

4.4 Traffic controllers

Traffic controllers will be used to stop traffic on the public streets and accesses to allow trucks to enter or leave the site. Where possible, vehicles must enter and exit the site in a forward direction. 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 have the right-of-way. Vehicles entering, exiting, and driving around the site will be required to always give way to pedestrians.

The proposed locations for traffic controllers are shown in **Figure 4–2**, including two temporary accesses.

Figure 4–2 Proposed locations for traffic controllers



Truck movements to site will be managed so that if trucks arrive, the driveway will be sufficiently clear so that they can enter site without queuing in the road network. This will be managed by site managers and traffic controllers.

Road Occupancy Licenses will be applied for the following approval for locations where traffic control is required. A detailed traffic control plan (TCP) is included in **Appendix B**.

5.0 Driver Code of Conduct

Drivers are to abide by this code of conduct.

Table 5-1 Driver code of conduct

Requirement	Details
Legal	<ul style="list-style-type: none"> – Drivers shall be appropriately and currently licensed – Drivers are to be aware of and abide by the Road Rules 2014 (NSW) – Where fitted, seat belts must be worn at all times whilst operating equipment – Parking shall be in designated areas in accordance with posted signage and road line marking where provided – At all times drivers shall maintain a safe speed whilst taking into account nominated speed limits, weather conditions and site signage – Drivers shall comply with signposted load limits – Drivers shall be aware of pedestrian crossings and give way to pedestrians
Environment	<ul style="list-style-type: none"> – Drivers shall only arrive at the site at authorised delivery times – Deliveries are to be scheduled with the shift supervisor – Drivers shall ensure loads are covered when delivering products or leaving the site with a full load – Drivers shall arrange for the clean-up of any spillage emanating from the truck e.g. due to overloading, sprung tail gates – Drivers shall ensure there are no unauthorised discharges into adjacent drains or waterways – Compression brakes must not be used within the suburb of Wentworth Point – Trucks to avoid idling near schools, shopping centres and schools
Haulage routes	<ul style="list-style-type: none"> – All haulage trucks travelling to and from the site will do so via Hill Road and Burroway Road only. – Truck traffic must not use Wentworth Place, Footbridge Boulevard or other minor residential streets. – Trucks are to conduct a U-turn on site and not in the public road network. – Trucks are to enter and leave the site in a forward direction. – Heavy vehicle use of Burroway Road to be av during school pick up and drop off hours (8.00-9.30am and 2.30-4.00pm).
Site management	<ul style="list-style-type: none"> – Drivers will be inducted from the site prior – Drivers are authorised to enter the site to carry out their allocated tasks. Access to other areas of the plant is prohibited – Walk, don't run; beware of slip, trip and fall hazards, especially when exiting a vehicle – Drivers are to inform the shift supervisor of any incidents as soon as safely achievable

6.0 Construction Worker Transportation Strategy

6.1 Provision of car parking

Landcom and SINSW have collaborated to allow the use of NSW Government land to house construction worker parking for the duration of the project delivery. Land designated as “SOPHS Construction Compound” in **Figure 6–1** has been agreed for construction worker parking.

Figure 6–1 Construction worker parking layout



Source: Roberts Co, 2022

The site will allow for a total of 300 workers to park on site, which is the maximum number of workers expected to visit site at the peak of construction.

This is sufficient for construction worker parking and will be the most attractive option. Located immediately adjacent to the site, it will be more attractive than other parking options and will not be time restricted or paid parking. As a result, there is no expected overspill parking demand on-street or in other car parking lots in the peninsula.

6.2 Use of walking, cycling and public transport to access site

Construction workers will be encouraged use public transport to access site, reducing the impact on the road network and local parking demands.

Figure 6–2 shows the public transport network in the vicinity of the site. Bus route 526 provides connectivity to Sydney Olympic Park and Rhodes Train Stations.

Figure 6–2 Public transport network



Source: Transport for NSW

The Baylink shuttle network provides connectivity to the Sydney Trains rail network in Rhodes (Figure 6-3). The Baylink shuttle is a privately funded service so may not continue in operation.

Figure 6-3 Baylink shuttle network



Source: Baylink Shuttle, 2022

This will not result in any increase in on-street parking or demand for other parking facilities in the area.

7.0 Conclusions

With the majority of construction movements occurring outside of the busiest peak periods, the transport network is expected to have sufficient capacity to accommodate the additional traffic movements. With the proposed management measures, the impacts on other road users are mitigated.

APPENDIX A

CVs



Jonathan Busch

ASSOCIATE DIRECTOR

“Great transport and great places are impossible to separate”

Qualifications

Bachelor of Engineering (Civil) (Hons)(Adv)
Bachelor Commerce (Fin)
CPEng | NER

Affiliations

Member, Engineers Australia

Referees

Ryan Thoroughgood
Senior Project Director
School Infrastructure NSW
Ryan.Thoroughgood7@det.nsw.edu.au
0418 336 016

Edmond Platon
Network Development Leader
Greater Sydney
Transport for NSW
edmond.platon@transport.nsw.gov.au
0466 312 054

With over a decade of experience in transport advisory, Jonathan Busch has worked at major engineering consultancies (AECOM & Cardno) and for TfNSW. Jonathan is a project manager, director, and technical lead, having a breadth of experience in complex projects such as Camperdown Health and Education Precinct Transport Study, Royal Prince Alfred Redevelopment, Bays Precinct, over a dozen new or expanded school projects, WestConnex Stage 1b tender traffic modelling, Sydney Light Rail, Parramatta Light Rail, and program management of transport for land use change led by NSW Government proponents.

Jonathan has significant expertise in understanding the value and role of planning in delivering customer outcomes that have been delivered. His work on WestConnex Stage 1b LSJH tender in Vissim contributed to the tenderer's innovative design at Concord ramps, which offered NSW a significant value-add compared with the reference design and is now constructed.

With over a dozen school projects and three hospital projects, he understands the challenges in preparing tailored designs to unique user requirements. As a chartered and nationally registered traffic engineer, Jonathan draws on both engineering and behavioural designs to solve complex problems.

Areas of Expertise

- Program management with diverse stakeholders
- Transport for land use change policy leadership
- Multi-modal strategic and detailed transport planning for places and corridors
- Communication
- Project management of dynamic projects.

Key Projects

- NSW Schools Expansion Transport Assessment | SINSW
- RPA Hospital Redevelopment, Camperdown | Health Infrastructure NSW
- The Bays Precinct Transport and Mobility Plan | UrbanGrowth
- Parramatta Light Rail Transport Integration Modelling Advisory | TfNSW
- Greater Parramatta & Olympic Peninsula Program (GPOP) Strategic Case | TfNSW
- Springhill Masters Roads Traffic Modelling | TfNSW
- Parramatta Outer Ring Road Problem Definition Report | TfNSW
- Double Bay Pedestrianisation Study | Woollahra Council
- WestConnex M4 East Tender | LSJH Consortium
- Sydney Airport Ground Access Solutions | Sydney Airport
- Planned Precincts and Growth Areas | TfNSW
- Brisbane Bus and Train Tunnel EIS | Brisbane City Council
- Western Sydney GIC Project Management | TfNSW CSP
- Intelligent Congestion Management Program | Transport Management Centre
- Rouse Hill LLGPT Northern Residential Planning Proposal | GPT
- Newcastle Minmi Estate Land and Environment Court Proceedings | Winten Property Group

Relevant Experience

Project
NSW School Expansion & New Builds

Role
Project Director & Technical Lead

Client
School Infrastructure NSW

Time Period
2019-2022

- SINSW) is overseeing a once in a generation investment into school expansion, which includes expansion or new builds across Greater Metropolitan Sydney;
- Jonathan has led a technical team to provide transport planning and traffic assessment services for more than 14 primary and high schools;
- Provided rapid transport assessment using spatial analytics and focusing on behaviour change programs, transport impact assessment to support Planning Proposals, Traffic Access Impact Assessments, Transport Access Guides and School Travel Plans, swept path assessments and extensive stakeholder consultation.

Project
RPA Hospital Redevelopment

Role
Project Manager

Client
Health Infrastructure NSW

Time Period
2019-2021

- Project Manager for the development of the transport, traffic and parking plan for the expansion of the Royal Prince Alfred Hospital. NSW Government has committed \$750m to the expansion of the hospital, which will have major impacts on traffic volumes, parking demand and pedestrian flows.
- The transport, traffic and parking plan will support the overall Precinct Plan by setting out clear proposals for better access to the hospital campus, including better public transport access;
- The plan has recently been endorsed by senior stakeholders, including the Chief Executive of the Sydney Local Health District, and now forms the basis for the next phase of implementation in consultation with TfNSW, City of Sydney and Inner West Council.

Project
The Bays Precinct Transport and Mobility Plan

Role
Deputy Project Director & Program Manager

Client
UrbanGrowth

Time Period
2015-2017

- Development of leading policy advice in context of significant planning uncertainty, multiple industry interfaces (ports, maritime, road project delivery, property and Government developer) and diverse stakeholders.
- Google negotiations advisor (responses to term sheet, led development of TfNSW advice and negotiations presentation material).
- Management of over \$2m with multiple consultants within agreed budgets.
- Managed cabinet reporting.
- Advice on methodology to determine feasible development within different transport scenarios.

Project
Parramatta Light Rail Network
Management Strategy

Role
Transport Planning Lead and Project Manager

Client
Transport for NSW

Time Period
2017

- Parramatta Light Rail Stage 1 received project approval by the Minister for Planning, which included several conditions which need to be satisfied. Planning condition E10 in the conditions of approval is for a Network Management Strategy. The strategy is complete but confidential.
- Project managed the preparation of the strategy, working closely with the client to shape manage timeframes, deliverables, and expectations.
- Led preparation of (and contributed to) a network management strategy, which considered all modes of transport in the area affected by the project as well as construction details.
- Worked with diverse stakeholders to agree on contents of the strategy.

Curriculum Vitae

Tim Emslie
Tel: 0417 467 814
Email: tim@whodares.com.au



QUALIFICATIONS

- Advanced Diploma of Events (Credit Level) – Northern Sydney Institute (Ryde TAFE) 2015
- Bachelor of Music (Contemporary Performance) - The Australian Institute of Music; Sydney NSW, 2007-2009
- Several credits and distinctions towards partial completion of a Bachelor of Computer Science (Games Technology) with - Charles Sturt University; Bathurst NSW, 2005-2006
- Higher School Certificate St Ignatius College, Riverview; Sydney NSW, 1998-2004
- NSW Drivers Licence (Class C)
- Forklift Licence
- First Aid Certificate

INTERESTS

- Long distance cycling and trail running
- Ride organiser for the Audax Australia long distance cycling club since 2011
- Hiking and camping

Tim Emslie

SENIOR EVENTS MANAGER

Personal statement

I have eight years of experience in a broad variety of roles involving events management. I tackle every new task with enthusiasm and drive, and I aim to achieve excellence in event management through attention to detail and a desire to create a memorable and safe experience for participants, volunteers and staff members alike.

Each event has its unique challenges that require nimble thinking and team work to overcome unforeseen circumstances.

Key experience

Planning and permitting of large scale outdoor events

Liaison with sponsors and participants

Event supplies and documentation

Event execution and reporting

Current employment

Senior Events Manager

Who Dares

February 2017 - Current



Who Dares is a leader in the field of traffic planning and management. Our reputation for excellence is founded in our technical expertise, ability to manage risk, extensive experience and resourcefulness. Who Dares is able to deliver traffic planning and risk assessments for complex, large scale, multi stake holder events as well as the film and television industry.

My key responsibilities include:

- Meeting clients, establishing the client's needs, developing a plan that will satisfy those needs and costing the planning and implementation of the plan.
- Developing and writing plans, organising resources and managing the deployment of resources including very large teams of workers.
- Liaising with stakeholders and government agencies to obtain approvals.
- Filing debrief reports and attend post event meetings to support and promote continual improvement.

Previous employment

Field Operative

Moreton Hire

January 2016 – February 2017

As a Field Operative I have gained experience bumping in/out a wide range of different events in various venues all over Sydney and Regional NSW. The scale of these setups start at something as simple as a small furniture delivery right through to multi day exhibition and outdoor event builds.



Event Operations Assistant

Oxfam Australia

June 2016 to September 2016

My key responsibilities include:

- Supporting the Events Operations Coordinator to manage on the day delivery of the Trailwalker event including the implementation of event plans and operational plans
- Book event staff, accommodation, flights and event vehicles



Event Coordinator; Corporate Orientations and Outreach Coordinator; and Ride Guide roles

CauseForce Australia

Oct 2011 – Nov 2015

I have four years' experience in event organisation with CauseForce Australia and during this time I was promoted to the role Sydney Event Coordinator for the 2-day Ride to Conquer Cancer & The Weekend to End Women's Cancers.

My time at CauseForce has given me an excellent understanding of the requirements needed for the successful execution of a major multi-day event including thorough planning, good communication, teamwork and running to schedule. I commenced as a Ride Guide in October 2011 making registration and support calls to participants. In 2012, I moved into the role of Orientations and Outreach Coordinator, running all the orientations for the Sydney Event Sched In September 2013, I was promoted to Event Coordinator for the Sydney Ride and Walk events. I designed a completely new course for both events which required negotiation with local councils and close coordination with NSW Police and Traffic Management consultants. I presented details of the planned event to the NSW Department of Premier and Cabinet for approval.



In September 2013, I was promoted to Event Coordinator for the Sydney Ride and Walk events. I designed a completely new course for both events which required negotiation with local councils and close coordination with NSW Police and Traffic Management consultants. I presented details of the planned event to the NSW Department of Premier and Cabinet for approval.



SafeWork NSW

WORK HEALTH & SAFETY
TRAFFIC CONTROL WORK

**Timothy Scott
EMSLIE**

Card No:
TCT0073149

D.O.B:



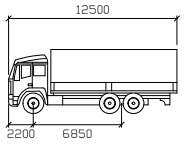
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30/05/2017

Type of traffic control work:
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NEW SOUTH WALES

APPENDIX B

Swept Path Assessment



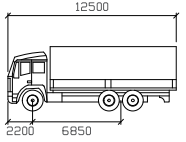
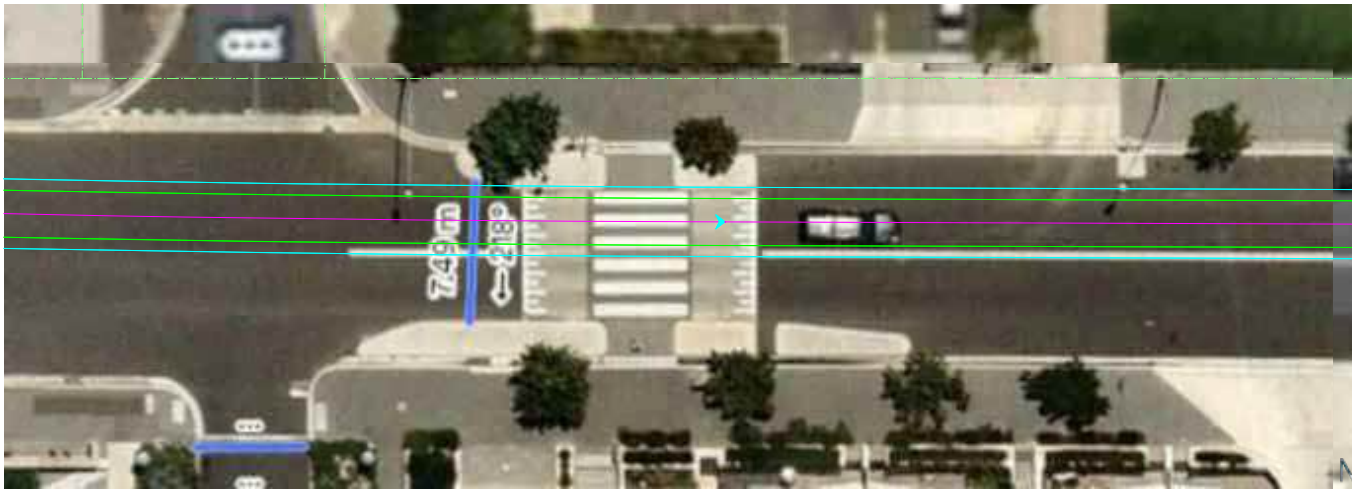
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HRV

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Track : 2500
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Steering Angle : 36.7







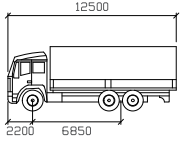
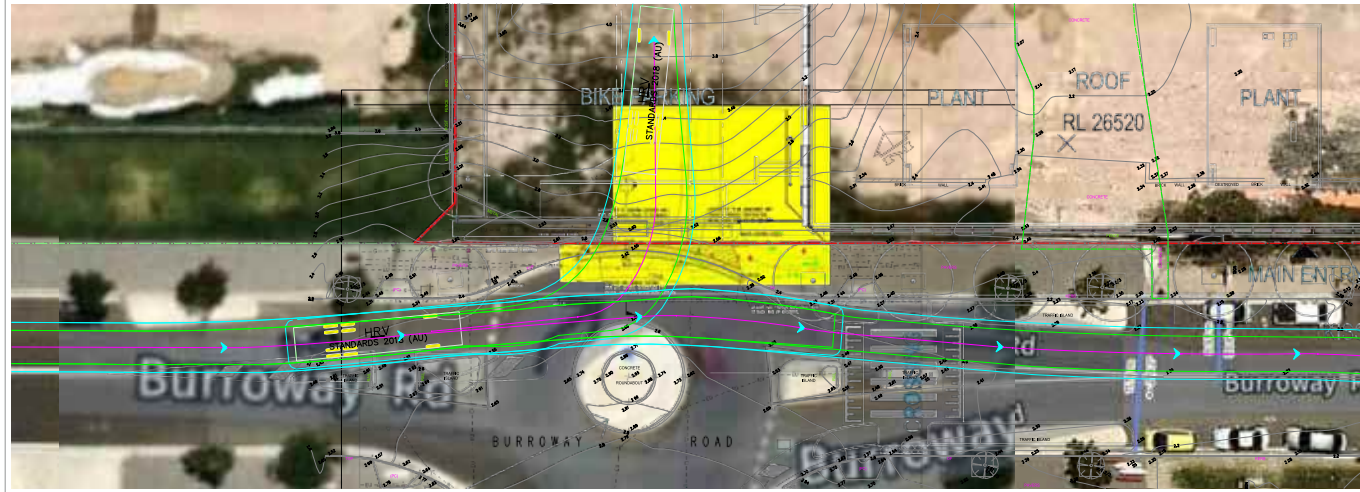
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			REVIEWED	J.B				
			AUTHORISED	X.X				
							DRAWING NUMBER SCT_00265-01-001	
							SHEET 01 OF 16	



HRV
mm
Width : 2500
Track : 2500
Lock to Lock Time: 6.0
Steering Angle : 36.7



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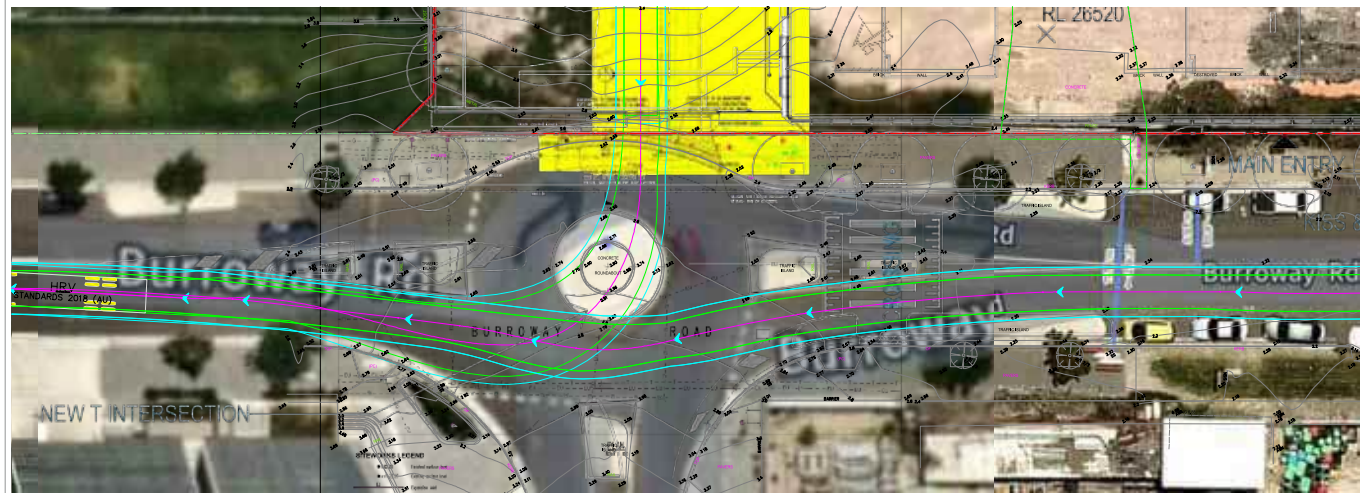
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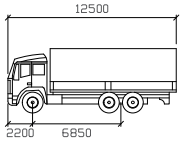
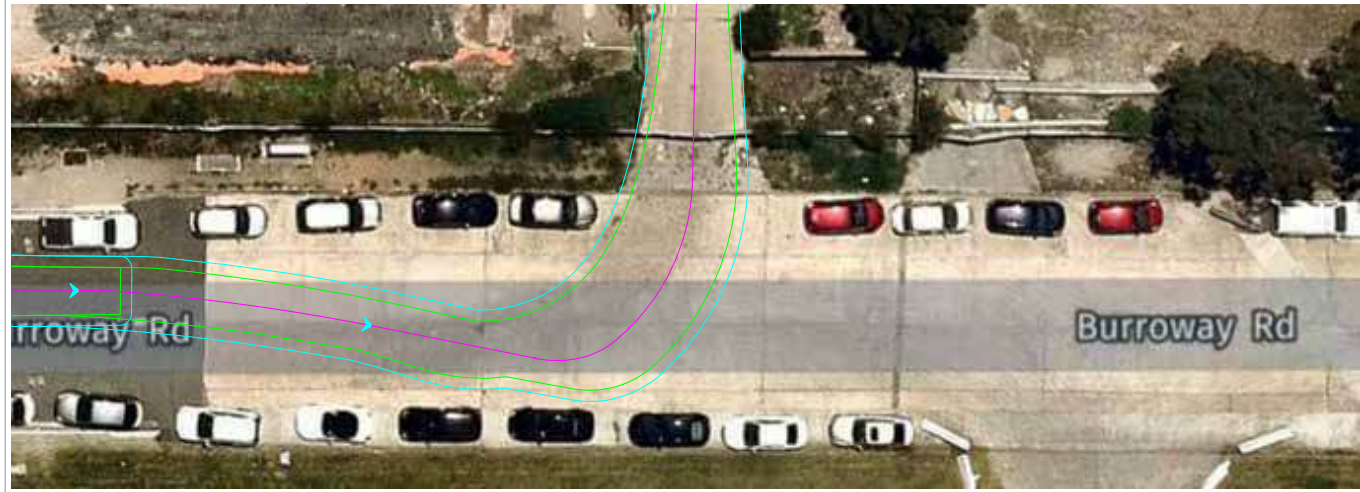
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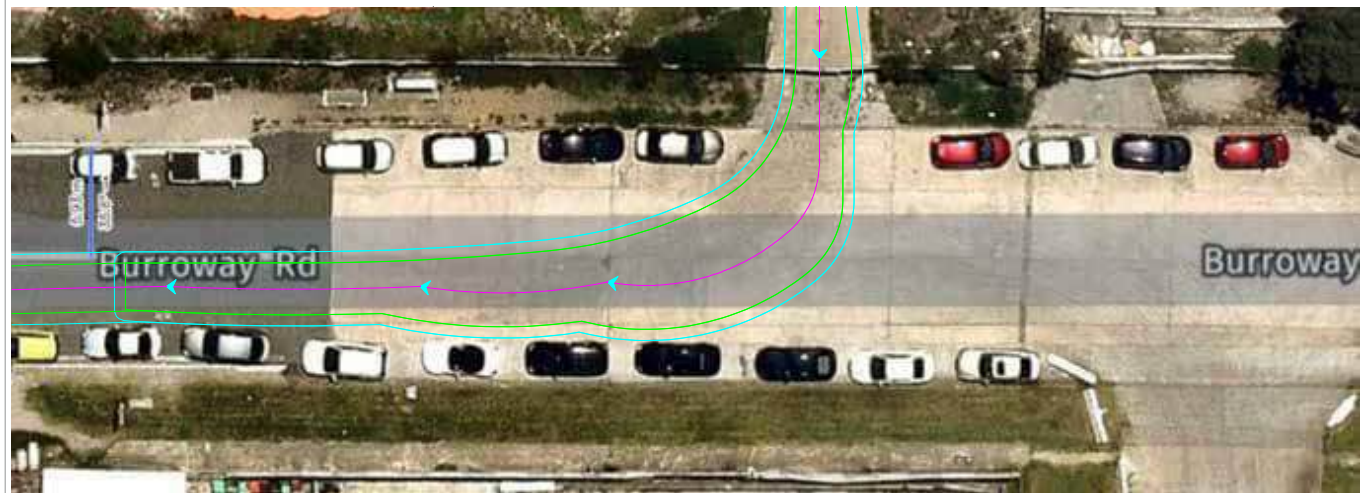





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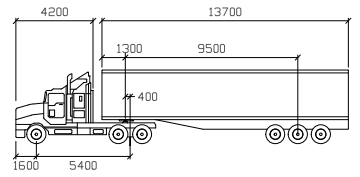


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Track : 2500
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Steering Angle : 36.7







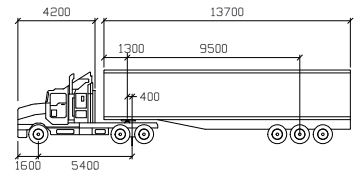
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AV

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Tractor Track	: 2500	Articulating Angle	: 70.0
Trailer Track	: 2500		

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QUALITY INFORMATION	
DATE	11/02
PREPARED	S.C
REVIEWED	J.B
AUTHORISED	X.X

SCALE - X:XX

PROJECT
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Construction Traffic Management Plan

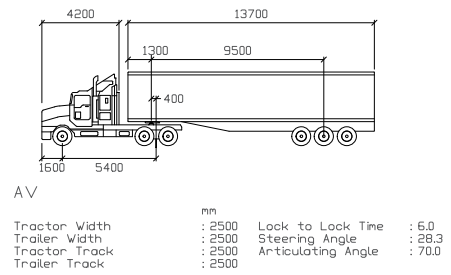
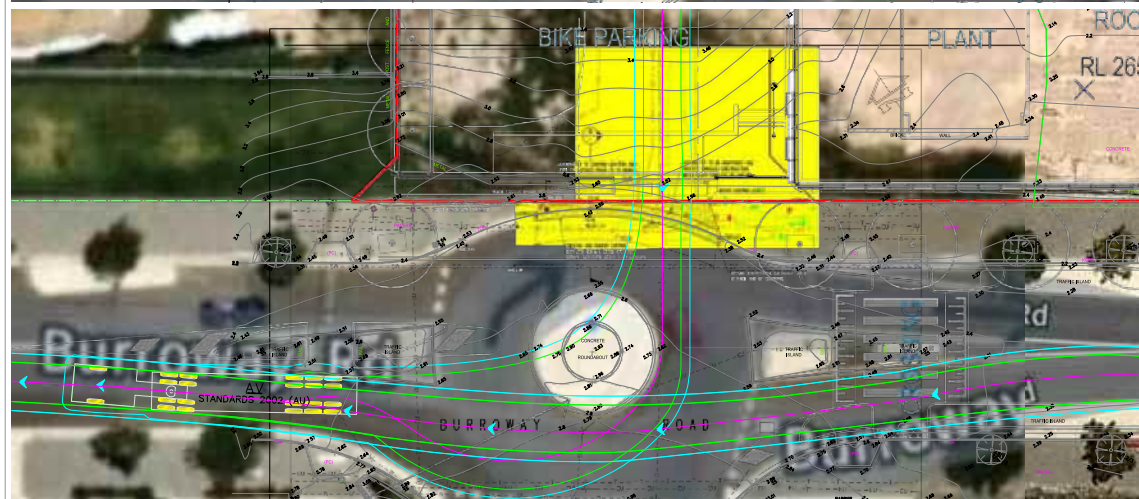
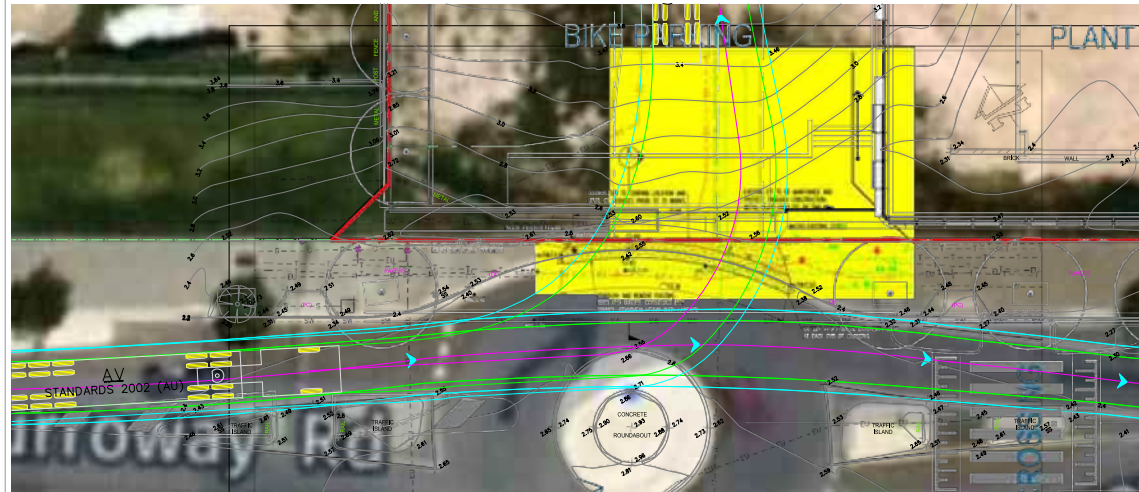
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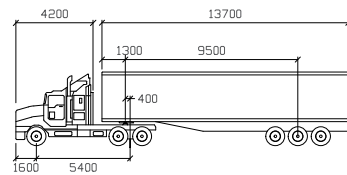
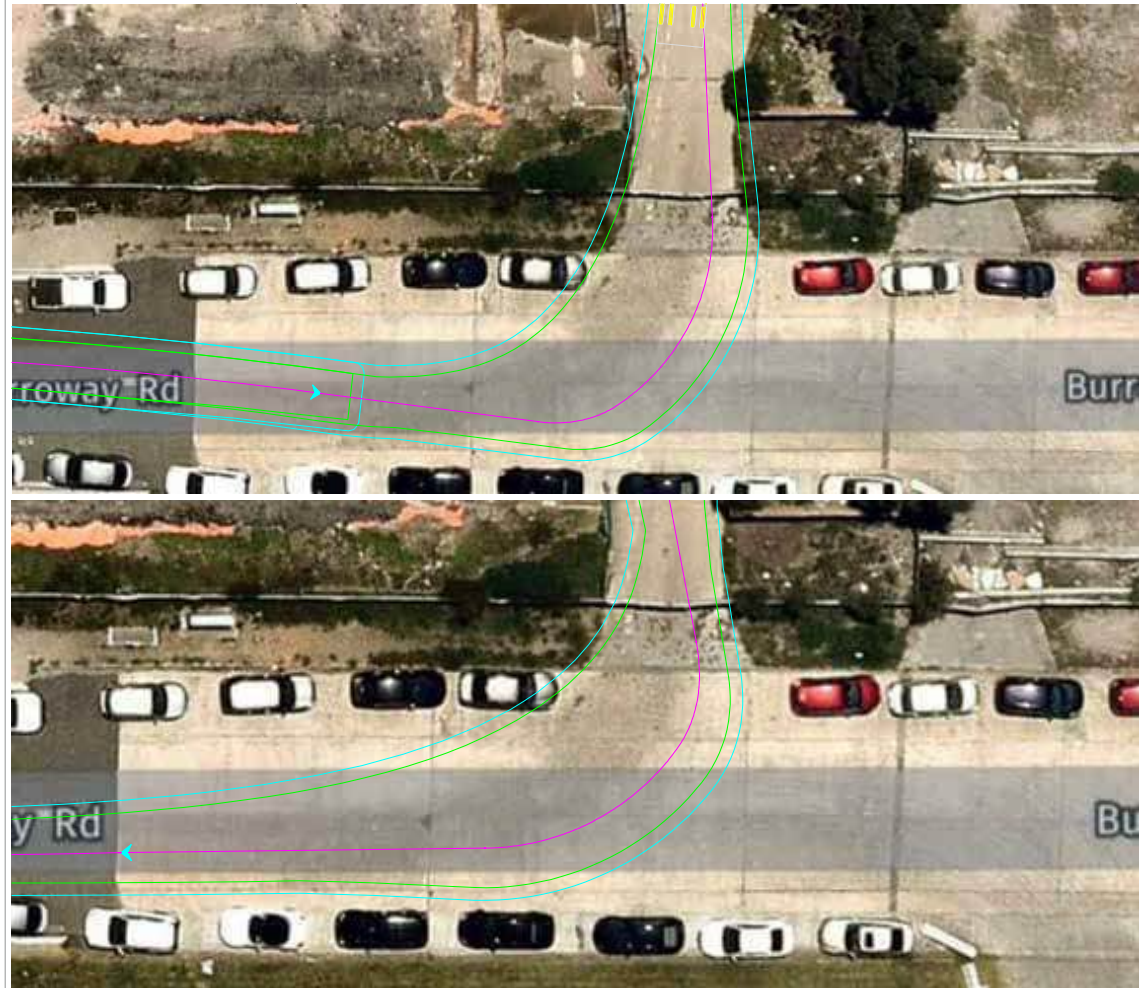
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A3



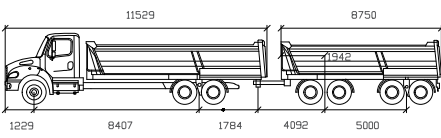
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					SHEET 07 OF 16			A3		



A V

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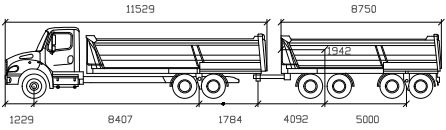


Kenworth T880 MX (Short) Hood_Config 3

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 First Unit Track: 1784 mm
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 Articulating Angle: 70.0°







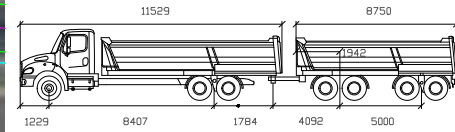
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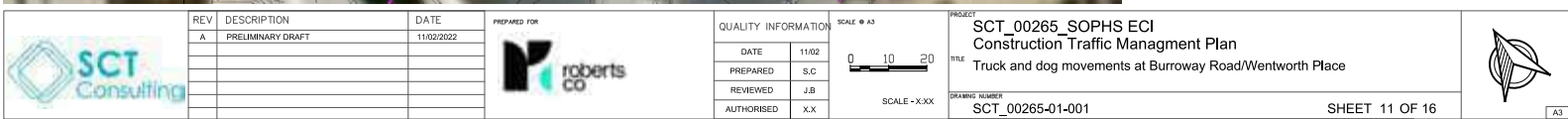
Kenworth T880 MX (Short) Hood_Config 3

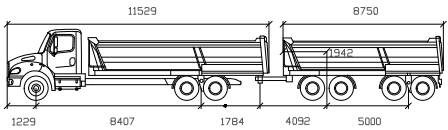
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Articulating Angle: 70.0

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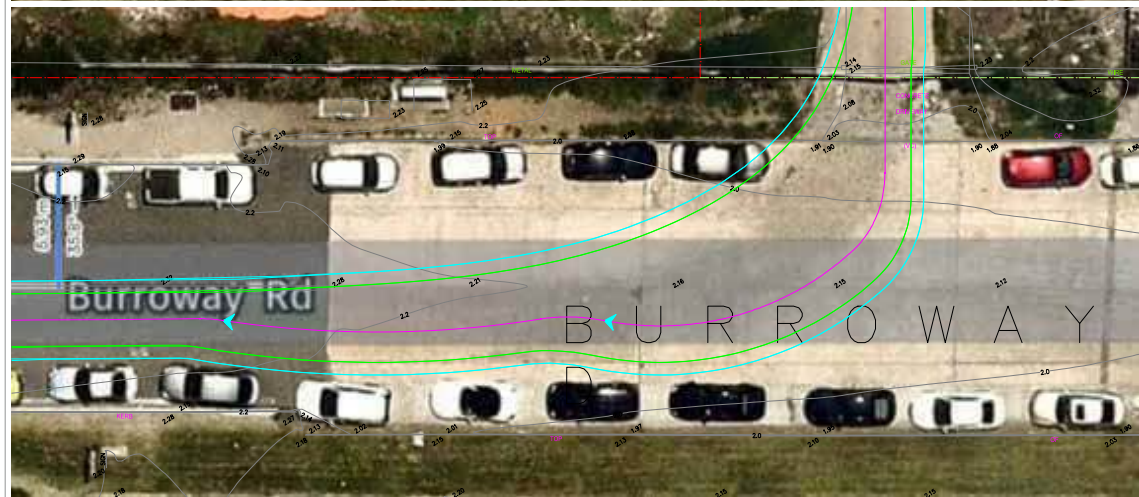
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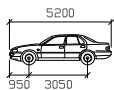
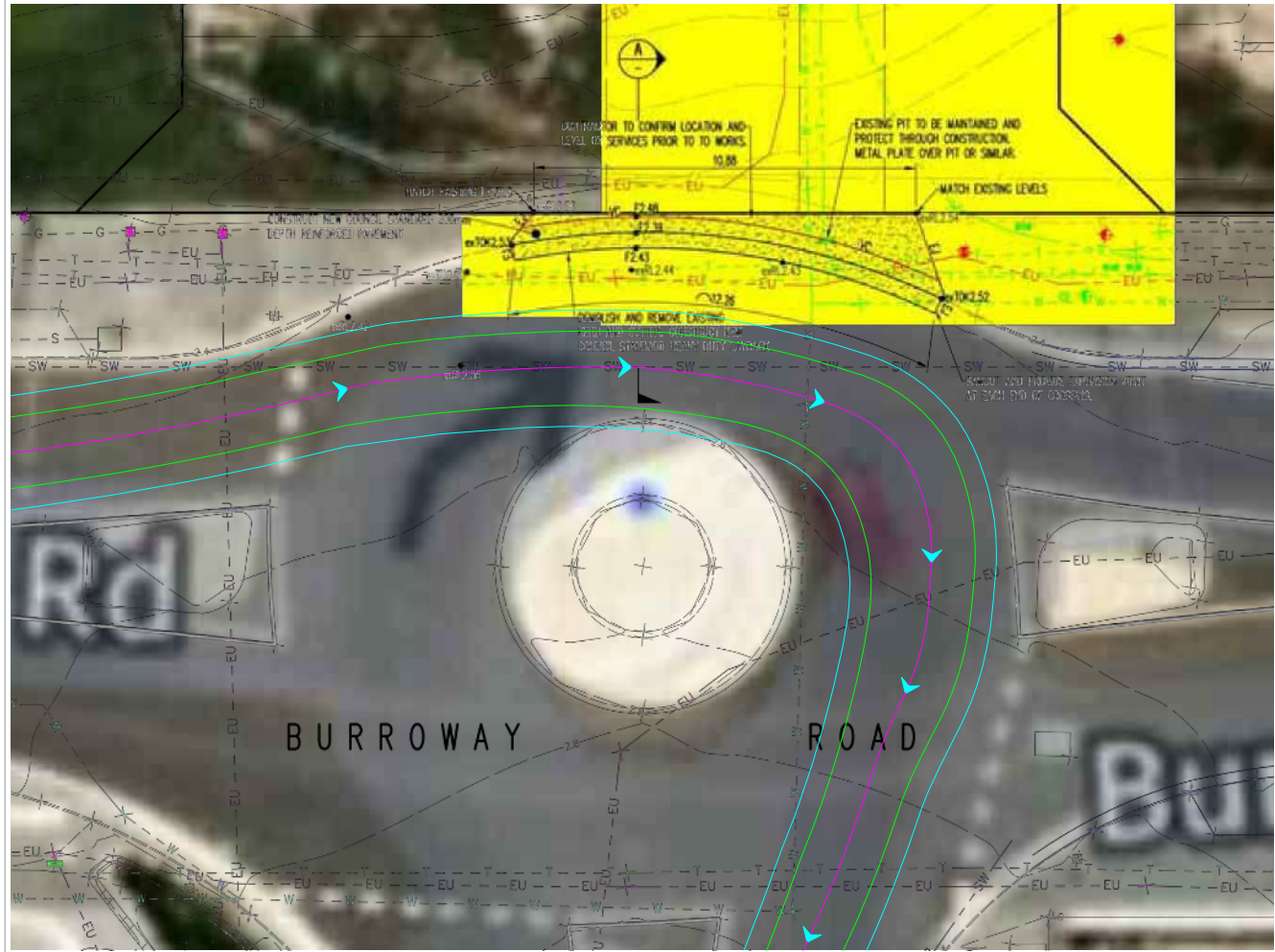


Kenworth T880 MX (Short) Hood_Config 3




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First Unit Track: 500
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Articulating Angle: 70.0

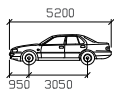


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					REVIEWED	J.B					
					AUTHORISED	X.X					






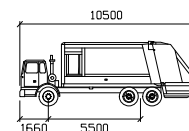
B99
Width : 1940 mm
Track : 1840 mm
Lock to Lock Time: 6.0
Steering Angle : 33.9

						
REV	DESCRIPTION	DATE	QUALITY INFORMATION	SCALE @ A3	<div>PROJECT SCT_00265_SOPHS ECI Construction Traffic Management Plan B99 right turn movement at Burroway Road/Wentworth Place</div> <div>DRAWING NUMBER SCT_00265-01-001</div> <div>SHEET 14 OF 16</div>	
A	PRELIMINARY DRAFT	11/02/2022	DATE 11/02	0 10 20		
			PREPARED S.C	SCALE - XXX		
			REVIEWED J.B			
			AUTHORISED X.X			



B99
Width : 1940
Track : 1840
Lock to Lock Time: 6.0
Steering Angle : 33.9

						
REV	DESCRIPTION	DATE	QUALITY INFORMATION		PROJECT	
A	PRELIMINARY DRAFT	11/02/2022	DATE	11/02	SCT_00265_SOPHS ECI	
			PREPARED	S.C	Construction Traffic Management Plan	
			REVIEWED	J.B	B99 right turn movement at Burroway Road/Wentworth Place via opposing lane	
			AUTHORISED	X.X	DRAWING NUMBER	
					SCT_00265-01-001	
					SHEET 15 OF 16	

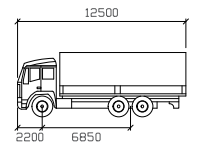
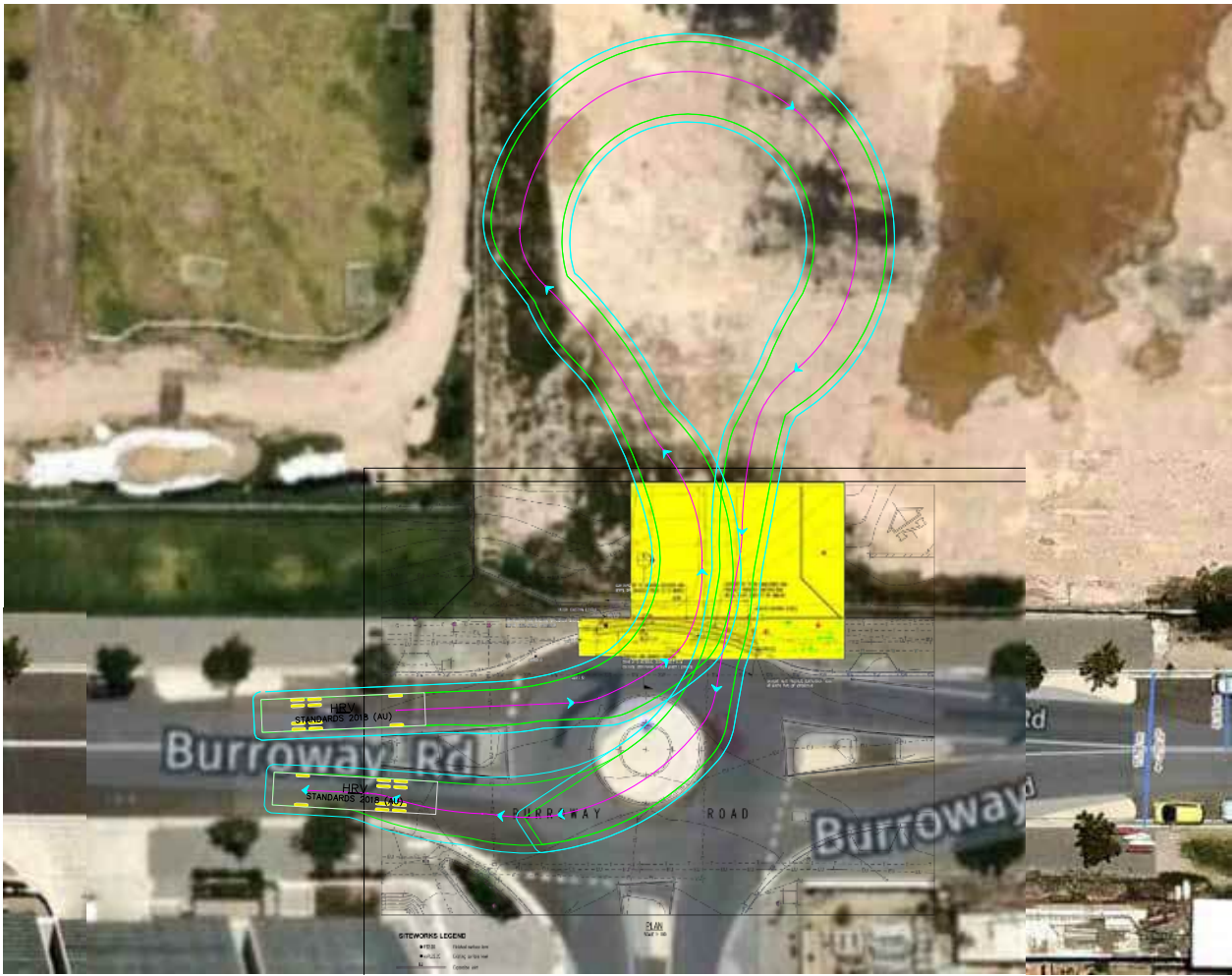


	mm
Width	: 2500
Track	: 2500
Lock to Lock Time	6.0
Steering Angle	: 36.5

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TITLE	Waste truck right turn movement at Burroway Road/Wentworth Place	
DRAWING NUMBER	SCT 00265-01-001	SHEET 16 OF 16



A5



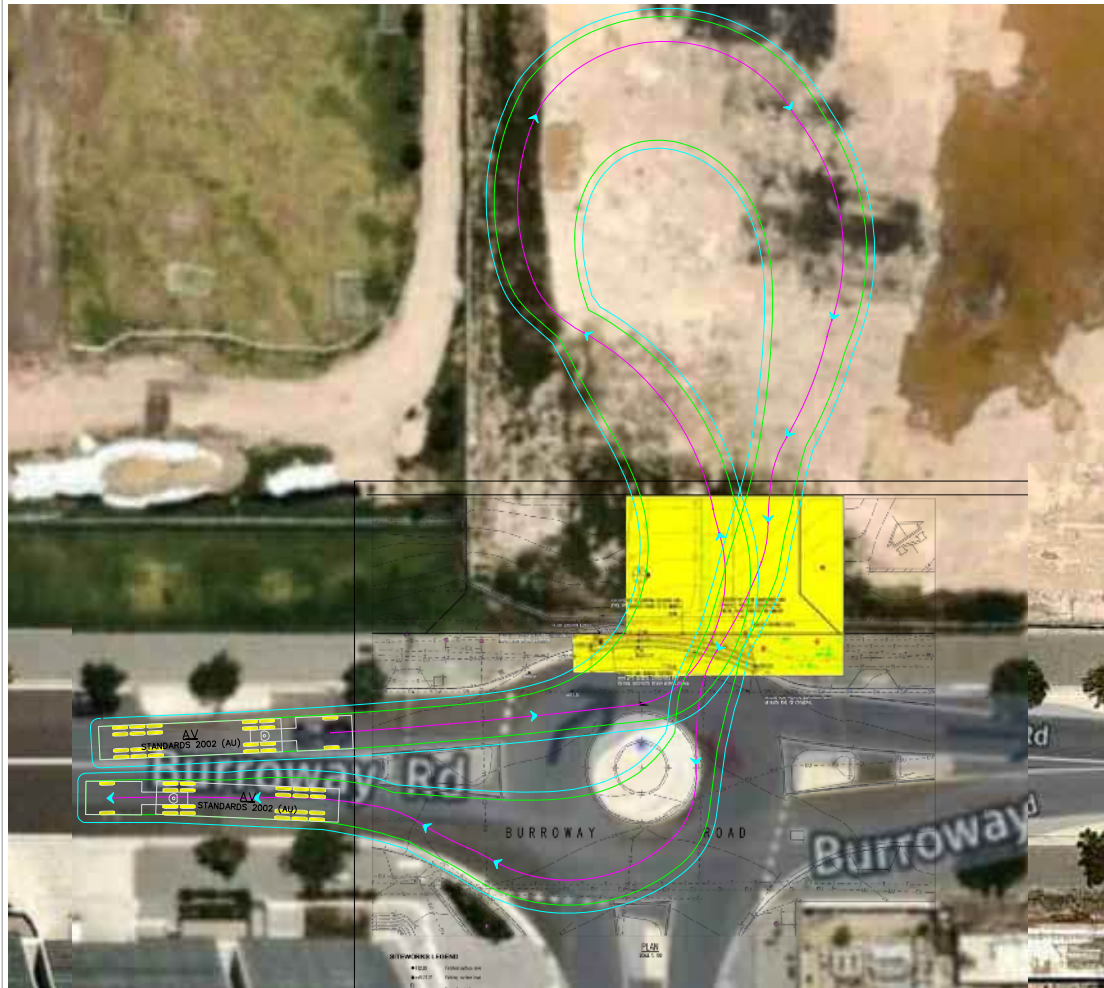
HRV

Width : 2500
Track : 2500
Lock to Lock Time : 6.0
Steering Angle : 36.7

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				PREPARED S.C	
				REVIEWED J.B	
				AUTHORISED X.X	
			PROJECT		
			SCT_00265_SOPHS ECI		
			Construction Traffic Management Plan		
			TITLE		
			HRV internal movement		
			DRAWING NUMBER		
			SCT_00265-01-002		
			SHEET 01 OF 03		



	mm		
Tractor Width	: 2500	Lock to Lock Time	: 6.0
Trailer Width	: 2500	Steering Angle	: 28.3
Tractor Track	: 2500	Articulating Angle	: 70.0
Trailer Track	: 2500		



REV	DESCRIPTION	DATE
A	PRELIMINARY DRAFT	15/02/2022

PREPARED FOR



QUALITY INFORMATION	
DATE	15/02
PREPARED	S.C
REVIEWED	J.B
AUTHORISED	X.X

SCALE 9 A3



SCALE - X:XX

1000000

SCT_00265_SOPHS ECI
Construction Traffic Managment Plan
Semi trailer internal movement

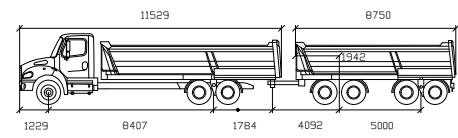
DRAWING NUMBER

SCT 00265-01-002

SHEET 02 OF 03



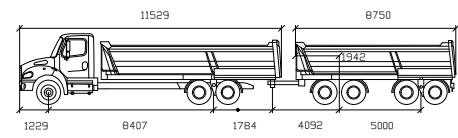
A3



Kenworth T880 MX (Short) Hood_Config 3

First Unit Width: 2502
Trailer Width : 2500
First Unit Track: 2500
Trailer Track : 2500
Lock to Lock Time: 5.0
Steering Angle : 38.2
Articulating Angle: 70.0

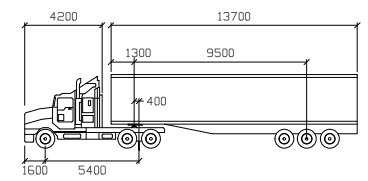
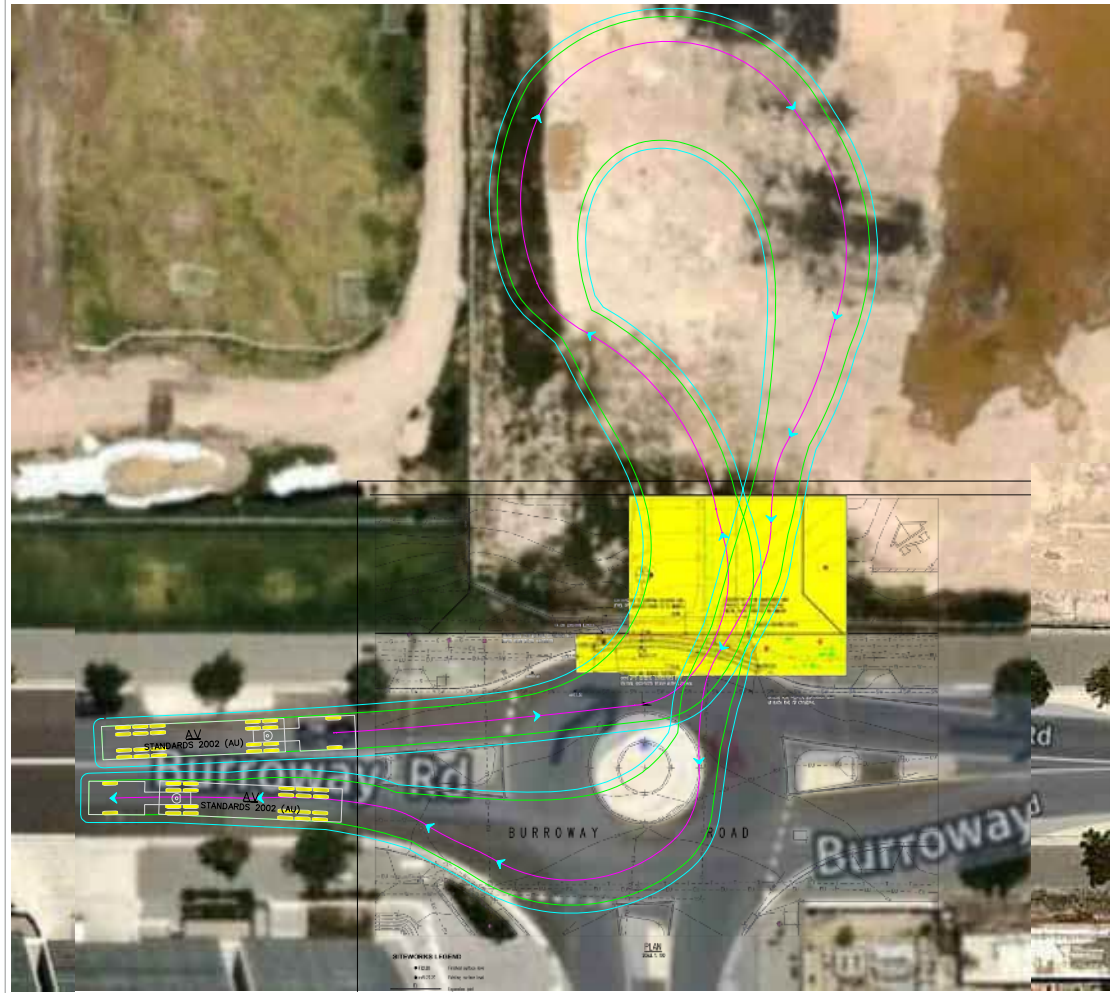
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	A	PRELIMINARY DRAFT	15/02/2022		DATE	15/02			
					PREPARED	S.C			
					REVIEWED	J.B			
					AUTHORISED	X.X			



Kenworth T880 MX (Short) Hood_Config 3

First Unit Width: 2502
 Trailer Width : 2500
 First Unit Track: 2500
 Trailer Track : 2500
 Lock to Lock Time: 5.0
 Steering Angle : 38.2
 Articulating Angle: 70.0

	REV	DESCRIPTION	DATE		QUALITY INFORMATION		SCALE: A3 SCALE: 1:XXX	PROJECT SCT_00265_SOPHS ECI Construction Traffic Management Plan TITLE Truck and dog internal movement DRAWING NUMBER SCT_00265-01-002		SHEET 03 OF 03 A3
	A	PRELIMINARY DRAFT	15/02/2022		DATE	15/02				
					PREPARED	S.C				
					REVIEWED	J.B				
					AUTHORISED	X.X				



AV	mm	Lock to Lock Time	: 6.0
Tractor Width	: 2500	Steering Angle	: 28.3
Trailer Width	: 2500	Articulating Angle	: 70.0
Tractor Track	: 2500		
Trailer Track	: 2500		

	REV	DESCRIPTION	DATE		QUALITY INFORMATION		SCALE @ A3 0 10 20 SCALE - XXX	PROJECT SCT_00265_SOPHS ECI Construction Traffic Management Plan TITLE Semi trailer internal movement DRAWING NUMBER SCT_00265-01-002	SHEET 02 OF 03		A3
	A	PRELIMINARY DRAFT	15/02/2022		DATE	15/02					
					PREPARED	S.C					
					REVIEWED	J.B					
					AUTHORISED	X.X					



REV	DESCRIPTION	DATE
A	PRELIMINARY DRAFT	15/02/2022

PREPARED FOR



QUALITY INFORMATION	
DATE	15/02
PREPARED	S.C
REVIEWED	J.B
AUTHORISED	X.X

SCALE: A3



SCALE - X:XX

1000000

OBJECT	SCT_00265_SOPHS ECI
	Construction Traffic Management Plan
FILE	HRV internal movement

17

DATE: 11/11/2011

ABING NUMBER
SCT 00265-01-002

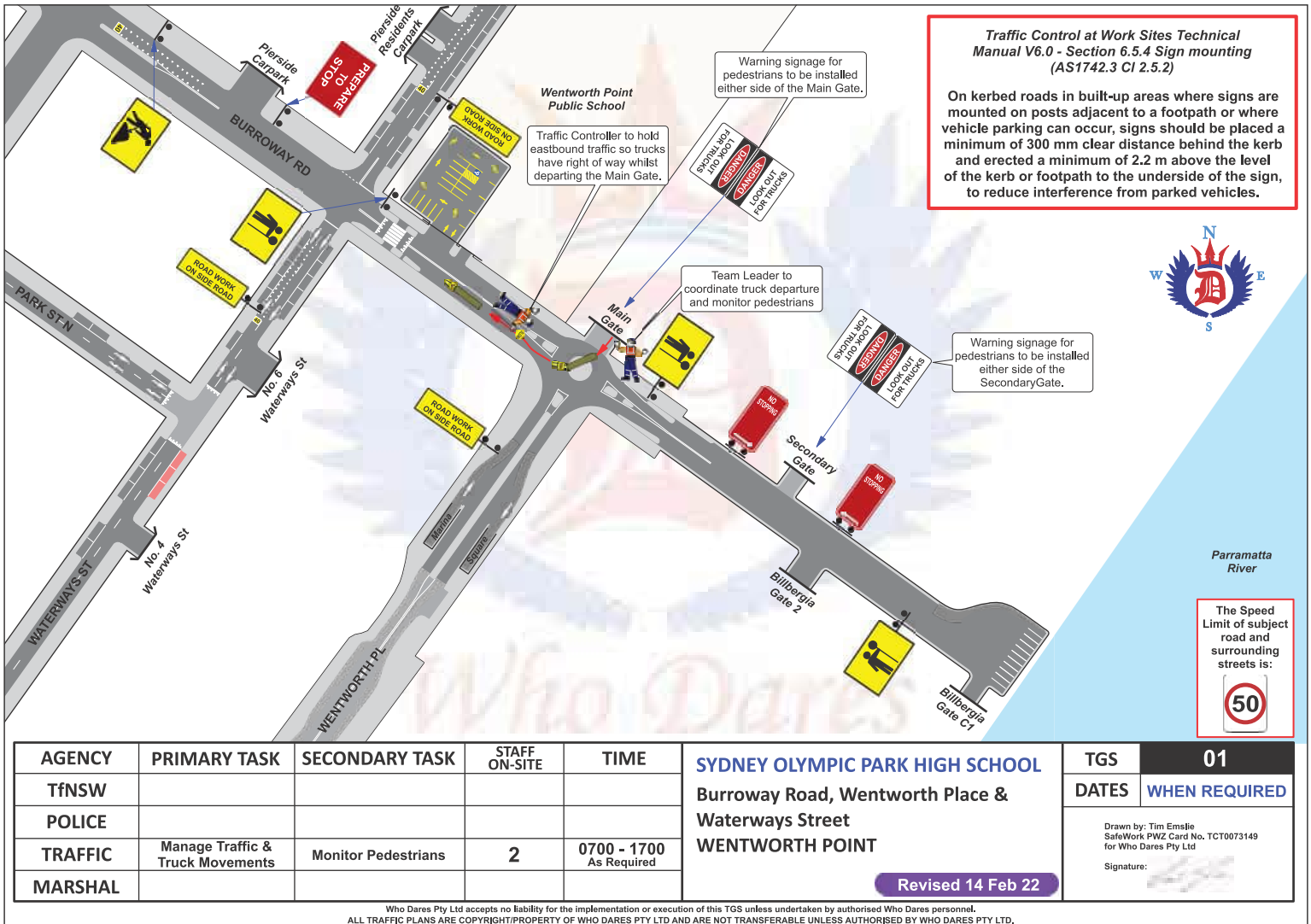
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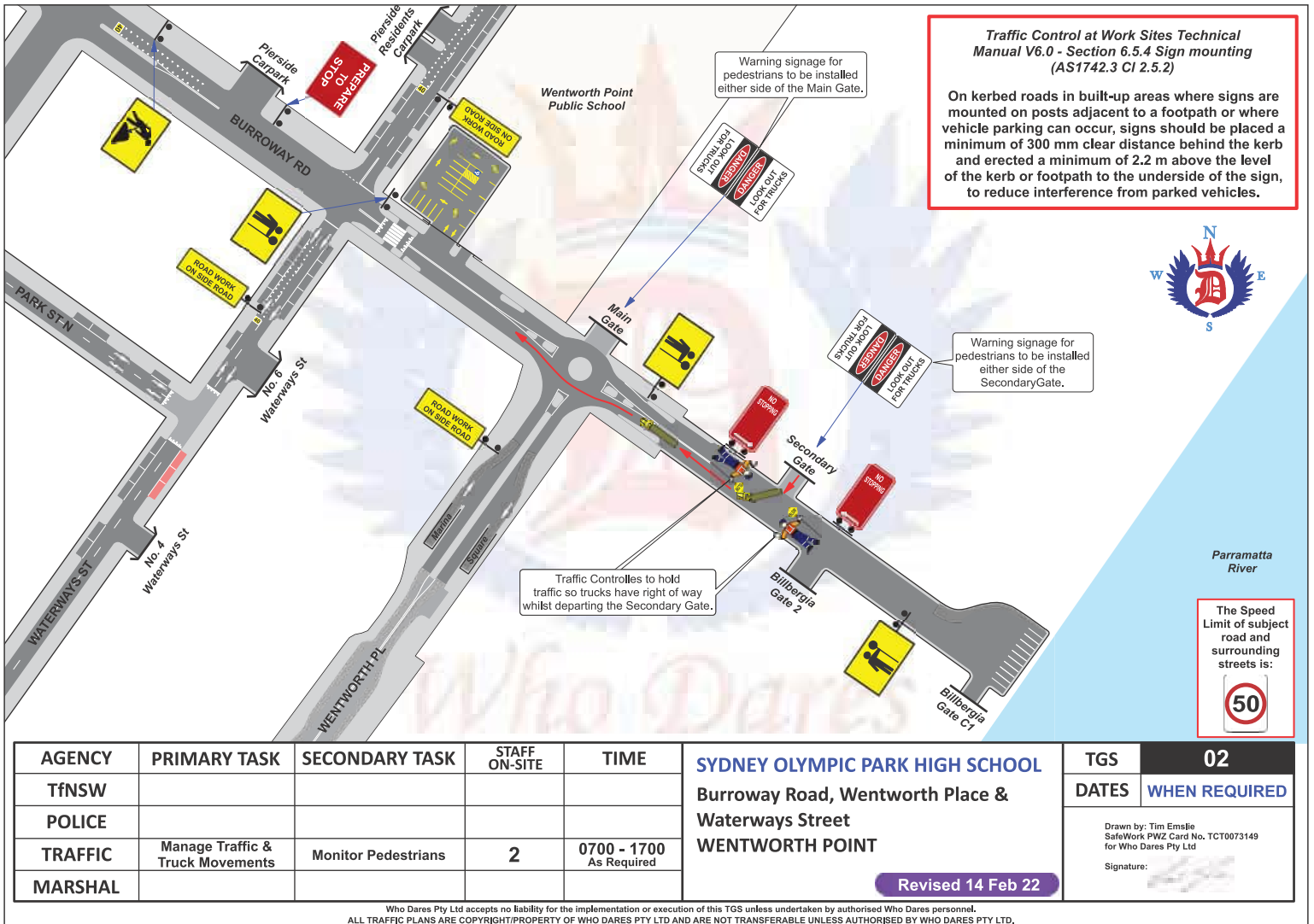


A3

APPENDIX C

Traffic Control Plans





APPENDIX D

Evidence of Consultation

Comments from Council are shown in **Figure 7-1**. Council was also briefed on 12 October 2022 in the Transport Working Group.

[illegible]

Transport for NSW Comments

TfNSW comments received on 14 October 2022 are provided in **Table 7-1**. TfNSW was also briefed on 12 October 2022 in the Transport Working Group.

Table 7-1 TfNSW comments and responses

TfNSW comment	Response	Status
Introduction – states address as “3 Burroway Road, Wentworth Park”. Please amend to shown Wentworth Point.	Completed, refer to Section 1.1 .	Closed
Construction traffic – workers should be encouraged to utilise nearby public transport services. Please detail strategies and options for worker public transport usage.	Completed, refer to Section 6.2 .	Closed
Construction vehicle haulage routes – how will opposing vehicles trying to access / egress the site be managed? Marshalling or queuing of construction vehicles is not permitted to occur on any public roads.	Truck movements to site will be managed so that if trucks arrive, the driveway will be sufficiently clear so that they can enter site without queuing in the road network. This will be managed by site managers and traffic controllers. This is clarified in Section 4.4 .	Closed
Swept path – vehicles not permitted to encroach kerb or opposite of road whilst turning. Confirm swept path 15 of 16 is only applicable during layback construction	Correct, this is only proposed during the contra flow traffic control. This is clarified in Section 2.5 .	Closed
Any parking removal is subject to Council approval . Any changes to parking as shown on the submitted TGS must be approved by council.	Noted	N/A
Construction parking impacts – workers should be encouraged to access site via public transport.	Accepted. The Construction Worker Transportation Strategy identifies that workers will be encouraged to use public transport to site (refer Section 6.2).	Closed
Impacts to marina square – is the contra flow only in place for the duration of layback construction or the entire works? Please clarify within CTMP. What is the layback construction timeframe?	The contra-flow is only required during the construction of the layback. The reason is that the layback construction requires construction activities on the road, which means drivers won't be able to use all of the road space. This is made clearer, including the work program in Section 4.3 .	Closed

From: [Development Applications](#)
To: [Jonathan Busch](#)
Subject: RE: Wentworth Point new High School CTMP v5 for comment
Date: Friday, 14 October 2022 12:59:56 PM
Attachments: [image002.png](#)
[SCT_00265_Sydney Olympic Park High School MEM CTMP v5.0.pdf](#)

Thank you for providing Transport for NSW with a copy of the Construction Traffic Management Plan (CTMP) titled, **Wentworth Point new high school, Project Number: SCT_00265**.

TfNSW has noted the following amendments that we require you to make to the CTMP before we can endorse the document.

1. Introduction – states address as “3 Burroway Road, Wentworth Park”. Please amend to shown Wentworth Point.
2. Construction traffic – workers should be encouraged to utilise nearby public transport services. Please detail strategies and options for worker public transport usage.
3. Construction vehicle haulage routes – how will opposing vehicles trying to access / egress the site be managed? Marshalling or queuing of construction vehicles is not permitted to occur on **any** public roads.
4. Swept path – vehicles not permitted to encroach kerb or opposite of road whilst turning. Confirm swept path 15 of 16 is only applicable during layback construction
5. Any parking removal is subject to Council approval . Any changes to parking as shown on the submitted TGS must be approved by council.
6. Construction parking impacts – workers should be encouraged to access site via public transport.
7. Impacts to marina square – is the contra flow only in place for the duration of layback construction or the entire works? Please clarify within CTMP. What is the layback construction timeframe?

Upon making these amendments please forward a copy to
Developments.CJP@transport.nsw.gov.au for further review and endorsement.

From: Jonathan Busch <jonathan.busch@sctconsulting.com.au>
Sent: Wednesday, 12 October 2022 11:30 AM
To: Mark Crispin <mcrispin@cityofparramatta.nsw.gov.au>; Richard Searle <RSearle@cityofparramatta.nsw.gov.au>; Nazli Tzannes <Nazli.TZANNES@transport.nsw.gov.au>; John Broady <John.Broady@transport.nsw.gov.au>; Sean Clarke <Sean.Clarke@transport.nsw.gov.au>
Cc: Development Sydney <Development.Sydney@transport.nsw.gov.au>; Rebecca Lehman <Rebecca.Lehman@det.nsw.edu.au>; Andy Yung <andy.yung@sctconsulting.com.au>; Marco Amorelli <Marco.Amorelli@au.ey.com>; sherwin.rasquinha1

<sherwin.rasquinha1@det.nsw.edu.au>; Adam Greentree <adam.greentree@au.roberts.co>;
Gavin Finlayson <gavin.finlayson@au.roberts.co>

Subject: Wentworth Point new High School CTMP v5 for comment

CAUTION: This email is sent from an external source. Do not click any links or open attachments unless you recognise the sender and know the content is safe.

Hi All,

Thanks for your time today. Please find attached the updated CTMP for Wentworth Point new High School (previously Sydney Olympic Park new High School). Per my notes today, we have accepted City of Parramatta's comments but have not received any feedback from TfNSW. We had sent the original CTMP to Steven Finnan on 23/09, who we understood was the right contact. Please let me know any comments you have so we can go ahead and finalise the plan.

Regards,

Jonathan Busch

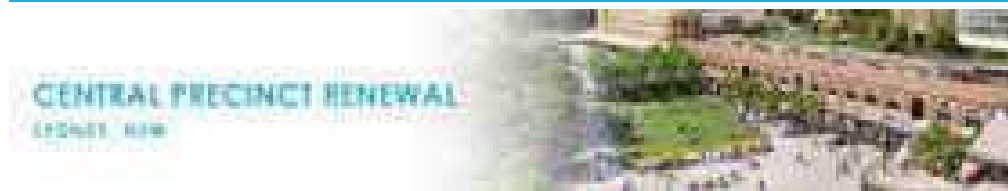
ASSOCIATE DIRECTOR

jonathan.busch@sctconsulting.com.au | 0481 818 776

Suite 1 Level 10, 99 Mount Street, North Sydney 2060



Thoughtful transport solutions | sctconsulting.com.au | [LinkedIn](#)



SCT Consulting acknowledges the traditional owners of the lands on which we work.
We pay our respects to Elders past, present and emerging.

[Disclaimer](#)

-----Original Appointment-----

From: Rebecca.Lehman <Rebecca.Lehman@det.nsw.edu.au>

Sent: Tuesday, 11 October 2022 9:18 AM

To: Rebecca.Lehman; Jonathan Busch; Adam Greentree; Andy Yung; Marco Amorelli;
sherwin.rasquinha1; Aleks.Tancevski@transport.nsw.gov.au; Mark Ozinga; Mark Crispin; Mark Egan; Richard Searle; Robert Cologna; monica.cologna@cumberland.nsw.gov.au;
tim.dewey@transport.nsw.gov.au; Philip Brogan; Caitlin Carpenter; Kenneth Hind; Michael Jollon; Mark Harrison; Bianca Lewis; Jeff van Veghel; Nyambura Mwaniki; Fiona McDermott; Fay Edwards; Michael Babbage; Paul.Yannoulatos; Steven Finnan;
nicolas.kocoski@transport.nsw.gov.au; Dan Herbertson (Dan Herbertson); David Lewis
Cc: Pierre Parrenas; Nazli Tzannes; John Broady; Nancy Zhuang; Daniel O'shaughnessy; Abdullah Khan; Pahee Rathan; Malgy Coman; Sean Clarke; Development.Sydney@transport.nsw.gov.au;



Appendix E Construction Noise and Vibration Management Sub-Plan



**Norman
Disney &
Young**
A TETRA TECH COMPANY



Report

Roberts Co

Wentworth Point New High School

Construction Noise and Vibration Management Plan



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1 INTRODUCTION

1.1 Purpose

The purpose of this report is to assist the contractor with suitable noise and vibration control measures to enable the works associated with the main works and construction of the Wentworth Point new high school located at Wentworth Point, NSW.

The proposed development is for the construction of a school whereby the project is known as Wentworth Point new high school. The project is located within the peninsula of Wentworth Point at 3 Burroway Road, Wentworth Park, and comprises a gymnasium, performing arts learning spaces, science and engineering workshops, typical learning spaces, library and staff areas. A playing field located on the adjacent site to the north will be subject to a Joint Use Agreement with Parramatta City Council.

As per the 2022/2023 budget papers, this project is now referred to as "Wentworth Point new high school". Future documentation relating to this project, including this document, will be labelled accordingly.

Due to the SSD-11802230 application being submitted as "Sydney Olympic Park new high school", the project name will remain the same on the Planning Portal and future documentation may reference this.

Please also note 'Wentworth Point new high school' is the placeholder name for the school. The school naming will occur closer to opening, following a community consultation process.

1.2 Objective of study

- Identify the local Council requirements relating to Construction Noise.
- A quantitative assessment to identify the expected noise levels from expected equipment used in the proposed construction.
- Provide advice on any mitigation measures needed to comply with the relevant requirements.
- Set out a noise complaints management procedure.
- Address the consent condition requirements relating to Noise and Vibration Management Sub Plan

1.3 Authority

Authority to undertake this report was provided by Adam Greentree of Roberts Co.

1.4 Information Sources

- NSW EPA – Interim Construction Noise Guideline
- BS 5228-1:2009 - Code of practice for noise and vibration control on construction and open sites, Part 1 Noise.
- Briefing email 'Roberts Co – Noise and Vibration Plan for Mainworks' dated 07 February 2022.



1.5 SSDA Conditions

Table 1 below details the SSDA conditions and the area of the report where they are addressed.

Table 1: SSDA Conditions

Condition		Report Location
B16. The Construction Noise and Vibration Management Sub-Plan must address, but not be limited to, the following:		
(a)	be prepared by a suitably qualified and experienced noise expert;	See Appendix for CV
(b)	describe procedures for achieving the noise management levels in EPA's Interim Construction Noise Guideline (DECC, 2009);	Section 3.3.1 Section 5
(c)	describe the measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers;	Section 5
(d)	include strategies that have been developed with the community for managing high noise generating works;	Section 8
(e)	describe the community consultation undertaken to develop the strategies in condition B16(d)	Section 8
(f)	include a complaints management system that would be implemented for the duration of the construction; and	Section 9
(g)	include a program to monitor and report on the impacts and environmental performance of the development and the effectiveness of the implemented management measures in accordance with the requirements of condition B12.	Section 6

1.6 Revision History

Table 2: Revision History

Revision	Date of Issue	Comments
1.0	18 February 2022	Main Works Assessment
1.1	06 April 2022	Minor Amendments
1.2	19 September 2022	Minor Amendments
1.3	20 September 2022	Minor Amendments
1.4	27 September 2022	Minor Amendments
1.5	21 October 2022	Minor Amendments
1.6	13 February 2023	Minor Amendments



2 TERMINOLOGY

2.1 Noise

Noise levels are quantified in decibels, zero decibels being the threshold of audibility for a normally hearing young person and 140 decibels being a very loud sound that will cause discomfort or pain.

Decibel, dB: The decibel scale is logarithmic. A doubling in loudness would subjectively be represented by an increase in noise levels of 10 decibels (dB). A small change of 3dB would be just noticeable to most listeners. Decibels are not actually a unit of sound pressure but are simply an expression of a ratio from a standardised sound pressure level representing zero decibels.

A-weighted Decibel, dBA: In most instances the district and regional councils, New Zealand Standards and International Standards require assessments to adopt “A” weighted decibels. The “A” weighting is applied in an attempt to match the response of the human ear. “A” weighted decibels can be measured with a sound level meter which has been electronically adjusted to an international standard.

The spread of noise over a time period can be expressed in a number of ways. Three of the most commonly used for environmental applications are:

L₁₀: The sound level exceeded for ten per cent of the time. This identifies loud, non-continuous sounds or the louder parts of continuous sounds.

L_{eq}: The average sound pressure level over the measurement period.

L_{MAX}: The loudest single event over the measurement period.



3 NOISE AND VIBRATION CRITERIA

3.1 Site Location and Overview

The main works involve the excavation, piling, concrete pouring, façade and fit-out works on the development site located at 7 Burroway Road. The project site is as depicted in Figure 1 below. A dirt bund exists at the western boundary of the site indicated in Figure 1.

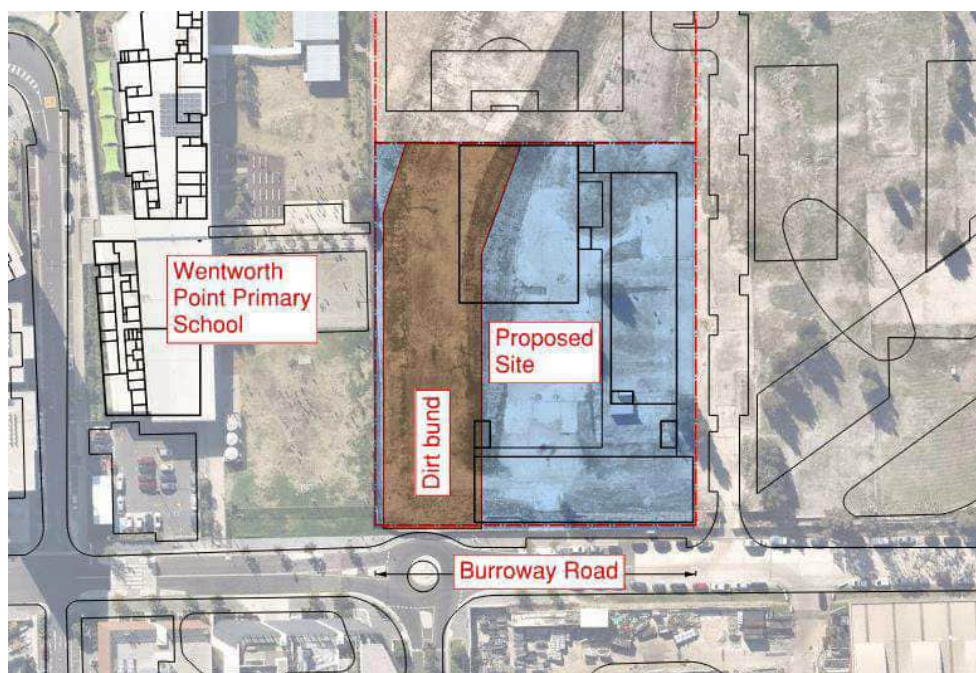


Figure 1. Project Location

3.2 Nearest Noise Sensitive Receivers

The proposed development is located adjacent to, and has been assessed to, the following:

1. Wentworth Point Primary School (to the west)
2. 17 Wentworth Place, an existing residential apartment complex (to the south)
3. Block H, a proposed residential development (to the south)
4. A proposed mixed-use development (to the east).
5. Future peninsula park (to the north)

However, for the purposes of this main works assessment, construction noise will be only assessed to existing receivers (**Wentworth Point Primary School** and the residential tower at **17 Wentworth Place**) as the other receiver locations are currently empty sites. These noise sensitive receivers are depicted in Figure 2 below.



Figure 2. Noise Sensitive Receivers

3.3 Construction Noise Criteria

3.3.1 Interim Construction Noise Guideline

The NSW Interim Construction Noise Guideline was developed by the NSW-Department of Environment & Climate Change DECC, NSW which incorporates the EPA. The Guideline contains detailed procedures for the assessment and management of construction noise impacts.

The guideline presents two ways of assessing construction noise impacts – the quantitative method, which is generally suited to longer term construction works and the qualitative method, which is generally suited to short term works (usually not more than 3 weeks) such as infrastructure maintenance.

It is expected that the length of the construction works associated with the development would be more than 3 weeks and therefore a quantitative method has been used for this assessment.

Table 3 sets out the management levels for noise at residence and other sensitive land uses, respectively. Restrictions to the hours of construction may apply to activities that generate noise at residences above the ‘highly noise affected management level’ which is >75dBA. Affected properties above 75 dBA will require community consultation and a Construction Noise & Vibration Management Plan (CNVMP).



Table 3. Noise at Residences and Other Sensitive Land Uses using Quantitative Assessment

Receiver Type	Recommended Hours	Time of Day	Management Level Leq,15min [dBA]
Residential	Recommended Standard Hours	Monday – Friday 7am to 6pm. Saturday 8am to 1pm. No work on Sundays or Public Holidays.	Noise Affected RBL + 10 (Assessed externally)
			Highly noise affected 75 (Assessed externally)
Classrooms at schools and other education institutions		When properties are being used (i.e., Classroom operational hours)	45* (Internal noise level)

Note: Noise Levels apply at the boundary that is most exposed to construction noise and at a height of 1.5m above ground level. If the property boundary is more than 30m from the residence, the location for measuring or predicting noise levels is at the most affected point within 30m of the residence.

*Where internal noise levels cannot be measured, external noise levels may be used. A conservative estimate of the difference between internal and external noise levels is 10 dB for buildings other than residences. Some buildings may achieve greater performance, such as where windows are fixed (that is, cannot be opened).

3.3.2 Application of Noise Affected Levels

As per the NSW Interim Construction Noise Guideline:

“The **noise affected** level represents the point above which there may be some community reaction to noise.

- Where the predicted or measured LAeq (15 min) is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level.
- The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.

The **highly noise affected** level represents the point above which there may be strong community reaction to noise.

- Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account:
 - Times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences)
 - If the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.”



3.3.3 Noise Management Levels

Noise Management Levels (NML) associated with the construction works on the project site are presented in Table 4 below.

Table 4. Construction Noise Management Levels, Leq 15min

Receivers	Recommended Hours	Period	RBL $L_{A90,15\text{mins}}$ [dBA]	Management Level [dBA]
Surrounding Residences	All Hours (Standard Construction Hours)	When in use	46 dB(A)*	Noise Affected $(46 + 10) = 56 \text{ dB(A)}$ (Assessed externally)
Classrooms at Wentworth Point Primary School				Highly noise affected 75 dB(A) (Assessed externally)
				45 dB(A) (Internal noise level)
* Unattended noise measurements were carried out on the site between Tuesday 20 th April and Monday 3 rd May 2021 to establish existing background noise levels.				

3.4 Construction Vibration Criteria

The effects of construction vibration upon buildings can be separated into three main categories:

- Perceptibility of the occupants to the vibration and the possibility of them being disturbed or annoyed.
- Vulnerability of the building structures to vibration induced damaged.
- Vulnerability of the contents of the building that includes types of equipment, activities and processes.

3.4.1 Human Response to Vibration

Humans are very sensitive to vibration, and they can be disturbed, annoyed and have their work activities interfered with if the levels are too high. The Interim Construction Noise Guideline references “*Assessing Vibration: a technical guideline*” (Vibration Guideline) issued by the Department of Environment and Conservation NSW for measurement and assessment of vibration. The Vibration Guideline provides vibration criteria for continuous, impulsive and intermittent vibration

Continuous vibration	Impulsive vibration	Intermittent vibration
Machinery, steady road traffic, continuous construction activity (such as tunnel boring machinery).	Infrequent: Activities that create up to 3 distinct vibration events in an assessment period, e.g. occasional dropping of heavy equipment, occasional loading and unloading. Blasting is assessed using ANZECC (1990).	Trains, nearby intermittent construction activity, passing heavy vehicles, forging machines, impact pile driving, jack hammers. Where the number of vibration events in an assessment period is three or fewer this would be assessed against impulsive vibration criteria.

The criteria are discussed in more detail in the following sections.



3.4.2 Continuous and impulsive vibration (1-80 Hz)

According to the Vibration Guideline for continuous and impulsive vibration, assessment of impact should be considered on the basis of weighted root-mean-square acceleration values and results are to be compared against the following preferred and maximum values given for each orthogonal axis. The frequency weightings as per BS6841:1987 (reproduced in Appendix B3 of the guideline) are to be applied to the RMS measurement values (1-80Hz). The criteria in the Vibration Guideline are derived from the limiting values of the assessment curves and multiplying factors from BS 6472:1992 (the curves are no longer referenced in the superseded version of the standard BS 6472:2008). We have assumed hotels will be assessed as per the criteria for residences.

Table 2.2 Preferred and maximum weighted rms values for continuous and impulsive vibration acceleration (m/s²) 1–80 Hz

Location	Assessment period ¹	Preferred values		Maximum values	
		z-axis	x- and y-axes	z-axis	x- and y-axes
Continuous vibration					
Critical areas ²	Day- or night-time	0.0050	0.0036	0.010	0.0072
Residences	Daytime	0.010	0.0071	0.020	0.014
	Night-time	0.007	0.005	0.014	0.010
Offices, schools, educational institutions and places of worship	Day- or night-time	0.020	0.014	0.040	0.028
Workshops	Day- or night-time	0.04	0.029	0.080	0.058
Impulsive vibration					
Critical areas ²	Day- or night-time	0.0050	0.0036	0.010	0.0072
Residences	Daytime	0.30	0.21	0.60	0.42
	Night-time	0.10	0.071	0.20	0.14
Offices, schools, educational institutions and places of worship	Day- or night-time	0.64	0.46	1.28	0.92
Workshops	Day- or night-time	0.64	0.46	1.28	0.92

1 Daytime is 7.00 am to 10.00 pm and night-time is 10.00 pm to 7.00 am.

2 Examples include hospital operating theatres and precision laboratories where sensitive operations are occurring. There may be cases where sensitive equipment or delicate tasks require more stringent criteria than the human comfort criteria specified above. Stipulation of such criteria is outside the scope of this policy, and other guidance documents (e.g. relevant standards) should be referred to. Source: BS 6472–1992

The Vibration Guideline notes “Activities should be designed to meet the preferred values where an area is not already exposed to vibration. Where all feasible and reasonable measures have been applied, values up to the maximum value may be used if they can be justified. For values beyond the maximum value, the operator should negotiate directly with the affected community. Situations exist where vibration above the preferred values can be acceptable, particularly for temporary disturbances and infrequent events of short-term duration. An example is a construction or excavation project.”



3.4.3 Intermittent vibration (1-80 Hz)

According to the Vibration Guideline for intermittent vibration, assessment of impact should be considered on the basis of vibration dose values (VDV). Acceptable values of vibration dose are given as follows. We have assumed hotels will be assessed as per the criteria for residences.

Table 2.4 Acceptable vibration dose values for intermittent vibration ($\text{m/s}^{1.75}$)

Location	Daytime ¹		Night-time ¹	
	Preferred value	Maximum value	Preferred value	Maximum value
Critical areas ²	0.10	0.20	0.10	0.20
Residences	0.20	0.40	0.13	0.26
Offices, schools, educational institutions and places of worship	0.40	0.80	0.40	0.80
Workshops	0.80	1.60	0.80	1.60

1 Daytime is 7.00 am to 10.00 pm and night-time is 10.00 pm to 7.00 am.

2 Examples include hospital operating theatres and precision laboratories where sensitive operations are occurring. These criteria are only indicative, and there may be a need to assess intermittent values against the continuous or impulsive criteria for critical areas.

Source: BS 6472-1992

3.4.4 Structural Response to Vibration - German Standard DIN 4150-3:1999

The German Standard DIN 4150-3 Structural Vibration Part 3: Effects on building and structures is commonly used in Australia to evaluate the effects of vibration on structures primarily used for static loading.

The response of a building to vibration is affected by several factors that include its type of foundation, the underlying ground conditions, its construction and the state of the building. Please note the construction vibration limits are designed to ensure the structural integrity of nearby buildings and are not for human comfort, noting that the limits are above perceptibility.

According to DIN 4150 short term vibration refers to vibration which does not occur often enough to cause structural fatigue and which does not produce resonance in the structure being evaluated (e.g. transient thumps and one off shock-type events). Long-term vibration refers to all types of vibration not covered by the definition of 'short-term vibration'. The criteria for short-term and long-term vibration are listed in the following sections.

3.4.5 Guideline Values for evaluation of short-term vibration - DIN 4150-3:1999

The vibration limits of table 1 in DIN 4150-3:1999 (replicated in Table 5 below) refer to the evaluation of the effects of short-term vibration on structures. The criteria are the peak particle velocities (ppv) measured on any foundation or uppermost full storey of any building not related to the site.

It should however be noted that compliance with the vibration limits to avoid structural damage of buildings, cannot provide certainty. If damage occurs despite compliance with the standard, it is to be assumed that other causes are responsible, however, further investigations are necessary. And conversely, exceeding the limits does not necessarily lead to damage.

**Table 5. DIN 4150-3 Construction Vibration Limits – Short Term**

Type of Structures	Guideline values for vibration velocity (mm/s)			
	Vibration at the foundation at a frequency of			Vibration at horizontal plane of highest floor at all frequencies
	1Hz to 10Hz	10 to 50 Hz	50 to 100Hz (and above)	
Buildings for commercial purposes, Industrial building and building of similar design	20	20 to 40	40 to 50	40
Dwellings and buildings of similar design and/or occupancy	5	5 to 15	15 to 20	15
Structures that because of their particular sensitivity to vibration, cannot be classified as above and are of great intrinsic value (e.g. listed buildings under preservation order)	3	3 to 8	8 to 10	8

3.4.6 Guideline Values for evaluation of long-term vibration - DIN 4150-3:1999

The vibration limits of table 3 in DIN 4150-3:1999 refer to the evaluation of the effects of long-term vibration on structures. The criteria are the peak particle velocities measured on the uppermost full storey of any building not related to the site and are listed in Table 6.

According to the standard, *exceeding the values listed below does not necessarily lead to damage*.

If a building is subject to harmonic vibration, then maximum values can occur in floors other than the top floor, or in the foundation. The values given also apply in these cases.

Table 6. DIN 4150-3 Construction Vibration Limits – Long Term

Type of Structures	Guideline values for velocity, v_i , in mm/s of vibration in horizontal plane of highest floor, at all frequencies
Buildings for commercial purposes, Industrial building and building of similar design	10
Dwellings and buildings of similar design and/or occupancy	5
Structures that because of their particular sensitivity to vibration, cannot be classified as above and are of great intrinsic value (e.g. listed buildings under preservation order)	2.5



4 CONSTRUCTION NOISE ASSESSMENT

4.1 Expected Construction Programme and Methodology

According to the information provided by the construction team and the client for this project, we expect the main works of construction to be split into the following major tasks:

- **Piling** – 4 months
- **Excavation** – 3 months
- **Concrete pouring** - 7 months
- **Material transport/handling** – Life cycle of the project
- **Fitout works** – 6 months

4.2 Expected Construction Activities

According to the information provided by the construction team and the client for this project, we expect the critical construction equipment to consist of the following:

Table 7. Expected Construction Activities/Equipment per Task

Piling	Excavation	Concrete Pouring	Material Transport	Façade / Fitout works
Large rotary bored piling rig	Articulated truck (up to 20 daily trips)	Concrete trucks (up to 30 trucks on pour dates)	Articulated truck (Rigid vehicles with an occasional semi-truck)	Articulated truck (Rigid vehicles with an occasional semi-truck)
Tracked excavator	Tracked excavator	Mobile concrete pumps with boom arm (up 2 pumps on pour dates)	Tracked mobile crane	Tracked mobile crane
				Hand tools (Hand saws, drills and concrete saws)

4.3 Expected Construction Equipment Noise Levels

The current list of proposed equipment respective reference acoustic data is outlined in Table 8 below. Any additional equipment proposed will need to be assessed acoustically, with the report updated and mitigations included where required.

Table 8. Proposed Construction Equipment List

Equipment	L _{eq} Sound Pressure Level at 10m (dBA)	Source and Reference
Articulated dump truck, 25t	81	BS5228-2009/ Table C5 Ref 16
Tracked excavator 40t	79	BS5228-2009/ Table C2 Ref 14
Large rotary bored piling rig, 110t	84	BS5228-2009/ Table C3 Ref 14
Concrete mixer truck	79	BS5228-2009/ Table C4 Ref 27
Mobile concrete pumps with boom arm, 26t	80	BS5228-2009/ Table C4 Ref 29
Tracked mobile crane, 105t	75	BS5228-2009/ Table C4 Ref 52

4.4 Noise Propagation to Noise Sensitive Receivers

Predicted noise levels at the external receivers from all construction activities are as follows.

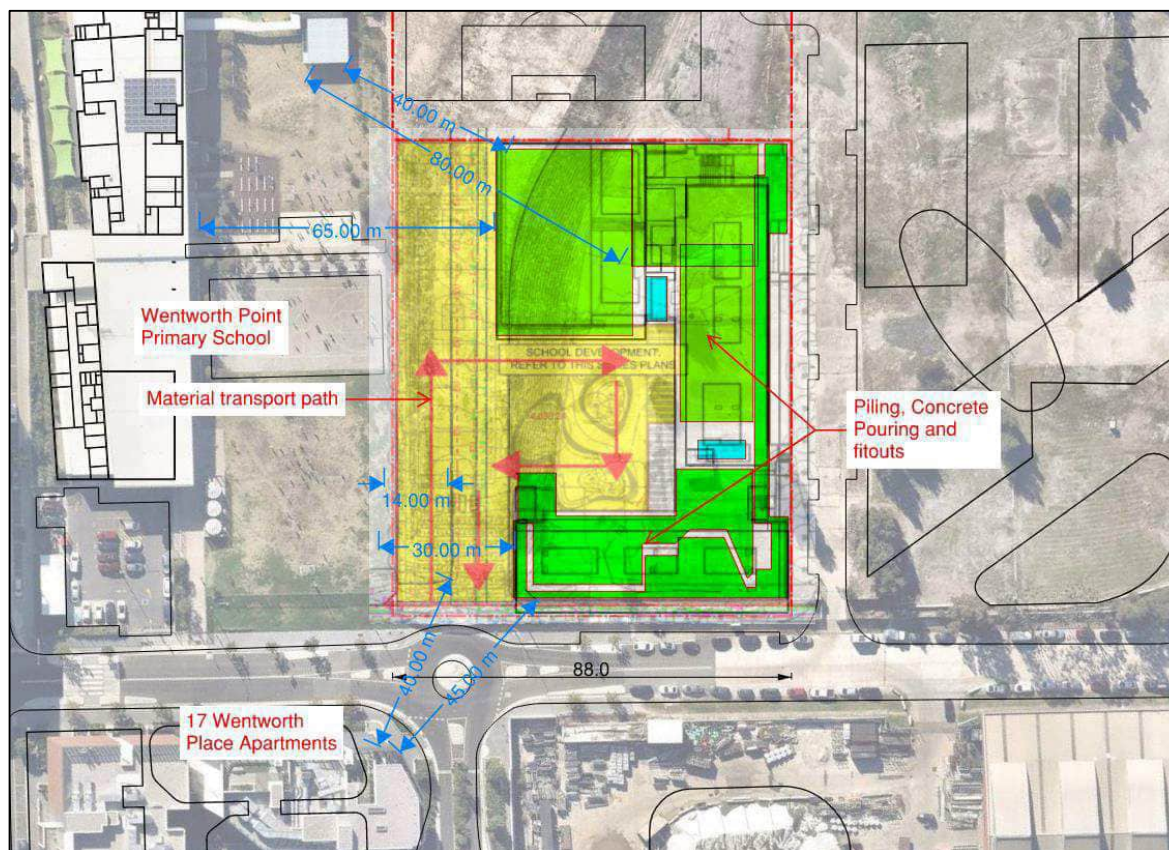


Figure 3. Noise Sensitive Receiver Locations and Distances