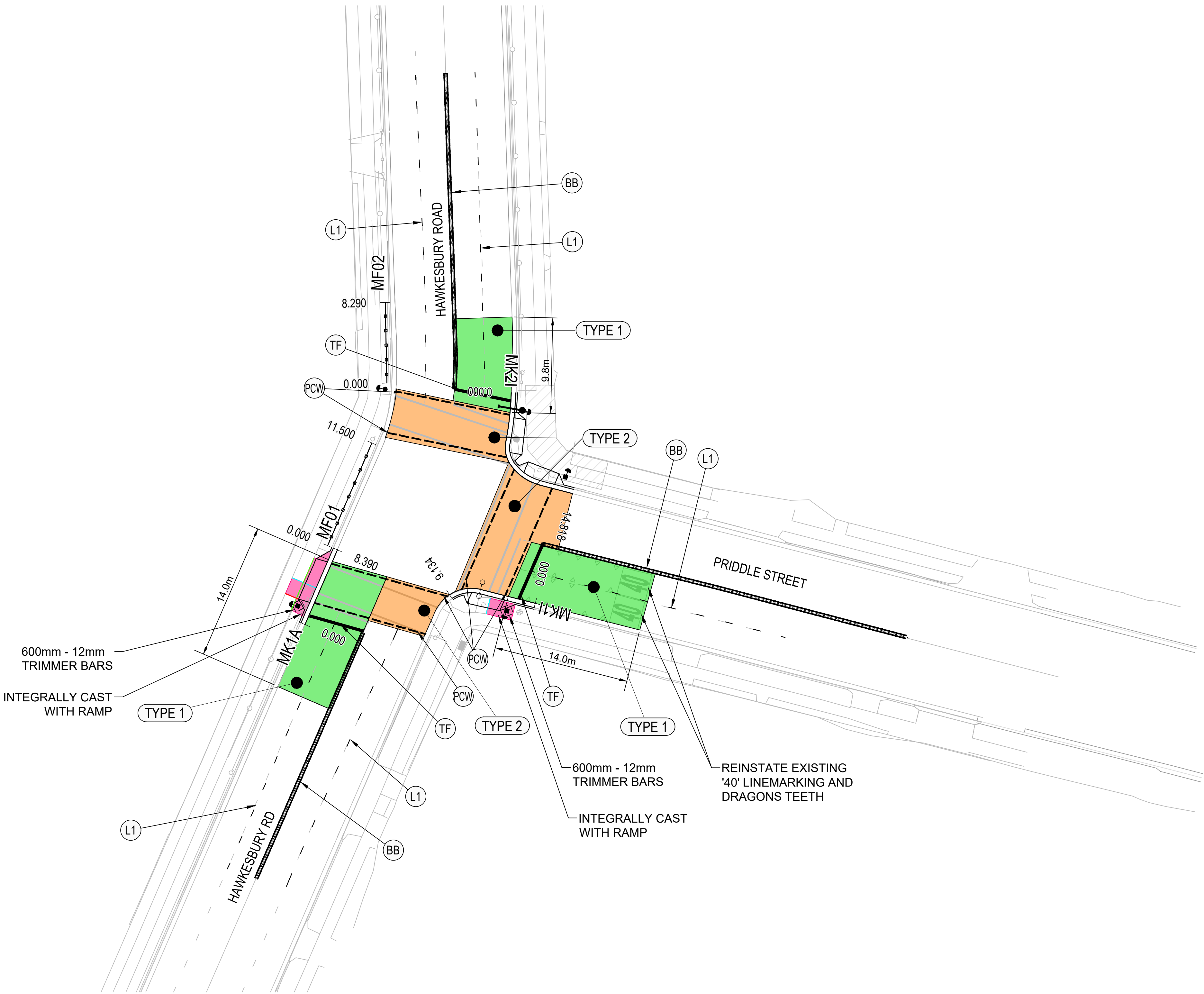
DRG No. SMWSTWP-GLO-WMD-SN650-CV-DRG-110101

REV C VER



LEGEND

- EXISTING KERB
PROPOSED SITE LAYOUT
PROPOSED DESIGN
PROPOSED LINE MARKING
PROPOSED PEDESTRIAN FENCING
- PROPOSED KERB RAMP
PROPOSED TCS SIGNAL POST
EXISTING TCS SIGNAL POST
EXISTING POWER POLE AND LIGHT
- CONTROL LINE, CHAINAGE
- PROPOSED LINEMARKING TAGS
- PROPOSED PAVEMENT TYPE TAGS
- HINGED TIED & SAWN JOINT (J2)
DOWELLED EXPANSION JOINT (DEJ)
ISOLATION JOINT (IJ)

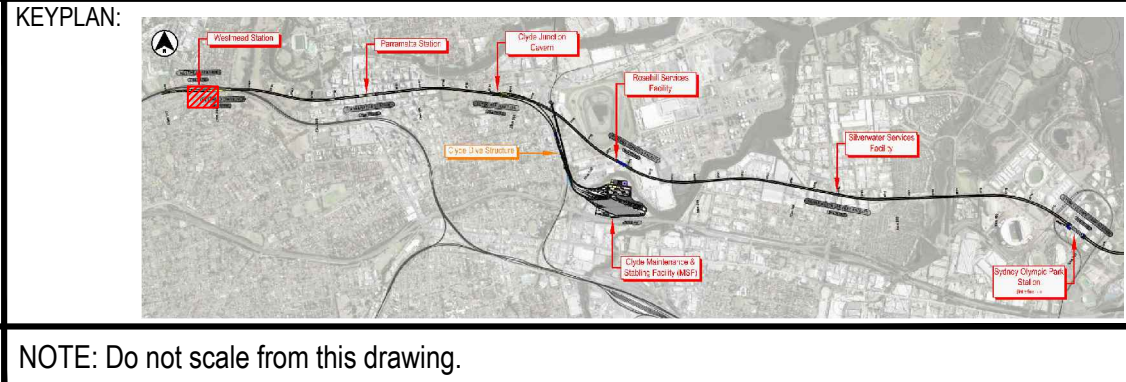


KEY PLAN

NOT FOR CONSTRUCTION

No.	Amendment Description	Design by	Verified by	Approved by	Date
01.01	STAGE 3 100% DETAILED DESIGN RESUBMISSION	R.C.	D.G.	LN	18.01.23
D	STAGE 3 100% DETAILED DESIGN RESUBMISSION	R.C.	D.G.	LN	02.12.22
C	STAGE 3 DETAILED DESIGN RESUBMISSION	R.C.	D.G.	LN	10.11.22
B	STAGE 3 DETAILED DESIGN	R.C.	D.G.	LN	23.09.22
A	STAGE 3 DETAILED DESIGN - 100%	R.C.	D.G.	LN	20.09.22

NA	Co-ordinate System: MGA94, Z56	Height Datum:	This sheet may be prepared using colour and may be incomplete if copied
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CLIENT:	NSW GOVERNMENT	sydney METRO
PRINCIPAL AEO:	GHD	SMEC

SERVICE PROVIDERS	DRAWN	K.CURLEY	18.01.23
	DESIGNED	R.CROWLEY	18.01.23
	DRG CHECK	L.NICHOLS	18.01.23
	DESIGN CHECK	D.GEERLINGS	18.01.23
	APPROVED	J.FONG	18.01.23

SYDNEY METRO WEST		PHASE 2B - HAWKESBURY ROAD AND PRIDDLE STREET	
WESTMEAD ENABLING WORKS		PAVEMENT & LINEMARKING	
PLAN		PLAN	
DOCUMENT No:	SHEET: 11 OF 12		
STATUS: STAGE 3 DETAILED DESIGN	EDMS NO:		
DRG No. SMWSTWTP-GLO-WMD-SN650-CV-DRG-110300	REV B	VER	

SHEET NUMBER	CONTROL LINE	CHAINAGE	CONTROL LINE (LOCATION)	SIGN REFERENCE CODE	SIGN DESCRIPTION	TRAVEL DIRECTION	TREATMENT	MOUNTING HEIGHT (m)	REMARKS
090101	ML40	32	ALEXANDRA AVENUE	R5-400(LR)	NO STOPPING	WB - LHS OF CARRIAGEWAY	PROPOSED	2.500	SIGN ATTACHED TO PROPOSED POST

LEGEND

	EXISTING KERB
	PROPOSED SITE LAYOUT
	PROPOSED LINE MARKING
	EXISTING POWER POLE AND LIGHT
	EXISTING ELECTRICITY
	EXISTING ELECTRICITY OVERHEAD
	EXISTING TELECOMMUNICATIONS
	EXISTING GAS - MEDIUM PRESSURE
	EXISTING SEWER
	EXISTING STORMWATER
	EXISTING POTABLE WATER
	SIGN POST EXISTING
	SIGN EXISTING
	SIGN POST PROPOSED
	SIGN PROPOSED
	LINEMARKING TAGS
	PAVEMENT ARROW TAGS

NOTE:

- FOR DETAILS OF SIGNAL INTERSECTION UPGRADE TCS DESIGN. REFER TCS 3894 ALEXANDRA AVENUE/HASSALL STREET R2.
- WHERE REQUIRED, EXISTING LINEMARKING TO BE RE-INSTATED TO MATCH CONDITION OF NEW LINEMARKING.



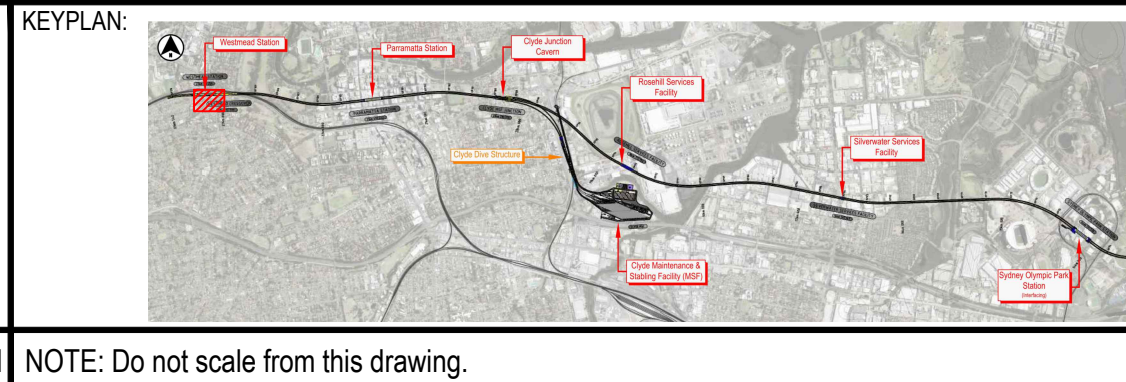
NOT FOR CONSTRUCTION

SYDNEY METRO WEST
PHASE 1B - HASSALL ST AND ALEXANDRA AVE SIGNALISED INTERSECTION
WESTMEAD ENABLING WORKS
ROADWORKS
GENERAL ARRANGEMENT PLAN

DOCUMENT No:	SHEET: 6 OF 7	©
STATUS: STAGE 3 DETAILED DESIGN	EDMS NO:	
DRG No. SMWSTWTP-GLO-WMD-SN650-CV-DRG-090101	REV C01	VER

No.	Amendment Description	Design by	Verified by	Approved by	Date
00101					
B	STAGE 3 APPROVED FOR CONSTRUCTION - LINEMARKING	R.C.	D.G.	LN	03/08/23
A	STAGE 3 DETAILED DESIGN - 100%	R.C.	D.G.	LN	17/02/23

NA	Co-ordinate System: MGA94, Z56	Height Datum:	This sheet may be prepared using colour and may be incomplete if copied
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CLIENT:	NSW GOVERNMENT	sydney METRO
PRINCIPAL AEO:	GHD	SMC

SERVICE PROVIDERS	Stantec
DRAWN	K.COURLEY
DESIGNED	R.CROWLEY
DRG CHECK	L.NICHOLS
DESIGN CHECK	D.GEERLINGS
APPROVED	J.FONG

