

Construction Traffic and Pedestrian Management Sub-Plan

Pendle Hill High School

Prepared for Taylor Construction Group

5 November 2021

201956

Contents

Contents	2
List of Tables	3
List of Figures	3
1 Introduction	5
1.1 Overview	5
1.2 Conditions of Consent	5
1.3 Response to Submissions	6
1.4 Site and Location	9
2 Traffic Environment	10
2.1 Existing Road Network	10
2.2 Existing Public Transport	11
2.3 Active Transport	13
2.4 Car Parking	14
2.5 Crash History	16
3 Overview of Works	17
3.1 Scope, Staging and Duration of Works	17
3.2 Hours of operation	17
3.3 Proposed Site Access	18
3.4 Construction Vehicle Access Route	19
3.5 Construction Workers Parking	20
3.6 Work Zone	20
3.7 Material Handling	20
4 Project Impact	21
4.1 Pedestrians	21
4.2 Cyclists	21
4.3 Bus Zone	21
4.4 On-Street Parking	21
4.5 Emergency Vehicles	22
4.6 Adjoining Properties	22
4.7 Traffic	22
4.8 Roads	22
5 Construction worker Transportation Strategy	23

5.1	Travel Arrangements.....	23
Appendix A	Drivers Code of Conduct	25
Appendix B	Construction Transportation Strategy	26
Appendix C	Swept Path Analysis	27
Appendix D	Traffic Guidance Scheme (TGS)	28
Appendix E	Curriculum Vitae.....	29

List of Tables

Table 1.1: Compliance Table	5
Table 1.2: Response to Submission	6
Table 2.1: Public Bus Routes	12
Table 2.2: Crash History	16
Table 3.1: Stage Breakdown	17
Table 3.2: Truck Routes.....	19

List of Figures

Figure 1.1: Site Location	9
Figure 2.1: Site Location and Road Hierarchy	11
Figure 2.2: Sydney Trains Network Connections	13
Figure 2.3: Cycling Map in the Local Road Network.....	14
Figure 2.4: Existing On-Street Parking	15
Figure 3.1: Construction Site Establishment Plan (Indicative)	18
Figure 3.2: Truck Routes.....	20
Figure 5.1: Proximity to Public Transport Facilities	24

Revision Register

Rev	Date	Remarks	Prepared By	Reviewed By	Approved By
0	15/10/2021	Draft for comment	A. Lahouti	N. Borja	
1	20/10/2021	Draft for comment	A. Lahouti	N. Borja	P. Yannoulatos
2	01/11/2021	For Issue	A. Lahouti	N. Borja M. Babbage	P. Yannoulatos
3	05/11/2021	For Issue	A. Lahouti	N. Borja M. Babbage	P. Yannoulatos

Document Control

Internal reference	201956
File path	P:\2020\2019\201956\Reports\TTW\Traffic\211105 PHHS CTPMSP Rev 3.docx

Prepared by



AMIR LAHOUTI

Traffic Engineer

Reviewed by



NATHANIEL BORJA

Traffic Engineer
PWZTMP No. TCT1007469

Authorised By



PAUL YANNOULATOS

Technical Director



MICHAEL BABBAGE

Associate (Traffic)

TAYLOR THOMSON WHITTING (NSW) PTY LTD

1 Introduction

1.1 Overview

TTW has been engaged by Taylor Construction Group to prepare a Construction Traffic and Pedestrian Management Sub-Plan (CTPMSP) for the redevelopment of the existing Pendle Hill High School at 66 Binalong Road, Toongabbie.

The Pendle hill High School is located within the City of Parramatta Local Government Area (LGA) and is therefore subject to City of Parramatta Council development controls. In this regard, the development approval includes a number of conditions of consent relevant to this CTPMSP.

The purpose of this report is to detail a traffic plan for construction that would minimise traffic impacts on the surrounding road network, ensure the safety and efficiency of all workers, pedestrians and road users and provide information regarding the construction vehicle access routes and any changed road conditions (if applicable).

It is expected that this plan be updated should any necessary changes to the currently proposed arrangements arise in the future. Any changes to this plan shall be done in consultation with Parramatta Council. Any special events (if required) would be subject to a separate request for a specific permit not covered by this report.

It should be noted that TTW is responsible for the preparation of this plan only and not for its implementation, which is the responsibility of the project manager/builder.

1.2 Conditions of Consent

A summary of the relevant requirements of the conditions of consent and this CTPMSP's compliance with each is provided below for clarity.

Table 1.1: Compliance Table

Reference	Requirement	Response
B13	The Construction Traffic and Pedestrian Management Sub-Plan (CTPMSP) must be prepared to achieve the objective of ensuring safety and efficiency of the road network and address, but not be limited to, the following:	
a	Be prepared by a suitably qualified and experienced person(s)	<i>Consultants from TTW are suitably qualified traffic engineers – refer Appendix E for CVs and qualifications</i>
b	Be prepared in consultation with Council	<i>Section 1.3</i>
c	Detail the measures that are to be implemented to ensure to road safety and network efficiency during construction in consideration of potential impacts on general traffic, cyclist and pedestrians and bus services; and	<i>Section 2.5-Crash History</i> <i>Section 4-Project Impact</i>
d	Detail heavy vehicle routes, access, and parking arrangements	<i>Section 3.3-proposed site access</i> <i>Section 3.4-construction vehicle access route</i> <i>Section 3.5-Construction Worker Parking</i>
B17	A Driver Code of Conduct must be prepared and communicated by the applicant to heavy vehicle drivers and must address the following:	<i>Appendix A-Drivers Code of Conduct</i>
a	Minimise the impacts of earthworks and construction on the local and regional road network	
b	Minimise conflicts with other road users	
c	Minimise road traffic noise	
d	Ensure truck drivers use specified routes	

Reference	Requirement	Response
B18	Prior to the commencement of construction, the applicant must submit a Construction Worker Transportation Strategy to the Certifier. The strategy must detail the provision of sufficient parking facilities or other travel arrangements for construction workers in order to minimise demand for parking in nearby public and residential streets or public parking facilities. A copy of the strategy must be provided to the planning secretary for information	section 5-Construction Transportation Strategy Appendix B
B21	Prior to the commencement of construction, evidence of compliance of construction parking and access arrangements with the following requirements must be submitted to the certifier	As detailed in the below responses, the construction parking and access arrangements comply with the consent requirements:
a	All vehicles must enter and leave the site in a forward direction	As shown in swept path analysis, vehicles are able to, and shall be required to, enter and leave the site in a forward direction – refer Appendix C
b	The swept path of the longest construction vehicle entering and exiting the site in association with the new work, as well as manoeuvrability through the site, is in accordance with the latest version of AS 2890.2	Swept path analysis for the longest construction vehicle (9m length as advised by Taylor – refer Section 3.1) entering and exiting the site, as well as manoeuvrability through the site, has been undertaken in accordance with the latest version of AS2890.2 (2018) – refer Appendix C.
c	The safety of vehicles and pedestrians accessing adjoining properties, where shared vehicles and pedestrian access occurs, has been addressed	Construction site access does not require or propose any shared vehicle and pedestrian access with adjoining properties – no further action is required.

1.3 Response to Submissions

TTW received several comments from Parramatta City Council as part of the submission process. For the purpose of consistency in this report, the council's comments are quoted, and relevant responses are made in the table below.

Table 1.2: Response to Submission

Submission Author	Comments	Response
City of Parramatta Council	<i>"The Builder is to set up a hotline for nearby residents and parents of the school children that they can call should they have any complaints, concerns or need assistance regarding issues related to the construction traffic/activity and or construction worker parking."</i>	Section 4.6- Project Impact - Adjoining Properties
	<i>"Access for construction vehicles into the site from Binalong Road is to be restricted between 8am to 9:30am and 2:30pm to 4pm on School Days to ensure the safety of school children during school pick up and drop off times."</i>	Section 3.2- Hours of Operation
	<i>"Pedestrian movements are to be maintained along Binalong Road at all times. Traffic Controllers are to be present during construction working hours to halt pedestrians whilst construction vehicles are entering/exiting the site only. At all times vehicles, entering and exiting the site are to be required to give way to pedestrians travelling on the footpath."</i>	Section 4.1- Project Impact – Pedestrians

Submission Author	Comments	Response
	<i>"Safe pedestrian access from the school to Binalong Road for students is to be maintained at all times and is to be kept separate from the construction site."</i>	Section 4.1- Project Impact – Pedestrians
	<i>"All activities, including loading/unloading from vehicles and storage of equipment, materials and waste are to be within the works site and are not to impede traffic or pedestrian flow along Binalong Road."</i>	Section 3.7- Material Handling
	<i>"Traffic controllers are to manage vehicular and pedestrian traffic to ensure public safety whilst vehicles are entering or exiting the site. Traffic Control Plans (TCPs) are to be in accordance with AS1742.3 and RMS 'Traffic Control at Worksites' manual at all times and be signed by a person with RMS certification to prepare TCP's. A copy of the TCPs is to be held on site at all times by the responsible traffic controllers."</i>	Section 4.7 – Project Impact – Traffic
	<i>"The Builder is to keep the roadway (including footpath) in a serviceable state for the duration of the project. Road pavement/footpath damaged as a result of truck movements/ construction activity is to be maintained during the duration of development by developer at no cost to Council to satisfaction of Council's Supervisor Civil Assets, contact 9806 8250."</i>	Section 4.8 - Project Impact – Roads
	<i>"Affected residents and businesses must be notified in writing prior to the start of the various phases of construction. The notification must include the hotline number in that they can call for construction traffic related complaints/concerns. A copy of the notification shall be submitted to City of Parramatta Council. Access to these residents and businesses must be maintained unless otherwise agreed. Any comments are to be recorded and taken into consideration when planning construction activities."</i>	Section 4.6- Project Impact - Adjoining Properties
	<i>"Additional conditions may be applied to the Construction Traffic Management Plan by Council during the demolition phase in future should public amenity be detrimentally affected"</i>	Standards Conditions are noted; will be addressed in the future consultation with Council if required

Submission Author	Comments	Response
	<i>“Occupation of any part of the footpath or road (mobile crane, skip bin, carrying out work, erecting/dismantling hoarding, reconstruction of footpath and the like) during construction works of the development shall require a Road Occupancy Permit from Council. The applicant is to obtain a Temporary Road Occupancy Permit through Council’s Traffic and Transport Services, prior to occupying any part of the footpath or road.”</i>	Section 4.7 - Project Impact - Traffic
	<i>“Installation of a ‘Works Zone’ on public road shall require an approval through Parramatta Traffic Committee process. The applicant is to submit an application for a Works Zone through Council’s Traffic and Transport Services, at least 6 weeks prior to the commencement of the restriction.”</i>	Standards Conditions are noted; will be addressed in the future consultation with Council if required

1.4 Site and Location

The site is legally referenced as Lot 101/-/DP1141329, with a street address of 66 Binalong Road, Toongabbie. The site is currently zoned R2 – Low-Density Residential and is located approximately 30km west of the Sydney CBD and 7km west of Parramatta CBD. The Surrounding developments are predominantly residential except south-west of the site which is industrial use.

The existing site operates as a high school (year 7-12), comprising 5 two-storey buildings, a Multipurpose Hall, and various sports fields.

The site location and the surrounding road network is presented in Figure 1.1

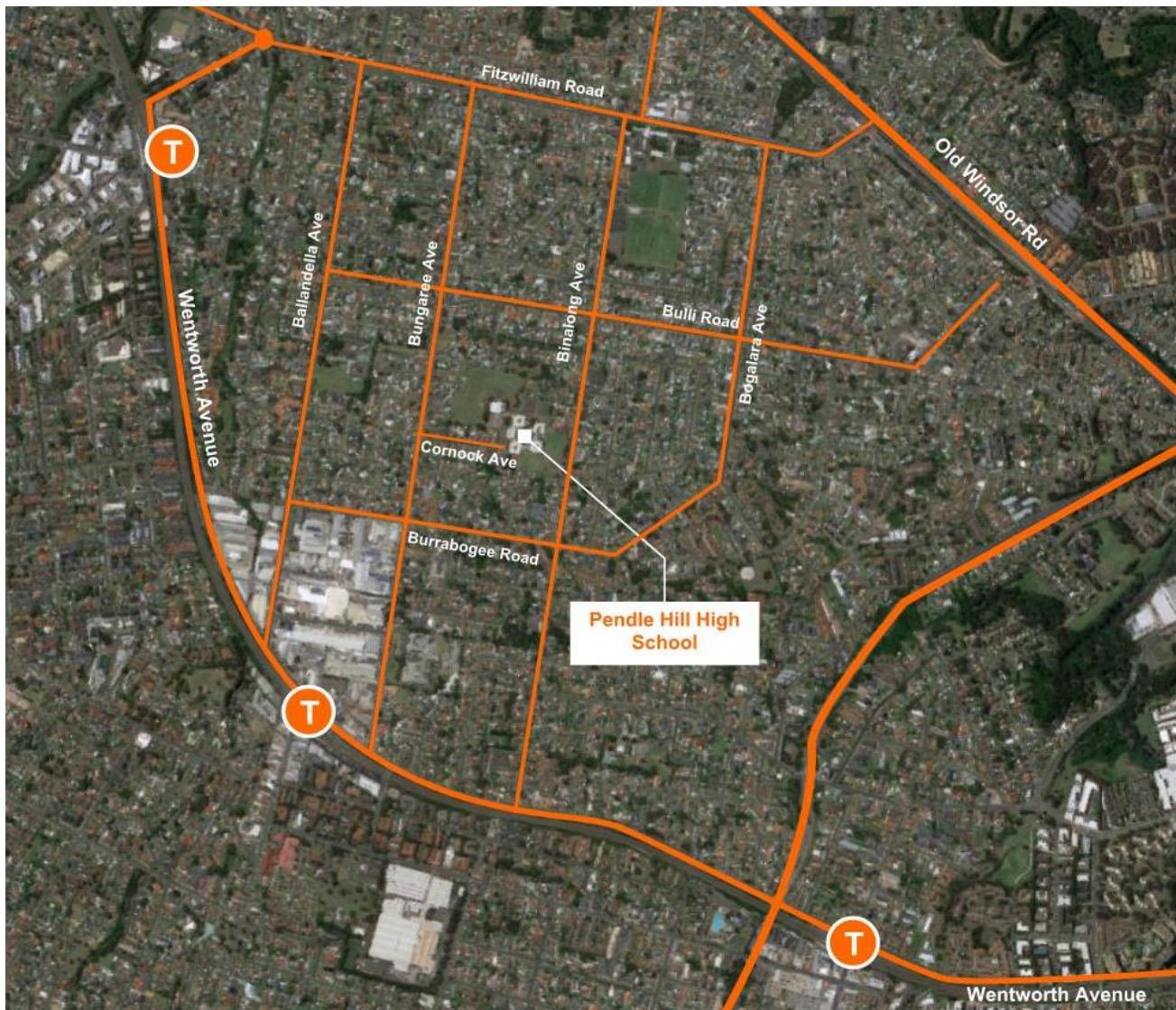


Figure 1.1: Site Location

2 Traffic Environment

2.1 Existing Road Network

The road hierarchy in the vicinity of the site is shown in Figure 2.1, with the following roads considered noteworthy:

Local Roads

Cornock Avenue

Cornock Avenue is a local street which provides a single travel lane in each direction, with a general speed limit of 50 km/hr with signage for 40 km/hr School Zone, and unrestricted parking on both sides of the road. The School Zone along Cornock Avenue (and all School Zones around the site) are in effect between 8:00-9:30am and 2:30-4:00pm on school days.

Binalong Road

Binalong Road runs along the eastern boundary of the site. There are single travel lanes in each direction, with a general speed limit of 50 km/hr and signage for 40 km/hr School Zone, and a parking lane. In addition, in each direction, there is a cycling lane between the parking lane and travel lane.

An indented bus bay approximately 120 metres long is provided along the school frontage, which operates as a signposted Bus Zone between 8:00-9:00am and 2:30-3:30pm on School Days

The majority of built works are located adjacent to Binalong Road, providing good construction access to the site. It is proposed that a construction site access point be provided along Binalong Road.

Knox Street

Knox Street provides a single travel lane in each direction, with a general speed limit of 50 km/hr with signage for 40 km/hr School Zone.

Illoca Place

In north-west part of the site, at Illoca Place, there is a short frontage to the site but currently it is fully fenced. In this road, there is a single travel lane in each direction.

Favel Street

Favel Street is a local road, and it ends at a cul-de-sac westbound.

State and Regional Roads

Old Windsor Road

Old Windsor Road is classified as a state road. The northern end links with Windsor Road while the southern end links with Cumberland Highway and James Ruse Drive. This arterial road is a dual carriageway with generally three lanes of traffic in each direction and the North-West T-way runs alongside the entire length of Old Windsor Road.

Cumberland Highway

Cumberland Highway (A28) is classified as a state road with three lanes of traffic in each direction. This arterial road is a dual carriageway. The maximum speed limit of this road is 70km/hr.

Wentworth Avenue

Wentworth Avenue is classified as a regional road. This road has one lane of traffic in each direction with a dedicated bicycle lane on both sides of the road. On-street parking is generally permitted on this road and the maximum speed limit on this road is 60km/hr.

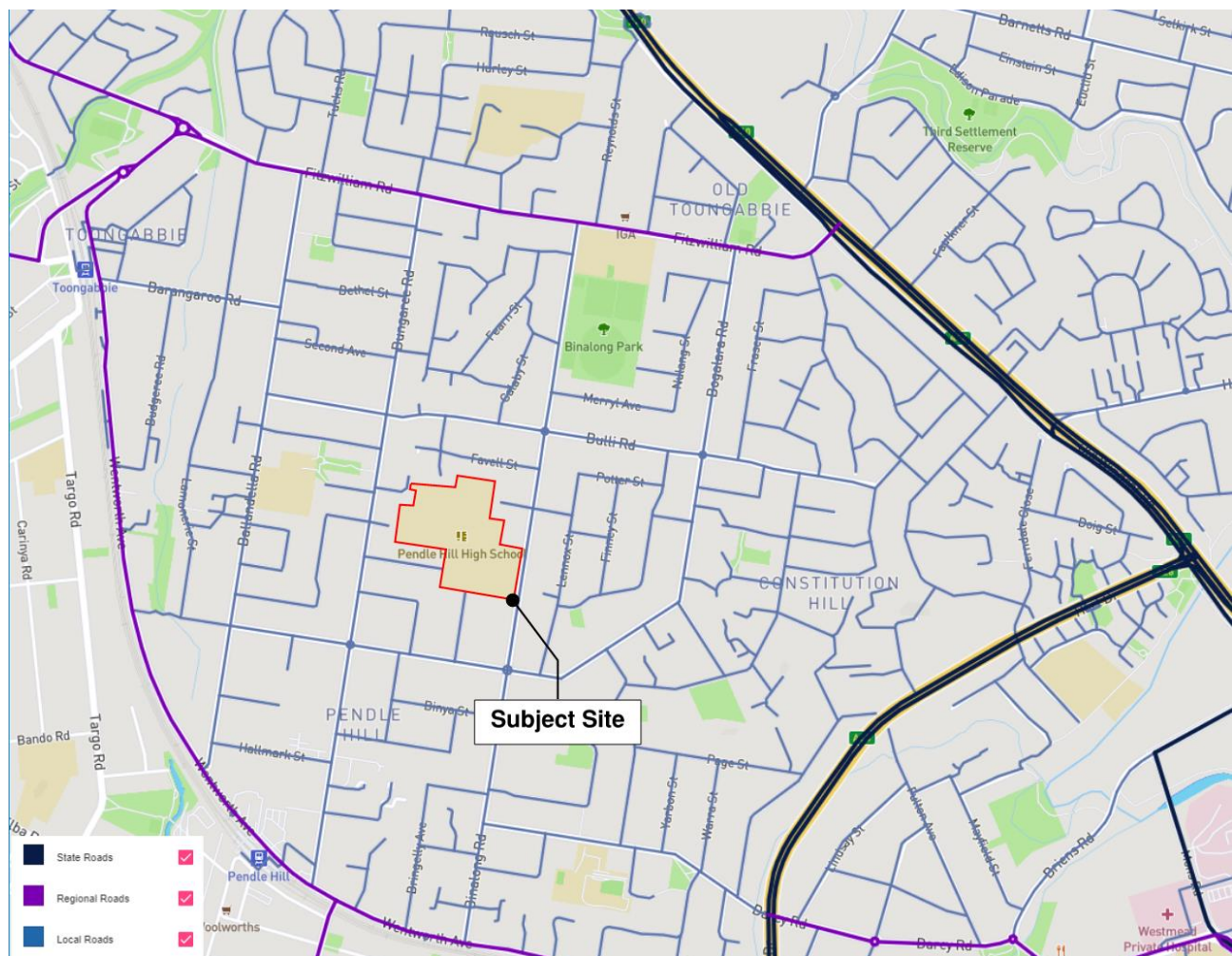


Figure 2.1: Site Location and Road Hierarchy

2.2 Existing Public Transport

The Integrated Public Transport Service Planning Guidelines, Sydney Metropolitan Area (Transport for NSW, December 2013), states that public transport services influence the travel mode choices of areas within 800m walk (approximately 10 minutes) of a train station.

2.2.1 Public Buses

Public bus services operate along Bungaree Road and Binalong Road. These bus stops are located within 400m from the site.

Detailed information about public buses is shown in Table 2.1: Public Bus Routes

Table 2.1: Public Bus Routes

Bus Route Number	Bus Route	Morning Times	Afternoon Times
Bungaree Bus Stop (Bungaree Rd at Una Pl or Scott St)			
708	Constitution Hill to Parramatta via Pendle Hill	9:10am	2:38pm
711	Parramatta to Blacktown via Wentworthville	8:04am	3:16pm 3:42pm
711	Blacktown to Parramatta via Wentworthville	8:13am	3:18pm (same service as 3:21pm bus bay)
Binalong Road Bus Bay			
711	Blacktown to Parramatta via Wentworthville	-	3:21pm

2.2.2 Train

The nearest train stations to the site are Pendle Hill station which is located approximately 1.3 kilometres south of the site (17 minutes-walk) and Toongabbie station which is located approximately 1.7 kilometres (23 minutes-walk) west of the site. T1 and T5 train lines are servicing these stations.



Figure 2.2: Sydney Trains Network Connections

2.3 Active Transport

2.3.1 Pedestrian Infrastructure

Pedestrian footpaths are provided along both sides of Binalong Road including site's eastern frontage.

The main existing pedestrian entry gate is located on the eastern side of site's boundary. This pedestrian gate is well connected to the pedestrian footpath along Binalong Road. Existing zebra crossing on Binalong Road provides pedestrian access to the site and indented bus bay.

2.3.2 Cyclist Infrastructure

Figure 2.3: Cycling Map in the Local Road Network shows the local cycling routes near the site. There is generally the good provision of cyclist connections in the region, with a marked on-street bike lane in each direction on Binalong Road immediately outside of the site. This path is rated as moderate difficulty.

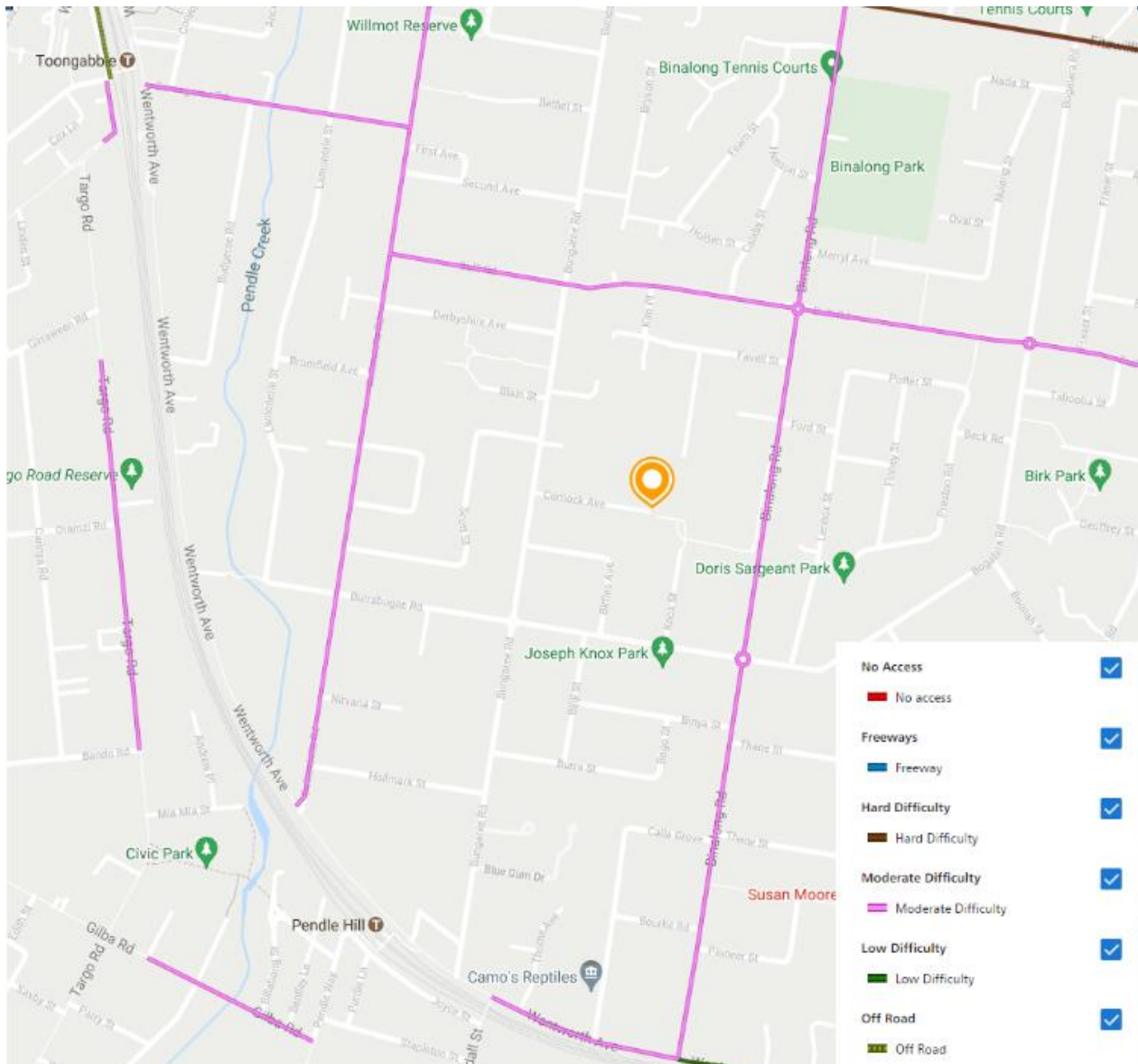


Figure 2.3: Cycling Map in the Local Road Network

Image source: Cycleway Finder (dated April 2021)

2.4 Car Parking

2.4.1 On-Street Parking Supply

The site is located in a residential area and currently, on-street parking on nearby residential roads are unrestricted except the indented bus bay on Binalong Road, which has a time restriction for parking. From 8am to 9am and 2:30pm to 3:30pm on school days, vehicles are not permitted to park in this bus zone. Figure 2.4 shows the existing unrestricted and restricted on-street parking surrounding the site.

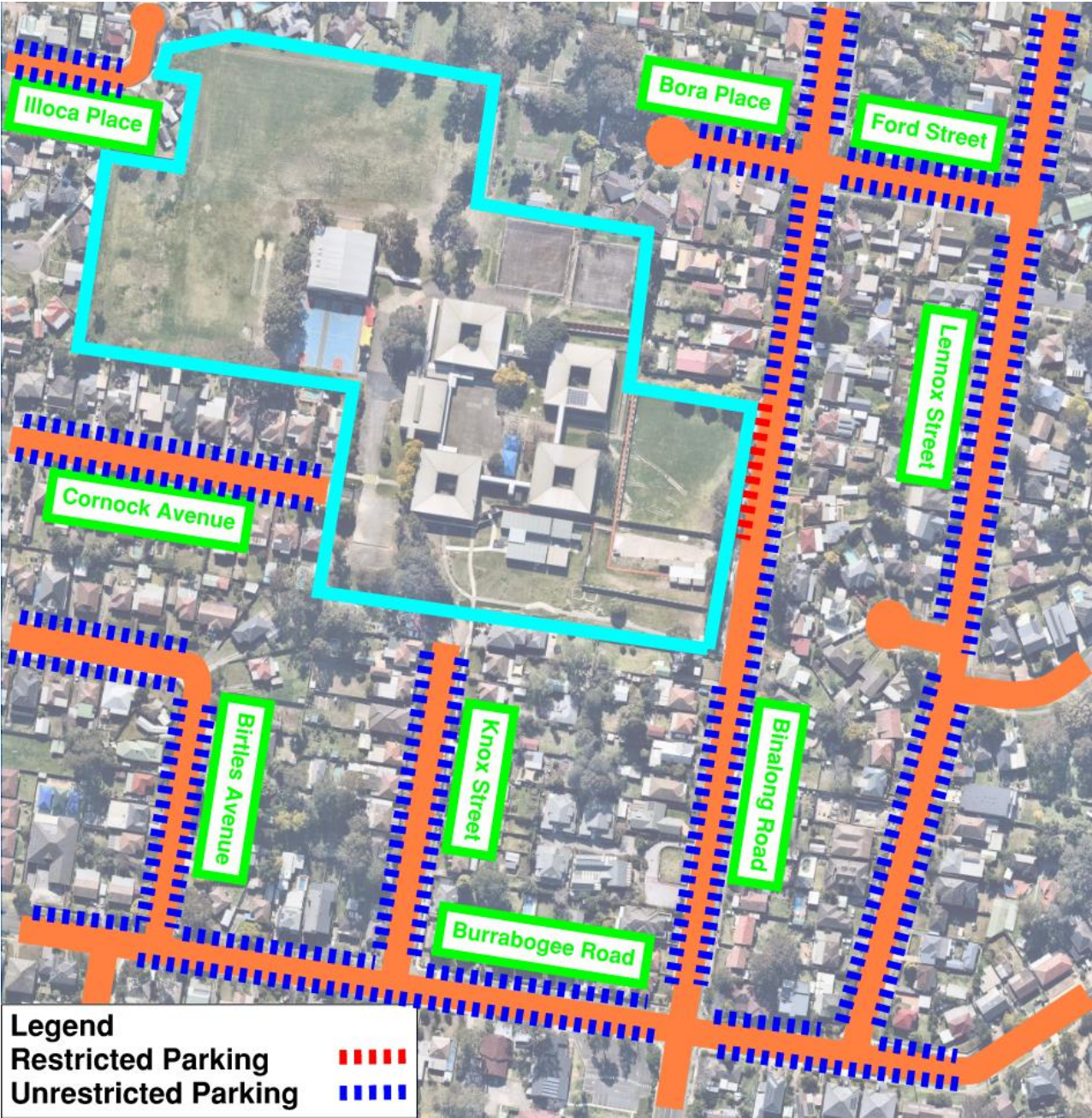


Figure 2.4: Existing On-Street Parking

2.4.2 Off-street parking

The closest off-street parking to the site is public car park in Binalong Park located 800m (10minutes walking distance) to the north of the site. The public car park has no time restriction.

2.5 Crash History

A review of the TfNSW crash database has been undertaken to establish the crash history within surrounding intersections and roads. The results indicate the following crashes from 2015-2019 (recent data is not available in <https://roadsafety.transport.nsw.gov.au/>):

Table 2.2: Crash History

Intersection	Crash Rate	Number
Old Windsor Road/Hard Drive	Minor Injury	1
Darcy Road/Hart Drive	Moderate Injury	1
Old Windsor Road/Fitzwilliam Road	Moderate Injury	1

Crashes that occurred from 2015-2019 is negligible in comparison to the anticipated volume of traffic movement during these years thus, these routes can be considered as a safe route for heavy vehicles.

Additionally, the crash data history indicates no crash on residential roads within 800m of the site, therefore suggesting there is no safety issue on surrounding roads.

3 Overview of Works

3.1 Scope, Staging and Duration of Works

The total duration of the construction works will be approximately 12 months from the commencement date. The construction phase has **one** stage.

The works to be undertaken are generally summarised as:

- Construction of new buildings comprising 14 new permanent teaching spaces and the following core facilities, lecture learning unit, library unit, administration unit, staff unit and student amenities
- Reconfiguration of existing car park and provision of new bicycle parking

Information regarding the breakdown of truck movements and number of workforces in each phase has been provided by Taylor Construction Group, and they are outlined in Table 3.1 below

Table 3.1: Stage Breakdown

Stage	Schedule	Workforce	Vehicles per Day	Maximum Vehicle
Demolition	0	0	0	0
Excavation	2 Weeks	15	6	8m
General Construction	12 Months	70 Maximum	20	8m
Concrete Pours	4 Months	10 Maximum	8	7m
External Finishes	5 Months	35 Maximum	2	9m

3.2 Hours of operation

All works will be undertaken within approved work hours as per Consent Condition C4 for SSD-9579147, as follows:

- Monday to Friday 7am to 6pm
- Saturday 8am to 1pm
- Sunday and Public Holidays None

Condition C5 note that work may be undertaken during the following hours, notwithstanding condition C4, provided noise levels do not exceed the existing background noise plus 5dB.

- Monday to Friday 6pm to 7pm
- Saturdays 1pm to 4pm

If necessary, condition activities can be conducted outside of the hours in conditions C4, C5 and in accordance with condition C6:

- By the police or public authority for the delivery of vehicles, plant or materials
- In an emergency to avoid the loss of life, damage to property or to prevent environmental harm
- Where the works are inaudible at the nearest sensitive receivers
- Where a variation is approved in advance in written by the Planning Secretary or his nominee if appropriate justification is provided for the works

Since the school drop-off and pick-up occurs along Binalong Road, as a result, vehicle construction movements into the construction access driveway on Binalong Road are to be restricted between 8am to 9:30am and 2:30pm to 4pm on school days (i.e. School Zone times). This is to ensure that students' safety is maintained at all times.

3.3 Proposed Site Access

The majority of built works are located adjacent to Binalong Road, providing suitable construction access to the site. It is proposed that a construction site access point be provided along Binalong Road, as illustrated in the indicative Site Establishment Plan below. Site shed locations as shown in this plan are indicative only and may be subject to adjustments based on site conditions and operational requirements.

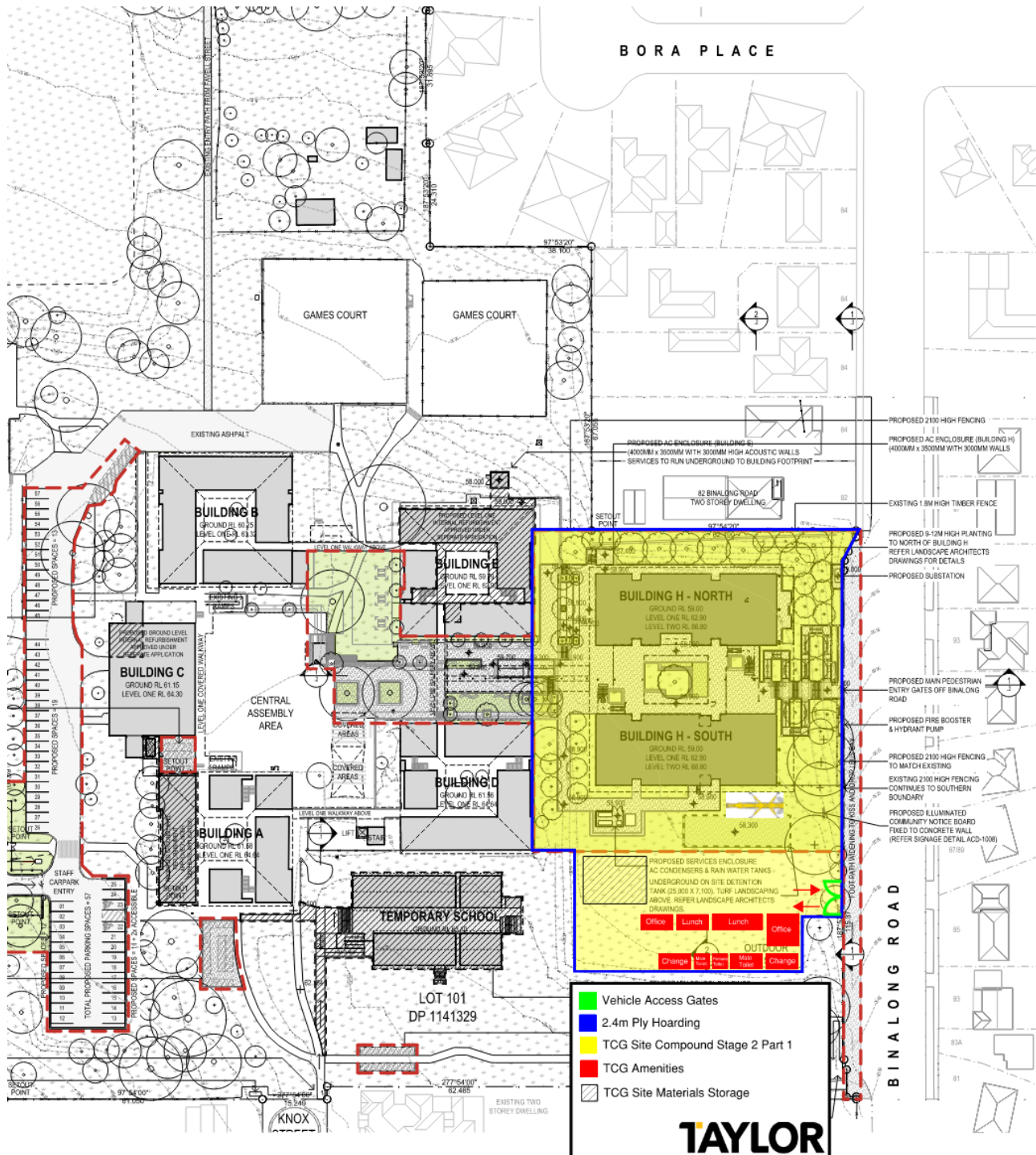


Figure 3.1: Construction Site Establishment Plan (Indicative)

Source: Taylor Construction Group

Security fencing will be erected along the entire boundary of the construction site and will be maintained for the duration of the construction program. The fencing is 2.1m in height (information provided by the builder) to ensure unauthorised persons are kept out of the site. The entry gate is provided on the south-east side of the site accessing from Binalong Road. These gates will be closed at all times outside of the permitted the construction hours. It is noted that class A hoarding should be provided along the eastern boundary of construction site to ensure pedestrians safety is maintained.

Construction vehicles will enter and exit the site via a newly created entrance to the south-east of the site. the largest vehicle accessing the site will be a **9m** heavy rigid vehicle. Appendix C swept path analysis demonstrates that a 9m long heavy rigid vehicle can access/egress the site in a forward direction. Furthermore, the nominated truck can manoeuvre within the construction site with adequate vehicle body clearance from the obstructions.

The proposed main pedestrian entry gate is located on the eastern boundary of the construction site, and it is well in contact with the pedestrian footpath along Binalong Road.

3.4 Construction Vehicle Access Route

The routes detailed and shown in Table 3.2: Truck Routes and Figure 3.2 are to be utilised by all construction vehicles travelling to and from the site and represents the shortest route available-hence minimising the impacts of the construction process.

Construction vehicles can enter the site via left turn or right turn on Binalong Road. Routes are shown for vehicles travelling to and from the north/west, north/east, south/west and south/east.

It is noted that a copy of the approved routes will be distributed by the contractor to all drivers before their arrival to site.

Table 3.2: Truck Routes

Departing to the north	Departing to the south
• Depart from Binalong Road • Turn right onto Fitzwilliam Road • Turn left onto Old Windsor Road	• Depart from Binalong Road • Turn left onto Wentworth Avenue • Turn left onto Cumberland Highway • Turn either left and right onto M4
Arriving from the north/east	Approaching from the north/west
• Approach from Windsor Road southbound • Turn right onto Cumberland Highway • Turn right onto Old Windsor Road • Turn left onto Fitzwilliam Road • Turn left onto Binalong Road	• Approach from Old Windsor Road southbound • Turn right onto Fitzwilliam Road • Turn left onto Binalong Road
Approaching from south	
• Approach from eastbound or westbound M4 • Exit onto Cumberland Highway • Turn left onto Wentworth Avenue • Turn right onto Binalong Road	



Figure 3.2: Truck Routes

3.5 Construction Workers Parking

No on-site parking is provided for construction workers. The builder (Taylor Construction Group) shall encourage workers to use public transport since the site has good proximity to bus services. It is understood that some contractors/workers use private vehicles, in this regard contractors/workers shall be encouraged to carpool where possible. See section 5 of this report.

Furthermore, public car park in Binalong Park is located 800m (10 minutes walking) to the north of the site. This car park has no time restriction therefore, it would be an ideal location for the construction workers to park their vehicles.

3.6 Work Zone

As all works are expected to occur entirely within the site, there is no requirement for a Work Zone.

It should be noted that if a Work Zone is required, then prior approval shall be sought from Council at least 6 weeks prior to the commencement of the restriction.

3.7 Material Handling

All material loading shall occur within the construction site boundary. Equipment, materials and waste will be kept within the construction site boundary. Should materials handling be required from the public roadway then prior approval shall be sought and obtained from Parramatta City Council.

4 Project Impact

4.1 Pedestrians

All construction work and operations are to be contained within the site. Fencing along the boundary will be erected and maintained during the construction phase. Additionally, due to the location of a public footpath adjacent to the construction site's frontage, hoarding type A is required to be erected along the eastern boundary of the construction site to ensure pedestrians walking along this footpath are safe. Warning signages and relevant safety equipment should be installed adjacent to the construction vehicle entry gate (located on the south-east of the site) to warn pedestrians.

Traffic controllers are also to be presented during construction working hours to stop pedestrians whilst construction vehicles are entering/exiting the site. However, construction vehicles, entering/exiting the site are always required to give-way to pedestrians walking on the footpath.

These are precautionary actions to ensure pedestrians safety is always maintained.

It is also recommended that construction vehicles movements to the site be limited to off-peak periods when pedestrians' activities are low along the footpath on Binalong Road. Pedestrian activities might be higher than normal during peak hours on a footpath adjacent to the site due to the proximity of the indented bus bay to the site's entry gate.

No footpath closures or redirections are required for pedestrians in the public footpath on Binalong Road.

An existing pedestrian entry gate is located on Binalong Road. A Safe pedestrian access will be always maintained for the students from the school to Binalong Road. The pedestrian access on Binalong Road is to be kept separate from the construction site.

4.2 Cyclists

A dedicated bicycle lane is provided on both sides of Binalong Road. Dedicated bicycle lanes will not be obstructed for a long period by the construction vehicles while entering/exiting the site. The cyclists may only be held for a short period, for their safety, whilst a truck is entering or leaving the site. This should be managed by an accredited traffic controller or site's traffic supervisor.

No queuing of trucks shall be permitted on Binalong Road. If the relevant loading area within the site is found to be full at the time of vehicle arrival, vehicles are not to queue on Binalong Road. In this instance, vehicles shall store appropriately within other areas of the site (and shall not reverse out of the site) or be turned away and rescheduled if necessary.

4.3 Bus Zone

The construction entry gate would be located within the existing indented bus bay on Binalong Road (as per Site Establishment Plan). Based on the current operations of the bus bay, this could be accommodated due to the relatively low usage of the bus bay. The construction vehicular driveway is 4.9 metres. This will reduce the queue area of the bus bay for only 4.9 metres which is negligible as the bus bay capacity will remain unchanged.

4.4 On-Street Parking

The location of the construction entry gate will be within the existing indented bay. This zone is time-restricted from 8am to 9am and 2:30pm to 3:30pm on school days. Parking during these periods is not permitted. It is expected that the impact of construction vehicles on on-street parking vacancies be minimal since all construction activities will be contained within the site (no work zone is required). Construction workers would be encouraged to travel to the site by other means of transport.

4.5 Emergency Vehicles

Emergency access to the construction site itself shall be operated as necessary. In the event of an emergency, the site manager is to coordinate access with emergency services as required.

It is expected that no road closure or major lane changes are required for these works. Emergency vehicles have priority to construction vehicles in the event of an emergency.

4.6 Adjoining Properties

Access to neighbouring properties will be maintained at all times. Before any of the phases of construction can begin, neighbouring property occupants must be notified. The notification must be included the hotline number. Worth noting that, a copy of the notification shall be also submitted to City of Parramatta Council. No work zone on the public road is required for this work.

Residents in proximity of the construction site will be able to call a dedicated hotline should they have complaints, concerns, or problems with construction traffic/activity and/or construction parking. Based on the information provided by the builder, the hotline number is **1300 482 651**

4.7 Traffic

During days of high estimated vehicle movements, communication between the site, deliveries, and/or vehicles will be maintained to stagger the arrival of vehicles for them to be accommodated within the worksite and to minimise traffic disruption.

Truck movements to and from the site will be scheduled outside of peak hours where possible to reduce impacts to the local road network, which includes busy town-centre areas.

Deliveries and removal of materials will be staggered to avoid the queuing of vehicles around the site. Vehicles are not to queue on the public roadway. Any vehicles arriving at the site without an available arrival space must depart from the site and have their operation rescheduled. Vehicles are not to transport dust, dirt or gravel from the worksite onto the road network. All loads are to be covered.

Traffic controllers should be presented on site during construction hours to manage vehicular and pedestrian traffic along Binalong Road and the footpath. Traffic Control Plans (TCP/TGS) has been prepared and signed by a qualified person with RMS certification. The prepared Traffic Control Plan is in accordance with AS1742.3 and RMS "Traffic Control at Worksites" manual. It should be noted that, a copy of the TCPs should be always available on site during the construction phase.

If any public roads or footpaths are required to be occupied during construction works, a Road Occupancy Permit from Council's Traffic and Transport Services will be necessary before the commencement of work.

4.8 Roads

The construction site road frontage (Binalong Road) and its footpath might be damaged due to the construction vehicle movements or the construction activities. It is the builder's responsibility to keep the roadway (Binalong Road) including footpath in a serviceable condition at no cost to Council during the duration of the project.

Condition B5 of the consent required the preparation of a dilapidation report identifying the condition of all public infrastructure in the vicinity of the site (including roads, gutters, and footpaths). Prior to the commencement of construction, the applicant must submit a copy of the dilapidation report to the Planning Secretary, Certifier and Council.

5 Construction worker Transportation Strategy

This Construction Worker Transportation Strategy has been prepared to satisfy condition consent B18 of SSD-9579147.

It is the intent of this strategy to outline the management of construction workers transportation to/from the site. In particular, this strategy has been prepared to manage construction worker car parking to minimise the demand for parking in nearby public and residential streets during the construction of the project.

It recognises that these procedures may need to adapt to changing circumstances in order to achieve the desired management of construction worker travel.

5.1 Travel Arrangements

All construction workers shall be made aware that no car parking will be made available on-site at any time during construction. Consequently, all construction workers shall be encouraged and expected to use alternative means of transport to/from the site.

Other forms of transport to/from the site are:

- Bus
- Car pooling
- Cycling
- Walking
- Train

5.1.1 Bus

Pendle Hill High School is well serviced by the existing bus network, with several roads adjacent to the site operating frequent services as illustrated in Figure 5.1. Key bus stops for Pendle Hill high School are located along Binalong Road, Bungaree Road and Burrabogee Road. (Refer to Table 2.1 for more details)

5.1.2 Car Pooling

Taylor Construction Group shall encourage construction workers to carpool to reduce single-occupancy car trips. Carpooling can be organised through notice boards on the construction site or word of mouth. This is Taylor Construction Group responsibility. Carpooling is a better option in comparison to ride-sharing since carpooling is dependent on someone else vehicle.

5.1.3 Cycling

Given the good cycling infrastructure in surrounding roads such as dedicated bicycle lanes on both sides of Binalong Road and Fitzwilliam Road, the builder shall encourage workers to travel to the site by bike. This strategy is only practical for workers who are residing in nearby suburbs. It should be noted that the builder should allocate space within the construction site for bicycles to be parked.

5.1.4 Walking

Builder shall encourage workers to travel to/from the site by walking if they live within 400m walking distance of the site. All site's surrounding residential roads provide formal footpaths on both sides and additionally these roads are typically flat.

5.1.5 Train

The last recommended transportation strategy is using trains by construction workers. Pendle Hill Train Station is within 1.3km from the site which is equivalent to 5 minutes by cycling.

The site's proximity to existing public transport facilities are shown in Figure 5.1

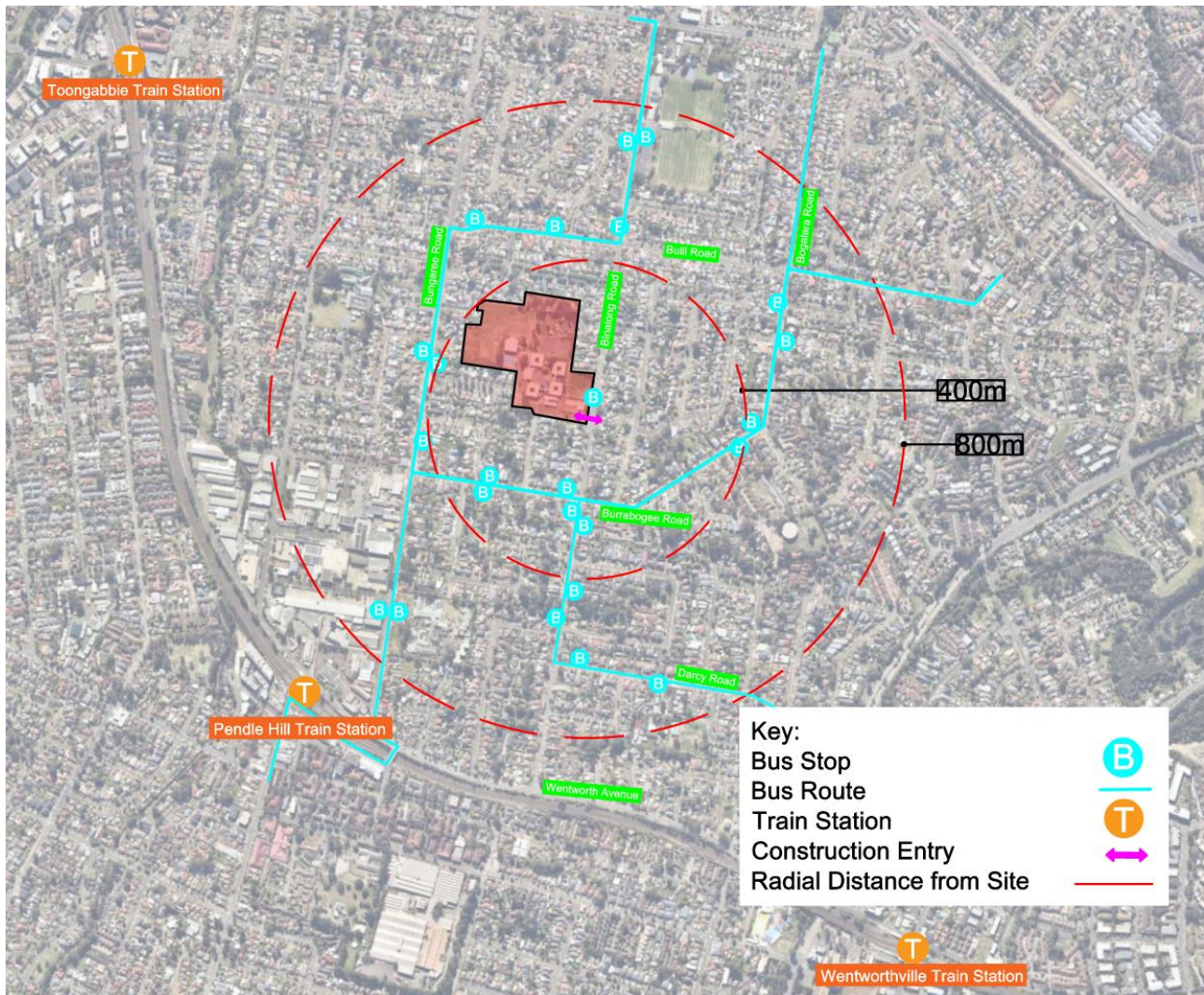


Figure 5.1: Proximity to Public Transport Facilities

Appendix A Drivers Code of Conduct

Safe Driving Policy for Pendle Hill High School

Objectives of the Drivers Code of Conduct

- To minimise the impact of earthworks and construction on the local and regional road network;
- Minimise conflict with other road users;
- Minimise road traffic noise; and
- Ensure truck drivers use specified routes

To minimise the impact of earthworks and construction on the local and regional road network

- Always obey all applicable road rules and laws
- Drivers to obey road speed limit and reduce the speed while approaching nearby intersections (e.g. Wentworth Avenue/Binalong Road and/or Fitzwilliam Road/Binalong Road). Heavy breaks can damage the roads
- Drivers should stay away from the surrounding local and narrow roads

Minimise conflict with other road users

- Drivers should be mindful of pedestrians and cyclists walking/cycling along Binalong Road.
- Drivers should not obstruct access to any public roads, site's entry, or pedestrian footpath
- Drivers should not park on either side of Binalong Road. All construction vehicles should be parked within the site
- Drivers should check their left and right twice while entering/exiting the site to ensure the safety of pedestrians, cyclists and vehicles on Binalong Road are maintained
- Truck drivers must wait until a suitable gap in traffic allows them to assist trucks. The Roads Act does not give any special treatment to trucks leaving a construction site, the vehicles already on the road have the right-of-way.
- Drivers should obey the traffic controllers guide while accessing/egressing the site
- Drivers should be aware of site's surrounding conditions including speed limits, other traffic controls and pedestrian routes. This can be done in site's induction
- Drivers should be aware of the restricted time for construction vehicle movements for the student's safety. The construction vehicle movement is to be restricted between 8am to 9:30am and 2:30pm to 4pm on school days.

Minimise road traffic noise

- Drivers should reduce vehicle speed to reduce instances and severity of compression breaking
- No excessive or unnecessary use of horns, in particular outside of approved working hours
- Drivers should reduce speed when approaching speed humps or raised zebra crossings

Ensure truck drivers use specified routes

- Drivers should follow approved truck routes and they should stay away from narrow local roads as much as possible
- Copy of approved truck routes should be distributed to the truck drivers prior to travel to/from the site and drivers should follow these routes only

Appendix B Construction Transportation Strategy

Construction Transportation Strategy



Bus: Pendle Hill High School is well serviced by the existing bus network, with several roads adjacent to the site operating frequent services. Key bus stops for Pendle Hill High School are located along Binalong Road, Bungaree Road and Burrabogee Road.



Carpooling: Reduce single-occupancy car trips. Carpooling will be organised through notice boards on the construction site. Taylor Construction Group is responsible to organise this option.



Cycling: Binalong Road and Fitzwilliam Road have dedicated bicycle lanes on both sides. Workers who live in nearby suburbs can travel to the site by bike. Dedicated bike parking spaces are secured within the site

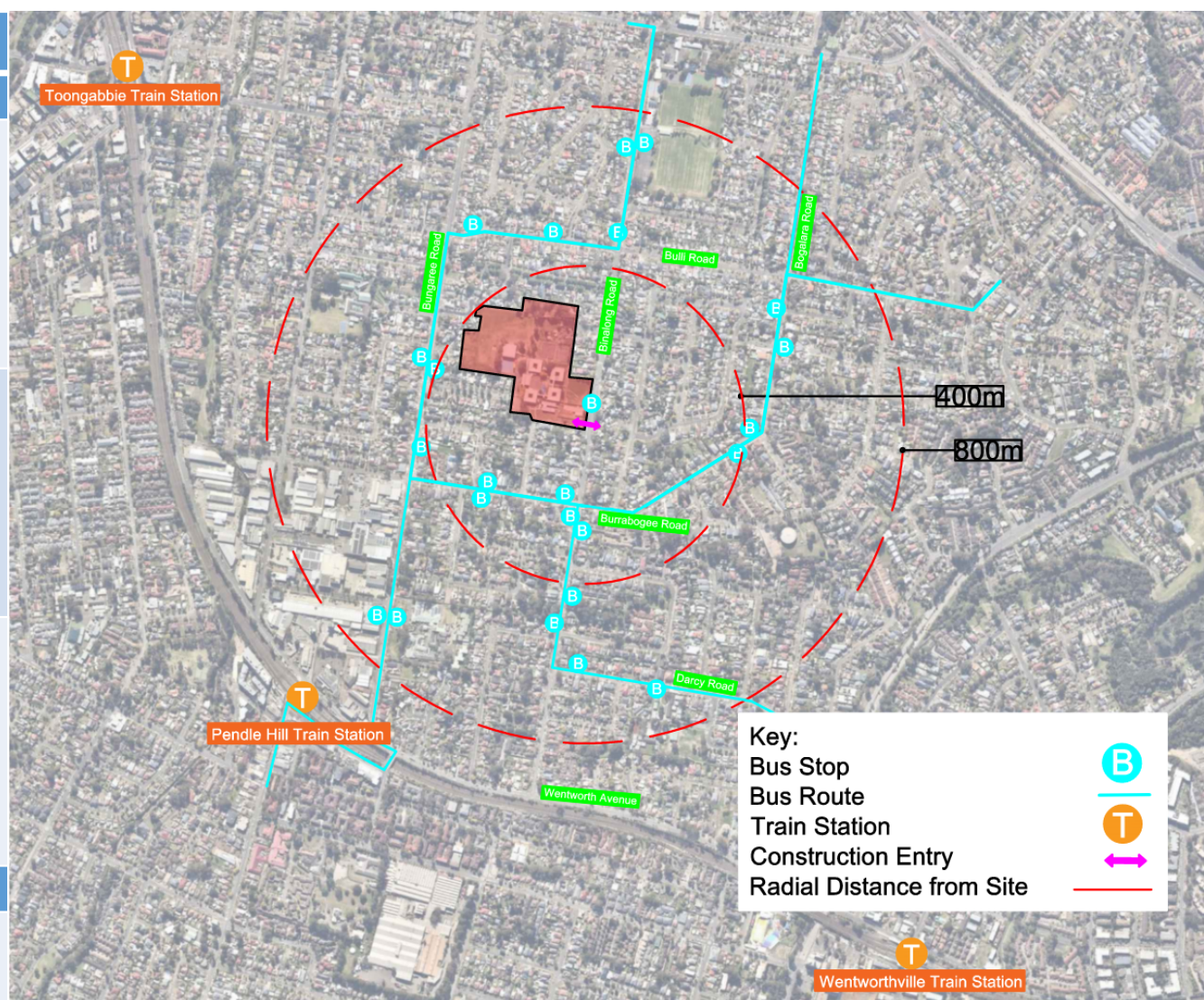


Walking: All site's surrounding residential roads provide formal footpaths on both sides, and they are generally flat

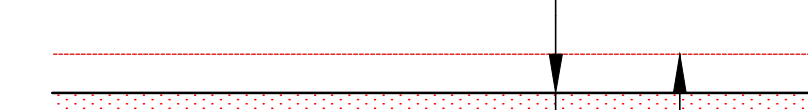


Train: Pendle Hill Train Station which is located approximately 1.3km south of the site and Toongabbie train station which is located approximately 1.7km west of the site. T1 and T5 train lines are servicing these stations.

Bus Route Number	Bus Route	Morning Times	Afternoon Times
Bungaree Bus Stop (Bungaree Rd at Una Pl or Scott St)			
708	Constitution Hill to Parramatta via Pendle Hill	9:10am	2:38pm
711	Parramatta to Blacktown via Wentworthville	8:04am	3:16pm 3:42pm
711	Blacktown to Parramatta via Wentworthville	8:13am	3:18pm (same service as 3:21pm bus bay)
Binalong Road Bus Bay			
711	Blacktown to Parramatta via Wentworthville	-	3:21pm



Appendix C Swept Path Analysis



The diagram illustrates the clearance envelope for a vehicle. It shows a top-down view of a vehicle's path, indicated by a blue arrow labeled "VEHICLE DIRECTION". The vehicle's body is represented by a central rectangle. The "VEHICLE BODY CLEARANCE" is the distance from the vehicle body to the centerline. The "0.6m CLEARANCE ENVELOPE" is the total width of the area around the vehicle body, extending 0.6m from the vehicle body to the centerline on both sides. The envelope is defined by a solid blue line and a dashed blue line, with a dotted pattern between them.

Diagram of a truck with dimensions: total length 9.00, wheelbase 6.00, and front overhang 1.20.

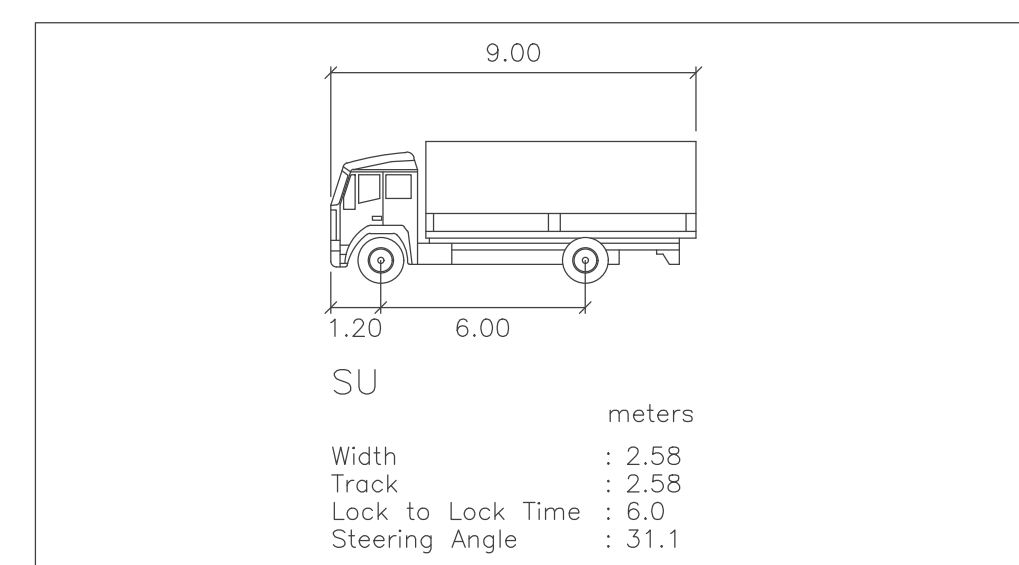
PRELIMINARY
NOT TO BE USED
FOR CONSTRUCTION

PI PRELIMINARY					- - -									
Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date

Sheet Subject

9m Heavy Rigid Vehicle
SWEPT PATH

Scale : A1	Drawn	Authorised
1:100	AL	
Job No	Drawing No	Revision
201956	SK04	P1
Plot File Created: Oct 15, 2021 - 4:44pm		



Scale: A1	Drawn	Authorised
1:100	AL	
Job No	Drawing No	Revision
201956	SK03	P1
Plot File Created: Oct 15, 2021 - 4:41pm		

P1 PRELIMINARY											
Rev	Description	Eng	Draft Date	Rev	Description	Eng	Draft Date	Rev	Description	Eng	Draft Date

Engineer

TTW **Structural
Civil
Traffic
Façade**

612 9439 7288 | 48 Chandos Street St Leonards NSW 2055

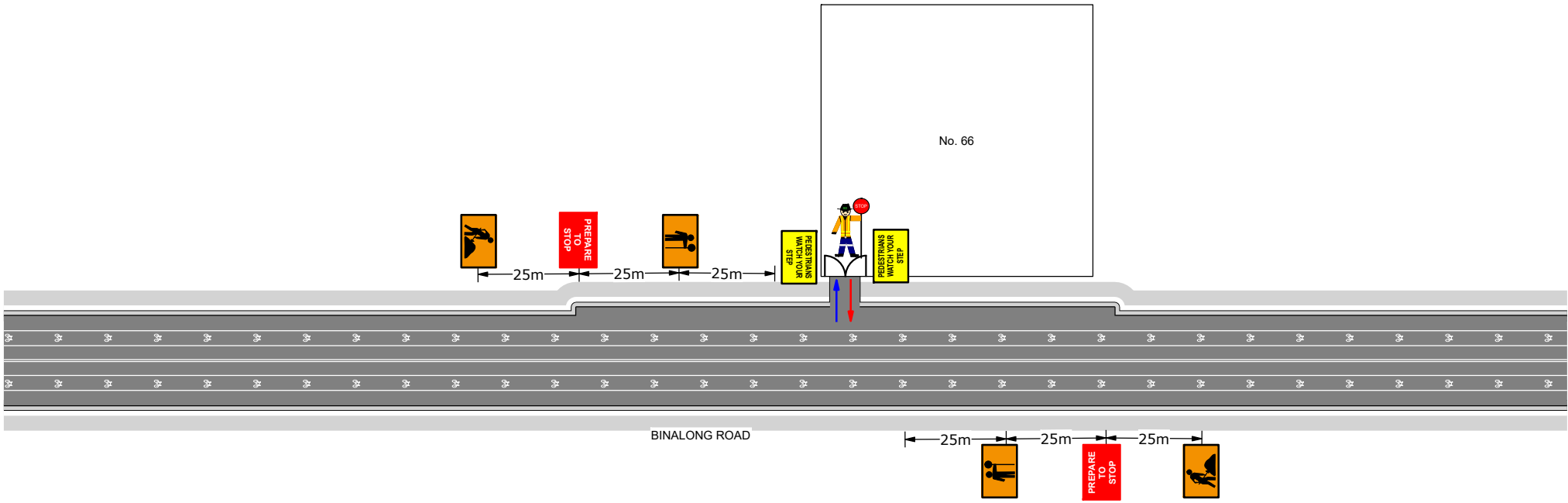
Sheet Subject	9m Heavy Rigid Vehicle SWEPT PATH
---------------	--------------------------------------

Appendix D Traffic Guidance Scheme (TGS)



TGS ID TC211012

Legend	
	Ingress Route
	Egress Route
	Access Gate
	Traffic Controller



CLIENT: TTW		Device Spacing:		Taper Lengths:				This document has been prepared solely as a guide only for traffic management purposes. The traffic planner (TTP) disclaims all responsibility & all liability (including without limitation, liability in negligence) for all expenses, losses, damages & costs. May incur as a result of the information being inaccurate or incomplete in any way, and for any reason, TTP does not accept any responsibility for compliance of this document if set up by others. Some distances not to code due to site constraints. The positions of the signs & equipment are only the suggested locations, as they may need to be revised onsite to improve visibility and/or effectiveness. Figured distances shall take precedence to signage locations. Any changes onsite are to be noted on this document, recorded on the appropriate worksite paperwork and signed off by the site supervisor prior to implementation. All traffic control plans & traffic management plans are copyright and property of TTP & is not transferable unless authorised by TTP. This Traffic Guidance Scheme has been prepared in accordance with AS1742.3-2019 "Traffic Control Devices for Works on Roads", Road Management Act 2004, Code of Practice Traffic Management 2010 & the TNSW Roads and Traffic Control Work Sites (TCAWS) Technical Manual V6.				All approvals/consent documents shall be on site at all times. Traffic controller to wear correctly fitted PPE (personal protective equipment) to AS/NZS 4602 as assess in the site safe work method statements (SWMS), hazard risk assessment. Location of signs shown may be varied slightly during implementation preventing a tripping hazard, improve visibility, effectiveness & not impact on pedestrian walkways (1.2m+ clearance, 1.5m+ curved footpath), cyclists, parking or deliveries unless footpath is closed. Signage is to be class 1 retroreflective signage as per AS/NZS 1742.3-2019. Note that additional traffic controllers/signage may be required. Traffic controller instructions: all traffic management items must be in place prior to the commencement of the works. Onsite traffic management must have their TNSW traffic controller ticket (use the stop-slow bat to control traffic), and TNSW (implement traffic control plans) as a minimum to implement this plan. Traffic controllers will assist local buses & emergency vehicles through the worksite where required. Traffic controllers to remain onsite at all times and ensure the pedestrian and the travelling public's safety at all times. If leaving the site for any reason, they must inform the site supervisor. Pedestrians are to be physically separated from the worksite at all times with para-webbing or similar to ensure they do not walk into the work site, with 'pedestrians watch your step' signage placed on all approaches to work site. Where pedestrians are to come on/off the kerb a non-slip surface ramp per AS1428 be provided by the client. Minimum mounting height for all short term signage should be 200mm.			
PROJECT: 66 Binalong Rd, Toongabbie NSW 2146		Approach speed of Recommended		Existing Speed Limit											
LOCATION: 66 Binalong Rd, Toongabbie NSW 2146		traffic km/h		Taper											
SCOPE OF WORKS: Construction Site Access		max spacing,		Shift Taper											
				Merge											
LCA & MUNICIPALITY: Cumberland City Council		m		45 or less				15							
DATE: 12/10/2021		TCP EXPIRY: 12/10/2022		46 to 55				15							
TMP LICENCE: TCT0041658		TYPE: PWZ		56 to 65				30							
AUTHOR: Kyle Fieg		SIGNATURE: <i>K. Fieg</i>		66 to 75				60							
		All purposes		76 to 85				70							
		≤ 55		86 to 95				115							
		56 to 75		96 to 105				130							
		12		Greater than 105				145							
		18						160							
		2						180							
		At divided road crossovers to transfer traffic to the opposing roadway		Distance between signs:											
				Single sign: 2D for speeds greater than 66 km/h and 1D for speed zones of less than 65 km											
		Protecting freshly painted lines		≤ 75				24							
		Temporary Signposts		≥ 76				60*							
				≤ 70				24							
				≥ 70				60							
				EXISTING POSTED SPEED LIMIT:											
THIS TRAFFIC GUIDANCE SCHEME IS BASED ON THE NSW RMS TCAW MANUAL V6.0 & AS1742.3-2019		Based on AS 1742.3-2009		PLAN SCALE:				SHEET SIZE:							
APPROVALS / PERMITS TO BE ONSITE AT ALL TIMES				NTS				A3							
															

Appendix E Curriculum Vitae



Paul Yannoulatos

Technical Director

BE(Hons) Grad Dip LGE CPEng
paul.yannoulatos@ttw.com.au

Experience

1996 – Current
Technical Director, TTW

1989 – 1996
Executive Engineer - Chief Engineer,
Botany Bay Council

1980 – 1989
Snr Design Engineer, Waverley
Municipal Council

1979 – 1980
Surveying Engineer, Denny Linker &
Co

1978 – 1979
Engineer Surveyor, Panos
Constructions Pty Ltd

Technical Director of Civil and Traffic Engineering at TTW, Paul Yannoulatos has a fervent approach to every project. His work is informed by his experience as a surveyor in local government before he transitioned to engineering in 1980. With 20 years at TTW, Paul's dedication has grown the TTW Civil and Traffic division to be a major player in NSW.

His expertise extends across a folio of sectors including industrial, commercial, education, government projects, expert witness, healthcare, public buildings, parks, residential, subdivisions, traffic and transportation.

Paul has outstanding long-term relationships with both the private and government sectors and has a collaborative approach to ensure that clients receive the target civil and traffic solution.

Healthcare + Research

Southern Cross Care, Turrumurra
Hammondcare - Cardiff, Miranda and
Nerringah
UnitingCare - Haberfield, Edinglassie
Village
Allity Aged Care, Pemulwuy
Catholic Healthcare, Gorman Hill
Bathurst
Estia Health - St Ives Development
Cardinal Freeman Village
Northern Beaches Hospital Masterplan
St Vincent's Research Centre
Hornsby Hospital
Newcastle Strategy – John Hunter,
Belmont and Mater Hospitals
Royal Prince Alfred
Campbelltown Hospital
Wollongong Hospital
Shoalhaven Hospital – Cancer Care
The Tweed Hospital, Tweed Heads
Lismore Hospital Stage 3
Port Macquarie Hospital
Shellharbour Hospital

Education

USyd Faculty of Law
USyd Camperdown Public Domain
CSU Wagga Campus civil and traffic
CSU National Life Sciences Hub
CSU Port Macquarie
USyd Darlington Public Domain
USyd Nanoscience
USyd St Paul's College
Kurrambee School
Trinity Grammar School
Ravenswood School for Girls, Gordon
Rouse Hill School
Glenbrook Primary School
Emanuel School
Charles Sturt University Master Planning
UNSW Bioscience Renewal
UNSW – Scientia (Great Hall), Dalton
Upgrade

Art + Culture

ANZAC War Memorial – new café and
car park
Luna Park – café, carpark and circus
tent

Government + Public

Chatswood Interchange
Lane Cove Council – River Road
improvement
City of Canada Bay Council – Blaxland
Road Marina
Warringah Council – traffic calming
NSW Department of Justice – Newcastle
Courthouse
River and Silverwater Markers Olympic
Park
Parramatta Museum
Taronga Zoo – Eco Retreat, Asian
Exhibit
Blacktown Showground
Camden Police Station
Springwood Community Centre
ACT Prison (Alexander Maconochie
Centre)
Riverstone Village Masterplan
Sydney City Council – Small Parks
projects

Sports + Leisure

Dee Why Multipurpose Sports Centre
Strathfield Golf Course
Sydney Grammar Prep School, multi-
purpose sports court
Abbotsleigh School - multi-purpose
sports hall and hockey fields
Royal Sydney Golf Club



Michael Babbage

Associate

BE(Hons), Road Safety Auditor (Level 1)

michael.babbage@ttw.com.au

Experience

2021 – Current
Associate, TTW

2019 – 2021
Senior Traffic Engineer, TTW

2016 – 2018
Traffic Engineer, TTW

Education

Denistone East Public School
Fort Street Public School
Glenfield High School and SSPs
Hurlstone Agricultural High School
(Hawkesbury)
MLS Building, University of Wollongong
Mulwarree Avenue Student Housing,
University of NSW
Randwick TAFE
Russell Lea Public School
Shore Physical Education Centre
Smalls Road Public School
St Andrew's College, University of Sydney
UTS Insearch Tenancy
New Wright Block, University of New
England

Transport

Ashfield Commuter Car Park
Edgecliff Station TAP Upgrade
Jannali Station TAP Upgrade
Leura Station TAP Upgrade
Merrylands Commuter Car Park
Penrith Commuter Car Park
Sydney Airport Ground Transport
Interchange

Community + Public

Australian Museum Redevelopment
Macquarie Park Cemetery
Mona Vale Surf Life Saving Club
Powerhouse Precinct at Parramatta
Sydney Opera House
Thredbo Alpine Resort
Wagga Wagga PCYC
YMCA Broken Hill

Aged Care

Edinglassie Village
Lark Ellen Aged Care
Opal Seaside, Warriewood
Pemulwuy Aged Care
RFBI Hawkins Village
SCC Cardinal Gilroy Village
Sir Moses Montefiore Jewish Home

Public Domain

Martin Place Renewal Works
Mitchell Street Plaza, St Leonards

Health

Bankstown-Lidcombe Hospital Emergency
Department
Bulli Aged Care Centre of Excellence
Campbelltown Hospital Redevelopment
Stage 2
Concord Hospital Redevelopment Stage 1
Hills Private Hospital
Lismore Hospital
Peninsula Private Hospital
Robina Medical Centre
SAN Clinic Parkway
Shellharbour Hospital Redevelopment
The Tweed Hospital
Wyong Hospital Redevelopment

Commercial + Mixed Use

10 Valentine Avenue, Parramatta
20 Berry Street, North Sydney
21 Harris Street, Pyrmont
60 Union Street, Pyrmont
118 Mount Street, North Sydney
Dicker Data Warehouse and Distribution
Centre
Dural Business Park
NECA Training Facility, Chullora

Accommodation + Residential

61 Lavender Street, Milsons Point
105-115 Portman Street, Zetland
135 Queen Street, Woollahra
700 George Street, Sydney
989-1015 Pacific Highway, Chatswood
Esplanade Norwest
Four Points by Sheraton, Darling Harbour
St Columba's Springwood Planning
Proposal
Sydney Airport Hotel

Retail

Charlestown Square Shopping Centre
Lake Macquarie Fair Shopping Centre
Overseas Passenger Terminal Tenancy 5



Nathaniel Borja

Traffic Engineer

Bachelor of Science in Civil Engineering

Nathaniel.Borja@ttw.com.au

Experience

2019 – Current
Traffic Engineer, TTW, Sydney

2018 – 2019
Transport Engineer, Campbelltown City Council, Campbelltown

2016 – 2018
Transport Engineer, DCE, Abu Dhabi, UAE

2013 – 2016
Transport Engineer, CRTCL, Abu Dhabi, UAE

2012 – 2013
Estimation Engineer, Smartbox, Dubai, UAE

2010 – 2011
Quantity Surveyor, CAPPMC, Abu Dhabi, UAE

2007 – 2009
Quantity Surveyor, City Engineering, Dubai, UAE

Accreditation

Transport for NSW Prepare a Work Zone
Traffic Management Plan Accreditation –
Card No. TCT1007469

Accommodation + Residential

19-27 Cross Street, Double Bay
Cardinal Gilroy Village, Merrylands West
Majestic Apartments, Rouse Hill
Baxter Road Hotel, Mascot

Community + Public

Sydney Football Stadium, Sydney
Ryde Central, Ryde
Luna Park, Milsons Point
Sydney Airport, Sydney
Brookvale Oval, Brookvale
St. Bartholomew's Cemetery, Prospect

Commercial

458-468 George Street, Sydney
700 George Street, Sydney
1 Eden Park Drive, Macquarie Park
The Bond, Bella Vista

Education

Smalls Road Public School, Ryde
Pendle Hill High School, Toongabbie
Carlingford West Public School, Carlingford
Cumberland High School, Carlingford
Parramatta East Public School, Parramatta
Macquarie Boys Technology High School, Parramatta
Greenwich Public School
- Kingslangley Road Campus and
Greenwich Road Campus, Greenwich
UNSW Village Green, Kingsford
UNE, Parramatta

Health

Concord Hospital, Concord
Liverpool Hospital, Liverpool
Heslop, Mount Druitt
Buronga HealthOne, Buronga
Wyong Hospital, Wyong
Sutherland Hospital, Sutherland
Bankstown-Lidcombe Hospital, Bankstown



Amir Lahouti

Traffic Engineer

BE (Civil Engineering), MS (Civil Engineering)

amir.lahouti@ttw.com.au

Experience

2021 – current
Traffic Engineer,
TTW Sydney

2019 – 2021
Traffic Engineer,
ML Traffic Engineers

Education

Cronulla High School Redevelopment
TAFE St. Leonard's Redevelopment
Norwest High School
Childcare Centre, 31-35 Atchison Street,
Wollongong

Health

Wollongong Private Hospital
Redevelopment
Best Road Medical Centre
Mount Wilga Private Rehabilitation
Hospital
Southern Cross Care Marian Nursing
Home
Bupa Aged Care, Baulkham Hills

Retail

Shell Coles Express, Baulkham Hills
Betta Home Living, Villawood
7-Eleven Petrol Station, Towradgi

Commercial + Mixed-Use

Double Gold Stone Macquarie Park
Timezone Villawood
IGA Northmead
Austral Bowling Club
Ryde Sports Community Centre

Residential

South Village Kirrawee
18-24 Murray Street, Northmead

Industrial

Storage King North Parramatta
City Beach Properties