Appendix D

Updated Transport Impact Assessment v2.0

Battery Energy Storage System - Jindera

FOR: **BESS Atlantic Pty Ltd** c/o Gransolar Development Australia Pty Ltd

SLR PROJECT No: 620.041088.00001 Revision: 1.0



Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
v2.1	17 December 2025	James Cochrane	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 BESS Atlantic c/o Gransolar Development Australia 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 BESS Atlantic c/o Gransolar Development Australia Pty Ltd to prepare a Transport Impact Assessment (TIA) for the Jindera Battery Energy Storage System (BESS) development. The Jindera Battery Energy Storage System (Jindera BESS) 'the Project' will involve the development, construction, operation, and eventual decommissioning of a BESS with a capacity of 250MW/ 500MWh connecting via transmission line directly to the existing JINDERA 330/ 132kV substation, operated by TransGrid.

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

- It is proposed that vehicular access to/ from the development will be provided via Urana Road, Lindner Road and Ortlipp Road.
- The proposed development will generate approximately 3,800 inbound and 3,800 outbound trips during the assumed construction period of 250 working days (ten months). The average daily traffic generation will be in the order of 15 return trips a day, where the peak construction period is anticipated to generate around 31 return trips a day (23 light vehicle trips and eight heavy vehicle trips).
- It is anticipated that no rail corridors or crossings will be impacted.
- Two adjacent approved solar farm projects were identified (Jindera Solar Farm & Glenellen Solar Farm) and the cumulative impacts of these approved developments with the Project have been reviewed and analysed.
- SLR's review of the turn warrant assessments identified that the existing intersection configurations are sufficient.
- SLR has undertaken intersection performance analysis at two study intersections. The analysis indicated that the road network, in its existing form, will accommodate the traffic impacts of the proposed project and the two adjacent approved solar farm projects.
- The publicly available crash dataset at the access intersections does not indicate any recurring crash type or theme that would preclude or warrant significant safety mitigations.

The following recommendations have been made:

- An OSOM material route to study and a construction traffic management plan be prepared following the approval of this SSD application.
- The section of Ortlipp Road from Glenellen Solar Farm to the site's access location be sealed.
- A construction traffic management plan be prepared.
- B-Double approvals for Lindner Road and Ortlipp Road be obtained.
- Dilapidation surveys be undertaken.
- The construction workforce is briefed on the recommended route with a Driver's Code of Conduct prepared by the applicant.

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1.0 Introduction

1.1 Context

SLR Consulting Australia Pty Ltd (SLR) has been engaged by BESS Atlantic c/o Gransolar Development Australia Pty Ltd to prepare a Transport Impact Assessment (TIA) for the proposed Jindera Battery Energy Storage System (BESS) (herein referred to as the 'Project'). The development plans for the Project are provided in **Appendix A**.

The BESS, with a capacity of 250MW/ 500MWh, is proposed on a portion of Lot 204 on Deposited Plan (DP) 753342. The street address of the proposed development is 204 Ortlipp Road, Glenellen, New South Wales (NSW) 2642 (the 'BESS Site').

The existing Jindera 330/132kV substation is on Lot 1 of DP 588720. The street address of the existing substation is 140 Ortlipp Road, Jindera NSW 2642 (the 'Substation Site'). The substation is located approximately 500m south of the BESS site. The transmission line will traverse an area of an unformed crown road. The subject sites (i.e. the BESS Site and the Substation Site) are located approximately 2km north of Jindera.

A detailed property report from the NSW Planning Portal is enclosed in **Appendix B**.

1.2 Application

The TIA has been prepared to inform the preparation of an Environmental Impact Statement (EIS) to be submitted to the Department of Planning, Housing and Infrastructure (DPHI) to assess and determine the State Significant Development (SSD) application.

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

1.3 Assessment Scope

This TIA report assesses the consistency of the proposed development with Council and State planning and evaluates the impacts of the Project on the surrounding transport network. It also refers to consultations undertaken with assessment agencies and identifies transport infrastructure improvements required (if any) to support the development. This assessment considers the traffic- and transport-specific aspects of the development against the requirements of the following relevant authorities:

- Greater Hume Council (GHC).
- Transport for New South Wales (TfNSW).

1.4 Report Structure

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

Table 1 TIA Report Structure

Section	Title	Description
1	Introduction	Identifies the context of the project.
2	Project Description	Describes the project, including location, site design, and access arrangements.
3	Existing Conditions Appraisal	Describes the existing transport network, including traffic volumes, crash history, bus service, and heavy vehicle routes.
4	Project Traffic Demands	Details the project-generated traffic demands and assessed traffic volumes.
5	Traffic Engineering Considerations	Outlines the technical analysis undertaken to confirm the appropriateness of the Project from a traffic engineering perspective.
6	Operational Assessment	Outlines the technical analysis to assess the capacity of the site access intersection and the surrounding road network.
7	Recommendations	Outlines the recommended actions for the applicant following the lodgement of the SSD application.
8	Conclusion	Summarises the findings of the assessment and recommends approval conditions.

1.5 DPHI Requirements (SEARs)

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

Table 2 DPHI Requirements (SEARs)

Requirement	Addressed/ Response
DPHI Comments	
An assessment of the peak and average traffic generation, including over-dimensional vehicles / heavy vehicles requiring escort and construction worker transportation.	**Section 4.2** **Section 4.3** **Section 4.5** **Appendix H**
An assessment of the likely transport impacts to the site access route(s), including over-dimensional vehicles/ heavy vehicles requiring escort, site access point(s), any Crown land, particularly in relation to the capacity and condition of the roads, road safety and intersection performance.	**Section 2.3** **Section 2.4** **Section 5.0** **Section 6.0** **Appendix D** **Appendix G** **Appendix H** **Appendix I**
A cumulative impact assessment of traffic from nearby developments	**Section 3.6** **Section 5.0** **Section 6.0** **Appendix G** **Appendix H** **Appendix I**

Requirement	Addressed/ Response
Provide details of measures to mitigate and / or manage potential impacts including a schedule of all required road upgrades (including resulting from heavy vehicle and over mass / over dimensional traffic haulage routes), road maintenance contributions, and any other traffic control measures, developed in consultation with the relevant road authorities.	**Section 7.0** **Section 8.0** **Appendix F**
TfNSW Comments	
The TIA is to be tailored to the scope of the proposed development and include, but not be limited to, the following: 1. Traffic volumes including: o Existing background traffic, o Project-related traffic for each phase or stage of the project, o Projected cumulative traffic at commencement of operation, and a 10-year horizon post-commencement.	**Section 3.0** **Section 4.1**
2. Traffic characteristics including: o Number and ratio of heavy vehicles to light vehicles, o Peak times for existing traffic, o Peak times for project-related traffic including commuter periods, o Proposed hours for transportation and haulage, o Interactions between existing and project-related traffic.	**Section 4.2** **Section 4.3** **Section 4.5**
3. Capacity analysis using Austroads Guide to Road Design at intersections with classified (State) road/s, and where relevant, analysis of any other intersections along the proposed transport route/s.	**Section 6.0**

4. Heavy vehicle and OSOM routes: • In addition to the requested TIA, separate concept-level route analysis based on high-level 3D swept path drawings to identify the return routes for OSOM movements and indicate locations where civil works are needed and indicative pinch points. • The TIA is required to include details of OSOM movements, including volumes, times for OSOM movements to occur and identify the location of pull-over bays / rest areas on OSOM routes (including GPS coordinates) and confirmation such facilities can physically accommodate (in terms of size, width and accessibility) the largest OSOM vehicle. • Undertake a logistics route analysis that includes: o Details of the road geometry and alignment along the identified transport route/s, including existing formations, crossings, bridges, intersection treatments and any identified hazards, including: • Available sight distances at the site access and nearby intersections and any constraint to achieving the required sight distance for the posted speed limit. • An assessment of turn treatment warrants in accordance with Austroads Guide to Traffic Management Part 6 and Austroads Guide to Road Design Part 4A for intersections on identified transport route/s, identifying the existence of the minimum basic turn treatments and addressing the need for any warranted higher order treatments. • Bridge Assessments for any at risk bridges on the classified road network due to dimensions and weight of OSOM vehicles. • Swept path analysis demonstrating the largest design vehicle can enter and leave the development, and simultaneously pass through intersections along the proposed transport route/s. • The design vehicle templates used in the swept path analysis software are also requested in order for TfNSW to review the performance within the software (e.g. Autodesk Vehicle Tracking or Transoft AutoTURN). o Highlighting each at-risk road structures 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. o National Heavy Vehicle Regulator (NHVR) approved routes identified on the Restricted Access Maps (RAV MAP) are to be utilised for the heavy vehicle routes for the proposed development. Please note NHVR permits do not cover civil works required along any proposed OSOM route. Any works required along the OSOM route must be included within the scope of works in the SSD to ensure the development is constructable. • Identify and provide the following measurements parameters of OSOM components / materials to be moved: o Identify types and numbers of OSOM vehicles proposed to be used for the project. o Overall combination load length, width, height and mass for components and nominated vehicles. o Maximum component length, widths and heights (including clearance to overhead obstructions such as structures, utilities and vegetation), o Wheelbase dimensions, o Maximum trailer articulation angle(s), o Minimum overhang heights above the road surface, o Axle loads and axle group loads in terms of both tonnes and Equivalent Standard Axles (refer to *Austroads Guide to Pavement Technology*).	**Section 2.4** **Section 5.0** **Appendix H**

Requirement	Addressed/ Response
5. Cumulative impacts: o Identify and assess implications of any road and rail projects that may occur during OSOM movements on proposed OSOM routes. o Identify projects that will have overlapping construction periods and assess the cumulative traffic impacts with emphasis on the following: • Cumulative impacts from traffic generated from construction workforces in terms of origin-destination routes, access, AM/PM peaks where they overlap with other projects. • Cumulative impacts of heavy vehicle movements in terms of AM/PM peaks and routes where there is an overlap with other projects. • Cumulative impacts and consideration in relation to timing of movements of OSOMs where other projects will utilise the same routes as proposed for this development. Please note, given the high number of renewable energy and other large scale projects requiring haulage of OSOM components on the road network, restrictions, and limitations on OSOM movements may be in imposed. In this regard, it is recommended that you engage earlier with TfNSW's Freight Branch – Special Permits team to discuss access needs and timing.	**Section 3.6** **Section 6.0**
6. Identify accommodation (and transport) needs and facilities available within the local region, to service the project staff, in addition to understanding the cumulative impacts of concurrent accommodation (and transport) needs of staff from other projects. Details of measures employed to promote and enforce safe commuter traffic movements are to be included.	**Section 4.1.1**
7. Road safety assessment of haulage route/s. o Where road safety concerns are identified at specific locations on haulage routes, TfNSW suggests the TIA be supported by a targeted Road Safety Audit undertaken by suitably qualified persons in accordance with Austroads Guidelines.	This TIA has identified no road safety concerns for the haul route.
8. 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 considering the safe systems principles adopted under Future Transport 2056.	**Section 3.5**
9. Project schedule: o Hours and days of work, number of shifts and start and end times, o Identify the approximate project's targeted construction commencement date/s. o Identify the phases and stages of the project, including construction, operation and decommissioning.	**Section 4.1** **Section 4.3** **Section 4.5**
10. The origins, destinations and routes for: o Commuter (employee and contractor) light vehicles and pool vehicles (including. shuttle buses), o Heavy (haulage) vehicles, o OSOM vehicles.	**Section 2.4.2** **Section 4.1** **Section 4.2**

Requirement	Addressed/ Response
11. Identify the necessary road network infrastructure upgrades that are required to cater for and mitigate the impact of project related traffic on both the local and classified road network for the development (for instance, road widening and/or intersection treatments). In this regard, strategic design drawing/s are to be submitted with the SSD application for any identified road infrastructure and access upgrades. Any identified road infrastructure upgrades will need to be to the satisfaction of TfNSW and Council. Works must be appropriately designed in accordance with *Austroads Guide to Road Design* for the existing posted speed limit, including provision of Safe Intersection Sight Distance (SISD). Note: The design needs to comply with *TfNSW Strategic design requirements for DAs*. To assist you in preparing the designs, please refer to link below: https://roads-waterways.transport.nsw.gov.au/business-industry/partners-suppliers/documents/planning-principles/strategic-design-fact-sheet-02-2022.pdf	**Section 7.0** **Section 8.2**
12. The layout of the internal road network, parking facilities and infrastructure.	**Appendix A**
13. Impact on rail corridors and level crossings along transport route/s detailing any proposed interface treatments, where applicable.	**Section 2.4.3**
14. Controls for transport and use of any dangerous goods in accordance with State Environmental Planning Policy No. 33 – Hazardous and Offensive Development, the Australian Dangerous Goods Code and AS4452 Storage and Handling of Toxic Substances.	Refer to SLR's EIS package.
15. Detailed plans identifying the proposed location of any: o Project-related infrastructure within and outside of the project boundary. o Transmission line infrastructure, or any other project-related structures, within a road reserve. In respect to this matter the following information is required: • Overhead clearances, • Construction methods, • Potential traffic mitigation measures for construction, • Location of infrastructure within or adjacent to the road reserve, • Excavation or fill requirements adjacent or within road corridors, • Access required to construct and maintain the infrastructure, and • Permanent or temporary connection/access to classified roads.	**Appendix A** Refer to SLR's EIS package.

DPHI and TfNSW letters are also provided in **Appendix C**, respectively.

2.0 Project Description

2.1 Overview

The Jindera Battery Energy Storage System (Jindera BESS) 'the Project' will involve the development, construction, operation, and eventual decommissioning of a BESS with a capacity of 250MW/ 500MWh connecting via transmission line directly to the existing JINDERA 330/ 132kV substation, operated by TransGrid. The BESS will consist of BESS containers (or enclosures), with each container having dimensions similar to 20-foot shipping containers (approx. 6m long) with an approx. weight of 35 tonnes per unit. Inverters will support the BESS and connect to the existing TransGrid substation via approximately 500m of 330kV overhead lines. The key elements of the Project include the following:

- Installation and operation of a BESS, including battery enclosures, inverters, and transformers on hardstand and benching of the site to level the foundation for each project component.
- Connection and associated upgrades to JINDERA 330/132kV transmission line, including the construction of an overhead 330kV transmission line to facilitate connection, associated high voltage steel poles, an increase in hardstand area and establishment of easements.
- Associated ancillary infrastructure, including security fencing, landscaping, tree removal, access and internal road, and temporary parking.
- *Extension of the council water main along a portion of Ortlipp Road and upgrading the existing water main along Lindner Road.*

Construction of the Project is anticipated to take approximately ten months. The project's operational life is expected to be 20-25 years, after which the BESS would be decommissioned and the infrastructure removed, returning the site to its original use.

Figure 1 overleaf illustrates the site location in the local context.

Figure 1 Site Location in the Local Context

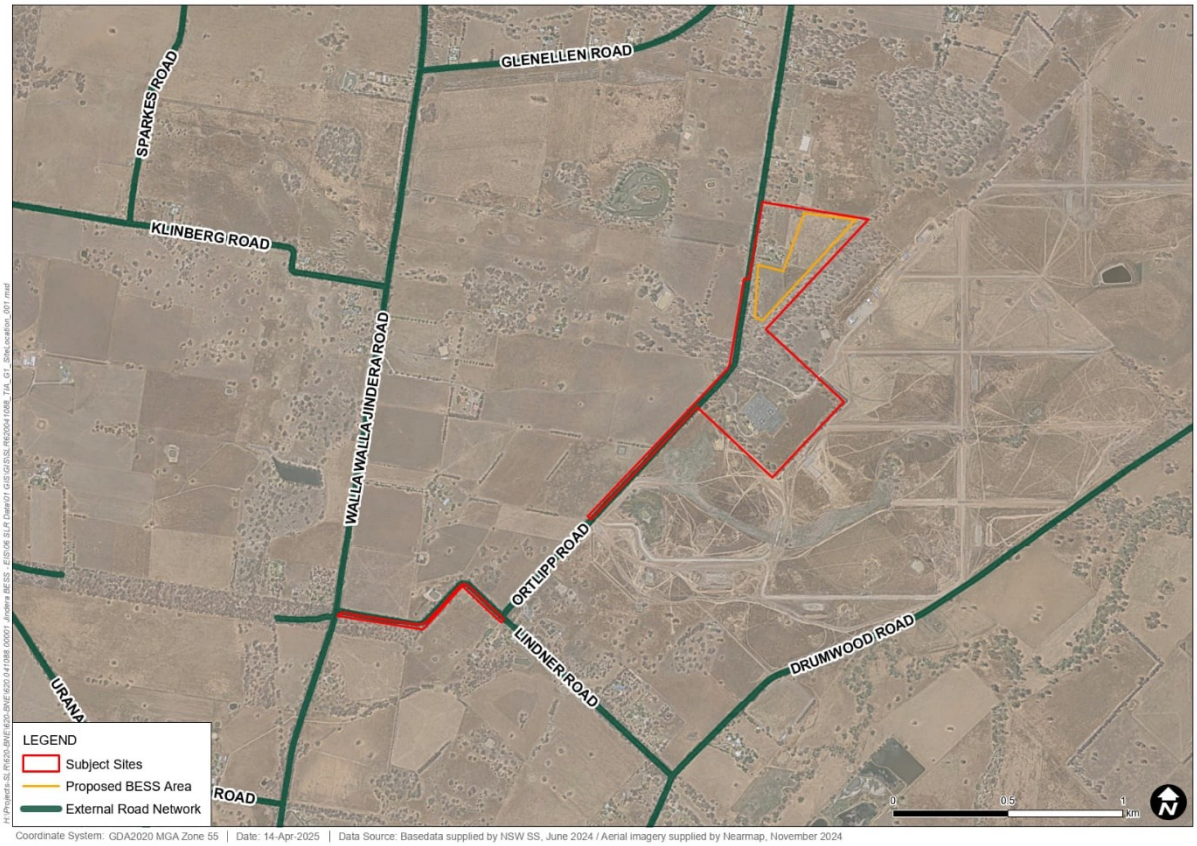
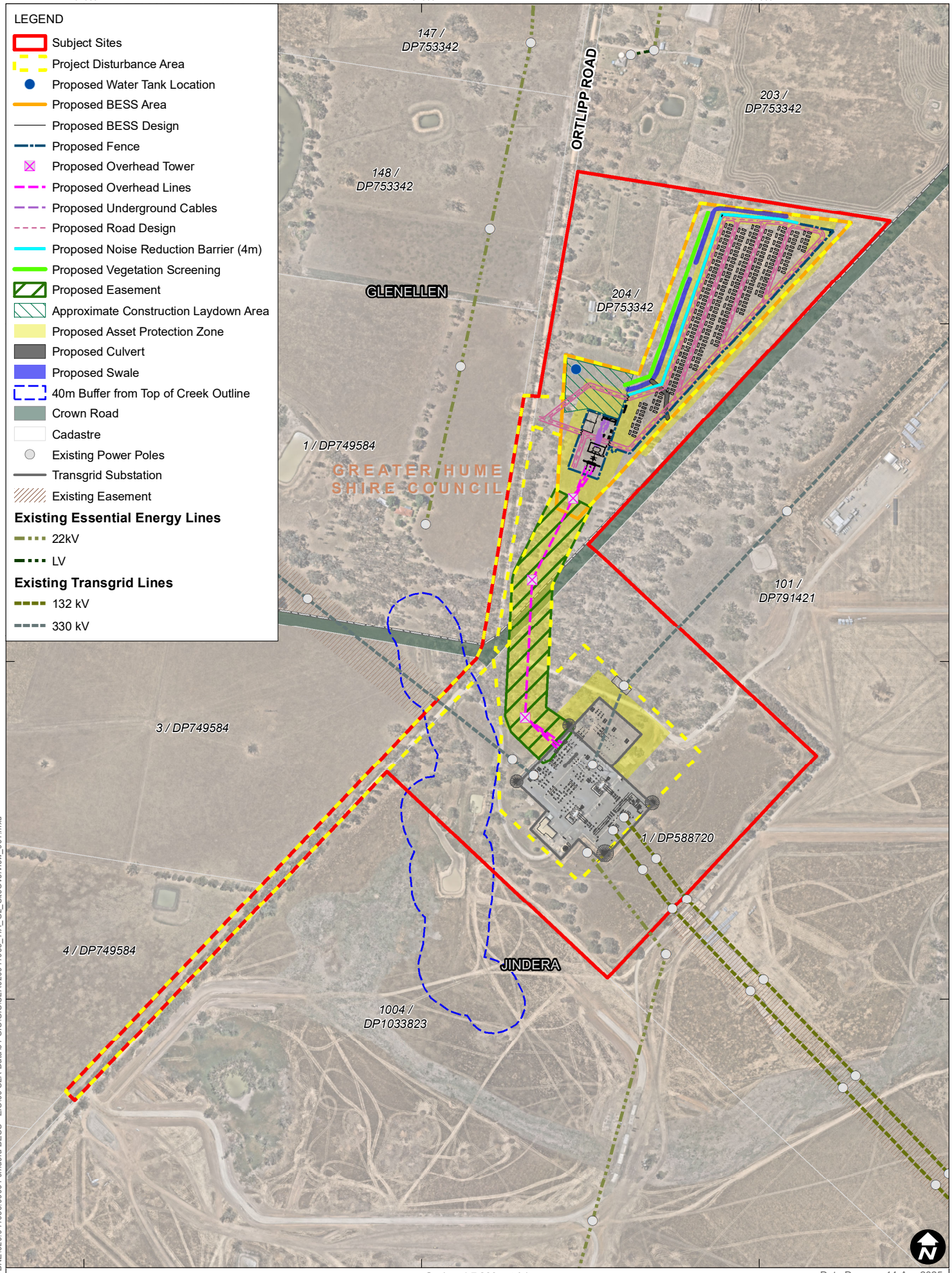


Figure 2 overleaf provides an overview of the development plans. Full-size plans are also provided in **Appendix A**.



Scale: 1:7,200 at A4
Coordinate System: GDA2020 MGA Zone 55

Date Drawn: 14-Apr-2025
Project Number: 620.041088

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SLR

Data Source: basedata supplied by NSW SS, June 2024
Aerial imagery supplied by Nearmap, November 2024
Other data sources include Gransolar Group, Look up & Live (LUAL)

SITE OVERVIEW

FIGURE 2

2.2 Project Program

2.2.1 Construction Phase

The Applicant has advised that the development will be constructed over ten months or 250 working days (including Saturdays), with construction commencing in early 2026. In order to develop a conservative traffic assessment, this TIA report assumes that the construction commences in early 2025 so that the construction traffic will overlap with other nearby projects (more on this later). A non-linear traffic generation estimate has been adopted for construction movements associated with material, equipment and workforce mobilisation and decommissioning for additional conservativeness in the traffic assessment. SLR's worst-case assessment has been built on the busiest phase of the construction activities.

2.2.2 Operational and Decommissioning Phase

The development is expected to operate for approximately 20-25 years, providing short-, medium- and long-term local employment opportunities. It is anticipated that the proponent will be obliged to decommission the site and rehabilitate it at the end of its operational life (EOL). Decommissioning the BESS EOL would include disassembling and removing associated infrastructure from the site and returning the land to its original use.

The operation and decommissioning processes will generate much less traffic than the traffic during the construction period, as BESS facilities are low-maintenance investments. However, adequate provisions will be made to accommodate an 8.8m long medium rigid vehicle (MRV) for site servicing.

It is important to note that the construction scenario of any BESS facility would have the largest traffic impacts compared to their effects during the operation and demobilisation phases. Based on this, no detailed assessments for the operational and demobilisation phases will be undertaken, provided sufficient infrastructure is already developed during construction.

2.3 Site Access

The site will be accessed from Ortlipp Road, a predominantly sealed road. It is proposed that access to/ from the development will be provided via a new crossover on Ortlipp Road. The crossover location is approximately 340m north of the driveway of the existing substation. The crossover is designed to accommodate the heavy vehicles required during the project's construction, operation, and decommissioning phases.

The project proposes maintaining a single point of ingress and egress to assist in controlling equipment and construction staff movements. The arrangement will, in turn, help manage the potential movement of biohazards and weeds by vehicles.

The internal access tracks to the site office and the laydown areas will be gravel, as the generally short-term use does not warrant a more permanent construction standard. Following the conclusion of the construction period, access to the site will be limited to maintenance activities only.

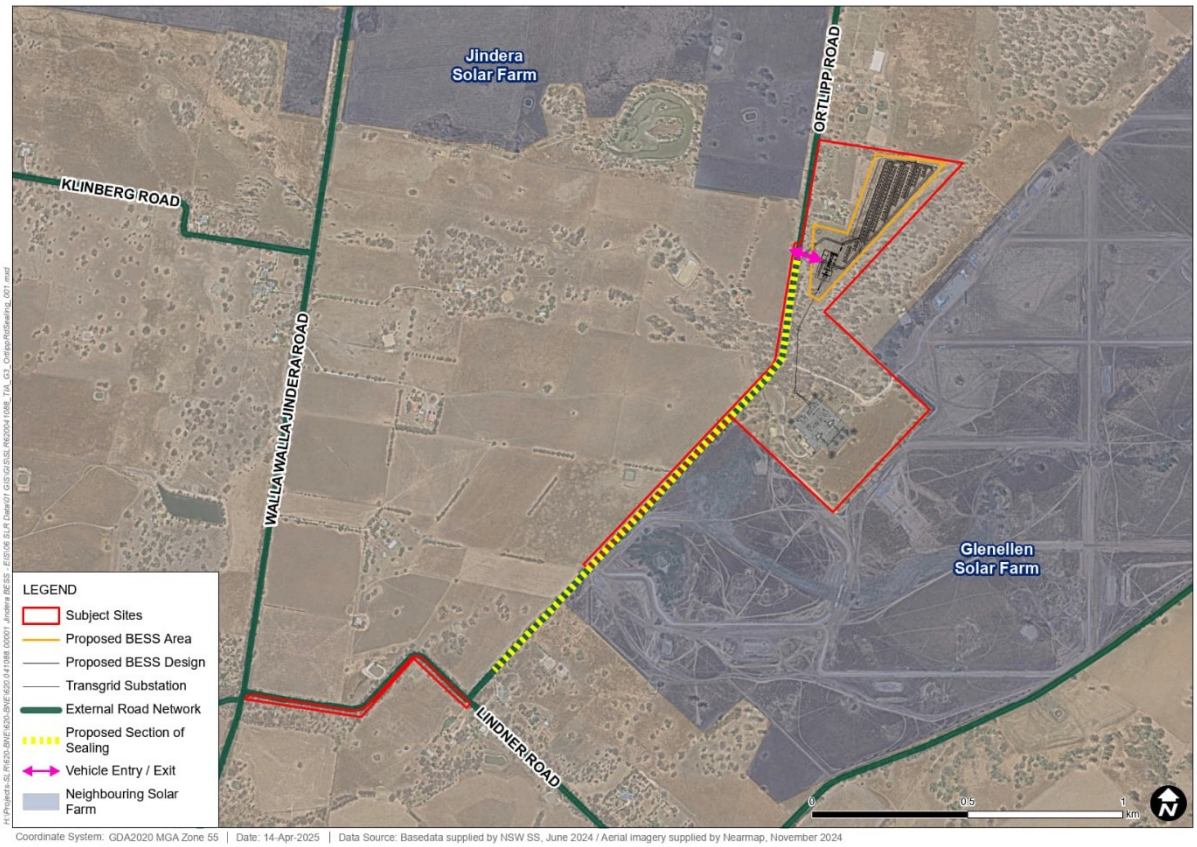
Two route options (Lindner Road and Glenellen Road) were considered for getting onto Ortlipp Road, the site access road. A site visit has been undertaken to determine the most efficient route and assess the most recent conditions of the considered routes. It was observed from the site visit that Lindner Road is now a 7m wide sealed road and is the shortest route from Urana Road via Jindera-Walla Walla Road to access the proposed development.

Access arrangements are further detailed in the next chapters (overleaf):

2.3.1 Approach

- All light and heavy vehicles to approach from the southeast on Urana Road and turn right into Jindera-Walla Walla Road via the existing CHR-S arrangement. It is noted that the Applicant of Glenellen Solar Farm upgraded this intersection in 2024.
- All light and heavy vehicles to approach from the south on Jindera-Walla Walla Road and turn right into Lindner Road via the existing BAR/BAL arrangement. It is noted that the Applicant of Glenellen Solar Farm upgraded this intersection in 2024.
- All light and heavy vehicles to approach the site from the south on Lindner Road and Ortlipp Road after passing the Glenellen Solar Farm. It is noted that the Applicant of Glenellen Solar Farm sealed Lindner Road and Ortlipp Road from the Jindera-Walla Walla Road intersection to the driveway of Glenellen Solar Farm.
- It is recommended that the Applicant seal the gravel section of Ortlipp Road between the driveway of Glenellen Solar Farm and the driveway of the proposed Jindera BESS project. Please refer to **Figure 3** below for an overview of the proposed sealing of the gravel section on Ortlipp Road (approx. 1.5km of sealing is recommended).

Figure 3 Ortlipp Road – Sealing of the Gravel Section



2.3.2 Departure

- It is proposed that all light and heavy vehicles adopt the approach route in reverse order while departing.

2.3.3 Internal Roads (Access Tracks)

- All internal roads will accommodate heavy vehicles associated with the construction of the Project. It is proposed that all internal roads will be gravel.

2.4 Construction Vehicle Routes

2.4.1 Standard Heavy and Light Vehicle Routes

The containerised batteries, other materials (e.g. aggregates), and construction machinery will be transported to the site from Albury and Wodonga via Urana Road.

No oversize over mass (OSOM) vehicles will be required during the construction period, except for the one-off transportation of the transformer. It is proposed that the transformer be imported from overseas to the Port of Melbourne, where a specialised OSOM material logistics company will then truck it to the project site under escort, as detailed in **Section 2.4.2** of this report. Excluding the one-off transportation of the transformer, the largest vehicle that will be utilised will be limited to the size of a standard 26m long B-Double design vehicle.

The construction fleet is to be finalised in a post-approval construction traffic management plan (CTMP); however, at this pre-DA stage, we anticipate a composition of the following fleet:

- 17m long truck & dog combinations (earthworks).
- 20m long AVs (variety of materials).
- 20m long goose-neck low loaders (machinery).
- 26m long B-Double design vehicles (batteries).

All heavy vehicles will approach the site from Albury/ Wodonga via Urana Road. The proposed heavy vehicle route is illustrated in **Figure 4** below.

Figure 4 Proposed Heavy and Light Vehicle Route



During their inbound journey, all heavy vehicles will travel along Hume Motorway (M31) to Albury and will use Young Street, North Street, Mate Street, Guinea Street and Urana Road. This route is the shortest that could accommodate the largest design vehicle (26m B-Double) of the anticipated construction fleet. A review of the proposed route undertaken by SLR also confirmed that the proposed route is consistent with the National Heavy Vehicle Regulator (NHVR) Route Planner Tool.

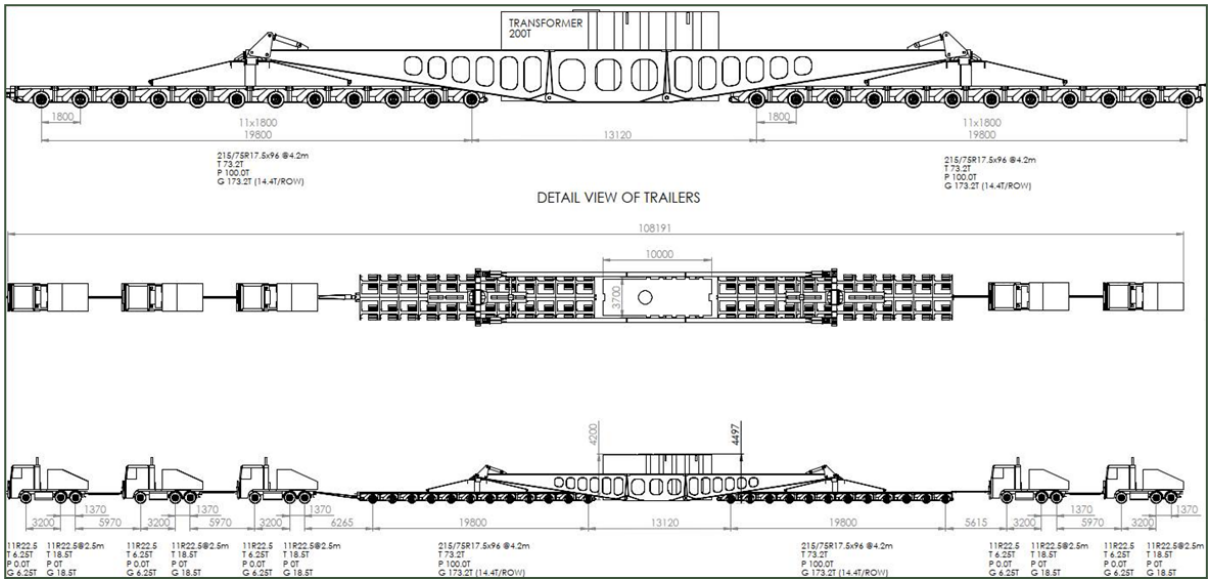
Light vehicles will only be used by supervisors throughout the construction phase. With their accommodation being planned in Albury/ Wodonga, light vehicles will also use the same route as heavy vehicles during construction. The Applicant is currently undertaking consultations with the Council about workforce housing opportunities, and there is ongoing communication with the broader community.

2.4.2 One-Off Transportation of the Transformer (Oversize and Over Mass)

Based on the discussions undertaken with the Applicant, it is understood that the transformer required for the proposed BESS facility will weigh up to 210 tonnes. On this basis, SLR has identified that a beam set positioned on two platform trailers that are towed and/or pushed by several prime movers will be required.

The geometric specifications of the largest possible design vehicle are shown in **Figure 5** below.

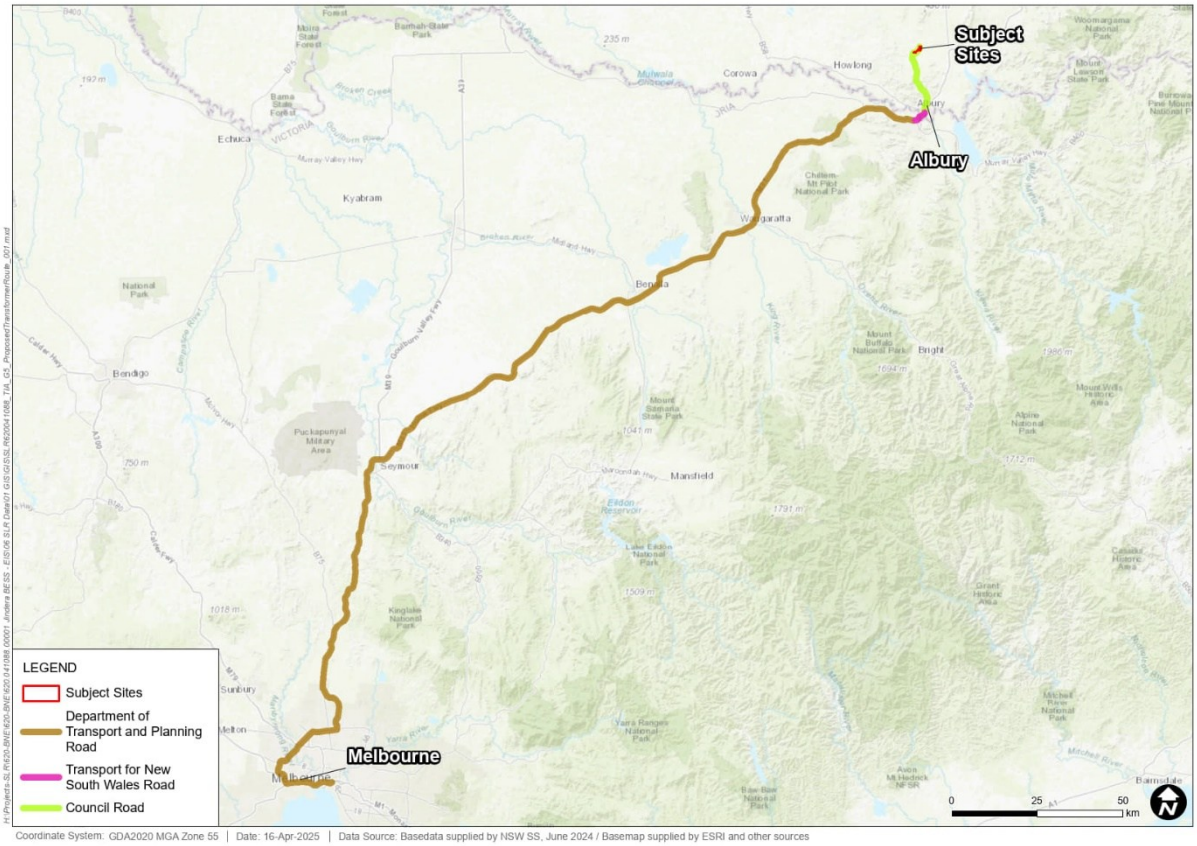
Figure 5 Proposed Vehicle Configuration for Transformer Transportation



Based on SLR's experience with other BESS, solar farm and wind farm developments across Australia, it is anticipated that the entire transformer (loaded on a beam set) would be approximately 4.5m for transportation purposes. Given that the height of the transformer is within the typical clearances of 4.6m in Victoria and New South Wales highways, the proposed route is considered appropriate (via mostly the Hume Motorway). If any changes are suggested to the transformer specifications following the lodgement of the DA, additional investigations may be required. As needed, these investigations can be carried out post-approval (conditioned in the consent) as part of the detailed route study undertaken by an OSOM material logistics company or in the CTMP.

Figure 6 overleaf illustrates the anticipated transformer transportation route from the Port of Melbourne to the development site.

Figure 6 Proposed Transformer Transportation Route



The route proposed for the transportation of the transformer above has been checked on the National Heavy Vehicle Regulator's website and is readily approved for the following standard design vehicle:

- *VIC: 2x8 Dolly & 9x8 Platform Trailer up to 191 tonnes - Reference Vehicle 7*

The proposed route can also be reviewed digitally by entering the code **1W026-3** on the Route Planner page of NHVR[1]. Notwithstanding, special OSOM approvals will be required in NSW for the transportation of the transformer, given that the Restricted Access Vehicle (RAV) map of TfNSW does not prescribe the appropriate routes for the proposed design vehicle shown in **Figure 5**.

2.4.3 Railway Corridors and Level Crossings

SLR reviewed the NSW Public Level Crossing finder[2] and identified that no rail crossings or corridors in NSW would be impacted along the proposed haul routes. SLR also reviewed the DATA VIC[3] website to identify the level crossings in Victoria. The review determined that no rail crossings or corridors would be impacted along the route to/ from the site.

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

[2] https://appln.transport.nsw.gov.au/mapservices/proxy/levelCrossings/map.html

[3] https://www.data.vic.gov.au/

2.5 Construction Activities

2.5.1 Overview

Construction of the Project will require heavy vehicles, plant, and equipment to transport and install components. The Project will require earth-moving equipment for civil and road works, cable trenching equipment, forklifts, and cranes, subject to detailed design for installing the BESS and completing ancillary works.

The construction and commissioning phase is anticipated to last approximately ten months. Over that time, the main construction activities will include:

- Transportation of the construction workforce, resulting in heavy and light vehicle movements and materials to/ from the site.
- Site establishment works, including vegetation clearing within the BESS boundary and transmission footprint, bulk earthworks, and a temporary construction compound.
- Road works to formalise the internal site access road to accommodate heavy vehicles, a new driveway crossing, and upgrades to Ortlipp Road.
- Construction of hardstand, paved internal roads, control room and switch gear, auxiliary transformer, battery enclosures, and inverter and transformer stations.
- Construction of overhead 330kV transmission line to facilitate connection to the existing JINDERA 330/ 132kV transmission line and associated high voltage steel poles.
- Acoustic attenuation measures, including a 4m high acoustic wall.
- Construction of ancillary works, including a parking area comprising two car parking spaces, stormwater management infrastructure, and security lighting & fencing.

2.5.2 BESS Units

Table 3 below is a summary of the specifications for the proposed BESS units.

Table 3 BESS Units Specifications

Specification	Detail
Number of enclosures	Up to 200 battery enclosures.
Dimensions	Approx 20-foot shipping container (Approx 6m).
Weight	35,000 kg each
Inverters	100 Inverters (3600 Kilovolt-amps (kVA)

2.5.3 Construction Materials

The following materials will be transported to the site to facilitate the construction of the Project and ancillary facilities and infrastructure:

- 200 lithium batteries within 20-foot shipping containers.
- 100 Inverter & transformer stations.
- Hardstand works materials and equipment, including those required to expand the JINDERA 330/ 132kV transmission line footprint.
- Additional connection infrastructure at the JINDERA 330/ 132kV transmission line.

- Bulk earthworks materials and equipment, piling, cabling and building structures (including temporary structures for construction crew and management).
- Internal roads, parking areas, control room, 33 kV switchgear, auxiliary transformer.
- Fences, gates, lighting, fire safety systems, high voltage steel poles and high voltage cabling.
- 330/33 kV transformer.
- Water pipe works materials and equipment.
- Ortlipp Road upgrade works materials and equipment.

2.5.4 Construction Hours and Workforce

During construction, approximately 80 full-time equivalent (FTE) jobs are anticipated to be required during the peak of site activity. Employment numbers will fluctuate, starting with about 20 workers on-site for two months. Worker numbers then progressively increase to 80 staff at about the 65% completion stage for several months before tailing off toward completion and the start of commissioning. Only about 5-10 staff are required for commissioning.

The workforce will be sourced from the local area where possible and the wider region where worker deficits arise. The peak construction period is expected to extend for approximately four months. Outside of this period, approximately 10-20 workers will be required at any given time. For a conservative traffic assessment, it has been assumed that the maximum number of workers for the longest indicative period (80 workers for four months).

The following standard construction hours are proposed for the Project:

- Monday to Friday – 7:00am to 6:00pm.
- Saturday – 8:00am to 1:00pm.
- Sunday and Public Holidays - No work to be undertaken.

No work is proposed to be undertaken outside of the standard construction hours. If required, out-of-hours (OOH) approval would be sought, and all works would be conducted per the appropriate OOH protocols and approval processes.

During construction, most of the workforce will reside at local short-term accommodation facilities (e.g., motels). It is proposed that bus transfers will be provided by the subcontractors (where practicable) to minimise traffic volumes and transit risks during construction.

In the post-approval future CTMP, it is recommended that the number of shuttle buses and the identified routes be determined to minimise travel times and ensure convenient pick-up points for staff.

2.6 Operational Activities

2.6.1 Overview

Once the proposed development is operational, there will be no activities requiring large numbers of workers on site. It is understood that for most 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. The external movements associated with these tasks will generally be performed by 5.2m long VANs, 6.4m long small rigid vehicles (SRVs) and 8.8m long medium rigid vehicles (MRVs).

2.6.2 Workforce and Access

It is anticipated that there will be two full-time equivalent (FTE) staff on site, with potentially additional ad-hoc contractors. The Project is proposed to self-operate 24 hours a day, 7 days a week and will be monitored remotely. The BESS is anticipated to require periodic and irregular maintenance by authorised staff; otherwise, the facility will be restricted to the public.

Emergency responses and maintenance activities may be required out of hours. During operation, it is anticipated that approximately two (2) FTE jobs will be required.

2.6.3 Operations

The operation of the Project will involve, but not be limited to, the following general activities:

- Maintenance and management of equipment, site buildings, and landscaping.
- General administrative activities.
- Receipt of equipment or goods.
- Waste removal from maintenance and administration activities.

Minimal plant and equipment will be required to operate the facility, primarily for staff access and maintenance vehicles.

3.0 Existing Conditions Appraisal

3.1 Surrounding Road Network

The characteristics of the road network surrounding the site are summarised in **Table 4**.

Table 4 Surrounding Road Network

Road Name	Jurisdiction	Average Daily Traffic	Average Daily Heavy Vehicle (%)	Posted Speed Limit	Road Classification
Jindera-Walla Walla Rd	Greater Hume Council	1,111[1] (bi-directional)	11.61%	100 km/h	Regional Road
Urana Rd	Greater Hume Council	Data unavailable	Data unavailable	100 km/h	Regional Road

1. Obtained from Automated Tube Count (ATC) surveys commissioned by SLR in 2024.

Access to the site is provided via Jindera-Walla Walla Road off Urana Road, then Lindner Road and Ortlipp Road. Ortlipp Road runs in a north-south direction along the development's western boundary and is intended to service the development through a new driveway crossover. Lindner Road is completely sealed, and Ortlipp Road is partially sealed (from Lindner Road to the driveway crossover of Glenellen Solar Farm). Ortlipp Road varies from 6m to 7m in width, operates as a local road and provides access to Glenellen Solar Farm, Jindera Substation and several other farms.

The highest-order intersection that provides access to the site is the Urana Road and Jindera-Walla Walla Road intersection. This intersection was upgraded recently to CHR-S with a 100m long deceleration lane and BAL arrangements, consistent with Austroads Guide to Road Design (AGRD) Part 4A. It is also noted that the eastern leg (Jindera-Walla Walla Road) at this intersection was widened, which can now accommodate concurrent B-Double design vehicle movements, as shown in **Appendix D**. On this basis, the recently provided upgrades are considered satisfactory for enabling the proposed development's construction traffic.

The second highest-order intersection that provides access to the site is the Jindera-Walla Walla Road and Lindner Road intersection. This intersection was upgraded recently to BAR and BAL arrangements, consistent with AGRD Part 4A. It is also noted that the eastern leg at this intersection (Lindner Road) was widened, which can now accommodate concurrent heavy vehicle movements and the one-off transformer transportation.

The lowest-order intersection that provides access to the site is the Lindner Road and Ortlipp Road intersection. This intersection was also recently upgraded, including widening and sealing of the intersection to enable concurrent heavy vehicle movements and the one-off transformer transportation.

On the basis of the above, the existing conditions of the proposed access route are considered satisfactory.

3.1.1 Surrounding Public/ Active Transport Network

Due to the rural nature of the area, the Project will have limited access to public transport. The nearest available public transport facilities are in Jindera, approximately 5.4km from the development site, resulting in a 1h15m walking distance. The nearest train station, however, is in Albury, which is a half-hour drive (22km) from the development site. On this basis, consistent with the rest of the rural parts of the state, the public transport services are limited. As a result, the proposed development will have no impact on public transport services as there are no bus stops, train stations or rail crossovers impacted by development traffic.

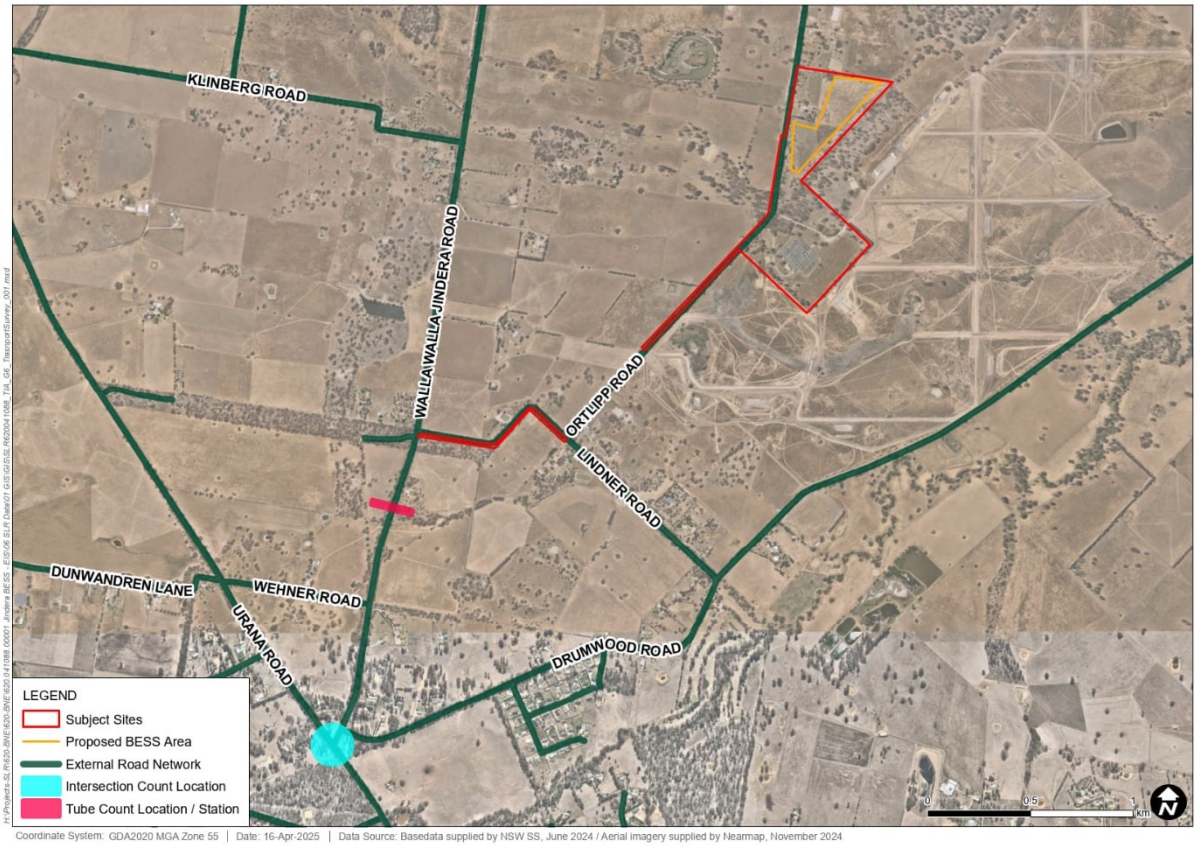
Also, due to the rural nature of the development site, there is no formalised active transport infrastructure in the vicinity of the project site.

3.2 Traffic Surveys

In the absence of sufficient publicly available traffic volume data and to ascertain the existing traffic demands of the road network surrounding the site, SLR commissioned Traffic Information Specialists (TIS) to undertake ATC surveys and Intersection Count (IC) surveys in September 2024 outside the school holiday period.

SLR reviewed the survey data and weather conditions at the time of the surveys. As a result, the data has been considered "fit for purpose". An overview of the commissioned traffic surveys is shown in **Figure 7** below.

Figure 7 Traffic Surveys Overview



Source: Nearmap.

The details of the commissioned traffic surveys are provided below:

3.3 ATC Surveys

The location of the ATC surveys was as follows:

- Jindera-Walla Walla Road: 1.1km north of Urana Road/ Jindera-Walla Walla Road intersection.

Time and Duration

- 24 hours for 7 days continuously.

Day and Date

- Start: Midnight on Thursday 05/09/2024 & Finish: Midnight on Thursday 12/09/2024.

3.4 IC Surveys

The location of the IC surveys was as follows:

- Urana Road/ Jindera-Walla Walla Road (3-way intersection).

Time and Duration

- Morning Surveys: 06:30-09:30 (3 hours) & Afternoon Surveys: 15:00-18:00 (3 hours).

Day and Date

- Thursday 05/09/2024.

Peak Hours

Based on SLR's analysis of the IC survey data, the following peak periods were identified:

- AM peak period: 07:45-08:45 & PM peak period: 15:15-16:15.

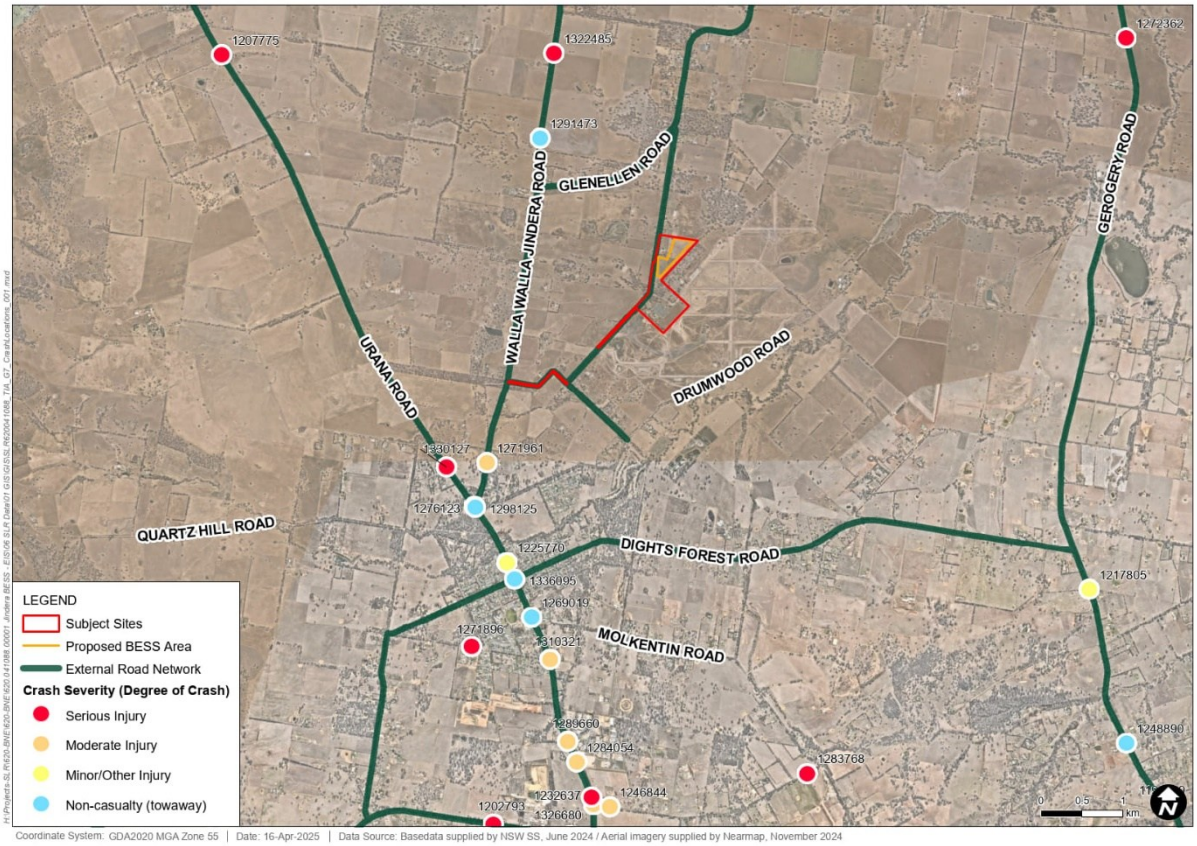
The raw data from the traffic surveys is provided in **Appendix E**.

3.5 Crash History in the Vicinity of the Project Site

To highlight any safety deficiencies in the surrounding road network in proximity to the subject site, 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 reported crashes are illustrated in **Figure 8** below, with details and Road User Movement (RUM) codes also provided in **Table 5** overleaf.

Figure 8 Crash Data Locations



Source: Nearmap and TfNSW Crashes Map (2019-2023).

Table 5 Crash Locations (2019-2023)

Crash ID	Year	Location	Crash Severity	RUM Code	RUM Description
1291473	2022	Jindera-Walla Walla Road	Non-casualty (towaway)	85	Right off carriageway on left bend into object/ parked vehicle
1271961	2021		Moderate injury	71	Left off carriageway into object/ parked vehicle
1276123	2021	Urana Road/ Jindera-Walla Walla Road Intersection	Non-casualty (towaway)	30	Rear end collision
1298125	2022		Non-casualty (towaway)	70	Left off carriageway
1269019	2021	Urana Road	Non-casualty (towaway)	35	Lane change left
1310321	2022		Moderate injury	74	Out of control on carriageway
1289660	2022		Moderate injury	73	Right off carriageway into object/ parked vehicle
1284054	2021		Moderate injury	71	Left off carriageway into object/ parked vehicle
1232637	2020		Moderate injury	32	Right rear collision
1336095	2023		Non-casualty (towaway)	10	Cross-traffic
1326680	2023		Serious injury	85	Right off carriageway on left bend into object/ parked vehicle
1225770	2019		Minor/ other injury	39	Other same direction

Source: TfNSW Crashes Map (2019-2023).

As shown in **Table 5**, there were a total of twelve crashes in the vicinity of the proposed development. Of these crashes, no reported crashes resulted in fatal injuries.

A review of the RUM codes assigned to these crashes indicates that the majority of crashes were single-vehicle crashes that occurred due to the loss of vehicle control, which is a typical crash type in rural regions. On this basis and with the recently upgraded intersections, the surrounding road infrastructure is considered appropriate to enable the proposed development.

Notwithstanding, it is recommended that a driver's code of conduct be prepared by the applicant, which is provided in **Appendix F**. It is also recommended that this be conditioned as part of the development consent.

3.6 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 to assess the cumulative traffic impacts. The review indicated that no major transport infrastructure upgrades planned by the Council or the State in the surroundings of the study area can be found publicly.

However, there are two approved solar farm projects in the vicinity of the site, which are as follows:

- Jindera Solar Farm[4].
- Glenellen Solar Farm[5].

SLR has reviewed both solar farms in detail and identified the following information:

- By undertaking a site inspection in September 2024, SLR identified that Glenellen Solar Farm had commenced construction. At the time of writing, based on a review of the high-resolution NearMap aerial imagery, it was identified that the construction continued (Imagery Date: 19/11/2024). Following a review of Glenellen Solar Farm's TIA, SLR identified that the construction of this project is expected to be completed by June 2026.
- SLR has also reviewed the Environmental Impact Statement (EIS) package, including the TIA for the approved Jindera Solar Farm. The development was approved in 2019, and no recent activity was identified on the "Major Projects" portal. On this basis, SLR could not identify this project's anticipated start and completion dates.

Based on the information listed above, SLR assumed that the construction activities of the approved Glenellen Solar Farm and Jindera Solar Farm would not coincide with the proposed Jindera BESS project, as these projects are expected to reach completion in June 2026. SLR decided for a conservative traffic assessment to assess the likely impact of these projects if they were delayed for any reason (more on this in Section 6.0).

[4] Jindera Solar Farm

[5] Glenellen Solar Farm

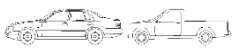
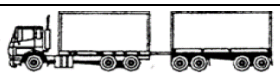
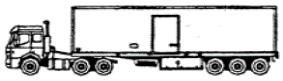
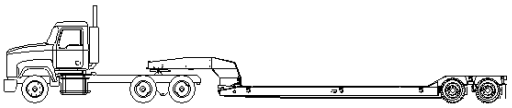
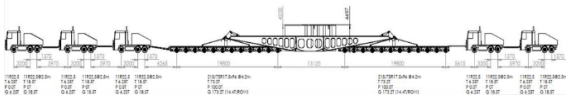
4.0 Project Traffic Demands

4.1 Traffic Generation Assumptions (BESS Facility)

4.1.1 Construction Phase Traffic Assumptions

The vehicle fleet anticipated to be associated with the construction of the Project is shown in **Table 6**.

Table 6 Project Construction Vehicle Fleet

Vehicle	Typical Vehicle Profile	Haulage Material
Private Vehicle (B99 design vehicle)		Supervision Workforce: Assumed occupancy of 1 person per vehicle
Toyota Coaster Bus (22-seater)		Labour Workforce: Assumed occupancy of 19 persons per vehicle
Concrete Truck (7.4 cubic meters)		Concrete
Medium Rigid Vehicle (8.8m long MRV)		Water
Heavy Rigid Vehicle (12.5m long HRV)		Waste removal
32t truck and dog (17m long)		Aggregates, Quarry Products
Six Axle Articulated (20m long AV)		1 x 40ft Container or 2 x 20ft Containers
B-Double (19m or 26m long)		26m long: 40ft and 20ft Containers 19m long: Energy Storage Batteries, Construction Mobilisation, Construction Demobilisation
Goose-Neck Low Loader (up to 25m long)		Excavators, Bulldozers, Graders, Compactors, Piling Rigs, Energy Storage Batteries
Oversize and Over Mass (OSOM)		One-off transformer transportation

Traffic that will be generated during the construction of the Project will largely be associated with the transportation of materials/ equipment and the workforce. In order to simplify the construction traffic calculations, SLR has broken down the traffic-generating elements of the proposed works into two classes as follows:

- Construction heavy vehicle traffic.
- Construction workforce.

For further ease of calculations and review, SLR also broke down the construction heavy vehicle traffic into two stages: “Site Clearance and Establishment” and “Construction Materials”.

The anticipated vehicle movements for both phases are detailed in **Table 7** and **Table 8**.

Table 7 Site Clearance and Establishment (SC & E)

Element	Assumption	Delivery Method	Anticipated Trips	Source
Site Clearing & Earthworks	1 x Bulldozer, Grader, Excavator, Mulcher, Compactor	Low Loader	5 inbound and 5 outbound.	SLR assumption based on similar projects.
Water for Dust Suppression	18,000L per day. 1 x Water Truck	MRV (Water Truck)	100 inbound and 100 outbound.	SLR assumed water would be delivered from outside.
Compacted Road Base for Access Tracks	12,500m x 4m x 0.1m =7,500 m^3 14,250t @1.9t per m^3	17m Truck & Dog Combination (32t)	297 inbound and 297 outbound.	SLR assumption is based on 1,000m of track per 20MW.
Compacted Road Base for Site Compound	180m x 120m x 0.2m =4,320 m^3 8,208t @1.9t per m^3	17m Truck & Dog Combination (32t)	257 inbound and 257 outbound.	SLR assumption based on similar projects.
Compacted Road Base for Control Room & Transformer	4,324 sqm x 0.2m =864.8m^3 1,643t @1.9t per m^3	17m Truck & Dog Combination (32t)	52 inbound and 52 outbound.	SLR assumption based on a review of plans provided by GDA.
Compacted Road Base for BESS pad	6,000 sqm x 0.2m =1,200m^3 2,280t @1.9t per m^3	17m Truck & Dog Combination (32t)	72 inbound and 72 outbound.	SLR assumption based on a review of plans provided by GDA. (200 batteries at 1.25MWh).
Site Offices, Switch room, O&M Building	4 Demountable Buildings	20m AV / Low Loader	4 inbound and 4 outbound.	SLR assumption based on similar projects.
Fencing	440m of fencing material = 800 acoustic panels in total.	20m AV	13 inbound and 13 outbound.	SLR’s Acoustics team. (8 panels per pallet, 8 pallets per truck).
Lighting and Gates	15 Lights, 3 x 6m wide gates, 2 x 1m wide gates	20m AV	3 inbound and 3 outbound.	Sample assumption based on drawings provided by GDA
BESS Containers	80 Containers, 3.12MWh per unit	B-Double (19m/26m)	80 inbound and 80 outbound.	SLR assumption based on similar projects.
Switch Room Equipment	4 trips per 100MW	Low Loader (20m)	10 inbound and 10 outbound.	SLR assumption based on similar projects.
TOTAL Trips (SC & E)			**896 inbound & 896 outbound**	

As summarised in **Table 7** above, it is anticipated that 1,792 return trips will occur associated with the site clearance and establishment across 10 months.

Table 8 Construction Materials

Element	Assumption	Delivery Method	Anticipated Trips	Source
Minor Earthworks	10 Piling Rigs 10 Trenchers	Low Loader	20 inbound and 20 outbound.	SLR assumption based on previous similar projects.
Concrete Batching Plant Consumables	N/A	20m AV	0 inbound and 0 outbound.	SLR assumption. SLR assumed that a concrete batching plant would be established at the site and that the internal transportation of concrete (approximately 50 two-way trips) wouldn't count towards the external traffic generation.
Piling	10 x 200 piles = 2,000 piles	20m AV with 40ft Container	4 inbound and 4 outbound.	14 piles per 1 container SLR assumed 500 upright piles per truck.
Fuel		17m Fuel Tanker	50 inbound and 50 outbound.	SLR assumption based on previous similar projects.
33kv Transmission wire	50m of wire	20m Low	1 inbound and 1 outbound.	Sample assumption based on drawings provided by GDA.
330kv Transmission wire	625m of wire	20m Low Loader or OSOM	2 inbound and 2 outbound.	Sample assumption based on drawings provided by GDA.
Inverters	40 inverters, 1 per 2 BESS units	20m AV with 40ft Container	5 inbound and 5 outbound.	SLR assumption based on previous similar projects. SLR assumed 8 inverters per 40ft Container.
330/33kv Transformer	113 PCUs 4 per 40ft Container	20m AV with 40ft Container	29 inbound and 29 outbound.	SLR assumption based on previous similar projects. SLR assumed 4 inverters per 40ft Container.
TOTAL Trips (Construction Materials)			**111 inbound & 111 outbound.**	

As summarised in **Table 8** above, it is anticipated that 222 return trips will occur associated with the delivery of construction materials across 10 months.

Table 9 provides an overview of the workforce assumptions.

Table 9 Construction Workforce Assumptions

Element	Assumption	Anticipated Trips	Source	Note
Travel Arrangements	Labour via 22-seater coaster bus and 2-seater UTEs. Supervisors via private vehicle		Sample Assumption	
Workforce	20 persons maximum for 4 months.	1 x 22-seater coaster bus trips and 6 light vehicle trips a day for 4 months.	SLR Assumption	Applicant: 50% of the workforce will travel in a 22-seater coaster bus/ minibus. 50% of the workforce will travel in 2-seater UTEs. SLR assumed 1 supervisor per 20 workers.
	80 persons maximum for 4 months.	2 x 22-seater coaster bus trips and 23 light vehicle trips a day for 4 months.		
	20 persons maximum for 2 months.	1 x 22-seater coaster bus trips and 6 light vehicle trips a day for 2 months.		
Roster	6 days on / 1 day off		SLR Assumption	
Shift rotation	Weekdays: 11 hours Saturdays: 5 hours Average 10 hours		Sample Assumption	Applicant: Monday to Friday (7 am to 6 pm) & Saturday (8am to 1pm) & Sunday and Public Holidays (No works)
Construction Duration	10 months.		The Applicant	Monday to Friday and half-day Saturdays.
Construction Deliveries	Spaced across 10 months to minimise disruption		SLR Assumption	SLR assumption based on previous similar projects.
Light vehicle occupancy	1 driver per vehicle		SLR Assumption	
22-seater Coaster bus occupancy	19 passengers per vehicle		SLR Assumption	
Workforce Distribution	100% from Albury		SLR Assumption	Accommodation: 100% Albury and Wodonga
Haulage Distribution	100% from Albury		SLR Assumption	
TOTAL Trips (Construction Workforce)		**2,800 inbound & 2,800 outbound.**		

The Applicant is currently undertaking consultations with the Council about workforce housing opportunities and there is ongoing communication with the broader community.

Based on the information provided in **Table 7**, **Table 8** and **Table 9**, SLR estimates that 3,807 inbound and 3,807 outbound will occur across the 10-month construction period (250 working days, including Saturdays).

4.2 Construction Traffic Volumes

The peak hour development traffic volumes have been determined by the adoption of the traffic assumptions detailed in **Section 4.1**. The construction traffic generation was considered in light and heavy vehicle movements.

The construction traffic generation was assumed to progress non-linearly over the 10-month period, with all materials arriving from Albury via Urana Road. With this assumption, daily construction traffic generation was determined by adopting a six-day workweek. In practice, it is almost certain that construction material deliveries will spread across the day. However, SLR assumed all materials would be delivered in the morning peak hour.

In order to develop a conservative assessment scenario, the peak construction traffic was also aligned with the existing peak traffic periods at the study intersections.

Similarly, the traffic generated by the workforce was determined by considering a maximum of 80 workers on site. It was assumed that all staff would be accommodated at Albury.

The background growth was determined based on the traffic survey data collected in September 2024. A conservative 2% was adopted for the background traffic growth, and construction was assumed to commence in 2025.

4.2.1 Average Daily Traffic (Linear Workforce Presence)

If construction traffic were to occur on a linear basis, this would equate to 15-16 inbound and 15-16 outbound trips per day, with the following breakdown:

- 11 light vehicle inbound trips (AM) and 11 light vehicle outbound trips (PM).
- 4 heavy vehicle inbound trips (AM) and 4 heavy vehicle outbound trips (PM).

A summary of daily movements (Vehicles Per Day or vpd) over the projected construction duration is provided in **Table 10** below.

Table 10 Average Daily Traffic (Linear Construction Progress)

Vehicle Type	Daily Vehicle Movements	
	Inbound AM (vpd)	Outbound PM (vpd)
Light Vehicles	4	4
Heavy Vehicles	11	11
Total	15	15

4.2.2 Peak Daily Traffic (Non-Linear Workforce Presence)

SLR analysed the busiest part of the construction duration for a conservative traffic engineering assessment, with up to 80 workers. SLR's assessment also assumed all materials would be delivered in the morning peak hour (07:45-08:45).

On this basis, the information provided in **Table 11** was adopted as a basis for SLR's intersection performance and safety assessments.

Table 11 Peak Daily Traffic (Non-Linear Workforce Presence)

Vehicle Type	Peak Period Vehicle Movements	
	Inbound AM (vph)	Outbound PM (vph)
Light Vehicles	23	23
Heavy Vehicles	6	6
Total	31	31

4.3 Traffic Generation Assumptions (Substation Expansion)

Following the submission of the TIA v1.7 dated 15/07/2025 with the broader EIS package, Transgrid provided information on the traffic-generation potential of the anticipated construction works at the substation, which is as follows:

- Light Vehicles: 20 vehicles per day.
- 20m Articulated Vehicle: 0.1 vehicles per day.
- 20m Truck and Dog Trailer Combinations: 10 vehicles per day (off-peak) and 20 vehicles per day (peak earthworks period).
- 12.5m Heavy Rigid Vehicles: 0.2 vehicles per day.
- 12.5m 7.4m^3 concrete agitator truck: 0.5 vehicles per day.
- Peak Total: 20 light vehicles per day and 20.8 heavy vehicles per day.

Although no comments were raised by TfNSW on the initial TIA, the applicant requested that SLR assume the proposed substation works overlap with the BESS construction for a conservative assessment. Therefore, a revised TIA would be required.

Based on the information provided by Transgrid, SLR's peak hour traffic assumptions are as follows:

Morning Peak (AM):

- Light Vehicles: 20 vehicles per hour (inbound only).
- Heavy Vehicles: Five inbound heavy vehicles and five outbound vehicles.

Morning Peak (AM):

- Light Vehicles: 20 vehicles per hour (outbound only).
- Heavy Vehicles: Five inbound heavy vehicles and five outbound vehicles.

On the basis of the above, this version of the TIA (v2.0) has incorporated the following information:

- Revised desktop models (traffic flow diagrams).
- Revised turn warrant assessments.
- Revised SIDRA Intersection assessments for 2025 Background Growth + Construction scenarios.

SLR confirms that the revised assessment does not result in material changes. Therefore, no changes were proposed to the recommendations or mitigation measures.

4.4 Operational Phase Traffic Generation

BESS facilities typically comprise limited equipment that requires regular maintenance. Therefore, the operational traffic demands associated with the proposal are expected to be minimal and limited to minor servicing activities. Based on this, the operational traffic of the proposal is not considered a critical element within this traffic assessment.

Nonetheless, the operational workforce assumptions were provided by the Applicant and are summarised below in **Table 12** for the completeness of this report.

Table 12 Operational Workforce Assumptions

Element	Assumption	Source
Workforce	Max. six persons with the ad-hoc maintenance crew	SLR Analysis & Assumption
Roster	Six days on/one day off	The Applicant (Gransolar)
Permanent Workforce	Two person(s)	The Applicant (Gransolar)
Contractor Workforce	Four persons (conservative maximum)	SLR Analysis & Assumption
Anticipated Fleet	Light Vehicles & Refuse Collection Vehicles (RCV/MRV)	SLR Analysis & Assumption
Distribution	100% to/ from Albury via Urana Road	SLR Analysis & Assumption

Note: Maximum operational workforce calculated by adopting a 'worst-case' scenario with all permanent and sub-contracted personnel being on-site at a given time.

4.5 Decommissioning Phase Traffic Generation

The site is proposed to be decommissioned and the infrastructure removed following the end of the life of the Project. Works will be undertaken to return the site as close as possible to its original state and use. Detailed consideration of potential traffic demands associated with the decommissioning of the Project has not occurred, as such activity is anticipated to occur after the typically adopted design horizon for assessing traffic impacts. Nevertheless, the traffic demands associated with decommissioning are anticipated to be less than those associated with construction activity, and hence, the sizing of infrastructure to accommodate construction traffic demands is expected to provide sufficient capacity to accommodate decommissioning traffic demands.



5.0 Traffic Engineering Considerations

5.1 Sight Distance Assessment

SLR carried out a site inspection in September 2024 to determine the available sight distances at two critical intersections in accordance with the following standards:

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

SISD is the minimum sight distance that 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 travelling 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 following two intersections:

- Urana Road (major road) and Jindera-Walla Walla Road (minor road) intersection.
- Jindera-Walla Walla Road (major road) and Lindner Road (minor road) intersection.

The formula applied is illustrated in **Equation 1**.

Equation 1 SISD Formula (AGRD Part 4A)

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

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)

Source: Austroads Guide to Road Design, Part 4A, Section 3.2.2

5.1.1 SISD Requirements

The SISD calculations, as per *Table 3.2* in *Austroads Guide to Road Design Part 4A*, require the following SISD:

- Urana Road/ Jindera-Walla Walla Road intersection:

100 km/h posted speed limit = 110 km/h design speed = SISD 300m with 2.5 seconds reaction time.

- Jindera-Walla Walla Road/ Lindner Road:

100 km/h posted speed limit = 110 km/h design speed = SISD 300m with 2.5 seconds reaction time.

5.1.2 SSID Methodology

By undertaking a site inspection with a laser-guided range finder on Thursday, 19/09/2024, SISD was determined by SLR for the following intersections:

- Urana Road/ Jindera-Walla Walla Road.
- Jindera-Walla Walla Road/ Lindner Road.

5.1.2.1 Urana Road/ Jindera-Walla Walla Road

The site inspection undertaken by SLR identified that the available SISD is in excess of 400m and 600m for the south and north approaches, respectively. The sight distances achieved during the site visit are also illustrated in **Figure 9**.

Figure 9 Urana Road/ Jindera-Walla Walla Road SISD



Image Source: NearMap.

5.1.2.2 Jindera-Walla Walla Road/ Lindner Road

Clear sight distance is visible for 200m from Lindner Road to the crest for the north approach and in excess of 500m for the south approach. An illustration of the observed sight distances is provided in **Figure 10**.

Figure 10 Jindera-Walla Walla/ Lindner Road SISD

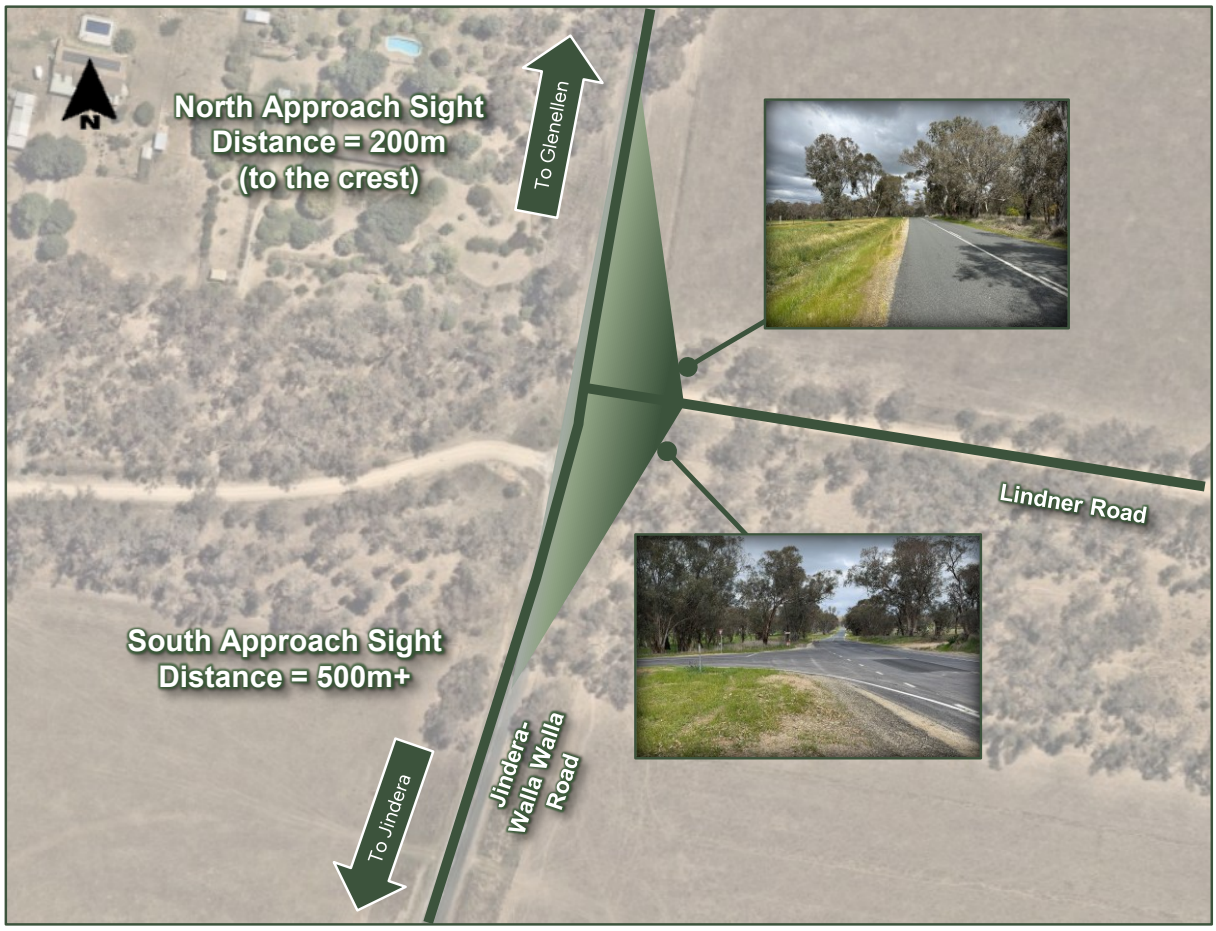


Image Source: NearMap.

As illustrated in **Figure 10**, the available sight distance in the north approach does not satisfy the SISD requirements according to AGRD Part 4A due to a crest on Jindera-Walla Walla Road 200m north of the Lindner Road intersection. It is anticipated that the heavy vehicles will be visible (2.4m roof height) from approximately a 300m distance (approx. 10 seconds before reaching the intersection); however, light vehicles (1.25m roof height) will likely be seen from approximately a 200m distance (approx. 7 seconds before reaching the intersection).

Notwithstanding, the existing arrangements are considered sufficient due to the following:

- Temporary and short-term nature of the proposed construction activities.
- Low existing traffic volumes on Jindera-Walla Walla Road.
- The use of this intersection for access is already approved for Glenellen Solar Farm, which generates significantly higher traffic than the proposed Jindera BESS.

It is recommended that the local Council and TfNSW consider installing the following advisory signage:

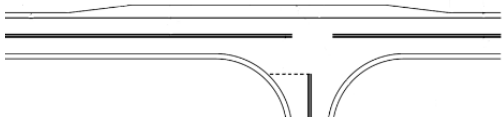
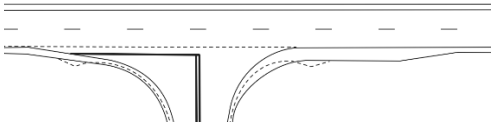
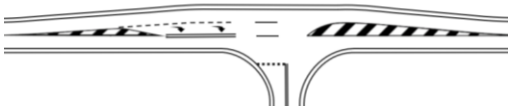
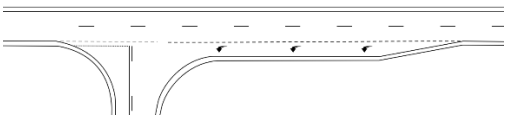
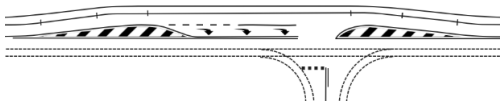
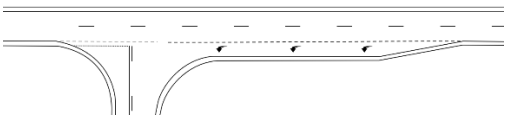
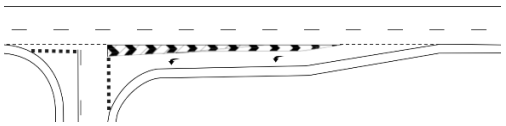
- Southbound direction, north of the intersection: *side road ahead, crest, trucks crossing or entering, advisory speed*.
- Northbound direction, south of the intersection: *crest*.

5.2 Turn Lane Warrant Assessments (TWAs)

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 15** provides a pictorial description of the various turn treatments considered.

Table 15 Turn Treatment Type

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

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 providing the higher treatment. The benefits and costs of a higher-level treatment were compared to the base case (minimum turn treatments).

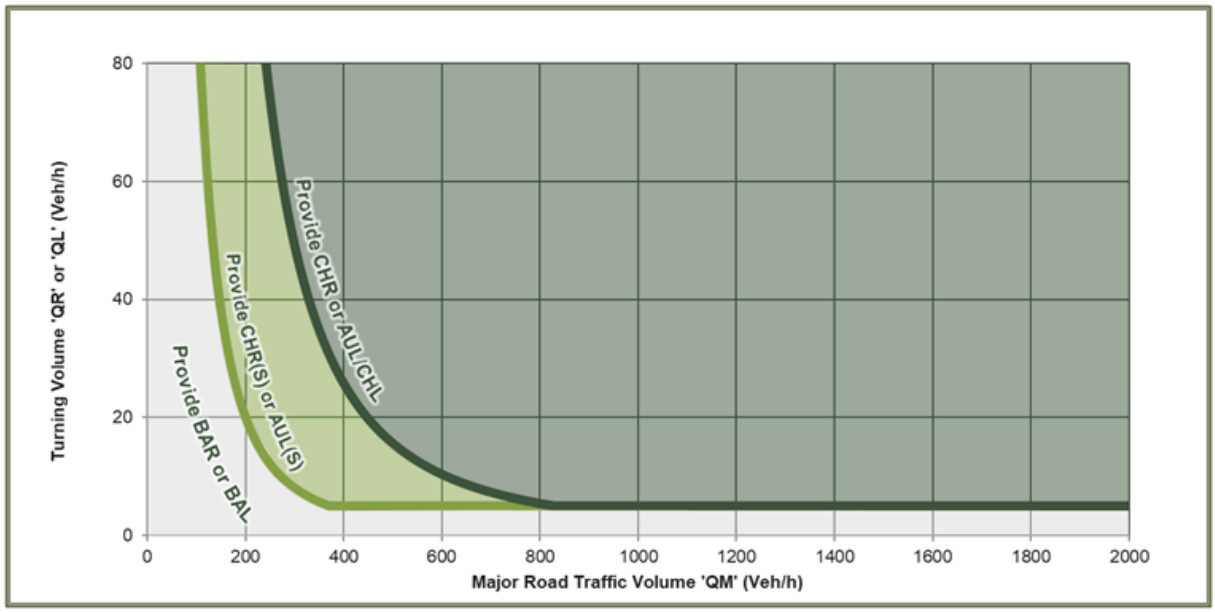
Relevant to the assessment presented herein, the research assumed the following:

- The warrants are strictly applicable to the construction of intersections on new roads (i.e., greenfield sites). For existing roads, the application of the warrants as adopted herein is therefore conservative 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 and are not strictly intended to be utilised for private access locations. Their application to private access locations as adopted herein is therefore conservative as it ensures that private accesses are afforded the same standard of safety as provided for public road intersections.

It is also essential to note that the assessment SLR has undertaken assumes a 10-year benefit period, whereas the construction of the approved Glenellen Solar Farm, the approved Jindera Solar Farm and the proposed Jindera BESS projects will not exceed a 24-month period. Therefore, it should be noted that SLR's turn warrant assessment is highly conservative.

The turn warrants for a greenfield site, with a design speed of equal to or greater than 100 km/h and a benefit duration of 10-years, are shown in **Figure 11**.

Figure 11 Turn Warrant Assessment - Design Speed ≥ 100km/h



5.2.1 Assessed Scenarios

It should be noted that SLR's turn warrant assessments are undertaken for a 10-year design horizon, even longer than the anticipated duration of construction works (10 months) for a conservative assessment. 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 only for the duration of construction works (no more than two years).

The turn warrant assessment is undertaken for the following two scenarios:

- **2025 'With Construction Traffic':** To quantify the impact of the additional construction traffic from the proposed project.
- **2025 'With Construction and Cumulative Traffic':** To quantify the impact of the additional construction traffic from the proposed project, the approved Glenellen Solar Farm and the approved Jindera Solar Farm.

SLR's assessment is undertaken for the above two cases so that it can be explicitly identified in which scenario the turns would necessitate a warrant for upgrades (if any), and if it's only due to the contributing traffic from the proposed development or the cumulative traffic.

5.2.2 Intersection Mitigation Measures

SLR has undertaken turn warrant assessments for the construction peak periods for the intersections of Urana Road/ Jindera-Walla Walla Road and Jindera-Walla Walla Road/

Lindner Road. It was identified that, consistent with the Austroads Guide to Traffic Management Part 6, the recent upgrades (2024) provided the following turn treatment types:

- CHR-S and BAL at Urana Road/ Jindera-Walla Walla Road intersection.
- BAR and BAL at Jindera-Walla Walla Road/ Lindner Road intersection.

5.2.2.1 Urana Road/ Jindera-Walla Walla Road Intersection

Figure 12 and **Figure 13** illustrate the turn warrant assessments at the Urana Road/ Jindera-Walla Walla Road intersection for the proposed project's anticipated traffic for the AM and PM peak periods.

Figure 12 Urana Rd/ Jindera-Walla Walla Rd - Project Traffic Only (TWA AM)

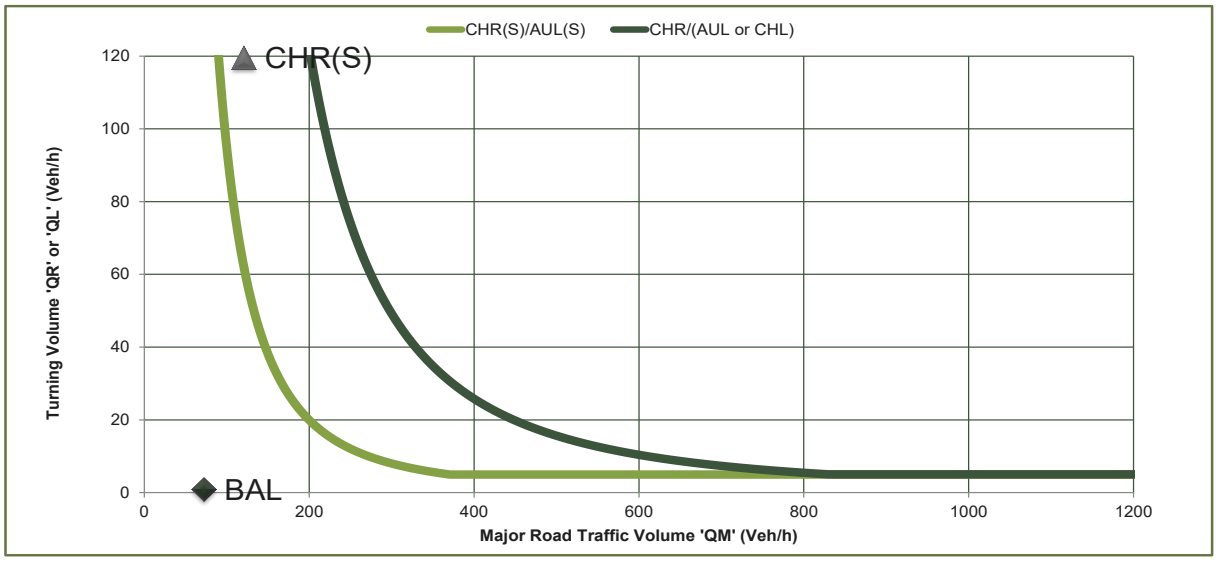
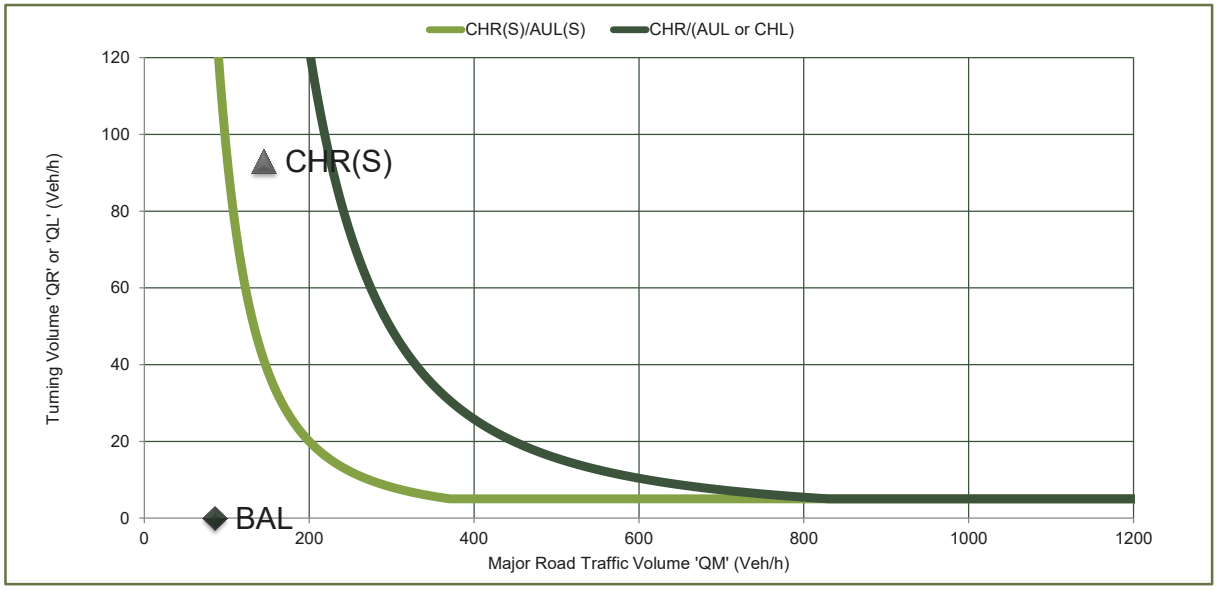


Figure 13 Urana Rd/ Jindera-Walla Walla Rd - Project Traffic Only (TWA PM)



Based on **Figure 12** and **Figure 13**, CHR-S and BAL treatments would be required, noting that this intersection readily has CHR-S and BAL treatments. On this basis, the proposed project wouldn't require upgrades at this intersection.

Figure 14 and **Figure 15** illustrate the turn warrant assessments at the Urana Road/ Jindera-Walla Walla Road intersection for the cumulative traffic (proposed project, Glenellen Solar Farm and Jindera Solar Farm) for the AM and PM peak periods.

Figure 14 Urana Rd/ Jindera-Walla Walla Rd - Cumulative Traffic (TWA AM)

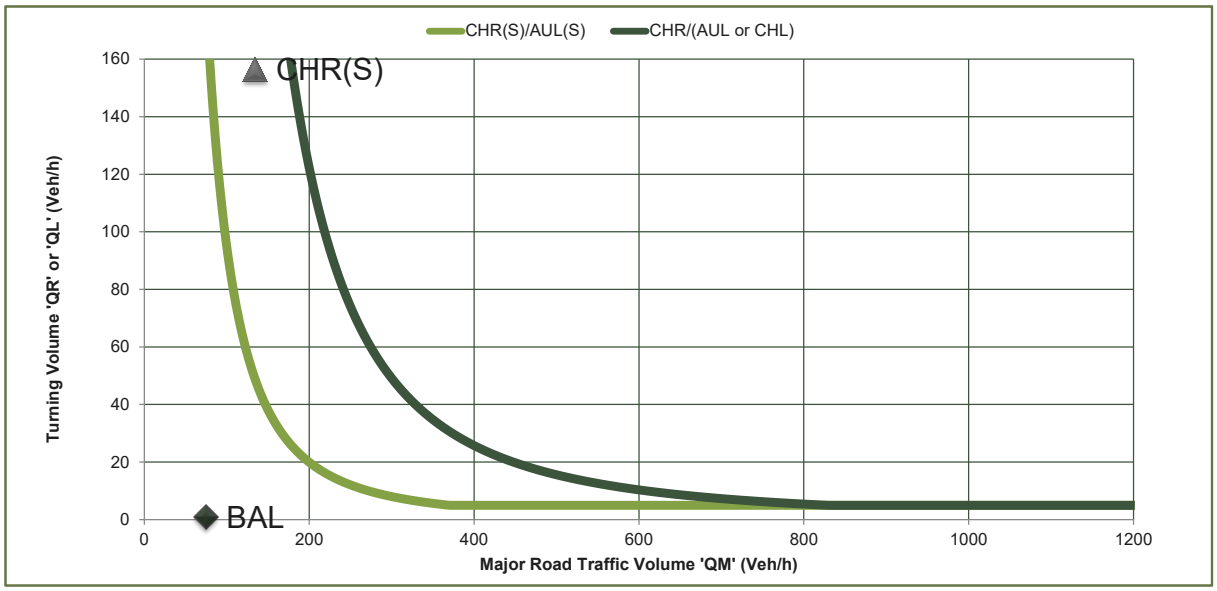
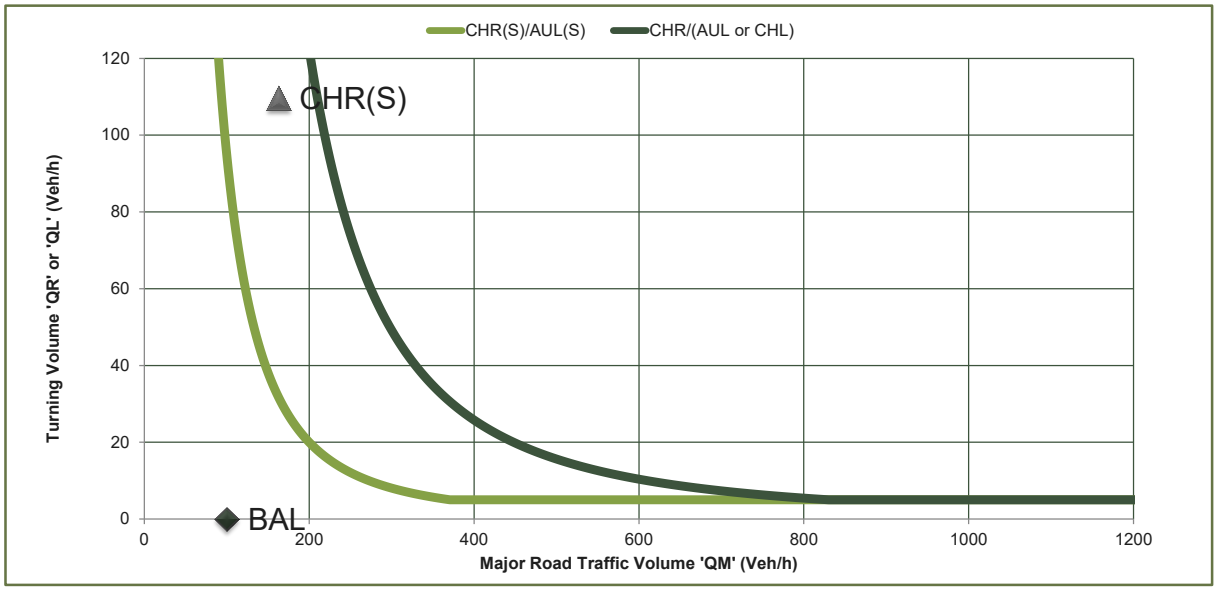


Figure 15 Urana Rd/ Jindera-Walla Walla Rd - Cumulative Traffic (TWA PM)



Based on **Figure 14** and **Figure 15**, CHR-S and BAL treatments would be required, noting that this intersection readily has CHR-S and BAL treatments. On this basis, the cumulative traffic wouldn't require upgrades at this intersection.

5.2.2.2 Jindera-Walla Walla Road/ Lindner Road Intersection

Figure 16 and **Figure 17** illustrate the turn warrant assessments at the Jindera-Walla Walla Road/ Lindner Road intersection for the proposed project's anticipated traffic for the AM and PM peak periods.

Figure 16 Jindera-Walla Walla Rd/ Lindner Rd - Project Traffic Only (TWA AM)

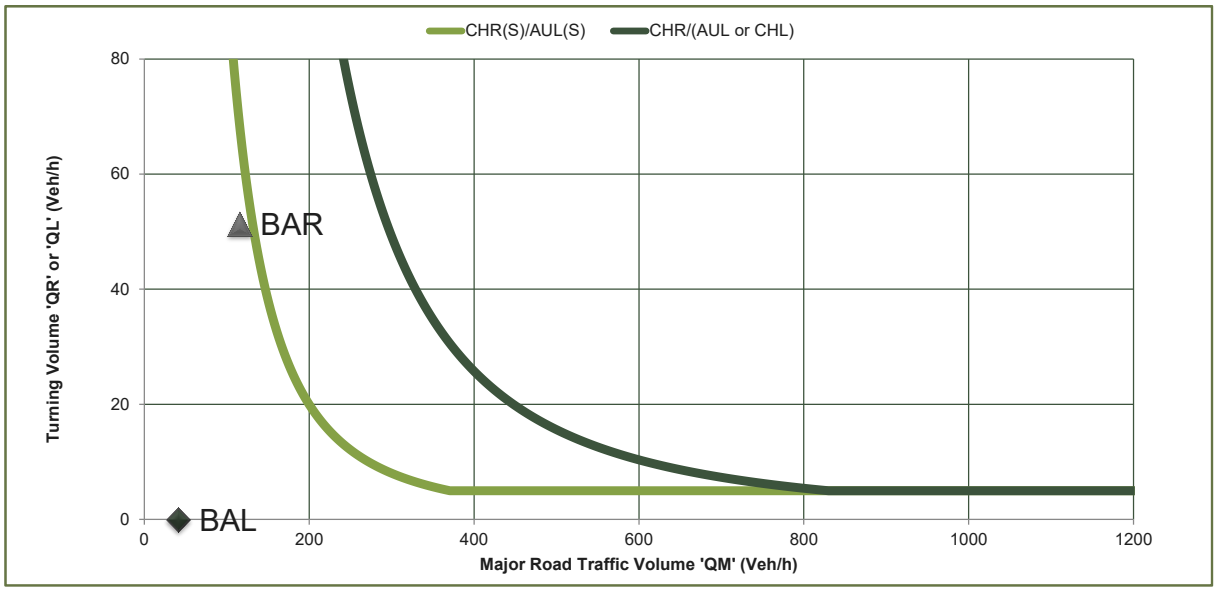
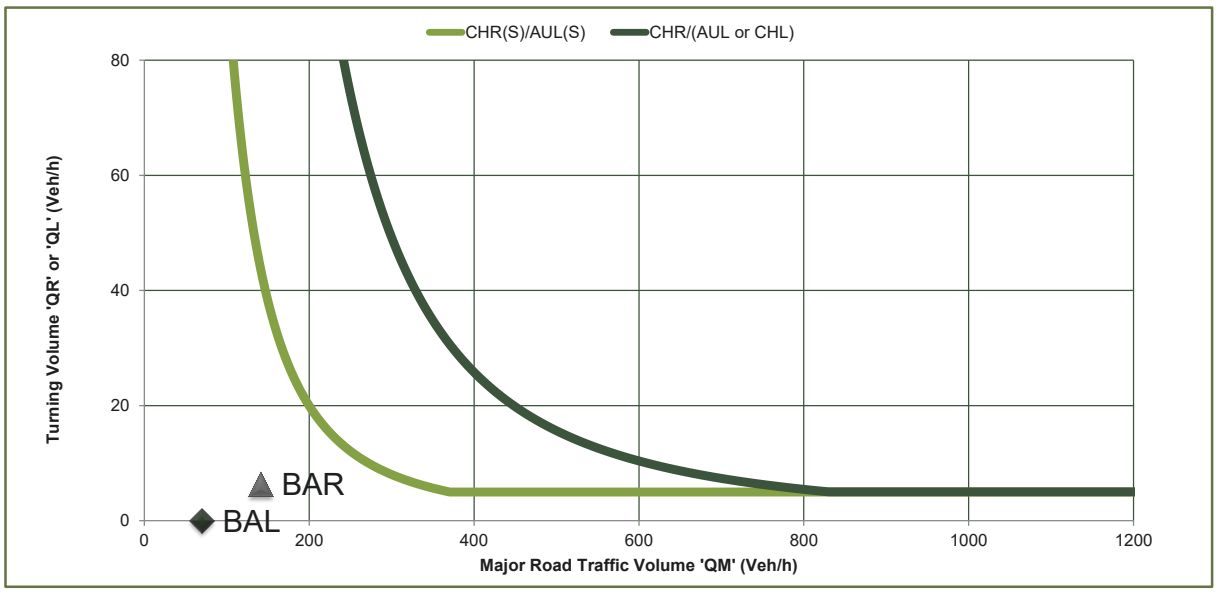


Figure 17 Jindera-Walla Walla Rd/ Lindner Rd - Project Traffic Only (TWA PM)



Based on **Figure 16** and **Figure 17**, BAR and BAL treatments would be required, noting that this intersection readily has BAR and BAL treatments. On this basis, the proposed project wouldn't require upgrades at this intersection.

Figure 18 and **Figure 19** illustrate the turn warrant assessments at the Jindera-Walla Walla Road/ Urana Road intersection for the cumulative traffic (proposed project, Glenellen Solar Farm and Jindera Solar Farm) for the AM and PM peak periods.

Figure 18 Jindera-Walla Walla Road/ Lindner Road - Cumulative Traffic (TWA AM)

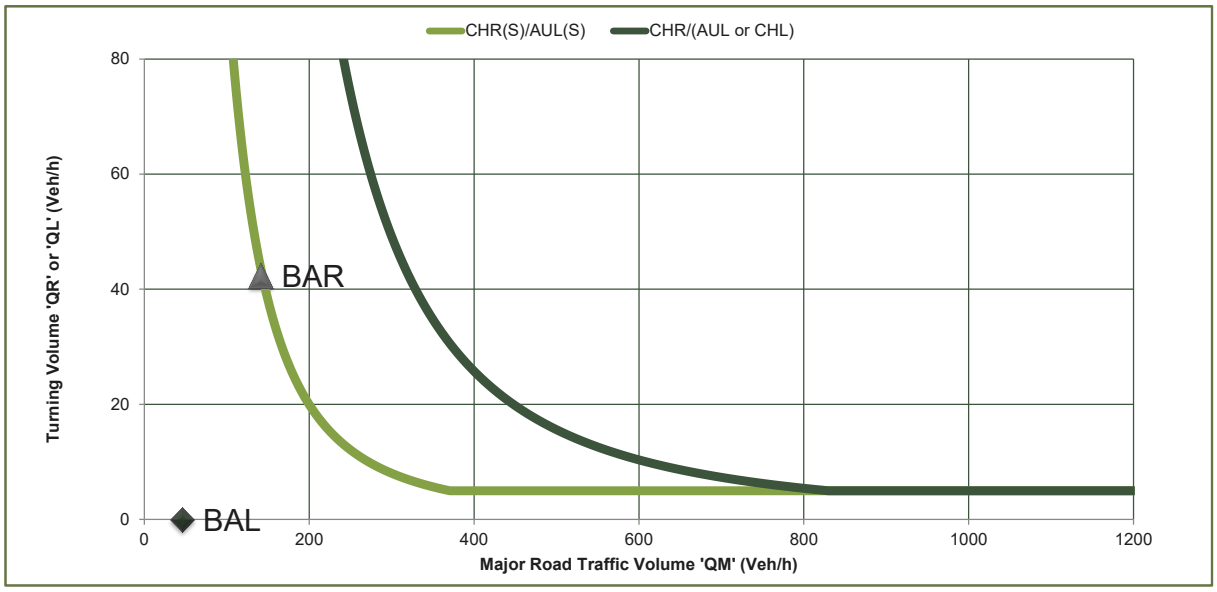
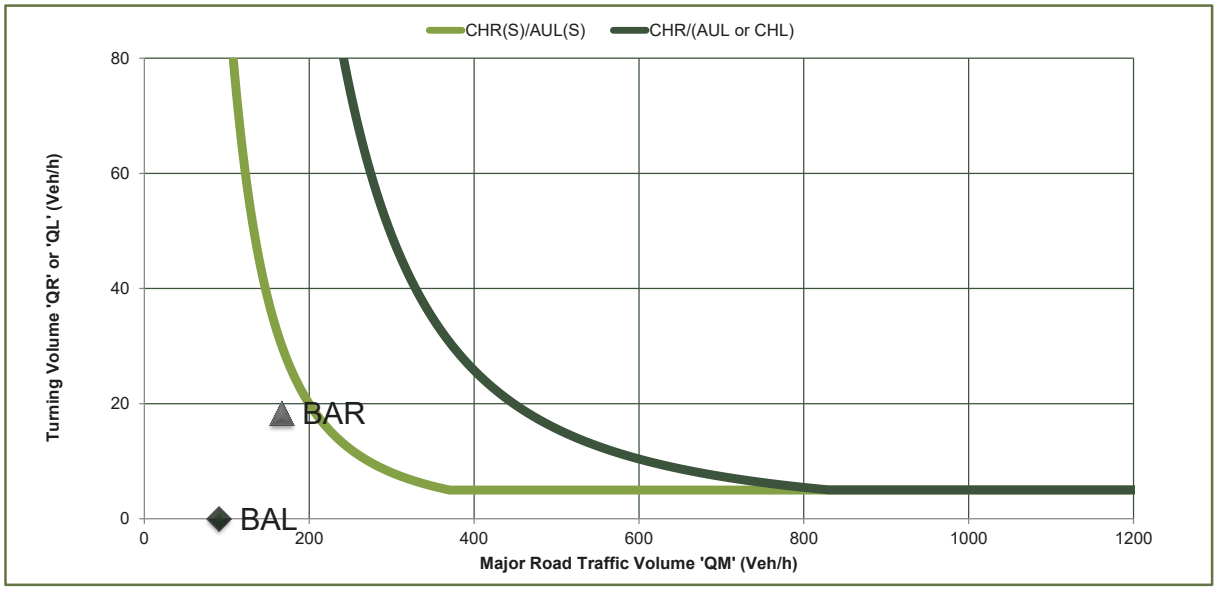


Figure 19 Jindera-Walla Walla Road/ Lindner Road - Cumulative Traffic (TWA PM)



Based on **Figure 18** and **Figure 19**, BAR and BAL treatments would be required, noting that this intersection readily has BAR and BAL treatments. On this basis, the cumulative traffic wouldn't require upgrades at this intersection.

Detailed turn warrant assessments are provided in **Appendix G**.

No upgrades are considered necessary based on the turn warrant assessment undertaken by SLR at the two study intersections.

6.0 Operational Assessment

6.1 Assessment Scenarios

For the purposes of the traffic assessment, it was assumed that the peak construction traffic for the proposed Jindera BESS and two approved projects would occur in 2025. Consistent with standard industry practice, the following traffic assessment scenarios have been adopted:

- **2025 'Background':** To establish the year of opening baseline operating conditions in the absence of the proposed Project.
- **2025 'With Construction Traffic':** To quantify the incremental impact of the proposed Project's construction traffic conditions.
- **2025 'With Construction and Cumulative Traffic':** To quantify the incremental impact of the proposed Jindera BESS and two approved Projects' construction traffic conditions.

Intersection performance analysis has been undertaken for each scenario mentioned above during the weekday AM and PM peak hours. Peak traffic demands are illustrated graphically in the desktop models provided in **Appendix H**.

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.

According to the RMS Modelling Guidelines (2013), the desirable maximum DOS thresholds are summarised in **Table 13** below.

Table 13 Intersection Performance Thresholds

Intersection Type	DOS Threshold
Priority controlled	Less than or equal to 0.80

DOS values exceeding those presented in **Table 13** indicate that an intersection is operating above its practical capacity, and upgrade works may be warranted. Above these threshold values, users of the intersection are likely to experience rapidly increasing delays and queuing.

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 the level of service assessment should be that with the worst movement delay.

In addition to DOS metrics, delay should also be considered when assessing the performance of an intersection. TfNSW recommends the use of the critical movement delay for assessing the performance of priority-controlled intersections. The TfNSW Guide to Traffic Generating Developments states that the average delay statistic for the critical movement provides a better indication of intersection performance and safety for roundabouts and priority-controlled intersections than DOS.

The operational assessment documented herein will be conducted in consideration of the performance criteria stated above.

6.3 Existing Traffic Demand

In the absence of sufficient publicly available traffic volume data and to ascertain the existing traffic demands of the road network surrounding the site, SLR commissioned Traffic Information Specialists (TIS) to undertake ATC surveys and Intersection Count (IC) surveys in September 2024 outside the school holiday period.

Based on SLR's analysis of the IC survey data, the following peak periods were identified:

- AM peak period: 07:45-08:45 & PM peak period: 15:15-16:15.

6.4 Background Traffic Growth

In the absence of recent AADT data on TfNSW's Traffic Volume Viewer website, SLR adopted a conservative 2% per annum growth rate to identify the 2025 volumes derived from the 2024 survey data.

6.5 Assessment Findings

As recommended by TfNSW, default input parameters were utilised to assess the two study intersections below.

6.5.1 Urana Road/ Jindera-Walla Walla Road Intersection

The Urana Road/ Jindera-Walla Walla Road intersection is currently configured as a three-way priority-controlled intersection, as shown in **Figure 20**. SIDRA analysis outputs for this intersection are summarised in **Table 14** and detailed outputs are included in **Appendix H**.

As part of the calibration of the existing queues in the SIDRA model, the survey footage was used to validate the resultant queues on all approaches.

Figure 20 Existing Intersection Form – Urana Rd/ Jindera-Walla Walla Rd

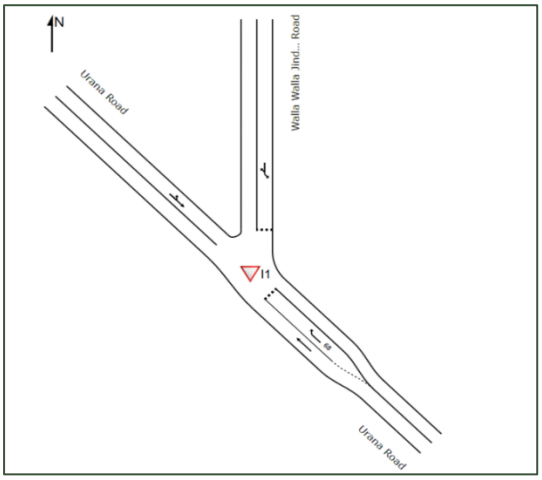
Nearmap Aerial	SIDRA Layout
	

Table 14 Summary of SIDRA Outputs - Urana Road/ Jindera-Walla Walla Rd

Scenario	AM Peak				PM Peak			
	DoS	Worst Delay (s)	95th% Queue (m)	LoS	DoS	Worst Delay (s)	95th% Queue (m)	LoS
2025 Background	0.064	6.6 (North Approach Right Turn)	1.8	A	0.087	6.8 (North Approach Right Turn)	2.6	A
2025 Background & Project	0.070	6.6 (North Approach Right Turn)	2.1	A	0.125	6.8 (North Approach Right Turn)	4.0	A
2025 Background & Project & Other Approved Projects	0.089	6.7 (North Approach Right Turn)	3.2	A	0.162	7.0 (North Approach Right Turn)	5.6	A

Table 14 indicates that the Urana Road/ Jindera-Walla Walla Road intersection will perform at LoS A in all assessed scenarios. On this basis, no upgrades are proposed nor considered necessary at this intersection to enable the proposed project or other approved developments.

6.5.2 Jindera-Walla Walla Rd/ Lindner Rd Intersection

The Jindera-Walla Walla Road/ Lindner Road intersection is currently configured as a three-way priority-controlled intersection, as shown in **Figure 21**. SIDRA analysis outputs for this intersection are summarised in **Table 15** and detailed outputs are included in **Appendix H**.

As part of the calibration of the existing queues in the SIDRA model, the survey footage was used to validate the resultant queues on all approaches.

Figure 21 Existing Intersection Form – Jindera-Walla Walla Rd/ Lindner Rd

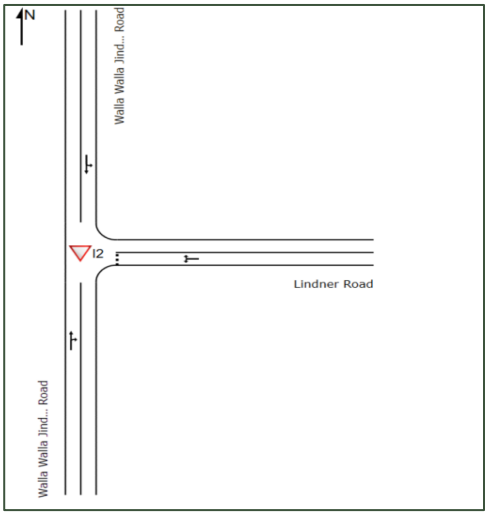
Nearmap Aerial	SIDRA Layout
	

Table 15 Summary of SIDRA Outputs – Jindera-Walla Walla Rd/ Lindner Road

Scenario	AM Peak				PM Peak			
	DoS	Worst Delay (s)	95th% Queue (m)	LoS	DoS	Worst Delay (s)	95th% Queue (m)	LoS
2025 Background	0.045	5.9 (East Approach Right Turn)	0.0	A	0.044	5.9 (East Approach Right Turn)	0.0	A
2025 Background & Project	0.007	7.0 (East Approach Left Turn)	0.3	A	0.052	7.2 (South Approach Right Turn)	0.6	A
2025 Background & Project & Other Approved Projects	0.020	7.0 (East Approach Left Turn)	1.0	A	0.071	7.4 (South Approach Right Turn)	1.9	A

Table 15 indicates that the Jindera-Walla Walla Road/ Lindner Road intersection will perform at LoS A in all assessed scenarios. On this basis, no upgrades are proposed nor considered necessary at this intersection to enable the proposed project or other approved developments.

7.0 Construction Traffic Management Strategies

These preliminary comments have been prepared to provide strategic advice for the future construction traffic management plan (CTMP), which will only be prepared following the approval of the EIS and 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, staging of the project and availability of construction vehicles, respectively.

Notwithstanding, at a high level, it is recommended that the following be considered or prepared as part of the CTMP:

7.1 Drivers' Code of Conduct

It is important to note that all drivers have a responsibility to follow NSW road rules and the Drivers' Code of Conduct. SLR has prepared a conceptual Drivers Code of Conduct, which is provided in **Appendix F**.

Within the Drivers' Code of Conduct, it is noted that all contractors will be instructed to strictly follow the defined light vehicle and heavy vehicle routes assigned to them. The Drivers' Code of Conduct also outlines that supervisors will travel to the site in light vehicles and follow the designated route. All other workers will be taken to the site with the shuttle buses following the designated heavy vehicle route.

7.2 Traffic Guidance Schemes (TGSs)

It is important to note that the majority of works will be carried out within the property boundary of the acquired land, other than the proposed extension of the sealed section of Ortlipp Road from the driveway of Glenellen Solar Farm to the proposed driveway location of this project.

In the absence of information on construction methodologies and programs, it is not possible for this TIA to discuss the respective traffic management strategies in detail. Notwithstanding, the CTMP for works on Ortlipp Road must be prepared to the satisfaction of the Council.

7.3 Site Management

The following procedures are to be observed by all vehicle drivers accessing the subject sites:

- 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 parked or loading/ unloading within the public road reserve.
- All drivers are required to operate vehicles in a safe and courteous manner, both within and external to the subject site.

7.4 Heavy Vehicle Management

7.4.1 General Requirements

Heavy vehicles accessing the site will need to abide by their respective company operating procedures in addition to standard NSW road rules when operating the vehicle.

The following rules must also be followed:

- An agreed portion of the workforce must be transported with shuttle buses that are similar to the Toyota Coaster and Toyota HiAce commuter.

- 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 to inform construction vehicle drivers and to warn the general public about the construction activities in the vicinity.
- 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. Also, there will be no requirement to obtain approvals to access to 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:

- Heavy vehicles should limit the use of engine or compression braking systems where possible.
- 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

Appropriate mitigation measures should be identified by the contractor, and strategies for dust management should be listed in the CTMP.

7.5 Mitigation Measures

The impacts of construction traffic and the mitigating measures to be implemented are outlined in **Table 16**.

Table 16 Construction Traffic Mitigation Measures

Mitigation Measures	Responsibility	Timing
Construction Traffic on Ortlipp Road: Construction traffic will use Lindner Road to enter/ exit Ortlipp Road. To ensure the impacts to motorists within the area are kept to a minimum, construction traffic will remain low.	Site Manager	Daily.
Management of deliveries: The site manager will manage deliveries to ensure that construction vehicle movements will remain low.	Site Manager	As required.
Safety during construction: The safety of motorists and the public throughout the area will be maintained during construction through the preparation and execution of Traffic Guidance Schemes (TGS). TGS plans will be implemented, managing the access and the general public's movement around construction activities. They should identify all reasonably foreseeable hazards, assess them, and manage them as best possible by eliminating or minimising the risks. The TGSs shall be monitored and updated accordingly throughout the project.	Site Manager and Traffic Control Supervisor	Daily.

Mitigation Measures	Responsibility	Timing
Reporting: Reporting and monitoring of construction vehicle movements are to be undertaken to ensure that drivers are adhering to restricted times.	Site Manager	Weekly.

7.6 Risk Assessment

A risk assessment is intended to identify hazards and risks associated with construction activities. The purpose is to determine the controls required for the protection of road workers and road users. A Risk Assessment associated with the construction works of this site should be prepared and provided in the CTMP.

7.7 TMP Monitoring/ Review & Improvement Process

7.7.1 Implementation

The proposed works should be carried out in accordance with the following requirements:

- The approved Issued for Construction drawings, Traffic Management Plan (TMP) and Traffic Guidance Schemes (TGS).
- All associated Federal and State statutory requirements, e.g., environment, cultural heritage, etc., as required.

7.7.2 Monitoring and Review

The approved CTMP should be monitored and reviewed regularly. If issues arise, the CTMP should be revised to mitigate the issues. Regarding the implemented TGS plans, these should be monitored and reviewed on a daily basis to ensure signs and devices are installed correctly and convey the correct and intended messages.

7.7.3 Work Site Inspections, Recording and Reporting

At the commencement of works, the TGS setup shall be inspected to confirm accuracy with the intended TGS, as well as to ensure locations of signage and devices are safe and do not cause hazards to traffic. This inspection shall be documented within a site register and repeated at the commencement of each week of the construction program.

7.7.3.1 Incident Management

For the purposes of this TMP, an ‘incident’ is an occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not cause non-compliance. Furthermore, a ‘non-compliance’ is an occurrence, set of circumstances or development that is a breach of the consent.

In the event of an incident relating to traffic, the Contractor’s Site Manager must notify the Construction Project Manager immediately, following any need to alert emergency services. Such incidents may include, but are not limited to:

- Vehicle crash or injury resulting from construction traffic related to the project.
- Spill of any dangerous goods or hazardous substance to the ground or water.
- Substantiated complaints from community members or regulatory authorities relating to traffic management.

- Land-based off-site sediment loss to the environment, including sediment tracking onto the roadway.

7.8 Contingency Plan

A contingency plan shall be established by the Contractor in accordance with the requirements of the Applicant.

7.9 Communications Strategy

A communications strategy shall be established by the Contractor in accordance with the requirements of the Applicant.

8.0 Recommendations

Based on the SLR's analysis provided in this report, the following recommendations have been made:

8.1 Oversize and Over Mass Material Route Study

It is recommended that a simple OSOM material transportation assessment (A Route Study) be conducted for the one-off transportation of the transformer from the port of import to the development site, following the approval of the SSD application and the confirmation of the port of import and type/ quantity of the equipment.

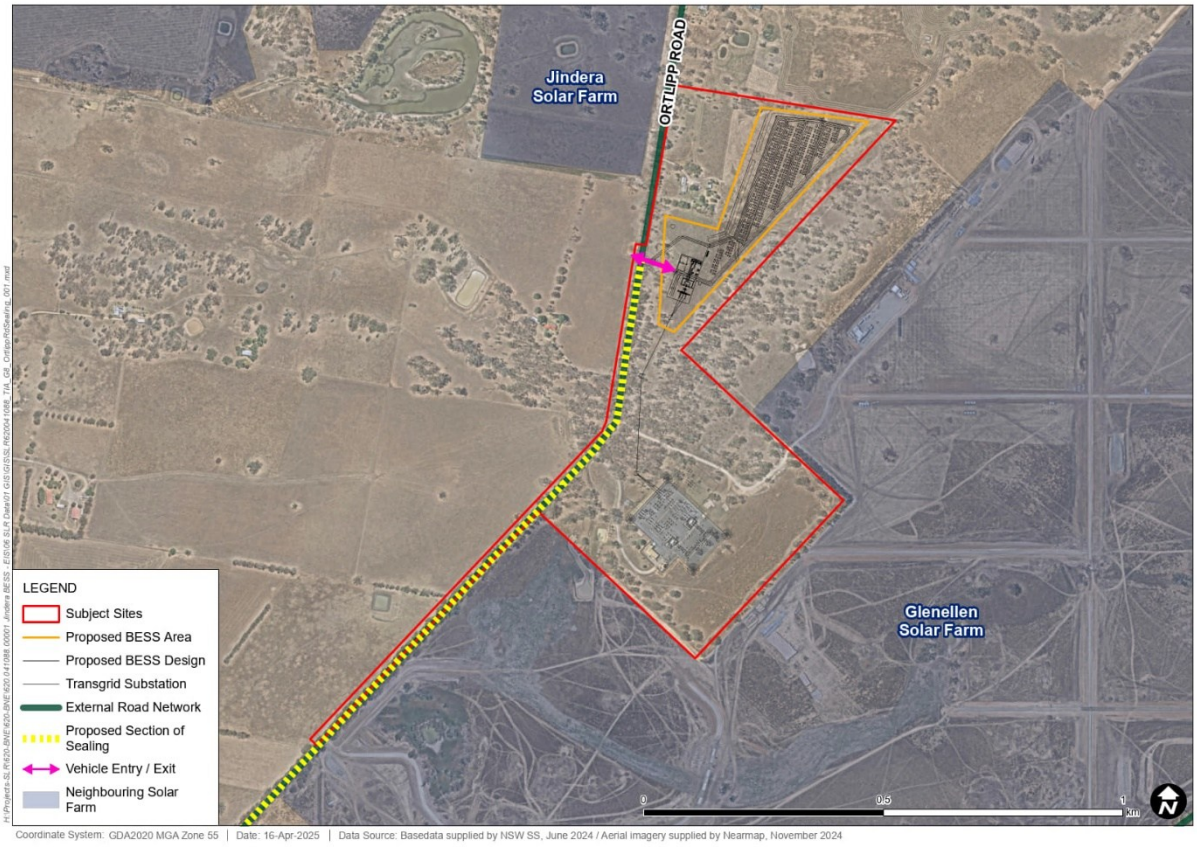
This report should consider all aspects of the preferred route in its entirety, such as bridge and tunnel clearances (from a vertical perspective) and carriageway widths, such as tight turns (from a horizontal perspective).

8.2 Road Upgrades

It is recommended that the section of Ortlipp Road from the driveway of Glenellen Solar Farm to the access location of the proposed Project be sealed to accommodate the bi-directional movements of the anticipated construction vehicle fleet. A tentative extent of the proposed sealing is depicted in **Figure 22**.

Strategic Plans for the proposed road and driveway upgrades are provided in **Appendix J**.

Figure 22 Proposed Sealing of Ortlipp Road



8.3 Construction Traffic Management Plan (CTMP)

A CTMP or equivalent document should be prepared following approval but prior to the substantial commencement of construction activities. It would be appropriate for the CTMP 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 Project 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, as assumed herein, and hard strategies such as the road works as proposed sealing of the Ortlipp Road from the driveway of Glenellen Solar Farm to the proposed site access location for Jindera BESS.

The CTMP should mention the use of shuttle/ coaster buses to transport the project workforce and heavy vehicle trip management procedures such as pilot vehicles and escorts, temporary signage and notification to nearby properties, safety management for any travel through school zones or dense urban/ residential areas, and addressing access warrants.

The CTMP should also provide operational information, such as the maintenance contractor's contact details. However, it is not considered necessary to investigate the operational impacts in detail, given that BESSs require minimal maintenance effort.

8.4 B-Double Approval for Lindner Road and Ortlipp Road

Following the sealing of Linder Road and Ortlipp Road, it is recommended that the applicant check if Glenellen Solar Farm has already obtained B-Double approvals for Lindner Road and Ortlipp Road. If not, an application should be made to NHVR to obtain approvals to operate B-Double design vehicles along these road segments.

8.5 Dilapidation Surveys

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

9.0 Conclusion

SLR Consulting Australia Pty Ltd (SLR) has been engaged by BESS Atlantic c/o Gransolar Development Australia Pty Ltd to prepare a Transport Impact Assessment (TIA) for the Jindera Battery Energy Storage System (BESS) development. The Jindera Battery Energy Storage System (Jindera BESS) 'the Project' will involve the development, construction, operation, and eventual decommissioning of a BESS with a capacity of 250MW/ 500MWh connecting via transmission line directly to the existing JINDERA 330/ 132kV substation, operated by TransGrid.

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

- It is proposed that vehicular access to/ from the development will be provided via Urana Road, Lindner Road and Ortlipp Road.
- The proposed development will generate approximately 3,800 inbound and 3,800 outbound trips during the assumed construction period of 250 working days (ten months). The average daily traffic generation will be in the order of 15 return trips a day, where the peak construction period is anticipated to generate around 31 return trips a day (23 light vehicle trips and eight heavy vehicle trips).
- It is anticipated that no rail corridors or crossings will be impacted.
- Two adjacent approved solar farm projects were identified (Jindera Solar Farm[6] & Glenellen Solar Farm[7]) and the cumulative impacts of these approved developments with the Project have been reviewed and analysed.
- SLR's review of the turn warrant assessments identified that the existing intersection configurations are sufficient.
- SLR has undertaken intersection performance analysis at two study intersections. The analysis indicated that the road network, in its existing form, will accommodate the traffic impacts of the proposed project and the two adjacent approved solar farm projects.
- The publicly available crash dataset at the access intersections does not indicate any recurring crash type or theme that would preclude or warrant significant safety mitigations.

The following recommendations have been made:

- An OSOM material route to study and a construction traffic management plan be prepared following the approval of this SSD application.
- The section of Ortlipp Road from Glenellen Solar Farm to the site's access location be sealed.
- A construction traffic management plan be prepared.
- B-Double approvals for Lindner Road and Ortlipp Road be obtained.
- Dilapidation surveys be undertaken.
- The construction workforce is briefed on the recommended route with a Driver's Code of Conduct prepared by the applicant.

[6] Jindera Solar Farm

[7] Glenellen Solar Farm

Appendix A Development Plans

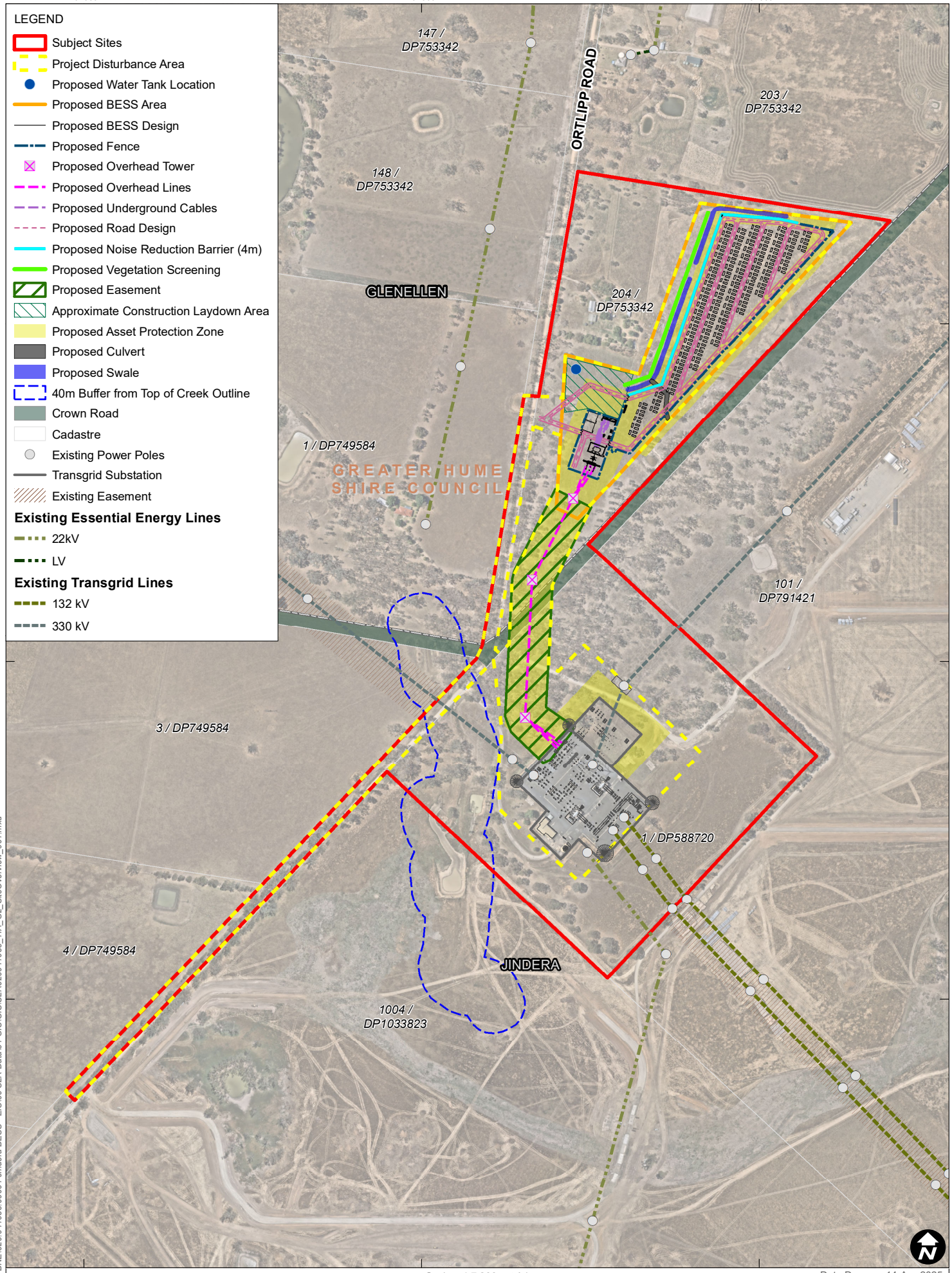
Jindera Battery Energy Storage System (BESS)

Transport Impact Assessment

BESS Atlantic c/o Gransolar Development Australia Pty Ltd

SLR Project No.: 620.041088.00001

17 December 2025



Scale: 1:7,200 at A4
Coordinate System: GDA2020 MGA Zone 55

Date Drawn: 14-Apr-2025
Project Number: 620.041088

H:\Projects-SLR\620-BNE\620.041088.00001 Jindera BESS - EIS\06 SLR Data\01 GIS\GIS\SLR620041088_TIA_G2_SiteOverview_001.mxd

SLR

Data Source: basedata supplied by NSW SS, June 2024
Aerial imagery supplied by Nearmap, November 2024
Other data sources include Gransolar Group, Look up & Live (LUAL)

SITE OVERVIEW

FIGURE 2

Appendix B Property Report

Jindera Battery Energy Storage System (BESS)

Transport Impact Assessment

BESS Atlantic c/o Gransolar Development Australia Pty Ltd

SLR Project No.: 620.041088.00001

17 December 2025

Property Report

204 ORTLIPP ROAD GLENELLEN 2642



Property Details

Address:	204 ORTLIPP ROAD GLENELLEN 2642
Lot/Section /Plan No:	204/-/DP753342
Council:	GREATER HUME SHIRE COUNCIL

Summary of planning controls

Planning controls held within the Planning Database are summarised below. The property may be affected by additional planning controls not outlined in this report. Please contact your council for more information.

Local Environmental Plans	Greater Hume Local Environmental Plan 2012 (pub. 12-10-2012)
Land Zoning	RU1 - Primary Production: (pub. 24-2-2023)
Height Of Building	NA
Floor Space Ratio	NA
Minimum Lot Size	100 ha
Heritage	NA
Land Reservation Acquisition	NA
Foreshore Building Line	NA
Terrestrial Biodiversity	Biodiversity

Detailed planning information

State Environmental Planning Policies which apply to this property

State Environmental Planning Policies can specify planning controls for certain areas and/or types of development. They can also identify the development assessment system that applies and the type of environmental assessment that is required.

This report provides general information only and does not replace a Section 10.7 Certificate (formerly Section 149)

- State Environmental Planning Policy (Biodiversity and Conservation) 2021: Allowable Clearing Area (pub. 21-10-2022)
- State Environmental Planning Policy (Biodiversity and Conservation) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Exempt and Complying Development Codes) 2008: Land Application (pub. 12-12-2008)
- State Environmental Planning Policy (Housing) 2021: Land Application (pub. 26-11-2021)
- State Environmental Planning Policy (Industry and Employment) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Planning Systems) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Primary Production) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Resilience and Hazards) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Resources and Energy) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Sustainable Buildings) 2022: Land Application (pub. 29-8-2022)
- State Environmental Planning Policy (Transport and Infrastructure) 2021: Land Application (pub. 2-12-2021)

Other matters affecting the property

Information held in the Planning Database about other matters affecting the property appears below. The property may also be affected by additional planning controls not outlined in this report. Please speak to your council for more information

Bushfire Prone Land	Vegetation Buffer
	Vegetation Category
Local Aboriginal Land Council	ALBURY AND DISTRICT
Regional Plan Boundary	Riverina Murray

Appendix C DPHI SEARs and TfNSW Advice

Jindera Battery Energy Storage System (BESS)

Transport Impact Assessment

BESS Atlantic c/o Gransolar Development Australia Pty Ltd

SLR Project No.: 620.041088.00001

17 December 2025

Planning Secretary's Environmental Assessment Requirements

Section 4.12(8) of the *Environmental Planning and Assessment Act 1979*

Part 8 of the Environmental Planning and Assessment Regulation 2021

Application Number	SSD-68815961
Project	Jindera Battery energy Storage system, which includes: • the construction, operation and decommissioning of a battery energy storage system (BESS) with an estimated capacity of approximately 250MW / 500 MWh; and • associated infrastructure including transmission and connection works.
Location	204 Ortlipp Road, Glenellen and 140 Ortlipp Road, Jindera, within Greater Hume Shire Council
Proponent	BESS Atlantic Pty Ltd
Date of Issue	18/04/2024
General Requirements	The Environmental Impact Statement (EIS) for the development must comply with the requirements in Part 8, Division 5 of the *Environmental Planning and Assessment Regulation 2021* (the Regulation) and must have regard to the *State Significant Development Guidelines,* and any relevant planning circulars. In particular, the EIS must include: • a stand-alone executive summary; • a full description of the development, including: - details of construction, operation and decommissioning, including any staging of the development; - a high quality site plan at an adequate scale showing all infrastructure and facilities (including any infrastructure that would be required for the development, but the subject of a separate approvals process); - a high quality detailed constraints map identifying the key environmental and other land use constraints that have informed the final design of the development; and - confirmation if the project is designated development in accordance with the *Environmental Planning and Assessment Act 1979* (EP&A Act) and the Regulation;

- a strategic justification of the development focusing on site selection and the suitability of the proposed site with respect to potential land use conflicts with existing and future surrounding land uses (including existing land use, other proposed or approved energy facilities, major projects, rural/residential development, Crown lands within and adjacent to the project site and subdivision potential);
- a risk assessment of the potential impacts of the development, identifying the key issues for further assessment;
- an assessment of the likely impacts of the development on the environment, and any other significant issues identified in the above risk assessment, focusing on the specific issues identified below, including:
  - a description of the existing environment likely to be affected by the development using sufficient baseline data;
  - an assessment of the likely impacts of all stages of the development (which is commensurate with the level of impact), including any cumulative impacts of the site and existing, approved or proposed developments in the region and impacts on the site and any road upgrades, taking into consideration any relevant legislation, environmental planning instruments, guidelines, policies, plans and industry codes of practice including the *Cumulative Impact Assessment Guideline* (DPE, 2022);
  - a description of the measures that would be implemented to avoid, mitigate and/or offset the impacts of the development (including draft management plans for specific issues as identified below); and
  - a description of the measures that would be implemented to monitor and report on the environmental performance of the development;
- a consolidated summary of all the proposed environmental management and monitoring measures, identifying all the commitments in the EIS;
- a detailed evaluation of the merits of the project as a whole, having regard to:
  - the requirements in Section 4.15 of the *Environmental Planning and Assessment Act 1979*, including the objects of the Act and how the principles of ecologically sustainable development have been incorporated in the design, construction and ongoing operations of the development;
  - the suitability of the site with respect to potential land use conflicts with existing and future surrounding land uses;
  - feasible alternatives to the development and its key components, including siting and project design alternatives to avoid areas of biodiversity value, opportunities for shared infrastructure with proposed developments in the region, and the consequences of not carrying out the development; and
  - a detailed consideration of the capability of the project to contribute to the security and reliability of the electricity system in the National

	Electricity Market, having regard to local system conditions and the Department's guidance on the matter. **Estimated Development Cost and Employment** • Provide the estimated development cost (EDC) of the development prepared in accordance with the relevant planning circular using the Standard Form of EDC Report; • Provide an estimate of the retained and new jobs that would be created during the construction and operational phases of the development, including details of the methodology to determine the figures provided; • The development application must also be accompanied by: - the consent of the owner/s of the land (as required in Section 23(1) of the EP&A Regulation); and - a declaration from a Registered Environmental Assessment Practitioner that the EIS includes the information specified in the *Department's Registered Environmental Assessment Practitioner Guidelines*.
Key issues	The EIS must address the following specific matters: **Biodiversity** – including: • an assessment of the biodiversity values and the likely biodiversity impacts of the project in accordance with Section 7.9 of the *Biodiversity Conservation Act 2016* (NSW) (BC Act), *the Biodiversity Assessment Method* (BAM) *2020* and documented in a Biodiversity Development Assessment Report (BDAR). The BDAR must: - be prepared using the approved BDAR template; - document the application of the avoid, minimise and offset framework including assessing all direct, indirect and prescribed impacts in accordance with the BAM; - assess the impacts associated with all ancillary infrastructure, including the transport route road upgrades; - include an assessment for serious and irreversible impacts (SAII) in accordance with Section 9.1 of the BAM; and - include a strategy to offset any residual impacts of the development in accordance with the BC Act, unless BCS and DPHI determine the proposed development is not likely to have any significant impacts on biodiversity values; • an assessment of the likely impacts on listed aquatic threatened species, populations or ecological communities, scheduled under the *Fisheries Management Act 1994*, and a description of the measures to minimise and rehabilitate impacts; • a cumulative impact assessment of biodiversity values in the region from nearby developments; and

- if an offset is required, details of the measures proposed to address the offset obligations.

Heritage – including:

- An Aboriginal Cultural Heritage Assessment Report (ACHAR) prepared in accordance with the Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH, 2011) and the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW (DECCW, 2010), identifying, describing, and assessing any impacts to any Aboriginal cultural heritage sites or values associated with the site (including impacts from proposed road upgrades), and including results of archaeological test excavations (if required);
- evidence of consultation with Aboriginal communities in determining and assessing impacts, developing options and selecting options and mitigation measures (including the final proposed measures), having regard to the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW, 2010); and
- assess the impact to historic heritage having regard to the *NSW Heritage Manual*.

Land – including:

- a detailed justification of the suitability of the site and that the site can accommodate the proposed development having regard to its potential environmental impacts, land contamination, permissibility, strategic context and existing site constraints;
- an assessment of the potential impacts of the development on existing land uses on the site and adjacent land, including:
  - agricultural land, flood prone land, nearby drinking water catchments, Crown lands, mining, quarries, mineral or petroleum rights (if relevant);
  - a soil survey to determine the soil characteristics and consider the potential for salinity, acid sulfate soils, and erosion to occur; and
  - a cumulative impact assessment of nearby developments;
- an assessment of the compatibility of the development with existing land uses, during construction, operation and after decommissioning, including:
  - consideration of the zoning provisions applying to the land, including subdivision (if required);
  - completion of a Land Use Conflict Risk Assessment in accordance with the Department of Industry's *Land Use Conflict Risk Assessment Guide*; and
  - an assessment of impact on agricultural resources and agricultural production on the site and region.

Visual – including a detailed assessment of the likely visual impacts (including night lighting) of all components of the project (including transmission lines, substations and any other ancillary infrastructure) on surrounding residences (including approved developments, lodged development applications and

dwelling entitlements) and key locations, scenic or significant vistas and road corridors in the public domain and provide details of measures to mitigate and/or manage potential impacts.

Noise – including an assessment of the construction noise impacts (including impacts from proposed road upgrades) of the development in accordance with *the Interim Construction Noise Guideline* (ICNG), operational noise impacts in accordance with the *NSW Noise Policy for Industry* (2017), cumulative noise impacts (considering other developments in the area), and a draft noise management plan if the assessment shows construction noise is likely to exceed applicable criteria.

Transport – including:

- an assessment of the peak and average traffic generation, including over-dimensional vehicles / heavy vehicles requiring escort and construction worker transportation;
- an assessment of the likely transport impacts to the site access route(s), including over-dimensional vehicles/ heavy vehicles requiring escort, site access point(s), any Crown land, particularly in relation to the capacity and condition of the roads, road safety and intersection performance;
- a cumulative impact assessment of traffic from nearby developments; and
- provide details of measures to mitigate and / or manage potential impacts including a schedule of all required road upgrades (including resulting from heavy vehicle and over mass / over dimensional traffic haulage routes), road maintenance contributions, and any other traffic control measures, developed in consultation with the relevant road authorities.

Water – including:

- an assessment of the likely impacts of the development on surrounding watercourses (including their Strahler Stream Order), groundwater resources and surface water movements, and measures proposed to monitor, reduce and mitigate these impacts including water management issues;
- a site water balance for the development;
- details of water requirements and supply arrangements for construction and operation;
- a description of the erosion and sediment control measures that would be implemented to mitigate any impacts in accordance with Managing Urban Stormwater: Soils & Construction (Landcom, 2004);
- assessing the impacts of the development, including any changes to flood risk and overland flows on-site or off-site, and detail design solutions and operational procedures to mitigate flood risk where required; and
- where the project involves works within 40 metres of any river, lake or wetlands (collectively waterfront land), identify likely impacts to the waterfront land, and how the activities are to be designed and

implemented in accordance with the DPI *Guidelines for Controlled Activities on Waterfront Land* (2018) and (if necessary) *Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* (DPI 2003), *and Policy & Guidelines for Fish Habitat Conservation & Management* (DPE, 2013);

- Flood Risk: identification of any flood risk on site having regard to adopted flood studies, the potential effects of climate change and any relevant provisions of the NSW Flood Risk Management Manual;
  - where the development could alter flood behaviour, affect flood risk to the existing community or expose its users to flood risk, provide a flood impact and risk assessment (FIRA) prepared in accordance with the Flood Impact and Risk Assessment – Flood Risk Management Guide LU01;
  - detailed design solutions and operational procedures to mitigate flood risk where required.

Hazards – including:

- a preliminary risk screening completed in accordance with the State Environmental Planning Policy (*Resilience and Hazards*);
- a Preliminary Hazard Analysis (PHA) prepared in accordance with *Hazardous Industry Planning Advisory Paper No. 6 – Guideline for Hazard Analysis* (DoP, 2011) and *Multi-Level Risk Assessment* (DoP, 2011). The PHA must consider all recent standards and codes and verify separation distances to on-site and off-site receptors to prevent fire propagation and compliance with the Department's *Hazardous Industry Advisory Paper No. 4, 'Risk Criteria for Land Use Safety Planning* (DoP, 2011) and include the key design parameters identified in the PHA within the project description. The PHA must consider the effect of bushfires on batteries or other components of the BESS;
- *Health* – an assessment of potential hazards and risks including but not limited to fires, spontaneous ignition, electromagnetic fields or the proposed grid connection infrastructure against *the International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines for limiting exposure to Time-varying Electric, Magnetic and Electromagnetic Fields*;
- *Bushfire* - identify potential hazards and risks associated with bushfires / use of bushfire prone land including the risks that a BESS would cause a bush fire and demonstrate compliance with the RFS *Planning for Bush Fire Protection 2019*; and
- Dangerous Goods – a preliminary risk screening completed in accordance with the *State Environmental Planning Policy (Resilience and Hazards)*.

Social – including an assessment of the social impacts or benefits of the project for the region and the State as a whole in accordance with the *Social*

	Impact Assessment Guideline (DPE, 2023), including consideration of any increase in demand for community infrastructure services, and consideration of construction workforce accommodation. **Economic** – including an assessment of the economic impacts or benefits of the project for the region and the State as a whole and provide details of any proposed voluntary benefit sharing programs. **Waste** – including a waste management assessment or plan (as appropriate) to identify, quantify and classify the likely waste streams to be generated throughout all stages of the project, and describe the measures to be implemented to reduce waste generation, manage, reuse, recycle and safely dispose of this waste, and an assessment of sewerage (if required).
Plans and Documents	The EIS must include all relevant plans, diagrams and relevant documentation required under Part 3 of the EP&A Regulation. Provide these as part of the EIS rather than as separate documents. In addition, the EIS must include high quality files of maps and figures of the subject site and proposal.
Legislation, Policies & Guidelines	The assessment of the key issues listed above must take into account relevant guidelines, policies, and plans as identified. A list of some of the legislation, policies and guidelines that may be relevant to the assessment of the project can be found at: • https://www.planning.nsw.gov.au/Policy-and-Legislation/Planning-reforms/Rapid-Assessment-Framework/Improving-assessment-guidance; • https://www.planningportal.nsw.gov.au/major-projects/assessment/policies--and-guidelines; and • http://www.environment.gov.au/epbc/publications#assessments.
Consultation	During the preparation of the EIS, you should consult with the relevant local, State or Commonwealth Government authorities, infrastructure and service providers, community groups, affected landowners and any exploration licence and/or mineral title holders. In particular, you must undertake detailed consultation with affected landowners surrounding the development, relevant government agencies, including the relevant local Council. The EIS must: • detail how engagement undertaken was consistent with the *Undertaking Engagement Guidelines for State Significant Projects* (DPIE, 2021); and • describe the consultation process and the issues raised, and identify where the design of the development has been amended in response to these issues. Where amendments have not been made to address an

	issue, an explanation should be provided.
Expiry Date	If you do not lodge a Development Application and EIS for the development within 2 years of the issue date of these SEARs, your SEARs will expire. If an extension to these SEARs will be required, please consult with the Planning Secretary 3 months prior to the expiry date.

Transport for NSW

TfNSW reference: WST24/00116/001| SF2024/062405 | WST23/00199
DPHI reference: SSD-68815961

3 April 2024

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

Attention: James Bellamy

SSD-68815961: Request for Secretary's Environmental Assessment Requirements (SEARs) Jindera BESS; Lot 204 DP 753342, 204 Ortlipp Road, Glenellen within the Greater Hume Shire Local Government Area;

Thank you for referring the abovementioned request for SEARS via the NSW Major Projects Planning Portal to Transport for NSW (TfNSW) seeking comments in relation to the proposed Jindera Battery Energy Storage System (BESS) located within Greater Hume Shire Local Government Area.

TfNSW has reviewed the scoping study prepared for BESS Australia Pty Ltd and provides advice in **Attachment A** to assist you in the preparation of documentation in support of the proposal for future submission to the Department of Planning, Housing and Infrastructure.

If you have any questions or wish to discuss this matter further, please contact Tim Mitchell on 1300 019 680 or email development.west@transport.nsw.gov.au.

Yours faithfully,

T. Mitch

Tim Mitchell
Acting Team Leader Development Services Renewables
Community & Place | Region West
Regional and Outer Metropolitan

Attachment A

SSD-68815961: Request for Secretary's Environmental Assessment Requirements (SEARs) Jindera BESS; Lot 204 DP 753342, 204 Ortlipp Road, Glenellen within the Greater Hume Shire Local Government Area;

Context

- The project involves construction, operation and decommissioning of a BESS with a with a capacity of 250 Megawatts (MW), 500 Megawatt Hours (MWh) and connecting to the existing Jindera 330/132KV TransGrid substation via approximately 500m of 330 kV overhead line .
- The project is proposed to be constructed and operated across Lot 204 DP 753342, 204 Ortlipp Road, Glenellen within the Greater Hume Shire Local Government Area. Access to the site is likely to occur from the local road, Ortlipp Road.).

TfNSW advice

The Environmental Impact Study to be submitted as part of the environmental planning process will need to include a Traffic Impact Assessment (TIA) to address the impact of traffic generation on the public road network and measures employed to ensure traffic efficiency and road safety during construction, operation and decommissioning of the project.

The TIA is to be tailored to the scope of the proposed development and include, but not be limited to, the following:

- Traffic volumes including:
  - Existing background traffic,
  - Project-related traffic for each phase or stage of the project,
  - Projected cumulative traffic at commencement of operation, and a 10-year horizon post-commencement.
- Traffic characteristics including:
  - Number and ratio of heavy vehicles to light vehicles,
  - Peak times for existing traffic,
  - Peak times for project-related traffic including commuter periods,
  - Proposed hours for transportation and haulage,
  - Interactions between existing and project-related traffic.
- Capacity analysis using *Austroads Guide to Road Design* at intersections with classified (State) road/s, and where relevant, analysis of any other intersections along the proposed transport route/s.

- Heavy vehicle and OSOM routes:
  - In addition to the requested TIA, separate concept-level route analysis based on high-level 3D swept path drawings to identify the return routes for OSOM movements and indicate locations where civil works are needed and indicative pinch points.
  - The TIA is required to include details of OSOM movements, including volumes, times for OSOM movements to occur and identify the location of pull-over bays / rest areas on OSOM routes (including GPS coordinates) and confirmation such facilities can physically accommodate (in terms of size, width and accessibility) the largest OSOM vehicle.
  - Undertake a logistics route analysis that includes:
    - Details of the road geometry and alignment along the identified transport route/s, including existing formations, crossings, bridges, intersection treatments and any identified hazards, including:
      - Available sight distances at the site access and nearby intersections and any constraint to achieving the required sight distance for the posted speed limit.
      - An assessment of turn treatment warrants in accordance with *Austroads Guide to Traffic Management* Part 6 and *Austroads Guide to Road Design* Part 4A for intersections on identified transport route/s, identifying the existence of the minimum basic turn treatments and addressing the need for any warranted higher order treatments.
      - Bridge Assessments for any at risk bridges on the classified road network due to dimensions and weight of OSOM vehicles.
      - Swept path analysis demonstrating the largest design vehicle can enter and leave the development, and simultaneously pass through intersections along the proposed transport route/s.

        The design vehicle templates used in the swept path analysis software are also requested in order for TfNSW to review the performance within the software (e.g. Autodesk Vehicle Tracking or Transoft AutoTURN).
    - Highlighting each at-risk road structures 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.
    - National Heavy Vehicle Regulator (NHVR) approved routes identified on the Restricted Access Maps (RAV MAP) are to be utilised for the heavy vehicle routes for the proposed development. Please note NHVR permits do not cover civil works required along any proposed OSOM route. Any works required along the OSOM route must be included within the scope of works in the SSD to ensure the development is constructable.
  - Identify and provide the following measurements parameters of OSOM components / materials to be moved:
    - Identify types and numbers of OSOM vehicles proposed to be used for the project.
    - Overall combination load length, width, height and mass for components and nominated vehicles.
    - Maximum component length, widths and heights (including clearance to overhead obstructions such as structures, utilities and vegetation),
    - Wheelbase dimensions,
    - Maximum trailer articulation angle(s),
    - Minimum overhang heights above the road surface,

  - Axle loads and axle group loads in terms of both tonnes and Equivalent Standard Axles (refer to *Austroads Guide to Pavement Technology*).

- Cumulative impacts:
  - Identify and assess implications of any road and rail projects that may occur during OSOM movements on proposed OSOM routes.
  - Identify projects that will have overlapping construction periods and assess the cumulative traffic impacts with emphasis on the following:
    - Cumulative impacts from traffic generated from construction workforces in terms of origin-destination routes, access, AM/PM peaks where they overlap with other projects.
    - Cumulative impacts of heavy vehicle movements in terms of AM/PM peaks and routes where there is an overlap with other projects.
    - Cumulative impacts and consideration in relation to timing of movements of OSOMs where other projects will utilise the same routes as proposed for this development. Please note, given the high number of renewable energy and other large scale projects requiring haulage of OSOM components on the road network, restrictions, and limitations on OSOM movements may be in imposed. In this regard, it is recommended that you engage earlier with TfNSW's Freight Branch – Special Permits team to discuss access needs and timing.

- Identify accommodation (and transport) needs and facilities available within the local region, to service the project staff, in addition to understanding the cumulative impacts of concurrent accommodation (and transport) needs of staff from other projects. Details of measures employed to promote and enforce safe commuter traffic movements are to be included.
- Road safety assessment of haulage route/s.
  - Where road safety concerns are identified at specific locations on haulage routes, TfNSW suggests the TIA be supported by a targeted Road Safety Audit undertaken by suitably qualified persons in accordance with *Austroads Guidelines*.
- 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 considering the safe systems principles adopted under *Future Transport 2056.*
- Project schedule:
  - Hours and days of work, number of shifts and start and end times,
  - Identify the approximate project's targeted construction commencement date/s.
  - Identify the phases and stages of the project, including construction, operation and decommissioning.
- The origins, destinations and routes for:
  - Commuter (employee and contractor) light vehicles and pool vehicles (including. shuttle buses),
  - Heavy (haulage) vehicles,
  - OSOM vehicles.
- Identify the necessary road network infrastructure upgrades that are required to cater for and mitigate the impact of project related traffic on both the local and classified road network for the development (for instance, road widening and/or intersection treatments).

  In this regard, strategic design drawing/s are to be submitted with the SSD application for any identified road infrastructure and access upgrades. Any identified road infrastructure upgrades

will need to be to the satisfaction of TfNSW and Council. Works must be appropriately designed in accordance with *Austroads Guide to Road Design* for the existing posted speed limit, including provision of Safe Intersection Sight Distance (SISD).

Note: The design needs to comply with *TfNSW Strategic design requirements for DAs*. To assist you in preparing the designs, please refer to link below:

https://roads-waterways.transport.nsw.gov.au/business-industry/partners-suppliers/documents/planning-principles/strategic-design-fact-sheet-02-2022.pdf

- The layout of the internal road network, parking facilities and infrastructure.
- Impact on rail corridors and level crossings along transport route/s detailing any proposed interface treatments, where applicable.
- Controls for transport and use of any dangerous goods in accordance with *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development*, the *Australian Dangerous Goods Code* and *AS4452 Storage and Handling of Toxic Substances*.
- Detailed plans identifying the proposed location of any:
  - Project-related infrastructure within and outside of the project boundary.
  - Transmission line infrastructure, or any other project-related structures, within a road reserve. In respect to this matter the following information is required:
    - Overhead clearances,
    - Construction methods,
    - Potential traffic mitigation measures for construction,
    - Location of infrastructure within or adjacent to the road reserve,
    - Excavation or fill requirements adjacent or within road corridors,
    - Access required to construct and maintain the infrastructure, and
    - Permanent or temporary connection/access to classified roads.

Appendix D Swept Path Assessments

Jindera Battery Energy Storage System (BESS)

Transport Impact Assessment

BESS Atlantic c/o Gransolar Development Australia Pty Ltd

SLR Project No.: 620.041088.00001

17 December 2025

CONCEPT ONLY

URANA ROAD

WALLA WALLA JINDERA ROAD

SLR

LEVEL 16, 175 EAGLE ST
BRISBANE
QUEENSLAND 4000
AUSTRALIA
T: 61 7 3858 4800

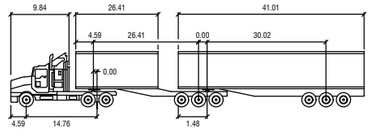
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Sheet Size:	A3
Projection:	GDA 2020/MGA Zone 55

SWEPT PATH LEGEND

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



B-double

feet

Tractor Width	: 8.20	Lock to Lock Time	: 6.0
Trailer Width	: 8.20	Steering Angle	: 23.4
Tractor Track	: 8.20	Articulating Angle	: 70.0
Trailer Track	: 8.20		

N

0.0 5.0 10 15 20
METRES

SCALE 1:500

Gransolar Development Australia Pty Ltd

Jindera BESS

Swept Path Assessment: 26.0m B-double Entry & Exit to Walla Walla Jindera Road

FIGURE SK01



LEVEL 16, 175 EAGLE ST
BRISBANE
QUEENSLAND 4000
AUSTRALIA
T: 61 7 3858 4800

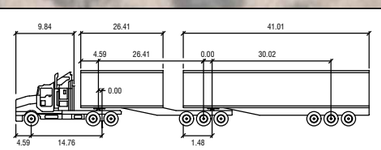
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SWEPT PATH LEGEND

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



B-double

feet

Tractor Width	: 8.20	Lock to Lock Time	: 6.0
Trailer Width	: 8.20	Steering Angle	: 23.4
Tractor Track	: 8.20	Articulating Angle	: 70.0
Trailer Track	: 8.20		

N

0.0 4 8 12 16
METERS

SCALE 1:400

Gransolar Development Australia Pty Ltd

Jindera BESS

Swept Path Assessment: 26.0m B-double Entry to Lindner Road

FIGURE SK02

CONCEPT ONLY

WALLA WALLA JINDERA ROAD

LINDNER ROAD

B-double STANDARDS 2018 (AU)

B-double STANDARDS 2018 (AU)

SLR

LEVEL 16, 175 EAGLE ST
BRISBANE
QUEENSLAND 4000
AUSTRALIA
T: 61 7 3858 4800

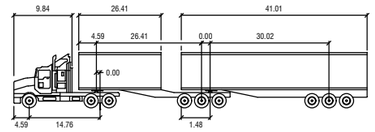
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SWEPT PATH LEGEND

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



B-double

feet

Tractor Width	: 8.20	Lock to Lock Time	: 6.0
Trailer Width	: 8.20	Steering Angle	: 23.4
Tractor Track	: 8.20	Articulating Angle	: 70.0
Trailer Track	: 8.20		

N

0.0 4 8 12 16
METERS

SCALE 1:400

Gransolar Development Australia Pty Ltd

Jindera BESS

Swept Path Assessment: 26.0m B-double Exit from Lindner Road

FIGURE SK03

CONCEPT ONLY

LINDNER ROAD

LINDNER ROAD

LEVEL 16, 175 EAGLE ST
BRISBANE
QUEENSLAND 4000
AUSTRALIA
T: 61 7 3858 4800

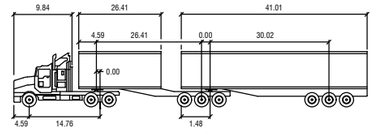
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SWEPT PATH LEGEND

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



B-double

feet

Tractor Width	: 8.20	Lock to Lock Time	: 6.0
Trailer Width	: 8.20	Steering Angle	: 23.4
Tractor Track	: 8.20	Articulating Angle	: 70.0
Trailer Track	: 8.20		

N

0.0 5.0 10 15 20
METRES

SCALE 1:500

Gransolar Development Australia Pty Ltd

Jindera BESS

Swept Path Assessment: 26.0m B-double on Lindner Road

FIGURE SK04

CONCEPT ONLY

LINDNER ROAD

ORTLIPP ROAD

LEVEL 16, 175 EAGLE ST
BRISBANE
QUEENSLAND 4000
AUSTRALIA
T: 61 7 3858 4800

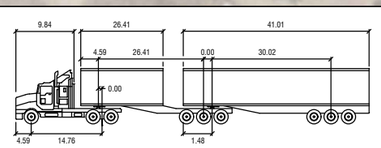
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SWEPT PATH LEGEND

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



B-double

feet

Tractor Width	: 8.20	Lock to Lock Time	: 6.0
Trailer Width	: 8.20	Steering Angle	: 23.4
Tractor Track	: 8.20	Articulating Angle	: 70.0
Trailer Track	: 8.20		

N

0.0 5.0 10 15 20
METRES

SCALE 1:500

Gransolar Development Australia Pty Ltd

Jindera BESS

Swept Path Assessment: 26.0m B-double Entry to Ortlipp Road

FIGURE SK05

CONCEPT ONLY

URANA ROAD

WALLA WALLA JINDERA ROAD

LEVEL 16, 175 EAGLE ST
BRISBANE
QUEENSLAND 4000
AUSTRALIA
T: 61 7 3858 4800

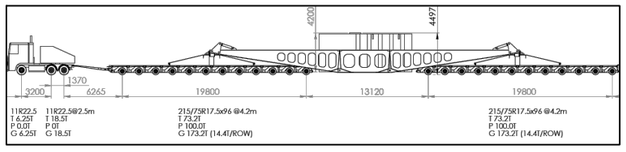
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SWEPT PATH LEGEND

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



N

0.0 7.5 15 22.5 30
METRES

SCALE 1:750

Gransolar Development Australia Pty Ltd

Jindera BESS

Swept Path Assessment: 250t Transformer Entry to Walla Walla Jindera Road

FIGURE SK10

CONCEPT ONLY

LINDNER ROAD

WALLA WALLA JINDERA ROAD

250t Transformer Custom

SLR

LEVEL 16, 175 EAGLE ST
BRISBANE
QUEENSLAND 4000
AUSTRALIA
T: 61 7 3858 4800

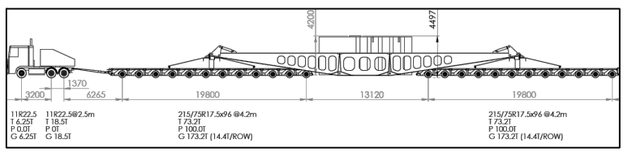
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SWEPT PATH LEGEND

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



N

0.0 7.5 15 22.5 30
METRES

SCALE 1:750

Gransolar Development Australia Pty Ltd

Jindera BESS

Swept Path Assessment: 250t Transformer
Route 1: Entry to Lindner Road

FIGURE SK11

CONCEPT ONLY

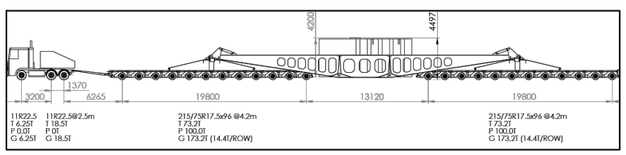


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LEVEL 16, 175 EAGLE ST
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AUSTRALIA
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SWEPT PATH LEGEND
- Vehicle Path
- Vehicle Body
- Body Clearance
- Front Wheels
- Rear Wheels
- Road Widening



N

0.0 7.5 15 22.5 30
METRES

SCALE 1:750

Gransolar Development Australia Pty Ltd

Jindera BESS

Swept Path Assessment: 250t Transformer
Route 1: Travel on Lindner Road

FIGURE SK12

CONCEPT ONLY

LINDNER ROAD

LINDNER ROAD

LEVEL 16, 175 EAGLE ST
BRISBANE
QUEENSLAND 4000
AUSTRALIA
T: 61 7 3858 4800

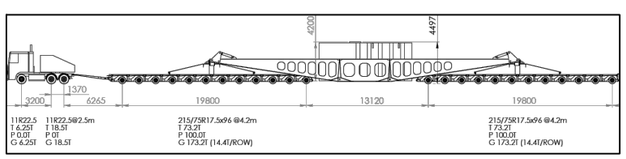
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SWEPT PATH LEGEND

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



N

0.0 7.5 15 22.5 30
METRES

SCALE 1:750

Gransolar Development Australia Pty Ltd

Jindera BESS

Swept Path Assessment: 250t Transformer Route 1: Travel on Lindner Road

FIGURE SK13

CONCEPT ONLY

LINDNER ROAD

ORTLIPP ROAD

SLR

LEVEL 16, 175 EAGLE ST
BRISBANE
QUEENSLAND 4000
AUSTRALIA
T: 61 7 3858 4800

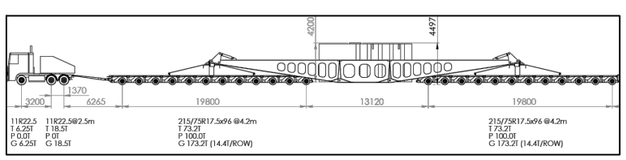
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Projection:	GDA 2020/MGA Zone 55

SWEPT PATH LEGEND

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



N

0.0 7.5 15 22.5 30
METRES

SCALE 1:750

Gransolar Development Australia Pty Ltd

Jindera BESS

Swept Path Assessment: 250t Transformer Route 1: Entry to Ortlipp Road (South)

FIGURE SK14

CONCEPT ONLY

ORTLIPP ROAD

ORTLIPP ROAD

250T Transformer Custom

250T Transformer Custom

LEVEL 16, 175 EAGLE ST
BRISBANE
QUEENSLAND 4000
AUSTRALIA
T: 61 7 3858 4800

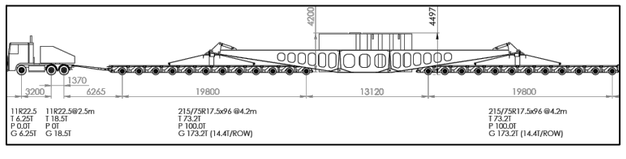
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Projection:	GDA 2020/MGA Zone 55

SWEPT PATH LEGEND

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



N

0.0 7.5 15 22.5 30
METRES

SCALE 1:750

Gransolar Development Australia Pty Ltd

Jindera BESS

Swept Path Assessment: 250t Transformer Route 1: Entry to Site

FIGURE SK15

CONCEPT ONLY

HRV
STANDARDS 2018 (AU)

HRV
STANDARDS 2018 (AU)

LEVEL 16, 175 EAGLE ST
BRISBANE
QUEENSLAND 4000
AUSTRALIA
T: 61 7 3858 4800

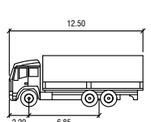
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Date:	19/11/2024
Drawn by:	Charlie Seventekin
Certified by:	Charlie Seventekin
Sheet Size:	A3
Projection:	GDA2020 MGA Zone 55

SWEPT PATH LEGEND

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



HRV

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.7

N

0.0 2.5 5 7.5 10
METRES

SCALE 1:250

GranSolar

Jindera BESS

12.5m Heavy Rigid Vehicle (Fire Truck) Swept Path Assessment

FIGURE SK19

CONCEPT ONLY

HRV
STANDARDS 2018 (AU)

HRV
STANDARDS 2018 (AU)

LEVEL 16, 175 EAGLE ST
BRISBANE
QUEENSLAND 4000
AUSTRALIA
T: 61 7 3858 4800

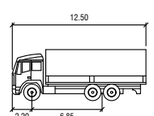
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Project No:	620.041088.00001
Date:	19/11/2024
Drawn by:	Charlie Seventekin
Certified by:	Charlie Seventekin
Sheet Size:	A3
Projection:	GDA2020 MGA Zone 55

SWEPT PATH LEGEND

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



HRV

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.7

N

0,0 2,5 5 7,5 10
METRES

SCALE 1:250

GranSolar

Jindera BESS

12.5m Heavy Rigid Vehicle (Fire Truck) Swept Path Assessment

FIGURE SK20

CONCEPT ONLY

HRV
STANDARDS 2018 (AU)

HRV
STANDARDS 2018 (AU)

SLR

LEVEL 16, 175 EAGLE ST
BRISBANE
QUEENSLAND 4000
AUSTRALIA
T: 61 7 3858 4800

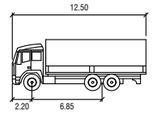
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SLR Consulting Australia Pty Ltd does not guarantee the accuracy of any such information.

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N

0.0 2.5 5 7.5 10
METRES

SCALE 1:250

GranSolar

Jindera BESS

12.5m Heavy Rigid Vehicle (Fire Truck) Swept Path Assessment

FIGURE SK21

Appendix E Traffic Surveys

Jindera Battery Energy Storage System (BESS)

Transport Impact Assessment

BESS Atlantic c/o Gransolar Development Australia Pty Ltd

SLR Project No.: 620.041088.00001

17 December 2025

Location	Urana Road	**Duration**	6:30	-	09:30
	Walla Walla Jindera Road			-	
	Urana Road		15:00	-	18:00
	-	**Date**	Thursday, 5 September 2024		
Suburb	JINDERA	**Weather**	-		

All Vehicles Time Per 15 Mins	NORTHWEST *Urana Road*											NORTHEAST *Walla Walla Jindera Road*													
	L			T			R					L			T			R					TOTAL		
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	PEDS	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	PEDS	LIGHT	HEAVY	TOTAL
6:30 - 6:45	0	0	0	6	1	7				7	0	15	3	18				0	0	0	18	0	44	5	49
6:45 - 7:00	0	0	0	6	0	6				6	0	9	2	11				1	0	1	12	0	30	4	34
7:00 - 7:15	0	0	0	5	0	5				5	0	10	3	13				0	0	0	13	0	35	3	38
7:15 - 7:30	0	0	0	12	0	12				12	0	7	2	9				1	0	1	10	0	37	5	42
7:30 - 7:45	1	0	1	10	0	10				11	0	10	0	10				0	0	0	10	0	42	3	45
7:45 - 8:00	0	0	0	18	4	22				22	0	22	0	22				0	0	0	22	0	68	9	77
8:00 - 8:15	1	0	1	14	0	14				15	0	17	0	17				0	0	0	17	0	60	2	62
8:15 - 8:30	0	0	0	22	0	22				22	0	29	0	29				0	0	0	29	0	69	2	71
8:30 - 8:45	0	0	0	12	0	12				12	0	20	1	21				0	0	0	21	0	62	2	64
8:45 - 9:00	0	0	0	17	2	19				19	0	20	3	23				0	0	0	23	0	54	6	60
9:00 - 9:15	0	0	0	15	1	16				16	0	16	0	16				0	0	0	16	0	74	3	77
9:15 - 9:30	1	0	1	10	0	10				11	0	11	0	11				0	0	0	11	0	41	1	42
Period End	**3**	**0**	**3**	**147**	**8**	**155**				**158**	**0**	**186**	**14**	**200**				**2**	**0**	**2**	**202**	**0**	**616**	**45**	**661**
15:00 - 15:15	0	0	0	13	2	15				15	0	17	1	18				0	0	0	18	0	60	4	64
15:15 - 15:30	0	0	0	14	3	17				17	0	38	1	39				0	0	0	39	0	91	6	97
15:30 - 15:45	0	0	0	21	3	24				24	0	17	0	17				0	0	0	17	0	77	6	83
15:45 - 16:00	0	0	0	17	4	21				21	0	22	1	23				0	0	0	23	0	65	5	70
16:00 - 16:15	0	0	0	20	1	21				21	0	35	4	39				0	0	0	39	0	89	6	95
16:15 - 16:30	0	0	0	17	2	19				19	0	26	3	29				1	0	1	30	0	82	5	87
16:30 - 16:45	0	0	0	19	0	19				19	0	18	0	18				1	0	1	19	0	72	3	75
16:45 - 17:00	0	0	0	19	0	19				19	0	14	0	14				0	0	0	14	0	69	1	70
17:00 - 17:15	1	0	1	12	0	12				13	0	15	0	15				0	0	0	15	0	71	1	72
17:15 - 17:30	0	0	0	9	2	11				11	0	15	2	17				1	0	1	18	0	56	4	60
17:30 - 17:45	0	0	0	18	0	18				18	0	9	0	9				0	0	0	9	0	58	2	60
17:45 - 18:00	0	0	0	12	1	13				13	0	9	0	9				0	0	0	9	0	43	1	44
Period End	**1**	**0**	**1**	**191**	**18**	**209**				**210**	**0**	**235**	**12**	**247**				**3**	**0**	**3**	**250**	**0**	**833**	**44**	**877**

All Vehicles Time Per 15 Mins	SOUTHEAST *Urana Road*											WEST -													
	L			T			R					L			T			R					TOTAL		
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	PEDS	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	PEDS	LIGHT	HEAVY	TOTAL
6:30 - 6:45				6	1	7	17	0	17	24	0												44	5	49
6:45 - 7:00				9	1	10	5	1	6	16	0												30	4	34
7:00 - 7:15				7	0	7	13	0	13	20	0												35	3	38
7:15 - 7:30				12	3	15	5	0	5	20	0												37	5	42
7:30 - 7:45				9	2	11	12	1	13	24	0												42	3	45
7:45 - 8:00				11	2	13	17	3	20	33	0												68	9	77
8:00 - 8:15				12	1	13	16	1	17	30	0												60	2	62
8:15 - 8:30				10	2	12	8	0	8	20	0												69	2	71
8:30 - 8:45				9	0	9	21	1	22	31	0												62	2	64
8:45 - 9:00				8	0	8	9	1	10	18	0												54	6	60
9:00 - 9:15				10	0	10	33	2	35	45	0												74	3	77
9:15 - 9:30				6	0	6	13	1	14	20	0												41	1	42
Period End				**109**	**12**	**121**	**169**	**11**	**180**	**301**	**0**												**616**	**45**	**661**
15:00 - 15:15				14	0	14	16	1	17	31	0												60	4	64
15:15 - 15:30				16	1	17	23	1	24	41	0												91	6	97
15:30 - 15:45				18	1	19	21	2	23	42	0												77	6	83
15:45 - 16:00				11	0	11	15	0	15	26	0												65	5	70
16:00 - 16:15				11	1	12	23	0	23	35	0												89	6	95
16:15 - 16:30				10	0	10	28	0	28	38	0												82	5	87
16:30 - 16:45				16	1	17	18	2	20	37	0												72	3	75
16:45 - 17:00				24	0	24	12	1	13	37	0												69	1	70
17:00 - 17:15				24	0	24	19	1	20	44	0												71	1	72
17:15 - 17:30				16	0	16	15	0	15	31	0												56	4	60
17:30 - 17:45				22	0	22	9	2	11	33	0												58	2	60
17:45 - 18:00				9	0	9	13	0	13	22	0												43	1	44
Period End				**191**	**4**	**195**	**212**	**10**	**222**	**417**	**0**												**833**	**44**	**877**

Location	Urana Road	**Duration**	6:30	-	09:30
	Walla Walla Jindera Road			-	
	Urana Road		15:00	-	18:00
	-	**Date**	Thursday, 5 September 2024		
Suburb	JINDERA	**Weather**	-		

All Vehicles
Time Per Hour

	NORTHWEST *Urana Road*											NORTHEAST *Walla Walla Jindera Road*											TOTAL		
	L			T			R					L			T			R						
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	PEDS	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	PEDS	LIGHT	HEAVY	TOTAL
6:30 - 7:30	0	0	**0**	29	1	**30**				**30**	0	41	10	**51**				2	0	**2**	**53**	0	146	17	**163**
6:45 - 7:45	1	0	**1**	33	0	**33**				**34**	0	36	7	**43**				2	0	**2**	**45**	0	144	15	**159**
7:00 - 8:00	1	0	**1**	45	4	**49**				**50**	0	49	5	**54**				1	0	**1**	**55**	0	182	20	**202**
7:15 - 8:15	2	0	**2**	54	4	**58**				**60**	0	56	2	**58**				1	0	**1**	**59**	0	207	19	**226**
7:30 - 8:30	2	0	**2**	64	4	**68**				**70**	0	78	0	**78**				0	0	**0**	**78**	0	239	16	**255**
7:45 - 8:45	1	0	**1**	66	4	**70**				**71**	0	88	1	**89**				0	0	**0**	**89**	0	259	15	**274**
8:00 - 9:00	1	0	**1**	65	2	**67**				**68**	0	86	4	**90**				0	0	**0**	**90**	0	245	12	**257**
8:15 - 9:15	0	0	**0**	66	3	**69**				**69**	0	85	4	**89**				0	0	**0**	**89**	0	259	13	**272**
8:30 - 9:30	1	0	**1**	54	3	**57**				**58**	0	67	4	**71**				0	0	**0**	**71**	0	231	12	**243**
Period End																									
15:00 - 16:00	0	0	**0**	65	12	**77**				**77**	0	94	3	**97**				0	0	**0**	**97**	0	293	21	**314**
15:15 - 16:15	0	0	**0**	72	11	**83**				**83**	0	112	6	**118**				0	0	**0**	**118**	0	322	23	**345**
15:30 - 16:30	0	0	**0**	75	10	**85**				**85**	0	100	8	**108**				1	0	**1**	**109**	0	313	22	**335**
15:45 - 16:45	0	0	**0**	73	7	**80**				**80**	0	101	8	**109**				2	0	**2**	**111**	0	308	19	**327**
16:00 - 17:00	0	0	**0**	75	3	**78**				**78**	0	93	7	**100**				2	0	**2**	**102**	0	312	15	**327**
16:15 - 17:15	1	0	**1**	67	2	**69**				**70**	0	73	3	**76**				2	0	**2**	**78**	0	294	10	**304**
16:30 - 17:30	1	0	**1**	59	2	**61**				**62**	0	62	2	**64**				2	0	**2**	**66**	0	268	9	**277**
16:45 - 17:45	1	0	**1**	58	2	**60**				**61**	0	53	2	**55**				1	0	**1**	**56**	0	254	8	**262**
17:00 - 18:00	1	0	**1**	51	3	**54**				**55**	0	48	2	**50**				1	0	**1**	**51**	0	228	8	**236**
Period End																									

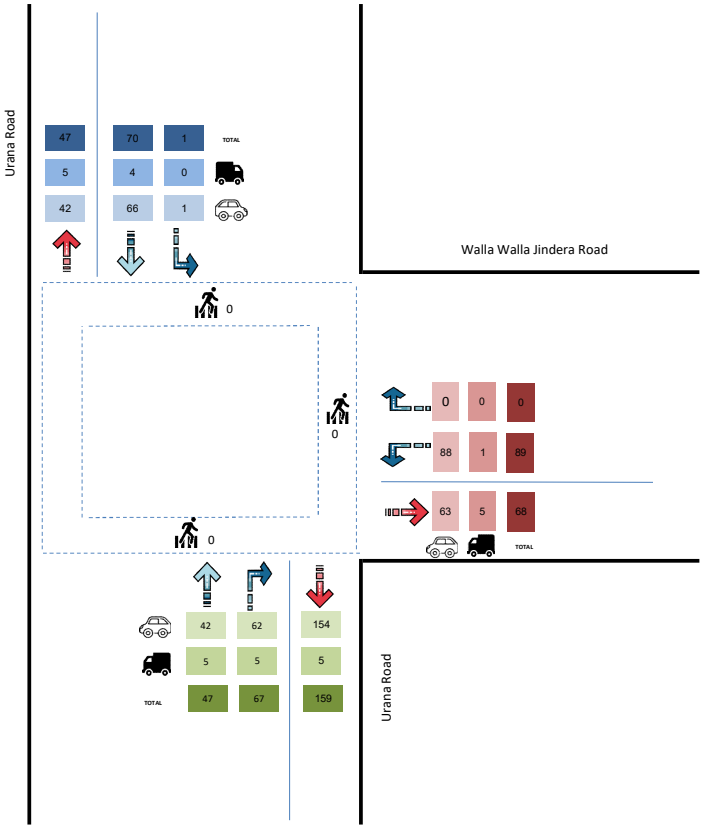
All Vehicles
Time Per Hour

	SOUTHEAST *Urana Road*											WEST -											TOTAL		
	L			T			R					L			T			R						
	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	PEDS	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	PEDS	LIGHT	HEAVY	TOTAL
6:30 - 7:30				34	5	**39**	40	1	**41**	**80**	0												146	17	**163**
6:45 - 7:45				37	6	**43**	35	2	**37**	**80**	0												144	15	**159**
7:00 - 8:00				39	7	**46**	47	4	**51**	**97**	0												182	20	**202**
7:15 - 8:15				44	8	**52**	50	5	**55**	**107**	0												207	19	**226**
7:30 - 8:30				42	7	**49**	53	5	**58**	**107**	0												239	16	**255**
7:45 - 8:45				42	5	**47**	62	5	**67**	**114**	0												259	15	**274**
8:00 - 9:00				39	3	**42**	54	3	**57**	**99**	0												245	12	**257**
8:15 - 9:15				37	2	**39**	71	4	**75**	**114**	0												259	13	**272**
8:30 - 9:30				33	0	**33**	76	5	**81**	**114**	0												231	12	**243**
Period End																									
15:00 - 16:00				59	2	**61**	75	4	**79**	**140**	0												293	21	**314**
15:15 - 16:15				56	3	**59**	82	3	**85**	**144**	0												322	23	**345**
15:30 - 16:30				50	2	**52**	87	2	**89**	**141**	0												313	22	**335**
15:45 - 16:45				48	2	**50**	84	2	**86**	**136**	0												308	19	**327**
16:00 - 17:00				61	2	**63**	81	3	**84**	**147**	0												312	15	**327**
16:15 - 17:15				74	1	**75**	77	4	**81**	**156**	0												294	10	**304**
16:30 - 17:30				80	1	**81**	64	4	**68**	**149**	0												268	9	**277**
16:45 - 17:45				86	0	**86**	55	4	**59**	**145**	0												254	8	**262**
17:00 - 18:00				71	0	**71**	56	3	**59**	**130**	0												228	8	**236**
Period End																									

Location	**Urana Road**	**Duration**	**6:30**	**-**	**09:30**
	Walla Walla Jindera Road			**-**	
	Urana Road		**15:00**	**-**	**18:00**
	-	**Date**	**Thursday, 5 September 2024**		
Suburb	**JINDERA**	**Weather**	**-**		

DATA SELECTION

Select Time: PEAK



TIME RANGE		
PEAK	**-**	**AM**
PEAK		
7:45	**-**	**8:45**

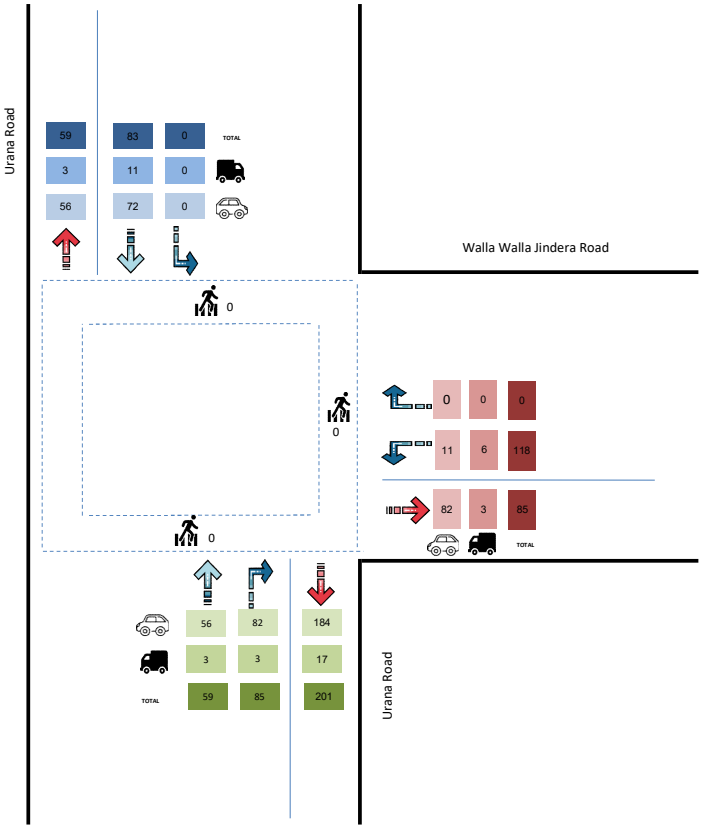
Location	**Urana Road**	**Duration**	**6:30**	**-**	**09:30**
	Walla Walla Jindera Road			**-**	
	Urana Road		**15:00**	**-**	**18:00**
	-	**Date**	**Thursday, 5 September 2024**		
Suburb	**JINDERA**	**Weather**	**-**		

DATA SELECTION

Select Time: PEAK

TIME RANGE

PEAK	**-**	**PM**
PEAK		
15:15	**-**	**16:15**



Vehicle Volume Report - Hourly

Traffic Information Specialist

Project: 24212 - Walla Walla Jindera Road - JINDERA
Site: Walla Walla Jindera Road - JINDERA
Start Date: 05-09-2024

1. Walla Walla Jindera Road - JINDERA - -35.934914, 146.887222

Time	Mon 09-Sep		Tue 10-Sep		Wed 11-Sep		Thu 05-Sep		Fri 06-Sep		Sat 07-Sep		Sun 08-Sep		7 Day Total	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
0:00	0	0	0	0	0	0	2	0	0	1	3	2	0	0	5	3
1:00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
2:00	0	1	0	1	0	1	0	1	0	0	0	1	2	1	2	6
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
4:00	1	2	1	1	2	1	0	2	1	2	1	0	0	0	6	8
5:00	10	11	12	8	8	11	10	10	4	14	1	3	0	0	45	57
6:00	46	24	50	23	53	25	42	20	31	19	6	9	1	8	229	128
7:00	33	57	51	45	48	51	42	35	41	34	16	16	5	3	236	241
8:00	0	99	73	35	62	46	46	60	38	45	14	29	16	23	249	337
9:00	3	94	62	26	32	71	47	40	49	60	30	46	13	32	236	369
10:00	3	93	57	26	38	56	42	41	42	50	67	44	30	30	279	340
11:00	0	82	42	46	34	24	33	63	39	37	38	69	30	35	216	356
12:00	0	89	2	88	47	39	43	35	46	60	43	50	36	27	217	388
13:00	0	58	1	64	42	30	47	41	45	51	45	34	26	33	206	311
14:00	21	75	1	76	35	37	66	42	44	48	29	28	45	35	241	341
15:00	39	84	39	86	51	67	48	82	56	62	41	25	38	37	312	443
16:00	63	61	71	57	72	65	61	64	59	47	22	23	40	22	388	339
17:00	40	23	49	44	48	52	41	35	33	41	30	21	28	32	269	248
18:00	31	13	39	24	34	32	21	29	41	26	24	25	15	17	205	166
19:00	12	8	12	8	18	4	13	3	9	4	10	7	14	4	88	38
20:00	2	3	10	13	6	8	20	3	11	3	3	6	7	3	59	39
21:00	5	4	5	2	4	1	12	3	7	4	4	7	5	4	42	25
22:00	2	2	1	2	6	0	1	1	5	2	5	10	3	1	23	18
23:00	0	0	3	0	2	1	4	0	9	0	2	0	3	3	23	4
07-19	233	828	487	617	543	570	537	567	533	561	399	410	322	326	3054	3879
06-22	298	867	564	663	624	608	624	596	591	591	422	439	349	345	3472	4109
06-00	300	869	568	665	632	609	629	597	605	593	429	449	355	349	3518	4131
00-00	311	883	581	675	642	622	641	610	610	611	434	455	357	351	3576	4207
Percent	26.05%	73.95%	46.26%	53.74%	50.79%	49.21%	51.24%	48.76%	49.96%	50.04%	48.82%	51.18%	50.42%	49.58%	45.95%	54.05%

Appendix F Drivers' Code of Conduct

Jindera Battery Energy Storage System (BESS)

Transport Impact Assessment

BESS Atlantic c/o Gransolar Development Australia Pty Ltd

SLR Project No.: 620.041088.00001

17 December 2025

DRIVERS' CODE OF CONDUCT

Safe Driving Policy for Jindera BESS, Ortlipp Road NSW.

1. Objectives

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

2. Code of Conduct

All vehicle operators accessing the site must:

- Take reasonable care for his or her own personal health and safety.
- Not adversely, by way of actions or otherwise, impact on the health and safety of other persons.
- Notify their employer if they are not fit for duty prior to commencing their shift.
- Obey all applicable road rules and laws at all times.
- In the event an emergency vehicle is behind your vehicle, pull over and allow the emergency vehicle to pass immediately.
- Obey the applicable driving hours per legislation and take all reasonable steps to manage your fatigue and not drive with high drowsiness.
- Obey all on-site signposted speed limits and comply with directions of traffic control supervisors in relation to movements in and around temporary or fixed work areas.
- Ensure all loads are safely restrained, as necessary.
- If available and required, drive over cattle grids that are located at the site’s access to vibrate off any loose material attached to construction vehicles.
- Operate your vehicles in a safe and professional manner, with consideration for all other road users.
- Hold a current Australian State or Territory issued driver’s licence.
- Notify your employer or operator immediately should the status or conditions of their driver’s licence change in any way.
- Comply with other applicable workplace policies, including a zero tolerance of driving while under the influence of alcohol and/or illicit drugs.
- Not use mobile phones when driving a vehicle or operating equipment. If the use of a mobile device is required, the driver shall pull over in a safe and legal location before using any mobile device.
- Advise management of any situations in which you know or think may present a threat to workplace health and safety.
- Drive according to prevailing conditions (such as during inclement weather) and reduce speed, if necessary.

- Have necessary identification documentation at hand and ready to present to security staff on entry and departure from the site, as necessary, to avoid unnecessary delays to other vehicles.
- All Supervisors are to travel to and from the site using light vehicles and follow the light vehicle route. All other workers will use the shuttle bus to and from the site, which will follow the HV route.

3. Crash or Incident Procedure

- Stop your vehicle as close to it as possible to the scene, making sure you are not hindering traffic.
- Ensure your safety first, then help injured people and seek assistance immediately if required.
    - Ensure the following information is noted:
    - Details of the other vehicles and registration numbers.
    - Names and addresses of the other vehicle drivers.
    - Names and addresses of witnesses.
    - Insurers details.
- Give the following information to the involved parties:
    - Name, address, and company details.
- If the damaged vehicle is not occupied, provide a note with your contact details for the owner to
- contact the company.
- Ensure that the Police are contacted should the following circumstances occur:
    - If there is a disagreement over the cause of the crash.
    - If there are injuries.
    - If you damage property other than your own.
- As soon as reasonably practical, report all details gathered to your manager.

Appendix G Turn Warrant Assessments

Jindera Battery Energy Storage System (BESS)

Transport Impact Assessment

BESS Atlantic c/o Gransolar Development Australia Pty Ltd

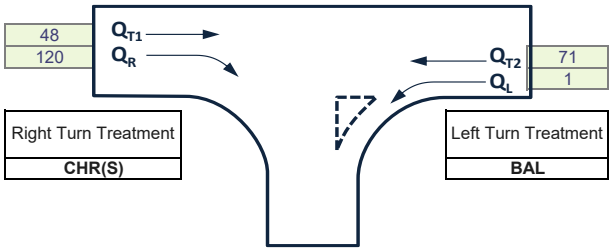
SLR Project No.: 620.041088.00001

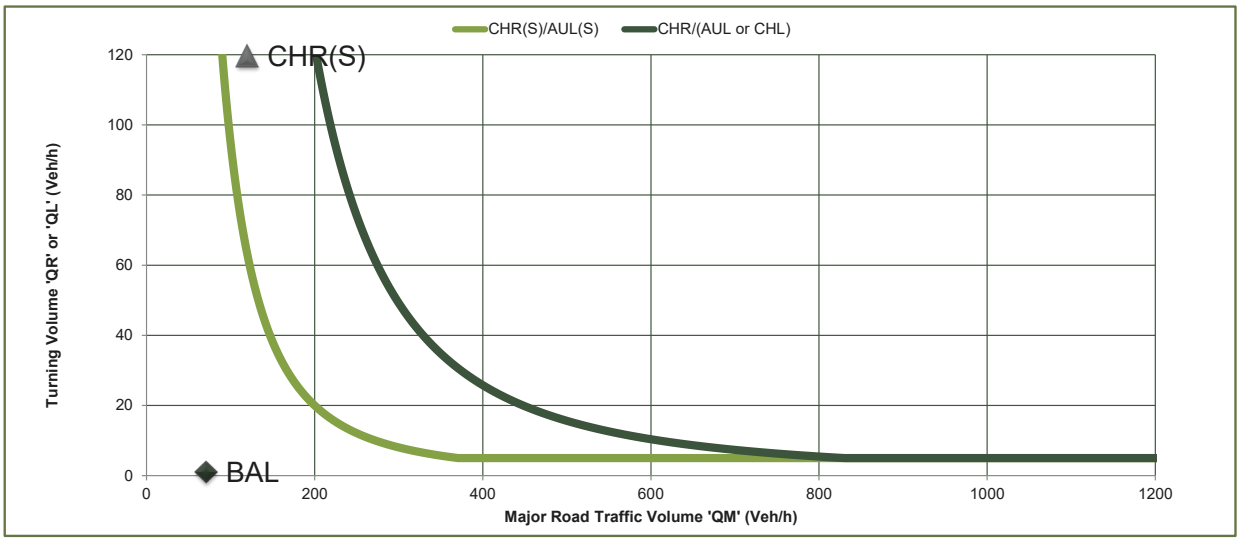
17 December 2025

Assessment Year	2025
Peak Period	AM
Scenario	BG + CT

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

Q_M	Q_R/Q_L	
120	120	Right
71	1	Left

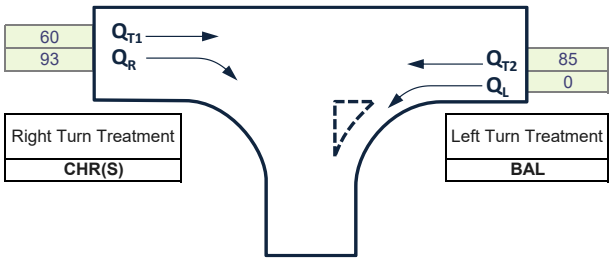


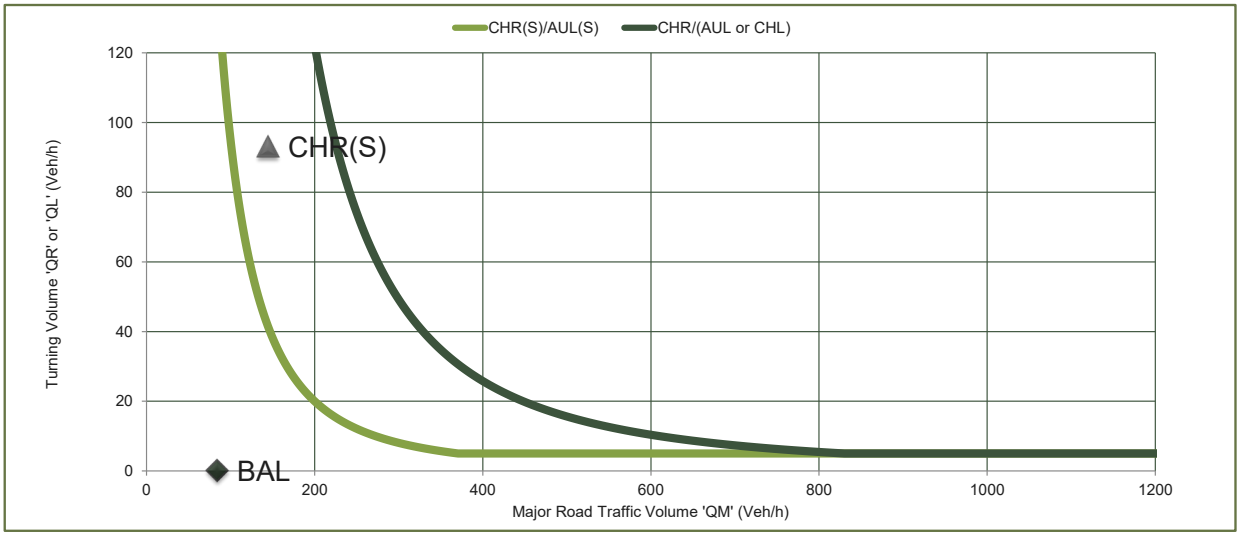


Assessment Year	2025
Peak Period	PM
Scenario	BG + CT

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

Q_M	Q_R/Q_L	
145	93	Right
85	0	Left





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

Turn Warrant Assessment

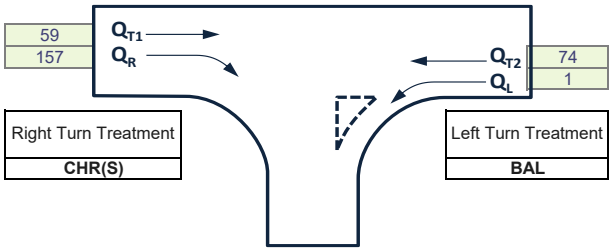
Urana Road / Walla Walla Jindera Road
620.041088.00004
16 12 2025

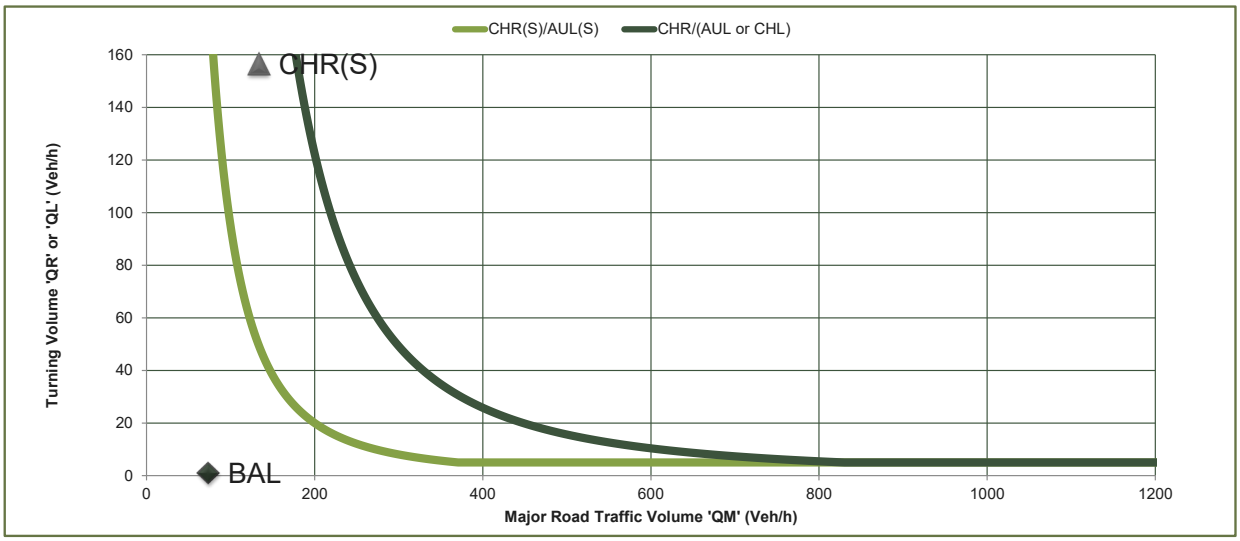
SLR

Assessment Year	2025
Peak Period	AM
Scenario	BG + Cumulative

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

Q_M	Q_R/Q_L	
134	157	Right
74	1	Left

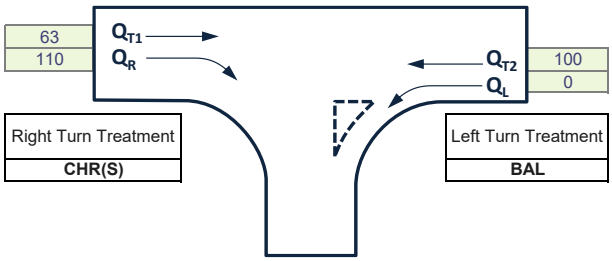


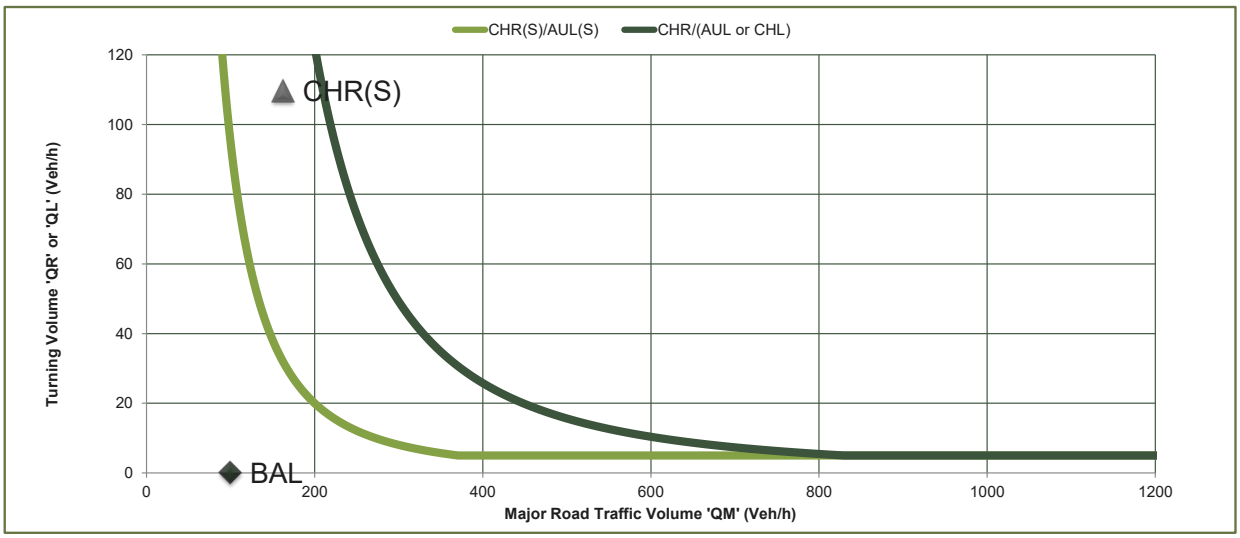


Assessment Year	2025
Peak Period	PM
Scenario	BG + Cumulative

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

Q_M	Q_R/Q_L	
162	110	Right
100	0	Left





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

Turn Warrant Assessment

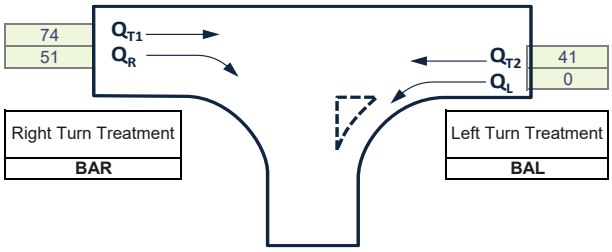
Urana Road / Walla Walla Jindera Road
620.041088.00004
16 12 2025

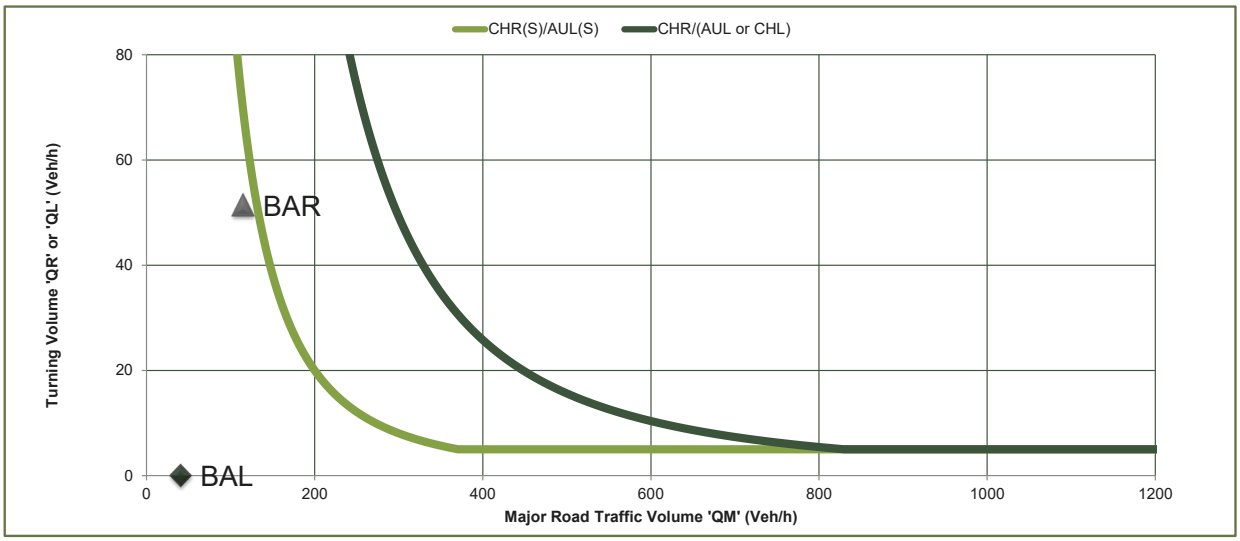
SLR

Assessment Year	2025
Peak Period	AM
Scenario	BG + CT

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

Q_M	Q_R/Q_L	
115	51	Right
41	0	Left

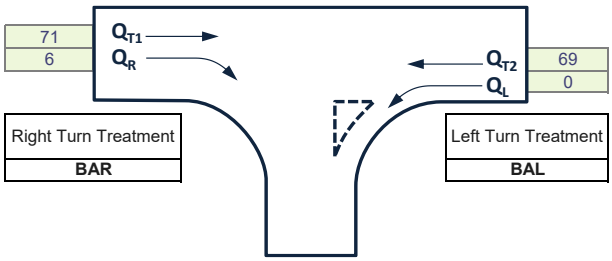


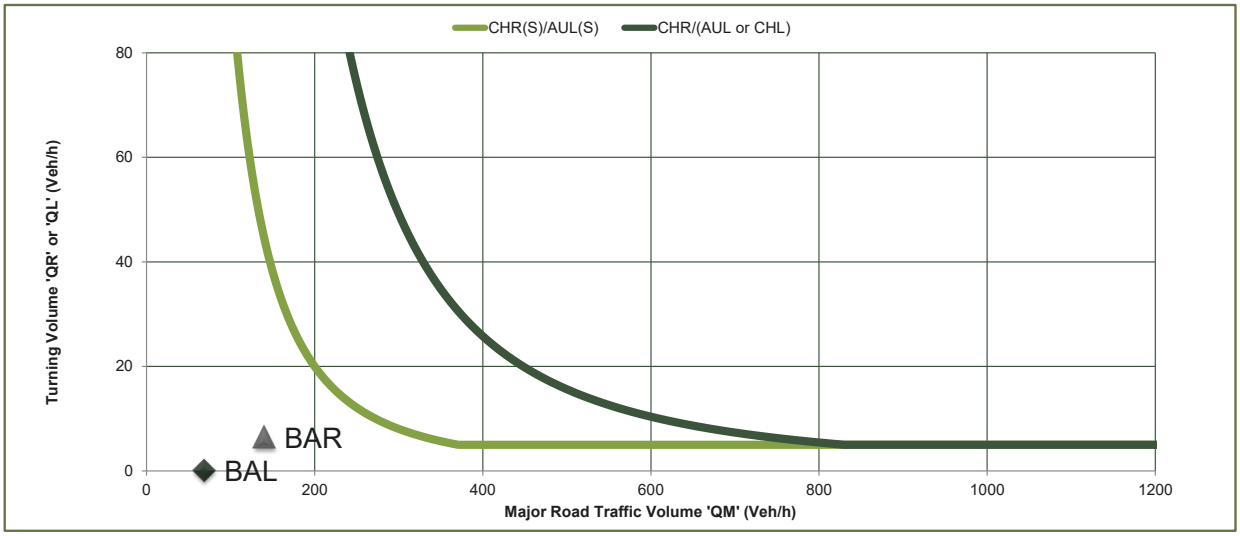


Assessment Year	2025
Peak Period	PM
Scenario	BG + CT

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

Q_M	Q_R/Q_L	
141	6	Right
69	0	Left





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

Turn Warrant Assessment

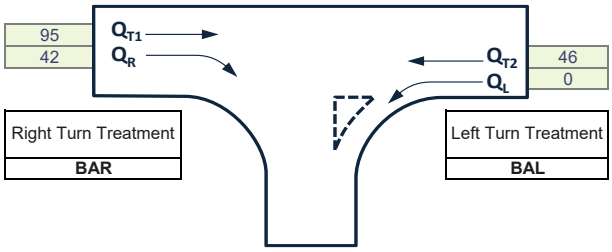
Walla Walla Jindera Road / Lindner Road
620.041088.00004
16 12 2025

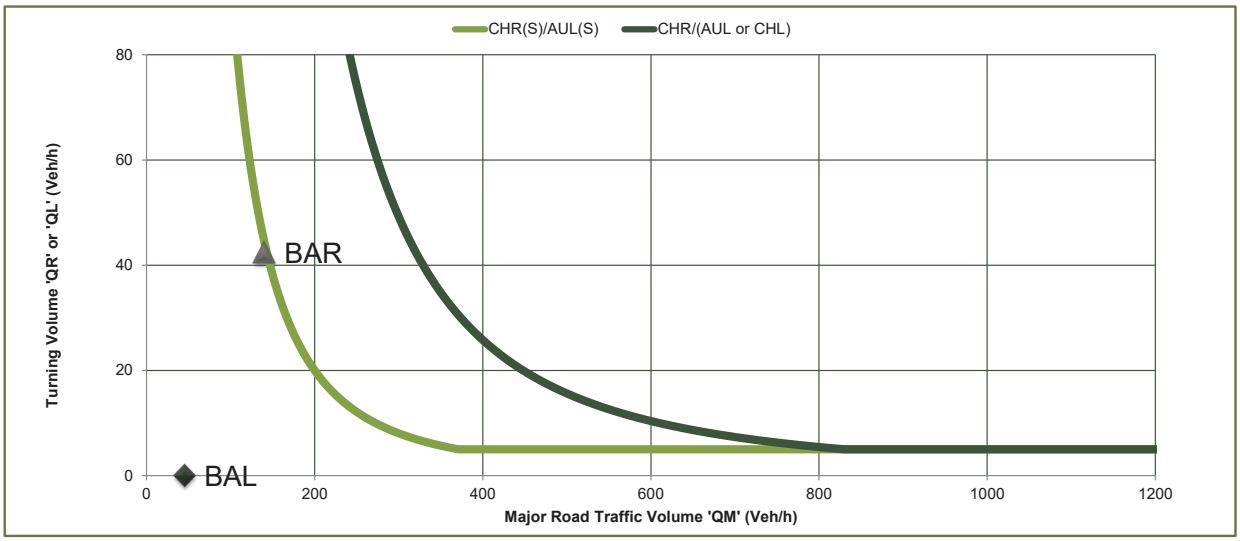
SLR

Assessment Year	2025
Peak Period	AM
Scenario	BG + Cumulative

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

Q_M	Q_R/Q_L	
141	42	Right
46	0	Left

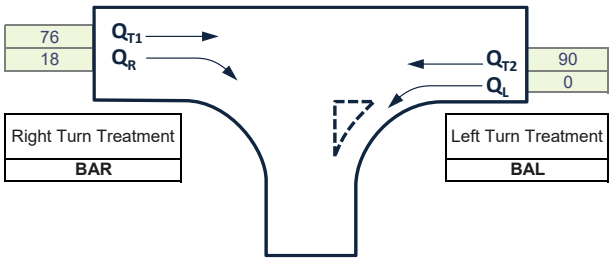


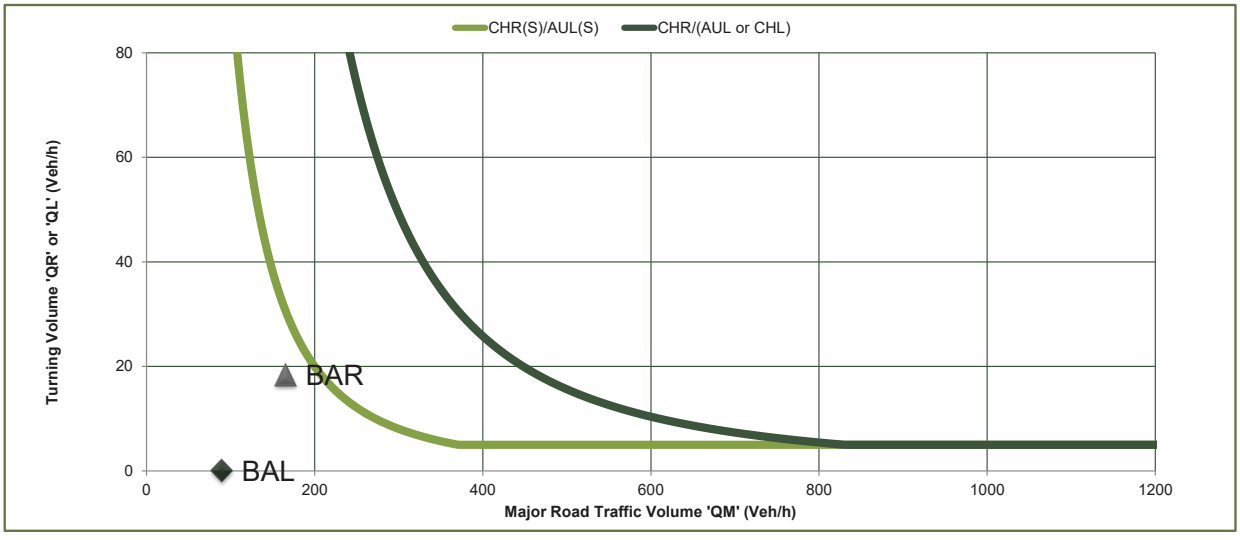


Assessment Year	2025
Peak Period	PM
Scenario	BG + Cumulative

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

Q_M	Q_R/Q_L	
166	18	Right
90	0	Left





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

Turn Warrant Assessment

Walla Walla Jindera Road / Lindner Road
620.041088.00004
16 12 2025

SLR

Appendix H Desktop Models

Jindera Battery Energy Storage System (BESS)

Transport Impact Assessment

BESS Atlantic c/o Gransolar Development Australia Pty Ltd

SLR Project No.: 620.041088.00001

17 December 2025

Project Jindera BESS
Project number 620.041088.00001
Prepared by TI
Reviewed by CS

Appendix **Figure E**

TITLE BLOCK REGISTER

Sheet Name	Figure #	Figure Title
2024 Survey AM	1	2024 Survey Traffic Volumes - AM Peak
2024 Survey PM	2	2024 Survey Traffic Volumes - PM Peak
2025 BG AM	3	2025 Background Traffic Volumes (Year of Opening) - AM Peak
2025 BG PM	4	2025 Background Traffic Volumes (Year of Opening) - PM Peak
CT AM	5	2025 Project Construction Traffic Volumes - AM Peak
CT PM	6	2025 Project Construction Traffic Volumes - PM Peak
2025 BG+CT AM	7	2025 Background Traffic+Project BESS Facility 2025 Construction Traffic - AM Peak
2025 BG+CT PM	8	2025 Background Traffic+Project BESS Facility 2025 Construction Traffic - PM Peak
2025 Jindera SF AM	9	2025 Nearby Jindera Solar Farm Construction Traffic Volumes - AM Peak
2025 Jindera SF PM	10	2025 Nearby Jindera Solar Farm Construction Traffic Volumes - PM Peak
2025 Glenellen SF AM	11	2025 Nearby Glenellen Solar Farm Construction Traffic Volumes - AM Peak
2025 Glenellen SF PM	12	2025 Nearby Glenellen Solar Farm Construction Traffic Volumes - PM Peak
2025 BG+Cumulative AM	13	2025 Background Traffic+Cumulative Impacts 2025 Construction Traffic - AM Peak
2025 BG+Cumulative PM	14	2025 Background Traffic+Cumulative Impacts 2025 Construction Traffic - PM Peak

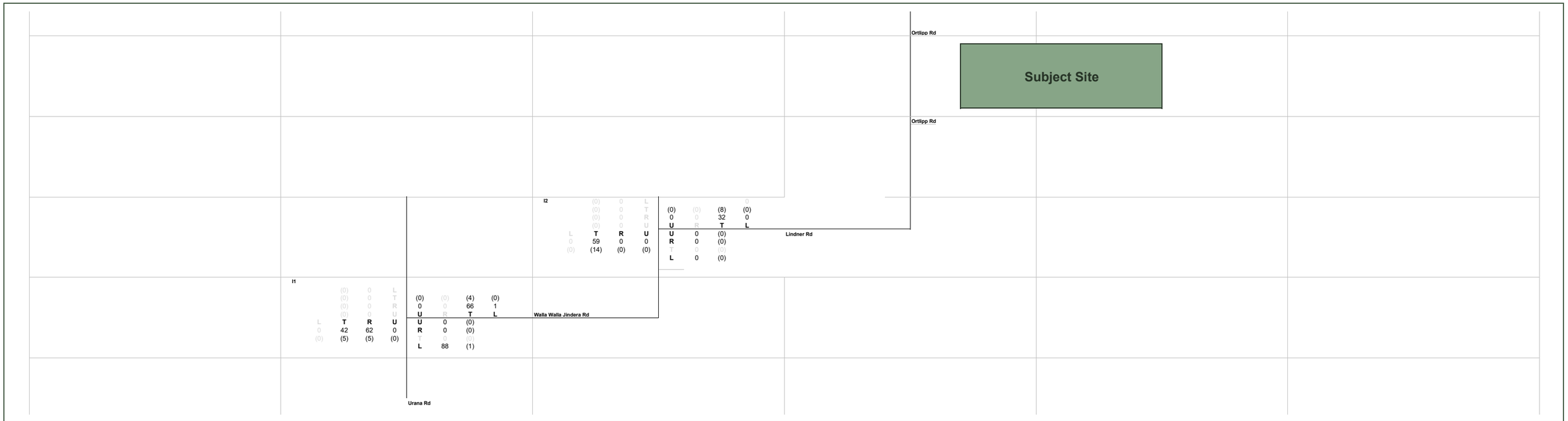


Figure E1
2024 Survey Traffic Volumes - AM Peak
620.041088.00001
Jindera BESS

Legend

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

00 Weekday LV Peak Hour Volumes
(00) Weekday HV Peak Hour Volumes
Subject Site

N

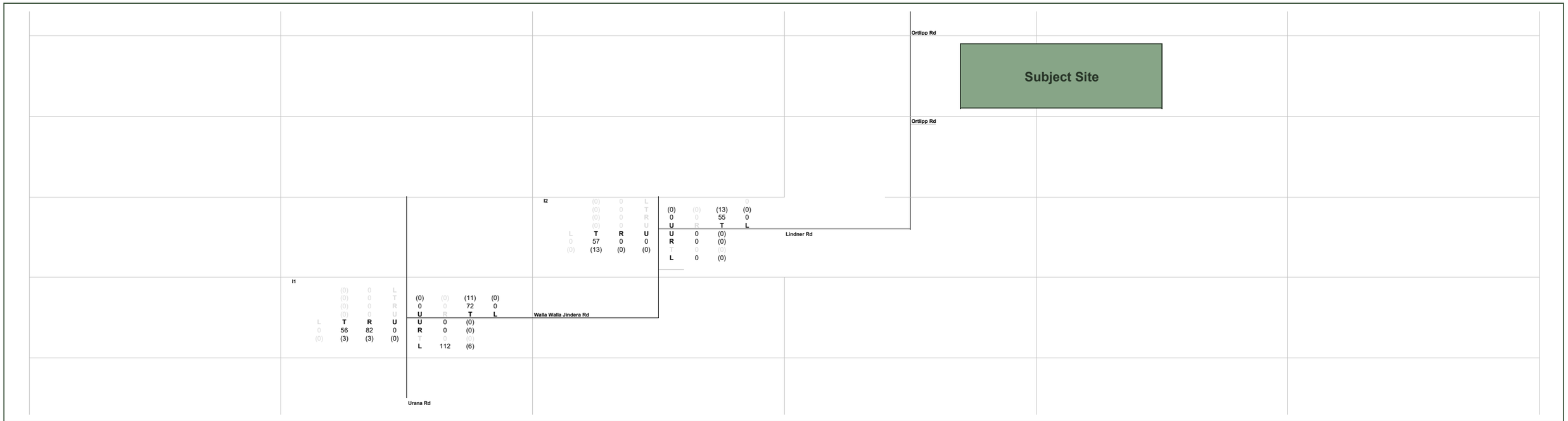


Figure E2
2024 Survey Traffic Volumes - PM Peak
620.041088.00001
Jindera BESS

Legend

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

00 Weekday LV Peak Hour Volumes
(00) Weekday HV Peak Hour Volumes
Subject Site

N

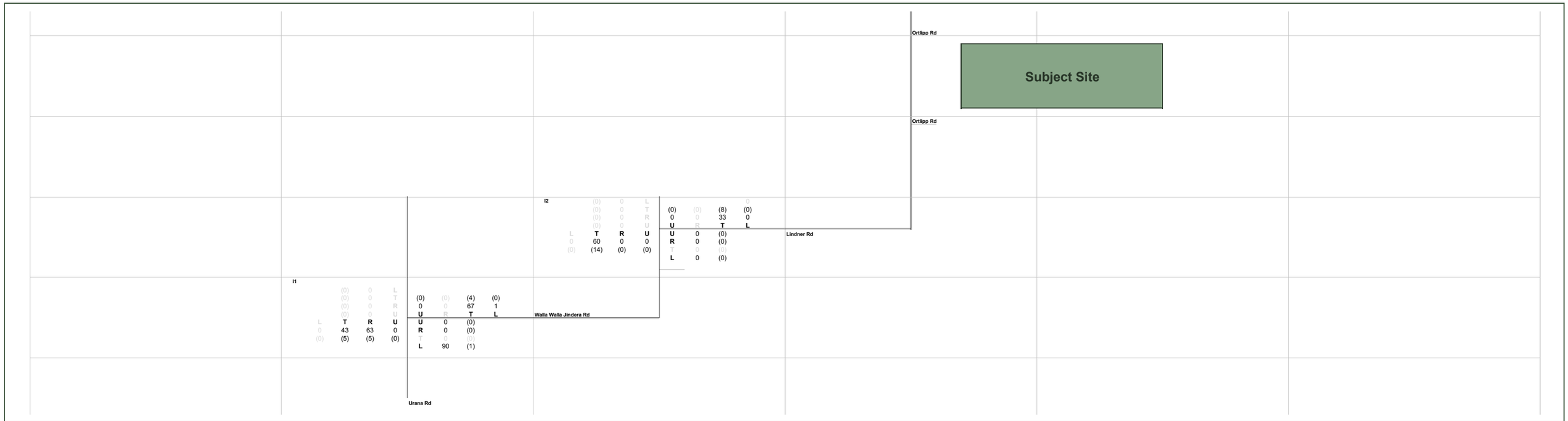


Figure E3
2025 Background Traffic Volumes (Year of Opening) - AM Peak
620.041088.00001
Jindera BESS

Legend

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

00 Weekday LV Peak Hour Volumes
(00) Weekday HV Peak Hour Volumes
Subject Site

N

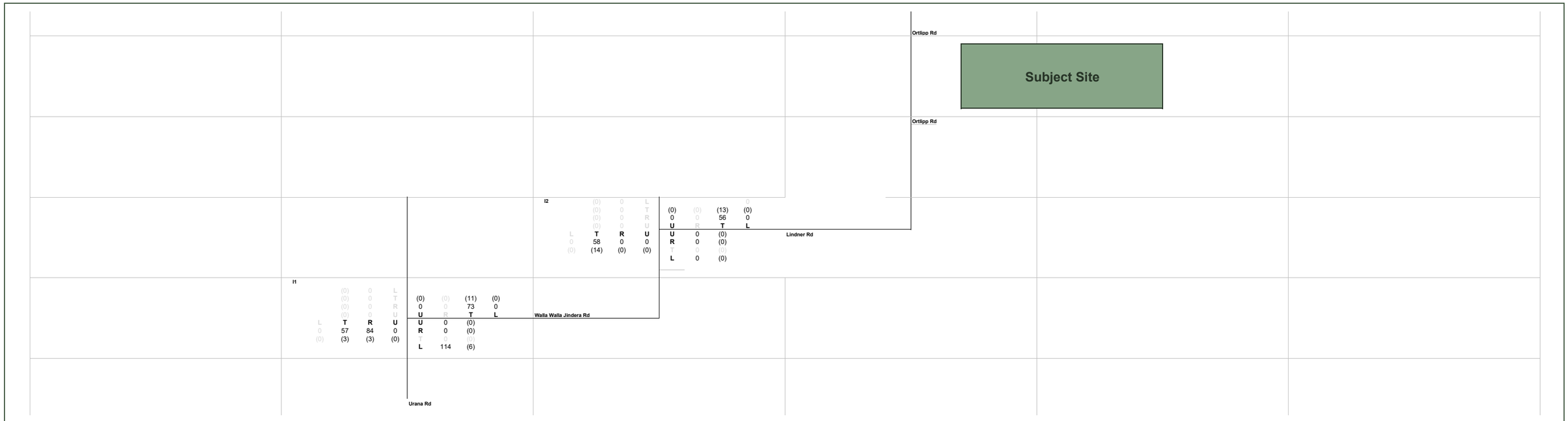


Figure E4
2025 Background Traffic Volumes (Year of Opening) - PM Peak
620.041088.00001
Jindera BESS

Legend

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

00 Weekday LV Peak Hour Volumes
(00) Weekday HV Peak Hour Volumes
Subject Site

N

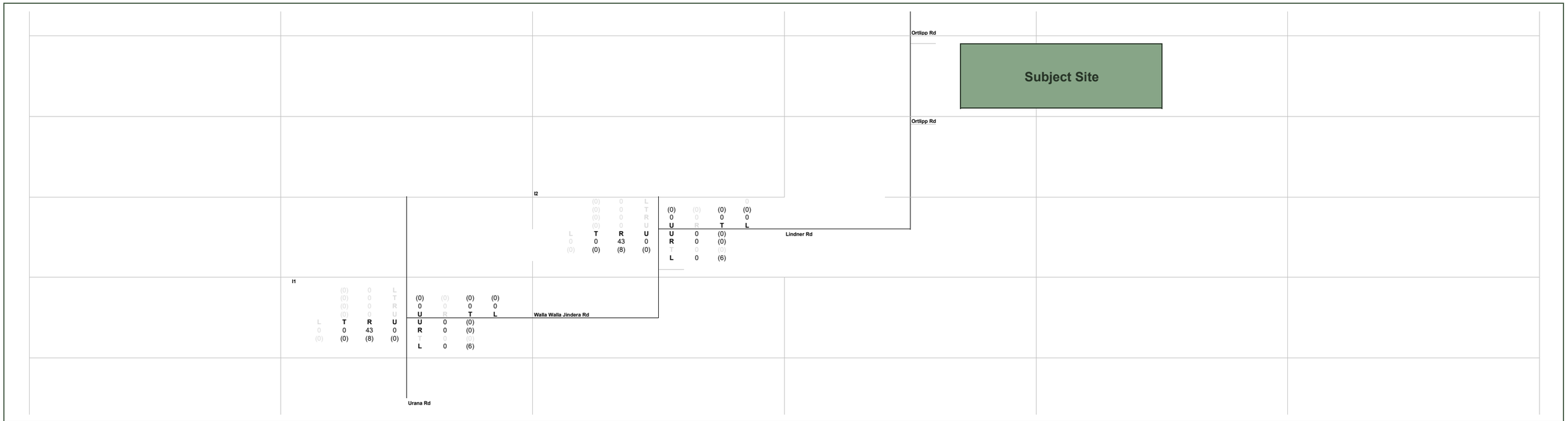


Figure E5
2025 Project Construction Traffic Volumes - AM Peak
620.041088.00001
Jindera BESS

Legend

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

00 Weekday LV Peak Hour Volumes
(00) Weekday HV Peak Hour Volumes
Subject Site

N

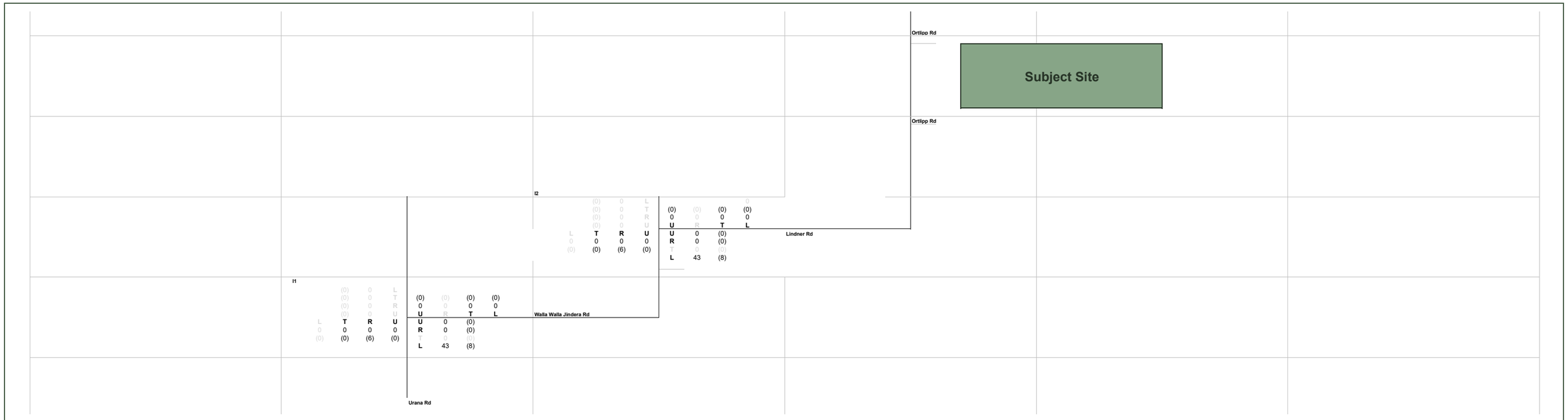


Figure E6
2025 Project Construction Traffic Volumes - PM Peak
620.041088.00001
Jindera BESS

Legend

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

00 Weekday LV Peak Hour Volumes
(00) Weekday HV Peak Hour Volumes
Subject Site

N

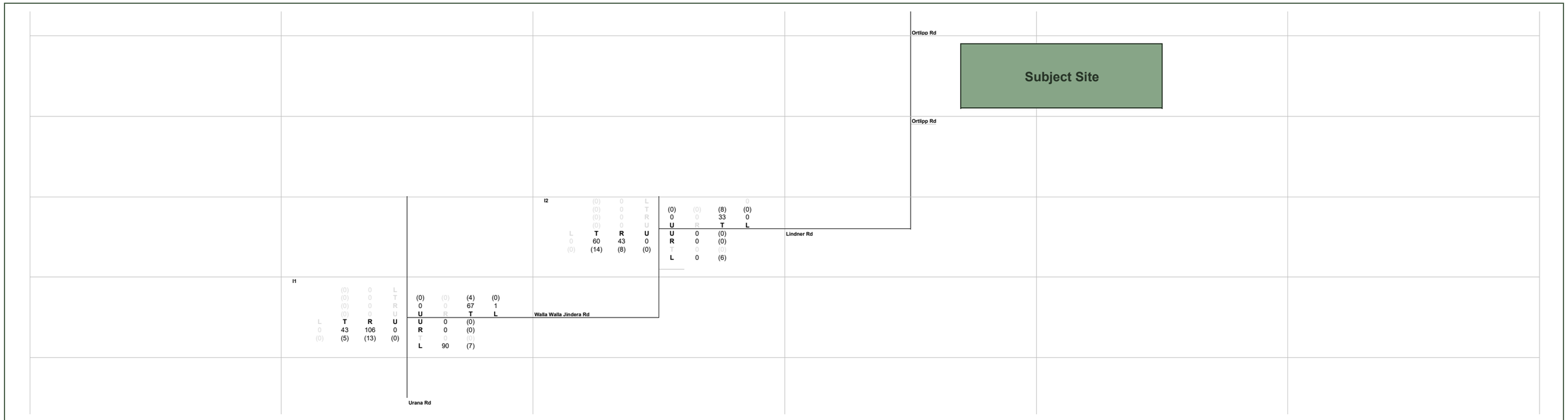


Figure E7
2025 Background Traffic+Project BESS Facility 2025 Construction Traffic - AM Peak
620.041088.00001
Jindera BESS

Legend

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

00 Weekday LV Peak Hour Volumes
(00) Weekday HV Peak Hour Volumes
Subject Site

N

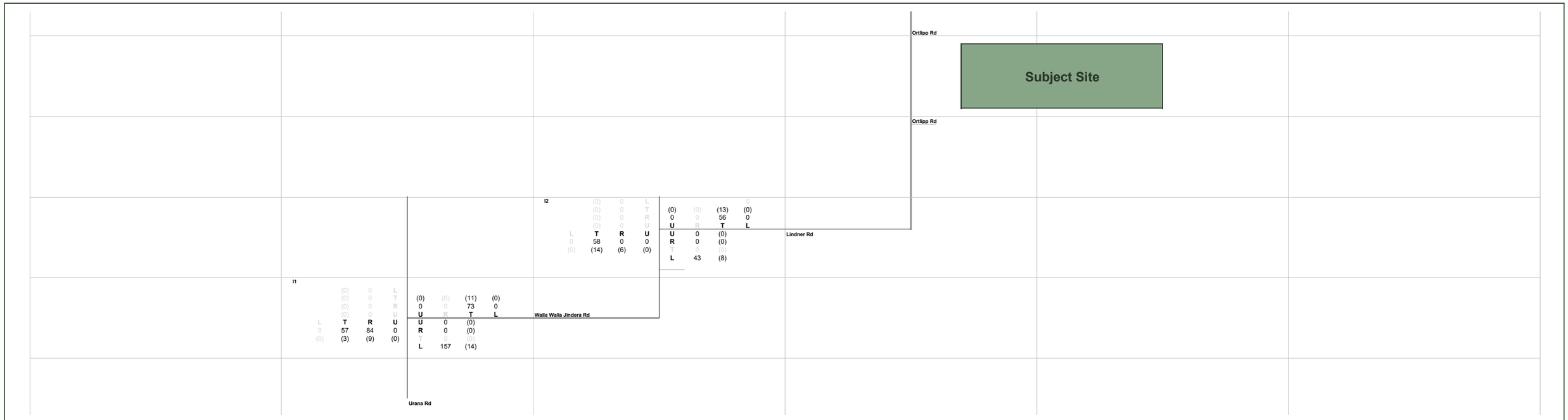


Figure E8
2025 Background Traffic+Project BESS Facility 2025 Construction Traffic - PM Peak
620.041088.00001
Jindera BESS

Legend

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

00 Weekday LV Peak Hour Volumes
(00) Weekday HV Peak Hour Volumes
Subject Site

N

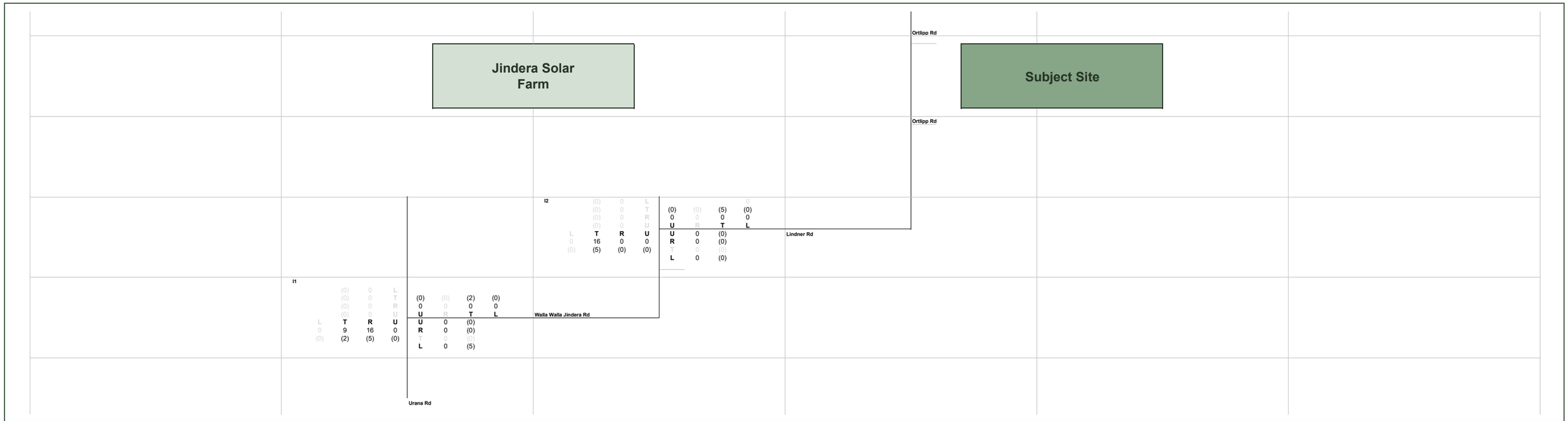


Figure E9
2025 Nearby Jindera Solar Farm Construction Traffic Volumes - AM Peak
620.041088.00001
Jindera BESS

Legend

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

00 Weekday LV Peak Hour Volumes
(00) Weekday HV Peak Hour Volumes
Subject Site

N

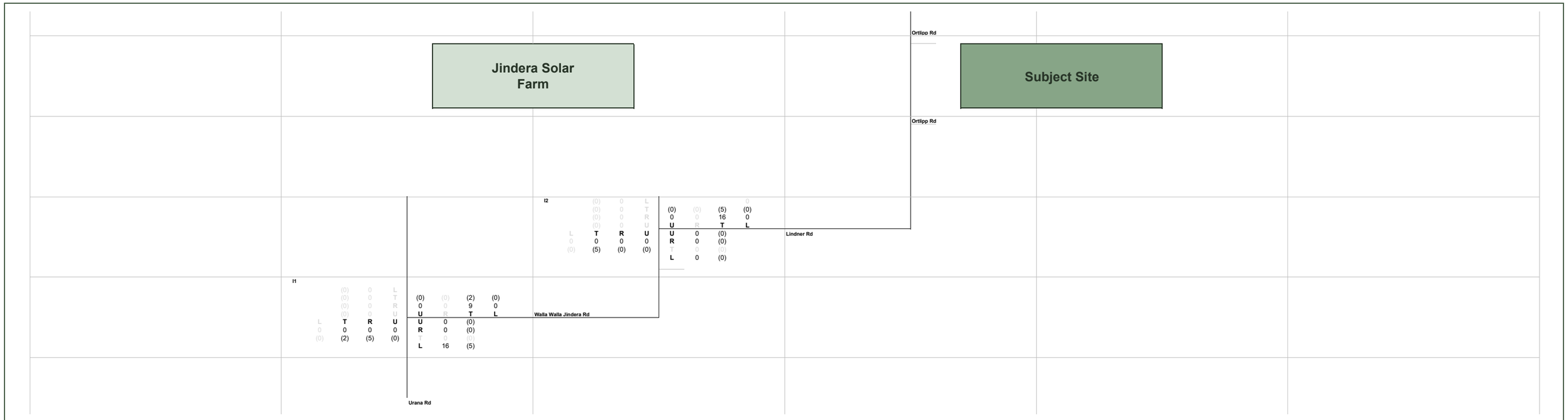


Figure E10
2025 Nearby Jindera Solar Farm Construction Traffic Volumes - PM Peak
620.041088.00001
Jindera BESS

Legend

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

00 Weekday LV Peak Hour Volumes
(00) Weekday HV Peak Hour Volumes
Subject Site

N

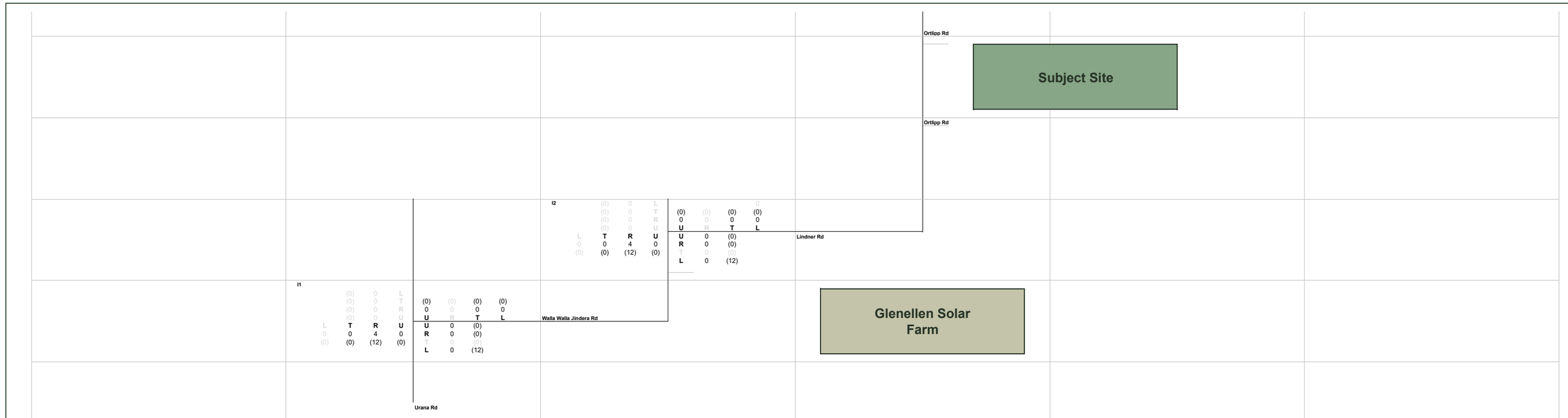


Figure E11
2025 Nearby Glenellen Solar Farm Construction Traffic Volumes - AM Peak
620.041088.00001
Jindera BESS

Legend

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

00 Weekday LV Peak Hour Volumes
(00) Weekday HV Peak Hour Volumes
Subject Site

N

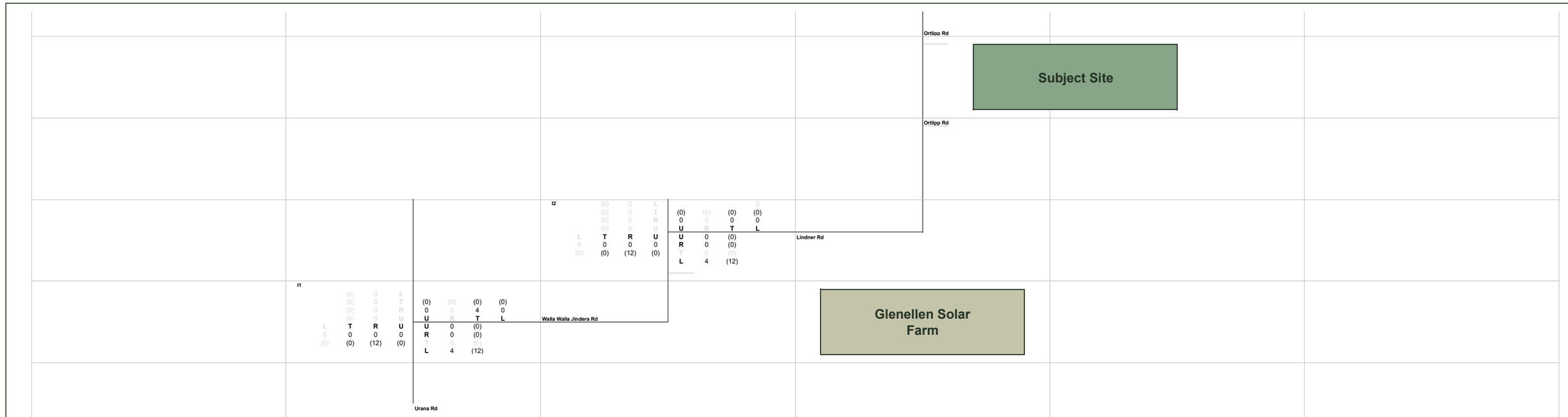


Figure E12
2025 Nearby Glenellen Solar Farm Construction Traffic Volumes - PM Peak
620.041088.00001
Jindera BESS

Legend

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

00 Weekday LV Peak Hour Volumes
(00) Weekday HV Peak Hour Volumes
Subject Site

N

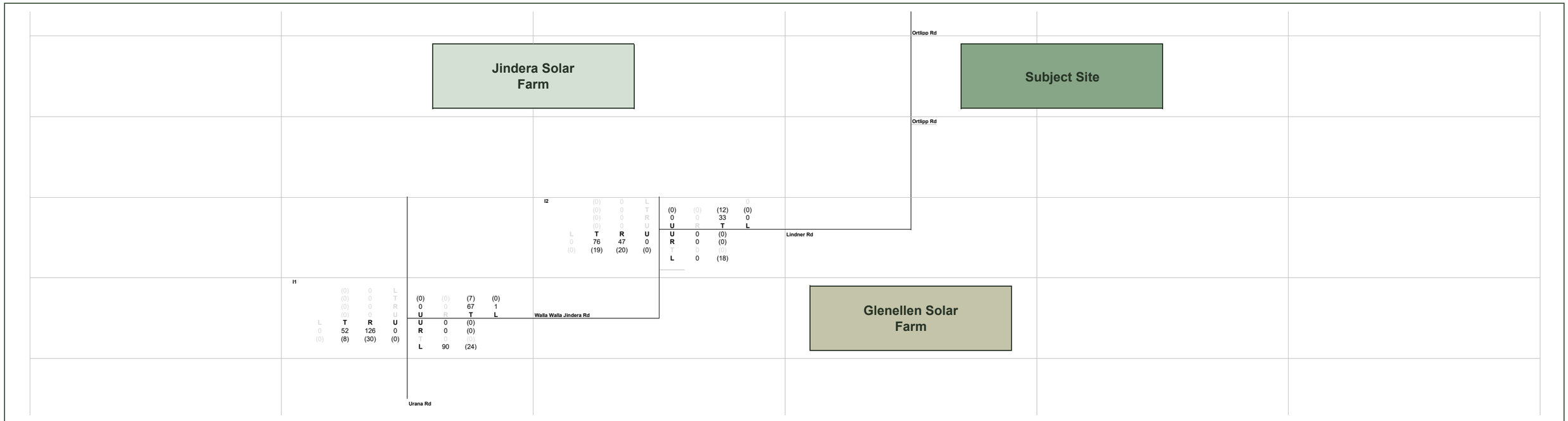


Figure E13
2025 Background Traffic+Cumulative Impacts 2025 Construction Traffic - AM Peak
620.041088.00001
Jindera BESS

Legend

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

00 Weekday LV Peak Hour Volumes
(00) Weekday HV Peak Hour Volumes
Subject Site

N

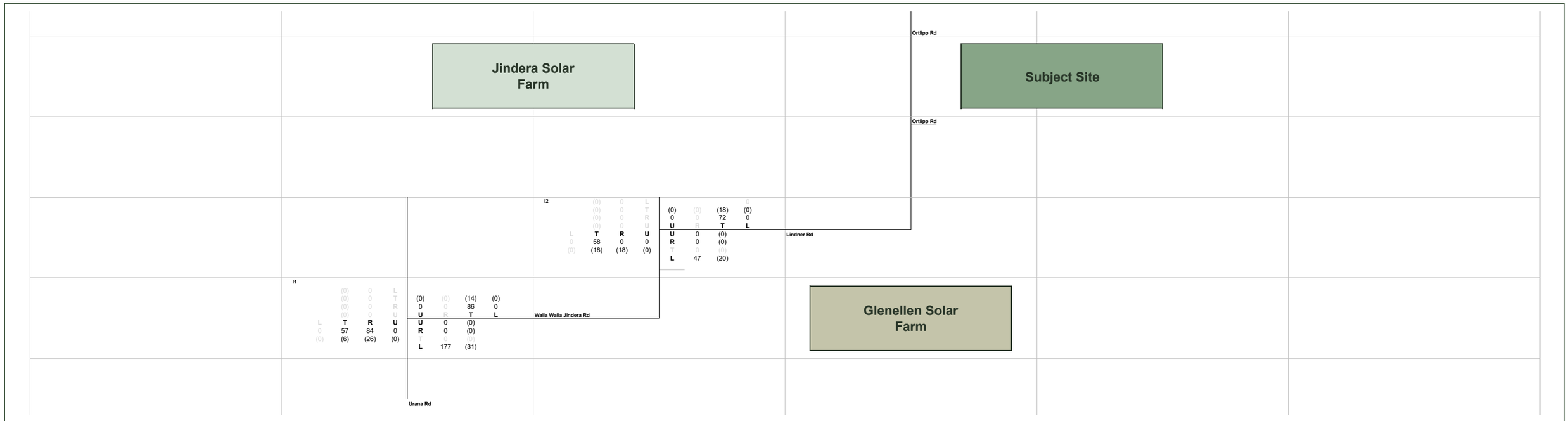


Figure E14
2025 Background Traffic+Cumulative Impacts 2025 Construction Traffic - PM Peak
620.041088.00001
Jindera BESS

Legend

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

00 Weekday LV Peak Hour Volumes
(00) Weekday HV Peak Hour Volumes
Subject Site

N

Appendix I SIDRA Outputs

Jindera Battery Energy Storage System (BESS)

Transport Impact Assessment

BESS Atlantic c/o Gransolar Development Australia Pty Ltd

SLR Project No.: 620.041088.00001

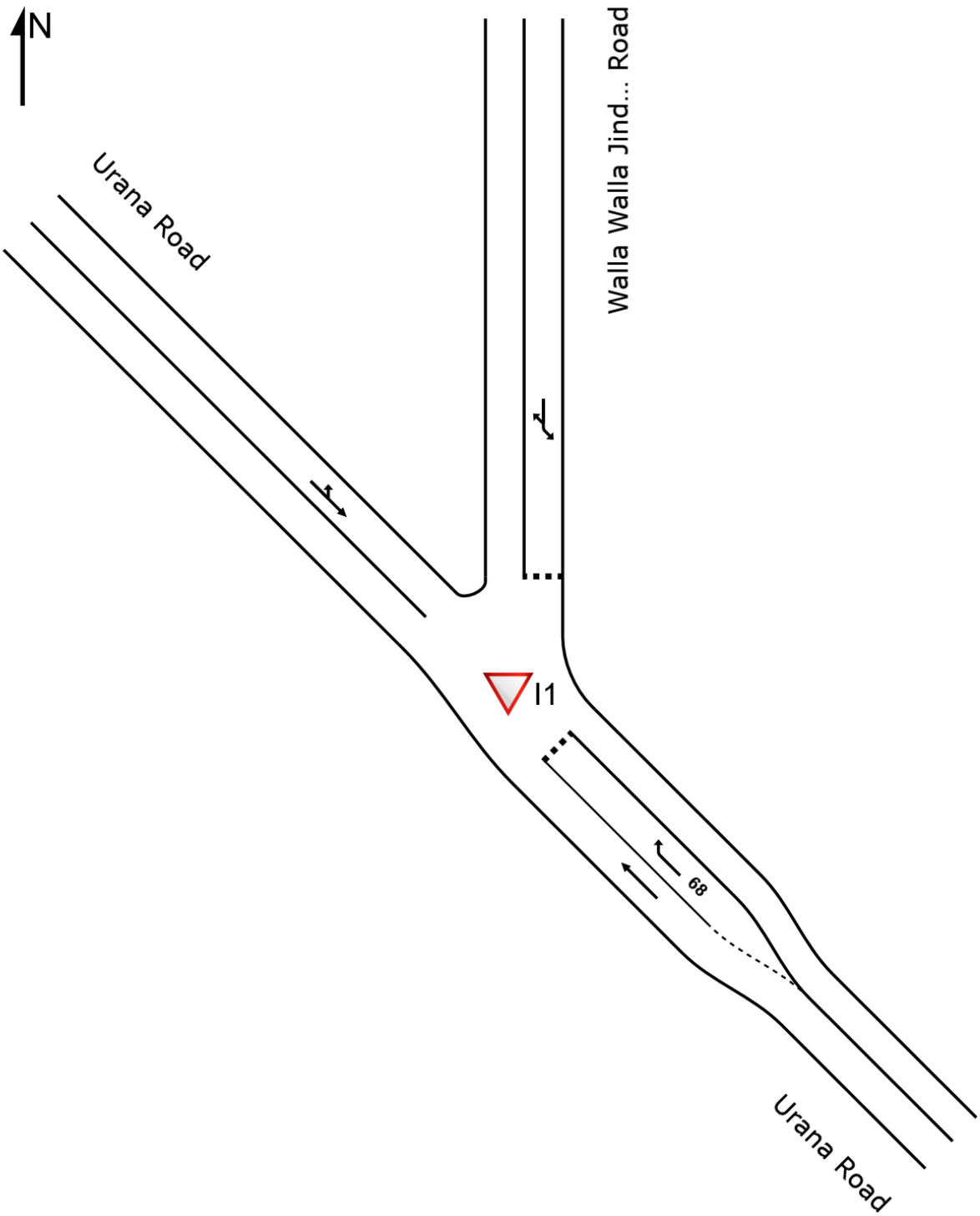
17 December 2025

SITE LAYOUT

Site: I1 [2024 EX - Urana Rd/ Jindera-Walla Walla Rd - AM (Site Folder: 2024 Existing)]

Urana Rd/ Jindera-Walla Walla Rd
Site Category: Existing Design
Give-Way (Two-Way)

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



MOVEMENT SUMMARY

Site: I1 [2024 EX - Urana Rd/ Jindera-Walla Walla Rd - AM (Site Folder: 2024 Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Urana Rd/ Jindera-Walla Walla Rd
Site Category: Existing Design
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
SouthEast: Urana Road															
22	T1	All MCs	49	10.6	49	10.6	0.026	4.2	LOS A	0.0	0.0	0.00	0.53	0.00	54.0
23a	R1	All MCs	71	7.5	71	7.5	0.066	5.1	LOS A	0.2	1.6	0.21	0.53	0.21	53.8
Approach			120	8.8	120	8.8	0.066	4.8	LOS A	0.2	1.6	0.12	0.53	0.12	53.9
North: Walla Walla Jindera Road															
7a	L1	All MCs	94	1.1	94	1.1	0.062	5.1	LOS A	0.3	1.8	0.16	0.53	0.16	53.7
9b	R3	All MCs	1	0.0	1	0.0	0.062	6.6	LOS A	0.3	1.8	0.16	0.53	0.16	53.9
Approach			95	1.1	95	1.1	0.062	5.1	LOS A	0.3	1.8	0.16	0.53	0.16	53.7
NorthWest: Urana Road															
27b	L3	All MCs	1	0.0	1	0.0	0.039	6.5	LOS A	0.0	0.0	0.00	0.01	0.00	57.9
28	T1	All MCs	74	5.7	74	5.7	0.039	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
Approach			75	5.6	75	5.6	0.039	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.9
All Vehicles			289	5.5	289	5.5	0.066	3.7	NA	0.3	1.8	0.11	0.40	0.11	55.1

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 [2024 EX - Urana Rd/ Jindera-Walla Walla Rd - PM (Site Folder: 2024 Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Urana Rd/ Jindera-Walla Walla Rd
Site Category: Existing Design
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
SouthEast: Urana Road															
22	T1	All MCs	62	5.1	62	5.1	0.032	4.2	LOS A	0.0	0.0	0.00	0.53	0.00	54.2
23a	R1	All MCs	89	3.5	89	3.5	0.085	5.2	LOS A	0.3	2.1	0.25	0.54	0.25	53.9
Approach			152	4.2	152	4.2	0.085	4.8	LOS A	0.3	2.1	0.14	0.54	0.14	54.0
North: Walla Walla Jindera Road															
7a	L1	All MCs	124	5.1	124	5.1	0.085	5.2	LOS A	0.4	2.6	0.19	0.54	0.19	53.5
9b	R3	All MCs	1	0.0	1	0.0	0.085	6.8	LOS A	0.4	2.6	0.19	0.54	0.19	53.8
Approach			125	5.0	125	5.0	0.085	5.2	LOS A	0.4	2.6	0.19	0.54	0.19	53.5
NorthWest: Urana Road															
27b	L3	All MCs	1	0.0	1	0.0	0.048	6.5	LOS A	0.0	0.0	0.00	0.01	0.00	57.9
28	T1	All MCs	87	13.3	87	13.3	0.048	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
Approach			88	13.1	88	13.1	0.048	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.9
All Vehicles			365	6.6	365	6.6	0.085	3.8	NA	0.4	2.6	0.13	0.41	0.13	55.0

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: I1 [2025 BG - Urana Rd/ Jindera-Walla Walla Rd - AM (Site Folder: 2025 BG)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Urana Rd/ Jindera-Walla Walla Rd
Site Category: Existing Design
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
SouthEast: Urana Road															
22	T1	All MCs	51	10.4	51	10.4	0.027	4.2	LOS A	0.0	0.0	0.00	0.53	0.00	54.0
23a	R1	All MCs	72	7.4	72	7.4	0.067	5.1	LOS A	0.2	1.7	0.21	0.53	0.21	53.8
Approach			122	8.6	122	8.6	0.067	4.8	LOS A	0.2	1.7	0.13	0.53	0.13	53.9
North: Walla Walla Jindera Road															
7a	L1	All MCs	96	1.1	96	1.1	0.064	5.1	LOS A	0.3	1.8	0.17	0.53	0.17	53.7
9b	R3	All MCs	1	0.0	1	0.0	0.064	6.6	LOS A	0.3	1.8	0.17	0.53	0.17	53.9
Approach			97	1.1	97	1.1	0.064	5.1	LOS A	0.3	1.8	0.17	0.53	0.17	53.7
NorthWest: Urana Road															
27b	L3	All MCs	1	0.0	1	0.0	0.039	6.5	LOS A	0.0	0.0	0.00	0.01	0.00	57.9
28	T1	All MCs	75	5.6	75	5.6	0.039	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
Approach			76	5.6	76	5.6	0.039	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.9
All Vehicles			295	5.4	295	5.4	0.067	3.7	NA	0.3	1.8	0.11	0.40	0.11	55.1

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 [2025 BG - Urana Rd/ Jindera-Walla Walla Rd - PM (Site Folder: 2025 BG)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Urana Rd/ Jindera-Walla Walla Rd
Site Category: Existing Design
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
SouthEast: Urana Road															
22	T1	All MCs	63	5.0	63	5.0	0.033	4.2	LOS A	0.0	0.0	0.00	0.53	0.00	54.2
23a	R1	All MCs	92	3.4	92	3.4	0.087	5.2	LOS A	0.3	2.1	0.25	0.55	0.25	53.9
Approach			155	4.1	155	4.1	0.087	4.8	LOS A	0.3	2.1	0.15	0.54	0.15	54.0
North: Walla Walla Jindera Road															
7a	L1	All MCs	126	5.0	126	5.0	0.087	5.2	LOS A	0.4	2.6	0.19	0.54	0.19	53.5
9b	R3	All MCs	1	0.0	1	0.0	0.087	6.8	LOS A	0.4	2.6	0.19	0.54	0.19	53.8
Approach			127	5.0	127	5.0	0.087	5.2	LOS A	0.4	2.6	0.19	0.54	0.19	53.5
NorthWest: Urana Road															
27b	L3	All MCs	1	0.0	1	0.0	0.049	6.5	LOS A	0.0	0.0	0.00	0.01	0.00	57.9
28	T1	All MCs	88	13.1	88	13.1	0.049	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
Approach			89	12.9	89	12.9	0.049	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.9
All Vehicles			372	6.5	372	6.5	0.087	3.8	NA	0.4	2.6	0.13	0.41	0.13	55.0

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: I1 [2025 BG+CT - Urana Rd/ Jindera-Walla Walla Rd - AM (Site Folder: 2025 BG+CT)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Urana Rd/ Jindera-Walla Walla Rd
Site Category: Existing Design
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
SouthEast: Urana Road															
22	T1	All MCs	51	10.4	51	10.4	0.027	4.2	LOS A	0.0	0.0	0.00	0.53	0.00	54.0
23a	R1	All MCs	125	10.9	125	10.9	0.121	5.3	LOS A	0.4	3.2	0.23	0.54	0.23	53.6
Approach			176	10.8	176	10.8	0.121	5.0	LOS A	0.4	3.2	0.17	0.54	0.17	53.7
North: Walla Walla Jindera Road															
7a	L1	All MCs	102	7.2	102	7.2	0.070	5.2	LOS A	0.3	2.1	0.17	0.54	0.17	53.5
9b	R3	All MCs	1	0.0	1	0.0	0.070	6.6	LOS A	0.3	2.1	0.17	0.54	0.17	53.9
Approach			103	7.1	103	7.1	0.070	5.2	LOS A	0.3	2.1	0.17	0.54	0.17	53.5
NorthWest: Urana Road															
27b	L3	All MCs	1	0.0	1	0.0	0.039	6.5	LOS A	0.0	0.0	0.00	0.01	0.00	57.9
28	T1	All MCs	75	5.6	75	5.6	0.039	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
Approach			76	5.6	76	5.6	0.039	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.9
All Vehicles			355	8.6	355	8.6	0.121	4.0	NA	0.4	3.2	0.13	0.42	0.13	54.7

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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MOVEMENT SUMMARY

Site: I1 [2025 BG+CT - Urana Rd/ Jindera-Walla Walla Rd - PM (Site Folder: 2025 BG+CT)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Urana Rd/ Jindera-Walla Walla Rd
Site Category: Existing Design
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
SouthEast: Urana Road															
22	T1	All MCs	63	5.0	63	5.0	0.033	4.2	LOS A	0.0	0.0	0.00	0.53	0.00	54.2
23a	R1	All MCs	98	9.7	98	9.7	0.099	5.5	LOS A	0.3	2.6	0.28	0.56	0.28	53.6
Approach			161	7.8	161	7.8	0.099	5.0	LOS A	0.3	2.6	0.17	0.55	0.17	53.8
North: Walla Walla Jindera Road															
7a	L1	All MCs	180	8.2	180	8.2	0.125	5.3	LOS A	0.5	4.0	0.20	0.54	0.20	53.3
9b	R3	All MCs	1	0.0	1	0.0	0.125	6.8	LOS A	0.5	4.0	0.20	0.54	0.20	53.8
Approach			181	8.1	181	8.1	0.125	5.3	LOS A	0.5	4.0	0.20	0.54	0.20	53.3
NorthWest: Urana Road															
27b	L3	All MCs	1	0.0	1	0.0	0.049	6.5	LOS A	0.0	0.0	0.00	0.01	0.00	57.9
28	T1	All MCs	88	13.1	88	13.1	0.049	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
Approach			89	12.9	89	12.9	0.049	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.9
All Vehicles			432	9.0	432	9.0	0.125	4.1	NA	0.5	4.0	0.15	0.43	0.15	54.6

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 [2025 BG+ALL - Urana Rd/ Jindera-Walla Walla Rd - AM (Site Folder: 2025 BG+CT+Cumulative)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Urana Rd/ Jindera-Walla Walla Rd
Site Category: Existing Design
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
SouthEast: Urana Road															
22	T1	All MCs	63	13.3	63	13.3	0.034	4.3	LOS A	0.0	0.0	0.00	0.53	0.00	53.9
23a	R1	All MCs	164	19.2	164	19.2	0.169	5.5	LOS A	0.6	5.0	0.27	0.56	0.27	53.3
Approach			227	17.6	227	17.6	0.169	5.2	LOS A	0.6	5.0	0.19	0.55	0.19	53.4
North: Walla Walla Jindera Road															
7a	L1	All MCs	120	21.1	120	21.1	0.089	5.4	LOS A	0.4	3.1	0.19	0.54	0.19	52.9
9b	R3	All MCs	1	0.0	1	0.0	0.089	6.7	LOS A	0.4	3.1	0.19	0.54	0.19	53.8
Approach			121	20.9	121	20.9	0.089	5.4	LOS A	0.4	3.1	0.19	0.54	0.19	52.9
NorthWest: Urana Road															
27b	L3	All MCs	1	0.0	1	0.0	0.042	6.5	LOS A	0.0	0.0	0.00	0.01	0.00	57.9
28	T1	All MCs	78	9.5	78	9.5	0.042	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
Approach			79	9.3	79	9.3	0.042	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.9
All Vehicles			427	17.0	427	17.0	0.169	4.3	NA	0.6	5.0	0.15	0.45	0.15	54.2

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 [2025 BG+ALL - Urana Rd/ Jindera-Walla Walla Rd - PM (Site Folder: 2025 BG+CT+Cumulative)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Urana Rd/ Jindera-Walla Walla Rd
Site Category: Existing Design
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
SouthEast: Urana Road															
22	T1	All MCs	66	9.5	66	9.5	0.035	4.2	LOS A	0.0	0.0	0.00	0.53	0.00	54.0
23a	R1	All MCs	116	23.6	116	23.6	0.134	6.2	LOS A	0.5	3.9	0.34	0.60	0.34	52.9
Approach			182	18.5	182	18.5	0.134	5.5	LOS A	0.5	3.9	0.21	0.57	0.21	53.3
North: Walla Walla Jindera Road															
7a	L1	All MCs	219	14.9	219	14.9	0.162	5.5	LOS A	0.7	5.6	0.24	0.55	0.24	53.0
9b	R3	All MCs	1	0.0	1	0.0	0.162	7.0	LOS A	0.7	5.6	0.24	0.55	0.24	53.7
Approach			220	14.8	220	14.8	0.162	5.5	LOS A	0.7	5.6	0.24	0.55	0.24	53.0
NorthWest: Urana Road															
27b	L3	All MCs	1	0.0	1	0.0	0.061	6.5	LOS A	0.0	0.0	0.00	0.01	0.00	57.9
28	T1	All MCs	112	13.2	112	13.2	0.061	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
Approach			113	13.1	113	13.1	0.061	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.9
All Vehicles			515	15.7	515	15.7	0.162	4.3	NA	0.7	5.6	0.18	0.44	0.18	54.3

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.

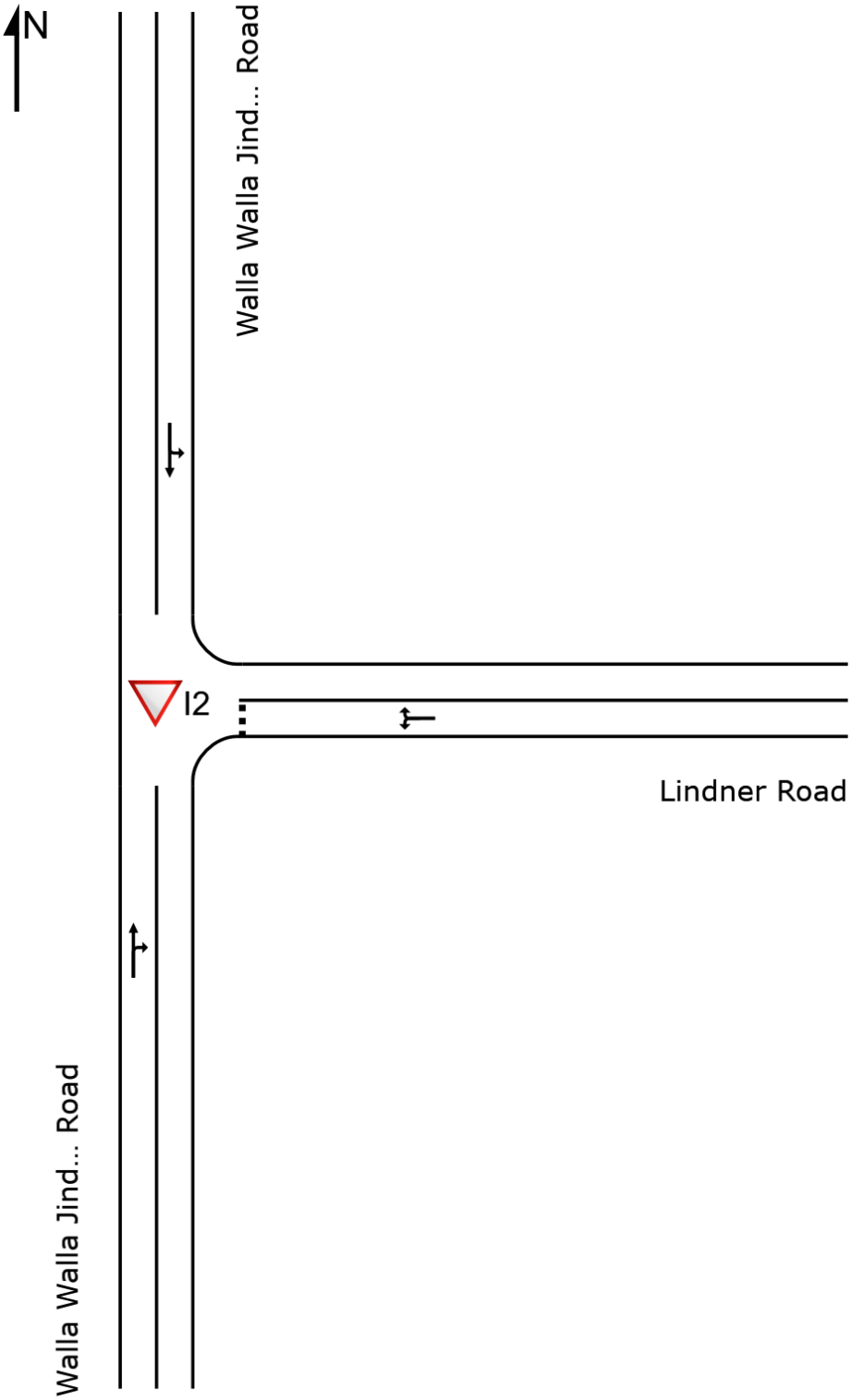
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SITE LAYOUT

Site: I2 [2024 EX - Jindera-Walla Walla Rd/ Lindner Rd - AM (Site Folder: 2024 Existing)]

Jindera-Walla Walla Road/ Lindner Road
Site Category: Existing Design
Give-Way (Two-Way)

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



MOVEMENT SUMMARY

Site: I2 [2024 EX - Jindera-Walla Walla Rd/ Lindner Rd - AM (Site Folder: 2024 Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Jindera-Walla Walla Road/ Lindner Road
Site Category: Existing Design
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: Walla Walla Jindera Road															
2	T1	All MCs	77	19.2	77	19.2	0.045	0.0	LOS A	0.0	0.1	0.00	0.01	0.00	59.9
3	R2	All MCs	1	0.0	1	0.0	0.045	5.5	LOS A	0.0	0.1	0.00	0.01	0.00	57.1
Approach			78	18.9	78	18.9	0.045	0.1	NA	0.0	0.1	0.00	0.01	0.00	59.9
East: Lindner Road															
4	L2	All MCs	1	0.0	1	0.0	0.002	5.7	LOS A	0.0	0.0	0.14	0.54	0.14	52.5
6	R2	All MCs	1	0.0	1	0.0	0.002	5.8	LOS A	0.0	0.0	0.14	0.54	0.14	52.2
Approach			2	0.0	2	0.0	0.002	5.8	LOS A	0.0	0.0	0.14	0.54	0.14	52.4
North: Walla Walla Jindera Road															
7	L2	All MCs	1	0.0	1	0.0	0.025	5.5	LOS A	0.0	0.0	0.00	0.01	0.00	57.3
8	T1	All MCs	42	20.0	42	20.0	0.025	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach			43	19.5	43	19.5	0.025	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
All Vehicles			123	18.8	123	18.8	0.045	0.2	NA	0.0	0.1	0.00	0.02	0.00	59.7

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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MOVEMENT SUMMARY

Site: I2 [2024 EX - Jindera-Walla Walla Rd/ Lindner Rd - PM (Site Folder: 2024 Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Jindera-Walla Walla Road/ Lindner Road
Site Category: Existing Design
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: Walla Walla Jindera Road															
2	T1	All MCs	74	18.6	74	18.6	0.043	0.0	LOS A	0.0	0.1	0.01	0.01	0.01	59.9
3	R2	All MCs	1	0.0	1	0.0	0.043	5.5	LOS A	0.0	0.1	0.01	0.01	0.01	57.1
Approach			75	18.3	75	18.3	0.043	0.1	NA	0.0	0.1	0.01	0.01	0.01	59.8
East: Lindner Road															
4	L2	All MCs	1	0.0	1	0.0	0.002	5.7	LOS A	0.0	0.0	0.18	0.54	0.18	52.4
6	R2	All MCs	1	0.0	1	0.0	0.002	5.9	LOS A	0.0	0.0	0.18	0.54	0.18	52.1
Approach			2	0.0	2	0.0	0.002	5.8	LOS A	0.0	0.0	0.18	0.54	0.18	52.2
North: Walla Walla Jindera Road															
7	L2	All MCs	1	0.0	1	0.0	0.042	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	57.4
8	T1	All MCs	72	19.1	72	19.1	0.042	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
Approach			73	18.8	73	18.8	0.042	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
All Vehicles			149	18.3	149	18.3	0.043	0.2	NA	0.0	0.1	0.01	0.02	0.01	59.7

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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MOVEMENT SUMMARY

Site: I2 [2025 BG - Jindera-Walla Walla Rd/ Lindner Rd - AM (Site Folder: 2025 BG)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Jindera-Walla Walla Road/ Lindner Road
Site Category: Existing Design
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: Walla Walla Jindera Road															
2	T1	All MCs	78	18.9	78	18.9	0.045	0.0	LOS A	0.0	0.1	0.00	0.01	0.00	59.9
3	R2	All MCs	1	0.0	1	0.0	0.045	5.5	LOS A	0.0	0.1	0.00	0.01	0.00	57.1
Approach			79	18.7	79	18.7	0.045	0.1	NA	0.0	0.1	0.00	0.01	0.00	59.9
East: Lindner Road															
4	L2	All MCs	1	0.0	1	0.0	0.002	5.7	LOS A	0.0	0.0	0.14	0.54	0.14	52.5
6	R2	All MCs	1	0.0	1	0.0	0.002	5.9	LOS A	0.0	0.0	0.14	0.54	0.14	52.2
Approach			2	0.0	2	0.0	0.002	5.8	LOS A	0.0	0.0	0.14	0.54	0.14	52.4
North: Walla Walla Jindera Road															
7	L2	All MCs	1	0.0	1	0.0	0.026	5.5	LOS A	0.0	0.0	0.00	0.01	0.00	57.3
8	T1	All MCs	43	19.5	43	19.5	0.026	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach			44	19.0	44	19.0	0.026	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
All Vehicles			125	18.5	125	18.5	0.045	0.2	NA	0.0	0.1	0.00	0.02	0.00	59.7

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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MOVEMENT SUMMARY

Site: I2 [2025 BG - Jindera-Walla Walla Rd/ Lindner Rd - PM (Site Folder: 2025 BG)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Jindera-Walla Walla Road/ Lindner Road
Site Category: Existing Design
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: Walla Walla Jindera Road															
2	T1	All MCs	76	19.4	76	19.4	0.044	0.0	LOS A	0.0	0.1	0.01	0.01	0.01	59.9
3	R2	All MCs	1	0.0	1	0.0	0.044	5.5	LOS A	0.0	0.1	0.01	0.01	0.01	57.1
Approach			77	19.2	77	19.2	0.044	0.1	NA	0.0	0.1	0.01	0.01	0.01	59.8
East: Lindner Road															
4	L2	All MCs	1	0.0	1	0.0	0.002	5.7	LOS A	0.0	0.0	0.18	0.54	0.18	52.4
6	R2	All MCs	1	0.0	1	0.0	0.002	5.9	LOS A	0.0	0.0	0.18	0.54	0.18	52.1
Approach			2	0.0	2	0.0	0.002	5.8	LOS A	0.0	0.0	0.18	0.54	0.18	52.2
North: Walla Walla Jindera Road															
7	L2	All MCs	1	0.0	1	0.0	0.042	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	57.4
8	T1	All MCs	73	18.8	73	18.8	0.042	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
Approach			74	18.6	74	18.6	0.042	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
All Vehicles			153	18.6	153	18.6	0.044	0.2	NA	0.0	0.1	0.01	0.02	0.01	59.7

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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MOVEMENT SUMMARY

Site: I2 [2025 BG+CT - Jindera-Walla Walla Rd/ Lindner Rd - AM (Site Folder: 2025 BG+CT)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Jindera-Walla Walla Road/ Lindner Road
Site Category: Existing Design
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: Walla Walla Jindera Road															
2	T1	All MCs	78	18.9	78	18.9	0.079	0.1	LOS A	0.3	2.4	0.11	0.25	0.11	57.4
3	R2	All MCs	54	15.7	54	15.7	0.079	5.8	LOS A	0.3	2.4	0.11	0.25	0.11	54.1
Approach			132	17.6	132	17.6	0.079	2.4	NA	0.3	2.4	0.11	0.25	0.11	56.0
East: Lindner Road															
4	L2	All MCs	6	100.0	6	100.0	0.007	7.0	LOS A	0.0	0.3	0.16	0.53	0.16	47.9
6	R2	All MCs	1	0.0	1	0.0	0.007	6.1	LOS A	0.0	0.3	0.16	0.53	0.16	51.3
Approach			7	85.7	7	85.7	0.007	6.8	LOS A	0.0	0.3	0.16	0.53	0.16	48.3
North: Walla Walla Jindera Road															
7	L2	All MCs	1	0.0	1	0.0	0.026	5.5	LOS A	0.0	0.0	0.00	0.01	0.00	57.3
8	T1	All MCs	43	19.5	43	19.5	0.026	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach			44	19.0	44	19.0	0.026	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
All Vehicles			183	20.7	183	20.7	0.079	2.1	NA	0.3	2.4	0.08	0.21	0.08	56.5

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: I2 [2025 BG+CT - Jindera-Walla Walla Rd/ Lindner Rd - PM (Site Folder: 2025 BG+CT)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Jindera-Walla Walla Road/ Lindner Road
Site Category: Existing Design
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: Walla Walla Jindera Road															
2	T1	All MCs	76	19.4	76	19.4	0.052	0.1	LOS A	0.1	0.6	0.05	0.06	0.05	59.2
3	R2	All MCs	6	100.0	6	100.0	0.052	7.2	LOS A	0.1	0.6	0.05	0.06	0.05	51.7
Approach			82	25.6	82	25.6	0.052	0.6	NA	0.1	0.6	0.05	0.06	0.05	58.5
East: Lindner Road															
4	L2	All MCs	54	15.7	54	15.7	0.039	6.0	LOS A	0.2	1.2	0.17	0.54	0.17	51.7
6	R2	All MCs	1	0.0	1	0.0	0.039	6.0	LOS A	0.2	1.2	0.17	0.54	0.17	52.1
Approach			55	15.4	55	15.4	0.039	6.0	LOS A	0.2	1.2	0.17	0.54	0.17	51.7
North: Walla Walla Jindera Road															
7	L2	All MCs	1	0.0	1	0.0	0.042	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	57.4
8	T1	All MCs	73	18.8	73	18.8	0.042	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
Approach			74	18.6	74	18.6	0.042	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
All Vehicles			211	20.5	211	20.5	0.052	1.8	NA	0.2	1.2	0.06	0.17	0.06	57.0

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: I2 [2025 BG+ALL - Jindera-Walla Walla Rd/ Lindner Rd - AM (Site Folder: 2025 BG+CT+Cumulative)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Jindera-Walla Walla Road/ Lindner Road
Site Category: Existing Design
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: Walla Walla Jindera Road															
2	T1	All MCs	100	20.0	100	20.0	0.109	0.1	LOS A	0.4	3.7	0.13	0.26	0.13	57.5
3	R2	All MCs	71	29.9	71	29.9	0.109	6.0	LOS A	0.4	3.7	0.13	0.26	0.13	53.5
Approach			171	24.1	171	24.1	0.109	2.6	NA	0.4	3.7	0.13	0.26	0.13	55.8
East: Lindner Road															
4	L2	All MCs	19	100.0	19	100.0	0.020	7.0	LOS A	0.1	1.0	0.17	0.53	0.17	47.8
6	R2	All MCs	1	0.0	1	0.0	0.020	6.3	LOS A	0.1	1.0	0.17	0.53	0.17	51.2
Approach			20	94.7	20	94.7	0.020	7.0	LOS A	0.1	1.0	0.17	0.53	0.17	47.9
North: Walla Walla Jindera Road															
7	L2	All MCs	1	0.0	1	0.0	0.029	5.5	LOS A	0.0	0.0	0.00	0.01	0.00	57.3
8	T1	All MCs	47	26.7	47	26.7	0.029	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach			48	26.1	48	26.1	0.029	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
All Vehicles			239	30.4	239	30.4	0.109	2.5	NA	0.4	3.7	0.11	0.23	0.11	55.8

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 [2025 BG+ALL - Jindera-Walla Walla Rd/ Lindner Rd - PM (Site Folder: 2025 BG+CT+Cumulative)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Jindera-Walla Walla Road/ Lindner Road
Site Category: Existing Design
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: Walla Walla Jindera Road															
2	T1	All MCs	80	23.7	80	23.7	0.071	0.2	LOS A	0.2	1.9	0.13	0.16	0.13	57.9
3	R2	All MCs	19	100.0	19	100.0	0.071	7.4	LOS A	0.2	1.9	0.13	0.16	0.13	50.7
Approach			99	38.3	99	38.3	0.071	1.6	NA	0.2	1.9	0.13	0.16	0.13	56.4
East: Lindner Road															
4	L2	All MCs	71	29.9	71	29.9	0.056	6.3	LOS A	0.2	2.0	0.21	0.54	0.21	51.0
6	R2	All MCs	1	0.0	1	0.0	0.056	6.2	LOS A	0.2	2.0	0.21	0.54	0.21	52.0
Approach			72	29.4	72	29.4	0.056	6.3	LOS A	0.2	2.0	0.21	0.54	0.21	51.1
North: Walla Walla Jindera Road															
7	L2	All MCs	1	0.0	1	0.0	0.055	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	57.4
8	T1	All MCs	95	20.0	95	20.0	0.055	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
Approach			96	19.8	96	19.8	0.055	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.9
All Vehicles			266	29.2	266	29.2	0.071	2.3	NA	0.2	2.0	0.11	0.21	0.11	56.0

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.

SIDRA INTERSECTION 9.1 | Copyright © 2000-2023 Akcelik and Associates Pty Ltd | sidrasolutions.com

Appendix J Proposed Road Upgrades (Strategic Plans)

Jindera Battery Energy Storage System (BESS)

Transport Impact Assessment

BESS Atlantic c/o Gransolar Development Australia Pty Ltd

SLR Project No.: 620.041088.00001

17 December 2025

CONCEPT ONLY

PROPOSED 8m WIDE INTERNAL ROAD ACCESS (BY OTHERS)

PROPOSED 8m WIDE SEALED PROPERTY ACCESS AS PER AUSTROADS AGRD04:23

ASSUMED DRAINAGE SWALE

204
DP 753342

PROPOSED CULVERT TO SUIT NEW SITE ACCESS

INDICATIVE LINEMARKING

PROPOSED TEMPORARY DRAINAGE SWALE DURING CONSTRUCTION WORKS

PROPOSED UNSEALED CONSTRUCTION PAVEMENT WIDENING (GRAVEL)

VEGETATION CLEARING AS REQUIRED TO SUIT PROPOSED ACCESS

VEGETATION CLEARING AREA TO BE CONFIRMED TO ACCOMMODATE SISD SIGHT LINES

8m

8m

R75m

R25m

R15m

R12m

R75m

SLU

HL

CL

1 SK03

2 SK03

31.5m

32.4m

ORTLIPP ROAD

ORTLIPP ROAD

TO GLENELLEN ROAD

TO LINDNER ROAD

1
DP 749584

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Project No:	620.041088
Date:	03/07/2025
Drawn by:	RMC
Scale:	1:400
Sheet Size:	A3
Projection:	GDA2020 Z55

LEGEND

- EXISTING GROUND CONTOURS 221.0
- EXISTING PROPERTY BOUNDARY
- EXISTING GRAVEL ROAD EDGE
- PROPOSED STORMWATER CULVERT
- ASSUMED DRAINAGE SWALE
- PROPOSED TEMPORARY DRAINAGE SWALE
- PROPOSED EDGE OF SEAL

LEGEND

- PROPOSED EDGE OF GRAVEL
- PROPOSED INTERNAL ROAD ACCESS
- PROPOSED SEALED PROPERTY ACCESS PAVEMENT
- PROPOSED UNSEALED CONSTRUCTION PAVEMENT WIDENING (GRAVEL)
- VEGETATION CLEARING EXTENT REQUIRED FOR SISD

0.0 4.0 8 12 16
METRES
SCALE 1:400

BESS ATLANTIC GRANSOLAR DEVELOPMENT

JINDERA BESS

PROPERTY ACCESS GENERAL ARRANGEMENT LAYOUT PLAN

SKETCH 01

CONCEPT ONLY

JINDERA BESS SITE

ORTLIPP ROAD

VEGETATION CLEARING AREA TO BE CONFIRMED TO ACCOMMODATE SISD SIGHT LINES

ORTLIPP ROAD

335m MINIMUM SISD DISTANCE FOR A TRUCK - 100km/h SPEED LIMIT

335m MINIMUM SISD DISTANCE FOR A TRUCK - 100km/h SPEED LIMIT

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LEGEND

- EXISTING PROPERTY BOUNDARY
- EXISTING GRAVEL ROAD EDGE
- PROPOSED EDGE OF SEAL
- PROPOSED EDGE OF GRAVEL
- PROPOSED INTERNAL ROAD ACCESS
- PROPOSED SEALED PROPERTY ACCESS PAVEMENT

LEGEND

- PROPOSED UNSEALED CONSTRUCTION PAVEMENT WIDENING (GRAVEL)
- VEGETATION CLEARING EXTENT REQUIRED FOR SISD

0.0 20 40 60 80
METRES

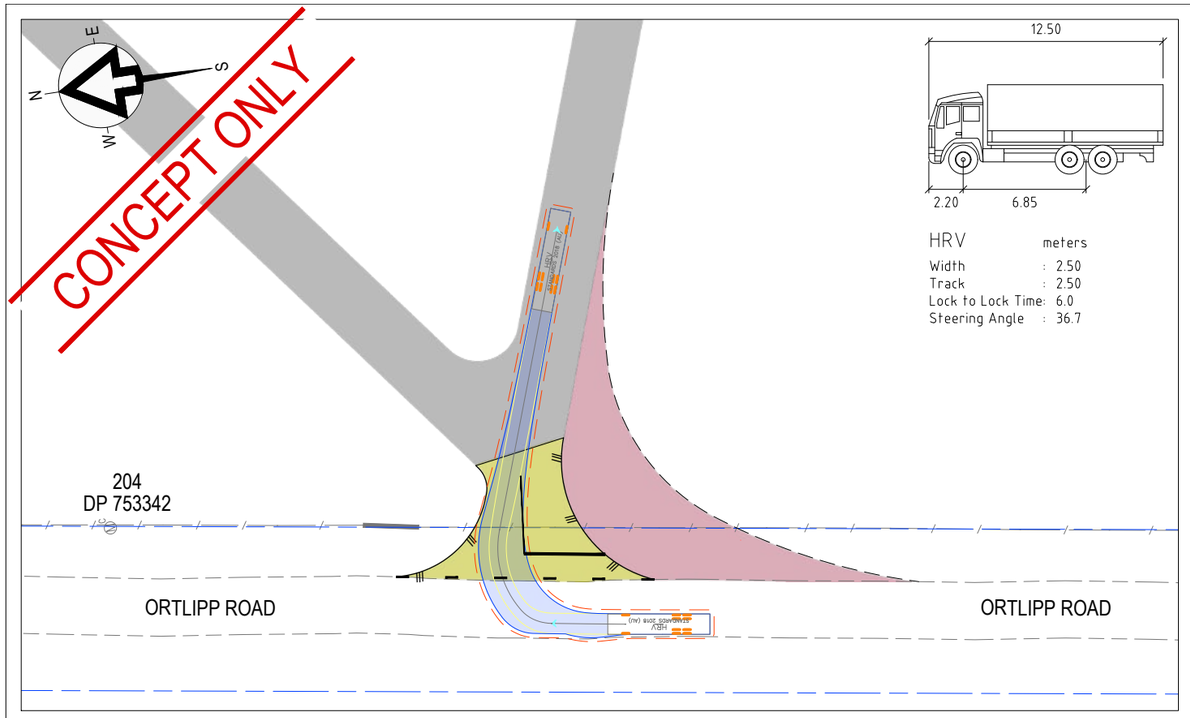
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BESS ATLANTIC GRANSOLAR DEVELOPMENT

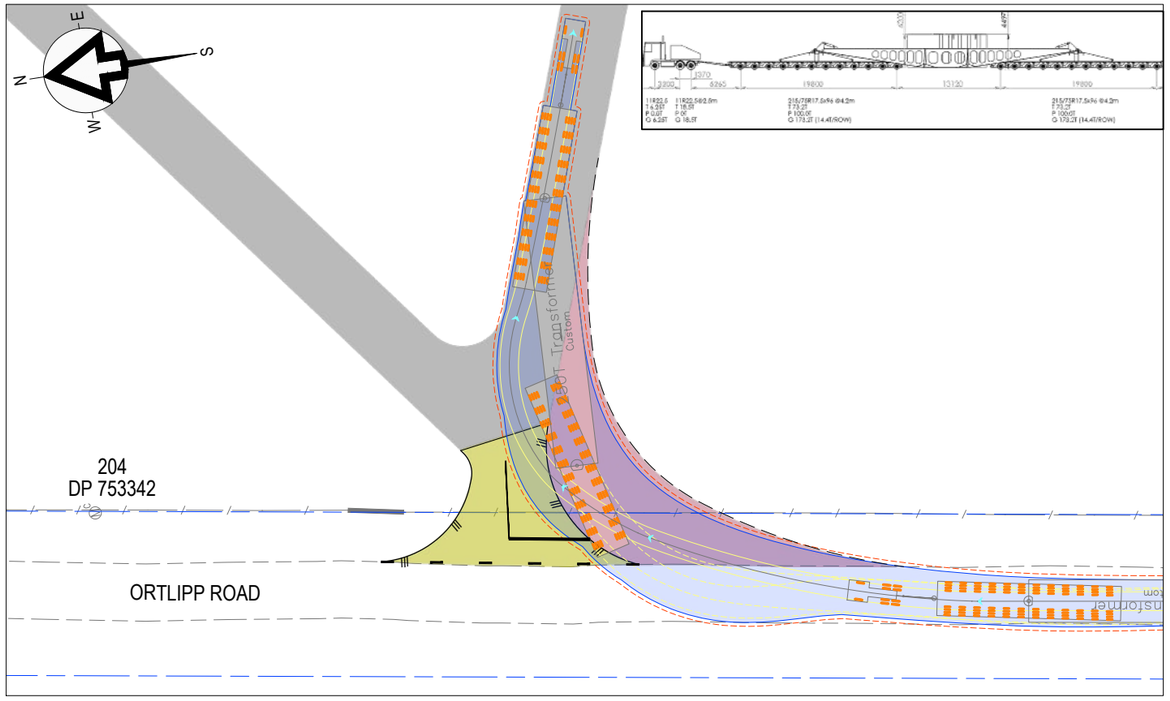
JINDERA BESS

SAFE INTERSECTION SIGHT DISTANCE CHECK LAYOUT PLAN

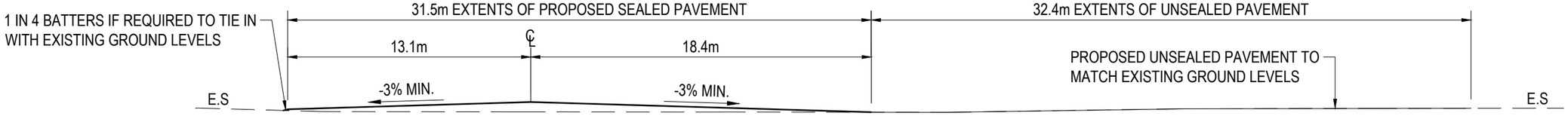
SKETCH 02



SWEPT PATH ANALYSIS - HRV (12.5m LENGTH)
SCALE 1:750m

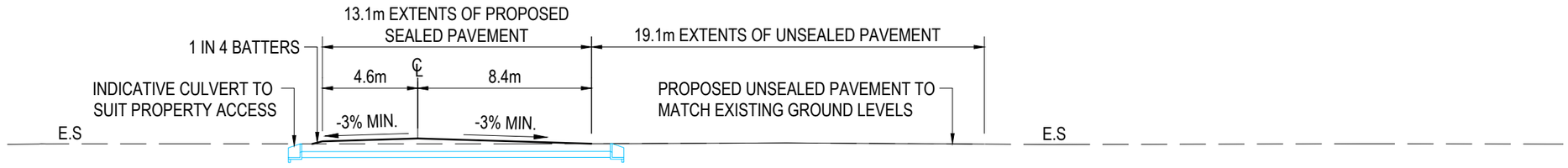


SWEPT PATH ANALYSIS - TRANSFORMER (66.4m LENGTH)
SCALE 1:750m



SECTION 1 SK01
SCALE 1:250

TYPICAL PROPERTY ACCESS - CROSS SECTION 1
SCALE 1:250m



SECTION 2 SK01
SCALE 1:250

TYPICAL PROPERTY ACCESS - CROSS SECTION 2
SCALE 1:250m

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Projection:	GDA2020 Z55

LEGEND

- EXISTING PROPERTY BOUNDARY
- EXISTING GRAVEL ROAD EDGE
- PROPOSED EDGE OF SEAL
- PROPOSED EDGE OF GRAVEL
- PROPOSED INTERNAL ROAD ACCESS
- PROPOSED SEALED PROPERTY ACCESS PAVEMENT
- PROPOSED UNSEALED CONSTRUCTION PAVEMENT WIDENING (GRAVEL)

SWEPT PATH LEGEND

- VEHICLE PATH
- VEHICLE BODY
- BODY CLEARANCE
- FRONT WHEELS

0.0 7.5 15 22.5 30 METRES
SCALE 1:750

0.0 2.5 5 7.5 10 METRES
SCALE 1:250

BESS ATLANTIC GRANSOLAR DEVELOPMENT

JINDERA BESS

SWEPT PATH ANALYSIS AND TYPICAL SECTIONS

SKETCH 03

CONCEPT ONLY

1
DP 588720

20m - PAVEMENT TO EXTEND 20m FROM SITE ENTRY

6m

PROPOSED 6m WIDE INTERNAL ROAD ACCESS

PROPOSED 6m WIDE SEALED PROPERTY ACCESS

EXISTING SITE ENTRY FENCE TO BE REALIGNED, APPROXIMATELY 5m.

R15m

2
SK12

INDICATIVE LINEMARKING

204
DP 753342

1
DP 588720

1
SK12

SLU

R12m

HL

2m

CL

9.6m

14.9m

R50m

41.9m

7m

ORTILIPP ROAD

TO GLENELLEN ROAD

ASSUMED ORTLIPP ROAD UPGRADED SEALED CARRIAGEWAY 7m WIDE (TO BE CONFIRMED)

3
DP 749584

ORTLIPP ROAD

TO LINDNER ROAD

7m

1
DP 749584

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Scale:	1:250
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Projection:	GDA2020 Z55

LEGEND

- EXISTING GROUND CONTOURS (221.0)
- EXISTING PROPERTY BOUNDARY
- EXISTING GRAVEL ROAD EDGE
- APPROXIMATE LOCATION OF EXISTING DRAINAGE SWALE
- EXISTING COMMUNICATION LINE
- PROPOSED EDGE OF SEAL

LEGEND

- PROPOSED SEALED PROPERTY ACCESS PAVEMENT

NOTE:

1. DURING DETAIL DESIGN, ONCE FULL TOPOGRAPHICAL SURVEY DATA IS CONFIRMED, ANY REQUIREMENT FOR CULVERTS UNDER THE SITE ENTRANCE WILL BE CONFIRMED.

0.0 2.5 5 7.5 10
METRES

SCALE 1:250

BESS ATLANTIC GRANSOLAR DEVELOPMENT

JINDERA BESS

TRANSGRID SITE ACCESS GENERAL ARRANGEMENT LAYOUT PLAN

SKETCH 10



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Scale:	1:1750
Sheet Size:	A3
Projection:	GDA2020 Z55

LEGEND

- EXISTING GROUND CONTOURS (221.0)
- EXISTING PROPERTY BOUNDARY
- EXISTING GRAVEL ROAD EDGE
- PROPOSED SEALED PROPERTY ACCESS PAVEMENT
- SAFETY INTERSECTION SIGHT DISTANCE LINE OF SIGHT
- SIGHT DISTANCE VISUAL CORRIDOR VEGETATION CLEARING AREA CHECK REQUIRED

0.0 17.5 35 52.5 70
METRES

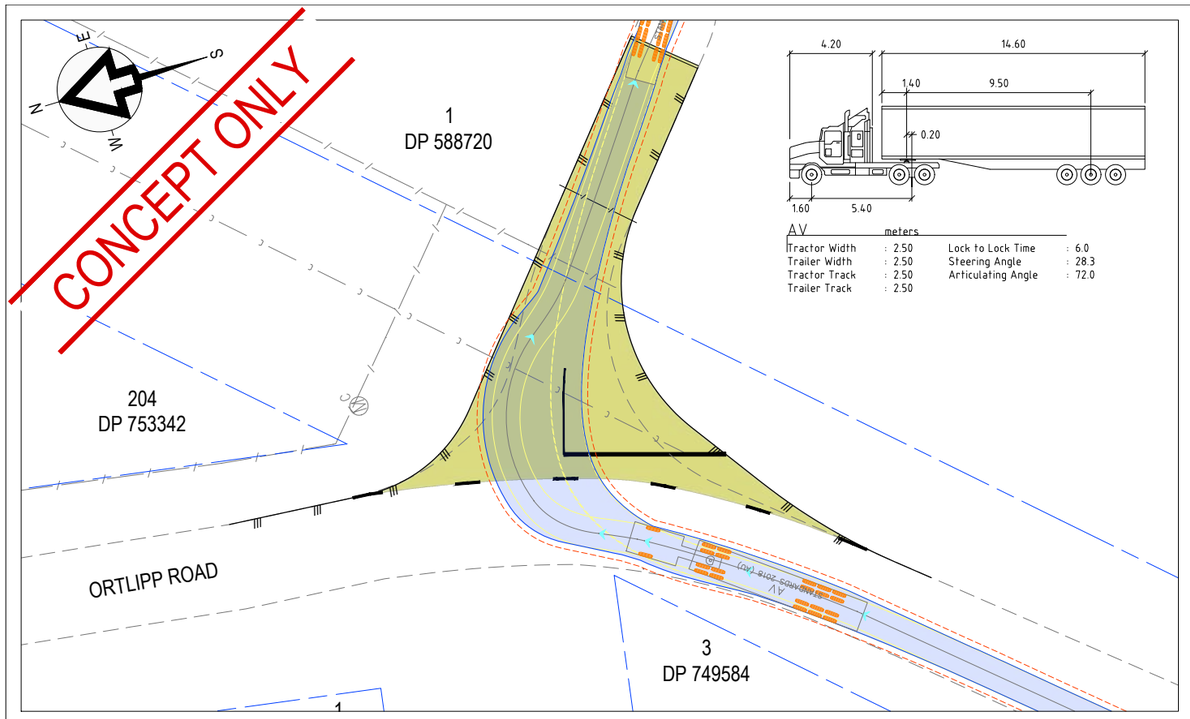
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BESS ATLANTIC GRANSOLAR DEVELOPMENT

JINDERA BESS

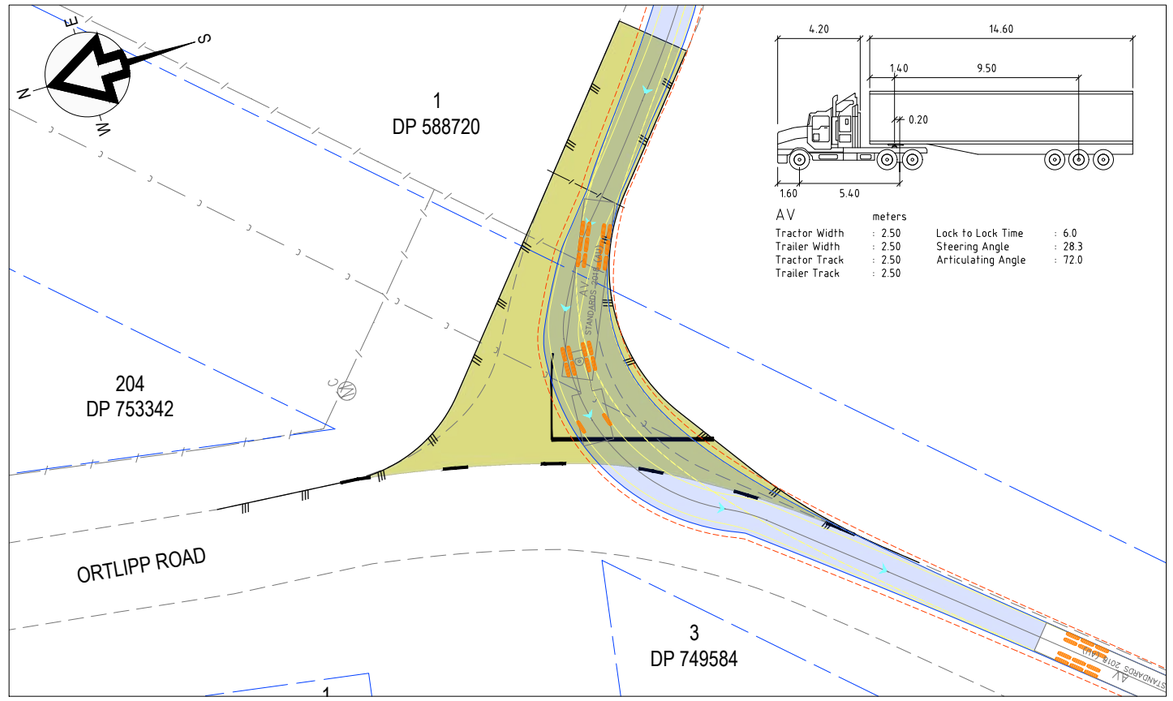
SAFE INTERSECTION SIGHT DISTANCE CHECK LAYOUT PLAN

SKETCH 11



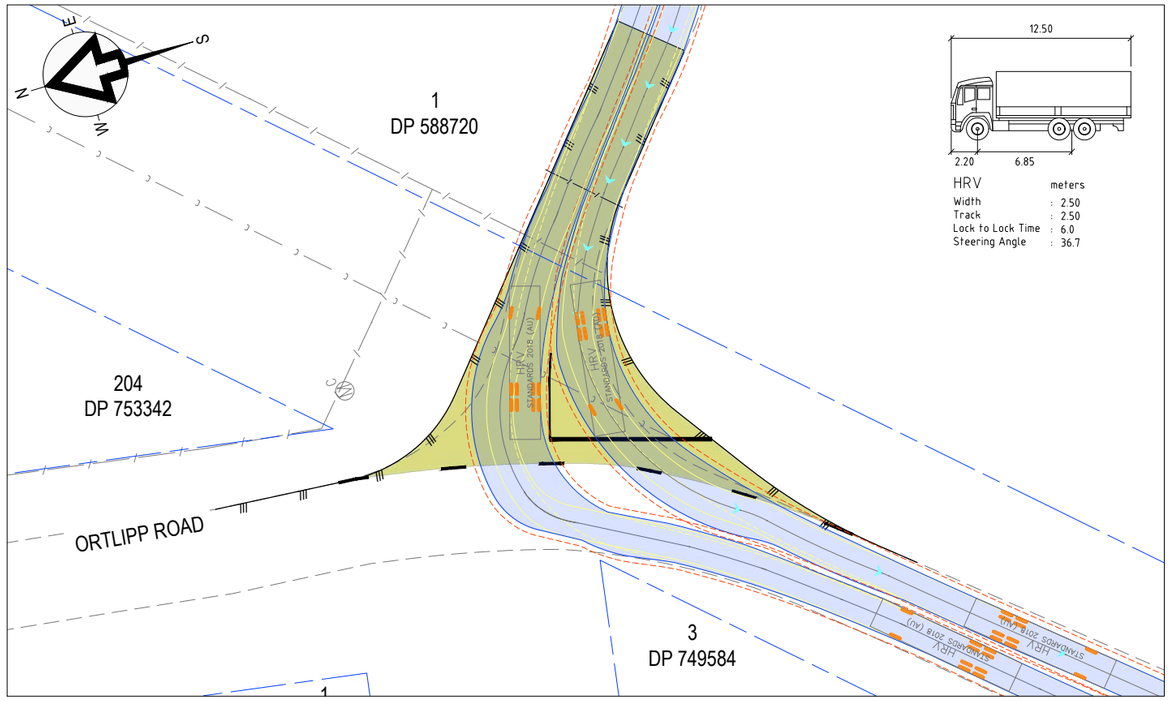
SWEPT PATH ANALYSIS - SEMI-TRAILER ENTERING SITE (20m LENGTH)

SCALE 1:500m



SWEPT PATH ANALYSIS - SEMI-TRAILER EXITING SITE (20m LENGTH)

SCALE 1:500m



SWEPT PATH ANALYSIS - HRV ENTERING/EXITING SITE (12.5m LENGTH)

SCALE 1:500m

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Sheet Size:	A3
Projection:	GDA2020 Z55

LEGEND

- EXISTING GROUND CONTOURS (221.0)
- EXISTING PROPERTY BOUNDARY
- EXISTING GRAVEL ROAD EDGE
- EXISTING COMMUNICATION LINE
- PROPOSED EDGE OF SEAL
- PROPOSED SEALED PROPERTY ACCESS PAVEMENT

SWEPT PATH LEGEND

- VEHICLE PATH
- VEHICLE BODY
- BODY CLEARANCE
- FRONT WHEELS

0.0 5.0 10 15 20 METRES

SCALE 1:500

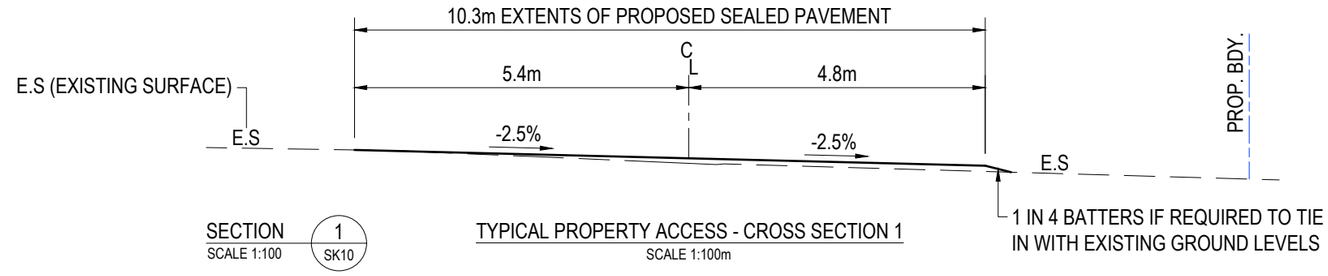
BESS ATLANTIC GRANSOLAR DEVELOPMENT

JINDERA BESS

TRANSGRID SITE ACCESS SWEPT PATH ANALYSIS

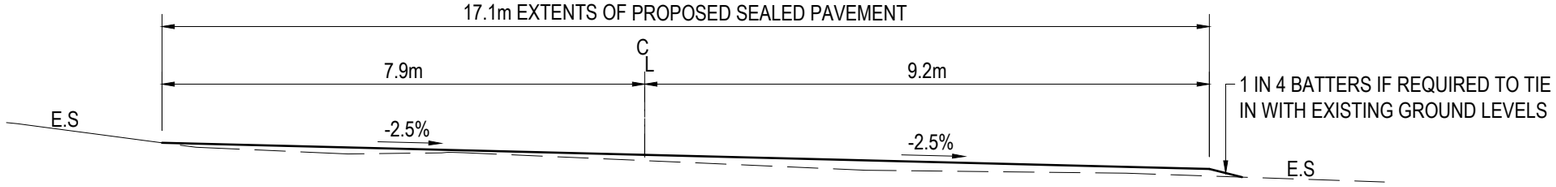
SKETCH 12

CONCEPT ONLY



SECTION 1 SK10
SCALE 1:100

TYPICAL PROPERTY ACCESS - CROSS SECTION 1
SCALE 1:100m



SECTION 2 SK10
SCALE 1:100

TYPICAL PROPERTY ACCESS - CROSS SECTION 2
SCALE 1:100m

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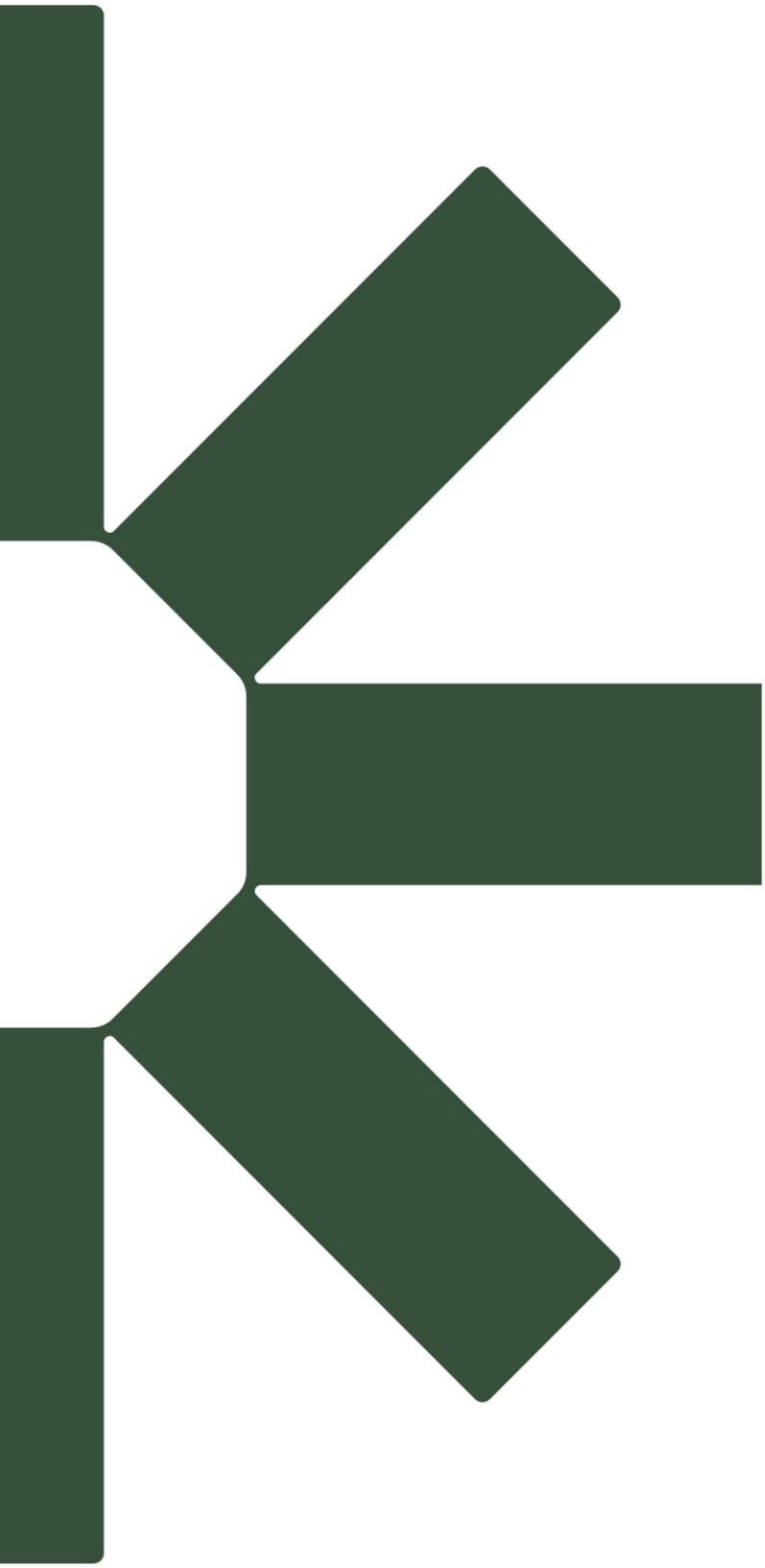
0.0 1.0 2 3 4
METRES
SCALE 1:100

BESS ATLANTIC GRANSOLAR DEVELOPMENT

JINDERA BESS

TRANSGRID SITE ACCESS TYPICAL SECTIONS

SKETCH 13



Making Sustainability Happen