

Traffic Impact Assessment Report

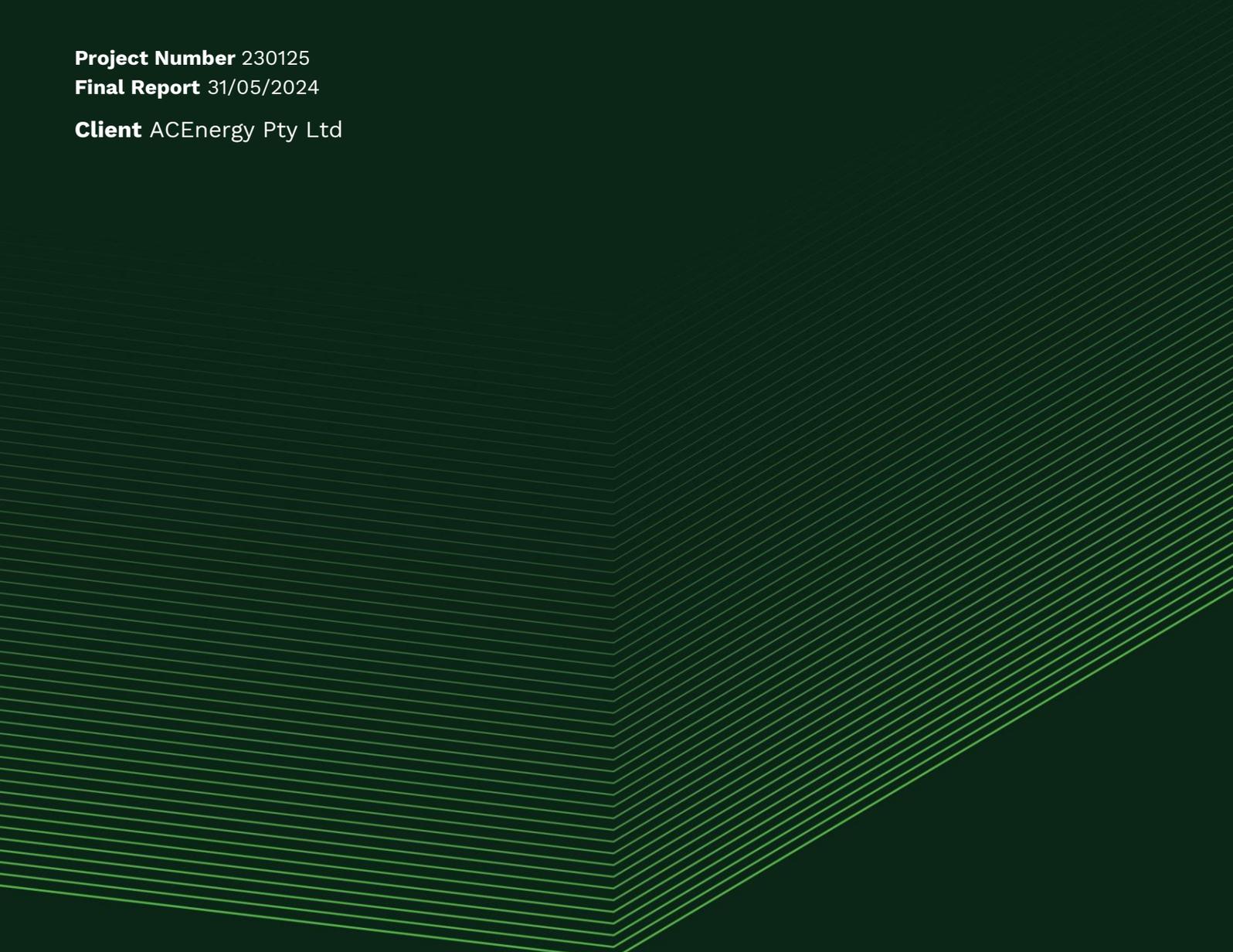
116 Cremasco Road

Yenda NSW

Project Number 230125

Final Report 31/05/2024

Client ACEnergy Pty Ltd



Document control record

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Document control

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Draft	12/04/2024	Preliminary draft	Stuart Redman	Kate Kennedy
Final	31/05/2024	Final	Stuart Redman	Kate Kennedy

Executive summary

ACEnergy Pty Ltd engaged Trafficworks to undertake a traffic impact assessment (TIA) for the proposed development of a Battery Energy Storage System (BESS) at **116 Cremasco Road Yenda NSW**.

The table below summarises the subject site's proposed development and our conclusions and recommendations.

Address	116 Cremasco Road Yenda NSW
Zoning	RU1: Primary Production
Proposed development	Battery Energy Storage System (BESS)
Road network	<ul style="list-style-type: none"> — Burley Griffin Way (B94 – State Road) — Wood Road (Local Road) — Cremasco Road (Local Road)
Traffic generation	<p>Construction phase (per day):</p> <ul style="list-style-type: none"> — 3 light vehicles — 2 heavy vehicles <p>Operation phase (per fortnight):</p> <ul style="list-style-type: none"> — 2 light vehicles
Car parking	<p>Construction phase: 3 spaces</p> <p>Operation phase: 2 spaces</p>
Conclusion	<p>We conclude that subject to the implementation of our recommendations, no traffic engineering reasons would prevent the development from proceeding.</p> <ul style="list-style-type: none"> — the peak hour traffic generation is likely to occur during the construction phase of the development, where the peak hour volumes are expected to be: <ul style="list-style-type: none"> — 3 light vehicles — 1 heavy vehicle — the construction phase is expected to take 4 weeks — the subject site will generate a peak car parking demand of 3 spaces during the construction period and 2 spaces post-opening — the development plan includes a designated parking area that will satisfy the parking demand

- adequate sight distance is available at the intersection of Cremasco Road and Wood Road; no further treatment is required
 - the proposed site access driveway to Cremasco Road satisfies the minimum entering sight distance specified in AS/NZS 2890.1
 - the proposed security gate's setback from the edge of Cremasco Road will accommodate the storage of a staff member's light vehicle clear of the traffic lane
 - no additional turn lane treatments are required due to the traffic generated by the proposed development.
-

Recommendations

It is recommended that:

- **Recommendation 1:** the subject site access driveway should be constructed according to Figure 7.4 in Austroads Guide to Road Design Part 4 requirements and to the council's satisfaction.
-

Referenced documents

References used in the preparation of this report include the following:

- Austroads Guide to Road Design
 - Part 4: Intersections and Crossings, for details of the access driveway
 - Part 4A – Unsignalised and Signalised Intersections, for sight distance criteria and provision for turning vehicles at intersections (AGRD4)
- Austroads Guide to Traffic Management
 - Part 6 – Intersections, Interchanges and Crossings Management, for sight distance criteria and provision for turning vehicles at intersections (AGTM6)
- Australian Standards:
 - AS 2890.1-2004 Parking facilities - Off-street car parking
- RTA Guide to Traffic Generating Developments, Version 2.2, October 2002.
- Griffith City Council
 - Griffith City Council Local Environmental Plan (LEP) 2014
 - Griffith City Council Development Control Plan (DCP) – Industrial - 1995

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1 Introduction

ACEnergy Pty Ltd engaged Trafficworks to undertake a traffic impact assessment (TIA) for the proposed development of a Battery Energy Storage System (BESS) at **116 Cremasco Road Yenda NSW**.

For the details about:

- existing site conditions – see section 2
- description of the proposed development – see section 3.1
- traffic impact of the proposed development – see section 3
- car parking assessment of the proposed development – see section 4
- assessment of the access to the proposed development – see section 5
- our conclusions and recommendations – see section 6.

2 Existing conditions

2.1 Subject site

The subject site is:

- located about 1 km east of Yenda and comprises a small area contained within Lot 1080 of DP257229
- currently occupied by farmland.

Vehicular access to the site is available via Cremasco Road.

Figure 1 shows the subject site's location, surrounded by farmland and rural industry.

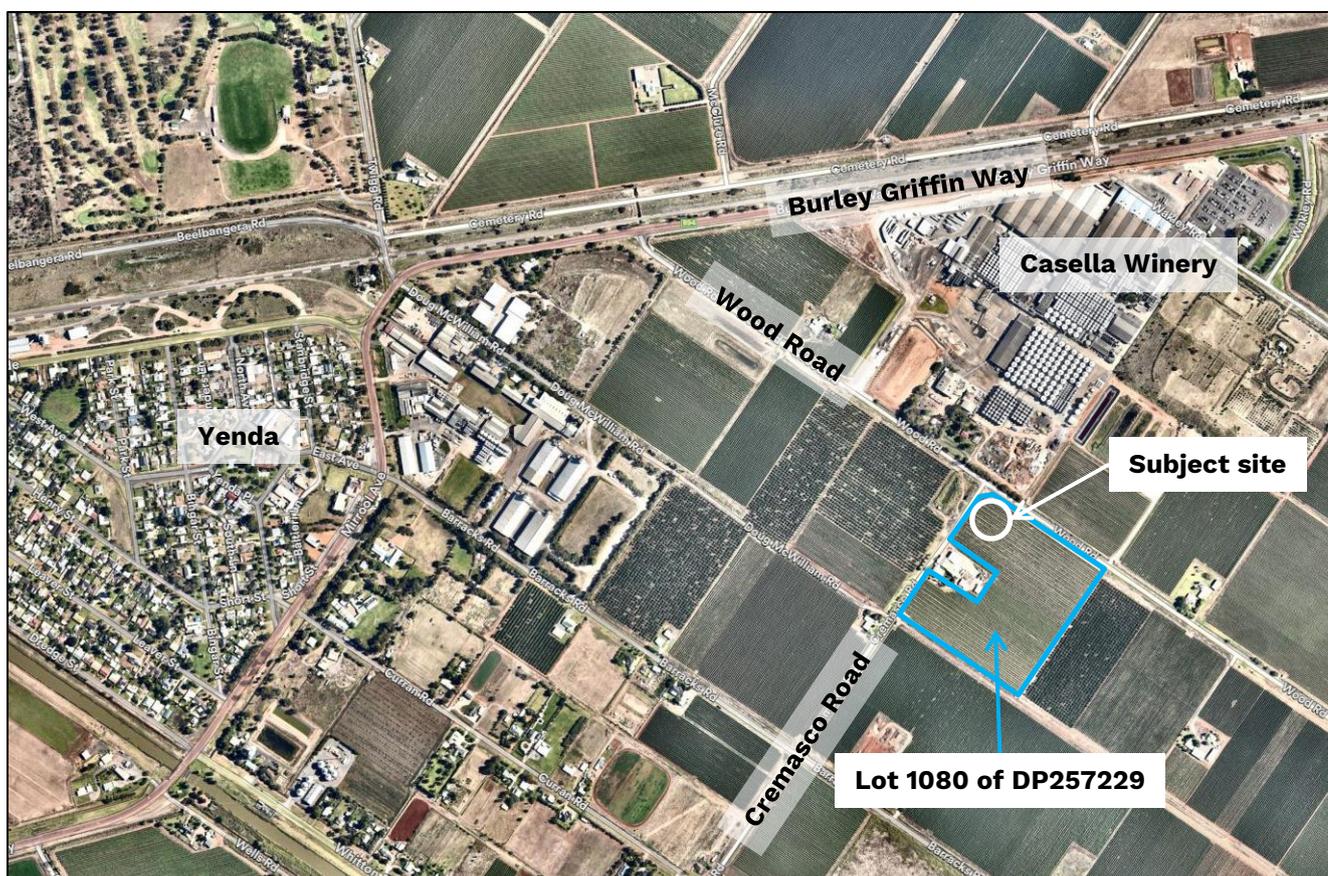


Figure 1: Location plan (reproduced with permission from Nearmap)

The subject site is located within a wider area of the RU1: Primary Production zone, per the Griffith City Council’s (council) Local Environmental Plan (LEP). To the north of the subject site is a larger winery within an E4: General Industrial zone. The township of Yenda is located to the east within a mixture of RU5: Village and R5: Large Lot Residential zones.

Figure 2 shows the zoning for the subject site and surrounding area.

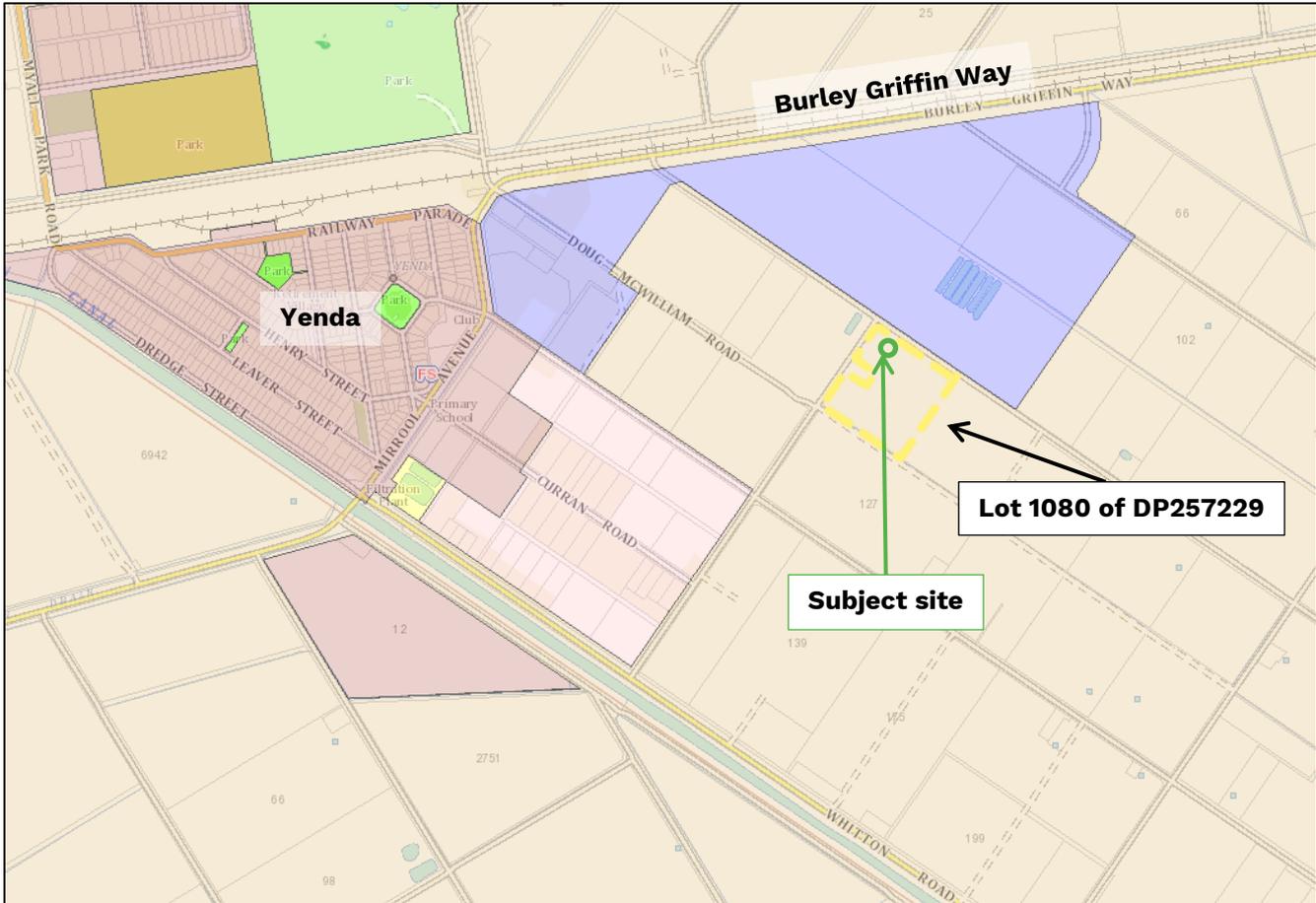


Figure 2: Zoning plan (reproduced from NSW ePlanning Spatial Viewer)

2.2 Road network

The road network includes:

- Burley Griffin Way (B94 – State Road)
- Wood Road (Local Road)
- Cremasco Road (Local Road)

2.2.1 Burley Griffin Way (B94)

Table 1 describes the features of this road.

Table 1: Burley Griffin Way features

Feature	Description
Road type	Classified state arterial road managed by Transport for New South Wales (TfNSW)
Access	Connects Irrigation Way at Yoogali (near Griffith) to the Hume Highway near Bowning
Carriageway	Two-lane, two-way sealed road consisting of 2 x 3.5 m traffic lanes with sealed shoulders ranging from 1.5 m to 2.0 m width. At the T-intersection with Wood Road, a channelised short (type CHR(S)) right turn lane and an auxiliary (type AUL) left turn lane are provided.
Road reservation	40 m wide
Speed limit	50 km/h through Yenda 100 km/h immediately east of the intersection with Wood Road

Figure 3 and Figure 4 provide further information about the road.



Figure 3: Burley Griffin Way, looking east towards the intersection with Wood Road



Figure 4: Burley Griffin Way, looking west towards the intersection with Wood Road

2.2.2 Wood Road

Table 1 describes the features of this road.

Table 2: Wood Road features

Feature	Description
Road type	Local road managed by council
Access	Provides access to a few rural residential properties and farmland connecting Burley Griffin Way and Whitton Stock Route Road.
Carriageway	Two-way road with: <ul style="list-style-type: none"> — 6.8 m wide sealed formation to the winery access (about 550 m southeast of Burley Griffin Way — 6.2 m wide unsealed formation from the winery access to Whitton Stock Route Road.
Road reservation	30 m wide
Speed limit	50 km/h - between Burley Griffin Way and Cremasco Road 100 km/h – southeast of the intersection with Cremasco Road.

Figure 5 and Figure 6 provide further information about the road.



Figure 5: Wood Road, looking northwest towards the intersection with the winery access on the right



Figure 6: Wood Road, looking northwest on approach to the intersection with Burley Griffin Way

2.2.3 Cremasco Road

Table 3 describes the features of this road.

Table 3: Cremasco Road features

Feature	Description
Road type	Local road managed by council
Access	Provides access to a few rural residential properties and farmland connecting Wood Road and Whitton Road.
Carriageway	Two-way unsealed road with a 4.5 m wide formation
Road reservation	30 m wide
Speed limit	Unsigned, assumed to be the default rural speed limit of 100 km/h. Based on the road formation/condition, the operational speed is expected to be 50 – 60 km/h.

Figure 7 and Figure 8 provide further information about the road.



Figure 7: Cremasco Road, looking northeast towards the intersection with Wood Road



Figure 8: Cremasco Road, looking southwest past the subject site on the left

2.3 Traffic volumes

2.3.1 Burley Griffin Way

TfNSW Traffic Volume Viewer details traffic volumes for many of the arterial roads in New South Wales. Scrutiny of the records indicates that in 2011, during a typical midweek period, for Station Id: 95302 (about 30 km east of the subject site, near Barellan):

- eastbound volume of 566 vehicles per day (vpd) and westbound volume of 505 vpd
- AM commuter peak (9:00 to 10:00 am) eastbound volume of 41 vehicles per hour (vph) and westbound volume of 38 vph
- PM commuter peak (4:00 pm – 5:00 pm) eastbound volume of 44 vph and westbound volume of 39 vph.

Projecting the traffic volumes to 2024 by adopting an annual compound growth rate of 3 %¹ per annum, Burley Griffin Way is currently estimated to carry:

- eastbound volume of 831 vpd and westbound volume of 742 vpd
- AM commuter peak (9:00 to 10:00 am) eastbound volume of 60 vph and westbound volume of 56 vph
- PM commuter peak (4:00 pm – 5:00 pm) eastbound volume of 65 vph and westbound volume of 57 vph.

2.3.2 Local Roads

The council has no recent traffic volume data for any local roads mentioned in Section 2.2. The local roads are not expected to carry more traffic than Burley Griffin Way. As a result, the average daily traffic volume has been estimated for each of the roads as follows:

- Wood Road
 - about 300 vpd
 - peak-hour two-way volume of 30 vph
- Cremasco Road
 - less than 100 vpd
 - peak-hour two-way volume of 10 vph

¹ Investigation of traffic volumes within the region indicates a less than 3 % growth rate within the last 10 years. Therefore, the assumption of applying a 3 % growth rate is conservative for projecting the traffic volumes to 2024.

2.4 Crash history

The TfNSW Centre for Road Safety website details all injury crashes throughout New South Wales and reports that no casualty crashes occurred on the roads near the subject site in the last 5 years (2018 – 2022).

Based on this, we conclude that no trend requires immediate investigation.

3 Traffic assessment of the proposed development

3.1 The proposal

The proposed development involves constructing a BESS with batteries and a medium voltage power station (MVPS) housed in 40 ft containers. The proposed facility will be unstaffed, and the period that will generate the most traffic will be the construction phase.

Vehicular access to the site is proposed directly from Cremasco Road via a new access approximately 50 m southwest of the intersection with Wood Road. Figure 9 shows an extract of the proposed development plan, and the full plan is provided in Appendix 1.

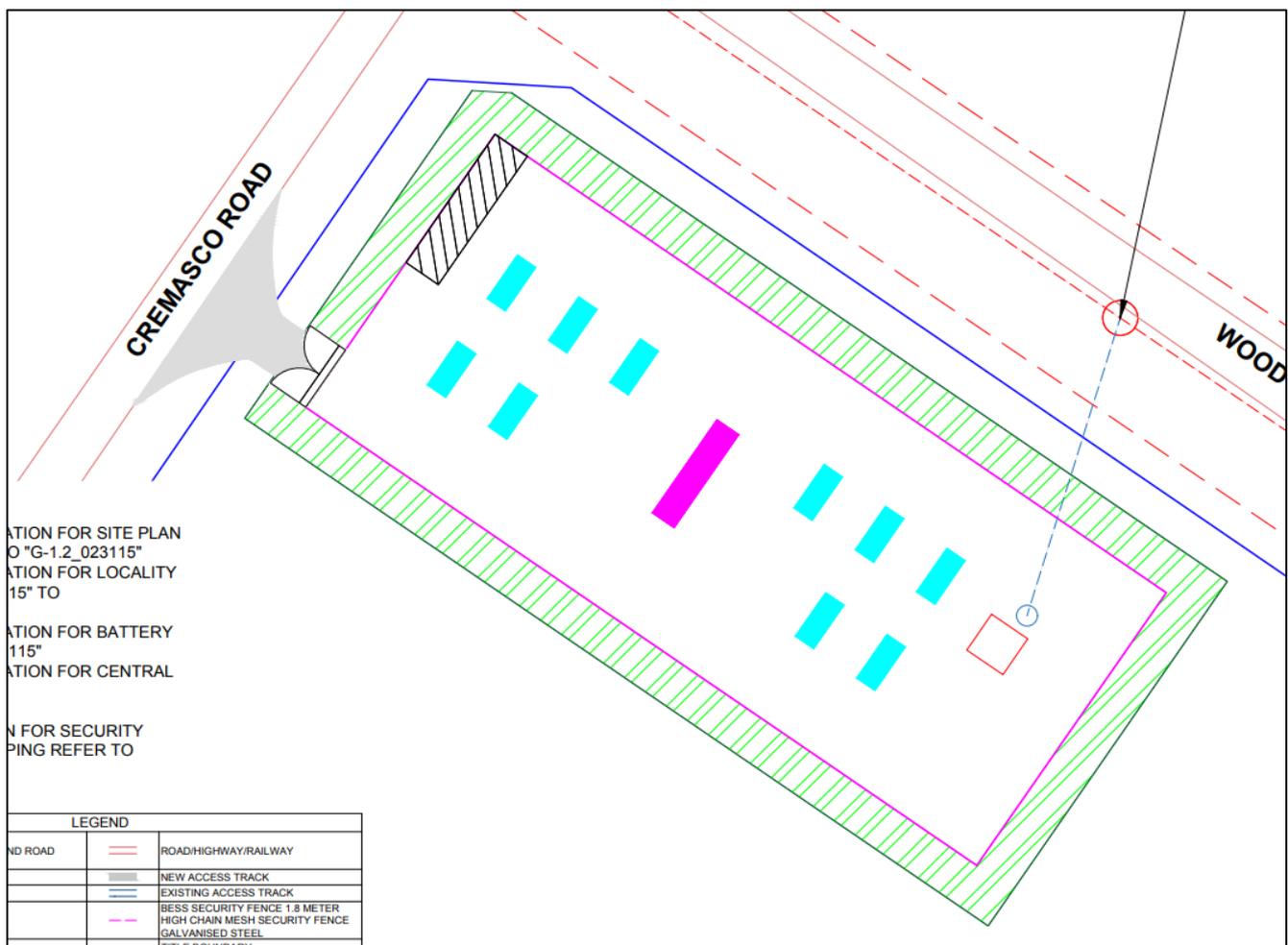


Figure 9: Extract of the development plan

3.1.1 Construction

On-site construction for the proposed BESS is limited mainly to assembly and connecting components with the typical battery energy storage system shipping containers. Most of the equipment will be transported to the subject site via rigid trucks, with only the batteries and MVPS required to be delivered by a 19 m semi-trailer (B-doubles will not be used for transportation).

The typical construction delivery schedule for this BESS is shown in Table 4.

Table 4: Construction delivery schedule

Time period	Site Works
Week 1	drainage, road and fencing works installation of concrete footings
Week 2	cable installation delivery of battery shipping containers and MVPS installation of battery shipping containers and inverter station
Week 3	electrical installation and cable termination electrical testing
Week 4	commissioning / demobilisation

There is a 4-week construction phase before the full operation of the BESS.

3.1.2 Heavy vehicle access to the subject site

All heavy vehicle traffic from Burley Griffin Way will arrive/depart the subject site via Wood Road and Cremasco Road. Heavy vehicles will enter the subject site by turning left from Burley Griffin Way to Wood Road, making a right turn at the intersection with Cremasco Road, and then entering the subject site with a left turn.

Heavy vehicles will exit the subject site in the reverse direction. Figure 10 indicates the route for all heavy vehicles arriving and departing the subject site.

The light vehicles are expected to arrive from Griffith and Yenda (from the west), turn right from Burley Griffin Way into Wood Road, make a right turn at the intersection with Cremasco Road and then enter the subject site with a left turn.

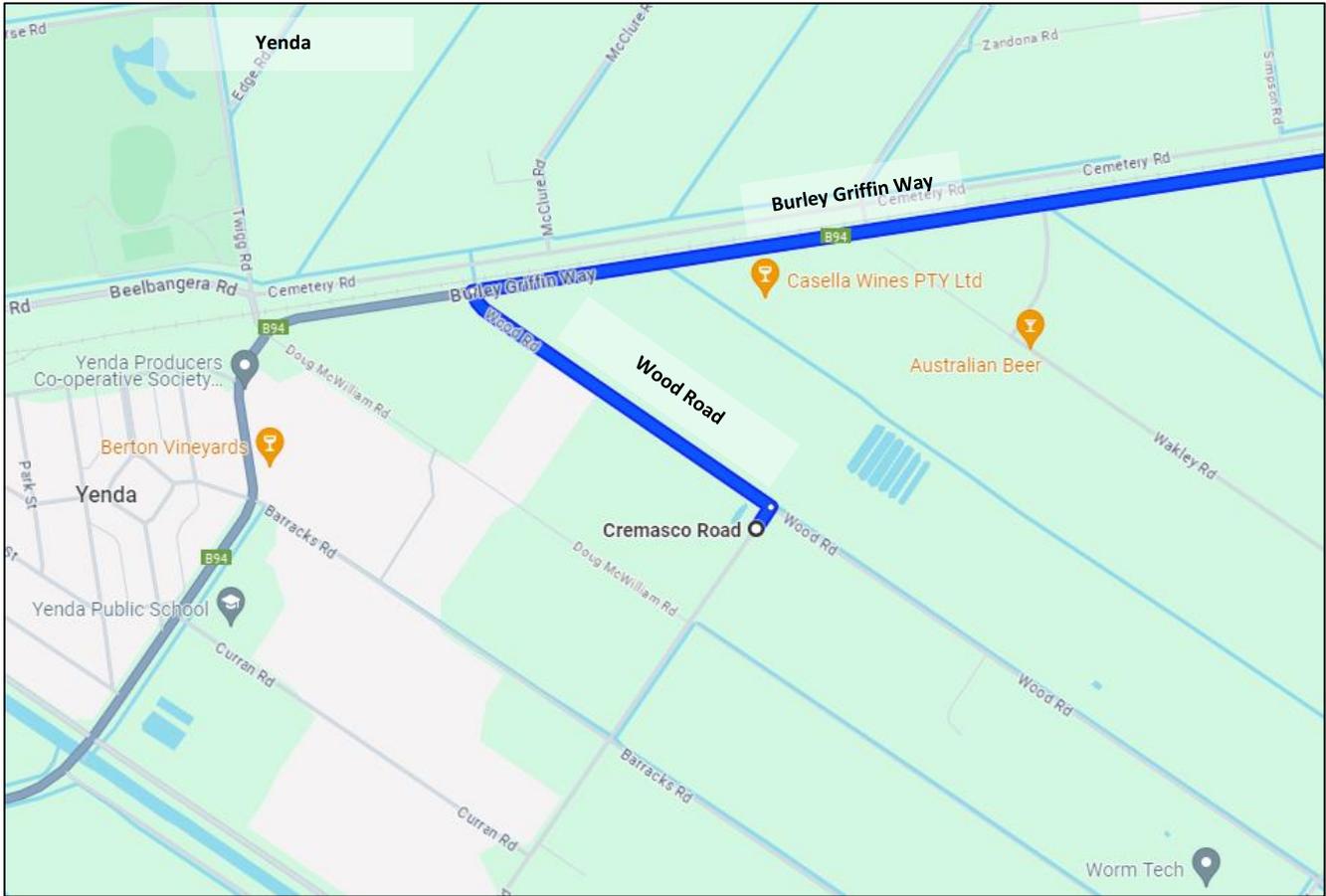


Figure 10: Indicative route for heavy vehicle arrivals (source: Google Maps)

3.1.3 Operation / decommissioning

The proposed use is based on a 40-year lease. If the lease is not renewed after this period, the facility's operator must decommission it, remove all installations, and restore the subject site to its pre-existing state.

Upon approval of this application, the responsible authority may require a decommissioning and rehabilitation plan to be submitted for endorsement.

3.2 Traffic generation

Typically, the traffic generation for new developments is estimated using the traffic generation rates provided in the RTA Guide to Traffic Generating Developments – Version 2.2A 2002 (the RTA Guide). However, the RTA Guide does not include traffic generation rates for BESS facilities.

Therefore, the traffic generation to/from the proposed development was estimated empirically. Traffic generation analysis was undertaken for the development's construction and operational phases to establish the likely peak traffic generation.

3.2.1 Construction phase traffic volumes

Based on the information provided, the peak light vehicle traffic generation is likely to occur from the start of the construction phase to the completion of this phase, with a maximum traffic generation likely to occur during weeks 1 to 3. This is when 3 construction staff will access the subject site, resulting in a total daily traffic generation of 6 vpd (3 vpd arriving at the start of the shift and 3 vpd departing at the end of the shift).

Assuming the construction work will be undertaken during regular working hours, it is anticipated that 3 vehicles will access the subject site during a given peak hour (at the start of the morning shift).

Assessment of the heavy vehicles accessing the subject site during the construction phase revealed that peak traffic generation is likely to occur from the start, with a maximum number of heavy vehicles accessing the subject site during week 2. This period includes delivery of battery shipping containers when up to 10 heavy vehicles will access the subject site weekly and up to 2 vpd. Therefore, this would result in a total daily traffic generation of 4 vpd (2 vpd arriving and 2 vpd departing). It is unlikely that heavy vehicles will arrive within the same hour as deliveries will be managed by the project team (i.e. delivery schedule).

The vehicles are anticipated to access the subject site outside the commuter peak hours for the surrounding road network.

The impact of heavy vehicles is considered negligible; however, conservatively, for this assessment, it has been assumed that a single heavy vehicle will access the subject site during the AM (arriving) and PM (departing) peak hours.

3.2.2 Operational phase traffic volumes

The proposed BESS will have remote monitoring in real-time, allowing for constant surveillance and monitoring of the facility without the requirement for staffing on-site.

The compound contains critical infrastructure that requires a high degree of security. Upon identification of potential issues, action can be taken indirectly from the control centre or directly by chosen contractors who would travel to the subject site if required. During the operational phase, 2 light vehicles will attend the subject site fortnightly for general maintenance.

3.2.3 Peak traffic generation

Assessment of the likely traffic generation volumes during the construction and operational phases of the development revealed that the peak traffic generation for the subject site would occur during the construction phase. Therefore, the assessment was undertaken to determine the traffic implications during this phase.

Conclusion 1: the peak hour traffic generation is likely to occur during the construction phase of the development, where the peak hour volumes are expected to be:

- 3 light vehicles
- 1 heavy vehicle

Conclusion 2: the construction phase is expected to take 4 weeks.

3.3 Traffic distribution assumptions

Based on the surrounding road network, it has been assumed that access to the site will be:

- 100% of the light vehicles to/from the west (Yenda / Griffith)
- 100% of the heavy vehicles to/from the east.

It has been assumed that all vehicles will enter the site at the AM peak and depart at the PM peak.

3.4 Anticipated traffic volumes

Given that the proposed BESS will have peak traffic generation during the construction phase, the anticipated development traffic volumes for 2024 (when the facility is under construction) are summarised in Table 5. This table reflects the turning movements at the Burley Griffin Way / Wood Road intersection.

Table 5 Directional split of peak traffic flow at the intersection of Burley Griffin Way and Wood Road

Period	Type	Left In	Right In	Left Out	Right Out	Total
AM Peak	Light	0	3	0	0	3
	Heavy	1	0	0	0	1
	TOTAL	1	3	0	0	4
PM Peak	Light	0	0	3	0	3
	Heavy	0	0	0	1	1
	TOTAL	0	0	3	1	4

4 Car parking assessment of the proposed development

4.1 Planning scheme car parking assessment

The RTA Guide provides car parking rates for new developments. However, the parking requirement for BESS facilities is currently unavailable. Therefore, an empirical assessment was undertaken to estimate the demand for car parking for the proposed development.

Section 3.2.1 outlined that:

- up to 3 light vehicles are anticipated to access the subject site per day during the construction phase of the development

Section 3.2.2 outlined that:

- up to 2 light vehicles are anticipated to access the subject site every fortnight after the facility opens for periodic maintenance.

The proposed site plan indicates a formal on-site car parking area, providing sufficient space to accommodate the required on-site parking.

Conclusion 3: the subject site will generate a peak car parking demand of 3 spaces during construction and 2 spaces after opening.

Conclusion 4: the development plan includes a designated parking area to satisfy the parking demand.

5 Access to the subject site

5.1 Site access – intersection SISD requirement

The visibility criterion typically applied to intersections is Safe Intersection Sight Distance (SISD). Figure 11 shows the SISD, which:

- is nominated in the Austroads Guide to Road Design, Part 4A (AGRD4) as the minimum distance that should be provided on a major road at any intersection (refer to Section 3.2.2 in AGRD4A)
- provides sufficient distance for the driver of a vehicle on the major road:
 - to observe a vehicle from the minor access approach moving into a collision situation, e.g., in the worst case, stalling across the traffic lanes
 - to decelerate to a stop before reaching the collision point.

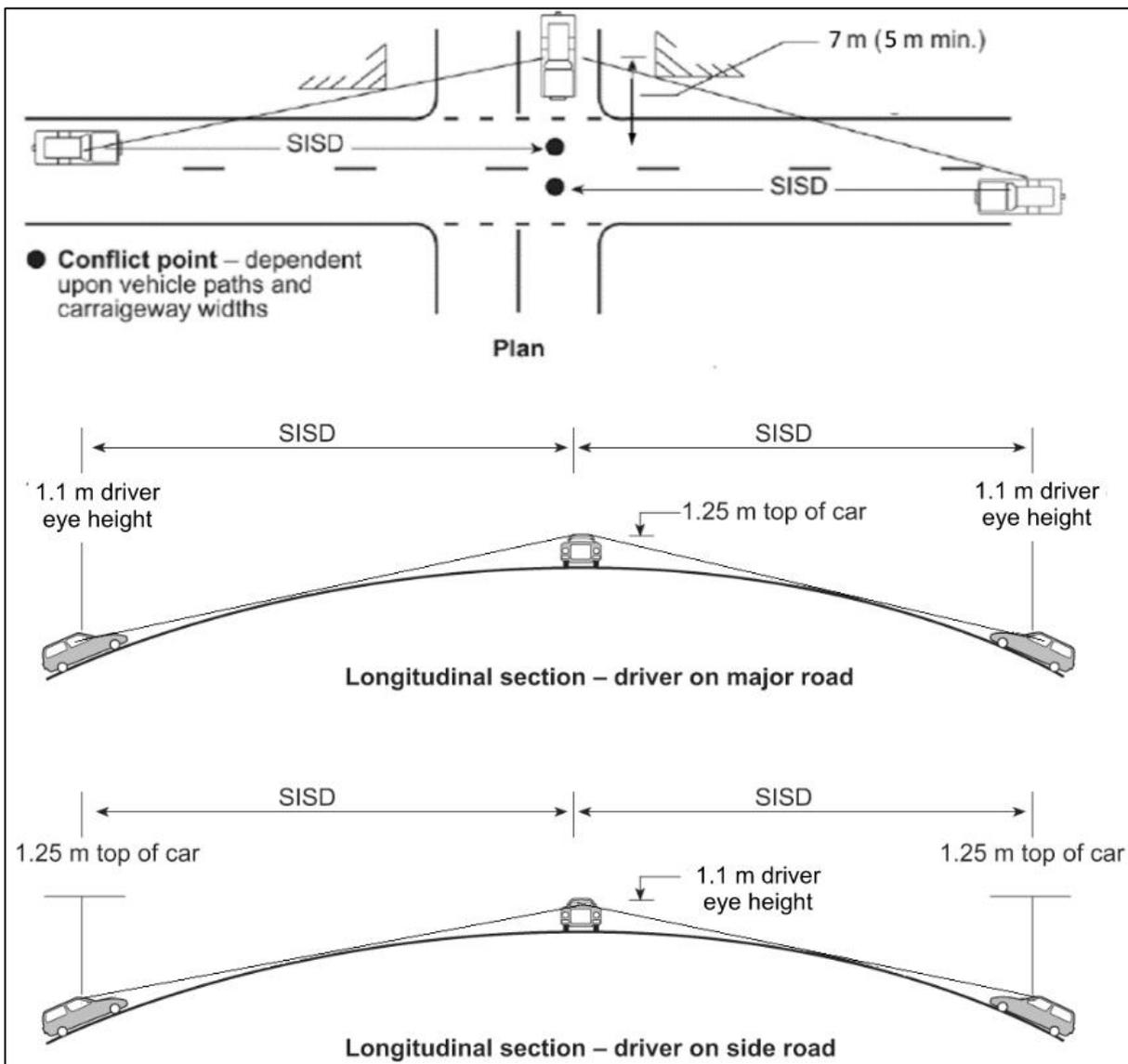


Figure 11: Safe Intersection Sight Distance (SISD) (Source: Figure 3.2 from AGRD4)

5.1.1 Wood Road / Cremasco Road

The minimum SISD criterion, specified in Table 3.2 of AGRD4A, requires clear visibility for a desirable minimum distance, relating to the general reaction time RT of 2 seconds and a design speed of:

- 100 km/h (southeast approach) = of **248 m**
- 50 km/h (northwest approach) = of **97 m**

SISD for heavy vehicles is calculated with reduced deceleration coefficients and increased observation heights to incorporate the different vehicle characteristics. The SISD for a heavy vehicle at this location for a design speed of:

- 100 km/h (southeast approach) = of **303 m**
- 50 km/h (northwest approach) = of **110 m**

The available sight distance at the intersection of Cremasco Road and Wood Road is demonstrated in Figure 12 and Figure 13.



Figure 12: Wood Road at the Cremasco Road intersection – view northwest (>300 m)



Figure 13: Wood Road at the Cremasco Road intersection – view southeast (310 m)

The site assessment concluded that the visibility requirements at the Cremasco Road and Wood Road intersection are satisfied; no further treatment is required. Furthermore, due to the unsealed road conditions, vehicles are expected to travel below 100 km/h on the southeastern approach.

Conclusion 5: adequate sight distance is available at the intersection of Cremasco Road and Wood Road; no further treatment is required.

5.2 Site access – Access driveway ESD requirement

Section 3.2.4 in AS/NZS 2980.1 Parking Facilities – Part 1: Off-street car parking sets out the entering sight distance (ESD) criteria for a driver exiting an access driveway to traffic on the frontage road.

Un-signalised access driveways shall be located so the intersection sight distance available to drivers leaving the driveway along the frontage road is at least that shown in Figure 3.2 of AS/NZS 2890.1 (reproduced in Figure 14).

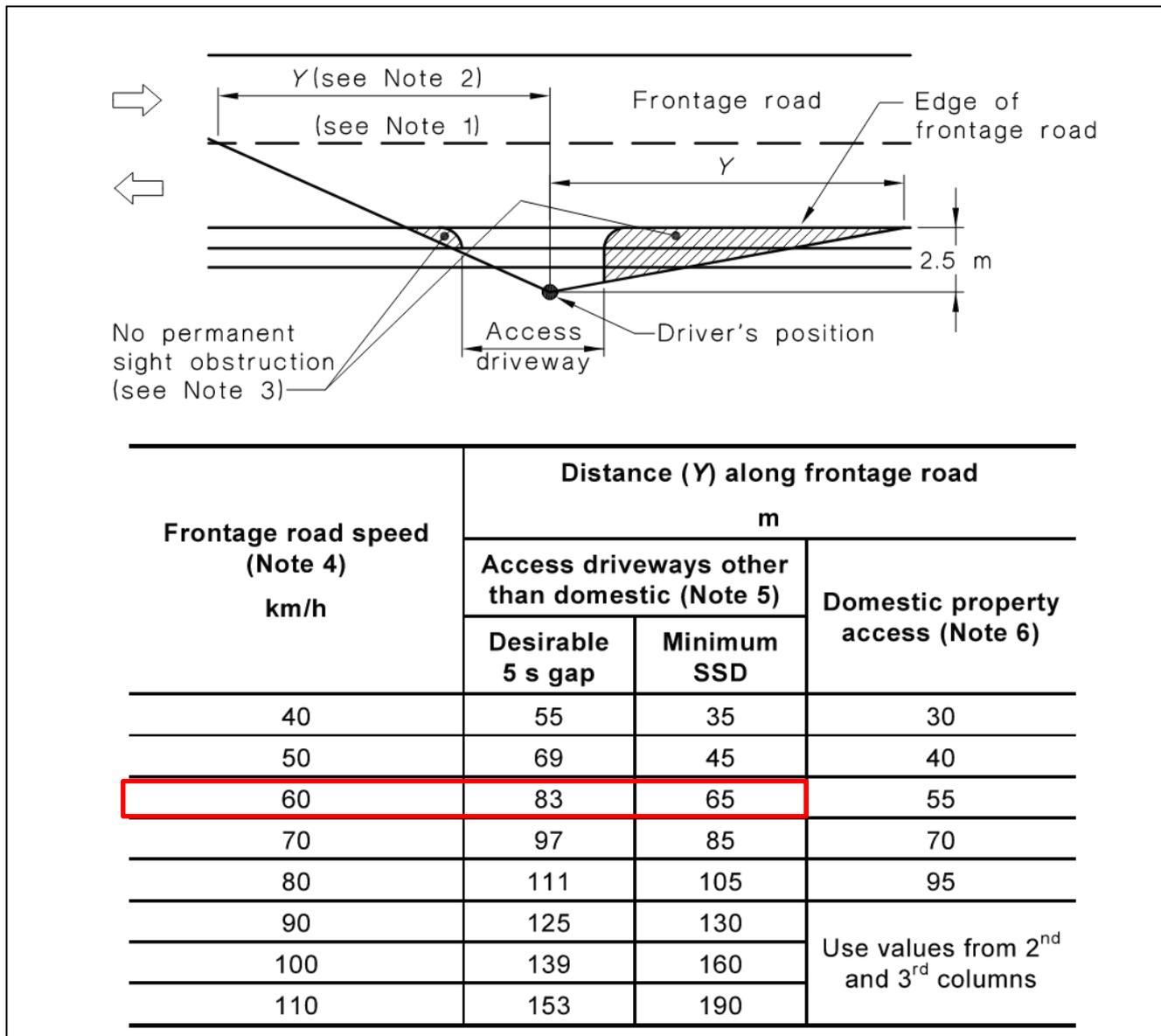


Figure 14: Sight distance requirements at driveways (Source: Figure 3.2 from AS/NZS 2890.1)

The proposed site access to the development along Cremasco Road is subject to an expected 60 km/h operating speed. The corresponding minimum Stopping Sight Distance (SSD) is 65 m. This can be achieved northeast and southwest of the proposed site access driveway. Figure 15 and Figure 16 show that there is no vegetation restricting the sight distance to the northeast and southwest of the site's access.



Figure 15: At the intersection of the site access driveway and Cremasco Road facing southwest



Figure 16: At the intersection of the site access driveway and Cremasco Road facing northeast

Conclusion 6: the proposed site access driveway to Cremasco Road satisfies the minimum entering sight distance specified in AS/NZS 2890.1.

5.3 Access location and operation

The subject site access driveway is recommended to be constructed per Figure 7.4 in Austroads Guide to Road Design Part 4: Intersections and Crossings requirements and to the council's satisfaction (refer to Figure 17). It should provide sufficient width to facilitate the movements of a 19 m semi-trailer accessing the subject site.

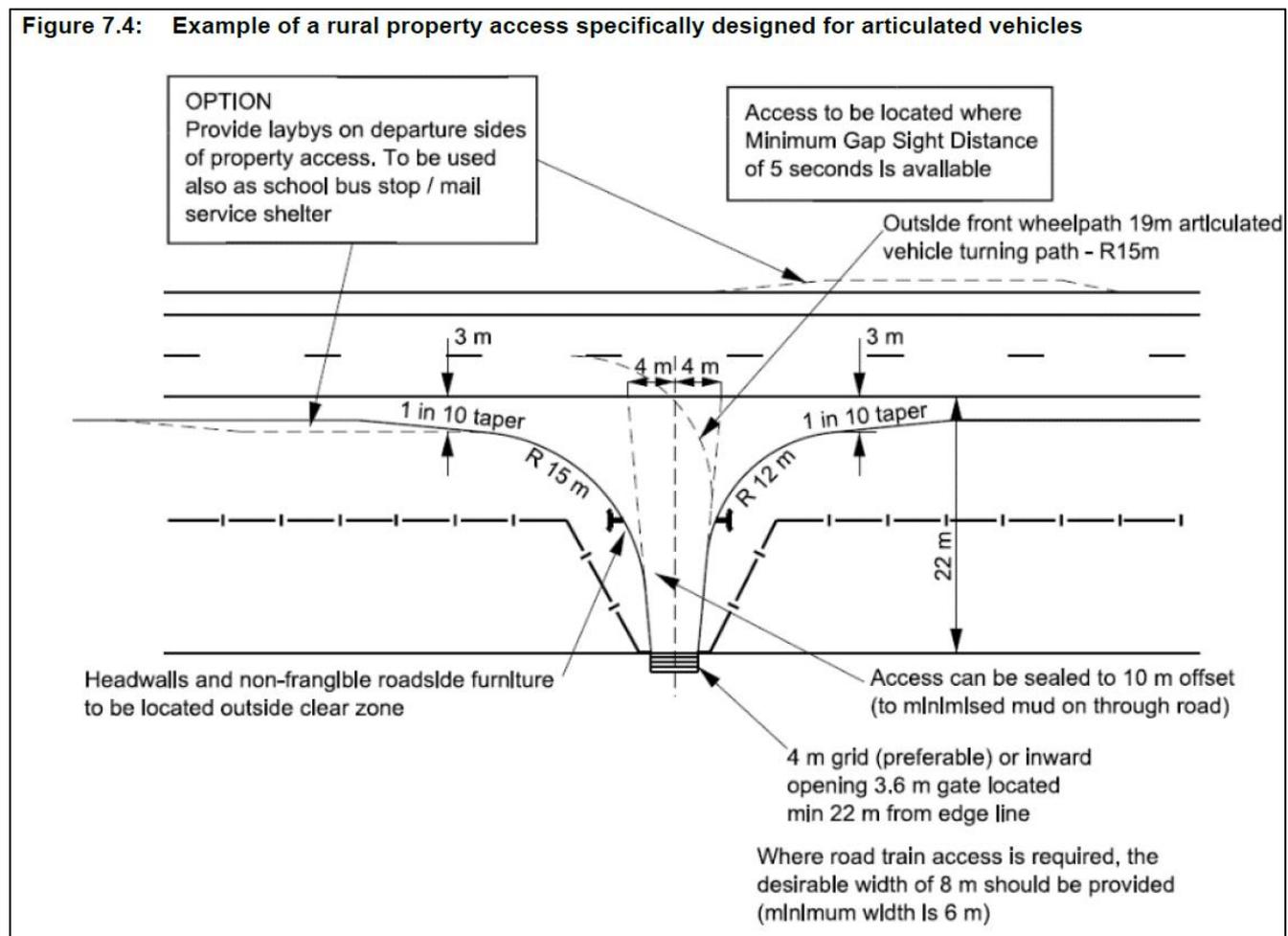


Figure 17: rural property access designed for an articulated vehicle

Recommendation 1: the subject site access driveway should be constructed according to Figure 7.4 in Austroads Guide to Road Design Part 4 requirements and to the council's satisfaction.

5.4 Site security

The proposed development will include installing site security and restricting access to authorised vehicles only. This will involve the provision of security fencing and gates at the development's entrance. The proposed security gate is about 16 m from the edge of the formation on Cremasco Road.

Only 1 truck is expected to arrive and queue at any time, with a 19 m semi-trailer being the largest vehicle accessing the subject site. It is unlikely that a truck will arrive at the site when the security gate is closed because the first staff member to the site each day will open the security gate, and it will remain open all day.

Conclusion 7: the proposed security gate's setback from the edge of Cremasco Road will accommodate the storage of a staff member's light vehicle clear of the traffic lane.

5.5 Local network impacts

The traffic turning from major roads into minor roads should not delay through traffic. Generally, turn treatments from major roads into minor roads at sign-controlled intersections are provided for safe and efficient intersection operation.

Due to the low turning volumes during construction (3 light vehicles and 1 heavy vehicle) and operation (2 light vehicles) and the short-term duration of the construction period, the safety and operation of the intersections between the subject site, Cremasco Road, Wood Road and Burley Griffin Way can be maintained with no additional turn lane treatments.

Conclusion 9: no additional turn lane treatments are required due to the traffic generated by the proposed development.

6 Conclusions and recommendations

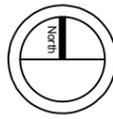
We conclude there are no traffic engineering reasons that would prevent the development from proceeding, as outlined below:

- the peak hour traffic generation is likely to occur during the construction phase of the development, where the peak hour volumes are expected to be:
 - 3 light vehicles
 - 1 heavy vehicle
- the construction phase is expected to take 4 weeks
- the subject site will generate a peak car parking demand of 3 spaces during the construction period and 2 spaces post-opening
- the development plan includes a designated parking area that will satisfy the parking demand
- adequate sight distance is available at the intersection of Cremasco Road and Wood Road; no further treatment is required
- the proposed site access driveway to Cremasco Road satisfies the minimum entering sight distance specified in AS/NZS 2890.1
- the proposed security gate's setback from the edge of Cremasco Road will accommodate the storage of a staff member's light vehicle clear of the traffic lane
- no additional turn lane treatments are required due to the traffic generated by the proposed development.

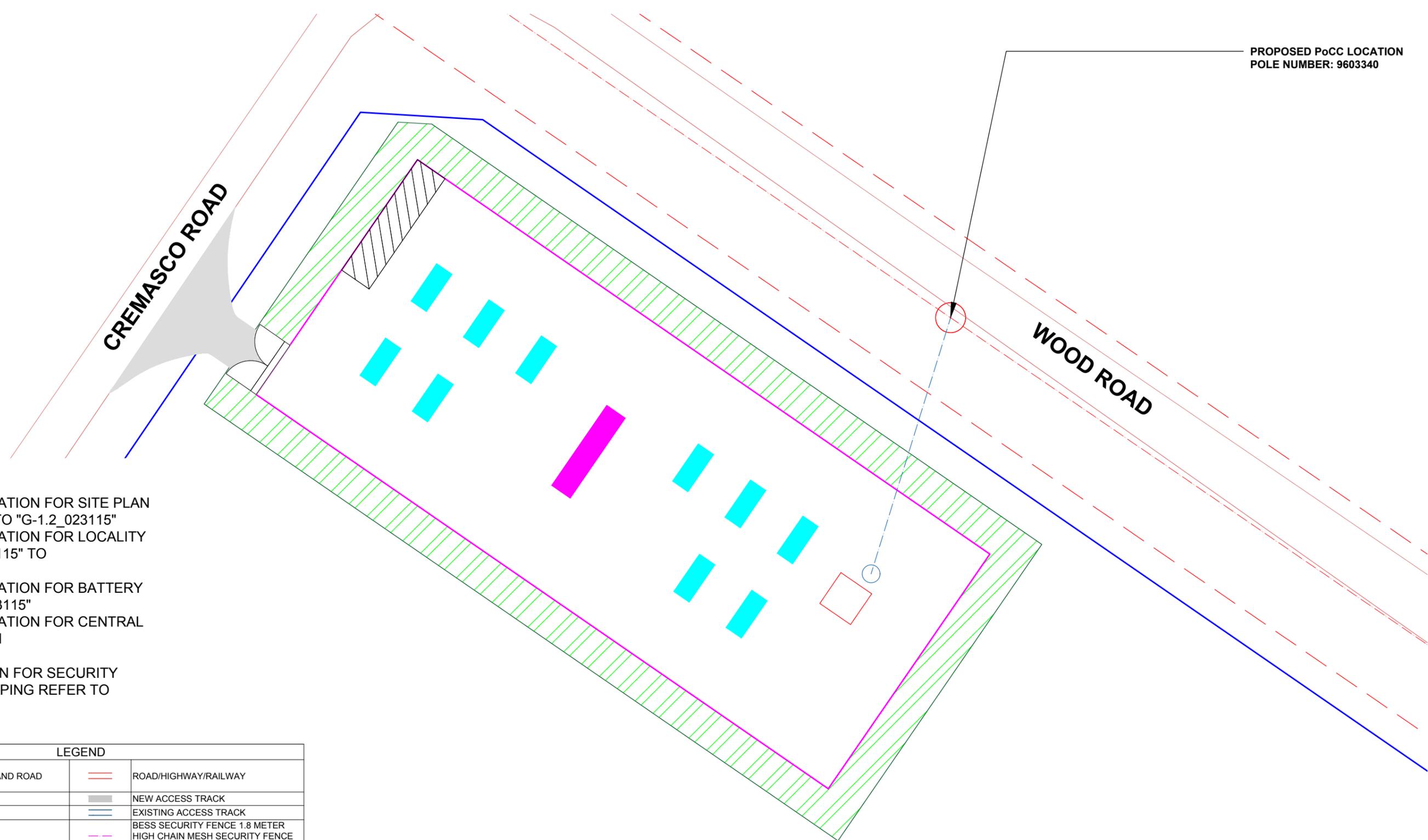
However, this TIA has identified a recommendation that needs to be addressed:

- **Recommendation 1:** the subject site access driveway should be constructed according to Figure 7.4 in Austroads Guide to Road Design Part 4 requirements and to the council's satisfaction.

Appendix 1 – Development Plans



PROPOSED PoCC LOCATION
POLE NUMBER: 9603340



GENERAL NOTES:

- DETAIL INFORMATION FOR SITE PLAN DIMENSIONS REFER TO "G-1.2_023115"
- DETAIL INFORMATION FOR LOCALITY REFER TO "G-2.1_023115" TO "G-2.2_023115"
- DETAIL INFORMATION FOR BATTERY ELEVATION "G-3.0_023115"
- DETAIL INFORMATION FOR CENTRAL INVERTER ELEVATION "G-4.0_023115"
- DETAIL INFORMATION FOR SECURITY FENCE AND LANDSCAPING REFER TO "G-5.0_023115"

LEGEND			
	SITE ACCESS GATE AND ROAD		ROAD/HIGHWAY/RAILWAY
	BATTERY		NEW ACCESS TRACK
	MVPS		EXISTING ACCESS TRACK
	HV SWITCHGEAR		BESS SECURITY FENCE 1.8 METER HIGH CHAIN MESH SECURITY FENCE GALVANISED STEEL
	EXISTING O/H LINE		TITLE BOUNDARY
	EXISTING LINE EASEMENT		NEIGHBORING BOUNDARIES
	EXISTING HV POLE/TOWER		ONE ROW LANDSCAPE
	NEW O/H LINE		TWO ROWS LANDSCAPE
	NEW LINE EASEMENT		RESIDENTIAL PROPERTY
	NEW HV POLE/TOWER		CAR PARK AREA
	HARD STAND (ONLY DURING CONSTRUCTION)		EXISTING VEGETATION
	EXISTING TREES		EXISTING DAM
	TREE TO BE REMOVED (MARKED)		EXISTING SHED TO BE REMOVED (TBC)
	EXISTING FENCE		72,000 LITERS WATER TANK

REVISIONS					
REV	STATUS	DESCRIPTION	DATE	D.B.	C.B.
A	FA	INITIAL ISSUE	22/05/24	XZ	AJ
B	FA	SITE LOCATION AMENDED	31/05/24	XZ	AJ

PROJECT DETAILS:	YENDA DISTRIBUTION BESS 120 CREMASCO RD, YENDA 2681 <small>-34.250973, 146.212222</small>
CLIENT DETAILS:	ACENERGY PTY LTD
DRAWING TITLE:	SITE PLAN 1 OF 2

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DRAWING NR: G-1.1_023115		
DRAWN BY: XZ	APPROVED BY: AJ	PROJECT MGR: LZ
SCALE: AS INDICATED	ISSUE: FOR APPROVAL	ISSUE DATE: 31/05/2024
SHEET SIZE: A3	PROJECT NO: 23115	REV. NO: B



Appendix 2 – Acronyms and terms

Acronyms / terms	Definition
AGRD4	Austrroads Guide to Road Design Part 4 – Intersections and crossings
AGRD4A	Austrroads Guide to Road Design Part 4A – Unsignalised and signalised intersections
AGTM6	Austrroads Guide to Traffic Management Part 6 – Intersections, interchanges and crossings management
AGTM8	Austrroads Guide to Traffic Management Part 8 – Local street management
AS/NZS2890.1	Australian Standard / New Zealand Standard 2890.1 Parking facilities Part 1: Off-street car parking
DPE	Department of Planning and Environment
ESD	Entering site distance
PSP	Precinct structure plan
SIDRA	SIDRA intersection – micro analytical traffic engineering software to model the performance of intersections
SISD	safe intersection sight distance
TIA	traffic impact assessment
TfNSW	Transport for New South Wales (NSW)
vpd	vehicles per day
vph	vehicles per hour