



ptc.

31 July 2023

**Broadwater Public
School
ADCO
Construction Traffic
Management Plan;**

For: **ADCO**

Site Address: **9 Byrnes Street, Broadwater NSW 2472**

Document reference number: **23-0608**

document control;

Issue:	Date	Issue details	Author	Reviewed
1	25/07/2023	Draft	Kalyani Patil – TCT1037063 (PWZ)	Andrew Morse
2	31/07/2023	Final	Kalyani Patil – TCT1037063 (PWZ)	Andrew Morse Steve Wellman

For the attention of:

Brittany Dimovski

Cadet

ADCO

Contact:

Andrew Morse

+61 2 8920 0800

+61 414 618 002

andrew.morse@ptcconsultants.co

Kalyani Patil

+61 2 8920 0800

kalyani.patil@ptcconsultants.co

COMMERCIAL IN CONFIDENCE

The information contained in this document, including any intellectual property rights arising from designs developed and documents created, is confidential and proprietary to **ptc.** This document may only be used by the person/organisation to whom it is addressed for the stated purpose for which it is provided and must not be imparted to or reproduced, in whole or in part, by any third person without the prior written approval of a **ptc.** authorised representative. **ptc.** reserves all legal rights and remedies in relation to any infringement of its rights in respect of its intellectual property and/or confidential information.

© 2023

ptc.

Suite 502, 1 James Place, North Sydney NSW 2060

info@ptcconsultants.co | (+61) 2 8920 0800 | ptcconsultants.co

ABN 85 114 561 223

contents;

Document reference number: 23-0608	1
1.Introduction	1
1.1. Project Summary	2
1.2. Land Use	3
2.Existing Transport Facilities	4
2.1. Road Hierarchy	4
2.2. Public Transport	6
2.3. Active Transport	8
3.Traffic Management Plan	9
3.1. Objective	9
3.2. Traffic Management Planning Process	9
3.3. Traffic Management Strategy	9
3.4. Decision of TTM Method	10
3.5. General Requirements	10
3.6. Hours of Work	11
3.7. Construction Phasing	11
3.8. Construction Vehicle Types	12
3.9. Construction Traffic Volumes	12
3.10. Construction Vehicle Routes	12
3.11. Traffic Control Measures	16
3.12. Pedestrian Management	17
3.13. Special Deliveries	18
3.14. Staff Parking	18
3.15. Work Site Security	18
3.16. Staff Induction	18
3.17. Emergency Vehicle Access	18
3.18. Access to Adjoining Properties	19
3.19. Occupational Health and Safety	19
3.20. Method of Communicating Traffic Changes	19
3.21. Contact Details for Onsite Enquiries and Site Access	19
3.22. Maintenance of Roads and Footpaths	19
3.23. Hazard and Risk Identification	19
4.CTMP Approval, Monitoring and Review	22

contents;

5.TGS Confirmation and Approval	24
5.1. TGS Verification	24
5.2. TGS Approval	24
5.3. The Role of Traffic Controllers	25
6.Summary	26
Appendix 1. TGS	
Appendix 2. Swept Path Analysis	
Table 1: Road network characteristics - Byrnes Street	5
Table 2: Road network characteristics - Blackwall Drive	5
Table 3: Bus operation timetables (Source: Northern Rivers Buslines and TfNSW)	7
Table 4: Schedule 1 Works Phasing Summary	11
Table 5: Vehicle Types used during individual phases	12
Table 6: Construction Vehicle Volumes - Average and Peak	12
Table 7: Risk Matrix	21
Table 8: Monitoring Activities	22
Figure 1: School location	1
Figure 2: Land use map around the School (Source: NSW Planning Portal Spatial Viewer)	3
Figure 3: Road classification around the School (Source: TfNSW Road Network Classification Map)	4
Figure 4: Byrnes Street (Source: Google Map)	5
Figure 5: Blackwall Drive (Source: Google Map)	5
Figure 6: Public transport options around the School (Source: Northern Rivers Buslines and TfNSW)	6

contents;

Figure 7: Active transport infrastructure around the School (Source: TfNSW Cycleway Finder)	8
Figure 8: Traffic Management Planning Process	9
Figure 9 Construction Vehicle egress and ingress routes (Source: Google)	13
Figure 10: 25/26m B-double Routes (Source: TfNSW)	14
Figure 11: 25m AV entry route via Blackwall Dr/Byrnes St	15
Figure 12: 20m AV exit route via Blackwall Dr/Byrnes St	15
Figure 13: TGS along Blackwall Drive/Byrnes St	16
Figure 14 TGS along Blackwall Drive/Byrnes St	17

1. Introduction

ptc. has been engaged by ADCO to prepare a Construction Traffic Management Plan (CTMP) associated with the construction of Broadwater Public School in Broadwater NSW 2472.

The School is located at 9 Byrnes Street, Broadwater NSW 2472, in the Local Government Area (LGA) of Richmond Valley Council. Broadwater is a small town in the Northern Rivers region of New South Wales, it had a population of 670 people in the 2021 census.

The School is bounded by Blackwall Drive to the west, Byrnes Street to the south, and rural properties and farmland around. The School is solely accessed via Byrnes Street, at the end of the no-through road (Figure 1).



Figure 1: School location

1.1. Project Summary

The proposed development will comprise the following:

- Site preparation including site establishment works, earthworks and relocation of heritage bell.
- Demolition of existing school buildings.
- Construction of a new elevated school building, with at-grade (undercroft) amenities and storage, including:
 - Ground Level:
 - Open undercroft space for covered outdoor learning and play;
 - Male and female amenities and accessible toilet / change room facility;
 - Cleaners Store;
 - Sports Store;
 - Equipment and general store.
 - Elevated Level:
 - New administration comprising interview room, clerical spaces, Principal's office, staff room, sick bay, store and male, female and accessible amenities.
 - School library with computer room, store, main communications room and library office.
 - Three (3) General Learning Spaces (GLS) with learning commons and multi-purpose space.
 - Canteen with open servery space.
 - Store.
 - Male, female and accessible amenities.
 - Mechanical plant.
- New hard and soft landscaping including replacement playing field, playground, half games court and vegetable garden and new yarning circle.

It is not proposed to increase staff or student numbers as a result of these works.

1.2. Land Use

With reference to the NSW Planning Portal Spatial Viewer, the School site sits on land lots 4 and 5 of Deposited Plan (DP) 1043232, and lot 501 of DP 755624.

The land zoning for the School site and most surrounding areas is categorised RU1 Primary production, which allows uses and developments largely focused on the primary industry. The land to the west of the School is zoned SP2 Infrastructure for the road carriageway.

The land use zonings in the vicinity are relatively simple, this determines the existing local traffic generation has the following features:

- Generally associated with the School, surrounding rural residential properties and primary industries;
- Vehicular traffic (private transport) is expected to be the predominant mode share for the transport activities; and
- Low traffic volumes.

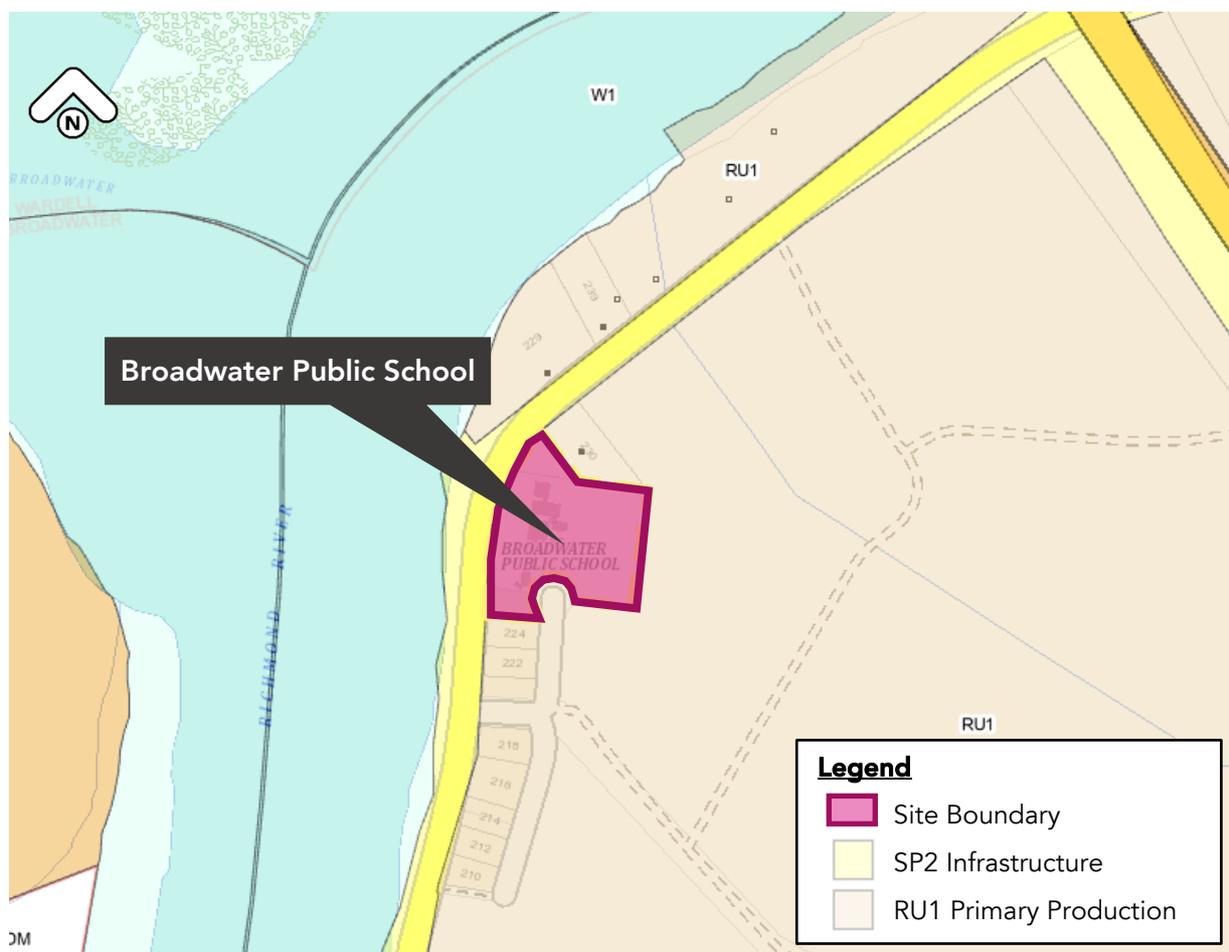


Figure 2: Land use map around the School (Source: NSW Planning Portal Spatial Viewer)

2. Existing Transport Facilities

2.1. Road Hierarchy

The NSW administrative road hierarchy comprises the following road classifications, which align with the generic road hierarchy as follows:

- **State Roads** Freeways and Primary Arterials (TfNSW managed)
- **Regional Roads** Secondary or sub arterials (Council managed, part funded by State)
- **Local Roads** Collector and local access roads (Council managed)

With reference to the TfNSW Road Network Classification Map, the School's frontage and sole access road Byrnes Street is a Local Road, it further leads to Blackwall Drive which is classified as State Road (Figure 3).

The road classification in the vicinity suggests that low traffic volumes are expected around the School site, and are predominantly associated with local properties and primary industries.

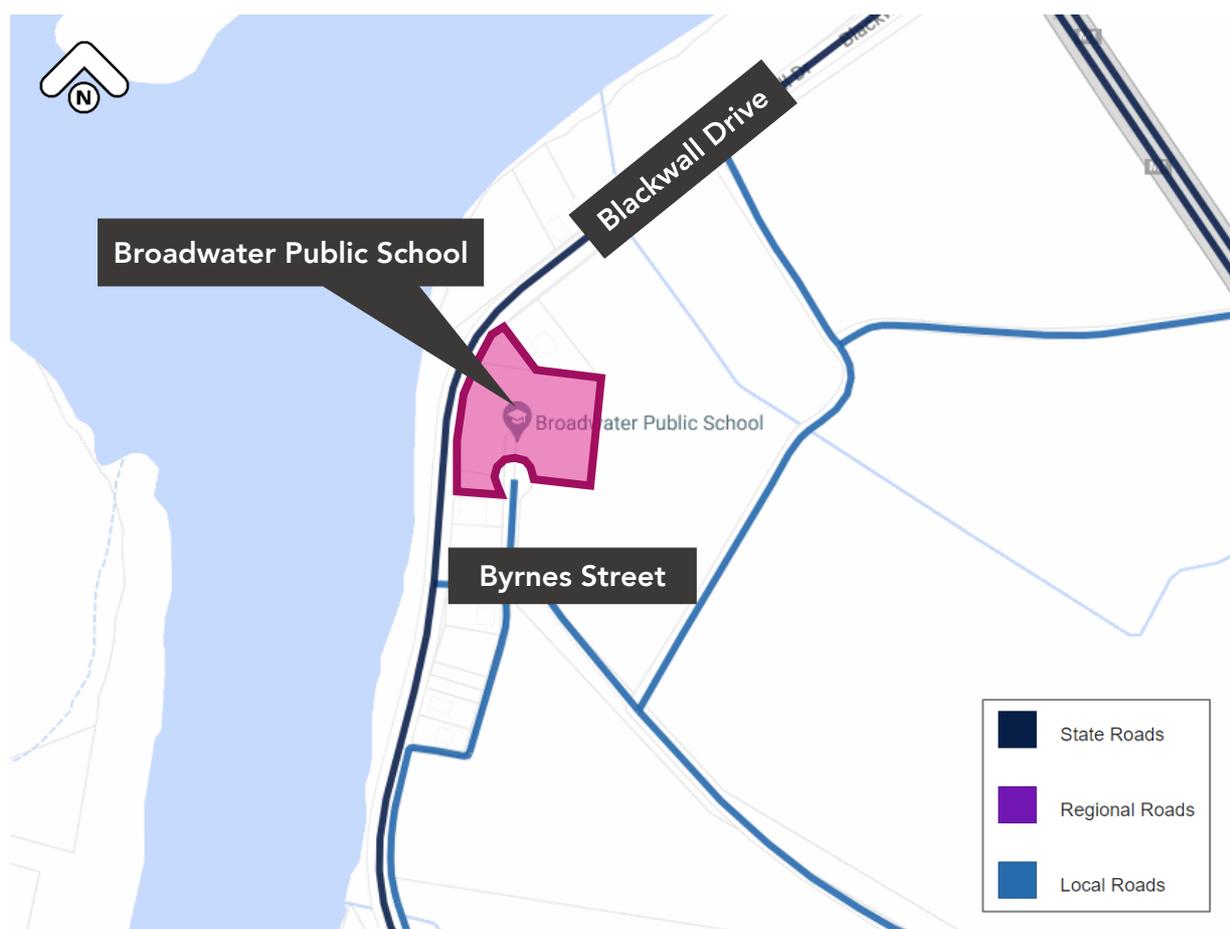


Figure 3: Road classification around the School (Source: TfNSW Road Network Classification Map)

The details of the existing immediate road network servicing the School are analysed and summarised overleaf.

Table 1: Road network characteristics - Byrnes Street

Byrnes Street	
Road Classification	Local Road
Alignment	Partially north - south and partially east - west
Number of Lanes	1 lane in each direction
Carriageway Type	Undivided
Carriageway Width	6 metres
Speed Limit	50km/h
School Zone	Yes
Parking Controls	No parking, bus zone 8:30-9am and 2:30-3:30pm school days
Forms Site Frontage	Yes



Figure 4: Byrnes Street (Source: Google Map)

Table 2: Road network characteristics - Blackwall Drive

Blackwall Drive	
Road Classification	State Road
Alignment	Generally northeast - southwest
Number of Lanes	1 lane in each direction
Carriageway Type	Undivided
Carriageway Width	7.5 metres
Speed Limit	50km/h
School Zone	Yes
Parking Controls	Nil
Forms Site Frontage	Yes



Figure 5: Blackwall Drive (Source: Google Map)

2.2. Public Transport

The NSW Planning Guidelines for Walking and Cycling (2004) suggests that an 800m (10 minutes' walk) catchment is an acceptable walkable distance for accessing public transport. Furthermore, the document also suggests a distance of 1500m is a suitable catchment for cycling to public transport facilities and local amenities.

A review of the public transport options around the School shows two bus stops are available within 800m (10 minutes' walk) catchment, being the Broadwater Public School stop and Broadwater Coach stop. The bus stops are currently serviced by one public bus route and one school bus route, as illustrated in Figure 6. The operation timetables for the stops on school days are summarised in Table 3, it is noted that the route 660 timetable does not appear to be fully aligned with bell times.

The public transport options available in the locality is in single mode (bus), it is considered adequate based on the area characteristics and enrolled student numbers. With consideration to the coverage area and operation frequency, public transport is expected to be a small proportion in the student and staff travel mode share.

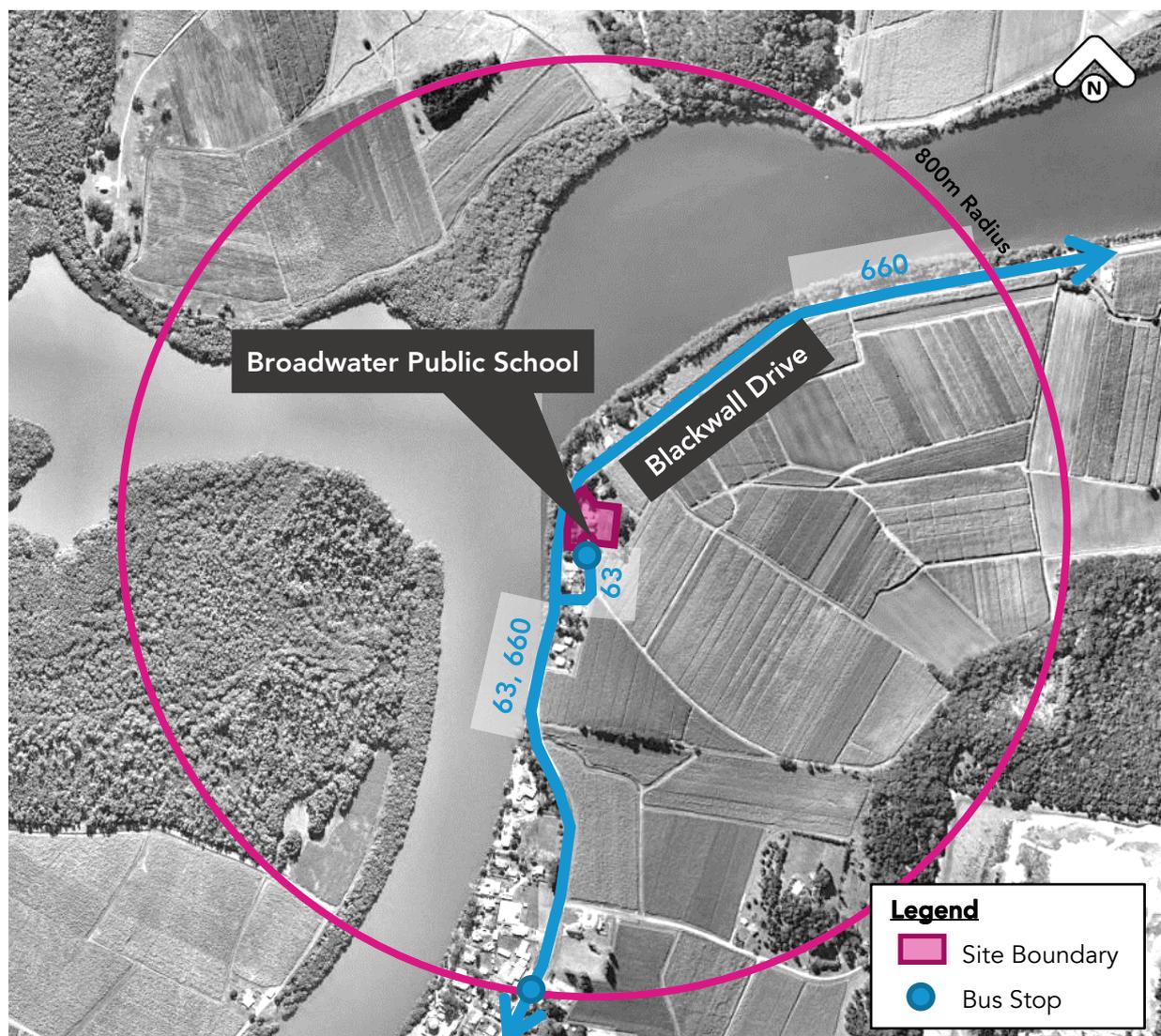


Figure 6: Public transport options around the School (Source: Northern Rivers Buslines and TfNSW)

Table 3: Bus operation timetables (Source: Northern Rivers Buslines and TfNSW)

Routes	Direction	School Days Operation timetable
63	Evans Head to Broadwater Public School via Evans River K12 School	8:45am
63	Broadwater Public School to Evens Head via Evans River K12 School and Woodburn Public School	2:50pm
660	Evens Head to Ballina (northbound)	7:50am, 11:23am
660	Ballina to Evens Head (southbound)	10:07am, 4:13pm

2.3. Active Transport

Figure 7 shows the existing active transport infrastructure in the vicinity of the School, they are summarised in the following:

- To south: a shared path is available along Blackwall Drive between the School and the Broadwater town centre. The shared path is separated from the road by barriers and grass berms, can service as a good connection between the Broadwater Coach Stop and the School.
- To east and north: no footpath or shared path are currently available, where mostly consists of rural farmland and properties.

The available active transport infrastructure in the locality is considered adequate and suitable for walking and cycling. Given the regional context of the School location and the general young age of students, it is expected that the proportion of students and staff travel by active transport would be small.



Figure 7: Active transport infrastructure around the School (Source: TfNSW Cycleway Finder)

3. Traffic Management Plan

3.1. Objective

The following sections outline the proposed construction activity, anticipated timeline as well as the proposed management measures relating to vehicular access, pedestrian access and other key considerations for the duration of the works.

- To minimise the impact of the construction vehicle traffic on the overall operation of the road network;
- To ensure continuous, safe and efficient movement of traffic for both the general public and construction workers;
- Installation of appropriate advance warning signs to inform users of the changed traffic conditions;
- To provide a description of the construction vehicles and the volume of these construction vehicles accessing the construction site;
- To provide information regarding the changed access arrangement and also a description of the proposed external routes for vehicles including the construction vehicles accessing the site; and
- Establishment of a safe pedestrian environment in the vicinity of the site.

3.2. Traffic Management Planning Process

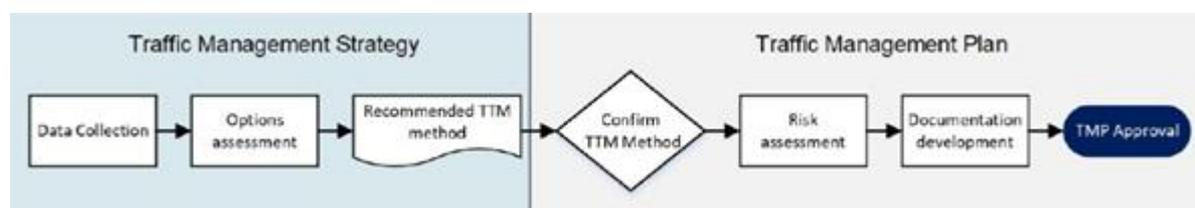


Figure 8: Traffic Management Planning Process

Temporary Traffic Management (TTM) for the project has been planned in accordance with Transport for NSW, *Traffic control at work sites – Technical Manual, Issue No.6.1*, March 2022 (TCAWS). The process is shown in Figure 8.

An iterative process is being adopted in collaboration with relevant stakeholders to adopt the most appropriate traffic management approach and develop the associated documents for the work.

3.3. Traffic Management Strategy

A traffic management strategy has been chosen to support the appropriate allocation of time, funds and resources for the project, and allow for consultation in determining the safest and most efficient way for road users to interact with the work site. The following have been considered in determining the TTM method:

Detour Options

No detours are necessary or proposed by the client and therefore, disproportionate disruption to the road users will not be introduced. A pedestrian detour and footpath closure is anticipated for early stages of work.

Site Location

The site of the works does contain existing street parking that may obstruct signs and devices needed for certain strategies. TGS should be set out by a certified Traffic Controller in accordance with TCAWS 6.1 to minimise these obstructions.

Work Area

The area needed to safely perform the work does not require the full closure of sections of road. All work and construction traffic shall enter the site to undertake duties. We note that high voltage upgrade works may require ROP depending on final design.

Vulnerable Road Users

Desire lines of pedestrians, cyclists, motorcyclists do not significantly impact on works or create undesired interaction between these road users and traffic. Consideration has been taken to minimise impact on the daily ongoing operations of the centre and its users while works are undertaken.

Community Facilities and Needs

Access to all nearby facilities will remain possible during these works. Signage or directions for any detours or changes are to be implemented where necessary. It is anticipated that there will be a reconfiguration of the traffic signals to suit new crossovers. This would require consultation and approval from TfNSW.

3.4. Decision of TTM Method

The method selected is Around (elimination) where all truck and excavation/construction activity will take place on site, including the delivery of plant and site goods. Traffic is fully separated from the works.

In any instances where work occurs outside the boundary of the site, the Past (isolation) methodology is to be approved by council prior to implementation, to safely guide traffic along an adjacent path to the work area.

3.5. General Requirements

In accordance with Transport for New South Wales (TfNSW) requirements, all vehicles transporting loose materials will have the entire load covered and/or secured to prevent any large items, excess dust or dirt particles depositing onto the roadway during travel to and from the site. All subcontractors must be inducted by the lead contractor to ensure that the procedures are met for all vehicles entering and exiting the construction site. The lead contractors will monitor the roads leading to and from the site and take all necessary steps to rectify any road deposits caused by site vehicles.

Vehicles operating to, from and within the site shall do so in a manner, which does not create unreasonable or unnecessary noise or vibration. No tracked vehicles will be permitted or required on any paved roads. Public roads and access points will not be obstructed by any materials, vehicles, refuse skips or the like, under any circumstances.

Spoil shall be exported from site as progressively as the works occur. Spoil shall not be stockpiled and exported from the site in bulk.

The applicant/contractor is required to follow and abide by the any specific standard requirements for construction management as set out by the Richmond Valley Council.

3.6. Hours of Work

All works, associated with the project will be restricted to the time periods, which are as follows:

- Monday to Friday – General Works 7:00am to 6:00pm;
- Saturday 8:00am to 1:00pm; and
- Sunday, Public Holidays No works to be undertaken without prior approval.

Deliveries may occur outside the hours of demolition and construction referred to above, but not before 6:30am or after 6:30pm.

Demolition and construction may be undertaken outside of the hours listed above if required:

- (a) By the police or public authority for the delivery of vehicles or materials;
- (b) In an emergency to avoid the loss of life, damage to property or to prevent environmental harm; or where the works are inaudible at the nearest sensitive receivers

3.7. Construction Phasing

The delivery of the project will be undertaken in the following milestone phases as outlined in Table 4.

Table 4: Schedule 1 Works Phasing Summary

Description	Approximate Timeframe
Site Establishment / Demolition	5 Oct 23 – 1 Nov 23
Structure	2 Nov 23 – 18 Dec 23
Structural & fit out works	19 Dec 23 – 8 Feb 24
External Works	1 Dec 23 – 01 Feb 24
Final Commissioning & Handover	9 Feb 24 – 23 Feb 24

3.8. Construction Vehicle Types

It is anticipated that the works will involve the use of the following vehicle types:

Table 5: Vehicle Types used during individual phases

Description	Vehicle Type
Site Establishment / Demolition	HRV (12.5m)
Structure Structural & fit out works	<ul style="list-style-type: none"> 20m Articulated Vehicles (AV) (In cases where a module is 16m long a trailer extension will be required which increases the Semi length to 24m) – ADCO to confirm the sizes of vehicles for the individual stages. 300t crane for transferring the module into place (17m long) - ADCO to confirm the sizes of vehicles for the individual stages
External Works	ADCO to confirm the sizes of vehicles for the individual stages

Any oversized vehicle (including the use of mobile cranes) that is required to travel to the project into the vicinity of the site will be dealt with separately, with the submission of required permits to and subsequent approval from Council and TfNSW prior to any delivery being undertaken.

Refer to Section 3.13 for further details regarding special deliveries.

3.9. Construction Traffic Volumes

Table 6: Construction Vehicle Volumes - Average and Peak

Description	Trucks/Deliveries Daily Avg	Trucks/Deliveries Peak
Site Establishment / Demolition	3	5
Structure	7	15
Structural & fit out works	15	15
External Works	3	5
Final Commissioning & Handover	1	2

3.10. Construction Vehicle Routes

The subject site is located in the suburb of Broadwater and the proposed construction vehicle routes have regard for the surrounding traffic arrangements in the vicinity of the site. No queuing or marshalling of heavy vehicles is permitted on any public road and all loading and unloading of materials will be undertaken within the site.

All vehicle routes to the site are restricted to existing public roads that have the physical geometry to accommodate the turning movements.

A swept path assessment has been undertaken for all proposed vehicle routes and are below.

The vehicles approaching the site will travel via the Pacific Highway, southbound along Blackwall Dr, east towards Byrnes Street to enter the site.

The loading and unloading activities are proposed to occur within the subject site. The vehicles will enter and exit via Byrnes Street.

Vehicles will exit the subject site south-westbound on Byrnes Street, travel north bound along Blackwall Drive, continuing to Pacific Highway.

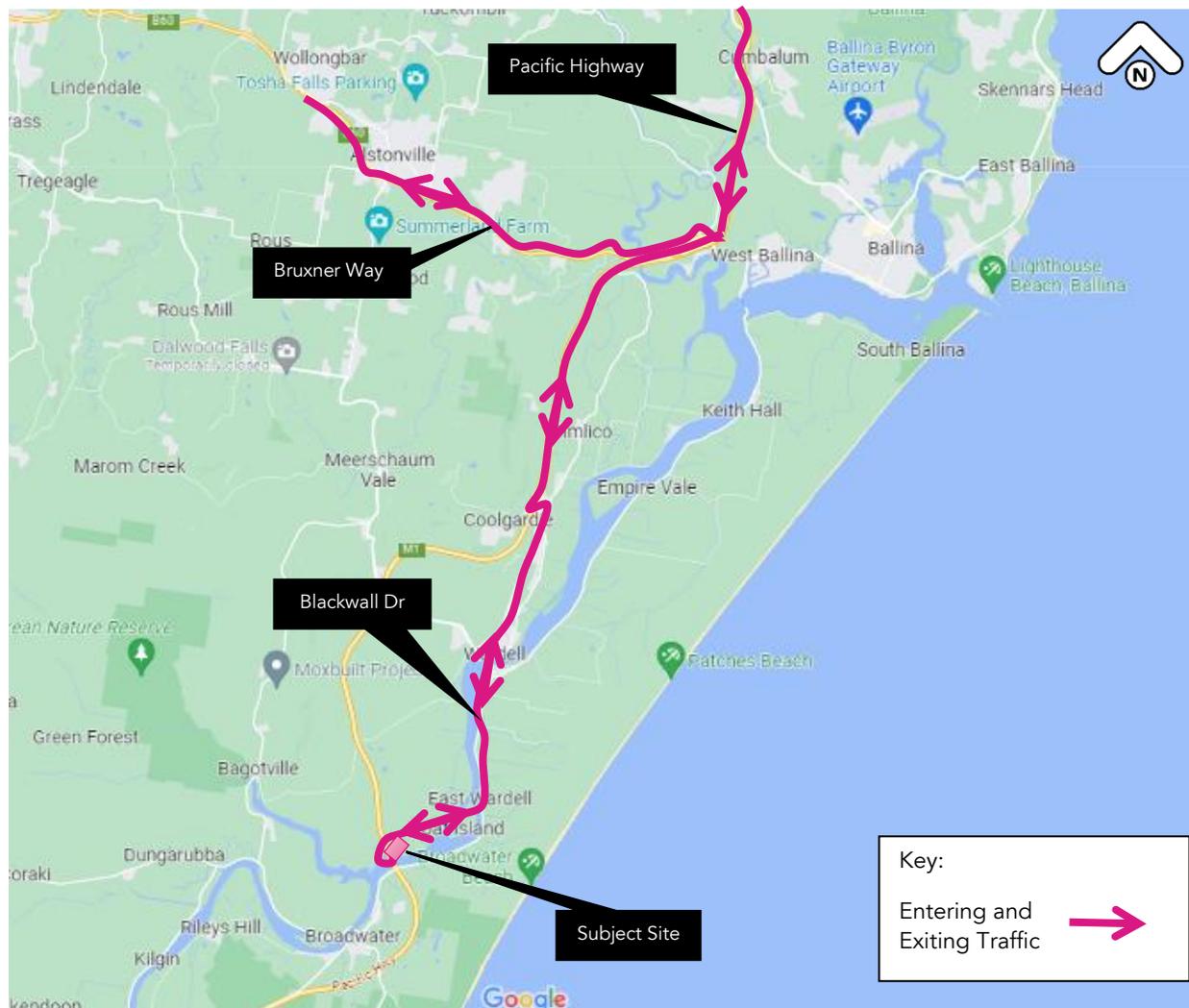


Figure 9: Construction Vehicle egress and ingress routes (Source: Google)

The image shown below highlights the road network that allows 25/26m B-Double Vehicle movements.

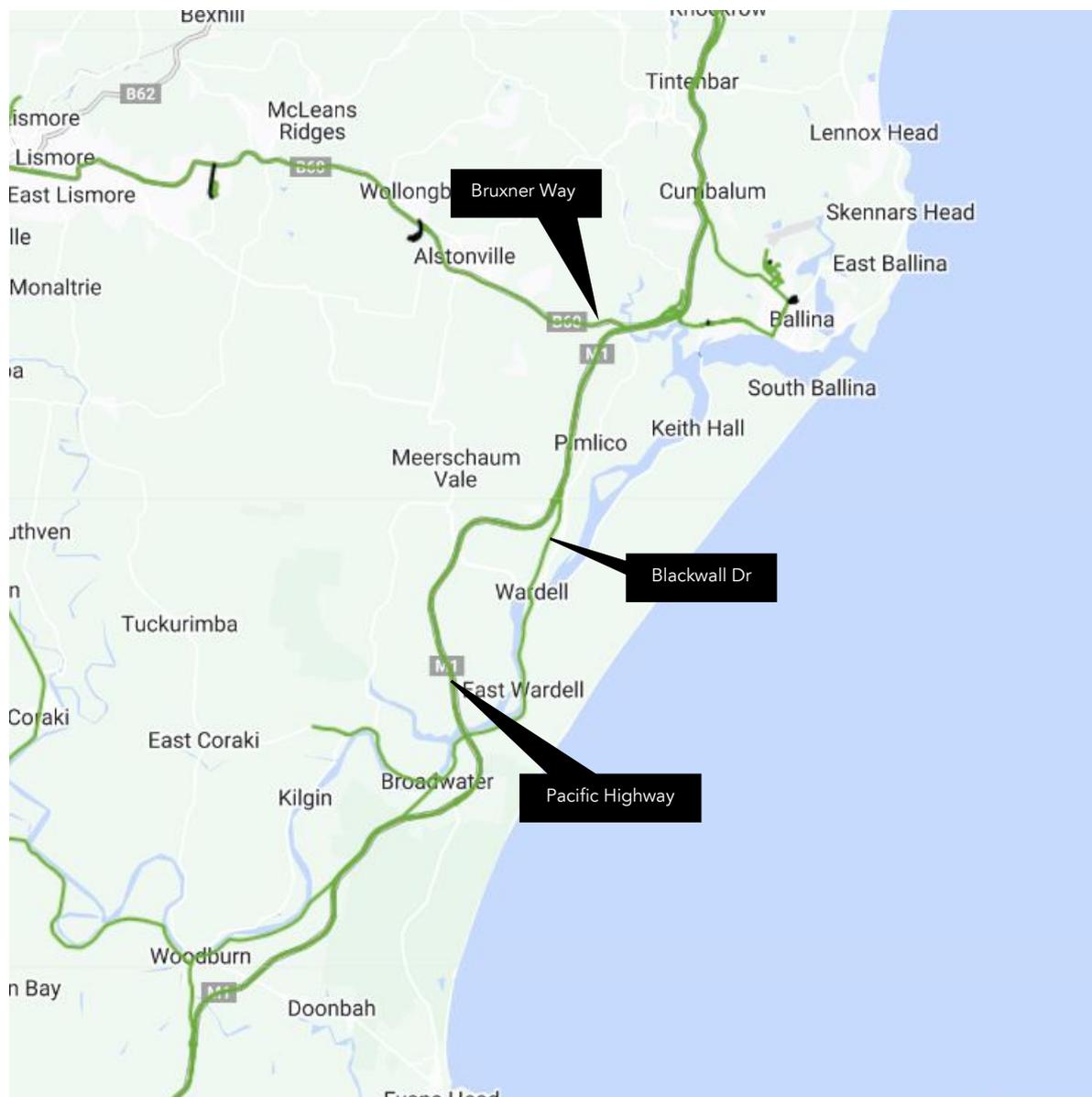


Figure 10: 25/26m B-double Routes (Source: TfNSW)

A swept path assessment has been undertaken using to assess whether the existing road geometry is able to accommodate the turn manoeuvres of the largest anticipated vehicle. It is noted that the 25m extendable trailers delivering the modules can be collapsed after the modules are unloaded on site, therefore they will be 19m in length when exiting site. The swept paths for all turning manoeuvres required by the 20m and 25m AV to travel from the site are shown in Figure 11, Figure 12. The swept paths for largest anticipated vehicles for each phase (25m AV, 20m AV and 12.5m HRV) are shown in Appendix 2. Any traffic management measures required are discussed in Section 3.11



Figure 11: 25m AV entry route via Blackwall Dr/Byrnes St



Figure 12: 20m AV exit route via Blackwall Dr/Byrnes St

It is important to acknowledge that the aerial view depicted in the figures is based on data from 2014. Consequently, it is imperative for the contractor to verify the width of Byrnes St. This verification is necessary to ensure that trucks can navigate through the area without any hindrances. Additionally, the contractor should inspect for potential obstructions such as trees, power poles, and signage poles. Any trees found in the vicinity should be appropriately pruned to allow for the required 4.5-meter vehicle headroom.

3.11. Traffic Control Measures

The Traffic Guidance Scheme (TGS) outlines the proposed traffic management to inform road users of the changed traffic conditions in the vicinity of the works site.

The TGSs have been set out in accordance with the TfNSW Traffic Control at Works Site.

It is noted that detailed TGSs are to be prepared by the appointed traffic management contractor prior to commencement of works and submitted to Council and TfNSW for approval. All Traffic Guidance Schemes associated with the CTMP must comply with the Australian Standards and Roads and TfNSW Traffic Control at Work Sites Guidelines Issue 6.1 (2022).

The Principal Contractor shall provide appropriate traffic and pedestrian management at all site interfaces with the public road. This will ensure truck movements and deliveries are received efficiently and safely.

The proposed TGS has been designed to be suitable for the work and location in accordance with Issue 6.1 of the traffic Control at Work Sites Technical Manual, 2022 (TCAWS).

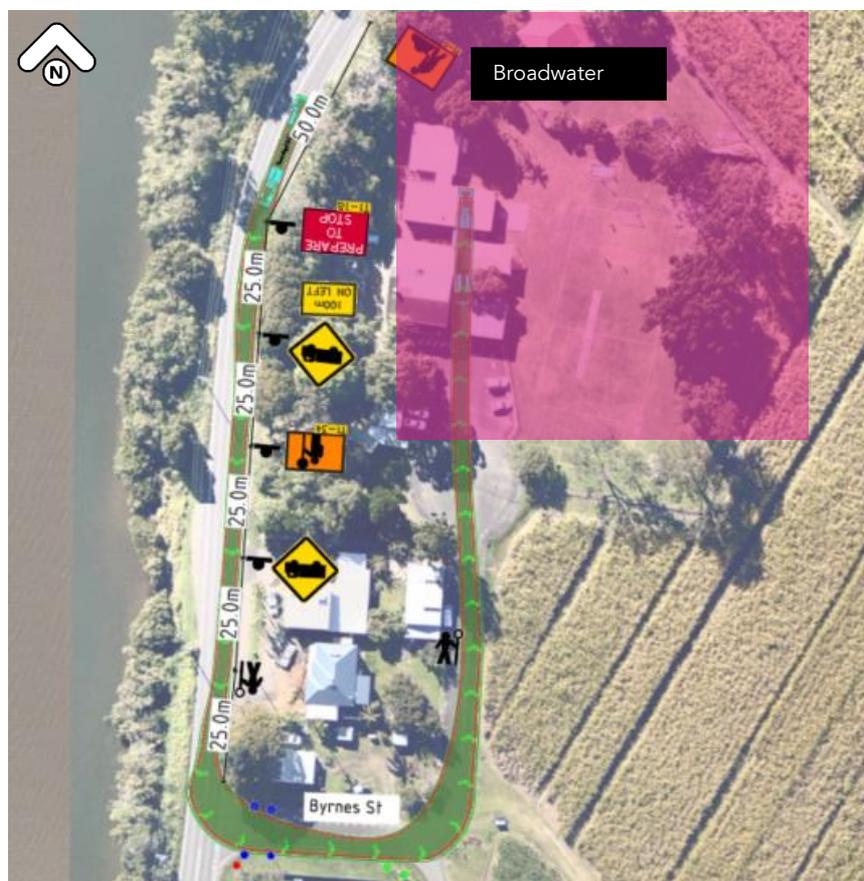


Figure 13: TGS along Blackwall Drive/Byrnes St



Figure 14: TGS along Blackwall Drive/Brynes St

Traffic Controllers

Traffic Controllers (TCs) are required to be implemented to ensure that no conflict arises between construction vehicles and public traffic.

Given the on-street parking, and the flexible requirements of the traffic control in regard to spatial placement and frequency of need, it is proposed to utilise Traffic Controller personnel opposed to any PTCD such as signals or boom gates.

The residents should be given advance notice before the deliveries take place. And a traffic controller should be placed on Brynes St towards school to hold the cars while the truck is passing.

3.12. Pedestrian Management

The general public will not be allowed access to the site. The contractor will ensure that the proposed site fencing is maintained in a clean, well illuminated and safe manner at all times, throughout the duration of the project. Due to the nature of the site and the emphasis placed on materials handling, the efficient control and protection of pedestrian traffic is of utmost importance.

The site perimeter boundaries consist of site fencing, installed during the various construction phases. The site fencing will be established immediately following site possession and fitted with appropriate public directional signage.

It should be noted that Traffic Controllers are NOT to stop general traffic, pedestrians or cyclists on the public street(s) to allow trucks to enter or leave the site. They MUST wait until a suitable gap in traffic allows them to assist trucks to enter or exit the site. Special treatment is not to be given to trucks leaving a construction site - the vehicles already on the road and pedestrians on the footpath have right-of-way.

Pedestrians may be held only for very short periods to ensure safety when trucks are leaving or entering BUT the contractor must NOT stop pedestrians in anticipation i.e., at all times the pedestrians have right-of-way on the footpath, not construction vehicles.

3.13. Special Deliveries

Any oversized vehicle that is required to travel to the site will be dealt with separately, with the submission of required permits to and subsequent approval by Richmond Valley Council prior to any delivery.

3.14. Staff Parking

The contractor staff volumes on site at any one time are as expected to be approximately 10 workers on average, with a maximum peak of 30 workers.

All personnel are encouraged to use the street parking around side as there is less public transport options to access the site.

3.15. Work Site Security

As discussed in Section 3.12, to provide security to the work site and protection to the general public, it is proposed that the site perimeter boundaries consist of temporary fencing or hoardings. These boundaries will be established immediately following site possession and fitted with appropriate signage where required.

All gates are securely locked outside of working hours and may be regularly patrolled by security staff. This security network shall continue to work closely with the contractor to ensure that security is being maintained throughout construction.

The contractor shall maintain a site entry register requiring all visitors to sign in upon entry. All visitors are required to wear an identification "visitor" badge and wear appropriate PPE at all times whilst on site.

3.16. Staff Induction

All staff and subcontractors engaged on site will be required to undergo a site induction. The induction will include permitted access routes to and from the construction site for all vehicles, as well as standard environmental, OH&S, driver protocols and emergency procedures. Additionally, the lead contractor will discuss TMP requirements regularly as part of toolbox talks and advise workers of public transport and carpooling opportunities.

3.17. Emergency Vehicle Access

The proposed traffic control arrangements do not propose the closure of any local roads. Any emergency vehicle requiring access to the subject site will do so via the site access along River Dr.

A detailed Emergency Management Plan will be further developed by the contractor prior to site establishment works.

3.18. Access to Adjoining Properties

Access to all adjoining properties will be maintained throughout the works.

3.19. Occupational Health and Safety

Any workers required to undertake works or traffic control within the public domain shall be suitably trained and will be covered by adequate and appropriate insurances. All traffic control personnel will be required to hold TfNSW accreditation in accordance with Section 8 of Traffic Control at Worksites.

3.20. Method of Communicating Traffic Changes

Traffic Guidance Schemes in accordance with the Australian Standards (AS 1742.3 – Traffic Control Devices for Works on Roads) and TfNSW Traffic Control at Worksites will advise motorists of upcoming changes in the road network.

During site operation the contractor shall, each morning, prior to work commencing, ensure all signage is erected in accordance with the TGS and clearly visible. Each evening, upon completion of work, the contractor is to ensure signage is either covered or removed as required. Sign size is to be size "A".

The associated TGS road signage will inform drivers of works activities in the area including truck movements in operation. Any variation to the layout of the TGS on site is to be recorded and certified by authorised SafeWork NSW accredited personnel. Amended TGSs must also be approved by Council prior to implementing any changes.

A minimum 14-day notification must be provided to adjoining property owners prior to the implementation of any temporary traffic control measures.

Road Occupancy License is required for any works which impact on the road corridor, in addition to any permits required by Council. These need to be submitted to the Transport Management Centre (via the OPLINC system) a minimum of 10 business days prior to commencement of works.

3.21. Contact Details for Onsite Enquiries and Site Access

Project Manager – Timothy Rassmussen – 0401 325 737

HSE Advisor – Michael Dijkstra – 0428 286 433

3.22. Maintenance of Roads and Footpaths

The roads and footpaths along the route of travel will be kept in a serviceable state at all times. Any damage arising as a result of the proposed truck movements will be treated / repaired by the principal contractor at no cost to Council.

3.23. Hazard and Risk Identification

All construction projects entail a set of risks—from a transport perspective—that may need to be mitigated. Some of these hazards and risks are related to:

- Moving traffic;

- Queued traffic;
- Site vehicle access and egress points;
- Highly vulnerable road user activity;
- Other construction activity or roadworks in close proximity to the proposed work site; and
- Reduced lane and shoulder widths.

This is appropriate for the construction of the development because of the following:

Risk Matrix Reference: R1 – Conflict between construction traffic and the general public, especially vulnerable road users such as pedestrians and cyclists.

Risk Matrix Reference: R2 – Construction traffic creating localised negative impact to the surrounding road network.

A risk matrix has been prepared to assist with rating the risk of deviation to the procedures described in this report. The risk matrix is shown in using the following definitions:

Risk Rating

- Very High (VH)
- High (H)
- Medium (M)
- Low (L)

Consequence

- Insignificant: Illness, first aid or injury not requiring medical treatment. No lost time.
- Minor: Minor injury or illness requiring medical treatment. No lost time post medical treatment.
- Moderate: Minor injuries or illnesses resulting in lost time.
- Major: 1 to 10 serious injuries or illnesses resulting in lost time or potential permanent impairment.
- Severe: single fatality and/or 11 to 20 serious injuries or illnesses resulting in lost time or potential permanent impairment.
- Catastrophic: multiple fatalities and/or more than 20 serious injuries or illnesses resulting in lost time or potential permanent impairment.

Likelihood

- Almost certain: expected to occur multiple times (10 or more times) during any given year.
- Very likely: expected to occur occasionally (1 to 10 times) during any given year.
- Likely: expected to occur once during any given year.
- Unlikely: expected to occur once every 1 to 10 years.
- Very unlikely: expected to occur once every 10 to 100 years.
- Almost unprecedented: not expected to occur in the next 100 years.

The resulting level of risk and treatment approach is:

- Intolerable: Must be corrected.
- High: Should be corrected or the risk significantly reduced, even if the treatment costs is high.
- Medium: Should be corrected or the risk significantly reduced, if the treatment cost is moderate, but not high.
- Low: Should be corrected or the risk reduced if the treatment cost is low.

Table 7: Risk Matrix

		Consequence					
		Insignificant	Minor	Moderate	Major	Severe	Catastrophic
Likelihood	Almost certain						
	Very likely						
	Likely						
	Unlikely						
	Very unlikely		R2				
	Almost unprecedented						R1
	Almost unprecedented						

Some recommended risk mitigation measures include:

- Implementation of traffic control where required to reduce potential conflict between road users.
- Adequate signage and warning of the ongoing construction activity at the site.

4. CTMP Approval, Monitoring and Review

This CTMP has been reviewed and endorsed by the designer’s one-up manager who holds a current Prepare Works Zone Traffic Management Plan qualification. This approved CTMP has been used to inform the development of all TGSs for the work.

Regular monitoring and review are to be conducted throughout the life of the project to ensure that the CTMP remains current and addresses all risks at the work site for the duration of the project or activity.

To ensure that this CTMP is kept up to date, the activities identified in Table 8 will be undertaken to facilitate review and continuous improvement.

Table 8: Monitoring Activities

Stage	Activity	Purpose	Qualification	Tools and checklists
Planning	TGS verification	To ensure that the TGS selected or designed is suitable for the works and location.	ITCP or PWZTMP	TCAWS Appendix E.2 TGS verification checklist
During TTM	Weekly TTM inspections (includes preopening inspection)	To ensure that the CTMP and relevant TGS are appropriate and operating safely, effectively, and efficiently	PWZTMP	TCAWS Appendix E.3 Weekly TTM inspection checklist
	Shift TTM inspections	To ensure that the TGS is implemented as designed. This includes at a minimum, twice per shift and when: A TGS is installed, changed, or updated. At regular frequency afterwork commences, recommended every 2 hours; and Once after care arrangements have been installed if required	ITCP or PWZTMP	TCAWS Appendix E.4 Shift / Daily TTM inspection checklist
	CTMP review	To ensure that CTMP controls are achieving the required outcomes.	PWZTMP	Not provided
	Client inspections	Verification of TTM through the Transport Traffic Engineering Services, Work Health and Safety Branch, Surveillance Officers, or other client representatives.	Divisionally determined	Not provided
Post Completion	Post-completion inspection	To ensure that the site has been demobilised as planned and is safe for opening to traffic	ITCP or PWZTMP	Appendix E.5 Post completion inspection checklist

All relevant changes must be considered and recorded in the CTMP with any changes made by an appropriately qualified person. A copy of all documentation relating to the endorsement of the changes must be available to be accessed, either electronically or in hard copy, by the person responsible for the works.

5. TGS Confirmation and Approval

The Traffic Guidance Schemes (TGSs) shown in Appendix 1 outlines the proposed traffic management to inform road users of the changed traffic conditions in the vicinity of the works site. The TGSs must be set out in accordance with Issue 6.1 of the Traffic Control at Work Sites Technical Manual, 2022 (TCAWS).

TGSs are to be implemented throughout the project to warn road users that trucks will be turning into and out of the site, in accordance with TCAWS TGS D.4.7.

It is noted that any changes to the existing parking restrictions will require a minimum fourteen (14) days notification to adjoining property owners prior to the implementation of any temporary traffic control measures.

Any revisions or additional TGSs ones must be prepared by a SafeWork NSW qualified person upon engagement of the traffic management contractor and prior to commence of works on site.

5.1. TGS Verification

Site confirmation must be undertaken via the completion of the TGS verification. A TGS verification must be undertaken to confirm the selected or designed TGS is fit for purpose. A TGS verification must be completed in accordance with Section 8.1.2 TGS verification by an ITCP or PWZTMP qualified person. TGS verification must include an inspection of the work site where the TGS will be implemented.

5.2. TGS Approval

The SafeWork NSW qualified person who has designed or modified the relevant TGS has approved the TGS for use. Approval of the TGS includes:

- Review of the relevant TMP, risk assessment and associated TTM specific documentation;
- Design, redesign or modification of the TGS must be in accordance with the requirements of TCAWS;
- Confirmation that the TGS provides the relevant information for the ITCP person to safely implement on-site.

The one up manager of the SafeWork NSW qualified person has approved the TGS, including:

- Any non-standard or unaccepted signs or devices;
- Any departures from the requirements of TCAWS;
- If a manual traffic controller is proposed for use.

5.3. The Role of Traffic Controllers

Traffic Controllers (TCs) have been implemented at site entry and exit gates as a supplementary measure to further mitigate the risk of conflict between pedestrians and construction vehicles. TCs are not permitted to stop oncoming traffic or hold pedestrians to assist a vehicle to leave the site.

It should be noted that Traffic Controllers are NOT to stop traffic on the public street(s), pedestrians, and cyclists to allow trucks to enter or leave the site. They MUST wait until a suitable gap in traffic allows them to assist trucks to enter or exit the site. The Roads Act does not give any special treatment to trucks leaving a construction site – the vehicles already on the road and pedestrians on the footpath have right of-way.

Pedestrians may be held only for very short periods to ensure safety when trucks are leaving or entering BUT you must NOT stop pedestrians in anticipation i.e., at all times the pedestrians have right-of-way on the footpath, not the trucks.

6. Summary

This CTMP has been prepared to outline the construction traffic measures to improve site safety to the public, workers and the construction process.

The construction activity is anticipated to have minimal disruption to the daily activities within the vicinity of the site with the measures described in the CTMP.

It is envisaged that this document will be continually reviewed and amended if required, due to changes in design, TfNSW, Councils or any other authority requirements. Should any changes be made, they will need to be reviewed and approved by the relevant road authority.

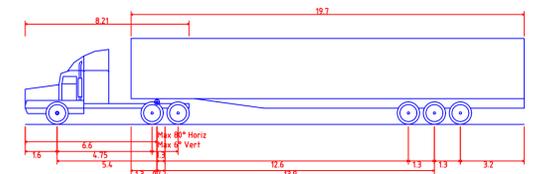
Appendix 1. TGS



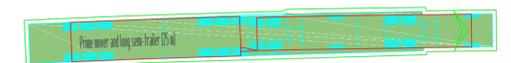
TRAFFIC GUIDANCE SCHEME

General Notes:

1. All information provided regarding traffic guidance schemes (TGS) is indicative
2. Detailed TGS are to be developed by the appointed traffic control company
3. All TGS revisions or adjustments must be made by a suitably accredited person with the appropriate safework NSW licence
4. This drawing is not to scale and is to be used for reference purposes only
5. All signage is to be in accordance with TCAWS v6.1 (2022) and set up in visible and appropriate locations
6. TGS signage to be spaced at dimension D in accordance with TCAWS.



Prime mover and long semi-trailer (25 m)	
Overall Length	25.00m
Overall Width	3.00m
Overall Body Height	4.30m
Min Body Ground Clearance	0.54m
Max Track Width	3.00m
Lock-to-lock Time	6.00s
Curb to Curb Turning Radius	15.00m



- SIGNAGE POLE
- POWER POLE
- TREES

REV	DATE	DESCRIPTION	DRAWN	REVIEWED
P1	25/07/23	FOR INFORMATION	KP	SW/AM

DRAWING KEY

DRAWN BY -
 KALYANI PATIL - TCT1037063 (PWZ)

PROJECT
 BROADWATER PUBLIC SCHOOL

DRAWING TITLE
 TRAFFIC GUIDANCE SCHEME
 BLACKWALL DRIVE/BRYNES ST
 25M AV - INGRESS

CLIENT	ADCO
DRAWING #	01C-0001
PROJECT #	23-0608
SCALE	NTS

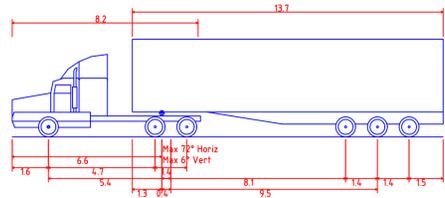
PRELIMINARY
REV P1



TRAFFIC GUIDANCE SCHEME

General Notes:

1. All information provided regarding traffic guidance schemes (TGS) is indicative
2. Detailed TGS are to be developed by the appointed traffic control company
3. All TGS revisions or adjustments must be made by a suitably accredited person with the appropriate safework NSW licence
4. This drawing is not to scale and is to be used for reference purposes only
5. All signage is to be in accordance with TCAWS v6.1 (2022) and set up in visible and appropriate locations
6. TGS signage to be spaced at dimension D in accordance with TCAWS.



AV - Articulated Vehicle	
Overall Length	19.000m
Overall Width	2.500m
Overall Body Height	4.301m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m



- SIGNAGE POLE
- POWER POLE
- TREES

REV	DATE	DESCRIPTION	DRAWN	REVIEWED
P1	25/07/23	FOR INFORMATION	KP	SW/AM

DRAWING KEY

DRAWN BY -
 KALYANI PATIL - TCT1037063 (PWZ)

PROJECT
 BROADWATER PUBLIC SCHOOL

DRAWING TITLE
 TRAFFIC GUIDANCE SCHEME
 BLACKWALL DRIVE/BRYNES ST
 20M AV - EGRESS

CLIENT	ADCO
DRAWING #	01C-0002
PROJECT #	23-0608
SCALE	NTS

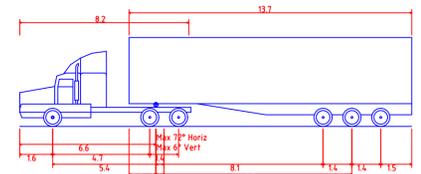
PRELIMINARY
REV P1



TRAFFIC GUIDANCE SCHEME

General Notes:

1. All information provided regarding traffic guidance schemes (TGS) is indicative
2. Detailed TGS are to be developed by the appointed traffic control company
3. All TGS revisions or adjustments must be made by a suitably accredited person with the appropriate safework NSW licence
4. This drawing is not to scale and is to be used for reference purposes only
5. All signage is to be in accordance with TCAWS v6.1 (2022) and set up in visible and appropriate locations
6. TGS signage to be spaced at dimension D in accordance with TCAWS.



AV - Articulated Vehicle	19.000m
Overall Length	2.500m
Overall Width	4.301m
Overall Body Height	0.418m
Min Body Ground Clearance	2.500m
Track Width	6.00s
Lock-to-lock time	12.500m
Curb to Curb Turning Radius	



● SIGNAGE POLE

● POWER POLE

● TREES

<p>Suite 502, 1 James Place North Sydney NSW 2060 t +61 2 8920 0800 ptcconsultants.co</p>	<table border="1"> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>											
<table border="1"> <tr> <td>P1</td> <td>25/07/23</td> <td>FOR INFORMATION</td> <td>KP</td> <td>SW/AM</td> </tr> <tr> <td>REV</td> <td>DATE</td> <td>DESCRIPTION</td> <td>DRAWN</td> <td>REVIEWED</td> </tr> </table>	P1	25/07/23	FOR INFORMATION	KP	SW/AM	REV	DATE	DESCRIPTION	DRAWN	REVIEWED	<p>DRAWING KEY</p>	
P1	25/07/23	FOR INFORMATION	KP	SW/AM								
REV	DATE	DESCRIPTION	DRAWN	REVIEWED								

<p>DRAWN BY - KALYANI PATIL - TCT1037063 (PWZ)</p>
--

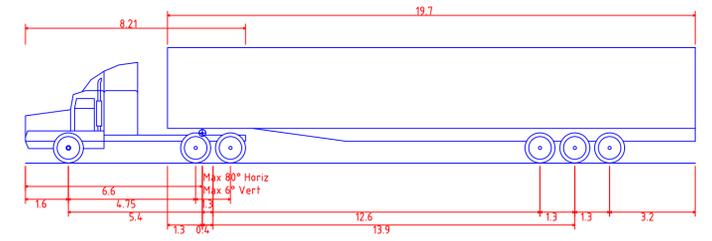
<p>PROJECT BROADWATER PUBLIC SCHOOL</p>

<p>DRAWING TITLE TRAFFIC GUIDANCE SCHEME BLACKWALL DRIVE/BYRNES ST 20M AV - EGRESS</p>
--

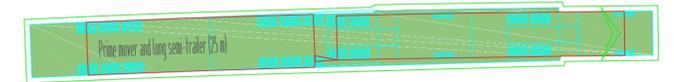
CLIENT	ADCO
DRAWING #	01C-0003
PROJECT #	23-0608
SCALE	NTS

PRELIMINARY
REV P1

Appendix 2. Swept Path Analysis



Prime mover and long semi-trailer (25 m)
 Overall Length 25.000m
 Overall Width 3.000m
 Overall Body Height 4.300m
 Min Body Ground Clearance 0.540m
 Max Track Width 3.000m
 Lock-to-lock time 6.00s
 Curb to Curb Turning Radius 15.000m



ptc.	Suite 502, 1 James Place North Sydney NSW 2060 t +61 2 8920 0800 ptcconsultants.co										
	<table border="1"> <tr> <td>P1</td> <td>25/07/23</td> <td>FOR INFORMATION</td> <td>KP</td> <td>SW/AM</td> </tr> <tr> <td>REV</td> <td>DATE</td> <td>DESCRIPTION</td> <td>DRAWN</td> <td>REVIEWED</td> </tr> </table>	P1		25/07/23	FOR INFORMATION	KP	SW/AM	REV	DATE	DESCRIPTION	DRAWN
P1	25/07/23	FOR INFORMATION	KP	SW/AM							
REV	DATE	DESCRIPTION	DRAWN	REVIEWED							

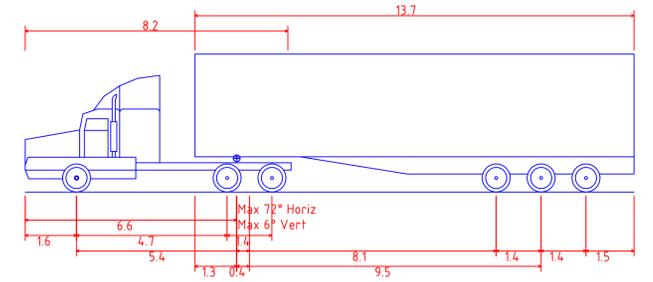
DRAWING KEY

DRAWN BY -
KALYANI PATIL - TCT1037063 (PWZ)

PROJECT
BROADWATER PUBLIC SCHOOL

DRAWING TITLE
SWEEP PATH ANALYSIS
BLACKWALL DRIVE/BRYNES ST
25M AV - INGRESS

CLIENT	ADCO	PRELIMINARY
DRAWING #	01C-0004	REV P1
PROJECT #	23-0608	
SCALE	NTS	

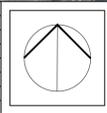


AV - Articulated Vehicle
 Overall Length 19.00m
 Overall Width 2.500m
 Overall Body Height 4.301m
 Min Body Ground Clearance 0.418m
 Track Width 2.500m
 Lock-to-lock time 6.00s
 Curb to Curb Turning Radius 12.500m

AV - Articulated Vehicle

ptc.
 Suite 502, 1 James Place
 North Sydney NSW 2060
 t +61 2 8920 0800
 ptcconsultants.co

REV	DATE	DESCRIPTION	DRAWN	REVIEWED
P1	25/07/23	FOR INFORMATION	KP	SW/AM



DRAWING KEY

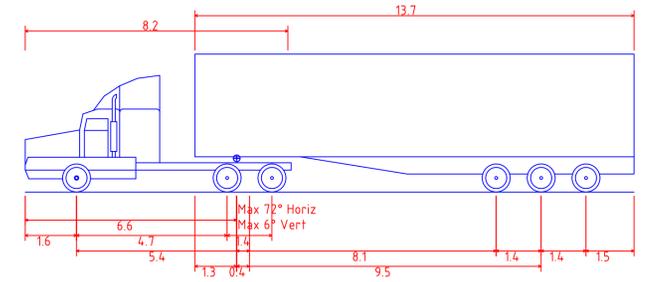
DRAWN BY -
 KALYANI PATIL - TCT1037063 (PWZ)

PROJECT
 BROADWATER PUBLIC SCHOOL

DRAWING TITLE
 SWEEP PATH ANALYSIS
 BLACKWALL DRIVE/BRYNES ST
 20M AV - EGRESS

CLIENT	ADCO
DRAWING #	01C-0005
PROJECT #	23-0608
SCALE	NTS

PRELIMINARY
REV P1



AV - Articulated Vehicle
 Overall Length 19.00m
 Overall Width 2.500m
 Overall Body Height 4.301m
 Min Body Ground Clearance 0.418m
 Track Width 2.500m
 Lock-to-lock time 6.00s
 Curb to Curb Turning Radius 12.500m



ptc.	Suite 502, 1 James Place North Sydney NSW 2060 t +61 2 8920 0800 ptcconsultants.co			
	REV	DATE	DESCRIPTION	DRAWN REVIEWED
P1	25/07/23	FOR INFORMATION	KP	SW/AM

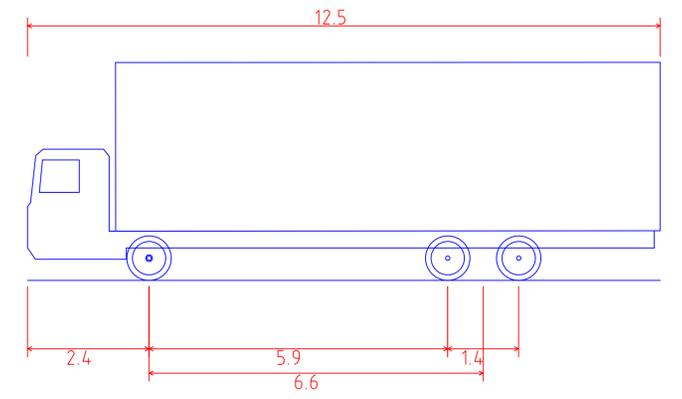
DRAWING KEY

DRAWN BY -
KALYANI PATIL - TCT1037063 (PWZ)

PROJECT
BROADWATER PUBLIC SCHOOL

DRAWING TITLE
SWEEP PATH ANALYSIS
BLACKWALL DRIVE/BRYNES ST
20M AV - INGRESS

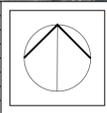
CLIENT	ADCO	PRELIMINARY
DRAWING #	01C-0006	REV P1
PROJECT #	23-0608	
SCALE	NTS	



HRV - Heavy Rigid Vehicle
 Overall Length 12.500m
 Overall Width 2.500m
 Overall Body Height 4.300m
 Min Body Ground Clearance 0.417m
 Track Width 2.500m
 Lock-to-lock time 6.00s
 Curb to Curb Turning Radius 12.500m



REV	DATE	DESCRIPTION	DRAWN	REVIEWED
P1	25/07/23	FOR INFORMATION	KP	SW/AM



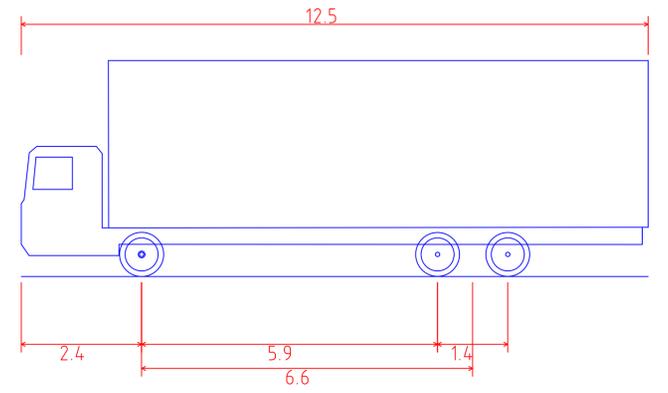
DRAWING KEY
 DRAWN BY -
 KALYANI PATIL - TCT1037063 (PWZ)

PROJECT
 BROADWATER PUBLIC SCHOOL

DRAWING TITLE
 SWEEP PATH ANALYSIS
 BLACKWALL DRIVE/BRYNES ST
 12.5M HRV - INGRESS

CLIENT	ADCO	PRELIMINARY
DRAWING #	01C-0007	REV P1
PROJECT #	23-0608	
SCALE	NTS	

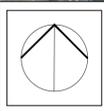
CLIENT	ADCO	PRELIMINARY
DRAWING #	01C-0007	REV P1
PROJECT #	23-0608	
SCALE	NTS	



HRV - Heavy Rigid Vehicle
 Overall Length 12.500m
 Overall Width 2.500m
 Overall Body Height 4.300m
 Min Body Ground Clearance 0.417m
 Track Width 2.500m
 Lock-to-lock time 6.00s
 Curb to Curb Turning Radius 12.500m



REV	DATE	DESCRIPTION	DRAWN	REVIEWED
P1	25/07/23	FOR INFORMATION	KP	SW/AM



DRAWING KEY

DRAWN BY -
 KALYANI PATIL - TCT1037063 (PWZ)

PROJECT
 BROADWATER PUBLIC SCHOOL

DRAWING TITLE
 SWEPT PATH ANALYSIS
 BLACKWALL DRIVE/BRYNES ST
 12.5M AV - EGRESS

CLIENT	ADCO
DRAWING #	01C-0008
PROJECT #	23-0608
SCALE	NTS

PRELIMINARY
REV P1