Transport Impact Assessment

Proposed Molong BESS:
1 Deight Street & 19 Back Saleyards Road, Molong NSW 2866

FOR: StorEnergy 3 Pty Limited

SLR PROJECT No: 620.041615.00008 Revision: v2.0

31 October 2025



Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
v2.0	31 October 2025	Jeffrey Huang	Charlie Seventekin	Charlie Seventekin

Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with StorEnergy 3 Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

Executive Summary

SLR Consulting Australia Pty Ltd (SLR) has been engaged by StorEnergy 3 Pty Ltd (Stor) to prepare a Transport Impact Assessment (TIA) for a proposed Battery Energy Storage System (BESS) facility. The application proposes a 150 MW/ 730 MWh BESS to be constructed on 1 Deight Street (formally described as Lot 99 DP 1020247) and 19 Back Saleyards Road (formally described as Lot 1 DP 542283). Both properties are within Molong NSW, 2866. The project is located approximately 2 kilometres (km) east of Molong. The BESS will comprise battery units, inverters, transformers, a substation and ancillary infrastructure all within the Development Footprint. The battery units will be within individual containers (or enclosures), with each container measuring approximately 6m in length and weighing approximately 43,000 kilograms (kg).

The BESS will be accessed by a new driveway and crossover from Back Saleyards Road. A Basic Left Turn (BAL)/ Basic Auxiliary Right (BAR) treatment will be provided at this location. The internal access road is planned to be formalised to accommodate heavy vehicles associated with the construction of the BESS. The development also involves the construction of ancillary facilities, including an operation and maintenance building, stormwater management infrastructure, lighting, fencing and temporary construction laydown areas.

Based on the analysis and discussion documented in this report, the following is concluded:

- Sight distances available at the access driveway crossover satisfy the Safe Intersection Sight Distance (SISD) requirements of the Austroads Guidelines.
- Limitations to the available sight distances at Euchareena Road/ Back Saleyards Road intersection are highlighted in this report. Consistent with the extensive consultations undertaken with Cabonne Council, it has been concluded that these limitations can be managed by implementing temporary traffic management measures during the construction and decommissioning phases of the project.
- The proposed development will generate approximately 6,100 inbound trips and 6,100 outbound trips during construction (300 business days or 12 months).
- It was identified that the peak construction traffic volume would be sufficiently low (up to 41 return trips a day) and that there would be no capacity constraints at the access crossover or any key intersections.
    - During this peak period, the construction traffic volumes will consist of up to 20 heavy vehicle return trips per day, including:
        - 15 inbound and 15 outbound heavy vehicle trips.
        - 5 inbound and 5 outbound OSOM vehicle trips.
- It is recommended that the construction workforce be briefed on the recommended separate heavy vehicle and light vehicle routes, with a Drivers' Code of Conduct prepared by the Proponent consistent with the strategies outlined in this report.
- The access location should be designed with a Basic Left Turn (BAL)/ Basic Right Turn (BAR) treatment per the turn warrant assessments (Austroads Guidelines). No upgrades are considered necessary at any other key intersections.
- The proposed use of the local road network for the heavy vehicle route (Strathmore Lane off Mitchell Highway, and then Belgravia Road, Euchareena Road and Back Saleyards Road) is consistent with Austroads Guidelines.

- It is recommended that the condition of the section of Back Saleyards Road between the Euchareena Road intersection and the site access be improved to accommodate bi-directional heavy vehicle movements.
- It is recommended that a construction traffic management plan (CTMP) be prepared following the approval of the State Significant Development (SSD) application, consistent with the strategies outlined in Section 7.0 of this report.
- No additional road or intersection upgrades are considered necessary along the proposed Heavy Vehicle Routes, including the OSOM Routes from Port Kembla (transformer) and Port of Newcastle (BESS units), beyond those outlined within the two concept route studies prepared.

Table of Contents

Basis of Report i
Executive Summary ii
1.0 Introduction 1
1.1 Context 1
1.2 Application 1
1.3 Assessment Scope 1
1.4 Report Structure 1
1.5 DPHI Requirements (SEARs) 2
1.6 TfNSW Comments (Agency Advice) 3
2.0 Project Description 3
2.1 Overview 3
2.2 Project Program 7
2.2.1 Construction Phase 7
2.2.2 Operational and Decommissioning Phase 7
2.3 Vehicle Types 7
2.3.1 Light Vehicles 7
2.3.2 Heavy Vehicles 8
2.4 Site Access 9
2.5 Light Vehicle and Heavy Vehicle Routes 9
2.5.1 Light Vehicle Routes 9
2.5.2 Heavy Vehicle Routes 11
2.6 Trip Generating Activities 15
2.6.1 Activities 15
2.6.2 Workforce 15
2.7 Waste Management Plan 15
3.0 Existing Conditions Appraisal 16
3.1 Road Network 16
3.2 Traffic Surveys 16
3.3 Railway Corridors and Level Crossings 18
3.4 Crash History 22
3.5 Cumulative Traffic Impacts 24
4.0 Project Traffic Demands 25
4.1 Traffic Generation 25
4.1.1 Vehicle Fleet 25

4.1.2 Construction Phase 25
4.1.3 Operational Phase 33
4.1.4 Decommissioning Phase 33
4.2 Traffic Volumes 33
5.0 Traffic Engineering Considerations 34
5.1 Key Intersections 34
5.2 Sight Distance Assessments 36
5.2.1 SISD Calculations 36
5.2.2 SISD Results 39
5.3 Turn Lane Warrant Assessments 39
5.3.1 Intersection 3 – Mitchell Highway/ Strathmore Lane Turn Warrants 43
6.0 Operational Assessment 43
6.1 Assessment Scenarios 43
6.2 Performance Criteria 44
6.3 Assessment Findings 44
6.3.1 D1 – Back Saleyards Road/ Site Access 44
6.3.2 I1 – Euchareena Road/ Back Saleyards Road 45
6.3.3 I2 – Mitchell Highway/ Euchareena Road 46
6.3.4 I3 – Mitchell Highway/ Strathmore Lane 47
7.0 Construction Traffic Management Strategies 49
7.1 Drivers' Code of Conduct 49
7.2 Traffic Guidance Schemes (TGSs) 49
7.3 Site Management 49
7.4 Heavy Vehicle Management 49
7.4.1 General Requirements 49
7.4.2 Noise Management 50
7.4.3 Dust Management 50
7.5 Contingency Plan 50
7.6 Communications Strategy 50
8.0 Recommendations 51
8.1 Construction Traffic Management Plan 51
8.2 Local Road Upgrades 51
8.3 Heavy Vehicle Approvals for the Use of Local Roads (Last Mile Sections) 53
8.4 Dilapidation Surveys 53
9.0 Conclusion 53

Tables

Table 1 TIA Report Structure 2
Table 2 DPHI Requirements (SEARs) - Transport 2
Table 3 Proposed BESS Specifications 5
Table 4 Key Construction Timeframes 7
Table 5 Proposed Light Vehicle Route Details 11
Table 6 Proposed Heavy Vehicle Route Details 13
Table 7 Key Construction Personnel 15
Table 8 Battery Recycling Facilities 16
Table 9 Surrounding Road Network Characteristics 16
Table 10 TfNSW Traffic Volume Viewer Data 18
Table 11 Key Level Crossings Details 20
Table 12 Crash Data (2019 – 2023) 24
Table 13 Project Construction Vehicle Fleet 25
Table 14 Construction Workforce Assumptions 26
Table 15 Construction (Excluding Commissioning) Workforce Travel Arrangements 27
Table 16 BESS, Substation and Transmission Line Site Clearance and Establishment 28
Table 17 Substation – Construction Materials and Equipment 29
Table 18 Battery Area - Construction Materials and Equipment 30
Table 19 Transmission Line - Construction Materials and Equipment 31
Table 20 Miscellaneous Items 32
Table 21 SISD and Parameters (Euchareena Rd/ Back Saleyards Rd) 37
Table 22 SISD Parameter Justification (Euchareena Rd/ Back Saleyards Rd) 37
Table 23 Turn Treatment Types 40
Table 24 Turn Warrant Assessment Summary (2-Year Benefit Period) 42
Table 25 Turn Warrant Assessment Summary (10-Year Benefit Period) 42
Table 26 TfNSW SIDRA Level of Service Criteria 44
Table 27 Back Saleyards Road/ Site Access SIDRA Movement Summary 45
Table 28 Euchareena Road/ Back Saleyards SIDRA Movement Summary 46
Table 29 Mitchell Highway/ Euchareena Road SIDRA Movement Summary 47
Table 30 Mitchell Highway/ Strathmore Lane SIDRA Movement Summary 48

Figures

Figure 1 Site Location (Regional Context) 4
Figure 2 Site Location (Local Context) 6
Figure 3 Proposed Light Vehicle Route 10

Figure 4 Proposed Heavy Vehicle Route 12
Figure 5 Anticipated Transformer and OSOM Vehicle (Similar) 14
Figure 6 Traffic Survey Locations 17
Figure 7 Railway Corridors or Level Crossings along Vehicle Routes 19
Figure 8 Mitchell Highway Level Crossing East Approach (ID676) 20
Figure 9 Mitchell Highway Level Crossing West Approach (ID676) 20
Figure 10 The Escort Way Level Crossing East Approach (ID950) 21
Figure 11 The Escort Way Level Crossing West Approach (ID950) 21
Figure 12 Euchareena Road Level Crossing East Approach (ID958) 22
Figure 13 Euchareena Road Level Crossing West Approach (ID958) 22
Figure 14 Study Road Network Crash Data 23
Figure 15 Key Intersection Locations 35
Figure 16 Elevation Profile 37
Figure 17 Crest Visibility with a Car on a Minor Road 38
Figure 18 Crest Visibility with Truck on Minor Road 39
Figure 19 Turn Warrants – Major Road Turn Treatments (Design Speed ≥ 100km/h) 41
Figure 20 Warrants for Unsignalised Intersection Turn Treatments 41
Figure 21 Back Saleyards Road/ Site Access Proposed Driveway Form 45
Figure 22 Euchareena Road/ Back Saleyards Existing Intersection Form 46
Figure 23 Mitchell Highway/ Euchareena Road Existing Intersection Form 47
Figure 24 Mitchell Highway/ Strathmore Lane Existing Intersection Form 48
Figure 25 Proposed Improvements to Back Saleyards Road 52

Appendices

Appendix A Development Plans
Appendix B TfNSW Advice
Appendix C Port Kembla OSOM Route Study
Appendix D Port of Newcastle OSOM Route Study
Appendix E Swept Path Assessments
Appendix F Traffic Survey Results
Appendix G Desktop Models (Traffic Flow Diagrams)
Appendix H Turn Warrant Assessments
Appendix I SIDRA Results
Appendix J Drivers' Code of Conduct
Appendix K TMR Technical Note 199
Appendix L Concept Level Driveway Plan

1.0 Introduction

1.1 Context

SLR Consulting Australia Pty Ltd (SLR) has been engaged by StorEnergy 3 Pty Ltd (Stor or the Client) to prepare a Traffic Impact Assessment (TIA) for a proposed Battery Energy Storage System (BESS) (herein referred to as the 'Project') in Molong, New South Wales (NSW).

The proposal involves the installation of a BESS facility located across two (2) lots, 1 Deight Street, formally described as Lot 99 DP 1020247, and 19 Back Saleyards Road, formally described as Lot 1 DP 542283. Both properties are within Molong NSW, 2866.

The Project will involve the development, construction, operation, and eventual decommissioning of a Battery Energy Storage System, with a capacity of 150 Megawatts (MW), 730 Megawatt Hours (MWh), connecting to the electricity grid at the existing Transgrid Molong 132/66 Kilovolt (kV) transmission substation via a new 132 kV overhead transmission line approximately 900 metres (m) in length.

The BESS will comprise battery units, inverters, transformers, a substation and ancillary infrastructure all within the Development Footprint. The battery units will be within individual containers (or enclosures), with each container measuring approximately 6m in length, with an approximate weight of 43,000 kilograms (kg). The BESS will be accessed by a new driveway and crossover from Back Saleyards Road. The development plans, prepared by Stor, are provided in Appendix A.

1.2 Application

The Environmental Planning and Assessment Act 1979 (EP&A Act) and Environmental Planning and Assessment Regulation 2021 (EP&A Regulation) form the statutory framework for the environmental impact assessment and planning approval of development in NSW. Both the EP&A Act and the EP&A Regulation are administered by the Department of Planning, Housing and Infrastructure (DPHI).

This report has been prepared based on the requirements provided by the DPHI in their Secretary's Environmental Assessment Requirements (SEARs). It is also worth noting that several references were made to Austroads Guidelines and the relevant Australian Standards.

1.3 Assessment Scope

This TIA report assesses the consistency of the development with Council and State planning and evaluates the impacts of the proposed BESS development on the surrounding transport network. This TIA identifies the transport infrastructure required to support the development, and provides an assessment of the traffic and transport-specific aspects of the development against the requirements of the following relevant authorities:

- Cabonne Shire Council (CSC or the Council).
- Transport for New South Wales (TfNSW).

1.4 Report Structure

The structure of this TIA report is shown in Table 1 overleaf.

Table 1 TIA Report Structure

Section	Title	Description
1.0	Introduction	Identifies the context of the project.
2.0	Project Description	Describes the project including location, site design and access arrangements.
3.0	Existing Conditions Appraisal	Describes the existing transport network including traffic volumes, crash history and bus services.
4.0	Project Traffic Demands	Details the project generated traffic demands and assessed traffic volumes.
5.0	Traffic Engineering Considerations	Outlines the technical analysis undertaken to confirm the suitability of the proposed development from a traffic engineering perspective.
6.0	Operational Assessment	Outlines the technical analysis to assess the capacity of the site access intersection.
7.0	Construction Traffic Management Strategies	Outlines the possible strategies for the future construction traffic management plan and provides high-level advice.
8.0	Recommendations	Outlines the recommended actions for the Proponent following the lodgement of the SSD application.
9.0	Conclusion	Summarises the findings of the assessment and recommends approval conditions.

1.5 DPHI Requirements (SEARs)

Table 2 overleaf replicates the traffic- and transport-specific requirements issued by DPHI.

Table 2 DPHI Requirements (SEARs) - Transport

Requirement	Addressed / Response
An assessment of the peak and average traffic generation, including light vehicles (including shuttle buses), heavy vehicles, heavy vehicles requiring escort, high risk heavy vehicles requiring escort (noting Table 1 in TfNSW Fact Sheet - Transport Management Plans for Over Size and/or Overmass Movements in NSW) and construction worker transportation.	Addressed in Sections 4.0, 5.0, and 6.0.
An assessment of the likely transport impacts to the site access route(s), including the above listed vehicles, site access point(s), any Crown land, particularly in relation to the capacity and condition of the roads, road safety and intersection performance.	Addressed in Sections 4.0, 5.0, and 6.0.
A concept Level Route Analysis for heavy vehicles requiring escort and high risk heavy vehicles requiring escort.	Addressed in Sections 2.3.2 and 2.5.2.
A cumulative impact assessment of traffic from nearby developments (including mining operations); and	Addressed in Section 3.5.
Provide details of measures to mitigate and / or manage potential impacts (developed in consultation with the relevant road authorities) including: • A schedule of all required road upgrades (including resulting from heavy vehicle and over mass / over dimensional traffic haulage routes).	Addressed in Section 7.0.

Requirement	Addressed / Response
• Strategic concept designs of proposed road upgrades (including the site access point). • Road maintenance contributions, and any other traffic control measures.	

1.6 TfNSW Comments (Agency Advice)

Advice provided by TfNSW, which also informed this TIA, is provided in Appendix B.

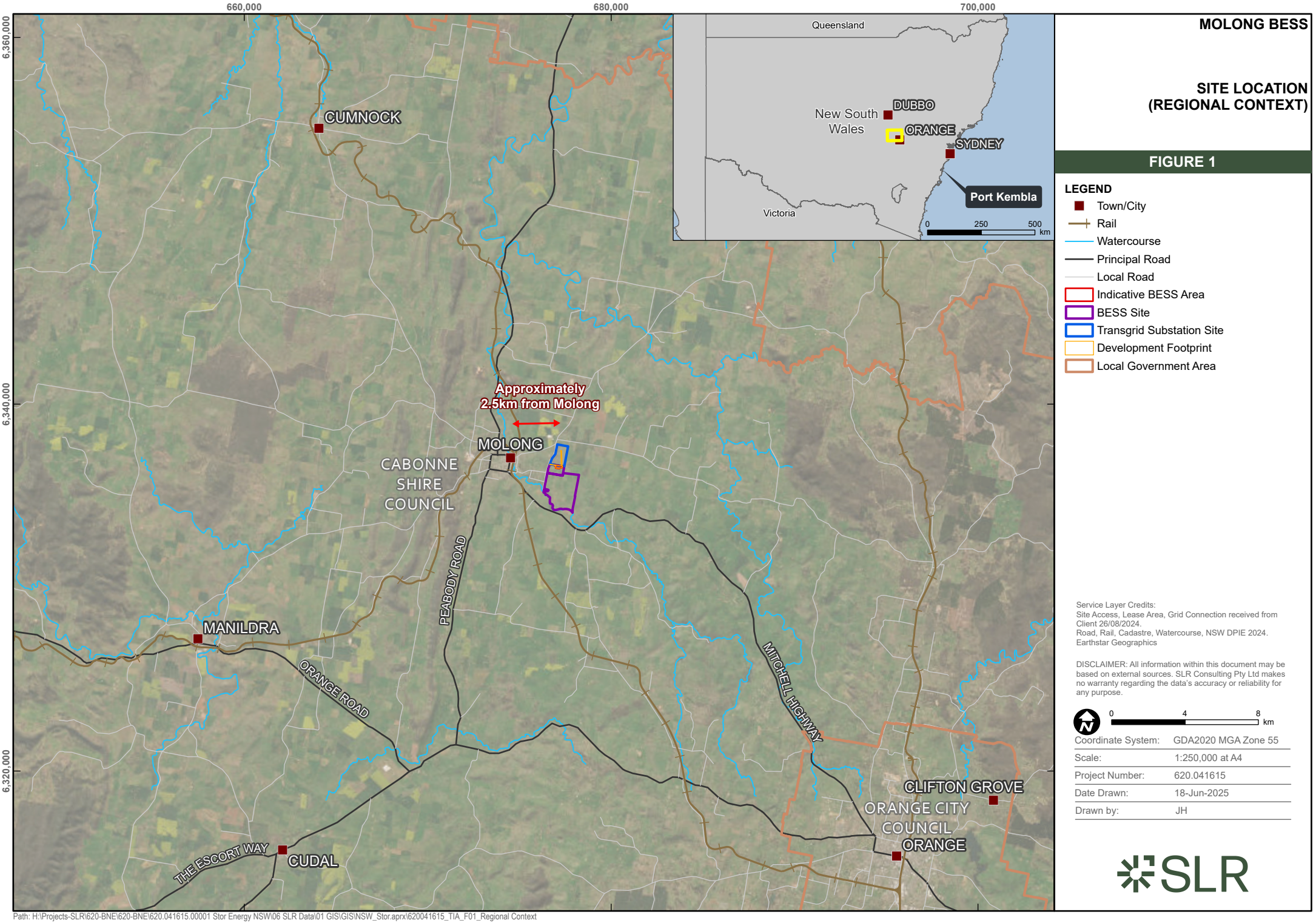
2.0 Project Description

2.1 Overview

The development proposes the construction of a BESS with a capacity of 150 MW/ 730 MWh near the existing 132/ 66 kV substation operated by TransGrid.

The project is located within the jurisdiction of the Cabonne Shire Local Government Area (LGA) and is zoned as *"RU1 - Primary Production"* under the Cabonne Local Environmental Plan 2012 (LEP). The surrounding land use is predominantly zoned as *"RU1 - Primary Production"*; however, the west of the project comprises a mix of *"R5 – Large Lot Residential"* and *"RE2 – Private Recreation"* land uses.

Figure 1 below provides an overview of the project location in the regional context.



MOLONG BESS

SITE LOCATION (REGIONAL CONTEXT)

FIGURE 1

LEGEND

- Town/City
- Rail
- Watercourse
- Principal Road
- Local Road
- Indicative BESS Area
- BESS Site
- Transgrid Substation Site
- Development Footprint
- Local Government Area

Service Layer Credits:
Site Access, Lease Area, Grid Connection received from Client 26/08/2024.
Road, Rail, Cadastre, Watercourse, NSW DPIE 2024.
Earthstar Geographics

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Coordinate System:	GDA2020 MGA Zone 55
Scale:	1:250,000 at A4
Project Number:	620.041615
Date Drawn:	18-Jun-2025
Drawn by:	JH

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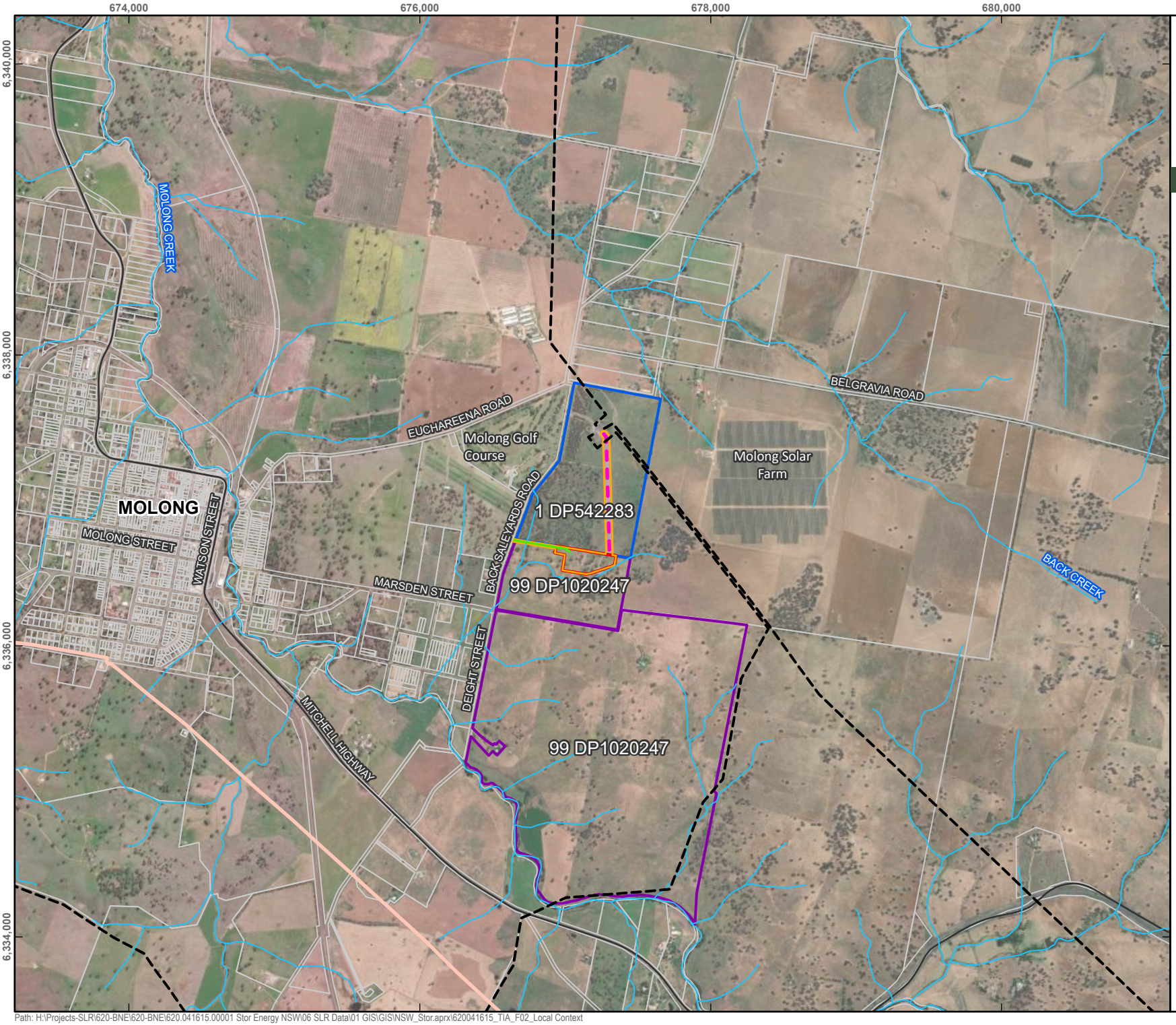
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The specifications provided for the proposed BESS are detailed in Table 3.

Table 3 Proposed BESS Specifications

Specification	Detail
Number of enclosures	Up to 264 battery enclosures (6m container frame) with an estimated 4MWh to 5MWh per enclosure.
Dimensions	6m container (6,058 mm x 2,438 mm x 2,891 mm each)
Weight	43,000 kg each
Battery chemistry	Lithium-iron-phosphate
Inverters	50 Inverters (4,390 Kilovolt-amps (kVA))
Dimensions	Twin Skid (6,000 mm x 2,240 mm x 2,300 mm) Inverter (3,000 mm x 2,020 mm x 2,300 mm)
MV Transformers	Up to 50 MV inverter transformers and numerous auxiliary supply transformers
Substation	1x180 Megavolt-Amperes (MVA) transformer and associated 132kV and 33kV switchgear, auxiliary transformers and reactive power plant

To provide direct access to the Development Footprint, a new access crossover will be constructed aligned to the northern boundary of Lot 99 DP 1020247, that connects to Back Saleyards Road. Figure 2 below provides an overview of the BESS project location in the local context.



MOLONG BESS

SITE LOCATION (LOCAL CONTEXT)

FIGURE 2

LEGEND

- Watercourse
- Primary Road
- Proposed Electricity Transmission Line
- Proposed Site Access
- Indicative BESS Area
- BESS Site
- Transgrid Substation Site
- Proposed Easement
- Development Footprint
- Cadastre

Transgrid Line

- 132kV
- 330kV
- 66kV

Service Layer Credits:
Site Access, Lease Area, Grid Connection received from Client 26/08/2024.
Road, Rail, Cadastre, Watercourse, NSW DPIE 2024.
Earthstar Geographics

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2.2 Project Program

2.2.1 Construction Phase

The key construction timeframes, as advised by Stor, are summarised in Table 4 below.

Table 4 Key Construction Timeframes

Phase	Description	Estimated Duration (Months)
Construction	Mobilisation through to final BESS/PCS installation	13
Peak Activity (Works)	Equipment shipments to site, installation, substation and connection/energisation, and commissioning activity.	2
Commissioning	Cold/ hot commissioning, R2 testing, performance/ reliability testing.	12
Total	**Construction to end of reliability testing.**	**22**

It is important to note that the construction phase of any BESS project would have the largest traffic impacts, compared to its impacts during the commissioning phase or potential augmentation phase. Based on this, no detailed assessments are undertaken for other potential phases, provided that sufficient infrastructure is developed for the construction phase. Construction is expected to commence in 2026 and end in 2027 (excluding commissioning). Although Stor has advised SLR that the development would be constructed over a 13-month period, for a conservative traffic assessment, SLR assumed that the works would be completed within 12 months; therefore, SLR has assessed an intensified traffic impact scenario.

2.2.2 Operational and Decommissioning Phase

The development is expected to operate for approximately 30 years, providing short-, medium- and long-term local employment opportunities. The Proponent is anticipated to be obliged to decommission and rehabilitate the Development Footprint at the end of its operational life (EOL). Decommissioning the BESS EOL would include disassembly, removing associated infrastructure, and rehabilitation to return the land to its original use.

The operation and decommissioning processes will have much less traffic generation than the construction period, based on the fact that BESS systems are low-maintenance investments with minimal requirements for full-time employees on site. However, adequate provisions will need to be made to accommodate an 8.8m medium rigid vehicle (MRV) to allow for maintenance and service vehicle access.

2.3 Vehicle Types

2.3.1 Light Vehicles

Details for the light vehicles generated by the development are outlined in Section 4.0 later in this report. The light vehicles generated by the development are expected to be predominantly from the workforce required to service the development for all phases. These movements are expected to peak during the construction phase and align with the following assumptions:

- Workforce to be sourced from Molong & Orange.
- Vehicle types include 5.2m B99 Utility Vehicles (UTEs), 5.2m B99 VANs and other light vehicles (i.e. 4.91m B85 or shorter).

2.3.2 Heavy Vehicles

2.3.2.1 Origin

The origin for all trips expected to be generated by the development is detailed in Section 4.0 later in this report. Generally speaking, the origins of trips by items are summarised as follows:

- Site Compound – from Orange & Molong.
- Equipment – from Port Kembla, Orange, Bathurst & Blayney.
- Materials – from Orange & Molong.
- Construction Vehicles – from Orange & Molong.
- Miscellaneous (sewerage, waste, water, fuel, oils, hydraulic oils) – from Orange, Bathurst & Molong.
- Workforce – from Orange & Molong.

2.3.2.2 Oversize and Over Mass (OSOM) Materials

The majority of the core BESS equipment is expected to be transported to the site from Port Kembla. OSOM vehicles will also be required during the construction period for the following equipment:

- Transformer.
- Switch room.
- Control room.
- Battery containers (enclosures).

It is noted the largest anticipated OSOM movement will be for the transportation of the main transformer (from Port Kembla). The battery containers will be imported from the Port of Newcastle. OSOM material route studies for both the Port Kembla and Port of Newcastle routes have been undertaken by SLR (Please refer to Appendix C and Appendix D). This TIA report should be read in conjunction with SLR's route studies. The transformer vehicle will follow a customised route tailored for this project, as outlined in Table 6 later in this report.

Some construction machinery required for the project may also require OSOM vehicles, mainly due to the width of the equipment. It is anticipated that these vehicles are expected to originate from the local area (from Molong, Orange, Bathurst or Blayney). These OSOM vehicles will likely transport:

- Roller compactors.
- Excavators.
- Graders.
- Dozers.
- Cranes.

The OSOM equipment originating from the local area will follow the general National Heavy Vehicle Regulator (NHVR) guidelines.

2.3.2.3 Heavy Vehicle Types (non-OSOM)

Excluding the transportation of the OSOM items, the largest vehicle that will be utilised for the construction works will be limited to the size of 26m B-Double design vehicles or 25m long goose-neck low loaders (infrequently).

The 20m Articulated Vehicles (AVs), 20m Truck and Dog Trailer Combinations and 12.5m Heavy Rigid Vehicles (HRVs) will be utilised more frequently. The construction fleet, as detailed further in Section 4.0 later in this report, will comprise the following heavy vehicles:

- Toyota Coaster type shuttle buses for the workforce (under 4.5t Gross Vehicle Mass - GVM).
- Concrete mixer trucks.
- 12.5m HRVs.
- 20m AVs.
- 20m truck & dog trailer combinations.
- 25m goose-neck low loaders.

2.4 Site Access

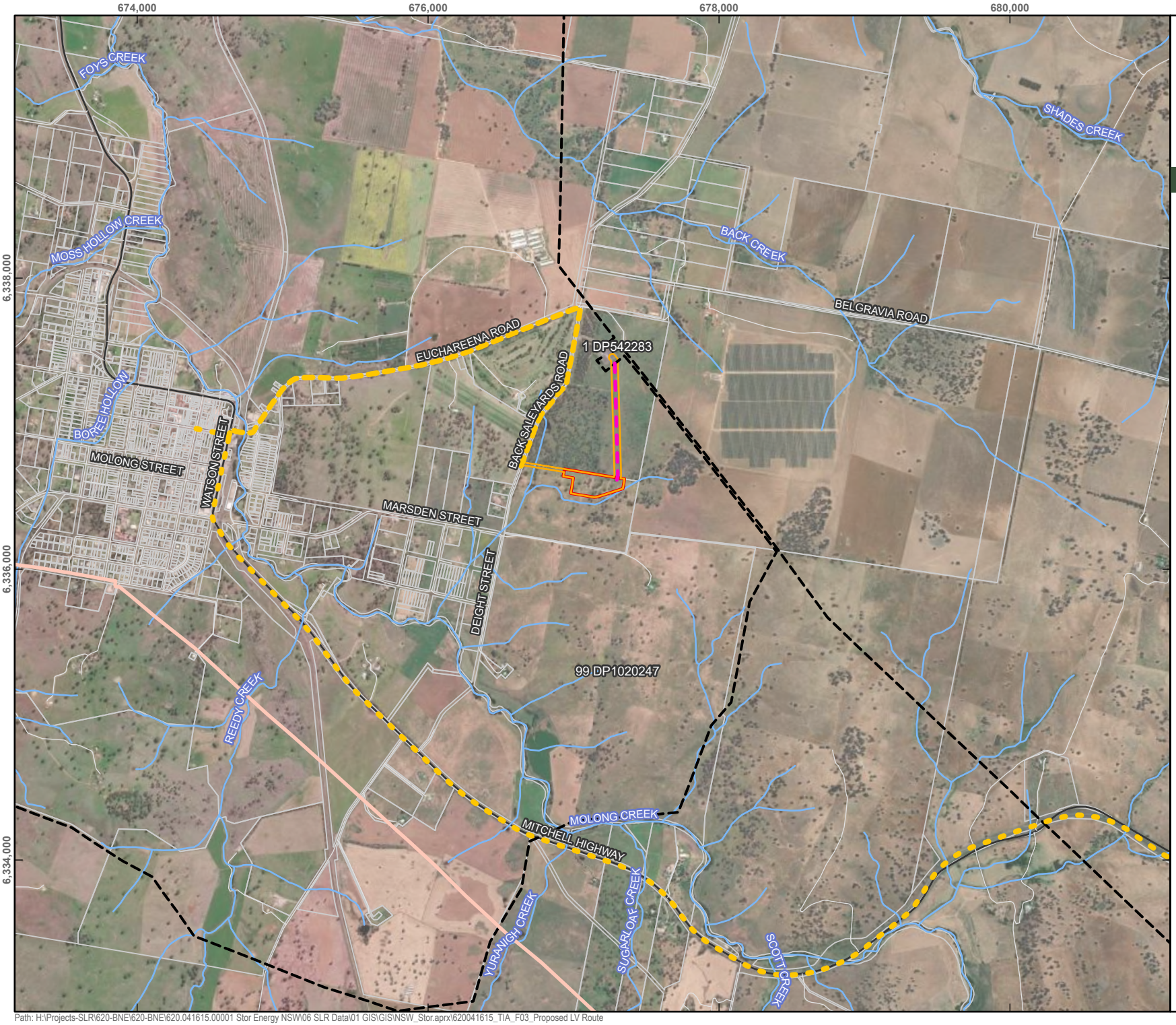
The access crossover will be formalised on Back Saleyards Road (able to accommodate all traffic), connecting to a new internal access road that enables access to the BESS infrastructure. The concept plan of the proposed driveway on Back Saleyards Road, prepared by SLR, is provided in Appendix L.

2.5 Light Vehicle and Heavy Vehicle Routes

Both light vehicle and heavy vehicle routes identified in the following sections of this report have been proposed based on extensive consultations with the Council as well as understanding of the approved heavy vehicle route network and the local context of the project location.

2.5.1 Light Vehicle Routes

The routes intended to be used by the light vehicles to/ from the development are as depicted in Figure 3. The proposed routes are expected to minimise traffic impacts on the road network and residential properties in the local context.



MOLONG BESS

PROPOSED LIGHT VEHICLE ROUTE

FIGURE 3

LEGEND

- Watercourse
- Primary Road
- Road

Transgrid Line

- 132kV
- 330kV
- 66kV
- Proposed Light Vehicle Route
- Proposed Electricity Transmission Line
- BESS Footprint (5.06 ha)
- Development Footprint (9.56 ha)
- Cadastre

Service Layer Credits:
Development footprint, proposed BESS Layout rev 11/06/2025, from StorEnergy 3 Pty Ltd (Stor).
Road, Rail, Cadastre, Watercourse, NSW DPIE 2024. Maxar

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Date Drawn:	21-Aug-2025
Drawn by:	JH

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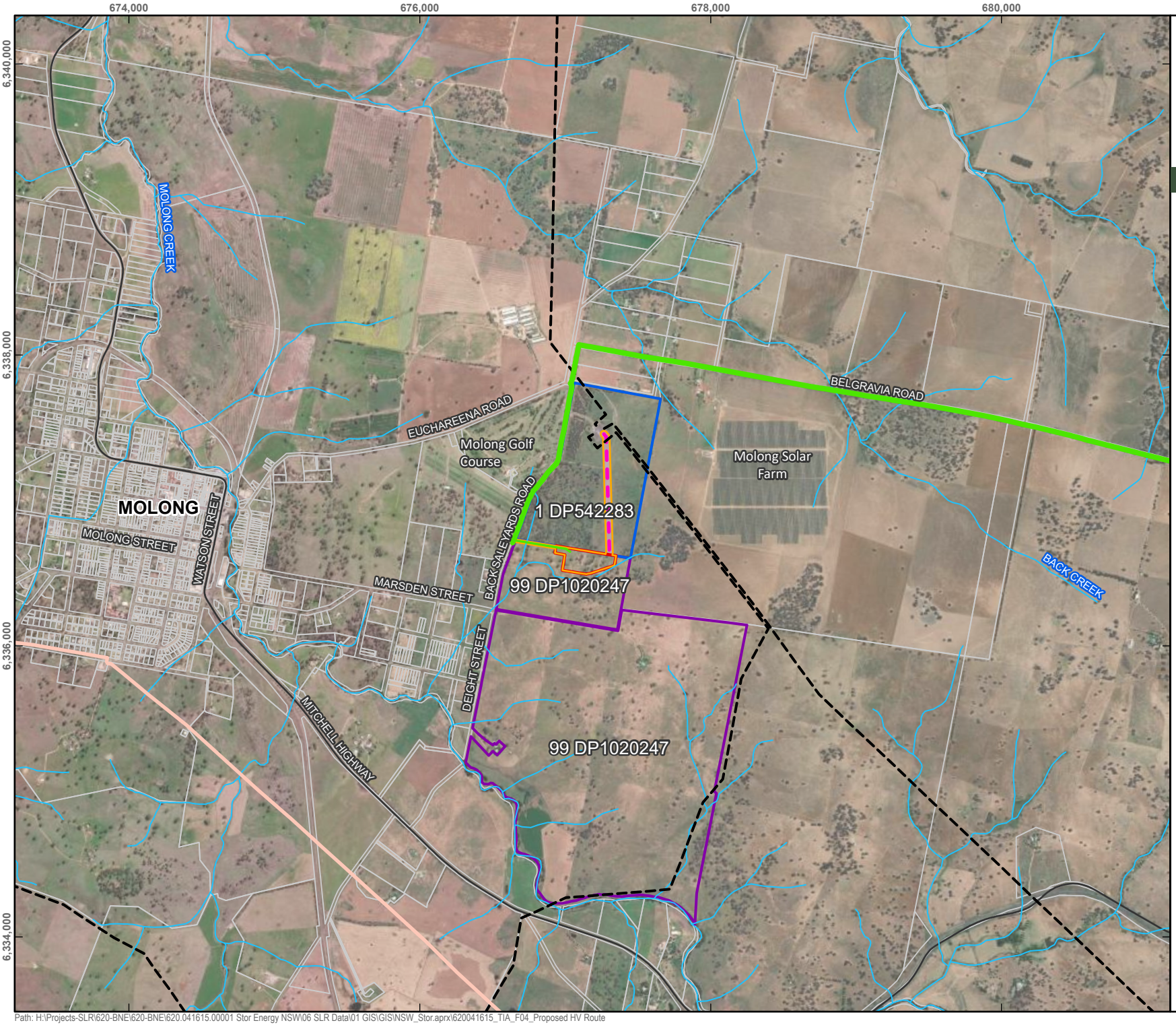
The proposed light vehicle routes and associated uses, based on the origin of each trip, are detailed in Table 5. The routes proposed from Orange and Molong to/ from the development site are expected to remain consistent during both the inbound and outbound trips.

Table 5 Proposed Light Vehicle Route Details

Trip Origin	Description	Vehicle Types
Orange	A32 Mitchell Hwy ⇌ Euchareena Road ⇌ Back Saleyards Road.	• B99 UTEs. • B99 VANs. • Other light vehicles (i.e. 4.91m B85 or shorter.
Molong	A32 Mitchell Hwy ⇌ Euchareena Road ⇌ Back Saleyards Road.	• B99 UTEs. • B99 VANs. • Other light vehicles (i.e. 4.91m B85 or shorter.

2.5.2 Heavy Vehicle Routes

All heavy vehicle routes, including those transporting OSOM materials, will take the local road network shown in Figure 4 off Mitchell Highway. The proposed routes up to the Mitchell Highway/ Strathmore Lane intersection are all State Roads and have been identified using the National Heavy Vehicles Regulator (NVHR) Route Planner (approved for the heavy vehicle use).



MOLONG BESS

PROPOSED HEAVY VEHICLE ROUTE

FIGURE 4

LEGEND

- Proposed Heavy Vehicle Route
- Watercourse
- Primary Road
- Proposed Electricity Transmission Line
- Proposed Site Access
- Indicative BESS Area
- Transgrid Substation Site
- BESS Site
- Proposed Easement
- Development Footprint
- Cadastre

Transgrid Line

- 132kV
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- 66kV

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Drawn by:	JH

SLR

Path: H:\Projects-SLR\620-BNE\620-BNE\620.041615.00001 Stor Energy NSW\06 SLR Data\01 GIS\GIS\NSW_Stor.aprx\620041615_TIA_F04_Proposed HV Route

The proposed heavy vehicle routes and associated uses, based on the origin of each trip, are detailed in Table 6. The routes proposed from Port Kembla, Port of Newcastle, Orange, Bathurst, Blayney and Molong to/ from the development site are expected to remain consistent during both the inbound and outbound trips.

Table 6 Proposed Heavy Vehicle Route Details

Trip Origin	Description	Typical Vehicle Type
Port Kembla	Tom Thumb Rd ⇌ Springhill Rd ⇌ Masters Rd ⇌ M2 Princes Hwy ⇌ B88 Picton Rd ⇌ M31 Hume Hwy ⇌ B81 Lachlan Valley Way ⇌ The Escort Way ⇌ Northern Distributor Rd ⇌ A32 Mitchell Hwy ⇌ Last Mile Section (Strathmore Lane, Belgravia Road, Euchareena Road; and Back Saleyards Road).	• 33m OSOM vehicle (transformer).
Port of Newcastle	Pacific Highway ⇌ New England Highway ⇌ Hunter Expressway ⇌ Denman Highway ⇌ Saxa Road ⇌ Nanima Crescent ⇌ Mitchell Highway ⇌ Gisborne Street ⇌ Thornton Street ⇌ Maxwell Street ⇌ Mitchell Highway Last Mile Section (Strathmore Lane, Belgravia Road, Euchareena Road; and Back Saleyards Road).	• 23m OSOM vehicle (BESS units).
Orange	A32 Mitchell Hwy ⇌ Last Mile Section (Strathmore Lane, Belgravia Road, Euchareena Road; and Back Saleyards Road).	• Toyota Coaster type shuttle bus. • 12.5m HRV. • 20m AV. • 25m goose-neck low loader. • OSOM vehicle.
Bathurst	A32 Mitchell Hwy ⇌ Last Mile Section (Strathmore Lane, Belgravia Road, Euchareena Road; and Back Saleyards Road).	• 12.5m HRV. • OSOM vehicle.
Blayney	Millthorpe Rd ⇌ A32 Mitchell Hwy ⇌ Last Mile Section (Strathmore Lane, Belgravia Road, Euchareena Road; and Back Saleyards Road).	• OSOM vehicle.
Molong	A32 Mitchell Hwy ⇌ Last Mile Section (Euchareena Road; and Back Saleyards Road).	• Toyota Coaster type shuttle bus. • Concrete mixer truck. • 12.5m HRV. • 20m AV. • 20m truck & dog.

2.5.2.1 Use of Local Roads (The Last Mile Sections)

The last-mile sections are defined as the sections of the external road network not readily approved for heavy vehicle use. It is noted that for these sections, the Proponent had extensive consultations with the relevant road authority (CSC) and identified the following roads and routes suitable for use, consistent with the Council's preferences:

- Strathmore Lane off Mitchell Highway.
- Belgravia Road.
- Euchareena Road.
- Back Saleyards Road.

It is understood that CSC have requested that the Proponent be responsible for any damages to these roads as a direct result of the construction traffic. Consistent with this, the Proponent has committed to undertake dilapidation surveys before the commencement of the construction activities and following the completion of heavy vehicle activity.

2.5.2.2 One-Off Transportation of the Transformer

Based on the discussions undertaken with Stor, it is understood that the transformer required for the proposed BESS facility is 180 MVA and will weigh up to 160 tonnes. On this basis, it has been identified that one prime mover with a 10-axle flatbed trailer and two-axle dolly will be sufficient (total approx. 33m). The transformer and the OSOM vehicle are anticipated to be similar to those shown in Figure 5 overleaf.

Figure 5 Anticipated Transformer and OSOM Vehicle (Similar)



Source: https://www.linkedin.com

It is proposed that the transformer will be imported to Port Kembla and be transported to the development site via the nominated OSOM route. On this basis, SLR prepared a route study for the nominated route for the transformer transportation from Port Kembla to the development site. It is recommended that this route study be read in conjunction with SLR's TIA.

SLR's route study for the transformer transportation concluded that the nominated transformer (180MVA and up to 160t) can be transported to the Mitchell Highway/ Strathmore Lane intersection via the State Road network (via Cowra). SLR has also undertaken swept path assessments for the remainder of the route (the last mile) to illustrate that the proposed heavy vehicle route within the local road network is sufficiently wide to enable the transportation of the transformer into the site from the Mitchell Highway/ Strathmore Lane intersection. These swept path assessments are provided in Appendix E.

2.6 Trip Generating Activities

2.6.1 Activities

For the purposes of forecasting peak development traffic demands associated with the construction stage, the following construction activities are anticipated to generate traffic on the external road network:

- Site Compound establishment and construction vehicle & machinery deliveries.
- Equipment, Materials and Miscellaneous (sewerage, waste, water, fuel, oils, hydraulic oils) deliveries.
- Workforce transportation.

Once the proposed development is operational, there will be no activities that require large numbers of workforce on site. It is understood that for the majority of the development's life, operations will involve a range of preventative, corrective and condition-based maintenance activities, which would entail various maintenance, inspection and servicing of the associated electrical network and internal road infrastructure. The external movements associated with these tasks will generally be performed by 5.2m B99 VANs and UTEs, 6.4m small rigid vehicles (SRVs) and 8.8m medium rigid vehicles (MRVs).

2.6.2 Workforce

The Proponent has provided the estimated Full-Time Equivalent (FTE) jobs by construction phase required for the Project. These are anticipated to be the maximum persons on-site, travelling to the site via a combination of light vehicles and Toyota Coaster type shuttle buses, and are as summarised in Table 7.

Table 7 Key Construction Personnel

Phase	Estimated FTE Jobs
Construction Commencement	23
Peak Works	70
Off Peak Works	29
Commissioning	20
Operational	2

2.7 Waste Management Plan

Stor is responsible for end-of-life decommissioning, disposal and recycling of battery waste and anticipates that battery recycling facilities will become available with the increase in the development of BESS. Two battery recycling facilities are already in operation, and this is the current intended destination pending new recycling facilities coming online in the future. Batteries may potentially be returned to the original equipment manufacturer for refurbishment and recycling. Details of the existing two battery recycling facilities are provided in Table 8.

Table 8 Battery Recycling Facilities

Facility Name	Distance (km)	Approximate Travel Time
Envirostream Battery Recycling Facility - 17-19 Maria Street, Laverton North, Victoria	773	8 hours 13 minutes
Ecocycle Recovery and Recycling and EcoBatt - 5-11 Reo Crescent Campbellfield, Victoria	739	7 hours 52 minutes
Ecocycle facility under construction in Brisbane	971	10 hours 50 minutes

3.0 Existing Conditions Appraisal

3.1 Road Network

The characteristics of the road network surrounding the project are summarised in Table 9.

Table 9 Surrounding Road Network Characteristics

Road Name	Jurisdiction	Average Daily Weekday Traffic	Average Daily Weekend Traffic	Average Daily Traffic	Speed Limit	Road Classification
Mitchell Highway	TfNSW	2,555 [1]	2,228 [1]	2,502 [1]	50 km/h [3] – 100 km/h [4]	State Road (#7)
Euchareena Road	Council	430 [2]	-	-	50 km/h [3] – 100 km/h [4]	Collector Road
Back Saleyards Road		20 [2]	-	-	100 km/h [5]	Access Road
Belgravia Road		-	-	-	100 km/h [5]	Collector Road
Strathmore Lane		-	-	-	100 km/h [5]	Access Road

[1] TfNSW Traffic Volume Viewer 2025 (TfNSW Permanent Counter Station ID: T6172S).

[2] Derived from Traffic Surveys outlined in Section 3.2.

[3] Lower posted speed limit (within Molong town centre).

[4] Higher posted speed limit (outside Molong town centre).

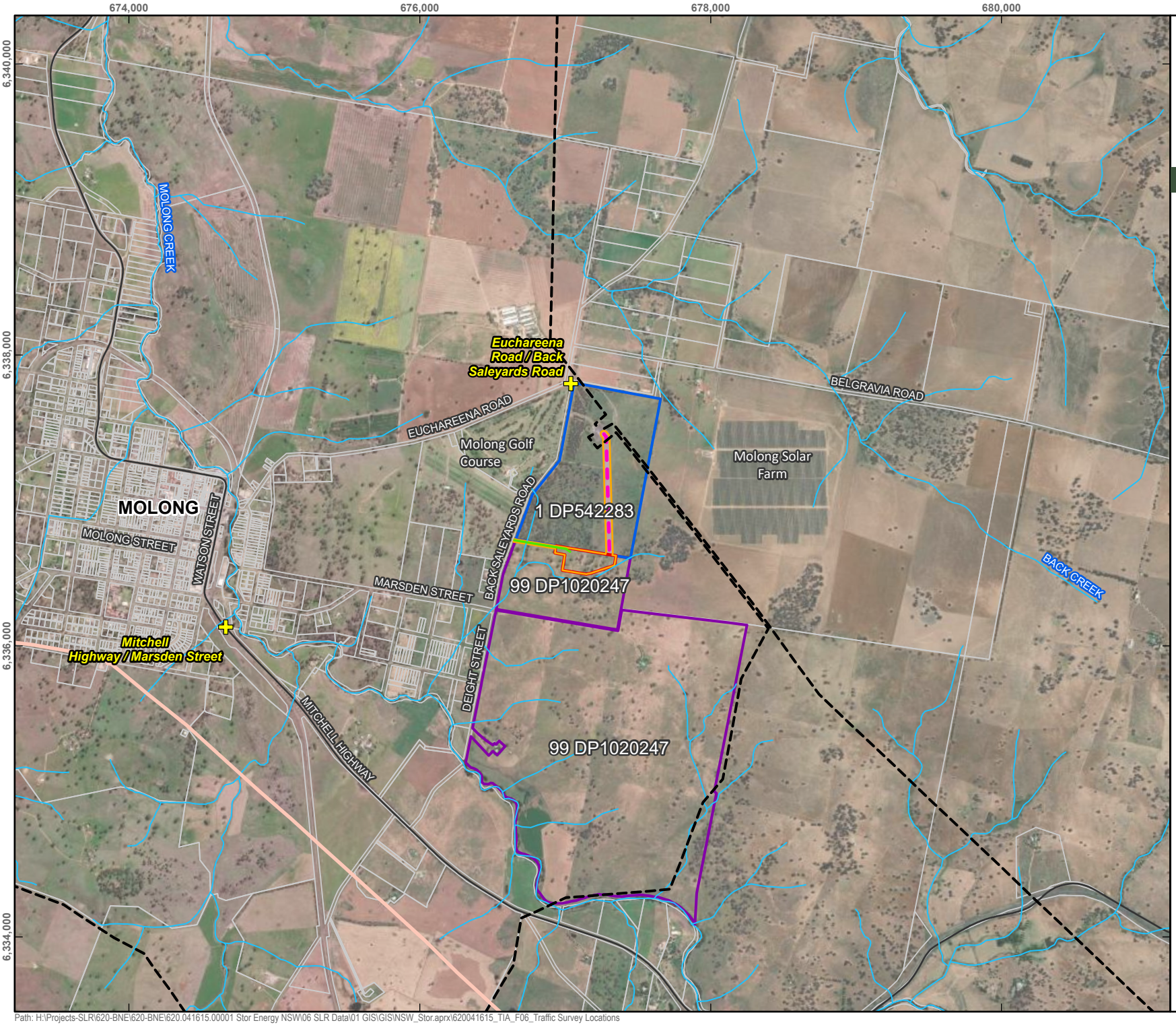
[5] No posted speed limit, therefore the default speed limit applies (100km/h for all roads outside of built-up areas).

3.2 Traffic Surveys

SLR completed a site visit on Thursday 28th November 2024 and Friday 29th November 2024, which included classified intersection count surveys at the following intersections:

- Mitchell Highway/ Marsden Street.
- Euchareena Road/ Back Saleyards Road.

The locations of these intersections relative to the project are illustrated in Figure 6 overleaf.



MOLONG BESS

TRAFFIC SURVEY LOCATIONS

FIGURE 6

LEGEND

- Traffic Survey Location
- Watercourse
- Primary Road
- Proposed Electricity Transmission Line
- Proposed Site Access
- Indicative BESS Area
- Transgrid Substation Site
- BESS Site
- Proposed Easement
- Development Footprint
- Cadastre

Transgrid Line

- 132kV
- 330kV
- 66kV

Service Layer Credits:
Site Access, Lease Area, Grid Connection received from Client 26/08/2024.
Road, Rail, Cadastre, Watercourse, NSW DPIE 2024.
Earthstar Geographics

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

0 500 1,000 m

Coordinate System:	GDA2020 MGA Zone 55
Scale:	1:35,000 at A4
Project Number:	620.041615
Date Drawn:	18-Jun-2025
Drawn by:	JH

SLR

Path: H:\Projects-SLR\620-BNE\620-BNE\620.041615.00001 Stor Energy NSW\06 SLR Data\01 GIS\GIS\NSW_Stor.aprx\620041615_TIA_F06_Traffic Survey Locations

A review of the survey data indicated that the peak hours were as follows:

- Weekday AM peak: 08:30 – 09:30.
- Weekday PM peak: 15:45 – 16:45.

Further to these counts, SLR identified a permanent counter that belongs to TfNSW in the vicinity of the development site. Local to the development, station ID T6172S was determined to be located at 110m north of Molong Creek Bridge on Mitchell Highway. The relevant data has been summarised in Table 10. This data was also used to determine a background traffic growth rate suitable for the local area.

Traffic survey results are provided in Appendix F.

Table 10 TfNSW Traffic Volume Viewer Data

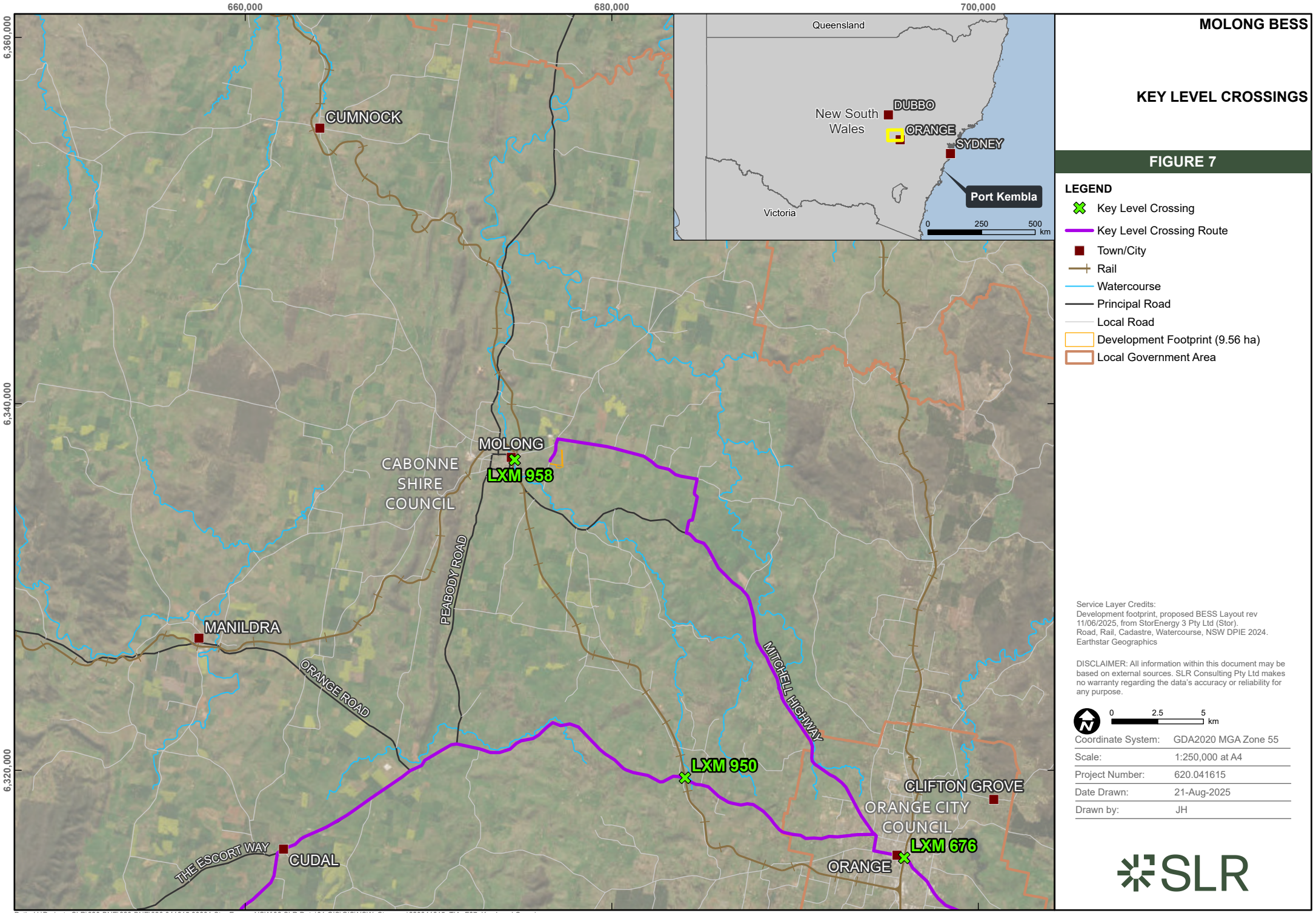
Station ID	Description	Year	Direction	Weekday Daily		AM Peak		PM Peak	
				LV	HV	LV	HV	LV	HV
T6172S	110m North of Molong Creek Bridge on Mitchell Highway	2025	Northbound	853	415	203	127	244	68
			Southbound	885	402	196	82	270	97
			Both	**1,738**	**817**	**399**	**209**	**514**	**165**
		2024	Northbound	870	379	204	114	246	65
			Southbound	900	363	207	79	264	85
			Both	**1,770**	**742**	**411**	**193**	**510**	**150**
		2023	Northbound	845	394	200	118	238	66
			Southbound	889	376	202	80	261	87
			Both	**1,734**	**770**	**402**	**198**	**499**	**153**
		2022	Northbound	863	359	196	103	239	61
			Southbound	911	350	198	75	260	82
			Both	**1,774**	**709**	**394**	**178**	**499**	**143**

3.3 Railway Corridors and Level Crossings

SLR completed a review of the rail corridors and level crossings impacted by the transport route/s proposed in Section 2.4. The NSW Public Level Crossing finder was used to identify the rail crossings or corridors that would be impacted along the route to/ from the site.

Given the significant area covered by the proposed OSOM vehicle route from Port Kembla, it is identified that the OSOM vehicles will need to cross several active and disused rail lines. These rail crossings are typically overpasses (via a bridge for the existing road) or underpasses (via the road running under an existing rail bridge) and are mostly located between Port Kembla and Orange. Based on the available information for overpasses and underpasses, no impacts are anticipated due to the use of OSOM vehicles as part of this project.

The rail crossings or corridors identified as being impacted by the proposed vehicle routes are as illustrated in Figure 7, along with the detailed information provided in



MOLONG BESS

KEY LEVEL CROSSINGS

FIGURE 7

LEGEND

- Key Level Crossing
- Key Level Crossing Route
- Town/City
- Rail
- Watercourse
- Principal Road
- Local Road
- Development Footprint (9.56 ha)
- Local Government Area

Service Layer Credits:
Development footprint, proposed BESS Layout rev 11/06/2025, from StorEnergy 3 Pty Ltd (Stor).
Road, Rail, Cadastre, Watercourse, NSW DPIE 2024.
Earthstar Geographics

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

0 2.5 5 km

Coordinate System:	GDA2020 MGA Zone 55
Scale:	1:250,000 at A4
Project Number:	620.041615
Date Drawn:	21-Aug-2025
Drawn by:	JH

SLR

Path: H:\Projects-SLR\620-BNE\620-BNE\620.041615.00001 Stor Energy NSW\06 SLR Data\01 GIS\GIS\NSW_Stor.aprx\620041615_TIA_F07_Key Level Crossings

Table 11 Key Level Crossings Details

Level Crossing ID	Line Section	Rail (km)	Rail Manager	Controls	Location	Road Name
676	Main West	322.935	UGL Regional Linx	Boom Gates & Flashing Lights	Orange	Summer Street / Mitchell Highway
950	Orange – Broken Hill	339.009	UGL Regional Linx	Boom Gates & Flashing Lights	Borenore	The Escort Way
958	Orange – Broken Hill	360.115	UGL Regional Linx	Boom Gates & Flashing Lights	Molong	Euchareena Road

At Level Crossing Management (LXM) ID 676 on Mitchell Highway, the eastern approach (looking west) is shown in Figure 8, while the western approach (looking east) is shown in Figure 9. This crossing is located near Orange Station.

Figure 8 Mitchell Highway Level Crossing East Approach (ID676)



Source: Google Street View

Figure 9 Mitchell Highway Level Crossing West Approach (ID676)



Source: Google Street View

At LXM ID 950 on The Escort Way, the eastern approach (looking west) is shown in Figure 10, while the western approach (looking east) is shown in Figure 11. This crossing is located near Borenore Station.

Figure 10 The Escort Way Level Crossing East Approach (ID950)



Source: Google Street View

Figure 11 The Escort Way Level Crossing West Approach (ID950)



Source: Google Street View

At LXM ID 958 on Euchareena Road, the eastern approach (looking west) is shown in Figure 12, while the western approach (looking east) is shown in Figure 13. This crossing is located near Molong Station.

Figure 12 Euchareena Road Level Crossing East Approach (ID958)



Source: Google Street View

Figure 13 Euchareena Road Level Crossing West Approach (ID958)



Source: Google Street View

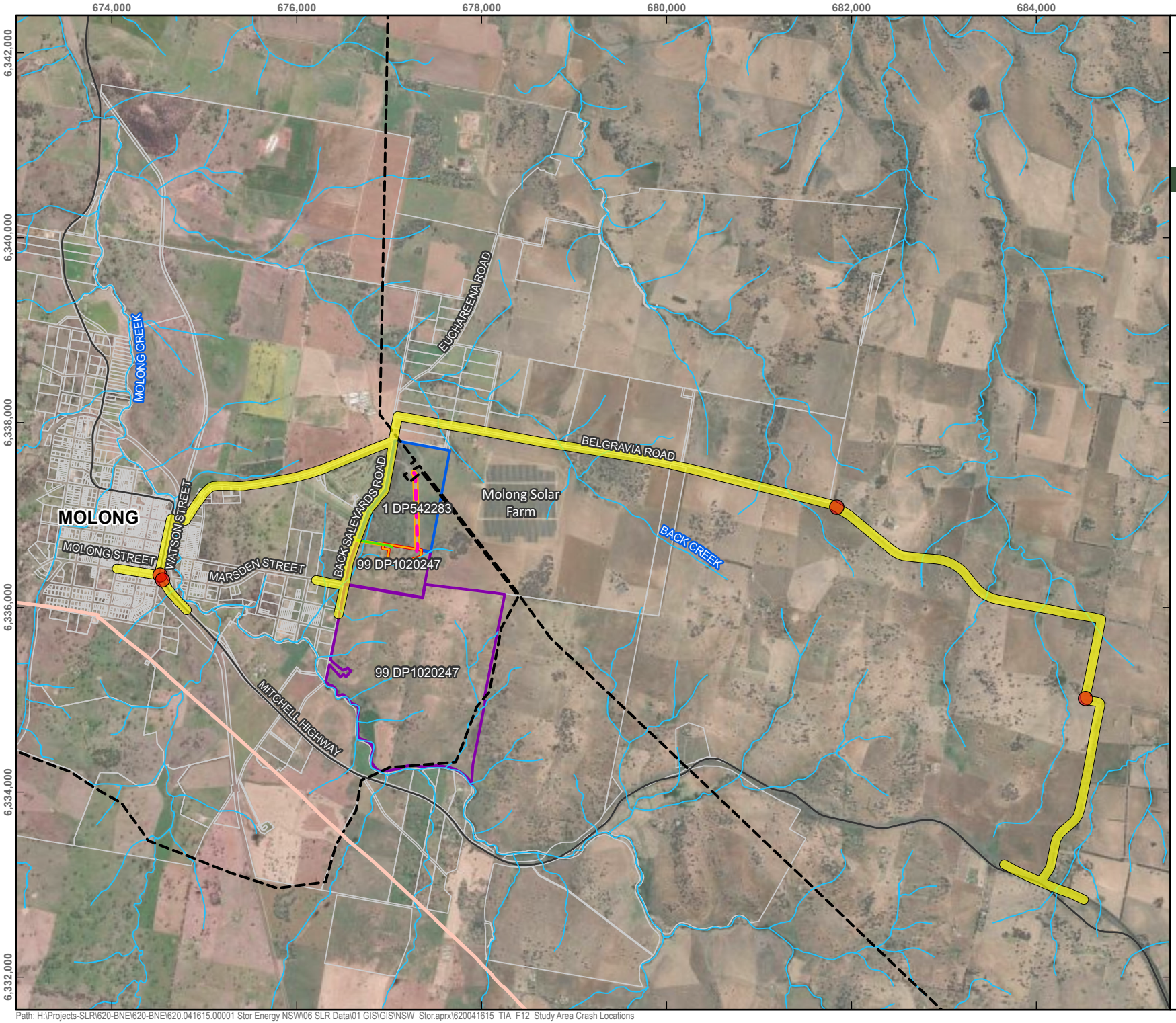
All level crossings have active controls, being a combination of boom gates and flashing lights with good sight lines and reasonable queuing space to the next intersection. Further to this, based on the proposed vehicle routes, heavy vehicles are only expected to navigate through LXM 950 and 676 whilst LXM 958 will primarily be impacted by workforce related movements (B99s and Toyota Coaster Buses).

Based on SLR's review, it has been identified that there is sufficient stacking distance on both sides of the identified level crossings.

3.4 Crash History

To highlight any safety deficiencies in the surrounding road network in proximity to the project, crash data has been extracted from the TfNSW Centre for Road Safety website. Crashes are reported for the latest five-year period (between 2019 and 2023).

The locations of the assessed crash area and reported crashes are illustrated in Figure 14, with details and Road User Movement (RUM) codes also provided in Table 12.



MOLONG BESS

STUDY AREA CRASH LOCATIONS

FIGURE 14

LEGEND

- Crash Location
- Crash Location Study Area
- Watercourse
- Primary Road
- Proposed Electricity Transmission Line
- Proposed Site Access
- Indicative BESS Area
- Transgrid Substation Site
- BESS Site
- Proposed Easement
- Development Footprint
- Cadastre

Transgrid Line

- 132kV
- 330kV
- 66kV

Service Layer Credits:
Site Access, Lease Area, Grid Connection received from Client 26/08/2024.
Road, Rail, Cadastre, Watercourse, NSW DPIE 2024.
Earthstar Geographics

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

0 1 2 km

Coordinate System:	GDA2020 MGA Zone 55
Scale:	1:55,000 at A4
Project Number:	620.041615
Date Drawn:	18-Jun-2025
Drawn by:	JH

SLR

Path: H:\Projects-SLR\620-BNE\620-BNE\620.041615.00001 Stor Energy NSW\06 SLR Data\01 GIS\GIS\NSW_Stor.aprx\620041615_TIA_F12_Study Area Crash Locations

Table 12 Crash Data (2019 – 2023)

Crash Ref.	Year	Location	Severity	RUM[1] Code	RUM Description
1218590	2019	Mitchell Hwy	Non-casualty (towaway)	81	Off carriageway left on right bend into object/ parked vehicle
1248384	2020	Belgravia Rd	Moderate Injury	20	Head on (not overtaking)
1296122	2022	Mitchell Hwy	Serious Injury	20	Head on (not overtaking)
1297271	2022	Strathmore Ln	Non-casualty (towaway)	85	Off carriageway right on left bend into object/ parked vehicle

As shown in Table 12, there were a total of four crashes in the vicinity of the proposed development during the study period. Of these crashes, no reported crashes resulted in fatal injuries.

A review of the RUM codes of these crashes indicates that the majority of the crashes occurred due to vehicles veering off the travel lanes for various reasons. It is noted that of the recorded crashes, none occurred in the immediate vicinity of the development site.

Notwithstanding, it is recommended that a drivers' code of conduct be prepared by the Proponent. It is also recommended that this be conditioned in the development consent.

3.5 Cumulative Traffic Impacts

To determine the location and nature of any planned upgrades of the surrounding network, SLR carried out a review of publicly available material. The review indicated that no major transport infrastructure upgrades planned by TfNSW, DPHI or the Council in the surroundings of the study area could be found publicly.

The Council have provided some details on the Molong Town Centre Activation Project, a medium-term plan over the next 5 to 10 years to provide a schedule of works that will improve and enhance the local community. The plan recognises the importance of the Molong Railway Station adjacent to the Mitchell Highway and will look to incorporate upgrades to amenities local to the area. Further to this, the Council have advised SLR that a residential subdivision would take place in the area between Back Saleyards Road and Molong.

The cumulative traffic impacts of the Project and the identified developments are anticipated to be minimal, as the total traffic generated by all developments is not expected to significantly affect the operational capacity of the local road network. The extent of the impacts will be limited to minor queues occurring occasionally between shifts (where the workforce travels back to their accommodation).

It is understood that, based on the anticipated impacts detailed above, the cumulative traffic impacts would not require any upgrades to enable the proposed Project.

[1] RUM: Road User Movement.

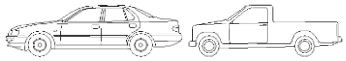
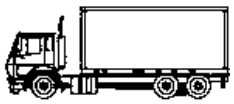
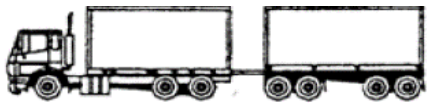
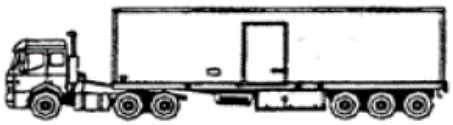
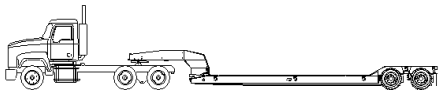
4.0 Project Traffic Demands

4.1 Traffic Generation

4.1.1 Vehicle Fleet

The vehicle fleet anticipated to be associated with the development is shown in Table 13.

Table 13 Project Construction Vehicle Fleet

Vehicle	Typical Vehicle Profile	Approx. Load(t)	Haulage Material / Use
Private Vehicle (B99 design vehicle)		-	Workforce Travel
Concrete Mixer Truck (6.0m3 - 4 or 5 Axle)		15t	Concrete
HRV (12.5m)		12t	Waste, Water, Fuel, Oil, Hydraulic Fluids, Sewage, Various Miscellaneous
Truck and Dog Trailer Combination (20m - 7 Axle)		25t	Quarry Products Aggregates
AV (20m - 6 Axle)		25t	Demountables Inverter Delivery Various Equipment
Low Loader (25m - 5 Axle)		25t	Plant Mobilisation Construction Demobilisation Various Equipment
Class 1 OSOM Prime Mover and Goose-Neck Low Loader with Dolly (Up to 23m)	*Non typical profile*	43t	Battery Units
Class 1 OSOM 33m prime mover with a 10-axle flatbed trailer with a two-axle dolly	*Non typical profile*	160t	Large Power Transformer

It is noted that all OSOM haulage is assumed to originate from Port Kembla and is subject to further transportation logistics planning.

4.1.2 Construction Phase

Traffic that will be generated during the construction of the proposed development will largely be associated with the transportation of the workforce, materials and equipment. To simplify the construction traffic, SLR has broken down the traffic-generating elements of the proposed works into the following classes:

- Workforce.

- Heavy Vehicle Traffic associated with:
  - Site Clearance and Establishment.
  - Substation.
  - Battery Area.
  - Transmission Line.
  - Miscellaneous (sewerage, waste, water, fuel, oils, hydraulic oils) Deliveries.

4.1.2.1 Workforce Movements

The indicative workforce assumptions based on information provided by Stor, supplemented by further assumptions made by SLR, are set out in Table 14.

Table 14 Construction Workforce Assumptions

Element	Assumption	Source & Comments
Construction Duration	13 months total Assumed conservative construction period of 12 months for the traffic assessment (excl. Sundays and public holidays = 300 work days).	The Proponent.
Workforce	Construction commencement (23 staff) Main construction – Off Peak (29 staff) Main construction – Peak (70 staff) Commissioning (20 staff).	The Proponent. Assume staff will not travel to the accommodation for lunch.
Travel Arrangements	Assume 75% travel by coaster bus (22 seats). 25% travel by light vehicles.	The Proponent.
Roster	6 days on/ 1 day off	The Proponent.
Construction Hours	Weekdays: 7:00am – 6:00pm (Monday – Friday) Weekend: 8:00am – 1:00pm (Saturday)	The Proponent.
Accommodation	50% Orange 50% Molong	The Proponent.

Based on the assumptions outlined in Table 14, the number of vehicles for each construction phase, broken down by day and construction phase, is summarised in Table 15 overleaf.

Table 15 Construction (Excluding Commissioning) Workforce Travel Arrangements

Construction Phase	Duration (months)	Work Days (excl. PH[2])	Staff Numbers (per Day)			No. of Vehicles (per Day)			No. of Vehicles (per Phase)		
			In LV[3]	In Bus	Total	Car	Bus	Total	Car	Bus	Total
Construction (Early Stages)	2	51	6	17	23	6	2	8	306	102	408
Construction (Core Stages)	8	197	7	22	29	7	2	9	1,379	394	1,773
Construction (Peak Stage)	2	51	17	53	70	17	4	21	867	204	1,071
Total	**12**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2,552**	**700**	**3,252**

As summarised in Table 14 above, it is anticipated that 3,252 inbound trips and 3,252 outbound trips associated with the workforce will occur during the construction of the Project (across 300 business days and 12 months).

4.1.2.2 Construction Heavy Vehicle Movements

Table 16 to Table 20 overleaf provide an overview of the heavy vehicle traffic assumptions that were partly supplied by the client and partly developed by SLR based on previous experience.

[2] PH: public holidays.

[3] LV: light vehicles.

Table 16 BESS, Substation and Transmission Line Site Clearance and Establishment

Element	Assumption	Delivery Method	Anticipated Trips	Source
Site compound	Dongers or similar	20m AV	16 inbound and 16 outbound trips.	The Proponent.
Site compound	Storage containers	20m AV	16 inbound and 16 outbound trips.	As above.
Site compound	Workshop area	20m AV	20 inbound and 20 outbound trips.	As above.
Site compound	Gravel	20m Truck & Dog Trailer Combination	14 inbound and 14 outbound trips.	As above.
Site compound	Workstations and other equipment	HRV	16 inbound and 16 outbound trips.	As above.
Site compound	Sewerage tank	20m AV	8 inbound and 8 outbound trips.	As above.
Construction vehicles	Roller compactor	Low Loader (25m)	8 inbound and 8 outbound trips.	As above.
Construction vehicles	Excavator	Low Loader (25m)	14 inbound and 14 outbound trips.	As above.
Construction vehicles	Grader	Low Loader (25m)	6 inbound and 6 outbound trips.	As above.
Construction vehicles	Dozer (e.g. D5)	Low Loader (25m)	8 inbound and 8 outbound trips.	As above.
Construction vehicles	Crane	Prime Mover and Low Loader with Dolly (Gooseneck) (30m)	4 inbound and 4 outbound trips.	The Proponent & SLR
Construction vehicles	Crane ballast and accessories	20m AV	16 inbound and 16 outbound trips.	The Proponent.
Construction vehicles	Concrete pump	HRV	18 inbound and 18 outbound trips.	As above.
Construction vehicles	Dump truck	Low Loader (25m)	14 inbound and 14 outbound trips.	As above.
Materials	Bench - road base	20m Truck & Dog Trailer Combination	561 inbound and 561 outbound trips.	As above.
Materials	Access track	20m Truck & Dog Trailer Combination	39 inbound and 39 outbound trips.	As above.
Equipment	Culverts or similar	20m AV	3 inbound and 3 outbound trips.	As above.
TOTAL Trips for Site Clearance and Establishment			**781 inbound and 781 outbound trips.**	

Table 17 Substation – Construction Materials and Equipment

Element	Assumption	Delivery Method	Anticipated Trips	Source
Construction vehicles	Fuel, oil and hydraulic fluids	HRV	6 inbound and 6 outbound trips.	The Proponent.
Construction vehicles	Elevated work platform	HRV	8 inbound and 8 outbound trips.	As above.
Equipment	Transformer - 132/33 kV Transformer	Beam set on two platform trailers, up to five prime movers (max. 110m)	1 inbound and 1 outbound trip.	The Proponent & SLR
Equipment	Transformer accessories	20m AV	6 inbound and 6 outbound trips.	The Proponent.
Equipment	Transformer oil	20m AV	9 inbound and 9 outbound trips.	As above.
Equipment	Switch room	Prime Mover and Low Loader with Dolly (Gooseneck) (30m)	1 inbound and 1 outbound trip.	The Proponent & SLR
Equipment	Control room	Prime Mover and Low Loader with Dolly (Gooseneck) (30m)	1 inbound and 1 outbound trip.	The Proponent & SLR
Equipment	Auxiliary transformers	20m AV	3 inbound and 3 outbound trips.	The Proponent.
Equipment	Earthing transformers	20m AV	2 inbound and 2 outbound trips.	As above.
Equipment	Gantry superstructure	20m AV	4 inbound and 4 outbound trips.	As above.
Equipment	Structures, outdoor bus bars, CBs, VTs, surge arrestors, disconnectors.	20m AV	20 inbound and 20 outbound trips.	The Proponent & SLR
Equipment	Harmonic filters	20m AV	4 inbound and 4 outbound trips.	The Proponent.
Equipment	Fencing	20m AV	10 inbound and 10 outbound trips.	As above.
Equipment	Conductors	20m AV	5 inbound and 5 outbound trips.	As above.
Materials	Foundation - concrete	Concrete Mixer Truck (6.0m3)	25 inbound and 25 outbound trips.	As above.
Materials	Gravel (earthing)	20m Truck & Dog Trailer Combination	15 inbound and 15 outbound trips.	As above.
TOTAL Trips for Substation – Construction Materials and Equipment			**120 inbound and 120 outbound trips.**	

Table 18 Battery Area - Construction Materials and Equipment

Element	Assumption	Delivery Method	Anticipated Trips	Source
Construction vehicles	Fuel, oil and hydraulic fluids	HRV	6 inbound and 6 outbound trips.	The Proponent.
Equipment	Battery containers	Prime Mover and Low Loader with Dolly (Gooseneck) (30m)	200 inbound and 200 outbound trips.	The Proponent & SLR
Equipment	PCSs	20m AV	50 inbound and 50 outbound trips.	The Proponent.
Equipment	MV Transformers - MV Twin Skid Unit	20m AV	25 inbound and 25 outbound trips.	The Proponent & SLR
Equipment	Auxiliary transformers	20m AV	4 inbound and 4 outbound trips.	The Proponent.
Equipment	Conductors	20m AV	10 inbound and 10 outbound trips.	As above.
Equipment	Operations and maintenance building	20m AV	3 inbound and 3 outbound trips.	The Proponent & SLR
Equipment	Water tanks	20m AV	4 inbound and 4 outbound trips.	The Proponent.
Materials	Foundation - concrete	Concrete Mixer Truck (6.0m3)	236 inbound and 236 outbound trips.	As above.
TOTAL Trips for Battery Area – Construction Materials and Equipment			**538 inbound and 538 outbound trips.**	

Table 19 Transmission Line - Construction Materials and Equipment

Element	Assumption	Delivery Method	Anticipated Trips	Source
Construction vehicles	Fuel, oil and hydraulic fluids	HRV	4 inbound and 4 outbound trips.	The Proponent.
Construction vehicles	Franna / small crane	HRV	2 inbound and 2 outbound trips.	As above.
Construction vehicles	Crane for stringing	Prime Mover and Low Loader with Dolly (Gooseneck) (30m)	2 inbound and 2 outbound trips.	As above.
Construction vehicles	Crane accessories	20m AV	2 inbound and 2 outbound trips.	As above.
Equipment	Monopole towers	20m AV	6 inbound and 6 outbound trips.	As above.
Equipment	Conductors	20m AV	8 inbound and 8 outbound trips.	As above.
Equipment	Stays, fixtures and fittings	20m AV	2 inbound and 2 outbound trips.	As above.
Equipment	Gantry superstructure	20m AV	4 inbound and 4 outbound trips.	As above.
Equipment	Structures, outdoor bus bars, CBs, VTs, surge arrestors, disconnectors.	20m AV	5 inbound and 5 outbound trips.	As above.
Equipment	Optical Ground Wire - 900m of cable	20m AV	2 inbound and 2 outbound trips.	As above.
Equipment	Overhead Earth Wire - 900m of cable	20m AV	2 inbound and 2 outbound trips.	As above.
Equipment	132kV Transmission Line - 900m of cable x 3 lines	20m AV	6 inbound and 6 outbound trips.	As above.
Materials	Foundation - concrete	Concrete Mixer Truck (6.0m^3)	11 inbound and 11 outbound trips.	As above.
TOTAL Trips for Transmission Line – Construction Materials and Equipment			**56 inbound and 56 outbound trips.**	

Table 20 Miscellaneous Items

Element	Assumption	Delivery Method	Anticipated Trips	Source
Miscellaneous	Various minor components, parcels, office supplies etc.	HRV	720 inbound and 720 outbound trips.	The Proponent.
Miscellaneous	Water – 6 water trucks per week for construction duration	HRV	342 inbound and 342 outbound trips.	SLR assumption based on previous similar projects.
Miscellaneous	Sewerage – 1 sewerage pump truck per week for construction duration	HRV	57 inbound and 57 outbound trips.	SLR assumption based on previous similar projects.
Miscellaneous	Waste – 1 waste truck per week for construction duration	HRV	57 inbound and 57 outbound trips.	SLR assumption based on previous similar projects.
Miscellaneous	Fuel, Oils and Hydraulic Fluids – 1 fuel truck per week for construction duration	HRV	57 inbound and 57 outbound trips.	SLR assumption based on previous similar projects.
Miscellaneous	Various Plant Equipment	19m AV	100 inbound and 100 outbound trips.	The Proponent.
TOTAL Trips for Miscellaneous Items			**1,333 inbound and 1,333 outbound trips.**	

Based on the information and assumptions provided in Table 16 to Table 20, it is anticipated that a maximum of 2,828 inbound trips and 2,828 outbound trips associated with the heavy vehicles will occur during the construction of the Project (across 300 business days and 12 months).

4.1.2.3 Total Vehicle Movements

Based on the information provided in Table 14 to Table 20, SLR estimates that across the 12-month construction period (assumed 300 working days), there will be a total of 6,080 inbound trips and 6,080 outbound trips (light vehicle, heavy vehicle and OSOM vehicle combined).

4.1.2.4 Peak Period Vehicle Movements

Construction traffic is anticipated to peak during a two-month period. During this period, heavy vehicle movements could be as high as 20 inbound and 20 outbound vehicles per day.

Accordingly, it is anticipated that peak construction daily traffic generation will be in the order of 41 inbound and 41 outbound trips a day, with the following breakdown:

- 15 inbound and 15 outbound heavy vehicle trips.
- 5 inbound and 5 outbound OSOM vehicle trips.
- 17 inbound and 17 outbound light vehicle trips.
- 4 inbound and 4 outbound Toyota Coaster type shuttle bus trips.

Based on SLR's experience with similar BESS developments and a review of recent TIAs prepared by others for similar BESS developments, SLR is of the view that the analysis provided above is sufficiently conservative.

4.1.3 Operational Phase

The operational traffic demands associated with the development are expected to be minimal and limited to maintenance crews' movements. Therefore, the operational traffic of this development is not considered a critical element within this traffic assessment. Nonetheless, the Proponent has indicated that 2 FTE personnel will be frequenting on site for the operational phase (30 years).

4.1.4 Decommissioning Phase

The project is proposed to be decommissioned and the infrastructure removed following the end of life of the BESS. Works will be undertaken to return the Development Footprint as close as possible to its original state and use.

The standard construction hours and heavy vehicles, plant, and equipment required for the construction of the project would also apply to the decommissioning phase. It is anticipated the total vehicle movements will be substantially less during this phase (approximately 50% of heavy vehicle movements).

4.2 Traffic Volumes

The peak hour development traffic volumes were calculated using the traffic volumes outlined in Section 4.1. The construction traffic generation was considered in terms of light and heavy vehicle movements.

For conservativeness, a peak hour estimate was established by assuming that the daily peak construction vehicles were to arrive at the project during either 1-hour peak periods (50% in the AM peak hour and 50% in the PM peak hour) instead of spreading out equally across the workday (11 hours).

The traffic generated by the workforce was assumed to follow a similar pattern, with the light vehicles arriving during the AM peak hour and departing during the PM peak hour. The Toyota Coaster type shuttle buses were assumed to arrive and depart during the AM peak and PM peak hours; respectively.

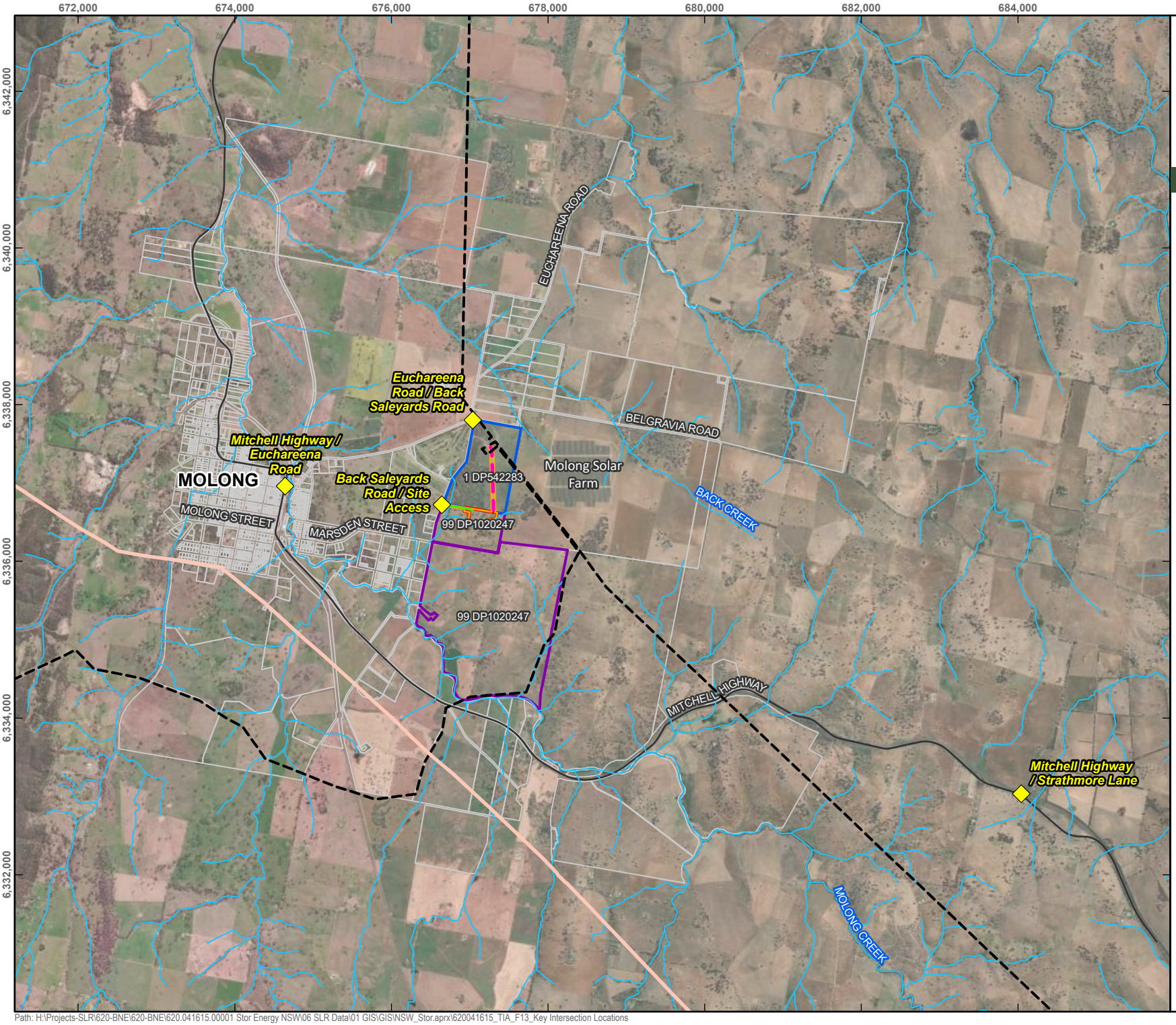
The background traffic was determined by intersection count surveys in the vicinity of the site at two key locations. Peak hour traffic was determined from these surveys as discussed in Section 3.2 earlier in this report.

The peak hour movements generated by the construction traffic, the anticipated workforce and the determined background traffic were collated and summed up in desktop models (traffic flow diagrams), which are provided in Appendix G.

5.0 Traffic Engineering Considerations

5.1 Key Intersections

The key intersections where SLR's traffic engineering considerations and operational assessments were focused on are illustrated in Figure 15. These intersections were chosen based on the proposed transport routes, vicinity to the Project and the anticipated transport impacts of the development.



MOLONG BESS

KEY INTERSECTION LOCATIONS

FIGURE 15

LEGEND

- Key Intersection Location
- Watercourse
- Primary Road
- Proposed Electricity Transmission Line
- Proposed Site Access
- Indicative BESS Area
- Transgrid Substation Site
- BESS Site
- Proposed Easement
- Development Footprint
- Cadastre

Transgrid Line

- 132kV
- 330kV
- 66kV

Service Layer Credits:
Site Access, Lease Area, Grid Connection received from Client 26/08/2024.
Road, Rail, Cadastre, Watercourse, NSW DPIE 2024.
Earthstar Geographics

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

0 1 2 km

Coordinate System:	GDA2020 MGA Zone 55
Scale:	1:65,000 at A4
Project Number:	620.041615
Date Drawn:	18-Jun-2025
Drawn by:	JH

SLR

Path: H:\Projects-SLR\620-BNE\620-BNE\620.041615.00001 Stor Energy NSW\06 SLR Data\01 GIS\GIS\NSW_Stor.aprx\620041615_TIA_F13_Key Intersection Locations

5.2 Sight Distance Assessments

A sight distance assessment was undertaken at the Euchareena Road/ Back Saleyards Road intersection in accordance with the following:

- *Part 4A: Unsignalised and Signalised Intersection of the Austroads Guide to Road Design.*
- *Part 3: Guide to Road Design: Geometric Design of the Austroads Guide to Road Design.*

Safe Intersection Sight Distance (SISD) is the minimum sight distance which should be provided on the major road at any intersection, providing sufficient distance for a driver of a vehicle on the major road to observe a vehicle on the minor road moving into a collision situation (e.g., in the worst case, stalling across the traffic lanes), and to decelerate to a stop before reaching the collision point. The required SISD was calculated for the access location per the *Austroads Guide to Road Design, Part 4A, Section 3.2.2 (Safe Intersection Sight Distance)*. The formula applied is illustrated in Equation 1.

Equation 1 SISD Formula

$$SISD = \frac{D_T \times V}{3.6} + \frac{V^2}{254 \times (d + 0.01 \times a)}$$

where

SISD	=	safe intersection sight distance (m)
D_T	=	decision time (sec) = observation time (3 sec) + reaction time (sec) – refer to *AGRD Part 3* (Austroads 2016a) for a guide to values
V	=	operating (85th percentile) speed (km/h)
d	=	coefficient of deceleration – refer to Table 3.3 and AGRD Part 3 for a guide to values
a	=	longitudinal grade in % (in direction of travel: positive for uphill grade, negative for downhill grade)

5.2.1 SISD Calculations

For the purposes of the SISD assessments, the grading of the road was determined from data provided by the Intergovernmental Committee on Surveying and Mapping (ICSM), which provides the Digital Elevation Models (DEM) of the NSW Government Spatial Services.

5.2.1.1 Back Saleyards Road Access

The vertical and horizontal alignments of Back Saleyards Road at the proposed site access are reasonably flat and straight. Both approaches are straight with no substantial horizontal curves that limit sight distances.

5.2.1.2 Euchareena Road/ Back Saleyards Road Intersection

Given the visibility concerns around the vertical crest on Euchareena Road, an SISD assessment was completed at the Euchareena Road/ Back Saleyards Road intersection. The elevation profile and road gradient between the Euchareena Road/ Belgravia Road Intersection (towards north) to the Euchareena Road/ Back Saleyards Road intersection were determined from the DEM data and are shown in Figure 16 overleaf.

Figure 16 Elevation Profile

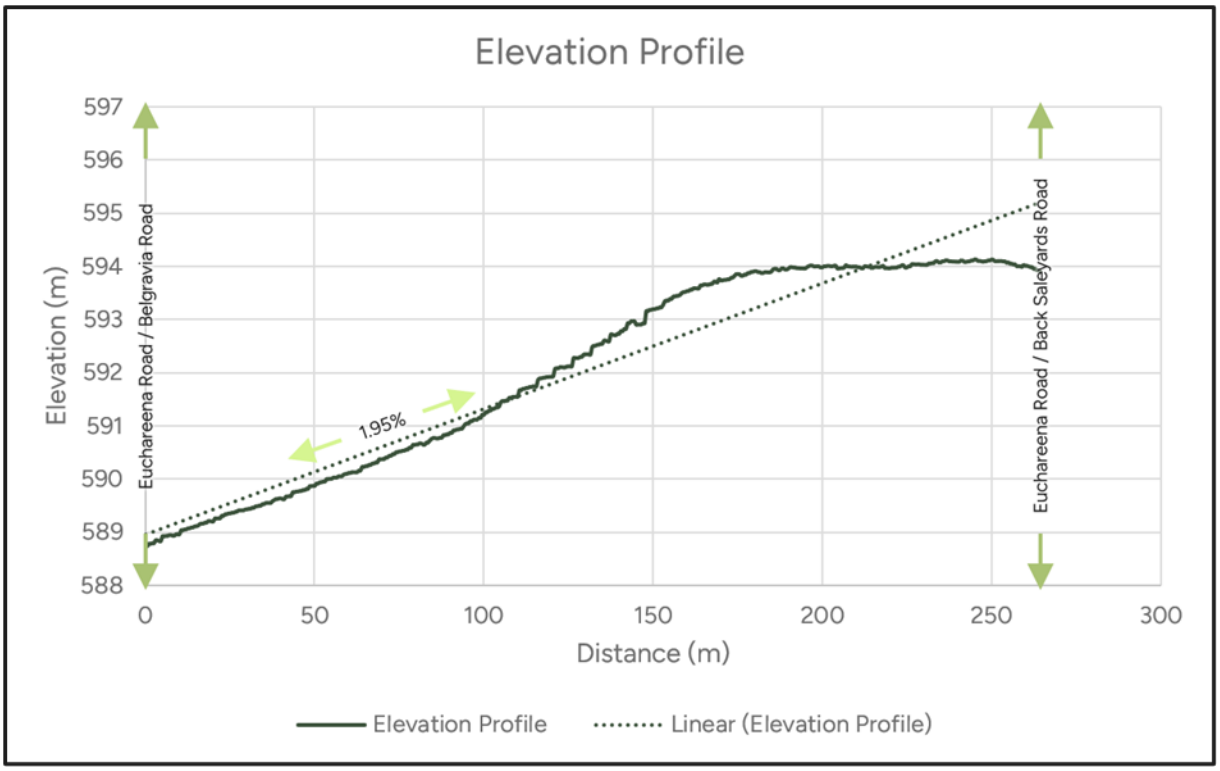


Table 21 below summarises the required stopping sight distance for heavy vehicles at Euchareena Road/ Back Saleyards Road intersection. The design speed is assumed to be 10 km/h above the speed limit (100 km/h) on the major leg (Euchareena Road), although SLR is of the view that heavy vehicles will not be able to reach 100 km/h speed at this location due to its uphill nature.

Table 21 SISD and Parameters (Euchareena Rd/ Back Saleyards Rd)

Approach	D_T (s)	V (km/h)	d	a (%)	SISD (m)
North	5	110	0.36	+2	278
Southwest	5	110	0.36	0	285

Table 22 overleaf provides a justification for the applied parameters in the SISD calculations adopted in Table 21 above.

Table 22 SISD Parameter Justification (Euchareena Rd/ Back Saleyards Rd)

Parameter	Justification
D_T (s)	A reaction time of 2 seconds and an observation time of 3 seconds was adopted as the operation is usually from a stopped position.
V (km/h)	The 85th percentile operating speed at the access is assumed to be 10km/h above the posted limit. Based on this, an 85th percentile speed of 110 km/h was adopted.
d	*Austroads Guide to Road Design, Part 3: Guide to Road Design, Section 5.2.3 (Longitudinal Deceleration* specifies that a coefficient of deceleration of 0.36 is the "Desirable value for calculating minimum stopping sight distance for most urban and

Parameter	Justification
	rural road types, and level crossings". Therefore, a deceleration coefficient rate of 0.36 was adopted for the purposes of the stopping sight distance calculations.
a (%)	The following average longitudinal grades were determined using topographical data: • North Approach: +2%. • Southwest Approach: 0%.

Both approaches are straight with no substantial horizontal curves that limit sight distance for greater than the identified SISDs. It is noted that the concern is predominantly around the vertical curvature (crest) in the north approach (southbound direction), where the visibility from inside a light vehicle may be limited at the current posted speed limit. The visibility from the north approach is illustrated in Figure 17 and Figure 18, assuming the following parameters taken from AGRD04A-23 Section 3.3.2 Figure 3.2:

- Major road approach car driver eye height: 1.1m.
- Minor road top of car height: 1.25m.
- Minor road top of truck height: 2.4m.

Figure 17 Crest Visibility with a Car on a Minor Road



Figure 18 Crest Visibility with Truck on Minor Road



5.2.2 SISD Results

For vehicles at the driveway access, the current SISD are considered appropriate. Light vehicles approaching the Euchareena Road/ Back Saleyards Road intersection from the north will have limited visibility and, therefore, will not satisfy the SISD requirements at this intersection for the current posted speed limit. However, trucks on the minor road can be seen, allowing heavy vehicles on Euchareena Road to safely navigate the intersection.

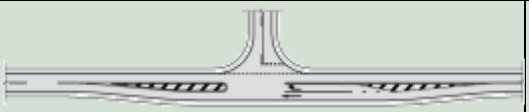
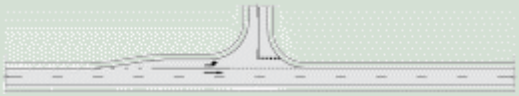
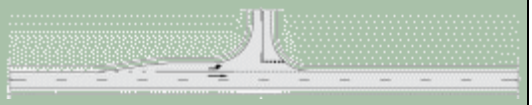
It is recommended that during the construction and decommissioning phases of the Project, the implementation of the following temporary traffic management measures should be considered at the Euchareena Road/ Back Saleyards Road intersection to mitigate the limitations with the SISD:

- Temporary speed reduction measures on Euchareena Road to reduce the sight distance requirements.
- Advanced warning signage advising approaching motorists along the major leg (Euchareena Road) of construction activities at the minor leg (Back Saleyards Road).

5.3 Turn Lane Warrant Assessments

The assessment includes a variety of industry-recognised analysis methods that determine the appropriate design requirements for each intersection location based on the anticipated future traffic demands as well as geometric considerations. A turn lane warrant assessment has been undertaken to establish the desirable form of the assessed intersections in accordance with the industry research summarised within the *Austroads Guide to Road Design Part 4A*. The warrants provide guidance on where turning lanes should be provided based on the design traffic volumes. To aid the reader's interpretation of the assessment, Table 23 provides a pictorial description of the various turn treatments considered.

Table 23 Turn Treatment Types

Acronym	Right Turn Treatment	Left Turn Treatment
BAL or **BAR**	 **BAR** (Basic Right Turn)	 **BAL** (Basic Left Turn)
AUL(S) or **CHR(S)**	 **CHR(S)** (Channelised Right Turn (Short))	 **AUL(S)** (Auxiliary Left Turn (Short))
(AUL or **CHL)** or **CHR**	 **CHR** (Channelised Right Turn)	 **CHL** (Channelised Left Turn)  **AUL** (Auxiliary Left Turn)

Source: Austroads Guide to Road Design Part 4A (Austroads)

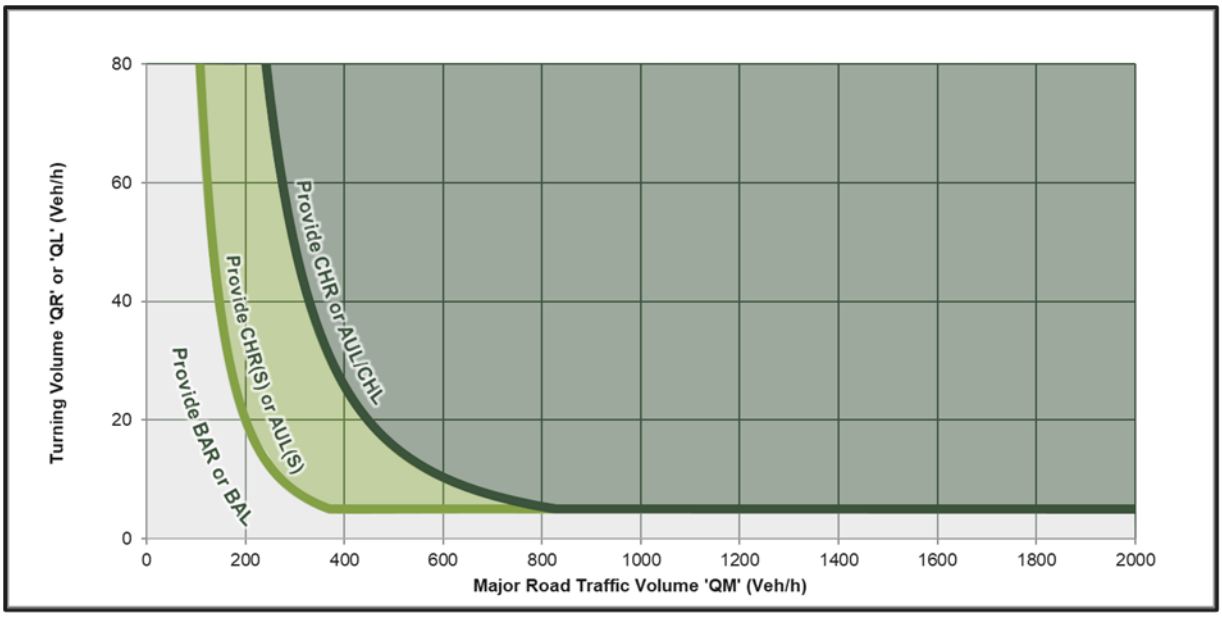
As background, it is identified that the warrants were produced by establishing the conflicting traffic volumes at which the benefits of providing a higher level of treatment (i.e., the reduction in estimated crash costs) are equal to the additional construction costs associated with delivering the higher treatment. The benefits and costs of a higher-level treatment were compared to the base case (minimum turn treatments).

Relevant to the assessment presented herein, the research assumed the following:

- The warrants are strictly applicable to the construction of intersections on new roads (i.e., greenfield sites). Applying the warrants as adopted herein is a conservative assessment for existing roads, as it tends to over-estimate the benefit ratio of providing higher-order treatments.
- The warrants are intended to be utilised to determine appropriate turn treatments at the intersection of public roads. They are not strictly intended to be utilised for private access locations (such as driveways). Therefore, their application to private access locations, as adopted herein, is conservative as it ensures that private accesses are afforded the same standard of safety as public road intersections.

The turn warrants for a greenfield site, with a design speed of greater than 100 km/h and a benefit duration of 10 years, are illustrated in Figure 19.

Figure 19 Turn Warrants – Major Road Turn Treatments (Design Speed ≥ 100km/h)



It is critical to note that Turn Warrant Assessments are typically undertaken for a 10-year design horizon, which is significantly longer than the anticipated duration of construction works (12 months). Similarly, the turn warrant assessment figures (Figure 3.25) in AGTM06-20 – Part 6: Intersections, Interchanges, and Crossings Management (2020) are prepared for 10 years for right-turn and left-turn treatments, consistent with Commentary 9 in their document.

Based on the fact that the proposed development will generate regular traffic for the duration of construction works (12 months), SLR has also undertaken another assessment for each peak period based on the recommended equation Figure 20, consistent with Transport and Main Roads (TMR) (QLD) Road Planning and Design Manual (RPDM), which ultimately informed the Austroads Guidelines.

Figure 20 Warrants for Unsignalised Intersection Turn Treatments

$$C_{RM} = 2.75\times10^{-12}\times C_A \times T_{DL} \times Q_i^{\,0.406} \times Q_M^{\,0.912} \times S_{MT}^{\,2.94} \times (e^{TT_M} - e^{TT_A}) \qquad (13.1)$$

13

where

C_{RM} = safety benefit of using the higher order turn treatment ($)

C_A = average cost of a Rear-End-Major vehicle accident = $38,974 from Arndt (2004)

T_{DL} = design life (years)

Q_i = turning traffic flow from the major leg (veh/h) (Q_R or Q_L as per Figure 13.24)

Q_M = traffic flow on the major legs according to Figure 13.24 (veh/h)

S_{MT} = 85th percentile through major road speed (km/h)

TT_M = type of lower-order turn treatment (values given below)

TT_A = type of higher-order turn treatment (values given below)

Table 24 overleaf provides a summary of the recommended intersection treatments for the key intersections and proposed access driveway crossover under the AM peak and PM peak traffic conditions, assuming a 2-year traffic impact despite the works will be completed in 12-

months. The detailed turn warrant assessments (2-Year Benefit Period) for each intersection are provided in Appendix H.

Table 24 Turn Warrant Assessment Summary (2-Year Benefit Period)

ID	Intersection Name	Required Turn Treatments
D1	Back Saleyards Road/ Site Access	Basic Left Turn (BAL)/ Basic Right Turn (BAR)
I1	Euchareena Road/ Back Saleyards Road	BAL/ BAR
I2	Mitchell Highway/ Euchareena Road	BAL/ BAR
I3	Mitchell Highway/ Strathmore Lane	BAL/ BAR

For the completeness of this report, Table 25 below provides a summary of the recommended intersection treatments for the key intersections and proposed access driveway crossover under the AM peak and PM peak traffic conditions, assuming a 10-year traffic impact. The detailed turn warrant assessments for each intersection are provided in Appendix H.

Table 25 Turn Warrant Assessment Summary (10-Year Benefit Period)

ID	Intersection Name	Required Turn Treatments
D1	Back Saleyards Road/ Site Access	Basic Left Turn (BAL)/ Basic Right Turn (BAR)
I1	Euchareena Road/ Back Saleyards Road	BAL/ BAR
I2	Mitchell Highway/ Euchareena Road	BAL/ BAR
I3	Mitchell Highway/ Strathmore Lane	BAL/ Channelised Right Turn (CHR)

Due to the very low through and turning volumes, no major turn lane treatments are required at the driveway access (D1) or study intersections I1 and I2.

At I3 – Mitchell Highway/ Strathmore Lane, the turn warrant assessment shows that a CHR-type turn treatment would be required if the works generated traffic for 10-years. It is noted that this intersection in its existing form readily has dedicated turn lanes for left-turn and right-turn movements, which exceed the requirements for BAL and CHR(S - short). Further discussion on appropriate turn treatments for this intersection is provided in Section 5.3.1.

The access driveway (D1) should be designed with a BAL because all vehicles will approach from and depart to the north. The Euchareena Road/ Back Saleyards Road intersection (I1) should be designed with a BAL for heavy vehicle movements and a BAR for light vehicle movements.

No upgrades are considered necessary for all other intersections based on the fact that the Mitchell Highway/ Euchareena Road intersection readily has an overtaking lane to travel around vehicles turning right into Euchareena Road from Mitchell Highway. This intersection readily has an Auxiliary Right Turn (AUR) arrangement and exceeds the BAR requirements.

SLR recommends that light vehicle drivers travelling to the site also be requested to review and sign the drivers' code of conduct, in addition to the heavy vehicle drivers. The drivers' code of conduct, which will be developed as part of the post-approval CTMP, will detail the appropriate measures put in place in the vicinity of the site (i.e. sight distances).

5.3.1 Intersection 3 – Mitchell Highway/ Strathmore Lane Turn Warrants

5.3.1.1 Short-term high volume use of intersections

Whilst it is acknowledged that the provision of the highest order treatment, such as the CHR, would provide a higher level of safety, this would be only appropriate for long-term usage as outlined in AGTM06-20 (i.e. 10 years).

Building on the research that underpinned the original methodology in AGTM06-20, a set of Expanded Warrants for Unsignalised Intersection Turn Treatments (Sullivan & Arndt, 2014) was published, detailing “Short-term high volume use of intersections”. This research is adopted in TMR’s Technical Note 199 (TN199) – Guidance for the design of temporary roads provided at Appendix K.

The purpose of these expanded warrants is to address the temporary use of the road network where a relationship was established between crash reduction benefits for both normal and high-use traffic conditions. The warrants for short-term high-volume use of intersections only provide recommendations for BAR or CHR(S) type turn treatments, and do not provide any recommendations for CHR type turn treatments. Further to this, adopting the new warrants show that a BAR turn treatment is sufficient at Intersection 3.

On the basis of these expanded warrants, the existing AUL(s) & CHR(s) turn treatments at Intersection 3 – Mitchell Highway/ Strathmore Lane are considered appropriate for the temporary increase in traffic due to the Project construction phase.

5.3.1.2 Conservative AM and PM Peak Hour Movements

It is also crucial to note that SLR’s AM and PM peak hour movements are highly conservative. For a conservative assessment, SLR undertook the traffic analysis based on the following assumption:

- 50% of daily heavy vehicle traffic would occur in the AM peak hour.
- 50% of daily heavy vehicle traffic would occur in the PM peak hour.

Based on these unlikely assumptions, the turn warrant assessment resulted in the lower end of the CHR for the PM peak hour for the 10-year benefit scenario. In SLR’s opinion, a CHR is certainly not required, and the existing CHR-S is sufficient.

6.0 Operational Assessment

6.1 Assessment Scenarios

For the purposes of the traffic assessment, it was assumed that the subject development would be completed and fully operational by the end of 2027. The following traffic assessment scenarios have therefore been adopted:

- **2024 ‘Survey’**: To establish operational conditions and baseline results at the time of the traffic surveys.
- **2027 ‘Background’ (2027 BG)**: To establish the year of opening baseline operating conditions in the absence of the subject development at all intersections assessed.
- **2027 ‘With Construction’ (2027 BG+D)**: To quantify the incremental impact of construction traffic conditions.

The operational performance of the study intersections has been analysed for each of these assessment scenarios during both the weekday AM and weekday PM peak hour periods.

6.2 Performance Criteria

SIDRA Intersection 9.1 (SIDRA), is a computer-based modelling software that determines the operational performance of intersections based on input parameters, including carriageway geometry and traffic volumes. Amongst other parameters, SIDRA provides an estimate of the intersection's Degree of Saturation (DOS), queues and delays. The desirable maximum DOS threshold considered to be appropriate is 0.80 for an unsignalised priority intersection, 0.85 for a roundabout and 0.90 for a signalised intersection.

TfNSW (formerly RMS and RTA) defines intersection performance based on vehicle delay. SIDRA can calculate the average delay encountered by all vehicles that travel through individual lanes, approaches as well as at the intersection level. The level of service can then be determined based on the reported delay. It should also be noted that for roundabouts and priority control intersections, the critical movement for level of service assessment should be that with the worst movement delay; however, for signalised intersections, level of service should be reported based on the average delay.

The level of service is based on the Guide to Transport Impact Assessments (GTIA - TfNSW 2024), as shown in Table 26 overleaf.

Table 26 TfNSW SIDRA Level of Service Criteria

Level of Service (LOS)	Average Delay per Vehicle (seconds / vehicle)	Signalised Intersections and Roundabouts	Give Way & Stop Sign
A	0 to 14.5	Good operation	Good operation
B	14.5 to 28.5	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	28.5 to 42.5	Satisfactory	Satisfactory, but accident study required
D	42.5 to 56.5	Operating near capacity	Near capacity, accident study required
E	56.5 to 70	At capacity; at signals, incidents will cause excessive delays	At capacity, requires other control mode
F	Greater than 70	Extra capacity required	Extreme delay, major treatment required

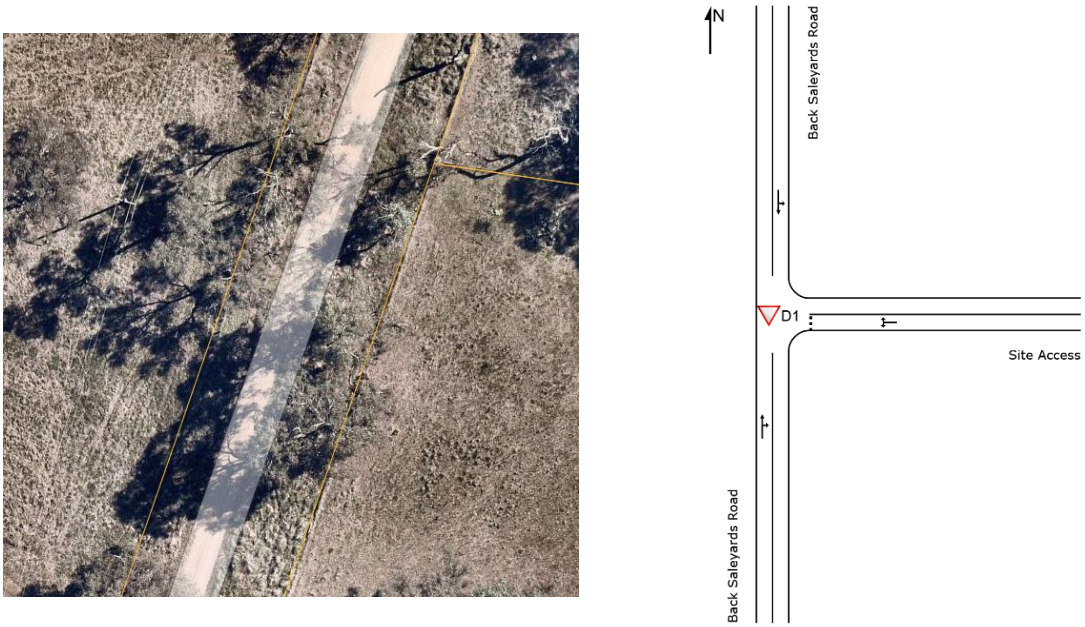
Where the Level of Service (LOS) value exceeds LOS E, this indicates that an intersection is at its practical capacity and upgrade works or other interventions may be required. At LOS F, road users are likely to experience significant delays and excessive queueing.

6.3 Assessment Findings

6.3.1 D1 – Back Saleyards Road/ Site Access

The Back Saleyards Road/ Site Access driveway is proposed to be configured as a priority T-intersection, as shown in Figure 21.

Figure 21 Back Saleyards Road/ Site Access Proposed Driveway Form



Source: www.nearmap.com.au

SIDRA analysis outputs for this intersection are summarised in Table 27 and detailed outputs are included in Appendix I.

Table 27 Back Saleyards Road/ Site Access SIDRA Movement Summary

Scenario	AM Peak				PM Peak			
	Int DOS	Worst Movement			Int DOS	Worst Movement		
		Avg Delay (s)	95%ile Queue (m)	LoS		Avg Delay (s)	95%ile Queue (m)	LoS
2027 BG	0.002	5.5 (East RT) [1]	0	A	0.001	5.5 (East LT) [1]	0	A
2027 BG+D	0.034	6.9 (East RT) [1]	1.3	A	0.045	6.7 (North LT) [1]	0	A

[1] Approach and Turning Movement (i.e. East RT – East Approach Right Turn Movement)

Table 27 indicates that the worst movement for the driveway access performs at LOS A and at DOS < 0.8 for all scenarios, with the maximum 95th percentile queue being 1.3m. Therefore, it is anticipated that the construction traffic will not have any significant impact on the movement of vehicles at the Back Saleyards Road/ Site Access driveway.

6.3.2 I1 – Euchareena Road/ Back Saleyards Road

The Euchareena Road/ Back Saleyards Road intersection is currently configured as an unsignalised T-intersection, as shown in Figure 22.

Figure 22 Euchareena Road/ Back Saleyards Existing Intersection Form



Source: www.nearmap.com.au

SIDRA analysis outputs for this intersection are summarised in Table 28 and detailed outputs are included in Appendix I.

Table 28 Euchareena Road/ Back Saleyards SIDRA Movement Summary

Scenario	AM Peak				PM Peak			
	Int DOS	Worst Movement			Int DOS	Worst Movement		
		Avg Delay (s)	95%ile Queue (m)	LoS		Avg Delay (s)	95%ile Queue (m)	LoS
2024 Survey	0.016	6.7 (West RT) [1]	0.1	A	0.016	5.6 (South LT) [1]	0	A
2027 BG	0.016	6.7 (West RT) [1]	0.1	A	0.017	5.6 (South LT) [1]	0	A
2027 BG+D	0.032	6.4 (South LT) [1]	1.5	A	0.042	6.8 (West RT) [1]	0.3	A

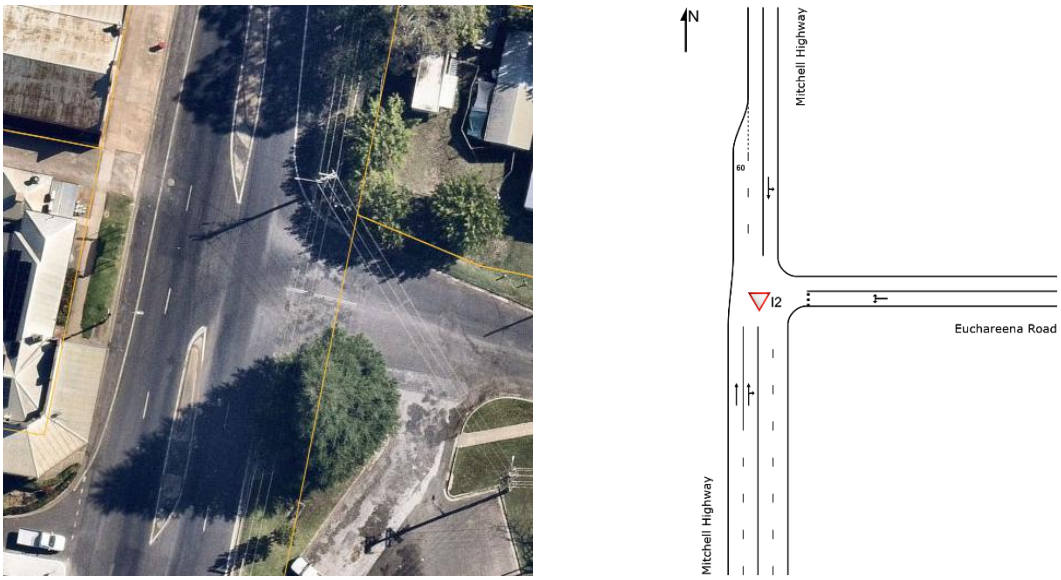
[1] Approach and Turning Movement (i.e. West RT – West Approach Right Turn Movement)

Table 28 indicates that the worst movement for the intersection performs at LOS A and at DOS < 0.8 for all scenarios, with the maximum 95th percentile queue being 1.5m. Therefore, it is anticipated that the construction traffic will not have any significant impact on the movement of vehicles at the Euchareena Road/ Back Saleyards Road intersection.

6.3.3 I2 – Mitchell Highway/ Euchareena Road

The Mitchell Highway / Euchareena Road intersection is currently configured as an unsignalised T-intersection, as shown in Figure 23.

Figure 23 Mitchell Highway/ Euchareena Road Existing Intersection Form



Source: www.nearmap.com.au

SIDRA analysis outputs for this intersection are summarised in Table 29 and detailed outputs are included in Appendix I.

Table 29 Mitchell Highway/ Euchareena Road SIDRA Movement Summary

Scenario	AM Peak				PM Peak			
	Int DOS	Worst Movement			Int DOS	Worst Movement		
		Avg Delay (s)	95%ile Queue (m)	LoS		Avg Delay (s)	95%ile Queue (m)	LoS
2024 Survey	0.119	8.6 (East RT) [1]	1.0	A	0.132	8.8 (East RT) [1]	0.9	A
2027 BG	0.125	8.8 (East RT) [1]	0.7	A	0.140	9.0 (East RT) [1]	0.6	A
2027 BG+D	0.125	9.2 (East RT) [1]	1.3	A	0.140	9.3 (East RT) [1]	1.6	A

[1] Approach and Turning Movement (i.e. East RT – East Approach Right Turn Movement)

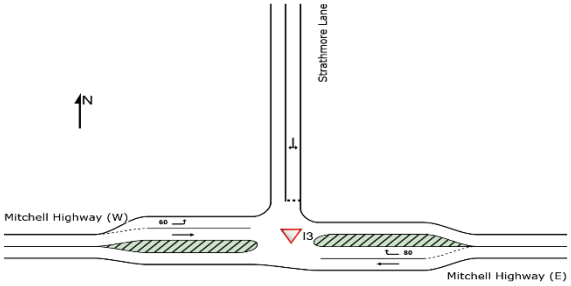
Table 29 indicates that the worst movement for the intersection performs at LOS A and at DOS < 0.8 for all scenarios, with the maximum 95th percentile queue being 1.6m. Therefore, it is anticipated that the construction traffic will not have any significant impact on the movement of vehicles at the Mitchell Highway/ Euchareena Road intersection.

6.3.4 I3 – Mitchell Highway/ Strathmore Lane

The Mitchell Highway / Strathmore Lane intersection is currently configured as an unsignalised T-intersection, as shown in Figure 24.

Figure 24 Mitchell Highway/ Strathmore Lane Existing Intersection Form





Source: www.nearmap.com.au

SIDRA analysis outputs for this intersection are summarised in Table 30 and detailed outputs are included in Appendix I.

Table 30 Mitchell Highway/ Strathmore Lane SIDRA Movement Summary

Scenario	AM Peak				PM Peak			
	Int DOS	Worst Movement			Int DOS	Worst Movement		
		Avg Delay (s)	95%ile Queue (m)	LoS		Avg Delay (s)	95%ile Queue (m)	LoS
2024 Survey	0.121	10.8 (North RT) [1]	0.1	B	0.134	11.4 (North RT) [1]	0.1	B
2027 BG	0.129	11.0 (North RT) [1]	0.1	B	0.142	11.7 (North RT) [1]	0.1	B
2027 BG+D	0.131	12.9 (North LT) [1]	1.6	B	0.149	13.3 (North LT) [1]	1.7	B

[1] Approach and Turning Movement (i.e. East RT – East Approach Right Turn Movement)

Table 30 indicates that the worst movement for the intersection performs at LOS B and at DOS < 0.8 for all scenarios, with the maximum 95th percentile queue being 1.7m. Therefore, it is anticipated that the construction traffic will not have any significant impact on the movement of vehicles at the Mitchell Highway/ Strathmore Lane intersection.

7.0 Construction Traffic Management Strategies

These preliminary comments have been prepared to provide strategic advice for the future CTMP, which will only be prepared following the detailed design of the Project when more information is available around the proposed construction strategy. This information includes workforce accommodation, the construction program and the vehicle fleet that will be used, which are subject to the availability of hotels and construction vehicles respectively.

Notwithstanding, at a high level, it is recommended that the information provided in the following sections be considered or prepared as part of the future CTMP.

7.1 Drivers' Code of Conduct

SLR recommends that the CTMP include a Drivers' Code of Conduct. This Drivers' Code of Conduct should include, but not be limited to, the proposed approach/ departure routes to/ from the subject development, and the possibility of black ice on the roads during the winter months. SLR has prepared a conceptual Drivers' Code of Conduct, which is provided in Appendix J.

7.2 Traffic Guidance Schemes (TGSs)

It is important to note that works will be carried out within the property boundary of the acquired land and the public road reserve (Back Saleyards Road) for the BAL road upgrades. It is anticipated that separate CTMPs will be required, and each CTMP will have their TGSs. In the absence of information on construction methodologies and programmes, it is not possible for this TIA to comment on respective traffic management strategies in detail. Notwithstanding, the CTMPs for the works within the property boundary and site access via Back Saleyards Road must be prepared to the satisfaction of the Cabonne Council.

7.3 Site Management

The following procedures are to be observed by all vehicle drivers accessing the Development Footprint:

- Drivers are to obey all site signage and the directions of the site personnel.
- All vehicles are to park and load/ unload within the site using the designated parking and loading areas where possible. Vehicles are not park or load/ unload within the public road reserve.
- All drivers are required to operate vehicles in a safe and courteous manner, within and external to the subject site.

7.4 Heavy Vehicle Management

7.4.1 General Requirements

Heavy vehicles accessing the project will need to abide by their respective company operating procedures in addition to standard New South Wales road rules when operating the vehicle.

The following rules must also be followed:

- The majority of the workforce must be transported by shuttle buses that are similar to a Toyota Coaster.

- Consistent with the OSOM material transportation requirements, pilot vehicles and escorts must be utilised for non-standard loads.
- Temporary signage must be positioned at critical intersections, including the intersection of Euchareena Road and Back Saleyards Road, to inform construction vehicle drivers and to warn the general public about the construction activities in the vicinity.
- Vehicles travelling along Euchareena Road and Back Saleyards Road must abide by any reduced speed limits associated with construction works.
- Residents of the area must be informed prior to the commencement of construction works.

It is also worth noting that there are no school zones or dense urban areas that construction vehicles will have to travel through in the vicinity of the project site. Also, there will be no requirement to obtain approvals to access any private property. The entirety of the proposed road upgrades will be undertaken in the state or local road reserves.

7.4.2 Noise Management

To limit heavy vehicle noise associated with construction activities, drivers are to abide by the following requirements:

- Posted speed limits on the external road network are to be observed.
- Vehicles are to be turned off when not in use.

7.4.3 Dust Management

The Contractor should identify appropriate mitigation measures and list strategies for dust management in the CTMP.

7.5 Contingency Plan

The Contractor shall establish a contingency plan in accordance with the requirements of Stor.

7.6 Communications Strategy

To ensure the safe and coordinated movement of vehicles to, on and around the Development Footprint, a traffic management communications strategy shall be established by the Contractor in accordance with the requirements of Stor. This should consider the scheduling and coordination of deliveries, incident reporting, regular meetings and periodic evaluations of the strategy to ensure relevance and alignment with current standards/ practices.

8.0 Recommendations

8.1 Construction Traffic Management Plan

It is recommended that a Construction Traffic Management Plan (CTMP) or equivalent document be prepared following approval but prior to the substantial commencement of construction activities. It would be appropriate for this document to be prepared in accordance with the requirements set out in the SEARs.

The purpose of the CTMP would be to identify any changes to development planning that occur subsequent to the preparation of this assessment and the impact of these changes on the conclusions of this assessment. In addition, the document would typically detail impact mitigation strategies, including soft strategies such as busing the workforce, unlike what is assumed herein for a conservative assessment and hard strategies such as the road works near access locations identified herein.

The CTMP should also provide operational information such as contact details of the maintenance contractor and etc. However, it is not considered necessary to investigate the operational impacts in detail, given that BESS require very low maintenance effort.

SLR also recommends that the CTMP include a drivers' code of conduct, that is similar to the one provided in Appendix J. This drivers' code of conduct should include, but not be limited to, the proposed approach/ departure routes to/ from the subject development, site distance issues and appropriate temporary traffic management, and the possibility of black ice on the roads during the winter months.

Based on a desktop review of the subject land and development plans, SLR is of the view that there are plenty of parking opportunities within the Development Footprint to enable efficient construction.

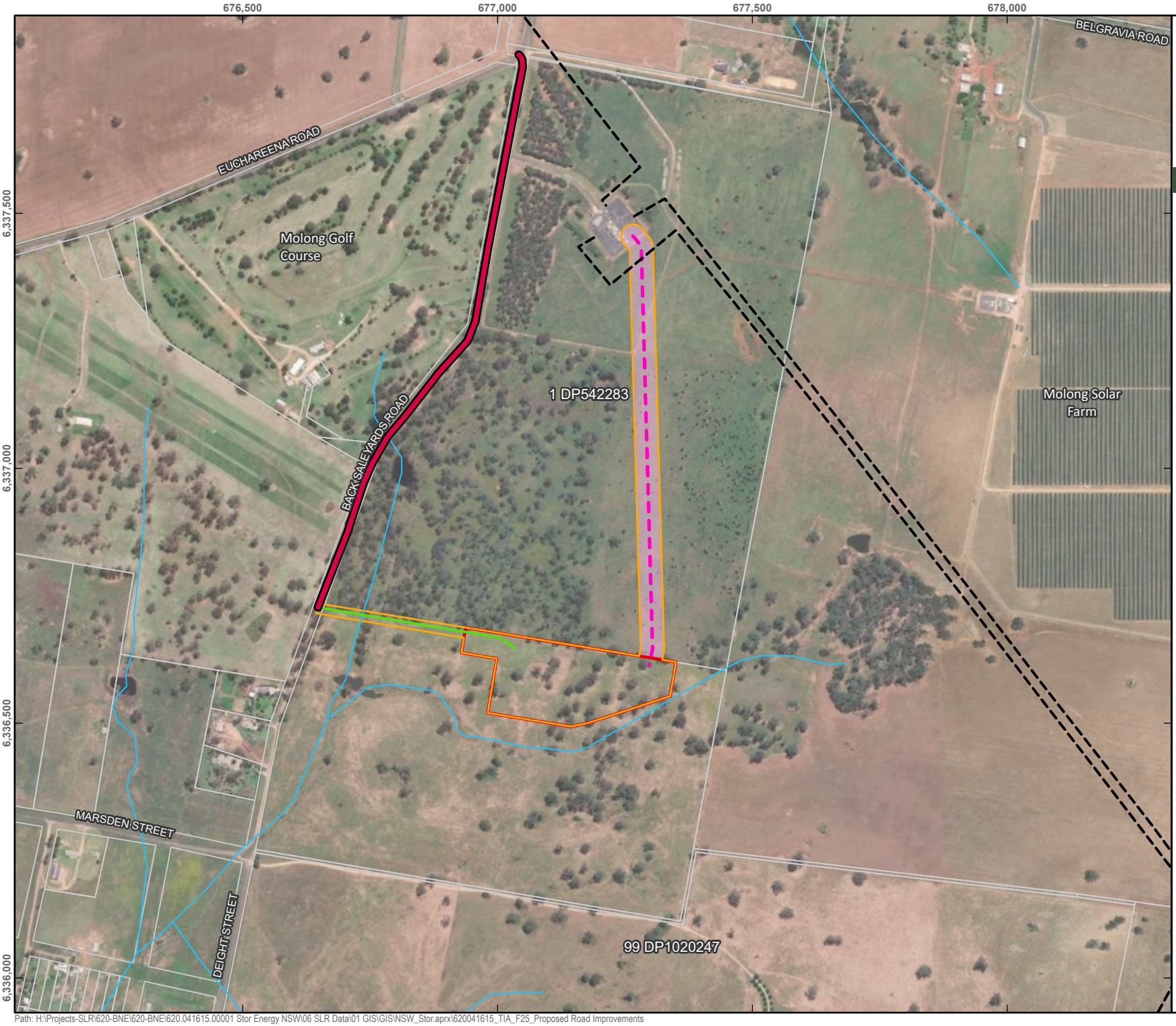
8.2 Local Road Upgrades

It is recommended that the section of Back Saleyards Road from the access driveway to the Euchareena Road intersection be monitored over the course of the construction phase, to ensure that the maintenance of the road allows the ongoing accommodation of bi-directional movements of the anticipated construction vehicle fleet.

As part of the Construction Traffic Management Plan, consultation will occur with Cabonne Council on a maintenance plan that can be facilitated and paid for by the Proponent.

Further to this, it is also proposed that the section of Back Saleyards Road adjacent to the driveway access to the site be upgraded to accommodate a BAL type turn treatment. The concept plan for the proposed driveway on Back Saleyards Road prepared by SLR is provided in Appendix L.

A tentative extent of the areas of road to be monitored for potential improvements is depicted in Figure 25 overleaf.



MOLONG BESS

MONITORING OF BACK-YARD SALES ROAD

FIGURE 25

LEGEND

- Watercourse

Transgrid Line

- 132kV
- Proposed Electricity Transmission Line
- Proposed Site Access
- BESS Footprint (5.06 ha)
- Development Footprint (9.56 ha)
- Proposed Easement
- Cadastre

Backyard Sales Road

- Section of road to be monitored

Service Layer Credits:
Development footprint, proposed BESS Layout rev 11/06/2025, from StorEnergy 3 Pty Ltd (Stor).
Road, Rail, Cadastre, Watercourse, NSW DPIE 2024. Maxar

DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

0 200 400 m

Coordinate System:	GDA2020 MGA Zone 55
Scale:	1:10,000 at A4
Project Number:	620.041615
Date Drawn:	01-Aug-2025
Drawn by:	JH

SLR

Path: H:\Projects-SLR\620-BNE\620-BNE\620.041615.00001 Stor Energy NSW\06 SLR Data\01 GIS\GIS\NSW_Stor.aprx\620041615_TIA_F25_Proposed Road Improvements

It is recommended that, as part of the preparation of the CTMP and in conjunction with the recommendations of the dilapidation surveys, the methodology of potential improvements on Back Saleyards Road be agreed with Council. The methodology will be concluded before the finalisation of the CTMP and following a final site inspection, given that the condition of rural roads can change quickly.

8.3 Heavy Vehicle Approvals for the Use of Local Roads (Last Mile Sections)

It is recommended that the Proponent check with the assessment agencies if the Molong Solar Farm has already obtained approvals for the last mile sections (Strathmore Lane, Belgravia Road, Euchareena Road and Back Saleyards Road). If not, an application should be made to NHVR as part of the CTMP to obtain approvals to operate Performance Based Standards (PBS) Level 1 design vehicles along these road segments.

8.4 Dilapidation Surveys

It is recommended that dilapidation surveys be undertaken to assess the condition of the local roads, along with intersections along the nominated transportation route, to identify changes prior to and following the proposed construction works.

9.0 Conclusion

SLR has been engaged by Stor to prepare a TIA for a proposed BESS facility. The application proposes a 150 MW/ 730 MWh BESS to be constructed on 1 Deight Street, formally described as Lot 99 DP 1020247, and 19 Back Saleyards Road, formally described as Lot 1 DP 542283. Both properties are within Molong NSW, 2866. The project is located approximately 2 km east of Molong.

The BESS will comprise battery units, inverters, transformers, a substation and ancillary infrastructure all within the Development Footprint. The battery units will be within individual containers (or enclosures), with each container measuring approximately 6m in length and weighing approximately 43,000 kg.

The BESS will be accessed by a new driveway and crossover from Back Saleyards Road. A BAL/ BAR treatment will be provided at this location. The internal access road is planned to be formalised to accommodate heavy vehicles associated with the construction of the BESS. The development also involves the construction of ancillary facilities, including an operation and maintenance building, stormwater management infrastructure, lighting, fencing and temporary construction laydown areas.

Based on the analysis and discussion documented in this report, the following is concluded:

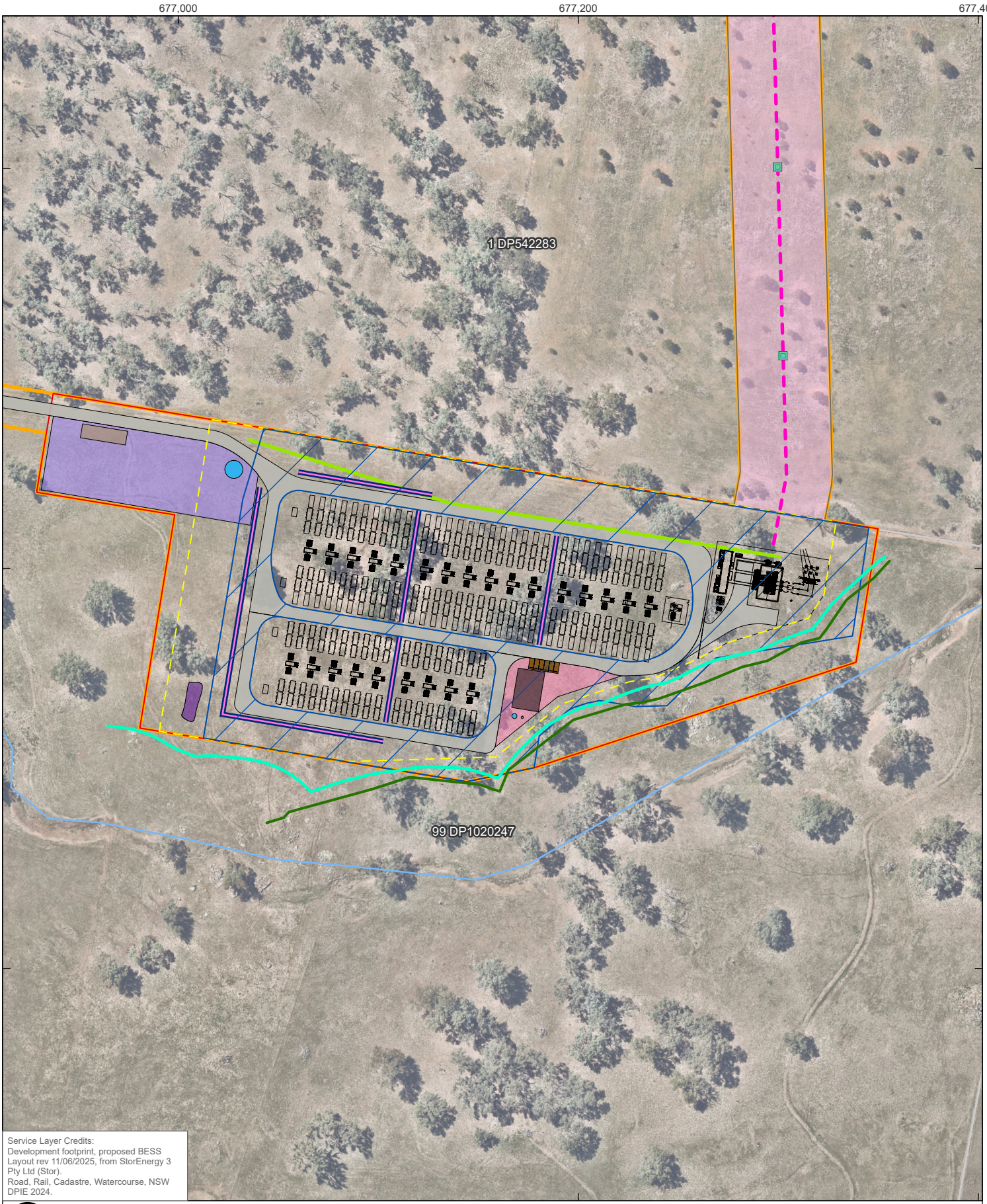
- Sight distances available at the access driveway crossover satisfy the Safe Intersection Sight Distance (SISD) requirements of the Austroads Guidelines.
- Limitations to the available sight distances at Euchareena Road/ Back Saleyards Road intersection are highlighted in this report. Consistent with the extensive consultations undertaken with Cabonne Council, it has been concluded that these limitations can be managed by implementing temporary traffic management measures during the construction and decommissioning phases of the project.
- The proposed development will generate approximately 6,100 inbound trips and 6,100 outbound trips during construction (300 business days or 12 months).

- It was identified that the peak construction traffic volume would be sufficiently low (up to 41 return trips a day) and that there would be no capacity constraints at the access crossover or any key intersections.
    - During this peak period, the construction traffic volumes will consist of up to 20 heavy vehicle return trips per day including:
        - 15 inbound and 15 outbound heavy vehicle trips.
        - 5 inbound and 5 outbound OSOM vehicle trips.
- It is recommended that the construction workforce be briefed on the recommended separate heavy vehicle and light vehicle routes, with a Drivers' Code of Conduct prepared by the Proponent consistent with the strategies outlined in this report.
- The access location should be designed with a Basic Left Turn (BAL)/ Basic Right Turn (BAR) treatment per the turn warrant assessments (Austroads Guidelines). No upgrades are considered necessary at any other key intersections.
- The proposed use of the local road network for the heavy vehicle route (Strathmore Lane off Mitchell Highway, and then Belgravia Road, Euchareena Road and Back Saleyards Road) is consistent with Austroads Guidelines.
- It is recommended that the section of Back Saleyards Road between the Euchareena Road intersection and the site access be improved to accommodate bi-directional heavy vehicle movements.
- It is recommended that a construction traffic management plan (CTMP) be prepared following the approval of the State Significant Development (SSD) application, consistent with the strategies outlined in Section 7.0 of this report.
- No additional road or intersection upgrades are considered necessary along the proposed Heavy Vehicle Routes, including the OSOM Routes from Port Kembla (transformer) and Port of Newcastle (BESS units), beyond those outlined within the two concept route studies prepared.

Appendix A:

Development Plans





Service Layer Credits:
Development footprint, proposed BESS Layout rev 11/06/2025, from StorEnergy 3 Pty Ltd (Stor).
Road, Rail, Cadastre, Watercourse, NSW DPIE 2024.

0 50 100 m

Coordinate System:	GDA2020 MGA Zone 55
Scale:	1:2,500 at A4
Project Number:	620.041615
Date Drawn:	07-Aug-2025
Drawn by:	NT

LEGEND

- Watercourse
- Proposed Electricity Transmission Line
- Noisewall
- Swale (Indicative)
- BESS Infrastructure
- BESS Footprint (5.06 ha)
- Development Footprint (9.56 ha)
- Heriatage Buffer (50m)
- Top of Bank 40m Buffer
- Fence line
- Tranmission Tower (Indicative)
- Car Parking Spaces
- Construction Compound
- Detention Basin
- Internal Road
- Laydown Area
- O&M Building
- Sewerage Holding Tank
- Washdown Bay
- Water Tank
- Proposed Easement
- APZ (Indicative)

MOLONG BESS

BESS OVERVIEW

SLR

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Appendix A

Path: H:\Projects-SLR\620-BNE\620-BNE\620.041615.00001 Stor Energy NSW\06 SLR Data\01 GIS\GIS\NSW_Stor.aprx\620041615_EIS_FXX_BESS Layout

Appendix B:

TfNSW Advice



TfNSW reference: REN25/00069
DPHI reference: SSD-80471210 (PAE-80635711)

20 March 2025

Department of Planning, Housing and Infrastructure
Locked Bag 5022
PARRAMATTA NSW 2124

Attention: Rita Hatem

SSD-80471210, Molong Battery Energy Storage System (BESS), Molong; Request for Secretary's Environmental Assessment Requirements (SEARS)

Thank you for referring the abovementioned request for SEARs to Transport for NSW (TfNSW) seeking comments in relation to Molong Battery Energy Storage System located within the Cabonne Shire Local Government Area (LGA).

TfNSW has reviewed the Scoping Study prepared for Molong Battery Energy Storage System by SLR Consulting Australia dated 20 February 2025 and provides advice in **Attachment A** and **Attachment B** to assist in the preparation of the Environmental Impact Statement (EIS) and supporting documentation for the future lodgement of the application with the Department of Planning, Housing and Infrastructure.

TfNSW recommends a meeting to discuss the SEARs requirements before proceeding to EIS.
If you have any questions or wish to discuss this matter further, please contact Emily Lu, Development Services Case Officer, on 1300 019 680 or email development.renewables@transport.nsw.gov.au

Yours faithfully,



Alexandra Power
Team Lead Development Services – Renewables
Transport Planning
Planning, Integration & Passenger Division

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Attachment A

SSD-80471210, Molong Battery Energy Storage System (BESS), Molong; Request for Secretary's Environmental Assessment Requirements (SEARS)

Context

- StorEnergy 3 Pty Ltd proposes to establish a Battery Energy Storage System (BESS) with a 150 MW / 730 MWh capacity that will connect to the electricity grid at the existing Transgrid Molong Transmission Substation via a new overhead transmission line.
- The construction period is anticipated to be 22 months, with 70 full-time equivalent staff during the peak of site activity.
- The BESS' operational lifespan is 30 years, with an expected operational workforce of 2 full-time equivalent staff.
- The BESS will comprise of battery units (maximum 264), inverters (approximately 50), transformers, a substation and ancillary infrastructure.
- Access to the site is proposed via a new vehicle driveway from Back Saleyards Road, which connects to Marsden Street, which connects off Mitchell Highway to the west.

TfNSW advice for SEARs

The Environmental Impact Statement to be submitted as part of the environmental planning process will need to include a Traffic Impact Assessment (TIA) prepared following the methodology set out in *Guide to Traffic Impact Assessment (GTIA) 2024* and Part 12 *Austroads Guide to Traffic Management* and must include an assessment of the following matters:

1. Hours, days and periods of construction.
2. Schedule for phasing/staging of the project (including pre-construction, accommodation and ancillary infrastructure works) and identifying the traffic volumes for each stage.
3. Clearly identify each access, emergency access and access track connected to the State road network and justify the need for each access or access track.
4. Traffic volumes:
   a. Surveyed existing background traffic at key intersections per Part 3 *Austroads Guide to Traffic Management* with survey raw data included.
   b. Project-related traffic volumes (measured as vehicle trips per an hour and per a day) for each stage including pre-construction, construction, operation, and decommissioning and identifying peak period(s) for traffic volumes.
5. Traffic volumes are to include a description of:

   a. Ratio of light vehicles to heavy vehicles during the AM/PM peak hour and the turning direction,
   b. Differentiation of the low risk Over Size/Over Mass (OSOM) (i.e OSOM that require a pilot or escort but do not require an NHVR permit),
   c. Project related traffic interaction with existing and projected background traffic with annual growth rate applied linearly,
   d. Peak times for existing background and proposed project related peak hours, and
   e. Transportation hours.

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6. The origin, destination and routes for:
    a. Employee and contractor light traffic.
    b. Heavy vehicle traffic.
    c. OSOM vehicle traffic (for OSOMs that require pilot or escort but do not require an NHVR permit),
    d. OSOM high risk loads.
    e. A description of all non-high risk OSOM vehicles and materials to be transported. The shortest and least trafficked route is to be given priority for movement of materials and machinery to minimise risk and impact to other motorists, so far as is reasonably practicable.
    f. The impact of generated traffic and measures employed to ensure efficiency, safety and impacts to assets on the state road network during pre-construction minor works, staging of workforce accommodation (until completion), any parallel activities occurring before commencement of the construction phase, construction, operation and decommissioning of the project. This includes enforcement, managing traffic volumes, driver behaviour and access paths to the site. The assessment identifies road upgrades, modification and high-level enforceable mitigation measures to manage traffic volumes, driver behavior and site access paths for all project stages.
    g. A turn warrant assessment for all stages of the development (i.e project peak hour is different to network peak hour for construction and pre-construction minor works, pre-construction minor works, staging of workforce accommodation and overlapping activities that are likely to occur before construction of intersection upgrades on the State road network) and must also include an assessment of the worst-case scenario (ie peak project traffic volumes applied to peak background traffic, linear growth rate and cumulative traffic of developments at EIS and approved stages that will be present in the background and turning traffic volumes). The turn warrants assessments are to be prepared in accordance with section 3.25 of Part 6 *Austroads Guide to Traffic Management.* A turn warrant assessment will be required for each scenario identified above and assessed for each access, access track and any other access along the project's identified routes with an interface or connection to the state road network.
    h. TIA is to detail improvements to the state road network, such as road widening, modifications and intersection treatments, to cater for and to mitigate the impact of project-related traffic (including accommodation and ancillary infrastructure components) at key intersections with State roads. Proposed road facilities, access, and intersection treatments will be identified and comply with Austroads Guide to Traffic Management, *Austroads Guide to Road Design,* TfNSW Supplements, and Technical Directions, including safe intersection sight distance. Strategic designs are to include swept path analysis for the largest vehicle (check and design) turning at the intersection(s), access points or access tracks. To assist the proponent in preparing strategic designs, the below link is provided: Strategic-Design-requirements-for-DA-Factsheet.pdf (nsw.gov.au)

    Note: The design speed for state roads is the posted speed +10km/hr.

    Note: It is the proponent's responsibility to acquire and dedicate land required to accommodate road infrastructure including, but not limited to, footways, structures, stormwater drainage, batters, maintenance access and utilities.

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7. Traffic safety assessment:
    a. Local climate conditions that may affect road safety for vehicles used during the project's construction, operation, and decommissioning (e.g., fog, wet weather, etc.).
    b. A review of crash data along the identified transport route/s for the most recent 5-year reporting period and an assessment of road safety along the proposed transport route(s).
    c. Measures to be employed to ensure a high level of road safety for daily staff commutes between accommodation and construction site(s), specifically addressing impacts of unsafe driver behaviour and driver fatigue for all project stages and how measures employed will be enforced.
8. Details of emergency access/egress, including details of:
    a. The location of the emergency access(es).
    b. How will the access be managed (e.g., gates) to prevent non-emergency-related vehicle movements from using it?
    c. Sufficient storage at the throat of the access allows emergency vehicle(s) to store within the access, not within the through lane or road shoulder.
    d. Assessment of Safe Intersection Sight Distance (SISD) in accordance with *Part 4A* of *Austroads Guide to Road Design.*

Electricity transmission lines or other pipelines near or crossing State road network (where applicable)

9. In relation to the EIS, TfNSW requires the identification of ancillary infrastructure, such as Electricity Transmission Lines that are crossing or near the state-classified road network or rail infrastructure within TfNSW remit. With respect to this matter, the following information is required:
    a. The heights or depths (under boring) and the vertical and horizontal clearances (overhead) in accordance with Austroads.
    b. The method for construction of the transmission lines.
    c. location of infrastructure and impacts (excavation or fill) relative to the road reserve, including demarcation of local and state-classified road reserves.
    d. Access required to construct and maintain the infrastructure. Access points or access tracks required for ETLs or other infrastructure will require the same level of assessment as the primary project access point.
    e. Any trenchless excavation of the pipeline or any transmission lines near or crossing the State road network must comply with TfNSW Technical Direction-Geotechnical (GTD208-002) for Trenchless Excavation within the Road and Maritime Infrastructure.
    f. Pipelines and transmission lines must cross the State road network perpendicularly.
    g. Strategic concept designs for each transmission line crossing the state-classified road network must be provided.

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Attachment B

Concept Level Route Analysis required for High Risk OSOM

1. The route assessment is required for high risk OSOM (as defined on TfNSW website) delivering components to the project. The concept level route analysis must include:
   a. Port or point of origin for the entire route to the site access and intersections required to facilitate high risk OSOM movements required for the project.
   b. Overall combination type, configuration, load and vehicle configuration.
   c. The route analysis will include details of all high-risk OSOM loads, vehicle configurations, and laden dimensions and weights.
   d. The location of pull-over bays/rest areas along high-risk OSOM routes (including GPS coordinates) and the demonstration through swept paths that high-risk OSOMs can be physically accommodated for the project (in terms of size, width, and accessibility).
   e. Bridge and culvert assessments for any at risk bridges on classified roads due to dimensions and weight of OSOM vehicles on the State road network. Bridge and culvert assessments can be made to spu@transport.nsw.gov.au.
   f. Highlighting each at-risk road structure that the haulage route crosses, including bridges, traffic signals, signage, major culverts, and minor culverts that may not meet the desirable cover to cater for proposed axle loads.
   g. Identifying the traffic mitigation measures, road works, modifications, or upgrades to facilitate the movement of the high-risk OSOM(s) associated with the project.
   h. Potential high level mitigation measures or commitments to mitigate known traffic, safety and impacts to road users along the high risk OSOM route (i.e school bus routes, mining shift changes, TSRs, harvest periods and events).
   i. Identify and assess implications of any road and rail projects under construction during the indicative schedule for project related OSOM movements.
   j. Assess any narrow sections of the State Road network (i.e the total width of the lanes and shoulders) which would be too narrow to prevent through traffic on the State road network from passing the high-risk OSOM required for the project. Traffic mitigation measures, road upgrades and modifications would need to be included within the route analysis to demonstrate how traffic in the through lanes could safely pass the projects high-risk OSOM.
   k. Swept paths are required for all pinch points along the State Road network identified in the route assessment.
   l. Strategic concept designs all pinch points on the State Road network that require modifications or widening.
   m. The Hexham Straight is a notable project impacting Route 2. The route assessment must assess the alternative route via Newcastle Inner City Bypass to Newcastle Road for high-risk OSOM loads that do not exceed the vertical clearance limitations. Note this route is designed for transformers and blades and has a height restriction of 5.25m.
   n. Where the EnergyCo P2R road upgrades are relied on to facilitate the project's high-risk OSOM movements, the pavement extents, scope of work, and bridge assessments for the P2R project are to be reviewed and assessed in relation to the project's proposed high-risk OSOM vehicle configuration and loads, to confirm that the loads will be able to move within the design envelope that this project will deliver. Evidence of the consistency check with the EnergyCo P2R project is to form part of the high-risk route assessment. It is the responsibility of the project to include any further road upgrades if the high-risk OSOM cannot be delivered within the design envelope for the Port to REZ project.

A 51-55 Currajong Street, PARKES NSW 2870 | PO Box 334 PARKES NSW 2870 | DX20256
E development.renewables@transport.nsw.gov.au | ABN 18 804 239 602
P 1300 207 783
transport.nsw.gov.au

Note*: NHVR permits do not cover road works or upgrades and environmental approvals required along any proposed OSOM route. Any road works or upgrades works required along the OSOM route must be included within the scope of works in the SSD to ensure the development is constructable.*

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Appendix C:

Port Kembla OSOM Route Study



Statement of Advice

Molong Battery Energy Storage System (BESS)

Transformer Transportation Concept Level Route Analysis

CLIENT: StorEnergy 3 Pty Ltd	**DATE:** 29 July 2025
SLR PROJECT No: 620.041615.00030	**REVISION:** v1.0
AUTHOR: Charlie Seventekin	**REVIEWER:** Gareth Davies

1.0 Introduction

SLR Consulting Pty Ltd (SLR) has been commissioned by StorEnergy 3 Pty Ltd (Stor) to undertake a concept-level route analysis for the transportation of the anticipated transformer from the port of import (Port Kembla) to the location of the proposed Molong Battery Energy Storage System (BESS) development site.

The site is located at 1 Deight Street and 19 Back Saleyards Road in Molong, New South Wales (NSW). The land is also formally known as Lot 99 of Deposited Plan 1020247. The site falls within the Cabonne Shire Council (CSC) Local Government Area (LGA) jurisdiction.

SLR has also prepared a *Transport Impact Assessment (TIA)* report and a *BESS Unit Transportation Route Planning Study* (from Port of Newcastle) for this project. On this basis, it is recommended that this document be read in conjunction with the abovementioned SLR assessments.

2.0 Background

2.1 Anticipated Transformer

Based on the discussions undertaken with Stor, it is understood that the transformer required for the proposed BESS facility is 132/66 kV 180 Megavolt-Amperes (MVA) and will weigh up to 160 tonnes (t) (without oil).

Subject to the detailed design and the availability of the transformers at the time of procurement, it is anticipated that the transformer will have the following approximate dimensions:

- Length: 7.3m.
- Width: 3.7m.
- Height: 4.1m.

2.2 Nominated Design Vehicle

Based on the discussions undertaken with Stor, it has been identified that the following vehicle combination will be required to transport the anticipated transformer:

- One prime mover with a 10-axle flatbed trailer and two-axle dolly (approx. 33m in length).

The transformer and the nominated design vehicle are anticipated to be similar to those illustrated in **Figure 1** below.

Figure 1 Anticipated Transformer and the Nominated OSOM Vehicle



Source: https://www.linkedin.com

The nominated design vehicle is a Class 1 heavy vehicle, as defined by the National Heavy Vehicle Regulator's (NHVR) Classes of Heavy Vehicles in the Heavy Vehicle National Law (HVNL). This vehicle is shown as ID:19 in the **Appendix A** under the Oversize Over Mass (OSOM) vehicles section.

Based on this, it is anticipated that the transport height will be approximately 5.0m (once loaded and secured on the 0.9m high flatbed trailer). This combination will be able to pass under all height restrictions on the proposed route.

SLR's assessment is limited to a desktop survey, relying on aerial imagery. It is recommended that a physical survey of the entire route be conducted following the approval of the State Significant Development Application (SSDA), once the route is confirmed and the final transformer specifications are known.

2.3 Assessment Scope

This assessment references relevant state and federal guidelines, including:

- Transport for New South Wales (TfNSW) Restricted Access Vehicles (RAV) Map.

- NHVR.

2.4 Port of Import

The proposed port of import for the transformer is Port Kembla. Port Kembla has played a significant role in importing OSOM materials for renewable energy projects in recent years, including transformers, switchgear, and turbine blades.

2.5 Pilots and Escorts

It is anticipated that the load will be escorted by both NSW Police and oversize material pilot vehicles. Typically, NSW Police carries out the required traffic management and control at intersections, whilst the pilot vehicles provide advanced warning (front and rear) of the OSOM vehicle and provide support to police as directed.

Where street furniture, such as road signage, needs to be relocated or removed, the pilots undertake these tasks under police supervision and reinstate the items once the load passes the pinch point.

3.0 Proposed Transformer Transportation Route

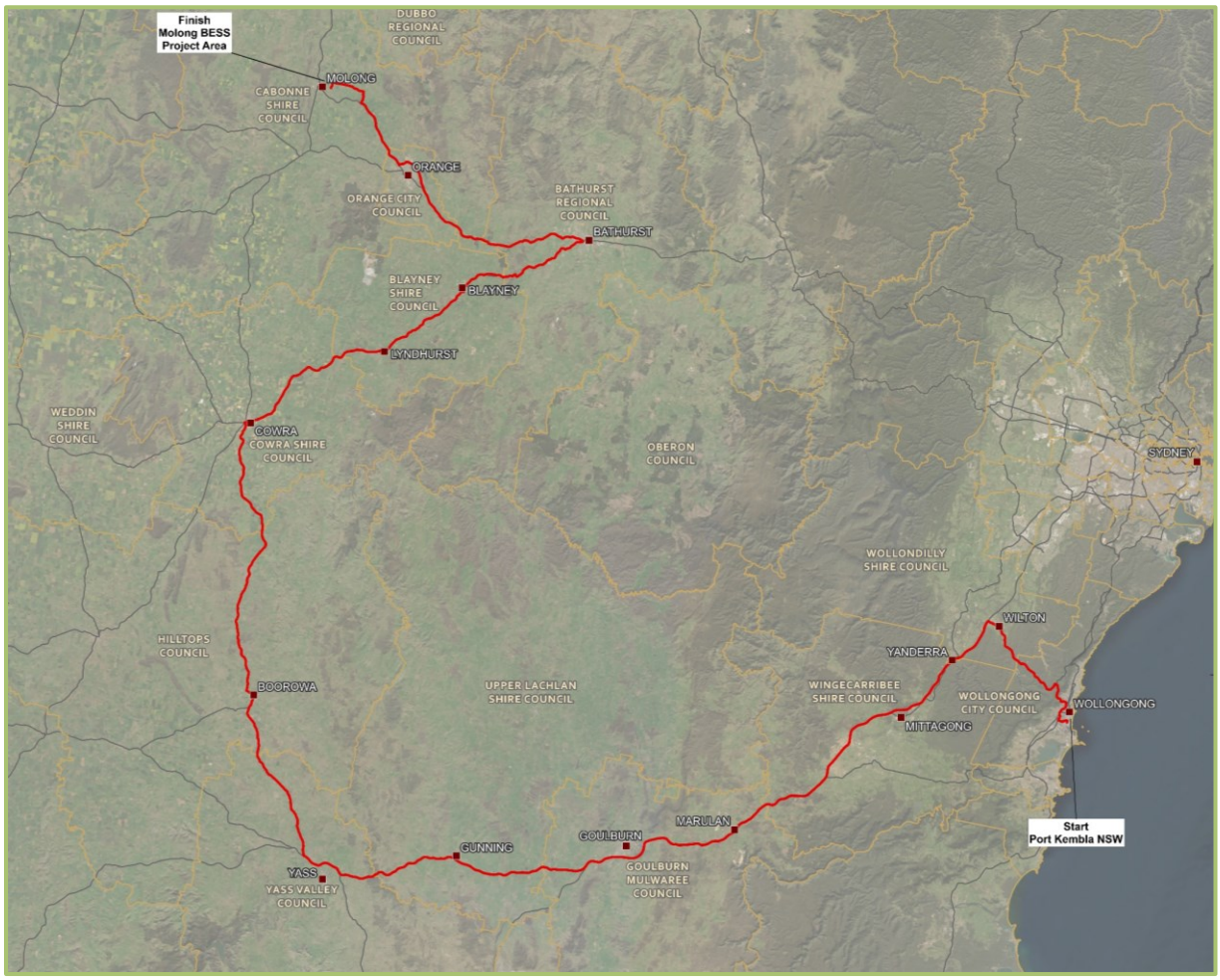
The proposed transformer transportation route is as follows:

- START: Port Kembla.
- Tom Thumb Road, Port Kembla.
- Springhill Road, Port Kembla.
- Masters Road, Springhill.
- M1 Princes Motorway, Figtree.
- B88 Picton Road, Cataract.
- M31 Hume Motorway, Wilton.
- B81 Lachlan Valley Way, Bowning.
- B81 Lachlan Valley Way, Boorowa.
- A41 Mid Western Highway and Cowra Bridge, Cowra.
- A32 Mitchell Highway, Bathurst.
- Northern Distributor Road, Orange.
- A32 Mitchell Highway, Orange.
- Strathmore Lane (a local road) off Mitchell Highway, Molong.
- Belgravia Road, Euchareena Road (local roads).
- END: Back Saleyards Road (a local road).

The abovementioned route, which is illustrated in **Figure 2** overleaf, can also be digitally reviewed via the following web link:

- https://www.google.com/maps/d/edit?mid=1_bIK2DuzIMose-5yQQ676oPq10Mrs1c&usp=sharing

Figure 2 Proposed Transformer Transportation Route



The entire route is approximately 570km in length. Based on SLR's review of the NHVR portal, it has been identified that the entirety of the state road portion of the route shown above is approved for "NSW – OSOM Network". The four local roads within the CSC LGA (Strathmore Lane, Belgravia Road, Euchareena Road and Back Saleyards Road) will require approvals from the CSC.

The route shown above can also be reviewed online by manually entering *"2NDKO-0"* in the following web link:

https://www.service.nhvr.gov.au/#page=informationHub/routePlannerTool

3.1 Route Access Restrictions

Based on SLR's review, day and time restrictions on the proposed route have been identified at the following locations:

- M1 Princes Motorway.
- M31 Hume Motorway.
- B81 Lachlan Valley Way.

These restrictions are limited to certain days and times (i.e. state-wide public holidays) and are highlighted in yellow in the web link provided for the NHVR portal. Given that these types

of restrictions are continually updated and depend on traffic management needs, it is recommended that they be reviewed following the project's approval and prior to the commencement of transformer transportation. It is also recommended that the future Traffic Management Plan (TMP) outline these restrictions.

4.0 Pinch Points

4.1 Intersections

SLR has undertaken swept path assessments at the following 15 intersections to confirm the appropriateness of the proposed transformer transportation route:

1. Tom Thumb Road & Springhill Road in Port Kembla.
2. Springhill Road & Masters Road in Port Kembla.
3. M1 Princes Motorway & B88 Picton Road in Cataract.
4. B88 Picton Road & M31 Hume Motorway in Wilton.
5. M31 Hume Motorway & B81 Lachlan Valley Way in Bowning.
6. B81 Lachlan Valley Way (Marsden Street) & B81 Lachlan Valley Way (Murringo Road) in Boorowa.
7. B81 Lachlan Valley Way (Murringo Road) & B81 Lachlan Valley Way in Boorowa.
8. B81 Lachlan Valley Way & A41 Mid Western Highway in Cowra.
9. A41 Mid Western Highway & A32 Mitchell Highway in Bathurst.
10. Northern Distributor Road & Mitchell Highway in Orange.
11. A32 Mitchell Highway & Strathmore Lane in Molong.
12. Strathmore Lane, S-Curve in Molong.
13. Strathmore Lane & Belgravia Road in Molong.
14. Belgravia Road & Euchareena Road in Molong.
15. Euchareena Road & Back Saleyards Road in Molong.

These swept path assessments are provided in **Appendix B**.

4.2 Anticipated Infrastructure or Amenity Impacts

Based on the SLR's swept path assessments and review of the available street view imagery, the following infrastructure or amenity impacts are anticipated:

1. Pinch Point 6: Possible impact on road signage and landscaping as shown in SK06 in **Appendix B**.
2. Pinch Point 9: Impact on road signage and concrete median island as shown in SK09 in **Appendix B**.
3. Pinch Point 10: Vehicle to travel in the opposite direction under traffic management, as shown in SK10 in **Appendix B**.

Based on the above, the potential impacts are considered minor challenges. Notwithstanding, prior to the commencement of transformer transportation, it is

recommended that the entire route be physically inspected and, if necessary, amendments be made in the post-approval TMP.

4.3 Bridges and Overhead Clearances

As discussed, subject to detailed design and the availability of transformers at the time of procurement (likely in 2026), the anticipated height of the laden transformer on the flatbed trailer will be approximately 5.0m.

The following bridges have been identified with overhead clearances near the vertical clearance required for the transportation of the transformer along the proposed route:

- M1 Princes Motorway at Princes Highway in Figtree. The northbound right-hand lane has a clearance of 5.1m, whereas the left-hand lane has a clearance of 4.9m.
- M1 Princes Motorway at Gipps Road in Gwynneville. The recorded vertical clearance is 5.0m and will need to be reviewed for the preparation of the TMP to verify the latest conditions and ensure a sufficient safety margin is considered for transportation. It is worth noting that most trailers are able to be lowered to negotiate low bridges.
- M1 Princes Motorway near the University Avenue in Keiraville. Based on SLR's previous project experience, the left-hand lane has a clearance of 5.2m. Nevertheless, measurements should be taken while preparing the TMP and verifying the latest conditions.
- M1 Princes Motorway pedestrian bridge near Northfields Avenue. Based on SLR's review, the northbound lane has a minimum clearance of 5.1m. It is noted that the pedestrian bridge is being upgraded and extended to accommodate new infrastructure for the Mount Ousley interchange[1].

4.4 Rest Stops

It is anticipated that the load will travel at approximately 50 km/h, allowing for slowing down near bridges and performing turning movements at pinch points. Based on a trip distance of approximately 570km, it is anticipated that the travel time should be around 11-12 hours, excluding rest times.

On this basis, SLR has reviewed *NSW Rest Areas*[2] provided by TfNSW. It is anticipated that six stops will be sufficient for the laden trip, satisfying the fatigue management requirements. These rest stops are as follows:

- Aylmerton Rest Area.
- Goulburn Bypass Rest Area.
- Mundoonan Southbound Rest Area.
- Cowra Pullover Area.
- Heritage Park Blayney.
- Vittoria Rest Area.

[1] Mount Ousley interchange | Transport for NSW
[2] https://maps.transport.nsw.gov.au/egeomaps/rest-areas/index.html#

5.0 Conclusions and Recommendations

It has been concluded that the proposed route is feasible for transporting a transformer with the geometric details that were mentioned earlier in this document.

A number of minor infrastructure impacts and some amenity impacts are anticipated, as documented in **Section 4.2** of this document. For each infrastructure impact, detailed design plans shall be developed as part of the TMP.

It is also recommended that the conditions listed in **Section 3.1** and the rest stops identified in **Section 4.4** be reviewed again as part of the future TMP (likely in 2026) following project approvals.

Appendix A NHVR Classes of Heavy Vehicles in the Heavy Vehicle National Law

National Heavy Vehicle Regulator

Classes of Heavy Vehicles in the Heavy Vehicle National Law

Disclaimer: The Heavy Vehicle National Law (HVNL) provides for three classes of heavy vehicle as a means of managing access for different types of heavy vehicles. This chart shows some of the most common heavy vehicle combinations that are part of each vehicle class as defined in the Heavy Vehicle National Law (HVNL). It is not a comprehensive representation of the entire Australian heavy vehicle fleet. Other heavy vehicle configurations are used which are not represented. This fact sheet illustrates some common examples from the three different classes of heavy vehicles and is provided for guidance only. Definitions listed within the chart can be found under relevant sections in the Heavy Vehicle National Law (HVNL). For further information, contact the NHVR at 13 NHVR (13 64 87) or info@nhvr.gov.au or www.nhvr.gov.au/contact-us

Class 1 Heavy Vehicles (examples for illustration purposes)

February 2019

Special Purpose Vehicle (SPV)

1 All Terrain Crane

2 All Terrain Crane with Dolly

3 Pick and Carry Crane

4 Truck Mounted Crane

5 Truck Mounted Drill Rig

6 Truck Mounted Concrete Pump

7 Prime Mover Towing Drill Rig Trailer

8 Grader

9 Firetruck

Agricultural Vehicles (including implements and trailers)

10 Combine Harvester

11 Tractor

12 Grain Auger

13 Chaser Bin

14 Cane Haul Out Truck

Oversize Overmass Vehicles (OSOM)

15 Prime Mover and Low Loader (Gooseneck)

16 Prime Mover and Low Loader with Dolly (Gooseneck)

17 Prime Mover and Platform Trailer (Gooseneck)

18 Prime Mover and Extendable Trailer

19 Block Truck towing Drawn Platform

20 Two Block Trucks towing Drawn Platform with Push Block Truck

HVNL Definitions

HVNL s116 (1)

(1) A heavy vehicle is a **class 1 heavy vehicle** if it, together with its load, does not comply with a prescribed mass requirement or prescribed dimension requirement applying to it, and–
(a) it is a special purpose vehicle; or
(b) it is an agricultural vehicle other than an agricultural trailer; or
Note– See subsection (2) for agricultural trailers.
(c) it–
(i) is a heavy vehicle carrying, or designed for the purpose of carrying, a large indivisible item, including, for example, a combination including a low loader; but
(ii) is not a road train or B-double, or carrying a freight container designed for multi-modal transport.

(2) An agricultural trailer is a **class 1 heavy vehicle,** irrespective of whether it, together with its load, does or does not comply with a prescribed mass requirement or prescribed dimension requirement applying to it.

HVNL s116 (4)

Special purpose vehicle means–
(a) A motor vehicle or trailer, other than an agricultural vehicle or a tow truck, built for a purpose other than carrying goods; or
(b) a concrete pump or fire truck.

HVNL s5

Agricultural vehicle means an agricultural implement or agricultural machine.

HVNL s5

Agricultural trailer means a trailer that is designed to carry a load and used exclusively to perform agricultural tasks, but does not include a semitrailer.

HVNL s5

Oversize vehicle means a heavy vehicle that does not comply with a dimension requirement applying to it.

NHVR Notes:

Not all SPV's and agricultural vehicles are Class 1 heavy vehicles. SPV's and agricultural vehicles (except agricultural trailers) which comply with prescribed mass and dimension requirements are general access vehicles.

Overmass Vehicle: A heavy vehicle or combination that does not comply with a prescribed mass requirement applying to it (including gross mass, axle or axle group mass).

Class 2 Heavy Vehicles (examples for illustration purposes)

Freight Carrying Vehicles

21 B-double

22 B-double

23 A-double

24 A-double

25 B-triple

26 B-triple

27 AB-triple

28 A-triple

29 BAB-Quad

30 ABB-Quad

31 Rigid Truck and 2 Dog Trailers

Performance Based Standards (PBS)

32 Prime Mover and Quad Axle Semitrailer

33 Rigid Truck and 5 Axle Dog Trailer

34 B-double with Quad Axle Groups (up to 30m)

35 A-double (up to 30m)

Buses

36 Controlled Access Bus

Vehicles Exceeding 4.3m in Height (up to 4.6m high as per Schedule 6 of Heavy Vehicle (Mass, Dimension and Loading) National Regulation) (MDL)

37 Vehicle Carrier

38 A-double (Livestock)

39 B-triple (Livestock)

HVNL Definitions

HVNL s136

A heavy vehicle is a **class 2 heavy vehicle** if–
(a) it–
(i) complies with the prescribed mass requirements and prescribed dimension requirements applying to it; and
(ii) is–
(A) a B-double; or
(B) a road train; or
(C) a bus, other than an articulated bus, that is longer than 12.5m; or
(D) a combination designed and built to carry vehicles on more than 1 deck that, together with its load is longer than 19m or higher than 4.3m; or
(E) a motor vehicle, or a combination, that is higher than 4.3m and is built to carry cattle, sheep, pigs or horses; or
(b) it is a PBS vehicle.

HVNL s5

B-double means a combination consisting of a prime mover towing 2 semitrailers, with the first semitrailer being attached directly to the prime mover by a fifth wheel coupling and the second semitrailer being mounted on the rear of the first semitrailer by a fifth wheel coupling on the first semitrailer.

HVNL s5

B-triple means a combination consisting of a prime mover towing 3 semitrailers, with–
(a) The first semitrailer being attached directly to the prime mover by a fifth wheel coupling; and
(b) The second semitrailer being mounted on the rear of the first semitrailer by a fifth wheel coupling on the first semitrailer; and
(c) The third semitrailer being mounted on the rear of the second semitrailer by a fifth wheel coupling on the second semitrailer.

HVNL s5

road train means–
(a) A B-triple; or
(b) A combination, other than a B-double, consisting of a motor vehicle towing at least 2 trailers, excluding any converter dolly supporting a semitrailer.

HVNL s5

PBS vehicle means a heavy vehicle that is the subject of a current PBS vehicle approval under Part 1.4.

HVNL s5

PBS vehicle approval means a current approval issued for a heavy vehicle by the Regulator under section 23.

NHVR Notes:

B-doubles:
Despite the shorter length, 19m B-doubles are classified as Class 2 Vehicles. General freight carrying vehicles that are longer than 19m require specific networks that are capable of handling these larger vehicles. This is usually managed by declaring route networks in gazette notices, but where a network does not exist, an operator may apply for a permit.

Buses:
A bus, other than an articulated bus, that is longer than 12.5m but less than 14.5m, that complies with prescribed mass and dimension requirements is a class 2 heavy vehicle. These vehicles are also known as a 'Controlled Access Bus'

Vehicle carriers:
A vehicle carrier is a combination designed and built to carry vehicles on more than one deck that together with its load is longer than 19m or higher than 4.3m.

Livestock vehicles:
A livestock vehicle is a heavy vehicle, or a combination, that may be higher than 4.3m and is built to carry cattle, sheep, pigs or horses.

Performance Based Standards:
(PBS) An alternative compliance scheme for heavy vehicles setting minimum performance levels for safe and efficient operation (as opposed to standard prescriptive rules). Greater access is generally afforded for higher performance.

Class 3 Heavy Vehicles (examples for illustration purposes)

40 Rigid Truck and Dog (over 42.5 tonnes GCM)

41 Prime Mover and Semitrailer towing Converter Dolly

42 B-double towing Converter Dolly

43 Underhook/Underlift Tow Truck

HVNL Definitions

HVNL s116 (3)

(3) A heavy vehicle is a **class 3 heavy vehicle** if–
(a) it, together with its load, does not comply with a prescribed mass requirement or prescribed dimension requirement applying to it; and
(b) it is not a class 1 heavy vehicle.

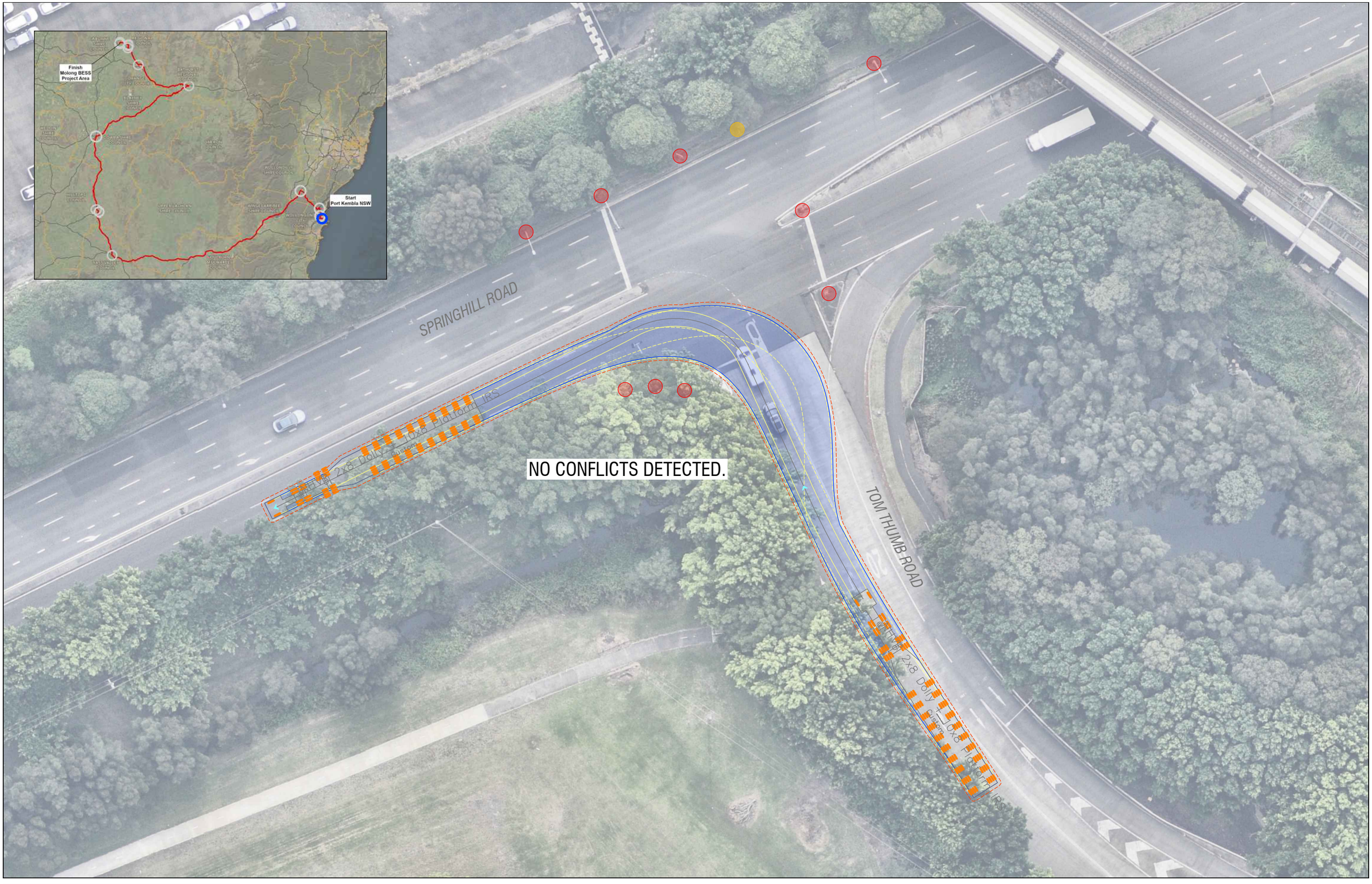
NHVR Notes:

A truck and dog trailer combination whose dimensions and mass do not exceed prescribed mass and dimension requirements is a general access vehicle. If its mass or dimension limits exceed prescribed requirements, this combination is classified as a Class 3 vehicle.

Examples of Class 3 vehicles include:

- A truck and dog trailer combination consisting of a rigid truck with 3 or 4 axles towing a dog trailer with 3 or 4 axles weighing more than 42.5t is an example of a class 3 heavy vehicle.
- Other examples might include a B-double or road train transporting a load wider than 2.5m.

Appendix B Swept Path Assessments



TENANCY 202, SUBMARINE SCHOOL
SUB BASE PLATYPUS, 120 HIGH ST
NORTH SYDNEY
NEW SOUTH WALES 2066
AUSTRALIA
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SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels
- Rear Wheels

INFRASTRUCTURE LEGEND

- Non-critical (2.0m Diameter)
- Critical (2.0m Diameter)
- Guardrail / Fence

N

0.0 5.0 10 15 20
METRES

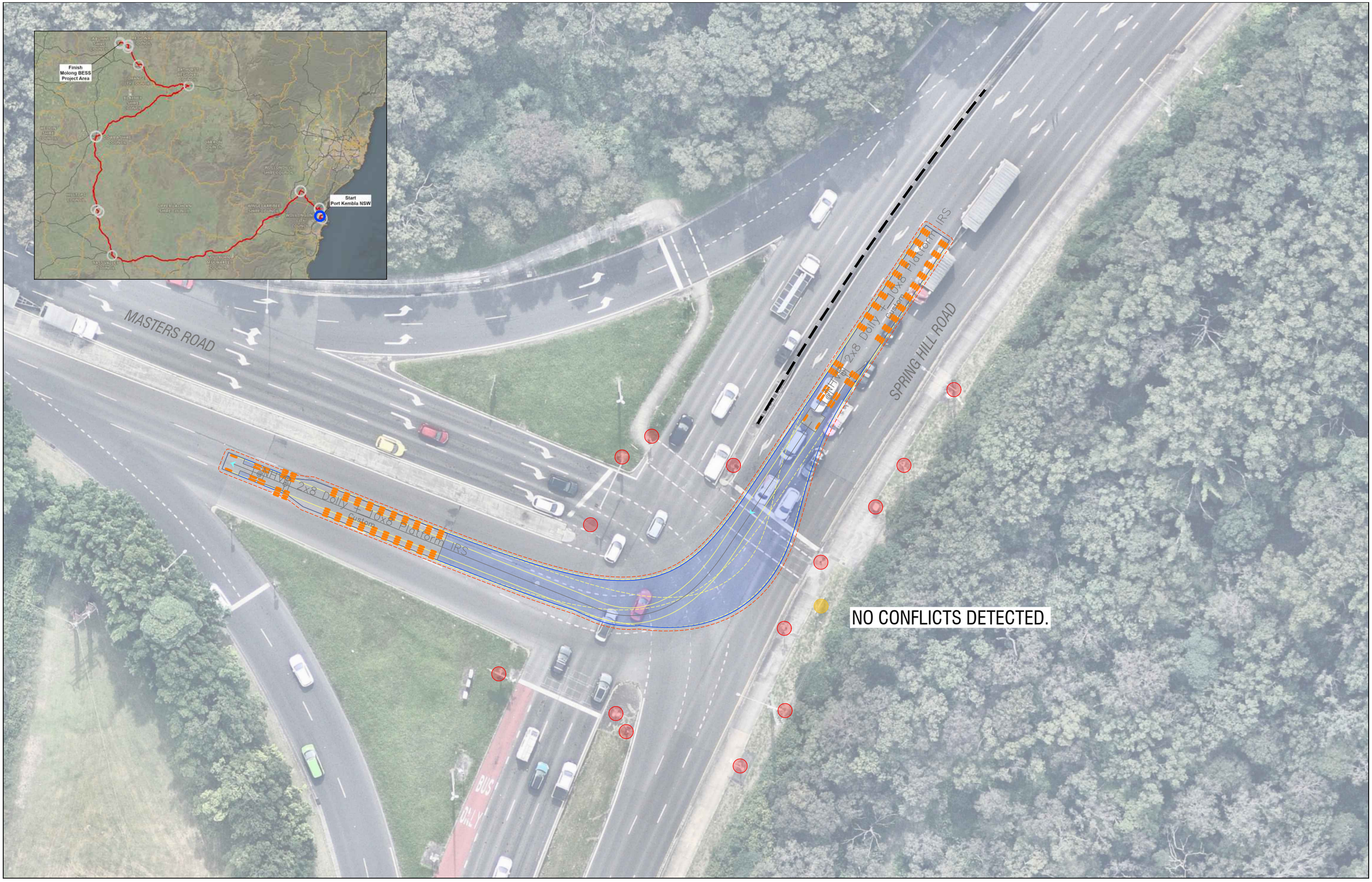
SCALE 1:500

StorEnergy 3 Pty Ltd

Molong BESS

33m OSOM Vehicle (Transformer) Swept Path Assessment

FIGURE SK01



TENANCY 202, SUBMARINE SCHOOL
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SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels
- Rear Wheels

INFRASTRUCTURE LEGEND

- Non-critical (2.0m Diameter)
- Critical (2.0m Diameter)
- Guardrail / Fence

N

0.0 5.0 10 15 20
METRES

SCALE 1:500

StorEnergy 3 Pty Ltd

Molong BESS

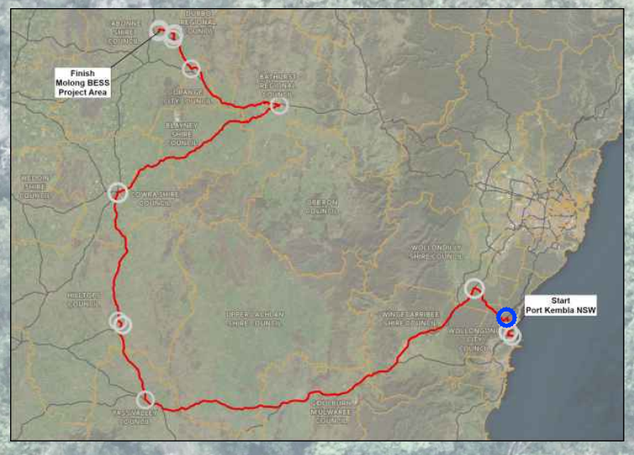
33m OSOM Vehicle (Transformer) Swept Path Assessment

FIGURE SK02

TO PICTON ROAD

NO CONFLICTS DETECTED.

PRINCES MOTORWAY



SLR

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SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels
- Rear Wheels

INFRASTRUCTURE LEGEND

- Non-critical (2.0m Diameter)
- Critical (2.0m Diameter)
- Guardrail / Fence

N

0.0 5.0 10 15 20 METRES

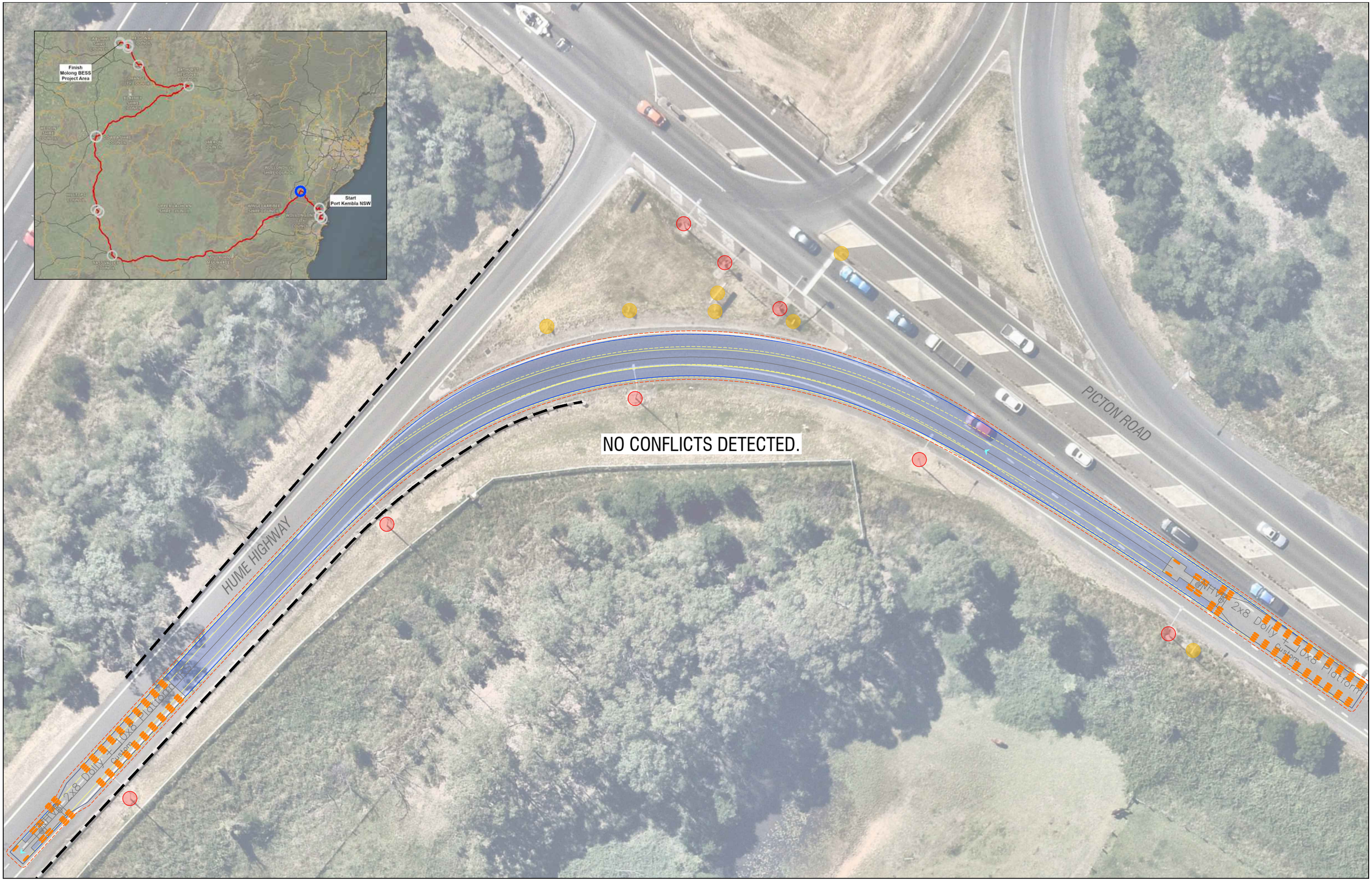
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StorEnergy 3 Pty Ltd

Molong BESS

33m OSOM Vehicle (Transformer) Swept Path Assessment

FIGURE SK03



SLR
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SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels
- Rear Wheels

INFRASTRUCTURE LEGEND

- Non-critical (2.0m Diameter)
- Critical (2.0m Diameter)
- Guardrail / Fence

N

0.0 5.0 10 15 20
METRES
SCALE 1:500

StorEnergy 3 Pty Ltd

Molong BESS

33m OSOM Vehicle (Transformer) Swept Path Assessment

FIGURE SK04



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SWEPT PATH LEGEND

- Vehicle Path
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- Body Clearance
- Front Wheels
- Rear Wheels

INFRASTRUCTURE LEGEND

- Non-critical (2.0m Diameter)
- Critical (2.0m Diameter)
- Guardrail / Fence

N

0.0 7.5 15 22.5 30
METRES

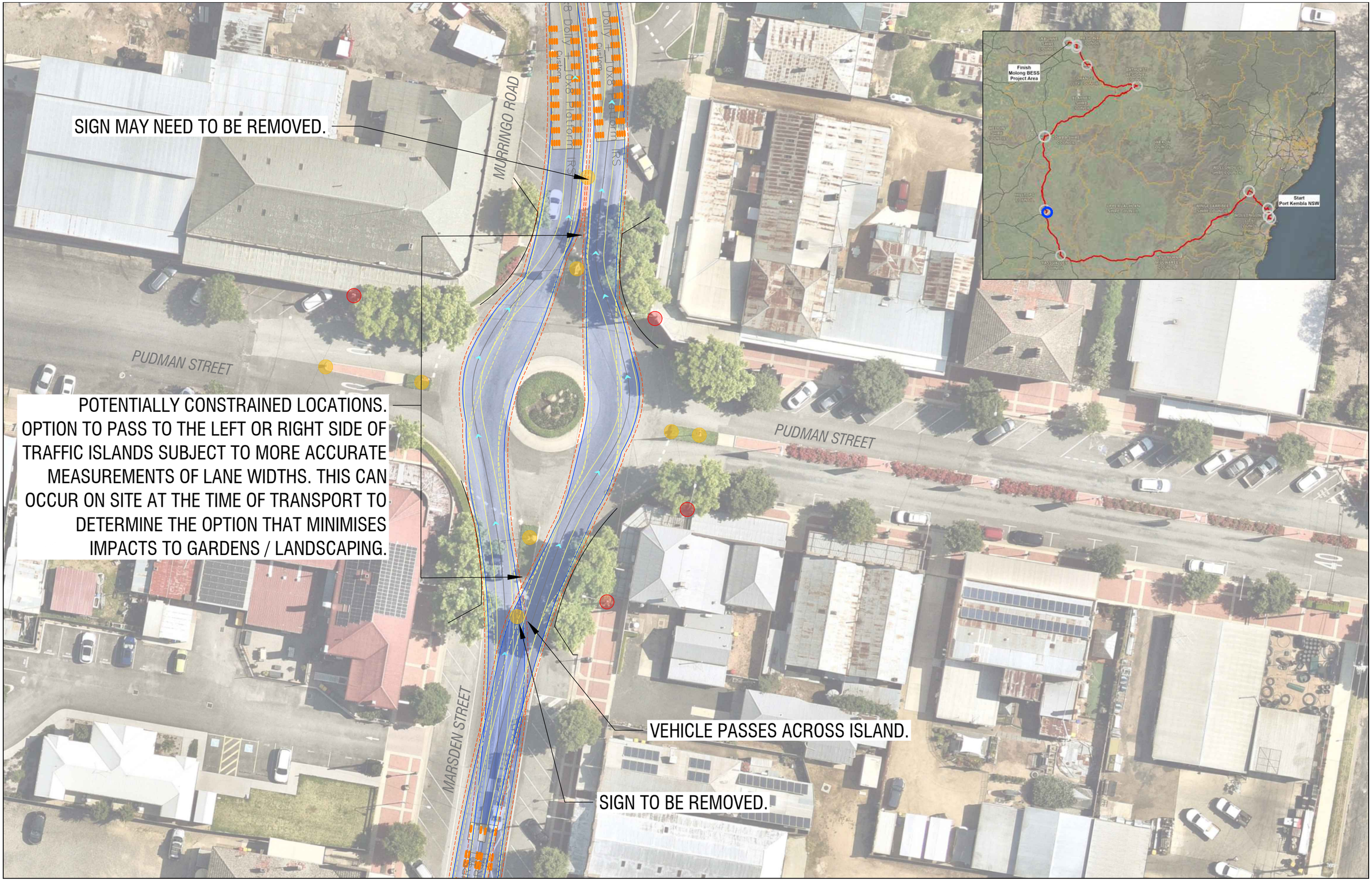
SCALE 1:750

StorEnergy 3 Pty Ltd

Molong BESS

33m OSOM Vehicle (Transformer) Swept Path Assessment

FIGURE SK05



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Sheet Size:	A3
Projection:	-

SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels
- Rear Wheels

INFRASTRUCTURE LEGEND

- Non-critical (2.0m Diameter)
- Critical (2.0m Diameter)
- Guardrail / Fence

N

0.0 5.0 10 15 20
METRES
SCALE 1:500

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33m OSOM Vehicle (Transformer) Swept Path Assessment

FIGURE SK06



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SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels
- Rear Wheels

INFRASTRUCTURE LEGEND

- Non-critical (2.0m Diameter)
- Critical (2.0m Diameter)
- Guardrail / Fence

N

0.0 7.5 15 22.5 30
METRES

SCALE 1:750

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33m OSOM Vehicle (Transformer) Swept Path Assessment

FIGURE SK07



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Projection:	-

SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels
- Rear Wheels

INFRASTRUCTURE LEGEND

- Non-critical (2.0m Diameter)
- Critical (2.0m Diameter)
- Guardrail / Fence

N

0.0 5.0 10 15 20
METRES

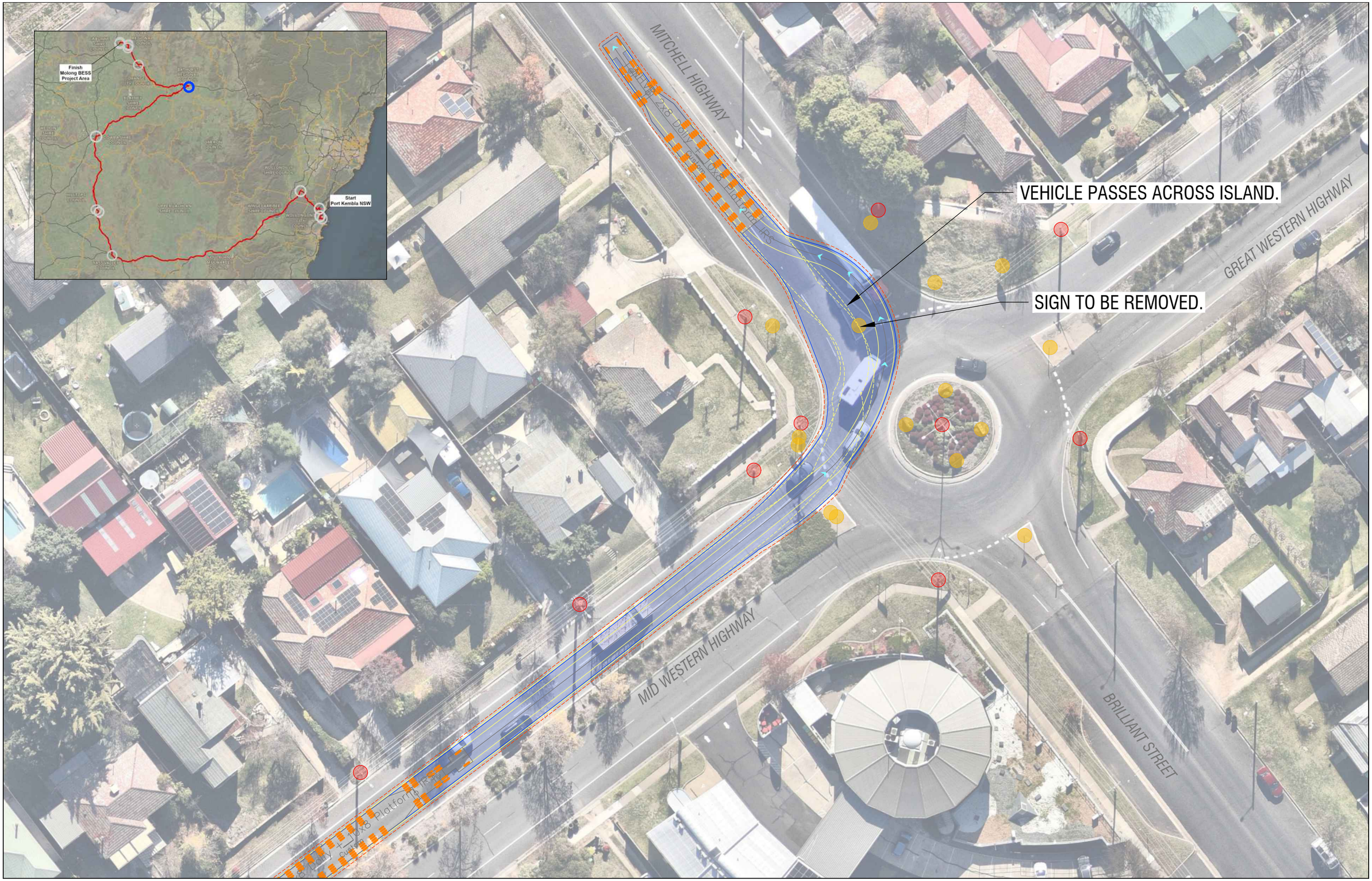
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Molong BESS

33m OSOM Vehicle (Transformer) Swept Path Assessment

FIGURE SK08



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Projection:	-

SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels
- Rear Wheels

INFRASTRUCTURE LEGEND

- Non-critical (2.0m Diameter)
- Critical (2.0m Diameter)
- Guardrail / Fence

N

0.0 5.0 10 15 20
METRES
SCALE 1:500

StorEnergy 3 Pty Ltd

Molong BESS

33m OSOM Vehicle (Transformer) Swept Path Assessment

FIGURE SK09



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Projection:	-

SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels
- Rear Wheels

INFRASTRUCTURE LEGEND

- Non-critical (2.0m Diameter)
- Critical (2.0m Diameter)
- Guardrail / Fence

N

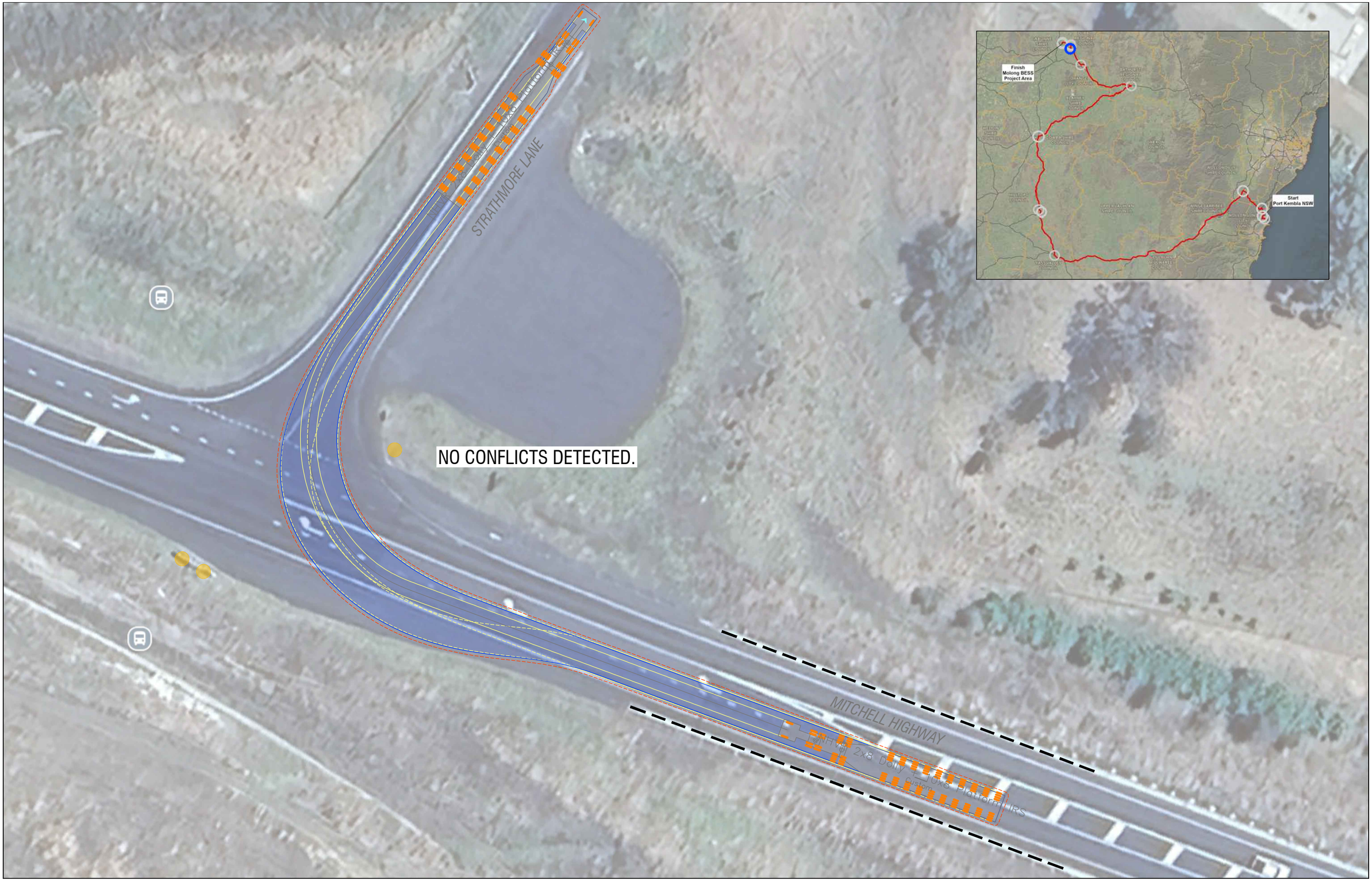
0.0 5.0 10 15 20
METRES
SCALE 1:500

StorEnergy 3 Pty Ltd

Molong BESS

33m OSOM Vehicle (Transformer) Swept Path Assessment

FIGURE SK10



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SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels
- Rear Wheels

INFRASTRUCTURE LEGEND

- Non-critical (2.0m Diameter)
- Critical (2.0m Diameter)
- Guardrail / Fence

N

0.0 5.0 10 15 20 METRES

SCALE 1:500

StorEnergy 3 Pty Ltd

Molong BESS

33m OSOM Vehicle (Transformer) Swept Path Assessment

FIGURE SK11



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Projection:	-

SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels
- Rear Wheels

INFRASTRUCTURE LEGEND

- Non-critical (2.0m Diameter)
- Critical (2.0m Diameter)
- Guardrail / Fence

N

0.0 7.5 15 22.5 30
METRES

SCALE 1:750

StorEnergy 3 Pty Ltd

Molong BESS

33m OSOM Vehicle (Transformer) Swept Path Assessment

FIGURE SK12



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Projection:	-

SWEPT PATH LEGEND

- Vehicle Path
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- Front Wheels
- Rear Wheels

INFRASTRUCTURE LEGEND

- Non-critical (2.0m Diameter)
- Critical (2.0m Diameter)
- Guardrail / Fence

N

0.0 5.0 10 15 20
METRES
SCALE 1:500

StorEnergy 3 Pty Ltd

Molong BESS

33m OSOM Vehicle (Transformer) Swept Path Assessment

FIGURE SK13



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Projection:	-

SWEPT PATH LEGEND

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- Body Clearance
- Front Wheels
- Rear Wheels

INFRASTRUCTURE LEGEND

- Non-critical (2.0m Diameter)
- Critical (2.0m Diameter)
- Guardrail / Fence

N

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METRES

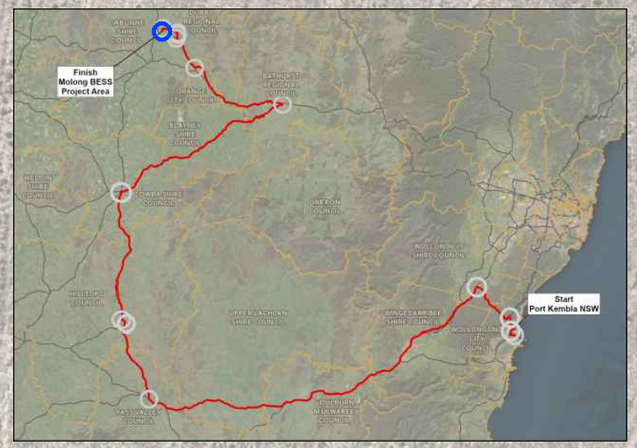
SCALE 1:500

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Molong BESS

33m OSOM Vehicle (Transformer) Swept Path Assessment

FIGURE SK14



NO CONFLICTS DETECTED.

EUCHAREENA ROAD

BACK SALEYARDS ROAD

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INFRASTRUCTURE LEGEND

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METRES

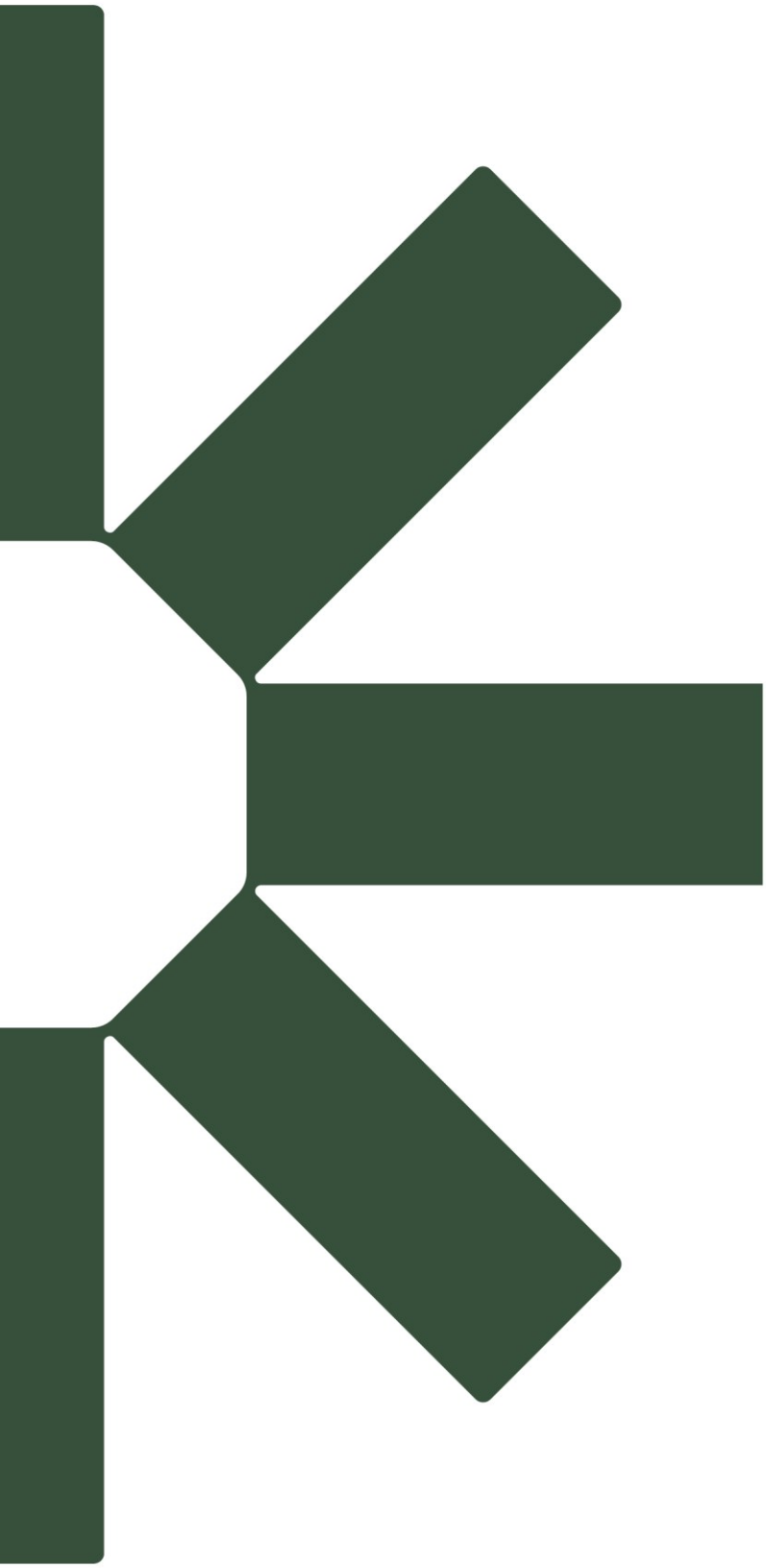
SCALE 1:500

StorEnergy 3 Pty Ltd

Molong BESS

33m OSOM Vehicle (Transformer) Swept Path Assessment

FIGURE SK15



Making Sustainability Happen

Appendix D:

Port of Newcastle OSOM Route Study



Statement of Advice

Molong Battery Energy Storage System (BESS)

BESS Unit Transport Route Planning

CLIENT: Stor-Energy 3 Pty Ltd	**DATE:** 21 July 2025
SLR PROJECT No: 620.041615.00031	**REVISION:** v1.1
AUTHOR: Gareth Davies	**REVIEWER:** Charlie Seventekin

1.0 Introduction

SLR Consulting Pty Ltd (SLR) has been commissioned by StorEnergy 3 Pty Ltd (Stor) to review the Battery Energy Storage System (BESS) unit transportation route from the port of import (Port of Newcastle) to the location of the proposed Molong BESS development site.

The site is located at 1 Deight Street and 19 Back Saleyards Road in Molong, New South Wales (NSW). The land is also formally known as Lot 99 of Deposited Plan (DP) 1020247. The site falls within the Cabonne Shire Council (CSC) Local Government Area (LGA) jurisdiction.

SLR has also prepared a Traffic Impact Assessment (TIA) report and a Transformer Route Study (from Port Kembla) for this project. On this basis, it is recommended that this document be read in conjunction with the abovementioned assessments of SLR.

2.0 Background

At the time of writing (EIS preparation stage), subject to the availability of vehicle fleet in the future, it is anticipated that the BESS units for the project will be transported with a Class 1 vehicle (gooseneck trailer) that is approximately 3.50m wide and 23.00m long (see **Appendix A**). Under Heavy Vehicle National Law, Class 1 vehicles are considered Oversize and Over Mass (OSOM) vehicles, requiring an assessment of the nominated transport route.

The Applicant's preferred BESS units are approximately 43 tonnes, approximately 6m in length and less than 2.5m in width. It is proposed that 200 units be transported to the project site. From a total mass perspective, it may be possible to transport the BESS units with standard 26m B-Double design vehicles too, which have a 68-tonne Gross Vehicle Mass (GVM) limit under Higher Mass Limit (HML) conditions (see **Appendix B**), noting that axle loads may be a limitation. Therefore, SLR has undertaken assessments for both vehicle types.

2.1 Assessment Scope

This assessment references relevant state and federal guidelines, including:

- TfNSW Restricted Access Vehicles (RAV) Map.
- National Heavy Vehicle Regulator (NHVR).

2.2 Transportation Vehicle

Figure 1 and **Figure 2** below show swept path assessments at Mitchell Highway & Strathmore Lane for a 23m gooseneck trailer and a 26m B-Double design vehicle, respectively. It is worth noting that, when not loaded, the gooseneck trailer will be 2.5m wide as the sides of the trailer can be brought in when the load is delivered. On this basis, during the return trip, gooseneck trailers will not be considered OSOM vehicles. B-double design vehicles, being standard vehicles, are permanently limited to a width of 2.5m due to National law. Lastly, when loaded, the height of the vehicle and the load will remain within TfNSW's standard vertical clearance limit of 4.3m for the State Road network for both vehicles.

Figure 1 Nominated Design Vehicle 1 – Up to 23m Gooseneck Trailer (3.5m wide)



Figure 2 Nominated Design Vehicle 2 – 26m B-Double Design Vehicle (2.5m wide)

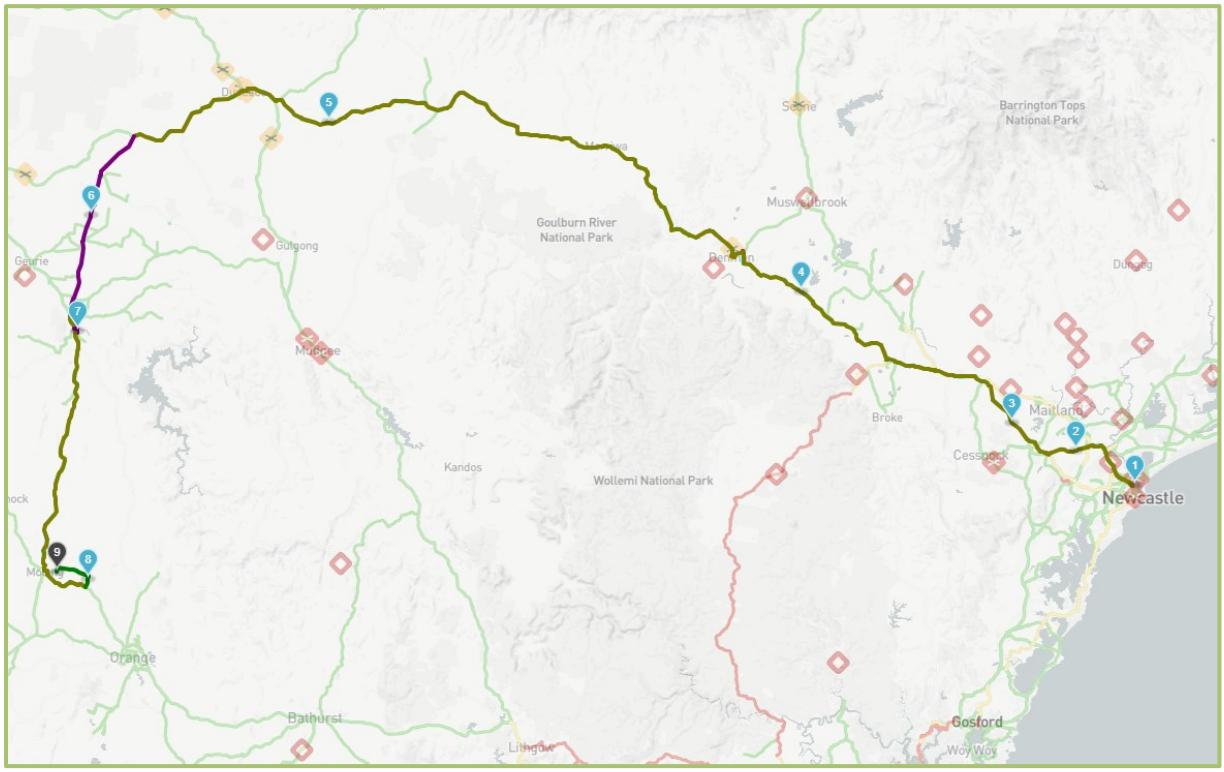


Full-size swept path assessments for both design vehicles at the Mitchell Highway and Strathmore Lane intersection are provided in **Appendix C**. The remainder of the route is already assessed for a longer and wider vehicle in SLR's transformer route study.

3.0 Proposed BESS Unit OSOM Route

The BESS units are proposed to be imported from an overseas manufacturer to the Port of Newcastle. SLR has previously undertaken discussions with logistics companies and understood that the anticipated material laydown location is near 53 Quayside Close within the Port of Newcastle Berth #4. On this basis, SLR prepared an anticipated route via the NHVR Route Planner Tool. This route is illustrated in **Figure 3** below.

Figure 3 Proposed OSOM Material Transportation Route



Based on SLR's review of the NHVR portal, it has been identified that the entirety of the route shown above is approved for "NSW – OSOM Network". The route shown above can also be reviewed online by manually entering *"2MWWZ-2"* in the following web link:

https://www.service.nhvr.gov.au/#page=informationHub/routePlannerTool

Due to the lack of clear information on the structural adequacy of bridges on Euchareena Road and Marsden Street, and a rail crossing on Euchareena Road, it is proposed that heavy vehicles utilise Strathmore Lane rather than these two more direct routes.

3.1 Route Access Restrictions

Based on SLR's review, some restrictions on the proposed route have been identified at the following locations:

- Pacific Highway.
- New England Highway.
- Hunter Expressway.
- Nanima Crescent and Mitchell Highway.
- Gisborne Street, Thornton Street, & Maxwell Street.

The restrictions and conditions of the above roads are summarised in **Table 1** overleaf.

Table 1 Route Conditions and Restrictions

Road	Segment	Restriction/Condition
Pacific Highway	Tomago, Tarro and Lenaghan	**Approved with Conditions** Prior to travel on the Pacific Highway at Hexham, the operator must contact the Hexham Straight Widening Project on 1800 515 141 a minimum of five (5) days prior to your proposed commencement date. Failure to provide notice may result in delays to travel. Prior to travelling on the Pacific Highway, New England Highway, and Pacific Motorway between Tomago, Tarro, and Lenaghan, the operator must contact the Black Hill to Tomago Project on 1800 094 895 a minimum of five (5) days prior to the proposed commencement date. Failure to provide notice may result in delays to travel.
New England Highway	Tomago, Tarro and Lenaghan	**Approved with Conditions** Prior to travel on the Pacific Highway at Hexham, the operator must contact the Hexham Straight Widening Project on 1800 515 141 a minimum of five (5) days prior to your proposed commencement date. Failure to provide notice may result in delays to travel. Prior to travelling on the Pacific Highway, New England Highway, and Pacific Motorway between Tomago, Tarro, and Lenaghan, the operator must contact the Black Hill to Tomago Project on 1800 094 895 a minimum of five (5) days prior to the proposed commencement date. Failure to provide notice may result in delays to travel.
New England Highway	Weakleys Drive to Singleton	**Approved with Conditions** Start Point: Weakleys Drive. End Point: Singleton side of the traffic lights at Magpie Street (Bunnings' corner) (north of Singleton). Vehicles or combinations exceeding 3.2 metres wide are not permitted to travel from Monday to Friday from 5:00am to 9:00am and from Monday to Friday from 3:00pm to 6:00pm (except on state-wide public holidays).
Hunter Expressway	Pacific Motorway to New England Highway	**Approved with Conditions** Vehicles or combinations exceeding 3.2 metres wide are not permitted to travel from Monday to Friday from 5:00am to 9:00am and from Monday to Friday from 4:00pm to 6:00pm (except on state-wide public holidays).
Nanima Crescent Mitchell Highway	Gisborne Street to Maxwell Street (Wellington)	**Restricted** Vehicles exceeding 3.5m in width and/ or 26m in length must use Oversize Vehicle Detour (Gisborne St, Thornton St, Maxwell St and Arthur St).
Gisborne Street, Thornton Street, Maxwell Street	Lee Street to Arthur Street (Wellington)	**Approved with Conditions** School Bus Time restriction between 8.00 - 9.30am and 2.30 - 4.00pm schooldays on Wheelers Lane, Gisborne Street, Thornton Street and Maxwell Street.

It is noted that the restrictions on the Hunter Expressway will impact the available transportation window, limiting transport of the BESS units outside the peak morning and evening periods on weekdays.

The width restriction on Nanima Crescent requires the OSOM vehicles to use the well-known heavy vehicle detour in Wellington. The detour includes travel restrictions during school hours due to Wellington Public School located at 180-190 Percy Street.

It is recommended that compliance with the above conditions is achieved in future stages, which will dictate the permissible transportation times. It is noted that the operator will need to carefully consider the best departure times from the Port of Newcastle and travel times between road segments for each restriction.

Future route planning should consider contingency detours to Wattaka Rest Areas located along the Hunter Expressway to ensure compliance with the New England Highway and Hunter Expressway time-of-day restrictions. Similarly, contingency stopping at the Dunedoo Truck Parking Bay should be considered to ensure compliance with the school hour restrictions in Wellington.

Lastly, the NHVR Route Planner Tool should be revisited once the proposed Molong BESS project is approved and once again during the preparation of the post-approval Traffic Management Plan (TMP).

3.2 Alternative Routes

Alternative routes were considered to provide travel flexibility to the Applicant due to the restrictions on the proposed route highlighted in **Section 3.0**.

The alternative routes also included similar time of day restrictions and/or would result in undesirable travel times. For example, a route via Cessnock, which avoids the travel access restriction on the Hunter Expressway, would still be subject to similar conditions along the New England Highway.

4.0 Conclusions and Recommendations

It has been concluded that the proposed route is feasible for transporting the BESS units by both 23m gooseneck trailers (OSOM) and 26m B-Double design vehicles (non-OSOM, subject to axle load distribution). At the time of procurement, the weight and the geometric details of the preferred BESS unit should be revisited. If the BESS units are wider than 2.5m or heavy enough to exceed the GVM of B-Double design vehicles (68t under HML) when loaded, the B-Double vehicle can no longer be an alternative to the first preference 23m gooseneck trailer.

It is also recommended that the conditions listed in **Table 1** above and the rest stops identified in this study be reviewed again as part of the preparation of the future TMP (likely in 2026, following project approvals).

Basis of Statement of Advice
This report has been prepared with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with the Client. Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid. This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR. SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

Appendix A NHVR Classes of Heavy Vehicles in the Heavy Vehicle National Law

National Heavy Vehicle Regulator

Classes of Heavy Vehicles in the Heavy Vehicle National Law

Disclaimer: The Heavy Vehicle National Law (HVNL) provides for three classes of heavy vehicle as a means of managing access for different types of heavy vehicles. This chart shows some of the most common heavy vehicle combinations that are part of each vehicle class as defined in the Heavy Vehicle National Law (HVNL). It is not a comprehensive representation of the entire Australian heavy vehicle fleet. Other heavy vehicle configurations are used which are not represented. This fact sheet illustrates some common examples from the three different classes of heavy vehicles and is provided for guidance only. Definitions listed within the chart can be found under relevant sections in the Heavy Vehicle National Law (HVNL). For further information, contact the NHVR at 13 NHVR (13 64 87) or info@nhvr.gov.au or www.nhvr.gov.au/contact-us

Class 1 Heavy Vehicles (examples for illustration purposes)

February 2019

Special Purpose Vehicle (SPV)

1 All Terrain Crane

2 All Terrain Crane with Dolly

3 Pick and Carry Crane

4 Truck Mounted Crane

5 Truck Mounted Drill Rig

6 Truck Mounted Concrete Pump

7 Prime Mover Towing Drill Rig Trailer

8 Grader

9 Firetruck

Agricultural Vehicles (including implements and trailers)

10 Combine Harvester

11 Tractor

12 Grain Auger

13 Chaser Bin

14 Cane Haul Out Truck

Oversize Overmass Vehicles (OSOM)

15 Prime Mover and Low Loader (Gooseneck)

16 Prime Mover and Low Loader with Dolly (Gooseneck)

17 Prime Mover and Platform Trailer (Gooseneck)

18 Prime Mover and Extendable Trailer

19 Block Truck towing Drawn Platform

20 Two Block Trucks towing Drawn Platform with Push Block Truck

HVNL Definitions

HVNL s116 (1)

(1) A heavy vehicle is a **class 1 heavy vehicle** if it, together with its load, does not comply with a prescribed mass requirement or prescribed dimension requirement applying to it, and–
(a) it is a special purpose vehicle; or
(b) it is an agricultural vehicle other than an agricultural trailer; or
Note– See subsection (2) for agricultural trailers.
(c) it–
(i) is a heavy vehicle carrying, or designed for the purpose of carrying, a large indivisible item, including, for example, a combination including a low loader; but
(ii) is not a road train or B-double, or carrying a freight container designed for multi-modal transport.

(2) An agricultural trailer is a **class 1 heavy vehicle,** irrespective of whether it, together with its load, does or does not comply with a prescribed mass requirement or prescribed dimension requirement applying to it.

HVNL s116 (4)

Special purpose vehicle means–
(a) A motor vehicle or trailer, other than an agricultural vehicle or a tow truck, built for a purpose other than carrying goods; or
(b) a concrete pump or fire truck.

HVNL s5

Agricultural vehicle means an agricultural implement or agricultural machine.

HVNL s5

Agricultural trailer means a trailer that is designed to carry a load and used exclusively to perform agricultural tasks, but does not include a semitrailer.

HVNL s5

Oversize vehicle means a heavy vehicle that does not comply with a dimension requirement applying to it.

NHVR Notes:

Not all SPV's and agricultural vehicles are Class 1 heavy vehicles. SPV's and agricultural vehicles (except agricultural trailers) which comply with prescribed mass and dimension requirements are general access vehicles.

Overmass Vehicle: A heavy vehicle or combination that does not comply with a prescribed mass requirement applying to it (including gross mass, axle or axle group mass).

Class 2 Heavy Vehicles (examples for illustration purposes)

Freight Carrying Vehicles

21 B-double

22 B-double

23 A-double

24 A-double

25 B-triple

26 B-triple

27 AB-triple

28 A-triple

29 BAB-Quad

30 ABB-Quad

31 Rigid Truck and 2 Dog Trailers

Performance Based Standards (PBS)

32 Prime Mover and Quad Axle Semitrailer

33 Rigid Truck and 5 Axle Dog Trailer

34 B-double with Quad Axle Groups (up to 30m)

35 A-double (up to 30m)

Buses

36 Controlled Access Bus

Vehicles Exceeding 4.3m in Height (up to 4.6m high as per Schedule 6 of Heavy Vehicle (Mass, Dimension and Loading) National Regulation) (MDL)

37 Vehicle Carrier

38 A-double (Livestock)

39 B-triple (Livestock)

HVNL Definitions

HVNL s136

A heavy vehicle is a **class 2 heavy vehicle** if–
(a) it–
(i) complies with the prescribed mass requirements and prescribed dimension requirements applying to it; and
(ii) is–
(A) a B-double; or
(B) a road train; or
(C) a bus, other than an articulated bus, that is longer than 12.5m; or
(D) a combination designed and built to carry vehicles on more than 1 deck that, together with its load is longer than 19m or higher than 4.3m; or
(E) a motor vehicle, or a combination, that is higher than 4.3m and is built to carry cattle, sheep, pigs or horses; or
(b) it is a PBS vehicle.

HVNL s5

B-double means a combination consisting of a prime mover towing 2 semitrailers, with the first semitrailer being attached directly to the prime mover by a fifth wheel coupling and the second semitrailer being mounted on the rear of the first semitrailer by a fifth wheel coupling on the first semitrailer.

HVNL s5

B-triple means a combination consisting of a prime mover towing 3 semitrailers, with–
(a) The first semitrailer being attached directly to the prime mover by a fifth wheel coupling; and
(b) The second semitrailer being mounted on the rear of the first semitrailer by a fifth wheel coupling on the first semitrailer; and
(c) The third semitrailer being mounted on the rear of the second semitrailer by a fifth wheel coupling on the second semitrailer.

HVNL s5

road train means–
(a) A B-triple; or
(b) A combination, other than a B-double, consisting of a motor vehicle towing at least 2 trailers, excluding any converter dolly supporting a semitrailer.

HVNL s5

PBS vehicle means a heavy vehicle that is the subject of a current PBS vehicle approval under Part 1.4.

HVNL s5

PBS vehicle approval means a current approval issued for a heavy vehicle by the Regulator under section 23.

NHVR Notes:

B-doubles:
Despite the shorter length, 19m B-doubles are classified as Class 2 Vehicles. General freight carrying vehicles that are longer than 19m require specific networks that are capable of handling these larger vehicles. This is usually managed by declaring route networks in gazette notices, but where a network does not exist, an operator may apply for a permit.

Buses:
A bus, other than an articulated bus, that is longer than 12.5m but less than 14.5m, that complies with prescribed mass and dimension requirements is a class 2 heavy vehicle. These vehicles are also known as a 'Controlled Access Bus'

Vehicle carriers:
A vehicle carrier is a combination designed and built to carry vehicles on more than one deck that together with its load is longer than 19m or higher than 4.3m.

Livestock vehicles:
A livestock vehicle is a heavy vehicle, or a combination, that may be higher than 4.3m and is built to carry cattle, sheep, pigs or horses.

Performance Based Standards:
(PBS) An alternative compliance scheme for heavy vehicles setting minimum performance levels for safe and efficient operation (as opposed to standard prescriptive rules). Greater access is generally afforded for higher performance.

Class 3 Heavy Vehicles (examples for illustration purposes)

40 Rigid Truck and Dog (over 42.5 tonnes GCM)

41 Prime Mover and Semitrailer towing Converter Dolly

42 B-double towing Converter Dolly

43 Underhook/Underlift Tow Truck

HVNL Definitions

HVNL s116 (3)

(3) A heavy vehicle is a **class 3 heavy vehicle** if–
(a) it, together with its load, does not comply with a prescribed mass requirement or prescribed dimension requirement applying to it; and
(b) it is not a class 1 heavy vehicle.

NHVR Notes:

A truck and dog trailer combination whose dimensions and mass do not exceed prescribed mass and dimension requirements is a general access vehicle. If its mass or dimension limits exceed prescribed requirements, this combination is classified as a Class 3 vehicle.

Examples of Class 3 vehicles include:

- A truck and dog trailer combination consisting of a rigid truck with 3 or 4 axles towing a dog trailer with 3 or 4 axles weighing more than 42.5t is an example of a class 3 heavy vehicle.
- Other examples might include a B-double or road train transporting a load wider than 2.5m.

Appendix B NHVR PBS Vehicle Configurations

National Heavy Vehicle Regulator
PBS Vehicle Configurations

Disclaimer: This chart shows some of the NHVR-approved PBS heavy vehicle combinations used in Australia. Other heavy vehicle configurations may not be represented. The mass and length limits shown are from the Heavy Vehicle (Mass, Dimension and Loading) National Regulation (the MDL Regulation) and are provided for general guidance only. These limits are available only to vehicles that comply with all other regulatory requirements (e.g. width and height limits, tyre width, vehicle standards, load restraint, suspension type etc.). In some circumstances, other mass concessions and length limits may also be available. The NHVR website provides links to the MDL Regulation and to national and state Notices that may apply, depending on individual circumstances. For further information, contact the NHVR on 13 NHVR (13 64 87) at info@nhvr.gov.au or www.nhvr.gov.au/contact-us

Common PBS vehicle configurations	Description	PBS level	Maximum length† (m)	Maximum permitted mass GML (t)	CML (t)	HML (t)
PBS TRUCK AND DOG TRAILERS						
1	3-axle truck and 3-axle dog trailer	1	20.0	48.5	–	–
		2	20.0	48.5	49.5	49.5
2	3-axle truck and 4-axle dog trailer	1	20.0	50.5	–	–
		2	20.0	56.0	57.5	57.5
3	3-axle truck and 5-axle dog trailer	2	26.0	59.5	61.5	63.0
4	3-axle truck and 6-axle dog trailer	2	26.0	63.0	65.0	68.5
5	4-axle truck and 3-axle dog trailer	1	20.0	50.0	–	–
		2	20.0	53.0	54.0	54.0
6	4-axle truck and 4-axle dog trailer	1	20.0	50.0	–	–
		2	20.0	60.5	62.0	62.0
7	4-axle truck and 5-axle dog trailer	2	26.0	64.0	66.0	67.5
8	4-axle truck and 6-axle dog trailer	2	26.0	67.5	69.5	73.0
PBS PRIME MOVER AND SEMITRAILERS						
9	2-axle prime mover and 2-axle semitrailer	1	20.0	32.0	32.5	32.5
10	3-axle prime mover and 2-axle semitrailer	1	20.0	39.5	40.5	40.5
11	3-axle prime mover and 3-axle semitrailer	1	20.0	43.0	44.0	46.0
12	4-axle prime mover and 3-axle semitrailer	1	20.0	47.5	48.5	50.0
13	3-axle prime mover and quad-axle semitrailer	1	20.0	43.0	44.0*	50.5*
14	4-axle prime mover and quad-axle semitrailer	1	20.0	47.5	48.5*	50.0*◊
		2	21.0	47.5	48.5*	55.0*◊
15	Prime mover and semitrailer with 2 axle groups (2-1)Δ	1	20.0	48.0	49.0	49.0
16	Prime mover and semitrailer with 2 axle groups (1-3)Δ	1	20.0	49.7	50.7	53.5◊
PBS B-DOUBLES						
17	3-axle prime mover B-double (2-2)	1	20.0	50.5	–	–
		2	26.0	56.0	57.5	57.5
		3	30.0	56.0	57.5	57.5
18	3-axle prime mover B-double (3-2)	1	20.0	50.5	–	–
		2	26.0	59.5	61.5	63.0
19	3-axle prime mover B-double (3-3)	2	26.0	63.0	65.0	68.5
		3	30.0	63.0	65.0	68.5
20	3-axle prime mover B-double (4-3)	2	26.0	63.0	65.0*	73.0*
		3	30.0	63.0	65.0*	73.0*
21	3-axle prime mover B-double (4-4)	2	26.0	63.0	65.0*	77.5*
		3	30.0	63.0	65.0*	77.5*
PBS A-DOUBLES						
22	3-axle prime mover A-double (2-2-2)	2	30.0	72.5	74.5	74.5
23	3-axle prime mover A-double (3-2-3)	2	30.0	79.5	81.5	85.0
		3	36.5	79.5	81.5	85.5
24	3-axle prime mover A-double (3-3-3)	2	30.0	83.0	85.0	85.0
		3	36.5	83.0	85.0	91.0
PBS ROAD TRAINS						
25	A-triple (3-3-3-3-3)	4	42.5	126.5	128.5	141.5
26	B-triple (3-3-3)	3	36.5	83.0	85.0	91.0
27	AB-triple (3-3-3-3)	3	36.5	103.0	105.0	110.0
28	BA-triple (3-3-3-3)	3	36.5	103.0	105.0	110.0
29	AB-double (1-2-1)	1	20.0	50.5	–	–
		2	20.0	59.0	59.5	59.5
PBS BUS						
30	Bus	1	14.5	20.5	–	–
PBS TRUCK AND PIG TRAILERS						
31	3-axle truck and 2-axle pig trailer	1	20.0	38.0	38.5	38.5
32	4-axle truck and 2-axle pig trailer	1	20.0	42.5	43.0	43.0

† Vehicles may exceed the upper length in their level. Road manager approval and/or an individual route assessment will be required. * Quad-axle mass limit (QML). The MDL Regulation allows quad-axle groups up to 27 tonnes provided a combination is PBS approved. ◊ Operation of PBS vehicles on the PBS road network will require Road manager consent. Δ Vehicle Standards exemptions are required before a PBS vehicle approval is issued.

Appendix C Swept Path Assessments



TENANCY 202, SUBMARINE SCHOOL
SUB BASE PLATYPUS, 120 HIGH ST
NORTH SYDNEY
NEW SOUTH WALES 2066
AUSTRALIA
T: 61 2 9427 8100

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Project No:	620.041615
Date:	09/07/25
Drawn by:	CS
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Sheet Size:	A3
Projection:	-

SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels
- Rear Wheels

INFRASTRUCTURE LEGEND

- Non-critical (2.0m Diameter)
- Critical (2.0m Diameter)
- Guardrail / Fence

N

0.0 5.0 10 15 20
METRES

SCALE 1:500

StorEnergy 3 Pty Ltd

Molong BESS

22.81m Gooseneck Trailer (BESS Unit) Swept Path Assessment

FIGURE SK01



SLR
TENANCY 202, SUBMARINE SCHOOL
SUB BASE PLATYPUS, 120 HIGH ST
NORTH SYDNEY
NEW SOUTH WALES 2066
AUSTRALIA
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SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels
- Rear Wheels

INFRASTRUCTURE LEGEND

- Non-critical (2.0m Diameter)
- Critical (2.0m Diameter)
- Guardrail / Fence

N

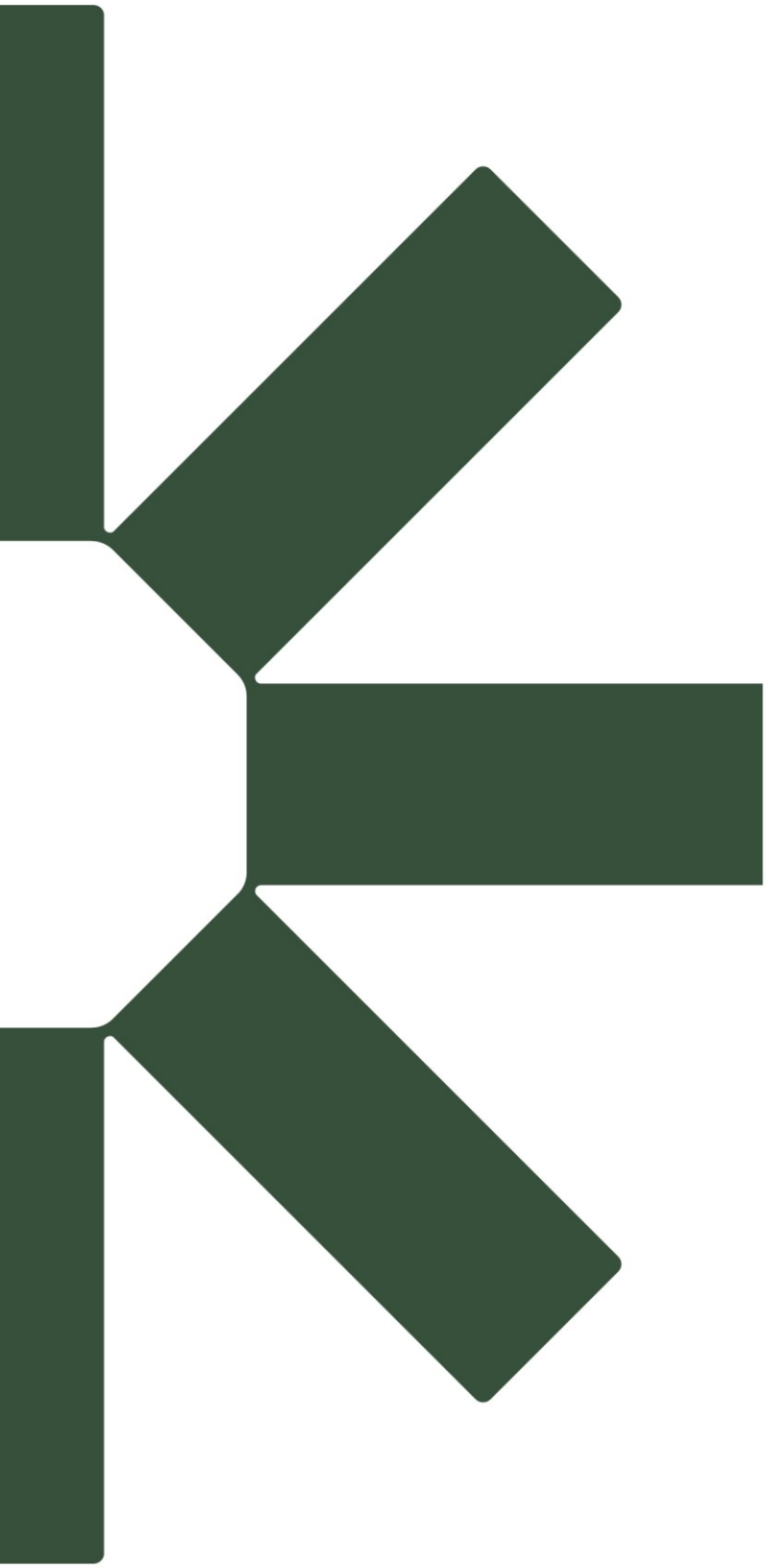
0.0 5.0 10 15 20
METRES
SCALE 1:500

StorEnergy 3 Pty Ltd

Molong BESS

26.0m B-Double Vehicle (BESS Unit) Swept Path Assessment

FIGURE SK02

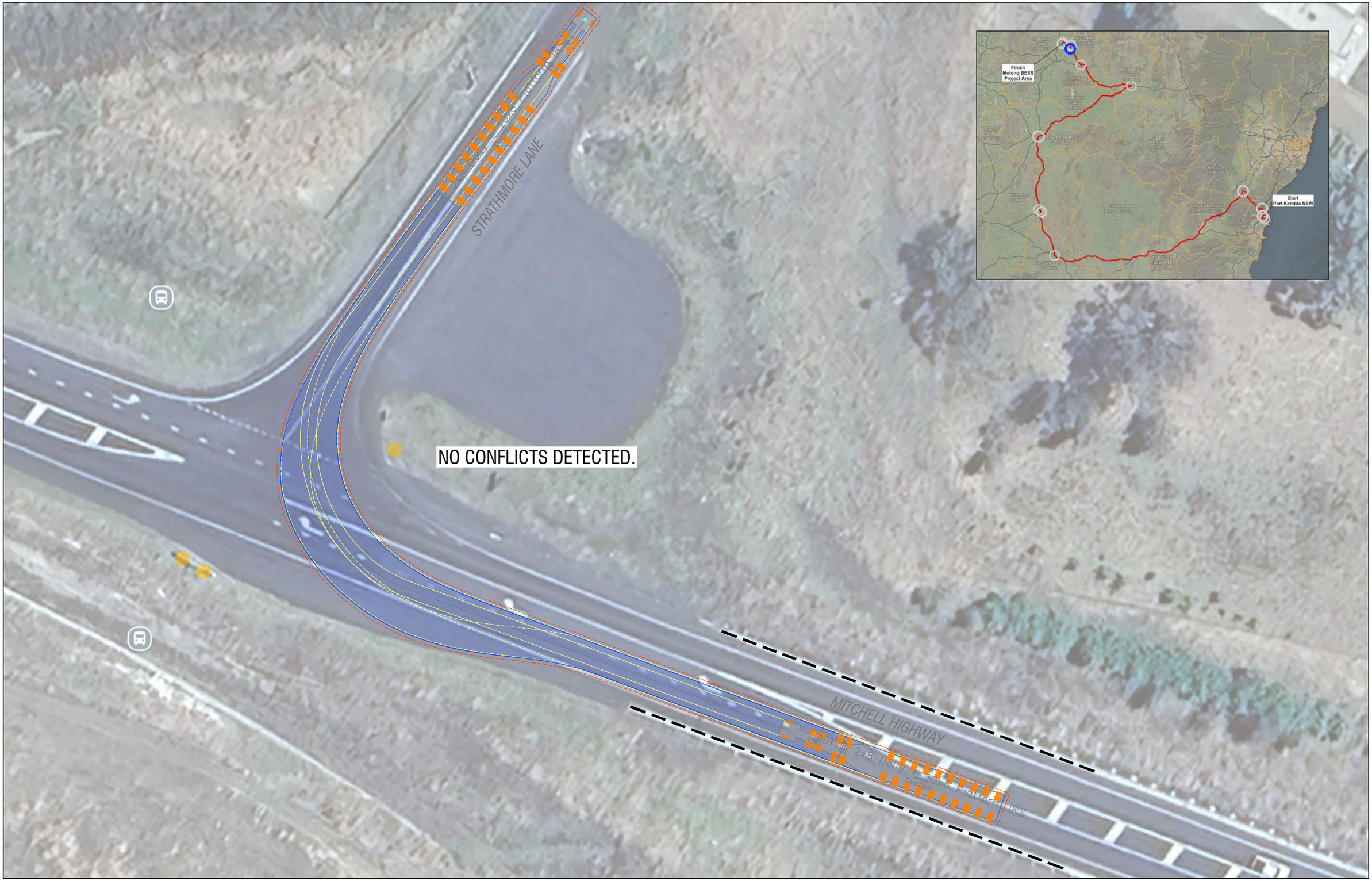


Making Sustainability Happen

Appendix E:

Swept Path Analysis





TENANCY 202, SUBMARINE SCHOOL
SUB BASE PLATYPUS, 120 HIGH ST
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NEW SOUTH WALES 2066
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Projection:	-

SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels
- Rear Wheels

INFRASTRUCTURE LEGEND

- Non-critical (2.0m Diameter)
- Critical (2.0m Diameter)
- Guardrail / Fence

N

0.0 5.0 10 15 20 METRES

SCALE 1:500

StorEnergy 3 Pty Ltd

Molong BESS

33m OSOM Vehicle (Transformer) Swept Path Assessment

FIGURE SK01



TENANCY 202, SUBMARINE SCHOOL
SUB BASE PLATYPUS, 120 HIGH ST
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NEW SOUTH WALES 2066
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Projection:	-

SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels
- Rear Wheels

INFRASTRUCTURE LEGEND

- Non-critical (2.0m Diameter)
- Critical (2.0m Diameter)
- Guardrail / Fence

N

0.0 7.5 15 22.5 30
METRES

SCALE 1:750

StorEnergy 3 Pty Ltd

Molong BESS

33m OSOM Vehicle (Transformer) Swept Path Assessment

FIGURE SK02



TENANCY 202, SUBMARINE SCHOOL
SUB BASE PLATYPUS, 120 HIGH ST
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NEW SOUTH WALES 2066
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Sheet Size:	A3
Projection:	-

SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels
- Rear Wheels

INFRASTRUCTURE LEGEND

- Non-critical (2.0m Diameter)
- Critical (2.0m Diameter)
- Guardrail / Fence

N

0.0 5.0 10 15 20
METRES
SCALE 1:500

StorEnergy 3 Pty Ltd

Molong BESS

33m OSOM Vehicle (Transformer) Swept Path Assessment

FIGURE SK03



TENANCY 202, SUBMARINE SCHOOL
SUB BASE PLATYPUS, 120 HIGH ST
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Projection:	-

SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels
- Rear Wheels

INFRASTRUCTURE LEGEND

- Non-critical (2.0m Diameter)
- Critical (2.0m Diameter)
- Guardrail / Fence

N

0.0 5.0 10 15 20
METRES

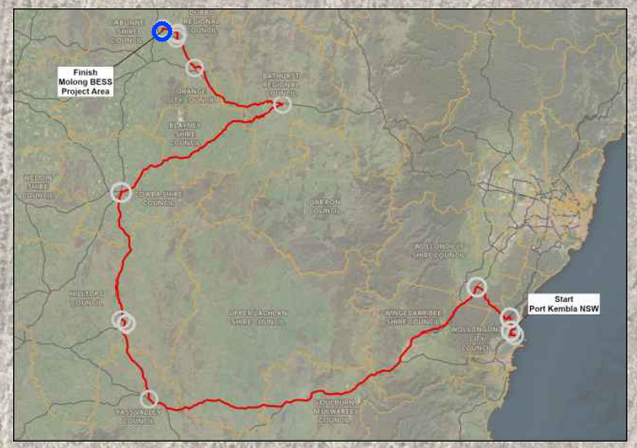
SCALE 1:500

StorEnergy 3 Pty Ltd

Molong BESS

33m OSOM Vehicle (Transformer) Swept Path Assessment

FIGURE SK04



NO CONFLICTS DETECTED.

EUCHAREENA ROAD

BACK SALEYARDS ROAD

TENANCY 202, SUBMARINE SCHOOL
SUB BASE PLATYPUS, 120 HIGH ST
NORTH SYDNEY
NEW SOUTH WALES 2066
AUSTRALIA
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Drawn by:	DM
Certified by:	CS
Sheet Size:	A3
Projection:	-

SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels
- Rear Wheels

INFRASTRUCTURE LEGEND

- Non-critical (2.0m Diameter)
- Critical (2.0m Diameter)
- Guardrail / Fence

N

0.0 5.0 10 15 20
METRES

SCALE 1:500

StorEnergy 3 Pty Ltd

Molong BESS

33m OSOM Vehicle (Transformer) Swept Path Assessment

FIGURE SK05

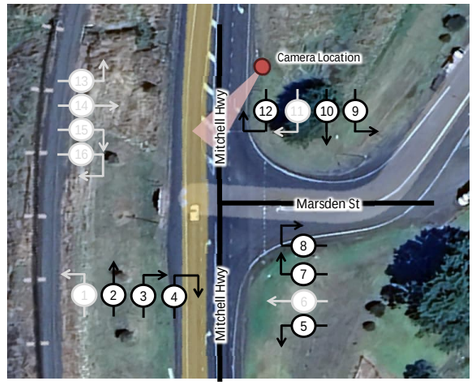
Appendix F:

Traffic Survey Results



Manual Classified Turning Count Survey

Job No.	620.041615
Client	Stor Energy
Suburb	Molong NSW
Location	Mitchell Highway / Marsden Street
	https://maps.app.goo.gl/1EyYZd5C4aKPHGTt6
Day/Date	28/11/2024 - 29/11/2024
Weather	Overcast
Description	Classified Intersection Count
	15 mins Data
	Class 1 Class 2
Classifications	Lights Heavies



Date	29-11-24
AM Start	6:00 AM
AM End	10:00 AM

Time Start	Time End	Movement 1			Movement 2			Movement 3			Movement 4			Movement 5			Movement 6			Movement 7			Movement 8			Movement 9			Movement 10			Movement 11			Movement 12			Movement 13			Movement 14			Movement 15			Movement 16			TOTAL		
		Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
6:00 AM	6:15 AM			0	14	3	17			0			0			0			0			0			0	2		2	24	7	31			0			0			0			0			0	40	10	50
6:15 AM	6:30 AM			0	24	10	34			0			0	3		3			0			0			0	1		1	35	2	37			0			0			0			0			0	63	12	75
6:30 AM	6:45 AM			0	33	14	47			0			0	1	1	2			0	3		3			0		1	1	35	3	38			0			0			0			0			0	72	19	91
6:45 AM	7:00 AM			0	37	6	43			0			0			0			0	1		1			0	3		3	23	7	30			0			0			0			0			0	64	13	77
7:00 AM	7:15 AM			0	30	9	39	1		1			0		1	1			0	1		1			0	1		1	31	4	35			0			0			0			0			0	64	14	78
7:15 AM	7:30 AM			0	19	2	21	1		1			0			0			0	2		2			0	1	1	2	46	10	56			0			0			0			0			0	69	13	82
7:30 AM	7:45 AM			0	32	13	45	4		4			0	1		1			0	1	1	2			0	1		1	48	9	57			0			0			0			0			0	87	23	110
7:45 AM	8:00 AM			0	29	3	32			0			0	2		2			0	1		1			0	2	1	3	49	2	51			0			0			0			0			0	83	6	89
8:00 AM	8:15 AM			0	37	5	42			0			0	1	1	2			0	2		2			0			0	32	3	35			0			0			0			0			0	72	9	81
8:15 AM	8:30 AM			0	28	6	34			0			0	2	1	3			0			0			0			0	47	3	50			0			0			0			0			0	77	10	87
8:30 AM	8:45 AM			0	30	2	32			0			0	1		1			0	2	1	3			0	3		3	52	8	60			0			0			0			0			0	88	11	99
8:45 AM	9:00 AM			0	27	8	35	3		3			0			0			0	6	1	7			0	3	1	4	49	3	52			0			0			0			0			0	88	13	101
9:00 AM	9:15 AM			0	38	5	43	2		2			0	1	1	2			0	2		2			0	2	1	3	42	1	43			0			0			0			0			0	87	8	95
9:15 AM	9:30 AM			0	23	12	35			0			0			0			0			0			0			0	47	7	54			0			0			0			0			0	70	19	89
9:30 AM	9:45 AM			0	24	3	27	1		1	1		1	2		2			0			0			0	6		6	39	9	48			0			0			0			0			0	73	12	85
9:45 AM	10:00 AM			0	26	4	30			0			0	5		5			0	2		2			0	2	1	3	42	6	48			0			0			0			0			0	77	11	88
TOTAL		0	0	0	451	105	556	12	0	12	1	0	1	19	5	24	0	0	0	23	3	26	0	0	0	27	6	33	641	84	725	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1174	203	1377

Overall Peak Flow Periods			
Hour Start	VPH	%HV	PFF
6:00 AM	293	18%	0.04
6:15 AM	321	18%	0.06
6:30 AM	328	18%	0.07
6:45 AM	347	18%	0.06
7:00 AM	359	16%	0.05
7:15 AM	362	14%	0.06
7:30 AM	367	13%	0.07
7:45 AM	356	10%	0.06
8:00 AM	368	12%	0.06
8:15 AM	382	11%	0.06
8:30 AM	384	13%	0.06
8:45 AM	370	14%	0.07
9:00 AM	357	14%	0.07

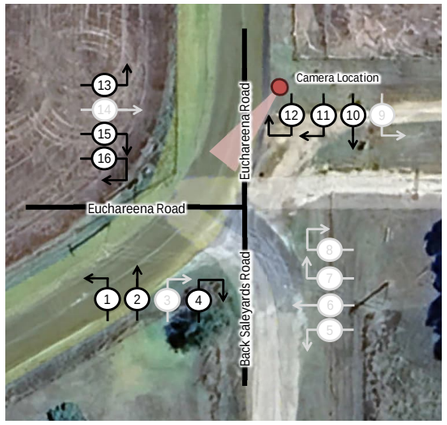
Date	28-11-24
PM Start	2:00 PM
PM End	6:00 PM

Time Start	Time End	Movement 1			Movement 2			Movement 3			Movement 4			Movement 5			Movement 6			Movement 7			Movement 8			Movement 9			Movement 10			Movement 11			Movement 12			Movement 13			Movement 14			Movement 15			Movement 16			TOTAL		
		Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
2:00 PM	2:15 PM			0	28	7	35	2		2			0	1	1	2			0	4		4			0	2		2	33	7	40			0			0			0			0			0	70	15	85
2:15 PM	2:30 PM			0	37	2	39	1		1			0	2		2			0	2		2			0	4		4	33	7	40			0			0			0			0			0	79	9	88
2:30 PM	2:45 PM			0	39		39			0			0	2		2			0			0			0	4	1	5	40	14	54			0			0			0			0			0	85	15	100
2:45 PM	3:00 PM			0	41	8	49	1		1			0	1		1			0	6		6			0	3		3	28	2	30			0	1		1			0			0			0	81	10	91
3:00 PM	3:15 PM			0	43	6	49	2		2			0	2		2			0	3		3			0	7	1	8	32	12	44			0			0			0			0			0	89	19	108
3:15 PM	3:30 PM			0	45	5	50	2		2			0	3	1	4			0	7		7			0	5		5	37	6	43			0			0			0			0			0	99	12	111
3:30 PM	3:45 PM			0	30	3	33	1		1			0	1		1			0	4		4			0	4	1	5	51	8	59			0			0			0			0			0	91	12	103
3:45 PM	4:00 PM			0	49	4	53	0		0			0	1		1			0	3		3			0	4		4	49	6	55			0			0			0			0			0	106	10	116
4:00 PM	4:15 PM			0	35	3	38	4		4			0	3		3			0	1		1			0	6		6	57	4	61			0			0			0			0			0	106	7	113
4:15 PM	4:30 PM			0	38	1	39	1	2	3			0	1		1			0	4		4			0	3		3	40	11	51			0			0			0			0			0	87	14	101
4:30 PM	4:45 PM			0	54	5	59	2		2			0	5		5			0	4		4			0	6		6	44	8	52			0			0			0			0			0	115	13	128
4:45 PM	5:00 PM			0	44	3	47	1		1			0			0			0	3	1	4			0			0	37	8	45			0			0			0			0			0	85	12	97
5:00 PM	5:15 PM			0	44	5	49	1		1			0			0			0	1		1			0	3	2	5	45	2	47			0			0			0			0			0	94	9	103
5:15 PM	5:30 PM			0	47	2	49	4		4			0	4		4			0	1		1			0	4		4	35	7	42			0			0			0			0			0	95	9	104
5:30 PM	5:45 PM			0	50	6	56	1		1			0	1		1			0	1		1			0	3		3	34	4	38			0			0			0			0			0	90	10	100
5:45 PM	6:00 PM			0	42	3	45	3		3			0	4		4			0	1		1			0	5		5	28	7	35			0	1		1			0			0			0	84	10	94
TOTAL		0	0	0	666	63	729	26	2	28	0	0	0	31	2	33	0	0	0	45	1	46	0	0	0	63	5	68	623	113	736	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	1456	186	1642

Overall Peak Flow Periods			
Hour Start	VPH	%HV	PFF
2:00 PM	364	13%	0.06
2:15 PM	387	14%	0.06
2:30 PM	410	14%	0.06
2:45 PM	413	13%	0.06
3:00 PM	438	12%	0.06
3:15 PM	443	9%	0.06
3:30 PM	433	10%	0.06
3:45 PM	458	10%	0.06
4:00 PM	439	10%	0.06
4:15 PM	429	11%	0.06
4:30 PM	432	10%	0.07
4:45 PM	404	10%	0.06
5:00 PM	401	9%	0.06

Manual Classified Turning Count Survey

Job No.	620.041615
Client	Stor Energy
Suburb	Molong NSW
Location	Mitchell Highway / Marsden Street
	https://maps.app.goo.gl/2V9Hxrxtysj4yH7a6
Day/Date	28/11/2024 - 29/11/2024
Weather	Overcast
Description	Classified Intersection Count
	15 mins Data
	Class 1 Class 2
Classifications	Lights Heavies



Date	29-11-24
AM Start	6:00 AM
AM End	10:00 AM

Time Start	Time End	Movement 1			Movement 2			Movement 3			Movement 4			Movement 5			Movement 6			Movement 7			Movement 8			Movement 9			Movement 10			Movement 11			Movement 12			Movement 13			Movement 14			Movement 15			Movement 16			TOTAL		
		Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
6:00 AM	6:15 AM			0			0			0			0			0			0			0			0			0			1	1			0	3		3			0			0			0	3	1	4
6:15 AM	6:30 AM			0			0			0			0			0			0			0			0			0	3	1	4			0	2	1	3			0			0			0	5	2	7
6:30 AM	6:45 AM			0			0			0			0			0			0			0			0			0	3		3			0	1		1			0			0			0	4	0	4
6:45 AM	7:00 AM			0			0			0			0			0			0			0			0			0	5		5			0	3	1	4			0			0			0	8	1	9
7:00 AM	7:15 AM			0			0			0			0			0			0			0			0			0	2		2			0	7		7			0			0			0	9	0	9
7:15 AM	7:30 AM			0			0			0			0			0			0			0			0			0	5	1	6			0	2		2			0			0			0	7	1	8
7:30 AM	7:45 AM			0			0			0			0			0			0			0			0			0	2		2			0	5	2	7			0			0			0	7	2	9
7:45 AM	8:00 AM			0			0			0			0			0			0			0			0			0	3	1	4			0	2		2			0			0			0	5	1	6
8:00 AM	8:15 AM			0			0			0			0			0			0			0			0			0	3		3			0		1	1			0			0			0	3	1	4
8:15 AM	8:30 AM			0			0			0			0			0			0			0			0			0	7		7			0	2	1	3			0			0			0	9	1	10
8:30 AM	8:45 AM			0			0			0			0			0			0			0			0			0	7	1	8			0	1		1			0			0	1		1	8	2	10
8:45 AM	9:00 AM	1		1			0			0			0			0			0			0			0			0	4		4			0	3	2	5			0			0			0	8	2	10
9:00 AM	9:15 AM			0			0			0			0			0			0			0			0			0	5		5			0	3		3			0			0			0	8	0	8
9:15 AM	9:30 AM	1		1			0			0			0			0			0			0			0			0	5	2	7			0	1	1	2			0			0			0	7	3	10
9:30 AM	9:45 AM			0			0			0			0			0			0			0			0			0	1	1	2			0	4		4			0			0			0	5	1	6
9:45 AM	10:00 AM			0			0			0			0			0			0			0			0			0	4	1	5			0	2	1	3			0			0			0	6	2	8
TOTAL		2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	9	68	0	0	0	41	10	51	0	0	0	0	1	1	0	0	0	102	20	122

Overall Peak Flow Periods			
Hour Start	VPH	%HV	PFF
6:00 AM	24	17%	0.04
6:15 AM	29	10%	0.06
6:30 AM	30	7%	0.03
6:45 AM	35	11%	0.06
7:00 AM	32	13%	0.07
7:15 AM	27	19%	0.07
7:30 AM	29	17%	0.08
7:45 AM	30	17%	0.05
8:00 AM	34	18%	0.03
8:15 AM	38	13%	0.07
8:30 AM	38	18%	0.07
8:45 AM	34	18%	0.07
9:00 AM	32	19%	0.06

Date	28-11-24
PM Start	2:00 PM
PM End	6:00 PM

Time Start	Time End	Movement 1			Movement 2			Movement 3			Movement 4			Movement 5			Movement 6			Movement 7			Movement 8			Movement 9			Movement 10			Movement 11			Movement 12			Movement 13			Movement 14			Movement 15			Movement 16			TOTAL		
		Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total	Light	Heavy	Total
2:00 PM	2:15 PM			0			0			0			0			0			0			0			0			0	1		1			0	3		3			0			0			0	4	0	4
2:15 PM	2:30 PM			0			0			0			0			0			0			0			0			0	3		3			0	3		3			0			0			0	6	0	6
2:30 PM	2:45 PM			0			0			0			0			0			0			0			0			0	4		4			0	4		4			0			0			0	8	0	8
2:45 PM	3:00 PM			0			0			0			0			0			0			0			0			0	6		6			0	6		6			0			0			0	12	0	12
3:00 PM	3:15 PM			0			0			0			0			0			0			0			0			0	3		3			0	3	3	6			0		1	1			0	6	4	10
3:15 PM	3:30 PM			0			0			0			0			0			0			0			0			0	2		2			0	9		9			0			0			0	11	0	11
3:30 PM	3:45 PM			0			0			0			0			0			0			0			0			0	1	3	4			0	4		4			0		1	1			0	5	4	9
3:45 PM	4:00 PM			0			0			0			0			0			0			0			0			0	3		3			0	4	1	5			0			0			0	7	1	8
4:00 PM	4:15 PM			0			0			0			0			0			0			0			0			0	6		6			0	6		6			0			0			0	12	0	12
4:15 PM	4:30 PM			0			0			0			0			0			0			0			0			0	5		5			0	4		4			0			0			0	9	0	9
4:30 PM	4:45 PM			0			0			0			0			0			0			0			0			0	9	1	10			0	9	1	10			0			0			0	18	2	20
4:45 PM	5:00 PM			0			0			0			0			0			0			0			0			0	3	1	4			0	4		4			0			0			0	7	1	8
5:00 PM	5:15 PM			0			0			0	1		1			0			0			0			0			0	7		7			0	5	1	6			0			0			0	13	1	14
5:15 PM	5:30 PM			0			0			0			0			0			0			0			0			0	4		4			0	2		2			0			0			0	6	0	6
5:30 PM	5:45 PM			0			0			0			0			0			0			0			0			0	4		4			0	1	1	2			0			0			0	5	1	6
5:45 PM	6:00 PM			0			0			0			0			0			0			0			0			0	0		0			0	1		1			0			0			0	1	0	1
TOTAL		0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	61	5	66	0	0	0	68	7	75	0	0	0	0	2	2	0	0	0	130	14	144

Overall Peak Flow Periods			
Hour Start	VPH	%HV	PFF
2:00 PM	30	0%	0.03
2:15 PM	36	11%	0.04
2:30 PM	41	10%	0.05
2:45 PM	42	19%	0.07
3:00 PM	38	24%	0.07
3:15 PM	40	13%	0.07
3:30 PM	38	13%	0.06
3:45 PM	49	6%	0.04
4:00 PM	49	6%	0.06
4:15 PM	51	8%	0.04
4:30 PM	48	8%	0.10
4:45 PM	34	9%	0.06
5:00 PM	27	7%	0.13

Appendix G:

Desktop Models (Traffic Flow Diagrams)

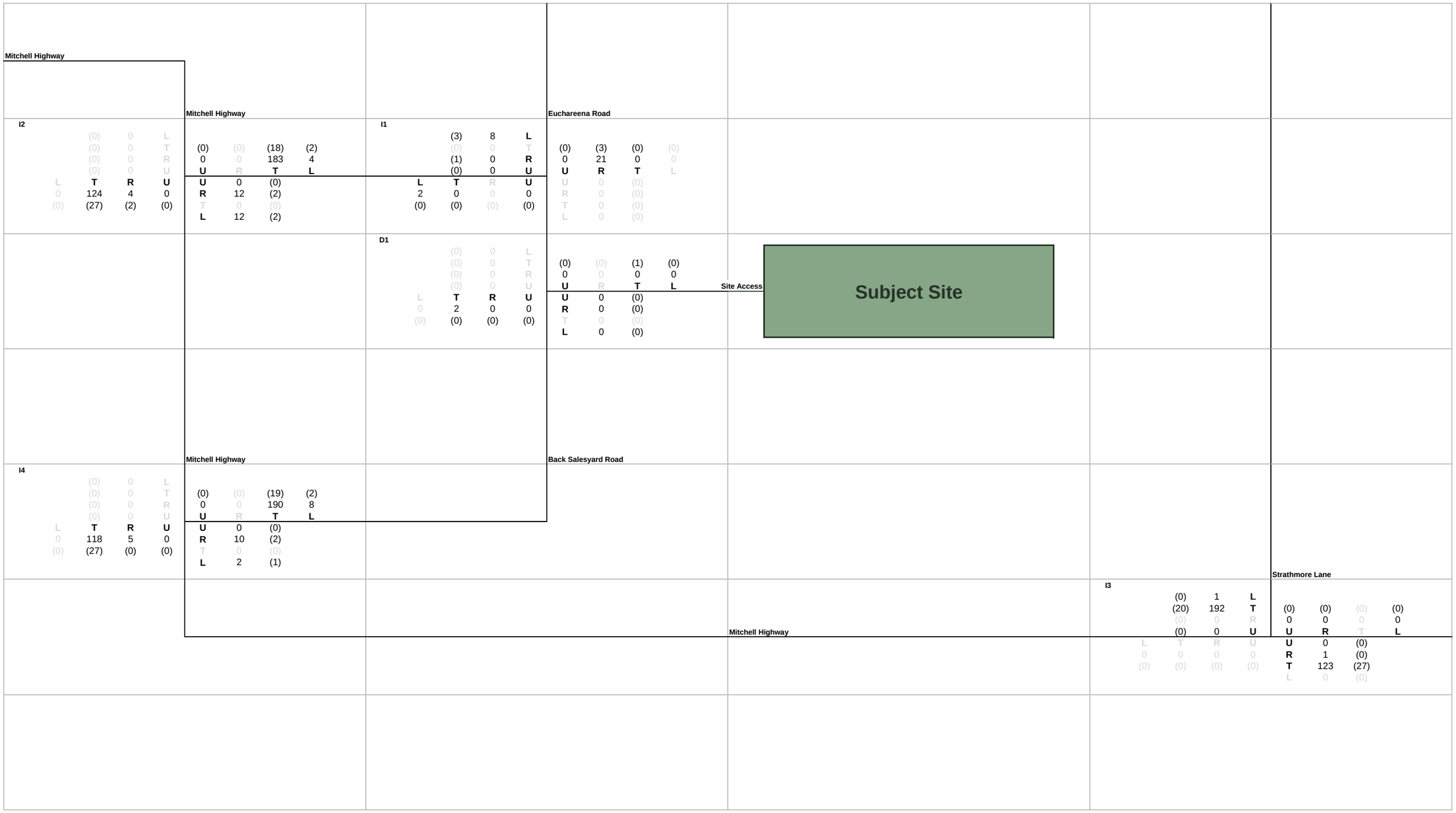


Project Stor Energy - Molong (NSW) - Traffic
Project number 620.041615.00008
Prepared by JC
Reviewed by JH

Appendix **G**
(leave blank if number instead of letter)

TITLE BLOCK REGISTER

Sheet Name	Figure #	Figure Title
Template	XX	Template
2024AM Survey	1	2024 AM Peak Survey Traffic Volumes
2024PM Survey	2	2024 PM Peak Survey Traffic Volumes
2027AM BG	3	2027 AM Peak Background Traffic Volumes (Year of Construction)
2027PM BG	4	2027 PM Peak Background Traffic Volumes (Year of Construction)
DEV AM	5	AM Peak Development Construction Traffic Generation
DEV PM	6	PM Peak Development Construction Traffic Generation
2027AM BG + DEV	7	2027 AM Peak Background with Development Constrcution Traffic Volumes
2027PM BG + DEV	8	2027 PM Peak Background with Development Constrcution Traffic Volumes



G1

2024 AM Peak Survey Traffic Volumes

620.041615.00008

Stor Energy - Molong (NSW) - Traffic

L	Left Turn
T	Through
R	Right Turn
U	U-Turn

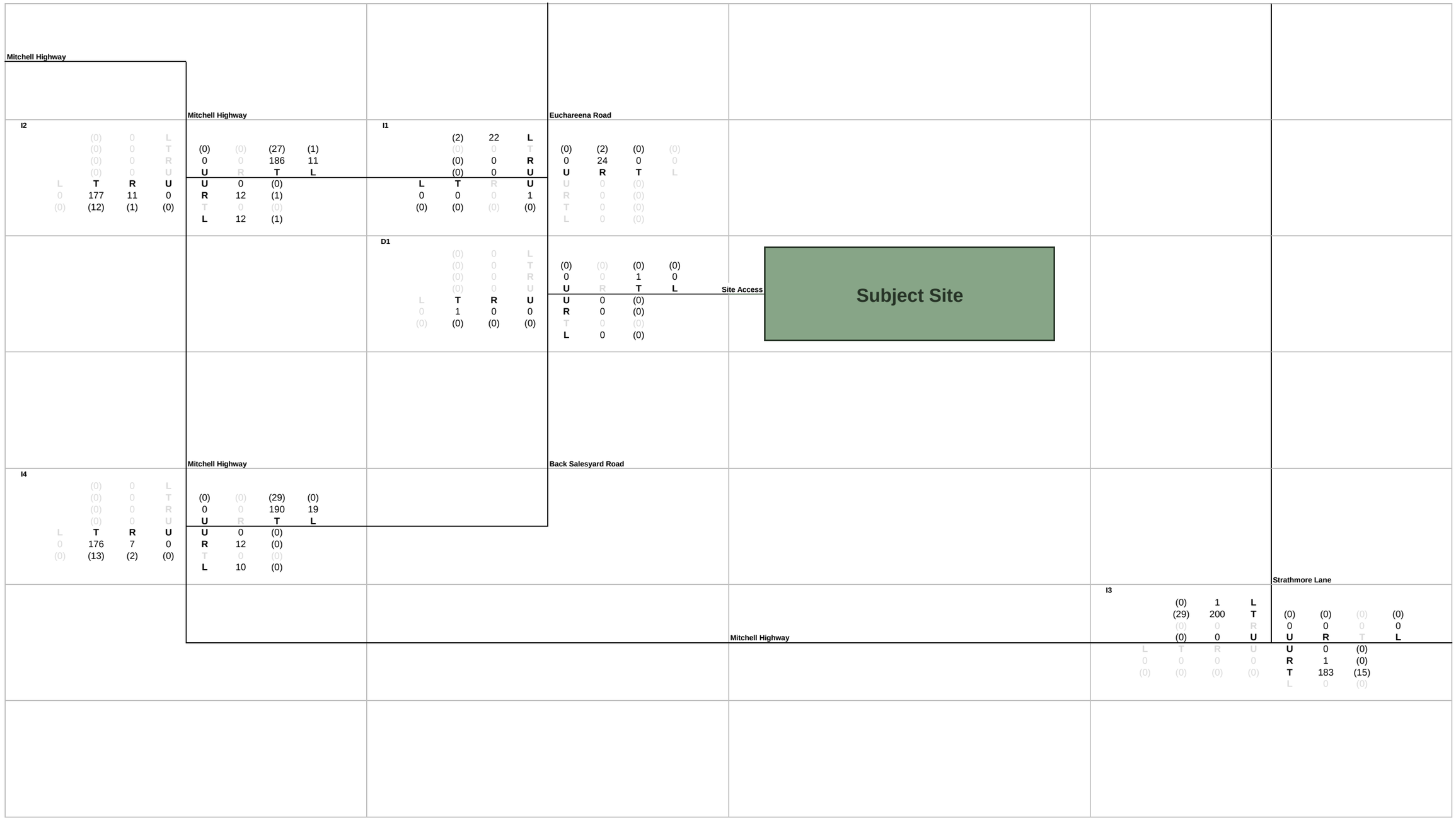
Legend

00 Light Vehicle Volumes

(00) Heavy Vehicle Volumes

Subject Site

N



G2

2024 PM Peak Survey Traffic Volumes

620.041615.00008

Stor Energy - Molong (NSW) - Traffic

L	Left Turn
T	Through
R	Right Turn
U	U-Turn

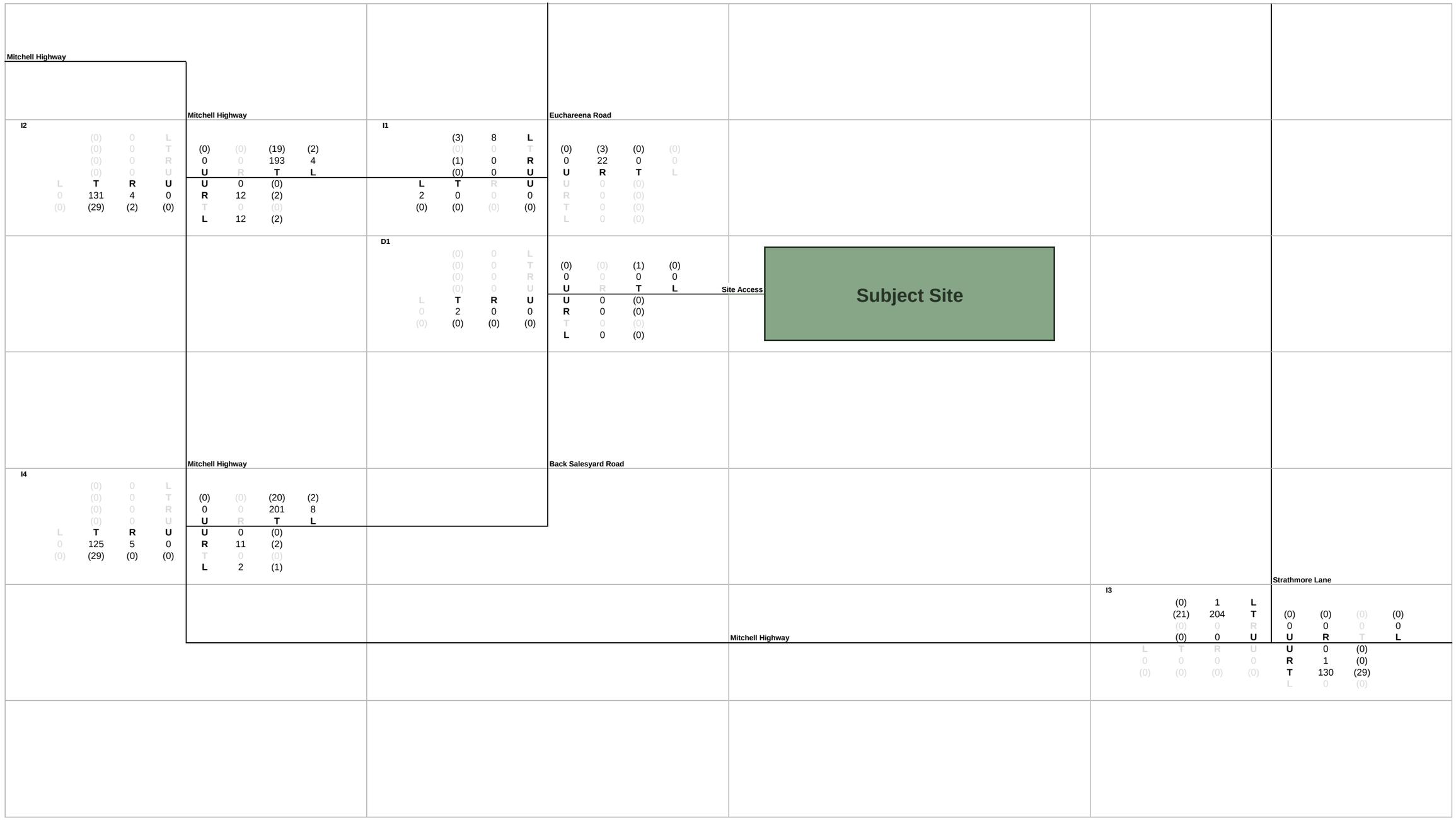
Legend

00 Light Vehicle Volumes

(00) Heavy Vehicle Volumes

Subject Site

N



SLR

G3

2027 AM Peak Background Traffic Volumes (Year of

620.041615.00008

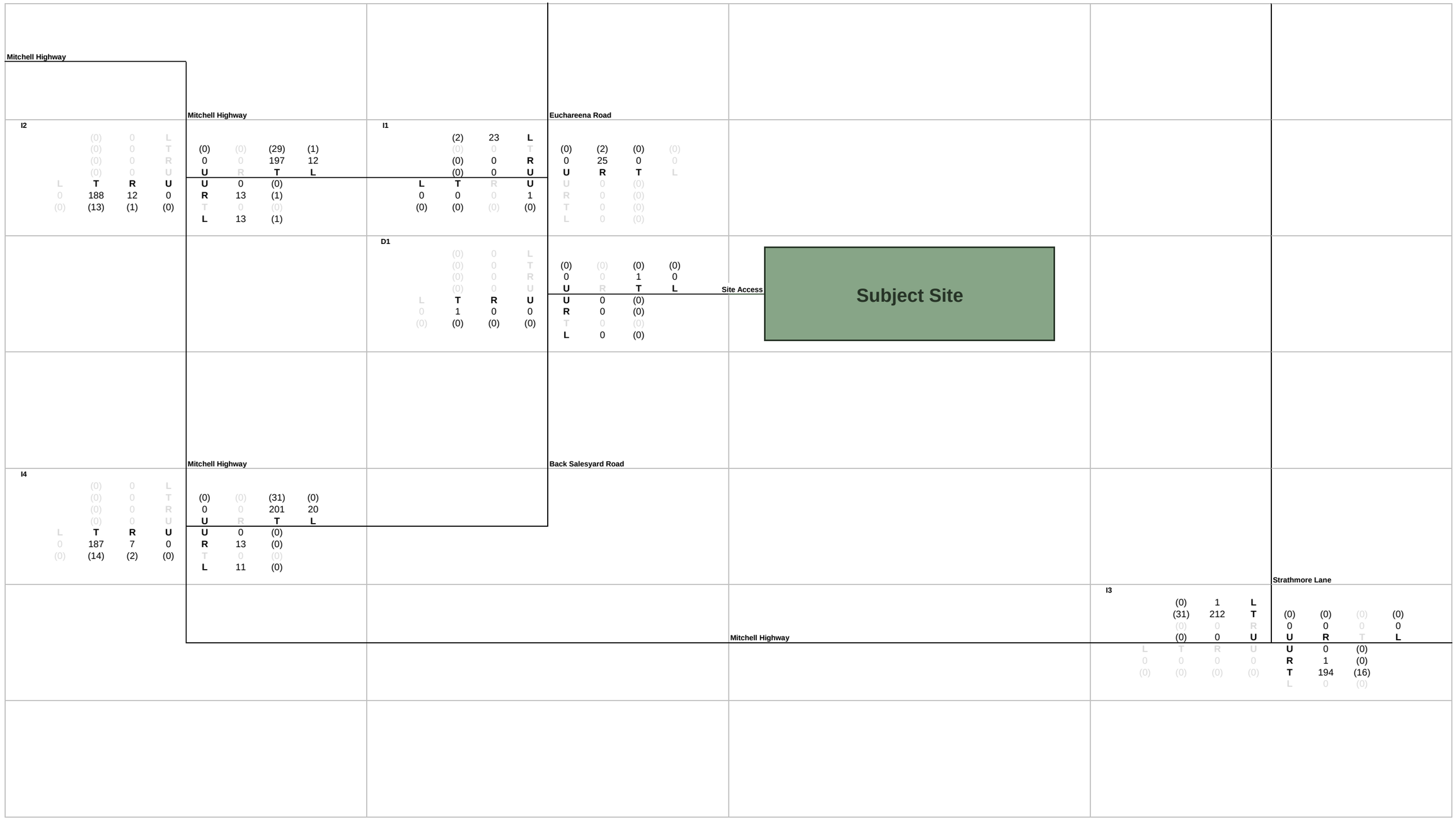
Stor Energy - Molong (NSW) - Traffic

L Left Turn
T Through
R Right Turn
U U-Turn

Legend

00 Light Vehicle Volumes
(00) Heavy Vehicle Volumes
Subject Site

N



SLR

G4

2027 PM Peak Background Traffic Volumes (Year of

620.041615.00008

Stor Energy - Molong (NSW) - Traffic

L	Left Turn
T	Through
R	Right Turn
U	U-Turn

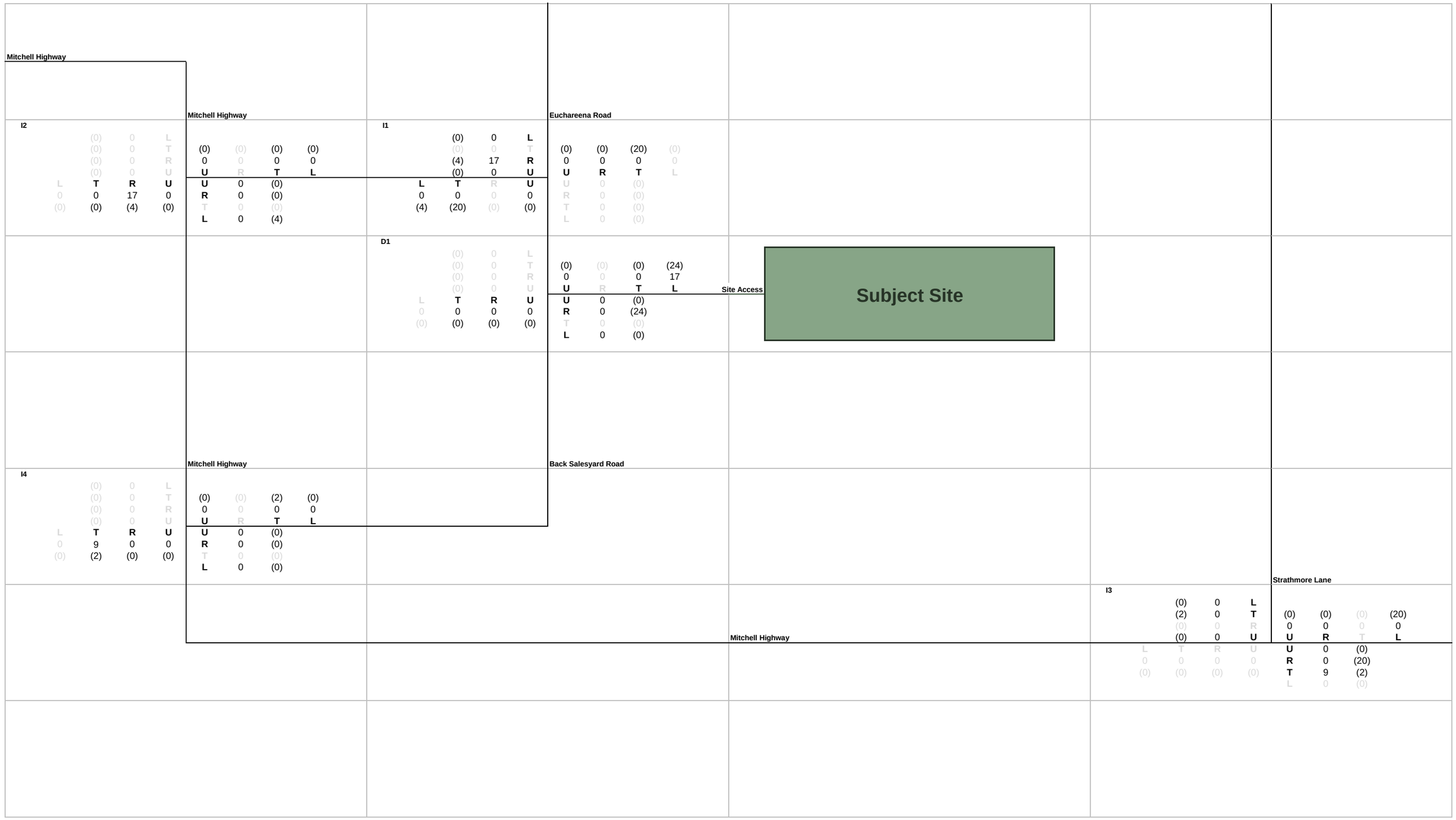
Legend

00 Light Vehicle Volumes

(00) Heavy Vehicle Volumes

Subject Site

N



G5

AM Peak Development Construction Traffic Generation

620.041615.00008

Stor Energy - Molong (NSW) - Traffic

L	Left Turn
T	Through
R	Right Turn
U	U-Turn

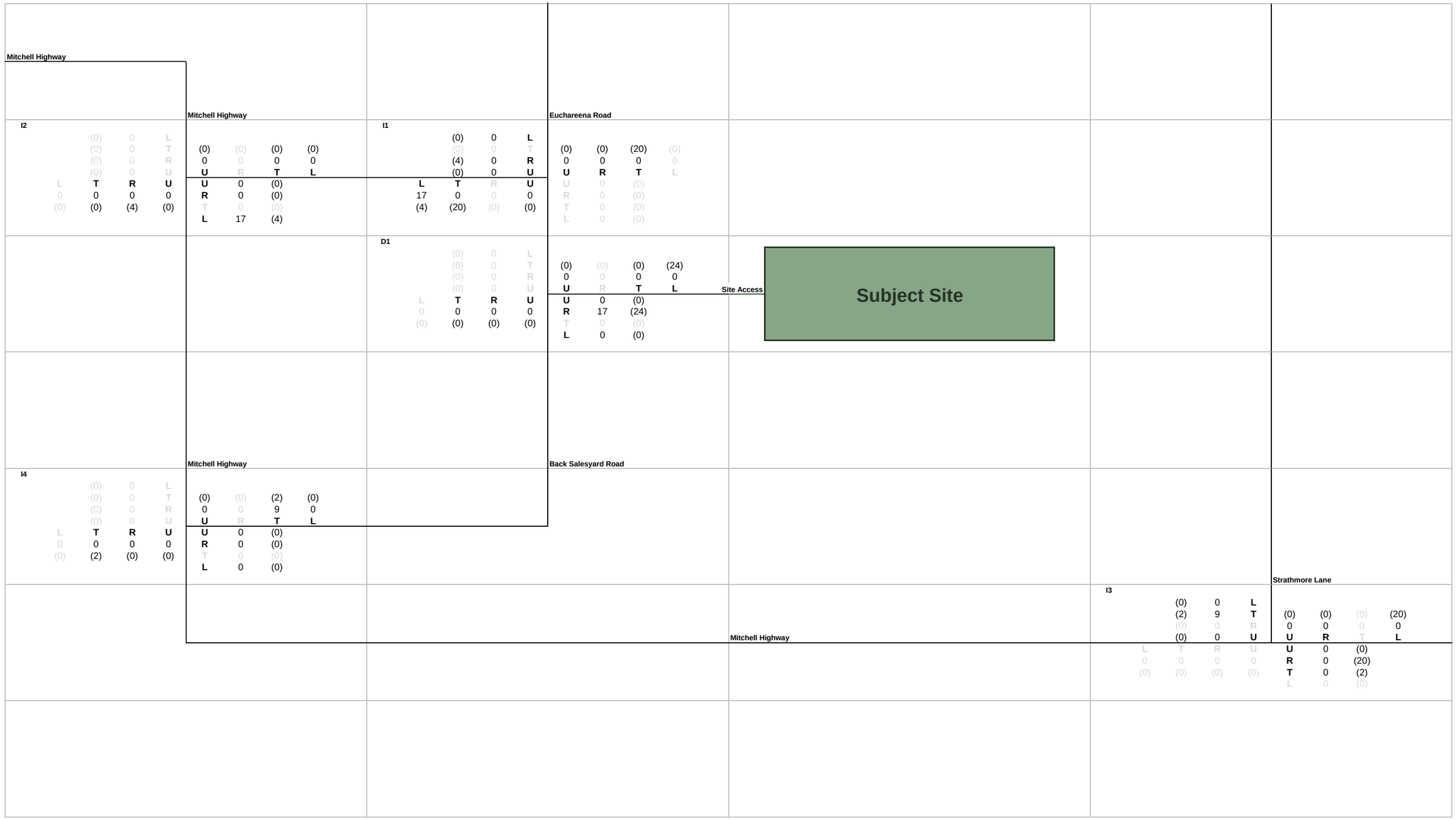
Legend

00 Light Vehicle Volumes

(00) Heavy Vehicle Volumes

Subject Site

N



SLR

G6

PM Peak Development Construction Traffic Generation

620.041615.00008

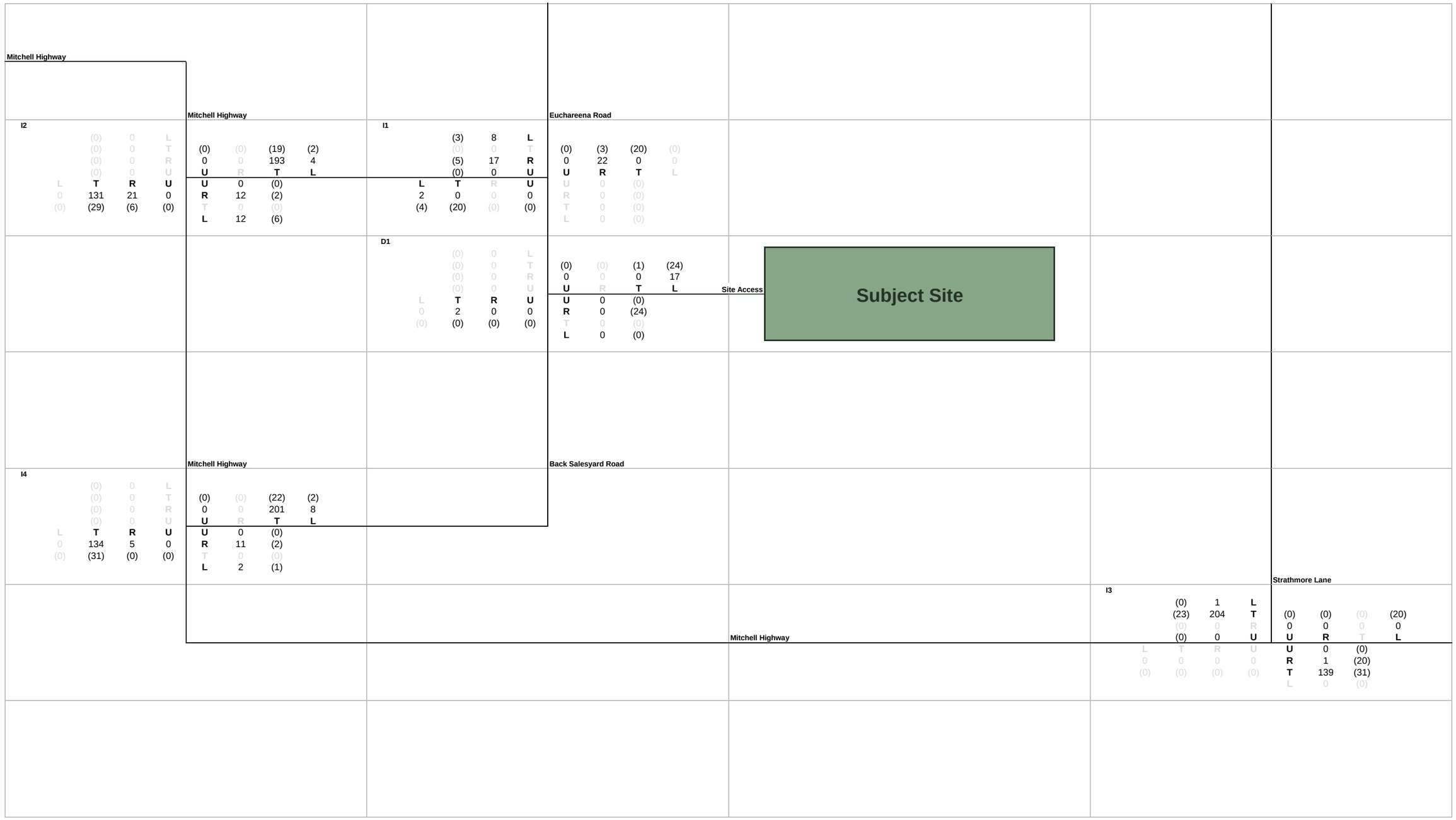
Stor Energy - Molong (NSW) - Traffic

L Left Turn
T Through
R Right Turn
U U-Turn

Legend

00 Light Vehicle Volumes
(00) Heavy Vehicle Volumes
Subject Site

N



G7

2027 AM Peak Background with Development Constrcution

620.041615.00008

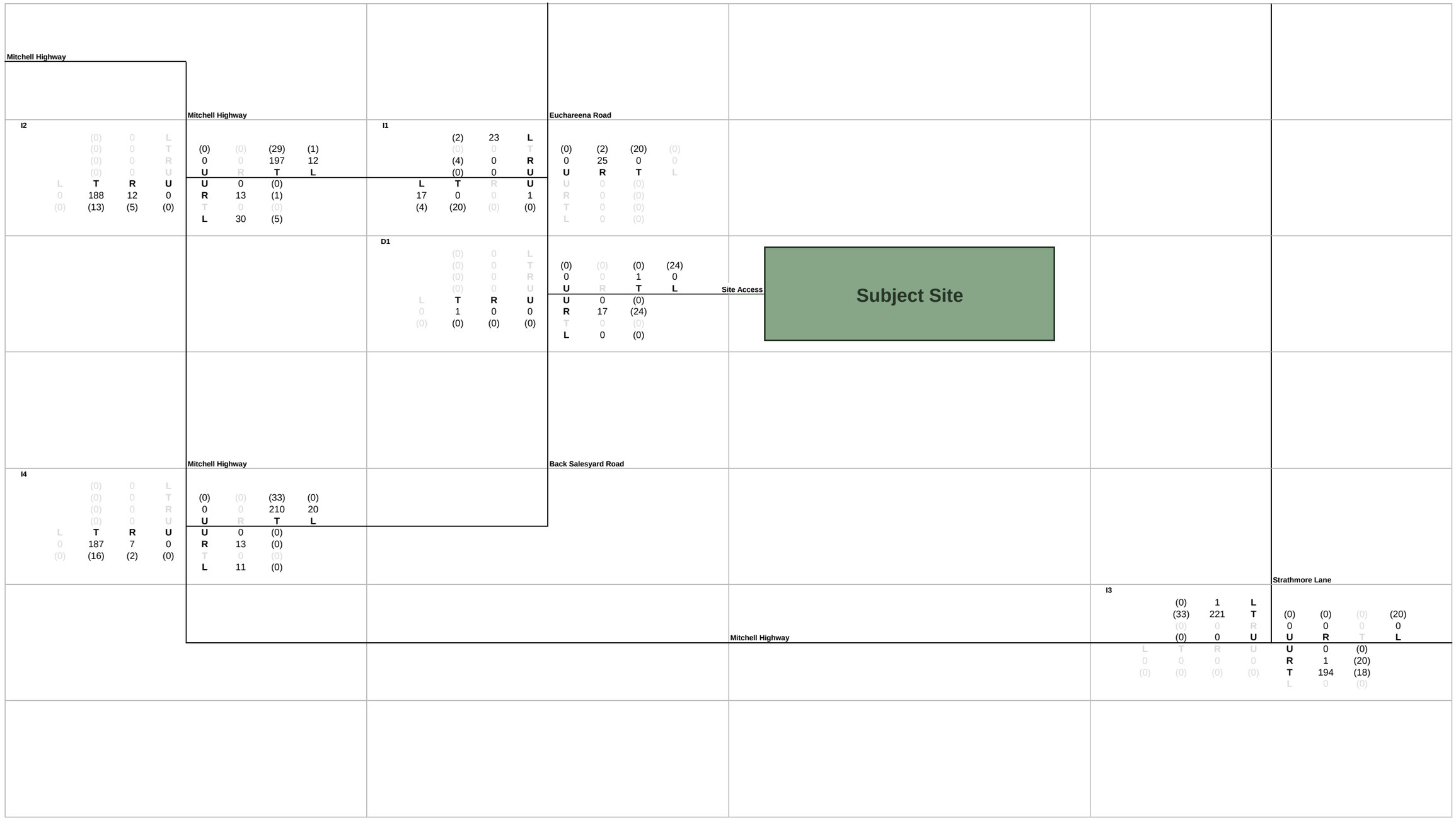
Stor Energy - Molong (NSW) - Traffic

L Left Turn
T Through
R Right Turn
U U-Turn

Legend

00 Light Vehicle Volumes
(00) Heavy Vehicle Volumes
Subject Site

N



SLR

G8

2027 PM Peak Background with Development Constrcution

620.041615.00008

Stor Energy - Molong (NSW) - Traffic

L	Left Turn
T	Through
R	Right Turn
U	U-Turn

Legend

00 Light Vehicle Volumes

(00) Heavy Vehicle Volumes

Subject Site

N

Appendix H:

Turn Warrant Assessments

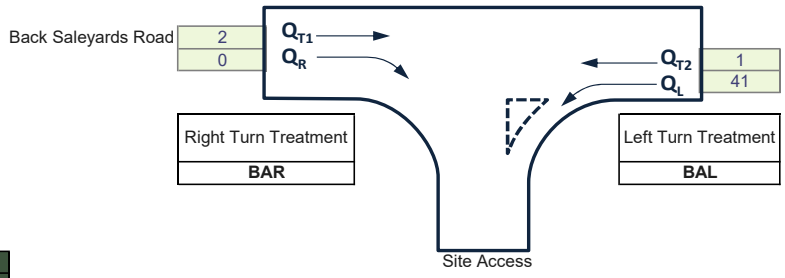


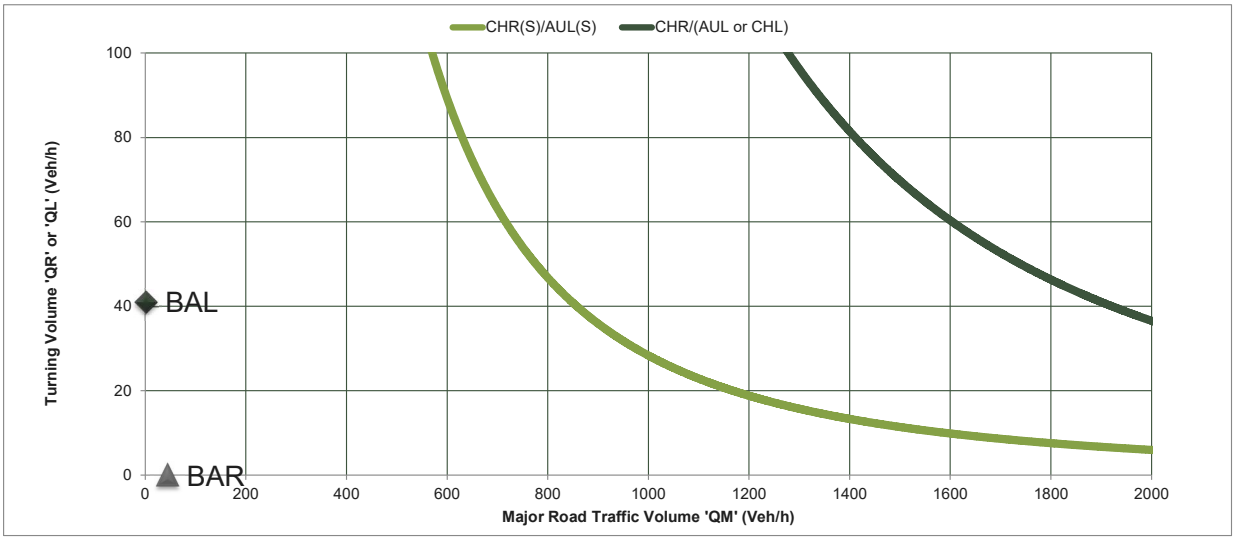
2-YEAR BENEFIT PERIOD

Assessment Year	2027
Peak Period	AM
Scenario	Background + Dev

Design Domain	Normal Design Domain
Design Year	2
Lane Count	2L2W
Design Speed	>= 100km/h
Splitter Island?	No

Q_M	Q_R/Q_L	
44	0	Right
1	41	Left

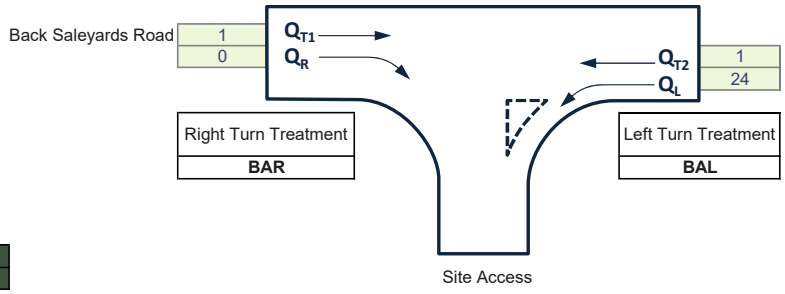


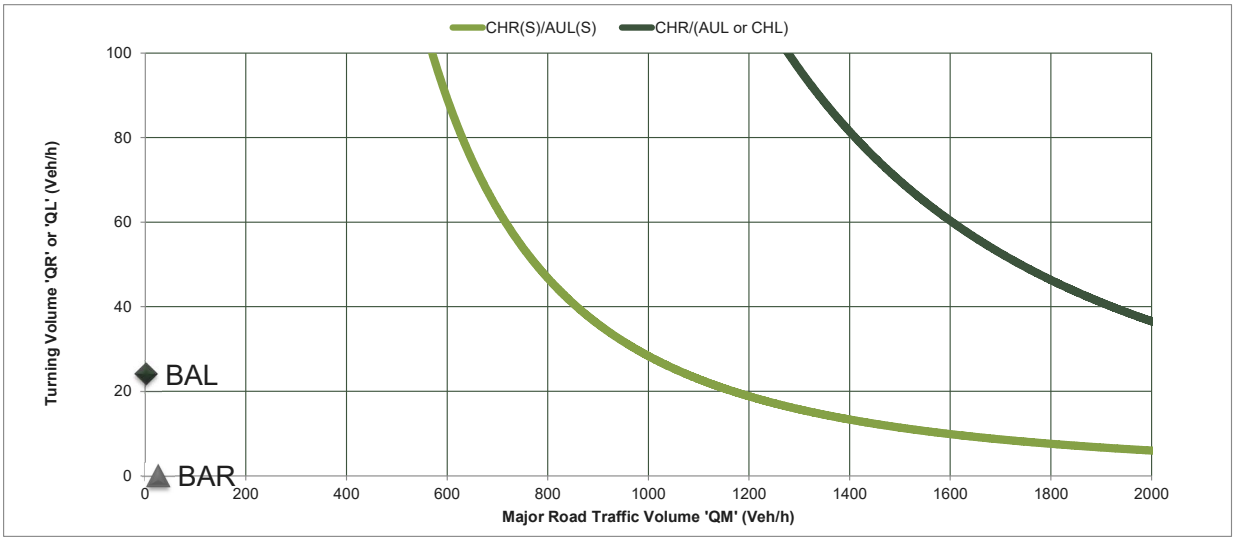


Assessment Year	2027
Peak Period	PM
Scenario	Background + Dev

Design Domain	Normal Design Domain
Design Year	2
Lane Count	2L2W
Design Speed	>= 100km/h
Splitter Island?	No

Q_M	Q_R/Q_L	
26	0	Right
1	24	Left





Reflects changes made in RPDM (Ed2: Vol3) Supplement to Austroads Part 4A (DTMR - August, 2014)

Turn Warrant Assessment

Back Saleyards Road / Site Access
620.041615.00008
Wednesday 18 June 2025

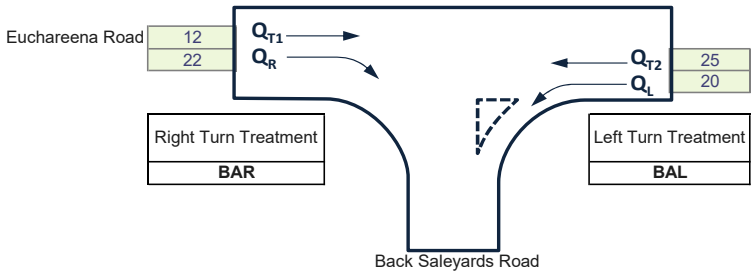
SLR

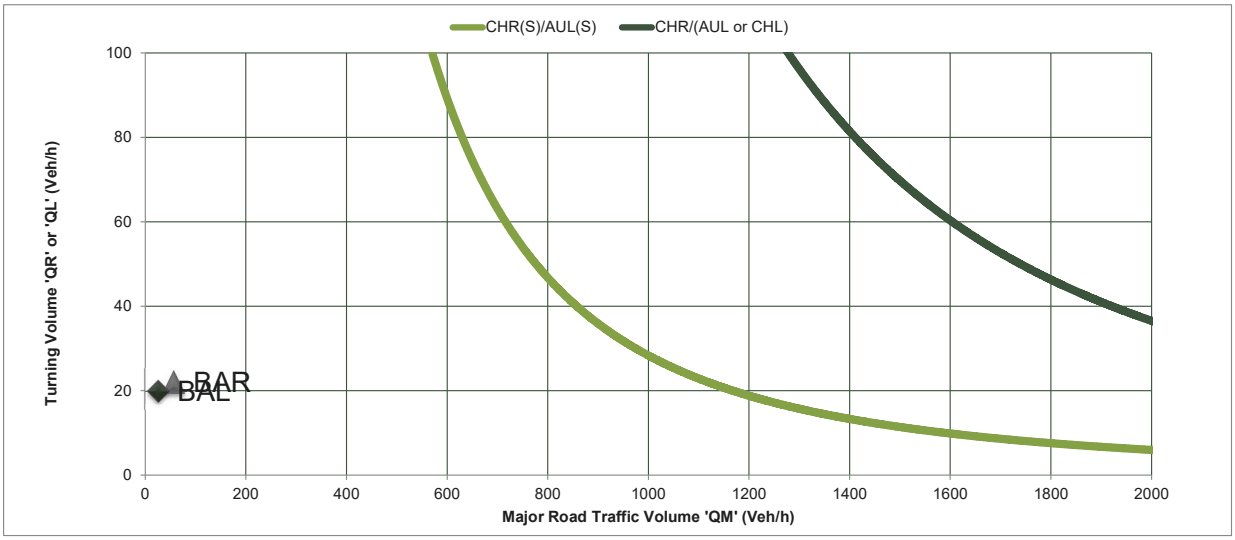
2-YEAR BENEFIT PERIOD

Assessment Year	2027
Peak Period	AM
Scenario	Background + Dev

Design Domain	Normal Design Domain
Design Year	2
Lane Count	2L2W
Design Speed	>= 100km/h
Splitter Island?	No

Q_M	Q_R/Q_L	
57	22	Right
25	20	Left

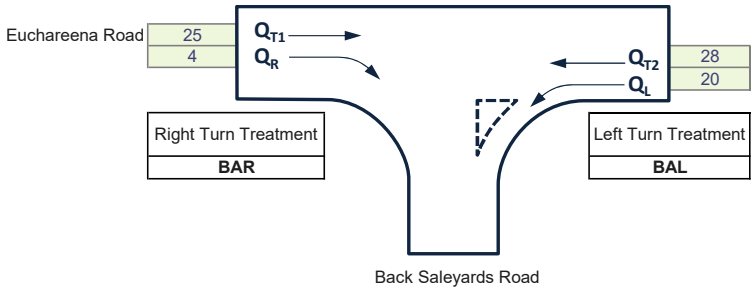


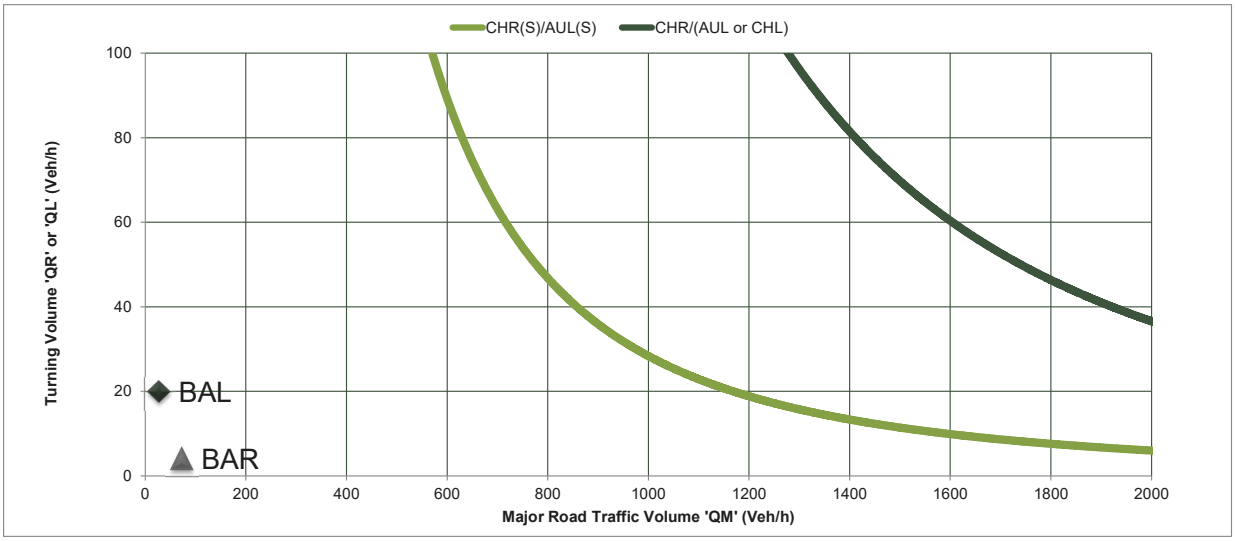


Assessment Year	2027
Peak Period	PM
Scenario	Background + Dev

Design Domain	Normal Design Domain
Design Year	2
Lane Count	2L2W
Design Speed	>= 100km/h
Splitter Island?	No

Q_M	Q_R/Q_L	
73	4	Right
28	20	Left





Reflects changes made in RPDM (Ed2: Vol3) Supplement to Austroads Part 4A (DTMR - August, 2014)

Turn Warrant Assessment

Euchareena Road / Back Saleyards Road
620.041615.00008
Wednesday 18 June 2025

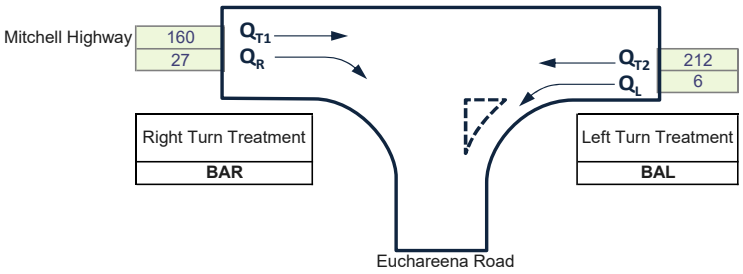
SLR

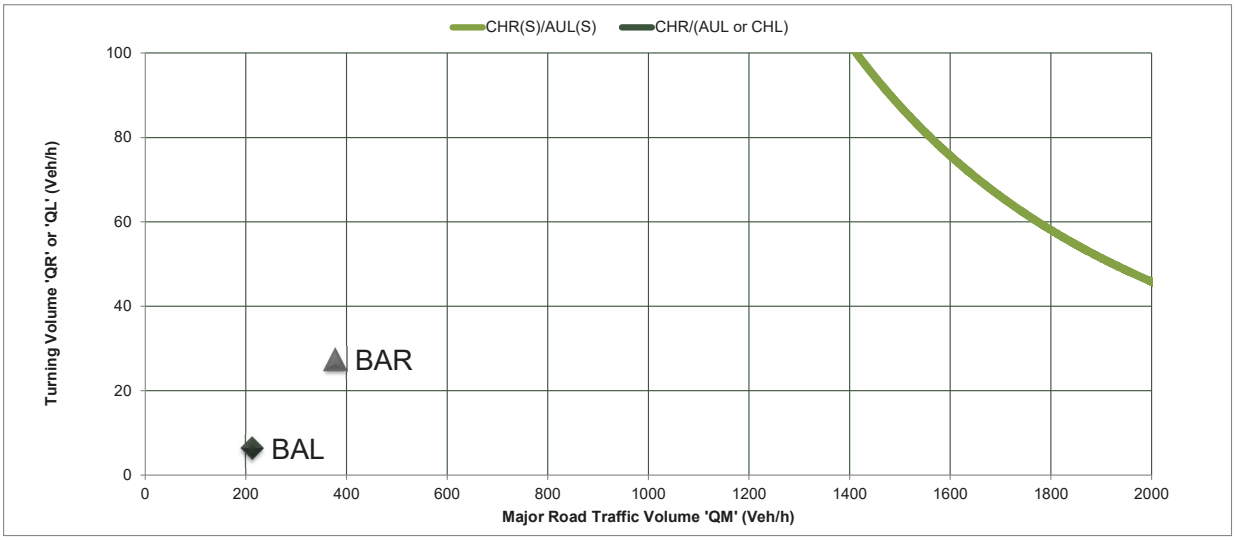
2-YEAR BENEFIT PERIOD

Assessment Year	2027
Peak Period	AM
Scenario	Background + Dev

Design Domain	Normal Design Domain
Design Year	2
Lane Count	2L2W
Design Speed	<= 70km/h
Splitter Island?	No

Q_M	Q_R/Q_L	
378	27	Right
212	6	Left

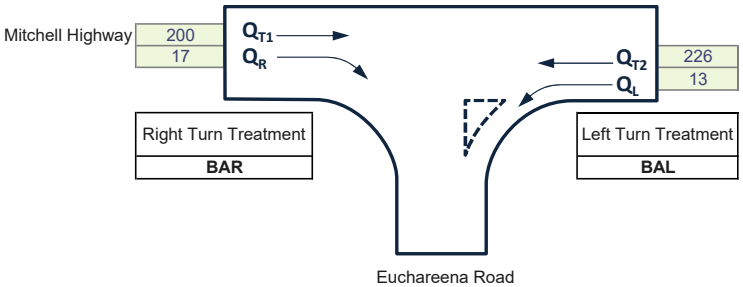


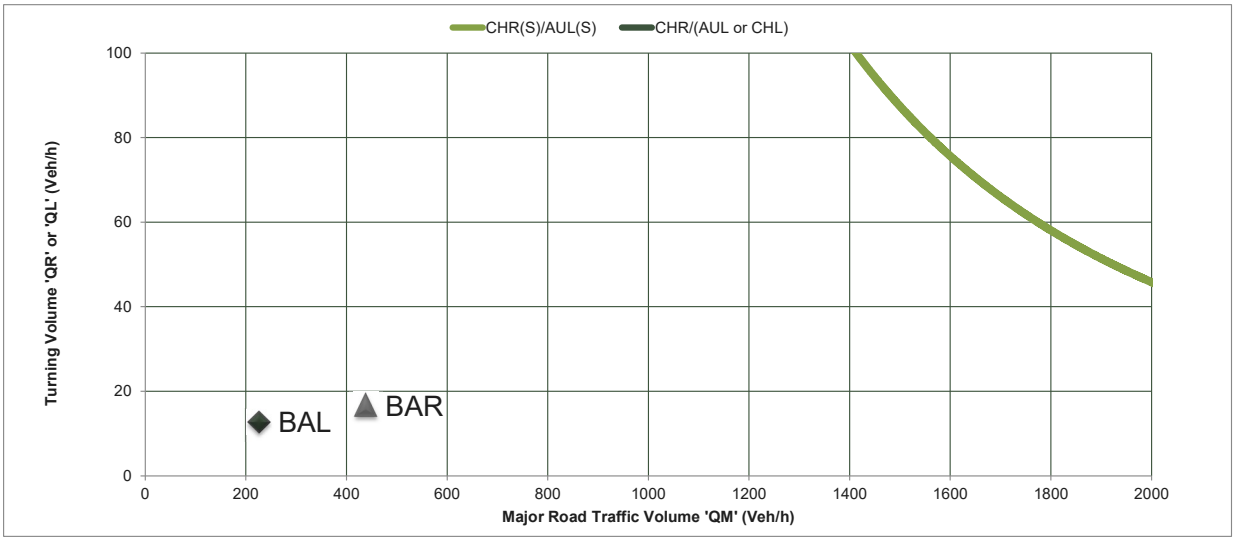


Assessment Year	2027
Peak Period	PM
Scenario	Background + Dev

Design Domain	Normal Design Domain
Design Year	2
Lane Count	2L2W
Design Speed	<= 70km/h
Splitter Island?	No

Q_M	Q_R/Q_L	
439	17	Right
226	13	Left





Reflects changes made in RPDM (Ed2: Vol3) Supplement to Austroads Part 4A (DTMR - August, 2014)

Turn Warrant Assessment

Mitchell Highway / Euchareena Road
620.041615.00008
Wednesday 18 June 2025

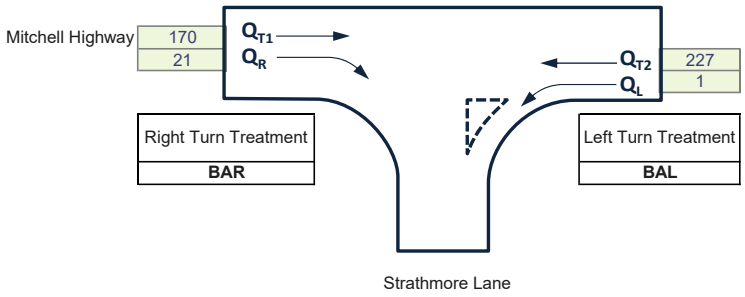
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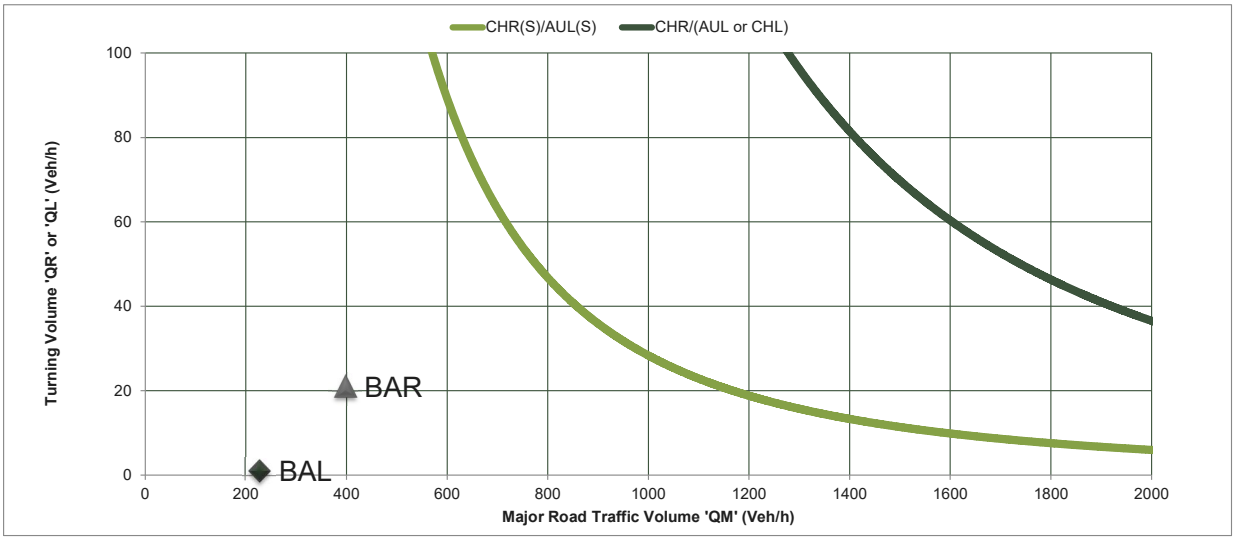
2-YEAR BENEFIT PERIOD

Assessment Year	2027
Peak Period	AM
Scenario	Background + Dev

Design Domain	Normal Design Domain
Design Year	2
Lane Count	2L2W
Design Speed	>= 100km/h
Splitter Island?	No

Q_M	Q_R/Q_L	
397	21	Right
227	1	Left

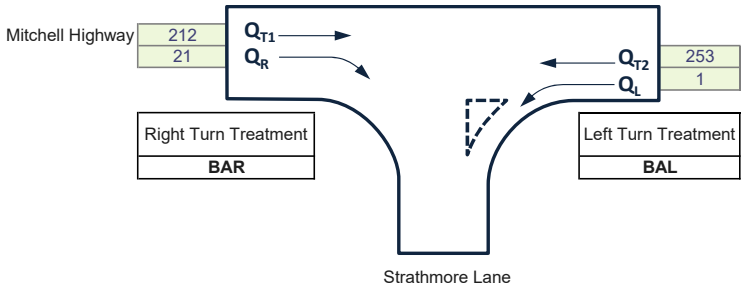


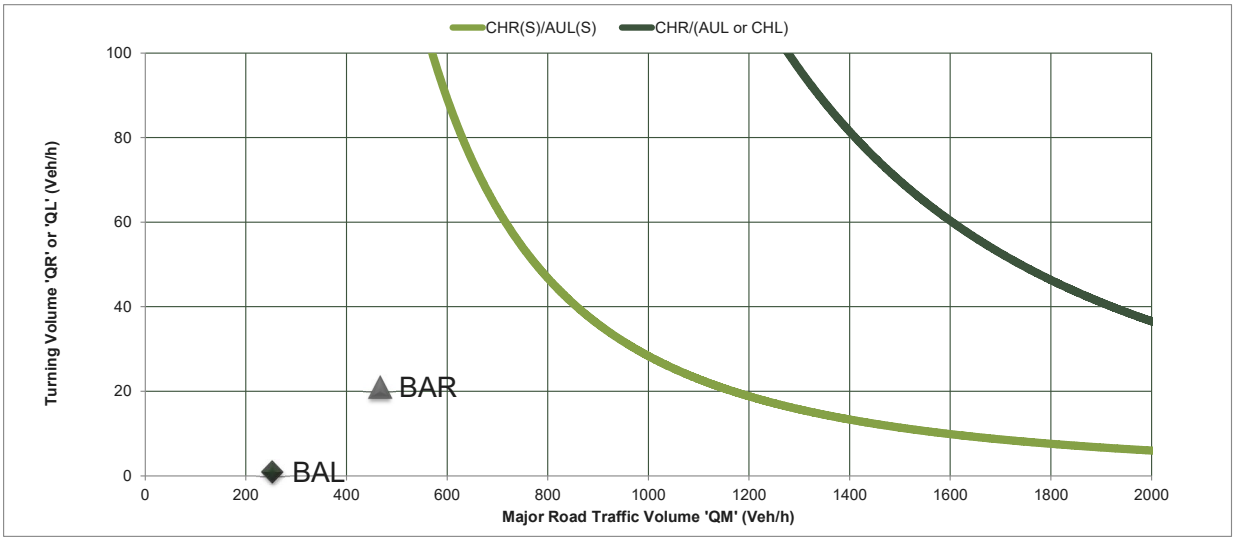


Assessment Year	2027
Peak Period	PM
Scenario	Background + Dev

Design Domain	Normal Design Domain
Design Year	2
Lane Count	2L2W
Design Speed	>= 100km/h
Splitter Island?	No

Q_M	Q_R/Q_L	
466	21	Right
253	1	Left





Reflects changes made in RPDM (Ed2: Vol3) Supplement to Austroads Part 4A (DTMR - August, 2014)

Turn Warrant Assessment

Mitchell Highway / Strathmore Lane
620.041615.00008
Wednesday 18 June 2025

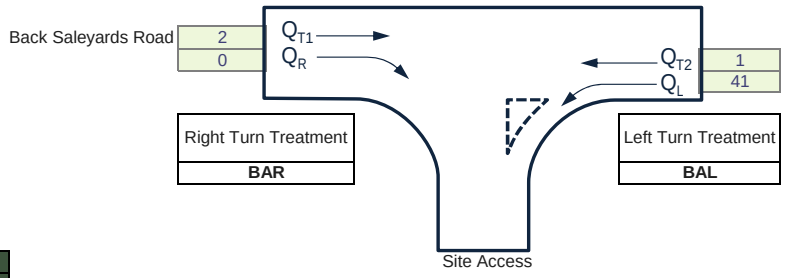
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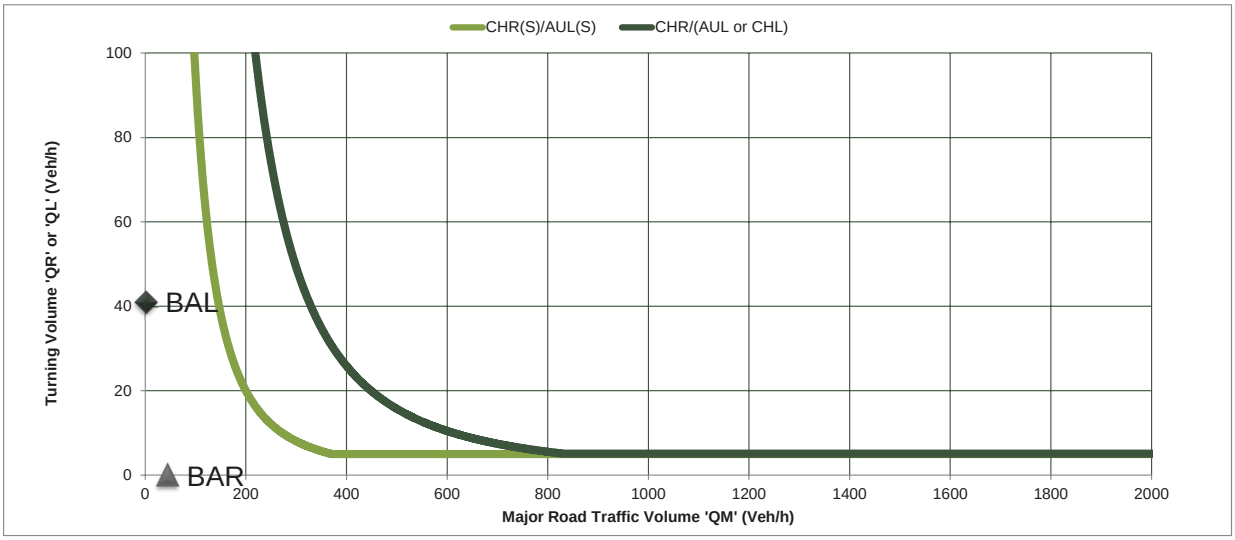
10-YEAR BENEFIT PERIOD

Assessment Year	2027
Peak Period	AM
Scenario	Background + Dev

Design Domain	Normal Design Domain
Design Year	10
Lane Count	2L2W
Design Speed	>= 100km/h
Splitter Island?	No

Q_M	Q_R/Q_L	
44	0	Right
1	41	Left

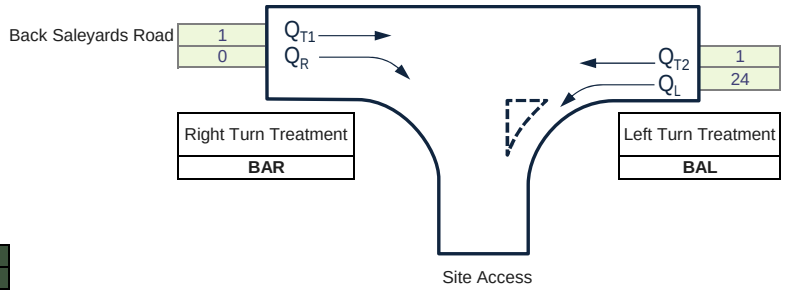


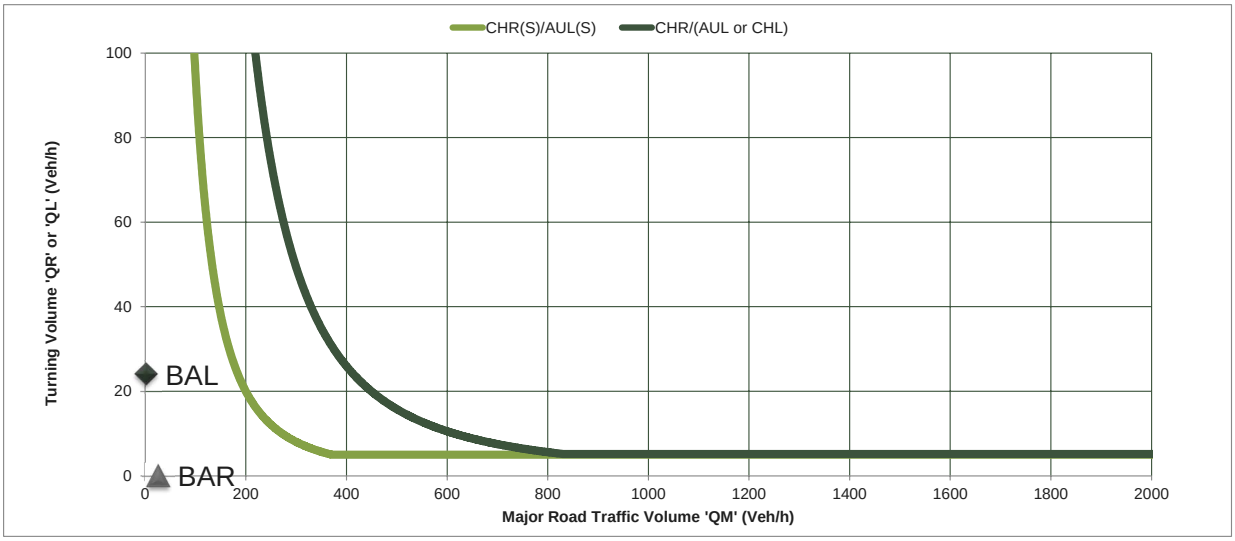


Assessment Year	2027
Peak Period	PM
Scenario	Background + Dev

Design Domain	Normal Design Domain
Design Year	10
Lane Count	2L2W
Design Speed	>= 100km/h
Splitter Island?	No

Q_M	Q_R/Q_L	
26	0	Right
1	24	Left





Reflects changes made in RPDM (Ed2: Vol3) Supplement to Austroads Part 4A (DTMR - August, 2014)

Turn Warrant Assessment

Back Saleyards Road / Site Access
620.041615.00008
21/07/2025

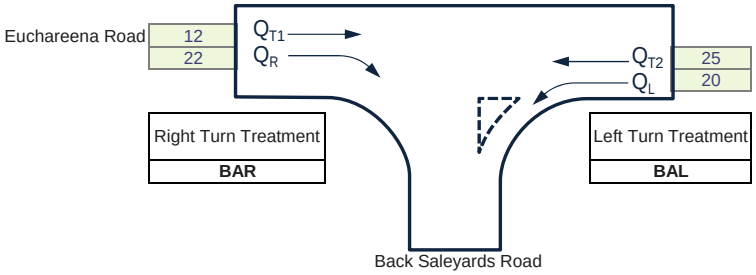
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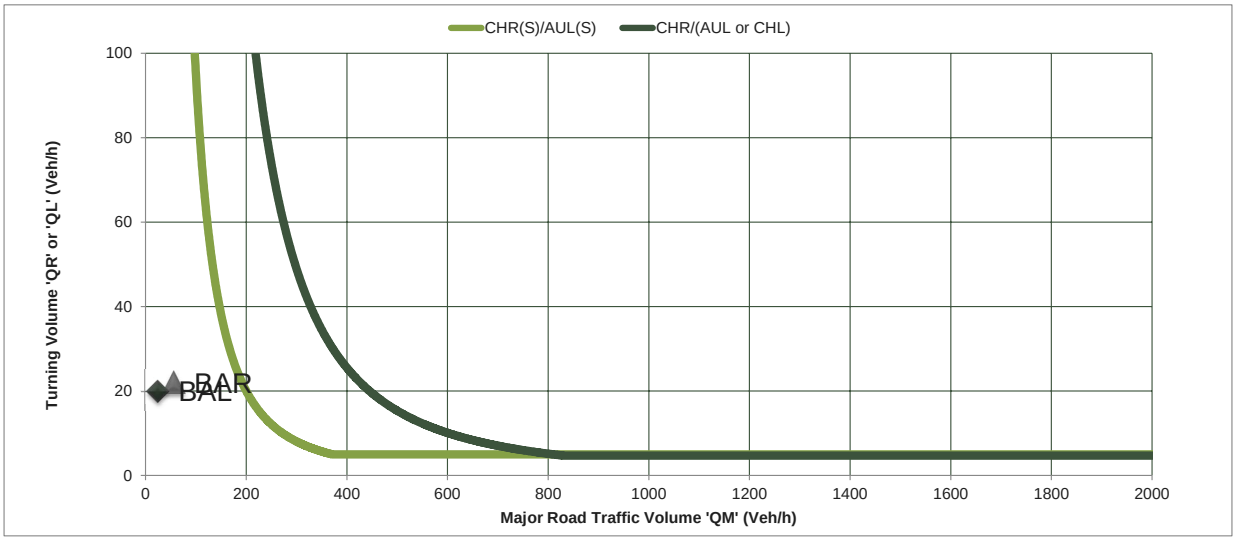
10-YEAR BENEFIT PERIOD

Assessment Year	2027
Peak Period	AM
Scenario	Background + Dev

Design Domain	Normal Design Domain
Design Year	10
Lane Count	2L2W
Design Speed	>= 100km/h
Splitter Island?	No

Q_M	Q_R/Q_L	
57	22	Right
25	20	Left

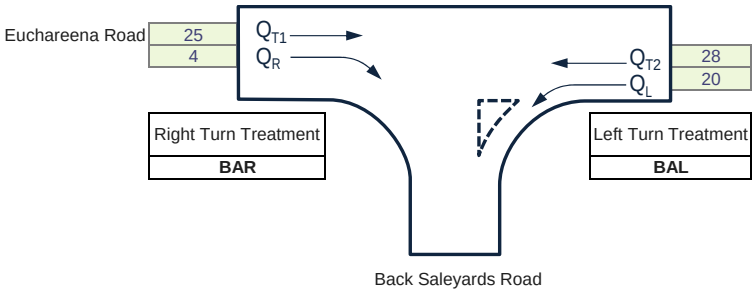


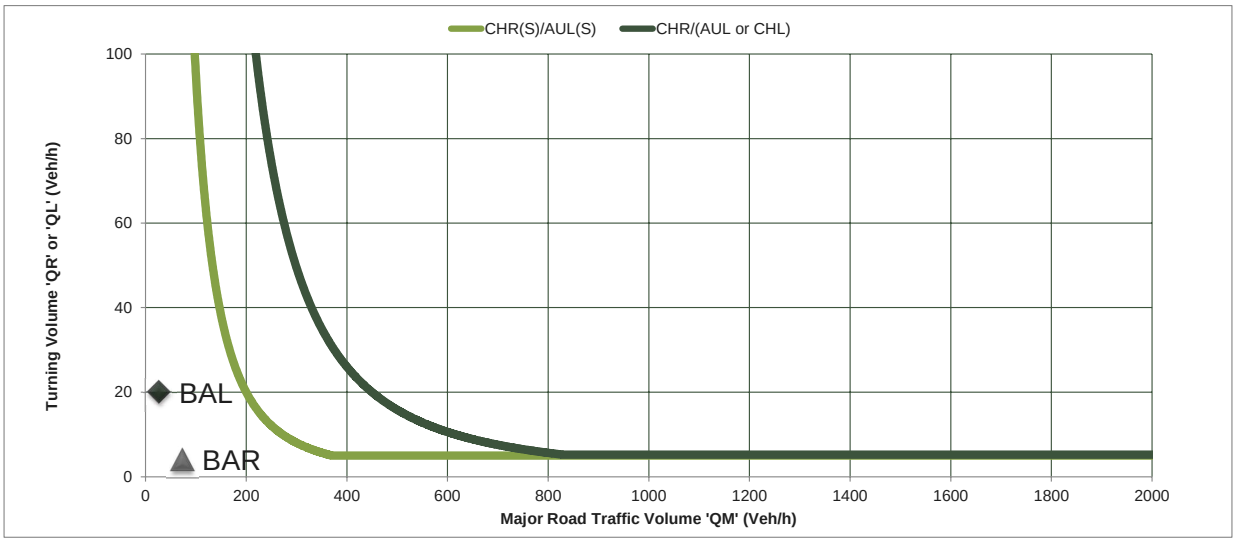


Assessment Year	2027
Peak Period	PM
Scenario	Background + Dev

Design Domain	Normal Design Domain
Design Year	10
Lane Count	2L2W
Design Speed	>= 100km/h
Splitter Island?	No

Q_M	Q_R/Q_L	
73	4	Right
28	20	Left





Reflects changes made in RPDM (Ed2: Vol3) Supplement to Austroads Part 4A (DTMR - August, 2014)

Turn Warrant Assessment

Euchareena Road / Back Saleyards Road
620.041615.00008
21/07/2025

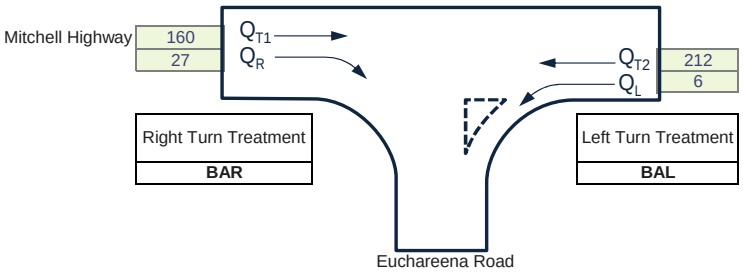
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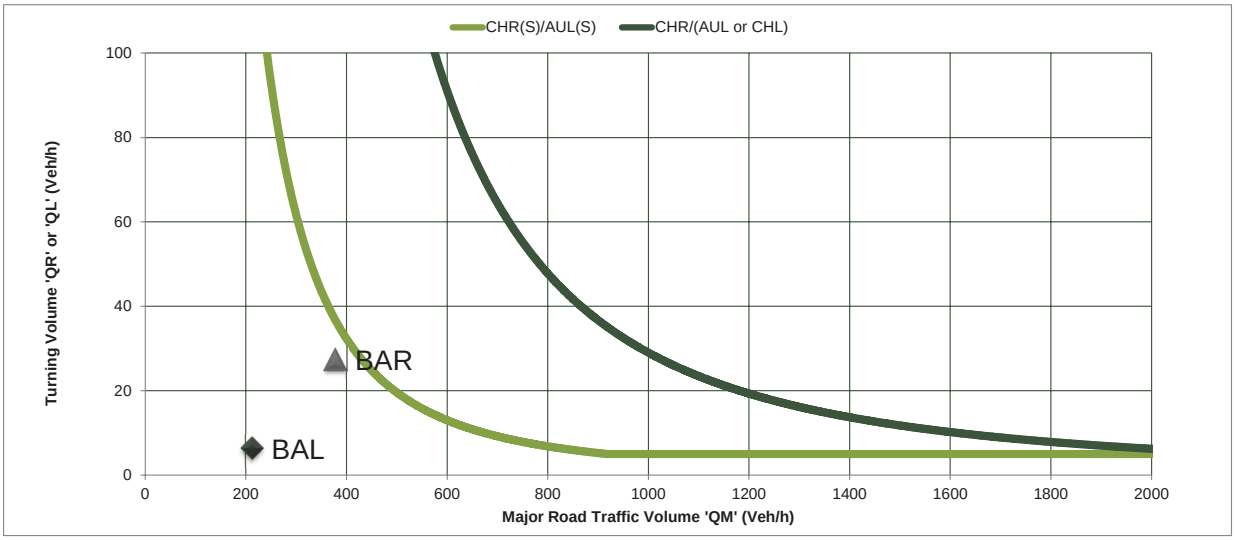
10-YEAR BENEFIT PERIOD

Assessment Year	2027
Peak Period	AM
Scenario	Background + Dev

Design Domain	Normal Design Domain
Design Year	10
Lane Count	2L2W
Design Speed	<= 70km/h
Splitter Island?	No

Q_M	Q_R/Q_L	
378	27	Right
212	6	Left

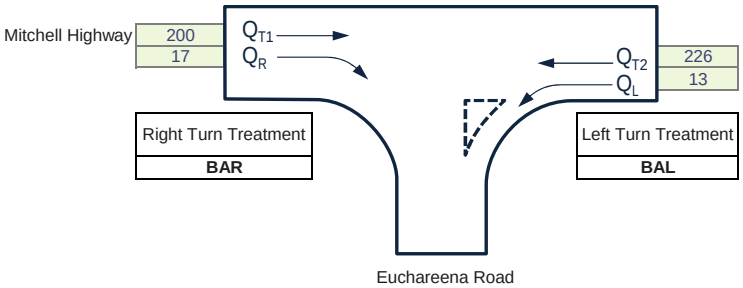


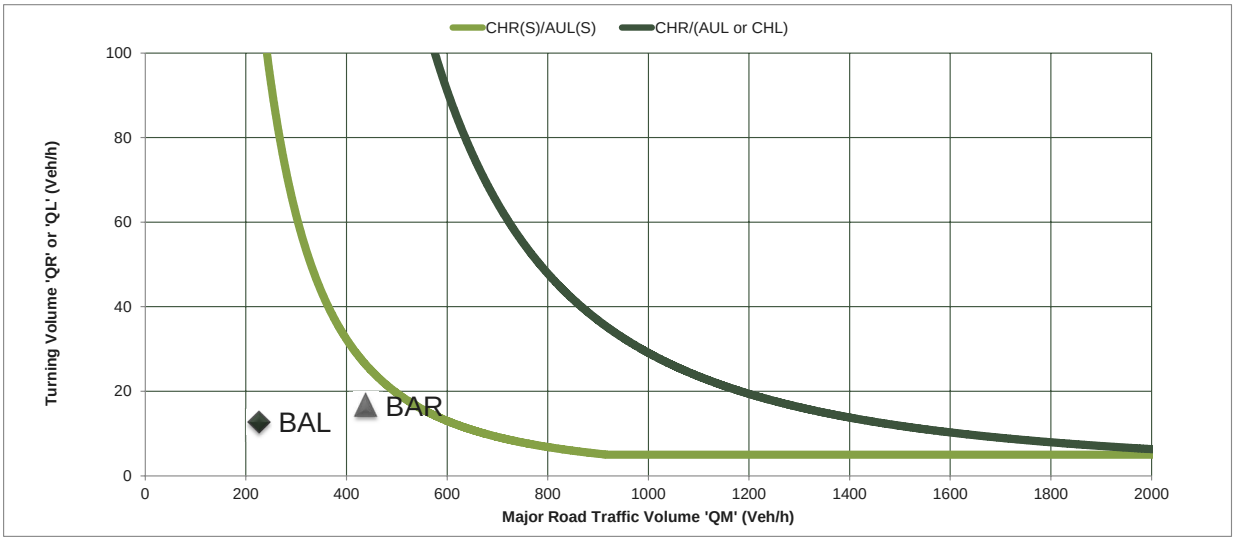


Assessment Year	2027
Peak Period	PM
Scenario	Background + Dev

Design Domain	Normal Design Domain
Design Year	10
Lane Count	2L2W
Design Speed	<= 70km/h
Splitter Island?	No

Q_M	Q_R/Q_L	
439	17	Right
226	13	Left





Reflects changes made in RPDM (Ed2: Vol3) Supplement to Austroads Part 4A (DTMR - August, 2014)

Turn Warrant Assessment

Mitchell Highway / Euchareena Road
620.041615.00008
21/07/2025

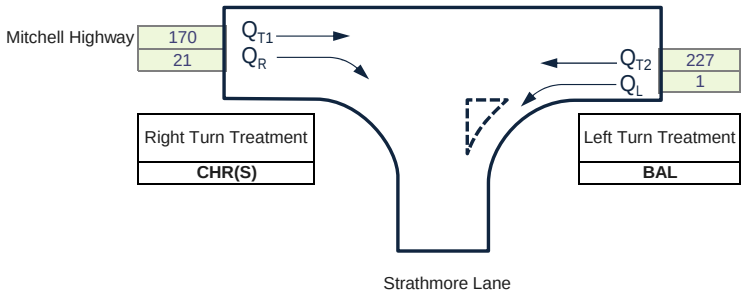
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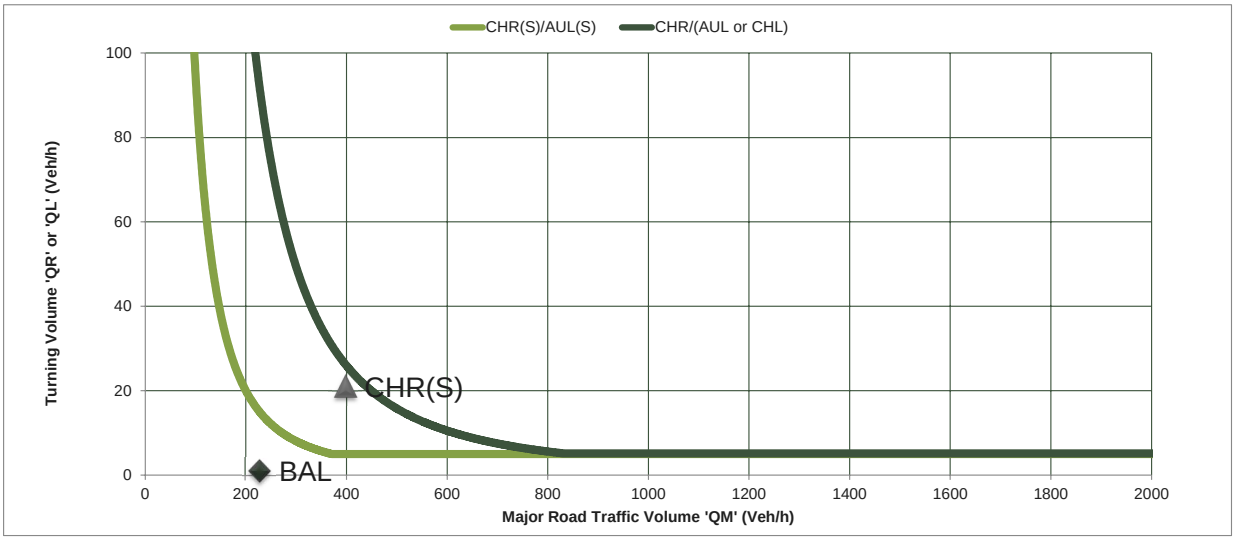
10-YEAR BENEFIT PERIOD

Assessment Year	2027
Peak Period	AM
Scenario	Background + Dev

Design Domain	Normal Design Domain
Design Year	10
Lane Count	2L2W
Design Speed	>= 100km/h
Splitter Island?	No

Q_M	Q_R/Q_L	
397	21	Right
227	1	Left

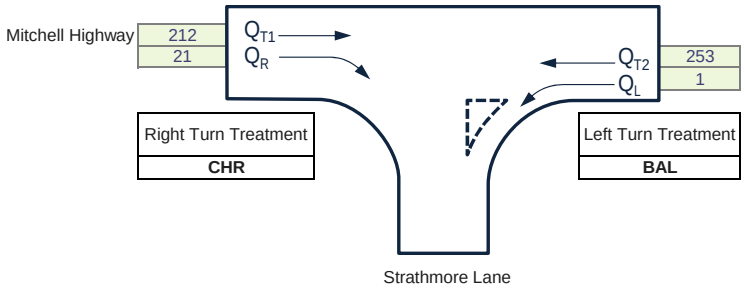


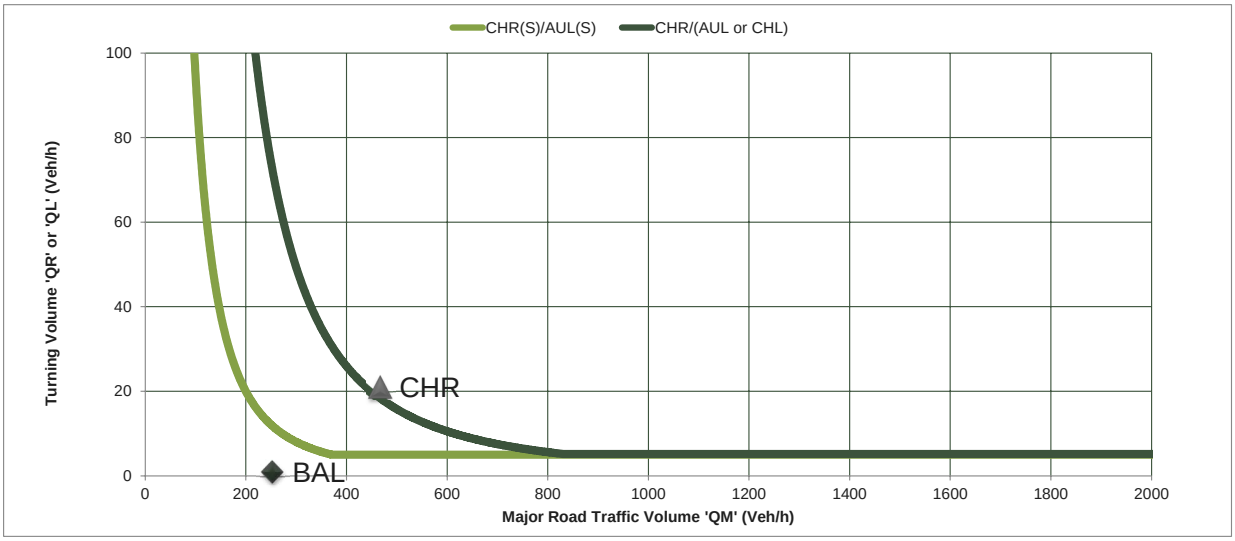


Assessment Year	2027
Peak Period	PM
Scenario	Background + Dev

Design Domain	Normal Design Domain
Design Year	10
Lane Count	2L2W
Design Speed	>= 100km/h
Splitter Island?	No

Q_M	Q_R/Q_L	
466	21	Right
253	1	Left





Reflects changes made in RPDM (Ed2: Vol3) Supplement to Austroads Part 4A (DTMR - August, 2014)

Turn Warrant Assessment

Mitchell Highway / Strathmore Lane
620.041615.00008
21/07/2025

SLR

Appendix I:

SIDRA Results

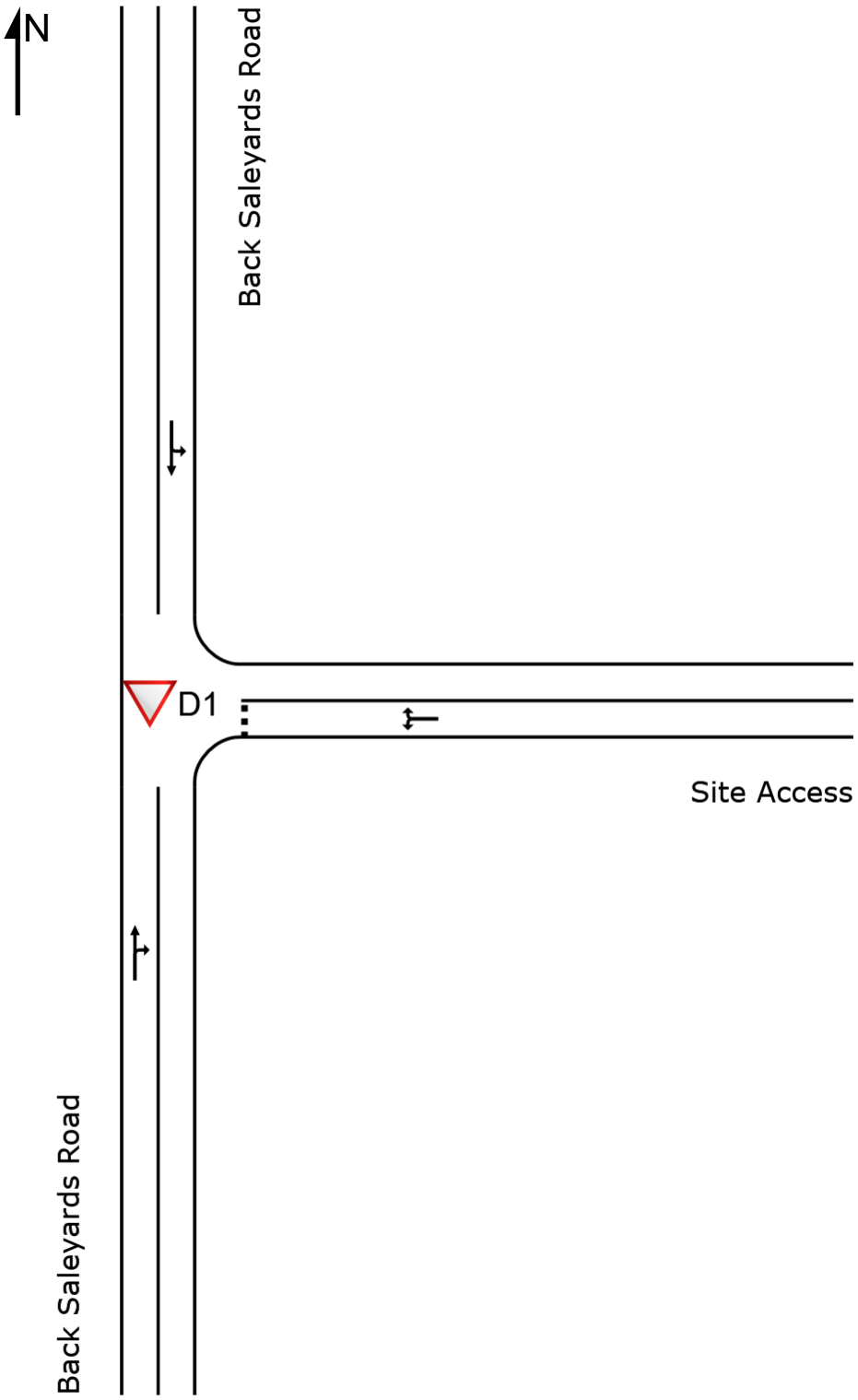


SITE LAYOUT

Site: D1 [D1-Back Saleyards Road/Site Access EX-AM (Site Folder: Existing Conditions 2024)]

Back Saleyards Road/Site Access Intersection
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: D1 [D1-Back Saleyards Road/Site Access EX-AM (Site Folder: Existing Conditions 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Back Saleyards Road/Site Access Intersection
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: Back Saleyards Road															
2	T1	All MCs	2	0.0	2	0.0	0.002	0.0	LOS A	0.0	0.0	0.01	0.20	0.01	58.2
3	R2	All MCs	1	0.0	1	0.0	0.002	5.4	LOS A	0.0	0.0	0.01	0.20	0.01	55.5
Approach			3	0.0	3	0.0	0.002	1.8	NA	0.0	0.0	0.01	0.20	0.01	57.3
East: Site Access															
4	L2	All MCs	1	0.0	1	0.0	0.001	5.5	LOS A	0.0	0.0	0.02	0.58	0.02	52.9
6	R2	All MCs	1	0.0	1	0.0	0.001	5.5	LOS A	0.0	0.0	0.02	0.58	0.02	52.6
Approach			2	0.0	2	0.0	0.001	5.5	LOS A	0.0	0.0	0.02	0.58	0.02	52.7
North: Back Saleyards Road															
7	L2	All MCs	1	0.0	1	0.0	0.001	5.5	LOS A	0.0	0.0	0.00	0.30	0.00	55.1
8	T1	All MCs	1	100.0	1	100.0	0.001	0.0	LOS A	0.0	0.0	0.00	0.30	0.00	57.4
Approach			2	50.0	2	50.0	0.001	2.8	NA	0.0	0.0	0.00	0.30	0.00	56.2
All Vehicles			7	14.3	7	14.3	0.002	3.1	NA	0.0	0.0	0.01	0.34	0.01	55.6

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

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MOVEMENT SUMMARY

Site: D1 [D1-Back Saleyards Road/Site Access EX-PM (Site Folder: Existing Conditions 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Back Saleyards Road/Site Access Intersection
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: Back Saleyards Road															
2	T1	All MCs	1	0.0	1	0.0	0.001	0.0	LOS A	0.0	0.0	0.02	0.30	0.02	57.4
3	R2	All MCs	1	0.0	1	0.0	0.001	5.4	LOS A	0.0	0.0	0.02	0.30	0.02	54.8
Approach			2	0.0	2	0.0	0.001	2.7	NA	0.0	0.0	0.02	0.30	0.02	56.0
East: Site Access															
4	L2	All MCs	1	0.0	1	0.0	0.001	5.5	LOS A	0.0	0.0	0.01	0.58	0.01	52.9
6	R2	All MCs	1	0.0	1	0.0	0.001	5.4	LOS A	0.0	0.0	0.01	0.58	0.01	52.6
Approach			2	0.0	2	0.0	0.001	5.5	LOS A	0.0	0.0	0.01	0.58	0.01	52.7
North: Back Saleyards Road															
7	L2	All MCs	1	0.0	1	0.0	0.001	5.5	LOS A	0.0	0.0	0.00	0.30	0.00	55.1
8	T1	All MCs	1	0.0	1	0.0	0.001	0.0	LOS A	0.0	0.0	0.00	0.30	0.00	57.4
Approach			2	0.0	2	0.0	0.001	2.8	NA	0.0	0.0	0.00	0.30	0.00	56.2
All Vehicles			6	0.0	6	0.0	0.001	3.7	NA	0.0	0.0	0.01	0.39	0.01	54.9

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

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MOVEMENT SUMMARY

Site: D1 [D1-Back Saleyards Road/Site Access BG-AM (Site Folder: BG Growth 2027)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Back Saleyards Road/Site Access Intersection
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: Back Saleyards Road															
2	T1	All MCs	2	0.0	2	0.0	0.002	0.0	LOS A	0.0	0.0	0.01	0.20	0.01	58.2
3	R2	All MCs	1	0.0	1	0.0	0.002	5.4	LOS A	0.0	0.0	0.01	0.20	0.01	55.5
Approach			3	0.0	3	0.0	0.002	1.8	NA	0.0	0.0	0.01	0.20	0.01	57.3
East: Site Access															
4	L2	All MCs	1	0.0	1	0.0	0.001	5.5	LOS A	0.0	0.0	0.02	0.58	0.02	52.9
6	R2	All MCs	1	0.0	1	0.0	0.001	5.5	LOS A	0.0	0.0	0.02	0.58	0.02	52.6
Approach			2	0.0	2	0.0	0.001	5.5	LOS A	0.0	0.0	0.02	0.58	0.02	52.7
North: Back Saleyards Road															
7	L2	All MCs	1	0.0	1	0.0	0.001	5.5	LOS A	0.0	0.0	0.00	0.30	0.00	55.1
8	T1	All MCs	1	100.0	1	100.0	0.001	0.0	LOS A	0.0	0.0	0.00	0.30	0.00	57.4
Approach			2	50.0	2	50.0	0.001	2.8	NA	0.0	0.0	0.00	0.30	0.00	56.2
All Vehicles			7	14.3	7	14.3	0.002	3.1	NA	0.0	0.0	0.01	0.34	0.01	55.6

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

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MOVEMENT SUMMARY

Site: D1 [D1-Back Saleyards Road/Site Access BG-PM (Site Folder: BG Growth 2027)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Back Saleyards Road/Site Access Intersection
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: Back Saleyards Road															
2	T1	All MCs	1	0.0	1	0.0	0.001	0.0	LOS A	0.0	0.0	0.02	0.30	0.02	57.4
3	R2	All MCs	1	0.0	1	0.0	0.001	5.4	LOS A	0.0	0.0	0.02	0.30	0.02	54.8
Approach			2	0.0	2	0.0	0.001	2.7	NA	0.0	0.0	0.02	0.30	0.02	56.0
East: Site Access															
4	L2	All MCs	1	0.0	1	0.0	0.001	5.5	LOS A	0.0	0.0	0.01	0.58	0.01	52.9
6	R2	All MCs	1	0.0	1	0.0	0.001	5.4	LOS A	0.0	0.0	0.01	0.58	0.01	52.6
Approach			2	0.0	2	0.0	0.001	5.5	LOS A	0.0	0.0	0.01	0.58	0.01	52.7
North: Back Saleyards Road															
7	L2	All MCs	1	0.0	1	0.0	0.001	5.5	LOS A	0.0	0.0	0.00	0.30	0.00	55.1
8	T1	All MCs	1	0.0	1	0.0	0.001	0.0	LOS A	0.0	0.0	0.00	0.30	0.00	57.4
Approach			2	0.0	2	0.0	0.001	2.8	NA	0.0	0.0	0.00	0.30	0.00	56.2
All Vehicles			6	0.0	6	0.0	0.001	3.7	NA	0.0	0.0	0.01	0.39	0.01	54.9

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

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MOVEMENT SUMMARY

Site: D1 [D1-Back Saleyards Road/Site Access BG+CON-AM (Site Folder: BG Growth+Construction 2027)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Back Saleyards Road/Site Access Intersection
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: Back Saleyards Road															
2	T1	All MCs	2	0.0	2	0.0	0.002	0.1	LOS A	0.0	0.0	0.10	0.21	0.10	57.9
3	R2	All MCs	1	0.0	1	0.0	0.002	5.6	LOS A	0.0	0.0	0.10	0.21	0.10	55.3
Approach			3	0.0	3	0.0	0.002	1.9	NA	0.0	0.0	0.10	0.21	0.10	57.0
East: Site Access															
4	L2	All MCs	1	0.0	1	0.0	0.031	5.5	LOS A	0.1	1.3	0.08	0.58	0.08	51.8
6	R2	All MCs	25	100.0	25	100.0	0.031	6.9	LOS A	0.1	1.3	0.08	0.58	0.08	47.6
Approach			26	96.0	26	96.0	0.031	6.8	LOS A	0.1	1.3	0.08	0.58	0.08	47.7
North: Back Saleyards Road															
7	L2	All MCs	43	58.5	43	58.5	0.034	6.2	LOS A	0.0	0.0	0.00	0.55	0.00	50.8
8	T1	All MCs	1	100.0	1	100.0	0.034	0.0	LOS A	0.0	0.0	0.00	0.55	0.00	55.2
Approach			44	59.5	44	59.5	0.034	6.1	NA	0.0	0.0	0.00	0.55	0.00	50.9
All Vehicles			74	70.0	74	70.0	0.034	6.2	NA	0.1	1.3	0.03	0.55	0.03	49.9

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

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MOVEMENT SUMMARY

Site: D1 [D1-Back Saleyards Road/Site Access BG+CON-PM (Site Folder: BG Growth+Construction 2027)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Back Saleyards Road/Site Access Intersection
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: Back Saleyards Road															
2	T1	All MCs	1	0.0	1	0.0	0.001	0.1	LOS A	0.0	0.0	0.10	0.29	0.10	57.1
3	R2	All MCs	1	0.0	1	0.0	0.001	5.5	LOS A	0.0	0.0	0.10	0.29	0.10	54.5
Approach			2	0.0	2	0.0	0.001	2.8	NA	0.0	0.0	0.10	0.29	0.10	55.8
East: Site Access															
4	L2	All MCs	1	0.0	1	0.0	0.045	5.5	LOS A	0.1	1.5	0.07	0.58	0.07	52.8
6	R2	All MCs	43	58.5	43	58.5	0.045	6.3	LOS A	0.1	1.5	0.07	0.58	0.07	50.0
Approach			44	57.1	44	57.1	0.045	6.2	LOS A	0.1	1.5	0.07	0.58	0.07	50.0
North: Back Saleyards Road															
7	L2	All MCs	25	100.0	25	100.0	0.024	6.7	LOS A	0.0	0.0	0.00	0.54	0.00	48.4
8	T1	All MCs	1	0.0	1	0.0	0.024	0.0	LOS A	0.0	0.0	0.00	0.54	0.00	54.3
Approach			26	96.0	26	96.0	0.024	6.4	NA	0.0	0.0	0.00	0.54	0.00	48.6
All Vehicles			73	69.6	73	69.6	0.045	6.2	NA	0.1	1.5	0.04	0.56	0.04	49.7

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

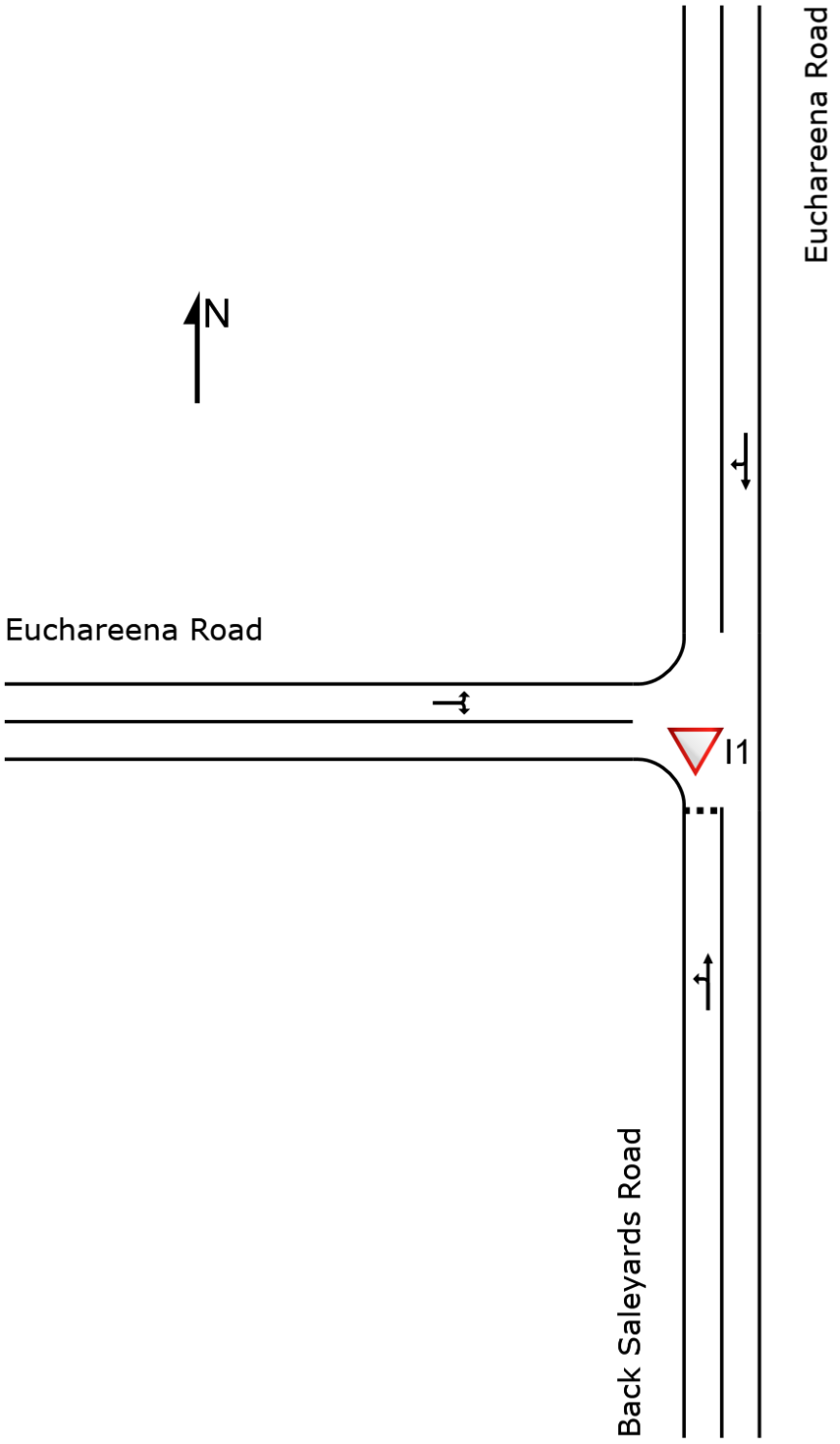
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SITE LAYOUT

Site: I1 [I1-Euchareena Road/Back Saleyards Road EX-AM (Site Folder: Existing Conditions 2024)]

Euchareena Road/Back Saleyards Road Intersection
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: I1 [I1-Euchareena Road/Back Saleyards Road EX-AM (Site Folder: Existing Conditions 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Euchareena Road/Back Saleyards Road Intersection
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: Back Saleyards Road															
1	L2	All MCs	2	0.0	2	0.0	0.002	5.6	LOS A	0.0	0.1	0.09	0.53	0.09	53.0
2	T1	All MCs	1	0.0	1	0.0	0.002	4.3	LOS A	0.0	0.1	0.09	0.53	0.09	53.4
Approach			3	0.0	3	0.0	0.002	5.2	LOS A	0.0	0.1	0.09	0.53	0.09	53.1
North: Euchareena Road															
8	T1	All MCs	1	0.0	1	0.0	0.016	0.0	LOS A	0.1	0.5	0.02	0.57	0.02	55.2
9	R2	All MCs	25	12.5	25	12.5	0.016	5.6	LOS A	0.1	0.5	0.02	0.57	0.02	52.2
Approach			26	12.0	26	12.0	0.016	5.4	NA	0.1	0.5	0.02	0.57	0.02	52.4
West: Euchareena Road															
10	L2	All MCs	12	27.3	12	27.3	0.009	5.9	LOS A	0.0	0.1	0.00	0.57	0.00	51.7
12	R2	All MCs	1	100.0	1	100.0	0.009	6.7	LOS A	0.0	0.1	0.00	0.57	0.00	48.4
Approach			13	33.3	13	33.3	0.009	5.9	NA	0.0	0.1	0.00	0.57	0.00	51.4
All Vehicles			42	17.5	42	17.5	0.016	5.5	NA	0.1	0.5	0.02	0.57	0.02	52.1

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

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MOVEMENT SUMMARY

Site: I1 [I1-Euchareena Road/Back Saleyards Road EX-PM (Site Folder: Existing Conditions 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Euchareena Road/Back Saleyards Road Intersection
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: Back Saleyards Road															
1	L2	All MCs	1	0.0	1	0.0	0.001	5.6	LOS A	0.0	0.0	0.10	0.52	0.10	53.1
2	T1	All MCs	1	0.0	1	0.0	0.001	4.3	LOS A	0.0	0.0	0.10	0.52	0.10	53.5
Approach			2	0.0	2	0.0	0.001	5.0	LOS A	0.0	0.0	0.10	0.52	0.10	53.3
North: Euchareena Road															
8	T1	All MCs	1	0.0	1	0.0	0.016	0.0	LOS A	0.1	0.6	0.01	0.57	0.01	55.2
9	R2	All MCs	27	7.7	27	7.7	0.016	5.5	LOS A	0.1	0.6	0.01	0.57	0.01	52.4
Approach			28	7.4	28	7.4	0.016	5.3	NA	0.1	0.6	0.01	0.57	0.01	52.5
West: Euchareena Road															
10	L2	All MCs	25	8.3	25	8.3	0.015	5.6	LOS A	0.0	0.0	0.00	0.57	0.00	52.5
12	R2	All MCs	1	0.0	1	0.0	0.015	5.4	LOS A	0.0	0.0	0.00	0.57	0.00	52.6
Approach			26	8.0	26	8.0	0.015	5.6	NA	0.0	0.0	0.00	0.57	0.00	52.6
All Vehicles			57	7.4	57	7.4	0.016	5.5	NA	0.1	0.6	0.01	0.57	0.01	52.6

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

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MOVEMENT SUMMARY

Site: I1 [I1-Euchareena Road/Back Saleyards Road BG-AM (Site Folder: BG Growth 2027)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Euchareena Road/Back Saleyards Road Intersection
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: Back Saleyards Road															
1	L2	All MCs	2	0.0	2	0.0	0.002	5.6	LOS A	0.0	0.1	0.09	0.53	0.09	53.0
2	T1	All MCs	1	0.0	1	0.0	0.002	4.3	LOS A	0.0	0.1	0.09	0.53	0.09	53.4
Approach			3	0.0	3	0.0	0.002	5.2	LOS A	0.0	0.1	0.09	0.53	0.09	53.1
North: Euchareena Road															
8	T1	All MCs	1	0.0	1	0.0	0.016	0.0	LOS A	0.1	0.6	0.02	0.57	0.02	55.2
9	R2	All MCs	26	12.0	26	12.0	0.016	5.6	LOS A	0.1	0.6	0.02	0.57	0.02	52.3
Approach			27	11.5	27	11.5	0.016	5.4	NA	0.1	0.6	0.02	0.57	0.02	52.4
West: Euchareena Road															
10	L2	All MCs	12	27.3	12	27.3	0.009	5.9	LOS A	0.0	0.1	0.00	0.57	0.00	51.7
12	R2	All MCs	1	100.0	1	100.0	0.009	6.7	LOS A	0.0	0.1	0.00	0.57	0.00	48.4
Approach			13	33.3	13	33.3	0.009	5.9	NA	0.0	0.1	0.00	0.57	0.00	51.4
All Vehicles			43	17.1	43	17.1	0.016	5.5	NA	0.1	0.6	0.02	0.57	0.02	52.1

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

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MOVEMENT SUMMARY

Site: I1 [I1-Euchareena Road/Back Saleyards Road BG-PM (Site Folder: BG Growth 2027)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Euchareena Road/Back Saleyards Road Intersection
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: Back Saleyards Road															
1	L2	All MCs	1	0.0	1	0.0	0.001	5.6	LOS A	0.0	0.0	0.11	0.52	0.11	53.1
2	T1	All MCs	1	0.0	1	0.0	0.001	4.3	LOS A	0.0	0.0	0.11	0.52	0.11	53.5
Approach			2	0.0	2	0.0	0.001	5.0	LOS A	0.0	0.0	0.11	0.52	0.11	53.3
North: Euchareena Road															
8	T1	All MCs	1	0.0	1	0.0	0.017	0.0	LOS A	0.1	0.6	0.01	0.58	0.01	55.2
9	R2	All MCs	28	7.4	28	7.4	0.017	5.5	LOS A	0.1	0.6	0.01	0.58	0.01	52.5
Approach			29	7.1	29	7.1	0.017	5.3	NA	0.1	0.6	0.01	0.58	0.01	52.5
West: Euchareena Road															
10	L2	All MCs	26	8.0	26	8.0	0.016	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.6
12	R2	All MCs	1	0.0	1	0.0	0.016	5.4	LOS A	0.0	0.0	0.00	0.58	0.00	52.6
Approach			27	7.7	27	7.7	0.016	5.6	NA	0.0	0.0	0.00	0.58	0.00	52.6
All Vehicles			59	7.1	59	7.1	0.017	5.5	NA	0.1	0.6	0.01	0.57	0.01	52.6

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

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MOVEMENT SUMMARY

Site: I1 [I1-Euchareena Road/Back Saleyards Road BG+CON-AM (Site Folder: BG Growth+Construction 2027)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Euchareena Road/Back Saleyards Road Intersection
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: Back Saleyards Road															
1	L2	All MCs	6	66.7	6	66.7	0.032	6.4	LOS A	0.1	1.5	0.17	0.52	0.17	49.9
2	T1	All MCs	21	100.0	21	100.0	0.032	5.8	LOS A	0.1	1.5	0.17	0.52	0.17	49.6
Approach			27	92.3	27	92.3	0.032	6.0	LOS A	0.1	1.5	0.17	0.52	0.17	49.7
North: Euchareena Road															
8	T1	All MCs	21	100.0	21	100.0	0.031	0.1	LOS A	0.1	1.1	0.08	0.33	0.08	56.9
9	R2	All MCs	26	12.0	26	12.0	0.031	5.7	LOS A	0.1	1.1	0.08	0.33	0.08	53.8
Approach			47	51.1	47	51.1	0.031	3.2	NA	0.1	1.1	0.08	0.33	0.08	55.2
West: Euchareena Road															
10	L2	All MCs	12	27.3	12	27.3	0.022	6.0	LOS A	0.1	0.8	0.10	0.56	0.10	51.5
12	R2	All MCs	23	22.7	23	22.7	0.022	5.8	LOS A	0.1	0.8	0.10	0.56	0.10	51.4
Approach			35	24.2	35	24.2	0.022	5.9	NA	0.1	0.8	0.10	0.56	0.10	51.4
All Vehicles			109	52.9	109	52.9	0.032	4.7	NA	0.1	1.5	0.11	0.45	0.11	52.5

Site Level of Service (LOS) Method: Delay (SIDRA). 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: I1 [I1-Euchareena Road/Back Saleyards Road BG+CON-PM (Site Folder: BG Growth+Construction 2027)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Euchareena Road/Back Saleyards Road Intersection
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: Back Saleyards Road															
1	L2	All MCs	22	19.0	22	19.0	0.042	5.9	LOS A	0.2	1.6	0.14	0.53	0.14	51.8
2	T1	All MCs	21	100.0	21	100.0	0.042	5.8	LOS A	0.2	1.6	0.14	0.53	0.14	49.6
Approach			43	58.5	43	58.5	0.042	5.8	LOS A	0.2	1.6	0.14	0.53	0.14	50.7
North: Euchareena Road															
8	T1	All MCs	21	100.0	21	100.0	0.031	0.0	LOS A	0.1	1.1	0.03	0.34	0.03	57.0
9	R2	All MCs	28	7.4	28	7.4	0.031	5.5	LOS A	0.1	1.1	0.03	0.34	0.03	54.1
Approach			49	46.8	49	46.8	0.031	3.2	NA	0.1	1.1	0.03	0.34	0.03	55.3
West: Euchareena Road															
10	L2	All MCs	26	8.0	26	8.0	0.020	5.7	LOS A	0.0	0.3	0.05	0.56	0.05	52.3
12	R2	All MCs	4	100.0	4	100.0	0.020	6.8	LOS A	0.0	0.3	0.05	0.56	0.05	48.3
Approach			31	20.7	31	20.7	0.020	5.8	NA	0.0	0.3	0.05	0.56	0.05	51.7
All Vehicles			123	44.4	123	44.4	0.042	4.8	NA	0.2	1.6	0.07	0.46	0.07	52.7

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

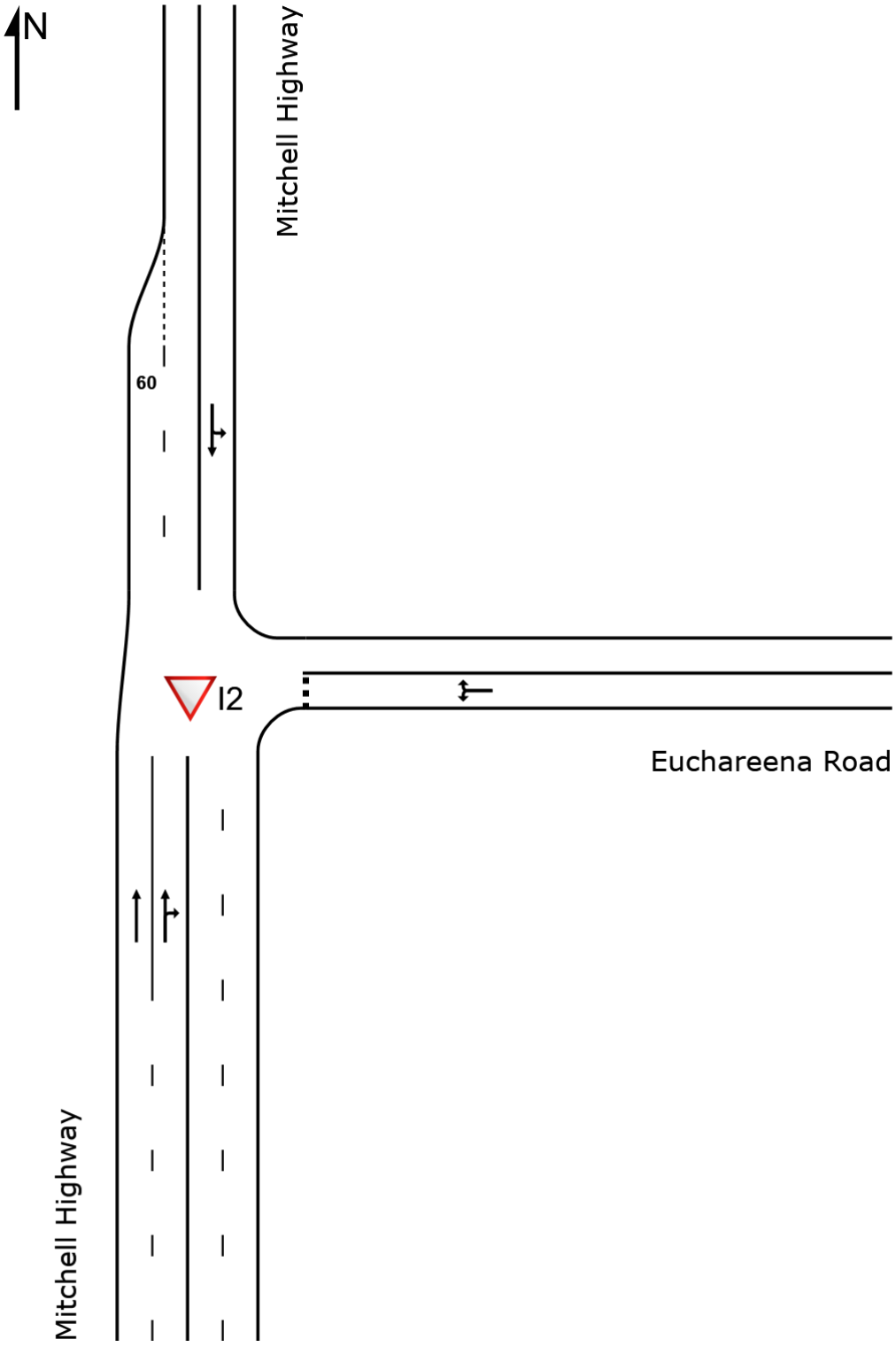
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SITE LAYOUT

Site: I2 [I2-Mitchell Highway/Euchareena Road EX-AM (Site Folder: Existing Conditions 2024)]

Mitchell Highway/Euchareena Road Intersection
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: I2 [I2-Mitchell Highway/Euchareena Road EX-AM (Site Folder: Existing Conditions 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Mitchell Highway/Euchareena Road Intersection
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: Mitchell Highway															
2	T1	All MCs	159	17.9	159	17.9	0.072	0.1	LOS A	0.1	0.5	0.04	0.04	0.04	59.7
3	R2	All MCs	6	33.3	6	33.3	0.072	7.0	LOS A	0.1	0.5	0.05	0.06	0.05	55.3
Approach			165	18.5	165	18.5	0.072	0.4	NA	0.1	0.5	0.04	0.04	0.04	59.5
East: Euchareena Road															
4	L2	All MCs	15	14.3	15	14.3	0.034	6.5	LOS A	0.1	1.0	0.40	0.61	0.40	50.9
6	R2	All MCs	15	14.3	15	14.3	0.034	8.6	LOS A	0.1	1.0	0.40	0.61	0.40	50.6
Approach			29	14.3	29	14.3	0.034	7.6	LOS A	0.1	1.0	0.40	0.61	0.40	50.8
North: Mitchell Highway															
7	L2	All MCs	6	33.3	6	33.3	0.119	5.9	LOS A	0.0	0.0	0.00	0.02	0.00	55.7
8	T1	All MCs	212	9.0	212	9.0	0.119	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.8
Approach			218	9.7	218	9.7	0.119	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.7
All Vehicles			413	13.5	413	13.5	0.119	0.8	NA	0.1	1.0	0.04	0.07	0.04	58.9

Site Level of Service (LOS) Method: Delay (SIDRA). 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: I2 [I2-Mitchell Highway/Euchareena Road EX-PM (Site Folder: Existing Conditions 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Mitchell Highway/Euchareena Road Intersection
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: Mitchell Highway															
2	T1	All MCs	199	6.3	199	6.3	0.087	0.2	LOS A	0.1	0.7	0.05	0.06	0.05	59.5
3	R2	All MCs	13	8.3	13	8.3	0.087	6.5	LOS A	0.1	0.7	0.07	0.09	0.07	56.3
Approach			212	6.5	212	6.5	0.087	0.5	NA	0.1	0.7	0.05	0.06	0.05	59.3
East: Euchareena Road															
4	L2	All MCs	14	7.7	14	7.7	0.032	6.4	LOS A	0.1	0.9	0.42	0.61	0.42	51.1
6	R2	All MCs	14	7.7	14	7.7	0.032	8.8	LOS A	0.1	0.9	0.42	0.61	0.42	50.8
Approach			27	7.7	27	7.7	0.032	7.6	LOS A	0.1	0.9	0.42	0.61	0.42	50.9
North: Mitchell Highway															
7	L2	All MCs	13	8.3	13	8.3	0.132	5.7	LOS A	0.0	0.0	0.00	0.03	0.00	56.8
8	T1	All MCs	224	12.7	224	12.7	0.132	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	59.6
Approach			237	12.4	237	12.4	0.132	0.3	NA	0.0	0.0	0.00	0.03	0.00	59.5
All Vehicles			476	9.5	476	9.5	0.132	0.8	NA	0.1	0.9	0.05	0.08	0.05	58.8

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

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MOVEMENT SUMMARY

Site: I2 [I2-Mitchell Highway/Euchareena Road BG-AM (Site Folder: BG Growth 2027)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Mitchell Highway/Euchareena Road Intersection
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: Mitchell Highway															
2	T1	All MCs	168	18.1	168	18.1	0.076	0.1	LOS A	0.1	0.5	0.03	0.04	0.03	59.7
3	R2	All MCs	6	33.3	6	33.3	0.076	7.1	LOS A	0.1	0.5	0.05	0.06	0.05	55.5
Approach			175	18.7	175	18.7	0.076	0.4	NA	0.1	0.5	0.03	0.04	0.03	59.5
East: Euchareena Road															
4	L2	All MCs	15	14.3	15	14.3	0.012	6.5	LOS A	0.0	0.4	0.32	0.55	0.32	51.4
6	R2	All MCs	15	14.3	15	14.3	0.023	8.8	LOS A	0.1	0.7	0.49	0.67	0.49	49.8
Approach			29	14.3	29	14.3	0.023	7.7	LOS A	0.1	0.7	0.40	0.61	0.40	50.5
North: Mitchell Highway															
7	L2	All MCs	6	33.3	6	33.3	0.125	6.0	LOS A	0.0	0.0	0.00	0.02	0.00	55.8
8	T1	All MCs	223	9.0	223	9.0	0.125	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.8
Approach			229	9.6	229	9.6	0.125	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.7
All Vehicles			434	13.6	434	13.6	0.125	0.8	NA	0.1	0.7	0.04	0.07	0.04	58.9

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

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MOVEMENT SUMMARY

Site: I2 [I2-Mitchell Highway/Euchareena Road BG-PM (Site Folder: BG Growth 2027)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Mitchell Highway/Euchareena Road Intersection
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: Mitchell Highway															
2	T1	All MCs	212	6.5	212	6.5	0.091	0.2	LOS A	0.1	0.8	0.05	0.06	0.05	59.4
3	R2	All MCs	14	7.7	14	7.7	0.091	6.6	LOS A	0.1	0.8	0.08	0.09	0.08	56.4
Approach			225	6.5	225	6.5	0.091	0.6	NA	0.1	0.8	0.06	0.07	0.06	59.2
East: Euchareena Road															
4	L2	All MCs	15	7.1	15	7.1	0.012	6.5	LOS A	0.0	0.3	0.32	0.55	0.32	51.6
6	R2	All MCs	15	7.1	15	7.1	0.024	9.0	LOS A	0.1	0.6	0.51	0.69	0.51	49.8
Approach			29	7.1	29	7.1	0.024	7.8	LOS A	0.1	0.6	0.42	0.62	0.42	50.7
North: Mitchell Highway															
7	L2	All MCs	14	7.7	14	7.7	0.140	5.7	LOS A	0.0	0.0	0.00	0.03	0.00	56.8
8	T1	All MCs	238	12.8	238	12.8	0.140	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	59.6
Approach			252	12.6	252	12.6	0.140	0.3	NA	0.0	0.0	0.00	0.03	0.00	59.5
All Vehicles			506	9.6	506	9.6	0.140	0.9	NA	0.1	0.8	0.05	0.08	0.05	58.8

Site Level of Service (LOS) Method: Delay (SIDRA). 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: I2 [I2-Mitchell Highway/Euchareena Road BG+CON-AM (Site Folder: BG Growth+Construction 2027)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Mitchell Highway/Euchareena Road Intersection
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: Mitchell Highway															
2	T1	All MCs	168	18.1	168	18.1	0.090	0.3	LOS A	0.2	1.9	0.11	0.14	0.11	58.8
3	R2	All MCs	28	22.2	28	22.2	0.090	6.8	LOS A	0.2	1.9	0.17	0.20	0.17	54.7
Approach			197	18.7	197	18.7	0.090	1.3	NA	0.2	1.9	0.12	0.14	0.12	58.2
East: Euchareena Road															
4	L2	All MCs	19	33.3	19	33.3	0.041	7.0	LOS A	0.2	1.3	0.42	0.62	0.42	50.0
6	R2	All MCs	15	14.3	15	14.3	0.041	9.2	LOS A	0.2	1.3	0.42	0.62	0.42	50.5
Approach			34	25.0	34	25.0	0.041	7.9	LOS A	0.2	1.3	0.42	0.62	0.42	50.2
North: Mitchell Highway															
7	L2	All MCs	6	33.3	6	33.3	0.125	6.0	LOS A	0.0	0.0	0.00	0.02	0.00	55.7
8	T1	All MCs	223	9.0	223	9.0	0.125	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.8
Approach			229	9.6	229	9.6	0.125	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.7
All Vehicles			460	14.6	460	14.6	0.125	1.2	NA	0.2	1.9	0.08	0.12	0.08	58.3

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

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MOVEMENT SUMMARY

Site: I2 [I2-Mitchell Highway/Euchareena Road BG+CON-PM (Site Folder: BG Growth+Construction 2027)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Mitchell Highway/Euchareena Road Intersection
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: Mitchell Highway															
2	T1	All MCs	212	6.5	212	6.5	0.097	0.3	LOS A	0.2	1.3	0.08	0.09	0.08	59.3
3	R2	All MCs	18	29.4	18	29.4	0.097	7.1	LOS A	0.2	1.3	0.11	0.13	0.11	55.1
Approach			229	8.3	229	8.3	0.097	0.8	NA	0.2	1.3	0.08	0.09	0.08	59.0
East: Euchareena Road															
4	L2	All MCs	37	14.3	37	14.3	0.055	6.7	LOS A	0.2	1.6	0.40	0.61	0.40	51.0
6	R2	All MCs	15	7.1	15	7.1	0.055	9.3	LOS A	0.2	1.6	0.40	0.61	0.40	51.0
Approach			52	12.2	52	12.2	0.055	7.4	LOS A	0.2	1.6	0.40	0.61	0.40	51.0
North: Mitchell Highway															
7	L2	All MCs	14	7.7	14	7.7	0.140	5.7	LOS A	0.0	0.0	0.00	0.03	0.00	56.8
8	T1	All MCs	238	12.8	238	12.8	0.140	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	59.6
Approach			252	12.6	252	12.6	0.140	0.3	NA	0.0	0.0	0.00	0.03	0.00	59.5
All Vehicles			533	10.7	533	10.7	0.140	1.2	NA	0.2	1.6	0.07	0.11	0.07	58.3

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

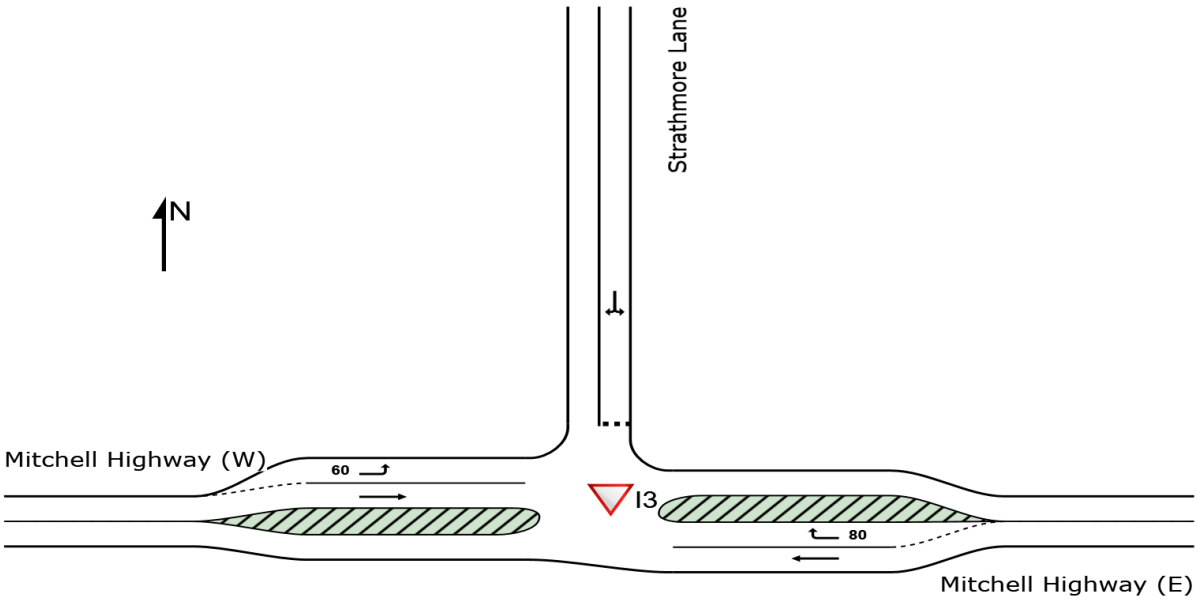
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SITE LAYOUT

Site: I3 [I3-Mitchell Highway/Strathmore Lane EX-AM (Site Folder: Existing Conditions 2024)]

Mitchell Highway/Strathmore Lane
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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MOVEMENT SUMMARY

Site: I3 [I3-Mitchell Highway/Strathmore Lane EX-AM (Site Folder: Existing Conditions 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Mitchell Highway/Strathmore Lane
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
East: Mitchell Highway (E)															
5	T1	All MCs	158	18.0	158	18.0	0.090	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
6	R2	All MCs	1	0.0	1	0.0	0.001	8.5	LOS A	0.0	0.0	0.32	0.58	0.32	72.7
Approach			159	17.9	159	17.9	0.090	0.1	NA	0.0	0.0	0.00	0.00	0.00	99.7
North: Strathmore Lane															
7	L2	All MCs	1	0.0	1	0.0	0.003	8.7	LOS A	0.0	0.1	0.40	0.60	0.40	71.7
9	R2	All MCs	1	0.0	1	0.0	0.003	10.8	LOS B	0.0	0.1	0.40	0.60	0.40	71.7
Approach			2	0.0	2	0.0	0.003	9.7	LOS A	0.0	0.1	0.40	0.60	0.40	71.7
West: Mitchell Highway (W)															
10	L2	All MCs	1	0.0	1	0.0	0.001	7.8	LOS A	0.0	0.0	0.00	0.66	0.00	74.4
11	T1	All MCs	223	9.4	223	9.4	0.121	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
Approach			224	9.4	224	9.4	0.121	0.0	NA	0.0	0.0	0.00	0.00	0.00	99.8
All Vehicles			385	12.8	385	12.8	0.121	0.1	NA	0.0	0.1	0.00	0.01	0.00	99.5

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

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MOVEMENT SUMMARY

Site: I3 [I3-Mitchell Highway/Strathmore Lane EX-PM (Site Folder: Existing Conditions 2024)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Mitchell Highway/Strathmore Lane
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
East: Mitchell Highway (E)															
5	T1	All MCs	208	7.6	208	7.6	0.112	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
6	R2	All MCs	1	0.0	1	0.0	0.001	8.6	LOS A	0.0	0.0	0.34	0.58	0.34	72.6
Approach			209	7.5	209	7.5	0.112	0.1	NA	0.0	0.0	0.00	0.00	0.00	99.8
North: Strathmore Lane															
7	L2	All MCs	1	0.0	1	0.0	0.003	8.8	LOS A	0.0	0.1	0.43	0.61	0.43	71.2
9	R2	All MCs	1	0.0	1	0.0	0.003	11.4	LOS B	0.0	0.1	0.43	0.61	0.43	71.2
Approach			2	0.0	2	0.0	0.003	10.1	LOS B	0.0	0.1	0.43	0.61	0.43	71.2
West: Mitchell Highway (W)															
10	L2	All MCs	1	0.0	1	0.0	0.001	7.8	LOS A	0.0	0.0	0.00	0.66	0.00	74.4
11	T1	All MCs	241	12.7	241	12.7	0.134	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
Approach			242	12.6	242	12.6	0.134	0.0	NA	0.0	0.0	0.00	0.00	0.00	99.8
All Vehicles			454	10.2	454	10.2	0.134	0.1	NA	0.0	0.1	0.00	0.01	0.00	99.6

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

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MOVEMENT SUMMARY

Site: I3 [I3-Mitchell Highway/Strathmore Lane BG-AM (Site Folder: BG Growth 2027)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Mitchell Highway/Strathmore Lane
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
East: Mitchell Highway (E)															
5	T1	All MCs	167	18.2	167	18.2	0.096	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
6	R2	All MCs	1	0.0	1	0.0	0.001	8.6	LOS A	0.0	0.0	0.33	0.58	0.33	72.7
Approach			168	18.1	168	18.1	0.096	0.1	NA	0.0	0.0	0.00	0.00	0.00	99.7
North: Strathmore Lane															
7	L2	All MCs	1	0.0	1	0.0	0.003	8.7	LOS A	0.0	0.1	0.41	0.60	0.41	71.5
9	R2	All MCs	1	0.0	1	0.0	0.003	11.0	LOS B	0.0	0.1	0.41	0.60	0.41	71.5
Approach			2	0.0	2	0.0	0.003	9.9	LOS A	0.0	0.1	0.41	0.60	0.41	71.5
West: Mitchell Highway (W)															
10	L2	All MCs	1	0.0	1	0.0	0.001	7.8	LOS A	0.0	0.0	0.00	0.66	0.00	74.4
11	T1	All MCs	237	9.3	237	9.3	0.129	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
Approach			238	9.3	238	9.3	0.129	0.0	NA	0.0	0.0	0.00	0.00	0.00	99.8
All Vehicles			408	12.9	408	12.9	0.129	0.1	NA	0.0	0.1	0.00	0.01	0.00	99.6

Site Level of Service (LOS) Method: Delay (SIDRA). 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: I3 [I3-Mitchell Highway/Strathmore Lane BG-PM (Site Folder: BG Growth 2027)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Mitchell Highway/Strathmore Lane
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
East: Mitchell Highway (E)															
5	T1	All MCs	221	7.6	221	7.6	0.119	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
6	R2	All MCs	1	0.0	1	0.0	0.001	8.7	LOS A	0.0	0.0	0.35	0.58	0.35	72.6
Approach			222	7.6	222	7.6	0.119	0.1	NA	0.0	0.0	0.00	0.00	0.00	99.8
North: Strathmore Lane															
7	L2	All MCs	1	0.0	1	0.0	0.003	8.9	LOS A	0.0	0.1	0.44	0.61	0.44	70.9
9	R2	All MCs	1	0.0	1	0.0	0.003	11.7	LOS B	0.0	0.1	0.44	0.61	0.44	70.9
Approach			2	0.0	2	0.0	0.003	10.3	LOS B	0.0	0.1	0.44	0.61	0.44	70.9
West: Mitchell Highway (W)															
10	L2	All MCs	1	0.0	1	0.0	0.001	7.8	LOS A	0.0	0.0	0.00	0.66	0.00	74.4
11	T1	All MCs	256	12.8	256	12.8	0.142	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
Approach			257	12.7	257	12.7	0.142	0.0	NA	0.0	0.0	0.00	0.00	0.00	99.8
All Vehicles			481	10.3	481	10.3	0.142	0.1	NA	0.0	0.1	0.00	0.01	0.00	99.6

Site Level of Service (LOS) Method: Delay (SIDRA). 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: I3 [I3-Mitchell Highway/Strathmore Lane BG+CON-AM (Site Folder: BG Growth+Construction 2027)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Mitchell Highway/Strathmore Lane
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
East: Mitchell Highway (E)															
5	T1	All MCs	179	18.2	179	18.2	0.103	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
6	R2	All MCs	22	95.2	22	95.2	0.033	12.5	LOS B	0.1	1.6	0.42	0.68	0.42	47.9
Approach			201	26.7	201	26.7	0.103	1.4	NA	0.1	1.6	0.05	0.07	0.05	89.2
North: Strathmore Lane															
7	L2	All MCs	21	100.0	21	100.0	0.036	12.9	LOS B	0.1	1.6	0.41	0.68	0.41	50.6
9	R2	All MCs	1	0.0	1	0.0	0.036	11.7	LOS B	0.1	1.6	0.41	0.68	0.41	67.0
Approach			22	95.2	22	95.2	0.036	12.8	LOS B	0.1	1.6	0.41	0.68	0.41	51.2
West: Mitchell Highway (W)															
10	L2	All MCs	1	0.0	1	0.0	0.001	7.8	LOS A	0.0	0.0	0.00	0.66	0.00	74.4
11	T1	All MCs	239	10.1	239	10.1	0.131	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
Approach			240	10.1	240	10.1	0.131	0.0	NA	0.0	0.0	0.00	0.00	0.00	99.8
All Vehicles			463	21.4	463	21.4	0.131	1.2	NA	0.1	1.6	0.04	0.07	0.04	91.0

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

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MOVEMENT SUMMARY

Site: I3 [I3-Mitchell Highway/Strathmore Lane BG+CON-PM (Site Folder: BG Growth+Construction 2027)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Mitchell Highway/Strathmore Lane
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
East: Mitchell Highway (E)															
5	T1	All MCs	223	8.5	223	8.5	0.121	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
6	R2	All MCs	22	95.2	22	95.2	0.035	13.0	LOS B	0.1	1.7	0.45	0.69	0.45	47.6
Approach			245	16.3	245	16.3	0.121	1.2	NA	0.1	1.7	0.04	0.06	0.04	90.9
North: Strathmore Lane															
7	L2	All MCs	21	100.0	21	100.0	0.038	13.3	LOS B	0.1	1.7	0.44	0.70	0.44	50.3
9	R2	All MCs	1	0.0	1	0.0	0.038	12.6	LOS B	0.1	1.7	0.44	0.70	0.44	66.4
Approach			22	95.2	22	95.2	0.038	13.3	LOS B	0.1	1.7	0.44	0.70	0.44	50.9
West: Mitchell Highway (W)															
10	L2	All MCs	1	0.0	1	0.0	0.001	7.8	LOS A	0.0	0.0	0.00	0.66	0.00	74.4
11	T1	All MCs	267	13.0	267	13.0	0.149	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
Approach			268	12.9	268	12.9	0.149	0.0	NA	0.0	0.0	0.00	0.00	0.00	99.8
All Vehicles			536	17.9	536	17.9	0.149	1.1	NA	0.1	1.7	0.04	0.06	0.04	92.0

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

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Appendix J:

Drivers Code of Conduct



DRIVERS CODE OF CONDUCT

All drivers on site must abide by the following requirements:

1. Be responsible and accountable for their own actions while travelling to/from the proposed development;
2. Must have a current driver's license for the class of vehicle they are operating;
3. Read this document and sign below that they acknowledge the requirements set out by management;
4. Undertake a site induction carried out by an authorised StorEnergy staff member or suitably qualified person under the direction of the site manager;
5. Heavy vehicle drivers are to coordinate time of access into the site with on-site management which should aim to reduce travelling in the peak hours and therefore minimise impacts on Riverway Drive;
6. All drivers are to adhere to the routes they are instructed to follow which are developed by the management with a view to prioritise the use of arterial roads and avoid the use of local streets;
7. Always display professional road courtesy towards other road users;
8. Appropriate signage is to be displayed on all trucks used to transport product from the development so that they can be readily identified by road users;
9. Secure all loads, with drawbars, tailgates and side combings cleaned down prior to leaving site;
10. Comply with all traffic and road legislations and drive within the legal speed limit and drive to the road conditions;
11. Trucks slowing down when approaching the residential area are not to use engine or compression braking systems except where required for safety reasons and turn off vehicles when not in use;
12. Do not queue on public roads unless an approval has been obtained from the local and state authorities;
13. Under any circumstance, never drive under the influence of alcohol and other drugs, inclusive of the prescriptions and over the counter medication that possibly could cause drowsiness;
14. Avoid any distractions while driving such as any form of interaction with their mobile phones. Adjustments to mirrors and vehicle stereo are to be done before taking off;
15. Report all near-misses, crashes, community complaints and vehicle defects to the management;
16. Keep loads covered at all times and do not leave the site if weight is in excess of the approved GVM;
17. Remain in the truck cabin whilst being loaded unless directed otherwise by the loading driver;
18. Do not use UHF radios inappropriately and unnecessarily;
19. Remain within the truck cabin unless instructed by the ground staff;
20. Wear steel cap boots and high visibility clothing at all times;
21. Acknowledge that all site mobile equipment will have right of way at all times;
22. Acknowledge that there will be regular alcohol and drug detection tests on the site.

NOTE: Non-compliance with any directive provided above, either on or off site, may lead to refusal of future employment or contract opportunities for the driver and vehicle owner.

Driver Name: ……

Vehicle Owner Company: …….

Driver Signature on behalf of the Vehicle Owner Company: …….

Appendix K:

TMR Technical Note 199



Technical Note 199

Guidance for the design of temporary roads

December 2021

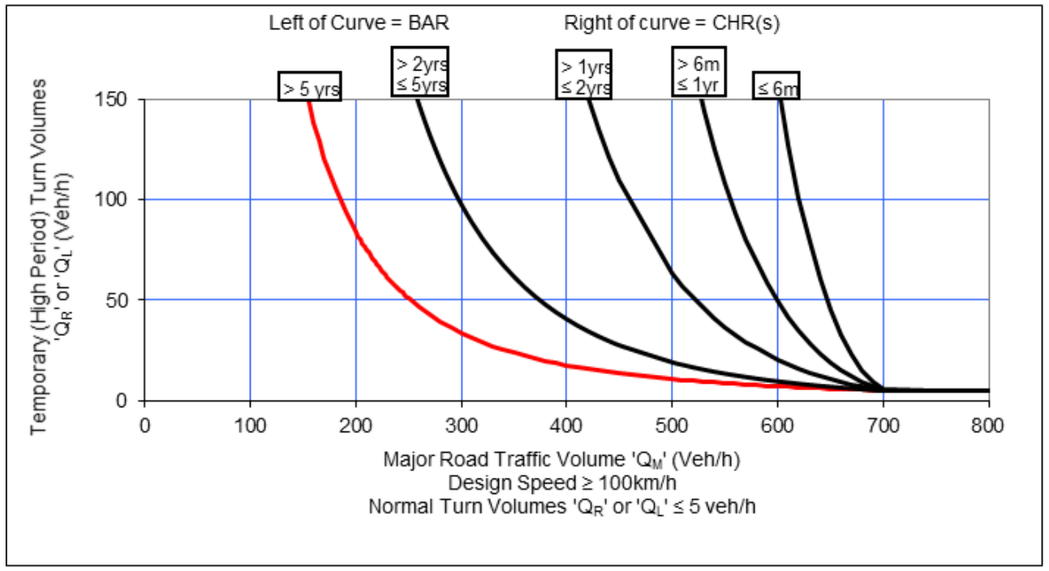
Queensland Government

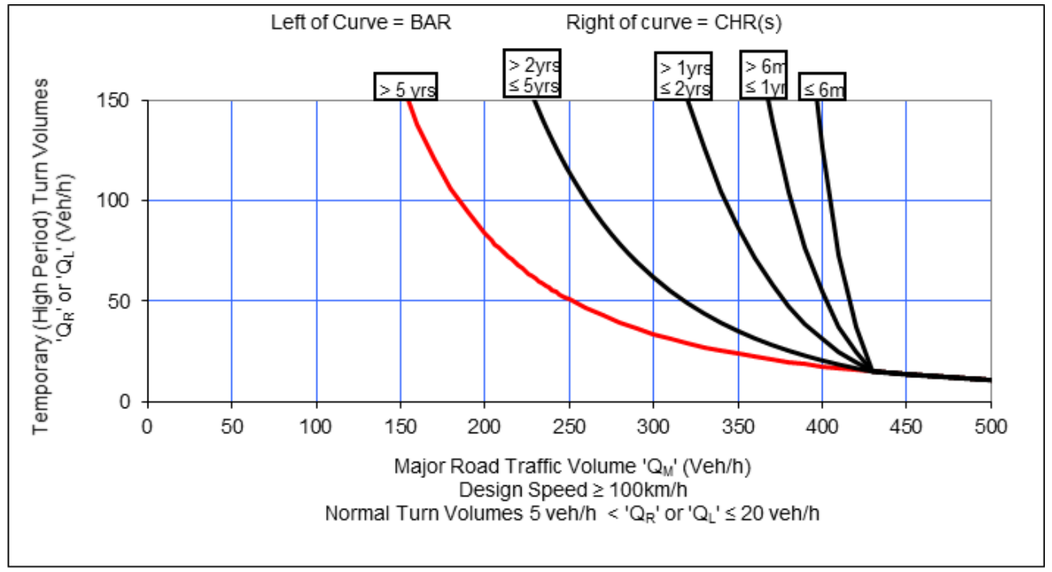
4.8 Turn treatment warrants for unsignalised intersections with short periods of higher traffic volumes

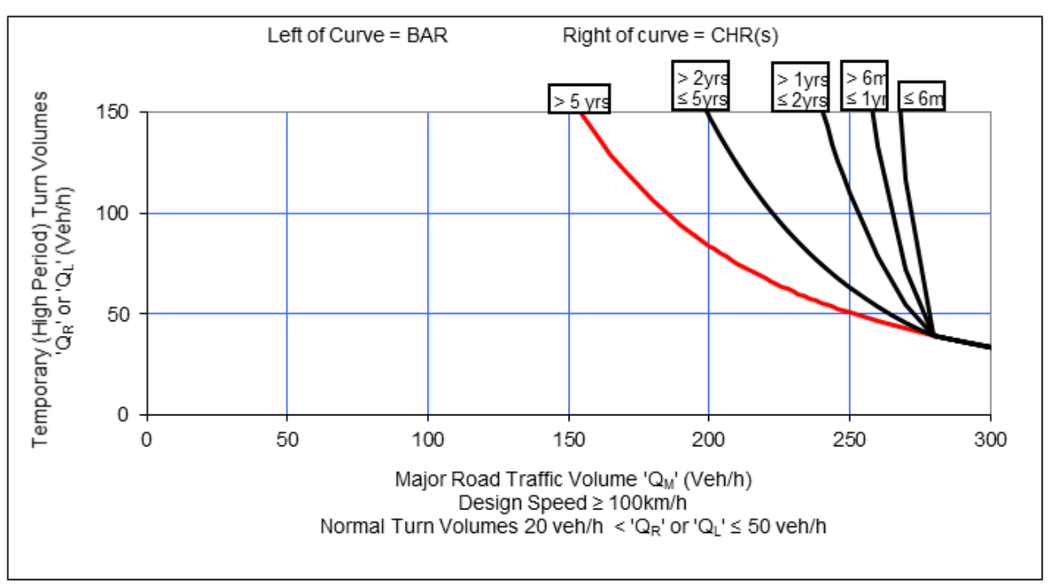
Intersections in regional areas across Queensland are at times subject to a limited period of heavier traffic due to construction or mining activities. During these periods the traffic volumes may be substantially higher than the base traffic conditions. However, in many cases it is not considered appropriate to upgrade the intersection just for the short period of high use.

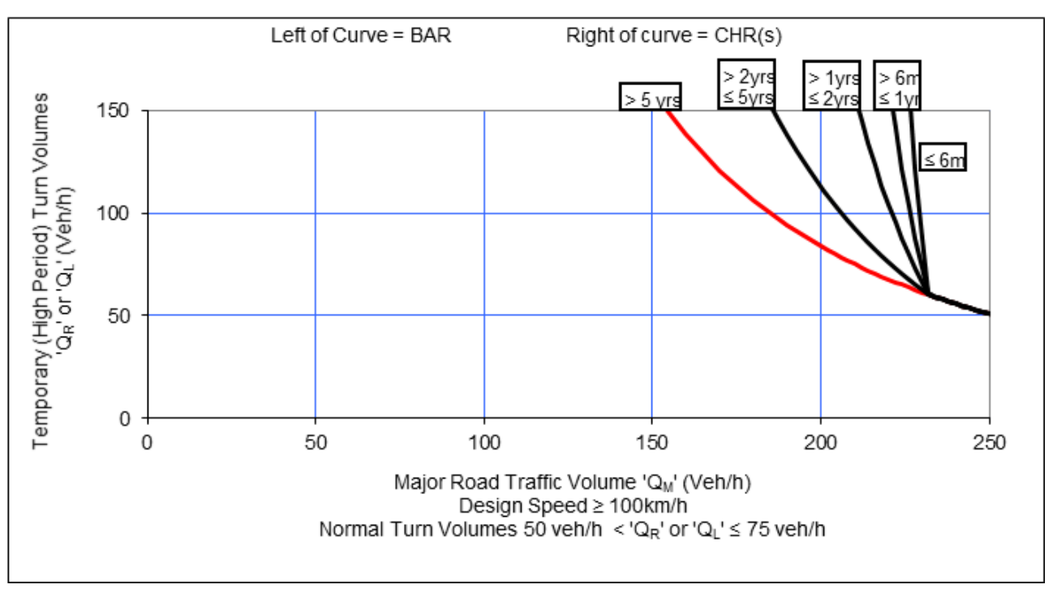
Sullivan & Arndt (2014) used a balanced design life assessment of the Crash Reduction potential of the upgraded intersection treatment, to develop a set of warrants for a shorter period of high turn volumes. The resultant warrants for these situations are presented in Figures 4.8(a) to 4.8(c) and describe the boundary between a BAR/BAL and a CHR(s)/AUL(s) intersection type.

Figure 4.8(a) – Warrant Analysis for short term high volume use of intersection – High Speed





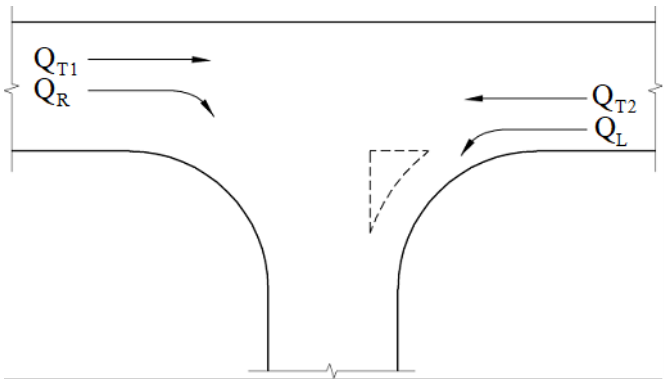




The following notes apply to Figures 4.8(a) to 4.8(c):

1. The warrants apply to 2-lane, 2-way roads only.
2. The warrants apply to turning movements from the major road only (the road with priority). For turns from the minor road, turn treatments are determined through an operational performance evaluation applying gap acceptance analysis and an evaluation of acceptable delays and queues.
3. Figure 4.8(d) is to be used to calculate the value of the major road traffic volume parameter (QM) and is the total through traffic flow in both directions (QT1 + QT2).
4. Traffic flows applicable to the warrants are peak hour flows, with each vehicle counted as one unit (i.e. do not use equivalent passenger car units [pcus]). Where peak hour volumes or peak hour percentages are not available, assume that the design peak hour volume equals.
5. Transport and Main Roads – 15% of the AADT for 500 hours each year, use 5% of the AADT for the rest of the year.
6. Austroads – 8% to 10% of the AADT for urban situations and 11% to 16% of AADT for rural situations.
7. If a turn is associated with other geometric minima, consideration should be given to the adoption of a turn treatment of a higher order than that indicated by the warrants.
8. Consideration must also be given to the operational performance of the intersection which may require a higher-level turn treatment, or alternative intersection control, particularly for higher traffic volumes.

Figure 4.8(d) – Calculation of the Major Road traffic Volume Parameter 'Q_M'



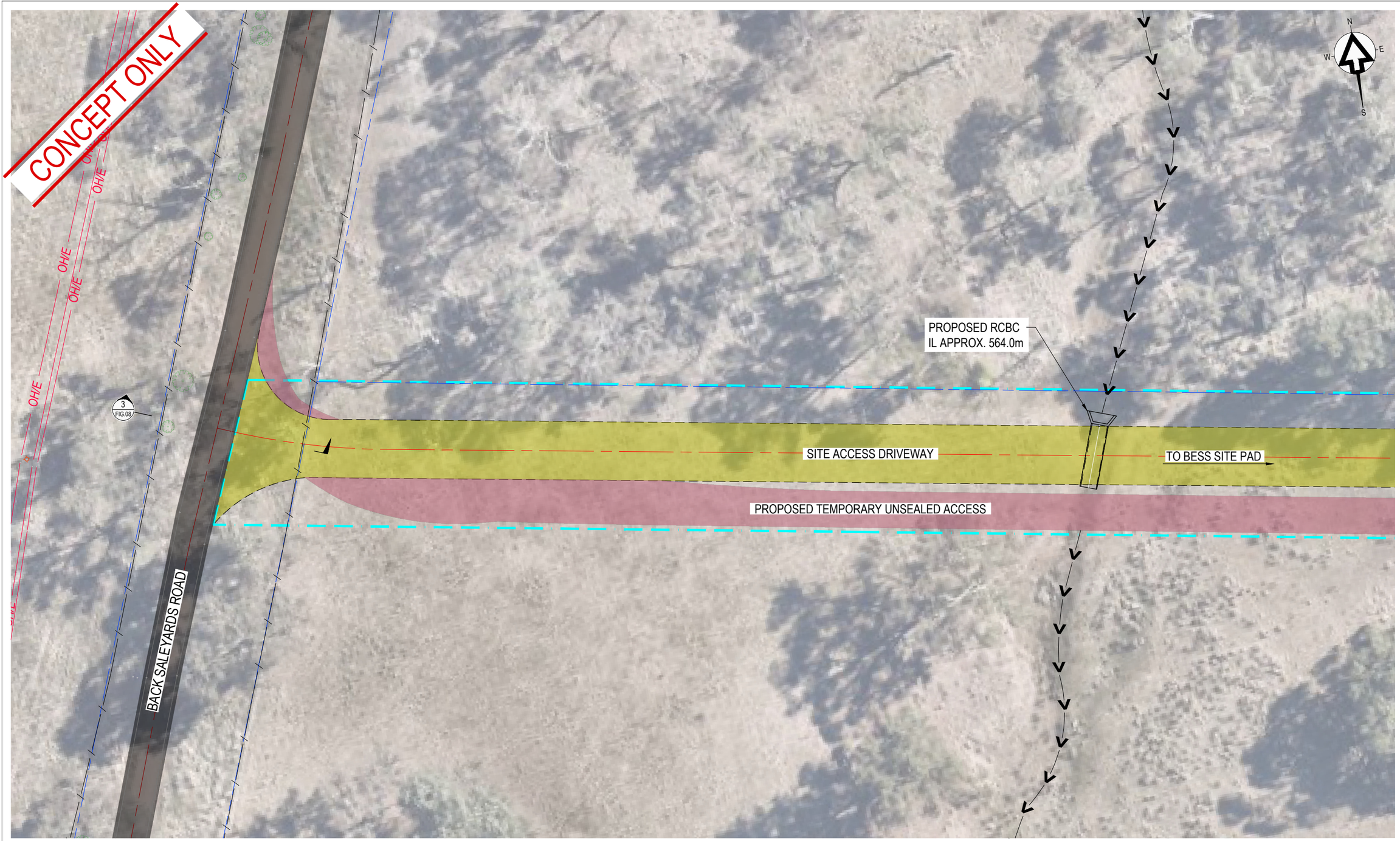
Turn Type	Splitter Island	Q_M (veh/h)
Right	No	= Q_{T1} + Q_{T2} + Q_L
	Yes	= Q_{T1} + Q_{T2}
Left	Yes / No	= Q_{T2}

Appendix L:

Concept Level Driveway Plan



CONCEPT ONLY



SITE ACCESS - GENERAL ARRANGEMENT LAYOUT PLAN

SCALE 1:500

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LEGEND

- EXISTING PROPERTY BOUNDARY
- EXISTING ROAD EDGE OF SEAL
- EXISTING FENCE
- EXISTING OVERHEAD POWER LINES — OH/E
- ROAD CONTROL LINE
- PROPOSED STORMWATER CULVERT
- DEVELOPMENT FOOTPRINT
- EXISTING DRAINAGE SWALE
- PROPOSED EDGE OF UNSEALED PAVEMENT
- PROPOSED UNSEALED ROAD SURFACE
- EXISTING GRAVEL ROAD
- PROPOSED UNSEALED CONSTRUCTION PAVEMENT (GRAVEL)

0.0 5.0 10 15 20
METRES

SCALE 1:500

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BACK SALESYARD ROAD, MOLONG, NSW 2866

PROPERTY ACCESS
GENERAL ARRANGEMENT LAYOUT PLAN

FIGURE 01

CONCEPT ONLY



NOTE:
SAFE INTERSECTION SIGHT DISTANCE BASED UPON 'DRIVING TO CONDITIONS' DESIGN SPEED OF 70km/h

SITE ACCESS - SISD CHECK LAYOUT PLAN
SCALE 1:2000

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LEGEND

- EXISTING PROPERTY BOUNDARY
- EXISTING ROAD EDGE OF SEAL
- PROPOSED UNSEALED ROAD SURFACE
- EXISTING GRAVEL ROAD
- LINE OF SIGHT

0.0 20 40 60 80
METRES
SCALE 1:2000

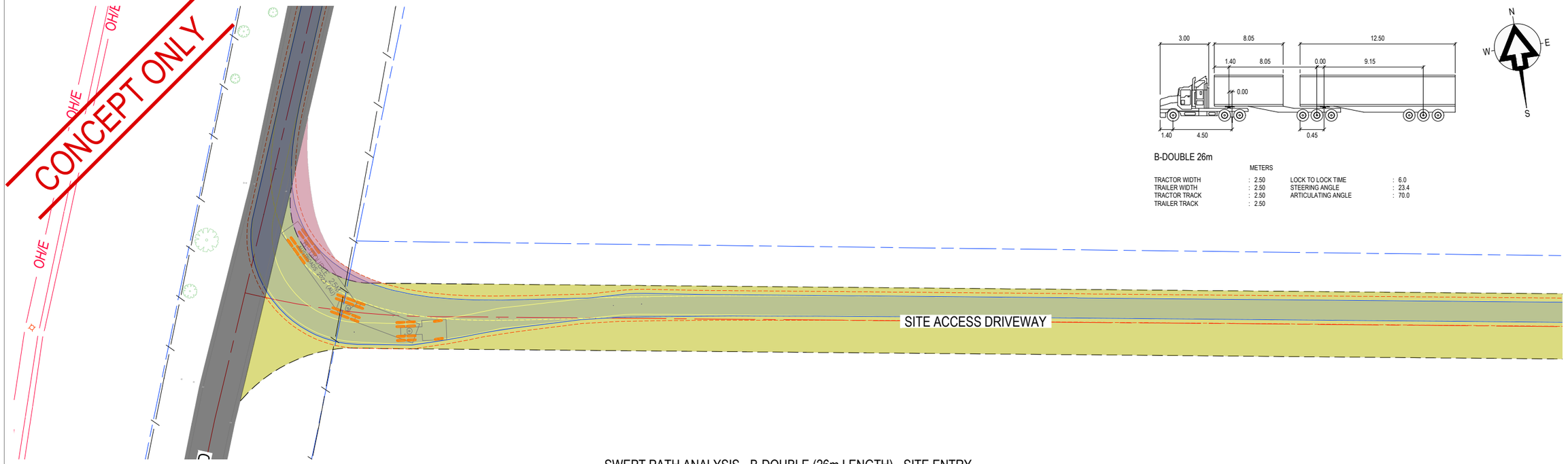
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BACK SALESYARD ROAD, MOLONG, NSW 2866

SAFE INTERSECTION SIGHT DISTANCE CHECK LAYOUT PLAN

FIGURE 02

CONCEPT ONLY

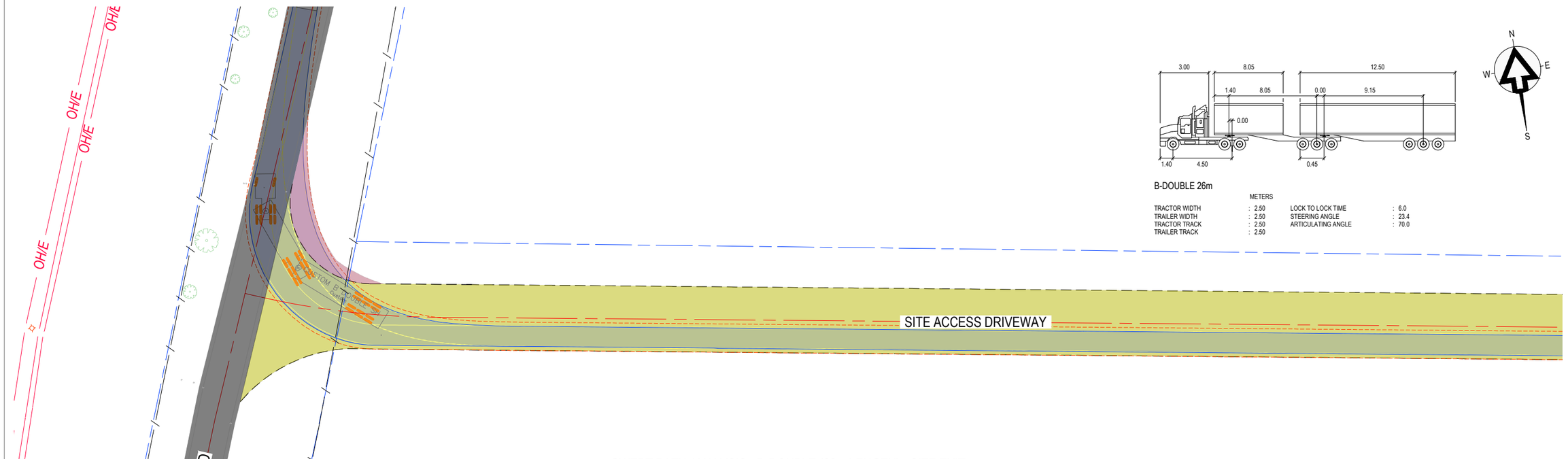


B-DOUBLE 26m

	METERS		
TRACTOR WIDTH	: 2.50	LOCK TO LOCK TIME	: 6.0
TRAILER WIDTH	: 2.50	STEERING ANGLE	: 23.4
TRACTOR TRACK	: 2.50	ARTICULATING ANGLE	: 70.0
TRAILER TRACK	: 2.50		

SWEPT PATH ANALYSIS - B-DOUBLE (26m LENGTH) - SITE ENTRY

SCALE 1:500



B-DOUBLE 26m

	METERS		
TRACTOR WIDTH	: 2.50	LOCK TO LOCK TIME	: 6.0
TRAILER WIDTH	: 2.50	STEERING ANGLE	: 23.4
TRACTOR TRACK	: 2.50	ARTICULATING ANGLE	: 70.0
TRAILER TRACK	: 2.50		

SWEPT PATH ANALYSIS - B-DOUBLE (26m LENGTH) - SITE EXIT

SCALE 1:500

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LEGEND

- EXISTING PROPERTY BOUNDARY
- EXISTING ROAD EDGE OF SEAL
- EXISTING FENCE
- EXISTING OVERHEAD POWER LINES — OH/E
- ROAD CONTROL LINE

LEGEND

- PROPOSED EDGE OF UNSEALED PAVEMENT
- PROPOSED UNSEALED ROAD SURFACE
- EXISTING GRAVEL ROAD
- PROPOSED UNSEALED CONSTRUCTION PAVEMENT (GRAVEL)

SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels
- Rear Wheels

0.0 5.0 10 15 20
METRES

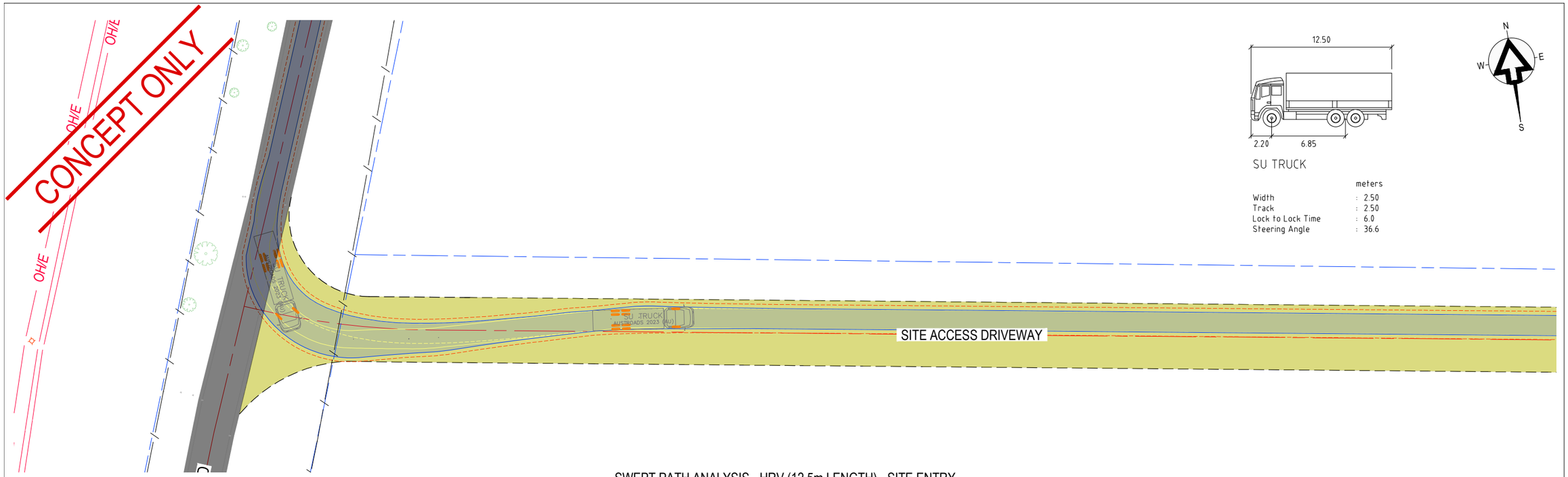
SCALE 1:500

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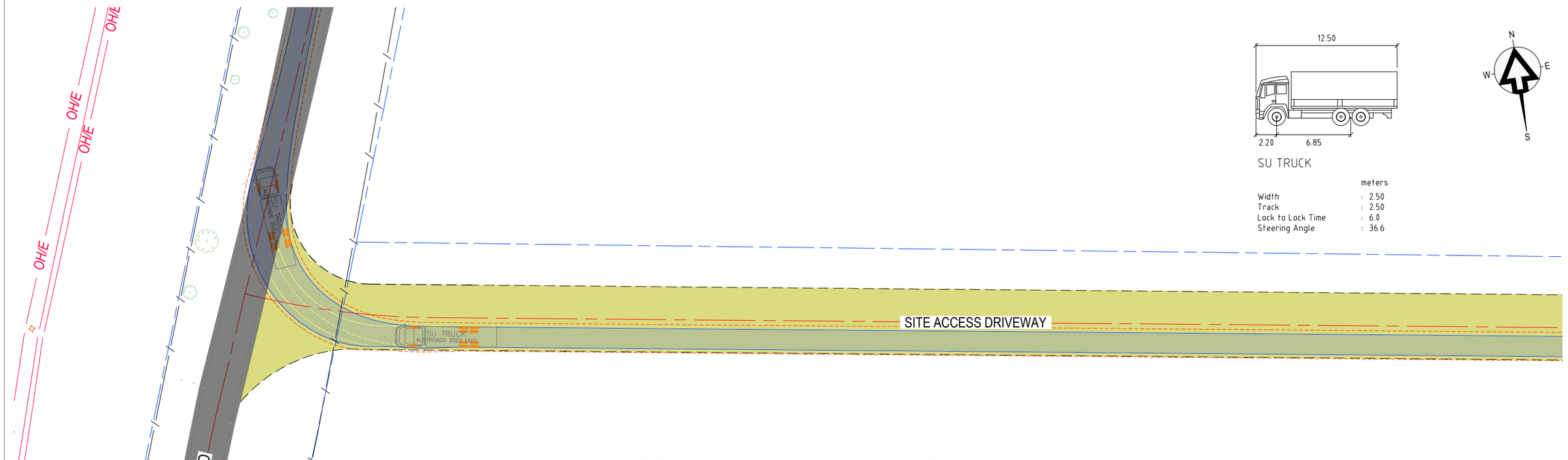
PROPERTY ACCESS
B-DOUBLE SWEPT PATH ANALYSIS

FIGURE 03



SWEPT PATH ANALYSIS - HRV (12.5m LENGTH) - SITE ENTRY

SCALE 1:500



SWEPT PATH ANALYSIS - HRV (12.5m LENGTH) - SITE EXIT

SCALE 1:500

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LEGEND

- EXISTING PROPERTY BOUNDARY
- EXISTING ROAD EDGE OF SEAL
- EXISTING FENCE
- EXISTING OVERHEAD POWER LINES — OH/E
- ROAD CONTROL LINE

LEGEND

- PROPOSED EDGE OF UNSEALED PAVEMENT
- PROPOSED UNSEALED ROAD SURFACE
- EXISTING GRAVEL ROAD
- PROPOSED UNSEALED CONSTRUCTION PAVEMENT (GRAVEL)

SWEPT PATH LEGEND

- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels
- Rear Wheels

0.0 5.0 10 15 20
METRES

SCALE 1:500

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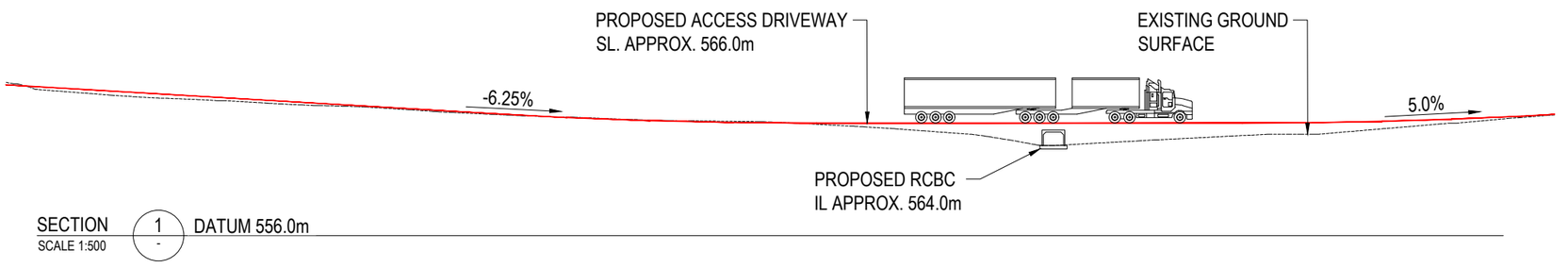
PROPERTY ACCESS
HRV SWEPT PATH ANALYSIS

FIGURE 04



ACCESS DRIVEWAY GENERAL LAYOUT PLAN

SCALE 1:500



SECTION 1 - DATUM 556.0m

SCALE 1:500

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LEGEND

- EXISTING PROPERTY BOUNDARY
- EXISTING ROAD EDGE OF SEAL
- EXISTING FENCE
- EXISTING OVERHEAD POWER LINES — OH/E
- ROAD CONTROL LINE

LEGEND

- PROPOSED EDGE OF UNSEALED PAVEMENT
- PROPOSED UNSEALED ROAD SURFACE
- EXISTING GRAVEL ROAD
- PROPOSED UNSEALED CONSTRUCTION PAVEMENT (GRAVEL)

0.0 5.0 10 15 20 METRES

SCALE 1:500

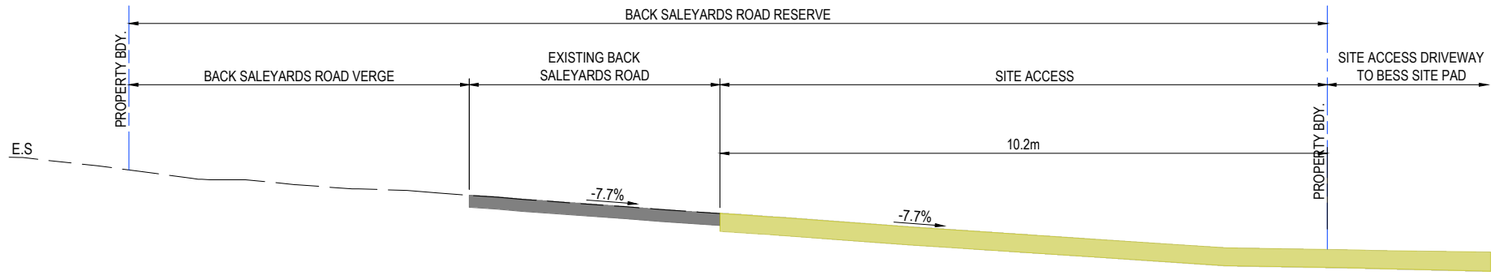
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PROPERTY ACCESS
DRIVEWAY GENERAL LAYOUT PLAN

FIGURE 05

CONCEPT ONLY



SECTION 3 DATUM 568.00m
SCALE 1:100 FIG. 01

LEGEND

PROPOSED UNSEALED ROAD SURFACE

EXISTING GRAVEL ROAD

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0.0 1.0 2 3 4
METRES

SCALE 1:100

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PROPERTY ACCESS
TYPICAL SECTION

FIGURE 06

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