Construction Environmental Management Plan (CEMP) Wallgrove Road, Horsley Park (Lot 14A) | SSD-54822478

Gazcorp Pty Ltd

Final

160,571 | 67450

16 August 2024



We acknowledge the Traditional Custodians of Country throughout Australia and their connections to land, sea and community.

We pay respect to Elders past and present and in the spirit of reconciliation, we commit to working together for our shared future.



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Appendix D **Waste Management Plan**

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Abbreviations

Term	Definition
AQMS	Air Quality Monitoring Station
CEMP	Construction Environmental Management Plan
CBD	Central Business District
CLM Act	*Contaminated Land Management Act 1997* (NSW)
CNVMP	Construction Noise and Vibration Management Plan
DECC	NSW Department of Environment, Climate Change
DEC	NSW Department of Environment and Conservation
DP	Deposited Plan
DPE	Formally NSW Department of Planning and Environment, now known as Department of Planning, Housing and Infrastructure
EIS	Environmental Impact Statement
ENV	Excavated Natural Material
EMP	Environmental Management Procedure
EP&A Act	*Environmental Planning and Assessment Act 1979 (NSW)*
EPA	NSW Environment Protection Authority
ESCP	Erosion and Sediment Control Plan
GIE	Gazcorp Industrial Estate
Ha	Hectare
ICNG	NSW Interim Construction Noise Guideline 2009
JBS&G	JBS&G Australia Pty Ltd
LMP	Landscape Management Plan
MOD	Modification to the initial approval
OEH	NSW Office of Environment and Heritage
POEO Act	*Protection of the Environment Operations Act 1997 (NSW)*
RFS	Rural Fire Service
SLR	SLR Consulting
SSD	State Significant Development
SSD-5248	Development consent for the overall site (concept proposal and Stage 1 development which includes vegetation clearance, bulk earth works, construction of internal roads, installation of utilities and construction of warehouse located in Lot 10)
SSD-54822478	Development consent for construction of warehouse in Lot 14A (including construction and operation of a warehouse and distribution centre with an ancillary office, car parking and landscaping).
TfNSW	Transport for NSW
VENM	Virgin Excavated Natural Material
Water NSW	Water New South Wales
WARR Act	*Waste Avoidance and Resource Recovery Act 2001 (NSW)*

1. Introduction

JBS&G Australia Pty Ltd (JBS&G) was engaged by Gazcorp Pty Ltd (Gazcorp) to prepare a Construction Environmental Management Plan (CEMP) for an industrial development located at 813-913 Wallgrove Road, Horsley Park, NSW 2175, also referred to as Lot 100 of DP 1268340.

The property is within the Fairfield Local Government Area, and has an area of approximately 1.705 hectares (ha) or 17,050m². The site is situated approximately 30 km west of the Sydney CBD and approximately 2 km west of Prospect Reservoir - refer to **Figure 1**



Figure 1: Site Location marked in red. (*Source: SIX Maps*)

This property is currently being developed as part of the new Gazcorp Industrial Estate (GIE), subject to approval under the initial State Significant Development (SSD) Application, SSD-5248. The overall development area is shown in **Figure 2**.

These has been subsequent approvals to the initial SSD application for the construction of warehouses within specific Lots.



Figure 2: Overall property boundary marked in red (*Source: NearMap*)

The construction of a warehouse in Lot 14A was issued in May 2024 (SSD-54822478) and is subject to Stage 2, for which a modification application to the concept SSD-5248 was applied (Modification 5). The location of Lot 14A is shown in **Figure 3**.



Figure 3: Location of Lot 14A

The approved development as per SSD-54822478 comprises construction of:

- An industrial warehouse with approximately 7,800 m^2 of industrial warehouse floorspace (excluding loading areas associated with docks).
- Ancillary offices with approximately 650 m^2 of floor space split over two levels, plus a smaller dock office space and warehouse amenities with a total GFA of 77 m^2.
- Undercroft Parking Area with approximately 1,639 m^2 of floorspace with capacity of 97 car parking spaces including one disabled parking space and an associated parking lobby area.
- Hardstand Area with approximately 4,350 m^2 of floorspace.
- Associated landscaping.

The conditions of this development consent (conditions C2 – C4 inclusive) include the requirement to prepare a CEMP for the construction of a warehouse in Lot 14A.

Conditions of the approval require a CEMP to be written and implemented for the site as per follows:

	CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN
C2	The Applicant must prepare a Construction Environmental Management Plan (CEMP) for the development in accordance with the requirements of condition C1 and to the satisfaction of the Planning Secretary.
C3	As part of the CEMP required under Condition C2 of this consent, the Applicant must include the following: (a) Construction Traffic Management Plan (see condition B1); (b) Construction Noise and Vibration Management Plan (see condition B17); (c) Erosion and Sediment Control Plan (see condition B23); (d) Construction and Demolition Waste Management Plan (see condition B48); and (e) Community Consultation and Complaints Handling.
C4	The Applicant must: (a) not commence construction of the development until the CEMP is approved by the Planning Secretary; and (b) carry out the construction of the development in accordance with the CEMP approved by the Planning Secretary and as revised and approved by the Planning Secretary from time to time.

The current CEMP for the site (approved by DPE in June 2024) covers the Stage 1 Development Application (as approved in SSD-5248) which includes civil activities, vegetation clearance, bulk earthworks, road works and installation of utilities as well as construction of a warehouse in Lot 10 which are continuing.

This CEMP applies to the construction of the specific warehouse within Lot 14A. Gazcorp have also confirmed that this CEMP will be issued to Water NSW on 3 July 2024.

1.1 Purpose

This CEMP has been designed to ensure, via the implementation of several ongoing management and monitoring measures pertaining to the proposed construction works on site, that the risk to human populations in proximity of the site and the surrounding environment by the construction works is acceptable.

This CEMP is not intended to replace or supersede other Environmental Management Plans and / or Health and Safety Plans provided for the site. Rather, the CEMP is to be considered as a supplement to these documents and particularly targeted to deal with issues unique to the construction works.

1.2 Responsibilities

The development of the site will be undertaken under the direction of the site owners (Gazcorp) and the approved Principal Contractor.

The Principal Contractor will be responsible for the implementation of the majority of procedures outlined within this CEMP. It is noted that where the specific procedures are technical or complex in nature, then the Principal Contractor may appoint appropriately qualified agents (i.e. environmental consultants) to fulfil the requirements of the procedure, or advise the appropriate implementation of the procedure.

A formal list of procedures is provided to the CEMP based on an assessment of potential environmental emissions from the anticipated site construction works. Specific responsibilities are nominated for the implementation of these 'procedures' outlined further below.

1.3 Environmental Procedures

This CEMP includes several Environmental Management Procedures (EMPs)(procedures) to manage environmental aspects and mitigate potential impacts (as detailed in **Section 7** and summarised in **Table 1-1**), as follows:

- EMP01 Air Quality
- EMP02 Noise and Vibration
- EMP03 Traffic
- EMP04 Erosion and Sediment Control
- EMP05 Waste Management
- EMP06 Stockpiling
- EMP07 Soil and Contamination
- EMP08 Environmental Emergency Response
- EMP09 Training
- EMP10 Non-Compliance
- EMP11 Incident Reporting
- EMP12 Record Keeping
- EMP13 CEMP Review

Table 1-1: Construction Activity and Identified Environmental Procedures

Activity	Environmental Considerations	Management Procedure
Delivery of construction materials	Noise generation	EMP02 Noise and Vibration
	Traffic impacts	EMP03 Traffic

Activity	Environmental Considerations	Management Procedure
Construction (i.e. building of warehouse, landscaping and waste management)	Noise generation Dust generation Traffic impacts Waste management	EMP01 Air Quality EMP02 Noise and Vibration EMP03 Traffic EMP04 Erosion and Sediment Control EMP05 Waste Management EMP07 Soil and Contamination EMP08 Environmental Emergency Response EMP11 Incident Reporting

1.4 Consultation

Northly adjacent to the overall site is the Warrgamba Pipeline corridor.

As part of the drafting of this CEMP, Water NSW were consulted with (in July 2024) to meet the requirements of the Development Consent (Condition A19) to ensure procedures within the CEMP (notabily regarding surface water run off and vibration) were adquate.

Overall they stated that they did not have concerns with the CEMP. However did provide comments for consideration which are summarised within **Table 1-2.**

Table 1-2: Water NSW Feedback July 2024

NSW Feedback for Consideration	Statement/Action
It is not expected that the works associated with this development and CEMP will impact on the Warragamba Pipelines corridor, if the controls within the CEMP are adequately applied. This assumption is made based on the already installed estate drainage systems and the separation of the development by the estate road to our mutual property boundary.	All aspects of this CEMP will be implemented

NSW Feedback for Consideration	Statement/Action
We expect all applicable conditions of consent within SSD-54822478 are applied during construction	All requirements of the development consent will be implemented.
We expect that drainage systems serving the development and leaving the site are regularly checked to ensure that no sediment or debris enter our property	Lot 14A has a sediment fence surrounding the lot to prevent migration off site (refer to **Appendix C**). There is a sealed road between Lot 14A and the Water NSW assets. This road is monitored by a separate overall site CEMP which includes inspections to confirm no sediment or debris enters the property.
Section 4.1.5 (page 36) refers to the Sydney Water Supply Pipeline Easement – it is requested that that header to this section and subsequent wording be updated to better reflect the location and asset.	This is a typo in the Construction Traffic Management Plan and not material to the CEMP.
In the above section we require that a commitment to not enter the Pipelines corridor be included, as it is not anticipated that any access is required. This just makes it clear to contractors that access is prohibited into the WaterNSW Warragamba to Prospect Water Supply Pipelines Corridor, without WaterNSW approval.	Additional text was added to form Section 4.1 which stated that there will be no impact to the Warragamba to prospect water supply pipeline as Lot 14A is separated to this and no access to the corridor will be required. An additional figure was added to EMP03: Traffic to show how the existing road separates Lot 14A and the Water NSW site and that there would not be any access to the Water NSW corridor.
It is noted that the Construction Traffic Management Plan contained within the CEMP relates to the Wallgrove Road upgrade and intersection works. It is unclear what controls are to be applied to works as part of Lot 14 and the rest of the estate as these works are complete. What specific operational controls should be applied in this CEMP.	EMP03: Traffic includes control measures for Lot 14A.
In case of an incident or emergency that could impact on WaterNSW lands and assets, WaterNSW needs to be added to the External Emergency Response Contacts list.	Contact details of key stakeholders that might need to be advised during an emergency or incident were added to EMP11: Incident Reporting.

2. Summary of site conditions

2.1 Site details

The site is located in Wallgrove Road, Horsley Park NSW as shown on **Figure 1** and **Figure 2**. The site details are summarised in **Table 2-1** and described further in **Section 2.2**

Table 2-1: Site details summary

Lot/DP (at time of writing)	Part of Lot 100 DP 1268340
Address	813 – 913 Wallgrove Road, Horsley Park NSW 2175
Local Government Authority	Fairfield City Council
Site Zoning	IN1 – General Industrial
Previous Use	Agricultural
Proposed Use	Commercial/industrial land use
Site Area	Approximately 1.7 ha (Lot 14A only)

2.2 Site condition

At the time of preparing this CEMP (July 2024), the site was predominately cleared, access roads installed and the construction of a warehouse in north west area of the site commenced. The site has been modified by civils works to level areas allowing the construction of roads, utilities, carparks and warehouses.

General description of the surrounding areas is as per the following sections.

2.2.1 North

The site is bordered by a Water NSW water supply line to the north. Further north of the pipeline is the Eastern Creek industrial precinct, which comprises several large industrial buildings and warehouses. The land between the water supply pipeline and the site is proposed to be used to construct the new Southern Link Road, which will ultimately connect Wallgrove Road with Mamre Road in the west.

2.2.2 South

Across from Estate Road 02 are Lot 5 and Lot 6 which are proposed warehouse buildings contributing to Stage 7 within the GIE.

An existing high voltage Transgrid transmission line is included within an easement that runs for most of the length of the Gazcorp Industrial Estate (GIE) site's southern boundary.

Immediately to the south of the Transgrid easement are several rural residential lots that are largely cleared and contain a mix of sheds and residential dwellings. These lots include a mix of intensive small-scale rural activities, such as wood-chipping (for landscape supplies), market gardens, and a piggery as well as rural-residential dwellings located along Burley Road and Flavex Lane.

It is noted that only a small number of lots share a common boundary with the Site and that the dwellings are generally set back more than 100m from the GIE.

2.2.3 East

To the immediate east of the site is the adjoining Lot14B site which is a future development comprising of a warehouse building.

Further east of the site is Wallgrove Road and the M7 Motorway form the eastern boundary of the GIE. On the opposite side of the M7 is the PGH brickworks facility owned by CSR Limited. East of the brickworks facility is the Western Sydney Parklands, and further again to the Prospect Reservoir and industrial uses within Wetherill Park.

2.2.4 West

Immediately west is the MOD 2 SSD approved Lot 11 and Lot 12 which will feature a warehouse building with offices and carpark spaces.

Further west, Reedy Creek riparian corridor forms the western boundary of the estate, beyond which is land presently used as a quarry. Much of the land to the west is included within the WSEA, and includes the Oakdale South, Oakdale Central and Oakdale West Precincts, which are presently managed by Goodman.

3. Application, enforcement and regulatory requirements

3.1 Application of CEMP

This CEMP applies to the construction works including minor earthworks and construction of the warehouse and distribution centre. The requirements of the CEMP are intended to apply to Gazcorp's activities within the subject site which require/involve:

- Minor earthmoving works;
- Construction of buildings including the warehouse, ancillary office and undercroft carpark; and
- Transport of construction materials, wastes etc to and from the site.

For the purposes of this CEMP, the activities during the construction phase will be referred to as construction.

3.2 Enforcement of CEMP

The CEMP will be enforced and implemented by the Principal Contractor for the construction of the warehouse and minor earthworks by their subcontractors associated with the Stage 2 approval.

Any other development works (including the construction of warehouses in Lots other than Lot 14A) are covered under a separate CEMP.

3.3 Regulatory requirements

Future activities on site will be required to be completed in accordance with several sections of environmental and occupational health and safety legislation and associated regulations. The primary Acts, Regulations and Guidelines are listed below with a brief summary of their applicability. Please note that this list is not intended to be a comprehensive listing of acts and regulations. The site owner and contractors are required to satisfy themselves that all applicable legislation is adhered to, relevant permits and licences have been obtained, and their conditions satisfied.

Regulations that are to be considered as part of this CEMP include the following:

Work Health and Safety Act 2011

The overarching Act for NSW setting law relating to employee health and safety and employer responsibilities.

Work Health and Safety Regulation 2017

Sets Regulations and details the duties for employers to achieve required employee health and safety performance.

Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (POEO Act) is the key piece of environment protection legislation administered by the EPA.

Waste Avoidance and Resource Recovery Act 2001 (WARR Act)

The *Waste Avoidance and Resource Recovery Act 2001* (WARR Act) replaced the *Waste Minimisation and Management Act 1995* and controls waste generation and waste reduction.

Waste Classification Guidelines (EPA 2014)

All wastes generated and proposed to be disposed off-site shall be assessed, classified and managed in accordance with this guideline. Where wastes require immobilisation prior to off-site disposal an immobilisation approval shall be sought in accordance with Part 2 of this guideline.

***Contaminated Land Management Act 1997* (*CLM Act*)**

The *Contaminated Lands Management Act 1997* (CLM Act) controls the assessment of contamination and requirement of remediation of soils and groundwater. The act also contains guidance for the determination of whether a site presents a significant risk of harm and allows for accreditation of Site Auditors.

State Environmental Planning Policy (Resilience and Hazards) 2021

Chapter 4 of *State Environmental Planning Policy (Resilience and Hazards) 2021* relates to the decision-making process in undertaking remediation of land and making planning decisions in regard to contaminated and potentially contaminated land.

National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) (NEPC 2013)

National guidelines for the assessment of land contamination endorsed by NSW EPA. These guidelines include recommended soil and groundwater assessment criteria for a variety of land uses.

Environmental Planning and Assessment Act 1979 and Regulation 2021

Provides for environmental planning instruments (EPIs) which establish planning controls for NSW. The EP&A Act also provides for the determination of development applications and ensures that the assessment of proposed development considers the appropriate matters.

4. General site management

Key general site management requirements are outlined below.

4.1 Lot 14A in relation to the overall Estate

As per , the location of Lot 14A is surrounded by estate roads or other Lots. This CEMP relates to the construction works for Lot 14A and includes measures to control potential impacts during construction. There will be no impact to the Warragamba to prospect water supply pipeline as Lot 14A is separated to this and no access to the corridor will be required.

Any other development works (including the construction of warehouses in Lots other than Lot 14A) are covered under a separate estate wide CEMP.

4.2 Hours of operation

As per development consent SSD-54822478 (condition B14), all construction activities will be carried out between the following times:

- Monday – Friday: 7 am to 6 pm;
- Saturday: 8 am to 1 pm; and
- Sundays and Public Holidays: No work is permitted.

Works outside of these hours are only permitted in the following circumstances in accordance with condition B15:

a) works that are inaudible at the nearest sensitive receivers;

b) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or

c) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.

4.3 Site induction

All personnel and contractors will complete a site induction upon arrival at the site, and prior to the commencement of any work tasks. The site induction will be facilitated by the Site Manager or delegate and include details of:

- General site and project orientation;
- Work tasks to be performed by the inductees and any special requirements or approvals;
- Key environmental risks and worker health and safety risks associated with the work tasks;
- Driver code of conduct to minimise vehicular traffic and noise impacts;
- Specific requirements and responsibilities under the Development Conditions of Consent; and
- Worker obligations and reporting requirements for with environmental incidents or near-misses.

The induction will ensure that the principles of the CEMP will be considered by all site personnel. A less detailed induction may be completed by site visitors who will not be undertaking work tasks.

5. Implementation and operation of the plan

The roles and responsibilities, training and communication mechanisms that underpin implementation of this plan are detailed in the following sections.

5.1 Role and responsibilities

Effective management of environmental aspects and promoting environmental awareness during construction of the Project is key to responsible project management. The roles and responsibilities of key personnel during the construction of the Project are outlined below in **Table 5-1**.

All personnel involved in construction phase of the Project are required to work in accordance with the CEMP.

Table 5-1: Roles and responsibility during construction

Role	Responsibilities
Executive Management	• Overarching responsibility for the Project • Licence holders and therefore hold overall responsibility for environmental management of the Project
Senior Project Engineer	• Directly responsible for the environmental management of the Project • Reports directly to Executive Management • Managing the environmental approval process • Directly responsible for the overseeing and fulfilling the commitments contained in the CEMP • Coordinating management reviews, external and internal audits and reporting progress against environmental targets and objectives • Conducting incident investigations and performing environmental risk assessments • Providing general environmental support • Environmental incident investigation and reporting • Reports to the Site Manager
Site Manager	• Oversees CEMP implementation • Monitors the activities of contractors and assesses compliance with the CEMP • Coordinates environmental supervision of clear-and-grade and other key activities • Coordinates the monitoring and audit program • Represents the Project on environmental matters with stakeholders • Reports to Senior Project Manager
Subcontractors and other site workers	• Implement environmental controls as directed • Report any environmental issues • Reports to the Site Manager

5.2 Induction and training

5.2.1 Training and competencies

The Principal Contractor will develop, implement, monitor and review a documented process that control and govern all aspects of the management of training and competency in accordance with all laws and good industry practice.

The process must apply to all contractors and sub-contractors engaged to work on the Project to ensure all workers are qualified, trained, certified, adequately experienced and appropriately licenced to undertake all tasks for their individual roles. The training and competencies component will address as a minimum:

- the operation of vehicles and mobile plant
- the operation of equipment and plant

- all activities that require Australian High-Risk Licences
- all specialist certification (e.g. working at heights, rescue activities, work in confined spaces or any other applicable activity).

Job-specific training relevant to roles will also be undertaken and records maintained of induction and attendees.

5.2.2 Site specific inductions

All Project personnel will undertake site specific induction training prior to the commencement of any construction works for the Project. Site specific inductions will address:

- background of the Project;
- approval conditions and an overview of the CEMP requirements;
- legislative requirements of the company and individuals;
- key personnel and roles;
- emergency response procedures including fire season education and associated risks and restrictions;
- environmental issues within the Project area and relevant management plans and procedures including for cultural heritage;
- community issues related to the Project and relevant management plans and procedures;
- penalties for non-compliance with required plans and procedures;
- hazard and incident reporting and management procedures; and
- any other site-specific issues.

The provision for delivering site specific induction will be the responsibility of the Subcontractor, with records of attendees maintained.

5.3 Emergency preparedness and response

The Emergency Response Procedure provides the overarching framework for emergency response during operation. A site-specific Emergency Control Plan will be developed prior to construction and is the responsibility of the Principal Contractor to develop. The Emergency Control Plan will detail as a minimum:

- appropriate procedures to follow if an emergency occur during Project construction, such as fire, lightning strikes, chemical spill, explosion, flooding, wildlife injury, damage to existing infrastructure and personnel injury;
- incident and corrective action records, which detail the procedures to record, document and follow up on environmental incidents and key personal that are to be involved;
- bushfire and fire prevention, including the development and implementation of a Fire Hazard Management Plan for the Project in consultation with the Rural Fire Service (RFS) and other relevant stakeholders.

Relevant procedures are outlined in **EMP08 Environmental Emergency Response** in **Section 7**.

5.4 Environmental inspections and monitoring

A compliance monitoring inspection program must be implemented during construction works in order to monitor compliance with the conditions of consent for the project.

The effectiveness of environmental protection measures described in this CEMP and sub plans will be assessed on a three-monthly basis by Gazcorp. During which, the following activities will be undertaken:

- Provide a surveillance tool to ensure that safeguards are being implemented;
- Identify where problems might be occurring;
- Identify where sound environmental practices are not being implemented; and
- Facilitate the identification and early resolution of problems.

Weekly environmental inspections will monitor aspects including:

- Review of relevant works approvals and permits
- Erosion and sediment controls and review of associated plans
- Drainage/groundwater protection
- Air quality, odours, dust emissions and mitigating controls
- Noise and vibration management including approved working hours, required respites and safe working distances and buffer zone near the Water NSW water supply pipeline
- Hazardous substances and dangerous goods (including fuels and chemicals)
- Waste management, recycling and recovery

Any non-conformances identified will be highlighted discussed at regular project meetings by the Site Manager where rectification actions are discussed with all site teams.

The checklist will remain 'open' until:

- The issue has been resolved;
- A new or revised procedure has been established and implemented; or
- Training has been provided to relevant personnel/ sub-contractors.

Regular inspections to assess environmental management will be undertaken and documented as appropriate.

5.5 Reporting and compliance

Contractors will report all environmental and safety events to the Principal Contractor and Gazcorp within one hour of the incident occurring, or if not reasonably practicable, as soon as possible.

The Principal Contractor will report to relevant government agencies as required by approval conditions and legislation.

An incident is defined in the condition of consent as an occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance. Condition C10 sets out the requirements for reporting of incidents.

A non-compliance is defined in the conditions of consent as an occurrence, set of circumstances or development that is a breach of the project consent, and conditions C11, C12 and C13 set out reporting for identified non-compliance.

These requirements are also included within **EMP10 Non-Compliances** and **EMP11 Incident Reporting** in **Section 7**.

5.6 Review of the CEMP

The CEMP is a working document that will be reviewed and updated as required during the construction phase of the Project to ensure that it reflects current best practice environmental management and best matches the conditions during construction.

Review of the CEMP will include a process of adaptive management, whereby the effectiveness and performance of current controls and mitigation measures are assessed and improved to ensure robust environmental performance. The review process will examine at a minimum:

- the implemented mitigation and environmental management controls
- incident reporting and procedures for preventative actions
- complaints handling procedures
- emergency response procedures for environmental incidents.

These requirements are also included within **EMP13 CEMP Review** in **Section 7**.

6. Communications and Complaint management

6.1 Site Communications

Communication during site works is critical to the safety and effectiveness of the work program. Pathways of communication include:

- Communication between site personnel, including Gazcorp and subcontractors;
- Communication between the Site Manager and all site personnel via daily prestart and toolbox meetings. This communication will establish the operational and environmental conditions for the day and for the following planned day ahead (at relevant prestart and toolbox meetings). These meetings will discuss the environmental controls and restrictions on work tasks to mitigate environmental impacts and will be documented in the daily field notes for the project;
- The Site Manager will report to the Project Manager information that encompasses all parameters required for the continued compliance to the CEMP. Communication will be via telephone or email, as the circumstances require; and
- The Site Manager with the assistance of the Project Engineer will report results and data collected over the course of site work to the Project Manager. This will be communicated via telephone/email daily summaries.

Prior to site works, the CEMP will be updated to contain a list of key persons and relevant stakeholders affiliated with activities at the site and their relevant contact information. In the event that a significant issue develops at the site, including, but not limited to, a chemical spill, or uncontrolled release to land, water or atmosphere; an unauthorised visitor; or a significant change in project scope, authorised persons can consult the CEMP for contact information.

All contact information will be verified and updated as necessary during the works.

6.2 Community Engagement

Any direct community engagement will be undertaken with consideration of GIE community engagement strategy.

Gazcorp has a website for the project as part of their community engagement strategy (www.momentumestate.com.au/planning/). This website includes contact details for enquiries and complaints.

During construction, the contact telephone number and email address of the site manager will be displayed on the gates and hoarding of the site.

6.3 Complaints and Feedback Protocol

A complaints register shall be maintained by Gazcorp or their representative.

An interaction will be recorded as a complaint if the stakeholder expresses a dissatisfaction in relation to the project or the proponent, consistent with the definition of a complaint as described in the Australian and New Zealand *Guidelines for Complaint Management* (ISO 10002:2018, NEQ).

If a complaint or feedback is received via the contact telephone number or email address, the site manager will investigate and resolve the complaint directly with the complainant.

If a complaint is received face-to-face on/near the project site by a project team member to their supervisor is to be advised who will then notify the site manager. The site manager may be notified initially by telephone or verbally, and a follow-up written notification shall be provided via email. The site manager is to then add this to the complaints register and contact the complainant.

Recording and responding to (if required) complaints are to be actioned immediately and closed out within five business days, unless escalation is required.

7. Environmental Management Procedures

This section outlines the environmental objectives mitigation and management controls for Project construction activities. These have been developed in response to the impacts and management measures identified and assessed in the EIS.

Management strategies for the following matters are addressed in this CEMP:

- EMP01 Air Quality
- EMP02 Noise and Vibration
- EMP03 Traffic
- EMP04 Erosion and Sediment Control
- EMP05 Waste Management
- EMP06 Stockpiling
- EMP07 Soil and Contamination
- EMP08 Environmental Emergency Response
- EMP09 Training
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- EMP12 Record Keeping
- EMP13 CEMP Review

Key legislative considerations and measures to be implemented in order to avoid and / or minimise environmental impacts are highlighted for each matter. The mitigation and management controls represent the minimum requirements that will be adopted during the construction phase.

In addition, as per Condition C3 of SSD-54822478, the following specific management plans have been prepared and are appended to this CEMP:

- Construction Traffic Management Plan (CTMP) in accordance with Condition B1 of the conditions of consent SSD-54822478 (located in **Appendix A**)
- Construction Noise Management Plan (CNMP) in accordance with Condition B17 of the conditions of consent SSD-54822478 (located in **Appendix B**)
- Erosion and Sediment Controls Plan in accordance with Condition B23 of the conditions of consent SSD-54822478 (located in **Appendix C**)
- Construction and Demolition Waste Management Plan in accordance with Condition B48 of the conditions of the consent SSD-54822478 (located in **Appendix D**)

Specific requirements from these management plans have been summarised within the following relevant EMPs.

Air quality	EMP01
Responsibility:	Principal Contractor
Frequency:	Continuous
Objective:	To minimise dust emissions from earthworks and ensure compliance with SSD-54822478 conditions of consent (B30-B31)

Background

The conditions of consent require the development to take all reasonable steps to minimise dust generated during all works (Condition B30).

Key potential sources of dust have been from the following sources:

- Dust emissions from earthworks activities (e.g. excavation and loading of soils to trucks);
- Wind-generated dust from disturbed surfaces and stockpiles;
- Wheel-generated dust and particulate matter emissions in diesel exhaust emissions from on-site plant and equipment and construction traffic movements; and
- Particulate matter associated with exhaust emissions from increased/congested traffic emissions due to road closures or diversions.

Based on a preliminary risk assessment, site activities that are likely to cause dust are summarised as follows (highest to lowest risk):

- Earthworks;
- Construction; and
- Soil or other debris tracked onto roads.

Statutory Requirements and Guidance Documents

All operations on site are to be conducted so that concentrations of dust satisfy those stipulated in accordance with the *Protection of the Environment and Operations Act 1997 (NSW)* and NSW EPA.

The CAQMP considered relevant guidelines, including:

- Local Government Air Quality Toolkit, Module 3 – Guidelines for Managing Air Pollution, Part 3 – Guidance Notes for Construction Sites (EPA, 2018)
- NSW Air Quality Statement 2019 (DPIE, 2020)
- Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales, Environment Protection Authority NSW (EPA, 2017)
- Holman *et al* 2014, *IAQM Guidance on the assessment of dust from demolition and construction,* Institute of Air Quality Management, London.
- Australian Standards / New Zealand Standards (AS/NZS) 3580.10.1:2016 "Methods for sample and analysis of ambient air – Determination of Particulates – Deposited Matter – Gravimetric method"
- AS/NZS 3580.1.1:2016 "Methods for sampling and analysis of ambient air Part 1.1: Guide to siting air monitoring equipment".

Air quality	EMP01

Conditions of Approval

Dust controls during construction are required to comply with the following development consent conditions from SSD-54822478:

Condition B30

The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent.

Condition B31

During construction of the development, the Applicant must ensure that:

(a) exposed surfaces and stockpiles are suppressed by regular watering;

(b) all trucks entering or leaving the site with loads have their loads covered;

(c) trucks associated with the development do not track dirt onto the public road network;

(d) public roads used by these trucks are kept clean; and

(e) land stabilisation works are carried out progressively on site to minimise exposed surfaces.

Condition B32

The Applicant must ensure the development does not cause or permit the emission of any offensive odour (as defined in the POEO Act).

Mitigations and Control Measures

The following mitigation measures should be implemented for all works:

- exposed surfaces and stockpiles are suppressed by regular watering;
- all trucks entering or leaving the site with loads have their loads covered;
- trucks associated with the development do not track dirt onto the public road network;
- public roads used by these trucks are kept clean; and
- land stabilisation works are carried out progressively on site to minimise exposed surfaces.

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Noise and Vibration	EMP02
Responsibility:	Principal Contractor
Frequency:	Where activities are undertaken that may potentially cause noise or vibration Continuous
Objective:	To mitigate impacts of noise and vibration on adjoining land and ensure compliance with SSD-54822478 conditions of consent (Noise: B16 - B18 and Vibration: B19 – B21)

Background

A Construction Noise and Vibration Management Plan (Acoustic Logic, 2024) has been written for the entire site and forms **Appendix B**. This Plan:

- identified the nearest noise receptors
- quantified noise management levels and vibration criteria against adopted criteria
- provided recommendations and mitigation measures for activities that could cause noise and vibration impacts.

The Construction Noise and Vibration Management Plan (CNVMP) identified that the nearest residential receivers are located south of the site with industrial receivers situated to the south and north, beyond the Sydney Water Supply Pipeline Easement.



Statutory Requirements

All activities on site are to be conducted in accordance with the *Environmental Protection and Biodiversity Conservation Act 1999 (Cwth).*

The CNVMP considered relevant legislation and guidelines, including:

Noise

- *Protection of the Environment and Operations Act 1997 (NSW)*,
- Noise Policy for Industry (NSW EPA, 2017),
- Australian Standard 2436-1981 "Guide to Noise Control on Construction Maintenance and Demolition Site"
- *NSW Interim Construction Noise Guideline 2009*, Department of Environment and Climate Change (ICNG)

Vibration

- German Standard DIN 4150-3 Structural Vibration: Effects of Vibration on Structures;
- "Assessing Vibration: A Technical Guideline" (NSW EPA, 2006)
- British Standard BS 6472:1992 Guide to Evaluate Human Exposure to Vibration in Buildings

Conditions of Approval

Noise and vibration controls during construction are required to comply with the following development consent conditions:

Noise

Condition B16

The development must be constructed to achieve the construction noise management levels detailed in the Interim Construction Noise Guideline (DECC, 2009) (as may be updated or replaced from time to time). All feasible and reasonable noise mitigation measures must be implemented and any activities that could exceed the construction noise management levels must be identified and managed in accordance with the Construction Noise and Vibration Management Plan required by Condition B17.

Condition B17

The Applicant must prepare a Construction Noise Management Plan (CNMP) for the Development to the satisfaction of the Planning Secretary. The CNMP must form part of a CEMP required by Condition D2 and must:

(a) be prepared by a suitably qualified and experienced noise expert whose appointment has been endorsed by the Planning Secretary;

(b) describe procedures for achieving the noise management levels in EPA's Interim Construction Noise Guideline (DECC, 2009) (as may be updated or replaced from time to time);

(c) describe the measures to be implemented lo manage high noise generating works such as piling

(d) detail procedures for minimising vibration on the Warragamba Pipelines corridor and ensuring compliance with the vibration criteria in condition B19;

(e) detail community consultation procedures; and

(f) include a complaints management system that would be implemented for the duration of construction.

Condition B18

The Applicant must:

(a) not commence construction of the development until the Construction Noise and Vibration Management Plan required by condition B17 is approved by the Planning Secretary; and

(b) implement the most recent version of the Construction Noise and Vibration Management Plan approved by the Planning Secretary for the duration of construction.

Noise and Vibration	EMP02

Vibration

Condition B19

Vibration caused by construction at any residence or structure outside the site must be limited to:

(a) for structural damage, the latest version of DIN 4150-3 (1992-02) Structural vibration - Effects of vibration on structures (German Institute for Standardisation, 1999); and

(b) for human exposure, the acceptable vibration values set out in the Environmental Noise Management Assessing Vibration: a technical guideline (DEC, 2006) (as may be updated or replaced from time to time).

Condition B20

Vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria specified in condition B19

Condition B21

The limits in conditions B19 and B20 apply unless otherwise outlined in a Construction Noise and Vibration Management Plan, approved as part of the CEMP required by condition C2 of this consent.

Section 5.4 of the CNVMP identified that the construction noise impact is not predicted to exceed the noise affected management level (NML) or highly noise affected management level (HANML) and therefore no strict mitigation measures are required. However, ongoing monitoring is recommended to ensure no exceedances.

Therefore the following are the a summary of the mitigation measures from the CNVMP:

Noise

- Monitoring: in the event that complaints are received, noise monitors should be installed at the neighbouring properties nearest to the subject site.
- Download of data: the downloading of noise and vibration monitoring data should be completed on a regular basis and fortnightly report produced to summarise the events (including any exceedances).

Vibration

Vibration monitoring associated with the Water NSW pipeline is being completed as part of the overall estate CEMP.

The CNVMP provides the following mitigation to be considered to manage adverse vibration impacts:

- Obtaining separate structural or specialist advice for critical or fragile structures as to the level of damage risk.
- Selection of processes that minimise structure and ground vibration generally avoiding percussive methods.
- Use smallest plant that is able to efficiently undertake the work activity.
- Lay vibration absorbing mats to cushion impacts from falling debris.
- Application of vibration dampening pads to metal surfaces subject to impacts.
- When demolishing, cut control joints in structures to form vibration “breaks”, or work away from sensitive receiver locations to form natural vibration breaks in propagation path.
- Monitoring of structures using attended and/or unattended monitors with alarms.
- Time scheduling works to minimise amenity impacts.
- Communicating with affected receivers.
- Adopting minimum safe workings distances for vibration intrusive plant: The following table from the CNVMP identifies recommended minimum safe distances for various vibration intensive plant potentially used for the project:

Noise and Vibration | EMP02

Plant item	Rating / Description	Minimum Working Distance			
		Cosmetic Damage			Human Response
		Light-Framed Structure (BS 7385)	Residential Structures (DIN 4150)	Heritage and Other Sensitive Structures (DIN 4150)	NSW EPA's Vibration Guideline
Vibratory Roller	< 50 kN (Typically 1-2 tonnes)	5 m	18.5 m	14 m	15m
	< 100 kN (Typically 2-4 tonnes)	6 m	17.8 m	16 m	20 m
	< 200 kN (Typically 4-6 tonnes)	12 m	43 m	33 m	40 m
	< 300 kN (Typically 7-13 tonnes)	15 m	51.5 m	41 m	100 m
	> 300 kN (Typically 13-18 tonnes)	20 m	-	54 m	100 m
	> 300 kN (> 18 tonnes)	25 m	-	68 m	100 m
Small Hydraulic Hammer	(300 kg - 5 to 12t excavator)	2 m	-	5 m	7 m
Medium Hydraulic Hammer	(900 kg – 12 to 18t excavator)	7 m	-	19 m	23 m
Large Hydraulic Hammer	(1600 kg – 18 to 34t excavator)	22 m	-	60 m	73 m
Vibratory Pile Driver	Sheet piles	20 m	-	50 m	100 m
Pile Boring	≤ 800 mm	2 m (nominal)	-	5 m	7 m
Jackhammer	Hand held	1 m (nominal)	-	2 m	3 m
Profiler	Wirtgen W210	4 m	-	-	-
Asphalt Paver	Vogele Super 1800-3	1 m	-	-	-
Steel Drum Roller	Hamm HD70 (Oscillating Mode)	2 m	-	-	-
Steel Drum Roller	Hamm HD70 (Static Mode)	1 m	-	-	-

*Reference should also be made to the detailed Construction Noise and Vibration Management Plan in **Appendix B**.*

Traffic	EMP03
Responsibility:	Principal Contractor
Frequency:	Heavy vehicle movements as generated by site works
Objective:	To minimise impacts on local road network and ensure compliance with SSD- 54822478 conditions of consent (B1 and B2)

Background

A Construction Traffic Management Plan (Ason Group, 2024) has been written for the site and is presented in **Appendix A**. This Construction Traffic Management Plan (CTMP) includes details of:

- Proposed staging of the works and access to the site via temporary or newly constructed entrances
- Traffic management plans
- Drivers code of conduct
- Transport impact assessment
- Plan administration including monitoring program, contingency plan and communications strategy.

The anticipated daily vehicle movements (construction staff, plant, equipment, and haulage) generated by the whole site during construction have been estimated as follows:

Phase	Stage	Expected Movements per Day	
		Light Vehicles	Heavy Vehicles
Phase 1 (Temporary Access)	Stage 1	130	166
Phase 2 (Signalised Access)	Stage 1 (Continued)	50	20
	Stage 2	30	26
	Stage 3	34	50
	Stage 4	28	40
	Stage 5	88	110
	Stage 6	180	156
	Stage 7	64	76

It has been determined that the highest peak of construction traffic occurs during the overlap between Stages 1A, 1B, 1C. Lot 14A is part of Stage 2 so this peak is likely to have passed.

Statutory requirements

All operations on site are to be conducted in accordance with the *Roads Act 1993 (NSW)*.

Conditions of approval

The following controls during construction are required to comply with development consent conditions:

Condition B1

B1. Prior to the commencement of construction of the development, the Applicant must prepare a Construction Traffic Management Plan (CTMP) for the development to the satisfaction of the Planning Secretary. The CTMP must form part of the CEMP required by condition C2 and must:

(a) be prepared by a suitably qualified and experienced person(s);

Traffic	EMP03

(b) be prepared in consultation with Council and TfNSW;

(c) detail the measures that are to be implemented to ensure road safety and network efficiency during construction;

(d) detail heavy vehicle routes, access and parking arrangements;

(e) include a Driver Code of Conduct to:

(i) minimise the impacts of earthworks and construction on the local and regional road network;

(ii) minimise conflicts with other road users;

(iii) minimise road traffic noise; and

(iv) ensure truck drivers use specified routes;

(f) include a program to monitor the effectiveness of these measures; and

(g) if necessary, detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes.

Condition B2

The Applicant must:

(a) not commence construction until the CTMP required by condition B1 is approved by the Planning Secretary; and

(b) implement the most recent version of the CTMP approved by the Planning Secretary for the duration of construction.

Mitigations and control measures

- Access to the site is off Wallgrove Road via the "Proposed Estate Road" as shown in . As of early 2024, this intersection at Wallgrove Road and the estate road has been signalised and allows access to the site for construction vehicles (as shown in the green arrow). No access to the Water NSW easement (shown in orange) will be required.



- It is expected that future contractors shall prepare Vehicle Movement Plans (VMP) for on-site circulation for key stages generating more than 200 HV movements (100 in, 100 out) per day. In preparing relevant details VMPs, the contractor should:
  - Minimise interaction with other work areas, as far as possible.
  - Where possible, separate heavy vehicle movements from contractor car parking areas

  - Prepare Traffic Control Plans where necessary to provide additional management of on-site vehicle movements.
- Parking zones will be nominated on site by the Contractor. These are not to obstruct vehicle manoeuvre routes.
- Handling of all materials throughout the construction shall adhere to the following:
  - It is proposed that all material loading will occur within the construction site boundary.
  - No loading is proposed to occur outside of the provisioned areas.
  - Equipment, materials and waste will be kept within the construction site boundary.
- Drivers Code of Conduct will be implemented and must comply with all of the following:
  - Demonstrate safe driving and road safety activities.
  - Abide by traffic, road and environmental legislations.
  - Follow site signage and instructions.
  - Drivers must only enter and exit the Estate via the approved entry and exit points and travel routes.
  - Drivers must not utilise any other road or other accesses for any reason other than the temporary access on Wallgrove Road while travelling to or from the Estate noting internal roads have not yet been constructed
- Breach of conduct and removal from site will happen if any of the following occur:
  - Reckless or dangerous driving causing injury or death.
  - Driving whilst disqualified or not correctly licensed.
  - Drinking or being under the influence of drugs while driving
  - Failing to stop after an incident.
  - Loss of demerit points leading to suspension of licence.
  - Any actions that warrant the suspension of a licence
  - Exceeding the speed limit in place on any permanent or temporary roads
  - The use of roads other than the temporary access on Wallgrove Road to arrive and depart from the site to access the wider road network
- The contractor is responsible to ensure all company vehicles are safe and used in a safe manner by:
  - Ensure that all drivers adhere to the designated heavy vehicle routes as required by the route designated above. If a driver accesses the Estate contrary to the approved routes, then approval to drive to and from the Estate will be revoked by Management.
  - Ensuring all vehicles are well maintained and that the equipment enhances driver, operator and passenger safety by way of:
    - Pre-commencement checks for all new plant arriving on-site and prior to undertaking any work.
    - Daily prestart inspections for all plant, vehicles and equipment currently on-site.
    - All construction plant must be fitted with a flashing light, fire extinguisher and reverse alarms (or squawkers).
    - Ensure all operators onsite have a current verification of competency (VOC) for their current driver's licence of the appropriate class.
  - Ensure maintenance requirements are met and recorded.
  - Identify driver training needs and arranging appropriate training or re-training.
  - Encouraging Safe Driving behaviour by:
    - Ensuring the subcontractor is informed if their staff become unlicensed.
    - Not covering or reimbursing staff speeding or other infringement notices.
    - Ensuring Legal use of mobile phones in vehicles while driving only
  - Encouraging better fuel efficiency by:
    - use of other transport modes or remote conferencing, whenever practical.
    - Providing training on, and circulating information about, travel planning and efficient driving habits

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Traffic	EMP03

- With regards to environmental performance, the following shall be implemented:
  - No dirt or debris from the construction vehicles is tracked on to the public road network.
  - Reduce the impacts to sensitive receivers, including, where practicable, starting noisy equipment away from sensitive receivers and implementing respite periods;
  - Watering of dusty activities will be undertaken, or activities temporarily halted and then resumed once weather conditions have improved;
  - Containment measures for spillages will be provided at appropriate locations and in close proximity to staff car park areas, dangerous goods stores areas and main Project work areas;
  - All vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria, and
  - Keep an accurate record which includes the range of measures undertaken to reduce environmental impacts.

*Reference should also be made to the detailed Construction Traffic Management Plan in **Appendix A**.*

Erosion and Sediment Control	EMP04
Responsibility:	Principal Contractor
Frequency:	Disturbance of soils or storage of exposed soils
Objective:	To minimise potential of sediment generation and migration to ensure compliance with SSD-54822478 conditions of consent (B23 and B24)

Background

A Sediment and Erosion Plan has been produced for the construction works for Lot 14A Warehouse Orion Consulting, 2024)

These plans provide designs and procedures of sediment control devices and form **Appendix C**.

Conditions of Approval

The following controls during construction are required to comply with development consent conditions:

Condition B23

Prior to the commencement of any construction or other surface disturbance, the Applicant must install and maintain suitable erosion and sediment control measures on-site, in accordance with the relevant requirements of the Managing Urban Stormwater: Soils and Construction - Volume 1: Blue Book (Landcom, 2004) guideline and the Erosion and Sediment Control Plan included in the CEMP required by Condition C2.

Condition B24

The Applicant must maintain the erosion and sediment control measures installed on-site in accordance with condition B23 for the duration of construction of the development.

Mitigations and Control Measures

This includes the following main aspects:

- Sediment fence around the entire site (as well as adjacent to internal roads when these have been constructed)
- Use of straw bale filters within the northern, southern and western borders of the site
- Geotextile filters for constructed pit inlets

The Sediment and Erosion Plan requires the following to be implemented during the works:

General

- All erosion and sediment control measures, including revegetation and storage of soil and topsoil, shall be implemented to the requirements of the “Environment Protection Authority” and “Dept of Land and Water Conservation”. Measures outlined in the Sediment & Erosion Control Plan must be implemented prior to and maintained during and after the construction works.
- Topsoil from all areas to be disturbed shall be stockpiled and later respread to aid revegetation in those areas.
- All drainage works shall be constructed and stabilised as early as possible during development.
- All tail-out drains shall be grassed and trapezoidal in section. Sediment control device (e.g. fencing, coir logs or straw bales) shall be placed where required.
- Vehicular traffic shall be controlled during development confining access where possible to proposed or existing road alignments. Areas to be left undisturbed shall be marked off.
- Disturbance of vegetation shall be limited to fill areas, roadways and drainage lines. No lot grading shall be carried out in undisturbed areas without consultation with council’s engineer.

- All disturbed areas shall be revegetated within 14 working days from the conclusion of land shaping.
- Minimise dust by watering when required.

Stockpiling

- Spoil and topsoil stockpiles shall be located away from drainage lines and areas where water may concentrate.
- If stockpiles are to be in place for longer than 14 days then they shall be stabilised by covering with a mulch, temporary vegetation, geofabric or polymer binder.
- Following construction, topsoil shall be respread to a minimum depth of 100mm on the bare soil surfaces and revegetate.
- All stockpiles to be (max) 2m high and protected with silt fence.

Sedimentation Control Devices

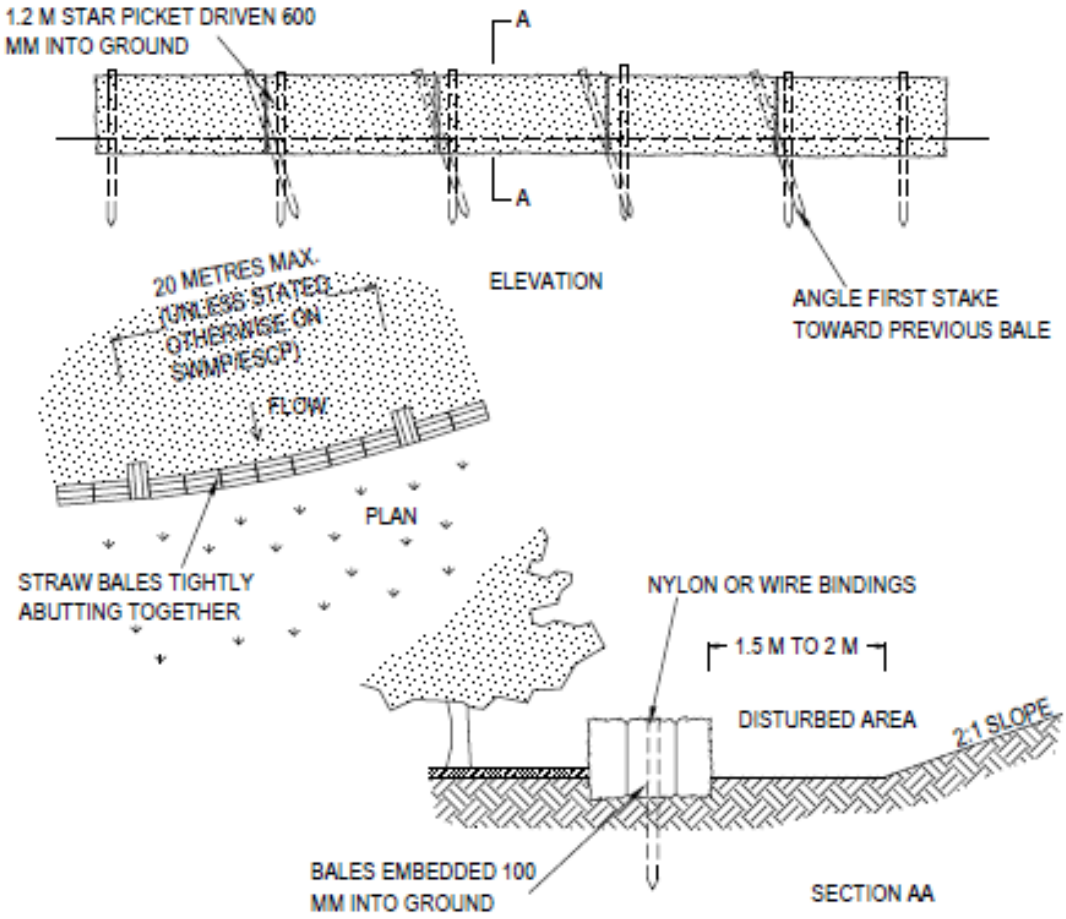
- All straw bales shall be bound with wire. Straw bales shall be placed end to end in a single row and embedded into the soil to a depth of 100mm. Each bale shall be securely anchored with two steel stakes driven 450mm into the ground and located on the bale centre line.
- Silt fences shall be constructed by stretching a filter fabric (propex or similar) between posts at a 2 m (3m max) centres. Fabric shall be buried 150mm along its lower edge.

The following figures provide the details of the sediment control devices to be used at the site.

*Reference should also be made to the detailed Erosion and Sediment Control Plans in **Appendix C**.*

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EMP04-Figure 1: Straw Bale Filter

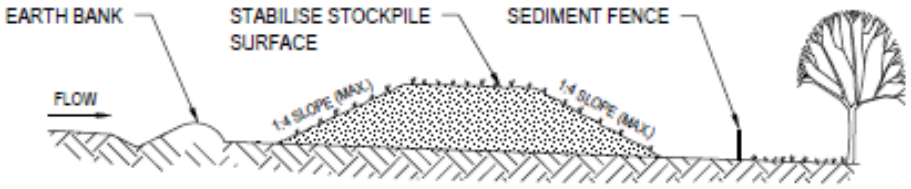


CONSTRUCTION NOTES:

1. CONSTRUCT THE STRAW BALE FILTER AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE.
2. PLACE BALES LENGTHWISE IN A ROW WITH ENDS TIGHTLY ABUTTING. USE STRAW TO FILL ANY GAPS BETWEEN BALES. STRAWS ARE TO BE PLACED PARALLEL TO GROUND.
3. ENSURE THAT THE MAXIMUM HEIGHT OF THE FILTER IS ONE BALE.
4. EMBED EACH BALE IN THE GROUND 75 mm TO 100 mm AND ANCHOR WITH TWO 1.2 METRE STAR PICKETS OR STAKES. ANGLE THE FIRST STAR PICKET OR STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BALE.DRIVE THEM 600 mm INTO THE GROUND AND, IF POSSIBLE, FLUSH WITH THE TOP OF THE BALES. WHERE STAR PICKETS ARE USED AND THEY PROTRUDE ABOVE THE BALES, ENSURE THEY ARE FITTED WITH SAFETY CAPS.
5. WHERE A STRAW BALE FILTER IS CONSTRUCTED DOWNSLOPE FROM A DISTURBED BATTER, ENSURE THE BALES ARE PLACED 1 TO 2 METRES DOWNSLOPE FROM THE TOE.
6. ESTABLISH A MAINTENANCE PROGRAM THAT ENSURES THE INTEGRITY OF THE BALES IS RETAINED - THEY COULD REQUIRE REPLACEMENT EACH TWO TO FOUR MONTHS.

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EMP04-Figure 2: Stockpiles

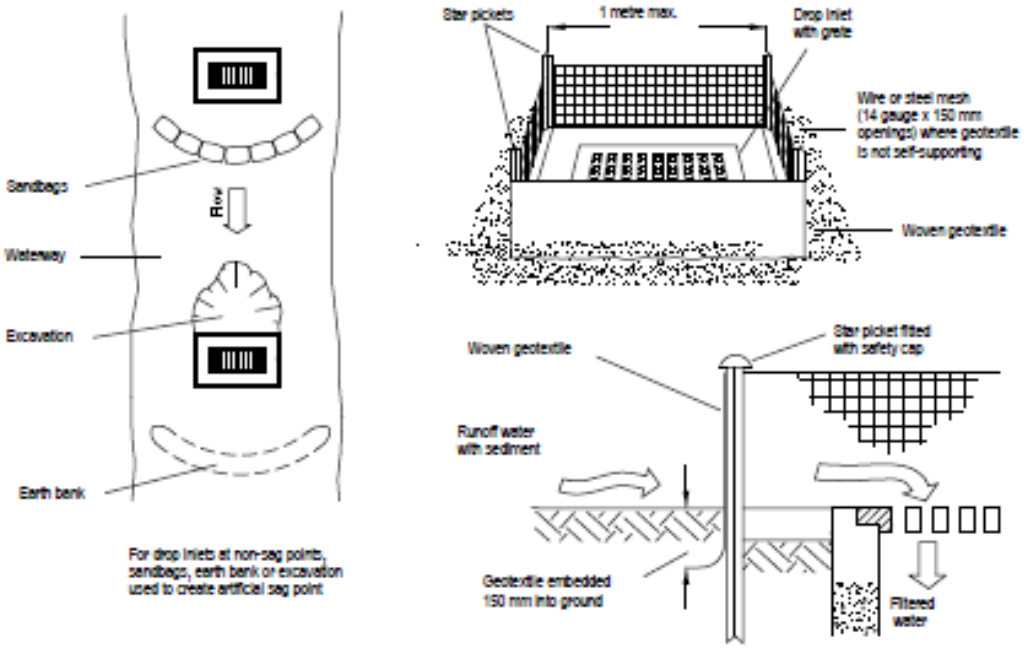


CONSTRUCTION NOTES:

1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. ALL STOCKPILES ARE TO BE LOCATED AND PLACED IN ACCORDANCE WITH THE CONTRACTOR'S EROSION AND SEDIMENT CONTROL PLAN.
5. WHERE STOCKPILES ARE TEMPORARY (<14 DAYS) NO STABILISATION IS REQUIRED. REVIEW THE ADEQUACY OF SEDIMENT CONTROLS IF RAINFALL IS PREDICTED.
6. WHERE STOCKPILES ARE TEMPORARY (<14 DAYS) THE FOLLOWING ADDITIONAL CONTROLS ARE REQUIRED:
   -MAXIMUM BATTER SLOPE REDUCED TO 1:4
   -CONSTRUCT A CONTOUR DRAIN ON THE LOW SIDE OF THE STOCKPILE, AND DISCHARGING THROUGH A STRAW BALE OR 200mm HIGH GRAVEL DAM
   -ESTABLISH GRASS COVER TO SURFACE OF STOCKPILE WITHIN 14 DAYS, USING HYDROMULCH WITH A 75:25 MIX OF SEASONAL AND PERMANENT GRASS SEEDS, AND A STRAW MULCH THICKNESS OF NO LESS THAN 5mm.
7. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2 METRES DOWNSLOPE.

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EMP04- Figure 3 – Geotextile Inlet Filter

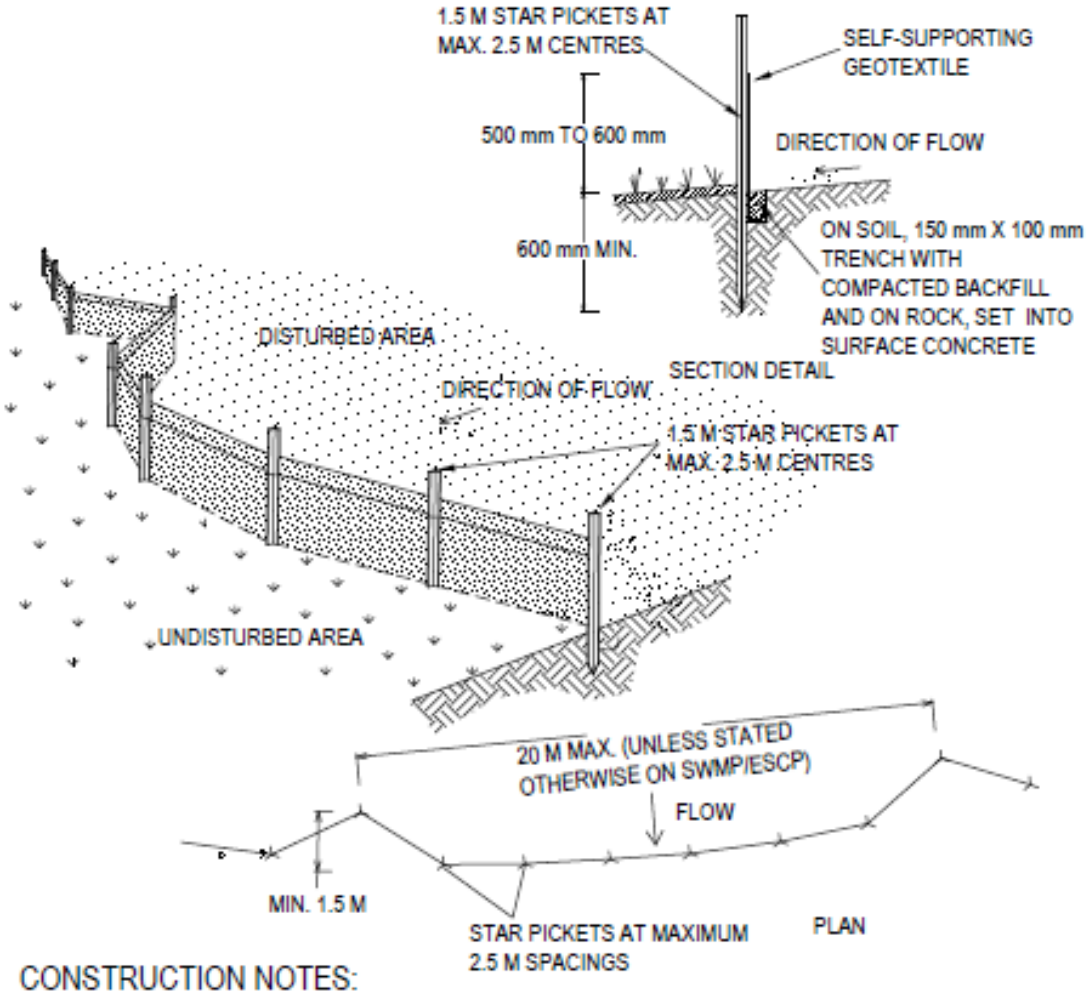


Construction Notes

1. Fabricate a sediment barrier made from geotextile or straw bales.
2. Follow Standard Drawing 6-8 for installation procedures for geofabric. Reduce the picket spacing to 1 metre centres.
3. In waterways, artificial sag points can be created with sandbags or earth banks as shown in the drawing.
4. Do not cover the inlet with geotextile unless the design is adequate to allow for all waters to bypass it.

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EMP04-Figure 4: Sediment Fences

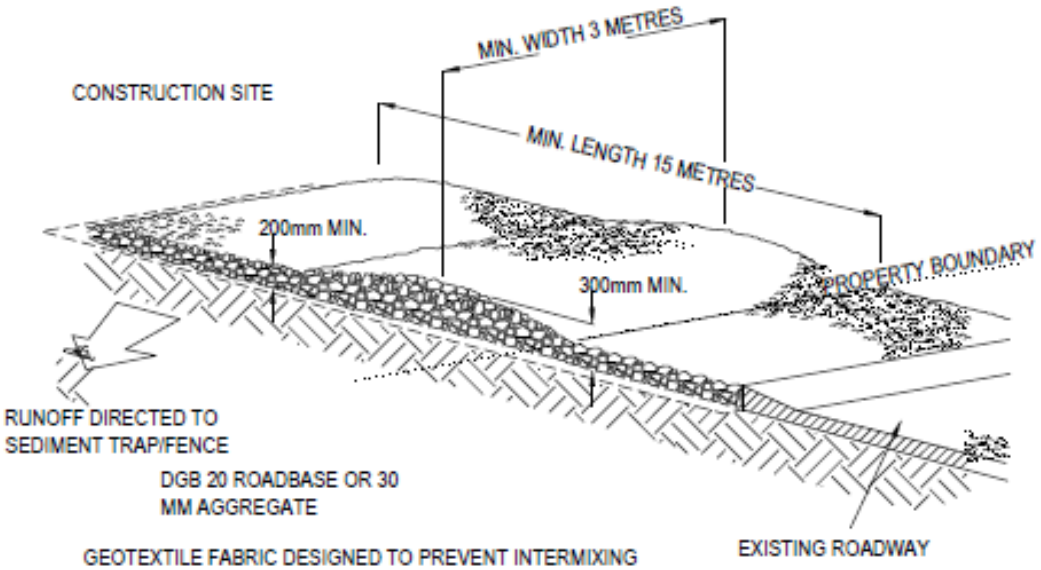


CONSTRUCTION NOTES:

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND AT 2.5m INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

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EMP04-Figure 5: Stabilised Site Access



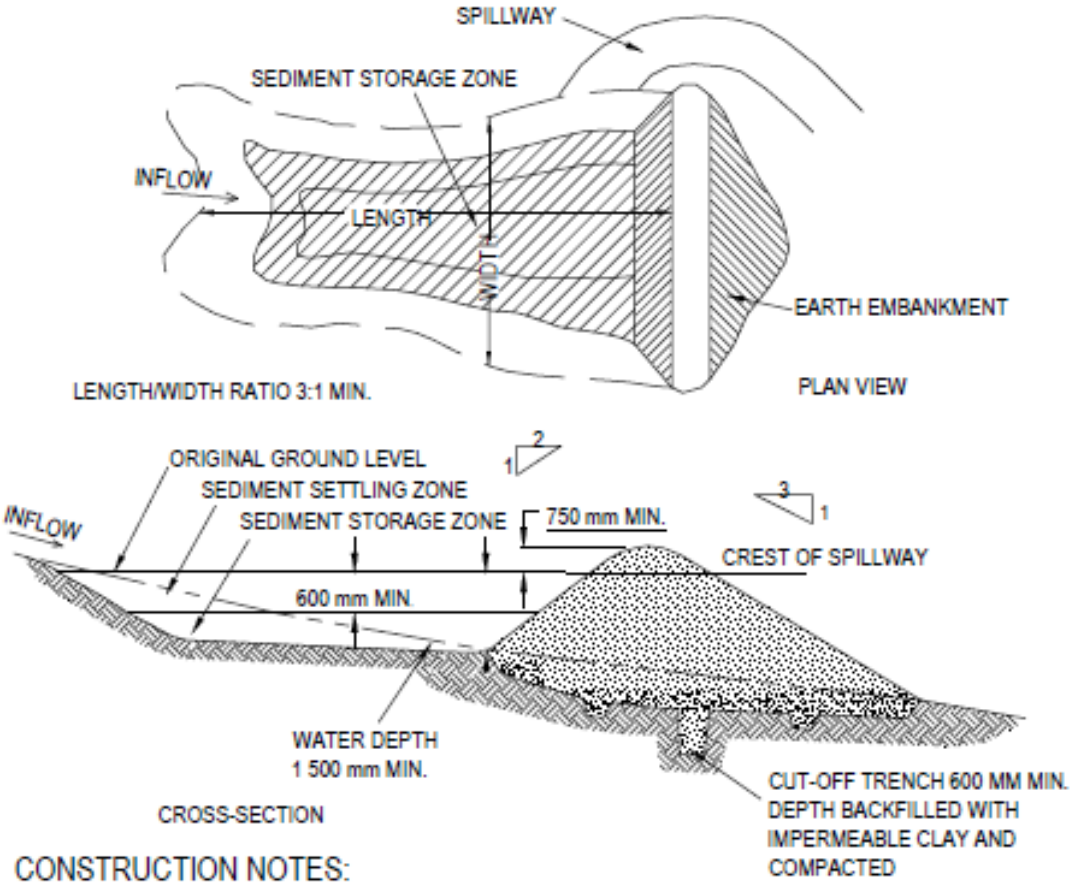
GEOTEXTILE FABRIC DESIGNED TO PREVENT INTERMIXING OF SUBGRADE AND BASE MATERIALS AND TO MAINTAIN GOOD PROPERTIES OF THE SUB-BASE LAYERS. GEOFABRIC MAY BE A WOVEN OR NEEDLE-PUNCHED PRODUCT WITH A MINIMUM CBR BURST STRENGTH (AS3706.4-90) OF 2500 N

CONSTRUCTION NOTES:

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15 METRES LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3m WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE

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EMP04-Figure 6: Earth Basin - Wet

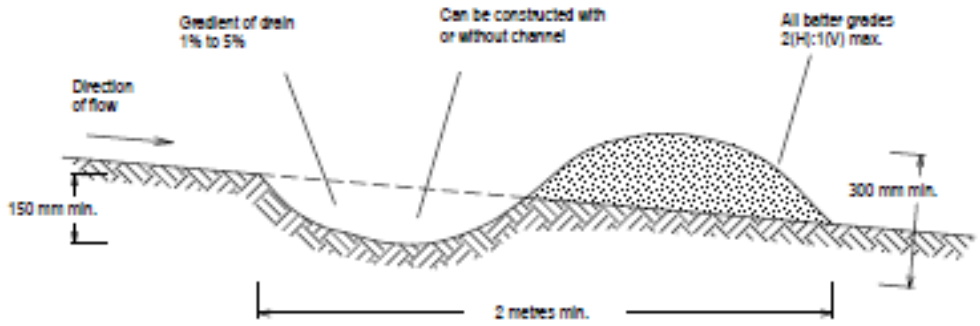


CONSTRUCTION NOTES:

1. REMOVE ALL VEGETATION AND TOPSOIL FROM UNDER THE DAM WALL AND FROM WITHIN THE STORAGE AREA.
2. CONSTRUCT A CUT-OFF TRENCH 500 MM DEEP AND 1,200 MM WIDE ALONG THE CENTRELINE OF THE EMBANKMENT EXTENDING TO A POINT ON THE GULLY WALL LEVEL WITH THE RISER CREST.
3. MAINTAIN THE TRENCH FREE OF WATER AND RECOMPACT THE MATERIALS WITH EQUIPMENT AS SPECIFIED IN THE SWMP TO 95 PER CENT STANDARD PROCTOR DENSITY.
4. SELECT FILL FOLLOWING THE SWMP THAT IS FREE OF ROOTS, WOOD, ROCK, LARGE STONE OR FOREIGN MATERIAL.
5. PREPARE THE SITE UNDER THE EMBANKMENT BY RIPPING TO AT LEAST 100 MM TO HELP BOND COMPACTED FILL TO THE EXISTING SUBSTRATE.
6. SPREAD THE FILL IN 100 MM TO 150 MM LAYERS AND COMPACT IT AT OPTIMUM MOISTURE CONTENT FOLLOWING THE SWMP.
7. CONSTRUCT THE EMERGENCY SPILLWAY. 8. REHABILITATE THE STRUCTURE FOLLOWING THE SWMP.

EARTH BASIN - WET
(APPLIES TO 'TYPE D' AND 'TYPE F' SOILS ONLY)

EMP04-Figure 7: Earht Bank (Low Flow)



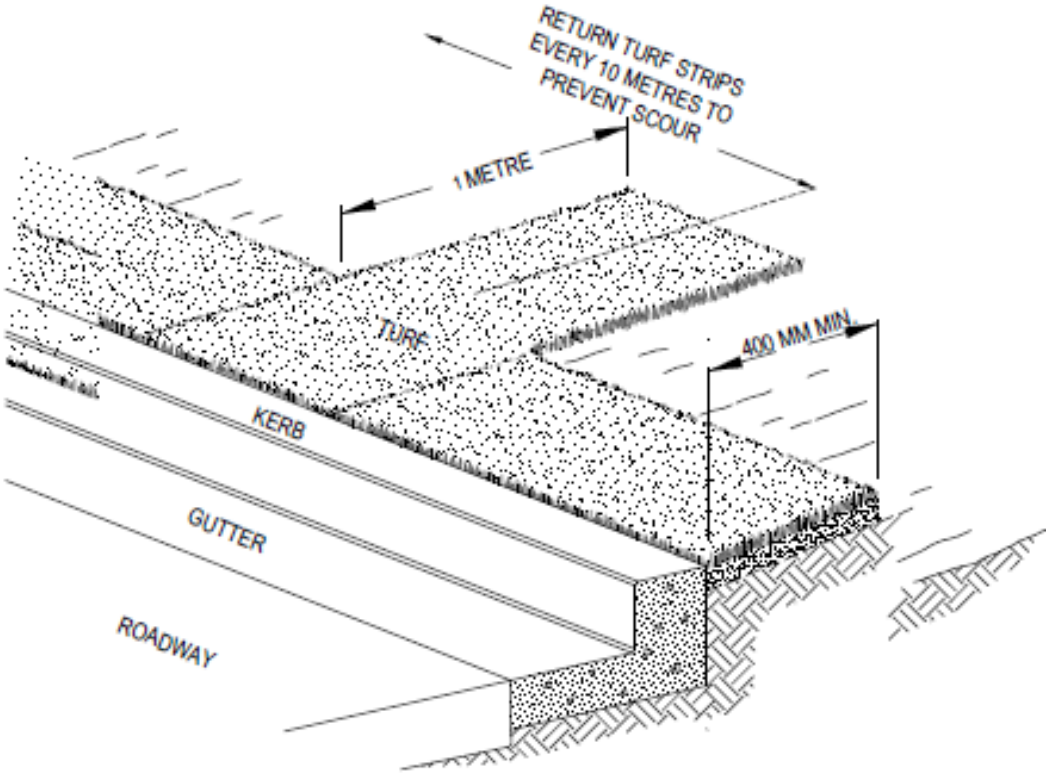
NOTE: Only to be used as temporary bank where maximum upslope length is 80 metres.

Construction Notes

1. Build with gradients between 1 percent and 5 percent.
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V shaped.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction.

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EMP04-Figure 8: Kurbside Turf Strip



CONSTRUCTION NOTES:

1. INSTALL A 400mm MINIMUM WIDE ROLL OF TURF ON THE FOOTPATH NEXT TO THE KERB AND AT THE SAME LEVEL AS THE TOP OF THE KERB.
2. LAY 1.4 METRE LONG TURF STRIPS NORMAL TO THE KERB EVERY 10m.
3. REHABILITATE DISTURBED SOIL BEHIND THE TURF STRIP FOLLOWING THE ESCP/SWMP.

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Waste Management	EMP05
Responsibility:	Principal Contractor
Frequency:	Continuous
Objective:	To minimise the amount of waste generated during construction and ensure compliance with SSD-54822478 conditions of consent (B48 – B52)

Background

The demolition and construction activities are anticipated to generate the following broad waste streams:

- Construction waste;
- Packaging waste; and
- Work compound waste from on-site employees.

Statutory requirements

All construction activities on site are to be conducted in accordance with the:

- Fairfield Citywide Development Control Plan 2013
- Australian Government, Department of Sustainability, Environment, Water, Population and Communities. Construction and Demolition Waste Guide – Recycling and Re-use Across the Supply Chain. (2014, November).
- NSW Waste Avoidance and Resource Recovery (WARR) Strategy 2014-2021
- NSW Waste Classification Guidelines 2014
  Australia's National Waste Policy 2018
-

Conditions of approval

Controls during construction are required to comply with the following development consent conditions:

Condition B48

Prior to the commencement of construction of the development, the Applicant must prepare a Construction and Demolition Waste Management Plan for the development to the satisfaction of the Planning Secretary. The Plan must form part of a CEMP in accordance with condition C2 and must:

(a) detail the quantities of each waste type generated during construction and the proposed reuse, recycling and disposal locations; and

(b) be implemented for the duration of construction works.

Condition B49

The Applicant must:

(a) not commence construction until the Construction and Demolition Waste Management Plan is approved by the Planning Secretary; and

(b) implement the most recent version of the Construction and Demolition Waste Management Plan approved by the Planning Secretary.

Condition B50

Prior to the commencement of operation of the development, the Applicant must submit a Waste Management Plan for the development to the satisfaction of the Planning Secretary. The Waste Management Plan must form part of the OEMP and be prepared in accordance with condition C5. The Plan must:

(a) detail the type and quantity of waste to be generated during construction and operation of the development;

(b) describe the handling, storage and disposal of all waste streams generated on site, consistent with the Protection of the Environment Operations Act 1997, Protection of the Environment Operations (Waste) Regulation 2014 and the Waste Classification Guideline (Environment Protection Authority, 2014);

(c) detail the materials to be reused or recycled, either on or off site; and

(d) include the Management and Mitigation Measures included in Appendix 2.

Condition B51.

The Applicant must:

(a) not commence operation until the Waste Management Plan is approved by the Planning Secretary; and

(b) implement the most recent version of the Waste Management Plan approved by the Planning Secretary.

Condition B52

Prior to the commencement of construction of the development, the Applicant must obtain agreement from Council for the design of the waste storage area for Warehouse building 14A.

Mitigations and Control Measures

The waste management plan identifies the following general practices to reduce waste:

- Re-use of excavated material on-site and disposal of any excess to an approved site;
- Green waste mulched and re-used on-site as appropriate, or recycled off-site;
- Bricks, tiles and concrete re-used on-site as appropriate, or recycled off-site;
- Plasterboard waste returned to supplier for recycling;
- Framing timber re-used on site or recycled off-site;
- Windows, doors and joinery recycled off-site;
- All asbestos, hazardous and/or intractable wastes are to be disposed of in accordance with WorkCover Authority and EPA requirements;
- Plumbing, fittings and metal elements recycled off site;
- Ordering accurate quantities of materials and prefabrication of materials where possible;
  Re-use of formwork;
- Careful source separation of off-cuts to facilitate re-use, resale or recycling.

In addition to these the following measures are also recommended to be implemented:

- Monitoring and reporting to:
  - Compare projected waste quantities with actual waste quantities produced.
  - Conduct waste audits of current projects (where feasible).
  - Note waste generated and disposal methods.
  - Look at past waste disposal receipts.
  - Record this information to help in waste estimations for future waste management plans.

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Waste Management | EMP05

- Identify opportunities for reuse and recycling including:

Material	Reuse/Recycling Potential
Asphalt	Hot in-place recycling or reprocessed into Reclaimed Asphalt Pavement (RAP).
Bricks	Cleaned and/or rendered for reuse, crushed for fill, sold or provided to a recycled materials yard
Cardboard Packaging	Recycled at a paper/cardboard recycling facility
Carpet	Cleaned and reused for the same purpose, reused in landscaping or garages/sheds, recycled at an appropriate processing facility
Concrete, Masonry, Spoil	Reused on-site as fill, levelling or crushed for road base
Doors, Windows, Fittings	Reused in new or existing buildings or sent to second-hand supplier
Glass	Recycled at a glass recycling facility, aggregate for concrete production, crushed for termite barrier, reused as glazing
Green Waste (Organics)	Mulched, composted for reuse, trees chipped for use in landscaping or removed carefully and reused onsite or sold
Hardwood Beams	Reused as floorboards, fencing, furniture or sent to second-hand timber supplier
Insulation Material	Reprocessed to remove impurities and reused for the same purpose or as off-cuts, compressed for ceiling tile manufacture
Metal, Steel/Copper Pipe	Recycled at a metal recycling facility, melted into secondary materials for structural steel, roofing, piping etc. copper sold for re-use
Other Timber	Reused in formwork, ground into mulch for garden or sent to second-hand timber supplier
Plasterboard	Crushed for reuse in manufacture of new plasterboard, returned to supplier or used in landscaping
Plastics	Reused as secondary materials for playgrounds, park benches etc.
Roof Tiles	Cleaned and reused, crushed for reuse for landscaping and driveways or sold or provided to a recycled materials yard
Soil	Stockpiled onsite for reuse as fill
Synthetic & Recycled Rubber	Reused for the same purpose or reprocessed for use in manufacture/construction of safety barriers, speed humps
Topsoil	Stockpiled onsite for reuse in landscaped areas

- Management of hazardous waste materials should include disposal of all contaminated/hazardous waste at an appropriately licenced facility. This should include:
    - Contaminated material stockpiled on site will be minimised as far as possible and should be stored on HDPE liner, in a bunded location which is protected from inclement weather;
    - Sediment fences should be installed around the base of stockpiles and the stockpiles should be covered. Where excavated material requires validations, samples should be taken for NATA laboratory testing as per the requirements of the contamination assessment prior to restoration works, backfilling exercises and disposal;
    - Any trucks carrying contaminated materials should be securely and completely covered immediately after loading the materials (to prevent windblown emissions and spillage) and must be licensed by the NSW Environmental Protection Authority (EPA);
    - Decontamination of all equipment prior to demobilisation from the site is important so that contaminated materials are not spread off-site.

*Reference should also be made to the detailed Waste Management Plan in **Appendix D**.*

Stockpiling	EMP06
Responsibility:	Principal Contractor
Frequency:	Continuous
Objective:	To ensure appropriate management of stockpiles on site during construction and ensure compliance with SSD-54822478 conditions of consent (B31).

Background

Stockpiles are to be managed to ensure that clean and contaminated soils are kept separate as well as potential dust is mitigated.

Conditions of Approval

Controls during construction are required to comply with the following development consent conditions:

Condition B31

During construction of the development, the Applicant must ensure that:

(a) exposed surfaces and stockpiles are suppressed by regular watering;

Mitigations and Control Measures

As per **EMP04 Sediment and Erosion Control**, for stockpiles the following procedures are to be implemented:

- Spoil and topsoil stockpiles shall be located minimum of 2 metres away from drainage lines and areas where water may concentrate.
- If stockpiles are to be in place for longer than 14 days then they shall be stabilised by covering with a mulch, temporary vegetation, geofabric or polymer binder.
- Following construction, topsoil shall be respread to a minimum depth of 100mm on the bare soil surfaces and revegetate.
- All stockpiles to be (max) 2m high and protected with silt fence.

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Soil and Contamination	EMP07
Responsibility:	Principal Contractor
Frequency:	On identification of unanticipated site conditions
Objective:	To ensure appropriate management of contaminated soil on site during construction and ensure compliance with SSD-54822478.

Background

Contaminated soil is to be managed to ensure it is appropriately disposed of and areas not cross contaminated.

Mitigations and Control Measures

There remains the possibility that additional hazards including contaminated soil may be identified during soil movement works. Sources of these could include:

- Contaminated imported soil.
- Contaminated soil from fly tipping, previous use of low-quality fill or poor demolition practices.
- Redundant services that have not previously been located or identified on “dial before you dig” searches.
- Demolition of existing structures (including buildings and utilities)

As a precautionary measure to ensure the protection of the workforce and surrounding community, should any of the abovementioned substances (or any other unexpected potentially hazardous substance) be identified during earthworks, the unexpected finds protocol (UFP) shall be implemented.

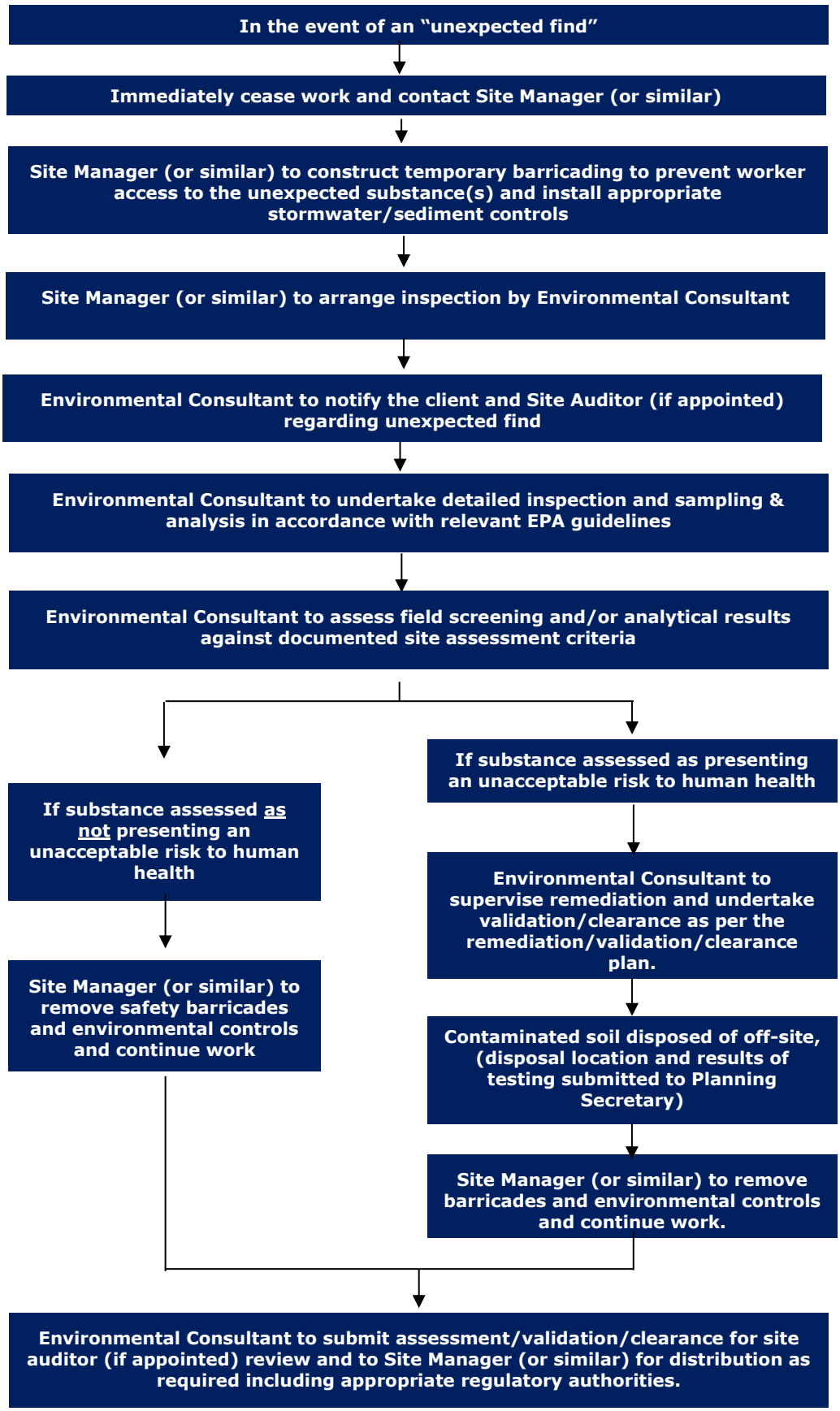
This process is provided in **EMP07-Figure 1** (below).

In addition to the UFP, the following procedures should be followed to ensure no contaminated material is imported to the site:

- ensure that only Virgin Excavated Natural Material (VENM), Excavated Natural Material (ENM), or other material approved in writing by EPA is brought onto the site;
- keep accurate records of the volume and type of fill to be used; and
- make these records available to the Planning Secretary upon request.

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EMP07-Figure 1 – Contamination Unexpected Finds Protocol	EMP07



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Environmental Emergency Response	EMP08
Responsibility:	Principal Contractor
Frequency:	Where uncontrolled releases of potential environmental pollutants occur
Objective:	To ensure appropriate management of environmental emergency during construction and ensure compliance with SSD-54822478 conditions of consent (C1 and C10)

Conditions of approval

Controls during construction are required to comply with the following development consent conditions:

Condition C1

Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:….

….. g) a *protocol for managing and reporting any:*

i. incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);

ii. complaint;

iii. failure to comply with statutory requirements

Condition C10

The Planning Secretary must be notified in writing via the Major Projects website immediately after the Applicant becomes aware of an incident. The notification must identify the development (including the development application number and the name of the development if it has one) and set out the location and nature of the incident. Subsequent notification requirements must be given, and reports submitted in accordance with the requirements set out in Appendix 3.

Mitigations and Control Measures

Environmental incidents on the site which would require potential emergency response would relate to a spill of hazardous liquid or material on soils on the site, or in proximity of stormwater discharge point, or relating to a release of potential asbestos affected materials.

For spills on **land**, the following shall be undertaken:

- Identify source of spill and stop when / if safe to do so;
- Identify area of spill and clear area of all personnel;
- Notify DPE (within 24hrs), and environmental manager of spill;
- Construct earthen bunding using earthmoving equipment available on site to contain spill;
- Environmental manager to coordinate the pumping of liquid waste out of the containment structure and disposal to a licensed waste facility;
- If solid waste:
  - environmental consultant coordinates the excavation and removal of the hazardous material to a secure area; and
  - Assess soils in vicinity of environmental incident for contamination and conduct remediation works where contamination has occurred.

Environmental Emergency Response	EMP08

For spills **in proximity of the stormwater outlets** from the site, the following shall be undertaken:

- Identify source of spill and stop when / if safe to do so;
- Identify circumference of spill and clear area of all personnel (where onshore area present);
- Notify DPE and environmental manager of spill with 24 hours;
- Environmental consultant instructs containment of area of spill in water by placement of temporary absorbent beams (available on site) to create 'coffer dam' around stormwater outlet to prevent discharge of spilt material;
- Environmental manager coordinates a liquid waste tanker to be bought onto site and pump directly from water contained within the impacted area until visual evidence of spill removed;
- Conduct chemical testing of water in the stormwater system as potentially affected by the spill to validate removal of contamination; and
- Subject to validation results, remove coffer dam.
- All emergency responses will be followed up with **EMP11 Incident Reporting** and **EMP13 CEMP Review**.

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Training	EMP09
Responsibility:	Principal Contractor
Frequency:	As required
Objective:	Suitably trained personnel will be available to implement the requirements of the CEMP

Mitigations and Control Measures

Principal Contractor shall ensure that any personnel engaged in the implementation of nominated tasks within the CEMP have been provided with adequate training to manage environmental aspects during construction. This will include inductions and other task specific training as required.

Principal Contractor shall maintain records of personnel engaged in the nominated tasks and their relevant training/qualifications for the period of three years in accordance with **EMP12 Record Keeping**.

Non-compliance	EMP10
Responsibility:	Principal Contractor
Frequency:	As required
Objective:	Suitably trained personnel will be available to implement the requirements of the CEMP

Conditions of approval

Controls during construction are required to comply with the following development consent conditions:

Condition C11

The Planning Secretary must be notified in writing via the Major Projects website within seven days after the Applicant becomes aware of any non-compliance.

Condition C12

A non-compliance notification must identify the development and the application number for it, set out the condition of consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

Condition C13

A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

Procedure

Non-compliances with the intent and procedures of the CEMP may occur during the implementation of the CEMP. Such non-compliances may include events such as failure to maintain sediment and erosion controls, accidental spills from machinery etc.

Where a non-compliance is identified by a responsible organisation, they shall inform the affected organisations of the non-compliance in writing. Where a non-compliance with the CEMP is identified by another organisation (in the activities of an alternate organisation), then they shall have the responsibility of informing the non-complying party in writing of the non-compliance. The non-complying party will be required to rectify the non-conformity as soon as possible, as per the requirements of the relevant procedure(s) where non-compliance has occurred.

The non-compliance shall be detailed as per the requirements of **EMP11 Incident Reporting** to record the incident and to inform relevant follow up / review actions.

Detail of the action taken to rectify the non-compliance shall be provided to each of the affected organisations in writing. Where a non-compliance cannot be rectified, then the CEMP will require to be reviewed as per the requirements of **EMP13 CEMP Review**.

Incident Reporting	EMP11
Responsibility:	Principal Contractor
Frequency:	As required in response to environmental incidents and/or non-compliance with EMP
Objective:	To ensure the CEMP is implemented as intended.

Conditions of approval

Controls during construction are required to comply with the following development consent conditions:

Condition C10

The Planning Secretary must be notified in writing via the Major Projects website immediately after the Applicant becomes aware of an incident. The notification must identify the development (including the development application number and the name of the development if it has one) and set out the location and nature of the incident. Subsequent notification requirements must be given, and reports submitted in accordance with the requirements set out in Appendix 3.

Incident Notification, Reporting and Response

In accordance with Condition C10, the Planning Secretary must be notified in writing via the Major Projects website immediately after the incident is identified. The notification must identify:

- the development (including the development application number (SSD-54822478) and the name of the development if it has one)
- the location and
- the nature of the incident.

Subsequent notification requirements must be given, and reports submitted in accordance with the requirements set out in Appendix 3 of the SSD-54822478 conditions of approval.

Principal Contractor shall facilitate the completion of environmental incident forms for any environmental incident that occurs on the site. The Site Manager shall review all incident forms.

DPE shall be notified of any incidents:

- requiring emergency response within 24 hours of that incident.
- within 7 days after the non-compliance is identified

Contact details of key stakeholders that might need to be advised during an emergency or incident:

Stakeholder	Contact Details
Emergency (Fire/Police/Ambulance)	000
NSW Environment Protection Authority (EPA)	131 555 info@epa.nsw.gov.au
Water NSW	1800 061 069 (24-hour service)
Transport for NSW	131 700
Fairfield Council	mail@fairfieldcity.nsw.gov.au 9725 0222
Blacktown Council	9839 6000

Jemena (gas)	131 909
WorkCover NSW	131 050
Endeavour Energy	131 003
TransGrid	1800 027 253
DBYD	1100
Local Hospital (Mt Druitt Hospital 9.5km)	9881 1555

Record Keeping	EMP12
Responsibility:	Principal Contractor
Frequency:	As required
Objective:	Records of the implementation of the CEMP require to be retained.

Procedure

The Site Manager (or person nominated by the site manager) shall be responsible for the maintenance of all documents relating to the implementation of the CEMP. This shall include any additional assessment undertaken, registers for the maintenance of the CEMP (site inspection forms, works approval checklists, revised plans, *etc.*).

All records shall be retained by Principal Contractor throughout the time of implementation of the CEMP. In the event that the role of Principal Contractor is transferred from one organisation to another, control of all relevant (historical and current) documents will be transferred for safe keeping to the current Responsible Person.

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CEMP Review	EMP13
Responsibility:	Principal Contractor
Frequency:	As required in response to revisions to supporting documents or in response to non-compliances with CEMP
Objective:	The CEMP requires review to ensure its continued appropriateness to be used on the site

Procedure

A review of the CEMP shall be undertaken in response to a non-compliance with the CEMP, or at a minimum of once per year by an appropriately qualified contractor/consultant in conjunction with the Site Manager. This review shall consider:

- Any non-compliances with the CEMP that have been unable to be resolved;
- Where an incident is reported as occurring under the control of CEMP as per **EMP11 Incident Reporting**;
- Practicalities and efficiencies of management measures and whether there are more effective ways to improve environmental compliance;
- Any changes in state or national environmental protection legislation or guidelines that impact any part of the CEMP; or
- Any proposed changes in land-use of the site or adjoining sites which may impact upon exposure pathways.

If there is substantial changes to work activities on site (outside to those described in this CEMP) then a complete review of the CEMP document and compliance measures will be necessary to identify suitable replacement CEMP compliance mechanisms.

In addition, where a review identifies items which are required to be modified, or added to the CEMP, then a revision of the CEMP shall be prepared by a suitably qualified person.

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8. Limitations

This report has been prepared for use by the client who has commissioned the works in accordance with the project brief only, and has been based in part on information obtained from the client and other parties.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

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This report does not provide a complete assessment of the environmental status of the site, and it is limited to the scope defined herein. Should information become available regarding conditions at the site including previously unknown sources of contamination, JBS&G reserves the right to review the report in the context of the additional information.

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Appendix A Construction Traffic Management Plan



Construction Traffic Management Plan

Gazcorp Industrial Estate
813 – 913 Wallgrove Road, Horsley Park
18/04/2024
P2302r01

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Document Control

Project No	P2302
Project	Gazcorp Industrial Estate (GIE) – Construction Traffic Management Plan
Client	Gazcorp Pty Ltd
File Reference	P2302r01v07 CTMP_Gazcorp Industrial Estate (GIE), Issue VII.docx

Revision History

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2	27/09/2023	Issue II	M. Abdullah	J. Laidler
3	17/10/2023	Issue III	M. Abdullah	J. Laidler
4	18/10/2023	Issue IV	M. Abdullah	J. Laidler
5	2/11/2023	Issue V	M. Abdullah	J. Laidler
6	17/11/2023	Issue VI	M. Abdullah	J. Laidler
7	18/04/2024	Issue VII	M. Khodadadifard	J. Laidler

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Appendix A. Alternative Temporary Bus Stop Locations

Appendix B. Risk Assessment

Appendix C. SIDRA Summary

Appendix D. Traffic Guidance Schemes

Appendix E. TGS Verification Checklist

Appendix F. Swept Path (as requested by Council)

Appendix G. Alternate Bus Stop Consultation (as requested by Council)

Appendix H. Evidence of Consultation with TfNSW

Appendix I. Allied TMP – Signalised Intersection

Glossary

Acronym	Description
Council	Fairfield City Council
CTMP	Construction Traffic Management Plan
DA	Development Application
DCP	Development Control Plan
DPHI	Department of Planning, Housing and Infrastructure
GFA	Gross Floor Area
GIE	Gazcorp Industrial Estate
LEP	Local Environmental Plan
LGA	Local Government Area
LoS	Level of Service
NHVR	National Heavy Vehicle Regulator
OC	Occupation Certificate
TfNSW	Transport for New South Wales
TGS	Traffic Guidance Scheme
TIA	Transport Impact Assessment
veh/hr	Vehicle movements per hour (1 vehicle in & out = 2 movements)

1 Introduction

1.1 Background

Ason Group has been engaged by Gazcorp Pty Ltd to prepare an overarching Construction Traffic Management Plan (CTMP) to identify the systems and measures taken by Gazcorp Pty Ltd for the construction traffic management associated with the construction of the Gazcorp Industrial Estate (GIE) (the Estate). The Estate plan is provided in **Figure 1**.

Further, the Estate belongs to SSD 5248 which was approved on 11 November 2019[1]. Two Modifications after the original SSD were also approved, and that is being (MOD 1) approved on 23 December 2021[2], and (MOD 2) approved on 22 December 2022[3]. It is worth noting that MOD 3[4] was withdrawn. Furthermore, two additional modifications (MOD 4[5], and MOD 5[6]) are currently being assessed at the time of writing of this report.



Figure 1: Gazcorp Industrial Estate – MOD 2

1.2 Report Purpose

The purpose of this report is to detail a traffic management plan for construction that seeks:

- To minimise traffic impacts on the surrounding road network and adjacent landowners / occupiers,
- Ensure safety of workers, pedestrians, road users and any site-specific considerations (including surrounding neighbours),

[1] https://www.planningportal.nsw.gov.au/major-projects/project/26011
[2] https://www.planningportal.nsw.gov.au/major-projects/project/41081
[3] https://www.planningportal.nsw.gov.au/major-projects/projects/gazcorp-industrial-estate-mod-2
[4] https://www.planningportal.nsw.gov.au/major-projects/projects/ssd-5248-modification-4-lots-13-and-14
[5] https://www.planningportal.nsw.gov.au/major-projects/projects/ssd-5248-modification-4-amendments-lot-10
[6] https://www.planningportal.nsw.gov.au/major-projects/projects/ssd-5248-modification-5-changes-lots-13-and-14

- Provide appropriate warnings of changes in road / traffic conditions, and of personnel / workers and plant engaged in the works on or adjacent to roads accessible to the general public;
- Minimise disruptions to public transport;
- Provide information regarding the construction vehicle access routes and any changed road conditions (if applicable); and
- Communicate the arrangements for and impacts of any activities affecting traffic.
- To develop Traffic Guidance Schemes in accordance with relevant Australian Standards and guidelines where required.

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

Ason Group is responsible for the preparation of this Plan only and not for its implementation, which is the responsibility of the Contractor. In accordance with Condition C32 of the consent, no works can commence until a CTMP report is approved by the Planning Secretary of the Department of Planning & Environment (DPE).

1.3 References

The below reports have been referenced in the preparation of this CTMP:

- GHD, SSD 5248 Traffic Impact Assessment, 813-913 Wallgrove Road, ref: 21/22381, 23 August 2012 (GIE TA)
- Ason Group, SSD 5248 Transport Assessment, 813-913 Wallgrove Road, ref: 1440r02v3, 30 February 2021 (GIE MOD 1 TA)
- Ason Group, SSD 5248 Response to Submissions, 813-913 Wallgrove Road, ref: 1440r04v02, 25 October 2021 (GIE MOD 1 RTS)
- Ason Group, SSD 36156297 Transport Assessment, Lot 11 & 12, 813 Wallgrove Road, ref: 1877r01v02, 25 March 2022 (DHL TA)
- Ason Group, SSD 36156297 Response to Submissions, 813 Wallgrove Road, ref: 1877l01v3, 7 October 2022 (DHL RTS)
- Ason Group Lot 11-12: Ason Group, Construction Traffic Management Plan, Lot 11-12, Gazcorp Industrial Estate ref: P2234r01v3 CC CTMP Lot 11-12, Gazcorp Industrial Estate Issue III.
- Department of Planning and Environment, SSD 5248 Gazcorp Industrial Estate Modification 2, 11 November 2019 (SSD 5248 MOD 2)
- Department of Planning and Environment, SSD 36156297 DHL Warehouse and Distribution Centre, 22 December 2022 (SSD 36156297)
- Allied Traffic Management, Traffic Management Plan, 19-0108 – MR515 Wallgrove Road, Horsley Park Intersection Upgrade, 26 August 2022 (GIE CTMP)

1.4 Project Representatives & Stakeholders

This report has been prepared by consultants who hold the TfNSW (formerly RMS) Prepare a Work Zone Traffic Management Plan certification. Details of the accredited personnel are provided below:

- James Laidler Ticket No. TCT0031686
- Jasmine Wong.: Ticket No. TCT1043265

This Construction Traffic Management Plan (CTMP) has been prepared to meet the requirements outlined in Appendix A and Appendix E, Section E.2 of the *Transport for NSW Traffic Control at Work Sites Technical Manual (Issue No. 6.1, Feb 2022) (TCAW).*

Through the preparation of this CTMP, the project representatives and stakeholders consulted in the development of the traffic management strategy are listed below:

TABLE 1: PROJECT REPRESENTATIVES AND STAKEHOLDERS

Name	Organisation	Role
Tim Sachs	Gazcorp	Senior Project Manager
Sangeeth Subramaniam	Gazcorp	Project Manager
Ali Rasouli	Ason Group	Principal Traffic Engineer
James Laidler	Ason Group	Senior Traffic Engineer
Musstafa Abdullah	Ason Group	Traffic Engineer

During the CTMP approvals stage, the CTMP should be provided to relevant stakeholders for consideration, such as Council, TfNSW, neighbouring properties, and Contractor's safety team, to support traffic management investigations.

1.5 Estate Location

With reference to **Figure 2** below, the Gazcorp Industrial Estate is located at 813 – 913 Wallgrove Road, Horsley Park, which is also legally known as Lot 5 DP 24094. It is situated within Fairfield City Council's Local Government Area (LGA) and, as such, is subject to Fairfield City Council's controls.



Figure 2: Estate Location

1.6 Authority Requirements

The Department of Planning, Housing and Infrastructure (DPHI) has reviewed the Construction Traffic Management Plan (CTMP) and provided preliminary feedback. Below is a summary of their comments along with our responses addressing each of these points.

TABLE 2: DPIE COMMENTS – PRELIMINARY

Comments	Response
Evidence of consultation with Fairfield City Council or Transport for NSW.	Evidence of consultation with Transport for NSW is provided in **Appendix H**. Response to TfNSW feedback is provided in **Table 5**.. Fairfield City Council was also consulted, response to Fairfield City Council feedback is provided in **.**
Detail the measures that are to be implemented to ensure road safety and network efficiency during construction.	Safety for all road users has been outlined and discussed in **Section 2.3** and **Section 4.2** Network efficiency has been addressed in **Section 6** and **Section 6.2.**
The expected construction vehicle movements for Stage 1 outlined in Section 4.1.2 of the CTMP do not correlate with those assessed and approved under SSD-5248. The discrepancy has not been identified or justified in the CTMP.	The following trips that are to be generated from the entire estate within the SSD-5248-MOD 2 (SSDA) report have been outlined below. • AM Peak 541 trips/hr (inbound & outbound) • PM Peak 397 trips/hr (inbound & outbound) • Daily 5,774 trips/hr (inbound & outbound) Within the SSDA report, Stage 1 indicated the operational development related to the development of Lots 11 & 12. Stage 1 operational volumes are not comparable to the Stage 1 construction volumes, as they relate to different activities, as follows: SSDA Stage 1: Relates to the trip generation once Lots 11 & 12 become operational. CTMP Stage 1: Relates to the construction volumes of the estate earthworks, estate infrastructure works and partial construction of warehouses – see **Table 7** for more detail. As such, the construction volumes outlined within **Section 4.1.2** do not correlate with the operational volumes within the SSDA.
The CTMP does not explicitly detail traffic and pedestrian management methods	Traffic management is defined in **Section 4.2.6** and **Appendix D.** Pedestrian management is defined in **Section 4.2.5**
Section 4.1.5 of the CTMP identifies the Warragamba to Prospect Pipeline, however, does not detail what measures will be taken to ensure the unhindered movement of authorised vehicles permitted to access the pipeline.	Refer to **Section 4.1.5** for further details.

Upon reviewing Ason Group's responses to the DPHI preliminary comments, DPHI has provided additional feedback. Below is a summary of their comments, along with our responses addressing each point.

TABLE 3: DPIE FURTHER COMMENTS

Comments	Response
Further detail required in response to C31(i). The Applicant must demonstrate in more detail how measures are to be implemented to ensure the unhindered movement of authorised vehicles to the Warragamba Pipeline. Mitigation methods are to be outlines in the instance this cannot be achieved.	Noted, Refer to **Section 4.1.5** which outlines that the accesses are indeed separated and not affected by the operation of each other.
The Department notes that the Traffic Impact Statement, dated 23 August 2013, for the Stage 1 development (SSD-5248) states that construction of the Stage 1 development would generate 27 daily vehicles. However, the Stage 1 CTMP does not provide construction vehicle movements of the Stage 1 development. Please clarify the discrepancy. If the construction traffic volume described in the CTMP is accurate, please explain the increase and any additional measures to be implemented to manage the additional impacts.	The Traffic Impact Assessment (TIA) [7]was prepared by GHD in 2013. The TIA It recommended that further, more detailed construction traffic management planning be when they become available. Condition C32 of the Consent also outlines that a detailed CTMP must be prepared prior to commencement of construction. As such, volumes outlined within the original TIA were estimated only and not reflective of the current construction process. **Table 19** outlines the expected construction volumes for the entirety of the construction program, with **Section 6.2** outlining the suitability of this construction traffic in relation to the impacts of the surrounding road network.

1.7 Stakeholder Consultation

1.7.1 Fairfield City Council Feedback

Fairfield City Council has reviewed the CTMP and provided preliminary feedback. Below is a summary of their comments along with our responses addressing each of these points.

[7] https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-5248%2120191119T003602.739%20GMT

TABLE 4: DPIE FURTHER COMMENTS

<table>
<tr><th>Comments</th><th>Response</th></tr>
<tr><td>The applicant is to clarify the SIDRA modelling assessment for the proposed interaction during the AM & PM peak hours for the scenario prior to the operation of the signalised intersection. Whilst the CTMP mentions the scenario for prior operations of the signalised intersection, the SIDRA modelling assessment has been carried out as a signalised intersection with the assumptions of Isolated Cycle Time (120 sections assuming that traffic signals are in operation</td><td>Ason group has carried out the SIDRA modelling prior to the signalised intersection for the temporary access as a “Give Way” intersection and not as a signalised intersection and the result of the giveaway intersection can be found in Appendix C.

A summary of the temporary access performance is shown below.
<table><tr><th colspan="4">TEMPORARY ACCESS PERFORMANCE</th></tr><tr><td>Peak Period</td><td>AVD (s)</td><td>LOS</td><td>DOS</td></tr><tr><td>AM</td><td>0.7</td><td>D</td><td>0.637</td></tr><tr><td>PM</td><td>0.8</td><td>B</td><td>0.701</td></tr></table>Additionally, the modelling for the signalised intersection was previously completed and approved by TfNSW during the initial assessment of the GIE TA[8]. This assessment was based on the assumption that the site would be fully operational at its maximum capacity.

In this CTMP, The SIDRA modelling was conducted for the signalised intersection, considering the construction traffic volume during phase 2. It is important to note that this phase involves significantly lower traffic compared to the site’s full operational capacity.</td></tr>
<tr><td>The applicant shall come up with strategies and measures to minimise the traffic impacts on the adjoining road network. Specific traffic and access mitigation measures through the risk assessment processes are to be included within the CTMP. The risk assessment/ audit process shall be undertaken by the applicant to pro-actively manage road safety by identifying and addressing the risks associated with the road safety deficiencies.</td><td>In response to the directive to minimise traffic impacts on the adjoining road network, a traffic generation analysis of the construction traffic volumes pre-signalised intersection was conducted. The traffic volume accessing the site represents only a small percentage of Wallgrove Road and is limited to left in and left out movements, thereby posing a minimal safety risk to the road network. Figure 17 shows a comparison between the construction traffic volume during Phase 1 and the traffic volume of Wallgrove Road

As for the risk assessment associated with the construction traffic after the operation of the signalised intersection, all the construction traffic will access the site through the signalised intersection, which does not carry a risk.
To further enhance road safety and minimize potential risks, a series of proactive measures have been outlined in the Comprehensive Traffic Management Plan (CTMP) and detailed in Appendix B.</td></tr>
</table>

[8] https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-5248%2120191119T003546.100%20GMT

	A key approach adopted is the implementation of regular toolbox meetings and monitoring procedures. These meetings serve as essential platforms to educate drivers about the Driver Code of Conduct, ensure compliance with road safety regulations, and adherence to road rules. By emphasising road safety awareness and fostering a culture of compliance, conflicts with different road users, such as pedestrians, cyclists, and motor vehicles, are significantly reduced. This approach aligns with the commitment to managing road safety effectively and addressing potential risks associated with road safety deficiencies
The applicant is to submit swept path diagrams to demonstrate the largest vehicle can satisfactorily traverse the construction vehicle route and can turn into and out of the site whilst not adversely impacting other road users.	Please refer to **Appendix F** for a detailed swept path analysis of the largest construction vehicles (12.5 m HRV) accessing the site via the temporary access route.
The relocation of the existing bus stop shall be consulted with the affected stakeholders. Any issues raised by affected businesses, TfNSW and the bus company need to be satisfactorily addressed.	Please refer to **Appendix G**, for details regarding the stakeholders' consultation conducted by Burton. The findings indicate that both TfNSW and the bus company are not obligated to relocate the bus stops based on the consultation results.
The CTMP shall be referred to TfNSW given that there will be a significant number of vehicles using the state road for an extended period of time during construction. Any issues raised by TfNSW shall be satisfactorily addressed.	Consultation with TfNSW is presented in **Appendix H**. **Table 5** outlines a comprehensive overview of the responses addressing all the issues raised by TfNSW.

1.7.2 TfNSW Feedback

Transport for NSW was consulted regarding this CTMP, and they provided their feedback on 01 November 2023. The feedback from TfNSW and ASON's responses to each comment are presented in **Table 5** below:

TABLE 5: TFNSW COMMENTS

Comments	Response
Separate TMP for the signalised intersection to be submitted to CJP	Allied Traffic Management has prepared a TMP for the signalised intersection. This plan has been reviewed and consulted with TfNSW during the WAD process. For detailed information regarding Allied TMP, please refer to **Appendix I**
Any Traffic Guidance Schemes (TGS) prepared are to comply with AS1742.3 and Transport for NSW's "Traffic Control at Worksites" manual and be signed by a person with TfNSW certification to prepare a TGS.	The Traffic Guidance Schemes (TGS) have been designed in accordance with AS1742.3 and Transport for NSW's "Traffic Control at Worksites" manual. They have been prepared by persons holding TfNSW certification. For more detailed

	information, please refer to **Section 1.4**. and **Appendix D**
Proponent must apply and obtain approval from the Transport Management Centre for a Road Occupancy Licence (ROL) for any required lane closures and/or Speed Zone Authorisations as part of the ROL that may impact the state road network or is within 100m of traffic signals.	As detailed in the report, the construction activities related to the GIE will necessitate two access arrangements, as outlined in **Section 2.4.1** for interim construction access and **Section 2.4.2** for ultimate construction access. For the interim access, it is important to note that there will be no need for lane closures or Speed Zone Authorizations associated with the Road Occupancy Licence (ROL) that may impact the state road network. Moreover, this access point is situated beyond a 100m radius from any traffic signals. Similarly, the ultimate construction access does not require any lane closures or Speed Zone Authorizations that would impact the state road network. Furthermore, the ultimate access point is located at a traffic signalised intersection, and there will not be any roadwork involved on the public road. Therefore, obtaining a Road Occupancy Licence (ROL) is not necessary for the ultimate access point. In the event an ROL is required, then the appropriate approvals processes will be undertaken. Refer to **Section 2.**
Access to be maintained for residents, businesses and emergency vehicles at all times.	Access for residents, businesses, and emergency vehicles will be maintained at all times
No marshalling or queuing of construction vehicles is to occur on public roads. Arriving vehicles that are not able to use parking bay/work zone must continue to a holding point until space becomes available.	Noted, however there is no work zone proposed as part of the construction works. To ensure there is no queuing of construction vehicles on public roads, a detailed schedule for deliveries of goods and materials will be established in advance. All anticipated deliveries will be communicated to site personnel during daily prestart meetings to streamline operations and minimise disruptions.
When heavy vehicles are entering or leaving the site a traffic controller is to be provided to manage any conflicts between pedestrians and heavy vehicles.	A qualified construction personnel will be provided to manage vehicles entering or leaving the Site to avoid any conflicts between pedestrians and heavy vehicles.
Access to the site should be at the farthest point from the intersection as practicable to reduce additional conflicting vehicle manoeuvres.	The temporary construction access to the site has been arranged at the farthest point from the intersection. Refer to **Section 2.4**.
Transport for New South Wales reserve the right to alter the CTMP Conditions at any time to maintain safe and efficient traffic and pedestrian movements in this area.	Noted

Any approved Works Zone should only be used for work activities. No infrastructure, including bins, tanks or traffic control equipment should be left on the road when the works zone is not in use by a vehicle. All non-vehicular items must be contained with the work area and not on the carriageway. When a work zone is not in use, the area/lane must be opened up to allow for normal trafficable conditions	Noted. At no stage of the construction process Work Zone is needed. Refer to **Section 2.1**
Should TfNSW Network and Asset Management, Network Operations, CJP Operations, Network and Safety or other TfNSW business area determine that that more information is to be provided for review and acceptance, including other TCS locations, this information must be submitted prior to the CTMP being implemented, or otherwise agreed upon.	Noted
Any traffic control devices, including signage and line marking, should be installed by the proponent and must conform with Australian Standards 1742	All traffic control devices, including signage and line marking, will be installed by the proponent and will conform with Australian Standards 1742.

1.8 Road Hierarchy

The road hierarchy in the locality is presented in Figure 2 and summarised below for key roads.

TABLE 6: ROAD HIERARCHY

Road Name	Road Classification	Speed Limit	Description
M4 Western Motorway	Motorway	110 km/h	The M4 Western Motorway generally consists of 3 lanes in each direction separated by a median. There are no parking opportunities on both sides of the road.
Westlink M7 Motorway	Motorway	100 km/h	The Westlink M7 Motorway generally consists of 2 lanes in each direction separated by a median. There are no parking opportunities on both sides of the road.
Wallgrove Road	Arterial	70 km/h	Wallgrove Road generally consists of 1 lane in each direction separated by line marking only. There are no parking opportunities on both sides of the road.
Estate Road 01	Local	50 km/h	Once constructed, it provides connectivity and access to various areas and facilities within the Estate.
Estate Road 02	Local	50 km/h	Once constructed, it provides connectivity and access to various areas and facilities within the Estate.
Estate Road 03	Local	50 km/h	Once constructed, it provides connectivity and access to various areas and facilities within the Estate.

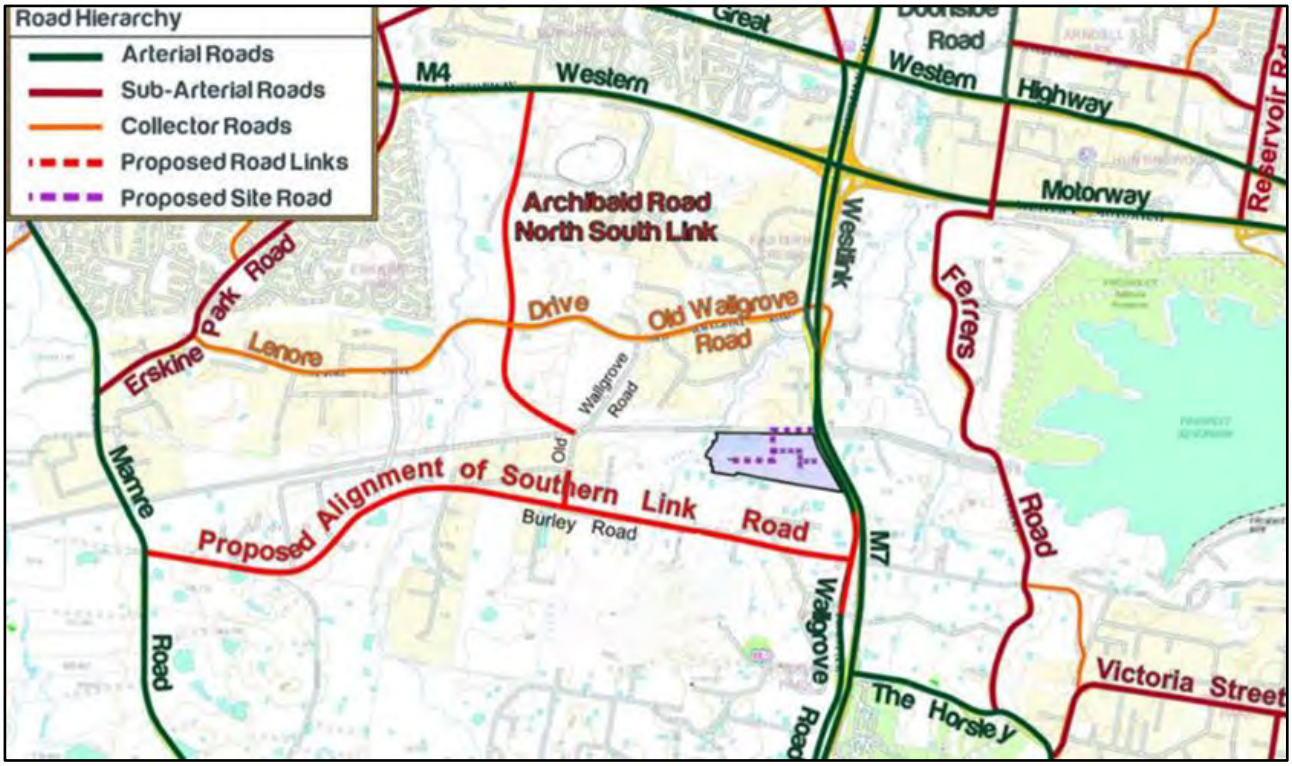


Figure 3: Road Hierarchy

2 Proposed Works and Staging

2.1 Project Details

The proposed construction activities for the estate road work and the bulk earth work have already started in April 2023 as evidence in **Table 8.** The construction process of GIE is expected to span approximately 5-6 years, depending on approvals from relevant authorities and any potential delays caused by inclement weather. The evaluation of the project will be carried out in 2 construction phases as follows:

- Phase 1: Pre-operation of the Wallgrove Road/Estate Road 01(the Signalised intersection), this phase focuses on the construction activities and traffic management measures prior to the Signalised intersection becoming operational.
- Phase 2: Post-construction of the Signalised intersection, this phase assesses the construction work and traffic conditions after the completion of the Signalised intersection.

2.2 Works Stages

2.2.1 Overview

The construction of GIE – the basis of this CTMP – will progress through 7 stages, commencing with Stage 1. During most of Stage 1 works, the majority of construction vehicles will utilise the temporary access for the Estate entry (Phase 1), while a few construction vehicles from Stage 1 and all construction vehicles from Stages 2-7 will access the Estate through the main access at the Signalised intersection (Phase 2). It is expected that the signalised intersection will be operational in January 2024.

It is worth mentioning that once the Signalised intersection is operational, it will become the access for construction vehicles, while the temporary access will be permanently closed. **Figure 4** provides a visual representation of the overall plan, including the respective stages and their associated construction areas.

To clarify, the construction of the signalised intersection is **not** included in this CTMP. However, it should be noted that the construction volume associated with the signalised intersection will be taken into account in the cumulative traffic assessment of the Estate.

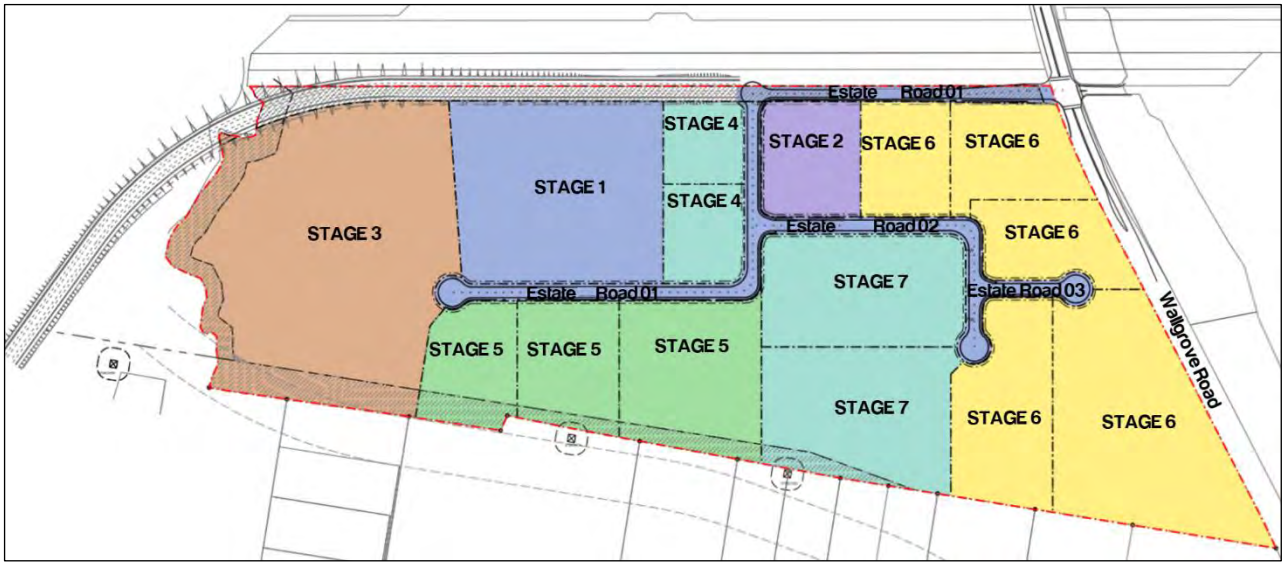


Figure 4: Construction Stages

TABLE 7: WORK STAGES

Phase	Stage	Description
Phase 1 (Prior to Signalised Intersection)	Stage 1	Stage 1 includes a range of tasks, including; • Bulk earthworks; • Internal estate roads; • Temporary LILO access off Wallgrove Road. • Construction of Lot 11 & 12
Phase 2 (Utilising Signalised Intersection)	Stage 1 (Continued)	Continued Stage 1 tasks including; • Internal Estate Roads • Construction of Lot 11 & 12
	Stage 2	• Construction of Lot 14A
	Stage 3	• Construction of Lot 10
	Stage 4	• Construction of Lot 13A & 13B
	Stage 5	• Construction of Lot 7& Lot 8A & Lot 8B & Lot 9
	Stage 6	• Construction of Lot 14B & Lot 1 & Lot 2 & Lot 3A & Lot 3B & Lot 4
	Stage 7	• Construction of Lot 5 & 6

Further details regarding each scenario are outlined below.

2.2.2 Phase 1 Pre-Operation of The Signalised Intersection

The description of works is seen below:

TABLE 8: STAGE SUMMARY – STAGE 1A – ESTATE ROAD & BULK EARTHWORK

Criteria	Response
Description of Key Activities	Estate Road and Bulk earthworks
Stage Length	Apr 2023 – Oct 2023 (6 Months)
Max. Vehicle Size	AV, Trucks & Dog
Vehicle Movement Frequency	Approximately 40 light vehicle movements / day + Approximately 60 heavy vehicle movements / day
HV Access Requirements	All vehicles shall access the Estate at the temporary access through the deceleration lane.
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N
Contractor Parking	Y All parking will be within the estate. Builder shall nominate contactor parking zones, clear of truck manoeuvring areas.
Pedestrian Control	Y Temporary fence around site perimeter only.
Public Transport Services Affected	N Public transport services (i.e., location of bus stops) would not be affected beyond what has already been assessed and approved within the GIE CTMP prepared by Allied Traffic Management. As part of the GIE CTMP, 2 bus stops with Stop IDs 576623 and 276622 would be temporarily relocated during construction and both have already received approval from TfNSW. The alternative bus stop locations are shown in **Appendix A**.
Road Occupancy Requirements (If yes, provide further details)	N
Lane or Footpath Closures (If yes, provide further details)	N
Traffic Guidance Scheme	**Appendix D.**

TABLE 9: STAGE SUMMARY – STAGE 1B – LOT 11-12

Criteria	Response
Description of Key Activities	Bulk earthworks, retaining walls
Stage Length	Oct 2023 – Dec 2023 (2 Months)
Max. Vehicle Size	12.5m Heavy Rigid Vehicles (HRVs)
Vehicle Movement Frequency	Approximately 20 light vehicle movements / day + Approximately 50 heavy vehicle movements / day
HV Access Requirements	All vehicles shall access the Estate at the temporary access through the deceleration lane.
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N
Contractor Parking	Y All parking will be within the estate. Builder shall nominate contactor parking zones, clear of truck manoeuvring areas.
Pedestrian Control	Y Temporary fence around site perimeter only.
Public Transport Services Affected	N Public transport services (i.e. location of bus stops) would not be affected beyond what has already been assessed and approved within the GIE CTMP prepared by Allied Traffic Management. As part of the GIE CTMP, 2 bus stops with Stop IDs 576623 and 276622 would be temporarily relocated during construction and both have already received approval from TfNSW. The alternative bus stop locations are shown in **Appendix A**.
Road Occupancy Requirements (If yes, provide further details)	N
Lane or Footpath Closures (If yes, provide further details)	N
Traffic Guidance Scheme	**Appendix D.**

TABLE 10: STAGE SUMMARY – STAGE 1C – LOT 11-12

Criteria	Response
Description of Key Activities	Structure
Stage Length	Oct 2023 – May 2023 (7 Months)
Max. Vehicle Size	12.5m HRVs
Vehicle Movement Frequency	Approximately 60 light vehicle movements / day + Approximately 40 heavy vehicle movements / day
HV Access Requirements	All vehicles shall access the Estate at the temporary access through the deceleration lane.
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N
Contractor Parking	Y All parking will be within the estate. Builder shall nominate contactor parking zones, clear of truck manoeuvring areas.
Pedestrian Control	Y Temporary fence around site perimeter only.
Public Transport Services Affected	N Public transport services (i.e. location of bus stops) would not be affected beyond what has already been assessed and approved within the GIE CTMP prepared by Allied Traffic Management. As part of the GIE CTMP, 2 bus stops with Stop IDs 576623 and 276622 would be temporarily relocated during construction and both have already received approval from TfNSW. The alternative bus stop locations are shown in **Appendix A**.
Road Occupancy Requirements (If yes, provide further details)	N
Lane or Footpath Closures (If yes, provide further details)	N
Traffic Guidance Scheme	**Appendix D.**

It is noted from the table above that Stage 1C overlaps between Phase 1 and Phase 2

2.2.3 Phase 2 Post-Operation of The Signalised Intersection

TABLE 11: STAGE SUMMARY – STAGE 1C – LOT 11-12

Criteria	Response
Description of Key Activities	Fit Out
Stage Length	Apr 2024 – Aug 2024 (4 Months)
Max. Vehicle Size	12.5m HRV
Vehicle Movement Frequency	Approximately 50 light vehicle movements / day + Approximately 20 heavy vehicle movements / day
HV Access Requirements	All vehicles shall access the Estate at the temporary access through the deceleration lane.
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N
Contractor Parking	Y All parking will be within the estate. Builder shall nominate contactor parking zones, clear of truck manoeuvring areas.
Pedestrian Control	Y Temporary fence around site perimeter only.
Public Transport Services Affected	N
Road Occupancy Requirements **(If yes, provide further details)**	N
Lane or Footpath Closures **(If yes, provide further details)**	N
Traffic Guidance Scheme	**Appendix D.**

TABLE 12: STAGE SUMMARY – STAGE 2

Criteria	Response
Description of Key Activities	Construction of Lot 14A
Stage Length	May 2024- Mar 2025 (10 Months)
Max. Vehicle Size	12.5m Heavy Rigid Vehicles (HRV)
Vehicle Movement Frequency	Approximately 30 light vehicle movements / day + Approximately 26 heavy vehicle movements / day
HV Access Requirements	All vehicles shall access the Estate at the main signalised access.
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N
Contractor Parking	Y – All parking will be within the estate. Builder shall nominate contactor parking zones, clear of truck manoeuvring areas.
Pedestrian Control	Y – Temporary fence around site perimeter only.
Public Transport Services Affected	N
Road Occupancy Requirements **(If yes, provide further details)**	N
Lane or Footpath Closures **(If yes, provide further details)**	N
Traffic Guidance Scheme	**Appendix D.**

TABLE 13: STAGE SUMMARY – STAGE 3

Criteria	Response
Description of Key Activities	Construction of Lot 10
Stage Length	May 2024- Jun 2025 (13 Months)
Max. Vehicle Size	12.5m Heavy Rigid Vehicles (HRV)
Vehicle Movement Frequency	Approximately 34 light vehicle movements / day + Approximately 50 heavy vehicle movements / day
HV Access Requirements	All vehicles shall access the Estate at the main signalised access.
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N
Contractor Parking	Y All parking will be within the estate. Builder shall nominate contactor parking zones, clear of truck manoeuvring areas.
Pedestrian Control	Y Temporary fence around site perimeter only.
Public Transport Services Affected	N
Road Occupancy Requirements (If yes, provide further details)	N
Lane or Footpath Closures (If yes, provide further details)	N
Traffic Guidance Scheme	**Appendix D.**

TABLE 14: STAGE SUMMARY – STAGE 4

Criteria	Response
Description of Key Activities	Construction of Lot 13A & 13B
Stage Length	Jul 2024- Feb 2025 (7 Months)
Max. Vehicle Size	12.5m Heavy Rigid Vehicles (HRV)
Vehicle Movement Frequency	Approximately 28 light vehicle movements / day + Approximately 40 heavy vehicle movements / day
HV Access Requirements	All vehicles shall access the Estate at the main signalised access.
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N
Contractor Parking	Y – All parking will be within the estate. Builder shall nominate contactor parking zones, clear of truck manoeuvring areas.
Pedestrian Control	Y – Temporary fence around site perimeter only.
Public Transport Services Affected	N
Road Occupancy Requirements (If yes, provide further details)	N
Lane or Footpath Closures (If yes, provide further details)	N
Traffic Guidance Scheme	**Appendix D.**

TABLE 15: STAGE SUMMARY – STAGE 5

Criteria	Response
Description of Key Activities	Construction of Lot 7& Lot 8A & Lot 8B & Lot 9
Stage Length	Feb 2025- Sept 2026 (19 Months)
Max. Vehicle Size	12.5m Heavy Rigid Vehicles (HRV)
Vehicle Movement Frequency	Approximately 88 light vehicle movements / day + Approximately 110 heavy vehicle movements / day
HV Access Requirements	All vehicles shall access the Estate at the main signalised access.
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N
Contractor Parking	Y All parking will be within the estate. Builder shall nominate contactor parking zones, clear of truck manoeuvring areas.
Pedestrian Control	Y Temporary fence around site perimeter only.
Public Transport Services Affected	N
Road Occupancy Requirements (If yes, provide further details)	N
Lane or Footpath Closures (If yes, provide further details)	N
Traffic Guidance Scheme	**Appendix D.**

TABLE 16: STAGE SUMMARY – STAGE 6

Criteria	Response
Description of Key Activities	Construction of Lot 14B & Lot 1 & Lot 2 & Lot 3A & Lot 3B & Lot 4
Stage Length	Jul 2026 – Dec 2027 (17 Months)
Max. Vehicle Size	12.5m Heavy Rigid Vehicles (HRV)
Vehicle Movement Frequency	Approximately 180 light vehicle movements / day + Approximately 156 heavy vehicle movements / day
HV Access Requirements	All vehicles shall access the Estate at the main signalised access.
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N
Contractor Parking	Y All parking will be within the estate. Builder shall nominate contactor parking zones, clear of truck manoeuvring areas.
Pedestrian Control	Y Temporary fence around site perimeter only.
Public Transport Services Affected	N
Road Occupancy Requirements (If yes, provide further details)	N
Lane or Footpath Closures (If yes, provide further details)	N
Traffic Guidance Scheme	**Appendix D.**

TABLE 17: STAGE SUMMARY – STAGE 7

Criteria	Response
Description of Key Activities	Construction of Lot 5 & 6
Stage Length	Jan 2027- Dec 2028 (23 Months)
Max. Vehicle Size	12.5m Heavy Rigid Vehicles (HRV)
Vehicle Movement Frequency	Approximately 64 light vehicle movements / day + Approximately 76 heavy vehicle movements / day
HV Access Requirements	All vehicles shall access the Estate at the main signalised access.
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N
Contractor Parking	Y All parking will be within the estate. Builder shall nominate contactor parking zones, clear of truck manoeuvring areas.
Pedestrian Control	Y Temporary fence around site perimeter only.
Public Transport Services Affected	N
Road Occupancy Requirements (If yes, provide further details)	N
Lane or Footpath Closures (If yes, provide further details)	N
Traffic Guidance Scheme	**Appendix D.**

2.3 Risk Assessment

A risk assessment is aimed to identify the hazards and risks associated with the works. The purpose of this risk assessment is to determine the controls required for the protection of the road workers and road users. A risk assessment has been completed and is attached in **Appendix B**.

2.4 Access Arrangements

As mentioned earlier, the construction work for the GIE will involve two main access arrangements. These arrangements are as follows:

2.4.1 Interim Construction Access

A left in / left out access point (to/from Wallgrove Road) will be provided for the construction works which is located at the eastern boundary of the Estate site. An indicative temporary access layout reproduced from the GIE CTMP is shown in **Figure 5.**

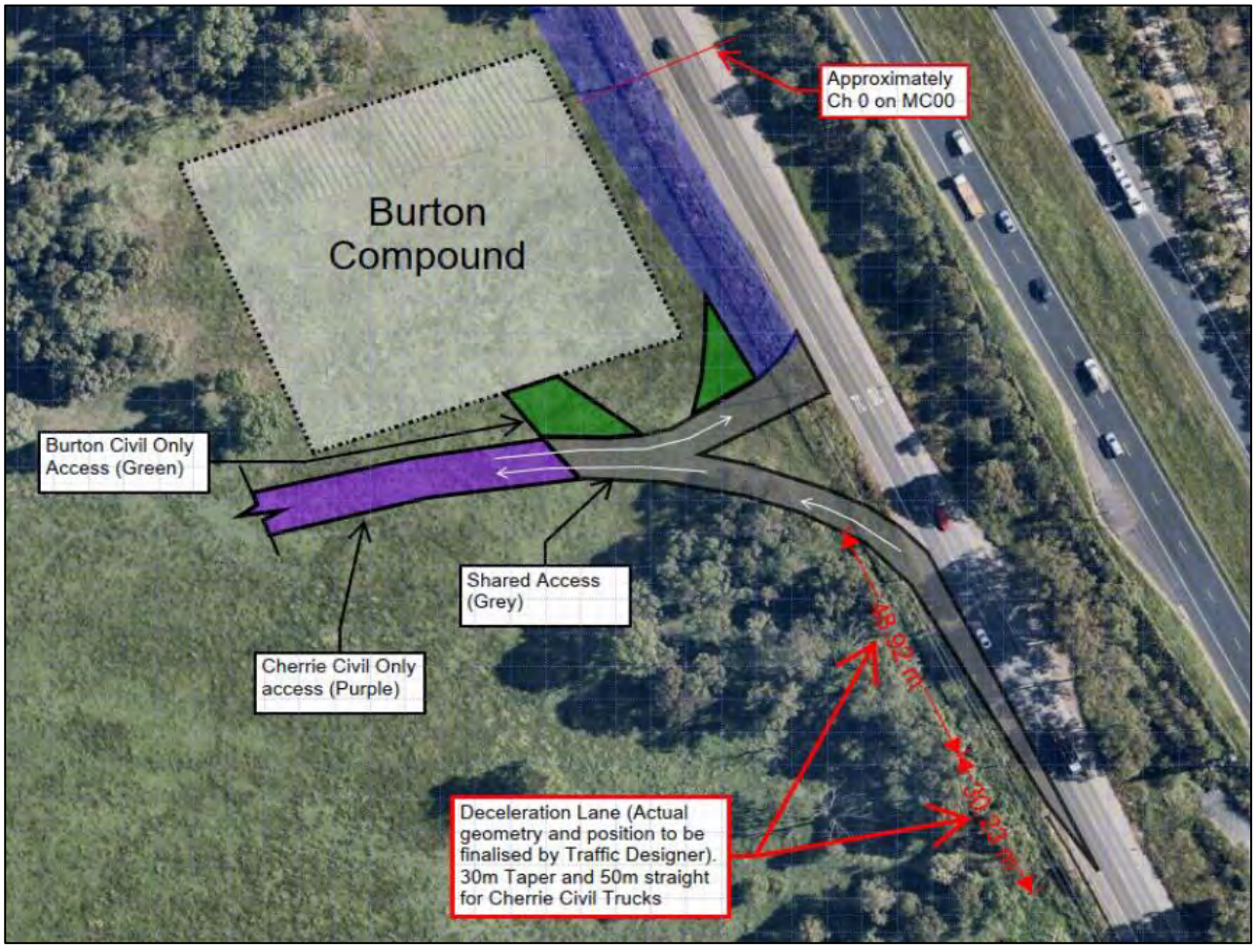


Figure 5: Temporary Estate Access from Wallgrove Road

(Source: Traffic Management Plan, "19-0108 – MR515 Wallgrove Road, Horsley Park Intersection Upgrade" dated 26 August 2022 (GIE CTMP) prepared by Allied Traffic Management)

2.4.2 Ultimate Construction Access

Upon completion of the Wallgrove Road/Estate Road 01 upgrade works and the internal estate roads the interim access will be retired, and the construction traffic will access the Estate via the upgraded (Wallgrove Road/Estate Road 01) signalised intersection, as shown in **Figure 6**.

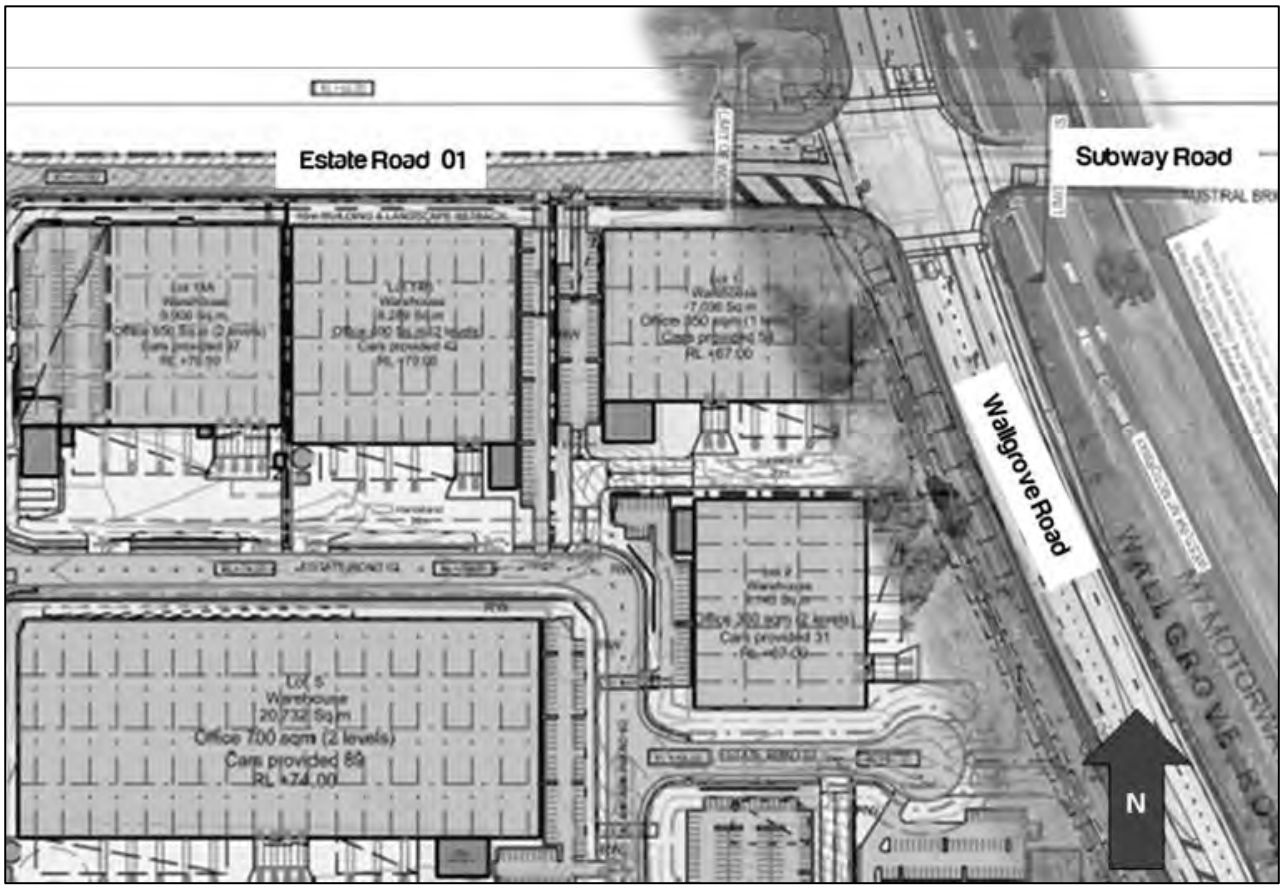


Figure 6: Access Arrangements Ultimate Access

(Source: 19-0108 – 813 Wallgrove Road, Horsley Park intersection upgrade preservation of survey infrastructure plan by Orion Consulting)

It is expected that this access point will be utilised by construction vehicles until the full completion of the construction works excluding inclement weather and it will be the main access for the Estate when operating.

All heavy vehicles and light vehicles will utilise the ultimate construction access upon the construction completion as outlined in **Figure 7.**

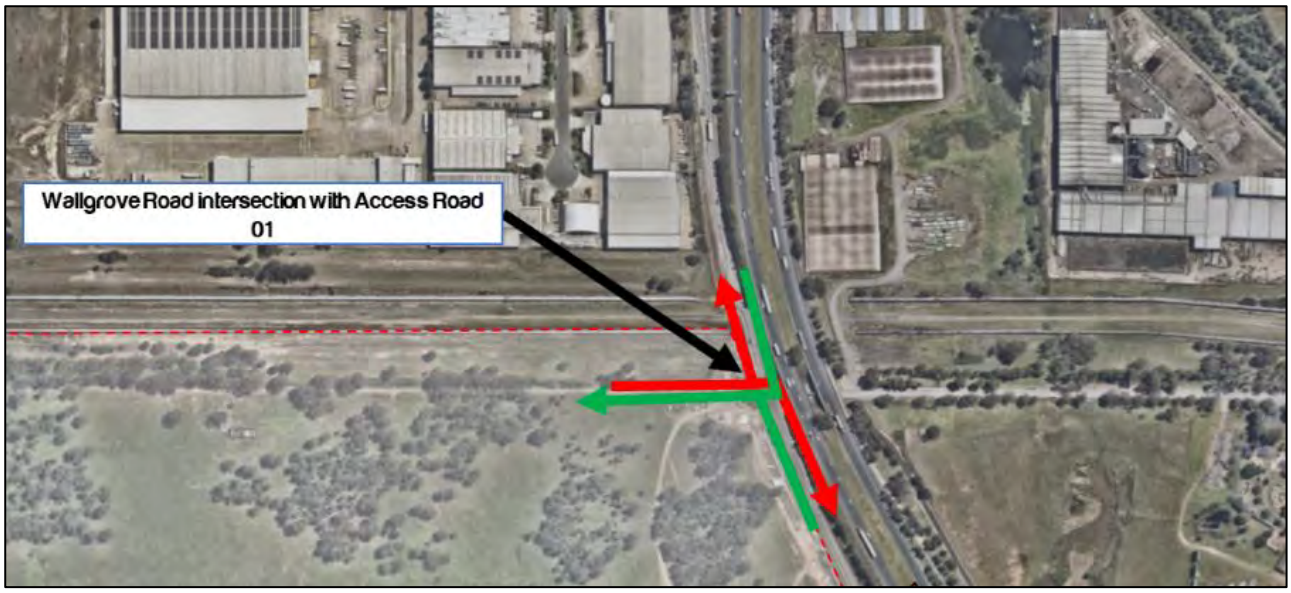


Figure 7: Heavy Vehicle Movements Via the Ultimate Access

Moreover, the Emergency vehicle access to and from the Estate will be available at all times while the Estate is occupied by construction activities. This process would be implemented through emergency protocols on the site which will be developed by the Contractor and shall be documented within the Contractor's Emergency Management Plan.

2.4.3 Individual Lot Access

Access to individual lots shall vary during the course of the construction works. However, internal traffic movements and access to work areas shall be managed, with suitable Traffic Guidance Scheme prepared by Contractors and designed in accordance with Austroads—Guide to Temporary Traffic Management and AS1742.3, depending on the specific work area. All internal traffic movements will be internally managed within the Estate boundaries.

2.5 Hours of Work

Based on the information provided to Ason Group by Gazcorp, a summary of the construction hours is shown in **Table 18** which is in accordance with the Council guidelines and SSD-5248-Mod-2 Condition of Consent (CoC) condition C57

TABLE 18: HOURS OF WORK

Activity	Day	Time
Construction works	Monday – Friday Saturday Sundays or Public Holidays.	7 am to 6 pm 8 am to 1 pm No work

It is anticipated that construction works will not be conducted outside of the hours outlined above. Should out of work hours be required, Gazcorp will need to lodge an application for an Out of Work Hours Permit with Fairfield City Council to seek approval for these works. The type of works that might be undertaken outside the recommended standard hours are:

- The delivery of oversized plant or structures that police or other authorities determine require special arrangements to transport along public roads.
- Emergency work to avoid the loss of life or damage to property, or to prevent environmental harm.
- Maintenance and repair of public infrastructure where disruption to essential services and/or considerations of worker safety do not allow work within standard hours.
- Public infrastructure works that shorten the length of the project and are supported by the affected community.
- Works where a proponent demonstrates and justifies a need to operate outside the recommended standard hours.

Works outside of the hours identified in the conditions may be undertaken in the following circumstances:

- Works that are inaudible at the nearest sensitive receivers;
- Works agreed to in writing by the Planning Secretary;
- For the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or
- Where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.

3 Existing Conditions

3.1 Site Access

It is noted that there is currently no intersection access to the GIE. However, a temporary access to GIE has been constructed which consists of a deceleration lane on entry and give-way exit back onto Wallgrove Road as presented in **Figure 5.**

Further, as mentioned before, the traffic signal at the Estate Road 01/ Wallgrove Road intersection is currently under construction as previously mentioned. A site inspection has been undertaken on 02 February 2023 and it was observed that this intersection currently works as a signalised T-intersection connecting Wallgrove Road to the Austral Bricks Access Road as shown in **Figure 8**.

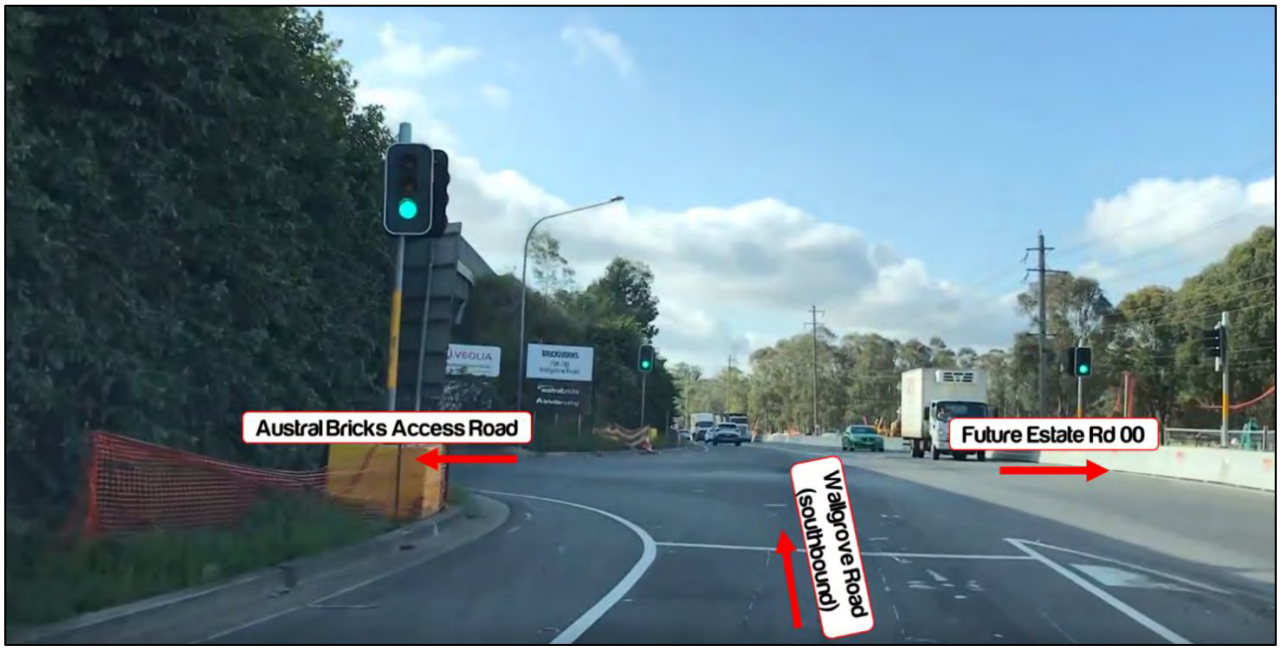


Figure 8: Signalised Intersection at Wallgrove Road and Austral Bricks Access Road (02 Feb 2023)

3.2 Active Transport Connections

3.2.1 Existing Pedestrian Accessibility

Due to the current undeveloped nature immediately surrounding the Estate, pedestrian infrastructure is currently non-existent. Key pedestrian desire lines in the vicinity of the Estate would be triggered by connections to existing public transport infrastructure. In this regard, it is anticipated that the Work Authorisation Deed (WAD) which has been finalised between Gazcorp and TfNSW for the Signalised intersection at Estate Road 01/Wallgrove Rd would have pedestrian infrastructure provision such as formal footpaths and crossings to facilitate pedestrian activity and access.

Other recent improvements to Wallgrove Road and Old Wallgrove Road further north of the Estate have included the provision of pedestrian infrastructure with shared paths and footpaths.

It is noted that any Traffic Guidance Scheme (TGS) shall maintain a suitable level of access past work areas for pedestrians at all times.

3.2.2 Existing Cycle Routes

The existing cycle network in the vicinity of the Estate is shown in **Figure 9**. The area within the locality of the Estate is well serviced with cycle routes – both on-road and off-road. Notable cycle routes include the route along the M7 Westlink to the east of the Estate.

Other notable off-road cycle routes are those to the north of the Estate including along Lenore Drive and Old Wallgrove Road. Furthermore, recent upgrades to Old Wallgrove Road have included off-road shared cycle/pedestrian pathways and pedestrian only footpaths.

It is noted that any TGS shall maintain a suitable level of access past work areas for cyclists at all times.

3.3 Public Transport Services

3.3.1 Bus Services

The Integrated Public Transport Service Planning Guidelines highlight the impact of bus services on travel mode choices for locations within a 400-meter radius (equivalent to approximately 5 minutes' walking distance) of a bus stop. Although the Estate currently lacks bus stops within this specified radius, it is important to note that 2 located bus stops are situated approximately 500 meters away, as illustrated in **Figure 9**.

It is noted that the Wallgrove Road Opposite Roussell Road (Stop ID: 276622) and Wallgrove Rd Before Roussell Rd (Stop ID: 276623) bus stops have been temporarily relocated since the submission of the Ason Group's approved *SSD 36156297 Transport Assessment, Lot 11 & 12, 813 Wallgrove Road, ref: 1877r01v02, dated 25 March 2022* (DHL TA) to accommodate construction traffic to the GIE. Details of the relocation of these bus stops are outlined in the GIE CTMP.

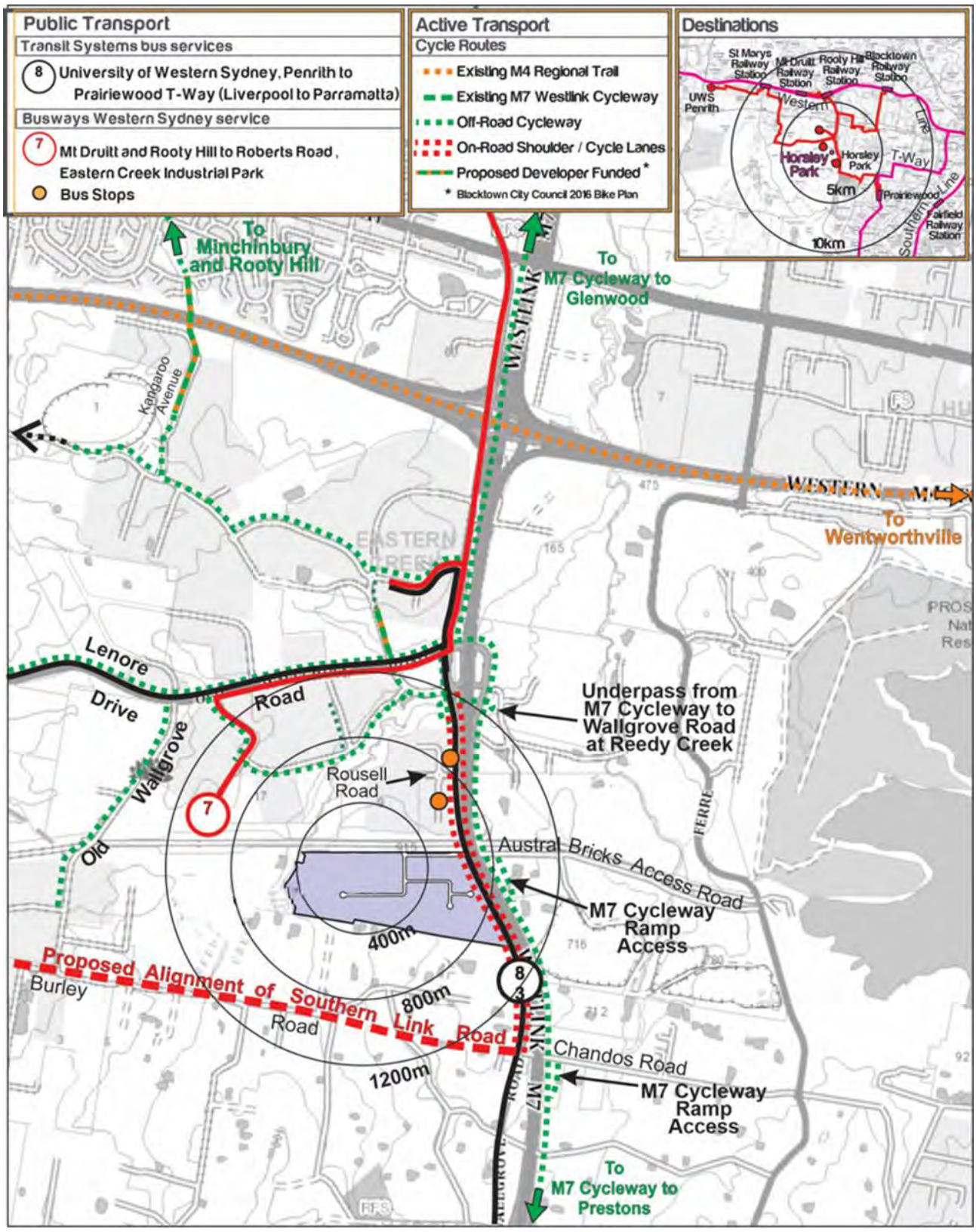


Figure 9: Existing Public Transport and Cycle Links

3.4 Existing Traffic

3.4.1 Baseline Traffic Flows

Traffic surveys were undertaken on 03 May 2023 to establish the baseline traffic flows at the following:

- Wallgrove Road/ Brickworks Access (future signalised intersection)
- Temporary Left-in Left-out (LILO) access to 813-913 Wallgrove Road

The surveyed traffic flows during the peak periods are shown in **Figure 10** and **Figure 11.**

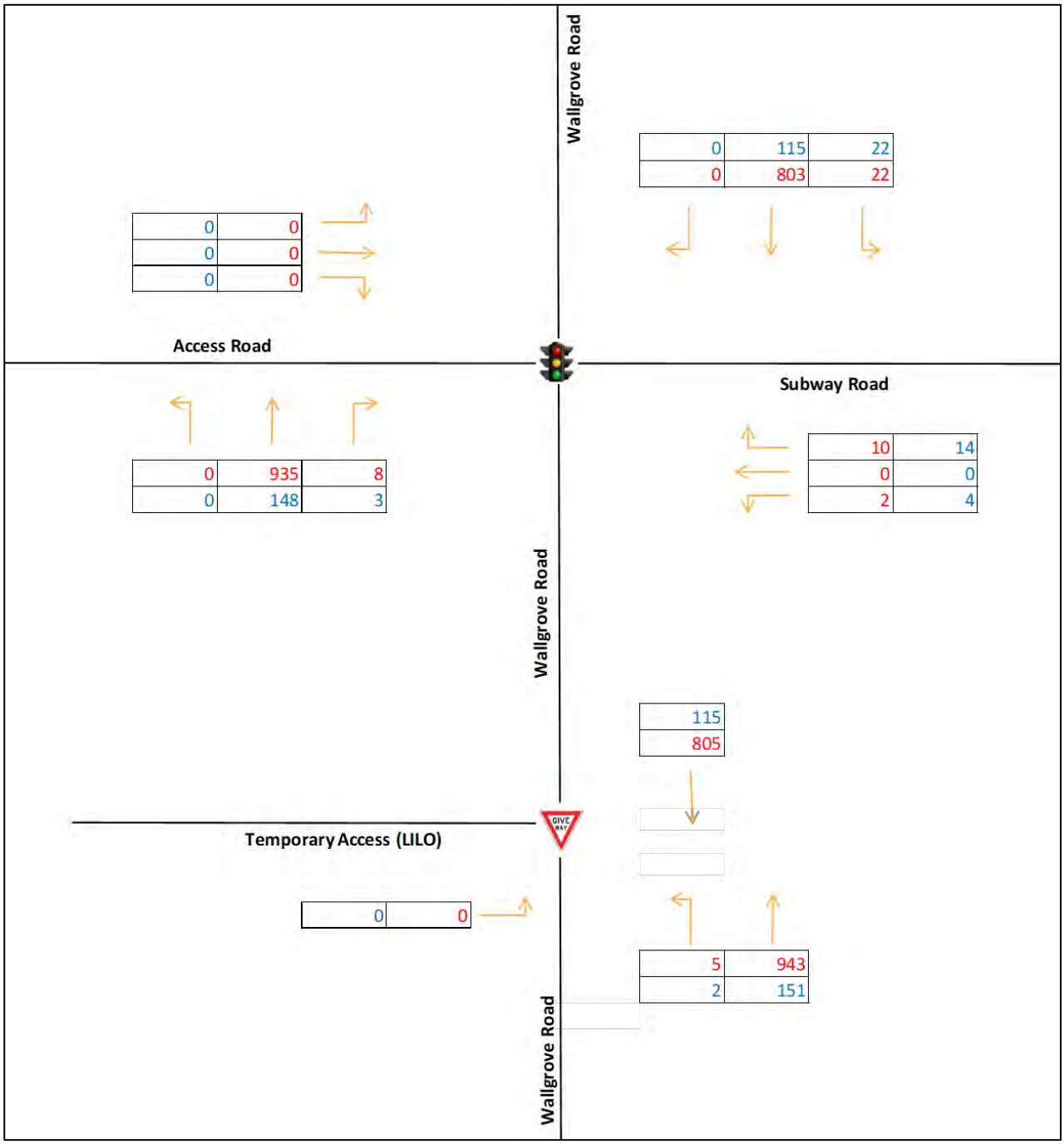


Figure 10: Baseline Traffic Volumes – AM Peak

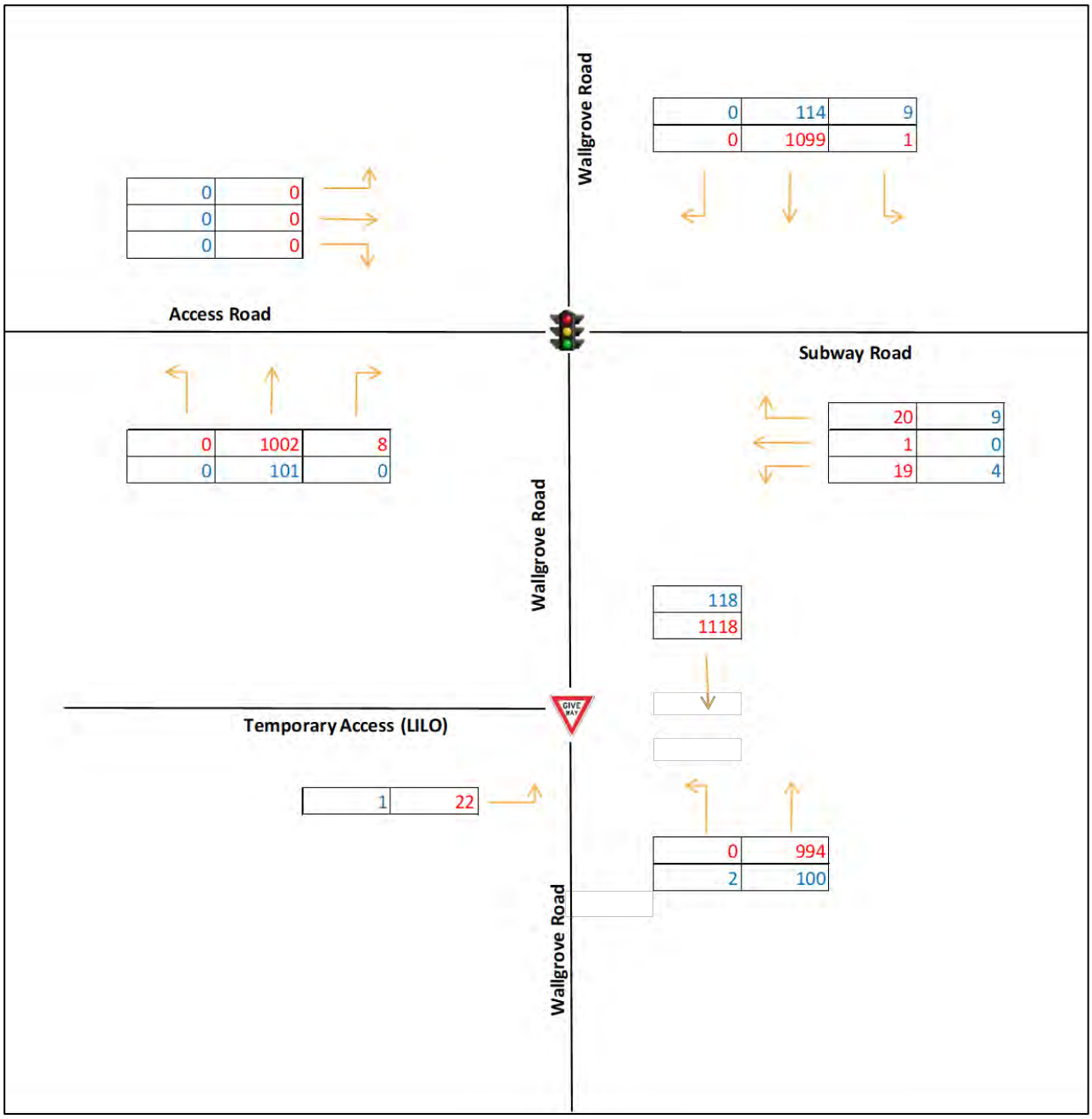


Figure 11: Baseline Traffic Volumes – PM Peak

4 Traffic Management Plan

4.1 Traffic Movements

4.1.1 Background

The following figures, sourced from the Ason Group, SSD 36156297 Transport Assessment, Lot 11 & 12, 813 Wallgrove Road, ref: 1877r01v02, 25 March 2022 (DHL TA), have been approved and provide relevant information regarding future **operational** traffic volumes associated with the Estate.

- AM Peak 541 movements per hour (inbound and outbound)
- PM Peak 397 movements per hour (inbound and outbound)
- Daily 5,774 movements per day (inbound and outbound)

4.1.2 Current Construction Traffic Estimates

The anticipated daily vehicle movements generated by the construction of the Estate have been estimated having consideration of the likely requirements for construction staff, plant, equipment, and haulage. The anticipated construction schedule has been provided in **Section 2.2.2** and **2.2.3** with the estimated traffic volumes are as follows:

TABLE 19: ESTIMATED CONSTRUCTION VOLUMES

Phase	Stage	Expected Movements per Day	
		Light Vehicles	Heavy Vehicles
Phase 1 (Temporary Access)	Stage 1	130	166
Phase 2 (Signalised Access)	Stage 1 (Continued)	50	20
	Stage 2	30	26
	Stage 3	34	50
	Stage 4	28	40
	Stage 5	88	110
	Stage 6	180	156
	Stage 7	64	76

For reference, a construction vehicle would relate to all contracted parties involved in day-to-day construction activities on site. This would include;

- All Vehicles making material deliveries to and from the Estate.
- All Contractors and their sub-contractor's construction site vehicles
- All construction staff working on the projects arriving / departing the Estate in private cars.

In turn, the following are exempt from the requirements of the CTMP (as they are not part of construction works within the Estate);

- All Gazcorp staff and their design / management consultants
- Food vans / food deliveries by non-contracted parties
- Relevant Authorities / Agencies (including DPE or Fairfield City Council/, and other stakeholders including Endeavour Energy, TransGrid, Sydney Water, NBN or others who have assets on the Site)
- Members of the public who may drive in ad hoc.

4.1.3 Construction Vehicle Access Routes

It is expected that all heavy vehicles will access the Site via the approved TfNSW Restricted Access Vehicles (RAV) Map for 26 m B-double Access. The access routes are shown in **Figure 12** and **Figure 13.**

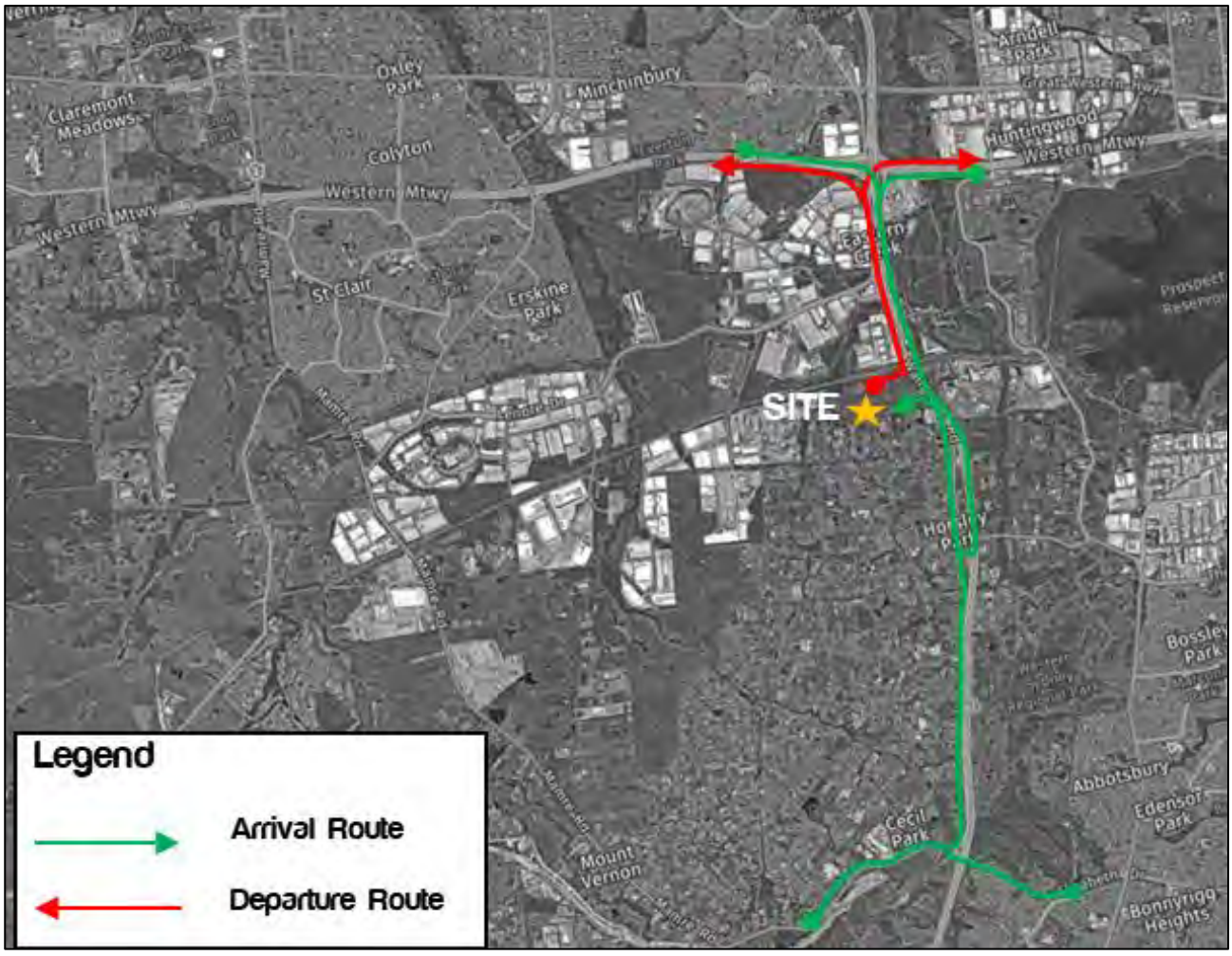


Figure 12: Construction Vehicle Route Map – Temporary Access

All construction vehicles will enter and exit the Site via Wallgrove Road. It is anticipated that all heavy vehicles will access the Estate via the following routes:

TABLE 20: VEHICLE ROUTE MAP – TEMPORARY ACCESS

Access	Route	Direction
Arrival	Route 1	From eastbound on M4 Western Motorway, then head south along Westlink M7. Turn right onto The Horsley Drive, then right onto Wallgrove Road. Finally left turn onto the Estate
	Route 2:	From westbound on M4 Western Motorway, then head south along Westlink M7. Turn right onto The Horsley Drive, then right onto Wallgrove Road. Finally left turn onto the Estate
	Route 3	From eastbound on Elizabeth Drive, then head north along Wallgrove Road then left turn onto the Estate.
	Route 4	From westbound on Elizabeth Drive, then head north along Wallgrove Road then left turn onto the Estate
Departure	Route 1	From the Estate, left turn onto Wallgrove Road then west on M4 Western Motorway
	Route 2	From the Estate, left turn onto Wallgrove Road then east on M4 Western Motorway.

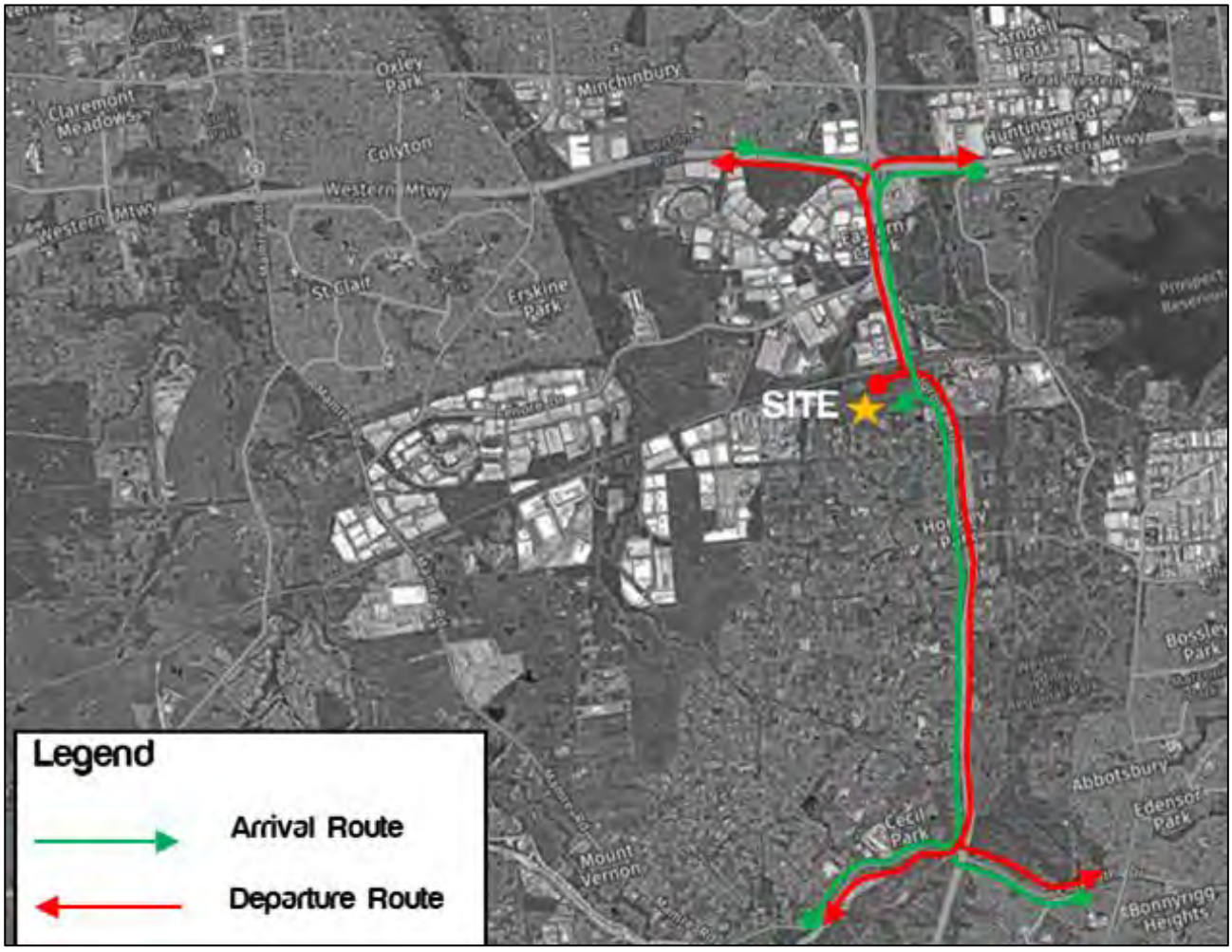


Figure 13: Construction Vehicle Route Map – Ultimate Access

TABLE 21: VEHICLE ROUTE MAP – ULTIMATE ACCESS

Access	Route	Direction
Arrival	Route 1	From eastbound on M4 Western Motorway, then head south along Wallgrove Road. Then right turn onto the Estate.
	Route 2:	From westbound on M4 Western Motorway, then head south along Wallgrove Road. Then right turn onto the Estate.
	Route 3	From eastbound on Elizabeth Drive, then head north along Wallgrove Road then left turn onto the Estate.
	Route 4	From westbound on Elizabeth Drive, then head north along Wallgrove Road then left turn onto the Estate.
Departure	Route 1	From the Estate, left turn onto Wallgrove Road then west on M4 Western Motorway.
	Route 2	From the Estate, left turn onto Wallgrove Road then east on M4 Western Motorway.
	Route 3	From the Estate, right turn onto Wallgrove Road then west on Elizabeth Drive.
	Route 4	From the Estate, left turn onto Wallgrove Road then east on Elizabeth Drive.

A copy of the approved routes will be distributed by the Contractor to all drivers before their arrival to the Estate. No trucks are to be queued on local roads. Mobile phones, two-way radios or application-based solutions should be used to coordinate truck arrivals.

As can be shown in **Figure 14**, the RAV Map illustrates that B-doubles are capable of traveling to and from the Estate within approved routes.

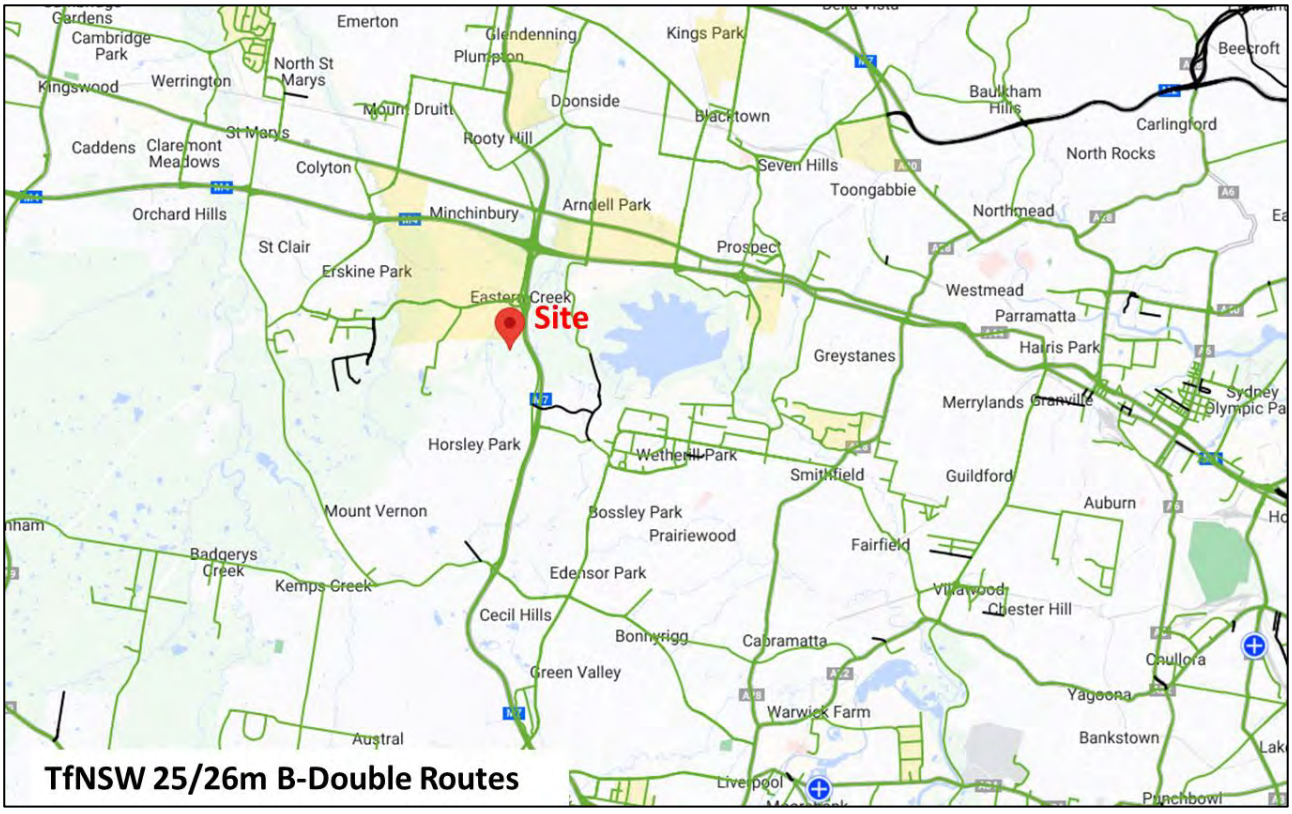


Figure 14: Restricted Access Map

4.1.4 Truck Movements & Contractor Parking

As discussed before, the primary construction access will be via the temporary access until the Signalised intersection is completed. Once the Signalised intersection is finished, it will become the primary access for construction vehicles, and the temporary access will be permanently closed. Relevant truck routes for both accesses are shown in **Figure 12** and **Figure 13.**

The implementation of the access route shall be done so in accordance with any conditions of consent received from TfNSW. It is expected that a schedule for deliveries of materials and goods will be established prior to that day, with Traffic Controllers maintaining radio contact with construction vehicles at all times. Thus, at no stage shall queueing occur on the public road network. In the event that vehicles were required to use a layover prior to arrival to site.

It is expected that future contractors shall prepare Vehicle Movement Plans (VMP) for on-site circulation for key stages generating more than 200 HV movements (100 in, 100 out) per day. In preparing relevant details VMPs, the contractor should:

- Minimise interaction with other work areas, as far as possible.
- Where possible, separate heavy vehicle movements from contractor car parking areas
- Prepare Traffic Control Plans where necessary to provide additional management of on-site vehicle movements.

4.1.5 Sydney Water Supply Pipeline Easement

A Sydney Water Supply Pipeline easement runs to the north of the Estate which is subject to a number of restrictions. It is imperative to note that the unhindered movement of authorised vehicles accessing the Sydney Water Supply Pipeline Easement will not be obstructed by the construction activities of the Estate. All construction activities will be conducted in a manner that does not impede the access routes and pathways designated for these specific purposes. As illustrated in **Figure 15,** the access driveway to the Sydney Water Supply Pipeline Easement is distinct and is not disrupted by the operation of Wallgrove Road and Estate Road 01 intersection.

Contractors associated with the Site are not anticipated to directly impact this access to the easement, and every effort will be made to minimise vehicular movements near the easement access for all construction works, wherever feasible. Notwithstanding, in the event any works associated with the Site may impact WaterNSW's access, the WaterNSW will be notified as early as possible, and other arrangements will be made to make sure that WaterNSW retains an access to the easement at all times.



Figure 15: Sydney Water Supply Pipeline Easement Access Driveway and Estate Road 01 Access Locations

4.2 Other General Requirements

4.2.1 Driver Code of Conduct

All drivers shall adhere to the Driver Code of Conduct, outlined in **Section 5**.

4.2.2 Contractor Parking

The contractor will have to nominate the parking zones required for contractor parking. The parking area is not expected to obstruct any vehicle manoeuvre routes. The location of Contractor parking lots is expected to change as construction continues and encompasses various portions of the Estate.

4.2.3 Loading & Materials Handling

Handling of all materials throughout the construction shall adhere to the following.

- It is proposed that all material loading will occur within the construction site boundary.
- No loading is proposed to occur outside of the provisioned areas.
- Equipment, materials and waste will be kept within the construction site boundary.

During latter stages of construction, tie in works will be required within the kerbside of the internal estate roads. All materials handling shall be undertaken off the public roadway. In the event materials handling are required from the roadway, then prior approval shall be sought and obtained from the Authorities.

4.2.4 Fencing Requirements

Temporary exclusion fencing will be erected along the entire boundary of the Estate and will be maintained for the duration of the construction program. The fencing is to ensure unauthorised persons are kept out of the Estate. The access gates would be provided and will be closed at all times outside of the permitted construction hours.

4.2.5 Pedestrian and Cyclist Management

Installing chain mesh construction fencing along the borders of the Estate can effectively restrict public access and enhance its security. However, to manage any pedestrian and cyclist movements around the Estate, pedestrian and cyclist protection would be required and would be included within a revised TGS once the footpaths / shared paths along Estate Roads become available.

4.2.6 Traffic Guidance Schemes

Any TGS's, associated risk assessments, consultation schedules, TGS verification checklist, and inspection checklists shall be prepared by an accredited person, in accordance with the TfNSW Traffic Control at Worksites Manual (Issue 6.1) and AS1742.3:2019. All TGSs involving signage or impacts to public roads shall be approved by the Traffic Management Centre (TMC), prior to the works for which they relate. These TGS's shall be updated to respond to any changes to prevailing traffic conditions throughout the life of the works. Of specific relevance to the Estate, TGS's have been prepared for the following:

- The utilisation of the temporary construction access on Wallgrove Road;
- The utilisation of the Signalised intersection on Wallgrove Road.

TGS's have been attached in **Appendix D.**

5 Drivers Code of Conduct

5.1 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 project approved routes only.

5.2 Code of Conduct

The code of conduct requires that while driving any vehicle for work-related purposes. Drivers are to be issues with a copy of the Drivers Code of Conduct, and must comply with all of the following:

- Demonstrate safe driving and road safety activities.
- Abide by traffic, road and environmental legislations.
- Follow site signage and instructions.
- Drivers must only enter and exit the Estate via the approved entry and exit points and travel routes.
- Drivers must not utilise any other road or other accesses for any reason other than the temporary access on Wallgrove Road while travelling to or from the Estate noting internal roads have not yet been constructed.

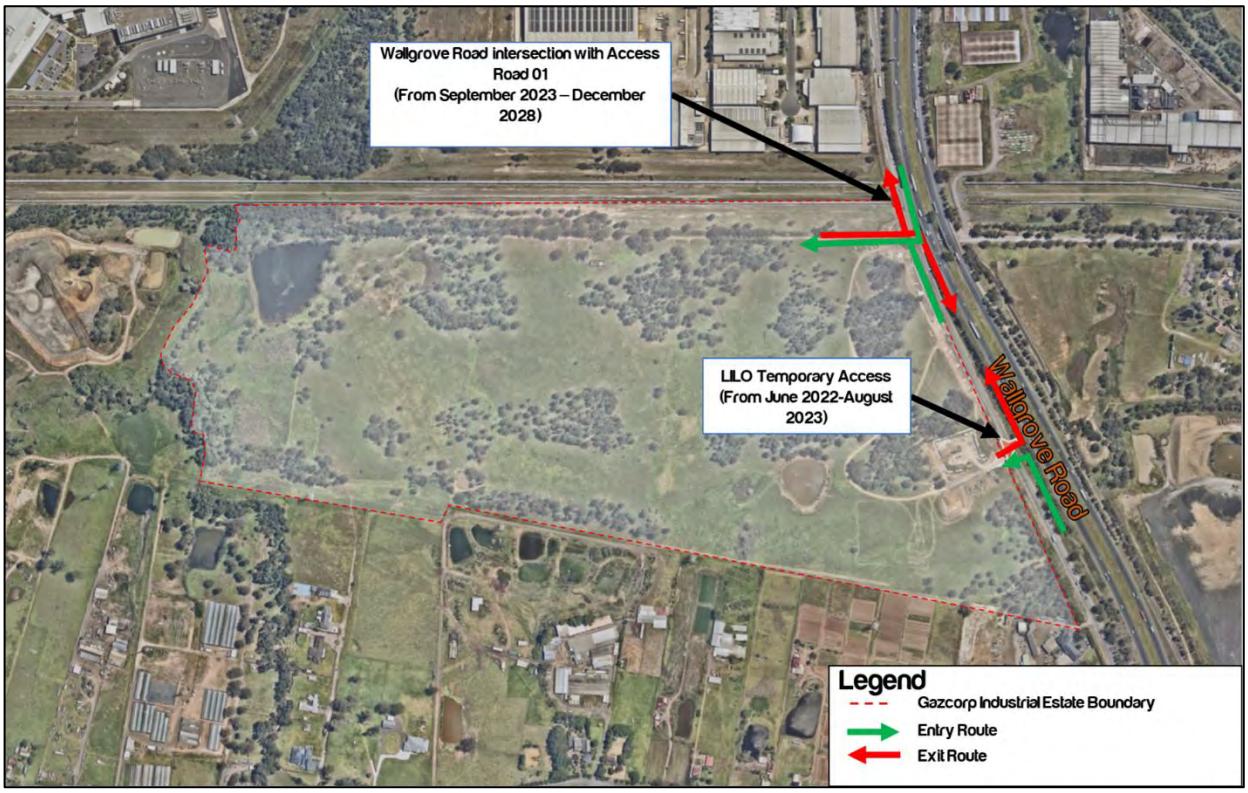
The below activities in any vehicles will be considered as a breach of conduct and will result in removal from site:

- Reckless or dangerous driving causing injury or death.
- Driving whilst disqualified or not correctly licensed.
- Drinking or being under the influence of drugs while driving
- Failing to stop after an incident.
- Loss of demerit points leading to suspension of licence.
- Any actions that warrant the suspension of a licence
- Exceeding the speed limit in place on any permanent or temporary roads
- The use of roads other than the temporary access on Wallgrove Road to arrive and depart from the site to access the wider road network.

5.3 Driver Responsibilities

All Drivers on site must:

- Abide with the following route to and from the Estate.



- Be responsible and accountable for their actions when operating a company vehicle or driving for the purposes of work.
- Display the highest level of professional conduct when driving a vehicle at all times.
- Ensure they have a current driver licence for the class of vehicle they are driving, and this licence is to be carried at all times.
- Immediately notify their supervisor or manager if their drivers' licence has been suspended, cancelled, or has had limitations applied.
- Comply with all traffic and road legislation when driving.
- Assess hazards while driving.
- Undertake daily pre-start checks of oil, tyre pressures, radiator and battery levels of company vehicles they regularly used.
- Drive within the legal speed limits, including driving to the conditions.
- Not drive outside of the approved heavy vehicle routes. All drivers must obey weight, length and height restrictions imposed by the National Vehicle Regulator, and other Government agencies. Heavy Vehicles shall adhere to the routes outlined in **Section 4.1.3**
- Be cognisant of the noise and emissions requirements imposed within the EIS, and in a broader sense, the NSW Road Rules. Works must be constructed with the aim of achieving the construction noise management levels detailed in the Interim Construction Noise Guideline.
- Do not queue on public roads unless a prior approval has been sought.
- Be aware that at no time may a tracked plant be permitted or required on a paved road.
- Never drive under the influence of alcohol or drugs, including prescription and over the counter medication if they cause drowsiness – to do so will merit disciplinary measures.
- All drivers to report to their supervisor if they have been prescribed medication prior to the start of work.
- Wear a safety seat belt at all times when in the vehicle.
- Avoid distraction when driving – the driver will adjust car stereos/mirrors etc. before setting off or pull over safely to do so.
- Report ALL near-misses, crashes and scrapes to their manager,
- Report infringements to a manager at the earliest opportunity.

- Report vehicle defects to a manager prior to the next use of the vehicle.
- Follow the approved site access/egress routes only.
- Follow speed limits as imposed within the estate.
- Keep loads covered at all times.

5.4 The Site Team Responsibilities

The Contractor is responsible to take all steps necessary to ensure company vehicles are as safe as possible and will not require staff to drive under conditions that are unsafe.

This will be achieved by undertaking the following:

- Ensure that all drivers adhere to the designated heavy vehicle routes as required by the route designated above. If a driver accesses the Estate contrary to the approved routes, then approval to drive to and from the Estate will be revoked by Management.
- Ensuring all vehicles are well maintained and that the equipment enhances driver, operator and passenger safety by way of:
  - Pre-commencement checks for all new plant arriving on-site and prior to undertaking any work.
  - Daily prestart inspections for all plant, vehicles and equipment currently on-site.
  - All construction plant must be fitted with a flashing light, fire extinguisher and reverse alarms (or squawkers).
  - Ensure all operators onsite have a current verification of competency (VOC) for their current driver's licence of the appropriate class.
- Ensure maintenance requirements are met and recorded.
- Identify driver training needs and arranging appropriate training or re-training. This may include providing the below:
  - Operator VOC assessment as part of all inductions.
  - Regular Toolbox discussions on safety features, managing fatigue, approved heavy routes, driver responsibility and drink-driving.
- Encouraging Safe Driving behaviour by:
  - Ensuring the subcontractor is informed if their staff become unlicensed.
  - Not covering or reimbursing staff speeding or other infringement notices.
  - Ensuring Legal use of mobile phones in vehicles while driving only
- Encouraging better fuel efficiency by:
  - Use of other transport modes or remote conferencing, whenever practical.

Providing training on, and circulating information about, travel planning and efficient driving habits

5.5 Crash or Incident Procedure

- Vehicles should be stopped as close as possible to the scene without hindering traffic. The safety of the individual should be ensured first, followed by providing assistance to any injured people and immediately seeking help if required.
- Ensure the following information is noted:

  - Details of the other vehicles and registration numbers
  - Names and addresses of the other vehicle drivers.
  - Names and addresses of witnesses.
  - Insurers details
- Give the following information to the involved parties:
  - Name, address and company details
- If the damaged vehicle is not occupied, provide a note with your contact details for the owner to contact the company.
- Ensure that the police are contacted should the following circumstances occur:
  - If there is a disagreement over the cause of the crash.
  - If there are injuries.
  - If you damage property other than your own.
- As soon as reasonably practical, report all details gathered to your manager.

5.6 Environmental Procedures

A range of measures shall be implemented to ensure the following;

- No dirt or debris from the construction vehicles is tracked on to the public road network.
- Reduce the impacts to sensitive receivers, including, where practicable, starting noisy equipment away from sensitive receivers and implementing respite periods;
- Watering of dusty activities will be undertaken, or activities temporarily halted and then resumed once weather conditions have improved;
- Containment measures for spillages will be provided at appropriate locations and in close proximity to staff car park areas, dangerous goods stores areas and main Project work areas;
- All vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria, and

Keep an accurate record which includes the range of measures undertaken to reduce environmental impacts.

6 Transport Impact Assessment

6.1 Construction Traffic Generation

It is expected that stages of construction will overlap and will therefore increase the demand during each month. While the construction of the signalised intersection is not explicitly included in this CTMP, it is crucial to highlight that the construction volume of the signalised intersection will be factored into the cumulative traffic assessment of the Estate. The following outline the daily traffic volumes for the Estate during each Phase:

6.1.1 Phase 1 Prior to The Construction of The Signalised Intersection:

It has been determined that the highest peak of construction traffic occurs during the overlap between Stages 1A, 1B, 1C and the construction volume of the signalised intersection from late September 2023 to late October 2023. The estimated traffic volumes during this period are shown in the table below:

TABLE 22: PHASE 1 PEAK TRAFFIC MOVEMENT

Period	Light Vehicle Movement	Heavy Vehicle Movement	Total
AM Peak	20 veh/hr	36 veh/hr	56 veh/hr
PM Peak	30 veh/hr	16 veh/hr	46 veh/hr
Daily	130 veh/day	166 veh/day	296 veh/day

Referring to the table above, the construction traffic movement for Phase 1 aligns with the operation traffic of GIE during both the AM and PM peak periods.

Furthermore, Construction traffic volumes generally represent a small proportion of the existing background traffic occurring on Wallgrove Road. Figure below visualises hourly count volumes of construction traffic in the subsequent construction periods against existing background traffic. This demonstrates that the addition of construction traffic is relatively small in comparison.

The daily traffic volumes for the Estate prior to the construction of the Signalised intersection are outlined in the figure below:

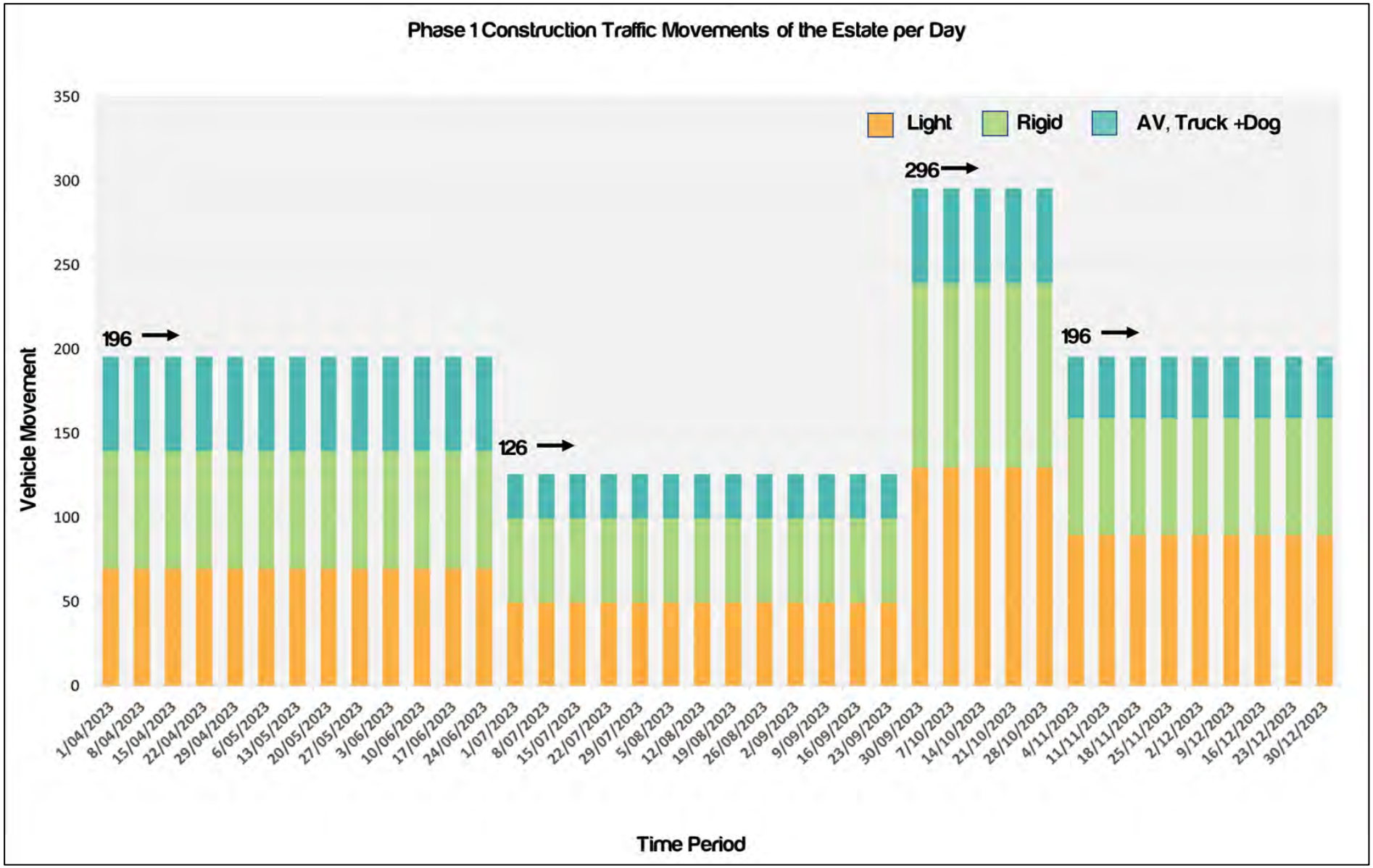


Figure 16: Phase 1 Construction Vehicle Movements of the Estate – Daily

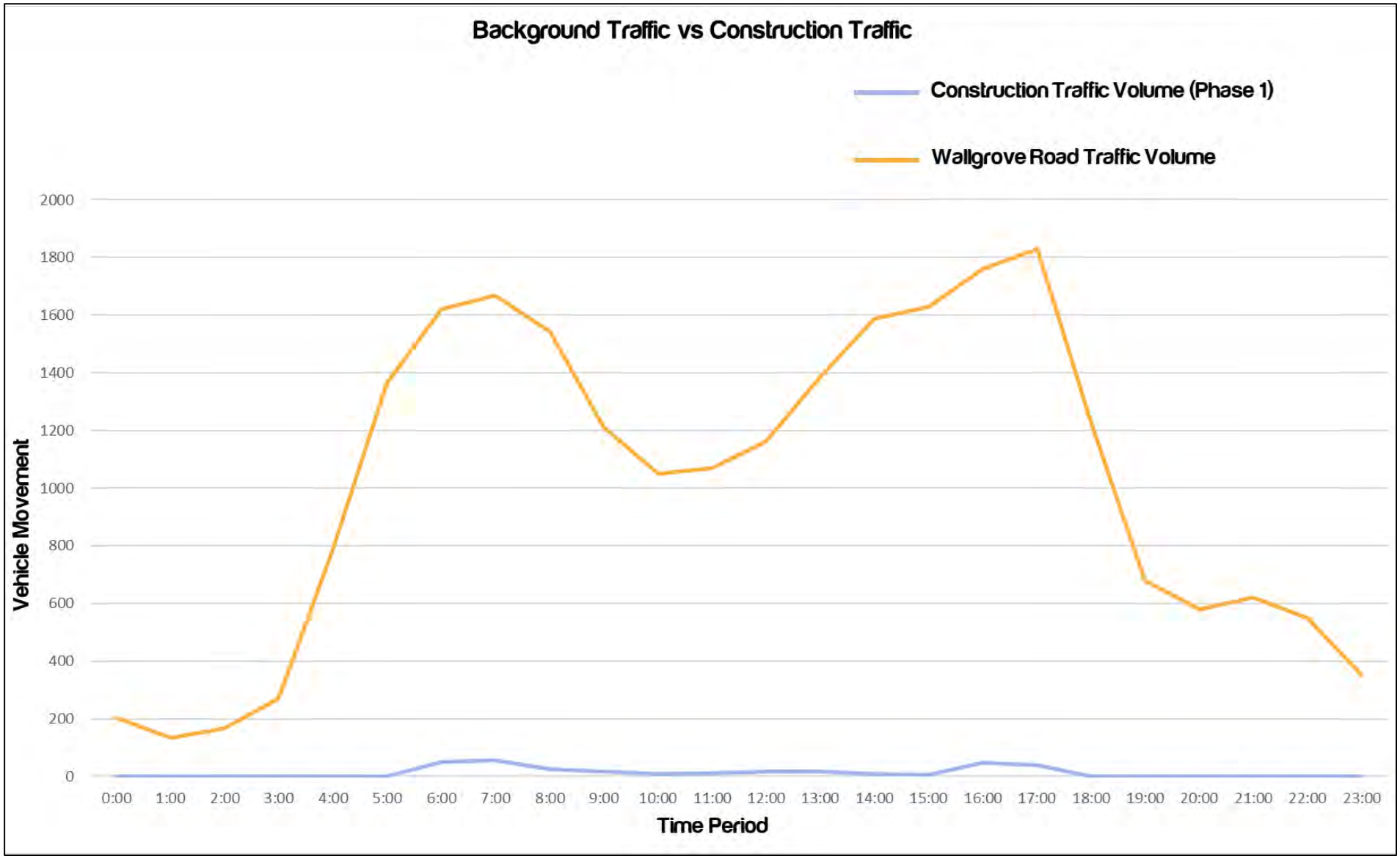


Figure 17: Background Traffic vs Construction Traffic – Phase 1

6.1.2 Phase 2 Post to the construction of the signalised intersection:

It can be observed that the construction traffic demand is anticipated to vary each month during phase 2, culminating in its peak during Stage 6, which is scheduled to take place between January 2027 and November 2027.

The estimated traffic volumes during the peak period of Phase 2 are shown in the table below:

TABLE 23: PHASE 2 PEAK TRAFFIC MOVEMENT

Period	Light Vehicle Movement	Heavy Vehicle Movement	Total
AM Peak	44 veh/hr	94 veh/hr	138 veh/hr
PM Peak	90 veh/hr	30 veh/hr	120 veh/hr
Daily	268 veh/day	266 veh/day	534 veh/day

Based on the provided table, it can be observed that the peak construction traffic movement for Phase 2 coincides with the operational traffic of GIE during both the AM and PM peak periods. Furthermore, the accompanying figure below illustrates the hourly count volumes of construction traffic for Phase 2 in relation to the existing background traffic. This visual representation clearly indicates that the increase in construction traffic is relatively minimal in comparison.

The figure provided below illustrates the daily traffic volumes for the Estate following the completion of the Signalised intersection.

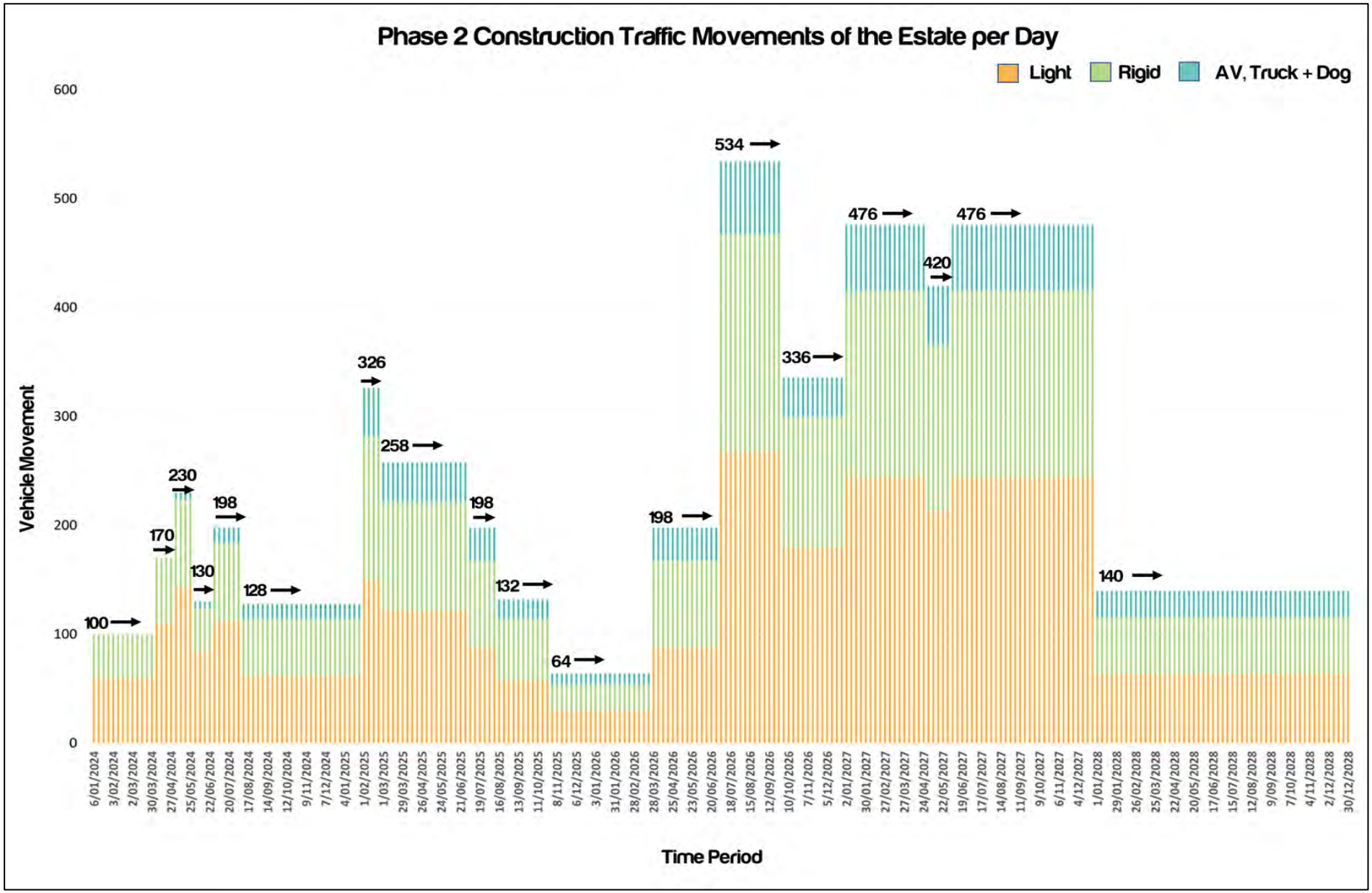


Figure 18: Phase 2 Construction Vehicle Movements of the Estate – Daily

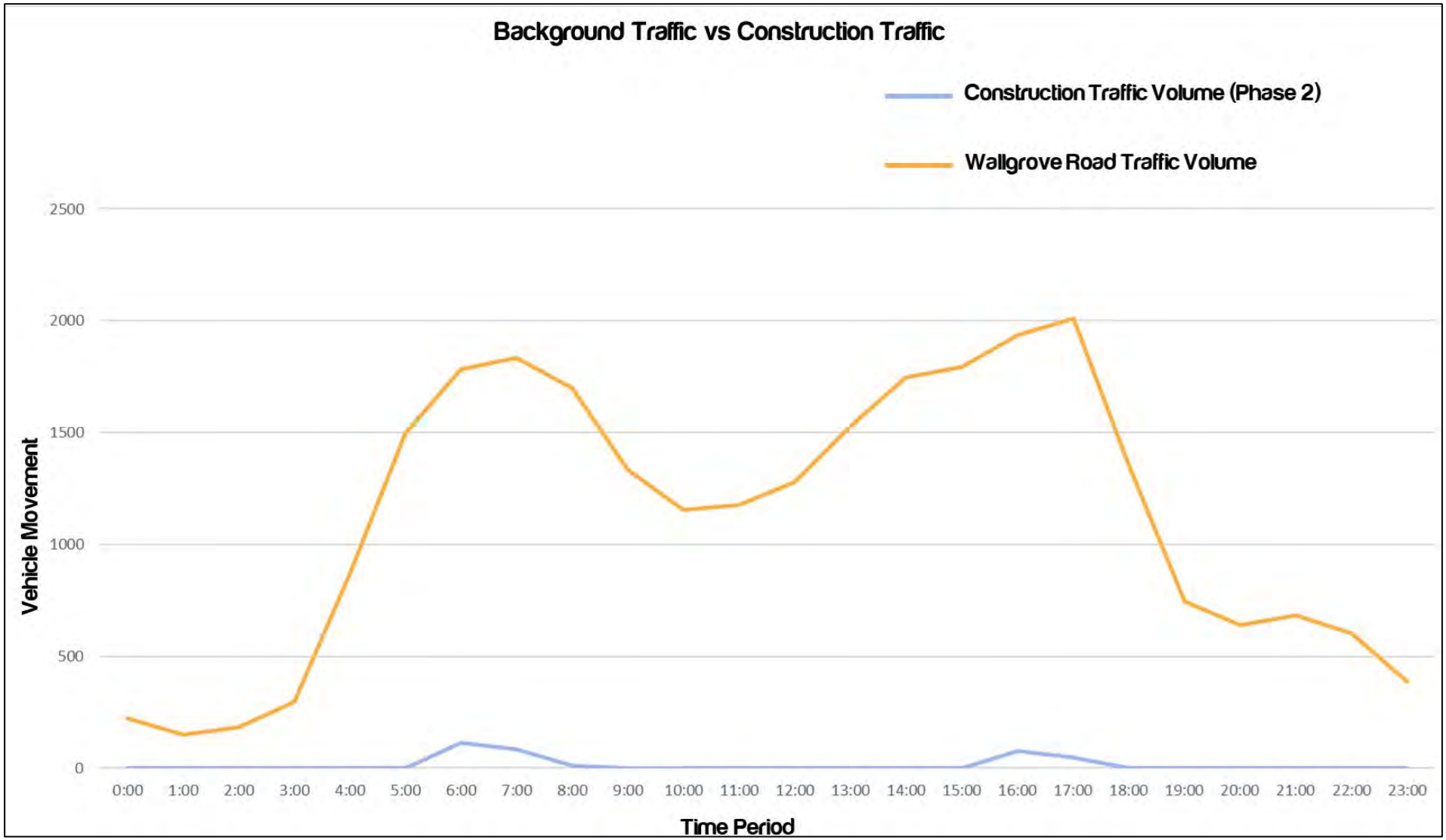


Figure 19: Background Traffic vs Construction Traffic – Phase 2

6.2 Cumulative Impacts

Given that Phase 1 construction traffic will utilise the Interim construction access and Phase 2 construction traffic will utilise the Signalised intersection, the estimated construction traffic has been allocated to the respective intersections. The distribution of construction traffic for Phase 1 is shown in the **Figure 20** and **Figure 21**.

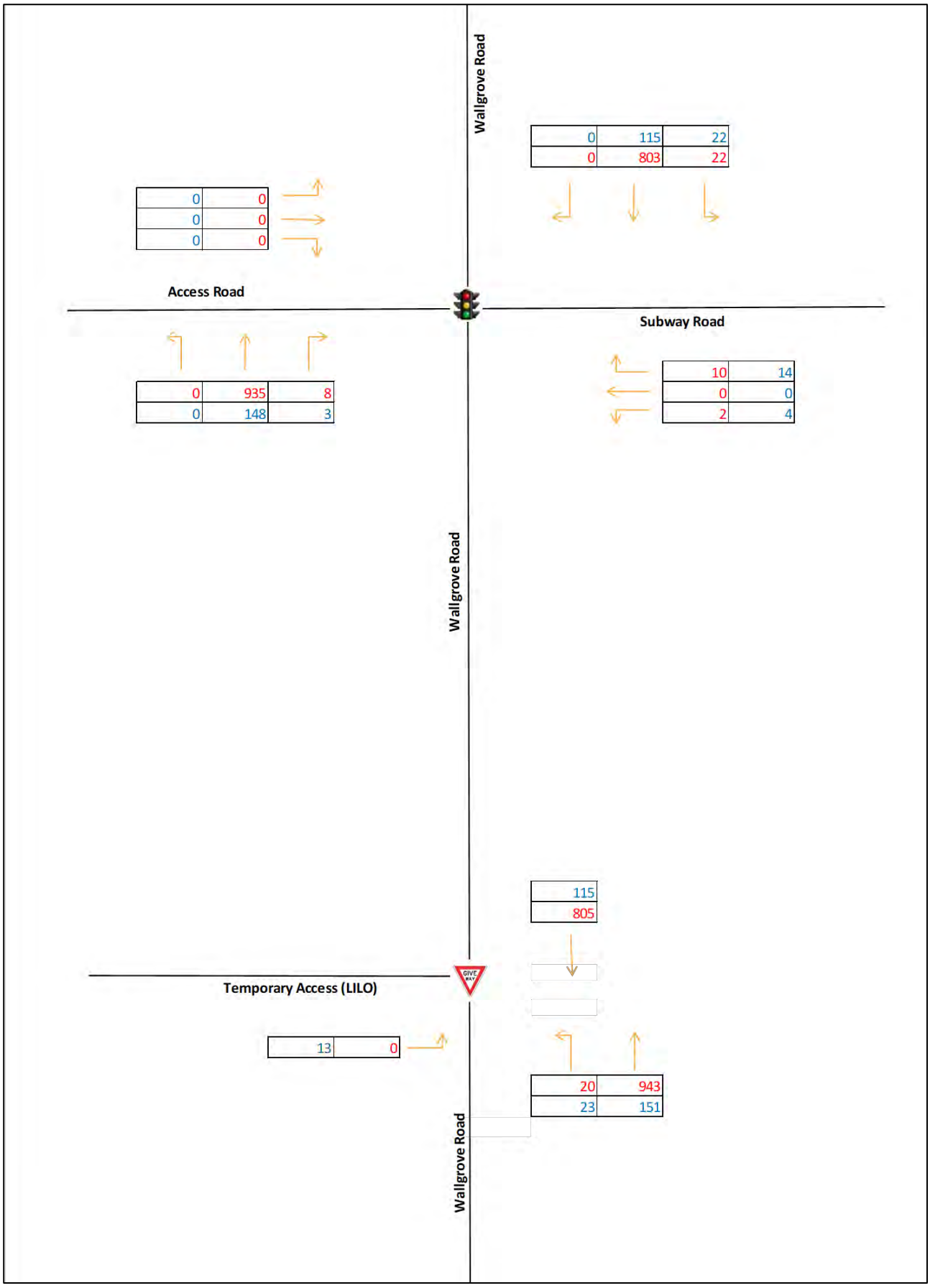


Figure 20: Baseline Traffic Volumes with Construction Volume – Phase 1 - AM Peak

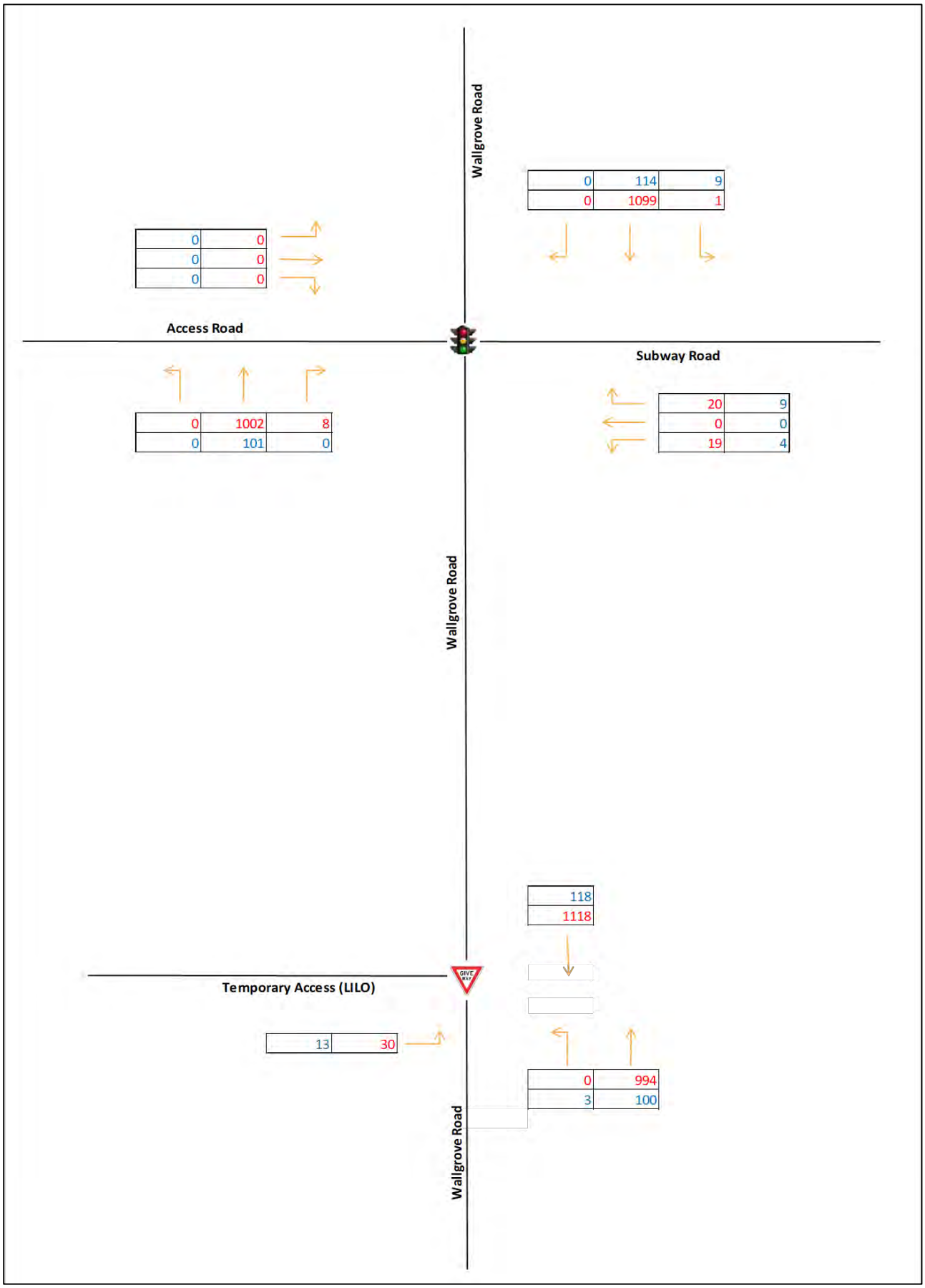


Figure 21: Baseline Traffic Volumes with Construction Volume – Phase 1- PM Peak

Similarly, the distribution of construction traffic for Phase 2 is shown in **Figure 22** and **Figure 23.**

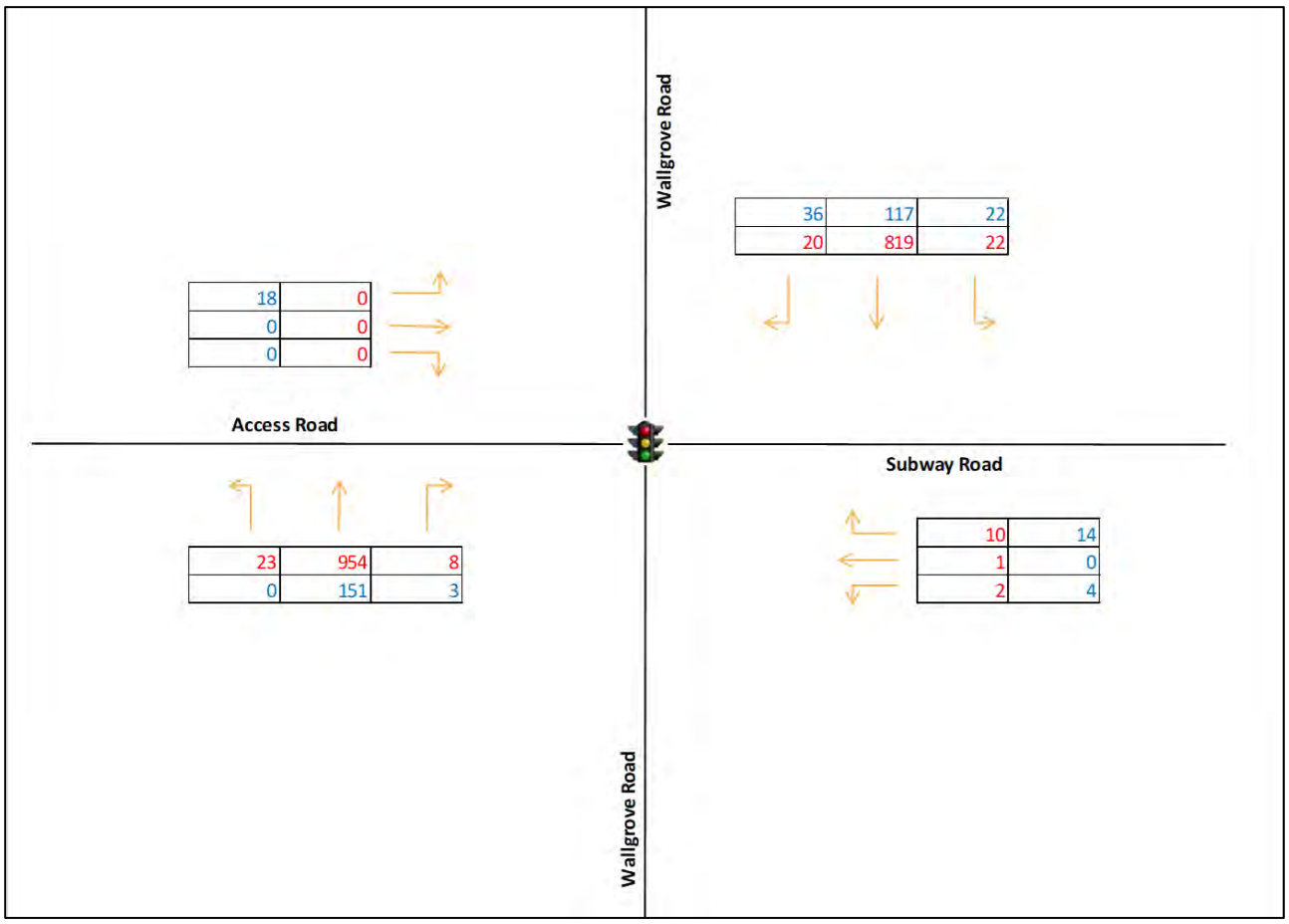


Figure 22: Baseline Traffic Volumes with Construction Volume – Phase 2 - AM Peak

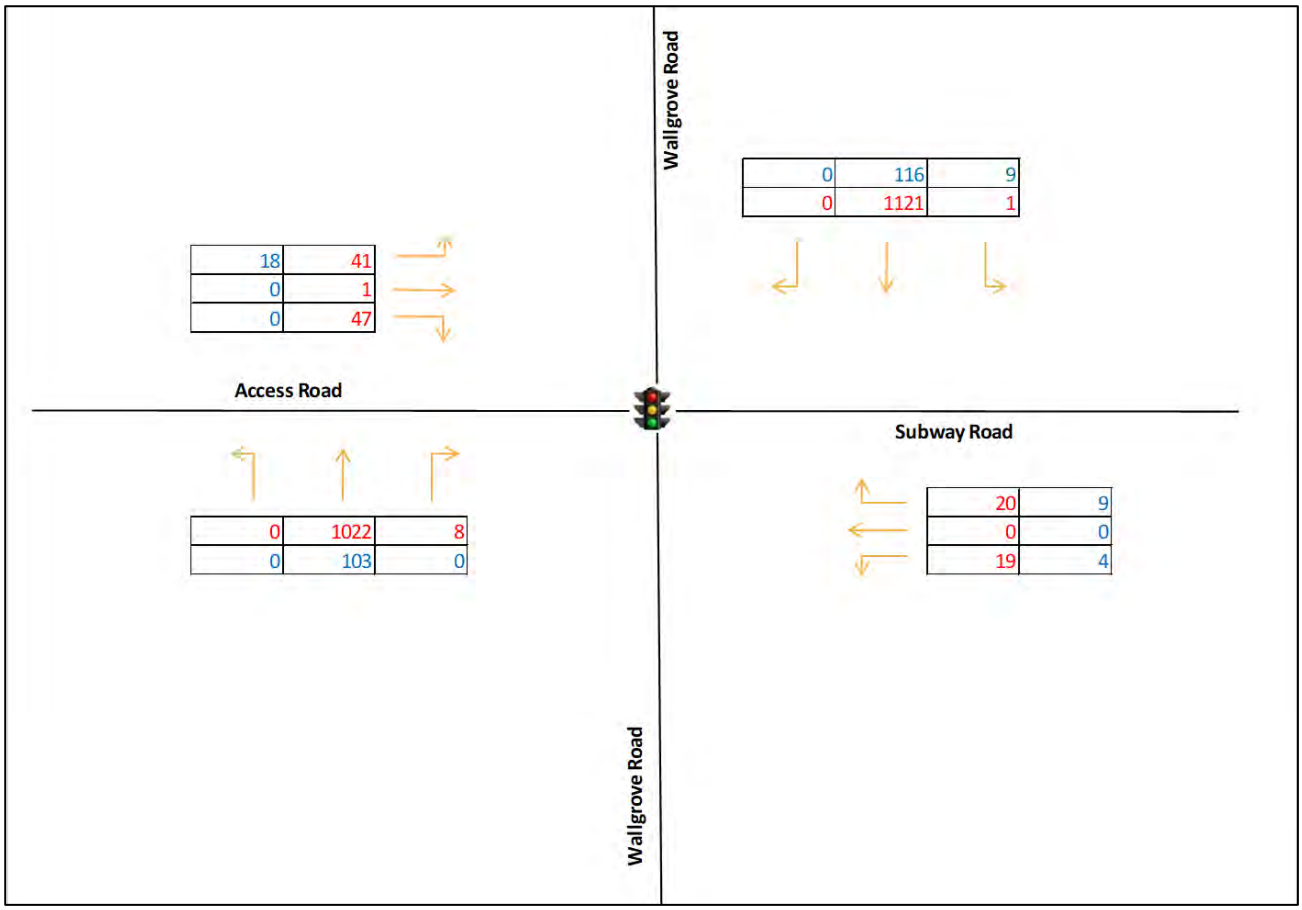


Figure 23: Baseline Traffic Volumes with Construction Volume – Phase 2 - PM Peak

The impact of construction traffic for both phases have been assessed using SIDRA computer program which outputs a range of performance measures, in particular:

- **Degree of Saturation (DOS):** DOS is defined as the ratio of demand (arrival) flow to capacity.
- **Average Vehicle Delay (AVD):** Provides a measure of the operational performance of an intersection and is used to determine an intersection's Level of Service (see below). For signalised intersections, the AVD reported relates to the average of all vehicle movements through the intersection. For priority (Give Way, Stop & Roundabout controlled) intersections, the AVD reported is that for the movement with the highest AVD.
- **Level of Service (LOS):** Comparative measure that provides an indication of the operating performance, based on AVD. For signalised and roundabout intersections, it is based on average delay to all vehicles, while at priority-controlled intersections it is based on the worst approach delay.

Table 24 provides a summary of the SIDRA LOS parameters, which are based on the RMS Guide.

TABLE 24: SIDRA LEVEL OF SERVICE SUMMARY

Level of Service	Average Delay per Vehicle (sec/veh)	Traffic Signals, Roundabout	Give Way and Stop Signs
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays. Roundabouts require other control mode	At capacity, requires other control mode
F	More than 70	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode or major treatment.

Table 25 provides results of the calibrated SIDRA model for the temporary access with Wallgrove Road during peak periods.

TABLE 25: TEMPORARY ACCESS PERFORMANCE

Peak Period	AVD (s)	LOS	DOS
AM	0.7	D	0.637
PM	0.8	B	0.701

Note: The critical gap and headway follow up timing was changed from 5s and 3s to 4.5s and 2.5s respectively in consultation with SIDRA support and per Table 7.1 of AUSTROADS 2020: Guide to Traffic Management Part 3: Transport Study and Analysis Methods.

The AVD range between 0.7 – 0.8 seconds for both AM and PM peaks indicating that the intersection is operating near capacity. However, during the afternoon peak, SIDRA suggests that the LOS is classified as "Worst (B)" which suggests that the intersection is still within the acceptable range of delays and has spare capacity. SIDRA summaries can be referenced in **Appendix C**. Moreover, the results of the SIDRA analysis for the Signalised intersection with the construction volume are summarised in **Table 26**.

TABLE 26: SIGNALISED INTERSECTION PERFORMANCE

Peak Period	AVD (s)	LOS	DOS
AM	13	A	0.511
PM	14.4	A	0.554

It is recognised that the peak construction traffic of Phase 2 consisting of 534 vehicles movements per day is considerably less than the approved operational traffic volumes being 5,774 vehicle movements per day.

Further, a SIDRA assessment undertaken on the Signalised intersection shows that the intersection can operate at an overall LOS A during the cumulative peak construction period. SIDRA summaries can be referenced in Appendix **C**.

7 Plan Administration

7.1 Monitoring Program

This CTMP shall be subject to ongoing review and will be updated accordingly. Regular reviews will be undertaken by the on-site coordinator. As a minimum, review of the CTMP shall occur monthly. All and any reviews undertaken should be documented, however key considerations regarding the review of the CTMP shall be:

- Tracking deliveries against the volumes outlined within report. Deliveries will be tracked against approved volumes and will keep a vehicle log - including rego & time of entry - for the purpose of assessing the effectiveness of these monitoring programs.
- Reporting and Monitoring of movements to ensure drivers are adhering to the approved construction hours, and to ensure that the approved traffic generation, and subsequent impacts on the road network, are in line with those approved. This should be undertaken fortnightly during construction.
- To identify any shortfalls and develop an updated action plan to address issues that may arise during construction (Parking and access issues)
- To ensure TGSs are updated (if necessary) by "Prepare a Work Zone Traffic Management Plan" card holders to ensure they remain consistent with the set-up on-site.
- Regular checks undertaken to ensure all loads are entering and leaving site covered as outlined within this CTMP.
- The Contractor shall be responsible for preparing a dilapidation report periodically (once a month) to assess the condition of Estate Road 01 and Estate Road 01following their completion and are utilised by construction traffic. The dilapidation report of these roads should note whether there has been any reduction in the quality of the road as a result of construction vehicle traffic.

The development of a program to monitor the effectiveness of this CTMP shall be established by the Contractor. This process is expected to form part of the monitoring plan required to be included as part of the overarching Construction Environmental Management Plan (CEMP), of which this CTMP forms a part.

7.2 Contingency Plan

A contingency plan shall be established by the Contractor. Notwithstanding, **Table 27** outlines an indicative plan to be undertaken by the builder in the event that the monitoring program identifies the management plan is not effective in managing the construction impacts.

TABLE 27: CONTINGENCY PLAN

Risk		Condition Green	Condition Amber	Condition Red
Construction Movements	Trigger	Construction traffic volume is in accordance with permissible and programmed volume and time constraints	Construction traffic volumes exceeds programmed volume but is within permissible volume constraints	Construction traffic volumes exceeds permissible volume and time constraints
	Response	No response required	Review and investigate construction activities, and where appropriate, implement additional remediation measures such as:	As with Condition Amber, plus; • If it is concluded that construction activities were directly responsible

			• Review CTMP and update where necessary • Provide additional training.	for the exceedance, submit an incident report to government agencies.
Queuing	Trigger	No queuing identified	Queuing identified within Estate	Queuing identified on the public road
	Response	No response required Continue monitoring program	Review the delivery schedule prepared by the builder. If drivers are not following the correct schedule, then they should be provided with additional training and an extra copy of the Driver Code of Conduct	As with Condition Amber, plus • Review and investigate construction activities. • If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies. • Temporary halting of activities and resuming when conditions have improved. • Review CTMP and update where necessary, provide additional training.
Noise	Trigger	Noise levels do not exceed imposed noise constraints	Noise levels in minor excess of imposed noise constraints	Noise levels greatly in excess of imposed noise constraints
	Response	No response required	Undertake all feasible and reasonable mitigation and management measures to minimise noise impacts.	As with Condition Amber If noise levels cannot be kept below applicable limits, then a different construction method or equipment must be utilised.
Traffic Guidance Scheme	Trigger	No observable issues	Minor inconsistencies with TGS to onsite operations	Near miss or incident occurring regardless of / as a result of the TGS being implemented
	Response	No response required	Traffic Controller to amend TGS on site and to keep a log of all changes	Stop work until an investigation has been undertake into the incident. There are to be changes made to the TGS to ensure that the safety of all workers, students and civilians are catered for.

Dust	Trigger	No observable dust	Minor quantities of dust in the air and tracking on to the road	Large quantities of dust in the air and tracking on to the road
	Response	No response required	Review and investigate construction activities and respective control measures, where appropriate. Implement additional remedial measures, such as: • Deployment of additional water sprays • Relocation or modification of dust-generating sources • Check condition of vibrating grids to ensure they are functioning correctly. • Temporary halting of activities and resuming when conditions have improved	As with Condition Amber. • If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies. • Implement relevant responses and undertake immediate review to avoid such occurrence in future.

It is therefore proposed to incorporate the above items within the communications strategy. The contingency plan outlines the most effective methods to ensure that each item identified within the Monitoring Program is adhered to, resulting in the impacts to the wider community being minimised. It also represents the efforts undertaken to continually improve CTMP and ensure that the process being utilised are indeed best practice.

7.3 Communications Strategy

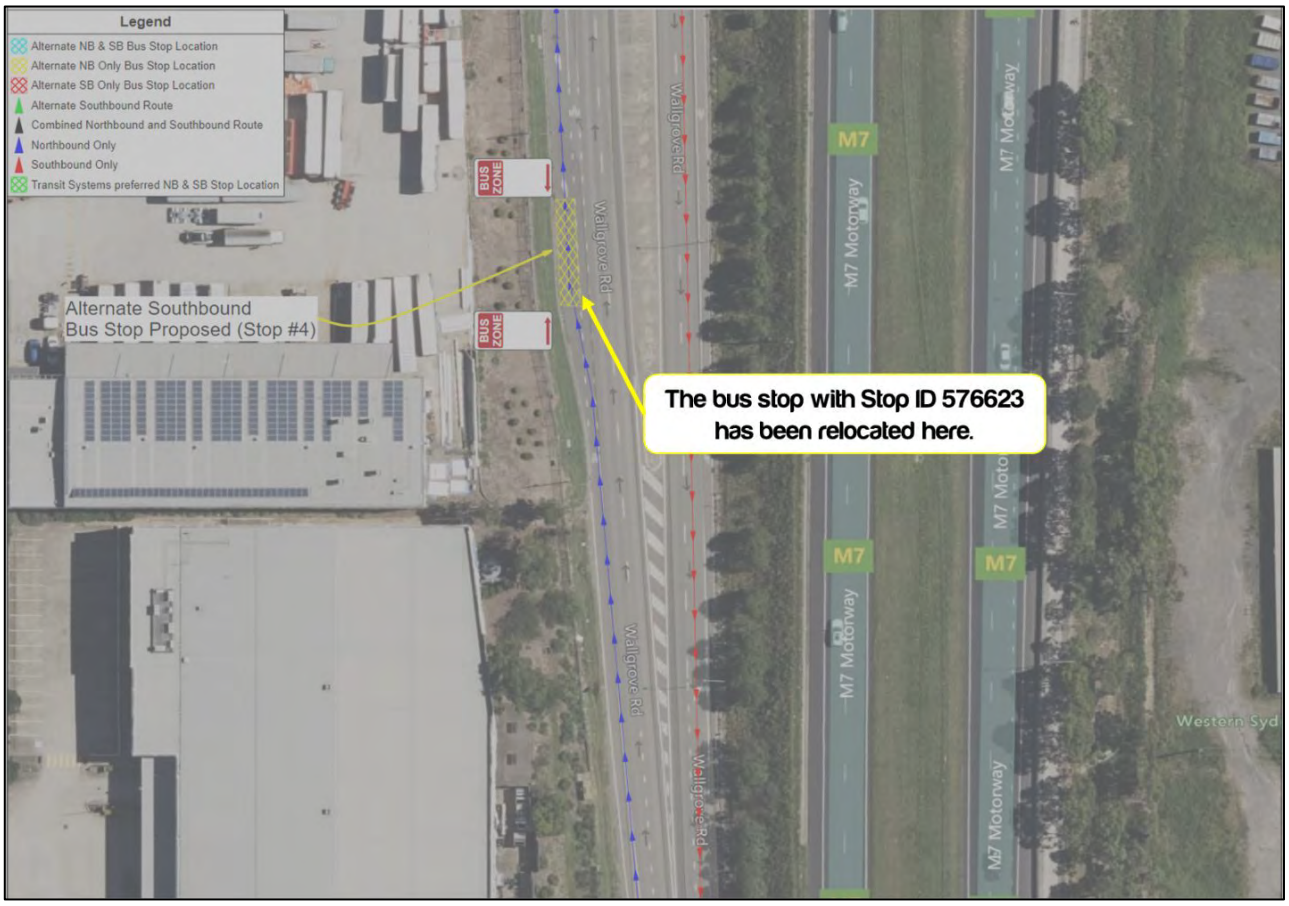
A communications strategy shall be established by the Contractor. The Contractor is to notify the community liaison representative when traffic is expected to exceed the parameters set within “Condition Green” of **Table 27**. **Table 28** outlines an indicative communication strategy to ensure that adequate communication with key stakeholders have been met.

TABLE 28: COMMUNICATION STRATEGY

Risk	Stakeholder	Action
Warehouse Specific Disruption	• TfNSW • Fairfield City Council • Transport Management Centre (TMC) • NSW Police • Emergency Services • Gazcorp	Stakeholder meetings Stakeholder emails
Wider Traffic Disruption	• TfNSW • Fairfield City Council • Transport Management Centre (TMC) • NSW Police • Emergency Services • Gazcorp • Surrounding Residents / Tenants / Schools	

If and when there are any proposed changes to the CTMP conditions, then these shall be captured ongoing discussions with TfNSW. In the event that the CTMP report requires to be changed, a copy of the revised CTMP report should be submitted developments.cjp@transport.nsw.gov.au for further review and endorsement.

Appendix A. Alternative Temporary Bus Stop Locations



Source: GIE CTMP prepared by Allied Traffic Management dated 26/08/2022[8]

[8] https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-5248%2120221221T050819.373%20GMT

Appendix B. Risk Assessment

813-913 Wallgrove Road, Eastern Creek

Risk Assessment and Communication Tool

Project Number	P2302
Project Name	Gazcorp Industrial Estate (GIE)
Site Location	813-913 Wallgrove Road, Eastern Creek
Date of Assessment	9/11/2023
Revision	Issue II

Name	Company	Title
J. Laidler	Ason Group	Senior Traffic Engineer
M. Abdullah	Ason Group	Traffic Engineer
Tim Sachs	Gazcorp	Senior Project Manager
Sangeeth Subramaniam	Gazcorp	Project Manager

Document Control

Date Issued	Revision	Issued By	Checked By
08/06/2023	Draft	M. Abdullah	J. Laidler
26/09/2023	Issue I	M. Abdullah	J. Laidler
9/11/2023	Issue II	M. Abdullah	J. Laidler

Risk Matrix		**Consequence**				
		Minor	Major	Severe	Critical	Catastrophic
		A	B	C	D	E
Very Unlikely	1	Low	Low	Medium	Medium	Medium
Unlikely	2	Low	Low	Medium	Medium	High
Possible	3	Low	Medium	High	High	High
Likely	4	Medium	Medium	High	High	Extreme

Almost Certain	5	Medium	High	High	Extreme	Extreme

Description	
A - Minor	Could result in injury or illness not resulting in a lost work day or minimal environmental damage not required to be notified under jurisdiction requirements.
B - Major	Could result in injury or illness resulting in one or more lost work day(s) or environmental damage can be mitigated and is not required to be notified under jurisdiction
C - Severe	requirements where restoration activities can be accomplished.
D - Critical	Could result in permanent partial disability, injuries or illness that may result in
E - Catastrophic	hospitalisation of persons or environmental damage can be mitigated and is required to be notified under jurisdiction requirements.

Likelihood Descriptor	**Design Likelihood**
1 - Very unlikely	Industry experience suggests design failure is very unlikely. It can be assumed failure
2 - Unlikely	Industry experience suggests design failure is unlikely to occur in the life of design.
3 - Possible	Industry experience suggests design failure is possible some time during the life of the
4 - Likely	Industry experience suggests design failure is likely to occur during the life of the product.
5 - Almost certain	Industry experience suggests design failure is almost certain to occur during the life of the

Risk Assessment and Communication Tool

Example

ID. Ref	Risk and/ or Hazard	Risk Description	Location	Existing Control	Initial Risk Rating			Design Response to risk and /or hazard	Status of Risk	Assignment of risk or hazard	Residual risk rating		
					C	L	RR				C	L	RR
1	Unauthorized Access to the Site	Site prevents unauthorised access	Entire Site	Nil	C	3	High	Boundary fence will be provided as part of the main works. The design provides a defined separation between public areas and work area. Admin area is located in front of the site to minimise unauthorised visitor access	Design Solution	Main Contractor	B	2	Low
2	Interaction between pedestrians and vehicles	Vehicles and pedestrians to be separates as best possible	Entire Site & Access Roads	Nil	D	3	High	separate pedestrians from vehicles in construction sites, use barrier fencing, signage and markings, traffic control measures, and temporary walkways. Ensure that the site is well-lit, especially when	Design Solution	Main Contractor	B	2	Low

								it get dark, and train workers on safety around construction equipment and vehicles to promote awareness of potential hazards.					
3	Potential vehicle conflict points	Vehicles can crash with each other while manoeuvring through the site	Entire Site & Access Roads	Nil	B	3	Medium	Use one-way manoeuvring around a site to limit interaction between vehicles to designated access points. Maintain Low speeds throughout the site to ensure safety for drivers.	Design Solution	Main Contractor	B	1	Low
4	Potential vehicle with other road users	Construction Vehicles can crash with other Road users while manoeuvring through the site	Site Access & Road	Nil	C	3	High	Conducting regular toolbox meetings is essential to ensure drivers are well-informed about the Driver Code of Conduct, compliance with road safety regulations, and adherence to road rules. This proactive approach	Design Solution	Main Contractor	B	2	Low

								helps minimise conflicts with various road users, including pedestrians, cyclists, and motor vehicles.					
5	Fatigue	Injury caused by fatigue	Entire Site	Nil	C	3	High	Toolbox meetings and regular breaks (in line with WHS practices) to minimise fatigue	Design Solution	Main Contractor	B	1	Low
6	Fall risks	Injury due to falls (in general)	Entire Site	Nil	E	3	High	Proper safety equipment, training, and site maintenance should be implemented to ensure a safe work environment.	Design Solution	Main Contractor	C	2	Medium
7	Misdirected access in to neighbouring site	Vehicle in unsafe locations	Entire Site	Nil	C	3	High	Ensuring appropriate directional signage has been provided to ensure vehicles do not access the wrong construction site, which could create potential safety breaches and hazards for all partied. Additionally,	Design Solution	Main Contractor	B	2	Low

								communicating with the neighbouring site can help to identify any potential issues related to access or safety, and facilitate the sharing of best practices and resources. This can promote a culture of collaboration and cooperation between neighbouring sites, and ultimately help to improve overall safety and efficiency in the area.					
8	Conflicting Traffic Management	Coordinating Traffic Controllers could create misleading and wrong advice	Entire Site	Nil	C	3	High	Regular toolbox meetings, safety briefings, liaison with traffic management teams, and updated signage plans can minimize construction site hazards by adopting a comprehensive	Design Solution	Main Contractor	C	2	Medium

								approach to traffic management.					

Appendix C. SIDRA Summary

MOVEMENT SUMMARY

Site: 101 [Temporary Access AM (Site Folder: Phase 1-Prior-Operation of the Signalised Intersection)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Wallgrove Road / Temporary Access Road
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Wallgrove Road															
1	L2	All MCs	45	53.5	45	53.5	0.033	6.2	LOS A	0.0	0.0	0.00	0.50	0.00	51.7
2	T1	All MCs	1152	13.8	1152	13.8	0.637	0.3	LOS A	0.0	0.0	0.00	0.00	0.00	69.1
Approach			1197	15.3	1197	15.3	0.637	0.5	NA	0.0	0.0	0.00	0.02	0.00	68.3
North: Wallgrove Road															
8	T1	All MCs	968	12.5	968	12.5	0.531	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	69.4
Approach			968	12.5	968	12.5	0.531	0.2	NA	0.0	0.0	0.00	0.00	0.00	69.4
West: Temporary Access Road															
10	L2	All MCs	14	100.0	14	100.0	0.139	44.0	LOS D	0.4	5.5	0.94	0.97	0.94	32.3
Approach			14	100.0	14	100.0	0.139	44.0	LOS D	0.4	5.5	0.94	0.97	0.94	32.3
All Vehicles			2179	14.6	2179	14.6	0.637	0.7	NA	0.4	5.5	0.01	0.02	0.01	68.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Temporary Access PM (Site Folder: Phase 1-Prior-Operation of the Signalised Intersection)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Wallgrove Road / Temporary Access Road
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Wallgrove Road															
1	L2	All MCs	3	100.0	3	100.0	0.003	6.6	LOS A	0.0	0.0	0.00	0.48	0.00	49.6
2	T1	All MCs	1152	9.1	1152	9.1	0.619	0.3	LOS A	0.0	0.0	0.00	0.00	0.00	69.2
Approach			1155	9.4	1155	9.4	0.619	0.3	NA	0.0	0.0	0.00	0.00	0.00	69.2
North: Wallgrove Road															
8	T1	All MCs	1301	9.5	1301	9.5	0.701	0.4	LOS A	0.0	0.0	0.00	0.00	0.00	68.9
Approach			1301	9.5	1301	9.5	0.701	0.4	NA	0.0	0.0	0.00	0.00	0.00	68.9
West: Temporary Access Road															
10	L2	All MCs	45	30.2	45	30.2	0.196	22.8	LOS B	0.6	4.9	0.87	0.96	0.93	41.7
Approach			45	30.2	45	30.2	0.196	22.8	LOS B	0.6	4.9	0.87	0.96	0.93	41.7
All Vehicles			2501	9.8	2501	9.8	0.701	0.8	NA	0.6	4.9	0.02	0.02	0.02	68.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Proposed Intersection AM (Site Folder: Phase 2- Post Operation of the Signalised Intersection)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Wallgrove Rd-Subway Rd-Access Rd AM
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Wallgrove Road															
1	L2	All MCs	24	0.0	24	0.0	*0.511	20.2	LOS B	18.2	141.8	0.58	0.53	0.58	51.1
2	T1	All MCs	1163	13.7	1163	13.7	0.511	12.1	LOS A	18.2	142.5	0.58	0.53	0.58	56.1
3	R2	All MCs	12	27.3	12	27.3	0.044	14.0	LOS A	0.2	1.6	0.47	0.65	0.47	49.3
Approach			1199	13.5	1199	13.5	0.511	12.3	LOS A	18.2	142.5	0.58	0.53	0.58	55.9
East: Subway Road															
4	L2	All MCs	6	66.7	6	66.7	0.175	47.4	LOS D	1.7	17.9	0.90	0.73	0.90	27.3
5	T1	All MCs	1	0.0	1	0.0	*0.175	49.5	LOS D	1.7	17.9	0.90	0.73	0.90	31.9
6	R2	All MCs	25	58.3	25	58.3	0.175	56.7	LOS E	1.7	17.9	0.90	0.73	0.90	27.4
Approach			33	58.1	33	58.1	0.175	54.7	LOS D	1.7	17.9	0.90	0.73	0.90	27.5
North: Wallgrove Road															
7	L2	All MCs	46	50.0	46	50.0	0.447	18.5	LOS B	14.7	116.9	0.54	0.51	0.54	48.9
8	T1	All MCs	985	12.5	985	12.5	0.447	11.4	LOS A	15.1	117.1	0.54	0.50	0.54	56.8
9	R2	All MCs	59	64.3	59	64.3	*0.341	17.2	LOS B	1.1	12.4	0.60	0.72	0.60	45.7
Approach			1091	16.9	1091	16.9	0.447	12.0	LOS A	15.1	117.1	0.55	0.51	0.55	55.6
West: Access Road															
10	L2	All MCs	20	94.7	20	94.7	0.069	43.1	LOS D	0.9	11.3	0.78	0.70	0.78	27.5
11	T1	All MCs	1	0.0	1	0.0	0.009	46.5	LOS D	0.1	0.7	0.87	0.59	0.87	33.2
12	R2	All MCs	1	0.0	1	0.0	0.009	52.1	LOS D	0.1	0.7	0.87	0.59	0.87	33.5
Approach			22	85.7	22	85.7	0.069	43.7	LOS D	0.9	11.3	0.79	0.69	0.79	28.0
All Vehicles			2344	16.4	2344	16.4	0.511	13.0	LOS A	18.2	142.5	0.57	0.53	0.57	54.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Wallgrove Road												

P1	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
West: Access Road												
P4	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
All Pedestrians		100	105	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: 101 [Proposed Intersection PM (Site Folder: Phase 2-Post Operation of the Signalised Intersection)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Wallgrove Rd-Subway Rd-Access Rd AM
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Wallgrove Road															
1	L2	All MCs	1	0.0	1	0.0	0.497	20.0	LOS B	17.9	135.2	0.57	0.51	0.57	51.4
2	T1	All MCs	1184	9.2	1184	9.2	0.497	11.9	LOS A	17.9	135.3	0.57	0.51	0.57	56.4
3	R2	All MCs	8	0.0	8	0.0	*0.033	15.0	LOS B	0.1	0.9	0.52	0.66	0.52	49.4
Approach			1194	9.1	1194	9.1	0.497	12.0	LOS A	17.9	135.3	0.57	0.52	0.57	56.4
East: Subway Road															
4	L2	All MCs	24	17.4	24	17.4	0.256	48.2	LOS D	2.9	25.0	0.92	0.75	0.92	30.5
5	T1	All MCs	1	0.0	1	0.0	*0.256	51.2	LOS D	2.9	25.0	0.92	0.75	0.92	31.7
6	R2	All MCs	31	31.0	31	31.0	0.256	60.2	LOS E	2.9	25.0	0.92	0.75	0.92	29.0
Approach			56	24.5	56	24.5	0.256	54.8	LOS D	2.9	25.0	0.92	0.75	0.92	29.7
North: Wallgrove Road															
7	L2	All MCs	11	90.0	11	90.0	0.554	20.3	LOS B	20.9	159.5	0.60	0.55	0.60	46.9
8	T1	All MCs	1302	9.4	1302	9.4	*0.554	12.6	LOS A	21.1	159.4	0.60	0.55	0.60	55.8
9	R2	All MCs	1	0.0	1	0.0	0.004	13.9	LOS A	0.0	0.1	0.49	0.61	0.49	49.4
Approach			1314	10.0	1314	10.0	0.554	12.7	LOS A	21.1	159.5	0.60	0.55	0.60	55.7
West: Access Road															
10	L2	All MCs	48	39.1	48	39.1	0.128	42.9	LOS D	2.2	20.4	0.80	0.73	0.80	31.4
11	T1	All MCs	1	0.0	1	0.0	0.165	49.0	LOS D	1.8	12.8	0.91	0.73	0.91	31.5
12	R2	All MCs	34	0.0	34	0.0	0.165	55.5	LOS D	1.8	12.8	0.91	0.73	0.91	31.8
Approach			83	22.8	83	22.8	0.165	48.1	LOS D	2.2	20.4	0.85	0.73	0.85	31.5
All Vehicles			2646	10.3	2646	10.3	0.554	14.4	LOS A	21.1	159.5	0.60	0.54	0.60	53.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
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Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
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HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
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* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Wallgrove Road												

P1	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
West: Access Road												
P4	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96
All Pedestrians		100	105	54.3	LOS E	0.2	0.2	0.95	0.95	208.1	200.0	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Appendix D. Traffic Guidance Schemes

ASON ACCEPTS NO RESPONSIBILITY WHATSOEVER FOR THE USE OF UNAPPROVED PLANS IN ANY CONSTRUCTION OR FOR ANY COMMERCIAL PURPOSES. SET OUT DIMENSIONS OF ALL DESIGN LINES, GRID LINES, CONTROL LINES, RECOVERY MARKS AND BENCH MARKS SHOULD BE VERIFIED AND CONFIRMED AGAINST THE LATEST INFORMATION AT CONSTRUCTION. ASON IS TO BE NOTIFIED IMMEDIATELY OF ANY ERROR OR DISCREPANCY AND THE MATTER RESOLVED PRIOR TO THE COMMENCEMENT OR CONTINUATION OF ANY WORK. THIS NOTE IS AN INTEGRAL PART OF THIS PLAN/DATA.
REPRODUCTION OF THIS PLAN OR ANY PART OF IT WITHOUT THIS NOTE BEING INCLUDED IN FULL WILL RENDER THE INFORMATION SHOWN ON SUCH REPRODUCTION INVALID AND NOT SUITABLE FOR USE.
DISCLAIMER - ASON THEREFORE DISCLAIMS ANY LIABILITY WHATSOEVER AND COVENANTS NOT TO SUE FOR LOSS OR DAMAGE ARISING FROM A THIRD PARTY'S MISUSE OF THE PLAN/DATA WHETHER IN NOVATED/TORT OR NOT) CAUSED BY THE FAILURE TO INFORM ANY SUCH THIRD PARTY OF THE LIMITATIONS WHICH APPLY TO THE INFORMATION CONTAINED IN THIS PLAN/WITHIN THE ACCOMPANYING DATA.



TGS GENERAL NOTES

- ALL PUBLIC ROADS WILL HAVE A SPEED LIMIT OF 50KM/H UNLESS IDENTIFIED OTHERWISE
- NOT ALL DIMENSIONS SHOWN ARE TO SCALE
- LOCATION OF SIGNS ARE TO BE CONFIRMED ON-SITE TO ENSURE APPROPRIATE VISIBILITY
- ALL SIGNS ARE TO BE MINIMUM SIZE A
- ALL SIGNS ARE TO BE CLASS 1 RETROREFLECTIVE
- ALL TRAFFIC CONTROL PLANS ARE TO BE IMPLEMENTED IN ACCORDANCE WITH TFNSW'S TRAFFIC CONTROL AT WORK SITES TECHNICAL MANUAL ISSUE 6 (RELEASED 2020) AND AUSTRALIAN STANDARDS AS1742.3:2019 MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, PART 3: TRAFFIC CONTROL DEVICES FOR WORKS ON ROADS
- THIS TRAFFIC CONTROL PLAN MUST BE SET UP BY A PERSON HOLDING AN "IMPLEMENT TRAFFIC MANAGEMENT PLAN" TICKET AND TFNSW'S TRAFFIC CONTROL AT WORK SITES CHECKLIST SHALL BE COMPLETED PRIOR TO IMPLEMENTATION

- THE ACCREDITED PERSONNEL SHALL IMPLEMENT THE APPROVED TCP BEFORE ANY PHYSICAL WORK COMMENCES AND ENSURE A COPY OF THE TCP IS KEPT ON-SITE. THE ACCREDITED PERSONNEL SHALL ALSO DRIVE THROUGH THE SITE BEFORE WORKS BEGIN TO ENSURE THAT THE TCP HAS BEEN IMPLEMENTED CORRECTLY AND THAT THE IT WILL WARN, INSTRUCT AND GUIDE ROAD USERS AS DESIGNED. ANY VARIATIONS TO THE PLAN MUST BE MARKED ON THE PLAN AND INITIALED BY THE ACCREDITED PERSONNEL
- IT IS THE RESPONSIBILITY OF THE AN ACCREDITED PERSONNEL WITH A 'PREPARE A WORK ZONE TRAFFIC MANAGEMENT PLAN' TO ENSURE THE FOLLOWING:
  * THE INTEGRITY OF ALL TRAFFIC CONTROL MEASURE THROUGH TO THE FINAL REMOVAL. THIS INCLUDES DAILY CHECKS OF ALL SIGNS AND DEVICES. THE CORRESPONDING RECORDS OF CHECKS SHALL BE KEPT ON FILE FOR AUDITING PURPOSES.
  * VEHICULAR ACCESS AND SERVICING REQUIREMENTS ARE TO BE MAINTAINED AT ALL TIMES TO ADJACENT PROPERTIES AFFECTED BY TRAFFIC CONTROL MEASURES
  * AT ALL TIMES AN UP-TO-DATE COPY OF "TRAFFIC CONTROL AT WORK SITES" SHALL BE AVAILABLE FOR REFERENCE AND IMPLEMENTATION AS REQUIRED ON-SITE

- ALL WORKERS WILL BE CONFINED TO THE DEDICATED WORKS AREA SHOWN ON THE PLAN
- IF THE WORKSITE IS LEFT UNATTENDED IT IS THE CONTRACTOR'S DUTY TO ENSURE THAT THE APPROPRIATE MEASURES ARE TAKEN TO PROVIDE A SAFE ENVIRONMENT FOR VEHICLES AND PEDESTRIANS TO RELEVANT AUSTRALIAN STANDARDS
- TRAFFIC CONTROLLER (T1-34) AND PREPARE TO STOP (T1-18) SIGNS ARE TO BE COVERED OR REMOVED WHEN TRAFFIC CONTROLLER/S ARE NOT ON SITE.
- ALL SIGNAGE IS TO BE CLEAN, CLEARLY VISIBLE AND NOT OBSCURED
- ALL WORKERS MUST ADHERE TO THE APPLICABLE SAFE WORK DISTANCE AS DESCRIBED IN AS1742.3:2019
- ALL DISTANCES BETWEEN SIGNS ARE TO BE IN ACCORDANCE WITH SECTION 2.5.2 OF AS1742.3:2019. HOWEVER, MODIFICATIONS CAN BE MADE TO SUIT SITE CONDITIONS
- IF REQUIRED, A TGS MUST BE SELECTED, DEVELOPED AND IMPLEMENTED BY A SUITABILITY QUALIFIED PERSON (PWZTMP AND ITCP QUALIFICATIONS)

Designer / Approver

Full Name: James Laidler
Role: Principal Lead
Division / Organisation: Ason Group
SafeWork NSW Card Number: TCT0031686
Signature:

Date:23/05/2023

AMENDMENTS

REV	DATE	DESCRIPTION	DRW	CHK	APP
-	23.05.23	TGS FOR WALLGROVE RD SITE ACCESS	MA	JL	JL

GENERAL NOTES

This drawing is provided for information purposes only and should not be used for construction.
Base Plan prepared by Nearmaps dated 29 Nov 2023.
Wallgrove Road has a posted speed limit of 70km/h.

DESIGNED: Musstafa Abdullah	PAPER SIZE: A1
CHECKED BY: James Laidler	DATE: 23.05.2023
APPROVED BY: James Laidler	SCALE: 1:400

CLIENT

Gazcorp

PROJECT

P2302

813-913 WALLGROVE ROAD

DOCUMENT INFORMATION

TGS

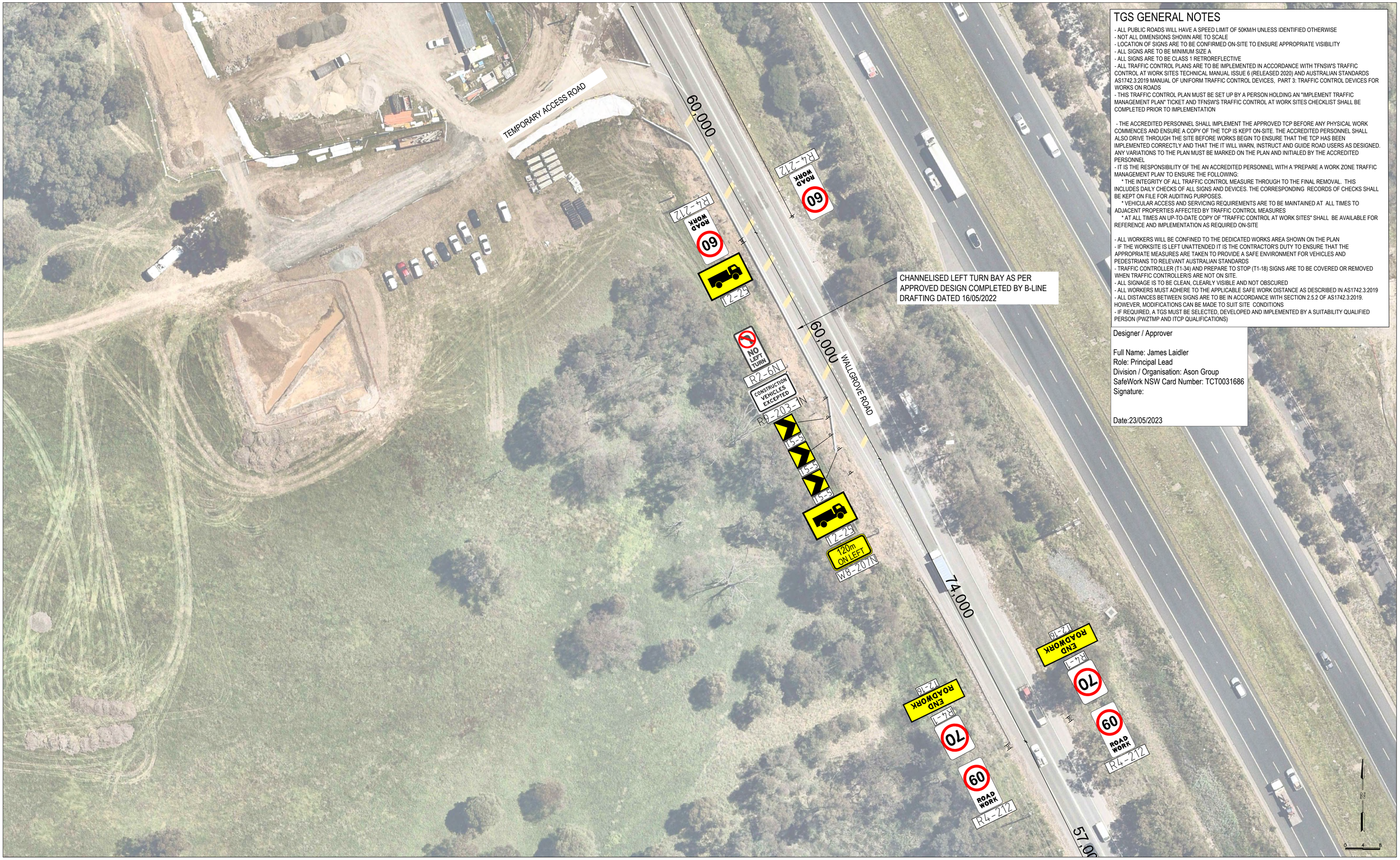
WALLGROVE RD SITE ACCESS

DRAWING STATUS: FOR CONSTRUCTION

FILE NAME: AG2302-01-v01.dwg

SHEET: AG01

asongroup
Suite 17.02, Level 17, 1 Castlereagh St
Sydney NSW 2000
info@asongroup.com.au



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- THE ACCREDITED PERSONNEL SHALL IMPLEMENT THE APPROVED TCP BEFORE ANY PHYSICAL WORK COMMENCES AND ENSURE A COPY OF THE TCP IS KEPT ON-SITE. THE ACCREDITED PERSONNEL SHALL ALSO DRIVE THROUGH THE SITE BEFORE WORKS BEGIN TO ENSURE THAT THE TCP HAS BEEN IMPLEMENTED CORRECTLY AND THAT THE IT WILL WARN, INSTRUCT AND GUIDE ROAD USERS AS DESIGNED. ANY VARIATIONS TO THE PLAN MUST BE MARKED ON THE PLAN AND INITIALED BY THE ACCREDITED PERSONNEL
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- ALL WORKERS MUST ADHERE TO THE APPLICABLE SAFE WORK DISTANCE AS DESCRIBED IN AS1742.3:2019
- ALL DISTANCES BETWEEN SIGNS ARE TO BE IN ACCORDANCE WITH SECTION 2.5.2 OF AS1742.3:2019. HOWEVER, MODIFICATIONS CAN BE MADE TO SUIT SITE CONDITIONS
- IF REQUIRED, A TGS MUST BE SELECTED, DEVELOPED AND IMPLEMENTED BY A SUITABILITY QUALIFIED PERSON (PWZTMP AND ITCP QUALIFICATIONS)

Designer / Approver

Full Name: James Laidler
Role: Principal Lead
Division / Organisation: Ason Group
SafeWork NSW Card Number: TCT0031686
Signature:

Date:23/05/2023

AMENDMENTS

REV	DATE	DESCRIPTION	DRW	CHK	APP
-	14.02.23	TGS FOR WALLGROVE RD SITE ACCESS	MA	JL	JL

GENERAL NOTES

This drawing is provided for information purposes only and should not be used for construction.
Base Plan prepared by Nearmaps dated 29 Nov 2023.
Wallgrove Road has a posted speed limit of 70km/h.

DESIGNED: Musstafa Abdullah	PAPER SIZE: A1
CHECKED BY: James Laidler	DATE: 23.05.2023
APPROVED BY: James Laidler	SCALE: 1:400

CLIENT: Gazcorp

PROJECT: P2302 — 813-913 WALLGROVE ROAD

DOCUMENT INFORMATION

TGS

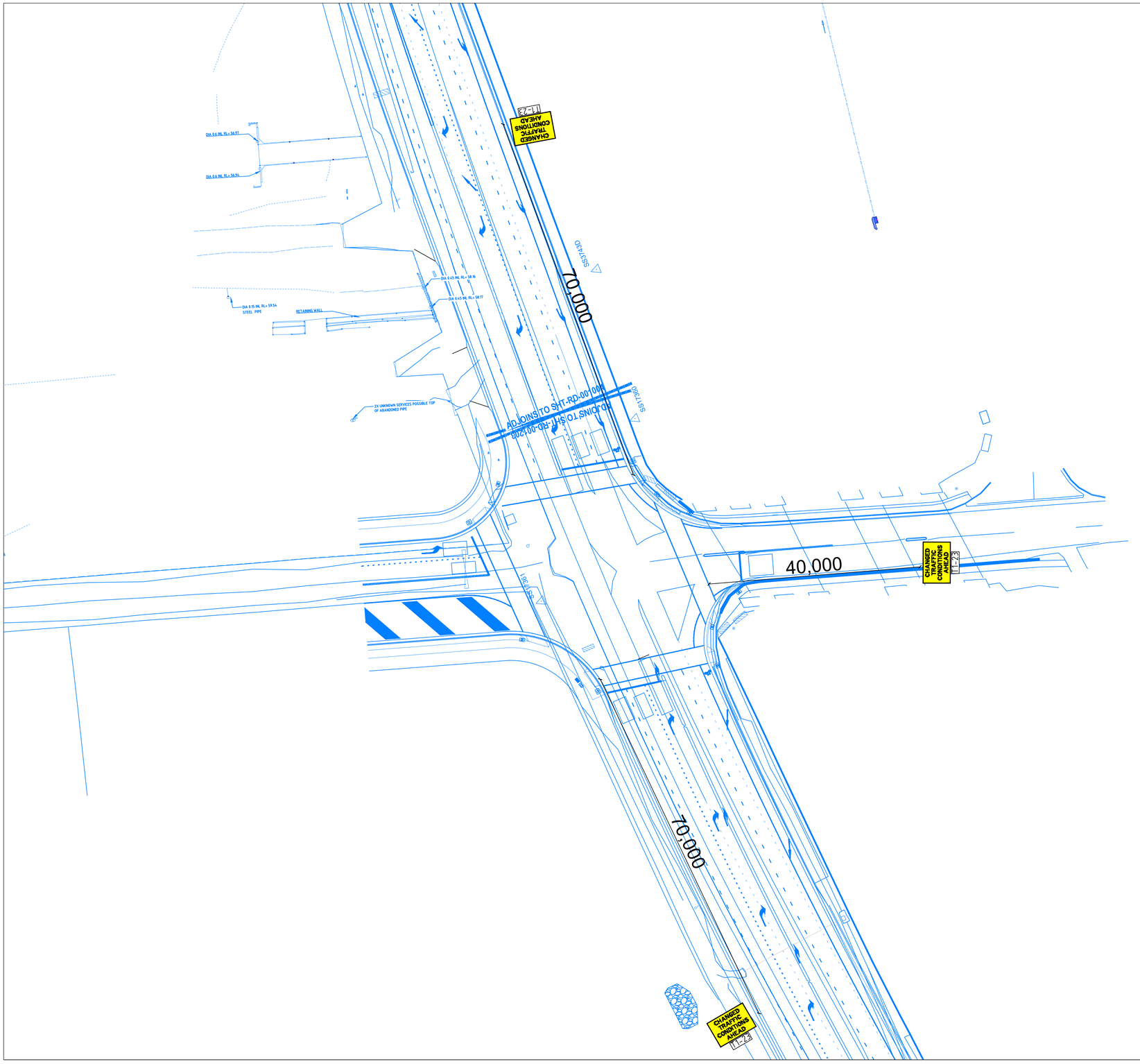
WALLGROVE RD SITE ACCESS

DRAWING STATUS: FOR CONSTRUCTION
FILE NAME: AG2302-01-v01.dwg
SHEET: AG02

asongroup
Suite 17.02, Level 17, 1 Castlereagh St
Sydney NSW 2000
info@asongroup.com.au

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REPRODUCTION OF THIS PLAN OR ANY PART OF IT WITHOUT THIS NOTE BEING INCLUDED IN FULL WILL RENDER THE INFORMATION SHOWN ON SUCH REPRODUCTION INVALID AND NOT SUITABLE FOR USE.
DISCLAIMER - ASON THEREFORE DISCLAIMS ANY LIABILITY WHATSOEVER AND HOWSOEVER CAUSED FOR LOSS OR DAMAGE ARISING FROM A THIRD PARTY'S MISUSE OF THE PLAN/DATA (WHETHER INADVERTENT OR NOT) CAUSED BY THE FAILURE TO INFORM ANY SUCH THIRD PARTY OF THE LIMITATIONS WHICH APPLY TO THE INFORMATION CONTAINED IN THIS PLAN/WITHIN THE ACCOMPANYING DATA.

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  * AT ALL TIMES AN UP-TO-DATE COPY OF "TRAFFIC CONTROL AT WORK SITES" SHALL BE AVAILABLE FOR REFERENCE AND IMPLEMENTATION AS REQUIRED ON-SITE

- ALL WORKERS WILL BE CONFINED TO THE DEDICATED WORKS AREA SHOWN ON THE PLAN
- IF THE WORKSITE IS LEFT UNATTENDED IT IS THE CONTRACTOR'S DUTY TO ENSURE THAT THE APPROPRIATE MEASURES ARE TAKEN TO PROVIDE A SAFE ENVIRONMENT FOR VEHICLES AND PEDESTRIANS TO RELEVANT AUSTRALIAN STANDARDS
- TRAFFIC CONTROLLER (T1-34) AND PREPARE TO STOP (T1-18) SIGNS ARE TO BE COVERED OR REMOVED WHEN TRAFFIC CONTROLLER/S ARE NOT ON SITE.
- ALL SIGNAGE IS TO BE CLEAN, CLEARLY VISIBLE AND NOT OBSCURED
- ALL WORKERS MUST ADHERE TO THE APPLICABLE SAFE WORK DISTANCE AS DESCRIBED IN AS1742.3:2019
- ALL DISTANCES BETWEEN SIGNS ARE TO BE IN ACCORDANCE WITH SECTION 2.5.2 OF AS1742.3:2019. HOWEVER, MODIFICATIONS CAN BE MADE TO SUIT SITE CONDITIONS
- IF REQUIRED, A TGS MUST BE SELECTED, DEVELOPED AND IMPLEMENTED BY A SUITABILITY QUALIFIED PERSON (PWZTMP AND ITCP QUALIFICATIONS)

Designer / Approver

Full Name: James Laidler
Role: Principal Lead
Division / Organisation: Ason Group
SafeWork NSW Card Number: TCT0031686
Signature:

Date:01/06/2023

AMENDMENTS

REV	DATE	DESCRIPTION	DRW	CHK	APP
-	23.05.23	TGS FOR WALLGROVE RD SITE ACCESS	MA	MD	JL

GENERAL NOTES

This drawing is provided for information purposes only and should not be used for construction.
Base Plan prepared by Orino dated 08 July 2022.
Wallgrove Road has a posted speed limit of 70km/h.

DESIGNED: Musstafa Abdullah	PAPER SIZE: A1
CHECKED BY: Mario Dizon	DATE: 01.06.2023
APPROVED BY: James Laidler	SCALE: 1:400

CLIENT: Gazcorp

PROJECT: P2302
813-913 WALLGROVE ROAD

DOCUMENT INFORMATION

TGS

WALLGROVE RD POST TRAFFIC SIGNALE

DRAWING STATUS: FOR CONSTRUCTION
FILE NAME: AG2302-02-v01.dwg
SHEET: AG01

asongroup
Suite 17.02, Level 17, 1 Castlereagh St
Sydney NSW 2000
info@asongroup.com.au

Appendix E. TGS Verification Checklist

TGS verification checklist

TGS Verification must be undertaken after selecting or designing a TGS as a confirmation of appropriateness prior to approval for use. A PWZTMP or TGS qualified person must undertake this verification.

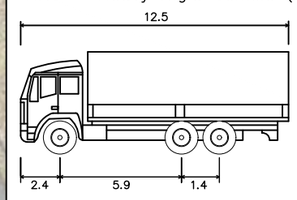
Completed by:				
Name:	James Laidler	**Signature:**		
Qualification	Senior Traffic Engineer PWZTMP #0052158569			
TGS details:				
TMP Reference:	P2302r01 Overarching CTMP, Gazcorp Industrial Estate (GIE). Draft	**TGS Reference:**		
Date:	8/06/2023	**Review type**	☐ Site Inspection	☑ Desktop Review
Sources used for desktop review	Near Map, Dated 30/03/2023.			
Site details				
Street name:	Wallgrove Road	**Confirmed posted speed limits:**	70km/h	
Street name:	Subway Road	**Confirmed posted speed limits:**	40km/h	
List unique site-specific Hazards / Risks identified on site. **E.g., utilities, infrastructure, vegetation, schools,**				
n/a				

TGS details					
Have the below been addressed on the TGS for this location?					
Traffic volumes	☑ Yes	☐ No	☐ N/A	**Details**	Traffic volumes have been assessed for Wallgrove Road and the construction volume of the Estate.
Predicted queue length	☑ Yes	☐ No	☐ N/A	**Details**	• Temporary Access o Not expected to queue onto the adjacent northbound lane on Wallgrove Road when entering the Site given 50m storage area and 30m taper provided at the temporary access. • Signalised Access o Based on the approved SSDA there will be no queuing expected on Wallgrove Road/ Subway Road when vehicles enter/existing the Estate.
Shoulder widths	☑ Yes	☐ No	☐ N/A	**Details**	South direction of Wallgrove Roads is designed for B-doubles, therefore sufficient shoulder widths. However, there are no shoulders in the north direction of Wallgrove Road.
Sight distances	☑ Yes	☐ No	☐ N/A	**Details**	Straight road with no obstructions and good sight distance
Existing infrastructure	☑ Yes	☐ No	☐ N/A	**Details**	No trees, poles, or other infrastructure
Transport services	☐ Yes	☐ No	☑ N/A	**Details**	None within 500m of the Estate.
Pedestrian generators	☐ Yes	☑ No	☐ N/A	**Details**	No footpaths near the GIE
Appropriate site access	☑ Yes	☐ No	☐ N/A	**Details**	Appropriate site access to accommodate construction vehicles.
Appropriate escape route for traffic controllers	☐ Yes	☐ No	☑ N/A	**Details**	No Traffic Controllers required for this TGS. Furthermore, if the TGS changes then appropriate routes will be designed to ensure the safety for all traffic controllers.

Appendix F. Swept Path (as requested by Council)

ASON ACCEPTS NO RESPONSIBILITY WHATSOEVER FOR THE USE OF UNAPPROVED PLANS IN ANY CONSTRUCTION OR FOR ANY COMMERCIAL PURPOSES. SET OUT DIMENSIONS OF ALL DESIGN LINES, GRID LINES, CONTROL LINES, RECOVERY MARKS AND BENCHMARKS SHOULD BE VERIFIED AND CONFIRMED AGAINST THE LATEST INFORMATION AT CONSTRUCTION. ASON IS TO BE NOTIFIED IMMEDIATELY OF ANY ERROR OR DISCREPANCY AND THE MATTER RESOLVED PRIOR TO THE COMMENCEMENT OR CONTINUATION OF ANY WORK. THIS NOTE IS AN INTEGRAL PART OF THIS PLAN/DATA.
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HRV – Heavy Rigid Vehicle (AS/NZS2890.2:2002)



VEHICLE ENVELOPE
300mm CLEARANCE
500mm CLEARANCE

Overall Length	12.500m
Overall Width	2.500m
Track Width	2.500m
Lock to Lock Time	6.00 sec
Curb to Curb Turning Radius	12.500m

INDICATIVE FENCING ALIGNMENT TO ACCOMMODATE SIMULTANEOUS 12.5m HRVs SWEPT PATHS AT TEMPORARY ACCESS.

HRV - Heavy Rigid Vehicle

HRV - Heavy Rigid Vehicle

N

GENERAL NOTES

This drawing is provided for information purposes only and should not be used for construction.
Base Plan prepared by Nearmaps dated 29 Nov 2023.
Wallgrove Road has a posted speed limit of 70km/h
Swept path assessments completed at 10 km/h and 300mm clearance.
Design vehicle: 12.5m HRV

DESIGNED	Jasmine Wong
PAPER SIZE	A3
APPROVED BY	X.XXXX
DATE	27.03.2023
SCALE	1:400
	0 4 8

CLIENT
PRIME CONSTRUCTIONS

PROJECT
2234
813-913 WALLGROVE ROAD

DOCUMENT INFORMATION
SWEPT PATHS
12.5m HRV

FILE NAME	AG2234-03-v01.dwg
SHEET	AG01

asongroup
Suite 17.02, Level 17, 1 Castlereagh St
Sydney NSW 2000
info@asongroup.com.au

Appendix G. Alternate Bus Stop Consultation (as requested by Council)

Alex Ruello

From: Suthes Kumar <Suthes.KUMAR@transport.nsw.gov.au>
Sent: Friday, 5 August 2022 6:19 PM
To: Alex Ruello; Hannah Shilling
Cc: Joseph George; Bus Approval; Steve Grady; Adrian Prichard; Joseph Aouad
Subject: RE: 423 Wallgrove Road Upgrade - Bus stop - Wallgrove Road before Roussell Road, Eastern Creek

Hi Alex,

TfNSW has no objection to the proposed temporary relocation of the bus stops. Please update the TMP to reflect these changes.

Regards
Suthes Kumar
Project–Contract Manager
Developer Works
Greater Sydney
Transport for NSW

M: 0408 655 528 **E:** Suthes.Kumar@transport.nsw.gov.au

transport.nsw.gov.au

129a Orchardleigh Street
Yennora NSW 2161

Transport for NSW

I acknowledge the Aboriginal people of the country on which I work, their traditions, culture and a shared history and identity. I also pay my respects to Elders past and present and recognise the continued connection to country.

Please consider the environment before printing this email.

From: Alex Ruello [mailto:Alex.Ruello@burtoncontractors.com.au]
Sent: Monday, 1 August 2022 11:10 AM
To: Hannah Shilling <hshilling@transitsystems.com.au>; Suthes Kumar <Suthes.KUMAR@transport.nsw.gov.au>
Cc: Joseph George <Joseph.George@burtoncontractors.com.au>; Bus Approval <BusApproval@transport.nsw.gov.au>; Steve Grady <sgrady@busways.com.au>; Adrian Prichard <aprichard@transitsystems.com.au>; Joseph Aouad <Joseph.Aouad@burtoncontractors.com.au>
Subject: RE: 423 Wallgrove Road Upgrade - Bus stop - Wallgrove Road before Roussell Road, Eastern Creek

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Thanks for that Hannah,

Before we make the changes we will need to have some sort of approval from Transport & TMC.

Suthes – as soon as you are able, can you please advise if stops #1 and #4 are okay for Transport & TMC? If so, our revised TMP will be updated to reflect the changes.

Regards,
Alex Ruello
Project Manager
Burton Contractors Pty Ltd

T: 0408 289 903
M: 0408 289 903
F: 02 9581 5551
E: Alex.Ruello@burtoncontractors.com.au

BURTON
Civil Engineering Contractors
www.burtoncontractors.com.au

Sydney Office
Homebush Business Village
Unit 3/11-21 Underwood Rd
Homebush NSW 2140
T: 02 9581 5550 F: 02 9581 5551

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From: Hannah Shilling <HShilling@transitsystems.com.au>
Sent: Monday, 1 August 2022 10:44 AM
To: Alex Ruello <Alex.Ruello@burtoncontractors.com.au>; Suthes Kumar <Suthes.KUMAR@transport.nsw.gov.au>
Cc: Joseph George <Joseph.George@burtoncontractors.com.au>; BusApproval@transport.nsw.gov.au; Steve Grady <sgrady@busways.com.au>; Adrian Prichard <APrichard@transitsystems.com.au>; Joseph Aouad <Joseph.Aouad@burtoncontractors.com.au>
Subject: RE: 423 Wallgrove Road Upgrade - Bus stop - Wallgrove Road before Roussell Road, Eastern Creek

Good Morning Alex,

We just went out with a bus to test whether the draw in bay southbound would be appropriate for a bus.

Thankfully the bus just fit, so we are happy to use the locations of stops 1 and 4 as the alternate stops.

Can you please arrange for Bus Zone signage to be installed?

Also can you please advise the start date of the change, once known.

Thanks.

Kind Regards,

Hannah Shilling
Network Project Planner

T: 02 8778 5853
A: Lot 2 Airfield Drive, Len Waters Estate NSW 2171

E: hshilling@transitsystems.com.au

I acknowledge the traditional owners of the land on which we live and work, and pay my respects to elders past, present and emerging.



Transit Systems NSW Reconciliation Action Plan
Artwork by Allan McKenzie, Gamilaroi / Wiradjuri Man

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From: Alex Ruello <Alex.Ruello@burtoncontractors.com.au>
Sent: Friday, 29 July 2022 5:41 PM
To: Hannah Shilling <HShilling@transitsystems.com.au>; Suthes Kumar <Suthes.KUMAR@transport.nsw.gov.au>
Cc: Joseph George <Joseph.George@burtoncontractors.com.au>; BusApproval@transport.nsw.gov.au; Steve Grady <sgrady@busways.com.au>; Adrian Prichard <APrichard@transitsystems.com.au>; Joseph Aouad <Joseph.Aouad@burtoncontractors.com.au>
Subject: RE: 423 Wallgrove Road Upgrade - Bus stop - Wallgrove Road before Roussell Road, Eastern Creek

Hannah & Suthes,

I have drafted the attached to present multiple options for alternate bus stop locations to try and short circuit the potential solution.

1. **Bus Stop #1** – There is a wider shoulder here that will fit a bus here. There is a concrete footpath that leads to the traffic lights and pedestrian crossing at the Roussell Road intersection. This would serve the SB direction only
2. **Bus Stop #2** – This is an alternate to the preferred Transit Systems location for NB and SB bus stop. This location offers the benefits of negating queuing traffic in the Roussell Road intersection
3. **Bus Stop #3** – This is Transit System's preferred location for both a NB & SB bus stop
4. **Bus Stop #4** – Alternate location for NB direction only

These can be mixed and matched in any combination to service both NB and SB. example #1 & #3, #2 & #4, #2 only, #3 only etc

Hannah – Can you please advise if any of the bus stop locations are not acceptable?

Suthes – Can you please advise if any of the proposed bus stop locations are not acceptable to TfNSW? Can you please also check with TMC to see if they have any objections to any of the proposed bus stop locations? We would prefer to have these approved in advance of the next CTMP submission to avoid another potential 20-day review cycle.

Thank you all in advance. Please let me know if the attached or explanation is not clear enough and I will do my best to explain.

Regards,
Alex Ruello
Project Manager
Burton Contractors Pty Ltd

Appendix H. Evidence of Consultation with TfNSW

Musstafa Abdullah

From:	Development CTMP CJP <development.CTMP.CJP@transport.nsw.gov.au>
Sent:	Wednesday, 1 November 2023 2:37 PM
To:	Musstafa Abdullah; Development Sydney; Development CTMP CJP
Cc:	Ali Rasouli; James Laidler
Subject:	RE: SSD- 5248 - Gazcorp Industrial Estate - CTMP
Attachments:	P2302r01v04 CTMP_Gazcorp Industrial Estate (GIE), Issue IV.pdf

Hi Musstafa,

Transport for NSW (TfNSW), Greater Sydney Division has reviewed the CTMP and endorse the proposed temporary construction arrangements, subject to the following conditions:

- Separate TMP for the signalised intersection to be submitted to CJP
- Any Traffic Guidance Schemes (TGS) prepared are to comply with AS1742.3 and Transport for NSW's "Traffic Control at Worksites" manual and be signed by a person with TfNSW certification to prepare a TGS.
- Proponent must apply and obtain approval from the Transport Management Centre for a Road Occupancy Licence (ROL) for any required lane closures and/or Speed Zone Authorisations as part of the ROL that may impact the state road network or is within 100m of traffic signals.
- Access to be maintained for residents, businesses and emergency vehicles at all times.
- No marshalling or queuing of construction vehicles is to occur on public roads. Arriving vehicles that are not able to use parking bay/work zone must continue to a holding point until space becomes available.
- When heavy vehicles are entering or leaving the site a traffic controller is to be provided to manage any conflicts between pedestrians and heavy vehicles.
- Access to the site should be at the farthest point from the intersection as practicable to reduce additional conflicting vehicle manoeuvres.
- Transport for New South Wales reserve the right to alter the CTMP Conditions at any time to maintain safe and efficient traffic and pedestrian movements in this area.
- Any approved Works Zone should only be used for work activities. No infrastructure, including bins, tanks or traffic control equipment should be left on the road when the works zone is not in use by a vehicle. All non-vehicular items must be contained with the work area and not on the carriageway. When a work zone is not in use, the area/lane must be opened up to allow for normal trafficable conditions
- Should TfNSW Network and Asset Management, Network Operations, CJP Operations, Network and Safety or other TfNSW business area determine that that more information is to be provided for review and acceptance, including other TCS locations, this information must be submitted prior to the CTMP being implemented, or otherwise agreed upon.
- Any traffic control devices, including signage and line marking, should be installed by the proponent and must conform with Australian Standards 1742

Endorsement of the CTMP is not an approval to the type of traffic management or delineation devices used, nor is it an approval to any traffic guidance schemes depicted within the CTMP. It is assumed that the proponent has used type approved devices and has developed its traffic guidance schemes in accordance with the relevant Australian Standards and Guidelines.

The proponent is to ensure local residents, businesses, schools and other stakeholders in the affected area as well as emergency service organisations are notified of the changes associated with the CTMP, prior to its implementation.

Please ensure this CTMP is shared and adhered to by all contractors. . If the CTMP changes, please forward a copy to Developments.CJP@transport.nsw.gov.au or further review and endorsement.

Kind Regards,

Heather Trengove
Principal Transport Planner
Customer Journey Planning
Greater Sydney
Transport for NSW

T: 0481 482 667
231 Elizabeth Street, Sydney 2000
Note: I work Mon, Tue, Wed

OFFICIAL

From: Musstafa Abdullah <musstafa.abdullah@asongroup.com.au>
Sent: Wednesday, 18 October 2023 12:26 PM
To: Development Sydney <Development.Sydney@transport.nsw.gov.au>; Development CTMP CJP <development.CTMP.CJP@transport.nsw.gov.au>
Cc: Ali Rasouli <ali.rasouli@asongroup.com.au>; James Laidler <james.laidler@asongroup.com.au>
Subject: SSD- 5248 - Gazcorp Industrial Estate - CTMP

Some people who received this message don't often get email from musstafa.abdullah@asongroup.com.au. Learn why this is important

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To Whom it May Concern,

By way of introduction, Ason Group is the traffic engineer engaged to provide traffic input for SSD- 5248 - Gazcorp Industrial Estate.

As per Department of Planning, Industry & Environment comments , we are required to prepare a CTMP (construction traffic management plan) in consultation with TfNSW. We are committed to fulfilling this requirement and have attached the CTMP for your review.

Given the urgency of the matter, we would greatly appreciate receiving your input as soon as possible.

Thank you for your attention to this matter.

Regards,

Musstafa Abdullah
Traffic Engineer | Ason Group

T: +61 2 9083 6601 | E: musstafa.abdullah@asongroup.com.au
A: Suite 17.02, Level 7, 1 Castlereagh Street, Sydney NSW 2000

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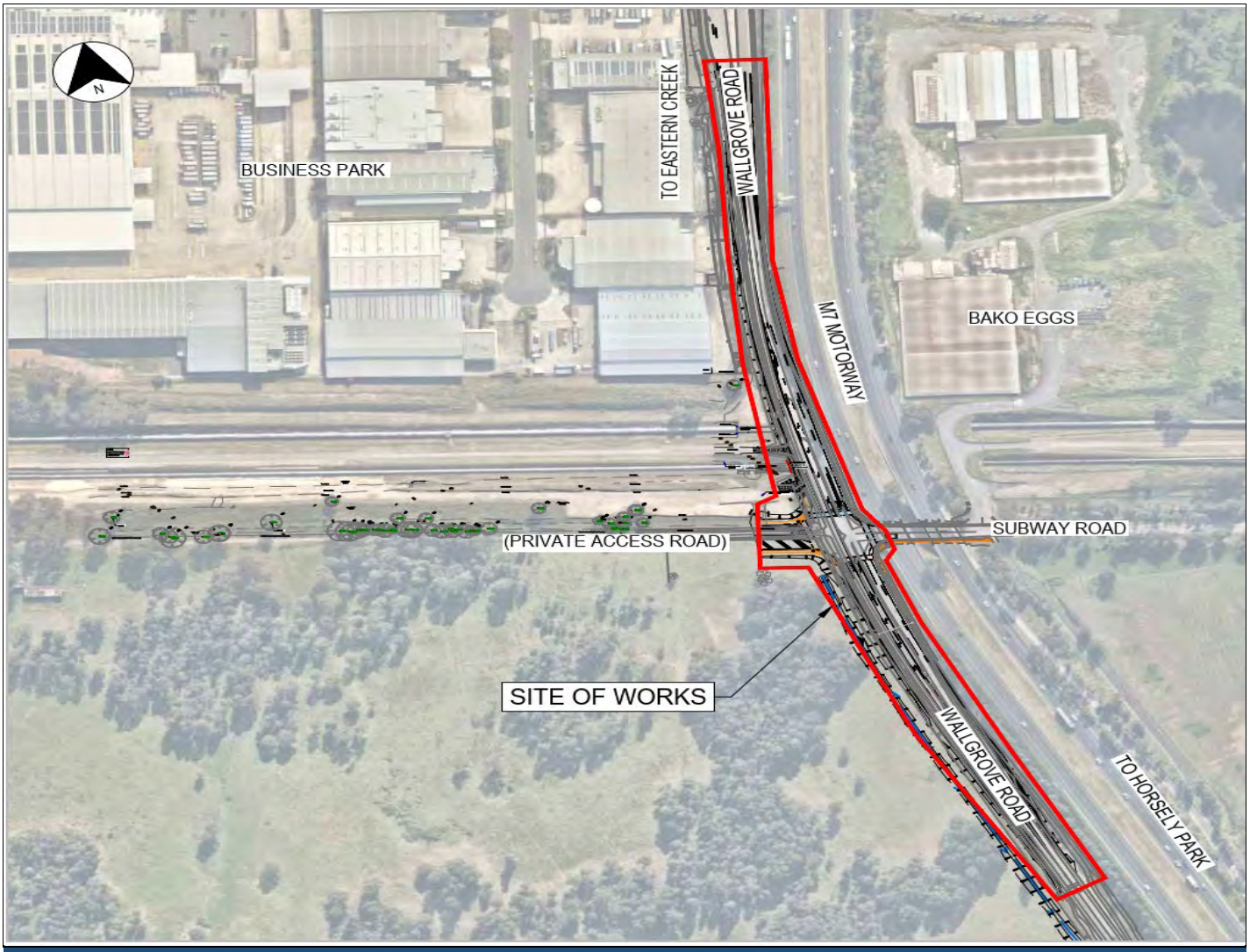
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Appendix I. Allied TMP – Signalised Intersection

Allied

TRAFFIC MANAGEMENT





Traffic Management Plan

"19-0108 – MR515 Wallgrove Road, Horsley Park Intersection Upgrade"

Client: Gazcorp

Date: 26/08/2022

Prepared By: Nass Chami

PWZTMP –0052135507

Revisions

Rev	Date	Descriptions	Prepared By	Approved By
0	05/05/2022	First Submission	Nass Chami	Nass Chami
1	17/05/2022	Added Traffic Count and staging plan	Nibraas Ahmad	Nass Chami
2	27/06/2022	TMC & NW&S Comments	Alex Ruello	Nass Chami
3	08/08/2022	TMC Comments & Bus Stop changes	Alex Ruello	Nass Chami
4	26/08/2022	Updated S2 & S3A	Alex Ruello	Nass Chami

Distribution

Revision	Issue Date	Company	Recipient
0	06/05/2022	TfNSW	Suthes Kumar
0	06/05/2022	Orion Consulting	Joshua Hoh, Mina Fahmy
1	18/05/2022	TfNSW	Suthes Kumar
1	18/05/2022	Orion Consulting	Joshua Hoh, Mina Fahmy
1	18/05/2022	Gazcorp	Tim Sachs
2	27/06/2022	TfNSW	Suthes Kumar
2	27/06/2022	Gazcorp	Tim Sachs
3	08/08/2022	TfNSW	Suthes Kumar
3	08/08/2022	Gazcorp	Tim Sachs, Boris Bobyk
4	26/08/2022	TfNSW	Suthes Kumar
4	26/08/2022	Gazcorp	Tim Sachs, Boris Bobyk
4	26/08/2022	AT&L	Chris Hannibal, Paul Kerry

Amendments

This plan is a “working document” and therefore may be subject to change during the project to continue to provide an efficient and cost-effective means of delivering Project Management. Should a revised plan be generated, there will be a corresponding revision number and summary details noted on the document revision table above. Amendments to this document from the previous issue are highlighted

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1.0 Introduction

1.1 Purpose and Scope

This Construction Traffic Management Plan (CTMP) outlines the traffic control and traffic management procedures to be implemented to manage potential impacts and risks associated with the traffic environment during the upgrade of Wallgrove Road, Horsley Park.

1.2 Objective and Strategies

This CTMP forms part of the overall planning and approval process associated with the project. The purpose of the CTMP is to describe how the delivery contractor Burtons Civil Engineering proposes to manage traffic during the work activities to ensure the safe and efficient movement of traffic around the work area.

A main priority of this project is to minimise disruption to traffic and to ensure all activities undertaken are carried out in a safe manner within the scope permitted by all stakeholder authorities. Key objectives are listed below:

- Implementing traffic control arrangements that maximize safety for workers and public by isolating the work area whilst minimizing delay to road users.
- Planning and staging all work activities to effectively minimize road occupancy and any potential impacts on the road network.
- Seeking approval from key stakeholders including Transport for NSW (TfNSW), Traffic Management Centre (CJM), Fairfield City Council, Blacktown City Council, Emergency Services and local businesses and residents to ensure they are informed about the works and changes to traffic conditions.

To achieve these objectives, it will be necessary to ensure appropriate control measures are implemented during work activities to address all potential traffic impacts and that these control measures comply with regulations and conditions of approval. To meet these objectives the TMP will incorporate the following strategies:

- Ensuring delays are minimised as much as possible.
- Ensuring all road users are managed including motorists, pedestrians, cyclists, vulnerable road- users and people using public transport.
- Ensuring work activities are carried out sequentially to minimize adverse impacts.
- Ensuring appropriate controls are in place to provide a safe construction site for all workers.
- Provision will be made for works personnel to enter the work area in a safe manner in accordance with safety procedures.
- All entry and exit movements to and from traffic streams will be in accordance with the requirements of safe working practices.

Site-specific Traffic Guidance Schemes (TGSs) have been developed and are included in Annexure A These shall identify the traffic control measures to be implemented during the various stages of the project. All proposed arrangements, signage and devices details contained within this TMP and TGSs are in accordance with Australian Standards 1742.3 as well as RMS Traffic Control at Work Sites Manual 6.1 and Specification G10 – Control of Traffic.

2.0 Project Overview

2.1 Project Details

Gazcorp Pty Ltd are undertaking an industrial development between 813 – 913 Wallgrove Road, Horsley Park. A condition of this development is a Developer-funded upgrade of Wallgrove Road managed as a Works Authorisation Deed (WAD). The proposal includes the widening and full depth reconstruction of the existing Wallgrove Road and a new intersection configuration at Subway Road, currently the private access road to multiple businesses on the eastern side of Wallgrove Road.
The proposal includes:

- Full depth reconstruction of the existing Wallgrove Road
- Widening of Wallgrove Road to make create an additional lane in the northbound and southbound direction
- Signalisation of the existing seagull intersection at Subway Road
- Removal of merge / acceleration lanes out of Subway Road heading northbound or southbound
- Construction of a cycle lane on the road pavement
- Utility relocation and adjustments
- Construction of new utility lead-in services from Mini Link Road to the proposed signalised intersection for the internal industrial development
- Provide new Line marking and signage
- Installation of formalised pedestrian crossing facilities and pedestrian paths
- Temporary infrastructure to allow project works including site compounds, sedimentation and erosion control, stockpiling sites and other infrastructure as required. The construction footprint for the proposal would be located entirely within the existing road corridor reserve on land owned by TfNSW. Temporary infrastructure may be located within the road corridor or the internal development.

Burton Civil Engineering has been engaged by Gazcorp to carry out the construction of these upgrades. Burton Contractors have nominated Allied Traffic Control for the associated controls for this project

Table 1 Project Overview

ITEM	DESCRIPTION
Project:	19-0108 – MR515 Wallgrove Road, Horsley Park Intersection Upgrade
Road Classification:	State Main Road – MR515
Road Authority:	Transport for New South Wales
Local Government:	Fairfield City Council and Blacktown City Council
Client:	Gazcorp
Principal Contractor:	Burton Civil Engineering
Scope of Works:	• Site establishment • Staged TCS • Barrier placement • Minor enabling works e.g., locating/surveying/potholing/ • Utility adjustments and lead-in works • Road widening and drainage construction • Pedestrian path construction • Milling and re-sheeting • Line Marking and signage • Ultimate TCS and Signalling • Site Demobilisation • Under bore works across WaterNSW pipelines

	• Safety barrier installation • Augering and construction of piers
Project Dates and Duration:	Activities will be undertaken sequentially commencing late June 2022 with targeted completion being mid-2023.
Hours/Days of Work:	• 7am-6pm – Monday to Friday • 8am-1pm – Saturdays • No work on Sundays/Public Holidays • Night work will also be required for various activities onsite & out of hours approvals are required for such shifts.

2.2 Location

The sites proposed work area is situated between Mini Link Road, Eastern Creek & Chandos Street, Horsley Park. The main pavement upgrade works take place between Roussell Road and Chandos Street. Between Subway Road and Mini Link Road, the work is generally restricted to utility works undertaken on short term traffic control.

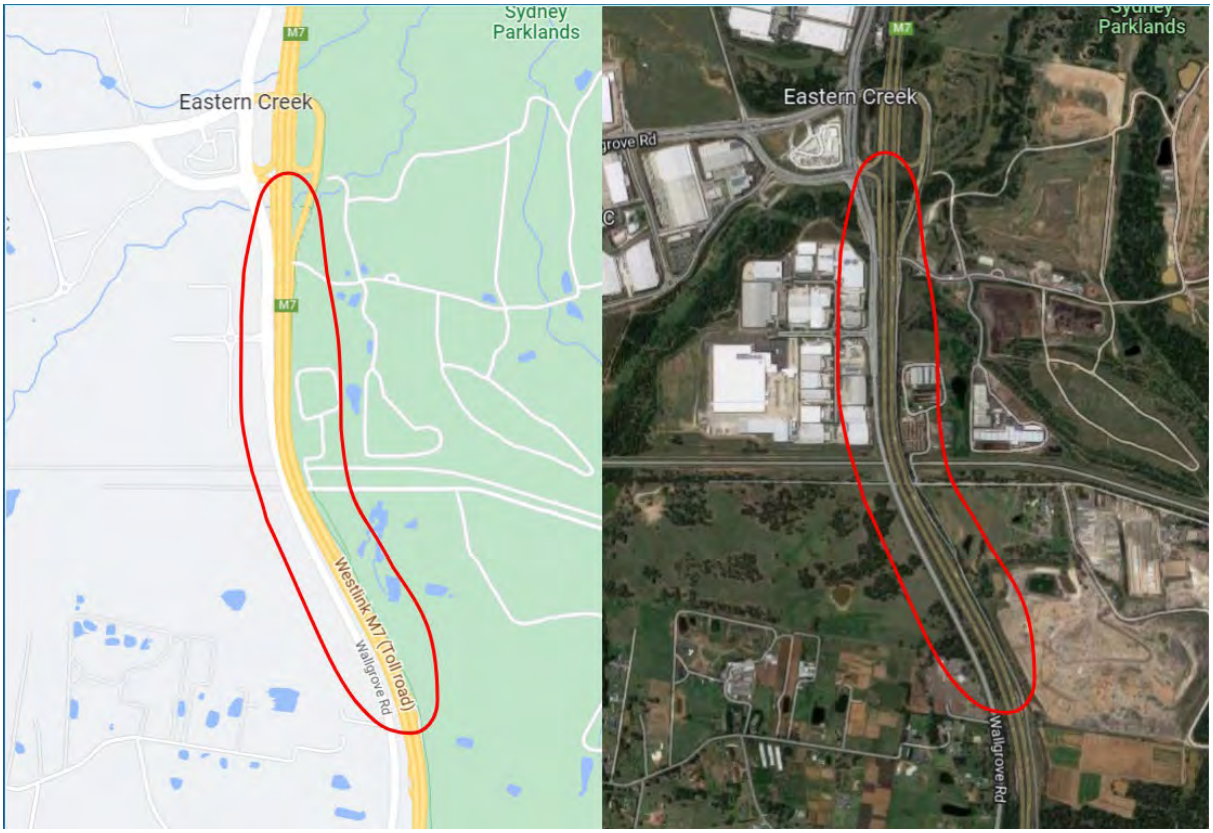


Figure 1 Location Map - Wallgrove Road, Horsley Park

2.3 Project Principal Contractor Representatives

Figure 2 Principal Contractor Representatives

ROLE/ RESPONSIBILITY	COMPANY	NAME	CONTACT NUMBER	CONTACT EMAIL
Project Manager	BURTON Contractors	Alex Ruello	0408 289 903	Alex.Ruello@burtoncontractors.com.au
Project Engineer	BURTON Contractors	Joseph George	0447 064 127	Joseph.George@burtoncontractors.com.au
Project Site Supervisor	BURTON Contractors	Peter Cullen	0418 280 086 (24 Hour Emergency)	Peter.Cullen@burtoncontractors.com.au
Safety Officer	BURTON Contractors	Mark Franklin	0408 117 872	Mark.Franklin@burtoncontractors.com.au
Environmental Representative	BURTON Contractors	Paris Spellson	0419 263 836	Paris.Spellson@burtoncontractors.com.au
Traffic Manager	BURTON Contractors	John Bailey	0447 783 383	John.Bailey@burtoncontractors.com.au
Traffic Management Representative	Allied Traffic Management	Nass Chami	0427 876 539	Nass.c@alliedmanagement.com.au

2.4 Roles and Responsibilities

The Project Manager has the ultimate responsibility to ensure the CTMP is implemented for the prevention of injury and property damage to employees, contractors, sub-contractors, road users and members of the public. The Project Manager will ensure that all site personnel are fully aware of their responsibilities, and that procedures & work practices are followed correctly

2.4.1 Competencies

All persons undertaking these works have a duty of care to themselves, their employees and all site users, to take all reasonable measures to prevent accident or injury.

This CTMP forms part of the overall Work Health and Safety Management Plan, and provides details on how all road users considered likely to pass through, past, or around the work site will be safely and efficiently managed for the full durations of the site occupancy and works.

Burtons Contractors has prepared this CTMP in collaboration with Allied Traffic Control and associated controls for the site. Burtons Contractors will ensure that at all times during working hours, an appropriately accredited traffic control site supervisor will be available as well as ensuring that traffic controllers used on the project are experienced and have completed all prerequisite accredited courses.

2.4.2 Responsibilities

Project Manager/Project Engineer
The Project Manager shall:

- Liaise with TfNSW, and any other authorities for all aspects of the proposed work.
- Ensure all traffic control measures of the TMP are placed and maintained in accordance with this plan and the relevant acts, standards and guidelines.
- Ensure suitable consultation with the affected stakeholders is maintained at all times.
- Arrange and/or undertake any necessary audits and incident investigations.
- Review feedback from various stakeholders and take appropriate corrective actions.

Project Engineer
The Project Engineer shall:

- Review the methodology for the work activities in consultation with subcontractors.
- Approve the commencement of all construction activities at each stage.
- Confirm when works are completed, and the next stage can commence.
- Undertake and submit any required inspection and evaluation reports

Project Site Supervisor:
The Site Supervisor shall:

- Coordinate work crews for all construction activities.
- Coordinate with the traffic control crews during the construction works and consult with the traffic management representative over any corrective action required to unsafe site conditions.
- Coordinate lighting, fencing and temporary amenities during the construction works.
- Instruct workers on the relevant safety standards, including the correct wearing of PPE

Environmental Representative:
The Environmental Representative shall:

- Advise on environmental matters for all construction activities.
- Liaise with the Principal and other relevant authorities on environmental matters.
- Ensure all personnel are aware of their roles and responsibilities in regard to environmental matters.
- Overall responsibility for establishment, management, and maintenance of environmental control measures.
- Ensure environmental risks of works are identified and appropriate mitigation measures are implemented.

Traffic Manager
The Traffic Control Site Supervisor is responsible for overseeing the day-to-day activities, and is therefore responsible for the practical application of the CTMP, and will:

- Hold a current “Prepare Work Zone Traffic Management Plan” qualification and have a minimum 5 years of recent experience in traffic management on road construction site of equivalent complexity to this Project.
- Ensure that the approved traffic management measures are implemented and maintained in accordance with the approved plans.
- Carry out regular inspections of the traffic control measures to ensure that they are effective.
- Amend and update the plan, as required, to ensure that they remain current as the work progresses.
- Identify situations where traffic congestion, or unsafe conditions for vehicles, cyclists, pedestrian and workers, are occurring and providing recommendations for improvement.
- Maintain current copies of the Traffic Management Plan and its various component plans, lane occupancy licenses and speed zone authorisation, and their controlled distribution.
- Keep records of the Traffic Controllers’ qualifications and ensuring that they are current.

- Liaise and facilitate regular meetings with the Principal, other authorities and relevant parties on traffic management matters for the Site, maintain records of these meetings and making them available to the relevant persons;
- In conjunction with Community Relations, undertaking consultation with local businesses and residents.
- Provide induction on the traffic management measures to site personnel.
- Record and report on all traffic incidents.
- Prepare monthly reports on traffic management matters (G10 Clause 4.7.2)

Traffic Controllers

Traffic Controllers shall be used to control road users to avoid conflict with plant, workers, traffic cyclists and pedestrians, and to stop and direct traffic in emergency situations.

Traffic Controllers will:

- Operate in accordance with TCAWS Manual 6.1 and AS1742.3
- Be accredited as a minimum with 'Traffic Controller' and 'Implement TGS' Training.
- Take appropriate breaks as required by AS1742.3 and WHS regulations.

Workers and Subcontractors

Workers and Subcontractors shall:

- Correctly wear all PPE required at all times whilst on the work site.
- Comply with the requirements of the TMP and ensure that no activity is undertaken that will endanger the safety of other workers or the general public.
- Enter and leave the site by approved access points and in accordance with safe work practices.

3.0 Work Activities, Program and Working Hours

3.1 Key Work Activities

The overall civil construction component of the project involves the following activities:

- Site Compound Establishment – a temporary site compound will be required that will include site office building, lunch facilities, storage containers and port-a-loo facilities.
- Work Area Establishment – required advance warning and specific traffic signage will be installed and approved safety barriers installed along proposed work areas in combination with staged traffic signals.
- Service Relocation and Adjustments – Installation of new lead in services and adjustment of existing utilities
- Road Widening – required earth works and construct pavement areas as required including milling and re-surfacing of required areas.
- Site Demobilisation – Upon completion, the site compound would be removed, and the area would be revegetated where required to return the area to its natural state prior to site establishment.

Construction activities shall be carried out progressively with each stage requiring different logic to ensure activities are carried out efficiently whilst minimising impact on traffic / residents / businesses.

3.2 Plant Requirements

Throughout the duration of the project, plant and equipment items that may be used include:

Figure 3 Plant & Equipment Requirements

Plant and Equipment Items	
• Franna Crane or Small Excavator Rig Crane • Truck Mounted Drill Rig • Large Trucks for removal of material • Tippers for delivery & removal of equipment. • Vacuum Trucks • Concrete Trucks/Pumps • Piling Rigs • Concrete Form Work • Large excavator • Pole grab truck	• Paving machines • Profiler • Portable Roller/Compactor • Power Generator • Elevated Work Platforms • Traffic Control Vehicles • Hand Tools & Jack Hammers • Temporary Fencing & Barriers • Permanent and Temporary Signage • Variable Message Boards • Boring machine

3.3 Work Program

The works activities are expected to commence for Burton Contractors from Late June 2022 and be completed Late June 2023. The program of works will be updated regularly throughout the duration of the project to reflect any necessary changes. Planned start date for Burtons Civil Engineering pending all approvals is June 2022. This TMP covers stages 1, 2 and 3A. Additional stages may be required and will be captured in a future revision of this CTMP. All stages proposed in this CTMP are to be undertaken consecutively with no overlap on long term staging.

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Stage 1													
Stage 2													
Stage 3A													
Finishing Works													

3.4 Working Hours

To practically minimise disruption to traffic, it is intended that once the site be established, most activities can take place behind safety barriers. Any activity that requires additional lane closures or impacts on Wallgrove Road will take place outside of clearway peak times and under specific occupancy hours as per the approved ROLs.

In general, the proposed working hours will be as follows:

- 7am-6pm Monday to Friday and 8am-1pm Saturdays
- No work on Sundays/Public Holidays
- Night work will also be required for site set -up, demobilisation, utility works between Subway Road and Mini Link Road and various activities onsite & major works periods where trafficable lanes will be impacted. This will be as per approved out of hours & ROL times.

4.0 Traffic Management Methodology

4.1 Existing Traffic Assessment

The proposed site can be considered as 2 halves detailed below:

The Northern portion of the site, between Subway Road & Roussell Road toward Mini Link Road features only utility adjustment work that will primarily be undertaken on night shifts with temporary traffic control.

The Southern portion of the site, between Subway Road & Roussell Road towards Chandos Street features the road reconstruction and signalisation works. These works will be completed with a combination of short-term traffic control works and long-term traffic staging with safety barriers. The road reconstruction works is centred on the Subway Road intersection.

For the Southern portion of the site, Wallgrove Road is a two-lane road with one lane in each direction and merge and turn lanes on the approaches to subway road (M7 underpass). There are no footpaths or cycleways located within the limit of works

The existing speed limit along Wallgrove Road is 70 kilometres per hour. Local roads intersecting the proposal have a speed limit of 50 kilometres per hour. Wallgrove road does not operate under clearway conditions.

4.1.1 Northern Portion - Mini Link Road to Roussell Road

For the Northern portion of the site, Wallgrove Road is a four-lane road with two lanes in each direction with the Roussell Road intersection providing turning lanes from each approach. There are no footpaths within this portion of the site. Partial cycleway access is provided on Wallgrove Road between Mini Link Road to Roussell Road. Established trees and planting with protective fencing are located along the vegetation strips on both carriageways.

The southbound carriageway sits adjacent to the M7 and the northbound carriageway sits adjacent to a private industrial estate.

The lane configurations at Wallgrove Road between Mini link road to Roussell are:

Northbound

- Two lanes split in to 4 lanes
- Two right turn lanes in to M7
- Two straight through lanes
- One left turn lane in to Mini Link Road
- Sealed shoulders up to 2m wide

Southbound

- Two lanes with one merge lane
- One right turn lane in to private road at M7 underpass
- Sealed shoulders up to 2m wide

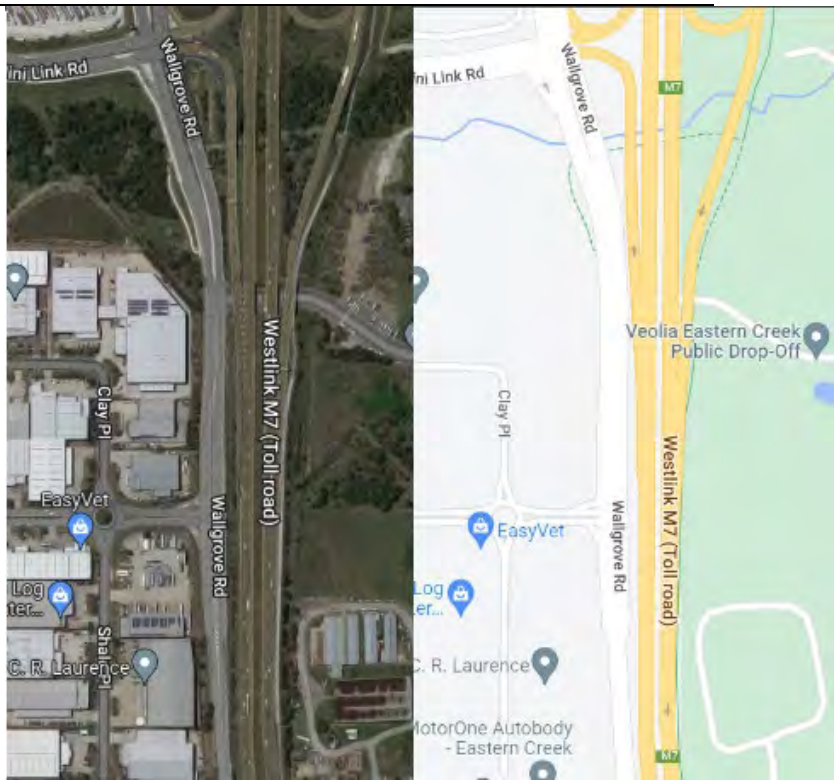


Figure 4 Northern Portion of Site

4.1.2 Roussell Road to Chandos Street – Southern Portion

No cycleway or footpath access is provided on Wallgrove Road between Roussell Road to Chandos Street. Established trees with protective fencing to private property are located behind mostly rural / security fencing along the Northbound carriageway. The southbound carriageway mainly consisting of established trees. The southbound carriageway sits adjacent to the M7 and the northbound carriageway sits adjacent to private residential land and the WaterNSW Warragamba pipeline corridor.

The lane configuration at Wallgrove Road between Roussell Road to Chandos Street are:

Northbound

- One lane to two lane at Subway Road intersection
- Right turn lane on approach
- Merge lane on exit
- Sealed shoulders up to 2m wide

Southbound

- Two lanes to one lane from Subway Road intersection
- Merge lane on exit
- One lane through remainder of carriageway
- Sealed shoulders up to 2m wide

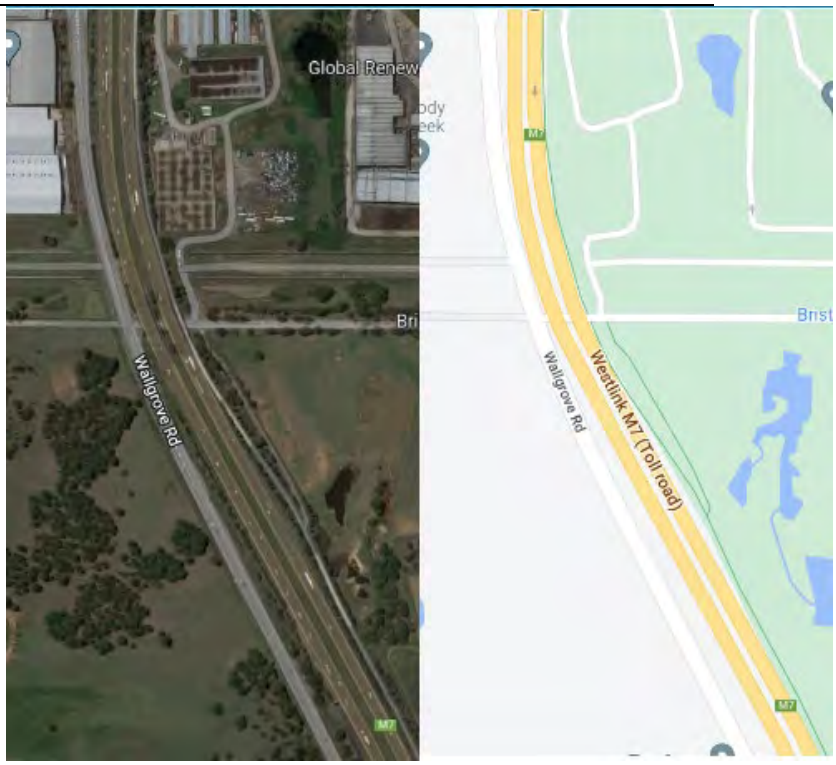


Figure 5 Southern Portion of Site

4.2 Traffic Crash Statistics

A review of the TfNSW Centre for Road safety was conducted, and details shown below. In the data available between 2016 – 2021 it is shown that there have been few crashes in the area on Wallgrove Road. The majority of crashes accounted for take place on the M7 Motorway.

The Northern portion of the site falls under Blacktown LGA while the Southern portion of the site is covered by the Fairfield LGA.

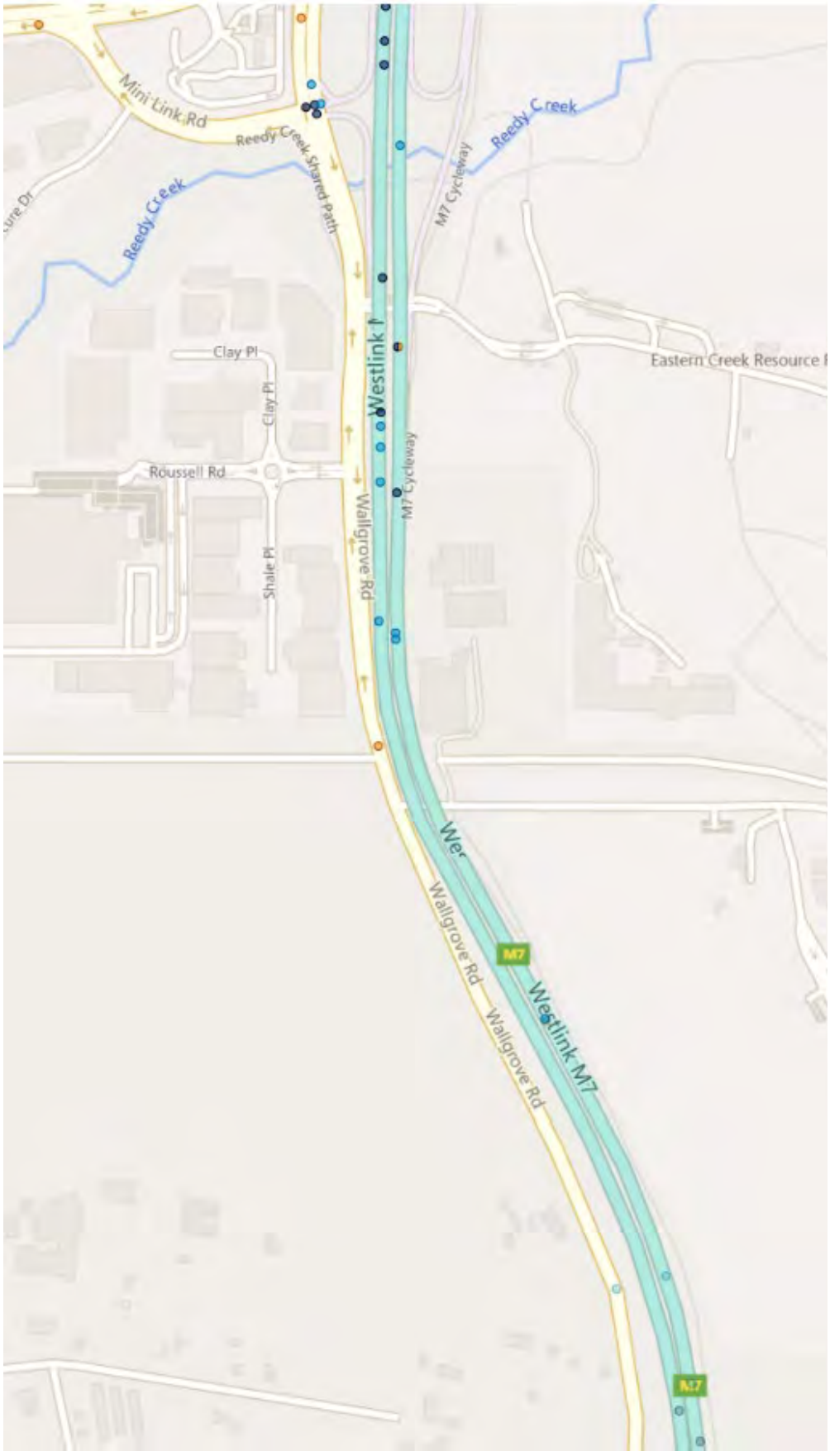


Figure 6 Combined Crash Statistics from Blacktown and Fairfield LGAs

4.3 Traffic Staging

Due to the existing speed limit being 70km/h along most of the work's alignment it is requested that a 60km/h work area speed limit be installed along the entire southern portion. Table 4-8 of the TCAWS 6.1 manual states that the speed limit must be reduced to 60km/h where:

There is frequent interaction between work vehicles and through traffic;

There is a reduced standard of alignment due to the works

This results in an overall 60km/h work area speed restriction of approximately 1.0km in length, as such repeater signs are required, and Roadwork speed limits enforced should also be erected.

As the project is primarily a full depth and full width road construction, there are very little differences between the existing and proposed pavement levels. Any interface between new and existing pavement where there is a difference of levels is to occur gradually, smoothly, and safely. Grades of ramps (where required at interfaces) are to be in accordance with the grades and tolerances of the R101 specification for safe public travel

Stage 1 – Roadworks along Northern Verge & carriageway

Item	Existing	Proposed Stage 1
Intersection	Seagull priority intersection with merge lanes	Staged TCS design to mimic ultimate design - no merge lanes
Lane Widths	Generally 3.5m wide	Generally 3.5m wide. Slight narrowing northbound approaching the intersection and local widening where required for truck turning paths
Barriers	Nil	Precast Type F concrete barrier or steel safety barriers with 0.3m offset to line marking with TfNSW approved end treatments
Speed Limit	70km/h	60km/h
Northbound turn lane into Subway Road	Length = 110m	Length = 85m
Southbound turn lane into Subway Road	Length = 126m	Removed. Traffic survey shows limited usage of this turning lane.
Truck access	26m B Double in all directions	26m B Double in all directions except for left out of Subway Road onto Wallgrove Road. This has been reduced to 19m Semi Trailers
Deceleration lane	None present	Length = 120m
Northbound lanes	1 lane	1 lane
Southbound lanes	1 lane	1 lane

Stage 2 – Roadworks in median

Item	Existing	Proposed Stage 2
Intersection	Seagull priority intersection with merge lanes	Staged TCS design to mimic ultimate design - no merge lanes
Lane Widths	Generally 3.5m wide	Generally 3.5m wide. Slight narrowing northbound approaching the intersection and local widening where required for truck turning paths
Barriers	Nil	Precast Type F concrete barrier or steel safety barriers with 0.3m offset to line marking with TfNSW approved end treatments

Speed Limit	70km/h	60km/h
Northbound turn lane into Subway Road	Length = 110m	Length = 95m
Southbound turn lane into Subway Road	Length = 126m	Removed. Traffic survey shows limited usage of this turning lane.
Truck access	26m B Double in all directions	26m B Double in all directions except for left out of Subway Road onto Wallgrove Road. This has been reduced to 19m Semi Trailers
Deceleration lane (internal development access)	None present	Length = 120m
Northbound lanes	1 lane	1 lane
Southbound lanes	1 lane	1 lane

Stage 3A – Roadworks in Southbound carriageway

Item	Existing	Proposed Stage 3A
Intersection	Seagull priority intersection with merge lanes	Staged TCS design to mimic ultimate design - no merge lanes
Lane Widths	Generally 3.5m wide	Generally 3.5m wide. Slight narrowing northbound approaching the intersection and local widening where required for truck turning paths
Barriers	Nil	Precast Type F concrete barrier or steel safety barriers with 0.3m offset to line marking with TfNSW approved end treatments
Speed Limit	70km/h	60km/h
Northbound turn lane into Subway Road	Length = 110m	Length = 95m
Southbound turn lane into Subway Road	Length = 126m	Removed. Traffic survey shows limited usage of this turning lane.
Truck access	26m B Double in all directions	26m B Double in all directions except for left out of Subway Road onto Wallgrove Road. This has been reduced to 19m Semi Trailers
Deceleration lane (internal development access)	None present	Length = 120m
Northbound lanes	1 lane	1 lane
Southbound lanes	1 lane	1 lane

4.4 Risks, Impacts and Mitigation Measures

This CTMP applies to all parts of the construction works. The scope includes:

- The provision for the safe movement of public traffic
- The protection of workers from passing traffic
- The provision for access to properties located within the vicinity of the works
- The provision of traffic controllers and safe operating locations
- The installation of any temporary signs, road markings, lighting and safety barriers
- The on-site management of construction traffic at the work site

Mitigation and control measures will be implemented to avoid, minimise or manage impacts on traffic and cyclists. A summary of the key areas of potential impact and the proposed measures to reduce these impacts are discussed in the following pages. These include the following:

- Traffic Volumes and Road Network Capacity
- Site Access for Construction Vehicles
- Cumulative Impacts on Adjoining Road Network
- CCTV Cameras and Gantry Mounted VMS
- Parking and Property Access
- Public Transport
- Heavy and Oversize Vehicles
- Emergency Vehicle Access
- Pedestrians and Cyclist Access
- School Zones
- Waste Collection
- Special Events

During the work hours, whilst traffic control is in place, appropriate and adequate signage and authorised personnel will be in place at all times to ensure the safe movement of traffic, cyclists around the work area. At the end of each shift, any temporary or inappropriate signage and devices will be removed, and the road returned to out of hour's operations as per the approved TGS.

4.4.1 Traffic Volumes and Road Network Capacity

Traffic volumes of the road system were derived from average daily traffic volumes (ADT) counts, obtained from RMS and surveys undertaken for the Old Wallgrove Road Upgrade Traffic and Transport Report. Classified link counts were conducted at the following locations;

- Wallgrove Road – Between M4 Motorway and interchange Drive (North and Southbound)
- Wallgrove Road – Between the Eastern Creek Waste Management Centre access road and the Sydney Water Pipeline (North and Southbound)
- M7 Motorway – North and Southbound.

A summary of traffic volume data is detailed below:

Location	ADT
M7 Motorway – North and Southbound	68,400
Wallgrove Road – Between M4 Motorway and Interchange Drive (North and Southbound)	30,600
Wallgrove Road – Between the Eastern Creek Waste Management Centre access road and the Sydney Water Pipeline (North and Southbound)	23,900

Table 2 Combined Volume Summary

Burton undertook a traffic survey on Thursday 12/05/22 to count the amount of southbound travelling vehicles that enter Subway Road. The results of the survey are below:

Road	Location	Direction	Peak	Total Vehicles	HCVs*
Wallgrove Road	Entering Subway Road	Southbound	AM (0800 - 0900)	23	70%
			PM (1700-1800)	0	0%

Table 3 Traffic Survey Results 12/05/22

The results of the survey show that very few vehicles travelling southbound access Subway Road. Based on these low numbers, the traffic staging design does not make allowance for a dedicated southbound turning lane into Subway Road.

As part of the overall assessment of the area construction vehicles will only be permitted to access areas including the proposed site compounds by left in and left out only, in a forward motion only.

Table 6 Existing Intersection Operations (2013)

Intersection	AM Peak				PM Peak			
	Average Delay	LoS	Control Type	Degree of Saturation	Average Delay*	LoS	Control Type	Degree of Saturation
Wallgrove Rd and Austral Bricks Access Rd	122	F	Priority	0.65	81	F	Priority	0.58

*Note: * Average delay is given in seconds per vehicle.*

Figure 7 - Level of Service for the existing intersection

A traffic impact assessment was undertaken by GHD for the consent of the internal development. The results are provided in the above figure. The results show that the existing intersection is operating at an 'F' level of service, which is the lowest criteria level for average vehicle delay. Removal of the dedicated left turn lane is not going to reduce the level of service of the intersection, as it currently operates at the lowest level already. It is important to note that all businesses other than Austral Bricks and Veolia no longer operate on Wallgrove Road. The Horsley Park Landfill (Veolia) has also ceased all future tipping at its site as it is now at capacity, which further reduces the number of vehicles required to access Subway Road from Wallgrove Road.

4.4.2 Site Access for Construction Vehicles

It is noted that there is currently no intersection access to the Gazcorp Site. There is an existing gated access into the Gazcorp site which is opposite the existing Austral Bricks Access Road (Future Subway Road). The Austral bricks access road is a two-lane two-way access road that connects Wallgrove Road with a number of industrial lots on the eastern side of the Westlink M7 and connects to Wallgrove Road at a priority intersection.

It is important to note that Gazcorp will be undertaking the internal development to the West of Wallgrove Road during the same period that Burton Contractors will be upgrade Wallgrove Road. The internal development will be undertaken by Cherrie Civil. This CTMP covers the site access for construction vehicles for both projects.

Any construction vehicles required to move around the construction site on a regular basis and throughout the works and will not be permitted to queue or park within the surrounding streets or work area unless permitted. The arrival of trucks will be staggered to prevent the possibility of queuing of trucks at any time. During mobilisation and de-mobilisation trucks will be able to queue in staged lane closures.

Dedicated construction vehicle routes will be developed with the objective of providing the shortest and safest distance to/from the work site. Truck movements to and from site shall be restricted to these designated routes and movements to ensure minimal impact on local streets within the vicinity of the site. These truck routes will need to be reviewed if there are any changes to traffic conditions. Access points and procedures shall be identified and clearly communicated to all drivers and suppliers prior to arriving to site. Information on the approved access routes and locations for all construction vehicles shall be provided through onsite toolbox talks, pre-start meetings and project inductions prior to work commencing. All work vehicles shall:

- Enter and leave site left in and left out in a forward direction using an approved VMP.
- Decelerate slowly and signal their intention by indicator to leave the traffic stream.
- Activate the vehicles rotating beacon on approach to and departure from work site.
- Wait until there is a gap in traffic before leaving the construction site or until given clearance by traffic controllers to exit the work area.
- Radio ahead to advise of approach to ensure work site space is available.
- Not obstruct any pedestrian crossings or footpaths
- Not obstruct trafficable lanes without an approved ROL

Traffic controllers must not stop general traffic to allow construction vehicles to enter or exit the work zone without an approved ROL

As part of the overall assessment of the area construction vehicles will only be permitted to access areas including the proposed site compounds by left in and left out only, in a forward motion only.

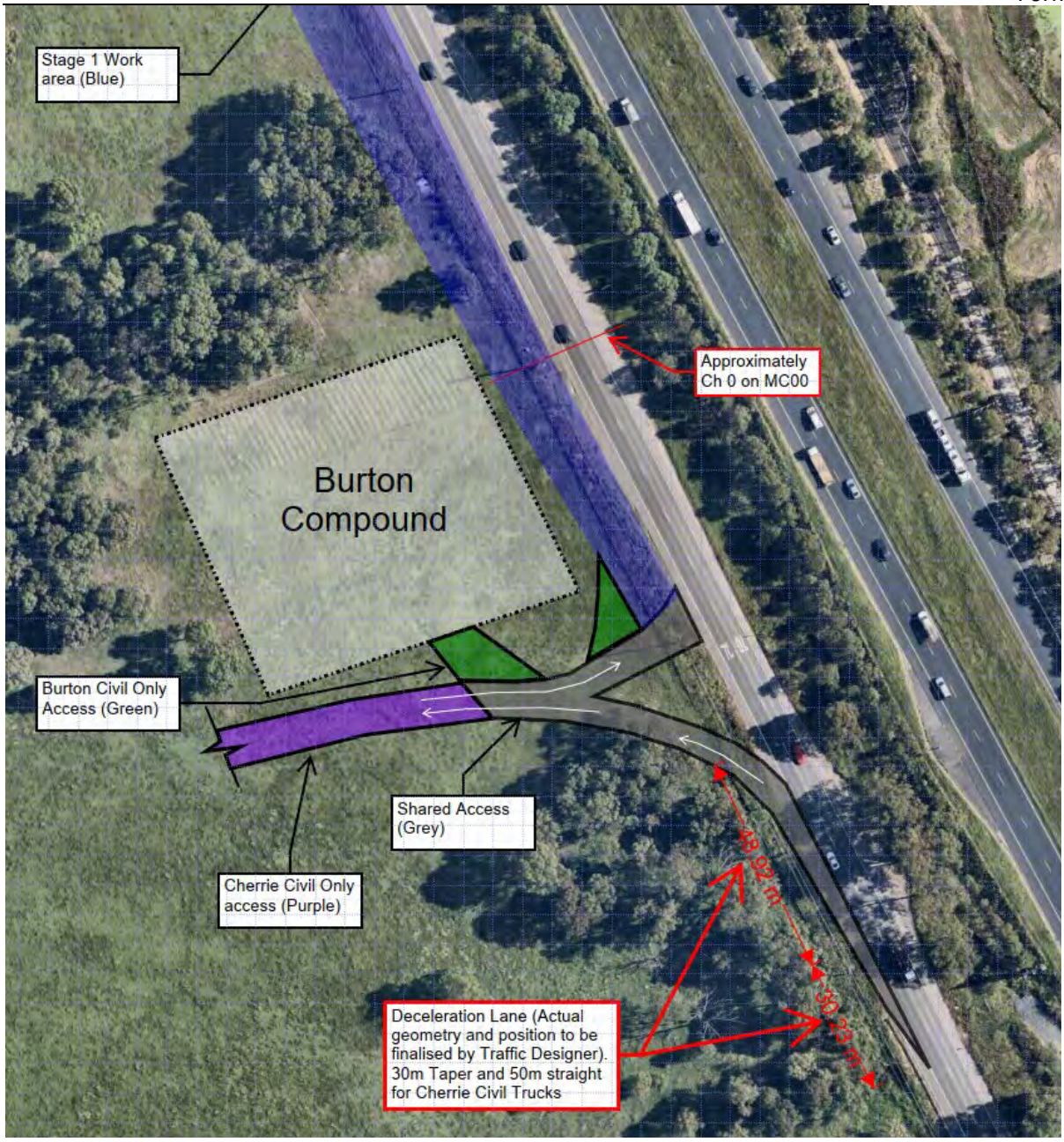
4.4.2.1 Burton Contractors

Expected traffic movements as a result of construction for Wallgrove Road is expected to be Twenty-Five (25) vehicle movements on an average day. This quantity will primarily consist of cars, truck and dogs, semi-trailers and truck floats. Burtons will endeavor to minimise the impact of these movements by planning works requiring multiple movements as well as deliveries to be between 10am to 3pm, outside of peak traffic periods along Wallgrove Road.

It is also noted that no Construction vehicles should obstruct any pedestrian crossings or footpaths, and no construction vehicles should layover/obstruct trafficable lanes without an approved ROL. Construction gate access will be as per construction staging drawing. In addition, no traffic controllers should stop general traffic to allow construction vehicles to enter or exit, without any approved ROL's.

4.4.2.2 Cherrie Civil

The expected increase in traffic movements because of the internal development is expected to be Sixty (60) vehicle movements on an average day. This quantity will primarily consist of Truck & Dogs. All construction traffic for the internal development will access the site through the provision of a deceleration lane on entry and give-way exit back onto Wallgrove Road. This deceleration will also service Burton Contractors construction vehicles in a reduced capacity. Provided below is an example of the deceleration lane for this project.



4.4.3 Cumulative Impacts on Adjoining Road Network

Assessment shows that there are no ongoing road works that may cause a cumulative impact or potential clashes with other construction activities in this area. It is still vital that close liaison is maintained with the project team and CJM to ensure upcoming closures do not conflict with any other works that may be planned during the life of the project. Furthermore, because the most disruptive construction activities associated with these works are planned for night hours for installation and removal of the site set-up, and milling and re-sheeting it is not anticipated that there would be any adverse impact to the surrounding road network beyond some minor delays during these work periods.

4.4.4 CCTV Cameras and Traffic Gantry Mounted VMS

There are no existing CCTV cameras or gantry mounted VMS assets operated by CJM or TfNSW within the southern portion of the project upgrade, where long-term traffic changes are required.

There are no existing CCTV cameras or gantry mounted VMS assets operated by CJM or TfNSW within the northern portion the project (Roussell Road intersection), where short-term traffic changes are required.

During the works in the northern portion, there is potential to disturb the traffic signal detectors at the Roussell Road intersection while undertaking the utility works. Burton will contact the SRAP contractor and seek approval of any disturbance prior to enacting the works. Further to this, any disturbed detectors will be replaced at the earliest practical time, maintaining constant communication with the SRAP contractor.

4.4.5 Parking and Property Access

Parking will be located within the internal development accessed through the deceleration lane.

Property access to all properties will be maintained at all times. Early consultation with any impacts entities will occur in advance of any planned disruptions during the different stages of construction. There are no forecasted changes to existing parking facilities or property access during.

4.4.6 Public Transport

In accordance with the G10 consultation with the local bus companies will take place every 2 months as a minimum and provide an update of upcoming traffic switches or events that will affect the current bus pickup points and bus timetables

Bus route numbers 738 and 835 pass through the proposal travelling in both north bound and south bound directions. These buses are operated by Busways (738) and Transit Systems (835). The below figures illustrate the routes through and around the proposal. There are 2 x bus stops within the southern portion that will be affected during the works. The Northbound bus stop is Stop ID 576623 and the Southbound bus stop is Stop ID 276622.

Burton consulted with both bus companies about the proposed changes provided overleaf. Burton has received approval from Busways (Route 738) for the long-term closure of both stops. Transit Systems (Route 835) requested that the bus stops be temporarily relocated. Burton engaged with both Transit Systems and TfNSW for the alternative temporary bus stop locations and received approval for the alternative locations proposed in this CTMP. A copy of alternative stop location plans has been provided in Annexure L.

The alternative Northbound bus stop (Stop #4 in Annexure L and referred to in Transit Systems approval) is to be located inside the left-hand turn lane on approach to the Roussell Road intersection. This allows for busses to stop without impacting through traffic and provides for a shorter pedestrian journey to the industrial estate for patrons.

The alternative Southbound bus stop (Stop #1 in Annexure L and referred to in Transit Systems approval) is to be located on approach to the Roussel Road intersection in the locally widened road pavement. This allows for busses to stop without impacting through traffic, provides a concrete path at the intersection for patrons and features controlled pedestrian crossing at the lights to gain safe access to the industrial estate.

The alternative bus stop locations are also included in the Annexure C staging plans.

Any proposed changes to the operation of bus stops are to be notified to the affected operators. These communications are to be forwarded to the CJM. Any temporary bus stops proposed should have the same setup as the existing bus stop that is being replaced and be approved by the operators servicing the stop.

The project is not near any railway stations.

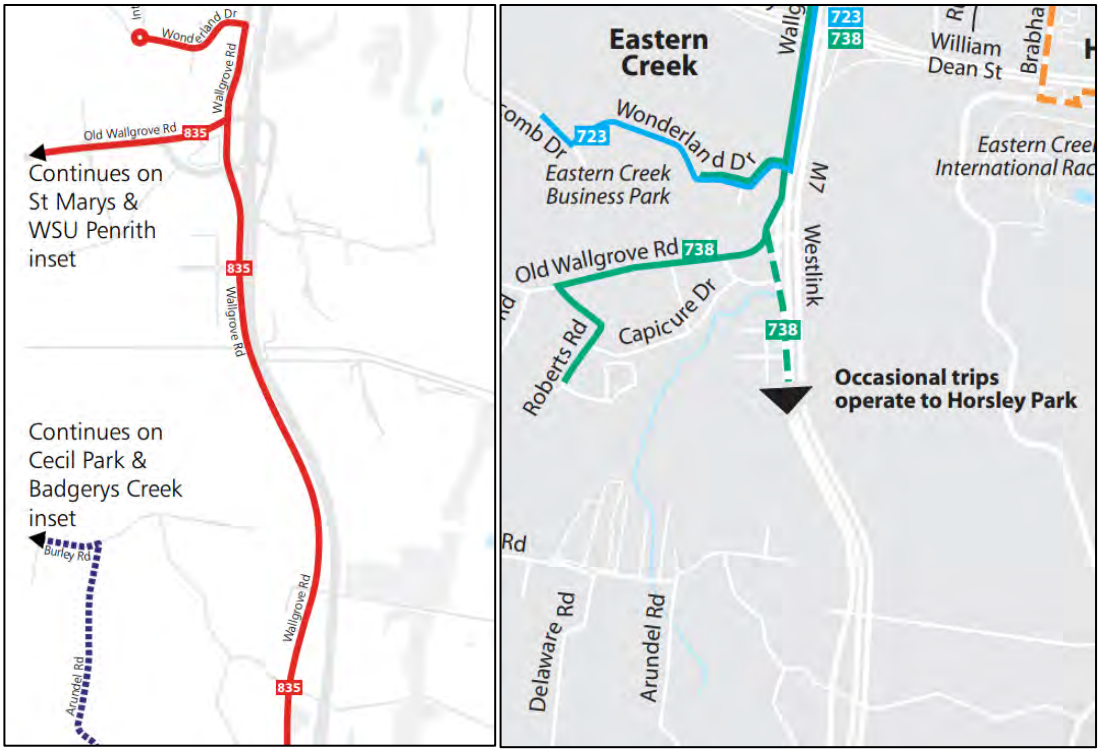


Figure 8 Transit Systems and Busways Route Maps

Re: 423 Wallgrove Road Upgrade - Bus stop - Wallgrove Road before Roussell Road, Eastern Creek

Reply | Reply All | Forward

SG Steve Grady <sgrady@busways.com.au>

To Alex Ruello; Nick Veljanovski; 'michael.takla@transitsystems.com.au'

Thu 21/07/2022 5:04 PM

You replied to this message on 25/07/2022 12:49 PM.
If there are problems with how this message is displayed, click here to view it in a web browser.

Hi Alex,

There's no issues from Busways.

Regards,
Steve Grady
Planning & Infrastructure Supervisor - Region 1
Busways Group
0438 537 903

From: Alex Ruello <Alex.Ruello@burtoncontractors.com.au>
Sent: Thursday, July 21, 2022 5:02:32 PM
To: Steve Grady <sgrady@busways.com.au>; Nick Veljanovski <NVeljanovski@transitsystems.com.au>; 'michael.takla@transitsystems.com.au' <michael.takla@transitsystems.com.au>
Subject: RE: 423 Wallgrove Road Upgrade - Bus stop - Wallgrove Road before Roussell Road, Eastern Creek

Nick, Michael & Steve,

We have previously contacted each of you regarding the closure of the Northbound bus stop on Wallgrove Road for bus services 738 and 835 as per the below email thread. This is for stop ID 276623. FYI we haven't started the works yet and hence there has been no closure of the stop. We of course will provide notification in advance of the closure. It seems to have slipped through our fingers, but we should have also requested the long term closure of the southbound bus stop ID 276622

Can you please advise if there are any issues with the long term closure of this bus stop in parallel with the already approved stop closure for stop ID 276623?

Would appreciate a fast response

Figure 9 Busways acceptance of long-term closure

RE: 423 Wallgrove Road Upgrade - Bus stop - Wallgrove Road before Roussell Road, Eastern Creek

Reply | Reply All | Forward

HS Hannah Shilling <HShilling@transitsystems.com.au>

Mon 1/08/2022 10:44 AM

To Alex Ruello; Suthes Kumar

Cc Joseph George; BusApproval@transport.nsw.gov.au; Steve Grady; Adrian Prichard; Joseph Aouad

You replied to this message on 1/08/2022 11:09 AM.

Good Morning Alex,

We just went out with a bus to test whether the draw in bay southbound would be appropriate for a bus.

Thankfully the bus just fit, so we are happy to use the locations of stops 1 and 4 as the alternate stops.

Can you please arrange for Bus Zone signage to be installed?

Also can you please advise the start date of the change, once known.

Thanks.

Kind Regards,

Hannah Shilling
Network Project Planner

T: 02 8778 5853
A: Lot 2 Airfield Drive, Len Waters Estate NSW 2171
E: hshilling@transitsystems.com.au

I acknowledge the traditional owners of the land on which we live and work, and pay my respects to elders past, present and emerging.

TRANSIT SYSTEMS



Transit Systems NSW Reconciliation Action Plan
Artwork by Allan McKenzie, Gamilaroi / Wiradjuri Man

Figure 10 Transit Systems acceptance of proposed bus stop relocations

RE: 423 Wallgrove Road Upgrade - Bus stop - Wallgrove Road before Roussell Road, Eastern Creek

Reply | Reply All | Forward

SK Suthes Kumar <Suthes.KUMAR@transport.nsw.gov.au>
To Alex Ruello; Hannah Shilling
Cc Joseph George; Bus Approval; Steve Grady; Adrian Prichard; Joseph Aouad

Fri 5/08/2022 6:19 PM

Hi Alex,

TfNSW has no objection to the proposed temporary relocation of the bus stops. Please update the TMP to reflect these changes.

Regards
Suthes Kumar
Project–Contract Manager
Developer Works
Greater Sydney
Transport for NSW

M: 0408 655 528 **E:** Suthes.Kumar@transport.nsw.gov.au

transport.nsw.gov.au

129a Orchardleigh Street
Yennora NSW 2161

NSW GOVERNMENT Transport for NSW

I acknowledge the Aboriginal people of the country on which I work, their traditions, culture and a shared history and identity. I also pay my respects to Elders past and present and recognise the continued connection to country.

Please consider the environment before printing this email.

From: Alex Ruello [mailto:Alex.Ruello@burtoncontractors.com.au]
Sent: Monday, 1 August 2022 11:10 AM
To: Hannah Shilling <hshilling@transitsystems.com.au>; Suthes Kumar <Suthes.KUMAR@transport.nsw.gov.au>
Cc: Joseph George <Joseph.George@burtoncontractors.com.au>; Bus Approval <BusApproval@transport.nsw.gov.au>; Steve Grady <sgrady@busways.com.au>; Adrian Prichard <aprichard@transitsystems.com.au>; Joseph Aouad <Joseph.Aouad@burtoncontractors.com.au>
Subject: RE: 423 Wallgrove Road Upgrade - Bus stop - Wallgrove Road before Roussell Road, Eastern Creek

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.

Thanks for that Hannah,

Before we make the changes we will need to have some sort of approval from Transport & TMC.

Suthes – as soon as you are able, can you please advise if stops #1 and #4 are okay for Transport & TMC? If so, our revised TMP will be updated to reflect the changes.

Regards,
Alex Ruello
Project Manager
Burton Contractors Pty Ltd

Figure 11 TfNSW acceptance of proposed bus stop relocations

4.4.7 Heavy and Oversized Vehicles

Wallgrove Road is an RAV road with access for 25/26m B-doubles. For this reason, heavy and oversize vehicles are expected frequently along the route and consideration must be given to the type of heavy vehicles to ensure that safe passageway and lane widths are maintained at all times past each work area and through the work site.

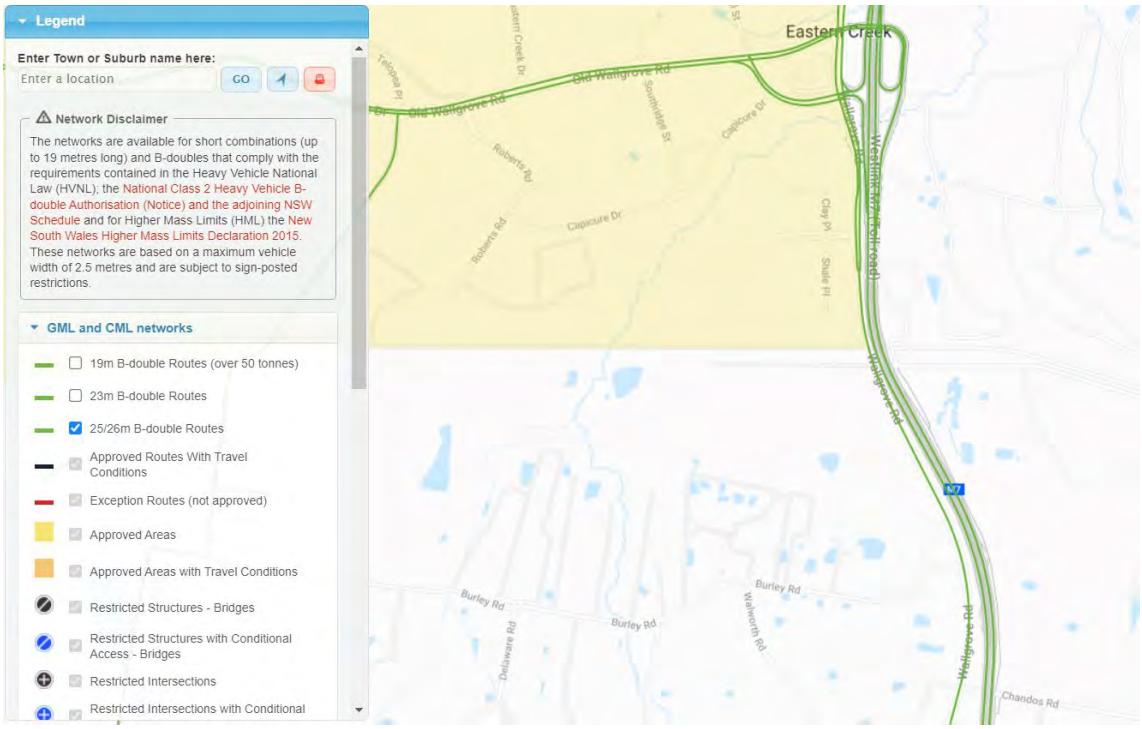


Figure 12 Restricted Access Vehicle Map (RAV) - Project Area

4.4.8 Emergency Vehicle Access

In accordance with the G10 consultation with all emergency services including fire and rescue, ambulance, police and SES, will be advised prior to the commencement of any road works and provisions made to ensure access through or past the work area is maintained at all times. Regular updates will be provided on the staging and progress of the works.

At all times when employees are on site, the site supervisor will take whatever action is practical to assist emergency vehicles, tow trucks and service vehicles to gain access to crash or vehicle breakdown sites which are causing or have the potential to cause an obstruction to traffic flow or imperil the safety of road users.

Should there be a vehicle breakdown outside of working hours when the site is unattended, the Burton emergency response number in section 2.3 is available and can contact emergency services or the 24 hour tow truck services listed in section 6.1.

4.4.9 Pedestrian and Cyclists

The Southern portion of the site has no existing dedicated pedestrian or cyclist facilities, where long term changes are required. Cycleway Finder reports that Wallgrove Road is considered “Hard Difficulty”

The Northern portion of the site features an existing cycle lane on the road pavement where short term traffic changes are required. Cycleway Finder reports that this section of Wallgrove Road is also considered “Hard Difficulty”

The M7 Motorway features a separate, continuous cycleway that runs adjacent to the eastern side of the

motorway. Access to this cycleway will not be impacted by the works. This cycleway, while outside the limit of works, provides entry / exit access at each cross road or over/underpass that the M7 intersects.

All existing pedestrian crossings, cycle ways and footpaths would be maintained for the duration of the construction period. There is potential for some footpath impacts to occur during construction. If footpaths are impacted, alternative paths would be established to ensure safe passage of pedestrians through the proposal area. Required pedestrian management plans would be submitted via the hold point process as required prior to any alterations.

That said, within the work site, provision will still be made to ensure that a safe route is provided at all times for cyclists and any pedestrians around the work area. The impacts on cyclist movement as a result of these works have been assessed and taken into consideration when developing TGSs including that:

- Suitable warning signage will be provided to maintain cyclist safety.
- Temporary diversions will be adequately delineated.
- Where it is necessary to fully close the cycle way or crossing, suitable and safe diversion points shall be established and if necessary, temporary ramps installed. These shall be returned to normal operations outside of construction hours and left free of debris and trip hazards.
- Site gates will be closed and locked when not in use to prevent unauthorized access.
- When movements of plant are expected through any gates then authorized traffic controllers will be in position to monitor and manage conflicting movements.

Cyclists and pedestrians will be detoured around the works where the 0.3m edge clearance will be implemented. Cyclists and pedestrians will be detoured onto the M7 cycleway. Any detours in place are to have:

- A clear route free of trip hazards at all times,
- Delineation, separating the detour from the works at all times,
- Sufficient lighting,
- Wheelchair compliant widths and ramps,
- Sufficient sight distances for vehicles and pedestrians,
- Be accessible at all times and to all pedestrian push buttons.

Refer to Annexure A for the cycleway detour TGS proposed.

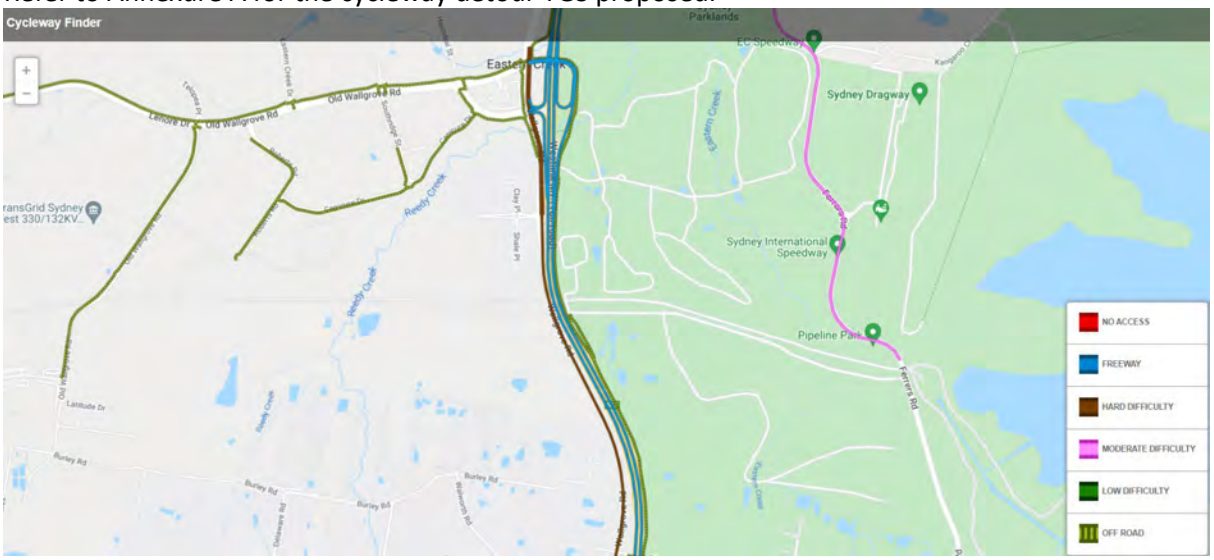


Figure 13 Bicycle Network Map - Wallgrove Road

4.4.10 School Zones

There are currently no school zones on Wallgrove Road within or near the vicinity of the project site.

4.4.11 Waste Collection

Blacktown council and Fairfield council are responsible for waste collection around the job site. Construction activities will not have a direct impact on waste collection services, including property access and kerb side collection; however, consultation is still required to ensure sufficient access if required remains in place for the duration of the project.

4.4.12 Special Events

Assessment shows that there are no planned special events that will impact the construction program. Any special events at:

- Commbank Stadium, Paramatta,
- Sydney Olympic Park Homebush and
- Blue Bet Stadium Penrith

Should be taken into consideration when planning any network disruption along the Wallgrove Road corridor.

Any planned M7 maintenance closures will direct traffic onto Wallgrove Road as the alternate route. Network disruptions during the closure may not be permitted.

4.4.13 Subway Road Businesses

Through community consultation we have identified that there are currently only 2 businesses that operate out of Subway Road: Veolia Waste Management and Austral Bricks. Other businesses that appear to operate out of Subway Road such as Bristille roofing, Bako Eggs and M Damjanovic have been confirmed to no longer operate out of Subway Road. We have engaged Veolia and Austral Bricks and have gained their approval for the proposed vehicle turn path restrictions. B-Double truck movements will be retained in all directions except for left out of Subway onto Wallgrove Road. This has been reduced to a 19m semi-truck and is reflect on the staged TCS plans. Refer to Annexure F for copies of correspondence with the businesses written approval of the proposed changes.

4.5 Traffic Management Implementation

4.5.1 Traffic Guidance Schemes

Site-specific Traffic Guidance Schemes (TGSs) will be developed for the various stages of the project and detail the work site location, signage to be installed, and any other changes to traffic conditions. Approach and departure signage, localized exclusion zones, diversions and traffic control devices shall be prepared in accordance with TCAWS 6.1 and AS1742.3 for all activities.
These TGSs shall cover various activities and include the following considerations:

- Construction vehicles activity, including loading and unloading of trucks within the site.
- Accredited Traffic Controllers provided to manage vehicle movements past the work area.
- When used Traffic Controllers having safe escape routes and sufficient visibility through the use of light towers/day makers during any night work.
- Additional warning signage and VMS for vehicles at site access points to alert them to the presence of construction traffic; to warn drivers of changes to the usual road conditions and to slow drivers on the approach to the work area.
- Having clear definition of the work site boundary through the erection of barriers around site boundaries adjacent to roads.

4.5.2 Road Occupancy License (ROL)

A Road Occupancy License (ROL) shall be sought from the CJM for approval to occupy the road space between designated hours. The TGSs shall be submitted along with the application to cover the proposed traffic management arrangement shown. The CJM will be provided with a minimum of 10 working days to process each application with an ROL generally being requested for the duration of one month, and then extended as required on an ongoing basis. All ROL's must include the project name MR515 Wallgrove Road, Horsley Park Intersection Upgrade. Should any changes or additional scope of work be added to the work site, then a new TCP shall be drafted to reflect this and a new ROL application submitted to the CJM. The CJM will be responsible for advising of conflicts with ROL approvals given to other projects.

Works are to be undertaken as per the program with sufficient contingency and time for site establishment and breakdown. The site manager is to monitor progress of each work activity and modify works, if necessary, to ensure lane closures are reopened as per ROL times. Contingency plans will be in place to assist with any unforeseen problems including having road plates and float trucks available on site. In the event that there is a risk of an ROL breach or over-run, then the CJM control room is to be called immediately.

ROLs shall only be activated by the approved License holder listed on the ROL and supervise crews working under this ROL. All activations and deactivations of ROLs for work shifts must use the web application system and not call the TMC

4.5.3 Road Work Speed Zone Authorisation (SZA)

A temporary 60km roadwork speed zone will be implemented day and night during the project to manage the speed of traffic approaching and passing the work site in accordance with the G10 & TCAWS 6.1 manual. A Speed Zone Authorisation (SZA) shall be requested at the same time as the ROL application and extensions required shall be managed in the same way as the ROLs. Temporary speed zones will be erected as per the approved TGS and operated in accordance with CJM/RMS requirements. Contradictory existing speed signs are to be covered for the duration of each shift.

Roadwork Speed Limits Enforced signage may also be used to supplement 60km speed zones.

4.5.4 Traffic Controllers and Portable Traffic Control Devices

Traffic controllers shall be used to implement lane closures as required during construction mobilisation and demobilisation and at any other times as required for any specific construction activities. Serious consideration will be given to traffic control implementation methods and safe standing locations that provide traffic controllers with an escape route. As such portable traffic signals or porta booms will be considered to be used on any roads above 45km/h for any stop slow or shuttle flow arrangements. Sufficient and necessary lighting shall be provided at the work area and UHF radio contact must be maintained at all times between traffic controllers and work crews.

The portable traffic control devices to be used is the Arrow Emergency Systems eStopTM. Approval for these systems exists on TfNSW QA Specification TS200 – Register of ITS Field Equipment page 7 is shown below in table 6.

Register of ITS Field Equipment **TS200**

A1.4 Traffic Signal Site – Type 1 Portable Traffic Signal

Supplier	Model / Type	Software	Category
Arrow Emergency Systems	e-STOP	PTU: ATCD_Slave-7.1 HRC: ATCD_Master-6.1	Type Approved

Table 4 TS200 Register of ITS Field Equipment

Porta boom's will adhere to the technical direction TETD 2019/03 | RMS.19.1236 – 13 May 2019 Use of Portable Boom Barriers.

4.5.5 Queue Management

At all times during each required shift, traffic queues shall be monitored to ensure that traffic does not exceed beyond the limits of the advanced warning signs on approach to the work area. Signs shall be repeated where necessary and where space permits. Close contact stall be maintained with the CJM control room during the project, if undesirable queues begin to form or if there is an incident in the surrounding area.

4.5.6 Advance Warning Signage and Device Requirements

All signs used shall conform to the designs and dimensions as per AS1742.3. Prior to installation, signs shall be checked to ensure they are in good condition and meet the following standard:

- Condition – signs that are bent, broken or have surface damage shall not be used.
- Cleanliness – signs should be free from accumulated dirt and grime.
- Fluorescence & Retro reflectivity – all signs and devices must meet minimum Standards

Signage requirements are shown on each Traffic Guidance Scheme. Any signs erected prior to being needed shall be covered by a suitable material and only removed immediately prior to the commencement of works. Signs and devices shall be positioned and erected in accordance with the locations and spacing shown on the TGS. All signs shall be positioned so that:

- They are properly displayed and securely mounted
- They are within the drivers' line of sight and do not obscure other devices and signs
- They do not become a possible hazard to vehicles especially along the road edge.
- They do not deflect traffic into an undesirable path.
- Fixed signs are to be 2.2m from the ground to the underside of the sign
- Should the use of additional or reduced number of signs or devices be required, they shall be recorded within the traffic control inspection records as a variation to the CTMP.

4.5.7 Delineation and Pavement Markings

Throughout the life of the project, the road past/through the work site shall be clearly delineated using appropriate methods. This shall be supplemented with any traffic management devices deemed necessary for both day and night conditions.

4.5.8 Safety Barrier System

Temporary safety barriers to be used are the NSW Precast Type F. These are approved as per TfNSW approved

safety barrier products issued May 1996 with MASH TL-2 rating to 70km/h. These barriers may be pinned to the road surface to allow greater working width.

Safety barriers shall be installed around the actual work area to ensure vehicles do not enter the work site and for the protection of the workers. These will conform to the specifications of AS3845 and RMS. An edge clearance of no less than 0.3m will be maintained from live traffic. If site conditions make it such that these distances are not possible to maintain, then alternative measures including a permanent speed reduction shall be reviewed after a detailed risk assessment. No construction work or pedestrian movement will be undertaken within deflection or impact zone of the safety barrier without additional risk assessment. Breaks with crash cushions or taper blocks will also be provided as necessary within the temporary barriers to allow access to the work site. Approved end terminals will be installed facing opposing traffic if barriers cannot be flared in sufficiently to mitigate risk of a blunt end being exposed to traffic.

With a 0.3m edge clearance in place, cyclists will be detoured around the works as described in section 4.4.9 and Annexure A

4.6 Traffic Management Monitoring and Audits

4.6.1 Daily Inspections and Records

On completion of establishing the work site, the site is to be monitored to ensure that all signage, devices and controls are maintained at all times.
The traffic control contractor will ensure that personnel are assigned to monitor the traffic control site and carry out daily inspections as follows:

Before Work Starts:

- Inspect all signage and devices including any VMS to ensure they are undamaged and comply with the requirements depicted on the Traffic Guidance Scheme.
- After any adjustments have been made to the signs and devices, conduct a drive through inspection to confirm effectiveness.
- Provide contact name and number for traffic control site supervisor to CJM for nights' activities if applicable.

During Construction Hours:

- Ensure that appropriate personnel drive through the site periodically to inspect all signs and devices including VMS and ensure they are undamaged and comply with the TGS.
- Ensure on site traffic controllers are in place and carrying out necessary duties.
- Keep records of any changes made or additional controls erected throughout the shift.
- Record any significant incidents or observations associated with the traffic controls and their impacts on road users or adjacent properties.

At the End of Each Shift Period:

- Conduct an end of shift site inspection, allowing time for any maintenance work.
- Remove any unnecessary signage (Workers Symbolic, Traffic Controller)
- Ensure any lighting is added to road safety barriers as necessary.
- Record details of inspection and any changes made.

4.6.2 Variations to Approved TMP and TGS

Daily inspection records including any minor variations to the approved CTMP and TGSs shall be kept and provided to the Project/Construction Manager. Any observations that may need significant changes made to the CTMP or

TGSs must be given to the Traffic Management Representative so that the changes can be communicated with the relevant authorities in order to obtain necessary approvals. Reviews and amendments of this CTMP are only to be undertaken by a person qualified in “Prepare Work Zone TMP”.

In emergency situations, on site variations shall be made and recorded using the appropriate form or checklist and the appropriate stakeholder to road authority representative notified as soon as is practical. Should any issues of concern be raised during the course of the project, TfNSW and CJM may review the CTMP and determine if changes must be made to the traffic management methodology on site. Changes to approved TGSs can only be made by the original drafter of the TGS requiring modification and require G10 Hold Point resubmission.

4.6.3 Road Safety Audits

A road safety audit may be required at different stages throughout the project especially after any major change in traffic conditions. The road safety auditor must be independent and be certified to level 3 on the RMS Road Safety Auditor Register as a minimum. If measures prove not to be fully effective, then in consultation with the road safety auditor, the CTMP will be revised, and appropriate measures implemented.

5.0 Consultation and Communication

5.1 Consultation with Stakeholders and Authorities

Early engagement has been undertaken with the key stakeholders and authorities, prior to the formal approval process. This is necessary in order to identify any key issues of concern that may require alternative approaches to be considered in methodology.

Further to any consultation, site- specific TGSs will be developed for each specific stage of work in accordance with relevant RMS and Australian Standards. These plans will show the specifics of the proposed works and individual traffic controls for each site. These TGSs will also be formally submitted for approval/comment by the relevant stakeholders prior to implementation in accordance with G10 requirements. The main stakeholders/authorities are as follows:

- TfNSW
- Traffic Management Centre (CJM)
- Blacktown City Council
- Fairfield City Council
- Emergency Services

Appendix A details these TGSs. Each TGS is to operate within the conditions of any approvals or licenses issued from authorities.

5.2 VMS Strategy

As part of the notification process, advanced warning of the road works will be communicated via Variable Message Signs (VMS) placed at strategic locations as shown on approved VMS schedules in accordance with the G10. These will convey information on the dates and times of the planned road works to motorists on a continual basis on the lead-up. The portable VMS units will be used to provide advance warning of the road works, and then changed to more specific messages (as required) during the actual work activities on each night. Messages must be displayed a minimum of 5 days prior to the works. Messages are to be a maximum of 2 screens and 3 lines per screen. Each Variable Message Sign will also include Radar Activated Speed Signs. In addition, it is requested that the CJM utilise their major overhead VMS network to advise motorists of lane closures and to exercise caution.

Placement of VMS units must:

- Not impact pedestrian safety and space
- Not impact TCS lanterns, visibility of existing TCS
- Not impact pedestrian and motorist sight lines

A VMS schedule has been included as Annexure B

5.3 Notification Process for Residents, Businesses and Commuters

Notification about traffic management impacts may include the following:

- Letterbox notifications, flyers and project updates
- Doorknocking
- Face to face engagement (meetings)
- Media releases and website updates

Local residents will also be consulted in advance where there is likely to be a direct impact, for example temporary loss of driveway access or power/water supply. The project Community Relations Team will provide relevant contact information for the purpose of dealing with queries and complaints including:

Project Enquires Email: info@burtoncontractors.com.au
Project Postal Address: Unit 3/11-21 Underwood Road, Homebush 2140

6.0 Emergency Arrangements and Incident Response Procedure

6.1 Emergency Services

Emergency services will be notified of the proposed works, including their nature, date, and times as well as contact details for the site supervisor. The Traffic Control Site Manager will be responsible for providing up to date information to the respective emergency services regarding the changes to traffic flow during the works. Arrangement to manage impacts on emergency services include:

- Notification and communication with affected emergency services including suggested detour routes when applicable.
- Provision for emergency service access through the construction site
- Communication with the workforce to ensure understanding of emergency access and response requirements.

Emergency Contact	Phone	Authority
Ambulance / Fire / Police	000	Emergency services
Poisons Information Centre	131 126	Poison information
Jemena	131 909	Gas
Ausgrid	131 388	Electricity authority
Endeavour Energy	131 003	Electricity authority
TransGrid	1800 027 253	Overhead electricity
Sydney Water	132 090	Water service
AAPT / PowerTel	1800 786 306	Fibre Optic
Uecomm	1300 275 662	Fibre Optic
NBN	1800 687 626	Fibre Optic
AARnet	6222 3530	Fibre Optic
TPG	1300 993 011	Fibre Optic
Telstra	132 203	Comms
Optus	1800 505 777	Comms
RMS – Traffic Enquiry	132 701	Roads Authority
RMS – Traffic Management Centre	131 700	Roads Authority
WorkCover NSW	131 050	Work Health Safety Authority
EPA NSW (Environmental Incidents)	131 555	Environmental Authority
DBYD	1100	Underground services
Call DBYD for current service strike contacts or http://www.1100.com.au/safeexcavation/emergencies		
Local Hospital (9.5km)	(02) 9881 1555	Mt Druitt Hospital

Emergency Contact	Phone	Authority
Local Medical Centre (2.9km)	(02) 9620 2880	Horsley Park Medical Centre
Local Police Station (8.8km)	(02) 8788 5199	Wetherill Park Police Station
Local Council	(02) 9839 6000	Blacktown Council
Local Council	(02) 9725 0222	Fairfield Council
Eastern Creek Towing	0412 296 966	
Wetherill Park Towing	(02) 9757 2666	
Prestige Vehicle Transport	0407 264 471	

Table 5 List of Emergency Contacts

6.2 Incident Response Procedures

In the event of any unplanned incident or accident on site, whether or not involving traffic or road users, the following project documents must be referred to for the appropriate procedure:

- Incident Management Plan
- Emergency Response Plan

In general, the following protocol will be followed:

- Notify the relevant authorities and update accordingly following their instructions.
- Where possible, cease work and remove restrictions.
- Modify traffic control as necessary and manage until emergency services arrive.
- Re-program any VMS units to advise of situation.
- Assess and re-evaluate risks and hazards, if necessary, postpone work activities.

In the event of an emergency situation, the following relevant authorities must be contacted and advised of the nature of the works, type of emergency and contact details for the site supervisor:

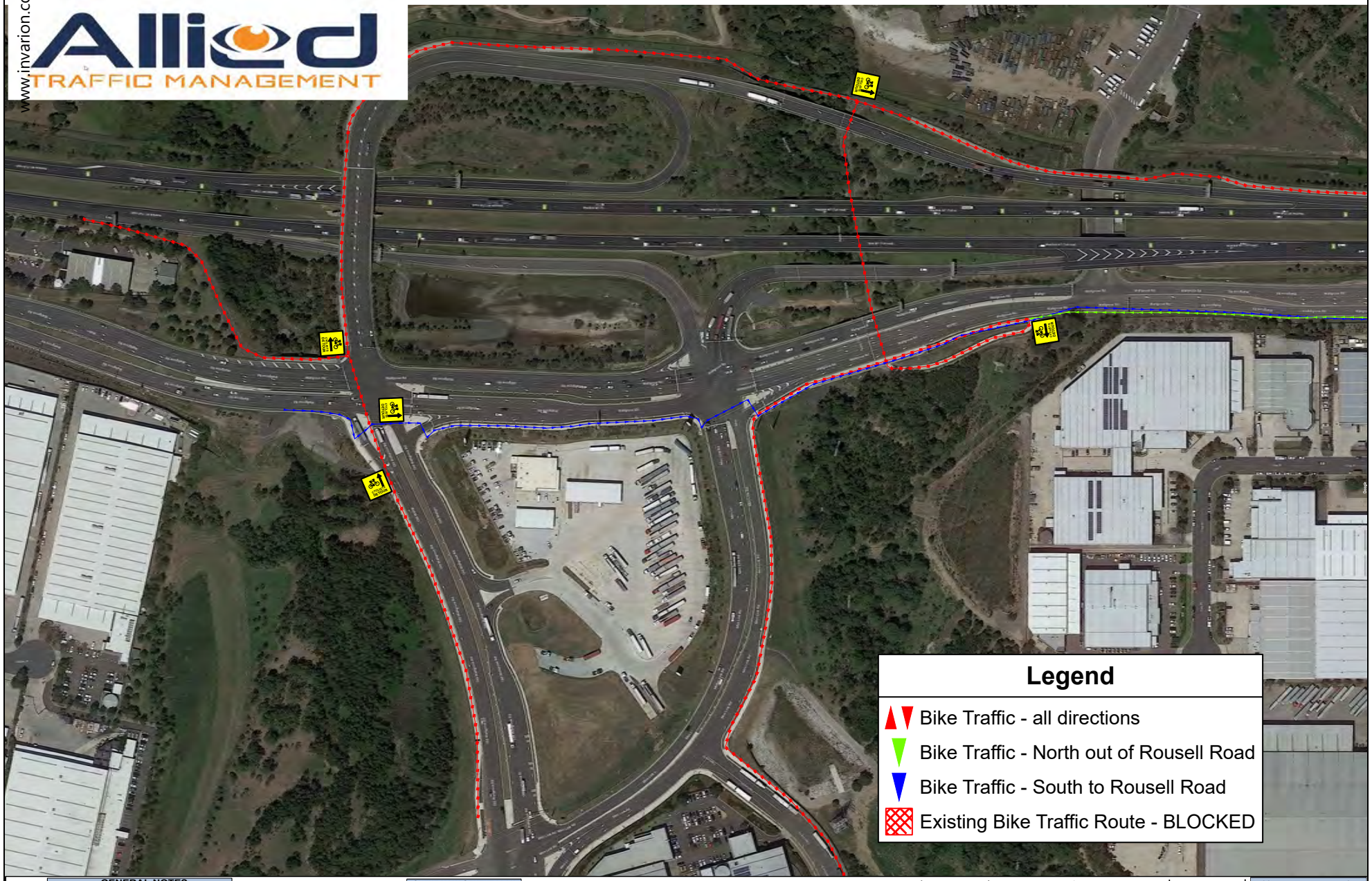
- Emergency Services: (000)
- CJM (131 700)
- Safework NSW (13 10 50)

Annexure A – Traffic Guidance Schemes

(Note – Long term TGS and staging plans are combined and are in Annexure C. Short term TGS to be developed on an as needs basis)

www.invarion.com

Allied TRAFFIC MANAGEMENT



GENERAL NOTES

1. THIS DRAWING IS TO BE READ IN CONJUCTION WITH AS1742.3 & TCAWS 6.1
2. ALL TRAFFIC CONTROL DIAGRAMS TO BE READ CONJUNCTION WITH THE TCAWS 6.1
3. NON- APPLICABLE EXSISTING SIGNAGE SHALL BE COVERED EG. SPEEDS SIGNS DUE TO THE TEMPORARY SPEED ZONE.
4. ALL SIGNAGE DISTANCE SHALL COMPLY WITH AS 1742.3 & TCAWS 6.1
5. IN ACCORDANCE WITH TCAWS 6.1 TRAFFIC CONTROLLERS TO ASSIST PEDESTRIANS WITH MOVEMENT THROUGH & AROUND THE WORKSITE.
6. SIGNAGE SHALL BE PLACED ON THE SIDE OF THE ROAD ADJACENT TO THE TRAFFIC FLOW,
7. REMOVAL OF TRAFFIC CONTROL SIGNS AND DEVICES SHOULD BE UNDERTAKEN IN THE REVERSE ORDER OF ERECTION, PROGRESSING FROM THE WORK AREA OUT TOWARD THE APPROACHES.

LANE WIDTHS

THE MIN LANE WIDTH TO BE PROVIDED THROUGH OR PAST THE WORKSITE SHALL BE 3.0m (3.5m DESIRABLE)

TOLERANCES

POSITIONING OF SIGNS MINIMUM 10% LESS THAN THE DISTANCE OR LENGTHS GIVEN. MAXIMUM 25% MORE THAN THE DISTANCE OR LENGTHS GIVEN. SPACING OF DELINEATING DEVICES MAXIMUM 10% MORE THAN THE SPACING GIVEN - NO MINIMUM

QUEUE MANAGEMENT PLAN

AT ALL TIMES DURING THE COURSE OF THE WORK TRAFFIC QUEUES SHALL BE MONITORED TO ENSURE THAT TRAFFIC DOES NOT EXCEED BEYOND THE LIMITS OF ADVANCED WARNING SIGNS

VEHICLE MOVEMENT PLAN

ALL WORK VEHICLES TO ENTER AND EXIT WORKSITE UNDER THE DIRECTION OF TRAFFIC CONTROLLER WITH THE TRAFFIC FLOW ON DESIGNATED UHF CHANNEL

DESCRIPTION		Client:	Burton Contractors	Term:	LONG
DRAWN	Nasser Chami	Plan Name:	CYCLEWAY DETOUR	Road Type:	VARIOUS
DATE	02/08/2022	Works Location:	Wallgrove Road	Speed Limit:	70 km/h
REV	01	Suburb:	Erskine Park	Travelled Path:	ALL
PLAN MAY NOT BE TO SCALE		Page:	1 of 4	Operation:	DETOUR

DESIGNED: Nasser Chami SIGNATURE:

0052135507

PWZTMP

N

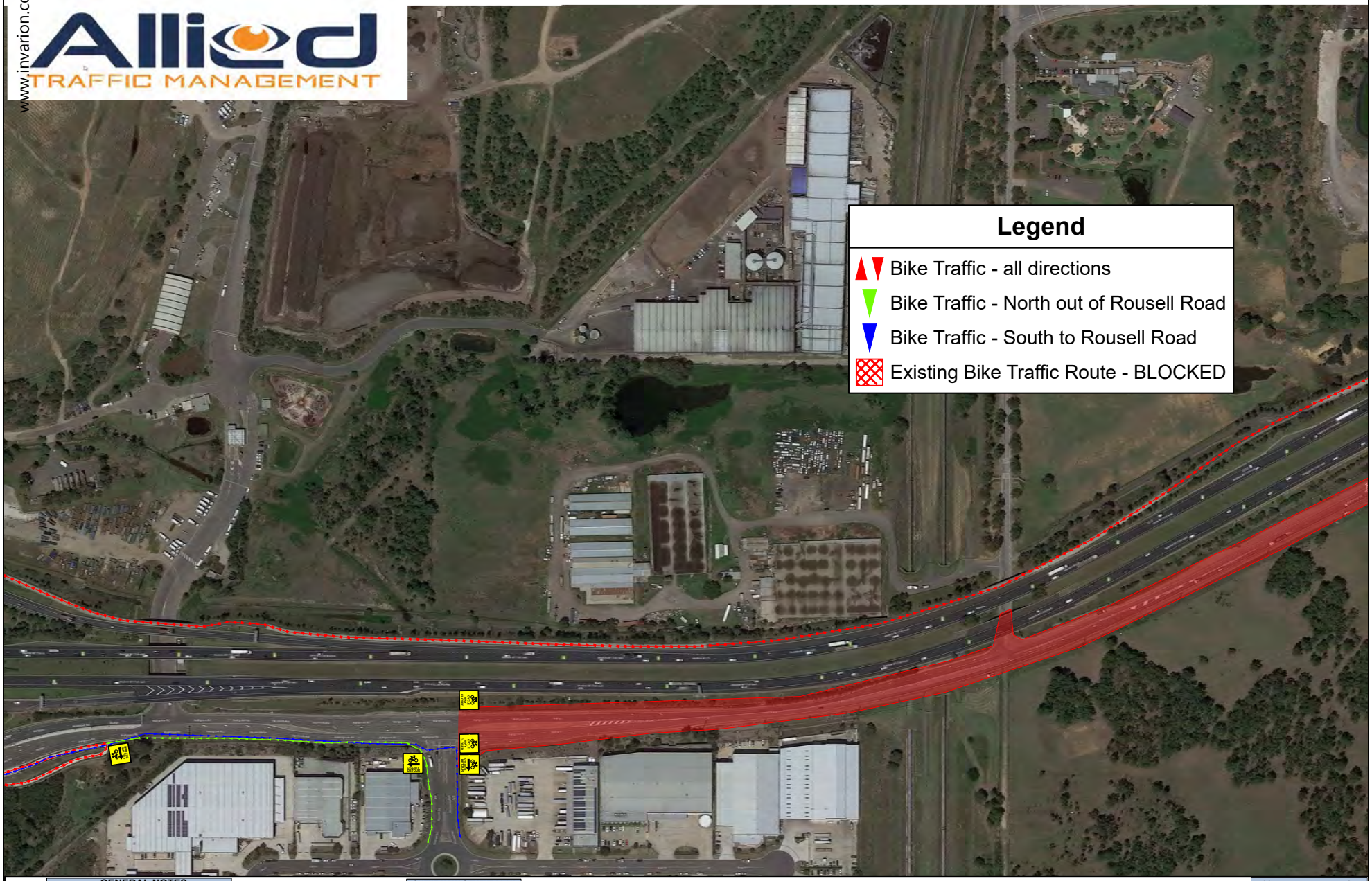
PLAN : ALLIED 0275

RECOMMENDED TAPER LENGHTH

APPROXIMATE SPEED OF TRAFFIC KM/H	TRAFFIC CONTROL AT BEGINNING OF TAPER	LATERAL SHIFT TAPER	MERGE TAPER
45 OR LESS	15	15	15
46 - 55	15	15	30
56 - 65	30	30	60
66 - 75	N/A	70	115
76 - 85	N/A	80	130
86 - 95	N/A	90	145
96 - 105	N/A	100	160
> 105	N/A	110	180

www.invarion.com

Allied TRAFFIC MANAGEMENT



GENERAL NOTES

1. THIS DRAWING IS TO BE READ IN CONJUCTION WITH AS1742.3 & TCAWS 6.1
2. ALL TRAFFIC CONTROL DIAGRAMS TO BE READ CONJUNCTION WITH THE TCAWS 6.1
3. NON- APPLICABLE EXSISTING SIGNAGE SHALL BE COVERED EG. SPEEDS SIGNS DUE TO THE TEMPORARY SPEED ZONE.
4. ALL SIGNAGE DISTANCE SHALL COMPLY WITH AS 1742.3 & TCAWS 6.1
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6. SIGNAGE SHALL BE PLACED ON THE SIDE OF THE ROAD ADJACENT TO THE TRAFFIC FLOW,
7. REMOVAL OF TRAFFIC CONTROL SIGNS AND DEVICES SHOULD BE UNDERTAKEN IN THE REVERSE ORDER OF ERECTION, PROGRESSING FROM THE WORK AREA OUT TOWARD THE APPROACHES.

LANE WIDTHS

THE MIN LANE WIDTH TO BE PROVIDED THROUGH OR PAST THE WORKSITE SHALL BE 3.0m (3.5m DESIRABLE)

TOLERANCES

POSITIONING OF SIGNS MINIMUM 10% LESS THAN THE DISTANCE OR LENGTHS GIVEN. MAXIMUM 25% MORE THAN THE DISTANCE OR LENGTHS GIVEN. SPACING OF DELINEATING DEVICES MAXIMUM 10% MORE THAN THE SPACING GIVEN - NO MINIMUM

QUEUE MANAGEMENT PLAN

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PLAN MAY NOT BE TO SCALE		Page:	2 of 4	Operation:	DETOUR

DESIGNED: Nasser Chami

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PWZTMP

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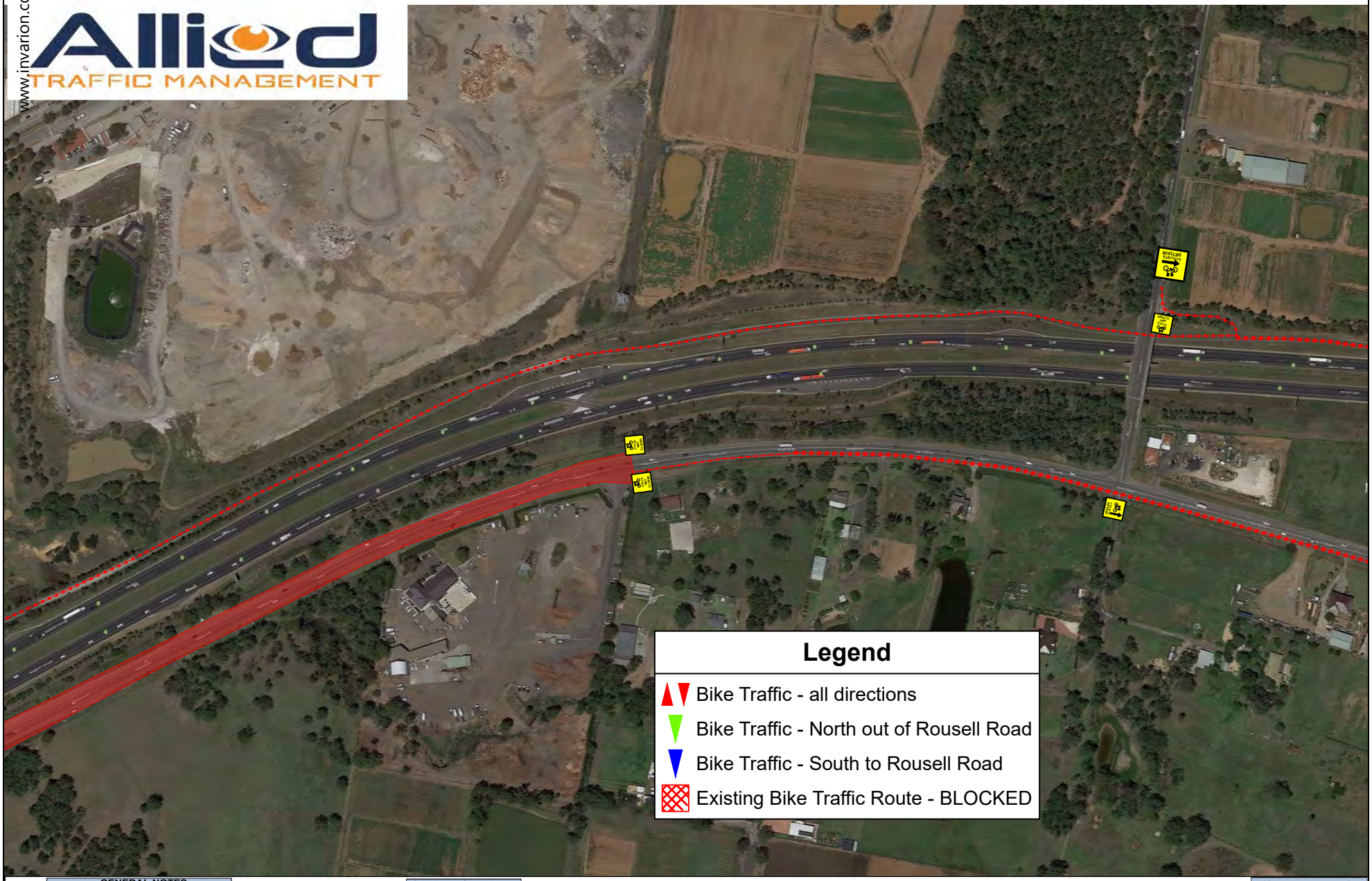
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DESIGNED: Nasser Chami

SIGNATURE:

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PWZTMP

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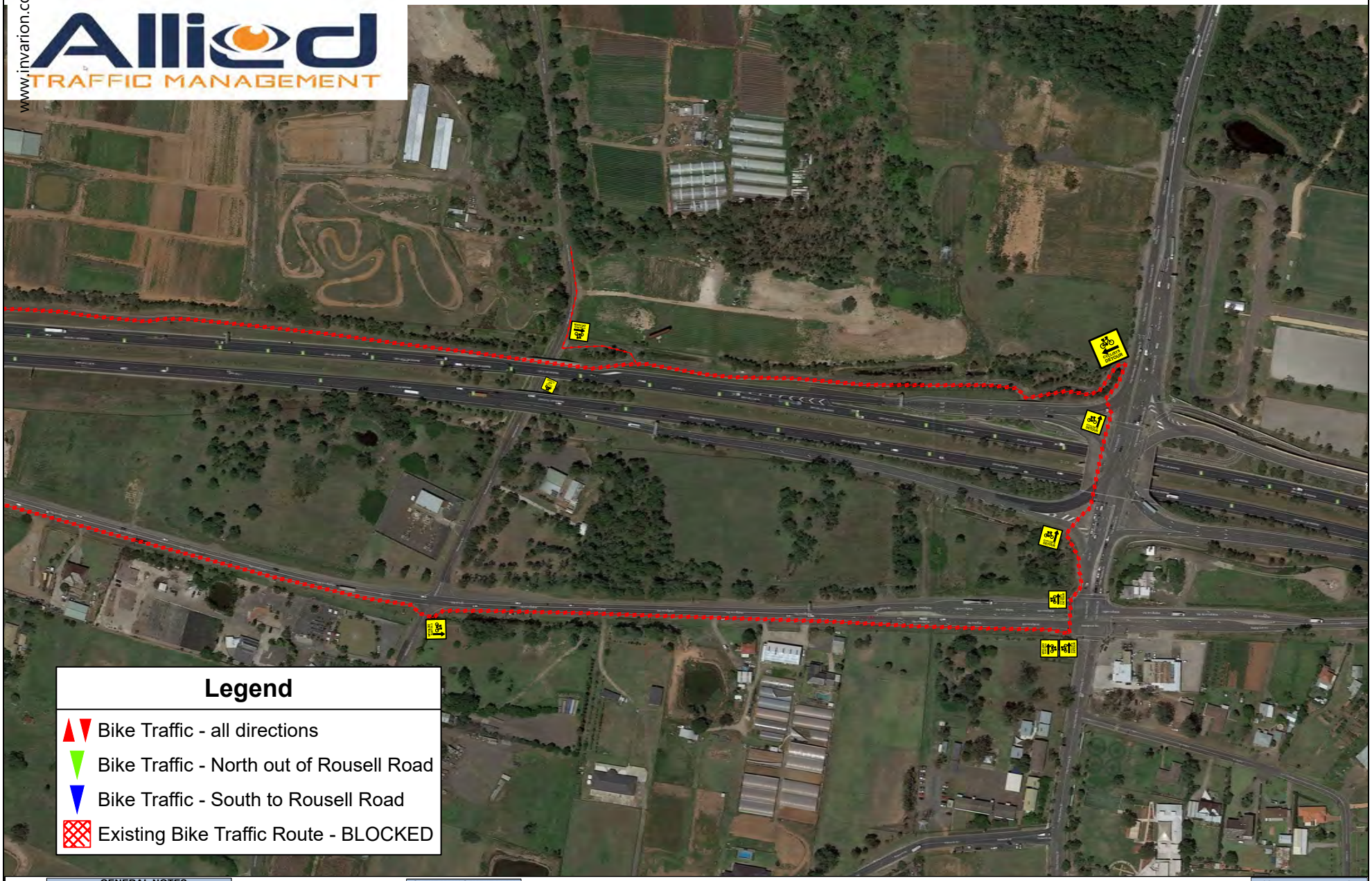
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PLAN MAY NOT BE TO SCALE		Page:	4 of 4	Operation:	DETOUR

DESIGNED: Nasser Chami

SIGNATURE:

0052135507

PWZTMP

N

PLAN : ALLIED 0275

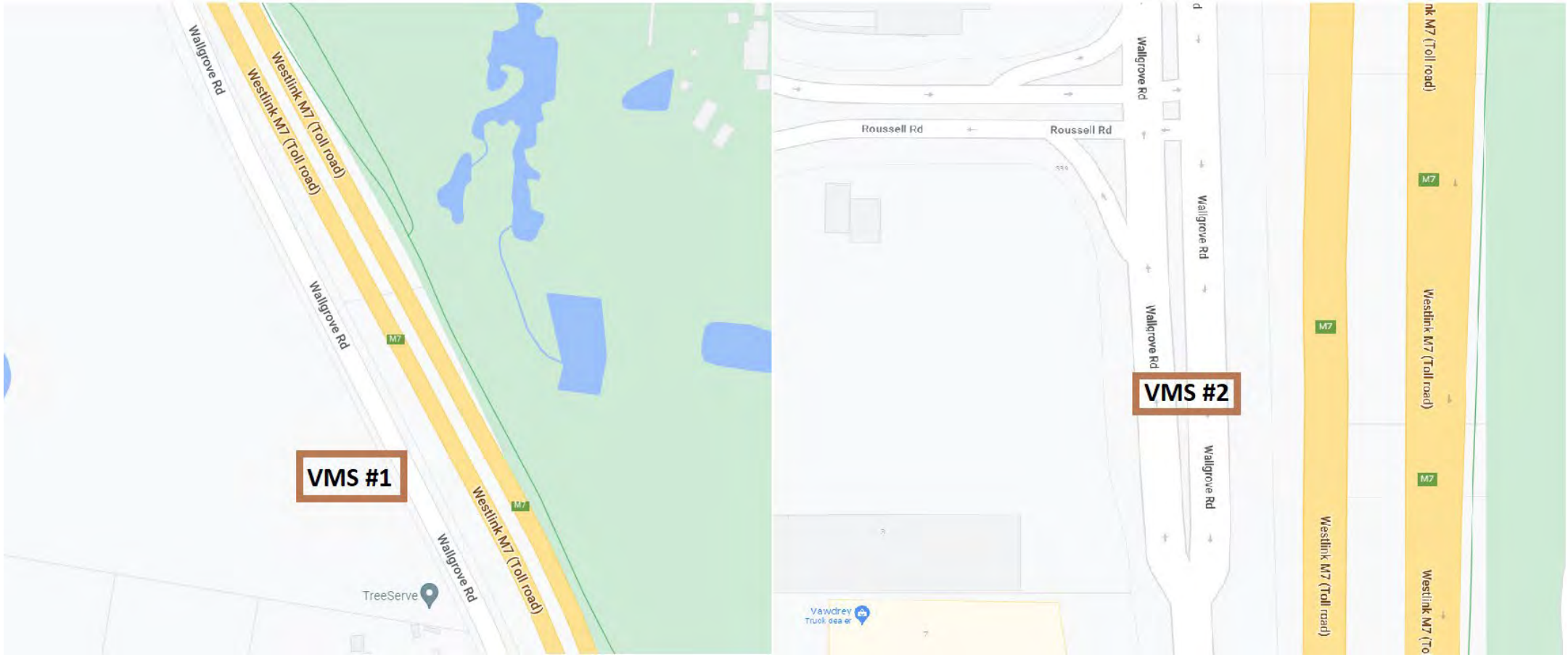
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Annexure B – Variable Message Sign Schedules

Current Revision – Rev 1

VMS Location Map



VMS Schedule

VMS #	Location Description	Photo/Street View Location	Messages to be displayed
1	Wallgrove Road, South of the project site		Screen 1 CHANGED TRAFFIC CONDITIONS AHEAD Screen 2 DRIVE WITH CAUTION
2	Wallgrove Road, North of the project site		Screen 1 CHANGED TRAFFIC CONDITIONS AHEAD Screen 2 DRIVE WITH CAUTION

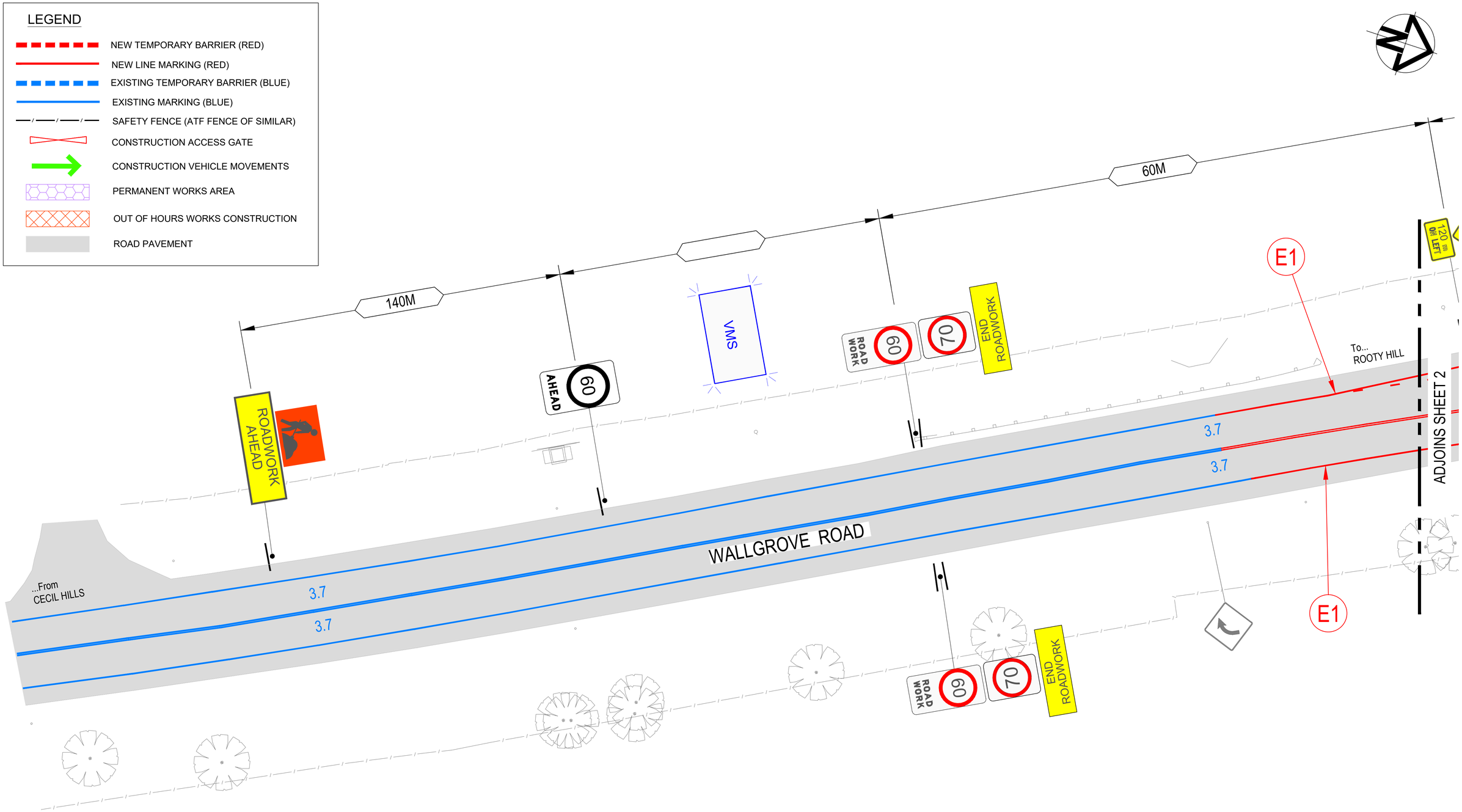
Annexure C – Staging Plans

(Note – Long term TGS and staging plans are combined)

Civil Staging Plan – Stage 1

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
- CONSTRUCTION ACCESS GATE
- CONSTRUCTION VEHICLE MOVEMENTS
- PERMANENT WORKS AREA
- OUT OF HOURS WORKS CONSTRUCTION
- ROAD PAVEMENT



Rev	Date	By	App	Amendment Details
4	01/08/22	JKB	-	GATES RELOCATED, N/B BUS STOP ADDED,BREAK DOWN BAY ADDED
3	16/05/22	JKB	-	PROPERTY ACCESS AT SOUTHERN EXTENT
2	13/05/22	JKB	-	SOUTHERN TIE IN ADJUSTMENT
1	10/05/22	JKB	-	STAGE 1A LAYOUT - WESTERN CONSTRUCTION

Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		

Final Approval

Azimuth	Datum
MGA	AHD

Contractor: BURTON CONTRACTORS

APPROVED
B-LINE DRAFTING
SIGNED..... DATE..16/05/22

Client: Transport Roads & Maritime Services (NSW GOVERNMENT)

Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

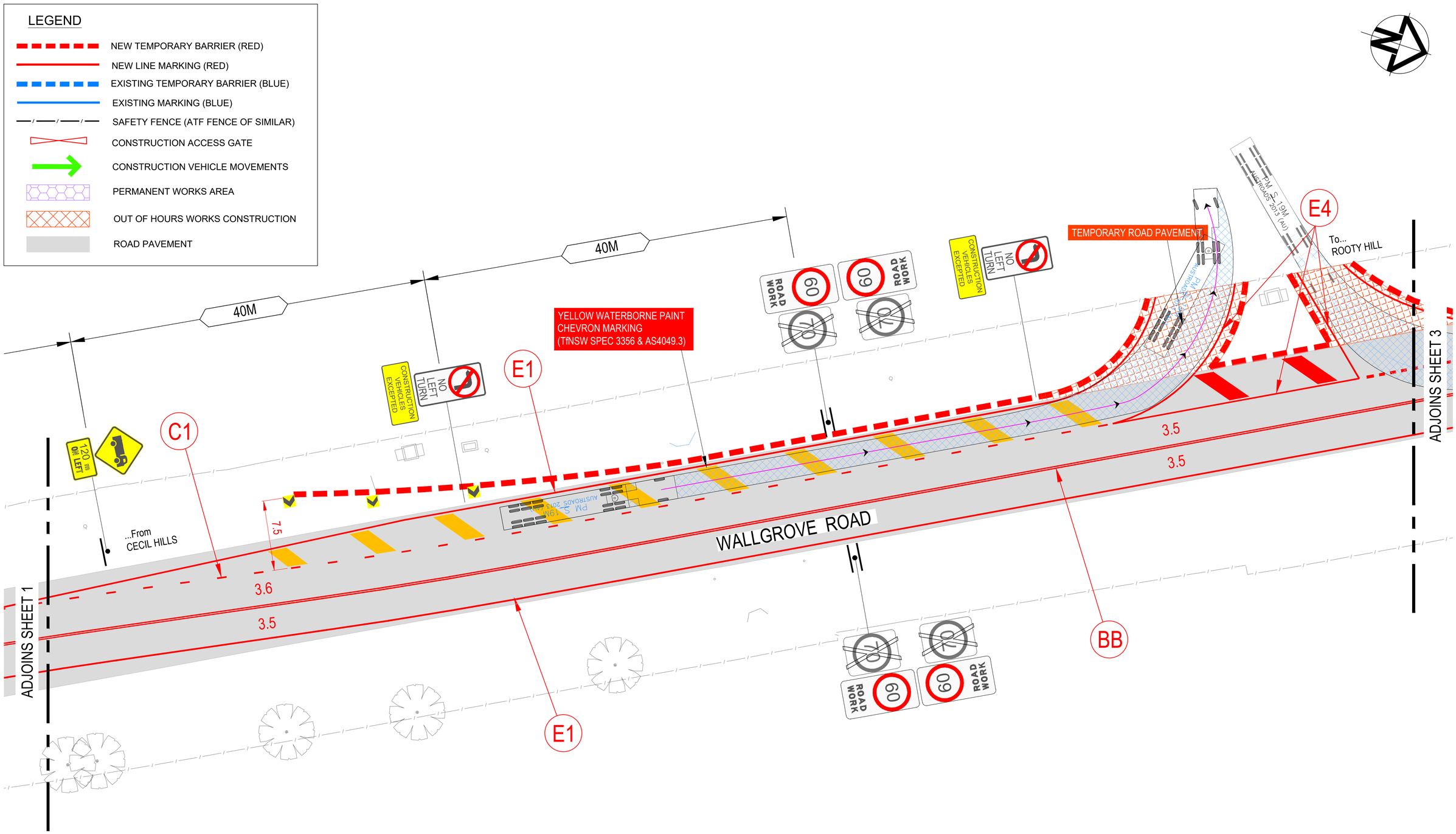
Drawing Title: TRAFFIC STAGING PLAN
STAGE 1A
SHEET 1 OF 10

Drawing No. TS01A-01

Rev 4

LEGEND

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- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
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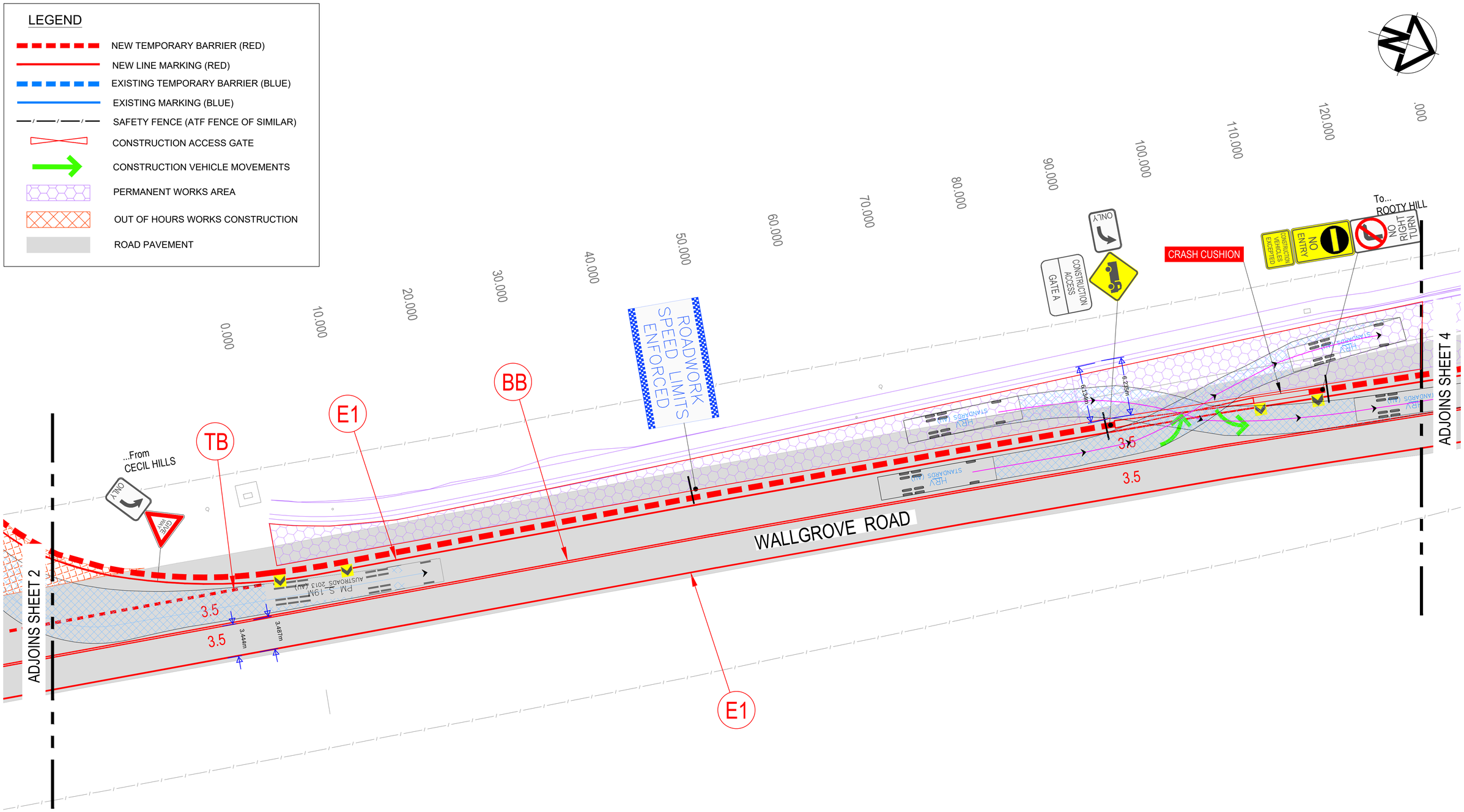
Drawing Title: TRAFFIC STAGING PLAN
STAGE 1A
SHEET 2 OF 10

Drawing No. TS01A-02

Rev 4

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
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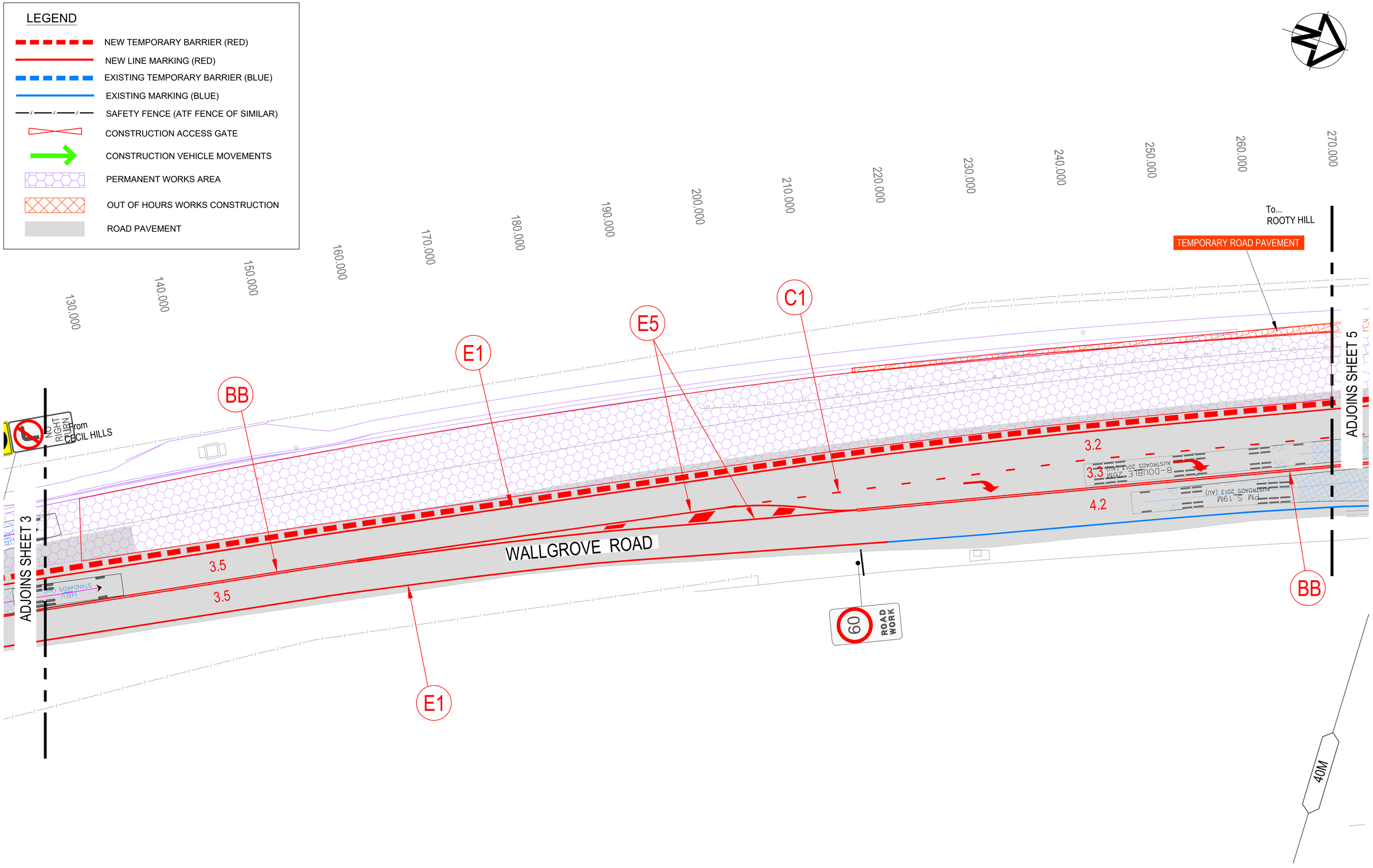
Drawing Title: TRAFFIC STAGING PLAN
STAGE 1A
SHEET 3 OF 10

Drawing No.: TS01A-03

Rev: 4

LEGEND

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- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
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Design	JKB	10/05/22
Drawn	JKB	10/05/22
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Design Check		
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SIGNED..... DATE..16/05/22.....

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Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 1A
SHEET 4 OF 10

Drawing No.: TS01A-04

Rev: 4

LEGEND

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270.000 280.000 290.000 300.000 310.000 320.000 330.000 340.000 350.000 360.000 370.000 380.000

TEMPORARY ROAD PAVEMENT

TEMPORARY ROAD PAVEMENT

C1

E1

...From
CECIL HILLS

ADJOINS SHEET 4

ADJOINS SHEET 6

To...
ROOTY HILL

ROAD WORK 60

ACCESS GATE C

111.826m

3.2

3.3

4.2

4.5

3.5

B-DOUBLE 26M
AUSTROADS 2013 (AU)

PM S 19M
AUSTROADS 2013 (AU)

WALLGROVE ROAD

BB

T1

E1

E5

DEMOLISH EXISTING
MEDIAN ISLAND

ALTERNATE BREAKDOWN
BAY LOCATION

40M

SUBWAY ROAD

ADJOINS SHEET 10

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SUBWAY ROAD AND ACCESS ROAD
HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 1A
SHEET 5 OF 10

Drawing No. TS01A-05

Rev 4

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380.000 390.000 400.000 410.000 420.000 430.000 440.000 450.000 460.000 470.000 480.000 490.000 500.000 510.000 520.000

CONSTRUCTION ACCESS GATE C

...From CECIL HILLS

YELLOW WATERBORNE PAINT CHEVRON MARKING (TfNSW SPEC 3356 & AS4049.3)

CRASH CUSHION

CONSTRUCTION VEHICLES EXCEPTED

NO ENTRY

NO RIGHT TURN

ADJOINS SHEET 5

3.8

3.5

3.432m

HRV STANDARDS

WALLGROVE ROAD

3.5

3.5

To... ROOTY HILL

ADJOINS SHEET 7

ALTERNATE BREAKDOWN BAY LOCATION

BREAKDOWN BAY & SITE ACCESS

E1

BB

E1

60 ROAD WORK

ROADWORK SPEED LIMIT

70M

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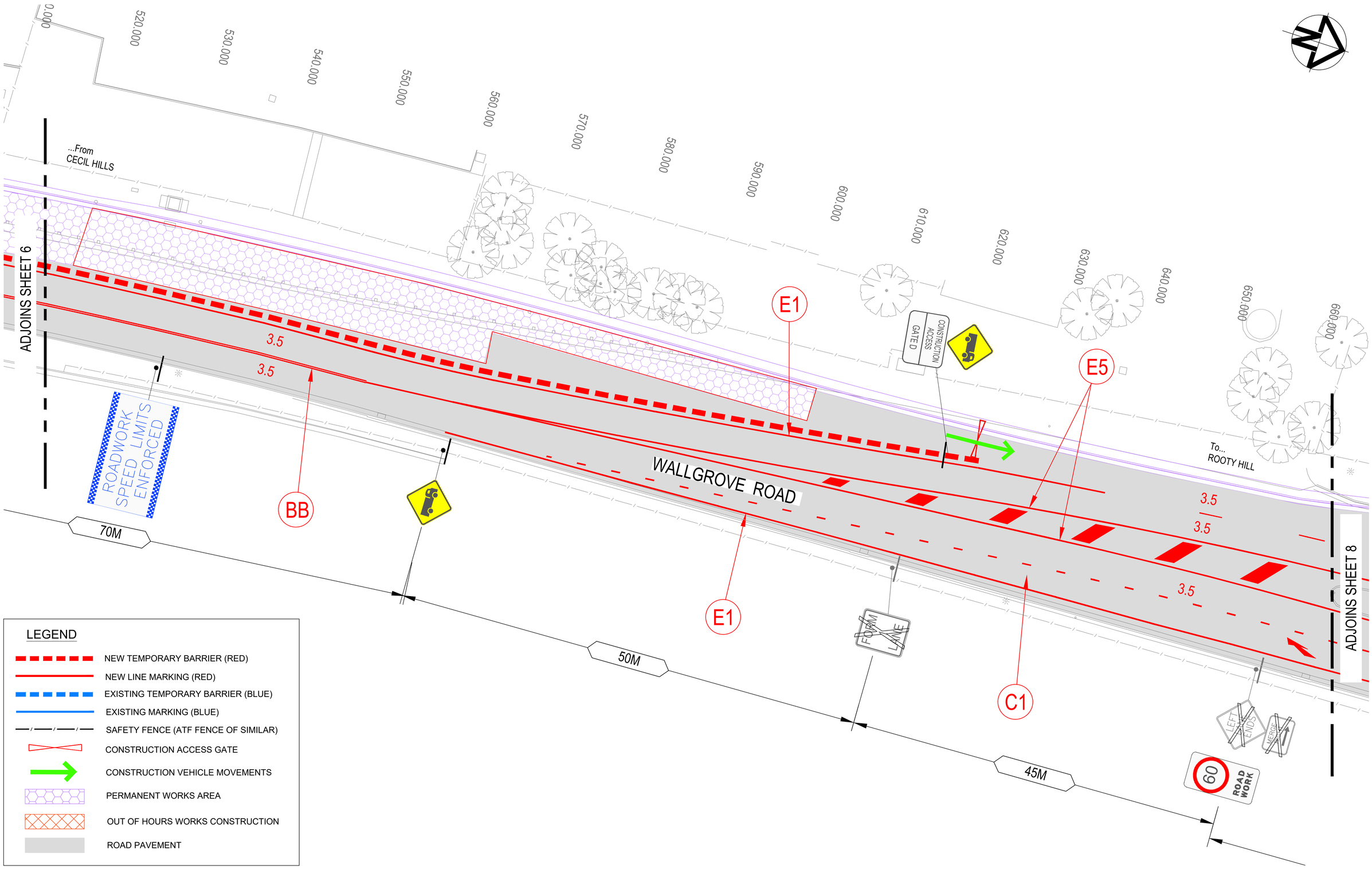
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Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 1A
SHEET 6 OF 10

Drawing No. TS01A-06

Rev 4



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Drawing Title: TRAFFIC STAGING PLAN
STAGE 1A
SHEET 7 OF 10

Drawing No.: TS01A-07

Rev: 4

LEGEND

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- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
- CONSTRUCTION ACCESS GATE
- CONSTRUCTION VEHICLE MOVEMENTS
- PERMANENT WORKS AREA
- OUT OF HOURS WORKS CONSTRUCTION
- ROAD PAVEMENT

660.000

670.000

E5

...From CECIL HILLS

ADJOINS SHEET 7

Bus Stop

3.7

3.3

3.2

3.3

3.2

WALLGROVE ROAD

ROUSSELL ROAD

50

END ROADWORK

C1

E1

45M

FORM 1 LANE

VMS

55M

LEFT LANE ENDS

MERGE RIGHT

To... ROOTY HILL

ADJOINS SHEET 9

Rev	Date	By	App	Amendment Details
4	01/08/22	JKB	-	GATES RELOCATED, N/B BUS STOP ADDED,BREAK DOWN BAY ADDED
3	16/05/22	JKB	-	PROPERTY ACCESS AT SOUTHERN EXTENT
2	13/05/22	JKB	-	SOUTHERN TIE IN ADJUSTMENT
1	10/05/22	JKB	-	STAGE 1A LAYOUT - WESTERN CONSTRUCTION

Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth: MGA	Datum: AHD	

Contractor: BURTON CONTRACTORS

APPROVED
B-LINE DRAFTING
SIGNED..... DATE... 16/05/22

Client: NSW GOVERNMENT Transport Roads & Maritime Services

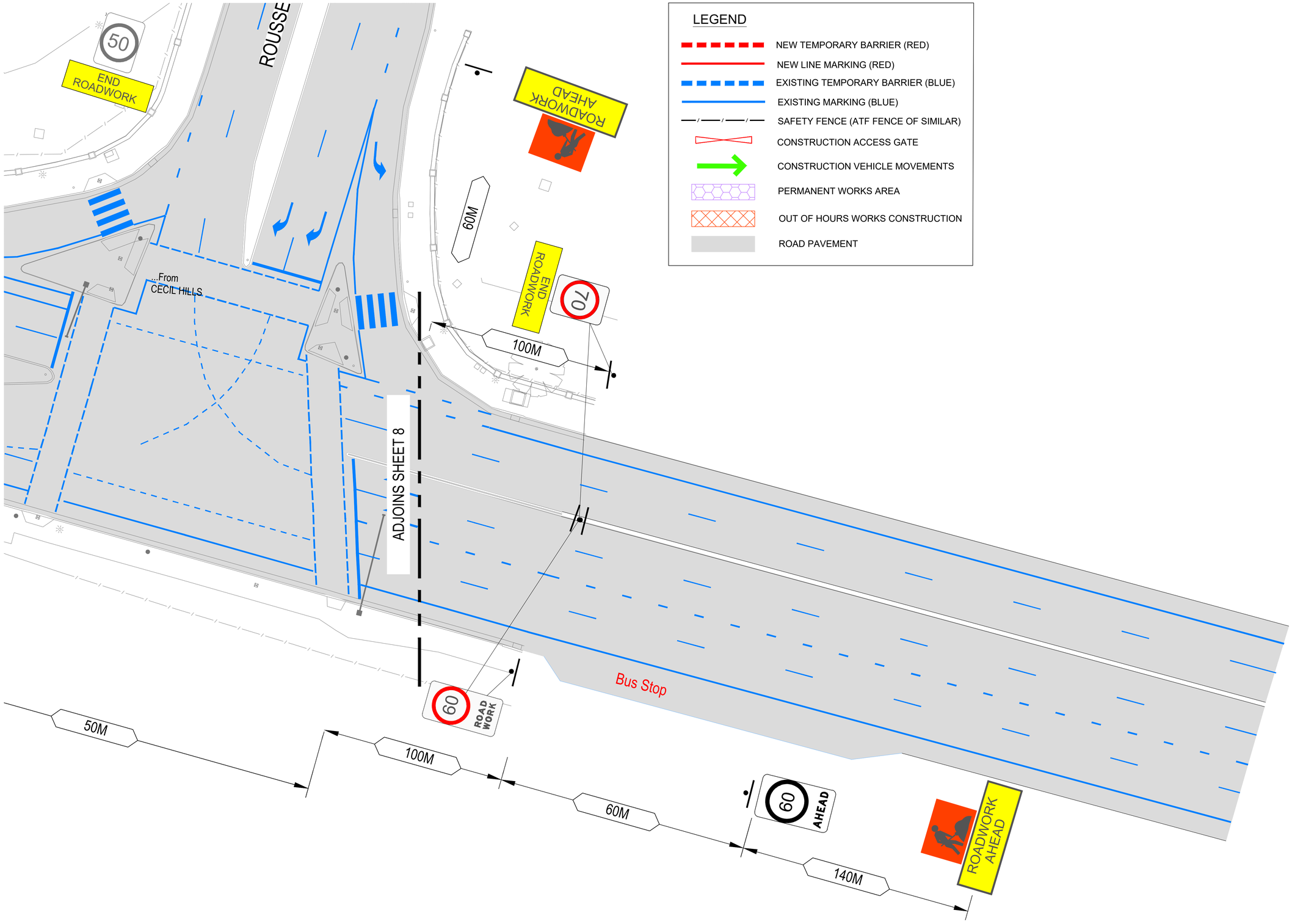
Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 1A
SHEET 8 OF 10

Drawing No.: TS01A-08

Rev: 4



Rev	Date	By	App	Amendment Details
4	01/08/22	JKB	-	GATES RELOCATED, N/B BUS STOP ADDED,BREAK DOWN BAY ADDED
3	16/05/22	JKB	-	PROPERTY ACCESS AT SOUTHERN EXTENT
2	13/05/22	JKB	-	SOUTHERN TIE IN ADJUSTMENT
1	10/05/22	JKB	-	STAGE 1A LAYOUT - WESTERN CONSTRUCTION

Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		

Final Approval

Azimuth	Datum
MGA	AHD

Contractor: BURTON CONTRACTORS

APPROVED
B-LINE DRAFTING
SIGNED..... DATE..16/05/22

Client: Transport Roads & Maritime Services (NSW GOVERNMENT)

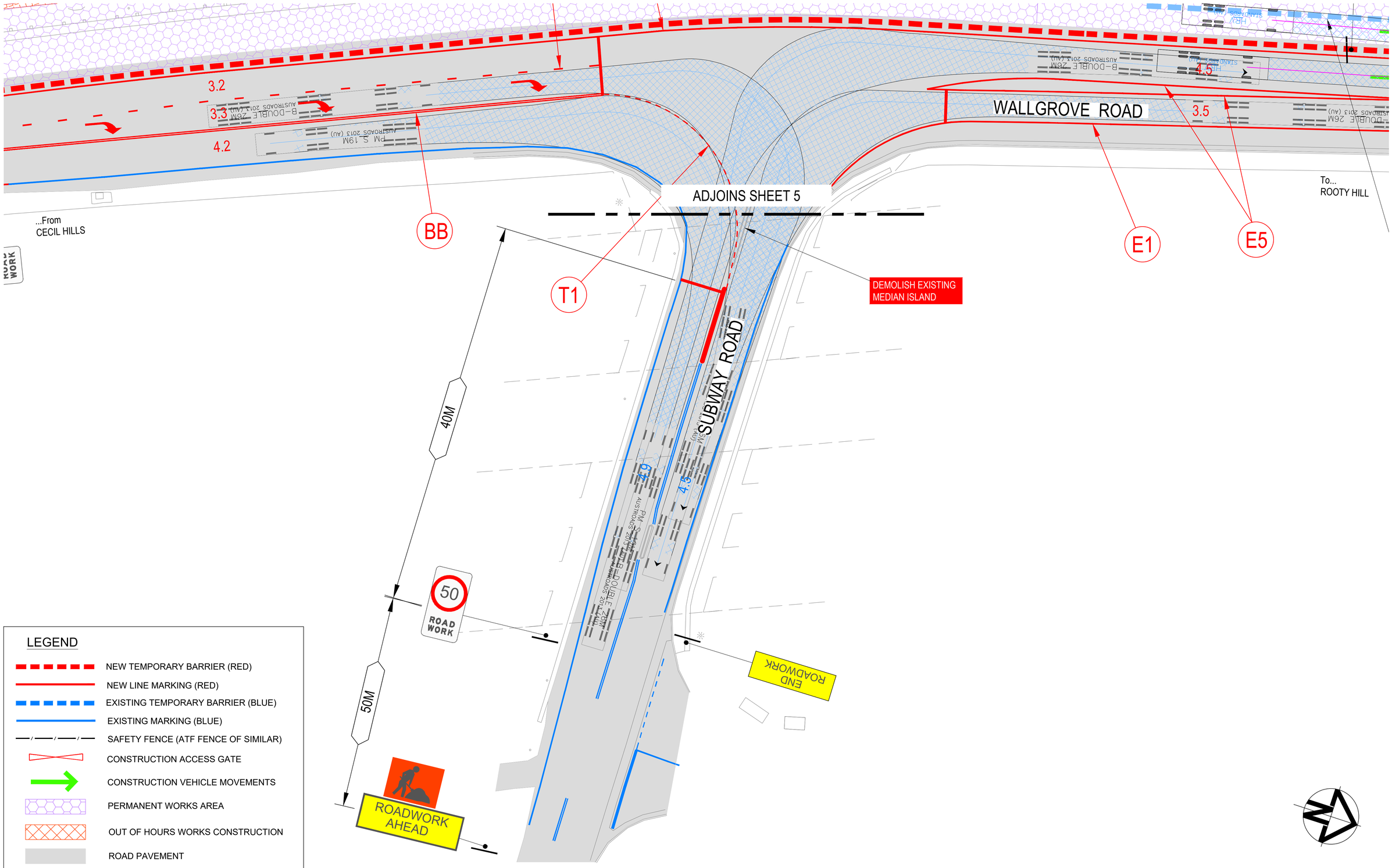
Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 1A
SHEET 9 OF 10

Drawing No.: TS01A-09

Rev: 4



LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
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Rev	Date	By	App	Amendment Details
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1	10/05/22	JKB	-	STAGE 1A LAYOUT - WESTERN CONSTRUCTION

Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth	MGA	
Datum	AHD	

Contractor: BURTON CONTRACTORS

APPROVED
B-LINE DRAFTING
SIGNED..... DATE..16/05/22.....

Client: NSW GOVERNMENT Transport Roads & Maritime Services

Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 1A
SHEET 10 OF 10

Drawing No.: TS01A-10

Rev: 4

TCS Staging Plan – Stage 1

TCS 5058

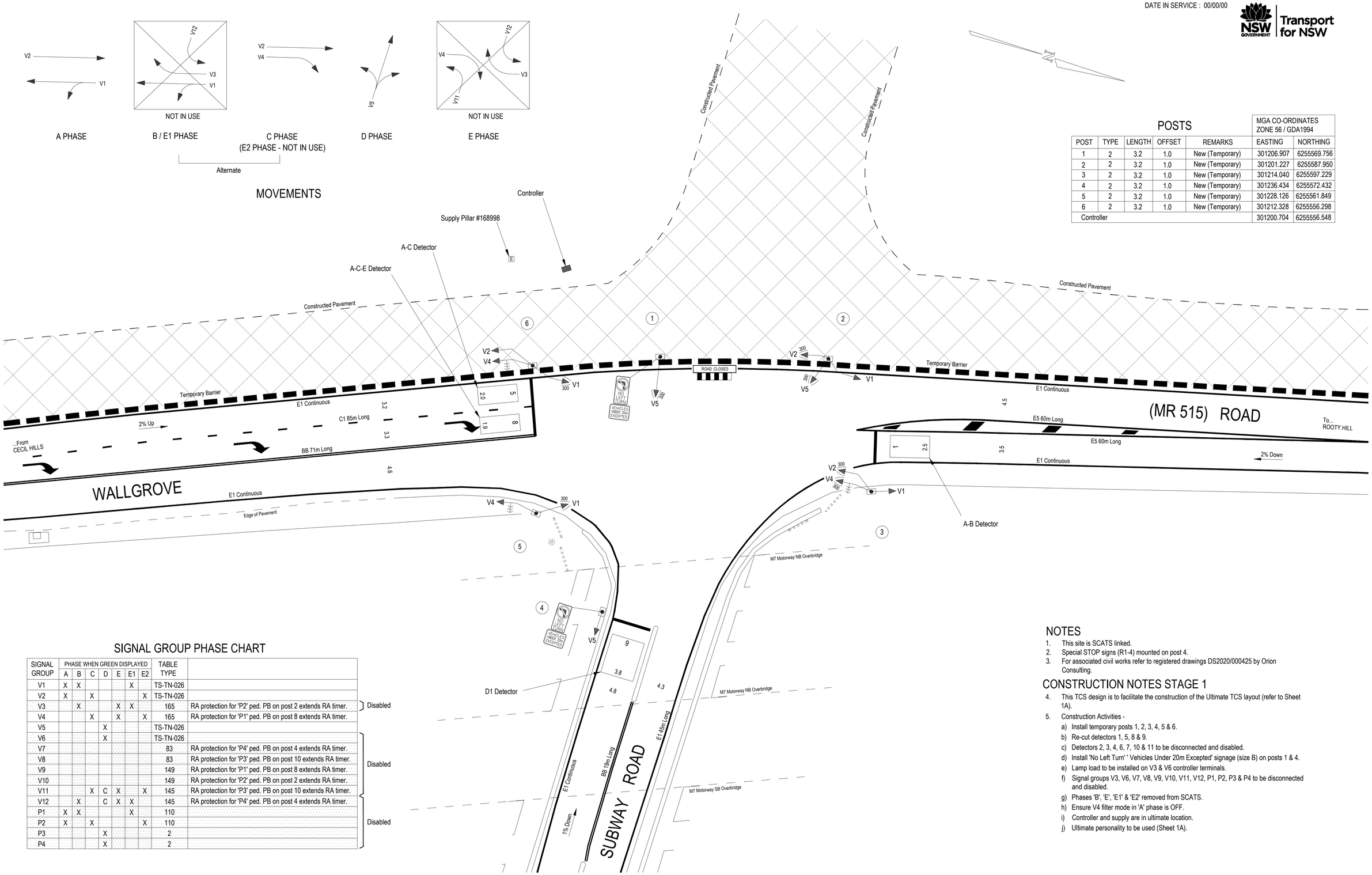
DATE IN SERVICE : 00/00/00

NSW GOVERNMENT | Transport for NSW

MOVEMENTS

POSTS

POST	TYPE	LENGTH	OFFSET	REMARKS	MGA CO-ORDINATES ZONE 56 / GDA1994 EASTING	NORTHING
1	2	3.2	1.0	New (Temporary)	301206.907	6255569.756
2	2	3.2	1.0	New (Temporary)	301201.227	6255587.950
3	2	3.2	1.0	New (Temporary)	301214.040	6255597.229
4	2	3.2	1.0	New (Temporary)	301236.434	6255572.432
5	2	3.2	1.0	New (Temporary)	301228.126	6255561.849
6	2	3.2	1.0	New (Temporary)	301212.328	6255556.298
Controller					301200.704	6255556.548



SIGNAL GROUP PHASE CHART

SIGNAL GROUP	PHASE WHEN GREEN DISPLAYED A	B	C	D	E	E1	E2	TABLE TYPE		
V1	X	X				X		TS-TN-026		
V2	X		X				X	TS-TN-026		
V3		X			X	X		165	RA protection for 'P2' ped. PB on post 2 extends RA timer.	Disabled
V4			X		X		X	165	RA protection for 'P1' ped. PB on post 8 extends RA timer.	
V5				X				TS-TN-026		
V6				X				TS-TN-026		
V7								83	RA protection for 'P4' ped. PB on post 4 extends RA timer.	Disabled
V8								83	RA protection for 'P3' ped. PB on post 10 extends RA timer.	
V9								149	RA protection for 'P1' ped. PB on post 8 extends RA timer.	
V10								149	RA protection for 'P2' ped. PB on post 2 extends RA timer.	
V11			X	C	X		X	145	RA protection for 'P3' ped. PB on post 10 extends RA timer.	
V12		X		C	X	X		145	RA protection for 'P4' ped. PB on post 4 extends RA timer.	
P1	X	X				X		110		Disabled
P2	X		X				X	110		
P3				X				2		
P4				X				2		

NOTES

1. This site is SCATS linked.
2. Special STOP signs (R1-4) mounted on post 4.
3. For associated civil works refer to registered drawings DS2020/000425 by Orion Consulting.

CONSTRUCTION NOTES STAGE 1

4. This TCS design is to facilitate the construction of the Ultimate TCS layout (refer to Sheet 1A).
5. Construction Activities -
   a) Install temporary posts 1, 2, 3, 4, 5 & 6.
   b) Re-cut detectors 1, 5, 8 & 9.
   c) Detectors 2, 3, 4, 6, 7, 10 & 11 to be disconnected and disabled.
   d) Install 'No Left Turn' ' Vehicles Under 20m Excepted' signage (size B) on posts 1 & 4.
   e) Lamp load to be installed on V3 & V6 controller terminals.
   f) Signal groups V3, V6, V7, V8, V9, V10, V11, V12, P1, P2, P3 & P4 to be disconnected and disabled.
   g) Phases 'B', 'E', 'E1' & 'E2' removed from SCATS.
   h) Ensure V4 filter mode in 'A' phase is OFF.
   i) Controller and supply are in ultimate location.
   j) Ultimate personality to be used (Sheet 1A).

A ORIGINAL ISSUE

PUBLIC UTILITY LEGEND		REFERENCE PLANS	
HYDRANT		SYMBOLS/ABRVS	VD003-6
STOP VALVE		STD POSN CMPT	VD001-5
GAS VALVE		INSTL STOP DET	VC005-17
SEWER MANHOLE		VEH GROUP OP	TS-TN-019
COMMS PIT		DET LOGIC OP	TS-TN-020
ELECT LIGHT POLE		PED MVT OP	TS-TN-021
POWER POLE		SDO	TS-TN-026
STAY POLE			
TELEPHONE BOX		SURVEYOR : Orion Consulting	
COMMS PILLAR		DATE : 2019	

U.B.D. Ref. Map 207 G7
I.S.G. CO-ORDS E : 313 019 N : 1 242 520

DESIGNED : R BATES
CHECKED : J BATES
J BATES
SITE CHECKED
J BATES
RECOMMENDED

DESIGN APPROVAL
APPROVED
NAME
POSITION MANAGER
DATE 17/05/22
DESIGN PREPARED BY
B-Line Drafting on behalf of Burton

TFNSW RECOMMENDATION
ROAD DESIGN ENGINEERING
NAME
POSITION
DATE
NETWORK OPERATIONS
Neil Leitch
NAME Neil C. Leitch
POSITION W. P. C. A. L.
DATE 1/06/2022

TFNSW ACCEPTANCE
ACCEPTED
Neil Leitch
NAME Neil C. Leitch
POSITION W. P. C. A. L.
DATE 1/06/2022
ACCEPTED BY
Network Operations
SECTION

TRANSPORT FOR NEW SOUTH WALES

BLACKTOWN COUNCIL AREA
TRAFFIC SIGNALS AT
WALLGROVE ROAD (MR515), SUBWAY ROAD AND ACCESS ROAD
HORSLEY PARK

DESIGN LAYOUT

EXISTING ☐ PROPOSED ☒
CADD FILE: VV5058_TDL-1_A.dgn
SCALE 5 0 (1:200) 5 10
FILE SF2020/139656
SUPERSEDES SHEET/ISSUE 2/A
ISSUE A
REG No. DS2020/000569
TCS No. 5058
SHEET TDL-1

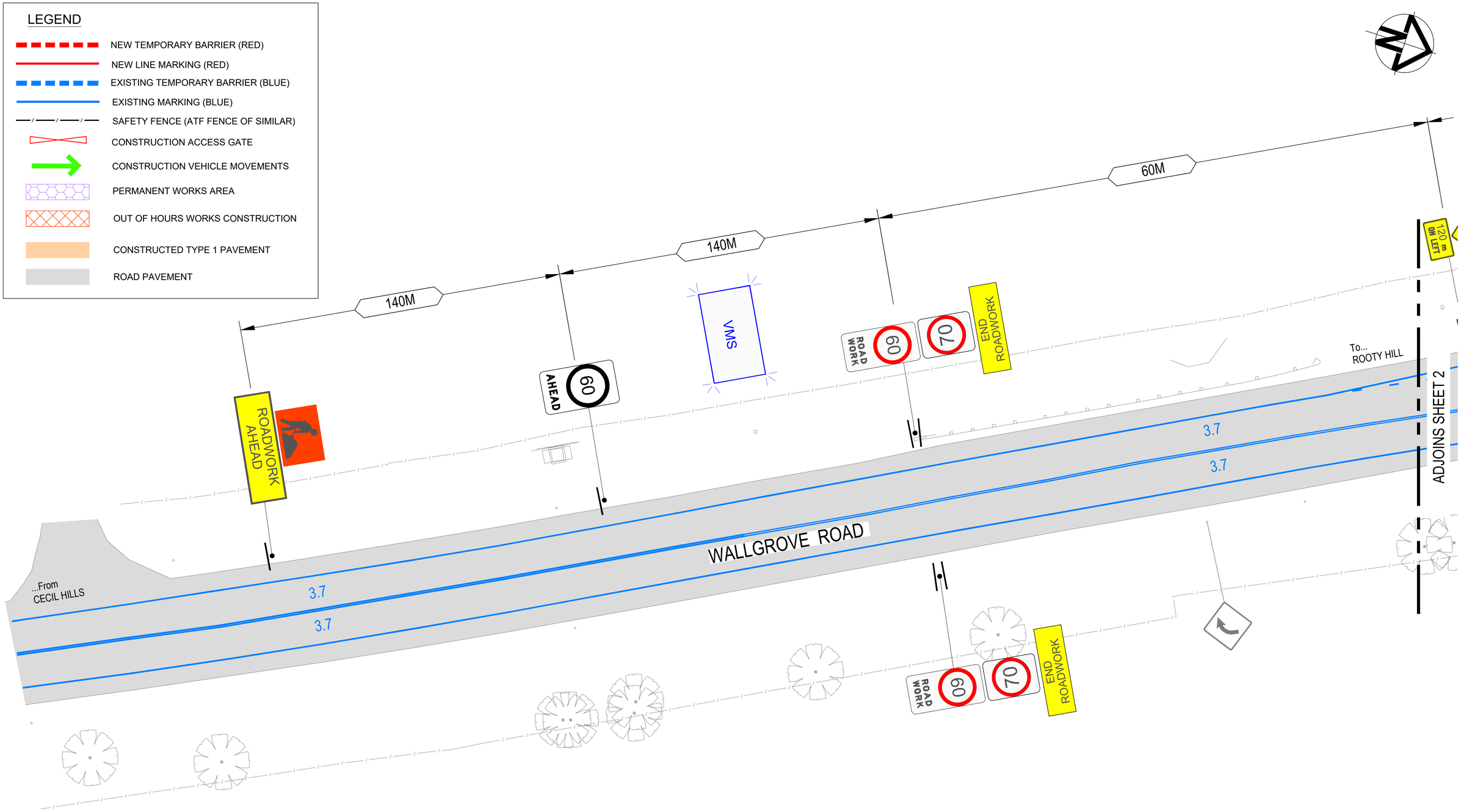
Revision 7 - August 2021

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Civil Staging Plan – Stage 2

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
- CONSTRUCTION ACCESS GATE
- CONSTRUCTION VEHICLE MOVEMENTS
- PERMANENT WORKS AREA
- OUT OF HOURS WORKS CONSTRUCTION
- CONSTRUCTED TYPE 1 PAVEMENT
- ROAD PAVEMENT



Rev	Date	By	App	Amendment Details
5	19/08/22	JKB	-	TRUCK WARNING SIGN ADDED IN SUBWAY EXIT
4	01/08/22	JKB	-	GATES RELOCATED, N/B BUS STOP ADDED,BREAK DOWN BAY ADDED
3	16/05/22	JKB	-	PROPERTY ACCESS AT SOUTHERN EXTENT
2	13/05/22	JKB	-	SOUTHERN TIE IN ADJUSTMENT
1	10/05/22	JKB	-	STAGE 2A LAYOUT - CENTRE ROAD CONSTRUCTION

Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth: MGA	Datum: AHD	

Contractor: BURTON CONTRACTORS

APPROVED

B-LINE DRAFTING

SIGNED..... DATE..16/05/22.....

Client: NSW GOVERNMENT Transport Roads & Maritime Services

Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

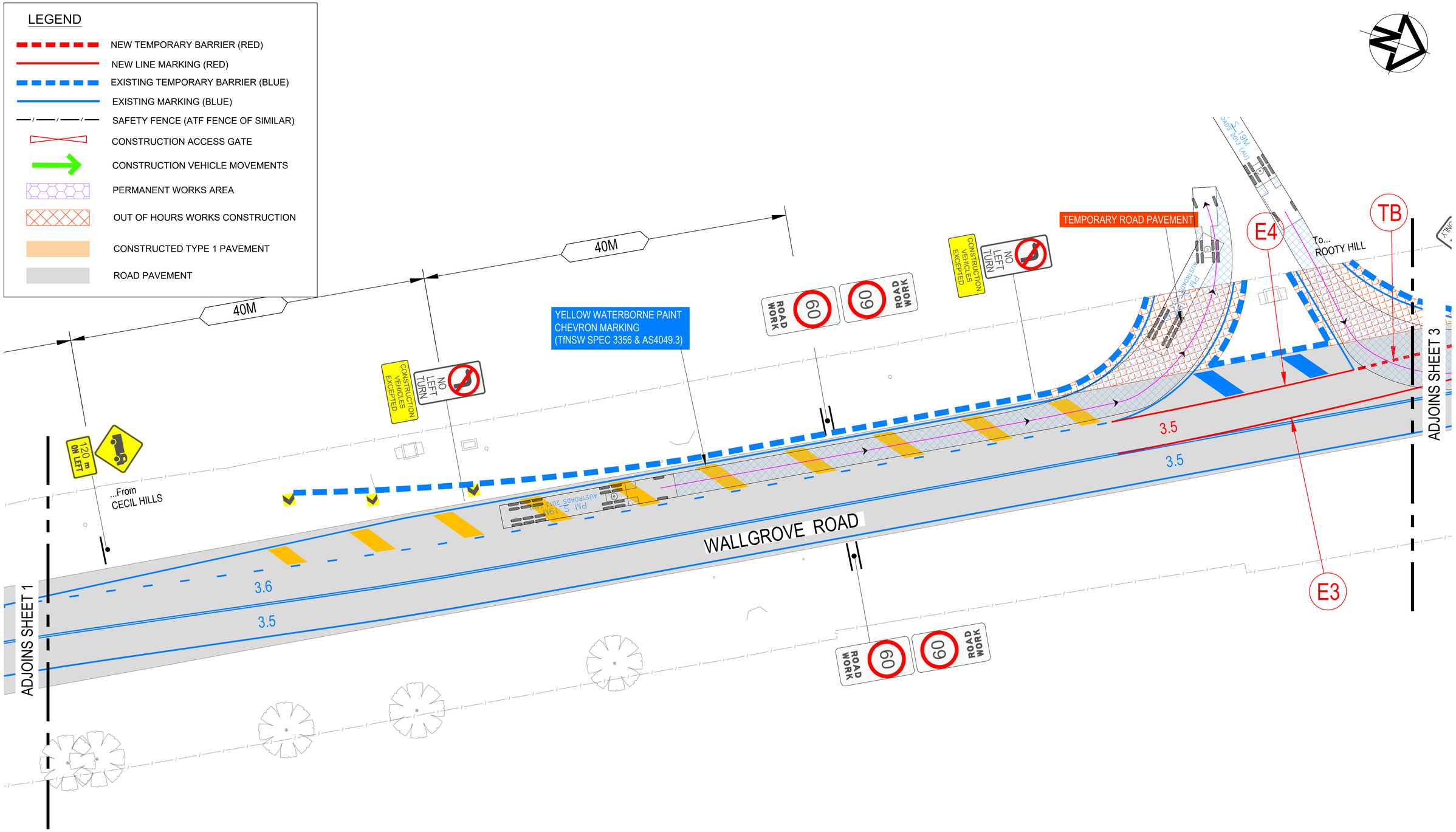
Drawing Title: TRAFFIC STAGING PLAN STAGE 2A SHEET 1 OF 10

Drawing No.: TS02A-01

Rev: 5

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
- CONSTRUCTION ACCESS GATE
- CONSTRUCTION VEHICLE MOVEMENTS
- PERMANENT WORKS AREA
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Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth	MGA	
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Contractor: BURTON CONTRACTORS

APPROVED

B-LINE DRAFTING

SIGNED..... DATE..16/05/22.....

Client: Transport Roads & Maritime Services (NSW GOVERNMENT)

Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

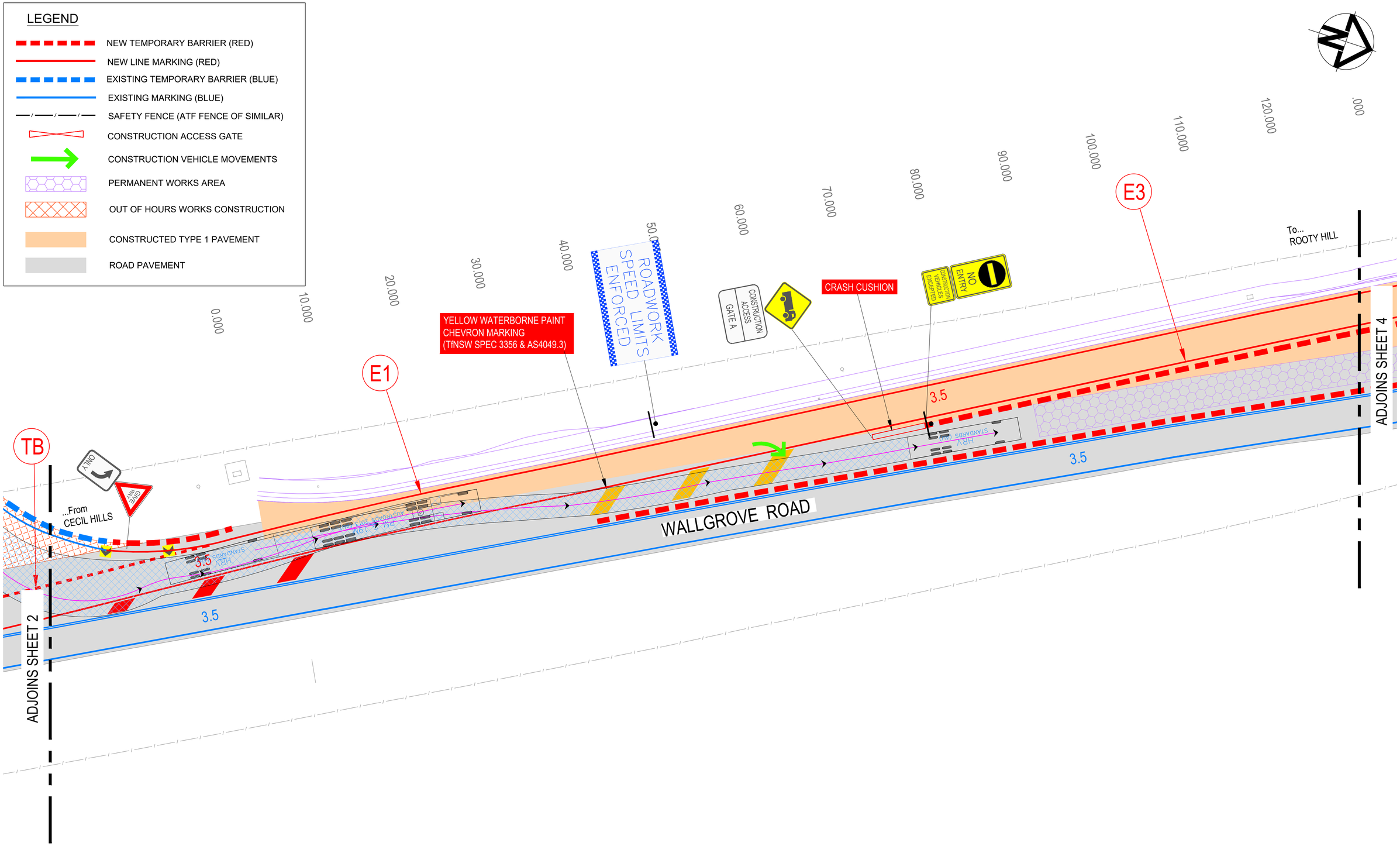
Drawing Title: TRAFFIC STAGING PLAN
STAGE 2A
SHEET 2 OF 10

Drawing No. TS02A-02

Rev 5

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
- CONSTRUCTION ACCESS GATE
- CONSTRUCTION VEHICLE MOVEMENTS
- PERMANENT WORKS AREA
- OUT OF HOURS WORKS CONSTRUCTION
- CONSTRUCTED TYPE 1 PAVEMENT
- ROAD PAVEMENT



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1	10/05/22	JKB	-	STAGE 2A LAYOUT - CENTRE ROAD CONSTRUCTION

Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth	MGA	
Datum	AHD	

Contractor: BURTON CONTRACTORS

APPROVED
B-LINE DRAFTING
SIGNED..... DATE..16/05/22

Client: NSW GOVERNMENT Transport Roads & Maritime Services

Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 2A
SHEET 3 OF 10

Drawing No. TS02A-03

Rev 5

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
- CONSTRUCTION ACCESS GATE
- CONSTRUCTION VEHICLE MOVEMENTS
- PERMANENT WORKS AREA
- OUT OF HOURS WORKS CONSTRUCTION
- CONSTRUCTED TYPE 1 PAVEMENT
- ROAD PAVEMENT

130.000 140.000 150.000 160.000 170.000 180.000 190.000 200.000 210.000 220.000 230.000 240.000 250.000 260.000 270.000

E1 E3 C1 E3

TEMPORARY ROAD PAVEMENT

TEMPO

To...
ROOTY HILL

...From
CECIL HILLS

ADJOINS SHEET 3

ADJOINS SHEET 5

CONSTRUCTION ACCESS GATE B

HRV STANDARDS (4.3)

3.5 3.2 3.2 4.5 4.2 3.5

WALLGROVE ROAD

60 ROAD WORK

40M

Rev	Date	By	App	Amendment Details
5	19/08/22	JKB	-	TRUCK WARNING SIGN ADDED IN SUBWAY EXIT
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1	10/05/22	JKB	-	STAGE 2A LAYOUT - CENTRE ROAD CONSTRUCTION

Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth: MGA	Datum: AHD	

Contractor: BURTON CONTRACTORS

APPROVED
B-LINE DRAFTING
SIGNED..... DATE..16/05/22

Client: Transport Roads & Maritime Services (NSW GOVERNMENT)

Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

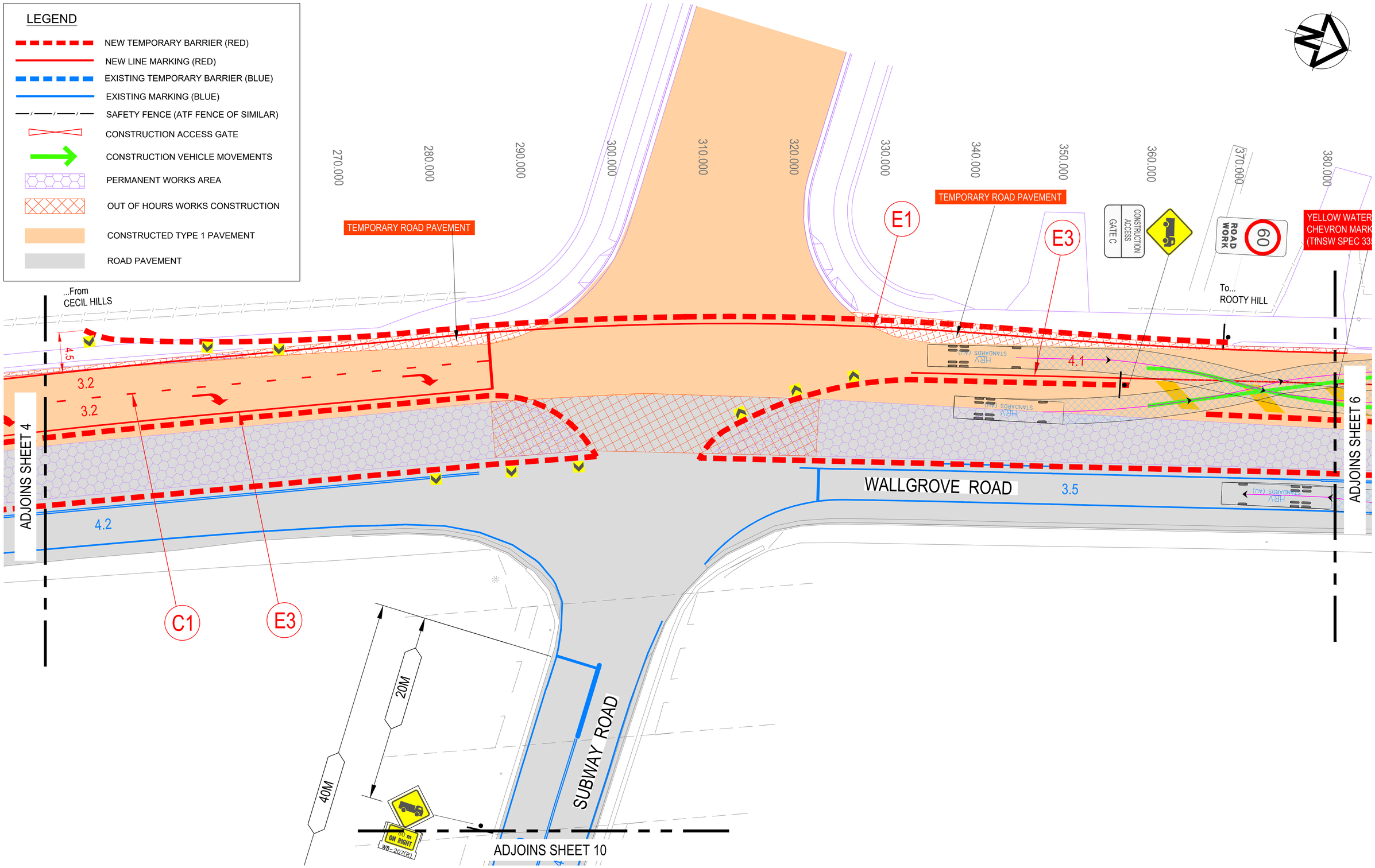
Drawing Title: TRAFFIC STAGING PLAN
STAGE 2A
SHEET 4 OF 10

Drawing No.: TS02A-04

Rev: 5

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
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Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth	MGA	
Datum	AHD	

Contractor: BURTON CONTRACTORS

APPROVED
B-LINE DRAFTING
SIGNED..... DATE...16/05/22

Client: Transport Roads & Maritime Services (NSW GOVERNMENT)

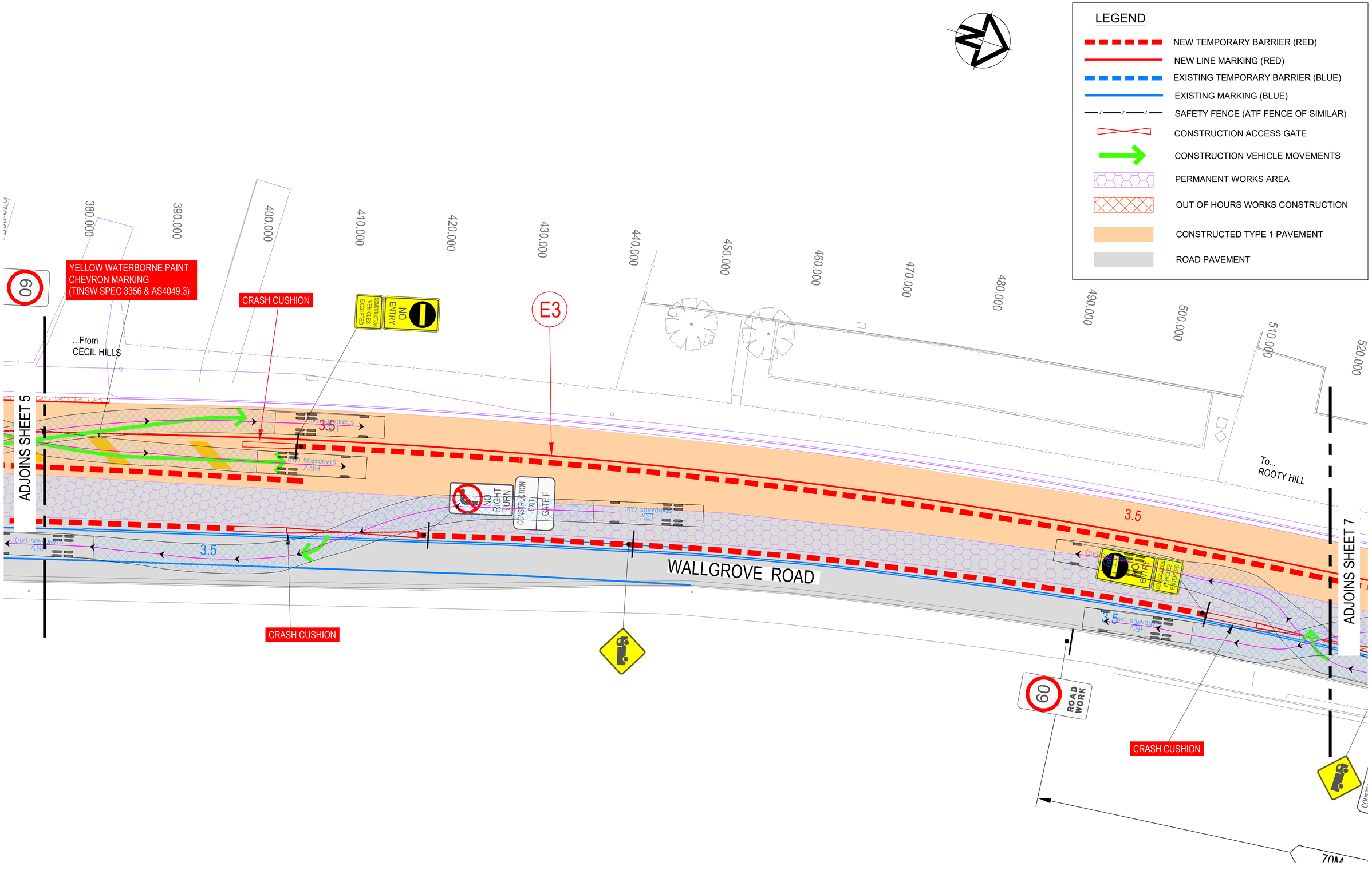
Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 2A
SHEET 5 OF 10

Drawing No. TS02A-05

Rev 5



Rev	Date	By	App	Amendment Details
5	19/08/22	JKB	-	TRUCK WARNING SIGN ADDED IN SUBWAY EXIT
4	01/08/22	JKB	-	GATES RELOCATED, N/B BUS STOP ADDED,BREAK DOWN BAY ADDED
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Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth	MGA	
Datum	AHD	

Contractor: BURTON CONTRACTORS

APPROVED
B-LINE DRAFTING
SIGNED..... DATE..16/05/22

Client: NSW GOVERNMENT Transport Roads & Maritime Services

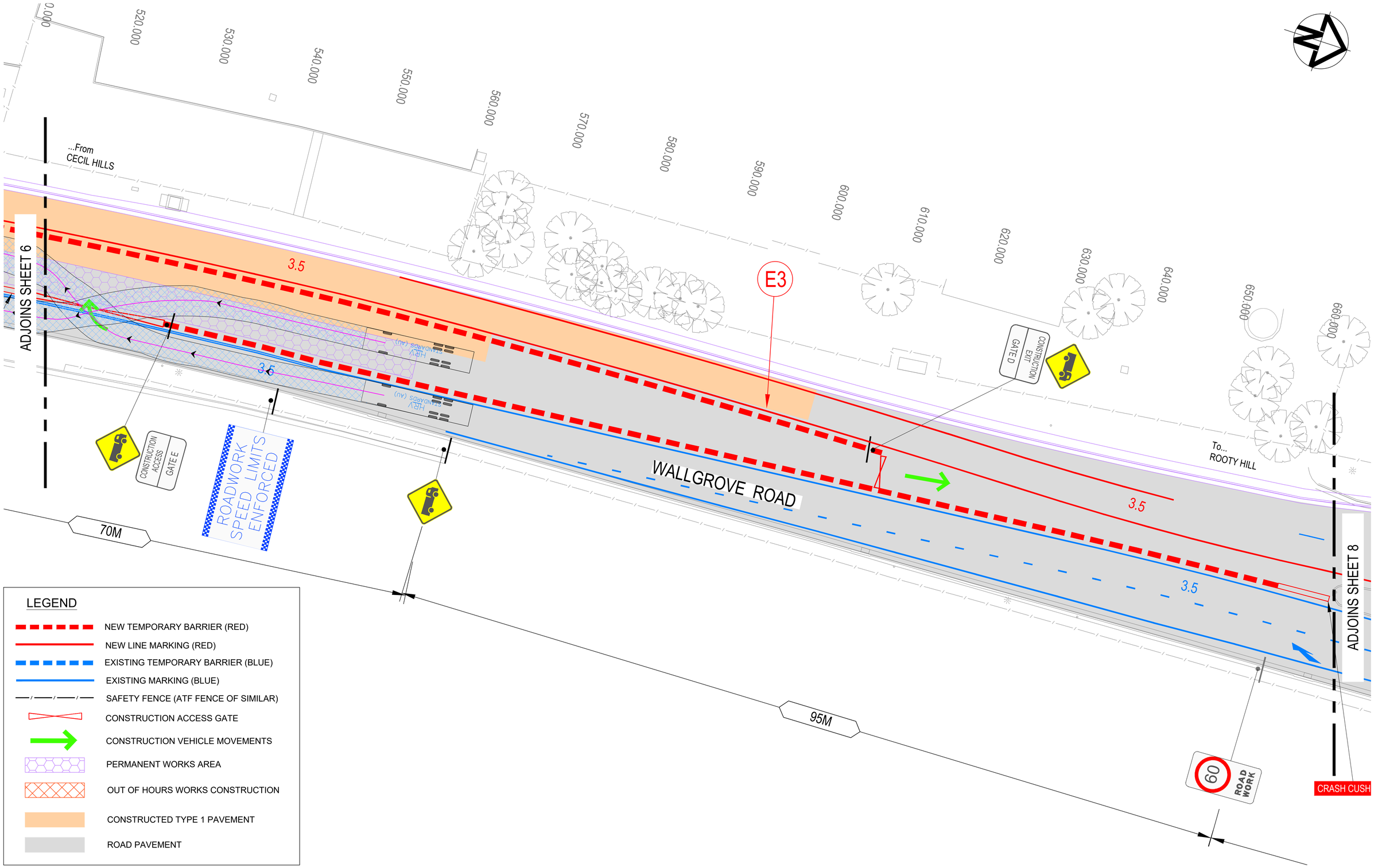
Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 2A
SHEET 6 OF 10

Drawing No.: TS02A-06

Rev: 5



Rev	Date	By	App	Amendment Details
5	19/08/22	JKB	-	TRUCK WARNING SIGN ADDED IN SUBWAY EXIT
4	01/08/22	JKB	-	GATES RELOCATED, N/B BUS STOP ADDED,BREAK DOWN BAY ADDED
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1	10/05/22	JKB	-	STAGE 2A LAYOUT - CENTRE ROAD CONSTRUCTION

Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth	MGA	
Datum	AHD	

Contractor: BURTON CONTRACTORS

APPROVED
B-LINE DRAFTING
SIGNED..... DATE... 16/05/22

Client: NSW GOVERNMENT Transport Roads & Maritime Services

Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 2A
SHEET 7 OF 10

Drawing No.: TS02A-07

Rev: 5

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
- CONSTRUCTION ACCESS GATE
- CONSTRUCTION VEHICLE MOVEMENTS
- PERMANENT WORKS AREA
- OUT OF HOURS WORKS CONSTRUCTION
- CONSTRUCTED TYPE 1 PAVEMENT
- ROAD PAVEMENT

660.000
670.000
...From CECIL HILLS
ADJOINS SHEET 7
Bus Stop
3.7
3.3
3.2
3.3
3.2
50
END ROADWORK
ROUSSELL ROAD
CRASH CUSHION
WALLGROVE ROAD
45M
FORM 1 LANE
VMS
55M
LEFT LANE ENDS
MERGE RIGHT
To... ROOTY HILL
ADJOINS SHEET 9

Rev	Date	By	App	Amendment Details
5	19/08/22	JKB	-	TRUCK WARNING SIGN ADDED IN SUBWAY EXIT
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3	16/05/22	JKB	-	PROPERTY ACCESS AT SOUTHERN EXTENT
2	13/05/22	JKB	-	SOUTHERN TIE IN ADJUSTMENT
1	10/05/22	JKB	-	STAGE 2A LAYOUT - CENTRE ROAD CONSTRUCTION

Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth	MGA	
Datum	AHD	

Contractor: BURTON CONTRACTORS

APPROVED
B-LINE DRAFTING
SIGNED..... DATE... 16/05/22

Client: NSW GOVERNMENT Transport Roads & Maritime Services

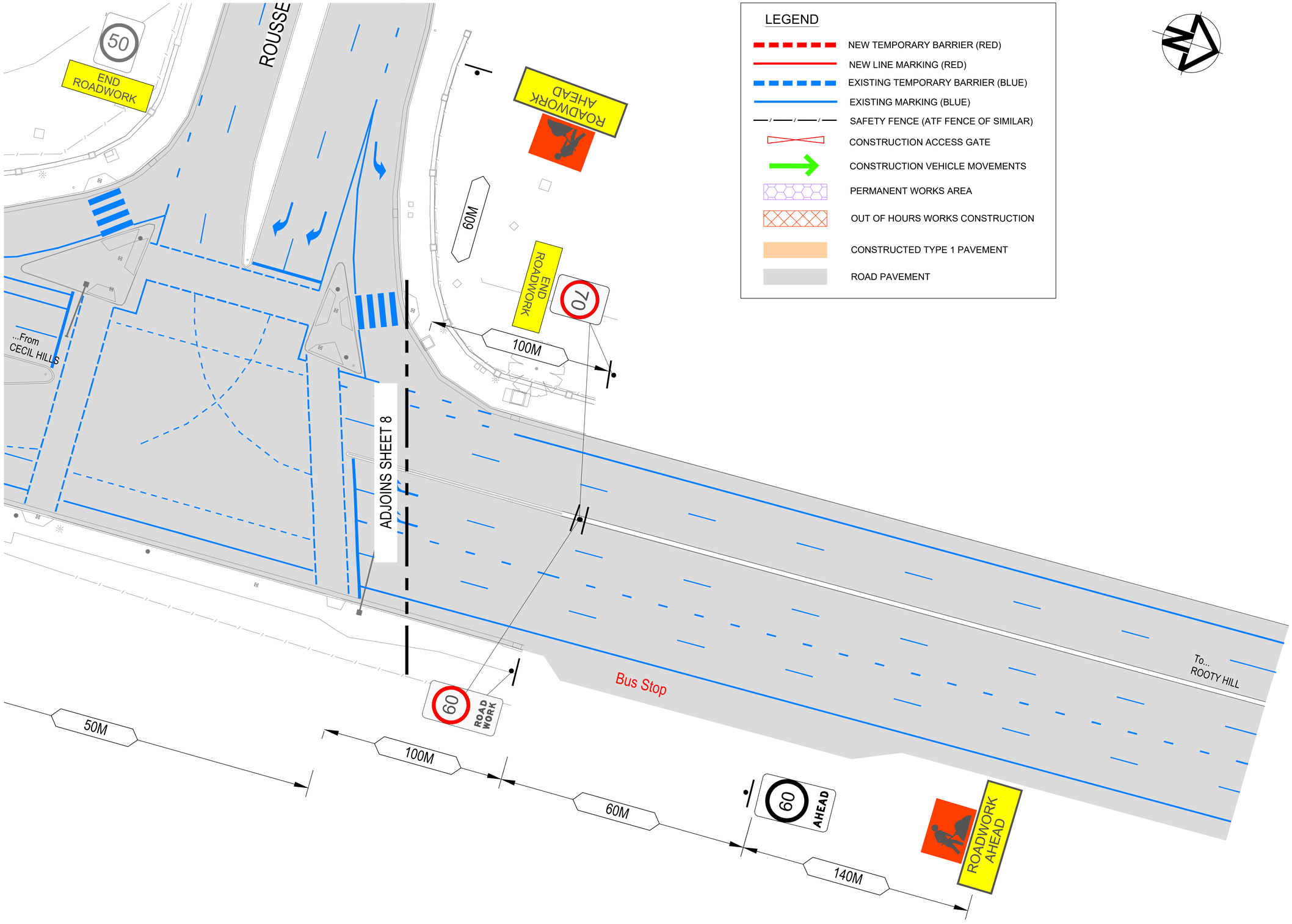
Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 2A
SHEET 8 OF 10

Drawing No. TS02A-08

Rev 5



Rev	Date	By	App	Amendment Details
5	19/08/22	JKB	-	TRUCK WARNING SIGN ADDED IN SUBWAY EXIT
4	01/08/22	JKB	-	GATES RELOCATED, N/B BUS STOP ADDED,BREAK DOWN BAY ADDED
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Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth: MGA	Datum: AHD	

Contractor: BURTON CONTRACTORS

APPROVED
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SIGNED..... DATE..16/05/22

Client: Transport Roads & Maritime Services (NSW Government)

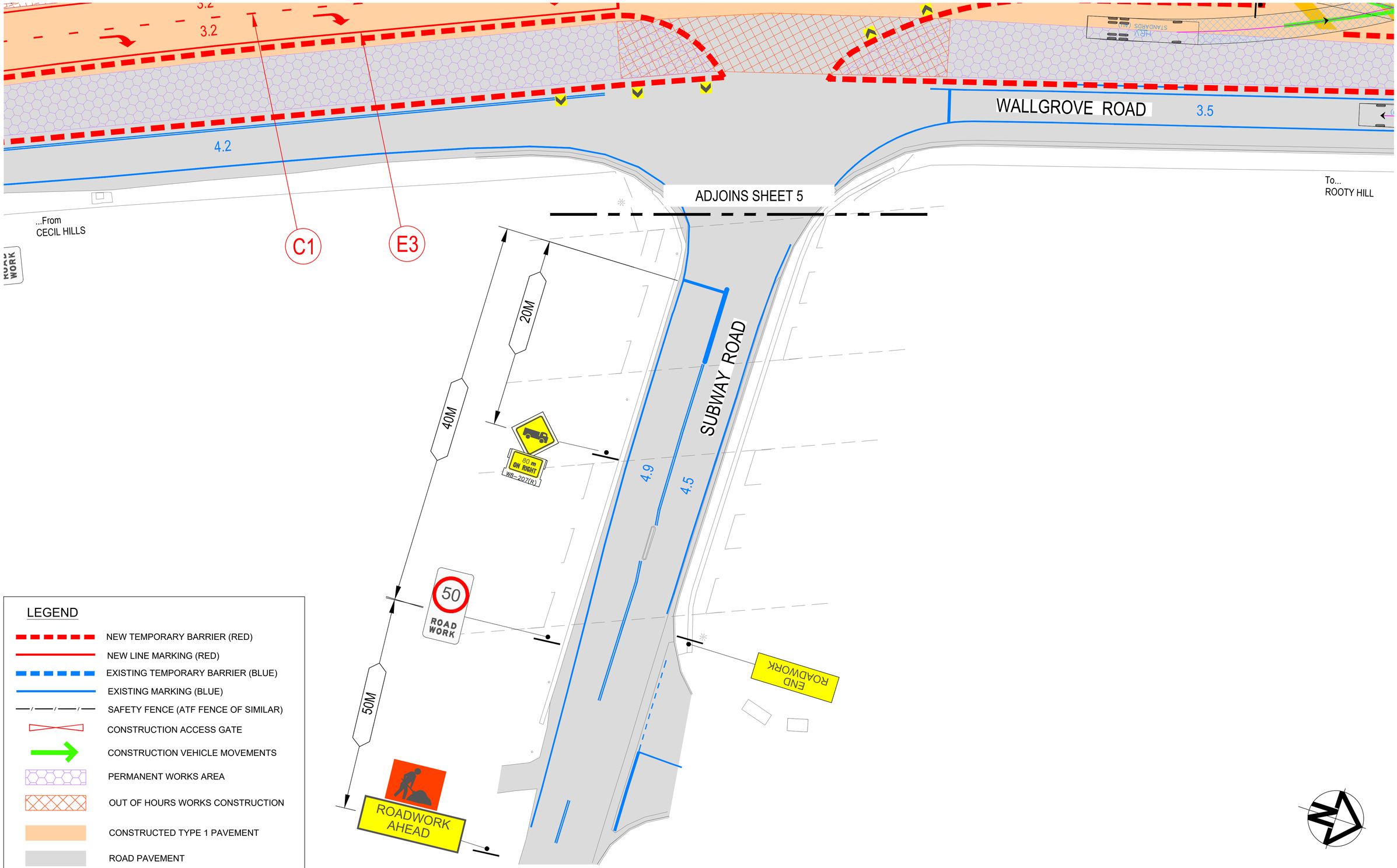
Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 2A
SHEET 9 OF 10

Drawing No.: TS02A-09

Rev: 5



LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
- CONSTRUCTION ACCESS GATE
- CONSTRUCTION VEHICLE MOVEMENTS
- PERMANENT WORKS AREA
- OUT OF HOURS WORKS CONSTRUCTION
- CONSTRUCTED TYPE 1 PAVEMENT
- ROAD PAVEMENT

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1	10/05/22	JKB	-	STAGE 2A LAYOUT - CENTRE ROAD CONSTRUCTION

Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth	MGA	
Datum	AHD	

Contractor: BURTON CONTRACTORS

APPROVED
B-LINE DRAFTING
SIGNED..... DATE..16/05/22.....

Client: NSW GOVERNMENT Transport Roads & Maritime Services

Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 2A
SHEET 10 OF 10

Drawing No.: TS02A-10

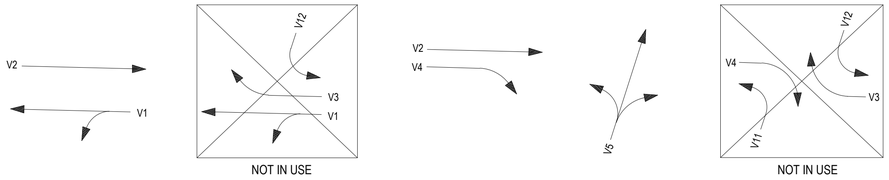
Rev: 5

TCS Staging Plan – Stage 2

TCS 5058

DATE IN SERVICE : 00/00/00

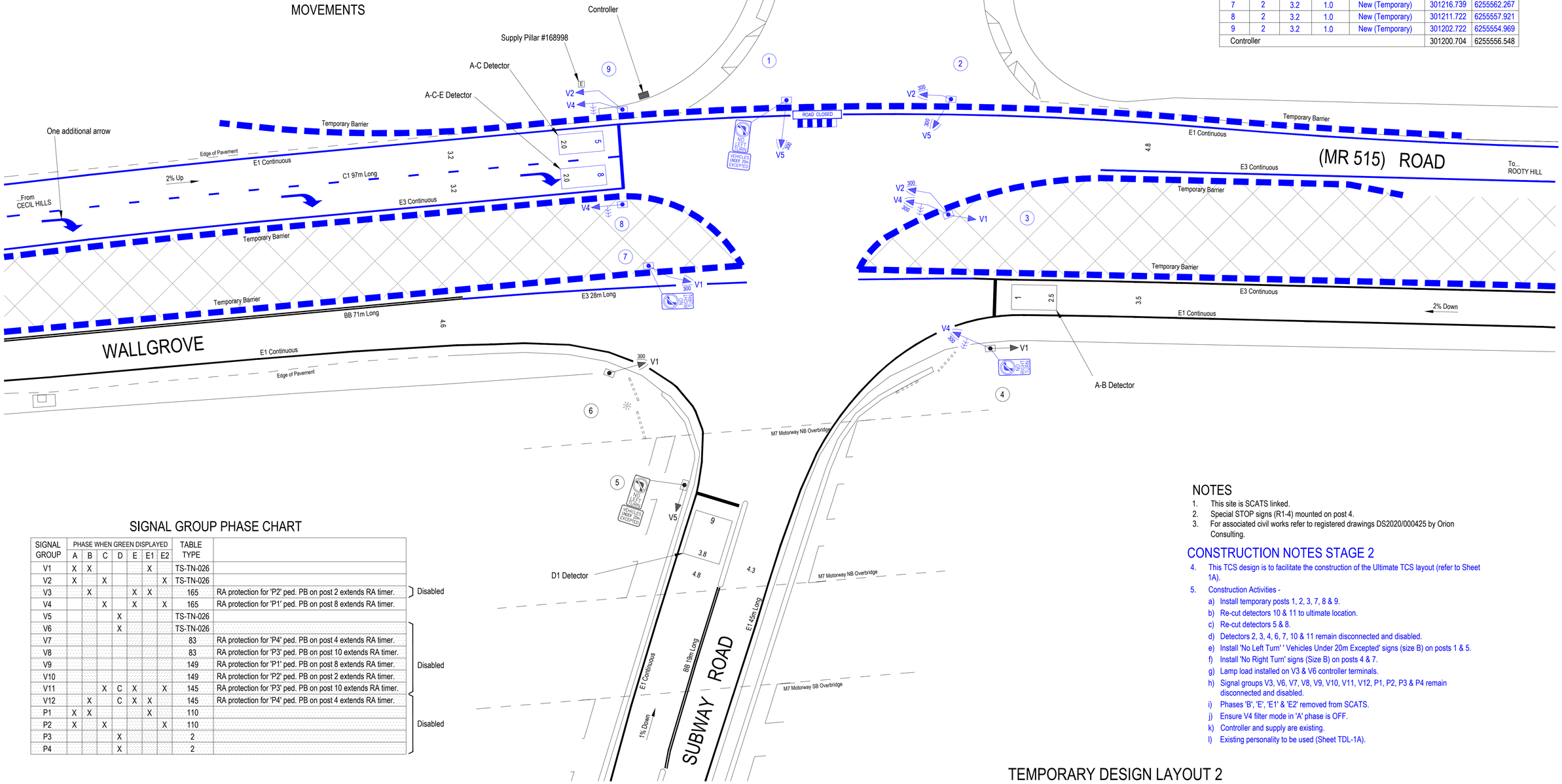
NSW GOVERNMENT | Transport for NSW



MOVEMENTS

POSTS

POST	TYPE	LENGTH	OFFSET	REMARKS	MGA CO-ORDINATES ZONE 56 / GDA1994 EASTING	NORTHING
1	2	3.2	1.0	New (Temporary)	301196.772	6255570.256
2	2	3.2	1.0	New (Temporary)	301191.604	6255585.806
3	2	3.2	1.0	New (Temporary)	301202.644	6255589.140
4	2	3.2	1.0	Existing (Temporary)	301214.040	6255597.229
5	2	3.2	1.0	Existing (Temporary)	301236.434	6255572.432
6	2	3.2	1.0	Existing (Temporary)	301228.126	6255561.849
7	2	3.2	1.0	New (Temporary)	301216.739	6255562.267
8	2	3.2	1.0	New (Temporary)	301211.722	6255557.921
9	2	3.2	1.0	New (Temporary)	301202.722	6255554.969
Controller					301200.704	6255556.548



SIGNAL GROUP PHASE CHART

SIGNAL GROUP	PHASE WHEN GREEN DISPLAYED A	B	C	D	E	E1	E2	TABLE TYPE		
V1	X	X				X		TS-TN-026		
V2	X		X				X	TS-TN-026		
V3		X			X	X		165	RA protection for 'P2' ped. PB on post 2 extends RA timer.	Disabled
V4			X		X		X	165	RA protection for 'P1' ped. PB on post 8 extends RA timer.	
V5				X				TS-TN-026		
V6				X				TS-TN-026		
V7								83	RA protection for 'P4' ped. PB on post 4 extends RA timer.	
V8								83	RA protection for 'P3' ped. PB on post 10 extends RA timer.	
V9								149	RA protection for 'P1' ped. PB on post 8 extends RA timer.	Disabled
V10								149	RA protection for 'P2' ped. PB on post 2 extends RA timer.	
V11			X	C	X		X	145	RA protection for 'P3' ped. PB on post 10 extends RA timer.	
V12		X		C	X	X		145	RA protection for 'P4' ped. PB on post 4 extends RA timer.	
P1	X	X				X		110		
P2	X		X				X	110		Disabled
P3				X				2		
P4				X				2		

NOTES

1. This site is SCATS linked.
2. Special STOP signs (R1-4) mounted on post 4.
3. For associated civil works refer to registered drawings DS2020/000425 by Orion Consulting.

CONSTRUCTION NOTES STAGE 2

4. This TCS design is to facilitate the construction of the Ultimate TCS layout (refer to Sheet 1A).
5. Construction Activities -
   a) Install temporary posts 1, 2, 3, 7, 8 & 9.
   b) Re-cut detectors 10 & 11 to ultimate location.
   c) Re-cut detectors 5 & 8.
   d) Detectors 2, 3, 4, 6, 7, 10 & 11 remain disconnected and disabled.
   e) Install 'No Left Turn' ' Vehicles Under 20m Excepted' signs (size B) on posts 1 & 5.
   f) Install 'No Right Turn' signs (Size B) on posts 4 & 7.
   g) Lamp load installed on V3 & V6 controller terminals.
   h) Signal groups V3, V6, V7, V8, V9, V10, V11, V12, P1, P2, P3 & P4 remain disconnected and disabled.
   i) Phases 'B', 'E', 'E1' & 'E2' removed from SCATS.
   j) Ensure V4 filter mode in 'A' phase is OFF.
   k) Controller and supply are existing.
   l) Existing personality to be used (Sheet TDL-1A).

TEMPORARY DESIGN LAYOUT 2

A ORIGINAL ISSUE

PUBLIC UTILITY LEGEND		REFERENCE PLANS	
HYDRANT		SYMBOLS/ABRVS	VD003-6
STOP VALVE		STD POSN CMPT	VD001-5
GAS VALVE		INSTL STOP DET	VC005-17
SEWER MANHOLE		VEH GROUP OP	TS-TN-019
COMMS PIT		DET LOGIC OP	TS-TN-020
ELECT LIGHT POLE		PED MVT OP	TS-TN-021
POWER POLE		SDO	TS-TN-026
STAY POLE			
TELEPHONE BOX		SURVEYOR : Orion Consulting	
COMMS PILLAR		DATE : 2019	

U.B.D. Ref. Map 207 G7
I.S.G. CO-ORDS E : 313 019 N : 1 242 520

DESIGNED : R BATES
CHECKED : J BATES
J BATES
SITE CHECKED
J BATES
RECOMMENDED

DESIGN APPROVAL
APPROVED
NAME
POSITION MANAGER
DATE 17/05/22
DESIGN PREPARED BY
B-Line Drafting on behalf of Burton

TFNSW RECOMMENDATION
ROAD DESIGN ENGINEERING
NAME
POSITION
DATE
NETWORK OPERATIONS
Neil Leitch
NAME Neil C. Leitch
POSITION W. P. C. A. L.
DATE 7/06/2022

TFNSW ACCEPTANCE
ACCEPTED
Neil Leitch
NAME Neil C. Leitch
POSITION W. P. C. A. L.
DATE 7/06/2022
ACCEPTED BY
Network Operations
SECTION

TRANSPORT FOR NEW SOUTH WALES

BLACKTOWN COUNCIL AREA
TRAFFIC SIGNALS AT
WALLGROVE ROAD (MR515), SUBWAY ROAD AND ACCESS ROAD
HORSLEY PARK

DESIGN LAYOUT

EXISTING ☐ PROPOSED ☒
CADD FILE: VV5058_TDL-2_A.dgn
SCALE 5 0 (1:200) 5 10
FILE SF2020/139656
SUPERSEDES SHEET/ISSUE TDL-1/A
ISSUE A
REG No. DS2020/000569
TCS No. 5058
SHEET TDL-2

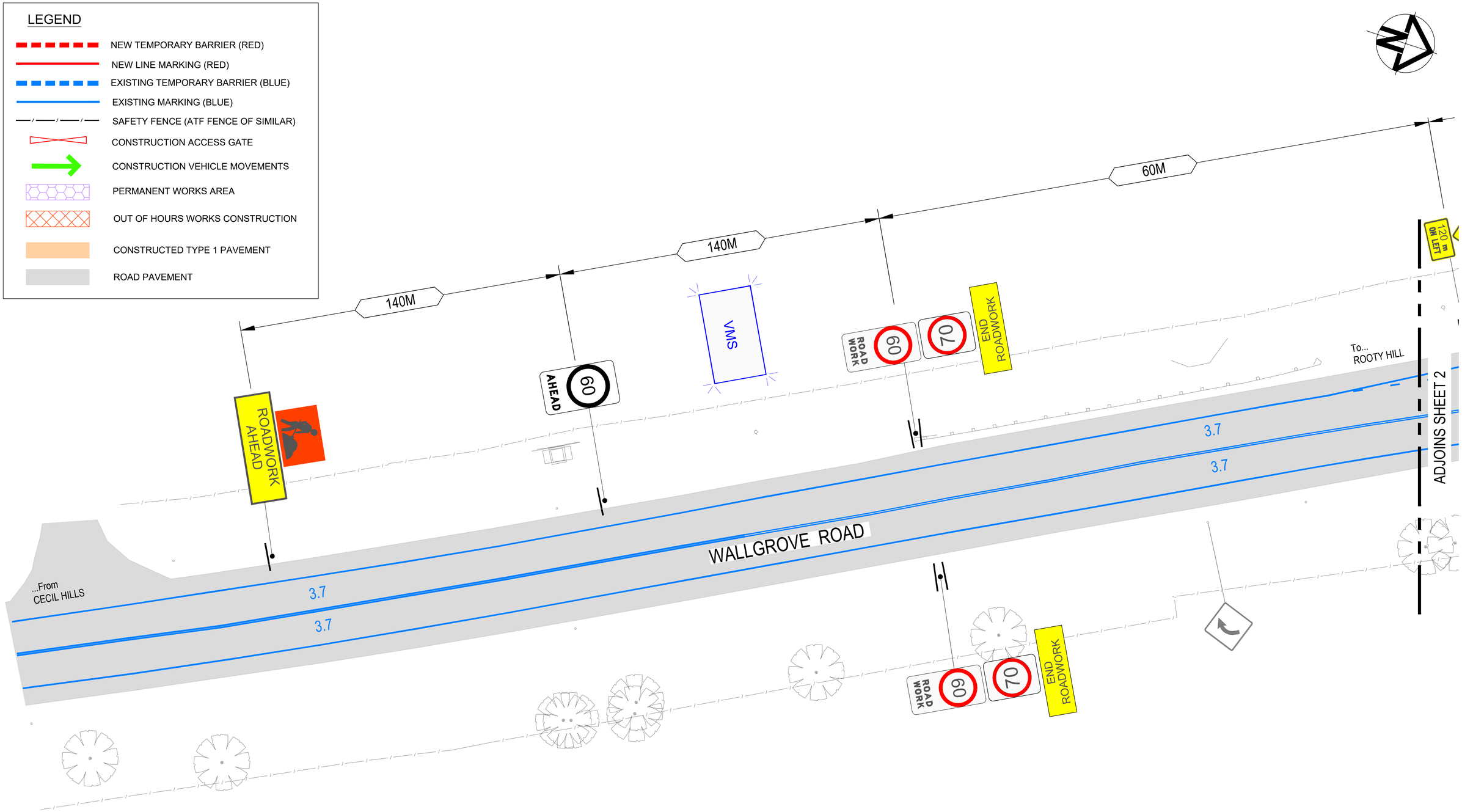
Revision 7 - August 2021

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Civil Staging Plan – Stage 3A

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
- CONSTRUCTION ACCESS GATE
- CONSTRUCTION VEHICLE MOVEMENTS
- PERMANENT WORKS AREA
- OUT OF HOURS WORKS CONSTRUCTION
- CONSTRUCTED TYPE 1 PAVEMENT
- ROAD PAVEMENT



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1	10/05/22	JKB	-	STAGE 3A LAYOUT - EASTERN CONSTRUCTION

Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth: MGA	Datum: AHD	

Contractor: BURTON CONTRACTORS

APPROVED

B-LINE DRAFTING

SIGNED..... DATE..16/05/22

Client: Transport Roads & Maritime Services (NSW GOVERNMENT)

Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

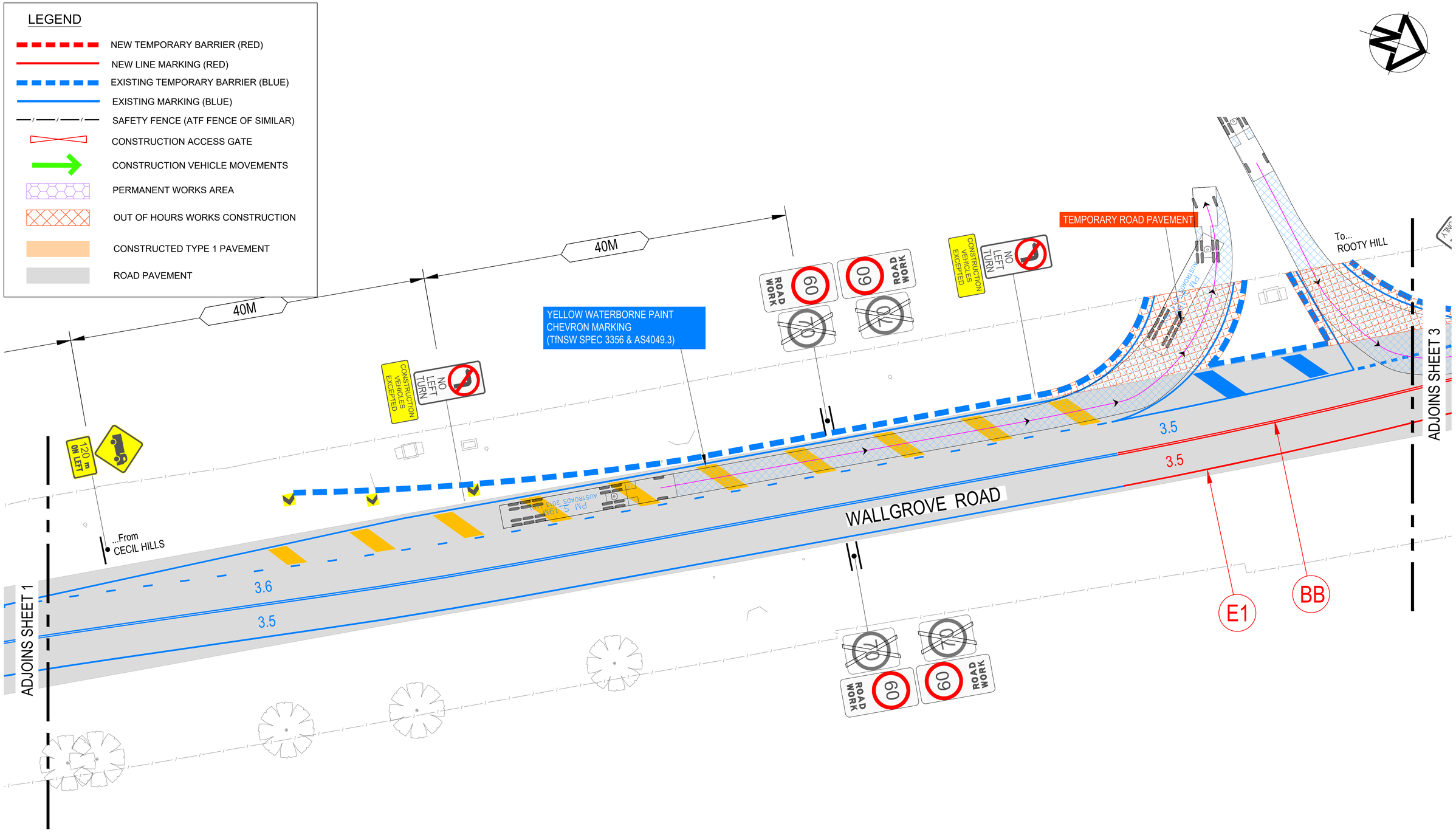
Drawing Title: TRAFFIC STAGING PLAN
STAGE 3A
SHEET 1 OF 10

Drawing No.: TS03A-01

Rev: 5

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
- CONSTRUCTION ACCESS GATE
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Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth: MGA	Datum: AHD	

Contractor: BURTON CONTRACTORS

APPROVED
B-LINE DRAFTING
SIGNED..... DATE..16/05/22.....

Client: Transport Roads & Maritime Services (NSW GOVERNMENT)

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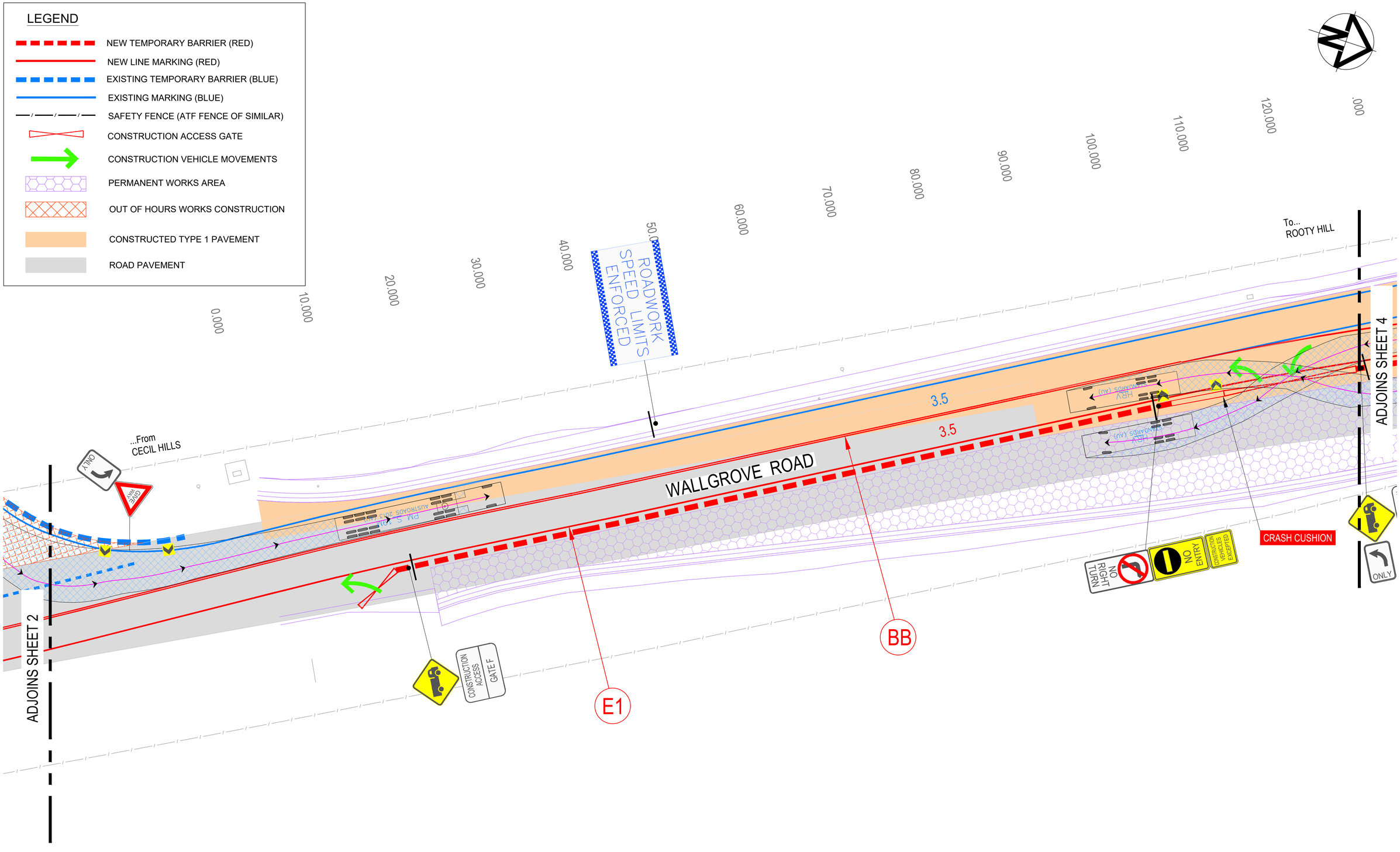
Drawing Title: TRAFFIC STAGING PLAN
STAGE 3A
SHEET 2 OF 10

Drawing No.: TS03A-02

Rev: 5

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
- CONSTRUCTION ACCESS GATE
- CONSTRUCTION VEHICLE MOVEMENTS
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- ROAD PAVEMENT



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Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth	MGA	
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Contractor: BURTON CONTRACTORS

APPROVED
B-LINE DRAFTING
SIGNED..... DATE..16/05/22

Client: NSW GOVERNMENT Transport Roads & Maritime Services

Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 3A
SHEET 3 OF 10

Drawing No.: TS03A-03

Rev: 5

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
- CONSTRUCTION ACCESS GATE
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- CONSTRUCTED TYPE 1 PAVEMENT
- ROAD PAVEMENT

130.000 140.000 160.000 170.000 180.000 190.000 200.000 210.000 220.000 230.000 240.000 250.000 260.000 270.000

TEMPORARY ROAD PAVEMENT

BB

To...
ROOTY HILL

ADJOINS SHEET 5

...From
CECIL HILLS

ADJOINS SHEET 3

WALLGROVE ROAD

3.5 3.2 3.2 3.5 3.5

E1 E5 E1 BB

60 ROAD WORK

NO RIGHT TURN

NO ENTRY
CONSTRUCTION VEHICLES EXCEPTED

CRASH CUSHION

CONSTRUCTION ACCESS GATE C

ONLY

CONSTRUCTION ACCESS GATE D

ONLY

50M

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Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth	MGA	
Datum	AHD	

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APPROVED
B-LINE DRAFTING
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Client: NSW GOVERNMENT Transport Roads & Maritime Services

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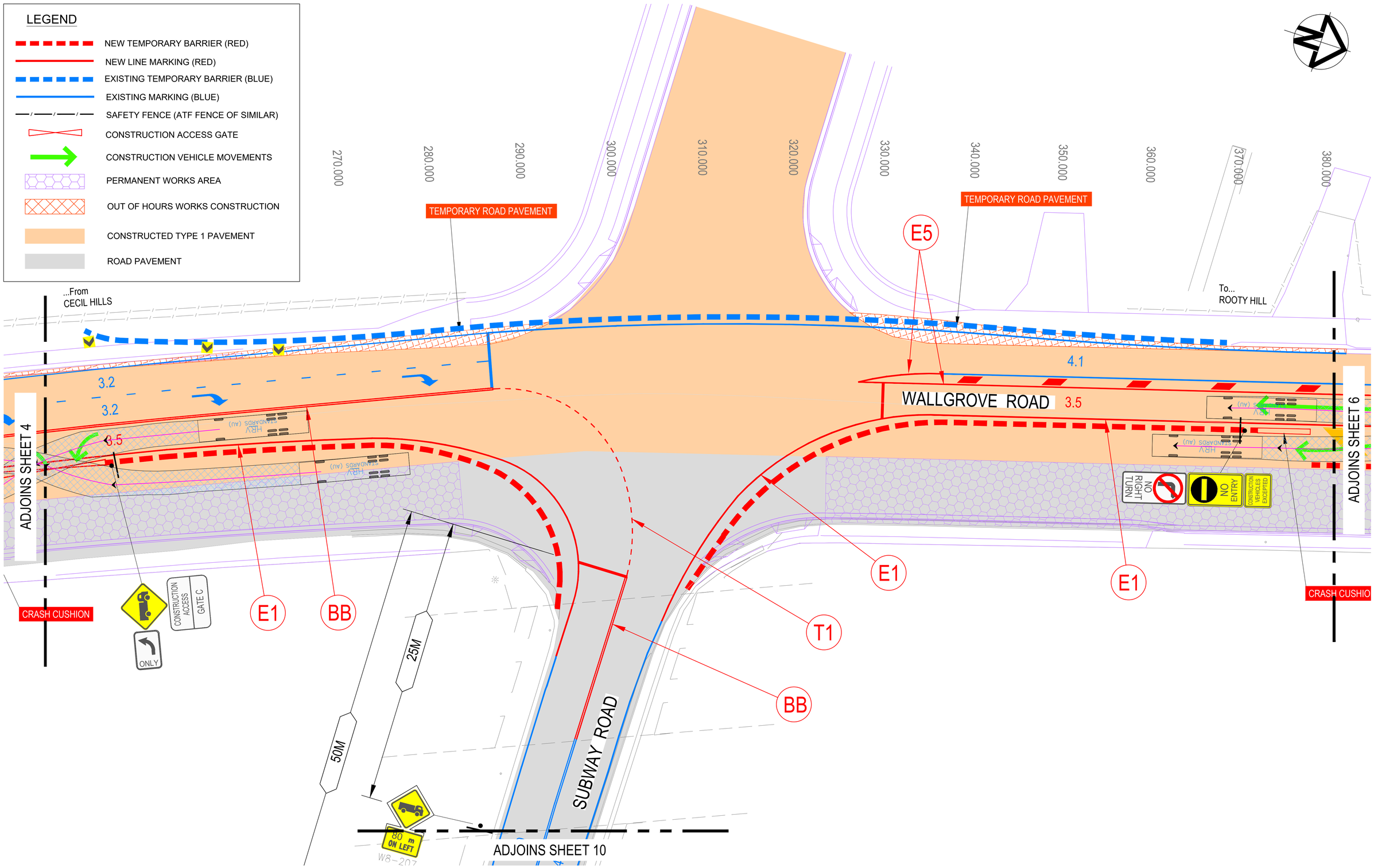
Drawing Title: TRAFFIC STAGING PLAN
STAGE 3A
SHEET 4 OF 10

Drawing No. TS03A-04

Rev 5

LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
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Design Check		
Final Approval		
Azimuth	MGA	
Datum	AHD	

Contractor: BURTON CONTRACTORS

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SIGNED..... DATE..16/05/22

Client: NSW GOVERNMENT Transport Roads & Maritime Services

Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 3A
SHEET 5 OF 10

Drawing No.: TS03A-05

Rev: 5

LEGEND

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- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
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- ROAD PAVEMENT

410.000 420.000 430.000 440.000 450.000 460.000 470.000 480.000 490.000 500.000 510.000 520.000

...From CECIL HILLS

E5

ROAD WORK 60

YELLOW WATERBORNE PAINT CHEVRON MARKING (TfNSW SPEC 3356 & AS4049.3)

SHEET 5 ADJOINS

3.5

3.5

WALLGROVE ROAD

3.5

3.5

To... ROOTY HILL

ADJOINS SHEET 7

CONSTRUCTION VEHICLE EXCEPT

CRASH CUSHION

CONSTRUCTION ACCESS GATE B

E1

BB

ROAD WORK 60

ROADWORK SPEED LIMIT

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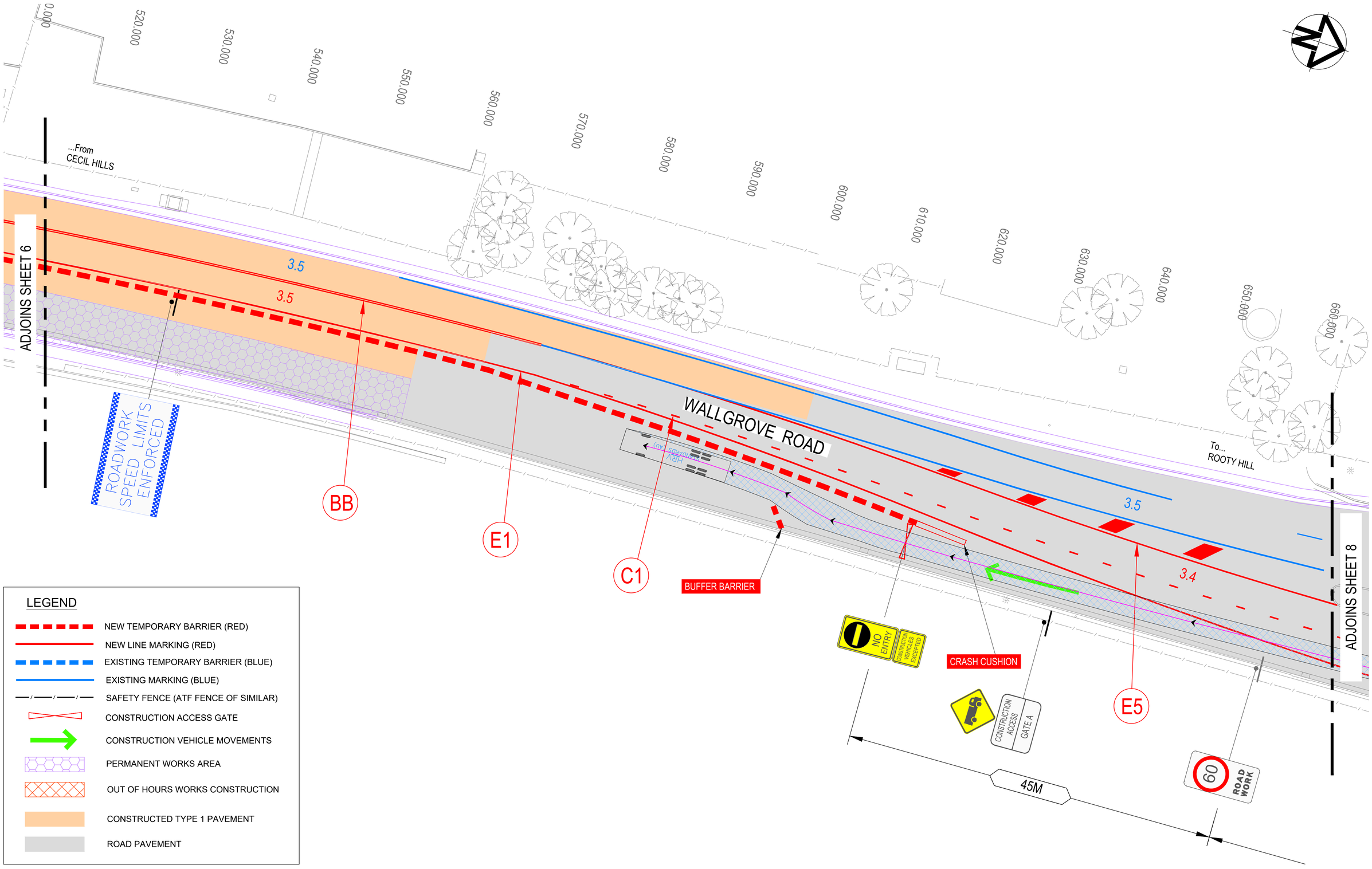
Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 3A
SHEET 6 OF 10

Drawing No. TS03A-06

Rev 5



LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
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SIGNED..... DATE..16/05/22

Client: Transport Roads & Maritime Services (NSW GOVERNMENT)

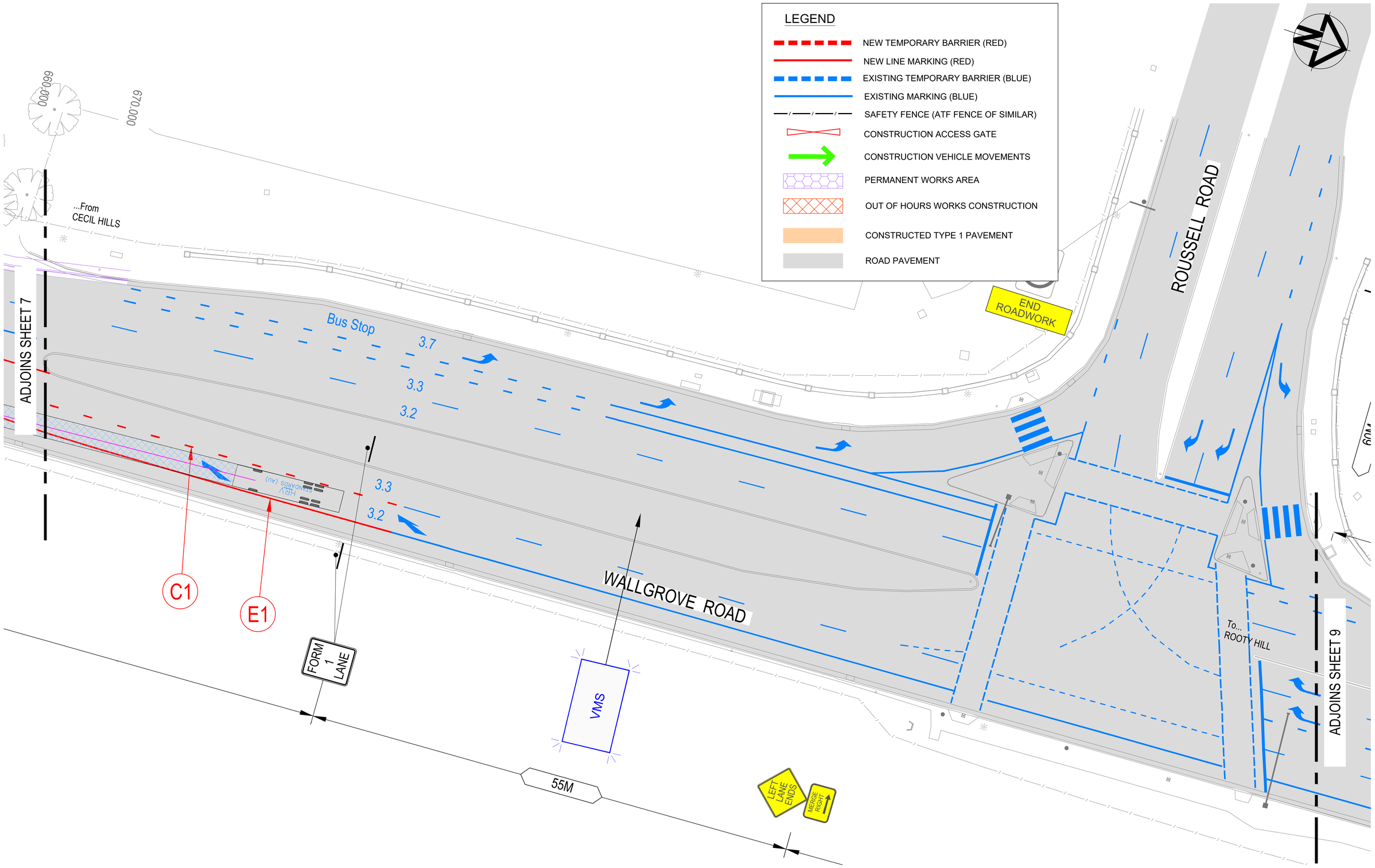
Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 3A
SHEET 7 OF 10

Drawing No.: TS03A-07

Rev: 5



Rev	Date	By	App	Amendment Details
5	19/08/22	JKB	-	TRUCK WARNING SIGN ADDED IN SUBWAY EXIT
4	01/08/22	JKB	-	GATES RELOCATED, N/B BUS STOP ADDED, BREAK DOWN BAY ADDED
3	16/05/22	JKB	-	PROPERTY ACCESS AT SOUTHERN EXTENT
2	13/05/22	JKB	-	SOUTHERN TIE IN ADJUSTMENT
1	10/05/22	JKB	-	STAGE 3A LAYOUT - EASTERN CONSTRUCTION

Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth	MGA	
Datum	AHD	

Contractor: BURTON CONTRACTORS

APPROVED
B-LINE DRAFTING
SIGNED..... DATE..16/05/22

Client: Transport Roads & Maritime Services (NSW GOVERNMENT)

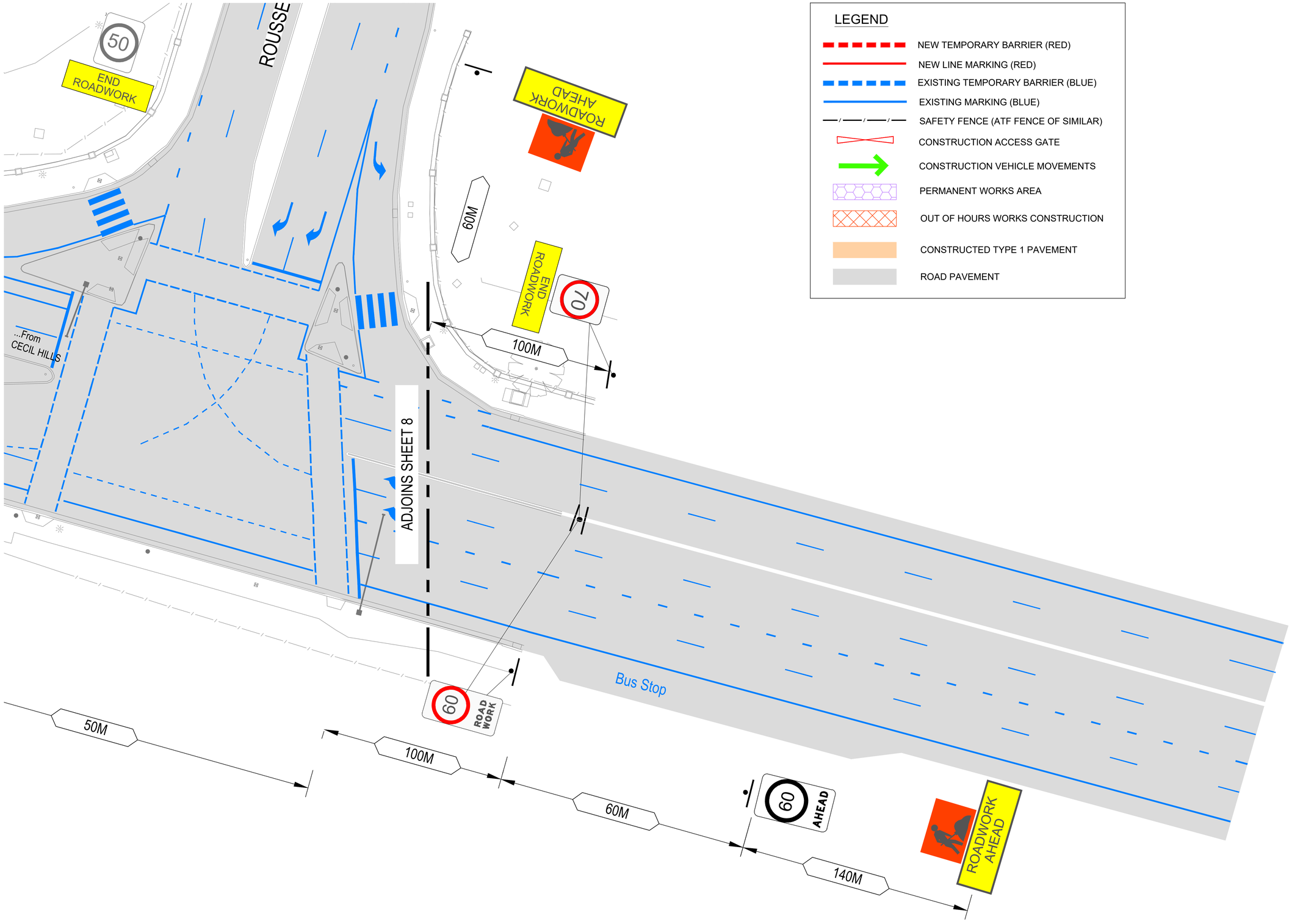
Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 3A
SHEET 8 OF 10

Drawing No.: TS03A-08

Rev: 5



Rev	Date	By	App	Amendment Details
5	19/08/22	JKB	-	TRUCK WARNING SIGN ADDED IN SUBWAY EXIT
4	01/08/22	JKB	-	GATES RELOCATED, N/B BUS STOP ADDED, BREAK DOWN BAY ADDED
3	16/05/22	JKB	-	PROPERTY ACCESS AT SOUTHERN EXTENT
2	13/05/22	JKB	-	SOUTHERN TIE IN ADJUSTMENT
1	10/05/22	JKB	-	STAGE 3A LAYOUT - EASTERN CONSTRUCTION

Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth: MGA	Datum: AHD	

Contractor: BURTON CONTRACTORS

APPROVED
B-LINE DRAFTING
SIGNED..... DATE..16/05/22

Client: Transport Roads & Maritime Services (NSW Government)

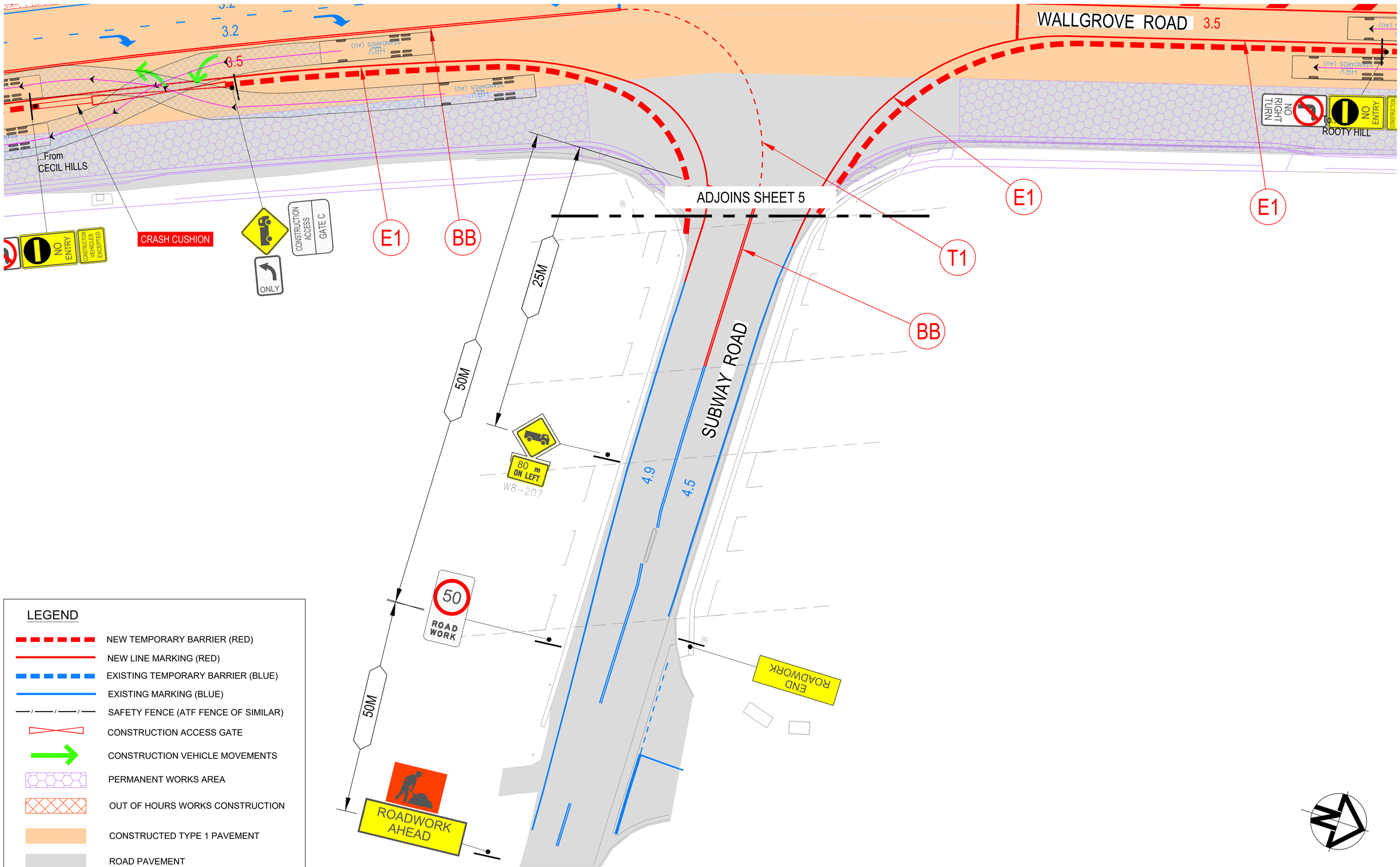
Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 3A
SHEET 9 OF 10

Drawing No.: TS03A-09

Rev: 5



LEGEND

- NEW TEMPORARY BARRIER (RED)
- NEW LINE MARKING (RED)
- EXISTING TEMPORARY BARRIER (BLUE)
- EXISTING MARKING (BLUE)
- SAFETY FENCE (ATF FENCE OF SIMILAR)
- CONSTRUCTION ACCESS GATE
- CONSTRUCTION VEHICLE MOVEMENTS
- PERMANENT WORKS AREA
- OUT OF HOURS WORKS CONSTRUCTION
- CONSTRUCTED TYPE 1 PAVEMENT
- ROAD PAVEMENT

Rev	Date	By	App	Amendment Details
5	19/08/22	JKB	-	TRUCK WARNING SIGN ADDED IN SUBWAY EXIT
4	01/08/22	JKB	-	GATES RELOCATED, N/B BUS STOP ADDED, BREAK DOWN BAY ADDED
3	16/05/22	JKB	-	PROPERTY ACCESS AT SOUTHERN EXTENT
2	13/05/22	JKB	-	SOUTHERN TIE IN ADJUSTMENT
1	10/05/22	JKB	-	STAGE 3A LAYOUT - EASTERN CONSTRUCTION

Design	JKB	10/05/22
Drawn	JKB	10/05/22
Drafting Check		
Design Check		
Final Approval		
Azimuth: MGA	Datum: AHD	

Contractor: BURTON CONTRACTORS

APPROVED
B-LINE DRAFTING
SIGNED..... DATE..16/05/22

Client: Transport Roads & Maritime Services (NSW GOVERNMENT)

Project: INTERSECTION UPGRADE AT WALLGROVE ROAD (MR 515), SUBWAY ROAD AND ACCESS ROAD HORSLEY PARK

Scale: 5 0 (1:200) 5 10

Drawing Title: TRAFFIC STAGING PLAN
STAGE 3A
SHEET 9 OF 10

Drawing No.: TS03A-10

Rev: 5

TCS Staging Plan – Stage 3A

TCS 5058

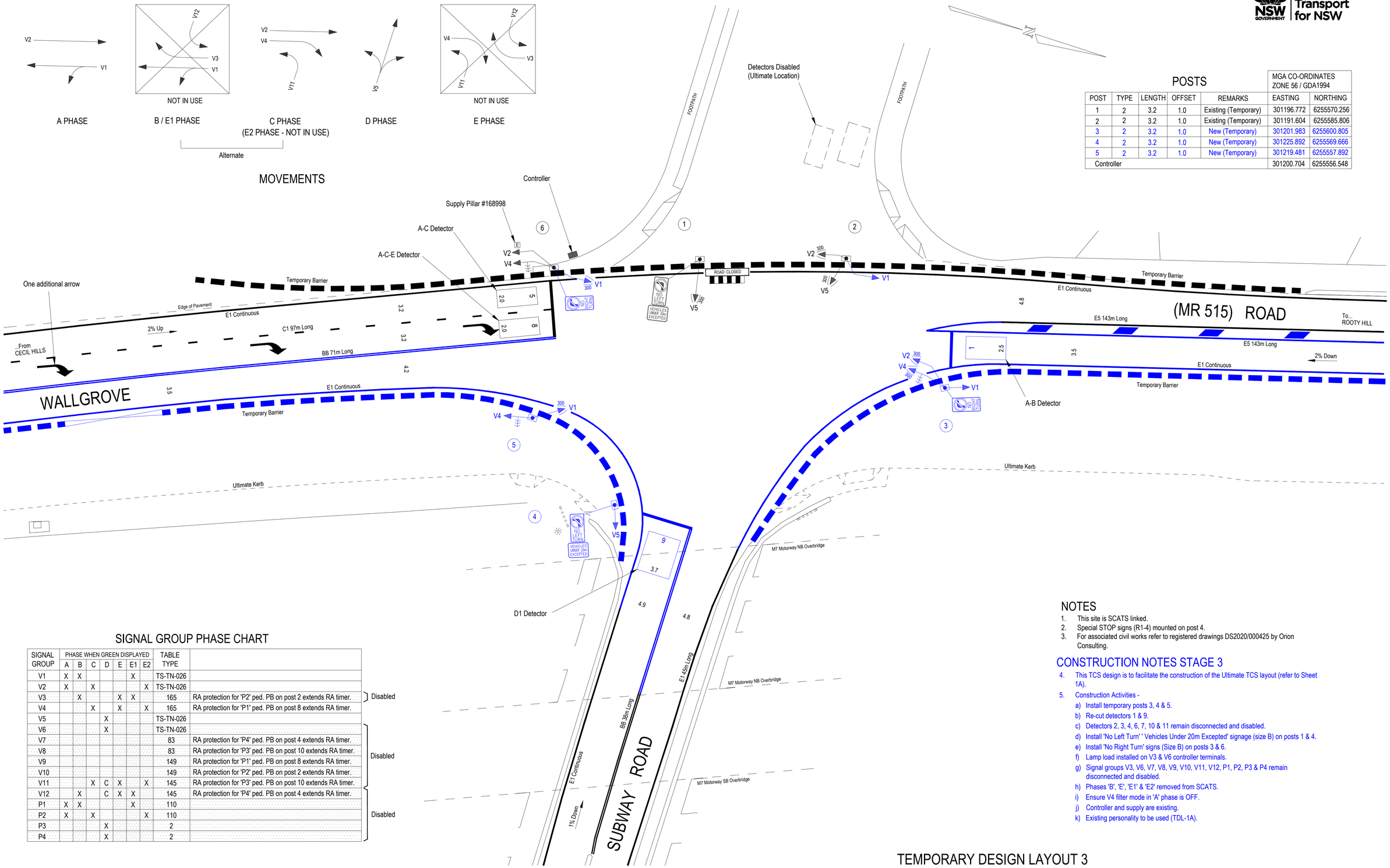
DATE IN SERVICE : 00/00/00

NSW GOVERNMENT | Transport for NSW

MOVEMENTS

POSTS

POST	TYPE	LENGTH	OFFSET	REMARKS	MGA CO-ORDINATES ZONE 56 / GDA1994 EASTING	NORTHING
1	2	3.2	1.0	Existing (Temporary)	301196.772	6255570.256
2	2	3.2	1.0	Existing (Temporary)	301191.604	6255585.806
3	2	3.2	1.0	New (Temporary)	301201.983	6255600.805
4	2	3.2	1.0	New (Temporary)	301225.892	6255569.666
5	2	3.2	1.0	New (Temporary)	301219.481	6255557.892
Controller					301200.704	6255556.548



SIGNAL GROUP PHASE CHART

SIGNAL GROUP	PHASE WHEN GREEN DISPLAYED A	B	C	D	E	E1	E2	TABLE TYPE		
V1	X	X				X		TS-TN-026		
V2	X		X				X	TS-TN-026		
V3		X			X	X		165	RA protection for 'P2' ped. PB on post 2 extends RA timer.	Disabled
V4			X		X		X	165	RA protection for 'P1' ped. PB on post 8 extends RA timer.	
V5				X				TS-TN-026		
V6				X				TS-TN-026		
V7								83	RA protection for 'P4' ped. PB on post 4 extends RA timer.	Disabled
V8								83	RA protection for 'P3' ped. PB on post 10 extends RA timer.	
V9								149	RA protection for 'P1' ped. PB on post 8 extends RA timer.	
V10								149	RA protection for 'P2' ped. PB on post 2 extends RA timer.	
V11			X	C	X		X	145	RA protection for 'P3' ped. PB on post 10 extends RA timer.	
V12		X		C	X	X		145	RA protection for 'P4' ped. PB on post 4 extends RA timer.	
P1	X	X				X		110		Disabled
P2	X		X				X	110		
P3				X				2		
P4				X				2		

NOTES

1. This site is SCATS linked.
2. Special STOP signs (R1-4) mounted on post 4.
3. For associated civil works refer to registered drawings DS2020/000425 by Orion Consulting.

CONSTRUCTION NOTES STAGE 3

4. This TCS design is to facilitate the construction of the Ultimate TCS layout (refer to Sheet 1A).
5. Construction Activities -
   a) Install temporary posts 3, 4 & 5.
   b) Re-cut detectors 1 & 9.
   c) Detectors 2, 3, 4, 6, 7, 10 & 11 remain disconnected and disabled.
   d) Install 'No Left Turn' ' Vehicles Under 20m Excepted' signage (size B) on posts 1 & 4.
   e) Install 'No Right Turn' signs (Size B) on posts 3 & 6.
   f) Lamp load installed on V3 & V6 controller terminals.
   g) Signal groups V3, V6, V7, V8, V9, V10, V11, V12, P1, P2, P3 & P4 remain disconnected and disabled.
   h) Phases 'B', 'E', 'E1' & 'E2' removed from SCATS.
   i) Ensure V4 filter mode in 'A' phase is OFF.
   j) Controller and supply are existing.
   k) Existing personality to be used (TDL-1A).

TEMPORARY DESIGN LAYOUT 3

A ORIGINAL ISSUE

PUBLIC UTILITY LEGEND		REFERENCE PLANS	
HYDRANT		SYMBOLS/ABRVS	VD003-6
STOP VALVE		STD POSN CMPT	VD001-5
GAS VALVE		INSTL STOP DET	VC005-17
SEWER MANHOLE		VEH GROUP OP	TS-TN-019
COMMS PIT		DET LOGIC OP	TS-TN-020
ELECT LIGHT POLE		PED MVT OP	TS-TN-021
POWER POLE		SDO	TS-TN-026
STAY POLE			
TELEPHONE BOX		SURVEYOR : Orion Consulting	
COMMS PILLAR		DATE : 2019	

U.B.D. Ref. Map 207 G7
I.S.G. CO-ORDS E : 313 019 N : 1 242 520

DESIGNED : R BATES
CHECKED : J BATES
J BATES
SITE CHECKED
J BATES
RECOMMENDED

DESIGN APPROVAL
APPROVED
NAME
POSITION MANAGER
DATE 17/05/22
DESIGN PREPARED BY
B-Line Drafting on behalf of Burton

TFNSW RECOMMENDATION
ROAD DESIGN ENGINEERING
NAME
POSITION
DATE
NETWORK OPERATIONS
Neil Leitch
NAME Neil C. Leitch
POSITION W. P. C. A. L.
DATE 7/06/2022

TFNSW ACCEPTANCE
ACCEPTED
Neil Leitch
NAME Neil C. Leitch
POSITION W. P. C. A. L.
DATE 7/06/2022
ACCEPTED BY
Network Operations
SECTION

TRANSPORT FOR NEW SOUTH WALES

BLACKTOWN COUNCIL AREA
TRAFFIC SIGNALS AT
WALLGROVE ROAD (MR515), SUBWAY ROAD AND ACCESS ROAD
HORSLEY PARK

DESIGN LAYOUT

EXISTING ☐ PROPOSED ☒

CADD FILE: VV5058_TDL-3_A.dgn

SCALE 5 0 (1:200) 5 10

ISSUE A

FILE SF2020/139656

SUPERSEDES SHEET/ISSUE TDL-2/A

REG No. DS2020/000569

TCS No. 5058

SHEET TDL-3

Revision 7 - August 2021

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Annexure D – Traffic Risk Assessment

Current Revision – Rev 2

SECTION 1: PROJECT DETAILS and RISK ASSESSMENT DEVELOPMENT & AUTHORISATION							
Project:	Wallgrove Road Intersection Upgrade	**Project No:**	423	**Date TRA Developed:**	27/04/2022	**Developed by (name):**	Nibraas Ahmad

REVISION CONTROL											
Revision:	0	Date:	27/04/2022	Revised by (name):	Nibraas Ahmad	Revision:		Date:		Revised by (name):	
Revision:	1	Date:	21/06/2022	Revised by (name):	Alex Ruello	Revision:		Date:		Revised by (name):	
Revision:	2	Date:	08/08/2022	Revised by (name):	Alex Ruello	Revision:		Date:		Revised by (name):	
Revision:		Date:		Revised by (name):		Revision:		Date:		Revised by (name):	

SECTION 5: RISK ASSESSMENT

What is an ACTIVITY?
An activity is the construction task being undertaken. E.g. Operation of an articulated dump truck to transport material on site.

What is a HIGH RISK ACTIVITY?
A high risk activity requires a worker to a hold licence, competency or Burton Contractors work permit/approval to perform the activity. This is due to the hazardous nature of the work.

What is a HAZARD?
A hazard is anything that could cause harm. E.g. Articulated dump truck tray rolling over while transporting material on site.

What is a RISK?
A risk is the assessment and determination of likelihood and consequence of the hazard occurring. E.g. crush injury to operator or nearby pedestrian from articulated dump truck tray rolling over. Using the **Risk Matrix**, allocate the **Risk Score** based on the consequence – e.g. permanent disability / fatality, and likelihood – e.g. likely to occur. The **Risk Score** is where the two points intersect – for this example it is a 3. The risk must be assessed before control measures are applied, and again after control measures are applied to verify if the risk has been eliminated or reduced.

Hierarchy of Controls
Burton Contractors employs a Hierarchy of Controls which is split into 3 levels of control. Each level describe the ways in which a risk can be controlled. The higher the level of control, the greater level of protection and reliability is provided in effectively controlling the risk.

The most effective form of control is elimination, however where this is not possible, a combination of Level 2 and/or 3 controls must be applied to minimise the risk.

Risk Matrix
The risk matrix provided below is used to distribute risks into four categories – Critical, High, Medium and Low.

A task with an identified risk of Critical must not proceed. The Project Manager must escalate the high risk activity with Construction Manager & QSE Team Leader to identify strategies to reduce risk or where Director approval is required where risk cannot be lowered to acceptable level.

For further information on either the Hierarchy of Controls or the Risk Matrix of please consult Burton Procedure PR-007 Risk Management or the QSE Department.

How to look for hazards:
A simple way to begin looking for hazards can be by dividing your workplace into logical workplace groupings, such as:

- Task hazards (working on machines, loading the truck, excavating around services, tools / equipment / material used for the task);
- Workplace hazards (road works, in and around schools and playgrounds, depth and location of excavations, surrounding works);
- Environmental hazards (weather conditions – strong wind, rain, extreme heat);

There are many other activities that can be undertaken to help with identifying hazards. These include:

- Walking through and inspecting each task or location;
- Consulting with workers. Ask about any problems they have encountered or how the job should be carried out safely;
- Consider the following:
  - How people use equipment and materials;
  - How suitable the equipment used for the task is; and
  - How people could be injured directly and indirectly by the various workplace hazards.

		CONSEQUENCE			
		CRITICAL	HIGH	MEDIUM	LOW
LIKELIHOOD	Almost certainly will occur	1	2	4	7
	Likely to occur	3	5	8	11
	Possibility to occur	6	9	12	15
	Unlikely to occur	10	13	16	18
	Could occur rarely	14	17	19	20
Injury		Permanent disability / Fatality	Hospitalisation / <6 months lost time injury.	>6 months lost time injury / Medical treatment injury.	First aid – No lost time injury.
Environmental		Unplanned event likely to cause significant long term environmental impact and require an extensive rehabilitation.	Unplanned event likely to cause a serious environmental impact and require rehabilitation.	Unplanned event likely to cause a minor environmental impact and require rehabilitation.	Negligible unplanned event immediately contained and recovered within control system. No environmental impact.
Property / Plant		>$50k. Major damage or total loss.	$10k – $50k. Significant damage.	$2k-$10K. Minor damage.	<$2k. Very minor damage
Stakeholders		Significant adverse national public, media attention. Major litigation likely. Licence to operate threatened.	Significant adverse local, public, media attention. Serious Regulatory breach Prosecution/fine likely.	Minor adverse local, public or media attention. Significant scrutiny from Regulator, Minor prosecution or litigation possible.	Public concerns restricted to local complaints. Ongoing scrutiny from Regulator, prosecution unlikely.

RISK SCORE	CATEGORY
1 – 6	Critical
7 – 10	High
11 – 14	Medium
15 – 20	Low

A task with an identified risk of Critical must not proceed. The Project Manager must escalate the high risk activity with Construction Manager & QSE Team Leader to identify strategies to reduce risk or where Director approval is required where risk cannot be lowered to acceptable level.

Likelihood	Definition	Frequency Scale
Almost certainly will occur	Would expect the event to occur **every time** the activity is undertaken (daily), >90% of the time the activity is undertaken.	Every day
Likely to occur	Would expect the event to occur **at least once a week** if the activity was done regularly, 60 – 90% of the time the activity was undertaken.	Every week
Possibility to occur	Would expect the event to occur **once per month** if the activity was done regularly, 30 – 60% of the time the activity was undertaken.	Every month
Unlikely to occur	Would expect the event to occur **once during the project** <30% of the time the activity was undertaken.	Duration of project
Could occur rarely	Would expect the event to occur **only in exceptional circumstances** <5% of the time the activity was undertaken whether performed regularly or infrequently.	Duration of project



Risk Identification	Risk Rating	Control Level	Mitigation Measure/Response	Residual Risk
- Adjacent traffic generating developments	12	ADMINISTRATIVE	- Review all traffic generating developments in the area and identify potential impacts. - Where possible, coordinate construction activities to minimise cumulative impacts on the road network. - Implement traffic control as required to manage the operations of adjacent developments.	18
- Adverse Weather Conditions	8	ENGINEERING ADMINISTRATIVE	- Monitor weather bureau websites and notices. - Where necessary liaise with emergency services agencies, FCC/BCC/TfNSW/CJM. Implement CEMP relevant sub-plan for weather condition. - Support Emergency Services Agencies. - If the road network is affected notify TfNSW/CJM. - Remove any current short-term traffic control operations and limit the use of Traffic Controllers. - As required, install appropriate traffic controls and or advance warning signs to warn of hazard. - Increase the frequency traffic control inspections to rectify and or re-install damaged signs and devices. - Regularly inspect the road network adjacent to works. Monitor weather conditions and review controls accordingly.	12
- Approval delay by authorities cause disruption and delay to project	8	ADMINISTRATIVE	- "No Surprise" approach between all parties by involving and consulting throughout the approval process. - Submissions given adequate lead time	12
- Bush / Grass Fires	13	ENGINEERING ADMINISTRATIVE	- Liaise with the NSW Rural Fire Service and identify possible risk areas along the project. Source and comply with fire bans and instructions. - Ensure fire extinguishers are available on site. Develop SOPs and SWMS when conducting hot works. - Maintain both pedestrian and vehicle accesses to adjoining properties at all times. If a fire occurs, notify the NSW Fire Brigade and adjoining property owners. - Follow and execute the Incident Emergency Spill Plan. - Support Emergency Services Agencies if required. - If the road network is affected, notify FCC/BCC/TMC and implement appropriate traffic controls to make area safe.	16

			- Monitor fire and modify actions accordingly	
Damage to utilities	11	ISOLATE ENGINEERING ADMINISTRATIVE	- Ensure Dial Before You Dig procedures are in place and implemented. Obtain Permit to Excavate Record prior to commence work. Obtain relevant spotters if required for High Risk services - Implement Working around Utility / Excavation SWMS. - Notify emergency services and relevant utility authority if any damage occurred. If required, isolate the incident area. - If required, implement traffic control measures at the incident scene, and notify FCC/BCC/TfNSW/CJM. - Report on incident for input into review process (preventive action). - Traffic lanes shall be made to operational as soon as road occupancy repair works completed. - Steel plates to be on site for road crossings, to be implemented to M209 spec.	18
Dust	11	SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE	- Monitor weather bureau websites and notices. - Where necessary liaise with emergency services agencies, BCC/FCC/TMC. - Implement CEMP relevant Air Quality Management sub-plan for weather condition. Minimise dust build-up within the work areas. - If the road network is affected notify BCC/FCC/TMC. - Remove any current short-term traffic control operations and limit the use of Traffic Controllers. - As required, install appropriate traffic controls and or advance warning signs to warn of hazard. - Monitor storm and review controls accordingly.	15
Early Construction Start Time	8	ELIMINATE SUBSTITUTE ADMINISTRATIVE	- Plan all works to avoid working outside of daylight hours. Obtain relevant approvals from agencies. - Assess the impacts on the community and road users. - Follow processes outlined in the CCL Plan to ensure stakeholders are provided with advance notice. - Utilise VMS to notify the motorists of any changed traffic conditions. - Implement appropriate traffic controls to minimise impact on the road network, including the operation of bus services.	15
Night Works	5	SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE	- Night work is generally high risk by the nature of the work – ensure Construction Manager & QSE team Leader are aware of scheduled night works - Refer to General Mobile Plant Controls. - ROL & TCP for work - Prior notification to residents of work. Night shifts not to exceed parameters outlined in the OOHW permit approval - Set up detour as per TCP - Sufficient lighting required for work - Ground workers to be in white overalls for visibility - Monitor queuing of traffic - Pos comms for traffic controllers - Pos comms for excavator operator & truck driver	13
End of queue management (local roads only)	11	SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE PPE	- Review traffic volumes to estimate end of queue location for the proposed stoppage time. - Notify road users about the expected delays. - Install VMS as required to notify and warn approaching traffic. - In addition to the standard TCP, implement end of queue traffic controls as per section - Consult and follow 4.6 of the TCAWS v06.1 manual. - Develop contingency plans for a stoppage 10 minutes and more. - Additional daymakers to be installed on queue approach as required	15
Extreme (high/low) temperature	12	ELIMINATE SUBSTITUTE ADMINISTRATIVE	- Monitor weather bureau website and notices. - Ensure staff are provided with adequate water and resources to mitigate dehydration. Reschedule works to avoid extreme temperature periods. - During hot weather periods, limit the length of short term stoppages on the road network, and ensure water is available on site. - When traffic controllers are in operation, ensure they are provided with appropriate PPE, water and relieved at regular frequencies. - Regular inspect the road network adjacent to works. Monitor weather conditions.	15
Fog	12	ELIMINATE	- No work shall be undertaken in fog unless appropriate sight distance is available.	15

		ADMINISTRATIVE	- Keep the traffic lanes and shoulder clear all the time. - Monitor conditions regularly and be prepared for changes in weather. Flashing yellow lamps shall be mounted on warning signs. - Rotating flashing yellow lamps shall be mounted on all construction plant and vehicles. - Install RRPMs and delineation devices along all temporary works	
General Media Misinformation	12	ELIMINATE ADMINISTRATIVE	- Construction staff to be instructed not to provide comments to media or political enquiries. - Construction staff to be instructed to record the name, organisation and mobile number of the media contact and immediately contact their supervisor. - Liaise regularly with stakeholders. - Provide a single point of contact for the project. - Release regular project updates and information to stakeholders. Monitor feedback and the various media to identify trends.	15
Haulage Operations	13	ELIMINATE SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE PPE	- Plan all routes to maximise safety and minimise impact on the road network. - Comply with the haulage operation requirements stipulated within the Traffic Management Plan. - Prepare and implement specific Vehicle Movement Plans and associated Traffic Guidance Schemes. - Coordinate haulage operations and road occupancies. - Monitor haulage routes and review Vehicle Movement Plans as required. As a contingency, identify suitable alternative routes.	16
Heavy Vehicle Breakdown	12	SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE PPE	- If the vehicle is obstructing travel lanes, notify BCC/FCC/TMC immediately. - Where possible, provide initial response and install traffic controls to make site safe.	16
High Volumes of heavy vehicles	15	ELIMINATE SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE	- Give consideration of the high percentage of heavy vehicles during the construction phase. - Plan all works to avoid restrictions, impacts and speed limit reductions overnight during peak heavy vehicle periods. - Provide a high standard of traffic controls to warn, inform and guide heavy vehicles through the work areas. - Implement temporary works that comply with the TfNSW's Road Design Guide, provide a safe road environment, and accommodate the movements of heavy vehicles.	18
Impacts to Emergency Services	11	SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE	- Design and implement emergency service accesses in all phases of construction. - Inform and regularly update emergency services in regards to the site gates and accesses. - Consult with emergency services on access restrictions and alternative arrangements. Provide 24 hour contact number to all emergency services.	15
Increased traffic generated by project	11	ELIMINATE SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE	- Estimate the potential traffic generated by the project. - Review existing traffic volume with increased project generated volume to determine the potential impact it will have on the road network. - Give consideration to the potential increased traffic volumes when preparing the TCP's. Where required, modify traffic controls to accommodate increased traffic volumes. - Monitor the road network and implement traffic management solutions, as required to maintain the performance of the road network.	15
Localized and flash flooding	4	ELIMINATE SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE	- Consult Burton generated Flood Contingency Plan. - Implement Incident Emergency Spill Plan. Support Emergency Services Agencies. - If the road network is affected notify BCC/FCC/TMC. - Where required, assist with the removal of drainage obstructions. - Where possible, install appropriate traffic controls and or advance warning signs to warn of hazard. - Monitor flood levels and review controls accordingly.	12
Major Congestion	8	ELIMINATE SUBSTITUTE ISOLATE ENGINEERING	- Analyse possible impacts due to works, using traffic modelling where necessary and analyse, to identify issues. - Develop traffic schemes to mitigate congestion where possible. Program works during low traffic periods. - Through Traffic Management Plan process, and information signage, alert public to likely congestion and delays. - Monitor road network for congestion, review traffic management measures where required.	12

		ADMINISTRATIVE		
Major Incidents	8	ELIMINATE SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE PPE	- Maintain regular contact and liaison with BCC/FCC/TMC. - Ensure procedures are in place to deal with the various types of incidents. - Monitoring of the roads will identify unsafe road conditions, unplanned incidents, non- conforming traffic control measures and unusual congestion. - When required use appropriate traffic control measures, including traffic controllers, signage, pavement markings and lighting. - TCPs to be designed and installed in accordance with TCAWS manual. Establish and implement TCPs. - Report on incident to input into review process (preventative action).	12
Minor Vehicle Crashes	9	ELIMINATE SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE PPE	- If an unplanned incident occurs, notify emergency services. - Assist in providing a high standard of traffic controls to warn, inform and guide motorists, through the work areas. - Implement temporary works that comply with the TfNSW Road Design Guide, and provide a safe road environment. - Where possible, provide initial response and install traffic controls to make site safe and assist vehicle occupants. - Support emergency services.	12
Public transport disruptions	9	ELIMINATE SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE	- Consult regularly with public transport operators with regard to proposed changes to public transport arrangements, alternative arrangements need to be agreed with Operator. - Install temporary information signage to inform public transport users of changes to services and new stop locations and routes. - Provide information for public transport operators for call centres and websites regarding changes to services.	12
Seasonal traffic variations – school holidays, public holidays	15	ELIMINATE SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE	- Maintain regular contact and liaison with TMC and Local Police Command. - Schedule work, if possible to avoid conflict with seasonal traffic increases or conversely to utilise quieter periods to benefit project activities for road related matters.	18
Tracking debris onto travel lanes	8	ELIMINATE SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE	- Install primary environmental controls to prevent tracking onto roadways. - When required, apply secondary controls (water carts, street sweepers) to remove debris from the road surface. - Traffic Control Site Manager to conduct daily inspection and monitoring of road surface conditions, if necessary to assist traffic control to make safe until debris cleared. - Report on incident for input into review process (preventive action)	12
Traffic control at work site	9	ELIMINATE SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE	- Implement a high standard of traffic controls to warn, inform and guide motorists through the work areas. - Develop TGSs in accordance with TfNSW TCAWS, G10 and AS 1742.3 requirements. - Long term TGSs to be prepared by SafeWorkNSW 'Prepare traffic management plans and traffic guidance schemes' ticket holder along with 'Carry out risk management process' ticket holder - Ensure all staff and subcontractors are trained and certified as competent persons to perform any traffic control task. - Site Management Team to conduct regular inspections of traffic controls and assist to rectify minor deficiencies. - Conduct regular inspections and audits. - Review traffic controls to suit changes to site conditions. Rectify any deficiencies as a matter of urgency.	12
Unknown Oversize Load Transport	13	ELIMINATE SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE	- Instruct staff to be on the lookout for over dimension loads approaching the work areas, and where required modify the travel paths accordingly. - When the over dimension movement seems to be in breach of the TfNSW requirements, record vehicle details and notify TMC. - If the vehicle is considered a safety hazard to other road users notify the police.	16
Reduced Lane Widths (where and if utilised)	8	ELIMINATE SUBSTITUTE ISOLATE	- Reduce speed limit throughout site from 60km/h to 40km/h during night works - Provide advanced warning signage / notification of changed traffic conditions - 3.0m lane widths are to be maintained at a minimum and conforming with AGRD	12

		ENGINEERING ADMINISTRATIVE	- Swept paths to be considered for all turns within the work zone if affecting turning paths	
Reduction in edge clearance from 0.5m to 0.3m **Risks Include** Cyclist Collision Narrow shoulder/cycleway Reduce breakdown facilities Hampered turn paths Narrow carriageway Increased shyline effect	8	ELIMINATE SUBSTITUTE ISOLATE ENGINEERING ADMINISTRATIVE	- Provide advanced warning signage / notification of changed traffic conditions - Swept paths to be considered for all turns within the work zone and included on staging plans showing the type of vehicle size permitted. Turn paths must not conflict or cross line marking or intersect other turn paths for concurrent vehicle movements (ie at traffic lights) - Lane geometry is to be drafted and designed by a Traffic Engineer to ensure that vehicles can safely travel through the worksite. - Ensure appropriate sight distances are observed and factored for B Double haul routes - Deflection behind concrete barriers to be compliant to manufacturer standards - Reduce existing speed limit from 70km/h down to 60km/h - Provide alternate path provisions or detour routes for cyclists through areas of reduced edge clearance. - Alternate routes or path provisions to have clear advanced signage to direct cycle traffic - Alternate routes to be clear of trip hazards, safely delineated, have sufficient lighting, be wheelchair compliant, have sufficient sight distances for vehicles and pedestrians and be accessible at all times and to all pedestrian push buttons. - Provide generally 3.5m wide lanes for increased travel lane where edge clearance has been reduced from 0.5m to 0.3m - Provide appropriate facilities for potential vehicle breakdowns to allow for continued traffic flow - Undertake independent Road Safety Audit after barrier installation where reduced edge clearances are present - Provide long continuous barrier lengths / runs in staging plans to reduce shy line effects by reducing number of gates / breaks in barrier runs - Maintain consistent offset of barriers from line marking to reduce driver reaction to isolated objects or features	12

APPLICABLE LEGISLATION, STANDARDS, CODES OF PRACTICE AND GUIDANCE MATERIAL

Hazard/Risk	Legislation	Standard	Codes of Practice	Guidance Materials
1. Legal Compliance	WHS Act 2011 Part 2 Division 3 WHS Regulation 2017 Chapter 6 Part 6.3 & Part 6.4 Workplace Injury Management & Workers Compensation Act 1998 (NSW) Workplace Injury Management & Workers Compensation Regulation 2002 (NSW) Workers Compensation Act 1987 (NSW) Workers Compensation Regulation 2016 (NSW) Workers' Compensation (Dust Diseases) Act 1942 (NSW) Workers' Compensation (Dust Diseases) Regulation 2013 (NSW)	AS 4801 Occupational Health and Safety Management Systems ISO 9001 Quality Management Systems	COP: How to manage work health and safety risks COP: Work health and safety consultation, coordination and cooperation COP: Construction work	Guidelines for Health Surveillance – NOHSC
2. Emergency Management	WHS Act 2011 Part 3 WHS Regulation 2017 Chapter 3 Part 3.2 Division 4 Workplace Injury Management & Workers Compensation Act 1998 (NSW) Workplace Injury Management & Workers Compensation Regulation 2002 (NSW) Workers Compensation Act 1987 (NSW) Workers Compensation Regulation 2016 (NSW) Workers' Compensation (Dust Diseases) Act 1942 (NSW) Workers' Compensation (Dust Diseases) Regulation 2013 (NSW)	AS 1885.1 Workplace injury and disease recording standards AS 1319 Safety signs for the occupational environment AS 3745 Planning for emergencies in facilities AS 1851 Maintenance of fire protection systems and equipment	COP: First aid in the workplace COP: Managing the work environment and facilities COP: Work health and safety consultation, coordination and cooperation COP: Construction work	
3. Plant and Equipment	WHS Act 2011. Part 2. Division 3 WHS Regulation 2017 Chapter 5 Part 5.1 Division 7	AS 2294 Earth-Moving Machinery - Protective Structures HB 9 Occupational Personal Protection AS 1418 Cranes, hoists and winches AS 2294 Earthmoving machinery – Protective structures AS 2359 Powered industrial trucks AS 2550 Cranes, hoists and winches – safe use AS 2958 Earthmoving Machinery – Safety –Wheeled machines	COP: Excavation work COP: Managing the risks of plant in the workplace Moving plant on construction sites code of practice Work near overhead power lines code of practice COP: Demolition work COP: Construction work	SWA - Working in the vicinity of overhead and underground electric lines - Guidance material SWA - Cranes guidance material SWA Information sheet - Using powered mobile plant as a crane Guidelines for Integrating OHS into National Industry Training Packages - NOHSC Guidelines for OHS Competency Standards for the Operation of

APPLICABLE LEGISLATION, STANDARDS, CODES OF PRACTICE AND GUIDANCE MATERIAL				
Hazard/Risk	**Legislation**	**Standard**	**Codes of Practice**	**Guidance Materials**
		AS 4024 series - Safety of Machinery AS 4987 Earth-Moving Machinery - Tip-over protection structure (TOPS) for compact excavators AS 4991 Lifting devices ISO 8643:1997: Earthmoving machinery–Hydraulic excavator and backhoe loader boom-lowering control device–Requirements and tests. AS 1788.2 Abrasive Wheels - Selection, care and use AS/NZS 3947.3 Low voltage switchgear and control gear, switches, disconnectors, switch-disconnectors and fuse combination units AS 61508.6 Functional safety of safety related systems AS 62061 Safety of machines: Functional safety of safety related electrical, electronic and programmable electronic systems ISO 13849.1 Safety of machinery: Safety-related parts of control systems - General principles ISO 12100 Safety of machinery - General principles for design		Load shifting Equipment and other Types of Specified Equipment – NOHSC National OHS Certification Standards for Users and Operators of Industrial Equipment - NOHSC National Standard for Plant - NOHSC
5. Traffic	WHS Act 2011 WHS Regulation 2017 Chapter 4 Part 4.5	AS 1742 Manual of uniform traffic control devices AS 4687 Temporary fencing and hoardings	COP: Construction work	Australian Road Rules TfNSW Traffic Control at Worksite Manual Version 6 Austroads - Guide to Road Design SWA - Traffic Management Guide: Construction Work SWA - Traffic Management - General Guide SWA - Information Sheet - Traffic Management SWA - Traffic hazard checklist SWA - Traffic control measures checklist RMS Specifications: G10 Traffic Management RMS Specifications: G22 Work Health and Safety
6. Manual Handling	WHS Act 2011 WHS Regulation 2017 Chapter 4 Part 4.2		COP: Hazardous manual tasks COP: How to manage work health and safety risks	National Standard for Manual Tasks - NOHSC
7. Management of Subcontractors	WHS Act 2011 Part 2 Division 3 WHS Regulation 2017 Chapter 6 Part 6.3 & Part 6.4		COP: Work health and safety consultation, coordination and cooperation COP: Induction for Construction Work COP: Construction work COP: How to manage work health and safety risks COP: Management risks of plant in the workplace	
15. Alcohol and Drugs	WHS Act 2011 WHS Regulation 2017		COP: Work health and safety consultation, coordination and cooperation COP: How to manage work health and safety risks	
16. Travelling to and from Sites	WHS Act 2011 WHS Regulation 2017 Chapter 3 Part 3.2		COP: How to manage work health and safety risks COP: Construction work	
18. Noise	WHS Act 2011 WHS Regulation 2017 Chapter 4 Part 4.1 Protection of the Environment Operations Act 1997	AS/NZS 1269 Occupational Noise Management AS 2012 Acoustics - Measurement of airborne noise emitted by earth-moving machinery and agricultural tractors AS 1217 Measurement of airborne sound emitted by machines AS 2436 Guide to noise and vibration control on construction, demolition and maintenance sites AS 1055 Acoustics - Description and measurement of environmental noise HB 9 Occupational personal protection	COP: Managing noise and preventing hearing loss at work COP: How to manage work health and safety risks COP: Construction work	A guide to the Noise Policy for Industry (2017) (EPA) NSW Road Noise Policy (TfNSW) Construction Noise and Vibration Guideline (TfNSW) National Standard for Occupational Noise - NOHSC Control Guide Management of Noise at Work - NOHSC
20. Workplace Environment and Facilities	WHS Act 2011 WHS Regulation 2017 Chapter 3 Part 3.2	AS/NZS 1680 Interior and workplace lighting AS/NZS 1668 The use of ventilation and air conditioning in buildings	COP - Amenities for Construction Work - Work cover NSW COP: Managing the work environment and facilities COP: Work health and safety consultation, coordination and	

APPLICABLE LEGISLATION, STANDARDS, CODES OF PRACTICE AND GUIDANCE MATERIAL				
Hazard/Risk	**Legislation**	**Standard**	**Codes of Practice**	**Guidance Materials**
			cooperation	
21. Use of Small Plant	WHS Act 2011 WHS Regulation 2017 Chapter 5 Part 5.1 Division 7	AS ISO 5439 Mechanical vibration - Measurement and vibration of human exposure to hand-transmitted vibration HB 9 Occupational Personal Protection	COP: Construction work COP: Managing the risks of plant in the workplace	
22. Site Access and Egress	WHS Act 2011 WHS Regulation 2017 Chapter 3 Part 3.2		COP: Construction work Traffic Management: Guide for construction work COP: Demolition Work COP: Excavation Work	
27. Fatigue	WHS Act 2011 WHS Regulation 2017		COP: Work health and safety consultation, coordination and cooperation COP: How to manage work health and safety risks	Guide to managing the risk of fatigue at work
28. Public / Pedestrians	WHS Act 2011 WHS Regulation 2017	AS 4586 Slip resistance classification of pedestrian surface materials AS 4663 Slip resistance measurement of existing pedestrian surfaces AS 1319 Safety signs for the occupational environment	COP: Work health and safety consultation, coordination and cooperation COP: Managing the risk of falls at workplace Preventing Falls in Construction Codes of Practice COP: Construction Work COP: Excavation Work	
30. Night Work	WHS Act 2011 WHS Regulation 2017		COP: How to manage work health and safety risks COP: Managing the work environment and facilities COP: Construction work	Traffic Control at Worksite Manual v6 TfNSW Spec G10
31. Bullying, Violence, Harassment	WHS Act 2011 WHS Regulation 2017 Anti-Discrimination Act 1977		COP: Work health and safety consultation, coordination and cooperation COP: How to manage work health and safety risks	

Annexure E – Traffic Incident Management Plan

Current Revision – Rev 3

1. SITE SPECIFIC INFORMATION

Site **Compound** Location: **813-913 Wallgrove Road, Horsley Park**
Site **Works** Location: **813-913 Wallgrove Road, Horsley**
Site access and egress is from access gates from **Wallgrove Road** **Site Communication via Radio UHF Channel 11**

2. PROJECT CONTACTS

Position	Name	Location	Phone
Project Manager	Alex Ruello	Site	0408 289 903
Engineer	Joseph George	Site	0447 064 127
Site Supervisor	Peter Cullen	Site	0418 280 086
Warden	Peter Cullen	Site	0418 280 086
Construction Manager	Joseph Aouad	Site / Office	0418 425 316
WHSE Coordinator	Mark Franklin	Site	0408 117 872
QSE Systems Team Leader	Melinda Brown	Office	0421 831 826
Homebush Office		3/11-21 Underwood Road	(02) 9581 5550

	
Peter Cullen **Site Supervisor** **PH: 0418 280 086** **First Aid officer** **Chief Warden** **24 hr Emergency Contact**	Mark Franklin **WHS Coordinate** **PH: 0408 117 872** **First Aid Officer**

3. EXTERNAL EMERGENCY CONTACTS

Emergency Contact	Phone	Authority
Ambulance / Fire / Police	000	Emergency services
Poisons Information Centre	131 126	Poison information
Jemena	131 909	Gas
Ausgrid	131 388	Electricity authority
Endeavour Energy	131 003	Electricity authority
Transgrid	1800 027 253	Overhead electricity
Sydney Water	132 090	Water service
AAPT / PowerTel	1800 786 306	Fibre Optic
Uecomm	1300 275 662	Fibre Optic
NBN	1800 687 626	Fibre Optic
AARnet	6222 3530	Fibre Optic
TPG	1300 993 011	Fibre Optic
Telstra	132 203	Comms
Optus	1800 505 777	Comms
RMS – Traffic Enquiry	132 701	Roads Authority
RMS – Traffic Management Centre	131 700	Roads Authority
WorkCover NSW	131 050	Work Health Safety Authority
EPA NSW (Environmental Incidents)	131 555	Environmental Authority
DBYD	1100	Underground services
Call DBYD for current service strike contacts or http://www.1100.com.au/safeexcavation/emergencies		
Local Hospital (9.5km)	(02) 9881 1555	Mt Druitt Hospital
Local Medical Centre (2.9km)	(02) 9620 2880	Horsley Park Medical Centre
Local Police Station (8.8km)	(02) 8788 5199	Wetherill Park Police Station
Local Council	(02) 9839 6000	Blacktown Council
Local Council	(02) 9725 0222	Fairfield Council
Eastern Creek Towing	0412 296 966	
Wetherill Park Towing	(02) 9757 2666	
Prestige Vehicle Transport	0407 264 471	

4. EMERGENCY EQUIPMENT LOCATIONS

Equipment	Type	Location	Inspection/Test Frequency
First aid kit	Wall mount kit	Site office Burton	Quarterly
First aid kit	Portable response kit	Delegates Office	Quarterly
First aid kit	Portable response kit	Supervisor vehicle	Quarterly
First aid kit	Portable response kit	Site engineer	Quarterly
First aid kit	Portable response kit	Leading Hand	Quarterly
Spill kit	120L response kit	Site container	6 monthly
Spill kit	Portable satchel type	Supervisor vehicle	6 monthly
Spill kit	Portable satchel type	Leading hand vehicle	6 monthly
Fire Extinguisher	9kg AB (E) dry chem	Site Office Burton	6 monthly
Fire Extinguisher	9kg AB (E) dry chem	Delegates office	6 monthly
Fire Extinguisher	9kg AB (E) dry chem	Container	6 monthly
Fire Extinguisher	9kg AB (E) dry chem	Lunchroom	6 monthly
Fire Extinguisher	9kg AB (E) dry chem	Toilet	6 monthly
Fire Blanket	N/A	Burton lunchroom	6 montly
Two-way radio	Portable handheld ICOM BC-160	Site office burton	During emergency evacuation drill
Two-way radio	Portable handheld ICOM BC-160	Site Supervisor	During emergency evacuation drill
Two-way radio	Portable handheld ICOM BC-160	Leading hand	During emergency evacuation drill

5. EMERGENCY RESPONSE EQUIPMENT RISK ASSESSMENT

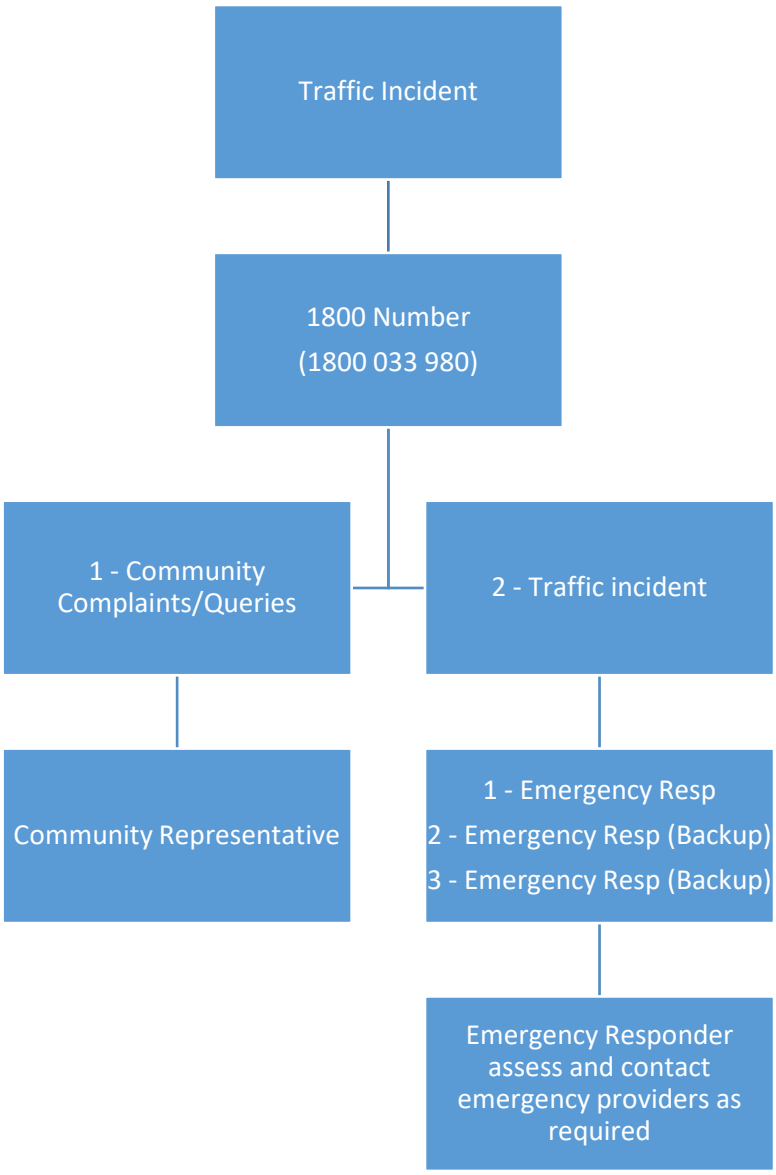
Location of the workplace		
Nearest hospital	Mt Druitt Hospital	
Nearest medical centre	Horsley Park Medical Centre	
Maximum time to medical service	5 minutes (medical centre)	
Number and composition of workers and other persons at the workplace		
Number of workers	< 20	
Number of other persons	< 5 (TfNSW etc)	
Shifts	Day and night	
Overtime worked	TBA	
Remote or isolated workers	Nil	
Work activities	**Emergency**	**Response requirements**
Road construction; Asphalting, line marking, spray sealing Interaction of workspace with other site activities	1. Traffic incident – minor – severe injuries of road users. 2. Impact with workers – unlikely although serious / fatal injuries. 1. Fire / explosion from leaking fluids	Ensure no addition personnel placed in danger Assess IP condition Apply First Aid Contact relevant Emergency Services 000 Fire extinguishers - Extinguish fire if safe to do so Ensure area is secured and access unobstructed/controlled for emergency services Contact stakeholder; TfNSW, SafeWork etc.
Boring, piers & head beam Road construction	3. Traffic incident – minor – severe injuries of road users. 4. Impact with workers – unlikely although serious / fatal injuries. 5. Fire / explosion from leaking fluids	Ensure no addition personnel placed in danger Apply First Aid Contact relevant Emergency Services 000 Contact stakeholder e.g. Utility Owners, TfNSW, WorkCover etc.
Utilities – installation, unexpected finds Trenching Potholing	1. Electrocution 2. Contaminated material 3. Minor / serious cuts 4. Impact injuries (pipes etc.) 5. Asbestos	Ensure no addition personnel placed in danger Apply First Aid Contact relevant Emergency Services 000 DBYD

		Contact stakeholder e.g. Utility Owners, TfNSW, WorkCover etc.
Excavation (minor)	1. Collision / impact 2. Fire 3. Explosion – flammable materials	Ensure no addition personnel placed in danger Extinguish fire if safe to do so Apply First Aid Contact relevant Emergency Services 000 Contact stakeholder e.g. Utility Owners, TfNSW, WorkCover etc.
Chemical spills / leaks Use of chemicals for minor tasks	1. Skin contact (likely – possible) 2. Splashback into eye (possible) 3. Inhalation (minor inhalation risk present, severe inhalation risk unlikely) 4. Ingestion (very unlikely)	Ensure no addition personnel placed in danger, maintain awareness of possible chemical splashes or fumes etc. Apply First Aid Contact relevant Emergency Services 000 Contact stakeholder e.g. Utility Owners, TfNSW, WorkCover etc. First aid kit: Eye wash Others: Fresh air; hand wash; Poisons Info help line Fire extinguishers
General construction activities & ground workers Tree removal, trimming, mulching Waste classification, sampling, geotech investigations Manual work – lifting, pulling, pushing, etc. to undertake general manual tasks	1. Muscular strains 2. Sprains 3. Cuts / abrasions 4. Friction / other burns 5. Fragments in eyes 6. Animal bites 7. Heat / cold	Ensure no addition personnel placed in danger Apply First Aid Contact relevant Emergency Services 000 Contact stakeholder e.g. Utility Owners, RMS, WorkCover etc. Site and Vehicle First Aid Kits

Requird first aid and emergency response equipment	
Number of first aiders needed	minimum x 1
Training and competencies for first aiders	Provide First Aid (HLTAID001, HLTAID002, HLTAID003)
Number and location of kits	Site office x 1. Additional kits in Supervisor & Engineers vehicles.
Contents of first aid kits	Comprehensive workplace kit. – This would be adequate for the site due to the number of workers anticipated not to be >25 at a time.
Kit maintenance	Inspect and replenish kits quarterly
Fire extinguishers	Standard type AB(E) sufficient for site – likely locations include plant, lunchroom facilities or hazardous substances. Locations on site for extinguishers include crib room, container & site office. 9kg recommended in order to manage a small site

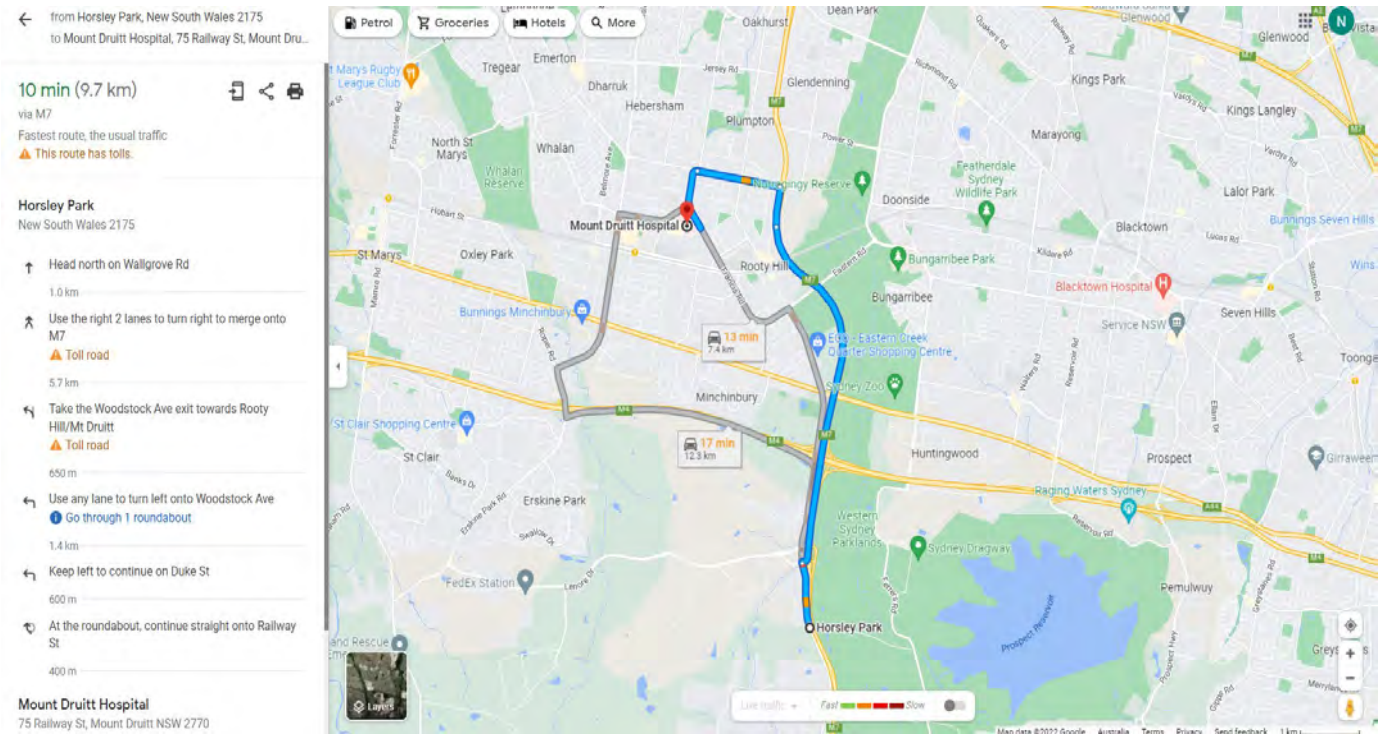
	fire or plant engine fire.
Spill kits	Container x1. Additional kits in Supervisor & Engineers vehicles.
Communication equipment	Minimum 1 set of 2-way radios
Transportation	Company Vehicle at minimum present on site
Comments	Close proximity to medical facilities and emergency services– no stretcher or AED required.
Assessment completed by	Mark Franklin
Date of Assessment	03/03/2021

6. TRAFFIC INCIDENT PROCEDURE

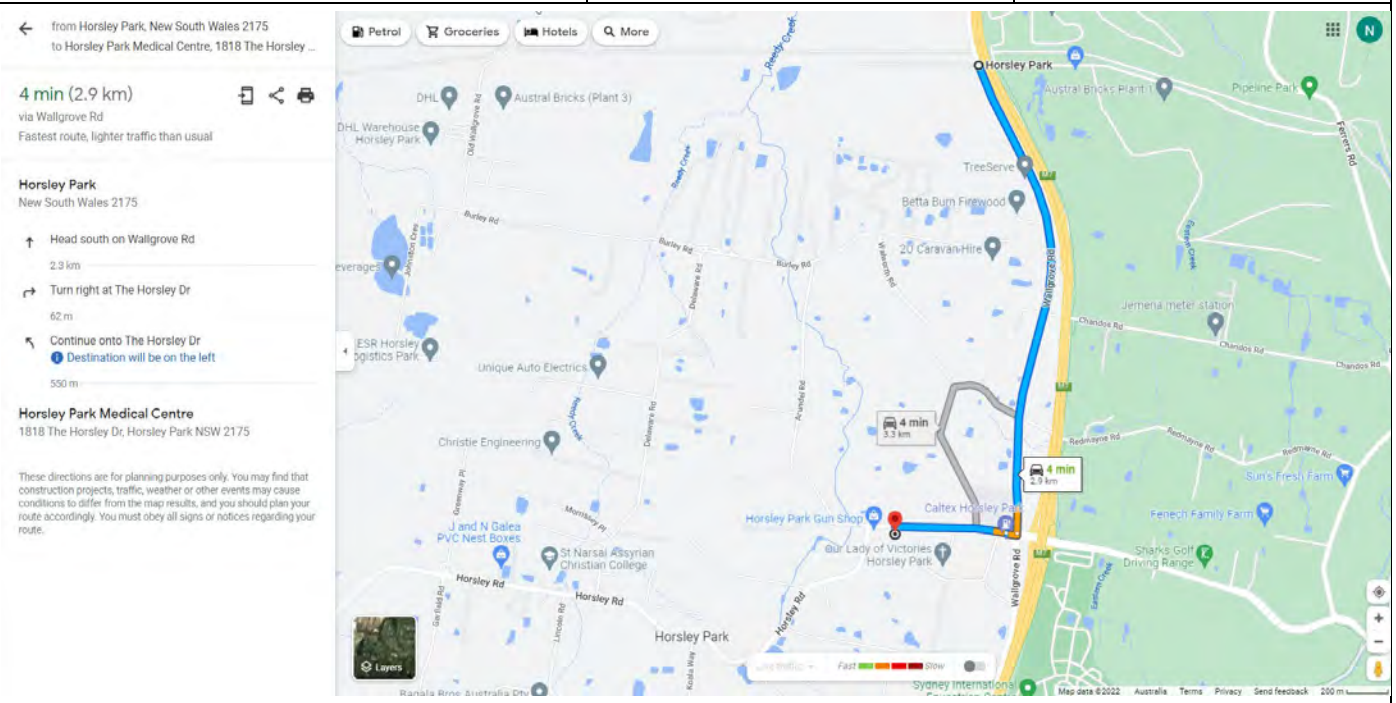


7. MEDICAL EMERGENCY LOCATION

HOSPITAL – Mt Druitt Hospital	Address – 75 Railway St, Mt Druitt	Phone – 9881 1555



HEALTHCARE CENTRE – Horsley Park medical centre	Address - 1818 The Horsley Dr, Horsley Park	Phone 9620 2880



8. SITE PLAN – ASSEMBLY AREAS



9. GENERAL EMERGENCY RESPONSE & SITE EVACUATION RESPONSE

1. DETERMINE TYPE OF EMERGENCY

The type of emergency will determine the response procedure. Is it: MEDICAL, ENVIRONMENTAL – SPILL, FIRE, VEHICLE ACCIDENT etc.

2. RAISE ALARM

Contact the Emergency Services on 000 and provide the following information:

1. The exact location of the emergency;
2. Type and extent of the emergency; and
3. Any special equipment or personnel required for rescue.

Follow all instructions issued by the 000 operator then raise the alarm in the workplace by contacting Emergency Warden or member of your Project Team or fellow workers. Once the Project Team is aware of the situation they must notify the QSE Department as soon as possible.
Notify workers to evacuate using most appropriate and available means – 2way radio, mobile phone, runner (verbal).

3. CONTAIN INCIDENT – EXTINGUISH FIRE / MOP SPILL

Only attempt to contain the incident if it is safe to do so and you are trained in the use of emergency equipment – fire extinguisher, spill kit.

4. EVACUATE TO ASSEMBLY AREA

Check for hazards to ensure workers and others are not at risk from flammable materials, live electricity, exposure to substances.
If you are not directly involved in containing the emergency and immediately upon being instructed to evacuate your work location, leave by the designated or safest / direct route.
Ensure all personnel around you are aware of the evacuation and assemble at nominated Evacuation Assembly Area/s to be accounted for. If you are aware of any missing workers, report it to a member of your Emergency Warden or Project Team IMMEDIATELY.

5. EVACUATE INJURED PERSONS

Assist and if possible, remove seriously injured persons from the accident area, only if no further danger exists and providing it is safe to do so. Do not disturb the scene of the incident, except to make the area safe.

6. FOLLOW INSTRUCTIONS OF EMERGENCY SERVICES

You must remain in assembly area until otherwise instructed for a safe return to your work area by Emergency Services, or your Emergency Warden.
Emergency Wardens and the Project Team must account for all personnel on site and assist Emergency Services Personnel as instructed.

7. Incident Notification and Report

If not already done, contact Burton Contractors Business Manager Construction or QSE Team Leader to notify of the event.
A ***TP-019 Incident Report*** is to be completed post emergency. The report must be forwarded to the QSE Department via email:
qse@burtoncontractors.com.au

10 SITE EMERGENCY SCENARIOS AND RESPONSE PROCEDURES

ANY LIFE THREATENING EMERGENCY CALL 000

CONTACT SITE SUPERVISOR: Peter Cullen – 0418 280 086

EMERGENCY	IMPACT	RESPONSE PROTOCOL	EQUIPMENT
General public vehicle incident on site	Immediate Injury to drivers and/or workers on site. Escalation of incident with additional vehicles becoming involved in the incident Release of fluids Possibility of Fire Traffic signals struck by vehicle & un-operational Power pole struck by vehicle downing powerlines	Stop work determine if risk of injury or further incident to other workers or plant in the work zone. Notify Site Supervisor Contact emergency services 000 Contact Utility Owner (If required) Contact stakeholder; Gazcorp Contact TMC Provide first aid to injured persons (if permitted) UHF radios notify operators to remain away from incident. Traffic control implemented to manage localised traffic (if on-site) Area kept clear for Utility Owners vehicle and/or Emergency services to attend Do not approach any down powerlines and mange area to keep by standers away Notify Environmental Coordinator for release of fluids only	Traffic controller & stop/slow bat Traffic cones Bollards First Aid kit & Spill kit Fire extinguisher UHF Radios Spill Kit
Plant / vehicle incident on site (contained to work area)	Immediate threat or Injury to Operator, drivers, and other workers. Release of fluids	Stop work, determine if risk of injury or further incident to other workers or plant exists, if no risk, move plant away from are and await instructions Notify Site Supervisor	Traffic cones Bollards First Aid kit

EMERGENCY	IMPACT	RESPONSE PROTOCOL	EQUIPMENT
Plant collision Plant rollover	Possibility of Fire	Contact emergency services 000 (If required) Notify Asset owner (If not Burton) UHF radios notify operators to remain away from incident. Traffic control implemented to manage localised traffic (if on-site) Notify Environmental Coordinator for release of fluids only Apply first aid to injured persons (if any) Attempt to control the spill or extinguish fire if not putting yourself at risk Contain spill within site, use available resources (i.e. spill kits), attempt to contain & prevent entering stormwater system Clean up the affected area Contact stakeholder; Gazcorp Plant / vehicles to remain out of service until repairs or inspection by competent person conducted	Spill kit Fire extinguisher Traffic controller & stop/slow bat
Overhead Services Strike Power, Street lighting, and communications interrupted	Electric shock to workers Electrical fire Loss of services to public Traffic congestion / delays if across road Damage to Burton's reputation	Stop work determine if risk of injury or further incident to other workers or plant in the work zone or residents. Notify Site Supervisor & TMC Contact emergency services 000 (If Required) Contact stakeholder; Utility Owners Apply first aid or CPR to injured worker Ask additional first aiders to assist with CPR (If required) UHF radios notify operators to remain away from incident. Traffic control implemented to manage localised traffic (if on-site) If no immediate danger of fire, operator to stay in cabin until given all clear to	Traffic controller & stop/slow bat Traffic cones Bollards First Aid kit Fire extinguisher UHF Radios

EMERGENCY	IMPACT	RESPONSE PROTOCOL	EQUIPMENT
		move. Exclusion zone to be established around area. Downed power cables are not to be approached. All vehicles/plant to be isolated and no other vehicle permitted in area Area kept clear for Utility Owners vehicle and/or Emergency services to attend Contact residents of service disruption (if any) Contact stakeholders; Gazcorp, SafeWork.	
Underground services strike Sewer, water, Gas and communications	Loss of services to public Electrocution Contamination of local properties Damage to Burton's reputation Explosion, fire	Stop work determine if risk of injury or further incident to other workers, plant in the work zone or residents. Notify Site Supervisor Contact emergency services 000 (If Required) Contact stakeholder; Utility Owners Apply first aid or CPR to injured worker Ask additional first aiders to assist with CPR (If required) UHF radios notify operators to remain away from the area. Traffic control implemented to manage localised traffic (if on-site) Exclusion zone to be established around area. All vehicles/plant to be isolated and no other vehicle permitted in area Area kept clear for Utility Owners vehicle and/or Emergency services to attend Contact residents of service disruption (if any) Contact stakeholders; Gazcorp, SafeWork.	First aid kit Fire extinguisher Traffic controller & stop/slow bat Traffic cones Bollards UHF Radios
Excavation / Trench Collapse	Engulfment - Workers exposed to Life threatening injuries.	Stop work	Hand Tools

EMERGENCY	IMPACT	RESPONSE PROTOCOL	EQUIPMENT
		Advise other workers to evacuate trench Notify Site Supervisor Contact emergency services 000 Apply first aid to injured worker UHF radio notify all workers to remain away from area. Traffic control implemented to manage localised traffic (if on-site) Exclusion zone to be established around area. Area kept clear for Emergency services to attend If risk of further collapse do not enter area or attempt rescue Attempt to identify, locate the position and number of the trapped workers. If person visible (if safe to do so) remove as much material as possible to ensure they can breathe. Contact stakeholders; Gazcorp, SafeWork.	Ladders Excavators Traffic controller & stop/slow bat First Aid kit Bollards Flagging Emergency Services – Police, Ambulance, Fire/Rescue UHF Radios
Fall from Height	Injured worker / potential death of a person	Assess the situation- Do not attempt to move the injured person Stop work determine if risk of injury or further incident to other workers or plant in the work zone. Notify Site Supervisor Contact emergency Services 000 UHF radio notify all workers to remain away from area. Traffic control implemented to manage localised traffic (if on-site) Exclusion zone to be established around area. Apply first aid to injured worker Area kept clear for Emergency services to attend	Traffic controller & stop/slow bat First Aid kit Bollards Flagging Emergency Services – Police, Ambulance, Fire/Rescue UHF Radios

EMERGENCY	IMPACT	RESPONSE PROTOCOL	EQUIPMENT
		Contact stakeholders; Gazcorp, SafeWork.	
Unexpected Find	Discovery of: Asbestos, other hazardous substances, aboriginal, archaeological, heritage.	Stop work Notify Site Supervisor Notify all workers to remain away from area Isolate area and install signage Notify relevant authorities Do not re-enter until advised by authorities / relevant consultants Contact stakeholder; Gazcorp.	Bollards Flagging Signage – exclusion zone UHF Radios
Other external emergency – e.g.; Incident at adjoining properties that continued work operations could affect emergency response and continued operation.	An external emergency outside construction site	Stop work and turn off machines Notify Site Supervisor UHF radio Notify all workers to remain away from area Contact emergency services 000 (if required) Stop work and prepare to evacuate area (if required). Contact stakeholder; Gazcorp.	Emergency Services – Fire/Rescue, Ambulance or Police UHF Radios
Plant fire	Plant damage Injury to workers	Stop work and turn off machine Evacuate plant Notify Site Supervisor Contact Fire/Rescue 000 (if required) Ensure no addition personnel placed in danger Assess IP condition Apply First Aid	Fire extinguisher First aid kit Hose / water cart Barricading Traffic controller to direct traffic & stop/slow bat UHF Radios

EMERGENCY	IMPACT	RESPONSE PROTOCOL	EQUIPMENT
		UHF radio Notify all workers to remain away from area Traffic control implemented to manage localised traffic (if on-site) If no risk to workers attempt to extinguish fire if safe to do so Isolate area Contact stakeholders; Utility Owners, Gazcorp, SafeWork.	
Medical emergency – other E.g. Heart attack	Injured worker / potential death of a person	Remain calm, assess the situation. Do not attempt to move the injured person Notify Site Supervisor Contact Ambulance 000 UHF radio Notify all workers to remain away from area Traffic control implemented to manage localised traffic (if on-site) Assess IP condition Commence CPR until ambulance arrives or first aid as required Ask additional first aiders to assist with CPR Contact stakeholder; Gazcorp, SafeWork	First Aid Kit UHF Radios
Localised site fire	Placing human life and property at risk. Death or injury to flora and fauna.	Stop work in area If no risk to persons remove any flammable or combustible materials from the area of the fire. Contact Fire/Rescue 000 Notify Site Supervisor Ensure no addition personnel placed in danger Assess IP condition	Hose / water cart Fire Extinguishers Barricading First Aid Kit Traffic controller to direct traffic & stop/slow bat UHF Radios

EMERGENCY	IMPACT	RESPONSE PROTOCOL	EQUIPMENT
		Apply First Aid UHF radio Notify all workers to remain away from area Traffic control implemented to manage localised traffic (if on-site) Contact stakeholder; Gazcorp If no risk to workers attempt to extinguish fire if safe to do so Isolate area	
Uncontrolled Sediment Discharge	Discharge of sediment laden water	Stop work, control source of sediment (e.g. divert water around stockpiles). Install additional sediment controls such as gravel inlet filters and sediment fences. Notify site supervisor & Environmental Coordinator Contact stakeholder; Gazcorp	Spill Kits Mobile Plant UHF Radios
Substance spill – Oil, Diesel	Discharge of oily water to storm water. Contamination of soil and groundwater. Damage to reputation.	Stop in the area where the spill occurred. Notify site supervisor & Environmental Coordinator Spill response kits are kept at all sites for deployment in the event of an oil spill. Attempt to control the spill if not putting yourself at risk Contain spill within site, use available resources (i.e. spill kits), attempt to contain & prevent entering stormwater system Clean up the affected area Contact stakeholder; Gazcorp	Spill Kit Wash facilities PPE as per SDS requirements UHF Radios
Substance Spill – Chemical	Discharge of chemicals to storm water. Contamination of soil and groundwater.	Stop work in the area where the spill occurred. Notify site supervisor & Environmental Coordinator Spill response kits are kept at all sites for deployment in the event of an oil spill. Attempt to control the spill if not putting yourself at risk	Spill Kits First aid kit Wash facilities PPE as per SDS

EMERGENCY	IMPACT	RESPONSE PROTOCOL	EQUIPMENT
	Damage to reputation.	Contain spill within site, use available resources (i.e. spill kits), attempt to contain & prevent entering stormwater system Clean up the affected area Contact stakeholder; Gazcorp	requirements UHF Radios
Flooding into open Excavation and/or Trench	Flooding damage to assets Fall into Trench/Excavation- injury or death caused by drowning Engulfment – Trench/Excavation Wall collapse	Notify Site Supervisor Ensure no addition personnel placed in danger Contact Emergency Services 000 Assess IP condition Apply First Aid and/or commence CPR Ask additional first aiders to assist with CPR UHF radio Notify all workers to remain away from area Traffic control implemented to manage localised traffic (if on-site) Contact stakeholder e.g., Utility Owners, Gazcorp, SafeWork Isolate area Park all plant above and/or away from the flood AREA	Submersible pump Vac Truck Barricading and/or ATF Traffic controller to direct traffic & stop/slow bat UHF Radios

DRSABCD

St John

IN AN EMERGENCY CALL **TRIPLE ZERO (000)** FOR AN AMBULANCE



D — Dangers?

Ensure the area is safe for yourself, others and the patient.



R — Responsive?

Check for a response: ask name, squeeze shoulders.
No response? Send for help.
Response? Make comfortable and monitor response.



S — Send for help

Call triple zero (000) for an ambulance or ask another person to make the call.



A — Open Airway

Open the mouth and check the airway for foreign material.
Foreign material? Place in the recovery position and clear the airway.
No foreign material? Leave in position.
Open the airway by tilting the head back with a chin lift.



B — Normal Breathing?

Check for breathing: look, listen, feel for 10 seconds.
Not normal breathing? Ensure an ambulance has been called; start CPR.
Normal breathing? Place in the recovery position and monitor breathing.



C — Start CPR

30 chest compressions : 2 breaths.
Continue CPR until help arrives or the patient starts breathing.



D — Attach defibrillator (AED)

and follow the voice prompts.

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10. Acknowledgement of ERP

I acknowledge that I have been inducted into this Emergency Response Plan and have read and understood the contents. I understand my responsibilities and what is required of me should an emergency occur.

Name	Position/Role	Signature	Date
Peter Cullen	Site Supervisor/ Emergency Warden First Aid Officer		
Alex Ruello	Project Manager		
Mark Franklin	First Aid Officer		

Annexure F – Subway Road Business Correspondence

Veolia approval for proposed truck restrictions

From: Bernhart, Stephen
To: Alex Ruello
Cc: Promit Biswas; Jim Hennessy
Subject: Re: Job-423-WGR - Wallgrove Road Intersection Upgrade - Veolia
Date: Monday, 9 May 2022 5:31:39 PM
Attachments: image007.png

Hi Alex,

I have passed on your details to one of our contractors (JK Williams) who is working onsite at the moment. As mentioned previously, they will be floating mobile plant on/off site.

In general, Veolia is comfortable with the proposed access changes, provided that it does not restrict access for floating mobile plant on/off site. We will not be operating b-double length vehicles.

Regards,

Stephen Bernhart
Manager - Horsley Park Waste Management Facility
Veolia Australia & New Zealand

Mobile: +61 418 687 384
716 - 752 Wallgrove Road / Horsley Park / NSW 2175 Australia
www.veolia.com/ANZ

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On Mon, 9 May 2022 at 08:03, Alex Ruello <Alex.Ruello@burtoncontractors.com.au> wrote:

> Hi Stephen,
>
> Friendly reminder about the below proposal and Veolia's acceptance of the configuration changes.
>
> Regards,
>
> Alex Ruello
> **Project Manager**
> **Burton Contractors Pty Ltd**
>
> T: 0408 289 903
> M: 0408 289 903
> F: 02 9581 5551
> E: Alex.Ruello@burtoncontractors.com.au
>
> BURTON Civil Engineering Contractors
> www.burtoncontractors.com.au
>
> **Sydney Office**
> Homebush Business Village
> Unit 3/11-21 Underwood Rd
> Homebush NSW 2140
> T: 02 9581 5550 F: 02 9581 5551
>
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>
> **From:** Alex Ruello
> **Sent:** Wednesday, 27 April 2022 4:03 PM
> **To:** Bernhart, Stephen <stephen.bernhart@veolia.com>
> **Cc:** Promit Biswas <promit.biswas@veolia.com>; Jim Hennessy <jim.hennessy@veolia.com>
> **Subject:** RE: Job-423-WGR - Wallgrove Road Intersection Upgrade - Veolia
>
> Hi Stephen,
>
> Apologies for the delay in our response. We are currently in the process of developing our TMP. We have reached out and made contact with the potentially affected stakeholders so we can finalise the temporary traffic design to be included as part of our TMP.
>
> Looking at the snapshot of the intersection below, Burton are currently looking at a design that restricts 26m B-Double movements in all directions in and out of the private road (Called "Subway Road" in our design) onto Wallgrove Road. The temporary design will cater for 19m semi-trailer trucks during the approximate 1 year long works scheduled to start in June/July 2022.

Can you please advise if the proposed changes are acceptable to Veolia?



Regards,

Alex Ruello
Project Manager
Burton Contractors Pty Ltd

T: 0408 289 903
M: 0408 289 903
F: 02 9581 5551
E: Alex.Ruello@burtoncontractors.com.au

BURTON
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Sydney Office
Homebush Business Village
Unit 3/11-21 Underwood Rd
Homebush NSW 2140
T: 02 9581 5550 F: 02 9581 5551

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From: Bernhart, Stephen <stephen.bernhart@veolia.com>
Sent: Tuesday, 19 April 2022 11:46 AM
To: Alex Ruello <Alex.Ruello@burtoncontractors.com.au>
Cc: Promit Biswas <promit.biswas@veolia.com>; Jim Hennessy <jim.hennessy@veolia.com>
Subject: Re: Job-423-WGR - Wallgrove Road Intersection Upgrade - Veolia

Hi Alex,

Thank you for reaching out to advise of the upcoming works.

To enable us to have a better understanding of the works and the potential impacts on our operations, would you be able to provide us with a Traffic Management Plan for the works?

We will be floating earthmoving equipment into/out of our facility over and above normal truck movements and we will need to understand how the works may affect these movements as well..

Regards,

Stephen Bernhart
Manager - Horsley Park Waste Management Facility
Veolia Australia & New Zealand

Mobile: +61 418 687 384
716 - 752 Wallgrove Road / Horsley Park / NSW 2175 Australia
www.veolia.com/ANZ





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On Fri, 15 Apr 2022 at 14:38, Hennessy, Jim <jim.hennessy@veolia.com> wrote:

> For you ?
>
> ---------- Forwarded message ---------
> From: **Alex Ruello** <Alex.Ruello@burtoncontractors.com.au>
> Date: Thu, 14 Apr 2022 at 10:08 am
> Subject: Job-423-WGR - Wallgrove Road Intersection Upgrade - Veolia
> To: jim.hennessy@veolia.com <jim.hennessy@veolia.com>
> Cc: Joseph Aouad <Joseph.Aouad@burtoncontractors.com.au>
>
> Hi Jim,
>
> You may remember me from my most recent project with Burton at Erskine Park Road. Vijay has passed on your contact details as the best contact for discussing the below topic. If you are not the best contact for this, it would be appreciated if you could point me in the right direction.
>
> As you may know, there is a planned upgrade for Wallgrove Road which affects the intersection that runs beneath the M7 to one of Veolia's landfill sites. I will be the Project Manager from Burton managing this upgrade.
>
> For us to complete the upgrade, we will need to make changes to the existing road and traffic conditions which may have some impact on the access to your business. We will not be able to implement any change that may negatively impact access without written consent from the affected business. The existing intersection is configured as a 'seagull' priority intersection that gives right of way to North-South traffic on Wallgrove Road, making access in and out of "Subway Road" difficult at times. The ultimate design is a set of traffic lights at this intersection which will eliminate the difficulty of accessing your business for truck sizes up to and including B-Doubles.

To manage traffic during the upgrade of Wallgrove Road, we propose to put in a set of temporary traffic lights immediately that will serve the same purpose as the ultimate design. This will give an immediate benefit to all businesses that are accessed from “Subway Road”. However, during the preliminary development of the temporary traffic signal design, we found that maintaining safe turn paths for B-Double truck movements in and out of the intersection was not practical. The most balanced design that we currently have allows for truck sizes up to and including 19m Semi-trailers, being the next size down from B-doubles in terms of turn path space requirements.

The construction phase of the project will run for approximately 11 months from the time that we commence the implementation of the temporary traffic signals, approximately scheduled for a June/July 2022 start. Burton are seeking approval from Veolia to temporarily restrict B-Double trucks from accessing “Subway Road” during the construction phase of the project. We will be seeking this same approval from all other stakeholders on “Subway Road”. We understand that you may have some questions or require more information from us regarding the works and we will be happy to address any queries that you have. I am happy to answer any queries via email or alternatively coordinate a time for a Teams meeting to go through the above in more detail. The approval from affected stakeholders is critical for our approval to commence construction works and would appreciate a rapid response.

Please do not hesitate to contact me on the below details

Regards,

Alex Ruello
Project Manager
Burton Contractors Pty Ltd

T: 0408 289 903
M: 0408 289 903
F: 02 9581 5551
E: Alex.Ruello@burtoncontractors.com.au

BURTON
Civil Engineering Contractors
www.burtoncontractors.com.au

Sydney Office
Homebush Business Village
Unit 3/11-21 Underwood Rd
Homebush NSW 2140
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--

Regards

Jim Hennessy
NSW Sales Manager - Resource Recovery
NSW STATE OFFICE

P: +61 2 9841 2844 / **M:** **+61 429 128 368**

Corner Unwin & Shirley Streets/ Rosehill/ NSW 2142 Australia
www.veolia.com

Austral / Brickworks approval for proposed truck restrictions

Alex Ruello

From: Avery Spackman <Avery.Spackman@australbricks.com.au>
Sent: Wednesday, 18 May 2022 11:55 AM
To: Alex Ruello
Cc: Emily Antonio; Sean Cribb

Hi Alex

Austral bricks are giving you permission to proceed as discussed with the intersection on Wallgrove road.

Regards Avery

Avery Spackman
General Manager Austral Bricks NSW
Direct 02 9830 7776
Mobile 0414 408 224
Tel 02 9830 7700
Fax 02 9830 7770
Email Avery.Spackman@australbricks.com.au
Austral Bricks
2 Latitude Road
Horsley Park NSW 2175
www.australbricks.com.au



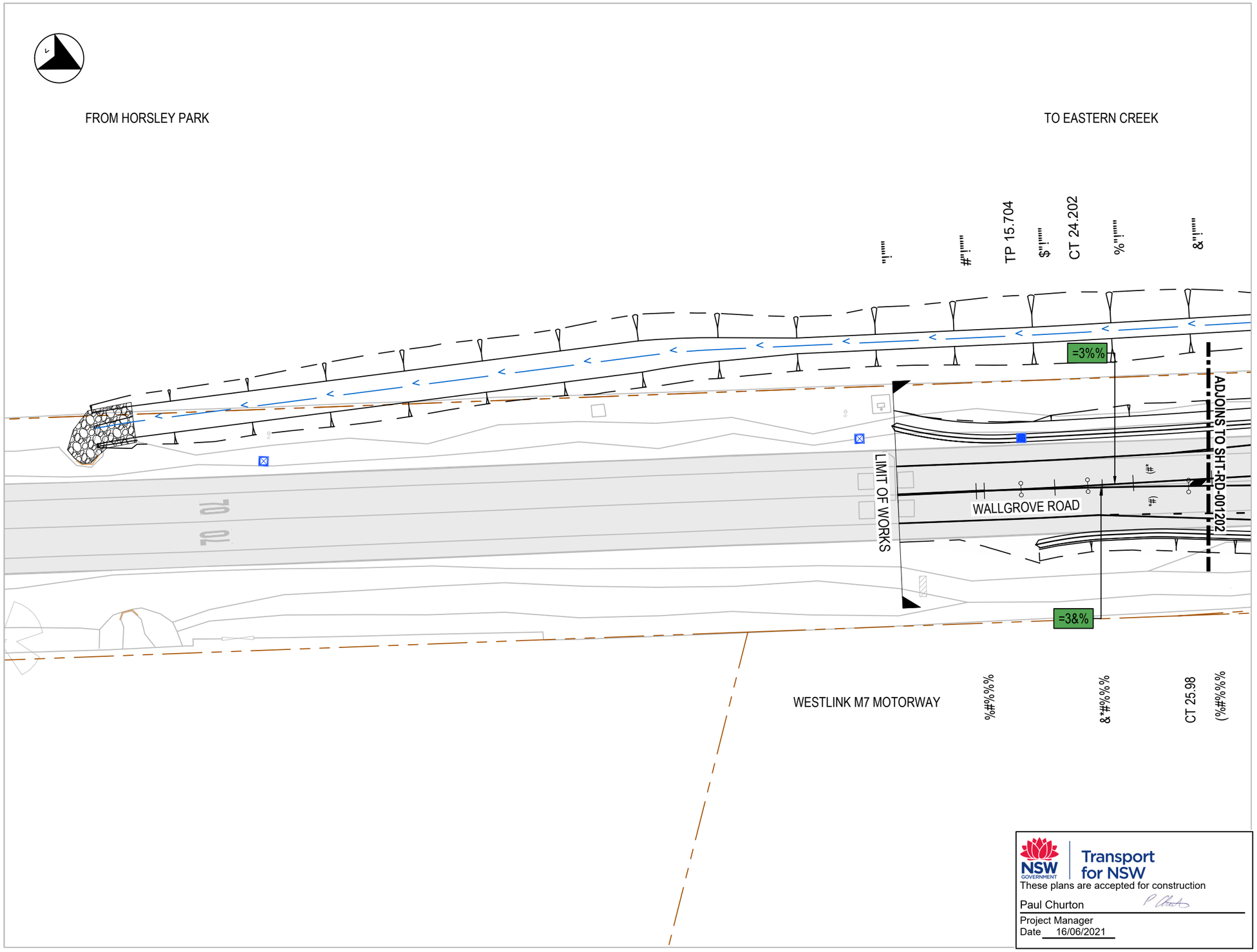
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Annexure G – Ultimate Design Civil Drawings

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FROM HORSLEY PARK

TO EASTERN CREEK



<575>4

ROAD CONTROL LINE

CADASTRAL BOUNDARY

PROPOSED DESIGN

EXISTING SURVEY

=HHH — ROAD CONTROL LINE LABEL

EXISTING PAVEMENT

EXISTING STORMWATER PIT

NEW STORMWATER PIT

PIPE CONNECTION TO EXISTING PIT

ADJUST / MODIFY EXISTING PIT INLET

STN — SURVEY CONTROL MARKER

SAFETY BARRIER

>?D5C

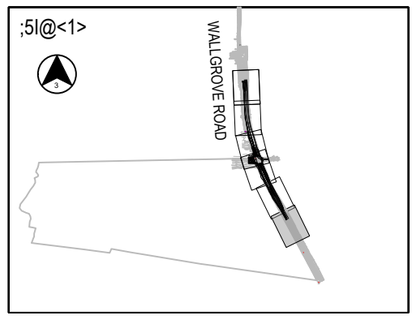
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'# FOR DRAINAGE, REFER TO SHT-SM-001001 TO C8D"75"%%&%%+#

(# FOR LINEMARKING DETAILS, REFER TO SHT-RF-001001 TO SHT-RF-001006 AND SHT-RF-004001 TO SHT-RF-004002.

)# FOR UTILITIES, REFER TO SHT-UT-001001 TO SHT-UT-001006, SHT-UT-001011 TO SHT-UT-001016 AND SHT-UT-004001 TO SHT-UT-004004.

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NSW GOVERNMENT Transport for NSW

These plans are accepted for construction

Paul Churton

Project Manager

Date 16/06/2021

ACCEPTED FOR CONSTRUCTION

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								PROJECT MNGR	PAUL CHURTON	(&#%,#'%%

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GAZCORP

PREPARED FOR SYDNEY DIVISION NETWORK DEVELOPMENT

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA

19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK INTERSECTION UPGRADE GENERAL ARRANGEMENT

SHEET 1 OF 6

1(

TfNSW REGISTRATION No. 4C'%'%$%%%)'* @1BD -

ISSUE STATUS ACCEPTED FOR CONSTRUCTION

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FROM HORSLEY PARK

TO EASTERN CREEK

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ADJOINS TO SHT-RD-001201

ADJOINS TO SHT-RD-001203

WALLGROVE ROAD

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WESTLINK M7 MOTORWAY

<575>4

%%%%#%% ROAD CONTROL LINE

CADASTRAL BOUNDARY

PROPOSED DESIGN

EXISTING SURVEY

=HHH ROAD CONTROL LINE LABEL

EXISTING PAVEMENT

EXISTING STORMWATER PIT

NEW STORMWATER PIT

PIPE CONNECTION TO EXISTING PIT

ADJUST / MODIFY EXISTING PIT INLET

STN SURVEY CONTROL MARKER

SAFETY BARRIER

>?D5C

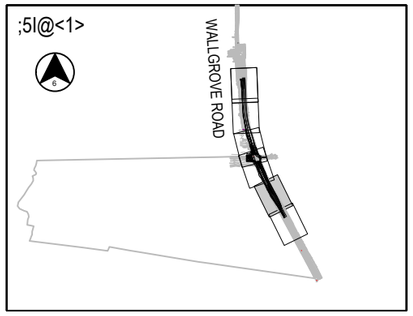
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)# FOR UTILITIES, REFER TO SHT-UT-001001 TO SHT-UT-001006, SHT-UT-001011 TO SHT-UT-001016 AND SHT-UT-004001 TO SHT-UT-004004.

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NSW GOVERNMENT Transport for NSW

These plans are accepted for construction

Paul Churton

Project Manager

Date 16/06/2021

ACCEPTED FOR CONSTRUCTION

DRAWING FILE LOCATION / NAME				DESIGN LOT CODE		DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING		PLOT DATE / TIME		PLOT BY	3<95>D
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EXTERNAL REFERENCE FILES	B5F	41D5	AMENDMENT / REVISION DESCRIPTION	WVR No.	1@@B?F1<	SCALES ON A3 SIZE DRAWING	DRAWINGS / DESIGN PREPARED BY	4B1G>	JASON BOVIS	(&#%,#'%%	
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Ā$ #" Consulting

$%+#5 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 0#(02) 8660 0035 '# SVQWOWYSWVNWVZ(TjSVRWNQ

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA

19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK INTERSECTION UPGRADE

GENERAL ARRANGEMENT

SHEET 2 OF 6

1(

TfNSW REGISTRATION No. 4C'%'%$%%%)'* @1BD -

ISSUE STATUS ACCEPTED FOR CONSTRUCTION | EDMS No. - | SHEET No. C8D"B4"%%&'%(9CCE5

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NSW GOVERNMENT Transport for NSW

These plans are accepted for construction

Paul Churton

Project Manager

Date 16/06/2021

FROM HORSLEY PARK

TO EASTERN CREEK

PRIVATE ACCESS ROAD

LIMIT OF WORKS

CREST 260.881

CT 337.420

EXTEND EXISTING 600Ø CULVERT AND PROVIDE NEW PRECAST HEADWALL

NEW FOOTPATH

>42'

INSTALL NEW PEDESTRIAN RAMPS, REFER TO STANDARD DRAWING R0300-11

>4&&

ADJOINS TO SHT-RD-001202

ADJOINS TO SHT-RD-001204

WALLGROVE ROAD

EXISTING RETAINING WALL TO BE RETAINED

>4'&

INSTALL NEW PEDESTRIAN RAMPS, REFER TO STANDARDS DRAWING C&)&&#"

NEW FOOTPATH

SIGNAL POST REQUIRES OFFSET FOOTING TO COORDINATE WITH EXISTING BARRIER

EXISTING SAFETY BARRIER TO BE RETAINED

WESTLINK M7 MOTORWAY

SUBWAY ROAD

LIMIT OF WORKS

>43'

INSTALL NEW PEDESTRIAN RAMPS, REFER TO STANDARD DRAWING C&)&&#"

NEW SAFETY BARRIER TO STRUCTURAL ENGINEER'S DA64:7:42E:@?

CT 325.578

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- ROAD CONTROL LINE
- CADASTRAL BOUNDARY
- PROPOSED DESIGN
- EXISTING SURVEY
- >III ROAD CONTROL LINE LABEL
- EXISTING PAVEMENT
- EXISTING STORMWATER PIT
- NEW STORMWATER PIT
- PIPE CONNECTION TO EXISTING PIT
- ADJUST / MODIFY EXISTING PIT INLET
- STN SURVEY CONTROL MARKER
- SAFETY BARRIER

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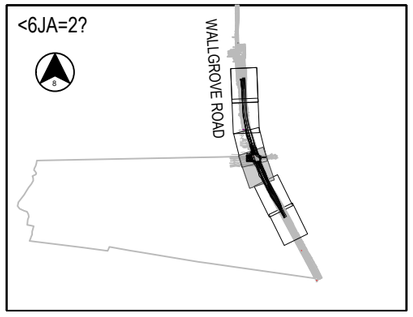
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($ FOR DRAINAGE, REFER TO SHT-SM-001001 TO D9E#86#&&'&&,$

)$ FOR LINEMARKING DETAILS, REFER TO SHT-RF-001001 TO SHT-RF-001006 AND SHT-RF-004001 TO SHT-RF-004002.

*$ FOR UTILITIES, REFER TO SHT-UT-001001 TO SHT-UT-001006, SHT-UT-001011 TO SHT-UT-001016 AND SHT-UT-004001 TO SHT-UT-004004.

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EXTERNAL REFERENCE FILES	C6G 52E6	AMENDMENT / REVISION DESCRIPTION	DRAWINGS / DESIGN PREPARED BY	
	&)'$&-$(&(&	50% DETAILED DESIGN	Ā$ #" Consulting	5C2H? JASON BOVIS)'$&-$(&(&
	' "$"$(&(&	80% DETAILED DESIGN	$%+825 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 8(02) 8660 0035 %TWRX1XZTXWOXW[UTWS$XXWZ	DRG CHECK PHILIP BYRUM)'$&-$(&(&
	(' $&($(&('	100% DETAILED DESIGN	CO-ORDINATE SYSTEM MGA Z56 HEIGHT DATUM 295	56D:8? PHILLIP STODDART)'$&-$(&(&
	) &'$&*$(&('	ACCEPTED FOR CONSTRUCTION		DESIGN CHECK PHILIP BYRUM)'$&-$(&(&
				DESIGN MNGR PHILIP BYRUM)'$&-$(&(&
				PROJECT MNGR PAUL CHURTON)'$&-$(&(&

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GAZCORP

PREPARED FOR SYDNEY DIVISION NETWORK DEVELOPMENT

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA

19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK INTERSECTION UPGRADE GENERAL ARRANGEMENT

2)

SHEET 3 OF 6

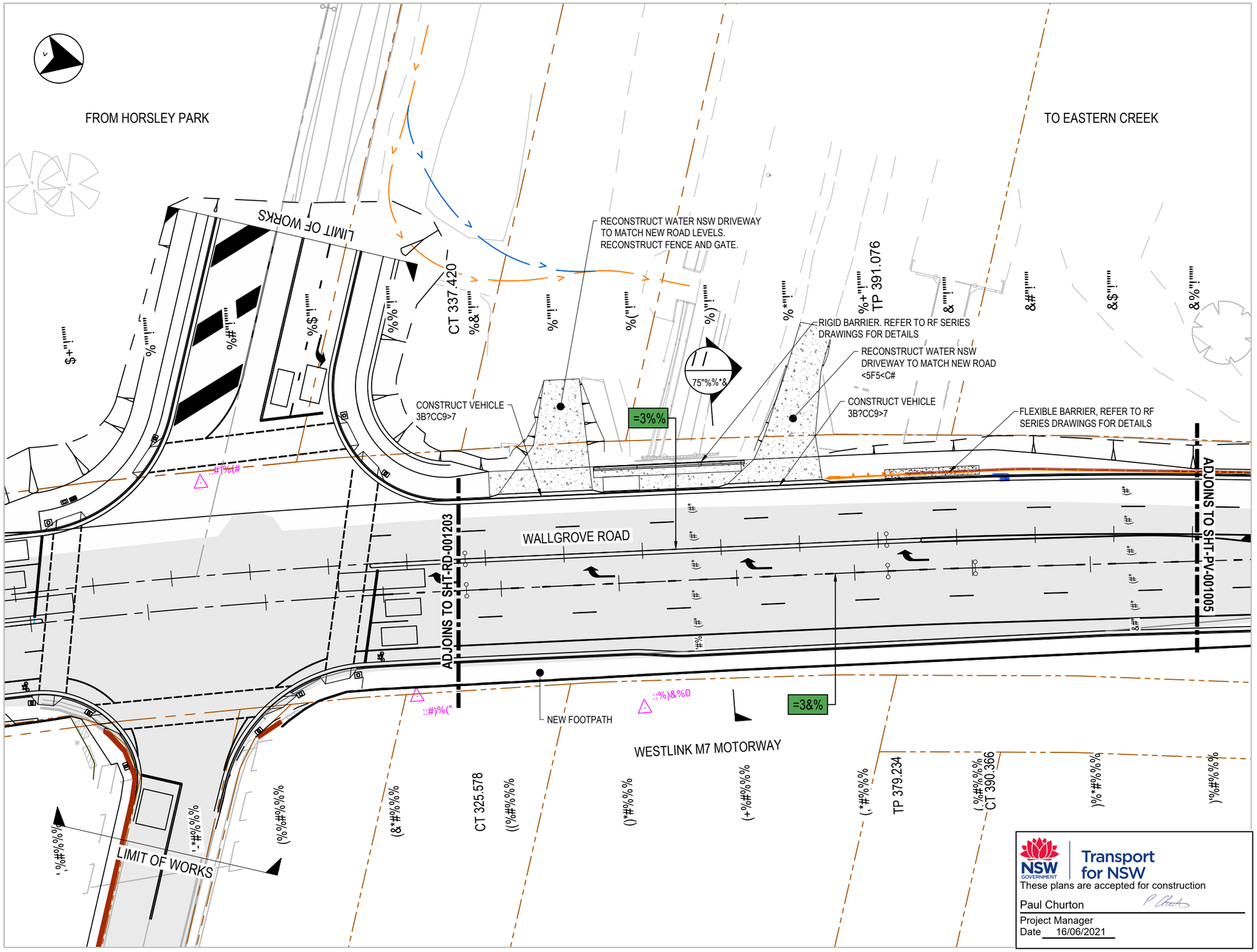
TfNSW REGISTRATION No. 5D(&(&%&&&*(+ A2CE -

ISSUE STATUS ACCEPTED FOR CONSTRUCTION | EDMS No. - | SHEET No. D9E#C5#&&'(&) :DDF6)

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- ROAD CONTROL LINE
- CADASTRAL BOUNDARY
- PROPOSED DESIGN
- EXISTING SURVEY
- =HHH — ROAD CONTROL LINE LABEL
- EXISTING PAVEMENT
- EXISTING STORMWATER PIT
- NEW STORMWATER PIT
- PIPE CONNECTION TO EXISTING PIT
- ADJUST / MODIFY EXISTING PIT INLET
- STN — SURVEY CONTROL MARKER
- SAFETY BARRIER

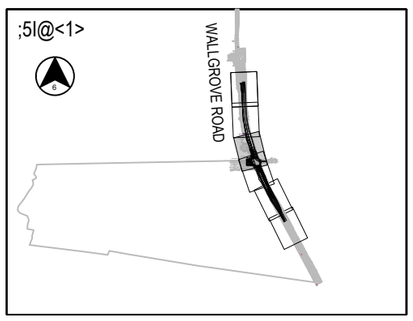
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&# FOR GENERAL NOTES, REFER TO SHT-GE-000021 AND C8D"75"%%%%"#

'# FOR DRAINAGE, REFER TO SHT-SM-001001 TO C8D"75"%&%%+#

(# FOR LINEMARKING DETAILS, REFER TO SHT-RF-001001 TO SHT-RF-001006 AND SHT-RF-004001 TO SHT-RF-004002.

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Paul Churton

Project Manager

Date 16/06/2021

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DRAWING FILE LOCATION / NAME				DESIGN LOT CODE		DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING		PLOT DATE / TIME		PLOT BY	
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EXTERNAL REFERENCE FILES	B5F	41D5	AMENDMENT / REVISION DESCRIPTION		@#2IBE=	$!' " $!' '$!'F 1 : 500 FULL SIZE A3	Ā$ #" Consulting	4B1G>	JASON BOVIS	(&#%,#'%'%	GAZCORP
	%	(&#%,#'%'%	50% DETAILED DESIGN		@#2IBE=			DRG CHECK	PHILIP BYRUM	(&#%,#'%'%	
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	(	%&#%)#'%'&	ACCEPTED FOR CONSTRUCTION		@#2IBE=	CO-ORDINATE SYSTEM MGA Z56	HEIGHT DATUM 184	DESIGN MNGR	PHILIP BYRUM	(&#%,#'%'%	
								PROJECT MNGR	PAUL CHURTON	(&#%,#'%'%	

PREPARED FOR SYDNEY DIVISION NETWORK DEVELOPMENT

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA

19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK INTERSECTION UPGRADE GENERAL ARRANGEMENT

SHEET 4 OF 6

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ISSUE STATUS ACCEPTED FOR CONSTRUCTION | EDMS No. - | SHEET No. C8D"B4"%%&%) (| 9CCE5

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FROM HORSLEY PARK

TO EASTERN CREEK

TP 505.415

11
86"%%*'

00
86"%%*'

>4%%

FLEXIBLE BARRIER SYSTEM. REFER TO RF PLANS FOR DETAILS

85'%('%

)'%

)'%

WALLGROVE ROAD

ADJOINS TO SHT-RD-001204

ADJOINS TO SHT-RD-001206

BICYCLE LANE TO BE RETAINED WITH NEW PAVEMENT MARKING

>4&%

WESTLINK M7 MOTORWAY

TP 439307

CT 11.911

=686?5

- ROAD CONTROL LINE
- CADASTRAL BOUNDARY
- PROPOSED DESIGN
- EXISTING SURVEY
- >III — ROAD CONTROL LINE LABEL
- EXISTING PAVEMENT
- EXISTING STORMWATER PIT
- NEW STORMWATER PIT
- PIPE CONNECTION TO EXISTING PIT
- ADJUST / MODIFY EXISTING PIT INLET
- STN — SURVEY CONTROL MARKER
- SAFETY BARRIER

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&# FOR GENERAL NOTES, REFER TO SHT-GE-000021 AND D9E"86"%%%%"#

'# FOR DRAINAGE, REFER TO SHT-SM-001001 TO D9E"86"%%&%%+#

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<6JA=2?

WALLGROVE ROAD

NSW GOVERNMENT Transport for NSW

These plans are accepted for construction

Paul Churton

Project Manager

Date 16/06/2021

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DRAWING FILE LOCATION / NAME				DESIGN LOT CODE		DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING		PLOT DATE / TIME		PLOT BY
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	&	&&#&&#'%'%	80% DETAILED DESIGN		A#3JCF>	1 : 500 FULL SIZE A3	%&.525 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 1(02) 8660 0035 (5 TWRX1XZTXWOXW(UJTWSKOX@	56D:8?	PHILLIP STODDART	(&#%,#'%'%
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								PROJECT MNGR	PAUL CHURTON	(&#%,#'%'%

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NETWORK DEVELOPMENT

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA

19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK INTERSECTION UPGRADE
GENERAL ARRANGEMENT

SHEET 5 OF 6

2(

TINSW REGISTRATION No. 5D'%'%$%%%)'* A2CE -

ISSUE STATUS ACCEPTED FOR CONSTRUCTION | EDMS No. - | SHEET No. D9E"C5"%%&'%+ :DDF6 (

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FROM HORSLEY PARK

TO EASTERN CREEK

TP 595.511

CT 650.025
TP 654.471

CT 673.419

22
86"%%*'

>4%%

TIE INTO EXISTING

WALLGROVE ROAD

LIMIT OF WORKS

ADJOINS TO SHT-RD-001005

BICYCLE LANE TO BE RETAINED WITH NEW PAVEMENT MARKING

>4'%

WESTLINK M7 MOTORWAY

CT 11.911

=686?5

- ROAD CONTROL LINE
- CADASTRAL BOUNDARY
- PROPOSED DESIGN
- EXISTING SURVEY
- >III — ROAD CONTROL LINE LABEL
- EXISTING PAVEMENT
- EXISTING STORMWATER PIT
- NEW STORMWATER PIT
- PIPE CONNECTION TO EXISTING PIT
- ADJUST / MODIFY EXISTING PIT INLET
- STN — SURVEY CONTROL MARKER
- SAFETY BARRIER

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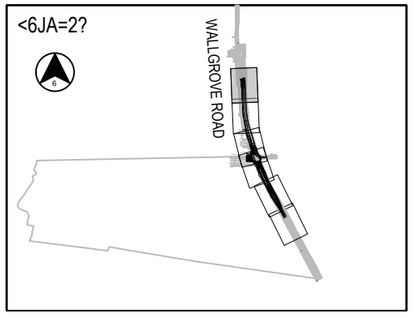
&# FOR GENERAL NOTES, REFER TO SHT-GE-000021 AND D9E"86"%%%%"#

'# FOR DRAINAGE, REFER TO SHT-SM-001001 TO D9E"86"%%&%%+#

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<6JA=2?



NSW GOVERNMENT Transport for NSW

These plans are accepted for construction

Paul Churton

Project Manager

Date 16/06/2021

ACCEPTED FOR CONSTRUCTION

DRAWING FILE LOCATION / NAME: C:\12dS\data\ORION-SYN01\05-RD Wallgrove Road Upgrade_20302\DWGS\Xref\RMS_CIVIL-GE-SHT_A3.dwg				DESIGN LOT CODE		DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING		PLOT DATE / TIME		PLOT BY
EXTERNAL REFERENCE FILES	C6G	52E6	AMENDMENT / REVISION DESCRIPTION	WVR No.	2AAC@G2=	SCALES ON A3 SIZE DRAWING	DRAWINGS / DESIGN PREPARED BY	E:E=6	?2>6	52E6
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	&	&&#&&#'%'%	80% DETAILED DESIGN		A#3JCF>	1 : 500 FULL SIZE A3		DRG CHECK	PHILIP BYRUM	(&#%,#'%%
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	(	%&#%)#'%'&	ACCEPTED FOR CONSTRUCTION		A#3JCF>	CO-ORDINATE SYSTEM MGA Z56	HEIGHT DATUM 295	DESIGN CHECK	PHILIP BYRUM	(&#%,#'%%
								DESIGN MNGR	PHILIP BYRUM	(&#%,#'%%
								PROJECT MNGR	PAUL CHURTON	(&#%,#'%%

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SYDNEY DIVISION
NETWORK DEVELOPMENT

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA

19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK
INTERSECTION UPGRADE
GENERAL ARRANGEMENT

SHEET 6 OF 6

2(

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ISSUE STATUS: ACCEPTED FOR CONSTRUCTION | EDMS No. - | SHEET No. D9E"C5"%%&'%+ (| :DDF6

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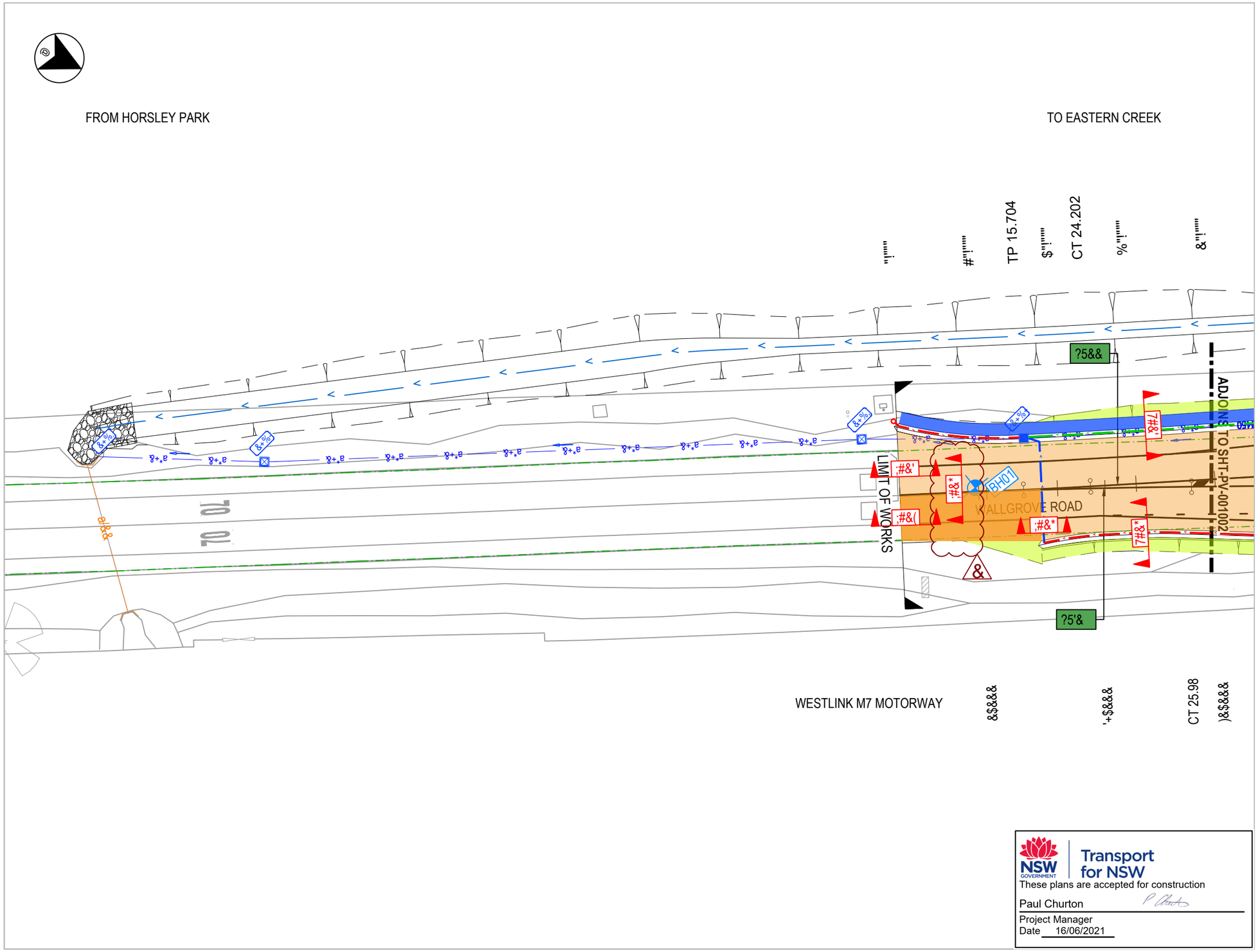
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FROM HORSLEY PARK

TO EASTERN CREEK



LEGEND FOR PAVEMENT TYPES

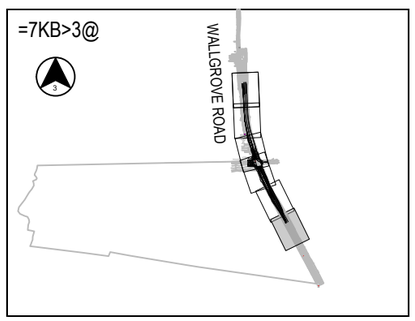
- T1 - TYPE 1 PAVEMENT
- P1 - PEDESTRIAN FOOTPATH
- RM1 - RAISED CONCRETE MEDIAN
- M&R - MILL AND RESHEET
- M&C - MILL AND CORRECTION
- GV - GRASSED VERGE
- CD1- CONCRETE ACCESS DRIVEWAY
- P2 - STRUCTURAL CONCRETE FOOTPATH
- HFA - HIGH FRICTION ASPHALT (PAFV>58)
- BATTER - GEO GRID TREATMENT
- 43FF7D

- ROAD CONTROL LINE
- CADASTRAL BOUNDARY
- PROPOSED DESIGN
- EXISTING SURVEY
- ROAD CONTROL LINE LABEL
- EXISTING STORMWATER PIT
- NEW STORMWATER PIT
- EXISTING PAVEMENT EDGE
- SUBSURFACE TRENCH DRAIN
- COMBINED STORMWATER/SUBSURFACE DRAIN
- INTERFACE DRAIN
- FLUSHING POINT

@AF7E

'$ ALL DIMENSIONS ARE IN METRES UNO.
($ FOR GENERAL NOTES, REFER TO SHT-GE-000021 AND E:F#97#&&&&(($
)$ FOR PAVEMENT PROFILE DETAILS, REFER TO SHT-PV-005001.
*$ FOR KERB MEDIAN TYPES AND SETOUT DETAILS, REFER TO D6#E7D;7E$

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Paul Churton

Project Manager

Date 16/06/2021

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DRAWING FILE LOCATION / NAME				DESIGN LOT CODE		DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING		PLOT DATE / TIME		PLOT BY	5>;7@F
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EXTERNAL REFERENCE FILES	D7H	63F7	AMENDMENT / REVISION DESCRIPTION	WVR No.	3BBDAH3>	SCALES ON A3 SIZE DRAWING	DRAWINGS / DESIGN PREPARED BY	F;F>7	@377	63F7	
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	'	'$"$(&(&	80% DETAILED DESIGN		B$4KDG?	1 : 500 FULL SIZE A3	#$"" 25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 ,"-(02) 8660 0035 &'UXSYZ[UVXPYX\^V]UXTSPYW	DRG CHECK	PHILIP BYRUM	)'$&-$(&(&	SYDNEY DIVISION
	(	'.$&'$(&('	100% DETAILED DESIGN		B$4KDG?			67E;9@	PHILLIP STODDART	)'$&-$(&(&	NETWORK DEVELOPMENT
	)	&'$&*$(&('	ACCEPTED FOR CONSTRUCTION		B$4KDG?	CO-ORDINATE SYSTEM HEIGHT DATUM		DESIGN CHECK	PHILIP BYRUM	)'$&-$(&(&	
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								PROJECT MNGR	PAUL CHURTON	)'$&-$(&(&	

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA

19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK INTERSECTION UPGRADE

PAVEMENT PLAN

SHEET 1 OF 6 | 3)

TfNSW REGISTRATION No. 6E(&(&%&&&*(+ | B3DF -

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FROM HORSLEY PARK

TO EASTERN CREEK

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"""i
(""i)
)""i
*""i
+""i
#""i
##""i
#$"""i
TP 129.076
#%"""i
#&"""i
#'"""i
CT 158.877
#("""i
TP 164.634
#)"""i
#*"""i
#+"""i

?5&&

7#8'

BH02

BH04

BH05

BH03

F#&'

WALLGROVE ROAD

?5'&

ADJOINS TO SHT-PV-001001

ADJOINS TO SHT-PV-001003

CT 25.98
)&$&&&
*"+$&&&
,&$&&&
TP 74.919
-"+$&&&
/&$&&&
'&"+$&&&
'(&$&&&
CT 124.942
TP 124.967
')"+$&&&
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WESTLINK M7 MOTORWAY

LEGEND FOR PAVEMENT TYPES

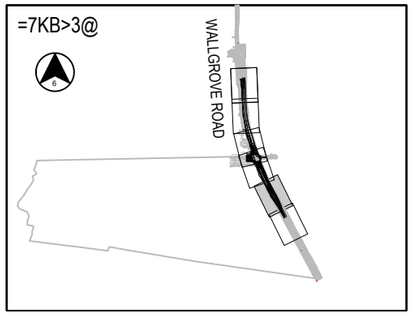
- T1 - TYPE 1 PAVEMENT
- P1 - PEDESTRIAN FOOTPATH
- RM1 - RAISED CONCRETE MEDIAN
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- 43FF7D

- &$&&& ROAD CONTROL LINE
- CADASTRAL BOUNDARY
- PROPOSED DESIGN
- EXISTING SURVEY
- ?JJJ ROAD CONTROL LINE LABEL
- EXISTING STORMWATER PIT
- NEW STORMWATER PIT
- EXISTING PAVEMENT EDGE
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@AF7E

'$ ALL DIMENSIONS ARE IN METRES UNO.
('$ FOR GENERAL NOTES, REFER TO SHT-GE-000021 AND E:F#97#&&&&(($
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*$ FOR KERB MEDIAN TYPES AND SETOUT DETAILS, REFER TO D6#E7D;7E$

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Paul Churton

Project Manager

Date 16/06/2021

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EXTERNAL REFERENCE FILES	D7H	63F7	AMENDMENT / REVISION DESCRIPTION		BS4KDG?	SCALES ON A3 SIZE DRAWING	DRAWINGS / DESIGN PREPARED BY	6D3I@	JASON BOVIS	)'$&-$(&&	GAZCORP
	&	)'$&-$(&(&	50% DETAILED DESIGN		BS4KDG?	$!' " $!' ')"!"F		DRG CHECK	PHILIP BYRUM	)'$&-$(&&	
	'	"$"$'(&(&	80% DETAILED DESIGN		BS4KDG?	1 : 500 FULL SIZE A3	Ā$ #" Consulting	67E;9@	PHILLIP STODDART	)'$&-$(&&	
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	)	&'$&"$(&("	ACCEPTED FOR CONSTRUCTION		BS4KDG?	CO-ORDINATE SYSTEM: MGA Z56 HEIGHT DATUM: 3:6		DESIGN MNGR	PHILIP BYRUM	)'$&-$(&&	PREPARED FOR: SYDNEY DIVISION NETWORK DEVELOPMENT
								PROJECT MNGR	PAUL CHURTON	)'$&-$(&&	

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA

19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK INTERSECTION UPGRADE

PAVEMENT PLAN

3)

SHEET 2 OF 6

TfNSW REGISTRATION No. 6E(&(&%&&&*(+ B3DF -

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FROM HORSLEY PARK

TO EASTERN CREEK

INSET ADJOINS BELOW

CONSTRUCT 1.2m WIDE CONCRETE FOOTPATH AT BACK OF SAFETY BARRIER. FOOTPATH TO GENERALLY MATCH EXISTING GROUND LEVELS WITH 1% CROSSFAL TO THE SAFETY BARRIER

FOOTPATH IS TO MAKE SMOOTH TRANSITION WITH EXISTING BIKE PATH. LOCALLY GRADE AS REQUIRED TO AVOID TRAPPED LOW POINTS.

SAW CUT TRENCH MINIMUM 1m WIDE. BACKFILL, COMPACT AND REINSTATE ASPHALT IN ACCORDANCE WITH THE DOUGLAS PARTNERS TRENCHING SPECIFICATIONS REPORT REF: 99735.00.R.005.REV0. MINIMUM 1.2m COVER TO SERVICES.

SUBWAY ROAD

PRIVATE ACCESS ROAD

LIMIT OF WORKS

CREST 260.881

CT 337.420

?53'

?5&&

?5'&

?54'

WALLGROVE ROAD

WESTLINK M7 MOTORWAY

SUBWAY ROAD

HIGH FRICTION ASPHALT EXTENT
MC00 CH 232.1

HIGH FRICTION ASPHALT EXTENT
MC00 CH 280.8

HIGH FRICTION ASPHALT EXTENT
MC00 CH 337.5

BH06 BH07 BH08 BH09 BH10 BH11 BH20

ADJOINS TO SHT-PV-001002

ADJOINS TO SHT-PV-001004

INSET ADJOINS ABOVE

APPROXIMATE WATERNSW T

25.578

LEGEND FOR PAVEMENT TYPES

- T1 - TYPE 1 PAVEMENT
- P1 - PEDESTRIAN FOOTPATH
- RM1 - RAISED CONCRETE MEDIAN
- M&R - MILL AND RESHEET
- M&C - MILL AND CORRECTION
- GV - GRASSED VERGE
- CD1- CONCRETE ACCESS DRIVEWAY
- P2 - STRUCTURAL CONCRETE FOOTPATH
- HFA - HIGH FRICTION ASPHALT (PAFV>58)
- BATTER - GEO GRID TREATMENT
- 43FF7D

- ROAD CONTROL LINE
- CADASTRAL BOUNDARY
- PROPOSED DESIGN
- EXISTING SURVEY
- ?JJJ ROAD CONTROL LINE LABEL
- EXISTING STORMWATER PIT
- NEW STORMWATER PIT
- EXISTING PAVEMENT EDGE
- SUBSURFACE TRENCH DRAIN
- COMBINED STORMWATER/SUBSURFACE DRAIN
- INTERFACE DRAIN
- FLUSHING POINT

@AF7E

'$ ALL DIMENSIONS ARE IN METRES UNO.
($ FOR GENERAL NOTES, REFER TO SHT-GE-000021 AND E:F#97#&&&&(($
)$ FOR PAVEMENT PROFILE DETAILS, REFER TO SHT-PV-005001.
*$ FOR KERB MEDIAN TYPES AND SETOUT DETAILS, REFER TO D6#E7D;7E$

=7KB>3@

WALLGROVE ROAD

NSW GOVERNMENT Transport for NSW

These plans are accepted for construction

Paul Churton

Project Manager

Date 16/06/2021

ACCEPTED FOR CONSTRUCTION

DRAWING FILE LOCATION / NAME				DESIGN LOT CODE	DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING	PLOT DATE / TIME		PLOT BY	5>:7@F	
C:\12dS\data\ORION-SYN01\05-RD Wallgrove Road Upgrade_20302\DWGS\Xref\RMS_CIVIL-GE-SHT_A3.dwg						F;F>7	@37?	63F7	GAZCORP	FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA 3)
EXTERNAL REFERENCE FILES	D7H	63F7	AMENDMENT / REVISION DESCRIPTION	WVR No.	3BBDAH3>	6D3I@	JASON BOVIS	)'$&-$(&/&		19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK
	&	)'$&-$(&/&	50% DETAILED DESIGN		B$4KDG?	DRG CHECK	PHILIP BYRUM	)'$&-$(&/&		INTERSECTION UPGRADE
	'	"$"$'&(&/&	80% DETAILED DESIGN		B$4KDG?	67E:9@	PHILLIP STODDART	)'$&-$(&/&		PAVEMENT PLAN
	(	.$&'$(&/('	100% DETAILED DESIGN		B$4KDG?	DESIGN CHECK	PHILIP BYRUM	)'$&-$(&/&		SHEET 3 OF 6
	)	&'$&*$(&/('	ACCEPTED FOR CONSTRUCTION		B$4KDG?	DESIGN MNGR	PHILIP BYRUM	)'$&-$(&/&	PREPARED FOR SYDNEY DIVISION NETWORK DEVELOPMENT	TfNSW REGISTRATION No. 6E(&(&%&&&*(+ B3DF -
						PROJECT MNGR	PAUL CHURTON	)'$&-$(&/&		ISSUE STATUS ACCEPTED FOR CONSTRUCTION / EDMS No. - / SHEET No. E:F#BH#&&'&&) / EEG7)

$!' " $!' ')'!F
1 : 500 FULL SIZE A3

CO-ORDINATE SYSTEM MGA Z56 HEIGHT DATUM 3:6

Ã$ #" Consulting

$%.# 25 604 069 581 PO Box:7936, BAULKHAM HILLS NSW 2153 0(02) 8660 0035 'F UXSYZY[UYXPYX\^Y[UXT$PYX\^Y[UXT

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FROM HORSLEY PARK

TO EASTERN CREEK

LIMIT OF WORKS

CT 337.420

TP 391.076

HIGH FRICTION ASPHALT EXTENT
MC00 CH 337.5

WALLGROVE ROAD

ADJOINS TO SHT-PV-001003

ADJOINS TO SHT-PV-001005

APPROXIMATE EXTENT OF WATERNSW THRUST BLOCK

HIGH FRICTION ASPHALT EXTENT
MC00 CH 363.8

APPROXIMATE EXTENT OF WATERNSW THRUST BLOCK

WESTLINK M7 MOTORWAY

CT 325.578

TP 379.234

CT 390.366

LIMIT OF WORKS

BH09 BH10 BH11 BH12 BH13 BH14 BH20

LEGEND FOR PAVEMENT TYPES

- T1 - TYPE 1 PAVEMENT
- P1 - PEDESTRIAN FOOTPATH
- RM1 - RAISED CONCRETE MEDIAN
- M&R - MILL AND RESHEET
- M&C - MILL AND CORRECTION
- GV - GRASSED VERGE
- CD1- CONCRETE ACCESS DRIVEWAY
- P2 - STRUCTURAL CONCRETE FOOTPATH
- HFA - HIGH FRICTION ASPHALT (PAFV>58)
- BATTER - GEO GRID TREATMENT
- 43FF7D

- ROAD CONTROL LINE
- CADASTRAL BOUNDARY
- PROPOSED DESIGN
- EXISTING SURVEY
- ?JJJ ROAD CONTROL LINE LABEL
- EXISTING STORMWATER PIT
- NEW STORMWATER PIT
- EXISTING PAVEMENT EDGE
- SUBSURFACE TRENCH DRAIN
- COMBINED STORMWATER/SUBSURFACE DRAIN
- INTERFACE DRAIN
- FLUSHING POINT

@AF7E

'$ ALL DIMENSIONS ARE IN METRES UNO.
($ FOR GENERAL NOTES, REFER TO SHT-GE-000021 AND E:F#97#&&&&(($
)$ FOR PAVEMENT PROFILE DETAILS, REFER TO SHT-PV-005001.
*$ FOR KERB MEDIAN TYPES AND SETOUT DETAILS, REFER TO D6#E7D;7E$

=7KB>3@

WALLGROVE ROAD

NSW GOVERNMENT Transport for NSW

These plans are accepted for construction

Paul Churton

Project Manager

Date 16/06/2021

ACCEPTED FOR CONSTRUCTION

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EXTERNAL REFERENCE FILES	D7H / 63F7		DRAWINGS / DESIGN PREPARED BY

AMENDMENT / REVISION DESCRIPTION	
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80% DETAILED DESIGN	BS4KDG?
100% DETAILED DESIGN	BS4KDG?
ACCEPTED FOR CONSTRUCTION	BS4KDG?

CO-ORDINATE SYSTEM: MGA Z56 HEIGHT DATUM: 3:6

Ã$ #" Consulting
$%+&$ 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 (02) 8660 0035

PLOT DATE / TIME		PLOT BY
F;F>7	@377	63F7
6D3I@	JASON BOVIS	)'$&-$(&(&
DRG CHECK	PHILIP BYRUM	)'$&-$(&(&
67E;9@	PHILLIP STODDART	)'$&-$(&(&
DESIGN CHECK	PHILIP BYRUM	)'$&-$(&(&
DESIGN MNGR	PHILIP BYRUM	)'$&-$(&(&
PROJECT MNGR	PAUL CHURTON	)'$&-$(&(&

5>;7@F

GAZCORP

PREPARED FOR
SYDNEY DIVISION
NETWORK DEVELOPMENT

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA
19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK
INTERSECTION UPGRADE
PAVEMENT PLAN

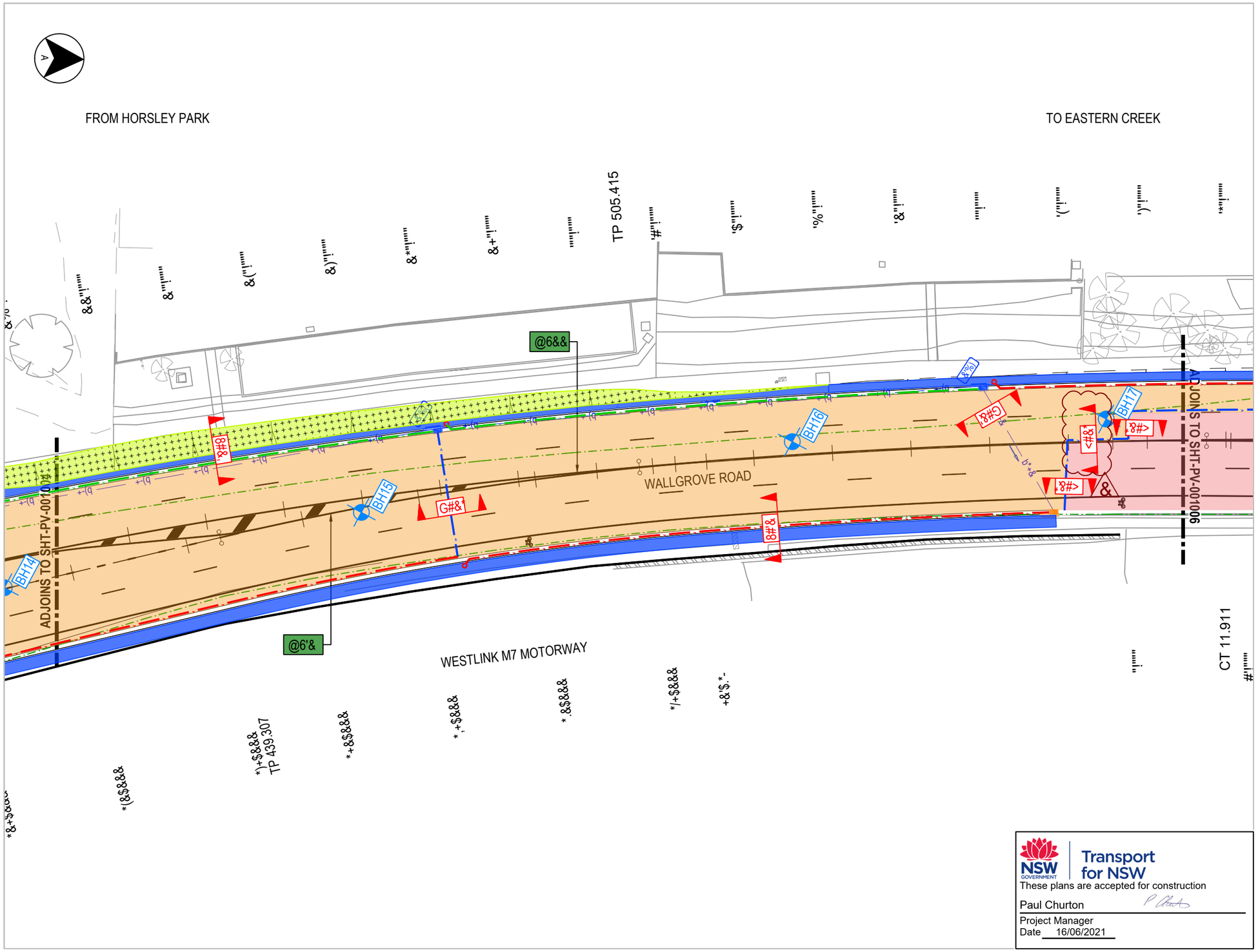
SHEET 4 OF 6

T#NSW REGISTRATION No. 6E(&(&%&&&*(+ B3DF -

ISSUE STATUS: ACCEPTED FOR CONSTRUCTION
EDMS No.: -
SHEET No.: E:F#BH#&&'&&* :EEG7)

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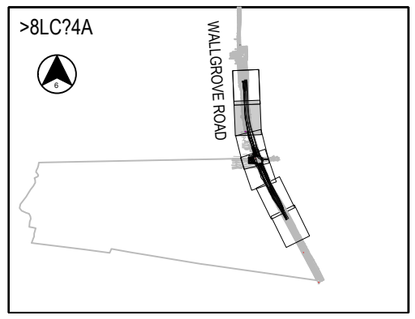
LEGEND FOR PAVEMENT TYPES

- T1 - TYPE 1 PAVEMENT
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- RM1 - RAISED CONCRETE MEDIAN
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- HFA - HIGH FRICTION ASPHALT (PAFV>58)
- BATTER - GEO GRID TREATMENT
- 54GG8E

- ROAD CONTROL LINE
- CADASTRAL BOUNDARY
- PROPOSED DESIGN
- EXISTING SURVEY
- @KKK ROAD CONTROL LINE LABEL
- EXISTING STORMWATER PIT
- NEW STORMWATER PIT
- EXISTING PAVEMENT EDGE
- SUBSURFACE TRENCH DRAIN
- COMBINED STORMWATER/SUBSURFACE DRAIN
- INTERFACE DRAIN
- FLUSHING POINT

ABG8F

'$ ALL DIMENSIONS ARE IN METRES UNO.
($ FOR GENERAL NOTES, REFER TO SHT-GE-000021 AND F;G#:8#&&&((&
)$ FOR PAVEMENT PROFILE DETAILS, REFER TO SHT-PV-005001.
*$ FOR KERB MEDIAN TYPES AND SETOUT DETAILS, REFER TO E7#F8E<8F$



NSW GOVERNMENT Transport for NSW
These plans are accepted for construction
Paul Churton
Project Manager
Date 16/06/2021

ACCEPTED FOR CONSTRUCTION

DRAWING FILE LOCATION / NAME: C:\12ds\data\ORION-SYN01\05-RD Wallgrove Road Upgrade_20302\DWGS\Xref\RMS_CIVIL-GE-SHT_A3.dwg				DESIGN LOT CODE		DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING		PLOT DATE / TIME	PLOT BY		67<8AG	FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA 19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK INTERSECTION UPGRADE PAVEMENT PLAN	4)
EXTERNAL REFERENCE FILES	E8I	74G8	AMENDMENT / REVISION DESCRIPTION	WVR No.	4CCEBI4?	SCALES ON A3 SIZE DRAWING	DRAWINGS / DESIGN PREPARED BY	G<G?8	A4@8	74G8	GAZCORP		SHEET 5 OF 6
	&	)'$&-$(&(& | 50% DETAILED DESIGN | | C$5LEH@ | $!' " $!' ')'!F	Ā$ #" Consulting	7E4JA	JASON BOVIS	)'$&-$(&(&	PREPARED FOR SYDNEY DIVISION NETWORK DEVELOPMENT	TfNSW REGISTRATION No. 7F(&(&%&&&*(+	C4EG -
	'	'$'$(&(&	80% DETAILED DESIGN		C$5LEH@	1 : 500 FULL SIZE A3		DRG CHECK	PHILIP BYRUM	)'$&-$(&(&		ISSUE STATUS: ACCEPTED FOR CONSTRUCTION	EDMS No. -	SHEET No. F;G#CI#&&'&&+	<FFH8 *
	(	.$&'$'$(&('	100% DETAILED DESIGN		C$5LEH@	CO-ORDINATE SYSTEM: MGA Z56	HEIGHT DATUM: 4;7	78F<:A	PHILLIP STODDART	)'$&-$(&(&			
	)	&'$&*'$(&('	ACCEPTED FOR CONSTRUCTION		C$5LEH@			DESIGN CHECK	PHILIP BYRUM	)'$&-$(&(&			
	*	(($&*'$(&('	INTERFACE TAG UPDATED		C$5ELH@			DESIGN MNGR	PHILIP BYRUM	)'$&-$(&(&			
								PROJECT MNGR	PAUL CHURTON	)'$&-$(&(&			

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FROM HORSLEY PARK

TO EASTERN CREEK

')"!!!!i'

'*"!!!!i

'+"!!!!i

TP 595.511

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CT 650.025

TP 654.471

((!"!!!!i

)'"!!!!i

CT 673.419

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@6&&

LOCATE AND CONNECT TO
EXISTING SUBSOIL DRAINAGE LINE

WALLGROVE ROAD

BH17

BH18

BH19

LIMIT OF WORKS

ADJOINS TO SHT-PV-001005

G#&+

@6(&

WESTLINK M7 MOTORWAY

CT 11.911

#'!!!!i

%"!!!!i

&'!!!!i

)"!!!!i

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#"%!$$"

LEGEND FOR PAVEMENT TYPES

- T1 - TYPE 1 PAVEMENT
- P1 - PEDESTRIAN FOOTPATH
- RM1 - RAISED CONCRETE MEDIAN
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- 54GG8E

- &$&&& — ROAD CONTROL LINE
- CADASTRAL BOUNDARY
- PROPOSED DESIGN
- EXISTING SURVEY
- @KKK — ROAD CONTROL LINE LABEL
- EXISTING STORMWATER PIT
- NEW STORMWATER PIT
- EXISTING PAVEMENT EDGE
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- INTERFACE DRAIN
- FLUSHING POINT

ABG8F

'$ ALL DIMENSIONS ARE IN METRES UNO.
($ FOR GENERAL NOTES, REFER TO SHT-GE-000021 AND F;G#:8#&&&&(($
)$ FOR PAVEMENT PROFILE DETAILS, REFER TO SHT-PV-005001.
*$ FOR KERB MEDIAN TYPES AND SETOUT DETAILS, REFER TO E7#F8E<8F$

>8LC?4A

WALLGROVE ROAD

NSW GOVERNMENT Transport for NSW

These plans are accepted for construction

Paul Churton

Project Manager

Date 16/06/2021

ACCEPTED FOR CONSTRUCTION

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DESIGN LOT CODE:

DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING:

PLOT DATE / TIME: PLOT BY:

EXTERNAL REFERENCE FILES:

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& ' ( ) *	)'$&-$(&(& "$"$(&(& '.$&'$(&(" &'$&*$(&(" ((&&*$(&('	50% DETAILED DESIGN 80% DETAILED DESIGN 100% DETAILED DESIGN ACCEPTED FOR CONSTRUCTION INTERFACE TAG UPDATED		C5SLEH@ C5SLEH@ C5SLEH@ C5SLEH@ C5SLEH@

SCALES ON A3 SIZE DRAWING: $!" " $!' ')!'F — 1 : 500 FULL SIZE A3

CO-ORDINATE SYSTEM: MGA Z56 HEIGHT DATUM: 4;7

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G<G?8	A4@8	74G8
7E4JA	JASON BOVIS	)'$&-$(&(&
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DESIGN CHECK	PHILIP BYRUM	)'$&-$(&(&
DESIGN MNGR	PHILIP BYRUM	)'$&-$(&(&
PROJECT MNGR	PAUL CHURTON	)'$&-$(&(&

6?<8AG

GAZCORP

PREPARED FOR
SYDNEY DIVISION
NETWORK DEVELOPMENT

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA

19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK INTERSECTION UPGRADE PAVEMENT PLAN

SHEET 6 OF 6

4)

T#NSW REGISTRATION No. 7F(&(&%&&&*(+

C4EG -

ISSUE STATUS: ACCEPTED FOR CONSTRUCTION

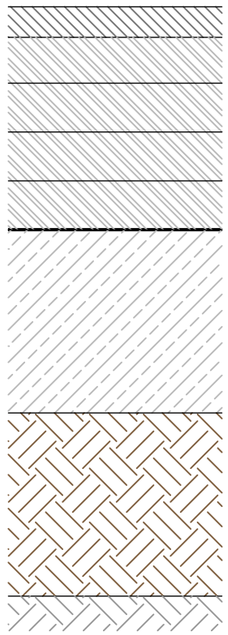
EDMS No. -

SHEET No. F;G#C!#&&'&&,

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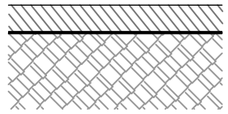
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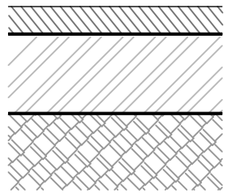
50 mm AC14 (A15E)
75 mm AC20 (C450)
80 mm AC20 (C450)
80 mm AC20 (C450)
80 mm AC20 (C450)
7 mm LOW CUTTER SEAL (C170)
300 mm SELECT MATERIAL ZONE
(MIN. CBR 30%)
300 mm LIME STABILISED SUBGRADE CBR 2%
DF49C367

PAVEMENT TYPE - T1
FULL DEPTH AC



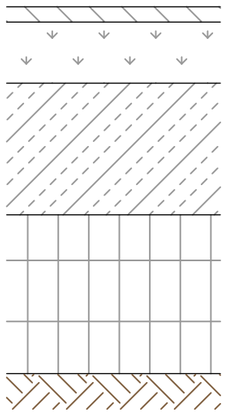
50 mm AC14 (A15E)
E35=5A3E
EXISTING PAVEMENT (REFER TO NOTE 3)

PAVEMENT TYPE - M&R
MILL AND RESHEET (EXISTING PAVEMENT)



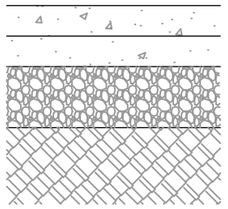
50 mm AC14 (A15E)
E35=5A3E
AC10 OR AC14 ASPHALT CORRECTION LAYER
(REFER TO NOTES 2 AND 3)
E35=5A3E
EXISTING PAVEMENT (REFER TO NOTE 5)

PAVEMENT TYPE - M&C
MILL AND CORRECTION (EXISTING PAVEMENT)



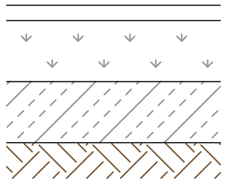
EFC8
100 mm TURF UNDERLAY
200mm MIN. CULTIVATED SUBGRADE
260 mm (AND VARIES) COMPACTED VERGE MATERIAL
DF49C367

PAVEMENT TYPE - GV
GRASSED VERGE (TfNSW R44)



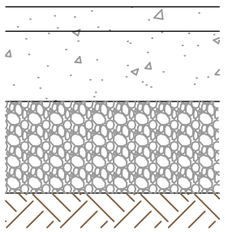
MIN. 100 mm 25MPa CONCRETE
WITH SL72 MESH AND BROOM
FINISH (REFER TO NOTE 5)
100 mm DGS20
EXISTING PAVEMENT
OR GENERAL FILL

PAVEMENT TYPE - RM1
RAISED CONCRETE MEDIAN



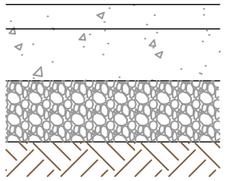
HYDROSEED TO LANDSCAPE DETAILS
100 mm VENM IMPORTED ORGANIC TOPSOIL (TfNSW
SPECIFICATION R178)
100 mm MIN. CULTIVATED SUBGRADE. REMOVE ALL
EXTRANEOUS MATERIAL FROM SITE
DF49C367

43EE7C



150 mm THICK 32MPa CONCRETE WITH SL82 MESH
WITH 40 mm TOP COVER
150 mm DGS20
EXISTING SUBGRADE OR PREPARED
8AC?3E;A@

PAVEMENT TYPE - CD1
CONCRETE ACCESS DRIVEWAY



MIN. 125 mm 25 MPa CONCRETE WITH SL72
REINFORCING MESH AND 40 mm COVER
(REFER TO NOTES 5)
100 mm DGS20
EXISTING SUBGRADE OR PREPARED
8AC?3E;A@

PAVEMENT TYPE - P1
PEDESTRIAN FOOTPATH
(TO BE CONSTRUCTED TO FAIRFIELD CITY
COUNCIL'S CONSTRUCTION SPECIFICATION
AND TfNSW R44)



450mm CONCRETE FOOTING. REFER TO
STRUCTURAL ENGINEERING DRAWINGS BY
K.F. WILLIAMS AND ASSOCIATES (PROJECT
NUMBER KF113525, DRAWINGS S000, S100
AND S101 REV B DATED 25.01.2021)

PAVEMENT TYPE - P2
STRUCTURAL CONCRETE FOOTPATH
(SUBJECT TO STRUCTURAL DESIGN)

@AE7D

(% ALL PAVEMENTS, FOOTPATHS AND RAISED MEDIANS ARE CONSTRUCTED TO TfNSW SPECIFICATIONS.

)% CORRECTIVE COURSE THICKNESS WILL VARY TO MATCH REVISED SURFACE LEVELS.

*% SEAL ALL CRACKS IN THE EXISTING PAVEMENT AFTER MILLING AND SWEEPING LOOSE DEBRIS IN ACCORDANCE WITH M211. 50mm OF THE EXISTING WEARING SURFACE IS TO BE MILLED AND REMOVED.

+% PEDESTRIAN FOOTWAY IS TO BE IN ACCORDANCE WITH FAIRFIELD CITY COUNCIL'S STANDARD DRAWING S-501.

,% SURFACE OF THE COMPACTED UNBOUND GRANULAR MATERIAL MUST BE MOISTENED PRIOR TO PLACING THE CONCRETE TO MINIMISE MOISTURE LOSS.

NSW GOVERNMENT Transport for NSW

These plans are accepted for construction

Paul Churton

Project Manager

Date 16/06/2021

ACCEPTED FOR CONSTRUCTION

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150mm ON A3 SIZE ORIGINAL

DRAWING FILE LOCATION / NAME C:\12dS\data\ORION-SYN01\05-RD Wallgrove Road Upgrade_20302\DWGS\Xref\RMS_CIVIL-GE-SHT_A3.dwg				DESIGN LOT CODE		DESIGN MODEL FILE(S) USED FOR DOCUMENTATION OF THIS DRAWING		PLOT DATE / TIME	PLOT BY		5>;7@E
EXTERNAL REFERENCE FILES	C7G	63E7	AMENDMENT / REVISION DESCRIPTION	WVR No.	3BBCAG3>	SCALES ON A3 SIZE DRAWING	DRAWINGS / DESIGN PREPARED BY	E;E>7	@377	63E7	GAZCORP
	'	*(%'.%)'(	50% DETAILED DESIGN		B%4JCF?	"' " "' # #' $@	Ā$ #" Consulting	6C3H@	JASON BOVIS	*(%'.%)'(	
	(	((%((%)'(	80% DETAILED DESIGN		B%4JCF?	1 : 100 FULL SIZE A3	ABN:25 604 069 581 PO Box:7936, BAULKHAM HILLS NSW 2153 %Ā(2) 8660 0035 ĀTWRXZXTXWOXW[UTWS%Ō	DRG CHECK	PHILIP BYRUM	*(%'.%)'(	
	)	(.%')%')'(	100% DETAILED DESIGN		B%4JCF?	CO-ORDINATE SYSTEM MGA Z56 HEIGHT DATUM 3:6		67D;9@	PHILLIP STODDART	*(%'.%)'(	
	*	'(%'+%)'(	ACCEPTED FOR CONSTRUCTION		B%4JCF?			DESIGN CHECK	PHILIP BYRUM	*(%'.%)'(	PREPARED FOR SYDNEY DIVISION NETWORK DEVELOPMENT
								DESIGN MNGR	PHILIP BYRUM	*(%'.%)'(	
								PROJECT MNGR	PAUL CHURTON	*(%'.%)'(	

FAIRFIELD CITY COUNCIL - LOCAL GOVERNMENT AREA
19-0108 - MR515 WALLGROVE ROAD, HORSELY PARK
INTERSECTION UPGRADE
PAVEMENT PROFILES

3*

SHEET 1 OF 1

TfNSW REGISTRATION No. 6D)')'&"'+), B3CE -

ISSUE STATUS ACCEPTED FOR CONSTRUCTION | EDMS No. - | SHEET No. D:EBG","(;DDF7 *

© Transport for New South Wales

Annexure H – Ultimate Design TCS Drawings

TCS 5058

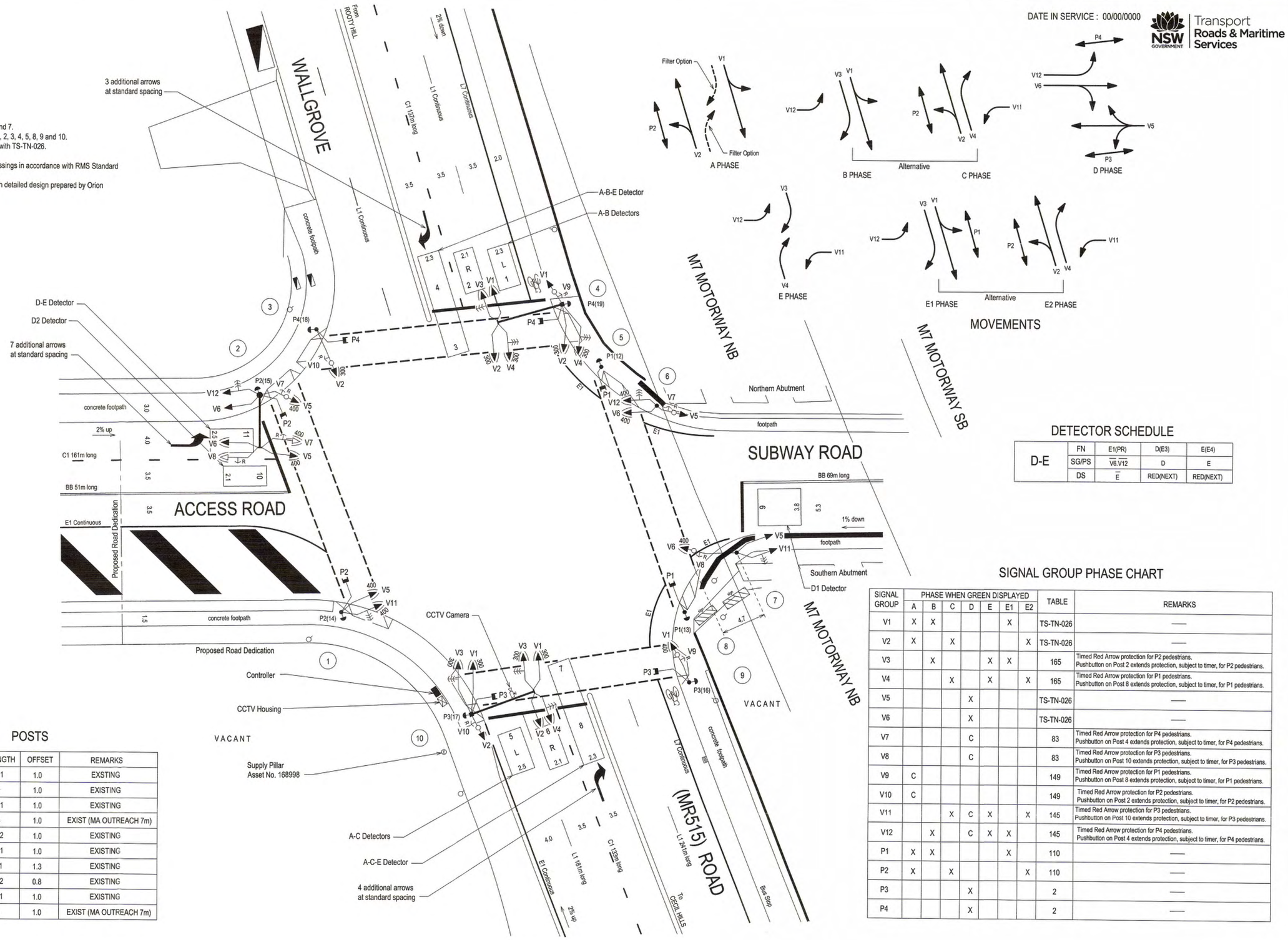
DRAWN BY CADD
DO NOT AMEND MANUALLY

DATE IN SERVICE : 00/00/0000

Transport Roads & Maritime Services

NOTES

1. This site is SCATS linked.
2. Special STOP signs R1-4 are placed on Posts 2 and 7.
3. Audio tactile push buttons are provided on posts 1, 2, 3, 4, 5, 8, 9 and 10.
4. Single Diamond Overlap operation in accordance with TS-TN-026.
5. CCTV Camera is mounted on Post 10.
6. Kerb ramps to be constructed at all pedestrian crossings in accordance with RMS Standard (Road) Drawing R.0300-11.
7. All civil construction works to be in accordance with detailed design prepared by Orion Consulting drawing no. DS2020/000425.



DETECTOR SCHEDULE

D-E	FN	E1(PR)	D(E3)	E(E4)
	SG/PS	V6.V12	D	E
	DS	E	RED(NEXT)	RED(NEXT)

POSTS

POSTS	TYPE	LENGTH	OFFSET	REMARKS
1	2	4.1	1.0	EXSTING
2	5XL	-	1.0	EXISTING
3	2	4.1	1.0	EXISTING
4	9	-	1.0	EXIST (MA OUTREACH 7m)
5	2	3.2	1.0	EXISTING
6	2	4.1	1.0	EXISTING
7	2	4.1	1.3	EXISTING
8	2	3.2	0.8	EXISTING
9	2	4.1	1.0	EXISTING
10	9	-	1.0	EXIST (MA OUTREACH 7m)

SIGNAL GROUP PHASE CHART

SIGNAL GROUP	PHASE WHEN GREEN DISPLAYED							TABLE	REMARKS
	A	B	C	D	E	E1	E2		
V1	X	X				X		TS-TN-026	——
V2	X		X				X	TS-TN-026	——
V3		X			X	X		165	Timed Red Arrow protection for P2 pedestrians. Pushbutton on Post 2 extends protection, subject to timer, for P2 pedestrians.
V4			X		X		X	165	Timed Red Arrow protection for P1 pedestrians. Pushbutton on Post 8 extends protection, subject to timer, for P1 pedestrians.
V5				X				TS-TN-026	——
V6				X				TS-TN-026	——
V7				C				83	Timed Red Arrow protection for P4 pedestrians. Pushbutton on Post 4 extends protection, subject to timer, for P4 pedestrians.
V8				C				83	Timed Red Arrow protection for P3 pedestrians. Pushbutton on Post 10 extends protection, subject to timer, for P3 pedestrians.
V9	C							149	Timed Red Arrow protection for P1 pedestrians. Pushbutton on Post 8 extends protection, subject to timer, for P1 pedestrians.
V10	C							149	Timed Red Arrow protection for P2 pedestrians. Pushbutton on Post 2 extends protection, subject to timer, for P2 pedestrians.
V11			X	C	X		X	145	Timed Red Arrow protection for P3 pedestrians. Pushbutton on Post 10 extends protection, subject to timer, for P3 pedestrians.
V12		X		C	X	X		145	Timed Red Arrow protection for P4 pedestrians. Pushbutton on Post 4 extends protection, subject to timer, for P4 pedestrians.
P1	X	X				X		110	——
P2	X		X				X	110	——
P3				X				2	——
P4				X				2	——

A ORIGINAL ISSUE

PUBLIC UTILITY LEGEND	
HYDRANT	□
STOP VALVE	▲
GAS VALVE	#
SEWER MANHOLE	Ⓢ
COMMS PIT	◪
ELECT LIGHT POLE	○
POWER POLE	○
STAY POLE	⊘
TELEPHONE BOX	▯
COMMS PILLAR	◒

REFERENCE PLANS	
SYMBOLS/ABRVS	VD003-6
STD POSN CMPT	VD001-5
INSTL STOP DET	VC005-17
VEH GROUP OP	TS-TN-019
DET LOGIC OP	TS-TN-020
PED MVT OP	TS-TN-021
SURVEYOR : Orion Consulting	
DATE : 2019	

U.B.D. Ref. Map 207 G7
I.S.G. CO-ORDS E : 313 019 N : 1 242 520
DESIGNED : G VARLEY, Road Delay Solutions Pt.
CHECKED : P STODDART, Orion Consulting Pty.
SITE CHECKED
PHILIP BYRUM
RECOMMENDED

DESIGN APPROVAL
APPROVED
NAME GLEN VARLEY
POSITION DIRECTOR
DATE 19.05.2021
ROAD DELAY SOLUTIONS
ROAD DELAY SOLUTIONS Pty Ltd
9 HORST PLACE WARRIEWOOD NSW 2102 AUSTRALIA
Mobile 0414 800 912 Email gvarley@bigpond.com

RMS RECOMMENDATION
ROAD DESIGN ENGINEERING
NAME Philip Quigg
POSITION Traffic Signal Des Mgr
DATE 01/06/2021
NETWORK OPERATIONS
NAME NEIL C. LEITCH
POSITION A.L.N.O.C.
DATE 3.6.2021

RMS ACCEPTANCE
ACCEPTED
NAME Dina Hamad
POSITION Network & Safety Services Mgr
DATE 16/06/2021
ACCEPTED BY
Network & Safety Services
SECTION

ROADS AND MARITIME SERVICES
BLACKTOWN COUNCIL AREA
TRAFFIC SIGNALS AT
M.R.515 WALLGROVE ROAD, SUBWAY ROAD AND ACCESS ROAD
HORSLEY PARK
DESIGN LAYOUT

EXISTING ☐ PROPOSED ☒
CADD FILE: VV5058_DES_1a.dgn ~~1A_DES.dgn~~
SCALE 5 0 (1:200) 5 10
ISSUE A
FILE SF2020/139656
SUPERSEDES SHEET/ISSUE 2/A -
REG No. DS2020/000569
TCS No. 5058
SHEET 1

Revision 6 - July 2017

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TCS 5058

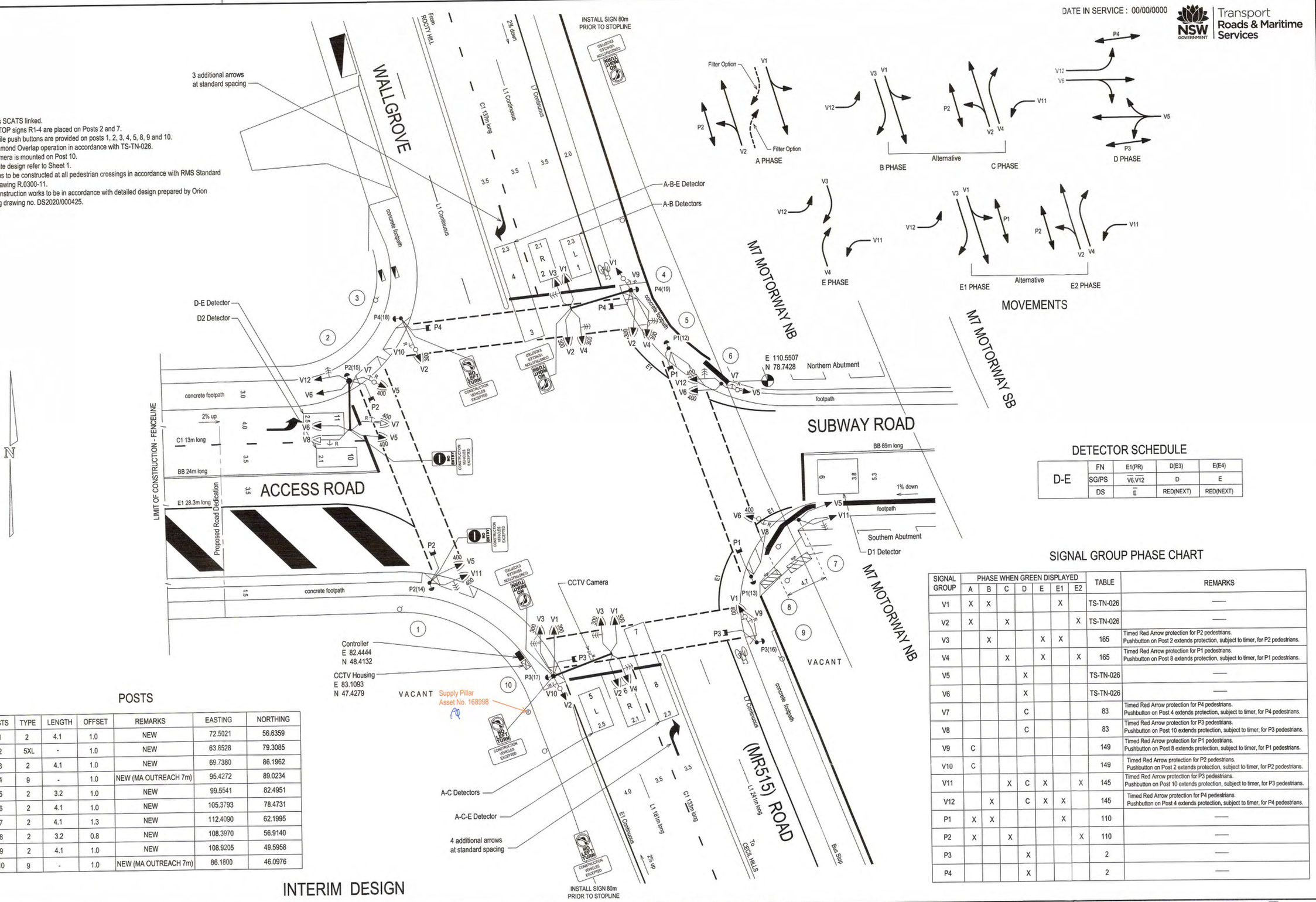
DRAWN BY CADD
DO NOT AMEND MANUALLY

DATE IN SERVICE : 00/00/0000

Transport Roads & Maritime Services

NOTES

1. This site is SCATS linked.
2. Special STOP signs R1-4 are placed on Posts 2 and 7.
3. Audio tactile push buttons are provided on posts 1, 2, 3, 4, 5, 8, 9 and 10.
4. Single Diamond Overlap operation in accordance with TS-TN-026.
5. CCTV Camera is mounted on Post 10.
6. For Ultimate design refer to Sheet 1.
7. Kerb ramps to be constructed at all pedestrian crossings in accordance with RMS Standard (Road) Drawing R.0300-11.
8. All civil construction works to be in accordance with detailed design prepared by Orion Consulting drawing no. DS2020/000425.



POSTS

POSTS	TYPE	LENGTH	OFFSET	REMARKS	EASTING	NORTHING
1	2	4.1	1.0	NEW	72.5021	56.6359
2	5XL	-	1.0	NEW	63.8528	79.3085
3	2	4.1	1.0	NEW	69.7380	86.1962
4	9	-	1.0	NEW (MA OUTREACH 7m)	95.4272	89.0234
5	2	3.2	1.0	NEW	99.5541	82.4951
6	2	4.1	1.0	NEW	105.3793	78.4731
7	2	4.1	1.3	NEW	112.4090	62.1995
8	2	3.2	0.8	NEW	108.3970	56.9140
9	2	4.1	1.0	NEW	108.9205	49.5958
10	9	-	1.0	NEW (MA OUTREACH 7m)	86.1800	46.0976

DETECTOR SCHEDULE

D-E	FN	E1(PR)	D(E3)	E(E4)
	SG/PS	V6.V12	D	E
	DS	E	RED(NEXT)	RED(NEXT)

SIGNAL GROUP PHASE CHART

SIGNAL GROUP	PHASE WHEN GREEN DISPLAYED							TABLE	REMARKS
	A	B	C	D	E	E1	E2		
V1	X	X				X		TS-TN-026	——
V2	X		X				X	TS-TN-026	——
V3		X			X	X		165	Timed Red Arrow protection for P2 pedestrians. Pushbutton on Post 2 extends protection, subject to timer, for P2 pedestrians.
V4			X		X		X	165	Timed Red Arrow protection for P1 pedestrians. Pushbutton on Post 8 extends protection, subject to timer, for P1 pedestrians.
V5				X				TS-TN-026	——
V6				X				TS-TN-026	——
V7				C				83	Timed Red Arrow protection for P4 pedestrians. Pushbutton on Post 4 extends protection, subject to timer, for P4 pedestrians.
V8				C				83	Timed Red Arrow protection for P3 pedestrians. Pushbutton on Post 10 extends protection, subject to timer, for P3 pedestrians.
V9	C							149	Timed Red Arrow protection for P1 pedestrians. Pushbutton on Post 8 extends protection, subject to timer, for P1 pedestrians.
V10	C							149	Timed Red Arrow protection for P2 pedestrians. Pushbutton on Post 2 extends protection, subject to timer, for P2 pedestrians.
V11			X	C	X		X	145	Timed Red Arrow protection for P3 pedestrians. Pushbutton on Post 10 extends protection, subject to timer, for P3 pedestrians.
V12		X		C	X	X		145	Timed Red Arrow protection for P4 pedestrians. Pushbutton on Post 4 extends protection, subject to timer, for P4 pedestrians.
P1	X	X				X		110	——
P2	X		X				X	110	——
P3				X				2	——
P4				X				2	——

INTERIM DESIGN

A ORIGINAL ISSUE

PUBLIC UTILITY LEGEND		REFERENCE PLANS	
HYDRANT	□	SYMBOLS/ABRVS	VD003-6
STOP VALVE	▲	STD POSN CMPT	VD001-5
GAS VALVE	#	INSTL STOP DET	VC005-17
SEWER MANHOLE	⊛	VEH GROUP OP	TS-TN-019
COMMS PIT	◪	DET LOGIC OP	TS-TN-020
ELECT LIGHT POLE	☼	PED MVT OP	TS-TN-021
POWER POLE	○		
STAY POLE	⊘		
TELEPHONE BOX	⚿	SURVEYOR : Orion Consulting	
COMMS PILLAR	◕	DATE : 2019	

U.B.D. Ref. Map 207 G7

I.S.G. CO-ORDS E : 313 019 N : 1 242 520

DESIGNED : G VARLEY, Road Delay Solutions Pty Ltd

CHECKED : P STODDART, Orion Consulting Pty Ltd

SITE CHECKED PHILIP BYRUM

RECOMMENDED

DESIGN APPROVAL
APPROVED
NAME GLEN VARLEY
POSITION DIRECTOR
DATE 10.05.2021
ROAD DELAY SOLUTIONS
ROAD DELAY SOLUTIONS Pty Ltd 9 HORST PLACE WARRIEWOOD NSW 2102 AUSTRALIA Mobile 0414 830 912 Email gvarley@bigpond.com

RMS RECOMMENDATION
ROAD DESIGN ENGINEERING
NAME Phillip Byrum
POSITION Traffic Signal Des Mgr
DATE 01/06/2021
NETWORK OPERATIONS
NAME NEIL C. LEITCH
POSITION N.O.S.C.L.
DATE 3.6.2021

RMS ACCEPTANCE
ACCEPTED
NAME Dilan Hanna
POSITION Network Safety Service Mgr
DATE 16/06/2021
ACCEPTED BY
Network Safety Service
SECTION

ROADS AND MARITIME SERVICES

BLACKTOWN COUNCIL AREA
TRAFFIC SIGNALS AT
M.R.515 WALLGROVE ROAD, SUBWAY ROAD AND ACCESS ROAD
HORSLEY PARK

DESIGN LAYOUT

EXISTING ☐ PROPOSED ☒

CADD FILE: VV5058_DES_2a.dgn 2A_DES.dgn

SCALE 5 0 (1:200) 5 10

ISSUE A

FILE SF2020/139656

SUPERSEDES SHEET/ISSUE -

REG No. DS2020/000569

TCS No. 5058

SHEET 2

Revision 6 - July 2017

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Annexure I – Vehicle Management Plan

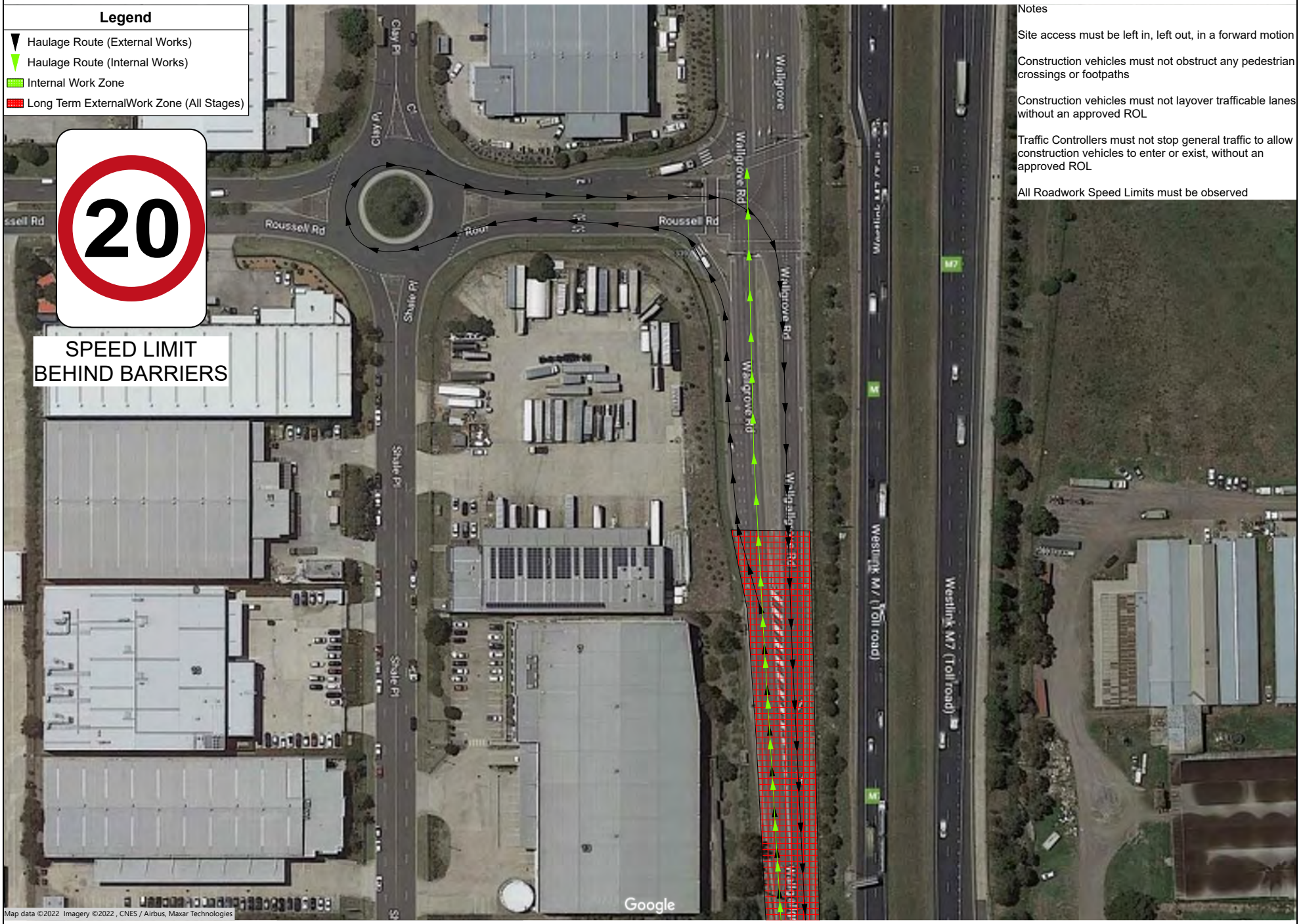
www.invarion.com

Legend

- Haulage Route (External Works)
- Haulage Route (Internal Works)
- Internal Work Zone
- Long Term ExternalWork Zone (All Stages)

20

SPEED LIMIT
BEHIND BARRIERS



Notes

Site access must be left in, left out, in a forward motion

Construction vehicles must not obstruct any pedestrian crossings or footpaths

Construction vehicles must not layover trafficable lanes without an approved ROL

Traffic Controllers must not stop general traffic to allow construction vehicles to enter or exist, without an approved ROL

All Roadwork Speed Limits must be observed

Legend

- Haulage Route (External Works)
- Haulage Route (Internal Works)
- Internal Work Zone
- Long Term ExternalWork Zone (All Stages)



SPEED LIMIT
BEHIND BARRIERS

Notes

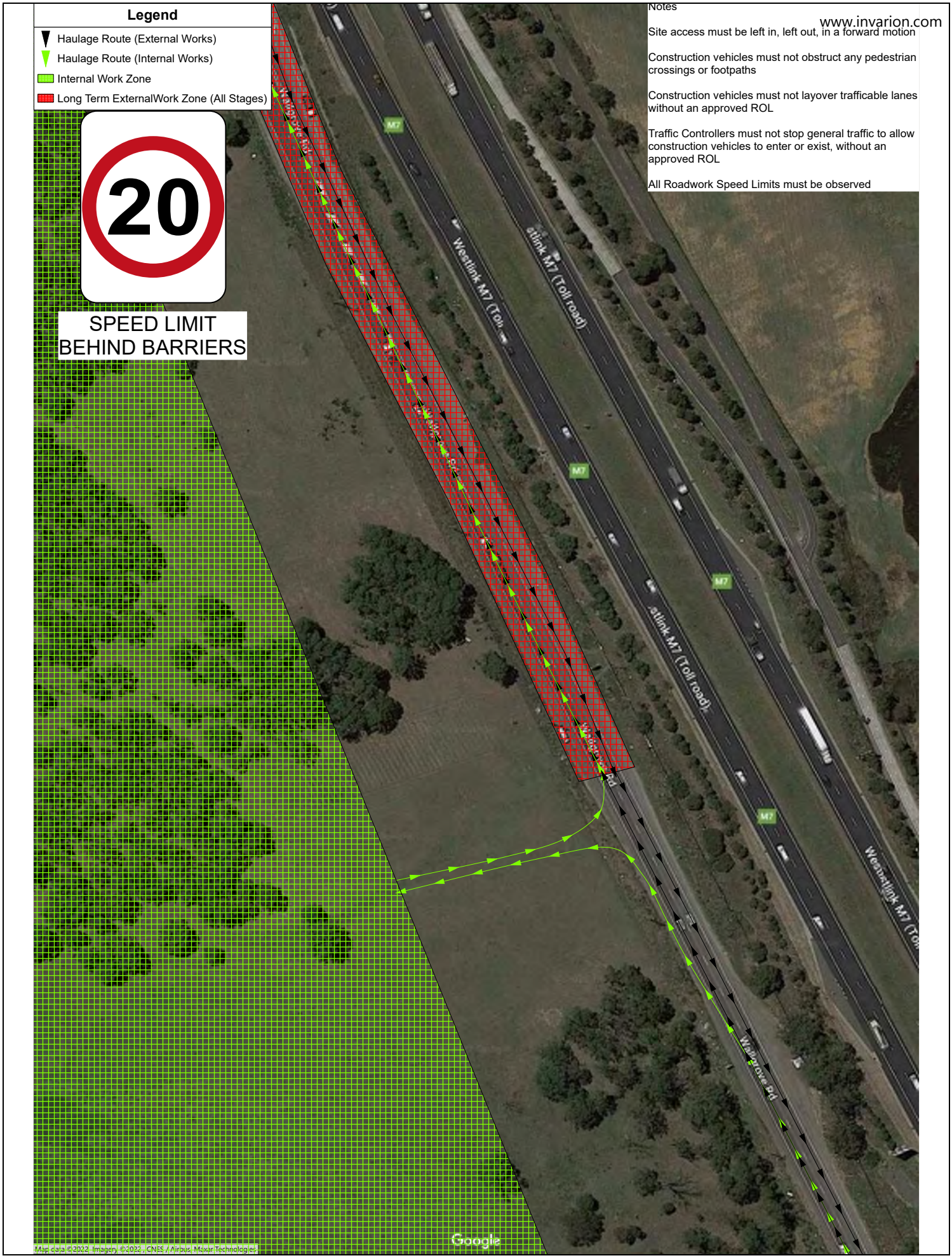
Site access must be left in, left out, in a forward motion

Construction vehicles must not obstruct any pedestrian crossings or footpaths

Construction vehicles must not layover trafficable lanes without an approved ROL

Traffic Controllers must not stop general traffic to allow construction vehicles to enter or exist, without an approved ROL

All Roadwork Speed Limits must be observed


Legend
Haulage Route (External Works)
Haulage Route (Internal Works)
Internal Work Zone
Long Term ExternalWork Zone (All Stages)
20
SPEED LIMIT
BEHIND BARRIERS
Notes
www.invarion.com
Site access must be left in, left out, in a forward motion
Construction vehicles must not obstruct any pedestrian crossings or footpaths
Construction vehicles must not layover trafficable lanes without an approved ROL
Traffic Controllers must not stop general traffic to allow construction vehicles to enter or exist, without an approved ROL
All Roadwork Speed Limits must be observed
Westlink M7 (Toll road)
M7
Google


Legend
Haulage Route (External Works)
Haulage Route (Internal Works)
Internal Work Zone
Long Term ExternalWork Zone (All Stages)
20
SPEED LIMIT
BEHIND BARRIERS
Notes
www.invarion.com
Site access must be left in, left out, in a forward motion
Construction vehicles must not obstruct any pedestrian crossings or footpaths
Construction vehicles must not layover trafficable lanes without an approved ROL
Traffic Controllers must not stop general traffic to allow construction vehicles to enter or exist, without an approved ROL
All Roadwork Speed Limits must be observed
Westlink M7 (Toll road)
M7
Wallgrove Rd
Burley Rd
Google
Map data ©2022 Imagery ©2022 , CNES / Airbus, Maxar Technologies


Legend
Haulage Route (External Works)
Haulage Route (Internal Works)
Internal Work Zone
Long Term ExternalWork Zone (All Stages)
20
SPEED LIMIT
BEHIND BARRIERS
Notes
www.invarion.com
Site access must be left in, left out, in a forward motion
Construction vehicles must not obstruct any pedestrian crossings or footpaths
Construction vehicles must not layover trafficable lanes without an approved ROL
Traffic Controllers must not stop general traffic to allow construction vehicles to enter or exist, without an approved ROL
All Roadwork Speed Limits must be observed
Wallgrove Rd
Westlink M7 (Toll road)
M7
Chandos Rd
Google
Map data ©2022 Imagery ©2022 , CNES / Airbus, Maxar Technologies

www.invarion.com

Legend

- Haulage Route (External Works)
- Haulage Route (Internal Works)
- Internal Work Zone
- Long Term ExternalWork Zone (All Stages)



SPEED LIMIT
BEHIND BARRIERS

Notes

Site access must be left in, left out, in a forward motion

Construction vehicles must not obstruct any pedestrian crossings or footpaths

Construction vehicles must not layover trafficable lanes without an approved ROL

Traffic Controllers must not stop general traffic to allow construction vehicles to enter or exist, without an approved ROL

All Roadwork Speed Limits must be observed

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Legend
Haulage Route (External Works)
Haulage Route (Internal Works)
Internal Work Zone
Long Term ExternalWork Zone (All Stages)
20
SPEED LIMIT
BEHIND BARRIERS
Notes
www.invarion.com
Site access must be left in, left out, in a forward motion
Construction vehicles must not obstruct any pedestrian crossings or footpaths
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Traffic Controllers must not stop general traffic to allow construction vehicles to enter or exist, without an approved ROL
All Roadwork Speed Limits must be observed
Wallgrove Rd
Westlink M7 (Toll road)
M7
Google
Map data ©2022 Imagery ©2022 , CNES / Airbus, Maxar Technologies


Legend
Haulage Route (External Works)
Haulage Route (Internal Works)
Internal Work Zone
Long Term ExternalWork Zone (All Stages)
Notes
www.invarion.com
Site access must be left in, left out, in a forward motion
Construction vehicles must not obstruct any pedestrian crossings or footpaths
Construction vehicles must not layover trafficable lanes without an approved ROL
Traffic Controllers must not stop general traffic to allow construction vehicles to enter or exist, without an approved ROL
All Roadwork Speed Limits must be observed
20
SPEED LIMIT
BEHIND BARRIERS
The Horsley Dr
Felton St
Wallgrove Rd
M7
Westlink M7 (Toll road)
Google
Map data ©2022 Imagery ©2022 , CNES / Airbus, Maxar Technologies


Legend
Haulage Route (External Works)
Haulage Route (Internal Works)
Internal Work Zone
Long Term ExternalWork Zone (All Stages)
20
SPEED LIMIT
BEHIND BARRIERS
Notes
www.invarion.com
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Traffic Controllers must not stop general traffic to allow construction vehicles to enter or exist, without an approved ROL
All Roadwork Speed Limits must be observed
Wallgrove Rd
Westlink M7 (Toll road)
M7
Cobham St
Google
Map data ©2022 Imagery ©2022 , CNES / Airbus, Maxar Technologies

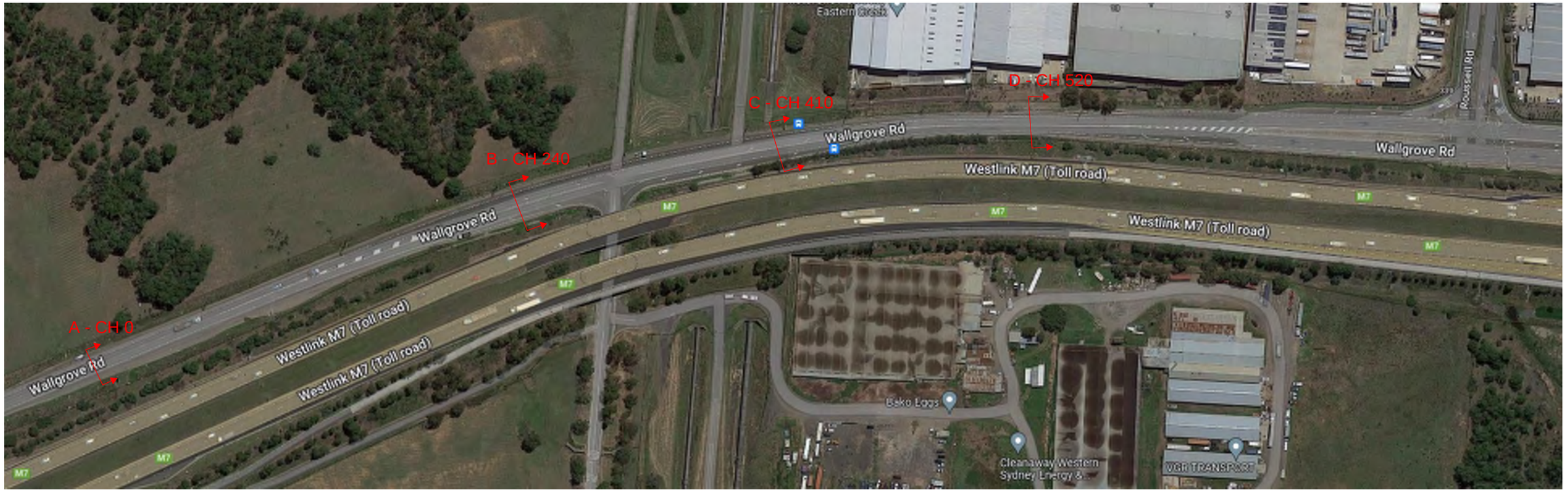
www.invarion.com



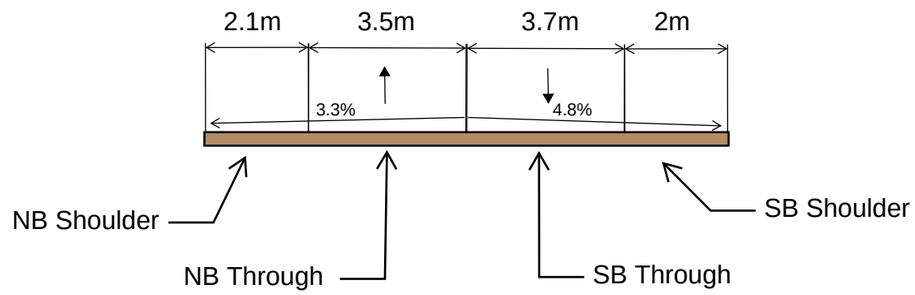

Legend
Haulage Route (External Works)
Haulage Route (Internal Works)
Internal Work Zone
Long Term ExternalWork Zone (All Stages)
20
SPEED LIMIT
BEHIND BARRIERS
Notes
www.invarion.com
Site access must be left in, left out, in a forward motion
Construction vehicles must not obstruct any pedestrian crossings or footpaths
Construction vehicles must not layover trafficable lanes without an approved ROL
Traffic Controllers must not stop general traffic to allow construction vehicles to enter or exist, without an approved ROL
All Roadwork Speed Limits must be observed
Wallgrove Rd
Westlink M7 (Toll road)
M7
Saxony Rd
Google
Map data ©2022 Imagery ©2022 , CNES / Airbus, Maxar Technologies

Annexure J – Cross Sections

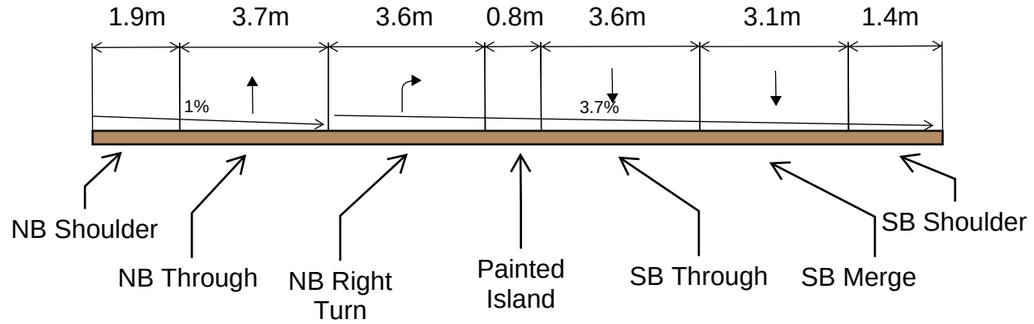
Existing Wallgrove Road Cross Sections - N.T.S.



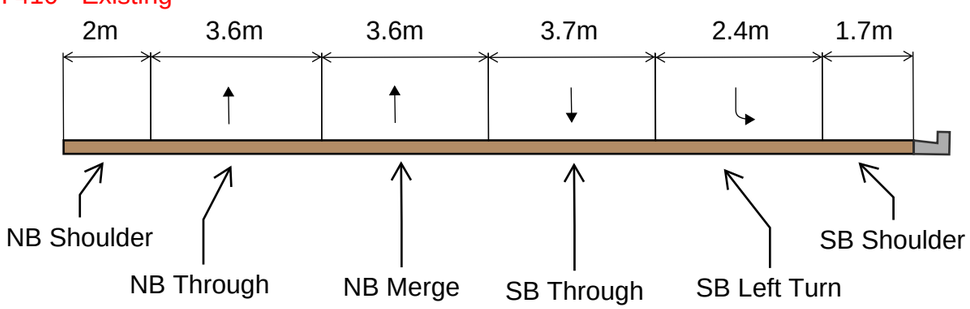
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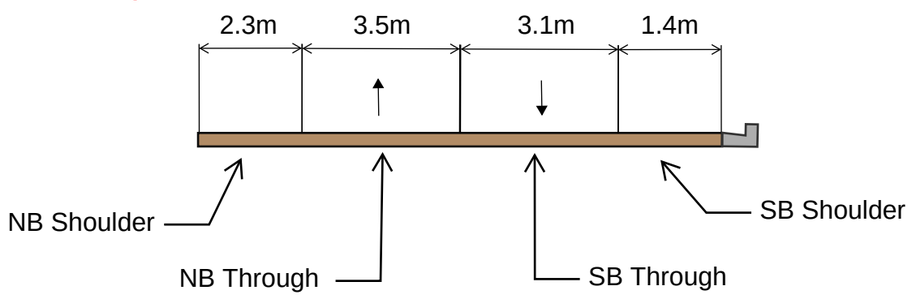
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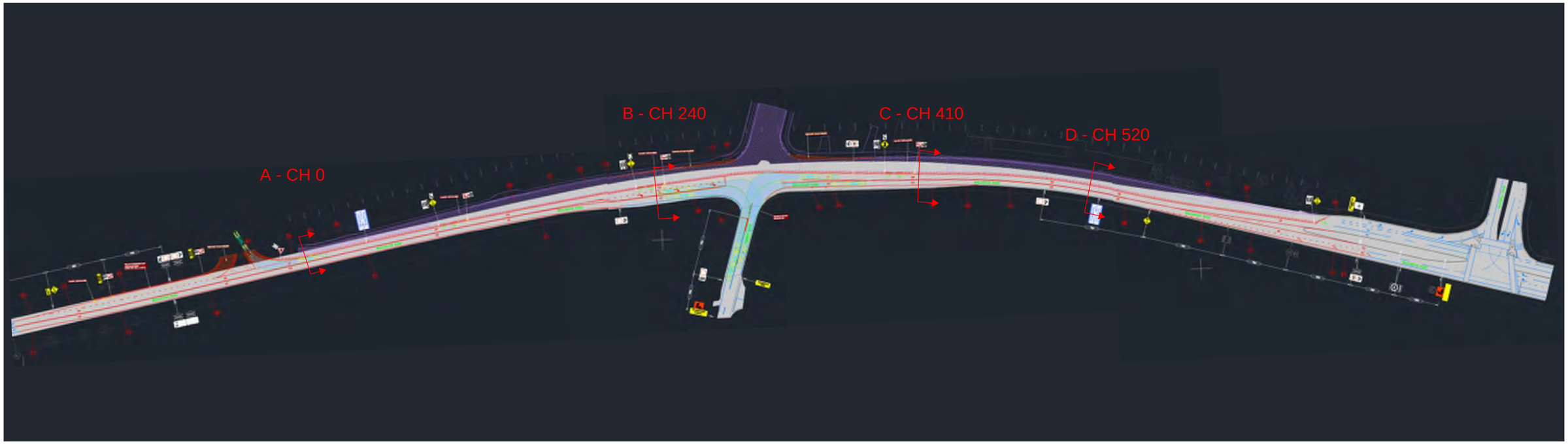
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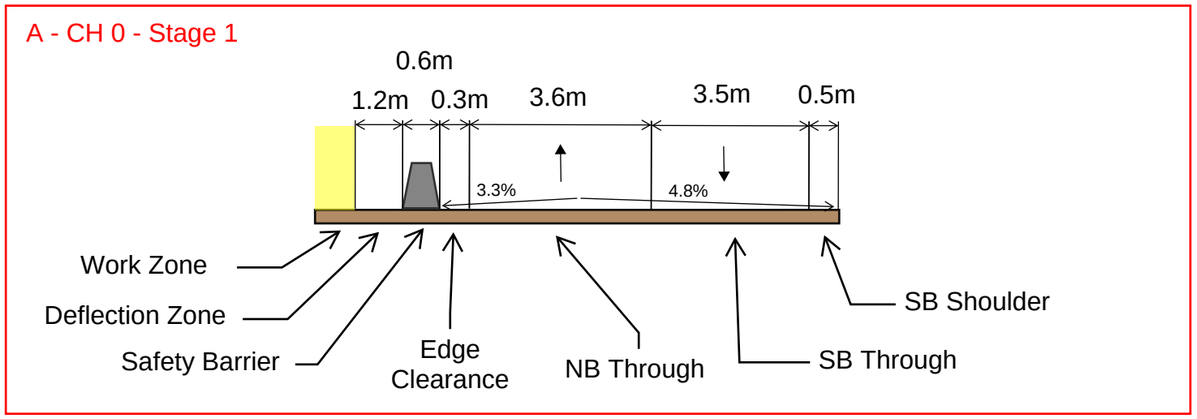


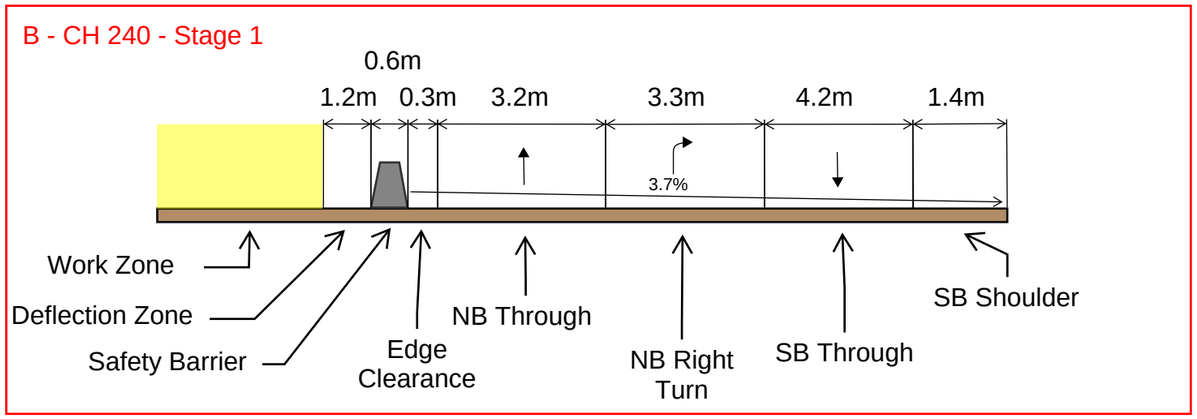
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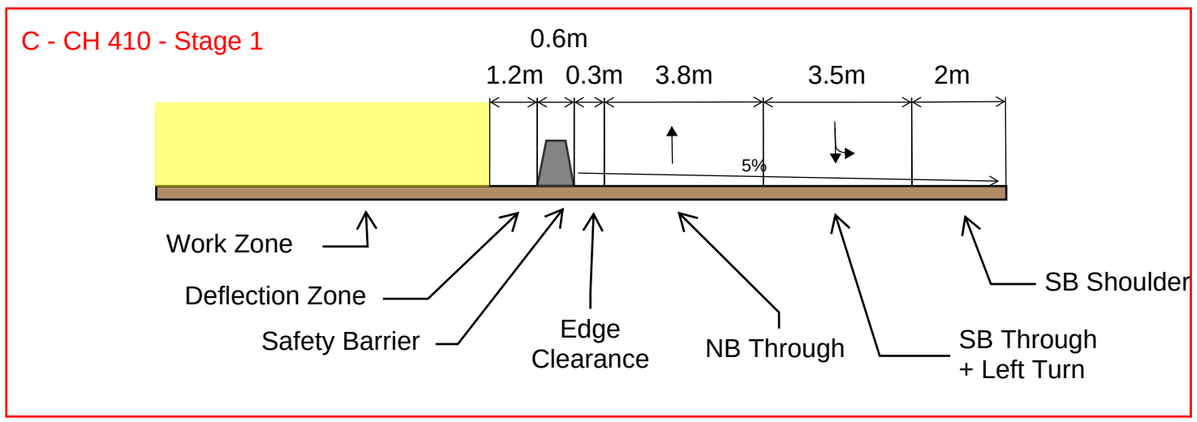


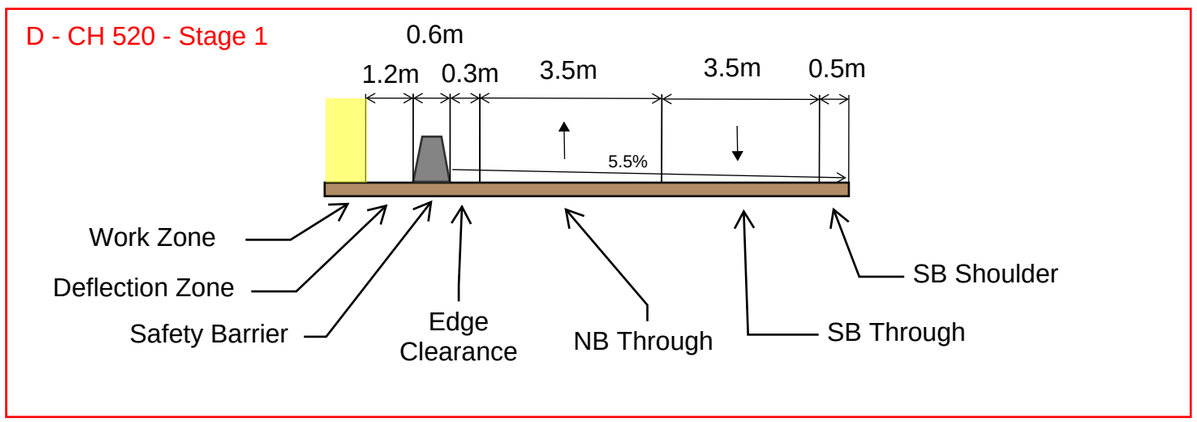
Stage 1 Wallgrove Road Cross Sections - N.T.S.



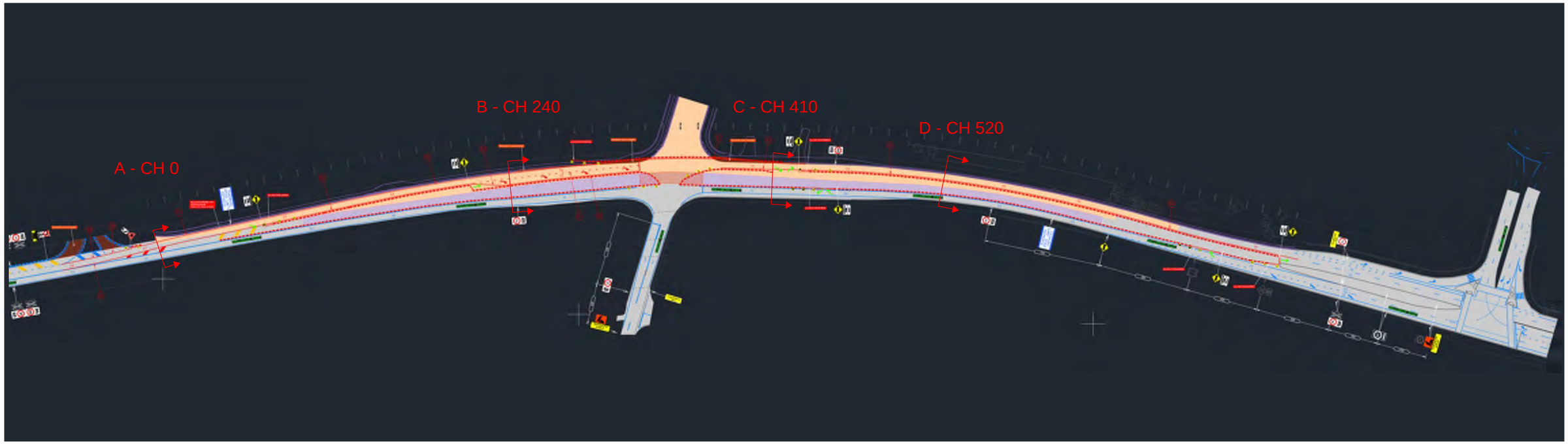




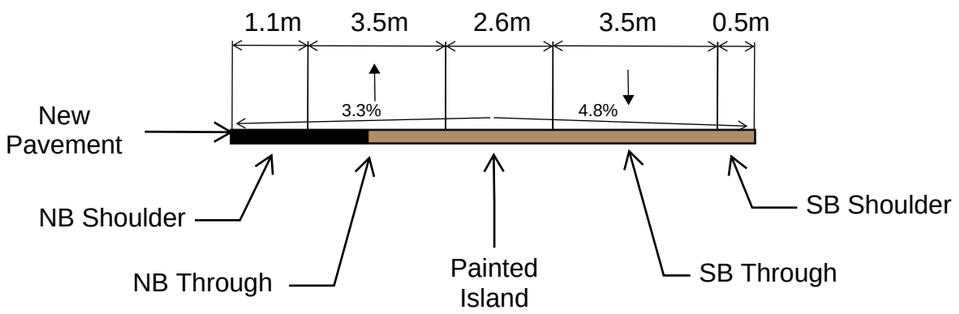




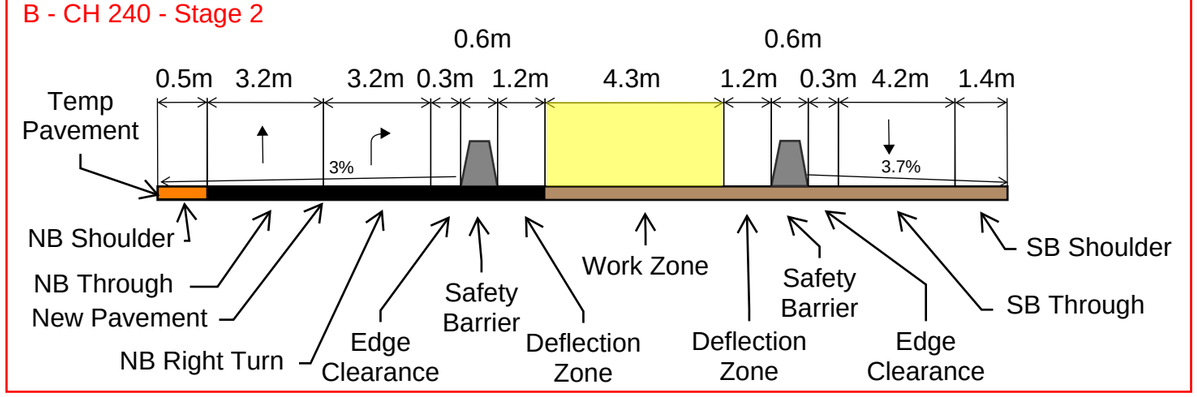
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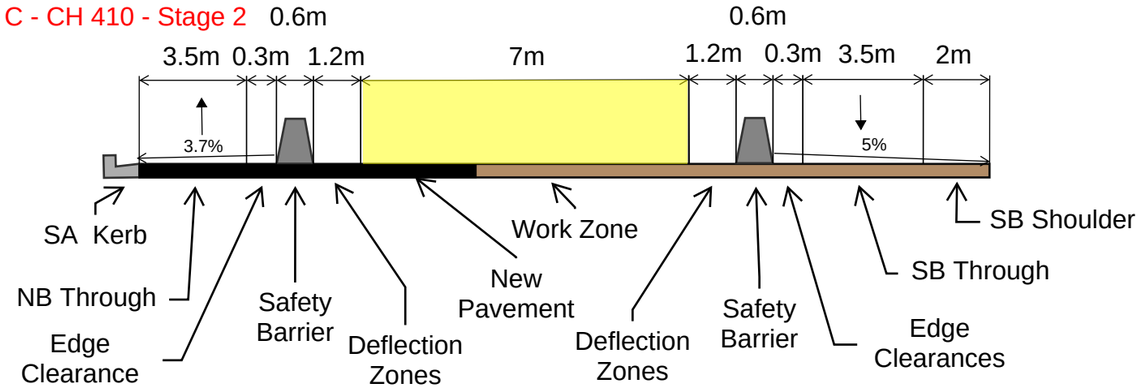
A - CH 0 - Stage 2



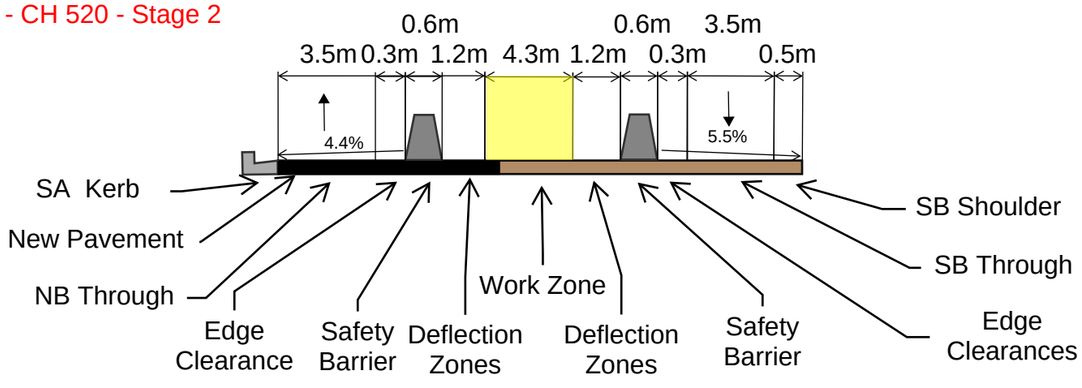
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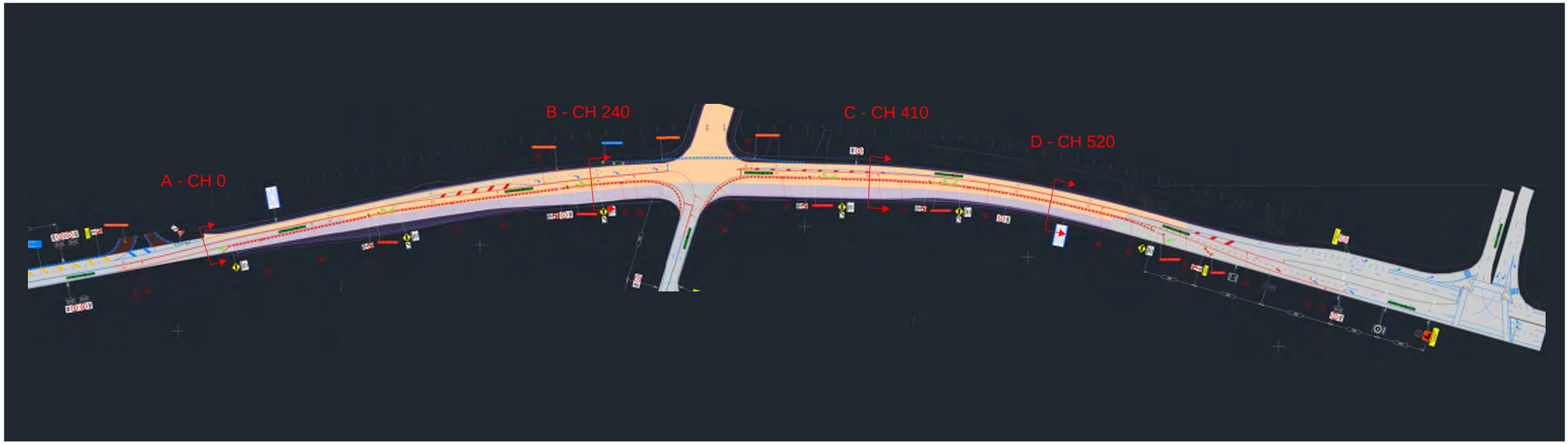
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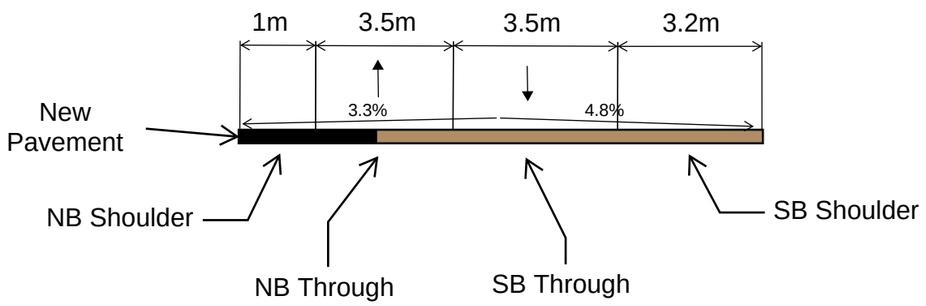
D - CH 520 - Stage 2



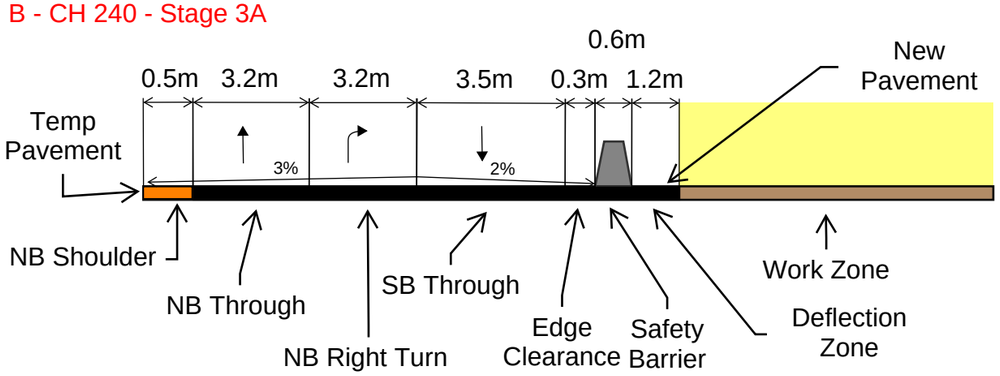
Stage 3A Wallgrove Road Cross Sections - N.T.S.



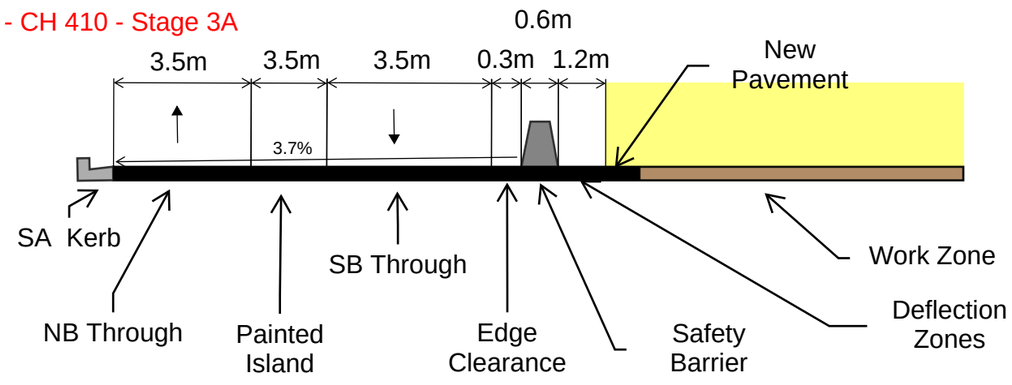
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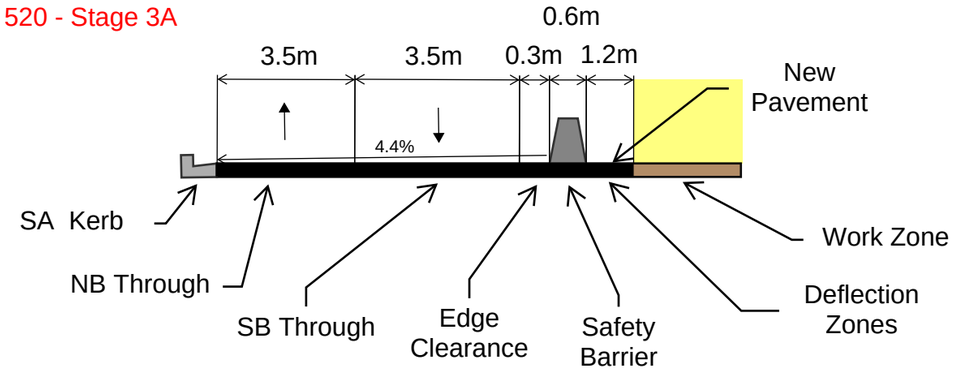
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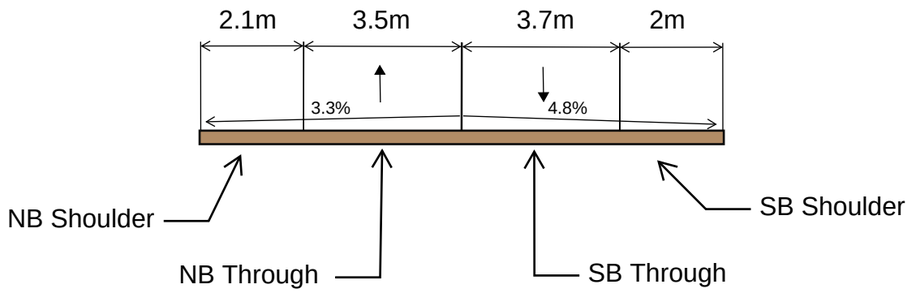
C - CH 410 - Stage 3A



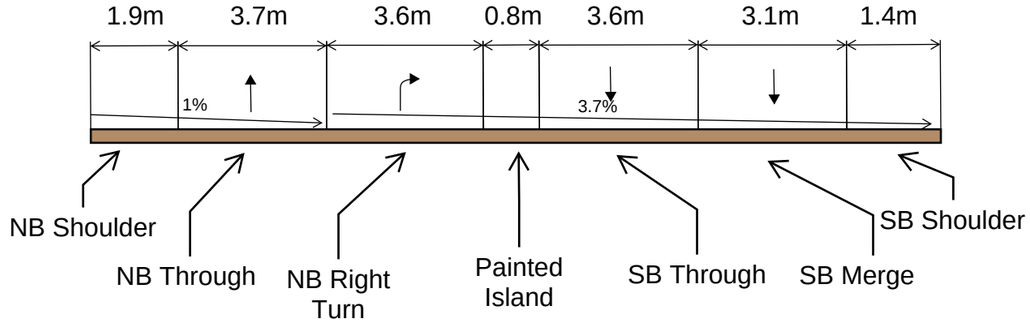
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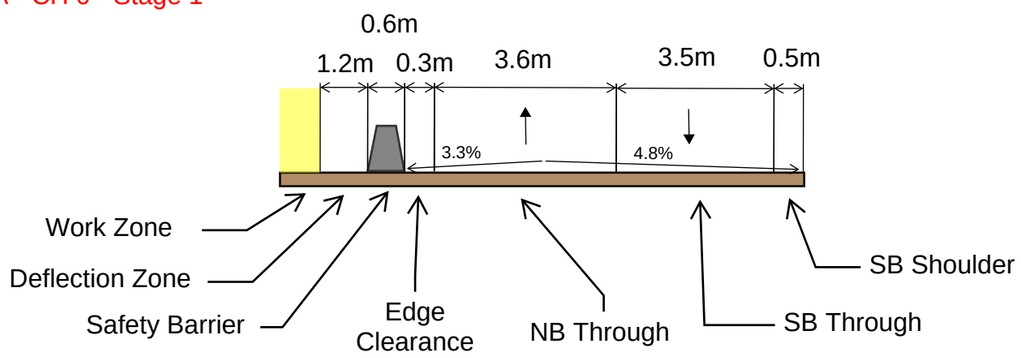
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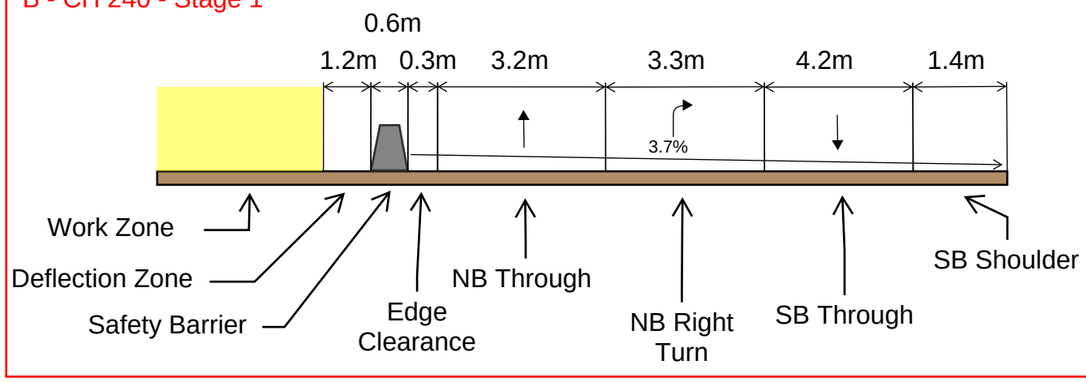
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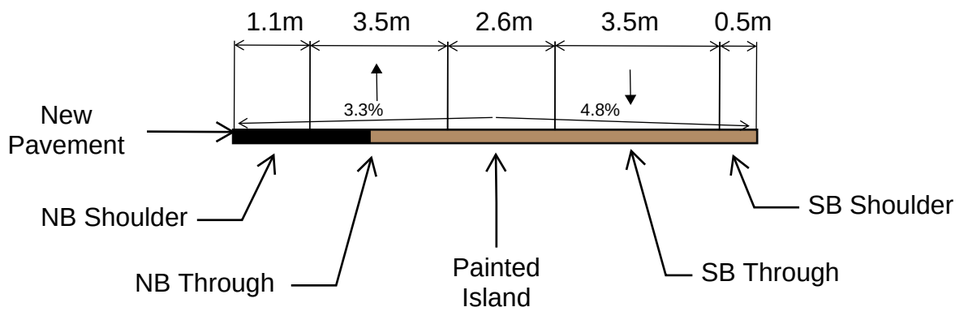
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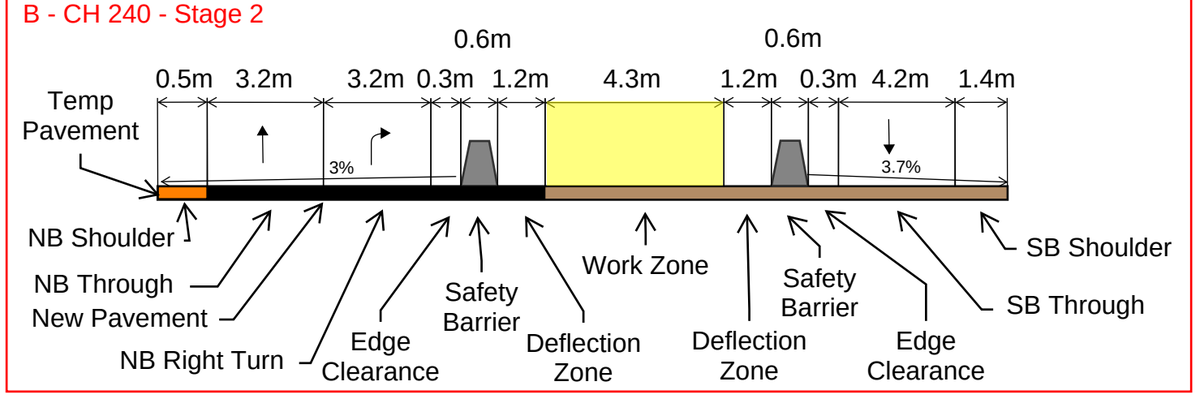
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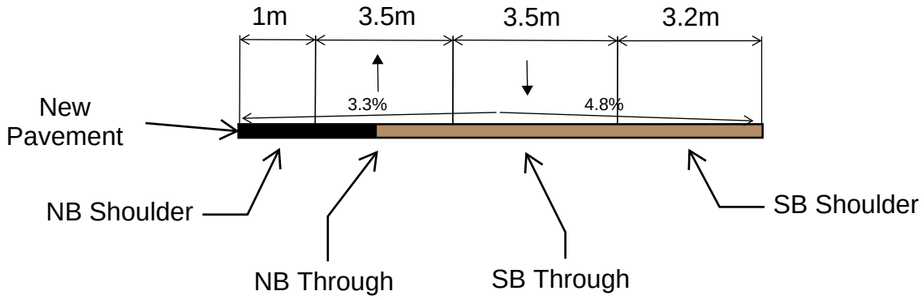
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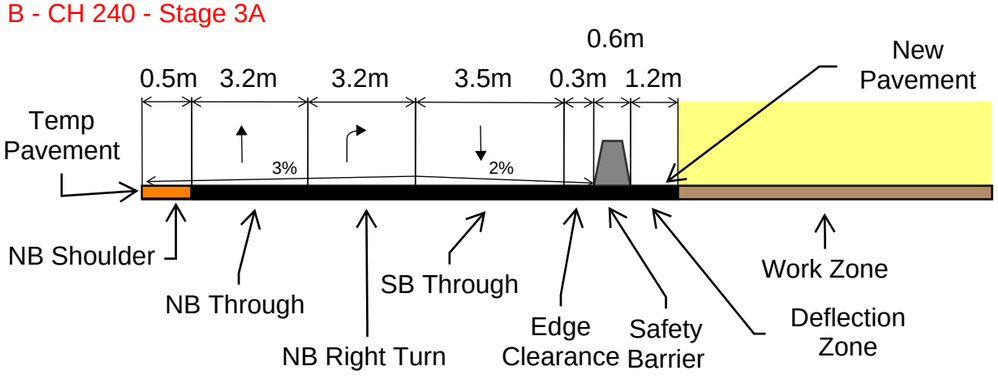
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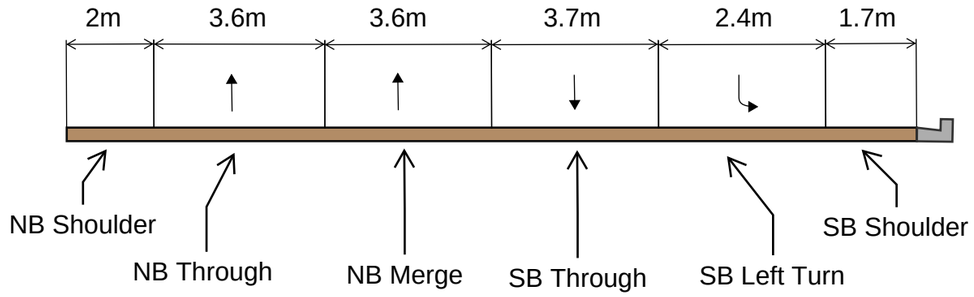
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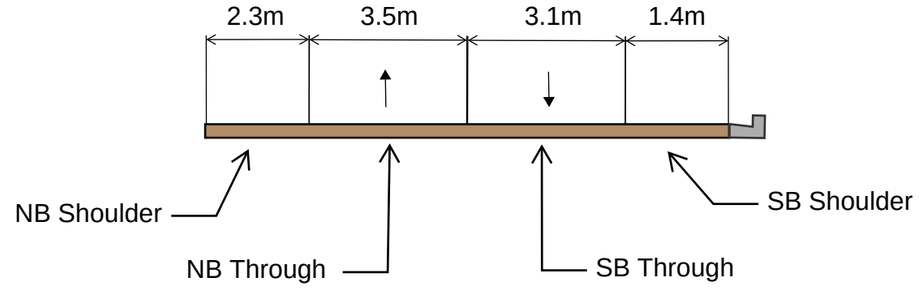
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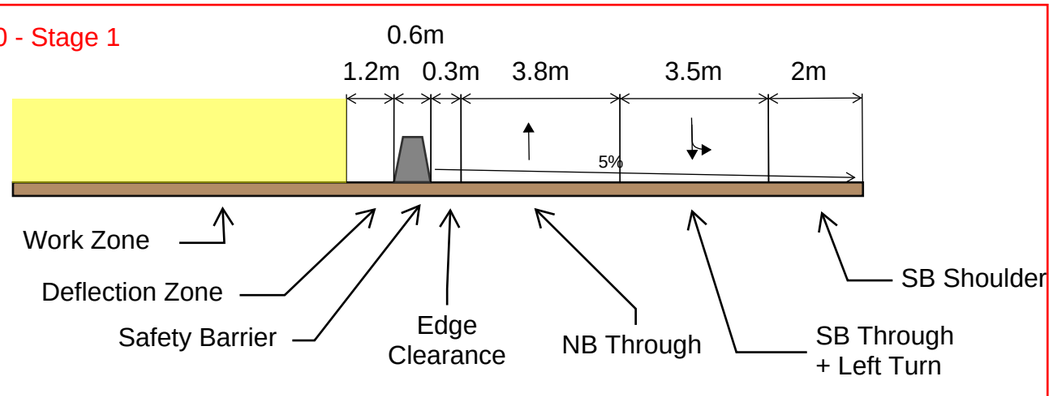
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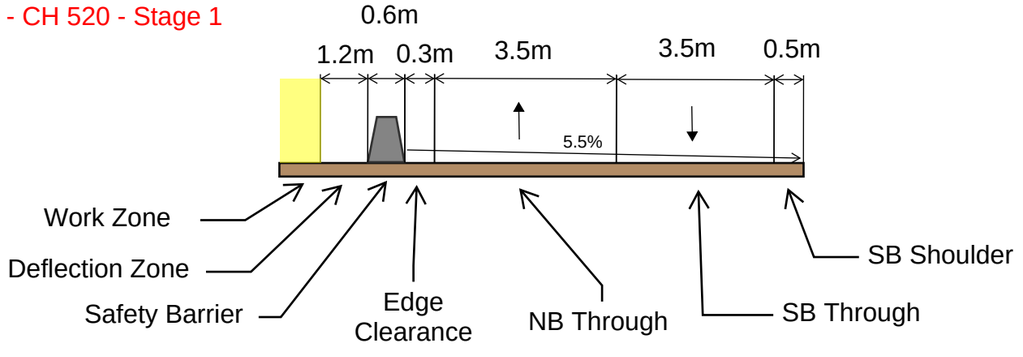
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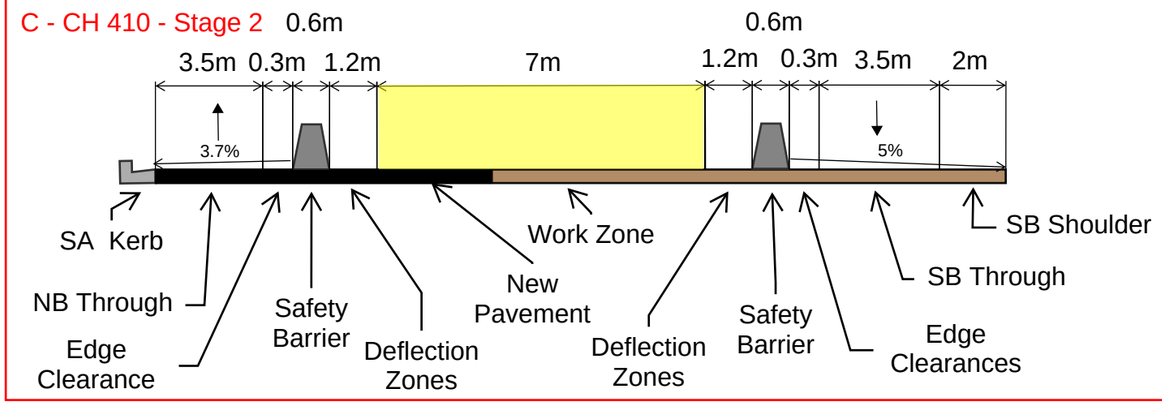
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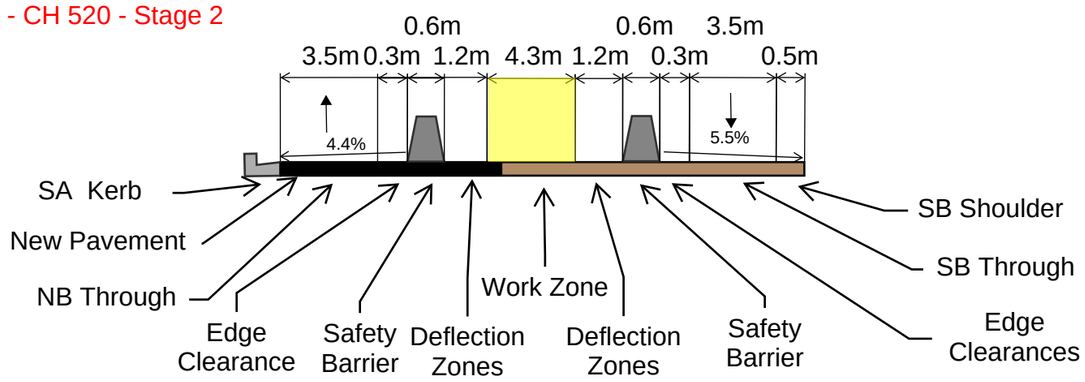
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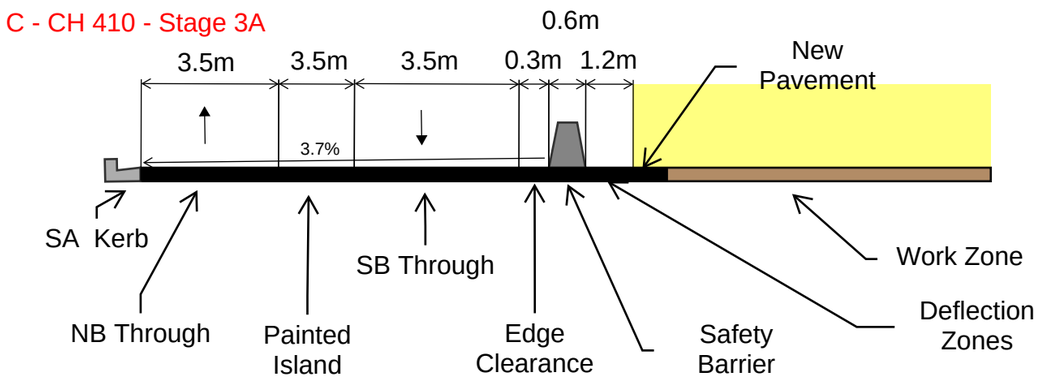
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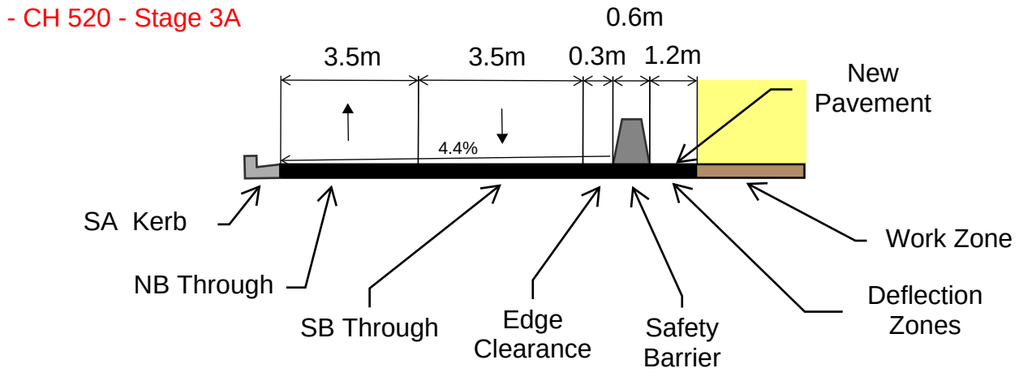
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C - CH 410 - Stage 3A



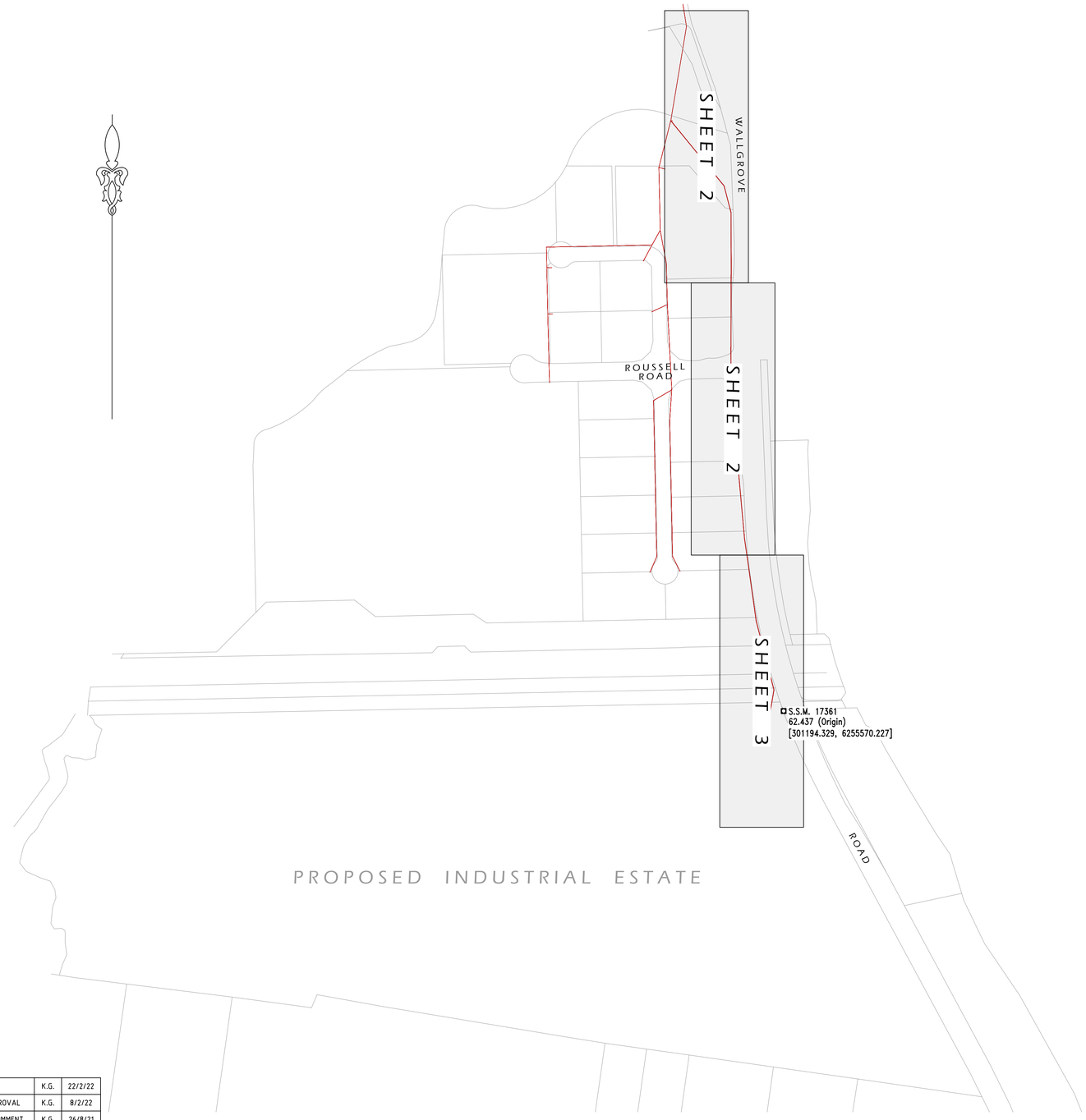
D - CH 520 - Stage 3A



Annexure K – Sewer Design

A1

DEVELOPER CONTRACT PLAN



LOCALITY SKETCH

NOT TO SCALE

0 10 20 30 40 50 METRES

NOTES :-

1 WATER SERVICING COORDINATOR: ROSE ATKINS RIMMER (INFRASTRUCTURE) Pty. Ltd.
SHOP 7 & 8 M CENTRE
40 STERLING ROAD MINCHINBURY NSW 2770
Ph: (02) 9853 0200

SURVEY: *RPS AUSTRALIA EAST Pty. Ltd.*
LEVEL 13, 255 PITT STREET SYDNEY NSW 2000
Ph: (02) 8270 8300

FOR: *GAZCORP Pty. Ltd.*
5 VISCOUNT PLACE LIVERPOOL NSW 2170
Ph: (02) 9821 3588 / 0418 619 282

2 ALL WORKS & MATERIALS ARE TO BE IN ACCORDANCE WITH THE SEWERAGE CODE OF AUSTRALIA WSA 02-2002-2.2 (SYDNEY WATER EDITION – Version 4 – 2017) AND SYDNEY WATER'S TECHNICAL SPECIFICATION – CIVIL (Version 9.0).

3 ALL SERVICES SHOWN ARE INDICATIVE ONLY. A CURRENT SERVICES SEARCH & SITE CHECK OF ALL EXISTING SERVICES WILL BE REQUIRED PRIOR TO COMMENCEMENT OF ANY WORKS.

4 THE CONSTRUCTOR IS TO DETERMINE LEVELS & LOCATIONS OF SERVICES PRIOR TO CONSTRUCTION. VERTICAL AND HORIZONTAL CLEARANCE BETWEEN SEWERS AND UNDERGROUND SERVICES MUST BE IN ACCORDANCE WITH SECTION 4.4.5 OF THE SEWERAGE CODE OF AUSTRALIA WSA 02-2002-2.2 (SYDNEY WATER EDITION – Version 4).

5 ALL SURVEY MARKS ARE PEGS UNLESS OTHERWISE NOTED.

6 THE CONSTRUCTOR SHALL VERIFY ANY EXISTING INVERT LEVELS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES MUST BE REFERRED TO THE DESIGNER IMMEDIATELY PRIOR TO THE COMMENCEMENT OF WORK.

7 ALL STRUCTURES TO BE IN ACCORDANCE WITH MAINTENANCE STRUCTURE SCHEDULE (SHEET 4). SHOULD THE CONSTRUCTOR CHOOSE TO USE A DIFFERENT STRUCTURE TO THAT SHOWN IN THE SCHEDULE, THE W.S.C. MUST BE INFORMED IN WRITING FOR CONSIDERATION.

8 ALL STRUCTURES TO BE CONSTRUCTED TO PROPOSED FINISHED SURFACE LEVELS. THE CONSTRUCTOR IS TO LIAISE WITH THE SITE SUPERINTENDENT TO VERIFY ALL FINAL LEVELS.

9 PIPES TO BE MICROTUNNELLED IN STEEL ENCASING PIPE SHOWN ACCORDINGLY:

PIPES TO BE MICROTUNNELLED IN G.R.P. JACKING PIPE SHOWN ACCORDINGLY:

PIPES TO BE MICROTUNNELLED IN FREE BORE SHOWN ACCORDINGLY:

10 BUILDING OVER/ADJACENT TO SEWER. CONDITIONS APPLY. REFER TO TAP-IN.

11 ALL LEVELS ELECTRONICALLY GENERATED. NO LEVEL BOOK AVAILABLE.

12 THE MINIMUM NUMBER OF COMPACTION TESTS REQUIRED TO SATISFY THE SEWERAGE CODE OF AUSTRALIA (CLAUSE 22.3.4.4) ARE:

MAINTENANCE STRUCTURES:
2 TESTS / 1m LAYER WITHIN 300mm OF EACH M.H. OR M.S. (138 Tests)

NOTE: LEVEL 1 GEOTECHNICAL INSPECTION MUST BE PROVIDED IN ACCORDANCE WITH AS 3798 FOR ALL EARTHWORKS EXCEEDING 3.0m FILL OR BACKFILL THICKNESS.

13 COUNCIL'S TREE PRESERVATION ORDER TO BE STRICTLY ADHERED TO. EXCAVATIONS IN THE VICINITY OF TREES ARE TO BE CARRIED OUT IN ACCORDANCE WITH ARBORIST SPECIFICATIONS AND UNDER THE SUPERVISION OF THE SITE ARBORIST (MANUAL OR HYDRO-EXCAVATION MAY BE REQUIRED).
NOTE: TREES SHOWN ON PLAN BASED ON THE CLIENT SUPPLIED SURVEY INFORMATION. ALL TREES MAY NOT HAVE BEEN SHOWN.

14 MICROTUNNEL Ch00-Ch515.93 & Ch842.02-Ch886.14 WITH DN300 (345 O.D.) SN20,000 G.R.P. PIPE WITH EXTERNAL R.R.J. COUPLINGS IN DN500 (508 O.D.) STEEL ENCASING PIPE (SPL). REFER TO SEW-1402-V & DETAIL 'A' ON SHEET 4.

MICROTUNNEL Ch739.78-Ch842.02 WITH DN300 (345 O.D.) SN20,000 G.R.P. PIPE WITH EXTERNAL R.R.J. COUPLINGS IN O.D.530 SN50,000 G.R.P. JACKING PIPE WITH STAINLESS STEEL COUPLINGS. REFER TO SEW-1402-V & DETAIL 'C' ON SHEET 4.

MICROTUNNEL Ch515.93-Ch739.78 WITH DN300 (345 O.D.) SN20,000 G.R.P. PIPE WITH EXTERNAL R.R.J. COUPLINGS IN A FREE BORE. REFER TO SEW-1402-V & DETAIL 'B' ON SHEET 4.

ENCASING PIPE SHALL BE INSTALLED CONCURRENTLY WITH THE TRENCHLESS EXCAVATION. IT IS THE RESPONSIBILITY OF THE CONSTRUCTOR TO ENSURE THE CONSTRUCTABILITY OF THE BORE – REFER TO TRENCHLESS CONSTRUCTION NOTES (SHEET 4). THE CONTRACTOR IS TO ENSURE THE MAXIMUM SLIPLINING LOAD AND SHORT TERM CRITICAL BUCKLING PRESSURE DURING INSTALLATION AND GROUTING DO NOT EXCEED THE MAXIMUM ALLOWABLE FOR THE PIPE.

15 VIBRATION MONITORING SHALL BE UTILISED AT ALL TIMES DURING THE CONSTRUCTION FOR SEWER MICROTUNNELING UNDER WaterNSW PIPELINES. REFER TO WaterNSW 'GUIDELINES FOR DEVELOPMENT ADJACENT TO THE UPPER CANAL & WARRAGAMBA PIPELINES' [Version 3, February 2020] FOR REQUIREMENTS.

No.	REVISION DESCRIPTION	BY	DATE
08	STAGING ADDED	K.G.	22/2/22
07	ON HOLD PENDING SYDNEY WATER APPROVAL	K.G.	8/2/22
06	M.H. ADDED AS PER SYDNEY WATER COMMENT	K.G.	26/8/21
05	STEEL ENCASING PIPE DETAIL UPDATED	K.G.	27/7/21
04	SYDNEY WATER COMMENTS ADDRESSED	K.G.	8/7/21
03	I.V. COMMENTS ADDRESSED	K.G.	12/3/21
02	ISSUE FOR WaterNSW APPROVAL	K.G.	23/2/21
01	DESIGN UPDATED FOR DISCUSSION	K.G.	21/8/20
00a	CONCEPT DESIGN FOR DISCUSSION	K.G.	19/3/20
00	CONCEPT DESIGN FOR DISCUSSION	K.G.	29/1/20

PLAN TO BE READ IN CONJUNCTION WITH CURRENT SYDNEY WATER STANDARDS
SYDNEY WATER CORPORATION

PRIOR TO COMMENCEMENT OF EXCAVATION FOR PROPOSED AND EXISTING SERVICES CONTACT :-
DIAL BEFORE YOU DIG . . . . . Ph. 1100
ELECTRICITY . . . . AUSGRID . . . . Ph. 131 388
GAS . . . . . JEMENA . . . . Ph. 131 909
TELECOMMUNICATIONS . . TELSTRA . . Ph. 132 203
. . . . . Ph. . . . . .
GIVING AT LEAST 48 HOURS NOTICE.

UTILITIES

TYPE	DATE	REF.	TYPE	DATE	REF.
WATER: DN100 Water	26/8/21	RPS			
STORMWATER: SWD	26/8/21	RPS			
OPTIC FIBRE: OP-FIB	26/8/21	RPS			
TELSTRA: TEL	26/8/21	RPS			
AUSGRID: E	26/8/21	RPS			

WORK AS CONSTRUCTED CERTIFICATION

DEVELOPER . . . . .
WATER SERVICE CO-ORDINATOR . . . . .
CONSTRUCTOR . . . . .
COMPLETED . . . . . W.A.C. PREPARED . . . . .

DESIGNER . . . . .

I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS.

PIPE SCHEDULE

SIZE (DN)	TYPE	CLASS	LENGTH	PIPE JOINING METHOD / NOTES
O.D. 530	G.R.P.	SN50000	102.24	JACKING PIPE
				W/ S.S. COUPLINGS
500	STEEL	-	560.05	(508 O.D.) ENCASING PIPE
				6.4mm THICKNESS
300	G.R.P.	SN20000	886.14	(345 O.D.) EXTERNAL
				R.R.J. COUPLINGS

DESIGN HEAD . . . m

NO BOUNDARY TRAPS REQUIRED.

GDA 94

AUSTRALIAN HEIGHT DATUM

SCALES

PLAN . 1:500 . SECTION { HOR. . 1:1000 . VERT. . 1:250 .

CROSS SECTIONS . . — . . NATURAL

LENGTHS, DEPTHS & LEVELS ARE IN METRES.

NO AMENDMENTS ARE TO BE MADE TO THIS PLAN WITHOUT REFERENCE TO SYDNEY WATER. THIS PLAN IS NOT NECESSARILY UP TO DATE OR CORRECT AND SYDNEY WATER ACCEPTS NO RESPONSIBILITY.

U.B. DIRECTORY . . . . . 207-D8 . . . . . (Version 8.1 Digital)

SHEET . 1 . OF . 10 . File No. N/A . . . . .

SYDNEY WATER CORPORATION

Case No. 181159ww

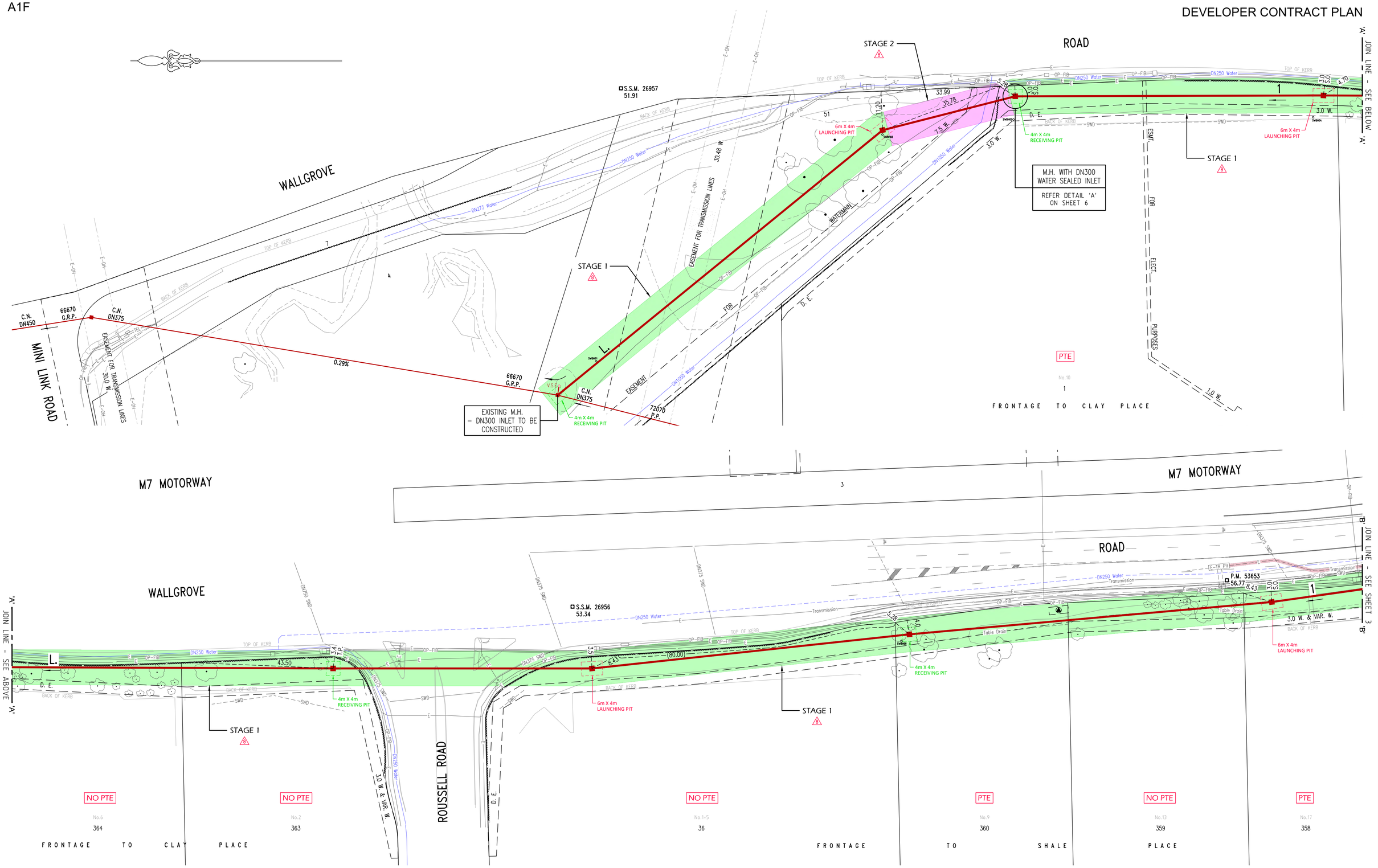
BLACKTOWN SEWERAGE
DRAINS TO
SPS 259 VIA EASTERN CREEK SUB'N SEC.2
QUAKERS HILL S.T.W.

R.A.R. REFERENCE: 12/25955/wwLI *DESIGNED:* S.R./K.G. *DRAFTED:* K.G. *VERIFIED:* D.I.S. *REVIEWED:* D.I.S. *VARIATION ID:* *APPROVAL DATE:*

PLAN DRAWN DATE: 22/2/22 VERSION: 08 SHEET 1 OF 10 SHEETS

A1F

DEVELOPER CONTRACT PLAN



PLAN DRAWN DATE: 22/2/22 VERSION: 08 SHEET 2 OF 10 SHEETS

WORK AS CONSTRUCTED CERTIFICATION

DEVELOPER . . . . . .
W.S.C. . . . . .
CONSTRUCTOR . . . . . .
COMPLETED . . . . . .
W.A.C. PREPARED . . . . . .

DESIGNER . . . . . .
I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS

SYDNEY WATER CORPORATION

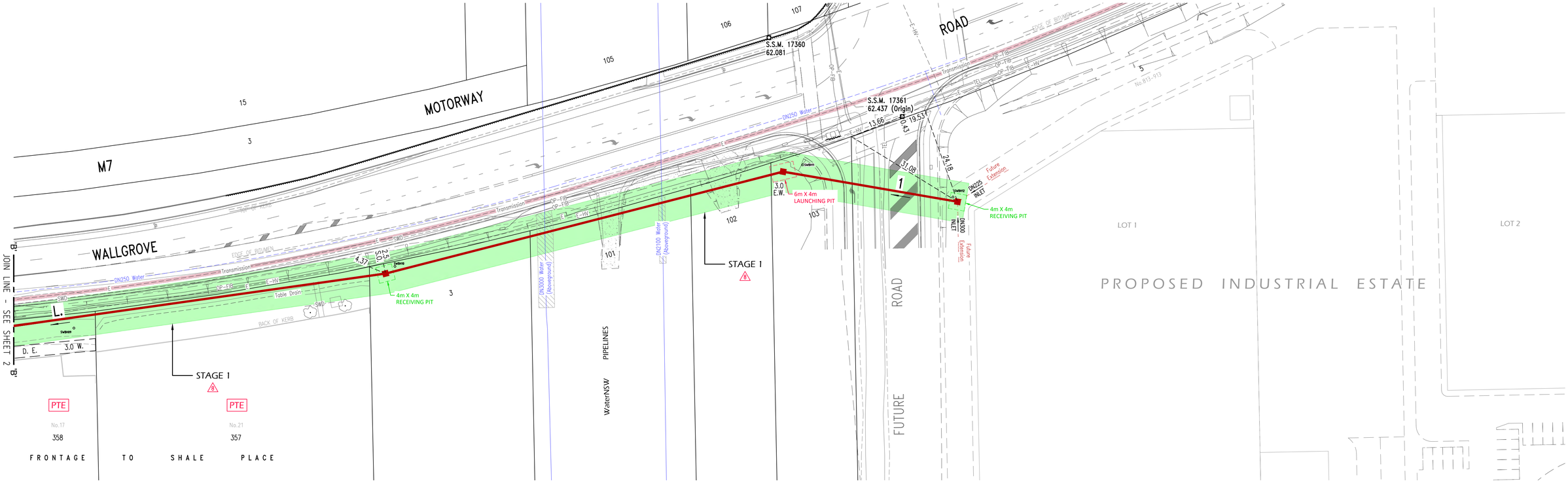
Case No. 181159ww | SHT 2 OF 10 SHTS.

SYDNEY WATER CORPORATION
FOR DETAILS OF SERVICES SEE SHEET 1

R.A.R. REFERENCE: 12/25955/wwLI DESIGNED: S.R./K.G. DRAFTED: K.G. VERIFIED: D.I.S. REVIEWED: D.I.S. VARIATION ID: APPROVAL DATE:

A1F

DEVELOPER CONTRACT PLAN



DENOTES STAGE 1 WORKS

DENOTES STAGE 2 WORKS

0 10 20 30 40 50 METRES

WORK AS CONSTRUCTED CERTIFICATION	
DEVELOPER	
W.S.C.	
CONSTRUCTOR	
COMPLETED	
W.A.C. PREPARED	
DESIGNER	

I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS

SYDNEY WATER CORPORATION

Case No. 181159ww | SHT 3 OF 10 SHTS.

SYDNEY WATER CORPORATION

FOR DETAILS OF SERVICES SEE SHEET 1

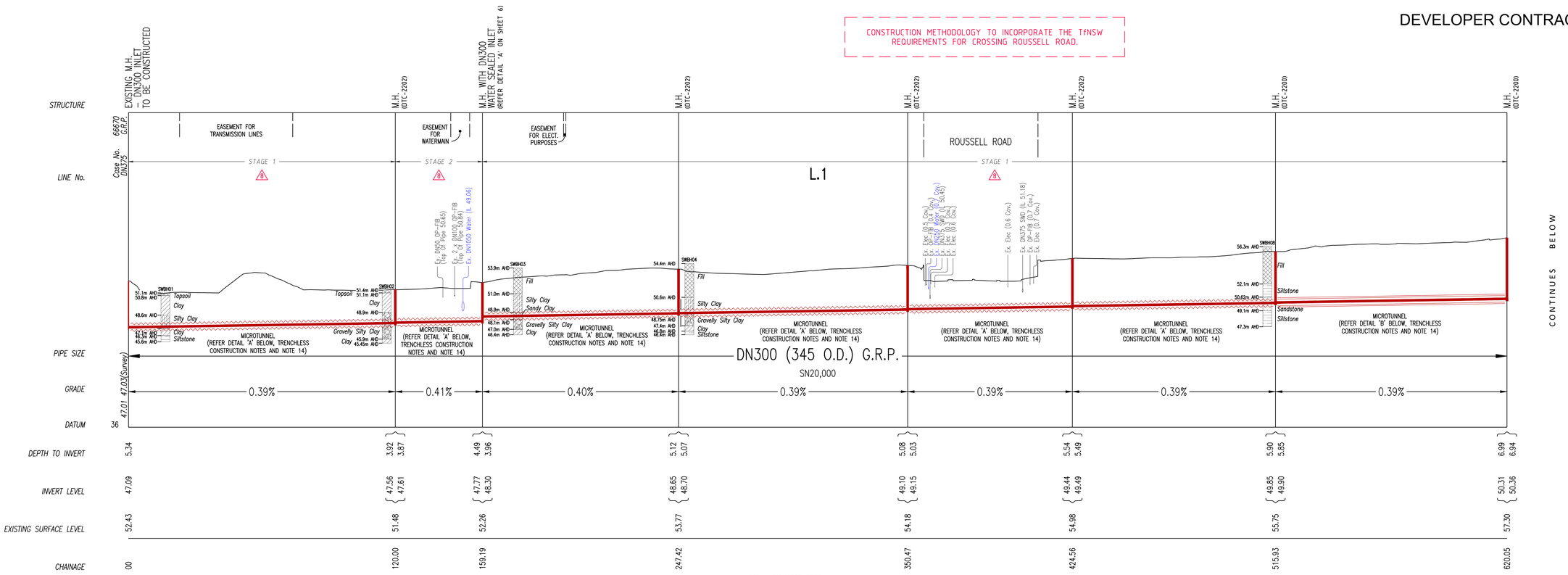
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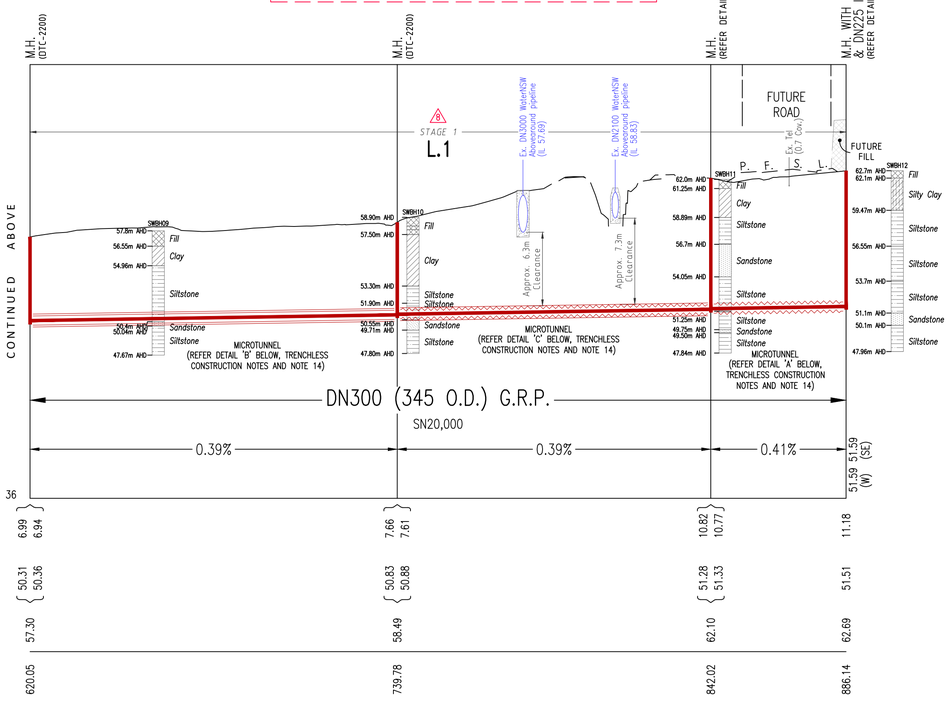
PLAN DRAWN DATE: 22/2/22 VERSION: 08 SHEET 3 OF 10 SHEETS

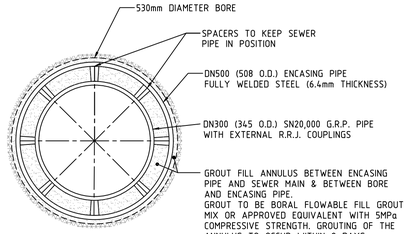
A1F

DEVELOPER CONTRACT PLAN

CONSTRUCTION METHODOLOGY TO INCORPORATE THE TfNSW REQUIREMENTS FOR CROSSING ROUSSELL ROAD.

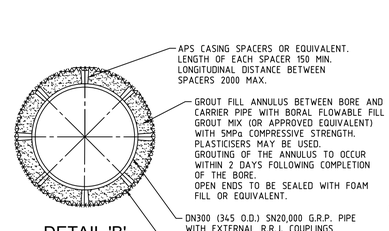






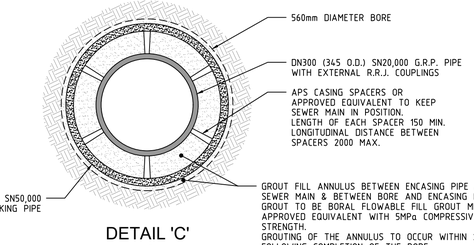
DETAIL 'A'
DN300 SEWER
STEEL ENCASING PIPE
MICROTUNNEL SECTION

(NOT TO SCALE)



DETAIL 'B'
DN300 SEWER
FREE BORE
MICROTUNNEL SECTION

(NOT TO SCALE)



DETAIL 'C'
DN300 SEWER
G.R.P. ENCASING PIPE
MICROTUNNEL SECTION

(NOT TO SCALE)

TRENCHLESS CONSTRUCTION NOTES:

THE CONTRACTOR SHALL FURNISH ALL LABOUR, PLANT, MATERIAL, TOOLS AND EQUIPMENT TO COMPLETE THE TRENCHLESS INSTALLATION THROUGH ALL CLASS OF MATERIALS.

THE CONTRACTOR SHALL BE FAMILIAR WITH THE GEOTECHNICAL REPORT BY DOUGLAS PARTNERS Pty. Ltd. (FILE NAME: 99735.00.R.002.Rev1.SW, DATED 9/7/2021) THAT HAS BEEN PREPARED FOR DEVELOPMENT.

ANY GAPS OR DEFICIENCY IN GEOTECHNICAL INFORMATION REQUIRED BY THE CONTRACTOR MUST BE INVESTIGATED AT THEIR OWN COST.

THE CONTRACTOR SHALL ALLOW FOR ALL CONSUMABLES WHICH MAY BE REQUIRED TO SUCCESSFULLY COMPLETE THE BORE SUCH AS DRILLING FLUIDS, BENTONITE SLURRY, PIPE SLEEVE, PIPE SPACERS AND GROUT ETC.

THE CONTRACTOR SHALL ALLOW FOR DISPOSAL OF ALL SPOIL RELATED TO TRENCHLESS CONSTRUCTION.

NO VARIATIONS WILL BE ALLOWED FOR UNFORESEEN WORK THROUGH FAILURE TO ADOPT THE ABOVE PRECAUTION.

1.1 SUBMITTALS

PRIOR TO COMMENCING ANY WORK, THE CONTRACTOR SHALL SUBMIT A CLEAR AND DETAILED STATEMENT FOR THE EXECUTION OF THE TRENCHLESS PIPE INSTALLATION TO THE WSC. THE SUBMISSION SHALL INCLUDE BUT NOT LIMITED TO THE FOLLOWING:

a) COMPLETE TRENCHLESS CONSTRUCTION METHODOLOGY, INCLUDING SPECIFICATION ON THE PROPOSED MACHINERY THAT WILL BE USED, ALIGNMENT CONTROLS AND SEQUENCE OF OPERATION;
b) SAFETY MANAGEMENT PLAN;
c) QUALITY MANAGEMENT PLAN;
d) STATEMENT OF CAPABILITY THAT THE PROPOSED EQUIPMENT AND METHODOLOGY SHALL BE CAPABLE OF ACHIEVING THE TOLERANCES IN LINE AND LEVEL AS SPECIFIED;
e) SCHEDULE OF WORK;
f) GROUND MONITORING EQUIPMENT AND METHODS (IF APPLICABLE);
g) DRAWING OF THE WORK SITE, INCLUDING LOCATION AND FOOTPRINT OF EQUIPMENT, BORING PITS AND SLURRY CONTAINMENT PITS;
h) METHOD OF SPOIL/SLURRY/DRILLING FLUIDS, TRANSPORTATION FROM CUT FACE, NATURE OF HAULAGE EQUIPMENT AND DISPOSAL;
i) CONTINGENCY PLANS DETAILING HOW STOPPAGES DUE TO OBSTRUCTIONS OR LOSS OF GROUND SHALL BE DEALT WITH.

1.2 PERFORMANCE REQUIREMENTS

j) THE CONTRACTOR SHALL PROVIDE AT LEAST ONE SELF-CONTAINED BORING RIG IN GOOD OPERATING CONDITION, WITH SUFFICIENT TORQUE AND POWER, NECESSARY TO COMPLETE THE WORKS IN A SATISFACTORY MANNER;
k) DEWATERING NOT PERMITTED DURING TRENCHLESS INSTALLATION, BUT, IF REQUIRED MAYBE PERMITTED FOR CONSTRUCTION OF ACCESS/RECOVERY SHAFTS. REFER TECHNICAL SPECIFICATION - CIVIL VERSION 9.0 FOR DEWATERING PROPOSAL.
l) THE CONTRACTOR SHALL ENSURE PIPES ARE INSTALLED INTO PLACE WITHOUT DAMAGING THE PIPE JOINTS;
m) THE CONTRACTOR SHALL ENSURE DIRECTIONAL CONTROL OF THE BORE/AUGER HEAD IS MAINTAINED AT ALL TIMES
n) IF DRILL PATH TOLERANCES ARE NOT ACHIEVED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR: (A) REDO THE PIPE JACKING INSTALLATION; (B) MAKING FORMAL REQUEST FOR CHANGES TO THE ALIGNMENT OF THE WATERMAIN (C) OTHER ALTERNATIVE SOLUTIONS AS DETERMINED BY THE PRINCIPAL.

1.3 OBSTRUCTION AND LOSS OF GROUND

o) IF STOPPAGE IN THE FORWARD PROGRESS OF THE WORKS IS ENCOUNTERED, THE CAUSE OF THE STOPPAGE SHALL BE DETERMINED BY THE CONTRACTOR. WHEN THE CAUSE HAS BEEN IDENTIFIED, THE INSTALLATION METHOD SHALL BE MODIFIED TO BEST SUIT THE ACTUAL CONDITIONS ENCOUNTERED. THE CONTRACTOR SHALL ALLOW FOR ALL NECESSARY MATERIALS AND EQUIPMENT REQUIRED TO MITIGATE ANY OCCURRENCE OF STOPPAGES;
p) SHOULD APPRECIABLE LOSS OF GROUND OCCUR DURING THE TRENCHLESS OPERATION, ALL VOIDS SHALL BE BACKPACKED PROMPTLY TO THE EXTENT PRACTICABLE WITH SOIL CEMENT CONSISTING OF A SLIGHTLY MOISTENED MIXTURE COMPRISING ONE PART CEMENT TO FIVE PARTS GRANULATE MATERIALS. WHERE THE SOIL IS NOT SUITABLE FOR THIS PURPOSE, THE CONTRACTOR SHALL ALLOW FOR IMPORTING OF SUITABLE MATERIAL AS REQUIRED.

1.4 RESPONSIBILITY FOR FINAL TRENCHLESS DESIGN & CONSTRUCTION

THE CONTRACTOR SHALL INDEPENDENTLY EVALUATE THE FEASIBILITY OF THE PROPOSED TRENCHLESS INSTALLATION AND CONFIRM SUITABILITY OF THE EQUIPMENT AND CONSTRUCTION PROCEDURES IN RELATION TO THE ACTUAL SITE TOPOGRAPHY, SOIL AND GROUNDWATER CONDITIONS, EXISTING SITE CONSTRAINTS AND ANY OTHER RELEVANT FEATURES.

THE CONTRACTOR SHALL CONFIRM THAT THE PROPOSED CARRIER PIPE, SLEEVE PIPE & GROUT MIX AS DOCUMENTED ON THE DESIGN DRAWINGS ARE SUITABLE FOR INSTALLATION IN ACCORDANCE WITH HIS PROPOSED METHODOLOGY. WHERE A VARIATION TO THE BORE METHODOLOGY IS REQUIRED, THE CONTRACTOR SHALL PROVIDE BE RESPONSIBLE FOR THE FINAL DESIGN OF THE TRENCHLESS INSTALLATION, AND SHALL PROVIDE ALL NECESSARY DOCUMENTATION TO THE WSC FOR APPROVAL, PRIOR TO COMMENCEMENT OF ANY WORKS.

MAINTENANCE STRUCTURE SCHEDULE

(REFER NOTE 7)

LINE NO.	CHAINAGE	TYPE	DN RISER	CLASS OF COVER	MATERIAL	COMMENTS
1	120.00	M.H.	1200	D	CAST IN-SITU	DTC-2202[E] (18/3/15)
1	159.19	M.H.	1200	D	CAST IN-SITU	M.H. WITH DN300 WATER SEALED INLET. REFER NOTES ON SHEET 5 & DETAIL 'A' ON SHEET 6.
1	247.42	M.H.	1200	D	CAST IN-SITU	DTC-2202[E] (18/3/15)
1	350.47	M.H.	1200	D	CAST IN-SITU	DTC-2202[E] (18/3/15)
1	424.56	M.H.	1200	D	CAST IN-SITU	DTC-2202[E] (18/3/15)
1	515.93	M.H.	1200	D	CAST IN-SITU	DTC-2200[F] (18/3/15)
1	620.05	M.H.	1200	D	CAST IN-SITU	DTC-2200[F] (18/3/15)
1	739.78	M.H.	1200	D	CAST IN-SITU	DTC-2200[F] (18/3/15)
1	842.02	M.H.	1200	D	CAST IN-SITU	REFER NOTES ON SHEET 5 & DETAIL 'K' & DEEP M.H. DETAILS ON SHEETS 9.
1	886.14	M.H.	1200	D	CAST IN-SITU	REFER NOTES ON SHEET 5 & DETAIL 'L' & DEEP M.H. DETAILS ON SHEETS 9.

WORK AS CONSTRUCTED CERTIFICATION	SYDNEY WATER CORPORATION
DEVELOPER	Sydney WATER
W.S.C.	Case No. 181159ww | SHT 4 OF 10 SHTS.
CONSTRUCTOR	
COMPLETED	
W.A.C. PREPARED	
DESIGNER	SYDNEY WATER CORPORATION
I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS	FOR DETAILS OF SERVICES SEE SHEET 1

R.A.R. REFERENCE: 12/25955/wwLI DESIGNED: S.R./K.G. DRAFTED: K.G. VERIFIED: D.I.S. REVIEWED: D.I.S. VARIATION ID: APPROVAL DATE:

PLAN DRAWN DATE: 22/2/22 VERSION: 08 SHEET 4 OF 10 SHEETS

MAINTENANCE HOLE NOTES:

GENERAL NOTES:

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE FLOWING, SHEETS 1-4 AND SYDNEY WATER SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS THAT MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCIES IN THESE DOCUMENTS SHALL BE REFERRED TO THE SUPERINTENDENT FOR A DECISION BEFORE PROCEEDING WITH THE WORK.

A. SEWERAGE CODE OF AUSTRALIA WSA-02-2002-2.2 SYDNEY WATER EDITION 1 - VERSION 4 - PART 3

B. WSA 201-2013-1.1 MANUAL FOR SELECTION AND APPLICATION OF PROTECTIVE COATINGS AND SYDNEY WATER SUPPLEMENT TO WSA 201

C. SYDNEY WATER STANDARD SPECIFICATION SS210 CORROSION PROTECTION AND REHABILITATION OF MAINTENANCE REV. 3

D. SYDNEY WATER LIST OF ACCEPTABLE PRODUCT SPECIFICATIONS.

E. WSA 114-2002 INDUSTRY STANDARD FOR CONCRETE SPECIAL CLASS

F. WSA-2011 INDUSTRY STANDARD FOR DUCTILE IRON ACCESS COVERS FOR WATER SUPPLY & SEWERAGE

G2. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.

G3. THE CONTRACTOR SHALL CHECK AND BE RESPONSIBLE FOR THE CORRECTNESS OF ALL DIMENSIONS AND ANY DISCREPANCY SHALL BE REPORTED IMMEDIATELY TO THE SUPERINTENDENT. SETTING OUT DIMENSIONS AND SIZES OF STRUCTURAL MEMBERS SHALL NOT BE OBTAINED BY SCALING FROM THE DRAWINGS.

G4. WHERE PROPRIETARY PRODUCTS HAVE BEEN SPECIFIED, A SUITABLE EQUIVALENT MAY BE USED WHERE APPROVED BY SYDNEY WATER. PROPRIETARY PRODUCTS SHALL BE INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

G5. STABILITY OF THE STRUCTURE DURING CONSTRUCTION AND EXCAVATION IN THE VICINITY OF ADJACENT STRUCTURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. NO PART OF THE STRUCTURE SHALL BE OVER STRESSED. APPROVAL OF ALL PROPOSALS MUST BE GRANTED BY THE SUPERINTENDENT PRIOR TO THE COMMENCEMENT OF WORK.

G6. THE CONTRACTOR SHALL NOTIFY THE ENGINEER FORTY EIGHT (48) HOURS BEFORE THE REINFORCEMENT IS COMPLETED. THE CONTRACTOR SHALL ALLOW TWO (2) HOURS AFTER THE COMPLETION OF THE REINFORCEMENT FOR THE ENGINEER'S INSPECTION. CONCRETE SHALL NOT BE ORDERED UNTIL THE REINFORCEMENT IS APPROVED BY THE ENGINEER.

G7. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT SAA CODES, THE BY-LAWS AND ORDINANCES OF THE RELEVANT BUILDING AUTHORITY AND THE SPECIFICATION.

G8. NO CHANGES SHALL BE MADE WITHOUT THE WRITTEN CONSENT OF THE ENGINEER.

G9. U.N.O. DENOTES UNLESS NOTED OTHERWISE ON THE DRAWINGS.

G10. AT THE COMPLETION OF WORKS, ALL DISTURBED AREAS INCLUDING ROAD PAVEMENTS, KERBS AND FOOTPATHS SHALL BE REINSTATED TO MATCH EXISTING ADJACENT MATERIAL.

G11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF ALL SERVICES TO BE RELOCATED, ADJUSTED OR PROTECTED.

G12. ALL WATER STOPS ARE HYDROTITE CJ0725-3K OR APPROVED EQUIV. INSTALLED WITH MIN. 50 COVER TO THE EARTH FACE, IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS.

G13. DESIGN LOADS:
LIVE LOAD = CLASS 'D' TO AS3996-2006
SURCHARGE AROUND STRUCTURES = 20kPa
GROUND WATER AT SURFACE

G14. ALL INTERNAL SURFACES (EXCLUDING BENCHING) OF MAINTENANCE HOLES SHALL BE PROVIDED WITH A PROTECTIVE COATING IN ACCORDANCE WITH WSA 201 AND SYDNEY WATER SUPPLEMENT. COATING SYSTEM SHALL BE CPL, EUH OR NOV.

FORMWORK:

FW1. FORMWORK AND CONCRETE FINISHES SHALL COMPLY WITH AS3610 SAA FORMWORK CODE.
SURFACES EXPOSED TO VIEW TO - CLASS 2;
SURFACES NOT EXPOSED TO VIEW - CLASS 4

FW2. CONCRETE SHALL ACHIEVE A MINIMUM COMPRESSIVE STRENGTH OF 25MPa PRIOR TO STRIPPING OF FORMWORK.

FOUNDATIONS:

F1. MINIMUM ALLOWABLE BEARING PRESSURES FOR MAINTENANCE HOLES SHALL BE 100kPa. ALLOWABLE BEARING CAPACITY TO BE CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO POURING MAINTENANCE HOLE BASE.

F2. ANY OVER-EXCAVATION OR VOIDS OF FOUNDATION MATERIALS TO BE FILLED WITH NORMAL CLASS N15 MASS CONCRETE TO AS 1379.

F3. BLINDING CONCRETE OR BEARING SURFACE SHALL BE SATURATED WITH WATER AND EXCESS REMOVED IMMEDIATELY PRIOR TO POURING CONCRETE BASE.

CONCRETE NOTES:

C1. CONCRETE DIMENSIONS SHOWN DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.

CS. MINIMUM CLEAR COVER TO REINFORCEMENT SHALL BE 75mm AT INTERNAL FACE AND 55mm COVER AT EXTERNAL FACE UNO.

C3. CONCRETE SHALL BE SPECIAL CLASS SCC40 TO WSA 114-2002 AND AS3735 EXCEPT AS VARIED BELOW.

SECTION 4 - MIX DESIGN

MINIMUM F'c AT 28 DAYS	40MPa
MINIMUM BINDER CONTENT	450kg/m^3
MAXIMUM 56 DAY DRYING SHRINKAGE STRAIN	600x10^{-6}
MAXIMUM WATER:CEMENT RATIO	0.45
SLUMP	80-120mm

SECTION 6 - SUPPLEMENTARY CEMENTITIOUS MATERIALS
THE TOTAL AMOUNT OF SUPPLEMENTARY CEMENTITIOUS MATERIALS SHALL NOT BE MORE THEN 60% BY WEIGHT OF THE TOTAL CEMENT MATERIAL.

SECTION 6.2 - FLYASH
THE MAXIMUM AMOUNT OF SLAG FLYASH SHALL BE 25% BY WEIGHT OF THE TOTAL CEMENT MATERIAL.

SECTION 6.3 - SLAG
THE MAXIMUM AMOUNT OF SLAG SHALL BE 50% BY WEIGHT OF THE TOTAL CEMENT MATERIAL.

SECTION 6.5 - AGGREGATES.
THE MAXIMUM NOMINAL SIZE OF AGGREGATE SHALL BE 20mm. RECYCLED MATERIAL OR SLAG PRODUCTS SHALL NOT BE USED AS AGGREGATES.

SECTION 6.7 - CHEMICAL ADMIXTURES.
WHERE TWO OR MORE ADMIXTURES ARE PROPOSED FOR INCORPORATION INTO A CONCRETE MIX THE MANUFACTURES SHALL CERTIFY THE COMPATIBILITY OF THE ADMIXTURES.

C4. ALL CONCRETE SHALL BE MECHANICALLY VIBRATED. THE VIBRATOR SHALL NOT BE USED TO SPREAD CONCRETE.

C5. CURING OF ALL CONCRETE TO BE ACHIEVED BY KEEPING SURFACES CONTINUOUSLY WET FOR A PERIOD OF 7 DAYS. POLYETHYLENE SHEETING OR WET HESSIAN MAY BE USED. POLYETHYLENE AND HESSIAN TO BE ADEQUATELY SECURED TO RESIST WIND AND TRAFFIC FORCES. ALTERNATIVE CURING MAY BE ACHIEVED BY APPLYING SIKA ANTISOL WB CURING COMPOUND OR APPROVED EQUIVALENT TO ALL SURFACES IN ACCORDANCE WITH THE MANUFACTURES REQUIREMENTS FOR A PERIOD OF 14 DAYS.

C6. CONCRETE SHALL ACHIEVE A MINIMUM COMPRESSIVE STRENGTH OF 32MPa PRIOR TO BACKFILLING AND TESTING OF STRUCTURES. BACKFILL SHALL BE PLACED AND COMPACTED EVENLY AROUND MAINTENANCE HOLES IN LAYERS NOT EXCEEDING 300mm LOOSE THICKNESS.

C7. ALL CONSTRUCTION JOINTS SHALL BE SCABBLED TO 3mm AMPLITUDE, WIRE BRUSH CLEANED, WATER STOP PLACED & PRIMED WITH CEMENT SLURRY IMMEDIATELY PRIOR TO PLACING CONCRETE.

C8. WATERSTOPS SHALL BE HYDROTITE CJ-0725-3K (25X7mm) HYDROPHILIC SEAL OR APPROVED EQUIVALENT.

STRUCTURAL CRITERIA:

SD1. SOIL PROPERTIES:
ø' = 30°
DENSITY (y) = 20kN/m^3
COEFFICIENT OF EARTH PRESSURE AT REST Ko = 0.5

SD2. LOADS:
LIVE LOAD:
SUBJECT TO VEHICULAR TRAFFIC - SM1600 TO AS5100.2
SURCHARGE AROUND STRUCTURES = 20 kPa
GROUND WATER AT SURFACE

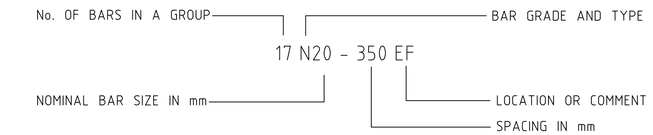
SD3. CONCRETE EXPOSURE CLASSIFICATION: D (AS3735)

REINFORCEMENT NOTES:

R1. STEEL REINFORCING MATERIALS SHALL BE TO AS/NZS4671.
SHAPE - D
STRENGTH GRADE = 500MPa
DUCTILITY CLASS - N

R2. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY: IT IS NOT NECESSARILY SHOWN IN TRUE PROJECTION.

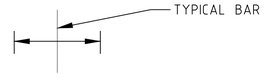
R3. DESIGNATION OF REINFORCEMENT BARS AS IN EXAMPLE:



R4. THE FOLLOWING ABBREVIATIONS APPLY TO THE LOCATION OF REINFORCEMENT:

EW EACH WAY	FF FAR FACE	CP CENTRALLY PLACED
EF EACH FACE	B BOTTOM	BB BOTTOM BOTTOM (LAID FIRST)
NF NEAR FACE	T TOP	TT TOP TOP (LAID FIRST)

R5. EXTENT OF BARS SHOWN THUS:



R6. SPLICE REINFORCEMENT ONLY AT LOCATIONS SHOWN ON DRAWINGS. LAP LENGTHS TO COMPLY WITH THE FOLLOWING UNLESS NOTED OTHERWISE.

BAR TYPE AND SIZE	VERTICAL BARS	HORIZONTAL BARS WITH MORE THAN 300mm OF CONCRETE BELOW BAR	OTHER LOCATIONS	90° COG LENGTH
N12	500	550	500	200
N16	700	800	700	200
N20	1000	1250	1000	250
N24	1200	1500	1200	300
N28	1400	1750	1400	350
N32	1600	1950	1600	400
N36	1700	2200	1700	450

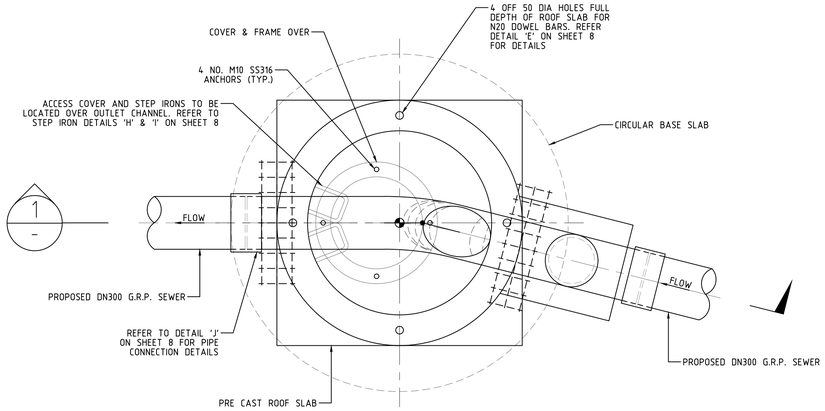
R7. REINFORCEMENT SHALL BE SUPPORTED ON APPROVED PLASTIC OR PLASTIC TIPPED WIRE STOOLS AT NOT MORE THAN 600mm CENTRE BOTHWAYS IN SLABS AND AT 1000mm CENTRES IN BEAMS.

R7. LOAD BEARING WELDED JOINTS FOR THE TRANSMISSION OF LOADS BETWEEN REINFORCEMENT IS NOT PERMITTED.
NON LOAD BEARING WELDED JOINTS (TACK WELDS) TO KEEP REINFORCEMENT IN POSITION DURING FABRICATION, TRANSPORT & CONCRETING, IS PERMITTED WHERE WELDING WILL NOT IMPACT DUCTILITY OF REINFORCEMENT.
WELDING SHALL BE IN ACCORDANCE WITH AS 1554.3.
LAP LENGTHS SHALL NOT BE REDUCED DUE TO WELDING.

R8. EXPOSURE CLASS B2 FOR EXTERNAL CONCRETE FACE;
EXPOSURE CLASS D FOR INTERNAL CONCRETE FACE.

R9. MINIMUM COVER TO BE 55mm FOR CLASS B2 EXPOSURE;
MINIMUM COVER TO BE 75mm FOR CLASS D EXPOSURE.

WORK AS CONSTRUCTED CERTIFICATION	SYDNEY WATER CORPORATION
DEVELOPER	Sydney WATER
W.S.C.	Case No. 181159ww | SHT 5 OF 10 SHTS.
CONSTRUCTOR	
COMPLETED	
W.A.C. PREPARED	
DESIGNER	SYDNEY WATER CORPORATION
I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS	FOR DETAILS OF SERVICES SEE SHEET 1

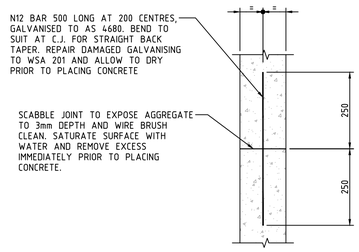


● DENOTES CENTRE OF M.H.

● DENOTES INTERSECTION POINT OF SEWERS

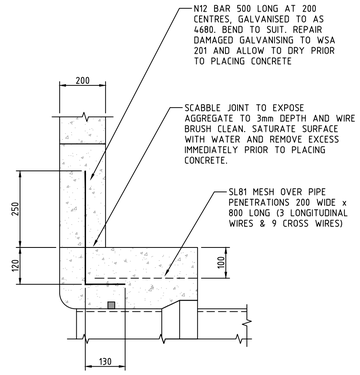
DETAIL 'A'
WATER SEALED M.H. DETAIL - PLAN

SCALE: 1:20



CONSTRUCTION JOINT (C.J.1)

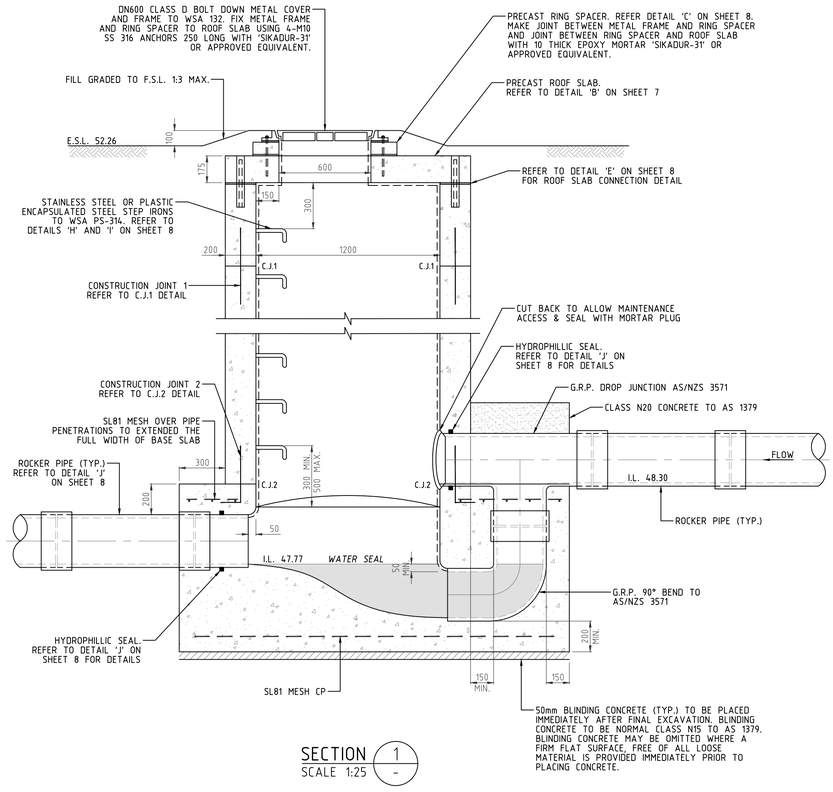
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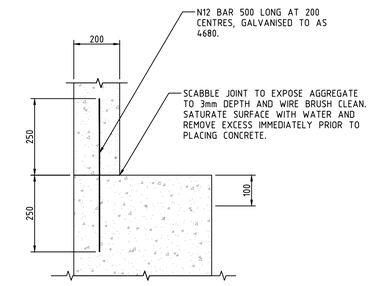
CONSTRUCTION JOINT (C.J.2)

(AT PIPE PENETRATIONS)

NOT TO SCALE



SECTION 1 - SCALE 1:25



CONSTRUCTION JOINT (C.J.2)

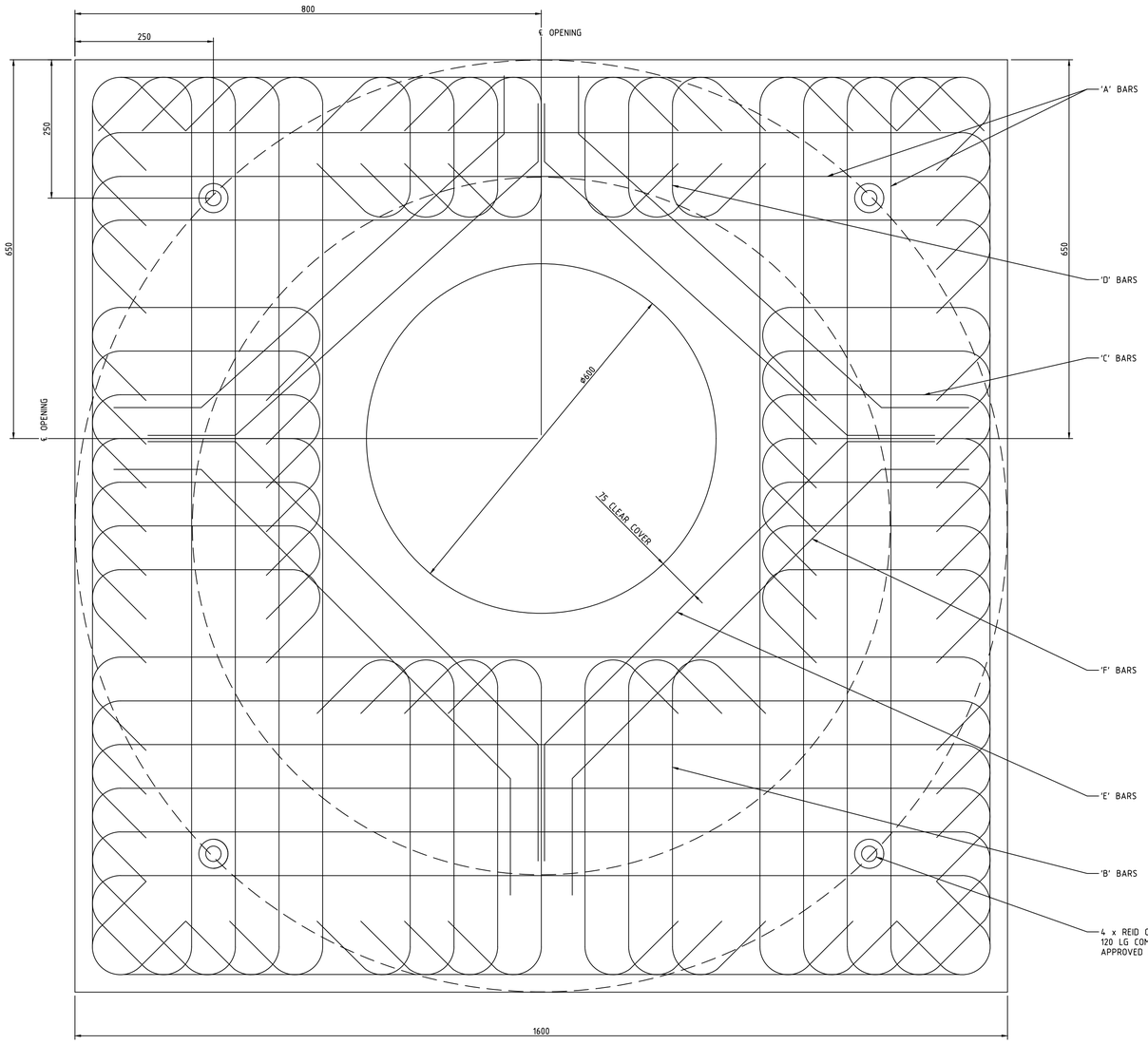
(WITHOUT PIPE PENETRATIONS)

NOT TO SCALE

WORK AS CONSTRUCTED CERTIFICATION	SYDNEY WATER CORPORATION
DEVELOPER W.S.C. CONSTRUCTOR COMPLETED W.A.C. PREPARED DESIGNER I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS	Case No. 181159ww — SHT 6 OF 10 SHTS. SYDNEY WATER CORPORATION FOR DETAILS OF SERVICES SEE SHEET 1

PLAN DRAWN DATE: 22/2/22 VERSION: 08 SHEET 6 OF 10 SHEETS

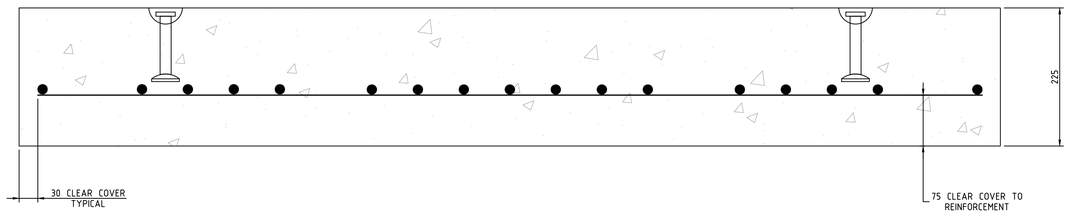
R.A.R. REFERENCE: 12/25955/wwLI DESIGNED: S.R./K.G. DRAFTED: K.G. VERIFIED: D.I.S. REVIEWED: D.I.S. VARIATION ID: APPROVAL DATE:



ROOF SLAB DESIGN LOADS	
DESIGN WHEEL LOAD	TYPICAL USE
8,000 kg (W80 TO AS 5100.2)	FOR PUBLIC AND PRIVATE ROAD CARRIAGEWAYS, FOOTPATHS / VERGES / MEDIAN STRIPS NOT RESTRICTED TO VEHICLES, DRIVEWAYS IN AREAS ZONED 'RESIDENTIAL, INDUSTRIAL OR COMMERCIAL', AND PARKLAND WITH NO RESTRICTION TO VEHICULAR ACCESS.

BAR SCHEDULE

DESIGNATION	SHAPE	No.	BAR SIZE
A	1540	21	N16
B	540	7	N16
C	390	14	N16
D	240	7	N16
E	135° 135° 200 735 100	4	N16
F	135° 135° 200 750 200	4	N16

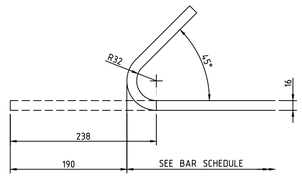


DETAIL 'B'

WATER SEALED M.H. ROOF SLAB

APPROXIMATE WEIGHT - 1.3 TONNE

NOT TO SCALE



N16 HOOK BENDING DETAILS

(NOT TO SCALE)

ROOF SLAB NOTES:

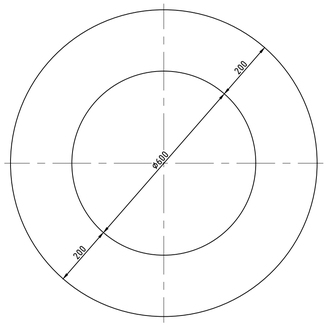
RS1. PRECAST CONCRETE ROOF SLAB SHALL HAVE A MINIMUM STRENGTH OF 25MPa AT TIME OF LIFTING.

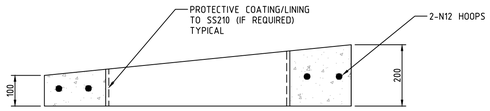
RS2. SPREADER BARS MUST BE USED DURING LIFTING TO ENSURE LIFT FORCE IS VERTICAL.

WORK AS CONSTRUCTED CERTIFICATION	SYDNEY WATER CORPORATION
DEVELOPER	Sydney WATER
W.S.C.	
CONSTRUCTOR	Case No. 181159ww | SHT 7 OF 10 SHTS.
COMPLETED	
W.A.C. PREPARED	
DESIGNER	SYDNEY WATER CORPORATION
I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS	FOR DETAILS OF SERVICES SEE SHEET 1

PLAN DRAWN DATE: 22/2/22 VERSION: 08 SHEET 7 OF 10 SHEETS

R.A.R. REFERENCE: 12/25955/wwLI DESIGNED: S.R./K.G. DRAFTED: K.G. VERIFIED: D.I.S. REVIEWED: D.I.S. VARIATION ID: APPROVAL DATE:





TYPE 5

TYPE 4

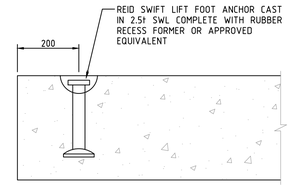
TYPE 3

TYPE 2

TYPE 1

DETAIL 'C'
WATER SEALED M.H.
PRECAST RING SPACER DETAIL (TYP.)

(NOT TO SCALE)

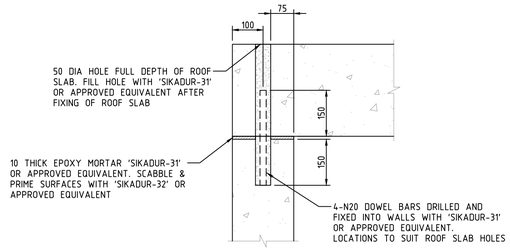


DETAIL 'D'
WATER SEALED M.H.
PRECAST ROOF CASTING DETAIL (TYP.)

(NOT TO SCALE)

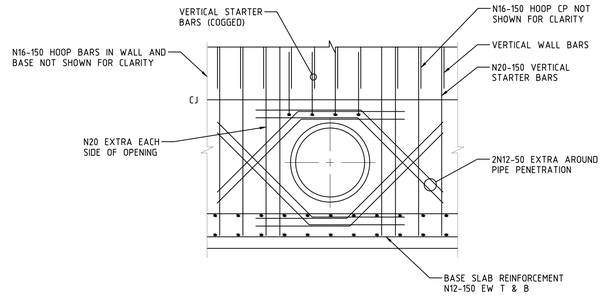
NOTES:

1. PRECAST CONCRETE ROOF PANEL TO HAVE A MINIMUM STRENGTH OF 25MPa AT LIFTING.
2. SPREADER BARS MUST BE USED DURING LIFTING TO ENSURE LIFT FORCE IS VERTICAL



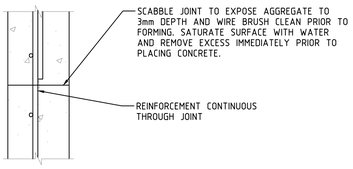
DETAIL 'E'
WATER SEALED M.H.
PRECAST ROOF CONNECTION DETAIL (TYP.)

(NOT TO SCALE)



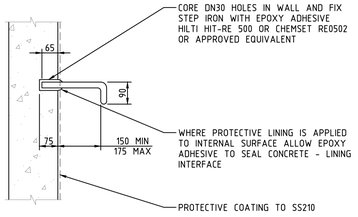
DETAIL 'F'
WATER SEALED M.H.
PENETRATION DETAIL IN BASE SLAB (TYP.)

(NOT TO SCALE)



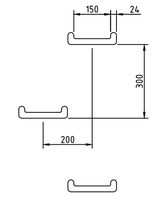
DETAIL 'G'
WATER SEALED M.H.
CONSTRUCTION JOINT DETAIL (TYP.)

(NOT TO SCALE)



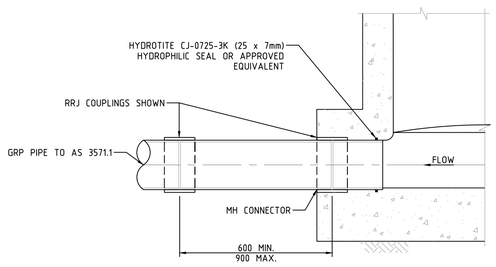
DETAIL 'H'
WATER SEALED M.H.
STEP IRON FIXING DETAIL (TYP.)

(NOT TO SCALE)



DETAIL 'I'
WATER SEALED M.H.
STEP IRON SET OUT DETAIL (TYP.)

(NOT TO SCALE)



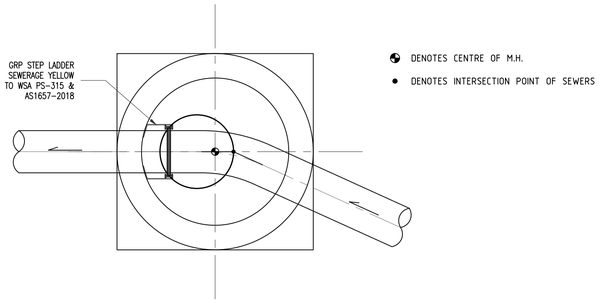
DETAIL 'J'
WATER SEALED M.H.
TYPICAL M.H. BASE FOR G.R.P. SLEEVE COUPLED PIPE

(NOT TO SCALE)

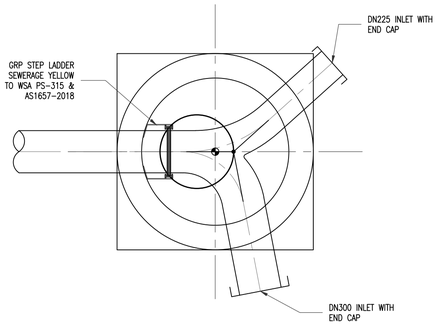
WORK AS CONSTRUCTED CERTIFICATION	SYDNEY WATER CORPORATION
DEVELOPER W.S.C. CONSTRUCTOR COMPLETED W.A.C. PREPARED DESIGNER I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS	Case No. 181159ww — SHT 8 OF 10 SHTS. SYDNEY WATER CORPORATION FOR DETAILS OF SERVICES SEE SHEET 1

R.A.R. REFERENCE: 12/25955/wwLI DESIGNED: S.R./K.G. DRAFTED: K.G. VERIFIED: D.I.S. REVIEWED: D.I.S. VARIATION ID: APPROVAL DATE:

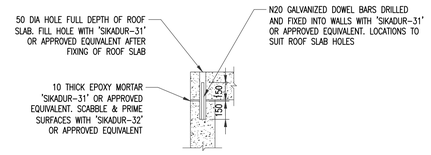
PLAN DRAWN DATE: 22/2/22 VERSION: 08 SHEET 8 OF 10 SHEETS



DETAIL 'K'
DEEP M.H. DETAIL - PLAN (Ch842.02)
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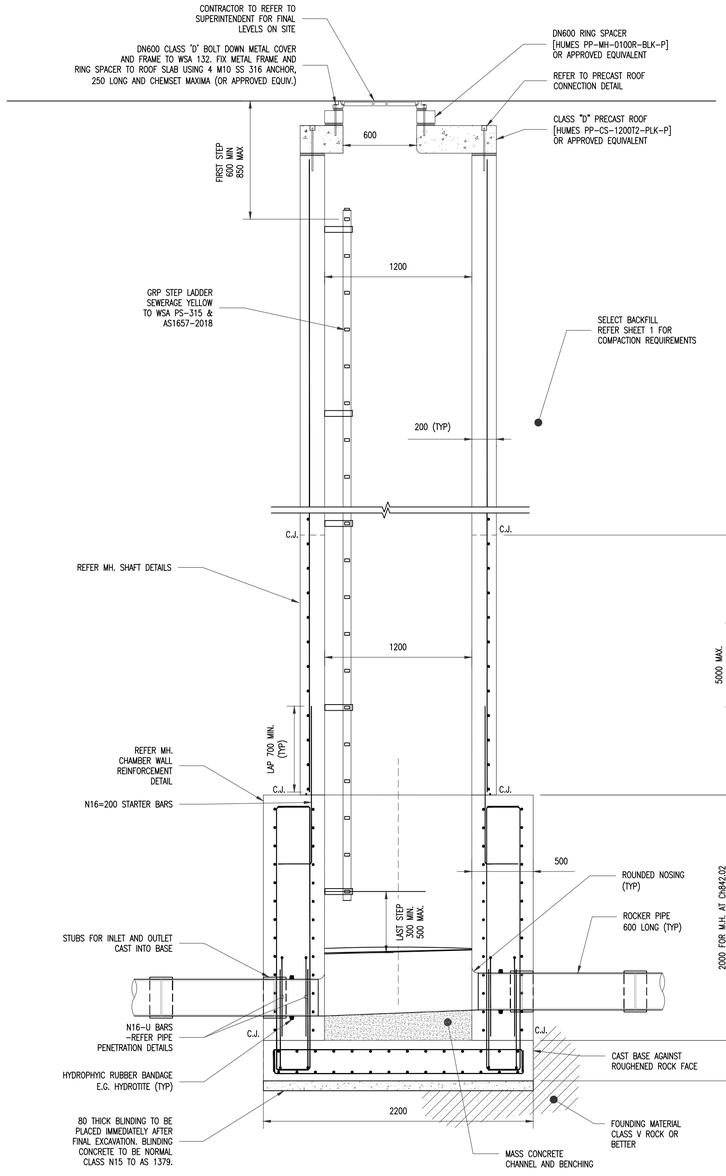
DETAIL 'L'
DEEP M.H. DETAIL - PLAN (Ch886.14)
SCALE 1:20



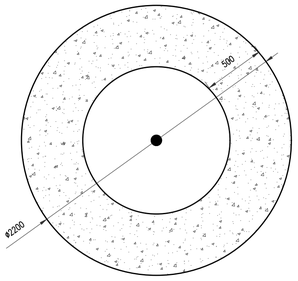
PRECAST ROOF CONNECTION DETAIL
SCALE: 1:20



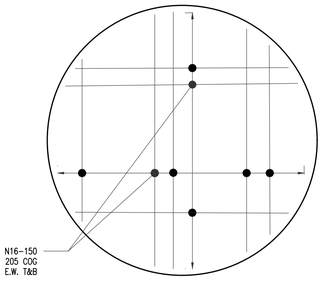
CONSTRUCTION JOINT DETAIL
SCALE: 1:20



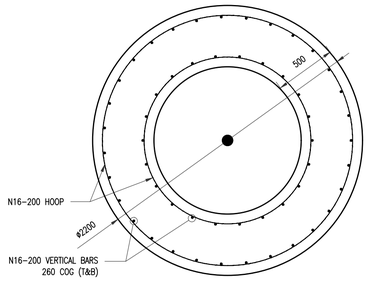
MH DEPTH >10m DETAIL
SCALE 1:20



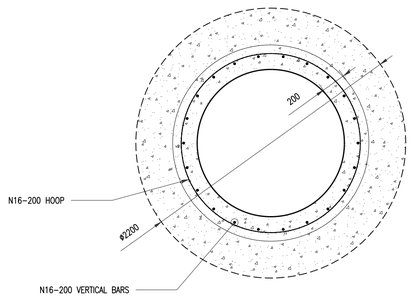
MH BASE FRAMING PLAN
SCALE 1:20



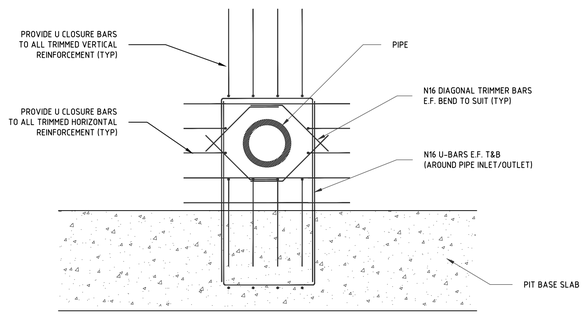
MH BASE REINFORCEMENT PLAN
SCALE 1:20



CHAMBER WALL REINFORCEMENT PLAN
SCALE 1:20



MH SHAFT REINFORCEMENT PLAN
SCALE 1:20



PIPE PENETRATION DETAIL AT PIT BASE
SCALE 1:20

WORK AS CONSTRUCTED CERTIFICATION	SYDNEY WATER CORPORATION
DEVELOPER W.S.C. CONSTRUCTOR COMPLETED W.A.C. PREPARED	Case No. 181159ww | SHT 9 OF 10 SHTS.
DESIGNER I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS	SYDNEY WATER CORPORATION FOR DETAILS OF SERVICES SEE SHEET 1

PLAN DRAWN DATE: 22/2/22 VERSION: 08 SHEET 9 OF 10 SHEETS

R.A.R. REFERENCE: 12/25955/wwLI *DESIGNED:* S.R./K.G. *DRAFTED:* K.G. *VERIFIED:* D.I.S. *REVIEWED:* D.I.S. *VARIATION ID:* *APPROVAL DATE:*

Annexure L – Alternate Bus Stop Consultation

Alex Ruello

From: Suthes Kumar <Suthes.KUMAR@transport.nsw.gov.au>
Sent: Friday, 5 August 2022 6:19 PM
To: Alex Ruello; Hannah Shilling
Cc: Joseph George; Bus Approval; Steve Grady; Adrian Prichard; Joseph Aouad
Subject: RE: 423 Wallgrove Road Upgrade - Bus stop - Wallgrove Road before Roussell Road, Eastern Creek

Hi Alex,

TfNSW has no objection to the proposed temporary relocation of the bus stops. Please update the TMP to reflect these changes.

Regards
Suthes Kumar
Project–Contract Manager
Developer Works
Greater Sydney
Transport for NSW

M: 0408 655 528 **E:** Suthes.Kumar@transport.nsw.gov.au

transport.nsw.gov.au

129a Orchardleigh Street
Yennora NSW 2161

Transport for NSW

I acknowledge the Aboriginal people of the country on which I work, their traditions, culture and a shared history and identity. I also pay my respects to Elders past and present and recognise the continued connection to country.

Please consider the environment before printing this email.

From: Alex Ruello [mailto:Alex.Ruello@burtoncontractors.com.au]
Sent: Monday, 1 August 2022 11:10 AM
To: Hannah Shilling <hshilling@transitsystems.com.au>; Suthes Kumar <Suthes.KUMAR@transport.nsw.gov.au>
Cc: Joseph George <Joseph.George@burtoncontractors.com.au>; Bus Approval <BusApproval@transport.nsw.gov.au>; Steve Grady <sgrady@busways.com.au>; Adrian Prichard <aprichard@transitsystems.com.au>; Joseph Aouad <Joseph.Aouad@burtoncontractors.com.au>
Subject: RE: 423 Wallgrove Road Upgrade - Bus stop - Wallgrove Road before Roussell Road, Eastern Creek

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Thanks for that Hannah,

Before we make the changes we will need to have some sort of approval from Transport & TMC.

Suthes – as soon as you are able, can you please advise if stops #1 and #4 are okay for Transport & TMC? If so, our revised TMP will be updated to reflect the changes.

Regards,
Alex Ruello
Project Manager
Burton Contractors Pty Ltd

T: 0408 289 903
M: 0408 289 903
F: 02 9581 5551
E: Alex.Ruello@burtoncontractors.com.au

BURTON
Civil Engineering Contractors
www.burtoncontractors.com.au

Sydney Office
Homebush Business Village
Unit 3/11-21 Underwood Rd
Homebush NSW 2140
T: 02 9581 5550 F: 02 9581 5551

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From: Hannah Shilling <HShilling@transitsystems.com.au>
Sent: Monday, 1 August 2022 10:44 AM
To: Alex Ruello <Alex.Ruello@burtoncontractors.com.au>; Suthes Kumar <Suthes.KUMAR@transport.nsw.gov.au>
Cc: Joseph George <Joseph.George@burtoncontractors.com.au>; BusApproval@transport.nsw.gov.au; Steve Grady <sgrady@busways.com.au>; Adrian Prichard <APrichard@transitsystems.com.au>; Joseph Aouad <Joseph.Aouad@burtoncontractors.com.au>
Subject: RE: 423 Wallgrove Road Upgrade - Bus stop - Wallgrove Road before Roussell Road, Eastern Creek

Good Morning Alex,

We just went out with a bus to test whether the draw in bay southbound would be appropriate for a bus.

Thankfully the bus just fit, so we are happy to use the locations of stops 1 and 4 as the alternate stops.

Can you please arrange for Bus Zone signage to be installed?

Also can you please advise the start date of the change, once known.

Thanks.

Kind Regards,

Hannah Shilling
Network Project Planner

T: 02 8778 5853
A: Lot 2 Airfield Drive, Len Waters Estate NSW 2171

E: hshilling@transitsystems.com.au

I acknowledge the traditional owners of the land on which we live and work, and pay my respects to elders past, present and emerging.



Transit Systems NSW Reconciliation Action Plan
Artwork by Allan McKenzie, Gamilaroi / Wiradjuri Man

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From: Alex Ruello <Alex.Ruello@burtoncontractors.com.au>
Sent: Friday, 29 July 2022 5:41 PM
To: Hannah Shilling <HShilling@transitsystems.com.au>; Suthes Kumar <Suthes.KUMAR@transport.nsw.gov.au>
Cc: Joseph George <Joseph.George@burtoncontractors.com.au>; BusApproval@transport.nsw.gov.au; Steve Grady <sgrady@busways.com.au>; Adrian Prichard <APrichard@transitsystems.com.au>; Joseph Aouad <Joseph.Aouad@burtoncontractors.com.au>
Subject: RE: 423 Wallgrove Road Upgrade - Bus stop - Wallgrove Road before Roussell Road, Eastern Creek

Hannah & Suthes,

I have drafted the attached to present multiple options for alternate bus stop locations to try and short circuit the potential solution.

1. **Bus Stop #1** – There is a wider shoulder here that will fit a bus here. There is a concrete footpath that leads to the traffic lights and pedestrian crossing at the Roussell Road intersection. This would serve the SB direction only
2. **Bus Stop #2** – This is an alternate to the preferred Transit Systems location for NB and SB bus stop. This location offers the benefits of negating queuing traffic in the Roussell Road intersection
3. **Bus Stop #3** – This is Transit System's preferred location for both a NB & SB bus stop
4. **Bus Stop #4** – Alternate location for NB direction only

These can be mixed and matched in any combination to service both NB and SB. example #1 & #3, #2 & #4, #2 only, #3 only etc

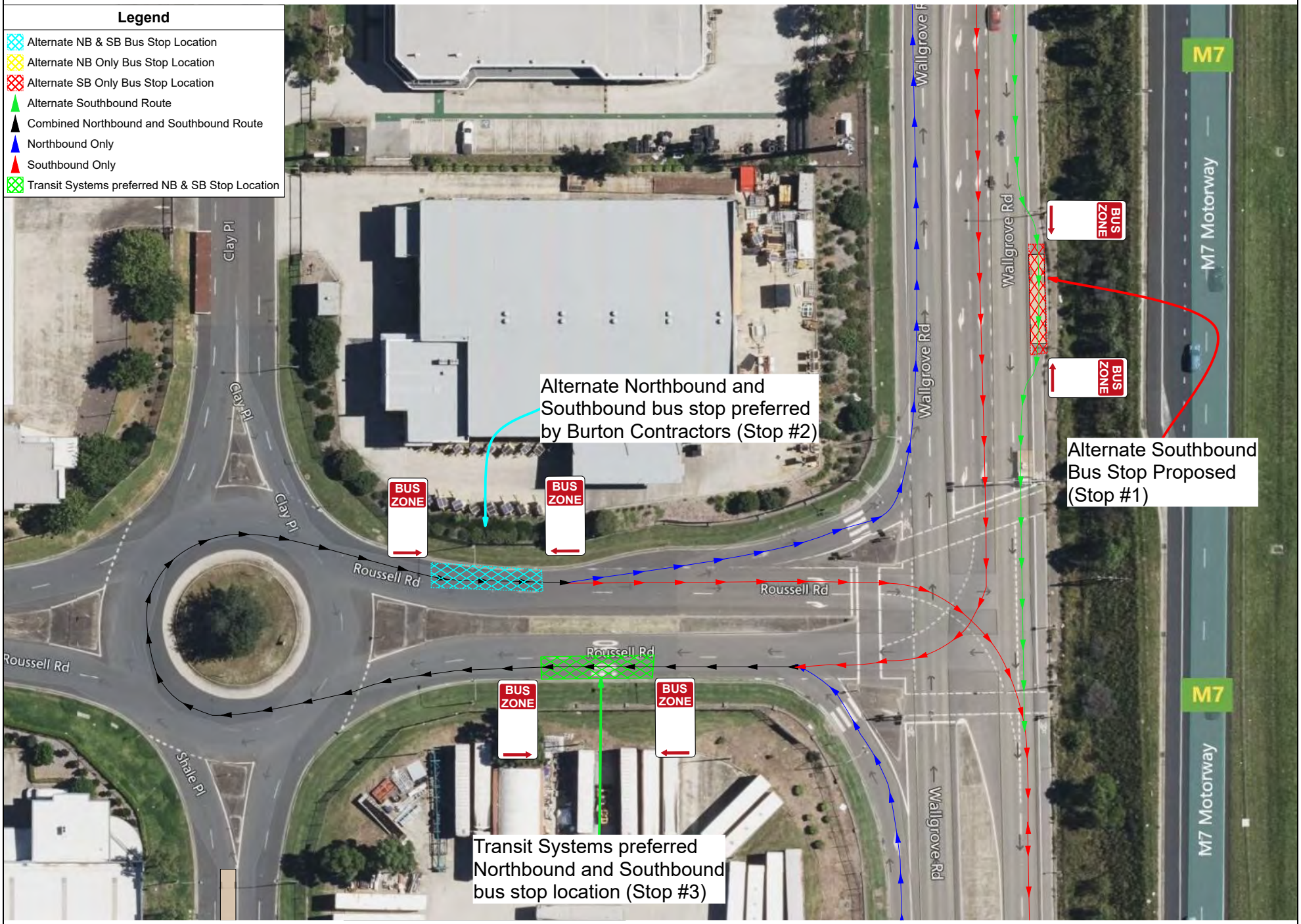
Hannah – Can you please advise if any of the bus stop locations are not acceptable?

Suthes – Can you please advise if any of the proposed bus stop locations are not acceptable to TfNSW? Can you please also check with TMC to see if they have any objections to any of the proposed bus stop locations? We would prefer to have these approved in advance of the next CTMP submission to avoid another potential 20-day review cycle.

Thank you all in advance. Please let me know if the attached or explanation is not clear enough and I will do my best to explain.

Regards,
Alex Ruello
Project Manager
Burton Contractors Pty Ltd

www.invarion.com




Legend
Alternate NB & SB Bus Stop Location
Alternate NB Only Bus Stop Location
Alternate SB Only Bus Stop Location
Alternate Southbound Route
Combined Northbound and Southbound Route
Northbound Only
Southbound Only
Transit Systems preferred NB & SB Stop Location
Alternate Southbound
Bus Stop Proposed (Stop #4)
BUS ZONE
BUS ZONE
Wallgrove Rd
Wallgrove Rd
Wallgrove Rd
Wallgrove Rd
M7
M7
M7
M7 Motorway
M7 Motorway
M7 Motorway
M7 Motorway
M7 Motorway
Western Syd

Appendix B Construction Noise and Vibration Management Plan

MATTHEW PALAVIDIS
VICTOR FATTORETTO
MATTHEW SHIELDS

813-913 Wallgrove Road, Horsley Park

Lot 14A Construction Noise and Vibration Management Plan

SYDNEY
9 Sarah St
MASCOT NSW 2020
(02) 8339 8000

ABN 98 145 324 714
www.acousticlogic.com.au

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Project ID	20230497.9
Document Title	Lot 14A Construction Noise and Vibration
Attention To	Wallgrove Road Industrial Investments Pty Ltd

Revision	Date	Document Reference	Prepared By	Checked By	Approved By
0	14/06/2024	20230497.9/1406A/R0/LA	MB	LA	GW
1	13/08/2024	20230497.9/1308A/R1/LA	LA		GW

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1 INTRODUCTION

Acoustic Logic have been engaged to provide a construction certificate project construction noise and vibration management assessment for the proposed works.

The assessment:

- Identifies sensitive receivers that are likely to be potentially impacted by the proposed works.
- Develops project specific noise and vibration management levels. These will be used to indicate whether additional impact mitigation, beyond normal "good practice", is indicated.
- Identifies the major noise and vibration sources that will be present on the construction site, and additional construction-related traffic generated by the development.
- Predicts the likely noise and vibration levels during the phases of construction and assesses these against the established management levels. Where the predicted impacts exceed the management levels, the Plan identifies and assesses potential measures to minimise these impacts.
- Provides specific and general recommendations for the ongoing monitoring, assessment and management of noise and vibration emissions as the works progress in response to additional information and site conditions, and the updating of the Plan to reflect additional information obtained during the construction period.

The subject site and local context are indicated in Figure 1.

This assessment has been prepared for the sole purpose as stated above and with reference to the requirements outlined within the SSD-54822478 development consent, and should not be used or relied on for any other purpose.

2 DEVELOPMENT CONSENT CONDITIONS

The following requirements have been detailed in Development Consent SSD-54822478 by NSW Government Department of Planning, Industry and Environment, and are applicable to the assessment provided throughout this Management Plan:

A19. The applicant must…

(a) establish vibration criteria in accordance with the German Standard DIN 4150-3.2016 Structural Vibration Part 3: Effects of Vibration in Structures, to minimise vibration on the Warragamba Pipelines;

B16. The development must be constructed to achieve the construction noise management levels detailed in the Interim Construction Noise Guideline (DECC, 2009) (as may be updated or replaced from time to time). All feasible and reasonable noise mitigation measures must be implemented and any activities that could exceed the construction noise management levels must be identified and managed in accordance with the Construction Noise and Vibration Management Plan required by Condition B17.

B17. The Applicant must prepare a Construction Noise and Vibration Management Plan for the development to the satisfaction of the Planning Secretary. The Plan must form part of a CEMP in accordance with condition C2 and must:

(a) Be prepared by a suitably qualified and experienced noise expert whose appointment has been endorsed by the Planning Secretary;

(b) Describe procedures for achieving the noise management levels in EPA's Interim Construction Noise Guideline (DECC, 2009) (as may be updated or replaced from time to time);

(c) Describe the measures to be implemented to manage high noise generating works such as piling;

(d) Detail procedures for minimising vibration on the Warragamba Pipelines corridor and ensuring compliance with the vibration criteria in condition B19;

(e) Detail community consultation procedures; and

(f) Include a complaints management system that would be implemented for the duration of construction.

B18. The Applicant must:

(a) not commence construction of the development until the Construction Noise and Vibration Management Plan required by condition B17 is approved by the Planning Secretary; and

(b) implement the most recent version of the Construction Noise and Vibration Management Plan approved by the Planning Secretary for the duration of construction.

B19. Vibration caused by construction at any residence or structure outside the site must be limited to:

(b) For structural damage, the latest version of DIN 4150-3 (1992-02) Structural vibration – Effects of vibration on structures (German Institute for standardisation, 1999); and

(c) For human exposure, the acceptable vibration values set out in the Environmental Noise Management Assessing Vibration: a technical guideline (DEC, 2006) (as may be updated or replaced from time to time).

B20. Vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria specified in condition B19.

B21. The limits in conditions B19 and B20 apply unless otherwise outlined in a Construction Noise and Vibration Management Plan, approved as part of the CEMP required by condition C2 of this consent.

2.1 DEVELOPMENT CONSENT REFERENCES

The following table provides an outlining of the location within this report as to where Conditions B17 and B18 are referenced within this document, as requested by the Department of Planning, Housing and Infrastructure.

Table 1 – Consent Referencing

Condition Number		Condition	Comment
B17	a.	The Applicant must prepare a Construction Noise and Vibration Management Plan for the development to the satisfaction of the Planning Secretary. The Plan must form part of a CEMP in accordance with condition C2 and must: Be prepared by a suitably qualified and experienced noise expert whose appointment has been endorsed by the Planning Secretary;	This plan has been authored by Lachlan Abood and reviewed by George Wei, who are both Members of the Australian Acoustical Society (MAAS) and adhere to the Department's definition of "Suitably qualified and experienced noise expert."
	b.	Describe procedures for achieving the noise management levels in EPA's Interim Construction Noise Guideline (DECC, 2009) (as may be updated or replaced from time to time);	Please refer to Section 6.2 and 6.3 for noise mitigation controls
	c.	Describe the measures to be implemented to manage high noise generating works such as piling;	Please refer to Section 4.4.1 for proposed equipment, Piling works are excluded from the works proposed within this Management Plan
	d.	Detail procedures for minimising vibration on the Warragamba Pipelines corridor and ensuring compliance with the vibration criteria in condition B19;	Please refer to Section 6.3 for proposed controls for vibration impacts on Warragamba Pipeline
	e.	Detail community consultation procedures;	Please refer to Section 7 for community consultation procedures
	f.	Include a complaints management system that would be implemented for the duration of construction.	Please refer to Section 7 for a recommended Complaints Management System
B18	a.	The applicant must not commence construction of the development until the Construction Noise and Vibration Management Plan required by condition B17 is approved by the Planning Secretary.	The provision of this Management Plan satisfies the adjacent.
	b.	*implement the most recent version of the Construction Noise and Vibration Management Plan approved by the Planning Secretary for the duration of construction.*	This Management plan will be utilised throughout construction in order to control the noise and vibration impacts associated with the proposed works.

3 REFERENCED DOCUMENTS

3.1 BACKGROUND INFORMATION USED

The assessment is based on the following drawings, reports, and other information:

- Requirements of consent, condition A30 (d),B13, B14, B15, B16 B17, B19, B20, and B21 from SSD-54822478.
- SBA Architects '*Proposed Industrial Facility - Lot 14 A*' drawing, Issue D, dated 22/01/2024.
- '*Development Application – Transport Assessment,*' prepared by Ason Group, dated 19/01/2024 (Ref: P2024r01v09).
- Acoustic Logic Document '*Lot 14A DA Acoustic Assessment*' dated 12/02/2024 (Ref: 20230497.7/1202A/R8/GW)

3.2 GUIDELINES

The primary guideline that will be used in this assessment is the NSW EPA – 'Interim Construction Noise Guideline' ("**IGNG**") July 2009.

The ICNG recognises that development occurs close to sensitive receivers and the nature of construction means that it is not possible to prevent noise impacts. The ICNG is focused *"on applying a range of work practices most suited to minimise construction noise impacts, rather than focusing only on achieving numeric noise levels. While some noise from construction sites is inevitable, the aim of the Guideline is to protect the majority of residences and other sensitive land uses from noise pollution most of the time."*

The ICNG requires the identification of activities likely to exceed the noise/vibration management levels, and the implementation of feasible and reasonable mitigation strategies to minimise emissions. Strategies include physical and management controls, liaising with the public and stakeholders, monitoring, etc. The ICNG recognises that each site will have a particular set of circumstances to be addressed, and that it is typically not possible to fully mitigate impacts. The guideline is intended as a pathway to determining a realistic compromise between construction sites and the surrounding receivers.

The following additional planning instruments and guidelines have also been used in the assessment:

- Gazcorp Industrial Estate Lot 14A Warehouse Development Consent (Ref: SSD-54822478).
- NSW Environmental Protection Authority, 'Interim Construction Noise Guideline.'
- Australian Standards AS2436:2010 'Guide to Noise Control on Construction, Maintenance and Demolition Sites.'
- NSW Environmental Protection Authority, 'Assessing Vibration: A technical Guideline.'
- German Standard DIN 4150-3 (2016-12) 'Structural Vibration: Effects of Vibration on Structures.'

4 SITE DESCRIPTION AND THE PROPOSAL

Lot 14a is maintained to the north of the Gazcorp Industrial Estate Masterplan, maintained within 813-913 Wallgrove Road, Horsley Park.

4.1 PROPOSED WORKS

Works assessed as part of this management plan pertain to the construction phase of the project, inclusive of the erection of structure, façade, internal fit out and landscape works.

4.2 PROPOSED CONSTRUCTION HOURS

As nominated within the project's consent, Construction of the works is proposed to occur during NSW EPA Interim Construction Noise Guideline (ICNG) "standard" work hours, these being Monday to Friday 7 am to 6 pm and Saturday 8 am to 1 pm (Ref: (SSD-54822478).

Work outside these hours may also occur under the following circumstances:

- The delivery of oversized plant or structures that police or other authorities determine require special arrangements to transport along public roads.
- Emergency work to avoid the loss of life or damage to property, or to prevent environmental harm.
- Maintenance and repair of public infrastructure where disruption to essential services and/or considerations of worker safety do not allow work within standard hours.

4.3 SENSITIVE RECEIVERS

The nearest/potentially most impacted sensitive receivers surrounding the site representative of noise catchments have been identified and as summarised in the following table. An aerial photo of the site indicating nearby noise sensitive receivers and the catchment areas, and the ambient noise measurement locations is presented in Figure 1.

Table 2 – Sensitive Receivers

Receiver (Refer Figure 1)	Receiver Type	Comment
R1	Residential	Residential dwellings maintained to the south of the project site, located at 138, 142, 144 and 146 Burley Road, Horsley Park.
R2		Residential receivers located at 28, 34, 48, 50, 58-64 and 56-104 Burley Road, Horsley Park south-east of the project site.
R3		Residential receivers located at 2A, 2B & 2C Burley Road, Horsley Park south of the project site
R4		Residential receiver located at 152-170 Burley Road, Horsley Park south-west of the project site.
R5		Residential receivers located at 106-124 Burley Road, Horsley Park south of the project site.
R6		Residential receivers located at 172-222 Burley Road, Horsley Park south of the project site.
R7	Industrial	Industrial receivers located at 785-811 Wallgrove Road, Horsley Park, to the north-east of the project site.
R8		Industrial receiver to the south-east of the project site, located at 785-811 Wallgrove Road, Horsley Park.

A site map presenting nearest affected receivers and monitoring locations is presented in Figure 1 below.

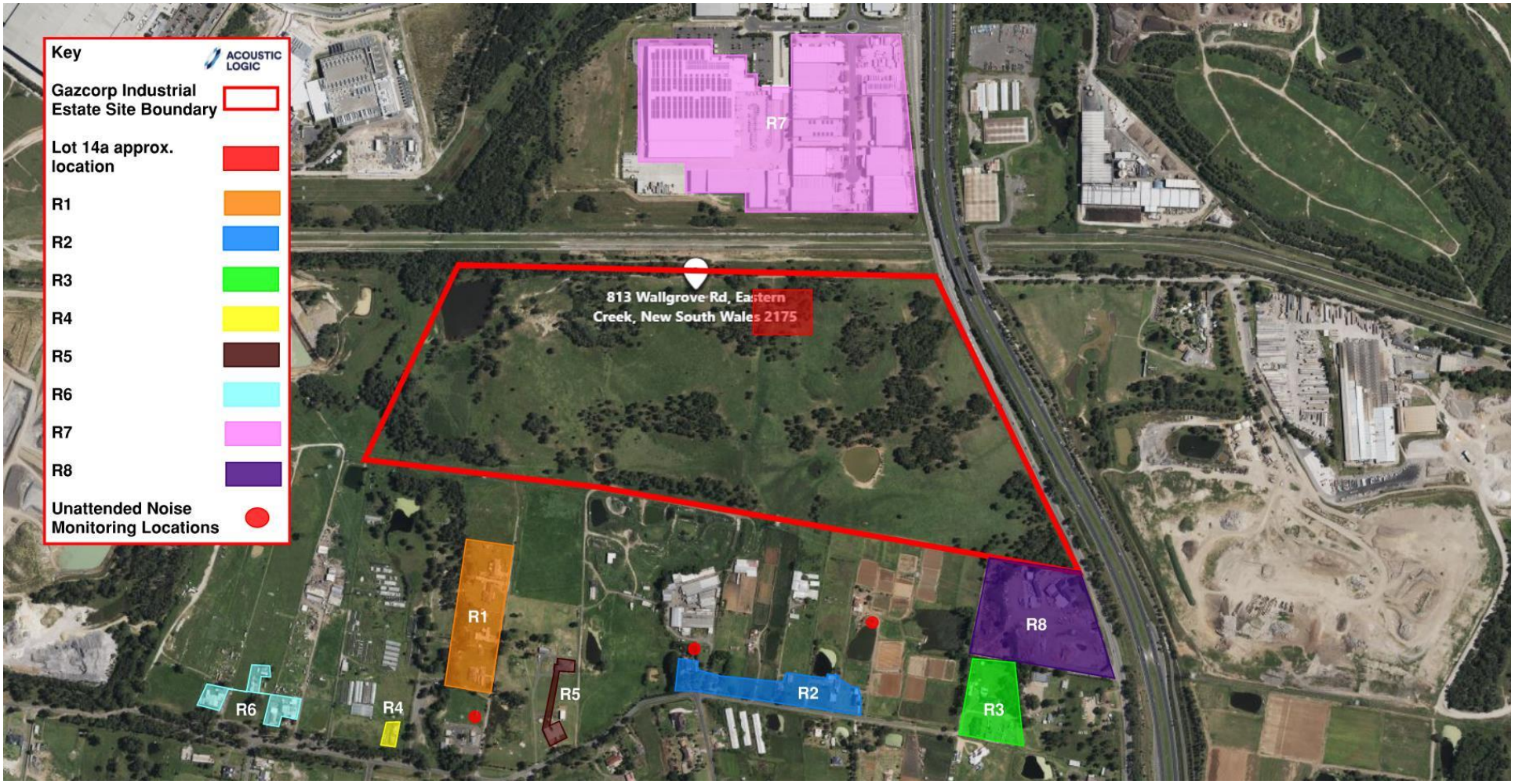


Figure 1 – Site Plan Showing Local Context, Noise Catchments

Source: Bing Maps

4.4 NOISE AND VIBRATION SOURCES

The main noise and vibration sources relevant to each phase of the works have been identified, and are summarised in the following section.

4.4.1 Construction Stage Proposed Equipment

The main noise/vibration producing plant items likely to be used in this phase are summarised in the following table.

Table 3 – Primary Construction Noise Sources

Phase/Activity	Plant	Sound Power Level dB(A)
Construction	Semi-Trailer Moving	105
	Truck Idling	95
	Mobile Diesel Crane	106
	Concrete Pump	105
	Concrete Truck Moving	105
	Concrete Truck Idling	105
	General Hand Tools	95
	Jackhammer	105*
	Angle Grinder	105*
	Welder	101*

The noise levels presented in the above table are derived from the following sources, namely:

- On site measurements;
- Table A1 of Australian Standard 2436-2010 & Table A1 of Australian Standard 2436-2010;
- Data held by this office from other similar studies.

5 CONSTRUCTION NOISE AND VIBRATION ASSESSMENT

5.1 GENERAL

A quantitative evaluation of the proposed works has been undertaken to identify those activities that have the potential to adversely impact nearby properties.

The assessment uses site specific noise and vibration management levels developed using the EPA ICNG. The predicted, receiver noise and vibration levels will be compared to the management levels to identify those activities that are likely to require additional management, above what is considered to be normal good practice.

5.2 CONSTRUCTION NOISE MANAGEMENT LEVELS

5.2.1 Residential Receivers

Residential noise management levels are based on the "rating background noise level" ("**RBL**") applicable to the receivers. RBL's are typically determined by measuring the ambient noise environment using the methodology in the EPA NPfI. The measurements, analysis and RBL's determined for this project are summarised in Appendix A.

The ICNG construction noise management levels are summarised in the following table, along with how they should be used to manage impacts.

Table 4 – Construction Noise Management Levels

Noise Management Level $L_{Aeq,(15min)}$*	**How to Apply**
Noise affected Management Level ("**NML**") RBL + 10dB	The noise affected level represents the point above which there may be some community reaction to noise. Where the predicted or measured $L_{Aeq\ (15\ min)}$ 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.
Highly Noise Affected Management Level ("**HNML**") 75 dB(A)	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.

*** Noise levels apply at the property boundary that is most exposed to construction noise, and at a height of 1.5 m above ground level. If the property boundary is more than 30 m from the residence, the location for measuring or predicting noise levels is at the most noise-affected point within 30 m of the residence. Noise levels may be higher at upper floors of the noise affected residence.**

5.2.2 Other Land Uses

For other land uses, the management levels are absolute noise levels, independent of the prevailing noise environment, so monitoring of the prevailing environment is not generally required for these uses. The ICNG construction noise management levels for uses other than residential dwellings are summarised in the following table.

Table 5 – Construction Noise Management Levels – Non Residential Uses

Land Use	Management Level, $L_{Aeq\ (15min)}$ (applies for times when properties are being used)
Commercial and Retail Outlets	70 (external)*
Industrial Premises	75 (external)*
Other Businesses	Project by project basis, consider maximum noise level recommended in AS 2107 for similar occupancies.*
Classrooms at schools and other educational institutions	45 (Internal noise level)
Hospital wards and operating theatres	45 (Internal noise level)
Places of worship	45 (Internal noise level)
Active recreation areas (characterised by sporting activities and activities which generate their own noise or focus for participants, making them less sensitive to external noise intrusion)	65 (External noise level)
Passive recreation areas (characterised by contemplative activities that generate little noise and where benefits are compromised by external noise intrusion, for example, reading, meditation)	External noise level 60 dB(A)
Community centres	Depends on the intended use of the centre. Refer to the recommended 'maximum' internal levels in AS2107 for specific uses.

*** Noise levels apply at the most affected occupied point of the premises. For other occupancies, noise levels are applied at the most affected point within 50m of the area boundary. Internal noise levels are assessed at the centre of an occupied room. Where internal noise levels cannot be measured, external noise levels may be used, with the equivalent external noise level determined using an appropriate external to internal noise reduction.**

The project specific NML's for the most impacted receivers are summarised in the following table using the objectives tabled above and the adopted RBL's.

Table 6 – Noise Management Levels for Most Impacted Receivers

Location/Receiver	RBL dB(A) L_{90}	NML dB(A) L_{eq}	HNML dB(A) L_{eq}
Receiver 1	38	48	75
Receiver 2			
Receiver 3			
Receiver 4			
Receiver 5			
Receiver 6			
Receiver 7	n.a.	75	n.a.
Receiver 8			

*** The lowest RBL or rating background level is the overall single figure background noise levels measured during the assessment period at the affected receiver boundary.**

5.3 CONSTRUCTION VIBRATION MANAGEMENT LEVELS

5.3.1 Requirements of SSD-54822478

*"**Water NSW Warragamba Pipelines Corridor***

A19. The Applicant must...

(d) establish vibration criteria in accordance with the German Standard DIN 4150-3.2016 Structural Vibration Part 3: Effects of Vibration in Structures, to minimise vibration on the Warragamba Pipelines…

Vibration

Vibration Criteria

B19. Vibration caused by construction at any residence or structure outside the site must be limited to:

a) For structural damage, the latest version of DIN 4150-3 (1992-02) Structural vibration – Effects of Vibration on Structures (German Institute of Standardisation, 1999); and

b) For human exposure, the acceptable vibration values set oput in the Environmental Noise Management Assessing Vibration: a technical guideline (DEC 2006) (as may be updated or replaced from time to time).

B20. Vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria specified in Condition C67.

B21. The limits in Conditions B20 and B21 apply unless otherwise outlined in a CNMP, approved as part of the CEMP required by Condition C2 of this consent."

Acoustic Logic note that DIN 4150-3 (1992-02) has been superseded by DIN 4150-3 (2016-12), and this will be used as a basis for this assessment.

5.3.2 Amenity Management

Vibration goals for the amenity of nearby land users are those recommended by the EPA document *Assessing Vibration: A technical guideline*. These levels (extracted from Tables 2.2 and 2.4 of the guideline) are presented in the following table for various types of vibration:

Table 7 -(Table 2.2 *Assessing Vibration: A Technical Guideline*) – Preferred and Maximum Weighted RMS Values for Continuous and Impulsive Vibration Acceleration (m/s^2) 1-80Hz

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	0.02	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 7:00am to 10:00pm and night-time is 10:00pm to 7:00am.

2 Examples include hospital operating theatres and precision laboratories where sensitive operations are occurring. There may be cases where sensitive equipment or delicate task 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: BS6472-1992.

Table 8 -(Table 2.4 *Assessing Vibration: A technical guideline*) – Acceptable Vibration Dose Values for Intermittent Vibration ($m/s^{1.75}$)

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 7:00am to 10:00pm and night-time is 10:00pm to 7:00am.

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: BS6472-1992.

5.3.3 Structure Damage Risk Criteria

5.3.3.1 Generally

German Standard DIN 4150-3 (2016) provides a guideline for acceptable levels of vibration velocity in building foundations, to assess the effects of vibration on structures. The table give guidance on the maximum accepted values of velocity at the foundation and in the plane of the highest floor of various types of buildings, to prevent any structural damage.

The table following lists the peak particle velocity, which is the maximum absolute value of the velocity signals for the three orthogonal components. This is measured as a maximum value of any of the three orthogonal component particle velocities when measured at the foundation, and the maximum levels measured in the x- and y-horizontal directions in the plane of the floor of the uppermost storey.

It is noted that if measured vibration levels do not exceed the guidelines listed in the following table, damage that will reduce the serviceability of the building will not occur, and if damage to the building does occur, it is assumed that the damage is related to other causes. Furthermore, the DIN4150-3 guideline states the following regarding the limits presented in Table 1 of the standard:

"Exceeding the guideline values does not necessarily lead to damage. Should they be exceeded, however, further investigations may be necessary, such as determining and evaluating the stresses as detailed in 4.3 and 4.4.".

Table 9 -(Table 1 – DIN 4150-3 (2016)) – Guideline Values for Vibration Velocity, $v_{i,max}$, for Evaluating the Effects of Short-Term Vibration on Structures

	TYPE OF STRUCTURE	Guideline values for $v_{i,max}$ in mm/s				
		Foundation, all directions, i = x, y, z, at a frequency of		Topmost floor, horizontal direction, i = x, y	Floor slabs, vertical direction, i = z	
		1Hz to 10Hz	10Hz to 50Hz	50Hz to 100Hz [(a)]	All Frequencies	All Frequencies
L/C	1	2	3	4	5	6
1	Buildings used for commercial purposes, industrial buildings, and buildings of similar design	20	20 to 40	40 to 50	40	20
2	Residential buildings and buildings of similar design and/or occupancy	5	5 to 15	15 to 20	15	20
3	Structures that, because of their particular sensitivity to vibration, cannot be classified under lines 1 and 2 **and** are of great intrinsic value (e.g. listed buildings) buildings that are under a preservation order)	3	3 to 8	8 to 10	8	20[(b)]

NOTE Even if guideline values as in line 1, columns 2 to 5, are complied with, minor damage cannot be excluded.

a At frequencies above 100 Hz, the guideline values for 100 Hz can be applied as minimum values.

b It may be necessary to lower the guideline value markedly to prevent minor damage

5.3.4 Summarised Recommended Vibration Limits

The summarised vibration criteria relevant to the project are presented in the table below.

Table 10 – Recommended Vibration Limit

Vibration Receiver	Recommended Vibration Limits PPV (mm/s)
Warragamba Pipelines	3
Residential Buildings	5
Industrial Buildings	20

5.4 CONSTRUCTION NOISE ASSESSMENT

5.4.1 Methodology

Noise from the loudest typical construction activities have been predicted to the nearest most affected sensitive receivers. The predicted noise levels are presented in this section and are based on the areas on site in which the plant is likely to be used.

Where the position of the construction activity is variable, a range of predicted noise levels is presented to take into account the change in noise impact depending on where on the site the work is conducted.

Predictions take into account:

- The distance between the noise source and the receiver; and
- The screening effect provided by barriers or building structures (where relevant).

5.4.2 Predictions

Construction noise emissions to nearby development depend on the activities being undertaken at the time, and where on the site the activities occur.

Construction noise levels at the surrounding receivers have been predicted using the Soundplan computer model based on the following inputs.

- ISO 9613-2:1996 "Acoustics – Attenuation of Sound During Propagation Outdoors – Part 2: General Method of Calculation" noise propagation standard.
- The plant sound power levels indicated in Appendix B. These have been corrected for estimated typical operation duty indicated in the table using 10 x log(% duty/100).
- Elevation data for the site and surrounds was obtained from ELVIS data services, and surrounding building heights were obtained from Geoscape database.
- Source heights – 1.5m above the ground/building level of the noise source location, unless noted otherwise.
- Source locations are as indicated in Figure 1.
- Noise contour maps have been calculated at:
    - 1.5m above ground level, representing recreation and other outdoor spaces, and the ground floor level of dwellings.
    - Where relevant, facade noise maps have been produced to indicate facade incident noise levels at multi-storey buildings.
- Ground absorption was conservatively calculated with a ground factor of 0 for all areas except for localised lawns and greenery with a ground factor of 0.6 as recommended in *Engineering Noise Control* (Bies & Hanson).

5.4.3 Predicted Noise Impacts

Soundplan modelling outputs are provided in the appendices. The results of the noise predictions and a comparison with the project management levels are summarised in the following table.

Soundplan "grid noise map" contours include a 2.5dB façade reflection increase close to a façade. The NPfI adopts non-façade reflection affected noise levels, so that when assessing noise levels close to a façade, 2.5 dB has been subtracted from the grid map noise levels. Soundplan "façade noise maps" do not include a façade reflection allowance, and therefore do not require correction.

The predicted noise levels are summarised in the following table.

Table 11 – Predicted Noise Impacts

Noise Receiver	Time of Day	Predicted External Noise Level dB(A)$L_{eq15\ min}$	Noise Management Level dB(A)$L_{eq15\ min}$	Note
Receiver 1	Monday to Friday (7am – 6pm) Saturdays (8am – 1pm)	Up to 37	*Noise Affected Management Level* – 48 *Highly Noise Affected Management Level* – 75	Predicted external noise levels are below noise management levels at all noise sensitive receivers
Receiver 2		Up to 36		
Receiver 3		Up to 36		
Receiver 4		Up to 31		
Receiver 5		Up to 32		
Receiver 6		Up to 29		
Receiver 7		Up to 49	75	
Receiver 8		Up to 39		

* Assessed at 1.5m above ground level.

The analysis indicates that no receiver will be subject to noise exceeding the NML during the scope of construction works.

5.5 CONSTRUCTION VIBRATION

5.5.1 Vibration Sources

Based upon the plant items proposed to be used which have been assessed throughout the proposed scope of the construction stage for the project, Acoustic Logic note that the most significant item of plant proposed to be used from a vibration-generation perspective would be the use of the jackhammer. The remaining activities maintained are not expected to produce significant ground vibration and/or are sufficiently separated from sensitive receivers. Vibration from these activities are expected to be significantly below amenity or damage risk management levels at all receivers. Based upon the distance from the proposed works zone to the nearest vibration sensitive receiver, it is not expected that the works assessed within this management plan will generate vibration levels which approach the project vibration criteria outlined within Section 5.3.3 of this document.

5.5.2 Assessment of Vibration

A precise assessment of vibration emissions from the proposed works is not possible due to the large number of unknowns including the actual equipment employed, how it is operated, site conditions, etc.

In the absence of any specific equipment the generic minimum safe working distances presented in Table 12 – Recommended Base Minimum Working Distances for Vibration Intensive Plant From Sensitive Receivers should be used with caution for guidance. It is noted that the vibrating roller distances are based on asphalting road works and are not applicable to earthworks as the vibration frequencies are considerably lower leading to a greater safe-work distance requirement. Empirical formulae by Hiller and Crabb will be used in lieu.

Should the types and models of the plant and equipment be available then vibration levels may be predicted at the nearest and most affected receivers by using the published generic formulae, source levels or historical data as found in:

- BS 5228-2:2009+A1:2014
- ISO 4866:2010
- FTA Transit Noise and Vibration Impact Assessment Manual (2018)
- Caltrans Transportation and Construction Vibration Guidance Manual (2020)
- Construction Vibrations 2nd Edition (Dowding, 2000)

Regardless of the method used site vibration levels from machinery and processes should be verified on site as soil conditions may be different from the basis sources.

The assessment of building and soil settlement or the liquefaction of soils under induced vibration is outside the scope of typical vibration standards such as DIN 4150-3 and expert advice is to be sought from a Geotechnical Engineer.

6 NOISE AND VIBRATION MANAGEMENT PLAN AND CONTROL

6.1 MANAGEMENT PLAN

The assessment indicates that the proposed activities will not produce noise or vibration that will exceed the adopted management levels.

The plan should be revised as the works proceed in response to changing or latent conditions and to incorporate the results of additional analysis, monitoring or modified work practices implemented to minimise impacts.

The management plan should be prepared in accordance with IGNG guideline and include:

- Identification of sensitive receivers and applicable noise and vibration management levels
- A description of the main noise or vibration producing activities, processes and equipment that will be employed and an indicative construction programme.
- Proposed construction hours.
- A prediction of likely noise/vibration levels at the most impacted receivers.
- The assessment and recommendation of mitigation methods to be applied where the predicted levels exceed the management levels, as indicated below.
- A monitoring plan including the type and extent of monitoring, reporting procedures.
- Recommended management procedures including complaints handling, response to monitoring exceedances, reporting, site training, etc.
- Community liaison.

6.2 NOISE AND VIBRATION CONTROL

The flow chart that follows illustrate the process followed to assess construction activities prior to the start of work on site, and for the ongoing investigation of noise and vibration impacts during the construction period.

The ICNG recommends "feasible and reasonable" mitigation measures to be implemented where works generate noise levels above the out of normal hours NML but does not specify what mitigation measures or to what extent these measures should be applied.

The CNVG and CNVS provide a clear hierarchy of mitigation measures to be applied when noise reduction by substitution, reasonable and feasible engineering and administrative means have been exhausted.

6.2.1 General Noise Control Methods

The determination of appropriate additional noise control measures will be dependent on the particular activities and the construction equipment and plant identified as requiring future acoustic treatments to those already identified in this report. This section provides an outline of available methods which have previously been used on similar construction sites and may be possible on this site.

6.2.1.1 Selection of Alternate Appliance or Process

Where a particular activity or plant and equipment is found to generate noise levels that exceed the management levels, it may be possible to select an alternative approach or plant and equipment. For example; the use of excavator mounted hydraulic hammers of the site may potentially generate high levels of noise. By carrying this activity by using concrete saws or smaller plant here practical, construction noise levels and/or length of exposure to construction noise levels may be reduced.

6.2.1.2 Acoustic Barriers

The placement of barriers at the source is generally only effective for static plant. Placing barriers at the source cannot effectively attenuate equipment which is on the move or working in rough or undulating terrain.

The degree of noise reduction provided by barriers is dependent on the amount by which the line of sight can be blocked by the barrier. If the receiver is totally shielded from the noise source reductions of up to 15 dB(A) can be effected. Where only partial obstruction of line of sight occurs, noise reductions of 5 to 8 dB(A) may be achieved. Where the barrier does not obstruct line of sight, generally no noise reduction will occur.

Barriers are used to provide shielding and do not act as an enclosure. The material they are constructed from should have a noise reduction performance which is approximately 10dB(A) greater than the maximum reduction provided by the barrier screening. In this case, the use of a material such as 15mm plywood (or equivalent material) would be acceptable for the barriers.

6.2.1.3 Silencing Devices

Where construction methodologies or plant and equipment permit, investigate the use of silencing devices. These may take the form of engine shrouding, or special industrial silencers fitted to exhausts, for example.

6.2.1.4 Treatment of Specific Equipment

In certain cases it may be possible to specially treat a piece of equipment to dramatically reduce the sound levels emitted.

6.2.1.5 Establishment of Site Practices

This involves the formulation of work practices to reduce noise generation. This includes, for example, investigating the possibility of locating fixed plant items as far as possible from residents, rotating plant and activities to provide respite to receivers, scheduling activities after the construction of buildings that will screen receivers, avoiding noise sensitive periods for receivers, identify “safe” working distances, etc.

6.2.1.6 Vibration Management

The following principles should be considered to manage adverse vibration impacts identified:

- Obtaining separate structural or specialist advice for critical or fragile structures as to the level of damage risk.
- Selection of processes that minimise structure and ground vibration – generally avoiding percussive methods.
- Use smallest plant that is able to efficiently undertake the work activity.
- Lay vibration absorbing mats to cushion impacts from falling debris.
- Application of vibration dampening pads to metal surfaces subject to impacts.
- When demolishing, cut control joints in structures to form vibration "breaks", or work away from sensitive receiver locations to form natural vibration breaks in propagation path.
- Monitoring of structures using attended and/or unattended monitors with alarms.
- Time scheduling works to minimise amenity impacts.
- Communicating with affected receivers.
- Identify "safe" working distances to sensitive receivers/structures for various activities by conducting site simulation tests, and limiting activities within those distances to those that are not likely to exceed vibration goals. Vary locations/equipment/techniques used as determined by the simulation testing. The following table provides an initial guide to working distances that should be confirmed by site measurement.

6.2.1.7 Notification

Notification of affected receivers of the progress of works, particularly when short-term activities likely to create higher noise levels occur, can in many cases minimise community reaction.

6.3 SUMMARY OF MITIGATION

As stated in 5.4, the construction noise impact is not predicted to exceed the NML or HANML. As a result, no strict mitigation measures are required. However, ongoing monitoring is recommended to ensure that there are no exceedances of the HANML.

6.3.1 Recommended Monitoring

In the event that complaints are made from neighbouring properties regarding noise impacts from the subject site, noise monitors will be installed at the property boundaries of the neighbouring properties nearest to the subject site to monitor noise levels.

It is also recommended to install a vibration monitor on site at location on surface level close to the Warragamba Dam Pipeline during any ongoing excavation work. The monitor should be with SMS system to send alarm message once the measured vibration exceeds the trigger level (recommended alarm trigger level of 2.5mm/s PPV). Once excavation is concluded and the construction phase begins, Acoustic Logic recommend the retention of this monitor for a minimum period of two weeks to ascertain the resultant vibration levels generated by site activity at the pipe location. If vibration levels are found to be significantly below criteria during this 2-week period, the monitor may then be removed as appropriate.

6.3.1.1 Downloading of Noise Monitor Data

Downloading of the noise monitor data will be conducted on a regular basis. In the event of consistent high noise level periods, downloading of the noise monitor data will be conducted more frequently. Results obtained from the noise monitor will be presented in a graph format and will be forwarded to the client for review. It is proposed that reports are provided fortnightly, presenting the measured noise levels in reference to the noise management levels detailed in this report.

6.3.1.2 Presentation of Noise Monitor Results

A fortnightly report will be submitted to the client via email summarising the measured noise level events. Complete results of the continuous noise logging will be presented in fortnightly reports including graphs of the collected data.

6.3.1.3 Downloading of Vibration Monitor Data

Downloading of the vibration monitor data will be conducted on a regular basis. In the event of exceedance of the vibration criteria, downloading of the vibration monitor data will be conducted more frequently. Results obtained from the vibration monitor will be presented in a graph format and will be forwarded to the client for review. It is proposed that reports are provided fortnightly with any exceedances in the vibration criteria reported as detailed in this report.

6.3.1.4 Presentation of Vibration Monitor Results

A fortnightly report will be submitted to the client via email summarising the vibration events. The vibration exceedance of criteria is recorded, and the report shall be submitted within 24 hours. Complete results of the continuous vibration logging will be presented in fortnight reports including graphs of the collected data.

6.3.2 Recommended Minimum Safe Working Distances for Vibration Intrusive Plant

The following table presents the recommended minimum safe working distances for various vibration intensive plant items that may be used throughout the project. Note that the distances provided within the below table may be reduced, provided empirical evidence and sample test levels collated through onsite measurement data of specific plant items at relevant vibration sensitive receivers support works within the safe working distance adhering to the requirements outlined within Section 5.3.3 of this document.

Table 12 – Recommended Base Minimum Working Distances for Vibration Intensive Plant From Sensitive Receivers

Plant item	Rating / Description	Minimum Working Distance			
		Cosmetic Damage			Human Response
		Light-Framed Structure (BS 7385)	Residential Structures (DIN 4150)	Heritage and Other Sensitive Structures (DIN 4150)	NSW EPA's Vibration Guideline
Vibratory Roller	< 50 kN (Typically 1-2 tonnes)	5 m	18.5 m	14 m	15m
	< 100 kN (Typically 2-4 tonnes)	6 m	17.8 m	16 m	20 m
	< 200 kN (Typically 4-6 tonnes)	12 m	43 m	33 m	40 m
	< 300 kN (Typically 7-13 tonnes)	15 m	51.5 m	41 m	100 m
	> 300 kN (Typically 13-18 tonnes)	20 m	-	54 m	100 m
	> 300 kN (> 18 tonnes)	25 m	-	68 m	100 m
Small Hydraulic Hammer	(300 kg - 5 to 12t excavator)	2 m	-	5 m	7 m
Medium Hydraulic Hammer	(900 kg – 12 to 18t excavator)	7 m	-	19 m	23 m
Large Hydraulic Hammer	(1600 kg – 18 to 34t excavator)	22 m	-	60 m	73 m
Vibratory Pile Driver	Sheet piles	20 m	-	50 m	100 m
Pile Boring	≤ 800 mm	2 m (nominal)	-	5 m	7 m
Jackhammer	Hand held	1 m (nominal)	-	2 m	3 m
Profiler	Wirtgen W210	4 m	-	-	-
Asphalt Paver	Vogele Super 1800-3	1 m	-	-	-
Steel Drum Roller	Hamm HD70 (Oscillating Mode)	2 m	-	-	-
Steel Drum Roller	Hamm HD70 (Static Mode)	1 m	-	-	-

7 COMMUNITY INTERACTION AND COMPLAINTS HANDLING

7.1 ESTABLISHMENT OF DIRECT COMMUNICATION WITH AFFECTED PARTIES

In order for any construction noise and vibration management programme to work effectively, continuous communication is required between; all parties which may be potentially impacted upon, the builder and the regulatory authority. This establishes a dynamic response process which allows for the adjustment of control methods and criteria for the benefit of all parties.

The objective in undertaking a consultation process is to:

- Inform and educate the groups about the project and the noise controls being implemented.
- Increase understanding of all acoustic issues related to the project and options available.
- Identify group concerns generated by the project, so that they can be addressed.
- Ensure that concerned individuals or groups are aware of and have access to the Site Complaints Register which will be used to address any construction noise related problems should they arise.

To ensure that this process is effective, regular scheduled meetings may be required for a finite period, until all issues have been addressed and the evidence of successful implementation is embraced by all parties.

An additional step in this process is to produce a newsletter informing nearby residents of upcoming activities that are likely to generate higher noise/vibration levels.

7.2 DEALING WITH COMPLAINTS

Should ongoing complaints of excessive noise or vibration occur, immediate measures shall be undertaken to investigate the complaint, the cause of the exceedances and identify the required changes to work practices. In the case of exceedances of the vibration limits, all work potentially producing vibration shall cease until the exceedance is investigated. The effectiveness of any changes shall be verified before continuing. Documentation and training of site staff shall occur to ensure the practices that produced the exceedances are not repeated.

If a noise complaint is received the complaint should be recorded on a Noise Complaint Form. The complaint form should list:

- The name and address of the complainant (if provided).
- The time and date the complaint was received.
- The nature of the complaint and the time and date the noise was heard.
- The name of the employee who received the complaint.
- Actions taken to investigate the complaint, and a summary of the results of the investigation.
- Required remedial action, if required.
- Validation of the remedial action.
- If necessary, setup vibration monitoring at the location representing the nearest affected vibration receiver, with alarm device which can inform the project manager on site if the vibration exceedance happened.
- Summary of feedback to the complainant.

A permanent register of complaints should be held.

All complaints received should be fully investigated and reported to management. The complainant should also be notified of the results and actions arising from the investigation.

The investigation of a complaint shall involve where applicable.

- noise measurements at the affected receiver.
- an investigation of the activities occurring at the time of the incident.
- inspection of the activity to determine whether any undue noise is being emitted by equipment; and
- Whether work practices were being carried out either within established guidelines or outside these guidelines.

Where an item of plant is found to be emitting excessive noise, the cause is to be rectified as soon as possible. Where work practices within established guidelines are found to result in excessive noise being generated then the guidelines should be modified so as to reduce noise emissions to acceptable levels. Where guidelines are not being followed, the additional training and counselling of employees should be carried out.

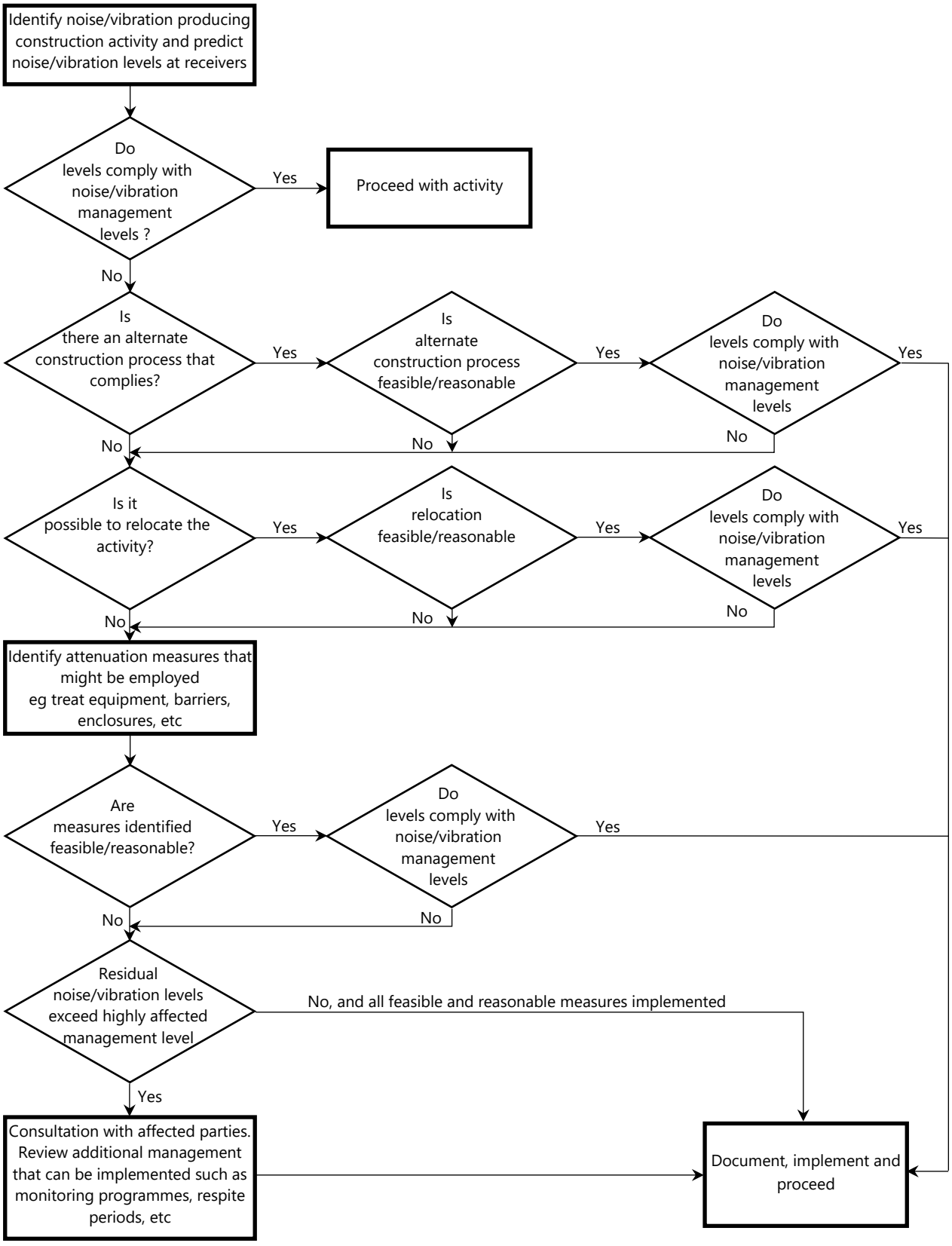
Measurement or other methods shall validate the results of any corrective actions arising from a complaint where applicable.

8 CONTINGENCY PLANS

Where non-compliances or noise complaints are raised the following methodology will be implemented.

1. Determine the offending plant/equipment/process.
2. Locate the plant/equipment/process further away from the affected receiver(s) if possible.
3. Implement additional acoustic treatment in the form of localised barriers, silencers etc where practical.
4. Selecting alternative equipment/processes where practical.
5. If necessary, setup noise and vibration monitoring devices at locations representing the nearest noise/vibration and dust affected receivers and provide data for each complain time period. Analysis is required to determine suitable mitigation measures.

Complaints associated with noise and vibration generated by site activities shall be recorded on a Complaint Form. The person(s) responsible for complaint handling and contact details for receiving of complaints shall be established on site prior to construction works commencing. A sign shall be displayed at the site indicating the Site Manager to the general public and their contact telephone number.



Noise and Vibration Management Flow Chart

9 CONCLUSION

This report assesses potential noise and vibration impacts from the construction of the proposed development at Lot 14A, 813-913 Wallgrove Road, Horsley Park. The assessment uses the methodology contained in the EPA IGNG to:

- determine appropriate noise and vibration management levels
- identify those activities that are likely to impact nearby receivers.
- indicate the measures that are likely to be required to minimise impacts to the extent that is recommended in the ICNG.

The assessment indicates that:

- It is not expected that receivers surrounding the project site will experience external noise levels which are above the ICNG management levels.
- Vibration levels are not expected to exceed the amenity and damage rise vibration levels.

It is concluded that with the implementation of the mitigation and ongoing assessment recommended in Section 6.2, construction noise and vibration emissions from the proposed development will be minimised in accordance with the ICNG.

Yours faithfully,



Acoustic Logic Pty Ltd
Lachlan Abood

APPENDIX A AMBIENT NOISE MONITORING

Background noise and the relevant Rating Background Noise Levels used in this assessment/plan have been obtained from the following report.

This appendix summarises the ambient noise measurements conducted near the subject site, the noise data obtained and the calculated noise level descriptors adopted to characterise the existing noise environment.

A.1 NOISE DESCRIPTORS

Ambient noise constantly varies in level from moment to moment, so it is not possible to accurately determine prevailing noise conditions by measuring a single, instantaneous noise level.

To quantify ambient noise, a 15 minute measurement interval is typically utilised. Noise levels are monitored on a continuous basis over this period, and statistical and integrating techniques are used to characterise the noise being measured.

The principal measurement parameters are:

L_{eq} - represents the average noise energy during a measurement period. This parameter is derived by integrating the noise levels measured over the measurement period. L_{eq} is important in the assessment of noise impact as it closely corresponds with how humans perceive the loudness of steady state and quasi-steady state noise sources (such as traffic noise).

L_{90} – This is commonly used as a measure of the background noise level as it represents the noise level heard in the quieter periods during the measurement interval. The L_{90} parameter is used to set noise emission criteria for potentially intrusive noise sources since the disturbance caused by a noise source will depend on how audible it is above the pre-existing noise environment, particularly during quiet periods, as represented by the L_{90} level.

L_{10} is used in some guidelines to measure noise produced by an intrusive noise source since it represents the average of the loudest noise levels produced at the source. Typically, this is used to assess noise from licenced venues.

L_{max} is the highest noise level produced during a noise event, and is typically used to assess sleep arousal impacts from short term noise events during the night. It is also used to assess internal noise levels resulting from aircraft and railway ground vibration induced noise.

L_1 is sometimes used in place of L_{max} to represent a typical noise level from a number of high level, short term noise events.

A.2 UNATTENDED LONG TERM NOISE MONITORING

Unattended noise monitoring was conducted recently by using Rion NL-42 (Type 2) sound lever meters.

The monitoring was continuous, with statistical noise levels recorded at 15-minute intervals throughout the monitoring period. Measurements were taken on "A" frequency weighting and fast time response.

All monitoring equipment used retains current calibration - either manufacturers' calibration or NATA certified calibration. The monitors were field calibrated at the beginning and the end of the measurement with no significant drift in calibration noted.

The monitoring locations are shown in Figure 2.

Ambient, assessment and rating background levels have been determined from the long term, unattended noise monitoring data based on the methodology in the Noise Policy for Industry Fact Sheet B. Appendix 1 contains graphs of the data collected, including periods identified as being affected by adverse weather conditions (as defined by INP Fact Sheet B).

Weather data was obtained from records provided by the Bureau of Meteorology for the weather station located at Horsley Park Equestrian Centre.

Detailed monitor locations are presented below



Figure 2 – Noise Logging Locations

A.3 NOISE VERIFICATION ASSESSMENT

Provided within the "*Background Noise Verification and Noise Emission Criteria,*" letter for the Gazcorp Industrial Estate, prepared previously by this office, is an outline of the Noise Verification methodology undertaken to adhere to the requirements of the Modification Consent Condition A13A of SSD-5248 as presented within Section 4 of this document (Ref: 20200813.4/0210A/R2/GW, dated 02nd of March 2022). Background noise monitor locations have been visualised within Figure 2, and the results of the noise monitoring conducted for the Noise Verification Report, prepared in accordance with the requirements of SSD-5248, have been summarised in Table 2 below.

Table 13 – Noise Verification Report Background Noise Monitoring Results (Ref: 20200813.4/0210A/R2/GW)

Monitor Location	Time of day	Rating Background Noise Level dB(A)$L_{A90(Period)}$
134-136 Burley Road, Horsley Park	Day (7am-6pm)	40
	Evening (6pm-10pm)	42 (40)*
	Night (10pm-7am)	41 (40)*
66-104 Burley Road, Horsley Park	Day (7am-6pm)	40
	Evening (6pm-10pm)	42 (40)*
	Night (10pm-7am)	37
32 Burley Road, Horsley Park	Day (7am-6pm)	46
	Evening (6pm-10pm)	48 (46)*
	Night (10pm-7am)	42

**In line with the requirements of the NSW EPA Noise Policy for Industry (NPfI, 2017), the evening and night periods exceeding the daytime RBL for the respective monitoring locations have been corrected to be equal to the daytime period.*

As discussed within the "*Background Noise Verification and Noise Emission Criteria,*" of the three locations presented above, the lowest measured rating background noise level for each individual period was adopted for assessment for the residential receivers south of the project site for assessment in line with the requirements of NPfI, and hence this is methodology has also been adopted as part of this assessment and is summarised within Table 3 below.

Table 14 – Adopted Rating Background Noise Levels – Noise Verification Report

Time Period	Rating Background Noise Level dB(A)L_{90}
Day	40
Evening	40
Night	37

A.3.1 Rating Background Noise Levels Measured for SSD-10330

Further to the discussion of existing ambient profile, the following RBL data obtained by SLR Consultants at 106 Burley Road, Horsley Park is detailed within DPIE's comments pertaining to the Consent Modification for the Gazcorp Industrial Estate (Ref: SSD-5248 MOD 1).

Table 15 –Rating Background Noise Levels Measured by SLR Consultants at 106 Burley Road (Ref: SSD-5248 MOD 1)

Time Period	Rating Background Noise Level dB(A)L_{90}
Day	38
Evening	36
Night	36

As the above rating background noise levels are lower than the results of the Noise Verification Report provided by this office for the development, the above Rating Background Noise Levels have been adopted for the purposes of assessing intrusiveness at all of the residential receivers south of the project site.

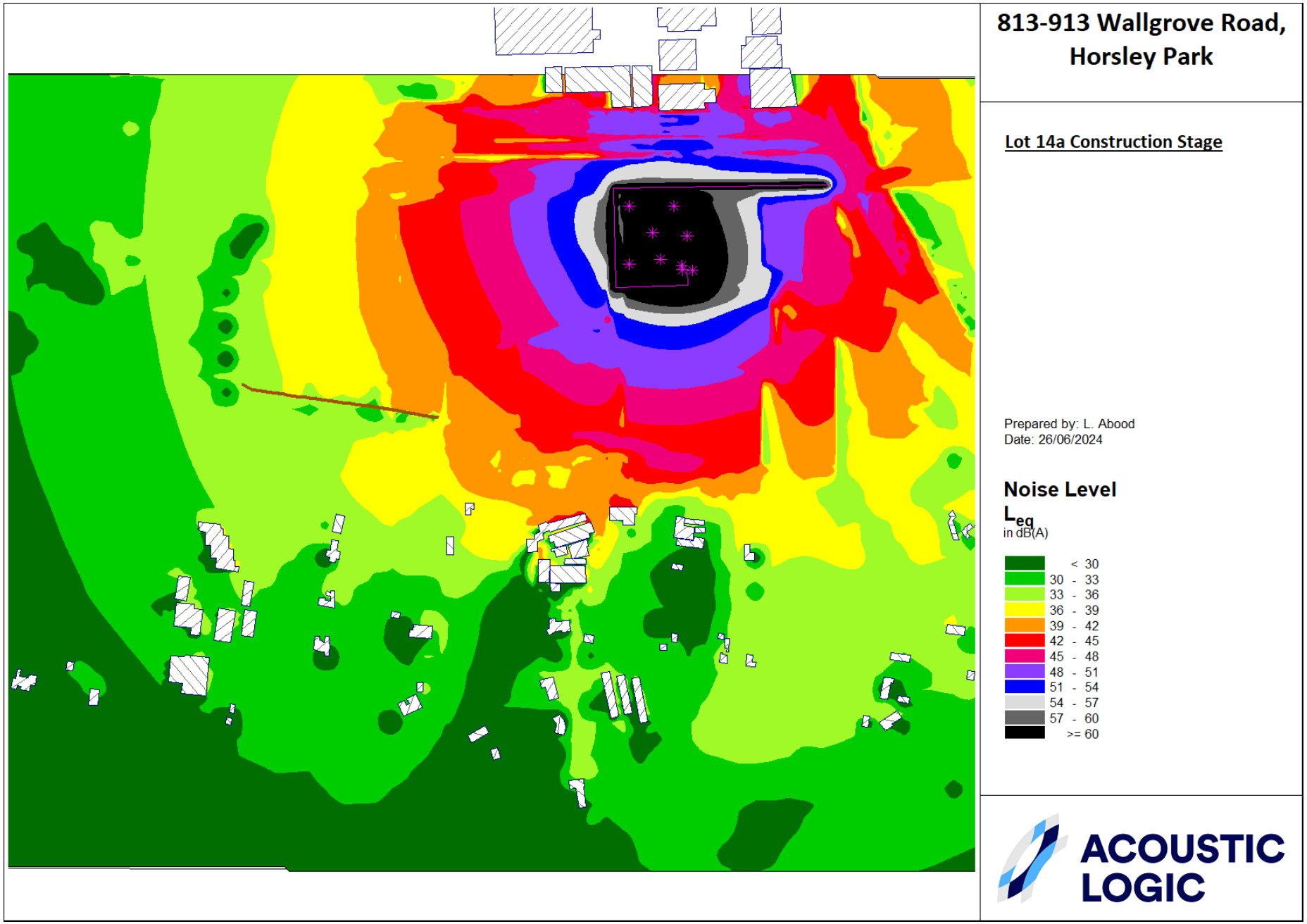
A.3.2 Summarised Rating Background Noise Levels Adopted for Assessment

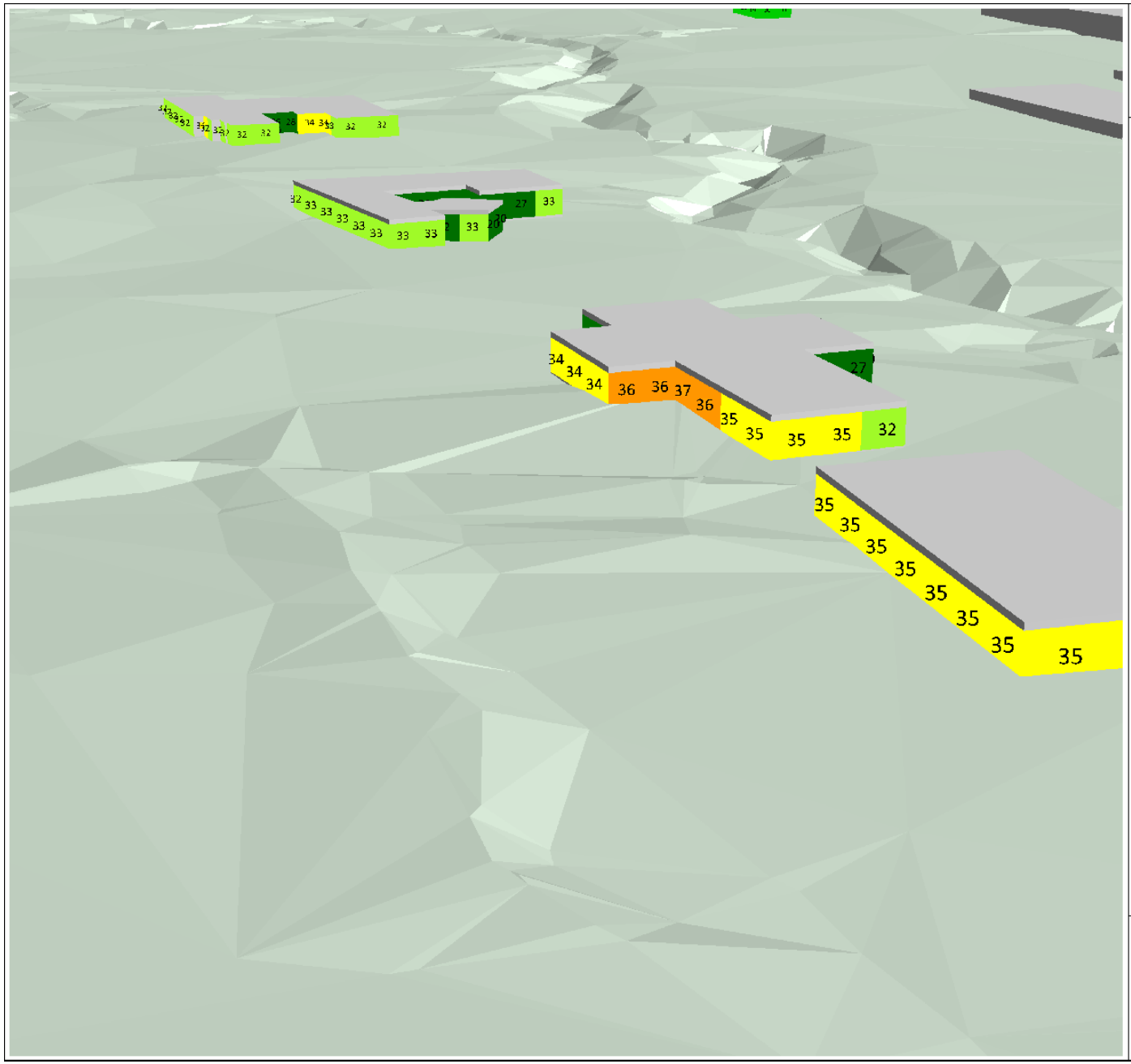
The following table summarises the finalised rating background noise levels adopted as part of this assessment.

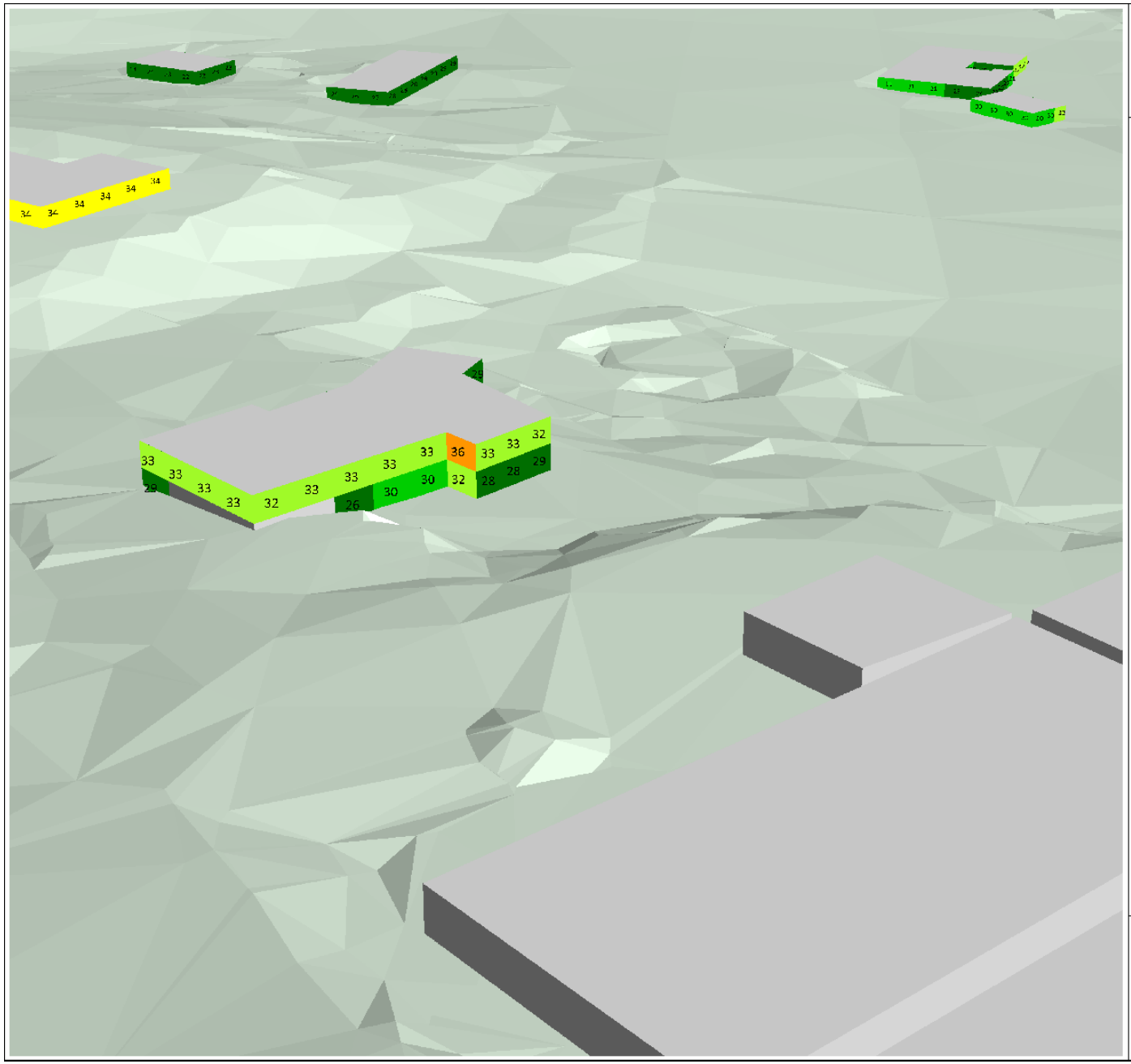
Table 16 – Summarised Rating Background Noise Levels

Receiver	Time Period	Rating Background Noise Level dB(A)L_{90}
All Residential Receivers	Day	38
	Evening	36
	Night	36

A.6 SOUNDPLAN NOISE MODELLING


813-913 Wallgrove Road,
Horsley Park
Lot 14a Construction Stage
Prepared by: L. Abood
Date: 26/06/2024
Noise Level
L_{eq}
in dB(A)
< 30
30 - 33
33 - 36
36 - 39
39 - 42
42 - 45
45 - 48
48 - 51
51 - 54
54 - 57
57 - 60
>= 60
ACOUSTIC LOGIC


813-913 Wallgrove Road,
Horsley Park
Lot 14a Construction Stage
R1
Prepared by: L. Abood
Date: 26/06/2024
Noise Level
L_{eq}
in dB(A)
< 30
30 - 32
32 - 34
34 - 36
36 - 38
38 - 40
40 - 42
42 - 44
44 - 46
46 - 48
48 - 50
>= 50
ACOUSTIC LOGIC



813-913 Wallgrove Road, Horsley Park

Lot 14a Construction Stage

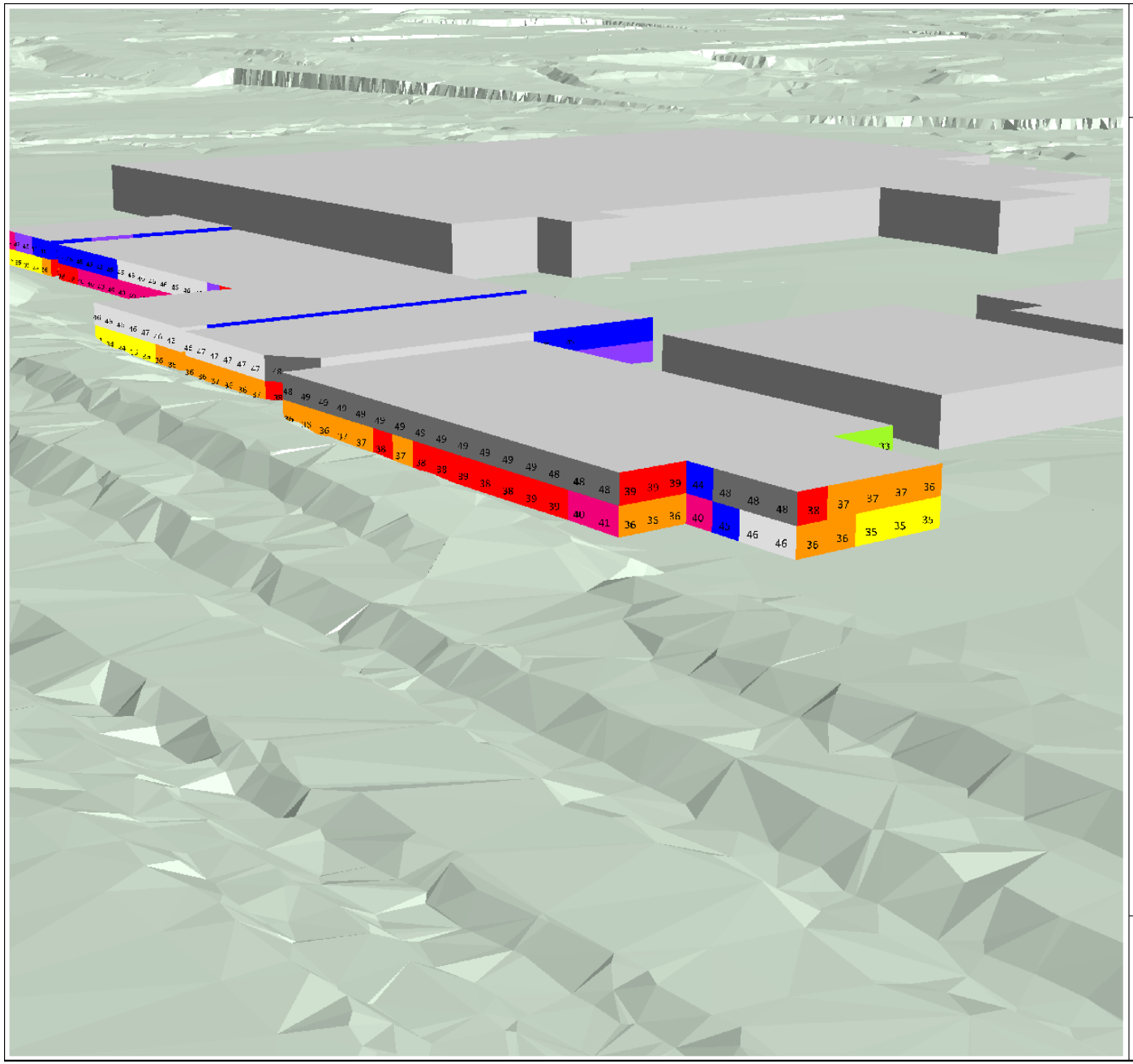
R2

Prepared by: L. Abood
Date: 26/06/2024

Noise Level
L_{eq}
in dB(A)

	< 30
	30 - 32
	32 - 34
	34 - 36
	36 - 38
	38 - 40
	40 - 42
	42 - 44
	44 - 46
	46 - 48
	48 - 50
	>= 50

ACOUSTIC LOGIC



813-913 Wallgrove Road, Horsley Park

Lot 14a Construction Stage

R7

Prepared by: L. Abood
Date: 26/06/2024

Noise Level
L_{eq}
in dB(A)

	< 30
	30 - 32
	32 - 34
	34 - 36
	36 - 38
	38 - 40
	40 - 42
	42 - 44
	44 - 46
	46 - 48
	48 - 50
	>= 50

ACOUSTIC LOGIC

APPENDIX B CONSTRUCTION PLANT NOISE AND VIBRATION EMISSION LEVELS

This section provides the plant noise and vibration emission levels adopted in the assessment.

B.1 NOISE

The following table presents typical sound power levels for construction plant used in this assessment.

The following have been considered to establish typical plant A-weighted sound power levels:

- Transport for NSW Construction Noise and Vibration Strategy (April 2018).
- Previous measurements undertaken by Acoustic Logic.
- AS 2436-2010 "Guide to noise and vibration control on construction, demolition and maintenance sites (Appendix A).

The equipment sound power spectra are based on information in the DEFRA database, and when not available from that source, from manufacturer's data or from measured spectra taken by this office of similar machinery.

Items identified as having annoying characteristics have been penalised by adding 5dB to the levels in the Transport for NSW's noise data base.

The emission levels in the table assume that machinery operates continuously (i.e. 100% duty), which is not always be the case. For example, excavators may load trucks intermittently for 5 minutes in every 15-minute assessment period so their duty would be 33%. The duty correction used in the assessment is indicated in the table.

For impact piling the sound power levels have been given in both L_{Aeq} and L_{Amax} descriptors as the City of Sydney uses the $L_{Amax,avg}$ to assess impact piling noise.

Construction, Demolition and Civil works Machinery Effective Sound Power Levels based on Continuous operation (100% duty)

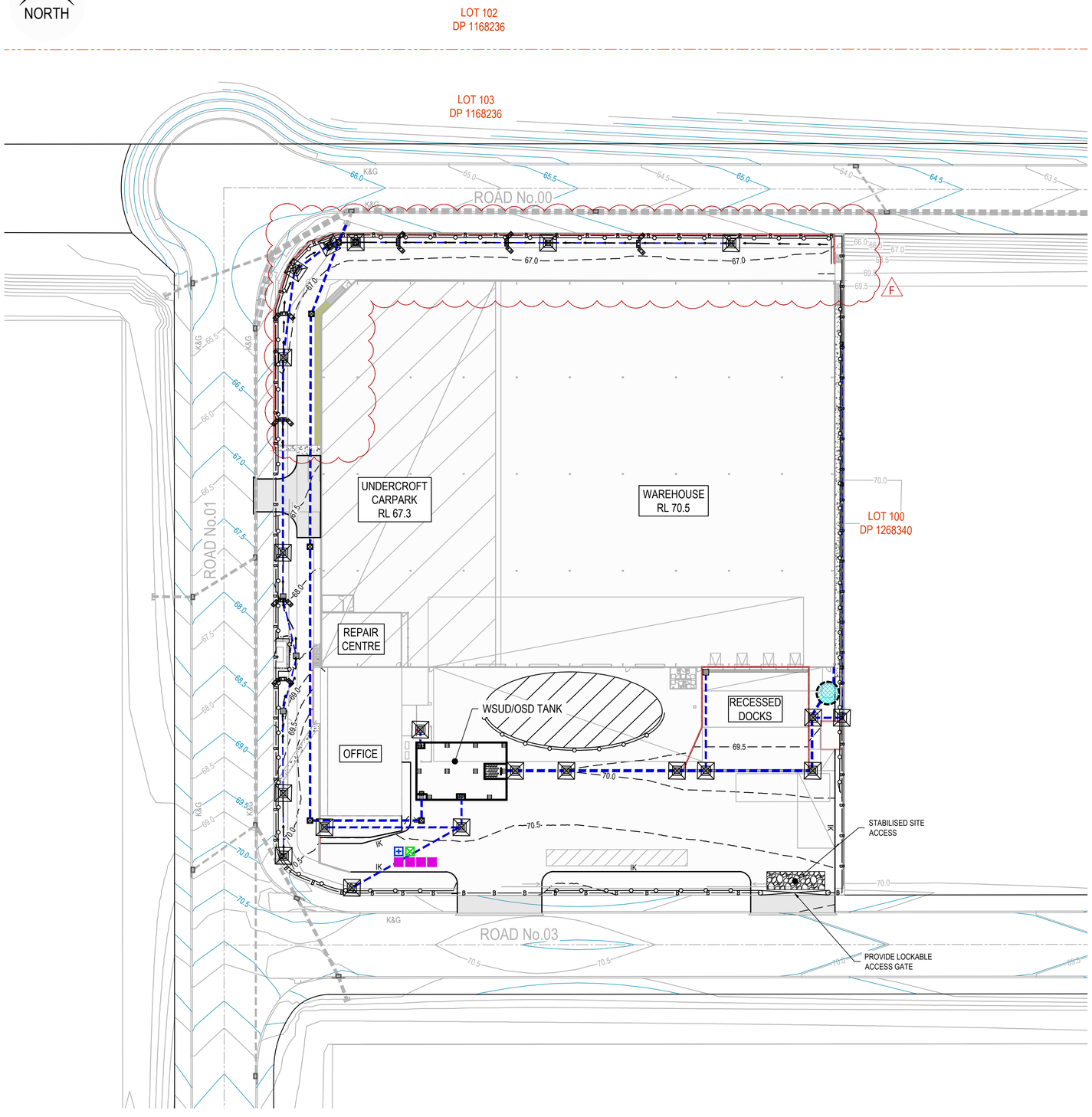
Equipment	Approx. Size/ Weight/Model	Sound Power Level (dBA) 100% Duty (inc Penalties)	Duty	Unweighted Octave Band Sound Power Levels, dB (includes Applicable Penalties)							
				63	125	250	500	1000	2000	4000	8000
Asphalt - Truck & Sprayer	-	106	100%	112	110	104	102	99	97	100	92
Backhoe	-	111	66%	113	107	103	111	104	103	98	94
Chainsaw – petrol*	4-5hp	114	50%	92	106	103	111	113	114	112	109
Compactor	-	106	100%	99	101	97	100	100	100	96	93
Compressor	-	109	25%	127	116	107	102	100	98	101	90
Crane - Fixed	-	113	50%	120	115	116	112	106	99	93	87
Crane - Franna	20 tonne	98	50%	108	104	99	91	92	91	84	78
Crane - Mobile	-	113	25%	115	114	108	109	108	108	99	90
Crane - Truck mounted	20 to 60 tonne	108	25%	112	109	107	105	103	100	95	87
Crusher – Rock*	-	118	100%	135	128	121	123	117	113	108	101
Dozer	CAT D9	116	75%	112	116	114	114	111	108	102	94
Dozer	CAT D10	121	75%	130	131	122	114	115	111	109	105
Elevated work platform - scissor lift	-	98	10%	100	97	94	94	94	91	85	83
Elevated work platform	-	97	10%	108	106	92	93	90	89	88	79
Excavator - tracked	3 tonne	90	75%	101	91	88	88	85	83	78	72
Excavator - tracked	6 tonne	95	75%	102	104	95	89	89	87	82	77
As above + hydraulic hammer*	6 tonne	115	75%	110	113	110	114	117	113	111	106
Excavator - tracked	10 tonne	100	100%	104	100	99	97	95	92	86	81
As above + hydraulic hammer*	10 tonne	118	75%	124	124	121	116	118	116	114	109
Excavator - tracked	20 tonne	105	75%	107	114	106	101	98	97	93	90
Excavator - tracked	30 tonne	110	75%	113	113	107	107	105	102	97	91

As above + hydraulic hammer*	-	122	75%	125	123	119	123	121	121	118	114
Excavator - tracked	40 tonne	115	75%	111	114	113	110	110	109	104	97
Grader	-	113	100%	114	113	109	105	110	104	100	91
Generator - diesel/petrol	6kW	103	100%	115	110	102	98	97	95	92	80
Generator - attenuated	30kW	92	100%	95	95	93	86	85	86	82	79
Grinder*	-	105	50%	86	80	81	89	99	106	102	102
Jackhammer	-	113	75%	108	97	93	96	96	101	109	110
Lighting Tower	-	80	100%	73	73	73	73	73	73	73	73
Lighting - Daymakers	-	98	100%	110	105	97	93	92	90	87	75
Light Vehicle - 4WD	-	103	10%	96	96	96	96	96	96	96	96
Line Marking Truck	-	108	100%	114	112	106	104	101	99	102	94
Loader - Front-end (wheeled)	23 tonne	112	75%	118	118	107	109	105	103	102	94
Loader - Skidsteer	1/2 tonne	107	75%	112	115	104	106	101	98	92	92
Loaders - Skidsteer	1 tonne	110	75%	113	104	108	108	104	103	97	91
Loader - Tracked	0 to 50 kW	115	75%	108	108	108	108	108	108	108	108
Loaders- Tracked	200 to 300 kW	121	75%	114	114	114	114	114	114	114	114
Pavement Laying Machine	-	114	100%	117	114	111	110	109	106	104	95
Pavement Profiler	-	117	100%	116	122	114	112	112	109	105	102
Pile Driver – Vibratory*	-	121	50%	121	120	117	120	122	120	115	105
Piling Rig - Bored	-	112	100%	112	120	109	108	106	104	96	89
Piling Rig Lmax – Impact*	-	151	n/a	137	138	143	152	152	148	143	138
Piling Rig Leq- Impact*	-	134	100%	124	125	128	135	135	132	127	121
Pump - Concrete	-	109	100%	115	107	101	102	104	104	97	89
Rattle gun (hand held)	-	104	50%	82	81	81	87	96	98	98	98
Roller - smooth drum	-	107	100%	114	112	102	100	102	100	96	90
Roller - large pad foot	-	109	100%	120	111	103	107	105	98	95	89
Roller – Vibratory*	10 tonne	109	100%	125	116	108	112	110	103	100	94

Saw – Concrete*	-	118	75%	120	122	114	114	113	114	118	116
Scraper/Grader	-	113	100%	120	122	113	107	107	105	100	95
Truck - Concrete	-	109	100%	112	103	95	98	99	107	89	84
Truck - Dump	15 tonne	110	10%	114	111	111	107	104	103	97	90
Truck - Medium rigid	20 tonne	103	10%	109	107	101	99	96	94	97	89
Truck - road truck/ truck and dog	30 tonne	108	10%	123	109	101	100	104	99	98	91
Truck - Vacuum (NDD or non-destructive digger)	-	109	75%	111	112	97	102	101	104	103	96
Tub Grinder/Mulcher	40-50hp	116	100%	105	106	110	110	112	111	105	96
Vibrator – Concrete*	-	113	100%	122	120	120	113	109	112	110	105
Water Cart	-	107	100%	106	107	101	105	99	100	96	91
Welding equipment	-	110	50%	104	105	106	105	106	103	98	93
Wrench - Impact	-	111	50%	81	84	89	91	95	101	107	107

Appendix C Erosion and Sediment Management Plan

NORTH



LEGEND

DESIGN CONTOUR AND LABEL	10.0
APPROVED BULK EARTHWORKS SURFACE (REF: SSD 5248)	20.0
ESTATE DESIGN CONTOUR AND LABEL (FSL)	30.0
STABILISED SITE ACCESS	
POSSIBLE STOCKPILE LOCATION	
SITE SECURITY FENCE	
SEDIMENT FENCE	
PIT INLET FILTER (GEOTEXTILE OR MESH & GRAVEL)	
CATCH DRAIN / DIVERSION SWALE	
GREEN WASTE BIN (1 x 2.5 x 2.5m)	
MASONRY WASTE BIN (1 x 2.5 x 2.5m)	
WASTE BINS x 4 - 1 x MIXED MATERIAL, 1 x PAPER / CARDBOARD, 1 x METAL & 1 x TREATED TIMBER	
STRAW / HAY BALE FILTER	

1. Erosion Hazard and Sediment Basins

Site Name: Lot 14 Chanel Warehouse

Site Location: 813 Wallgrove Road, Eastern Creek, NSW

Precinct/Stage:

Other Details:

Site area	Sub-catchment or Name of Structure						Notes
	1						
Total catchment area (ha)	1.707						
Disturbed catchment area (ha)	1.707						

Soil analysis (enter sediment type if known, or laboratory particle size data)

Sediment Type (C, F or D) if known:	D						From Appendix C (if known)
% sand (fraction 0.02 to 2.00 mm)							Enter the percentage of each soil fraction. E.g. enter 10 for 10%
% silt (fraction 0.002 to 0.02 mm)							
% clay (fraction finer than 0.002 mm)							
Dispersion percentage							E.g. enter 10 for dispersion of 10%
% of whole soil dispersible							See Section 6.3.3(e). Auto-calculated
Soil Texture Group	D						Automatic calculation from above

Rainfall data

Design rainfall depth (no of days)	5						See Section 6.3.4 and, particularly, Table 6.3 on pages 6-24 and 6-25.
Design rainfall depth (percentile)	75						
x-day, y-percentile rainfall event (mm)	19						
Rainfall R-factor (if known)							Only need to enter one or the other here
IFD: 2-year, 6-hour storm (if known)	10.2						

RUSLE Factors

Rainfall erosivity (*R*-factor)	2290						Auto-filled from above
Soil erodibility (*K*-factor)	0.038						RUSLE LS factor calculated for a high rill/interrill ratio.
Slope length (m)	100						
Slope gradient (%)	2						
Length/gradient (*LS*-factor)	0.44						
Erosion control practice (*P*-factor)	1.3	1.3	1.3	1.3	1.3	1.3	
Ground cover (*C*-factor)	1	1	1	1	1	1	

Sediment Basin Design Criteria (for Type D/F basins only. Leave blank for Type C basins)

Storage (soil) zone design (no of months)	2						Minimum is generally 2 months
Cv (Volumetric runoff coefficient)	0.25						See Table F2, page F-4 in Appendix F

Calculations and Type D/F Sediment Basin Volumes

Soil loss (t/ha/yr)	50						
Soil Loss Class	1						See Table 4.2, page 4-13
Soil loss (m^3/ha/yr)	39						Conversion to cubic metres
Sediment basin storage (soil) volume (m^3)	11						See Sections 6.3.4(i) for calculations
Sediment basin settling (water) volume (m^3)	81						See Sections 6.3.4(i) for calculations
Sediment basin total volume (m^3)	92						

NB for sizing of Type C (coarse) sediment basins, see Worksheet 3 (if required).

NOTE:

- SEDIMENT BASIN IS NOT REQUIRED FOR SUBDIVISION CATCHMENTS AS THE SOIL LOSS IS LESS THAN 150m^3/yr AS PER SECTION 6.3.2(D) IN THE BLUE BOOK
- THIS DRAWING PRESENTS TYPIFIES ONLY THE EROSION CONTROL PRINCIPLES REQUIRED FOR WORKS WITH THE PROPOSED DEVELOPMENT BOUNDARIES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DESIGN, CONSTRUCT AND MAINTAIN TEMPORARY EROSION CONTROL MEASURES TO COMPLY WITH THE REQUIREMENTS OF MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION, 4TH EDITION, 2004.

ISSUED FOR **DEVELOPMENT APPLICATION**

NOT FOR CONSTRUCTION

Rev	Drawn	Design	Check	Appd.	Date	Revision Description
F	DC	SA	PS	PS	22/01/2024	ARCHITECTURAL LAYOUT AMENDED
E	DL	SA	PAS	PAS	17/11/2023	CLIENT COMMENTS
D	SA	SA	PAS	PAS	27/10/2023	CLIENT COMMENTS ADDRESSED
C	SA	SA	PAS	PAS	11/10/2023	ARCHITECTURAL LAYOUT AMENDED
B	SA	SA	PAS	PAS	06/06/2023	ISSUED FOR DEVELOPMENT APPLICATION
A	SA	PAS	MM	PAS	04/05/2023	ISSUED FOR DEVELOPMENT APPLICATION

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Scale: 0 5 10 15 20 25 30 35 40 45 50
SCALE 1:500 (A1) SCALE 1:1000 (A3)

For: GAZCORP

By: ORION

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JAS-ANZ WWW.JAS-ANZ.ORG/REGISTER

Project: LOT 14A WAREHOUSE FACILITY

Title: SEDIMENT & EROSION CONTROL PLAN

Project No.	Set No.	Milestone	Plan	Revision
22-0256	01	DA	100	F

GENERAL NOTES:

ALL EROSION AND SEDIMENT CONTROL MEASURES, INCLUDING REVEGETATION AND STORAGE OF SOIL AND TOPSOIL, SHALL BE IMPLEMENTED TO THE REQUIREMENTS OF THE "ENVIRONMENT PROTECTION AUTHORITY" AND "DEPT OF LAND AND WATER CONSERVATION". MEASURES OUTLINED IN THE SEDIMENT & EROSION CONTROL PLAN MUST BE IMPLEMENTED PRIOR TO AND MAINTAINED DURING AND AFTER THE CONSTRUCTION WORKS.

TOPSOIL FROM ALL AREAS TO BE DISTURBED SHALL BE STOCKPILED AND LATER RESPREAD TO AID REVEGETATION IN THOSE AREAS.

ALL DRAINAGE WORKS SHALL BE CONSTRUCTED AND STABILIZED AS EARLY AS POSSIBLE DURING DEVELOPMENT.

ALL TAIL-OUT DRAINS SHALL BE GRASSED AND TRAPEZOIDAL IN SECTION. STRAW BALES SHALL BE PLACED AS A SEDIMENT CONTROL DEVICE WHERE REQUIRED.

VEHICULAR TRAFFIC SHALL BE CONTROLLED DURING DEVELOPMENT CONFINING ACCESS WHERE POSSIBLE TO PROPOSED OR EXISTING ROAD ALIGNMENTS. AREAS TO BE LEFT UNDISTURBED SHALL BE MARKED OFF.

DISTURBANCE OF VEGETATION SHALL BE LIMITED TO FILL AREAS, ROADWAYS AND DRAINAGE LINES. NO LOT GRADING SHALL BE CARRIED OUT IN UNDISTURBED AREAS WITHOUT CONSULTATION WITH COUNCIL'S ENGINEER.

ALL DISTURBED AREAS SHALL BE REVEGETATED WITHIN 14 WORKING DAYS FROM THE CONCLUSION OF LAND SHAPING.

MINIMISE DUST BY WATERING WHEN REQUIRED.

STOCKPILE NOTES:

SPOIL AND TOPSOIL STOCKPILES SHALL BE LOCATED AWAY FROM DRAINAGE LINES AND AREAS WHERE WATER MAY CONCENTRATE.

IF STOCKPILES ARE TO BE IN PLACE FOR LONGER THAN 14 DAYS THEN THEY SHALL BE STABILIZED BY COVERING WITH A MULCH OR WITH TEMPORARY

FOLLOWING CONSTRUCTION, TOPSOIL SHALL BE RESPREAD TO A MINIMUM DEPTH OF 100mm ON THE BARE SOIL SURFACES AND REVEGETATE.

ALL STOCKPILES TO BE (MAX) 2m HIGH AND PROTECTED WITH SILT FENCE.

SEDIMENTATION CONTROL DEVICES:

ALL STRAW BALES SHALL BE BOUND WITH WIRE. STRAW BALES SHALL BE PLACED END TO END IN A SINGLE ROW AND EMBEDDED INTO THE SOIL TO A DEPTH OF 100mm. EACH BALE SHALL BE SECURELY ANCHORED WITH TWO STEEL STAKES DRIVEN 450mm INTO THE GROUND AND LOCATED ON THE BALE CENTRE LINE.

SILT FENCES SHALL BE CONSTRUCTED BY STRETCHING A FILTER FABRIC (PROPEX OR SIMILAR) BETWEEN POSTS AT 2m (3m MAX) CENTRES. FABRIC SHALL BE BURIED 150mm ALONG ITS LOWER EDGE.

SPECIAL NOTES:

LOCATION AND EXTENT OF SOIL AND WATER MANAGEMENT DEVICES IS DIAGRAMMATIC ONLY AND THE ACTUAL REQUIREMENTS SHALL BE CONFIRMED ON SITE.

THIS PLAN IS TO BE READ IN CONJUNCTION WITH THE GUIDELINES SET OUT IN "MANAGING URBAN STORMWATER SOILS AND CONSTRUCTION " - 4TH EDITION AND THE ACCOMPANYING ROAD AND DRAINAGE PLANS.

CONFORMITY WITH THIS PLAN SHALL IN NO WAY REDUCE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT AGAINST WATER DAMAGE DURING THE COURSE OF THE CONTRACT.

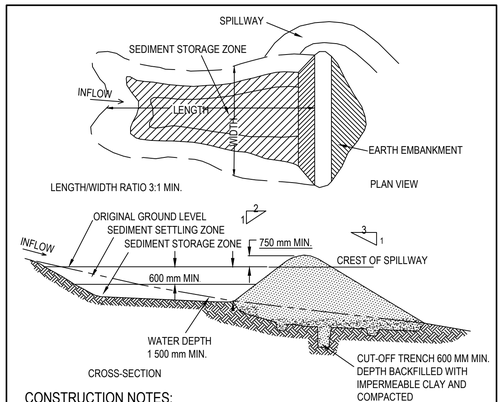
MANAGEMENT DEVICES SHALL BE MAINTAINED ON A REGULAR BASIS. WHERE CLEANING IS REQUIRED, THE SEDIMENT SHALL BE REMOVED TO A POINT NOMINATED BY THE ENGINEER.

PRIOR TO THE COMMENCEMENT OF ANY EARTHWORKS, AND AFTER THE ROAD CENTRELINES HAVE BEEN PEGGED AND/OR PERMANENTLY MARKED, THE SITE MUST BE INSPECTED BY COUNCIL'S REPRESENTATIVE AND THE APPLICANT'S REPRESENTATIVE TO IDENTIFY AND APPROPRIATELY

a) THE TREES TO BE RETAINED.
b) ALL TREES TO BE LEFT UNDISTURBED AND TO BE CORDONED OFF.

NO TREES SHALL BE REMOVED WITHOUT COUNCIL'S CLEARANCE.

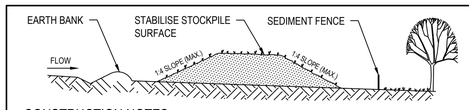
MANAGEMENT DEVICES TO REMAIN UNTIL THE END OF THE MAINTENANCE PERIOD.



CONSTRUCTION NOTES:

1. REMOVE ALL VEGETATION AND TOPSOIL FROM UNDER THE DAM WALL AND FROM WITHIN THE STORAGE AREA.
2. CONSTRUCT A CUT-OFF TRENCH 500 MM DEEP AND 1,200 MM WIDE ALONG THE CENTRELINE OF THE EMBANKMENT EXTENDING TO A POINT ON THE GULLY WALL LEVEL WITH THE RISER CREST.
3. MAINTAIN THE TRENCH FREE OF WATER AND RECOMPACT THE MATERIALS WITH EQUIPMENT AS SPECIFIED IN THE SWMP TO 95 PER CENT STANDARD PROCTOR DENSITY.
4. SELECT FILL FOLLOWING THE SWMP THAT IS FREE OF ROOTS, WOOD, ROCK, LARGE STONE OR FOREIGN MATERIAL.
5. PREPARE THE SITE UNDER THE EMBANKMENT BY RIPPING TO AT LEAST 100 MM TO HELP BOND COMPACTED FILL TO THE EXISTING SUBSTRATE.
6. SPREAD THE FILL IN 100 MM TO 150 MM LAYERS AND COMPACT IT AT OPTIMUM MOISTURE CONTENT FOLLOWING THE SWMP.
7. CONSTRUCT THE EMERGENCY SPILLWAY. 8. REHABILITATE THE STRUCTURE FOLLOWING THE SWMP.

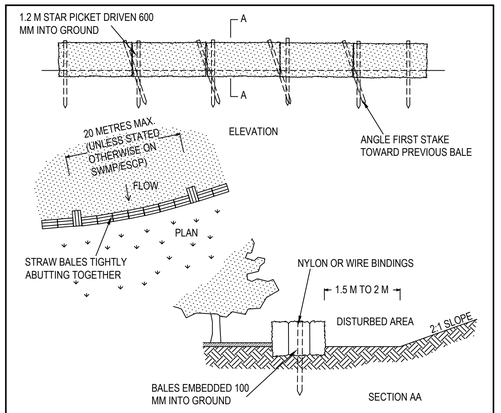
EARTH BASIN - WET
(APPLIES TO 'TYPE D' AND 'TYPE F' SOILS ONLY) SD 6-4



CONSTRUCTION NOTES:

1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. ALL STOCKPILES ARE TO BE LOCATED AND PLACED IN ACCORDANCE WITH THE CONTRACTOR'S EROSION AND SEDIMENT CONTROL PLAN.
5. WHERE STOCKPILES ARE TEMPORARY (<14 DAYS) NO STABILISATION IS REQUIRED. REVIEW THE ADEQUACY OF SEDIMENT CONTROLS IF RAINFALL IS PREDICTED.
6. WHERE STOCKPILES ARE TEMPORARY (<14 DAYS) THE FOLLOWING ADDITIONAL CONTROLS ARE REQUIRED:
   -MAXIMUM BATTER SLOPE REDUCED TO 1:4
   -CONSTRUCT A CONTOUR DRAIN ON THE LOW SIDE OF THE STOCKPILE, AND DISCHARGING THROUGH A STRAW BALE OR 200mm HIGH GRAVEL DAM
   -ESTABLISH GRASS COVER TO SURFACE OF STOCKPILE WITHIN 14 DAYS, USING HYDROMULCH WITH A 75:25 MIX OF SEASONAL AND PERMANENT GRASS SEEDS, AND A STRAW MULCH THICKNESS OF NO LESS THAN 5mm.
7. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2 METRES DOWNSLOPE.

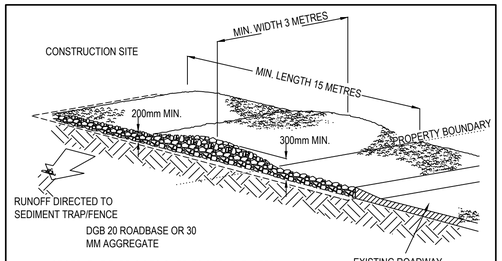
STOCKPILES SD 4-1



CONSTRUCTION NOTES:

1. CONSTRUCT THE STRAW BALE FILTER AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE.
2. PLACE BALES LENGTHWISE IN A ROW WITH ENDS TIGHTLY ABUTTING. USE STRAW TO FILL ANY GAPS BETWEEN BALES. STRAWS ARE TO BE PLACED PARALLEL TO GROUND.
3. ENSURE THAT THE MAXIMUM HEIGHT OF THE FILTER IS ONE BALE.
4. EMBED EACH BALE IN THE GROUND 75 mm TO 100 mm AND ANCHOR WITH TWO 1.2 METRE STAR PICKETS OR STAKES. ANGLE THE FIRST STAR PICKET OR STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BALE.DRIVE THEM 600 mm INTO THE GROUND AND, IF POSSIBLE, FLUSH WITH THE TOP OF THE BALES. WHERE STAR PICKETS ARE USED AND THEY PROTRUDE ABOVE THE BALES, ENSURE THEY ARE FITTED WITH SAFETY CAPS.
5. WHERE A STRAW BALE FILTER IS CONSTRUCTED DOWNSLOPE FROM A DISTURBED BATTER, ENSURE THE BALES ARE PLACED 1 TO 2 METRES DOWNSLOPE FROM THE TOE.
6. ESTABLISH A MAINTENANCE PROGRAM THAT ENSURES THE INTEGRITY OF THE BALES IS RETAINED - THEY COULD REQUIRE REPLACEMENT EACH TWO TO FOUR MONTHS.

STRAW BALE FILTER SD 6-7

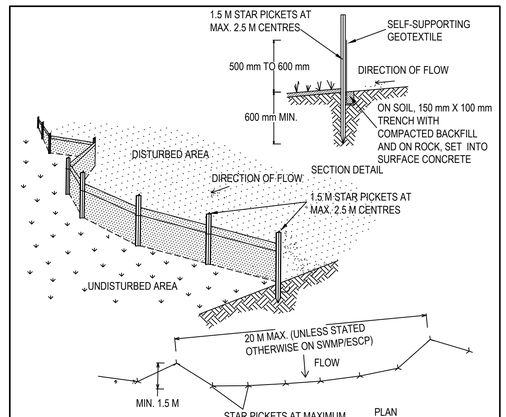


GEOTEXTILE FABRIC DESIGNED TO PREVENT INTERMIXING OF SUBGRADE AND BASE MATERIALS AND TO MAINTAIN GOOD PROPERTIES OF THE SUB-BASE LAYERS. GEOFABRIC MAY BE A WOVEN OR NEEDLE-PUNCHED PRODUCT WITH A MINIMUM CBR BURST STRENGTH (AS3706.4-90) OF 2900 N

CONSTRUCTION NOTES:

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15 METRES LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3m WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE

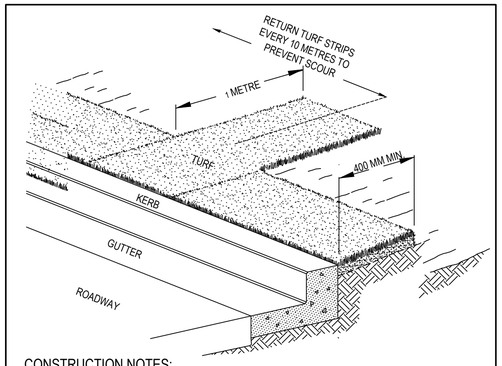
STABILISED SITE ACCESS SD 6-14



CONSTRUCTION NOTES:

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND AT 2.5m INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

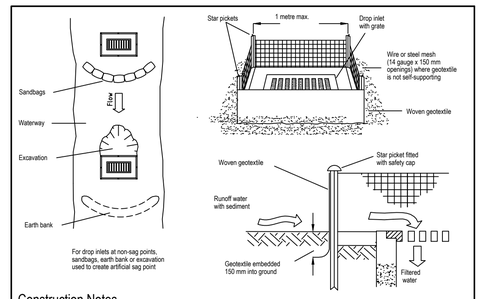
SEDIMENT FENCE SD 6-8



CONSTRUCTION NOTES:

1. INSTALL A 400mm MINIMUM WIDE ROLL OF TURF ON THE FOOTPATH NEXT TO THE KERB AND AT THE SAME LEVEL AS THE TOP OF THE KERB.
2. LAY 1.4 METRE LONG TURF STRIPS NORMAL TO THE KERB EVERY 10m.
3. REHABILITATE DISTURBED SOIL BEHIND THE TURF STRIP FOLLOWING THE ESCP/SWMP.

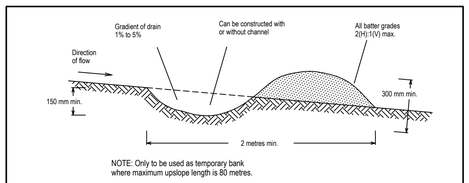
KERBSIDE TURF STRIP SD 6-13



Construction Notes

1. Fabricate a sediment barrier made from geotextile or straw bales.
2. Follow Standard Drawing 6-8 for installation procedures for geofabric. Reduce the picket spacing to 1 metre centres.
3. In waterways, artificial sag points can be created with sandbags or earth banks as shown in the drawing.
4. Do not cover the inlet with geotextile unless the design is adequate to allow for all waters to bypass it.

GEOTEXTILE INLET FILTER SD 6-12



NOTE: Only to be used as temporary bank where maximum upslope length is 80 metres.

Construction Notes

1. Build with gradients between 1 percent and 5 percent.
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V shaped.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction.

EARTH BANK (LOW FLOW) SD 5-5

ISSUED FOR **DEVELOPMENT APPLICATION**
NOT FOR CONSTRUCTION

Rev	Drawn	Design	Check	Appd.	Date	Revision Description
A	SA	PAS	MM	PAS	04/05/2023	ISSUED FOR DEVELOPMENT APPLICATION

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Scale:

For: GAZCORP

By: ORION

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Project: LOT 14A WAREHOUSE FACILITY

Title: SEDIMENT & EROSION CONTROL NOTES & DETAILS

Project No.	Set No.	Milestone	Plan	Revision
22-0256	01	DA	101	A

Appendix D Waste Management Plan

Lot 14A, 813-913 Wallgrove Road, Eastern Creek

Industrial Development

CONSTRUCTION & DEMOLITION WASTE MANAGEMENT PLAN

11/07/2024
Report No. 5364
Revision D

Client

Wallgrove Road Industrial Investment Pty Ltd
Level 7, 33 York Street Sydney

Architect

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SCOPE

A Waste Management Plan (WMP) is to be submitted with all development applications for new and change-of-use developments that will generate construction, demolition and operational waste.

This WMP applies only to the **construction** and **demolition** phases of the proposed development. The requirements outlined in this WMP must be implemented on site during construction and demolition and may be subject to review upon any change to the design. Construction and demolition waste management requirements will also be subject to review as part of the Construction Management Plan.

The waste management for the **operational** phase of the development is not addressed in this report. An operational WMP will need to be provided separately.

REVISION REFERENCE

Revision	Date	Prepared by	Reviewed by	Description
A	12/06/2024	E. Abetian	J. Parker	Draft
B	19/06/2024	J. Parker	E. Saidi	Amendment
C	24/06/2024	J. Parker	E. Saidi	Final
D	11/07/2024	J. Parker	E. Saidi	Amendment

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DEVELOPMENT APPLICATION CONSENT CONDITIONS

The DA conditions that relate to the Construction and Demolition Waste Management Plan have been detailed below, along with confirmation of where they are addressed in this report.

Condition No.	Details	Where this is addressed in this report
B.48 – Construction and Demolition Waste Management	Prior to the commencement of construction of the development, the Applicant must prepare a Construction and Demolition Waste Management Plan for the development to the satisfaction of the Planning Secretary. The Plan must form part of a CEMP in accordance with condition C2 and must: (a) detail the quantities of each waste type generated during construction and the proposed reuse, recycling and disposal locations; and (b) be implemented for the duration of construction works	Section 4.0 – *Site Specific Waste Management Provisions* (Specifically Sections 4.1-4.3)

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1 ACKNOWLEDGEMENT OF COUNTRY

Elephants Foot Consulting acknowledges that every project we work on takes place on First Peoples Land. We recognise Aboriginal and Torres Strait Islander People as Traditional Custodians of this land. We pay respect to ancestors and Elders, past and present.

2 INTRODUCTION

2.1 Background

EFC has been tasked to prepare the following waste management plan for Wallgrove Road Industrial Investment Pty Ltd for the management of construction and demolition waste generated by the Industrial Development located at Lot 14A, 813-913 Wallgrove Road, Eastern Creek.

Waste management strategies and auditing are a requirement on construction sites to promote strong sustainability outcomes. It is EFC's belief that a successful waste management strategy contains three key objectives:

i. ***Promote responsible source separation*** to reduce the amount of waste that goes to landfill, by implementing convenient and efficient waste management systems.

ii. ***Ensure adequate waste provisions and robust procedures*** that will cater for potential changes during the operational phase of the development.

iii. ***Comply*** with all relevant Australian Standards, council codes, policies, and guidelines.

2.2 Site Summary

The proposed development falls under the LGA of Fairfield City Council. The site is currently not occupied.

The proposal consists of a Warehouse Facility with associated office space, carparking and loading area with a total building area of 10372 m^2.

All figures and calculations are based on area schedules as advised by our client and shown on architectural drawings.

2.3 Site Location

The site is located at Lot 14A, 813-913 Wallgrove Road, Eastern Creek, as shown in the figure below. The site links to Wallgrove Road via new estate roads.

Figure 1: Site Plan



Source: SBA Architects, Locality Plan

2.4 Legislation and Guidance

Information provided in this WMP comes from a wide range of construction and demolition waste management guidance at the local, state, and federal levels. The primary sources of guidance include:

- Fairfield Citywide Development Control Plan 2013
- Australian Government, Department of Sustainability, Environment, Water, Population and Communities. *Construction and Demolition Waste Guide – Recycling and Re-use Across the Supply Chain*. (2014, November).
- NSW Waste Avoidance and Resource Recovery (WARR) Strategy 2014-2021
- NSW Waste Classification Guidelines 2014
- Australia's National Waste Policy 2018

2.5 Waste Diversion Targets

To quantify and measure this sustainable approach to waste management, the NSW WARR Strategy 2014-2021 outlines specific targets in order to clarify the state's long-term goals and priorities. These targets were supported by industry, community, state, and local governments during the Strategy's consultation phase, and include:

- Increasing construction and demolition recycling rates to 80%
- Increasing waste diverted from landfill to 75%
- Reducing litter by 40%
- Reduce illegal dumping incidents by 30%

2.6 Report Objectives

Throughout this report, EFC aims to encourage where practical, having regard to the design, the nature of the material to be demolished and the site constraints, the following waste management practices for the duration of the demolition and construction stages of the development:

- Re-use of excavated material on-site and disposal of any excess to an approved site;
- Green waste mulched and re-used on-site as appropriate, or recycled off-site;
- Bricks, tiles and concrete re-used on-site as appropriate, or recycled off-site;
- Plasterboard waste returned to supplier for recycling;
- Framing timber re-used on site or recycled off-site;
- Windows, doors and joinery recycled off-site;
- All asbestos, hazardous and/or intractable wastes are to be disposed of in accordance with WorkCover Authority and EPA requirements;
- Plumbing, fittings and metal elements recycled off site;
- Ordering accurate quantities of materials and prefabrication of materials where possible;
- Re-use of formwork;
- Careful source separation of off-cuts to facilitate re-use, resale or recycling.

2.7 Limitations

This report has been prepared by EFC for the sole purpose of providing a Construction and Demolition Waste Management Plan (C&D WMP) to support a development application. The report is provided with the following limitations:

- This report is for the sole use of Wallgrove Road Industrial Investment Pty Ltd (including their officers, employees and advisers) and should not be used or relied upon by any other party without prior written consent from EFC;
- Drawings, estimates and information contained in this report have been prepared by analysing information, plans and documents supplied by the client, or nominated third parties. Any assumptions based on the information contained in the report are outside the control of EFC;
- The calculations presented in the report are estimates only. The amount of waste generated will be dependent on the approach taken by site management, including the levels of training and education offered to site staff and the actions and attitudes of staff themselves.
- The site manager will make adjustments as required based on actual waste volumes (e.g. if waste volumes are greater than estimated, then waste storage capacity and collection frequencies will increase accordingly) and increase the amount of waste storage and collection frequency accordingly;
- The report has been prepared with all due care and attention; however, no assurance or representation is made that the WMP reflects the actual outcome. EFC will not be liable to for any plans or outcomes that are not suitable for purpose, whether as a result of incorrect or unsuitable information or otherwise;
- EFC offer no warranty or representation of accuracy or reliability of the WMP unless specifically stated;
- Examples of equipment provided in this report should be reviewed by the appropriate equipment supplier who will assess the correct equipment for supply. Reference to any other business or product besides EFC and EFC equipment is for information purposes only, and is not officially endorsed or recommended by EFC.

3 GENERAL WASTE MANAGEMENT PROVISIONS

3.1 Stakeholder Roles and Responsibilities

All stakeholders have a responsibility for their own environmental performance and compliance with all legislation.

The Construction Contractor will be responsible for implementing this WMP, although site staff have a responsibility to ensure their own compliance at all times. Where possible, an Environmental Management Representative (EMR) should also be appointed for the project to help ensure compliance. The following table demonstrates the primary roles and responsibilities of the respective stakeholders:

Table 1: Stakeholder Roles and Responsibilities

Roles	Responsibilities
Site Management	• Organise waste collections as required; • Organise replacement or maintenance requirements for bins; • Investigate and ensure prompt clean-up of illegally dumped waste materials; • Notify the Principal Certifying Authority (Council) of the appointment of waste removal, transport or disposal contractors for waste tracking purposes; • Ensure waste related equipment is well maintained; • Ensue accurate calculations so only the required amount of materials are ordered; • Ensure segregation of materials to maximise reuse and recycling; • Check waste sorting and storage areas routinely for cleanliness, hygiene, contamination and OH&S issues; • Ensure all monitoring and audit results are well documented and are carried out as specified in the WMP; • Ensure effective signage, communication and education is provided to site staff/contractors; • Provide staff/contractors with equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management activities; • Assess any manual handling risks and prepare a manual handling control plan for waste and bin transfers;
Site Staff/Contractors	• Ensure adequate separation and disposal of waste streams in compliance with the WMP; • Abide by all relevant OH&S legislation, regulations, and guidelines; • Attend training and inductions as required; • Clean and transport bins as required; • Carry out daily visual inspections of waste storage areas; • Organise, maintain and clean the waste storage areas;
Environmental Management Representative (EMR)	• Approach and establish the local commercial reuse of materials where reuse on-site is not practical; • Establish separate skips and recycling bins for effective waste segregation and recycling purposes; • Ensure staff and contractors are aware of site requirements; • Provision of training of the requirements of the WMP and specific waste management strategies adopted for the development; • Contaminated waste management and approval of off-site waste transport, disposal locations and check licensing requirements; • Arrange assessment of suspicious potentially contaminated materials, hazardous materials and liquid waste; • Monitor, inspect and report requirements.
Waste Collection Contractors	• Provide a reliable and appropriate waste collection service; • Provide feedback to site management regarding contamination of waste streams; • Work with site management to customise waste systems where possible.

3.2 Monitoring and Reporting

It is recommended that the following measures be taken to improve demolition and construction waste management in future and to provide more reliable waste generation figures:

- Compare projected waste quantities with actual waste quantities produced.
- Conduct waste audits of current projects (where feasible).
- Note waste generated and disposal methods.
- Look at past waste disposal receipts.
- Record this information to help in waste estimations for future waste management plans.

Records of waste volumes recycled, reused or contractor removed are to be maintained. Additionally, dockets/receipts verifying recycling/disposal in accordance with the WMP must be kept and presented to Council or the EPA if and when required.

Daily visual inspections of waste storage areas will be undertaken by site personnel and inspection checklists/logs recorded for reporting to the Site Manager on a weekly basis or as required. These inspections will be used to identify and rectify any resource and waste management issues.

Waste audits are to be carried out by the Building Contractor to gauge the effectiveness and efficiency of waste segregation procedures and recycling/reuse initiatives. Where audits show that the above procedures are not carried out effectively, additional staff training should be undertaken and signage re-examined.

All environmental incidents are to be dealt with promptly to minimise potential impacts. An incident register must be maintained on-site at all times and should include the contact details of the 24-hour EPA Pollution line. Likely incidents to occur during the construction and demolition stage of the development may involve fuel or chemical spills, seepage or mishandling of hazardous waste, or unlicensed discharge of pollutants to environment.

3.3 Opportunities for Reuse and Recycling

There are many opportunities to reduce the volume of waste generated during demolition and construction. Adaptive reuse of building materials should be encouraged, with significant consideration given to methods of reusing or recycling materials onsite as well as sourcing used or recycled materials from elsewhere to be used on site.

The site should facilitate where practical reuse and recycling by 'deconstruction', whereby various materials are carefully dismantled and sorted. Any unwanted reusable materials can be taken to a second-hand building centre, reducing waste disposal costs.

Materials that are individually wrapped should also be avoided where possible, with preference given for materials that can be delivered in returnable packaging such as timber pallets.

The table below gives examples of potential reuse and recycling options for the materials likely to be used/generated in construction and demolition at this development:

Table 2: Potential Reuse/Recycling Options for Construction Materials

Material	Reuse/Recycling Potential
Asphalt	Hot in-place recycling or reprocessed into Reclaimed Asphalt Pavement (RAP).
Bricks	Cleaned and/or rendered for reuse, crushed for fill, sold or provided to a recycled materials yard
Cardboard Packaging	Recycled at a paper/cardboard recycling facility
Carpet	Cleaned and reused for the same purpose, reused in landscaping or garages/sheds, recycled at an appropriate processing facility
Concrete, Masonry, Spoil	Reused on-site as fill, levelling or crushed for road base
Doors, Windows, Fittings	Reused in new or existing buildings or sent to second-hand supplier
Glass	Recycled at a glass recycling facility, aggregate for concrete production, crushed for termite barrier, reused as glazing
Green Waste (Organics)	Mulched, composted for reuse, trees chipped for use in landscaping or removed carefully and reused onsite or sold
Hardwood Beams	Reused as floorboards, fencing, furniture or sent to second-hand timber supplier
Insulation Material	Reprocessed to remove impurities and reused for the same purpose or as off-cuts, compressed for ceiling tile manufacture
Metal, Steel/Copper Pipe	Recycled at a metal recycling facility, melted into secondary materials for structural steel, roofing, piping etc. copper sold for re-use
Other Timber	Reused in formwork, ground into mulch for garden or sent to second-hand timber supplier
Plasterboard	Crushed for reuse in manufacture of new plasterboard, returned to supplier or used in landscaping
Plastics	Reused as secondary materials for playgrounds, park benches etc.
Roof Tiles	Cleaned and reused, crushed for reuse for landscaping and driveways or sold or provided to a recycled materials yard
Soil	Stockpiled onsite for reuse as fill
Synthetic & Recycled Rubber	Reused for the same purpose or reprocessed for use in manufacture/construction of safety barriers, speed humps
Topsoil	Stockpiled onsite for reuse in landscaped areas

3.4 Management of Hazardous Waste Materials

For the purpose of this report, hazardous waste materials include any waste that poses a hazard or potential harm to human health or the environment, particularly asbestos waste and asbestos containing material (ACM). The general advice provided in this report is superseded by any specific hazardous materials or remediation control plans prepared for the project.

During the construction phase of the development, there must be a commitment to engage qualified and certified contractors to remove all contaminated/hazardous materials (e.g. asbestos) and dispose of all contaminated/hazardous waste at an appropriately licenced facility, where applicable.

In the event that any contaminated or hazardous materials are unexpectedly uncovered during demolition or excavation works, the Site Manager is to stop work immediately in that location and contact the relevant hazardous waste contractor prior to further works being undertaken in the area.

The following general mitigation measures will apply:

- Contaminated material stockpiled on site will be minimised as far as possible and should be stored on HDPE liner, in a bunded location which is protected from inclement weather;
- Sediment fences should be installed around the base of stockpiles and the stockpiles should be covered. Where excavated material requires validations, samples should be taken for NATA laboratory testing as per the requirements of the contamination assessment prior to restoration works, backfilling exercises and disposal;
- Any trucks carrying contaminated materials should be securely and completely covered immediately after loading the materials (to prevent windblown emissions and spillage) and must be licensed by the NSW Environmental Protection Authority (EPA);
- Decontamination of all equipment prior to demobilisation from the site is important so that contaminated materials are not spread off-site.

3.5 Management of Excavation Waste

For the purpose of this report, excavation waste consists of any unwanted material generated from excavation activities such as a reduced level dig, site preparation and levelling and the excavation of foundations, basements, tunnels and service trenches. This will typically consist of soil and rock. The general advice provided in this report is superseded by any specific hazardous materials or remediation control plans prepared for the project.

All excavated material generated on this site may be re-used in the landscaping or used on other sites as fill material, provided no contamination is present. If sandstone is found to be present, this may be sold or incorporated into the building design.

The following measures and safeguards will apply to the development for excavated material:

- Wherever practical, excavation material will be reused as part of the development;
- Excavation material that is not natural (virgin) material will be transported to an approved landfill site or off-site recycling depot;
- A waste classification assessment of the fill material should be undertaken prior to it being acceptable for waste disposal purposes;
- Transportation routes for excavation material removed from site will be identified and used.

4 SITE SPECIFIC WASTE MANAGEMENT PROVISIONS

4.1 Demolition Waste Volumes and Management

The demolition stage of the development provides the greatest opportunity for waste minimisation and resource recovery. The first thing that should be considered is whether it is possible to reuse existing buildings or parts of buildings for the proposed use. With careful on-site sorting and storage and by staging work programs it is possible to reuse many materials, either on or off-site.

Where possible, materials will be reused, such as crushing concrete for use as clean fill. However, the majority of the components of the building will either be reused for the same purpose or disposed of offsite.

A demolition contractor will be engaged during this phase of the project. The contractor will be responsible for ensuring all demolition activities are planned and undertaken in accordance with relevant waste minimisation policies and DA requirements.

The table below illustrates the anticipated volumes of materials generated at this development during the demolition stage. The calculations for the excavation and green waste volumes have been attained by a desktop review. Our client has reviewed these estimations are to their satisfaction and acknowledges volumes may be updated when more accurate data can be determined by the relevant party.

Table 3: Demolition Waste Conversion

Material	Volume (m3)	*Tonnes (t)	**Appx. Percentage Recovered
Excavation Material	1520	1520	99.8%
Totals	**1520**	**1520**	

**The conversion of materials from volume to tonnes is based on the information provided in a consultation paper published by WA Department of Water and Environmental Regulation <https://www.der.wa.gov.au/images/documents/our-work/consultation/current-consultation/Consultation%20Sheet%20-Approved%20method%20for%20recyclers.pdf>*

***The percentage of recycled demolition waste is estimated by BINGO, and is based on the average quantities of materials received and recovered at their facilities.*

The table below illustrates how the demolition materials will be managed, and estimates percentage of materials diverted from landfill.

Table 4: Demolition Waste Management

			How Waste will be Managed			
Type of Material	**Less than 10m³**	**Estimated Tonnage**	**Reuse On-Site**	**Recycle**	**Landfill**	**Estimated Tonnage of Material Diverted from Landfill**
Excavation Material	☐	**1520**	☒	☒	☒	**1516.2**
Total		**1520**	**Total**			**1516.2**
Total Diversion of Waste from Landfill (Minimum 80%)						**99.6%**

4.2 Construction Waste Volumes and Management

Waste generated during the construction stage of the development will be managed by the principal contractor and sub-contractors, with materials being reused and recycled wherever possible. Where neither reuse nor recycling are possible, waste will be disposed of as general waste at a licensed landfill site.

Recyclable material generated during construction will largely consist of off-cuts and discarded bricks, timber, steel, concrete, tiles, plasterboard, and piping, as well as packaging materials.

It is important to note that source separation of waste on-site may offer cost savings when compared to the disposal of mixed waste at landfill sites. Further cost savings may be achieved through the use of reusable and recycled-content materials and by reusing materials salvaged from the demolition stage of the development.

The table below illustrates the anticipated volumes of materials generated at this development during the construction stage. The volumes of construction materials in the following table are sourced from estimates outlined in the Camden Council's *Waste Management Guidelines* 2019 and the calculations for the excavation and green waste volumes have been attained by a desktop review. Our client has reviewed these estimations are to their satisfaction and acknowledges volumes may be updated when more accurate data can be determined by the relevant party.

Table 5: Construction Waste Conversion

Material	Volume (m3)	*Tonnes (t)	**Approx. Percentage Recovered
Bricks	156	187.2	100%
Concrete	259	388.5	100%
Timber	207	39.3	33%
Metals	570	285.0	100%
Other waste	1037	311.1	40%
Totals	**2229**	**1211.1**	

**The conversion of materials from volume to tonnes is based on the information provided in a consultation paper published by WA Department of Water and Environmental Regulation <https://www.der.wa.gov.au/images/documents/our-work/consultation/current-consultation/Consultation%20Sheet%20-Approved%20method%20for%20recyclers.pdf>*

***The percentage of recycled waste is estimated by BINGO, and is based on the average quantities of materials received and recovered at their facilities.*

The table below illustrates how the construction materials will be managed, and estimates percentage of materials diverted from landfill.

Table 6: Construction Waste Management

			How Waste will be Managed			
Type of Material	**Less than 10m³**	**Estimated Tonnage**	**Reuse On-Site**	**Recycle**	**Landfill**	**Estimated Tonnage of Material Diverted from Landfill**
Bricks	☐	**187.2**	☐	☒	☐	**187.2**
Concrete	☐	**388.5**	☐	☒	☐	**388.5**
Timber	☐	**39.3**	☐	☒	☒	**13.0**
Metals	☐	**285.0**	☐	☒	☐	**285.0**
Other	☐	**311.1**	☐	☒	☒	**124.4**
Total		**1211.1**	**Total**			**998.1**
Total Diversion of Waste from Landfill (Minimum 80%)						**82.4%**

4.3 Recycling Directory

Construction and demolition materials removed from site will need to be managed in accordance with the provisions of current legislation and may include segregation by material type classification in accordance with NSW EPA (2014) *Waste Classification Guidelines, Part 1: Classifying Waste* and disposal at facilities appropriately licensed to receive the particular materials.

Please find the below recommendations for recycling drop off locations for all materials likely to be generated at this development. Only the nearest locations are provided. See www.businessrecycling.com.au for additional locations:

Table 7: Recycling Directory

	Business Name	Suburb	Distance (km)
Excavation Material	BINGO Industries Recycling Ecology Park	Eastern Creek	2.5
	Eco Resource Recovery Pty Ltd - ECORR	Wetherhill Park	5.6
	AKA Civil	Rosehill	6.2
Green Waste	SUEZ Eastern Creek Customer Service	Eastern Creek	0.4
	BINGO Industries Recycling Ecology Park	Eastern Creek	2.5
	Benedict Recycling	Belrose	16.8
Bricks	BINGO Industries Recycling Ecology Park	Eastern Creek	2.5
	Eco Resource Recovery Pty Ltd - ECORR	Wetherhill Park	5.6
	AKA Civil	Rosehill	6.2
Tiles	BINGO Industries Recycling Ecology Park	Eastern Creek	2.5
	AKA Civil	Rosehill	6.2
	Sustainable Resource Centre	Wetherhill Park	6.9
Concrete	BINGO Industries Recycling Ecology Park	Eastern Creek	2.5
	Eco Resource Recovery Pty Ltd - ECORR	Wetherhill Park	5.6
	AKA Civil	Rosehill	6.2
Timber	BINGO Industries Recycling Ecology Park	Eastern Creek	2.5
	AKA Civil	Rosehill	6.2
	redirect Recycling	St Marys	10.6
Plasterboard	BINGO Industries Recycling Ecology Park	Eastern Creek	2.5
	BINGO Industries Recycling Centre	Auburn	16.6
	Benedict Recycling	Belrose	16.8
Metals	SUEZ Eastern Creek Customer Service	Eastern Creek	0.4
	BINGO Industries Recycling Ecology Park	Eastern Creek	2.5
	Green Technology Recycling	Wetherhill Park	5.5

4.4 Site-Specific Operational Measures

Training/Site Inductions

All staff employed during the demolition and construction stages of the development must undertake site-specific induction training regarding the procedures for waste management. Employees of the head contractor will undertake a specific induction outlining their duties and how they are to enforce the waste management procedures.

Induction training will include the following at a minimum:

- Legal obligations;
- Emergency response procedures on site;
- Waste storage locations and separation of waste;
- Litter management in transit and on site;
- The implications of poor waste management practices;
- Correct use of general-purpose spill kits;
- Responsibility and reporting (including identification of personnel responsible for waste management and individual responsibilities).

Materials Selection and Ordering

- Selection of all materials will be undertaken by architectural designers;
- Prefabrication of materials off-site where possible;
- Materials requirements are to be accurately calculated to minimise waste from over-ordering;
- Materials ordering process is to aim at minimisation of materials packaging;
- Material Safety Data Sheets (MSDS) are to accompany all materials delivered to site, where required, to ensure that safe handling and storage procedures are implemented.

Waste Avoidance Opportunities

- Limiting unnecessary excavation;
- Selection of construction materials taking into consideration to their long lifespan and potential for reuse;
- Ordering materials to size and ordering pre-cut and prefabricated materials;
- Reuse of formwork;
- Planned work staging;
- Use of naturally ventilating buildings to reduce ductwork;
- Reducing packaging waste on-site by returning packaging to suppliers where possible, purchasing in bulk and requesting cardboard or metal drums rather than plastics;
- Requesting metal straps rather than shrink wrap and using returnable packaging such as pallets and reels;
- Reduction of PVC use;
- Use of low VOC (volatile organic compounds) paints, floor coverings and adhesives;
- Use of fittings and furnishings that have been recycled or incorporate recycled materials;
- Use of building materials, fittings and furnishings with consideration to their longevity, adaptation, disassembly, reuse and recycling potential.

Site Procedures

- Excavated materials will be used onsite where practical;
- Green waste will be mulched and reused in landscaping either onsite or offsite;
- Concrete, tiles and bricks will be reused or recycled offsite;
- Steel will be recycled offsite; all other metals will be recycled where economically viable;
- Framing timber will be reused on-site or recycled off-site;
- Windows, doors and joinery will be recycled off-site where possible;
- Plumbing, fittings and joinery will be recycled off-site where possible;
- Plasterboard will be re-used in landscaping on-site or returned to the supplier for recycling where possible;
- All used crates will be stored for reuse unless damaged;
- All glass that can be economically recycling will be;
- All solid waste timber, brick, concrete, rock, plasterboard and other materials that cannot be reused or recycled will be taken to an appropriate facility for treatment to recover further resources or for disposal to landfill in an approved manner;
- All asbestos, hazardous and/or intractable wastes are to be disposed of in accordance with WorkCover Authority and EPA requirements;
- Provision for the collection of batteries, fluorescent tubes, smoke detectors and other recyclable resources will be provided on site;
- Beverage container recycling will be provided on-site for employee use;
- All waste and recycling will be disposed of via council approved systems.

4.5 Location and Design of Waste Management Facilities

General Requirements

All waste management facilities onsite should:

- Be conveniently located to enable easy access for on-site movement and collection;
- Be incorporated with other loading/unloading facilities;
- Have sufficient space for the quantity of waste generated and careful source separation of recyclable materials;
- Have sufficient space to contain any on-site treatment facilities, such as compaction equipment;
- Have adequate weather protection and, where required, be enclosed or undercover;
- Be secure and lockable;
- Be well-ventilated and drained to the sewer;
- Be clearly sign-marked to ensure appropriate use.

Waste and Recycling Receptacles

A sufficient quantity of skip bins should be provided for the separate storage of each type of C&D material generated on site. This will assist in maximising source separation and resource recovery, while reducing the costs and quantity of materials disposed of at landfill.

The size of the receptacles should be appropriate to the nature of waste generated and the available storage area. In general, the following options would be acceptable:

Bin Size	Access	Dimensions
2.5m	Top loading	
3m	Drop door walk-in	
4m	Drop door walk-in	
5m	Drop door walk-in	
6m	Double doors walk-in	

Source: Aussie Bins

If the developer chooses to adopt a traditional waste management strategy, whereby waste is deposited into comingled skip bins to be sorted offsite, a single skip bin would be considered sufficient for purpose. However, if the site is to pursue source separation, dedicated skips for the following materials are recommended:

- Timber;
- Plasterboard;
- Concrete;
- Bricks;
- Scrap metal;
- General waste.

Separate receptacles for the safe disposal of hazardous waste types (i.e. light bulbs, batteries, etc) will also be provided where applicable. Where possible, additional bins will be provided in common areas for the collection of commingled recyclables such as beverage containers (glass, plastic, aluminium), paper products, recyclables food containers, etc. Specialised bins for cigarette butts should also be provided.

Safety and Signage

The following safety measures should be considered for the waste storage area:

- Location should not interfere with sight lines of drivers entering or leaving the site;
- Skip bins should be clearly visible and located in well-lit areas;
- Safe paths of travel should be designated using reflective tape, barriers and cones;
- Skip bins must be secured and must not be over-filled to reduce risk of injury through bins moving and falling objects.

Standard signage will be installed in all waste areas, with all skip bins colour coded and labelled appropriately on all sides to allow clear identification of the type of waste to be deposited into each bin.

Refer to the EPA's website for standard construction waste and recycling signs:

www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm

Space and Siting Requirements

The waste storage area will be located adjacent to the entrance to the site to enable access and allow sufficient space for the required skip bins and servicing requirements. The storage area will also be flexible in order to cater for change of use throughout demolition and construction works.

Where space is restricted, dedicated stockpile areas will be allocated onsite, with regular transfers to the dedicated skip bins for sorting and collections.

The position of the designated waste holding area onsite may change according to building works and the progression of the development. Access, visual amenity and WHS will always be integral to the selection of waste storage area locations. Any stockpile locations will take into account slope and drainage factors to avoid contamination of stormwater drains during rain events.

Servicing and Transport

The frequency of waste removal from site will be determined by the volume of materials deposited into the dedicated skip bins. Skip bins will be monitored on a daily basis by the Site Manager to ensure they do not overflow. If skip bins are reaching capacity, removal and replacement should be organised for within 24 hours.

All skip bins leaving the site will be covered with a suitable tarpaulin to reduce spillage of waste while in transit.

All waste collection for construction works will be conducted between approved hours as per Council requirements (typically between 7am and 7pm Monday to Friday, and between 7am and 1pm on Saturdays). All waste generated on site will be transported to an approved and appropriately licensed resource recovery facility and/or landfill site.

4.6 Site Plans

Existing Site

Note: the proposed bin location is indicative only, this may change based on site logistics.

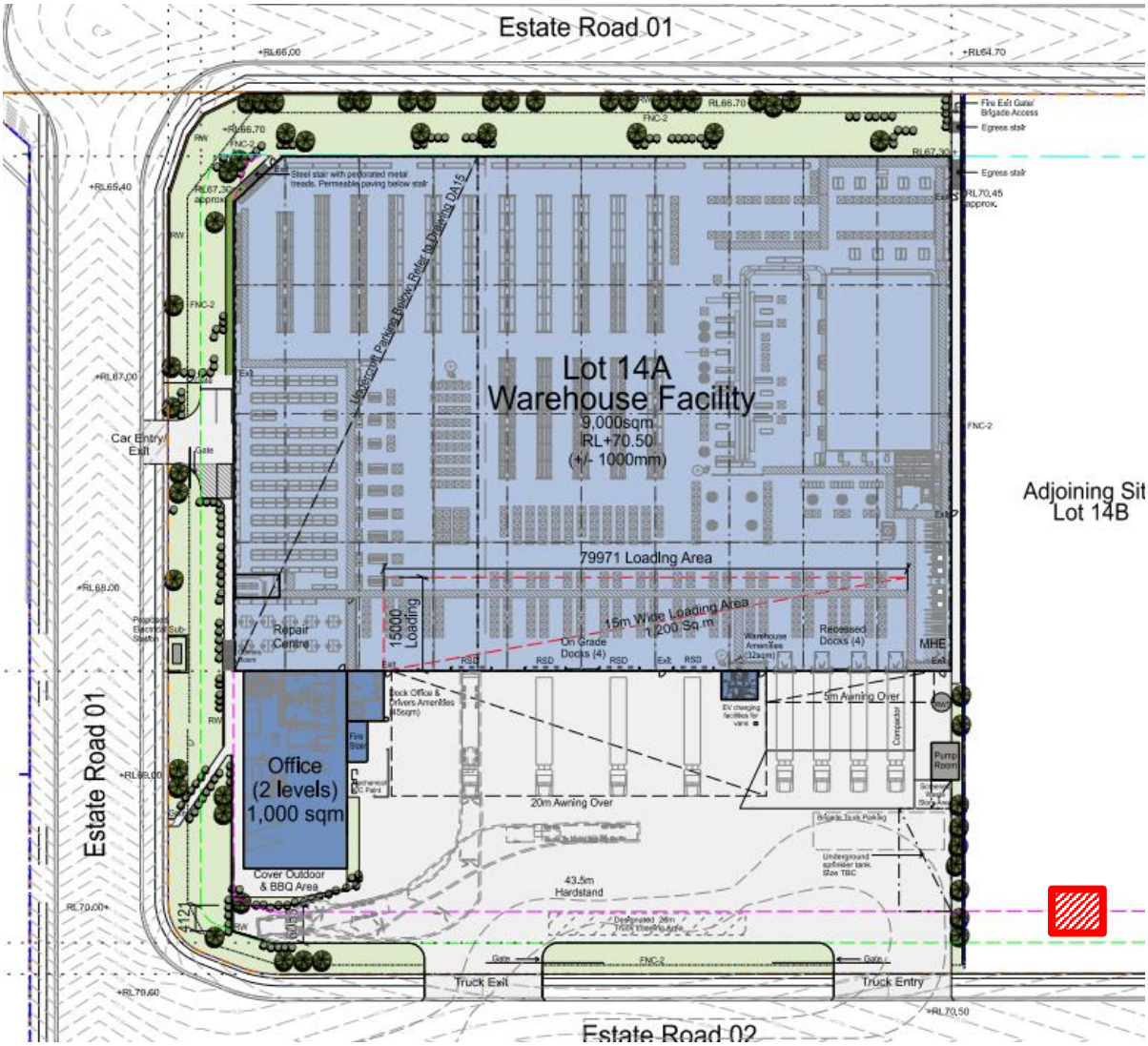
Proposed Bin Storage Area



Source: SBA Architects, Job No. 22145, Drawing MM7 – DA10 (K), Site & Warehouse Plan, 18 Jan 2024

Proposal

Note: the proposed bin location is indicative only, this may change based on site logistics.



Source: SBA Architects, Job No. 22145, Drawing MM7 – DA10 (K), Site & Warehouse Plan, 18 Jan 2024

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