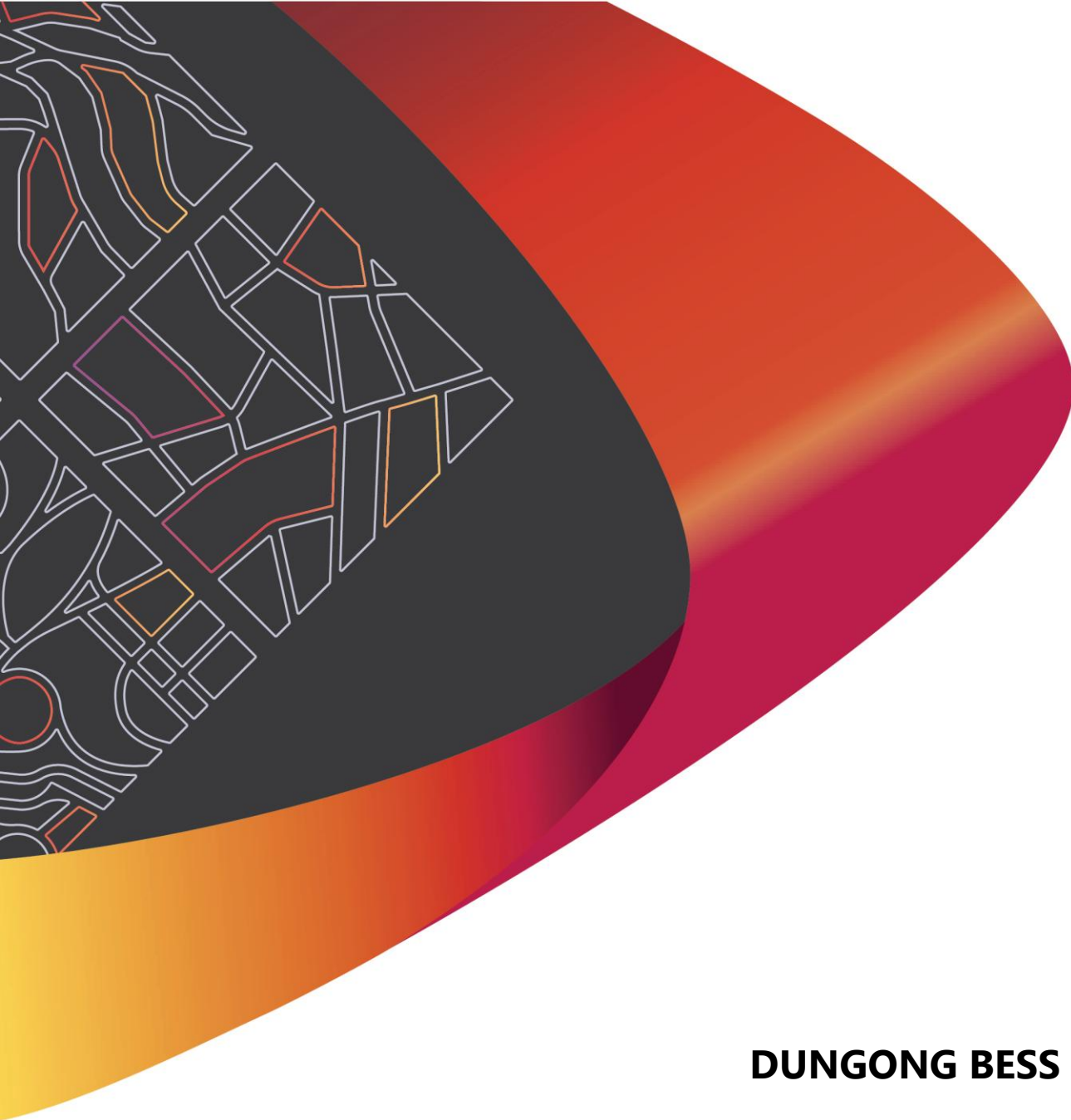




**DUNGONG BESS PTY LTD**

**2243 Stroud Hill Road, Dungog**  
**TRANSPORT IMPACT STATEMENT**

Job No: P003764

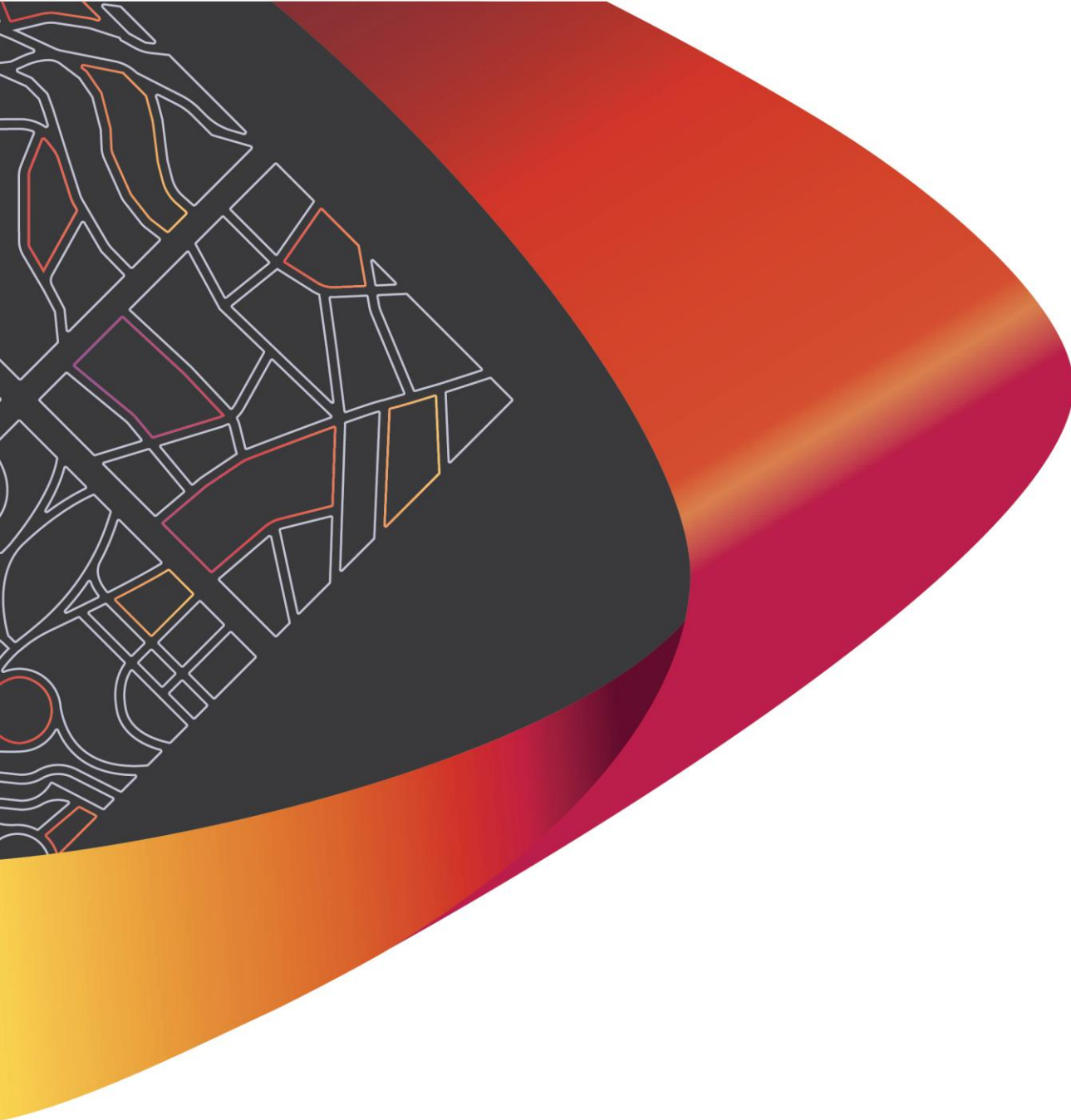
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|------------------------|---------------|----------------------------------|--|----------------|--|
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| Prepared By            |               | Reviewed By                      |  | Authorised By  |  |
| Abel Tan               |               | Marina Kleyweg                   |  | Jack Morrissey |  |

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## 1. EXECUTIVE SUMMARY

### Site Context

- > The project location is 2243 Stroud Hill Road, Dungog on a vacant land bordering the existing substation.
- > The Applicants seeks to construct a 5MW Battery Energy Storage System (BESS) over period of three (3) months. The BESS will be operational for 25-30 years, and at that point it may be decommissioned or upgraded.
- > This report will focus on traffic impact of construction phase (as the most traffic-intensive phase) and operational phase. While traffic impact of decommissioning phase is expected to be similar to the traffic impact of the construction phase, it will be assessed closer to the time of decommissioning/upgrading as the impact is strongly dependent on the technologies that will be available at that time.

### Technical Findings

- > The project site has access from Stroud Hill Road, a regional road. Adjacent to the project site, Stroud Hill Road has speed limit of 100km/h. Stroud Hill Road is not a part of RAV or OSOM networks.
- > During the construction, the project site will generate up to 100 vehicular trips per day (VPD); 23 vehicular trips per hour in AM and 23 vehicular trips per hour in PM peak. Upon completion of construction, BESS will be operated and monitored remotely with minimal requirements for human presence.
- > The sight distances along Stroud Hill Road to northeast and southwest of the site is sufficient despite considerable horizontal and vertical changes in geometry. While minimal traffic is expected from this direction during construction, appropriate traffic management plan will be in place for the duration of works.

### Relationship with Policies

- > Parking on site will be provided to satisfy operational requirements of the construction and operation phase. The parking will be provided in line with AS2890.01, AS2890.02 and DDCP, Part C, No 20 – Off-street parking.
- > Stroud Hill Road is not a part of RAV or OSOM networks. The Applicant does not intend to use RAV or OSOM vehicles to transport materials and equipment; however, if the need for RAV and/or OSOM vehicles arises, the Applicant will ensure that appropriate permits are in place.
- > The access point to the project site is designed to cater to the largest vehicle expected to access the site – 19m long semi-trailer.

### Conclusion

- > As mentioned above, the additional traffic attracted to the subject site is expected to increase by a maximum of 100 vehicular trips per day and 23 vehicular trips in the peak hour for three (3) months during the construction. Once the BESS is operational, on occasion it may require maintenance; therefore, attracting 2-4 VPD on maintenance days.
- > Although Stroud Hill Road is a Regional Road, it carries low volume of traffic, and addition of 100 vpd for the duration of construction period will not exceed the capacity of the road. Operational impact of BESS with 2-4 vpd on maintenance days can be deemed negligible.

- > Other surrounding roads would absorb significantly less traffic than Stroud Hill Road, moreover, the traffic would be dispersed so that the impact can be considered negligible.
- > In summary Premise believe that the proposed development will not have a negative impact on the surrounding road network.

## 2. INTRODUCTION

### 2.1 Background

Premise Australia Pty Ltd (**Premise**) has been engaged by G8 Energy Pty Ltd to prepare a Transport Impact Statement (TIS) for the proposed development Battery Energy Storage System (BESS) at 2243 Stroud Hill, Dungog.

The proposed development will comprise a 5MW BESS development near an existing substation.

### 2.2 Scope and Study Area

This report outlines the traffic impact statement for the proposed BESS development.

The purpose of this assessment is to evaluate the suitability of the site for the intended land use from a traffic impact perspective, taking into account local transport networks, safety concerns, and relevant regulatory requirements.

The scope of work for the Traffic Impact Statement is as follows:

- > Review any relevant background documents, including any existing traffic volume counts available.
- > Conduct a crash search of the surrounding area using the TfNSW database to identify any existing crash trends and safety issues on the road network.
- > Confirm the future traffic volumes, vehicle classifications, and load types that will be generated during the construction, operational and decommissioning phases of the project.
- > Confirm the access location provides adequate sight lines and manoeuvre space for vehicles turning to/from the site and along the road network. We have allowed to review one access location within our scope of services.
- > Liaise with the relevant road controlling authorities to determine any existing road safety issues in the vicinity of the site and confirm in-principle support for the preferred access location.
- > Confirm the proposed access route for plant and staff for the construction and operational phases of the project.
- > Undertake a swept path assessment based on the identified delivery vehicles at the site access to determine the required road upgrades.
- > Assess the potential traffic impacts of the project on the road network for the type and volume of traffic generated by the project, including intersection performance and the impact to alternative transport modes, and the cumulative impact of nearby developments.
- > Determine measures to mitigate and / or manage potential impacts and any other traffic control measures, developed in consultation with the relevant road authority.
- > Provide a report according to the set-out requirements as nominated in the NSW Guide to Transport Impact Assessment
- > Provide further analysis of any site-specific issues that may be encountered during the assessment.

## 2.3 The Level of Assessment Required

The Guide to Transport Impact Assessment (TS 00085, Version 1.1), recently published by Transport for NSW (TfNSW) as an update to the Guide to Traffic Generating Developments, outlines the criteria for determining the appropriate level of transport assessment required for development proposals. **Table 1** below summarises the levels of transport impact assessment, as defined in Table 3.2 of the TfNSW Guide.

**Table 1 - Impact Assessment level**

| Type of Report                    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Transport Impact Assessment (TIA) | A TIA is to be used for developments for which size or capacity and their site access(es) to adjoining road meet or exceed the thresholds as defined in <u>Columns 2 and 3 of Schedule 3 in the State Environmental Planning Policy (Transport and Infrastructure) 2021</u> , or as a requirement of another EPI.                                                                                                                                                                               |
| Transport Impact Statement (TIS)  | <p>A TIS can be used for a development that is expected to have relatively low trip generation and impact to the surrounding transport networks. It is suggested that consultation should be made with the consent authority to confirm the methodology, prior to preparation of a TIS.</p> <p>The statement is intended to collect information about the proposed development such as site location and context, development scale, access arrangements, trip generation and distribution.</p> |

**Table 2 - Thresholds for Triggering a Transport Impact Assessment**

| Column 1               | Column 2                                                         | Column 3                                                                                                                                                                                    |
|------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Purpose of development | Size or capacity - site with access to a road <i>(generally)</i> | Size or capacity - site with access to classified road or to road that connects to classified road <i>(if access within 90m of connection, measured along alignment of connecting road)</i> |
| Any other land use     | 200 or more motor vehicles per hour                              | 50 or more motor vehicles per hour                                                                                                                                                          |

Source - [Columns 2 and 3 of Schedule 3 in the State Environmental Planning Policy \(Transport and Infrastructure\) 2021](#).

The subject proposal involves construction of a BESS and associated infrastructure with direct access to a local road. The project is expected to generate less than 200 motor vehicles per hour. Accordingly, the proposal does not exceed the threshold specified in Column 3 of Schedule 3 and therefore **requires the preparation of a Transport Impact Statement (TIS)** in accordance with the current policy framework.

### 3. EXISTING CONDITIONS

#### 3.1 Site Location and Description

The subject site is located at 2243 Stroud Hill Road, Dungog, New South Wales, 2420. The site is situated within the Dungog Shire Council Local Government Area (LGA). Geographically, the site is located in a rural setting approximately 2.5km north-east of the Dungog town centre.

Figure 1 - Site Location



The site currently consists of vacant land that is bordering an existing substation and is clear of any significant structures or improvements. Under the Dungog Local Environmental Plan 2014, the site is zoned as Primary Production.

The surrounding area is characterised by large-lot rural holdings used for primary production. The area is sparsely populated with few sensitive receivers, such as residential dwellings, in the immediate vicinity of the proposed development area.

#### 3.2 Existing traffic conditions

##### 3.2.1 ROAD NETWORK HIERARCHY

The *Roads Act 1993* outlines following road classes: State Roads, Regional Roads and Local Roads.

The administration and management of State Roads is carried out and financed by TfNSW while Regional and Local Roads are administered, managed and financed by local councils.

Regional Roads perform an intermediate function between the main arterial network of State Roads and council-controlled Local Roads. Due to their network significance, TfNSW provides financial assistance to councils for the management of Regional Roads.

Furthermore, the *Roads Act 1993* provides the basis for the core legal classification of classified and unclassified roads. Table 3 below shows basic road classification.

**Table 3 - Basic Road Classification**

| Legal Classification | Administrative Classification |                |             |
|----------------------|-------------------------------|----------------|-------------|
|                      | State Roads                   | Regional Roads | Local Roads |
| <b>Classified</b>    | Always                        | Sometimes      | Never       |
| <b>Unclassified</b>  | Never                         | Often          | Always      |

Classified roads can be further delineated in the following categories: Freeways, Controlled Access Roads, Tollways, State Highways, Main Roads, Secondary Roads, Tourist Roads, Transitways and State Works.

### 3.2.2 EXISTING ROAD CONDITIONS

The existing road classification and description of the surrounding road network are outlined in the **Table 4**. There are currently no known current or proposed roadworks, traffic management works or bikeways proposed for the section of roads analysed within this assessment

**Table 4 – Road Classification and Description**

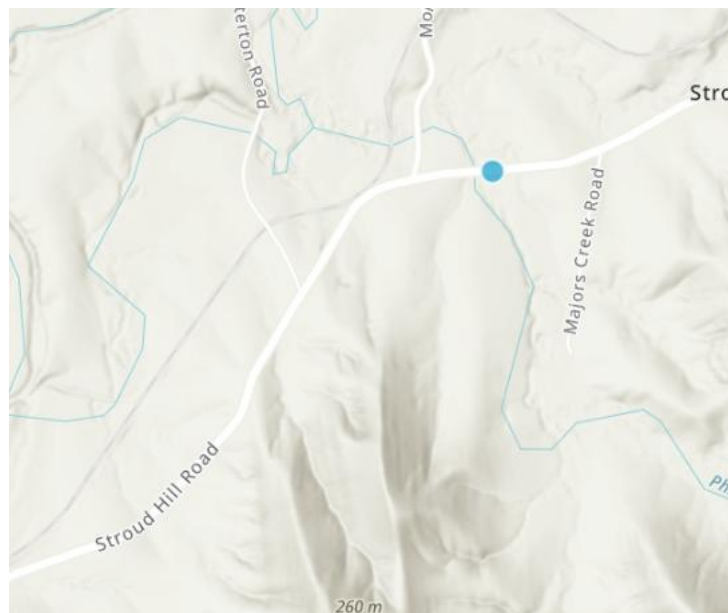
| Road Name                  | Stroud Hill Road / Dowling Street                                                   |
|----------------------------|-------------------------------------------------------------------------------------|
| Number of Lanes            | two way, one lane each direction, undivided                                         |
| Road Reservation Width     | approximately 20m, widens to 27m on Dowling Street                                  |
| Road Pavement Width        | approximately 7m widens to 19m on Dowling Street                                    |
| Classification             | Regional Road                                                                       |
| Speed Limit                | varies, from 20kph (bridge) to 50kph                                                |
| Bus Route                  | YES                                                                                 |
| If YES Nominate Bus Routes | Intercity Buses and School Buses                                                    |
| On-street parking          | YES on Dowling Street                                                               |
| RAV Network                | Not a Preapproved Restricted Access Vehicle (RAV) or Oversize Overmass (OSOM) Route |
| Road Name                  | Fosterton Road                                                                      |
| Number of Lanes            | two way, one lane (no linemarking), undivided                                       |
| Road Reservation Width     | varies between 17m to 52m                                                           |
| Road Pavement Width        | approximately 5m                                                                    |
| Classification             | Local Road (Unclassified)                                                           |

|                            |                                                                                     |
|----------------------------|-------------------------------------------------------------------------------------|
| Speed Limit                | 100kph                                                                              |
| Bus Route                  | YES                                                                                 |
| If YES Nominate Bus Routes | School Buses                                                                        |
| On-street parking          | NO                                                                                  |
| RAV Network                | Not a Preapproved Restricted Access Vehicle (RAV) or Oversize Overmass (OSOM) Route |

### 3.3 Traffic Safety

A review of the TfNSW Crash Map database for all crashes along in the vicinity of the site has been carried out. The crash database provides the location and severity of all crashes for the five-year period from 2019 to 2023.

**Figure 2 - Crash Map - Subject Area**



The data indicates a very low crash history for the local road network in the direct vicinity of the subject site. Over the five-year review period, a single notable incident was recorded.

In 2022, one crash resulting in moderate injury occurred along the Stroud Hill Road.

Overall, there are no identified crash trends or patterns in the vicinity of the site that would suggest an underlying road safety deficiency that could be exacerbated by the proposed development.

### 3.4 Existing Traffic Flow

The following table provides an overview of traffic count data for roads in the vicinity of the subject site. Refer to Appendix B for graphical representation of this data.

**Table 5 – Traffic counts data**

| Road Name        | Location of Traffic Count | Vehicles Per Day (VPD) | Vehicles per Peak Hour (VPH)<br>Peak Time - Peak VPH |             | Heavy Vehicle % | Date |
|------------------|---------------------------|------------------------|------------------------------------------------------|-------------|-----------------|------|
|                  |                           |                        | AM                                                   | PM          |                 |      |
| Stroud Hill Road | 180m West of Alison Road  | 1,238                  | 10:00 – 111                                          | 14:00 – 102 | 12.3%           | 2007 |

*\*Note – These traffic counts were collected from the TfNSW Traffic Volume Viewer.*

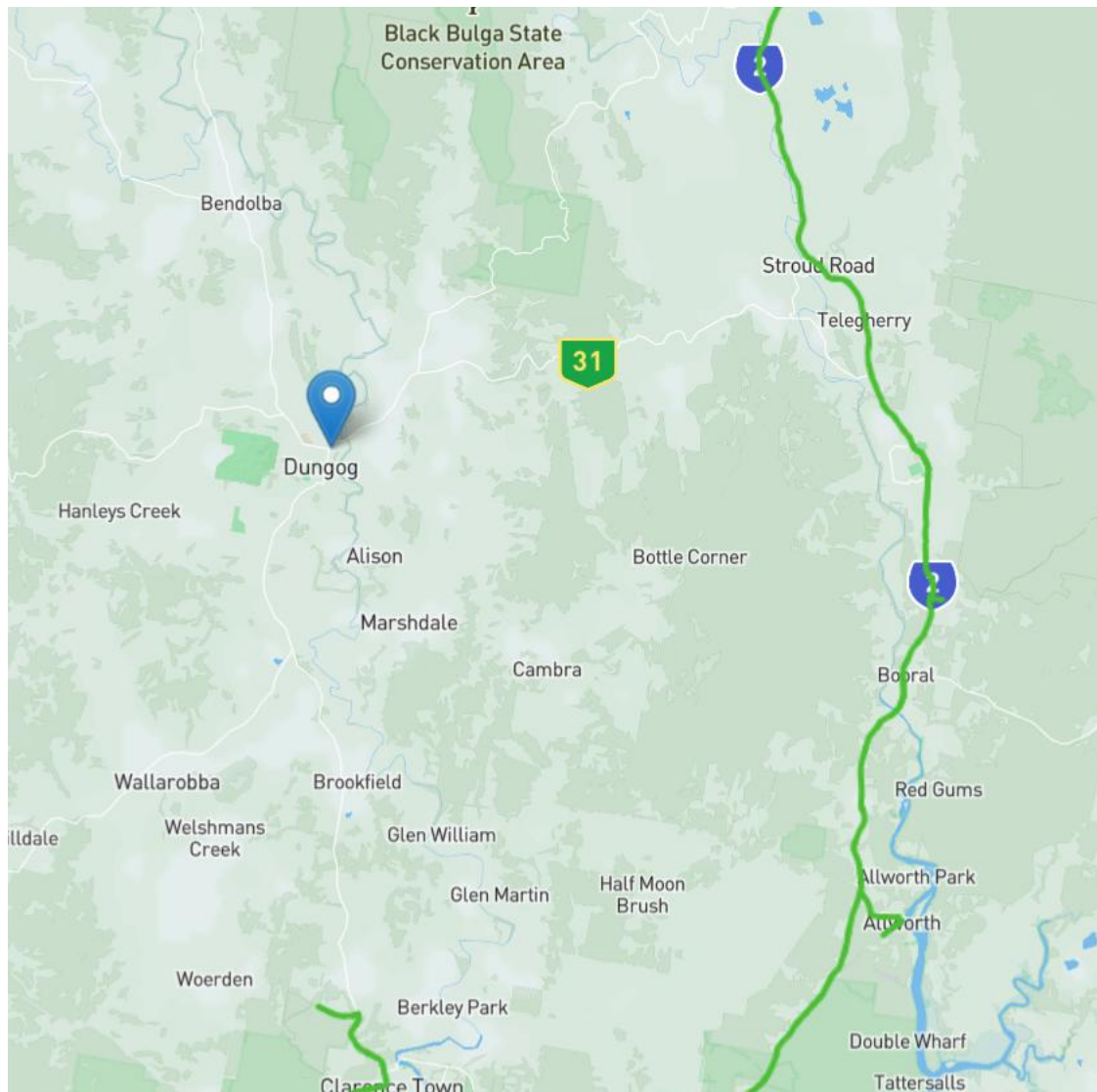
### 3.5 RAV Network

A review of the official Transport for NSW (TfNSW) and National Heavy Vehicle Regulator (NHVR) route planner confirms that the local roads providing final access to the site, Stroud Hill Road and Fosterton Road, are not approved routes for Restricted Access Vehicles (RAVs). The nearest approved route, The Bucketts Way, is conditionally approved for 19-metre B-doubles.

A key physical constraint exists on Stroud Hill Road to the west of the development site, on the route leading towards Dungog town centre. This constraint is a bridge with a specific load limit and potential dimensional restrictions.

To ensure full compliance with local road network limitations and to avoid any potential impacts on local infrastructure, all vehicles used during the construction and operational phases of the project will be GAV or SPV (non-RAV and non-OSOM) vehicles. Vehicles traversing across the Cooreei Bridge will not exceed the maximum allowed weight of the bridge. As per existing signage, only one heavy vehicle is permitted on the bridge at any one time. If the need arises for introduction of RAV or OSOM vehicles, the Applicant will ensure there are relevant approvals in place.

**Figure 3 - RAV Network Map**



## 3.6 Public Transport

The nearest multi-modal public transport interchange is **Dungog Train Station**, located approximately **2.5 kilometre** from the site. This station provides the following services:

- > **Train Services:** Dungog Station is a stop on the NSW TrainLink Hunter Line and North Coast Line, providing intercity services connecting to Maitland, Newcastle, and Sydney.
- > **Bus Services:** The station also serves as a stop for regional and intercity NSW coach services.

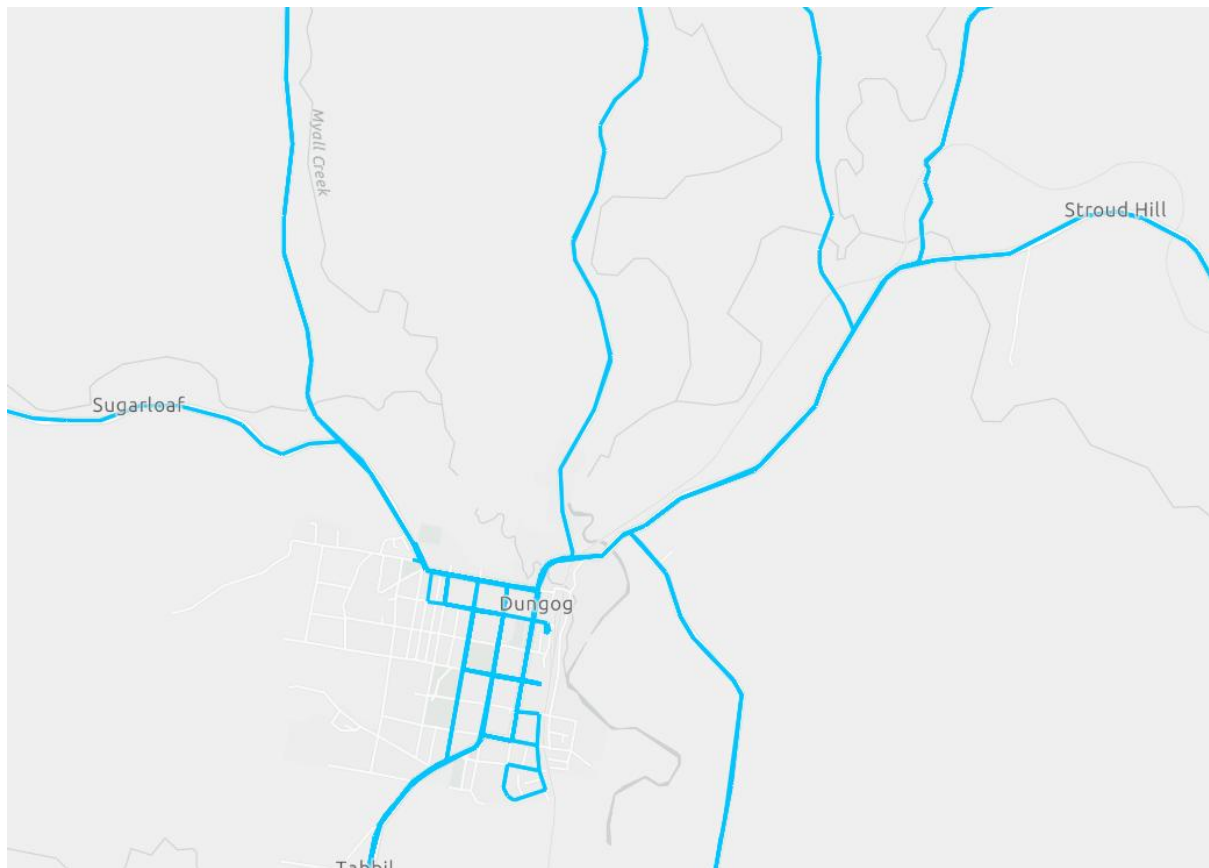
While the station is located in relatively close proximity to the site, safe and convenient pedestrian access is limited due to the rural nature of the connecting roads, which typically lack dedicated footpaths and street lighting.

Furthermore, the train and coach services available are designed primarily for regional travel and do not offer the frequency or local coverage required to serve as a practical option for regular daily commuter trips.

It is also noted that dedicated school bus services operate along the streets fronting the lot. However, these services are for the exclusive use of local students and are not available to the general public.

Therefore, despite the proximity of Dungog Station, it is anticipated that the vast majority of staff and visitor trips generated by the BESS development will be made by private or commercial vehicles due to the nature of the available public transport services and the lack of formalised pedestrian infrastructure between the site and the station.



**Figure 4 - Bus Routes within Dungog**

### 3.7 Pedestrian and Cyclist Infrastructure

Premise have done a desktop review of the pedestrian and shared paths surrounding the subject lot. Refer to Appendix B for graphical representation of the below table.

**Table 6 - PBN routes in the vicinity of the subject site**

| Classification                 | Road Name                                  |
|--------------------------------|--------------------------------------------|
| "Shared Paths"                 | Dowling Street                             |
| What is the Walk Score Rating? |                                            |
| 38                             | Car-Dependent. Most errands require a car. |

The subject site is located in a remote rural area. The fronting roads, Stroud Hill Road and Fosterton Road, are typical rural roads that do not have dedicated footpaths, cycle lanes, kerb and guttering, or street lighting.

The proposed BESS development is an unmanned infrastructure facility that will generate no pedestrian or cyclist movements during its operational phase. Given the nature of the development and the absence of existing or planned pedestrian and cyclist networks in the vicinity, no specific infrastructure for these modes of transport is required or proposed.

## 4. PROPOSED DEVELOPMENT

### 4.1 Overview of Proposed Development

This the development proposes the construction and operation of a Battery Energy Storage System (BESS) and associated infrastructure at 2243 Stroud Hill Road, Dungog.

Figure 5 - Proposed Development



The proposed development will store electricity from the grid during periods of low demand or high generation and discharge it back into the grid during periods of high demand.

#### 4.1.1 STAGING AND TIMING OF DEVELOPMENT

The development will be implemented in distinct phases.

- > The construction phase is expected to be short-term, lasting approximately 12 weeks, and will represent the period of highest activity and traffic generation, mainly associated with construction personnel, delivery of materials, and equipment movements.
- > Following construction, the operational phase will extend over a long-term period of approximately 25 to 30 years. This stage will be characterised by very low traffic generation and minimal on-site human presence, as the facility will operate with limited maintenance requirements and automated systems where applicable.

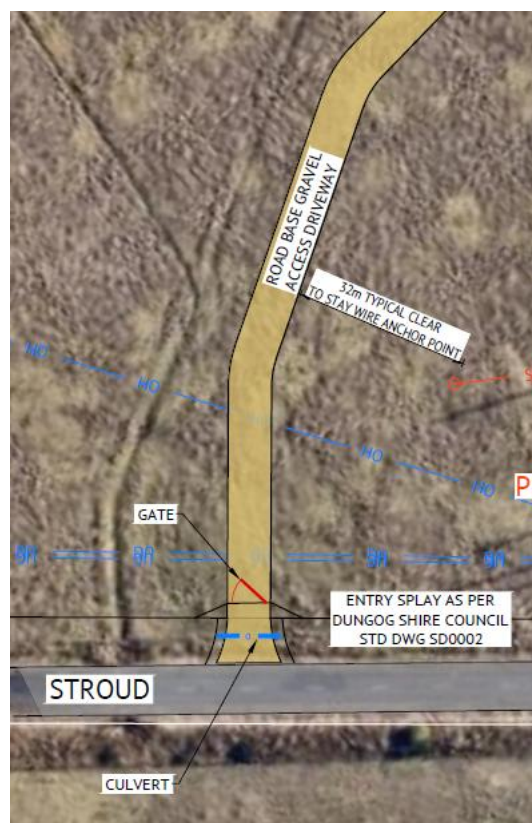
- > Upon completion of the operational phase, the facility will be decommissioned, and the site will be rehabilitated to its original agricultural condition, in line with environmental and land-use restoration commitments.

The construction phase is anticipated to take approximately 12 weeks to complete and will involving a peak of 15 employees on site. T Once operational, the BESS facility will be largely automated and remotely monitored and controlled.

## 4.2 Proposed Site Access

Access to the site from Stroud Hill Road will be provided via a new gravel access driveway located on a neighbouring lot (Lot 30 DP1113705), constructed with splays as per Council requirements. The design of this accessway will be in accordance with the Dungog Development Control Plan (DCP) C20 - Off Street Parking and relevant Australian Standards.

**Figure 6 - Proposed Access Point**



The geometric design of the access, including turning paths for the largest anticipated service vehicle, will conform to the latest version of AS 2890.1 ("Parking Facilities - Off Street Car Parking") and AS 2890.2 ("Off-street commercial vehicle facilities").

## 4.3 Sight Distance

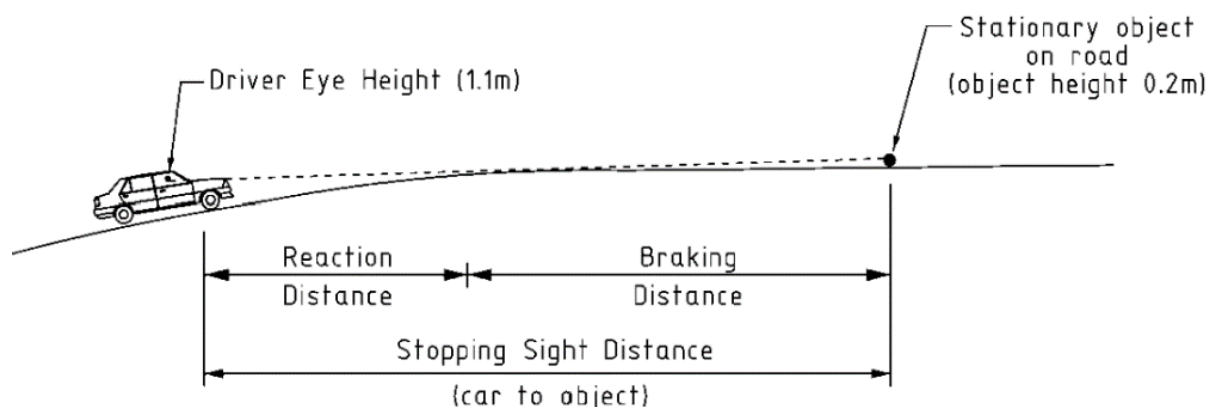
### 4.3.1 SIGHT DISTANCE PARAMETERS

The required sight distances for intersections are specified in the Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections. The key metric is the Safe Intersection Sight Distance (SISD). Premise has conducted a preliminary desktop analysis of the existing sight and stopping distances on intersections.

Austroads Guide to Road Design – Part 3 (AGtRD3) Geometric Design and Part 4A (AGtRD4A): Unsignalised and Signalised Intersections outline the requirements for sight distance for unsignalised intersections. The following three parameters are crucial:

- > **Safe Stopping Distance (SSD)** – is the distance to enable a normally alert driver, travelling at the design speed on wet pavement, to perceive, react and brake to a stop before reaching a hazard on the road ahead.

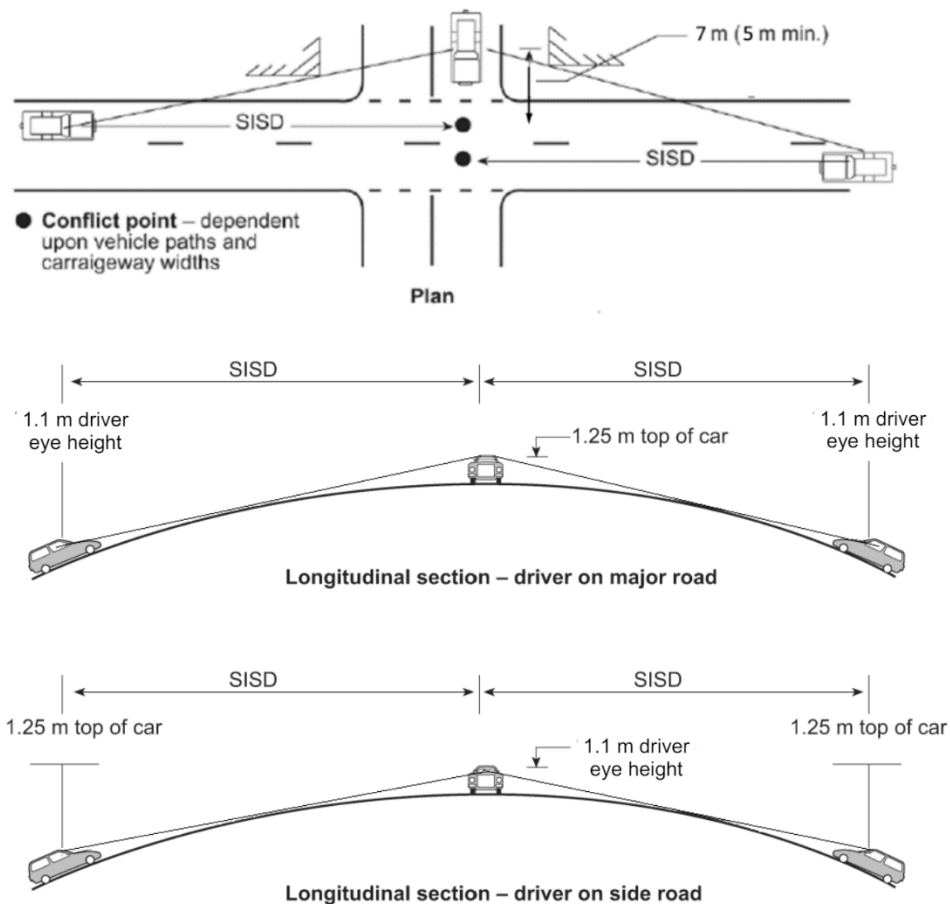
Figure 7 - Car Stopping Sight Distance



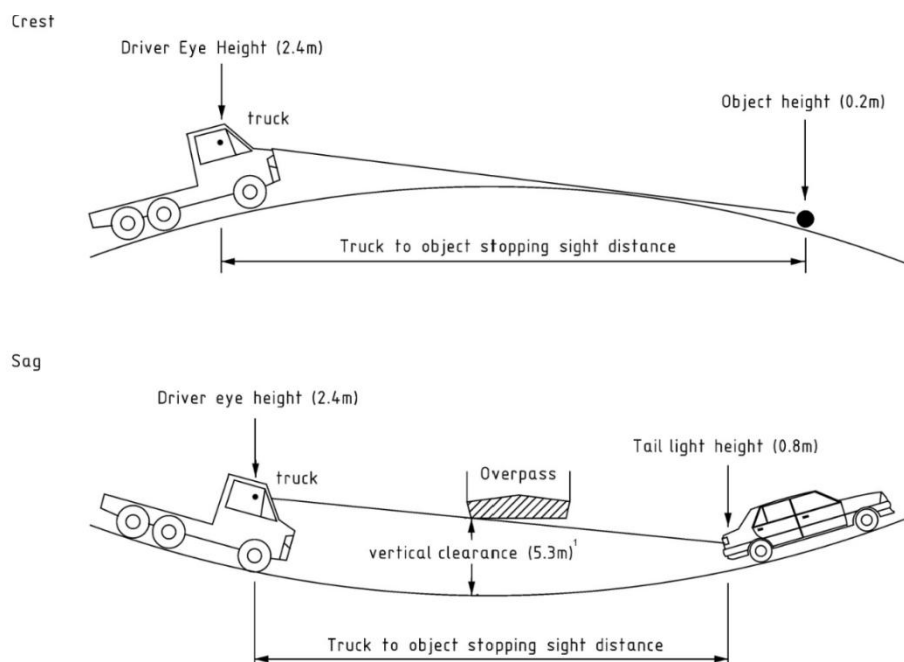
- > **Safe Intersection Sight Distance (SISD)** - SISD is the minimum sight distance that should be provided on the major road at an intersection. This sight distance enables vehicles approaching on the major road to spot a vehicle on a minor road at the holding line.

**Figure 8 - Assessing SISD (Source: Austroads Guide to Road Design 4A)**

Figure 3.2: Safe intersection sight distance (SISD)



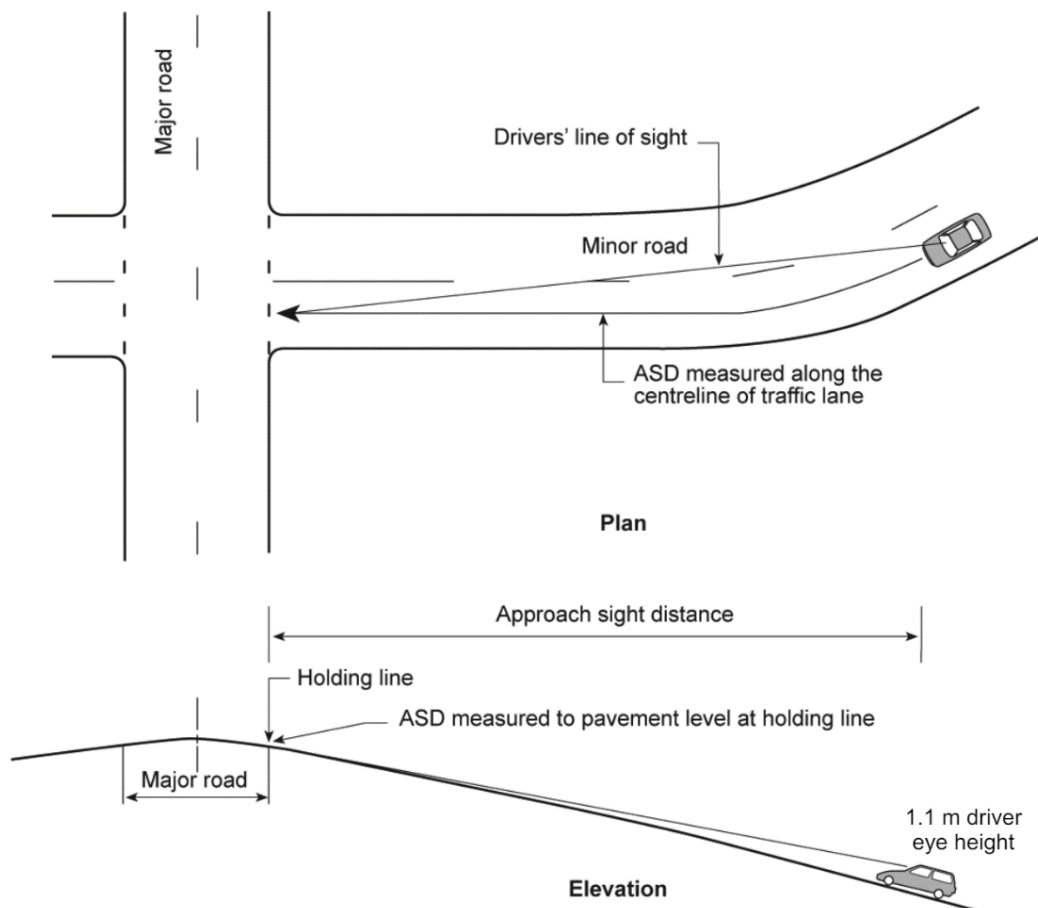
**Figure 9 - Assessing SSD (Source: Austroads Guide to Road Design 3)**



- > **Approach Sight Distance (ASD)** - the minimum level of sight distance that must be available on the minor road approaches to all intersections to ensure that drivers are aware of the presence of an intersection.

**Figure 10 - Assessing ASD (Source: Austroads Guide to Road Design 4A)**

**Figure 3.1: Application of approach sight distance (ASD)**



The guide recommends that the Safe Intersection Sight Distance (SISD) should be the minimum sight distance provided on the Major Road at any intersection.

The Austroads guide provides a formula for calculating SISD values for vehicles at varying design speeds and road conditions. The following formula is used to determine the SISD for heavy vehicles:

$$SSD/ASD = \frac{R_t \times V}{3.6} + \frac{V^2}{254 \times (d + 0.01 \times a)}$$

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

- ASD – Approach Sight Distance (m)
- SSD – Safe Stopping Distance (m)
- $R_t$  – Reaction time (seconds – 2.0 / 2.5) – given the road conditions, minimum reaction times are not appropriate

*Note: requirements for both values will be considered*

- $V$  – 85<sup>th</sup> percentile operating speed (km/h)

*Note: at present, data on operating speed is not available; therefore, the design speed will be used as the operating speed.*

- D – coefficient of deceleration (Heavy Vehicles - 0.24/0.29; passenger vehicles – 0.36)  
*General tables suggest the value of 0.29 should be used for trucks; while the Austroads Guide to Road Design Part 4A suggests that a value of 0.24 should be used for check cases.*
- a – longitudinal grade in % (positive value for uphill grade, negative value for downhill grade)  
*Note: the terrain will be reviewed via Google Earth in absence of survey.*
- SISD – Safe Intersection Sight Distance (m)
- Dt – Decision time (s) = observation time (3s) + reaction time (2.0 / 2.5s)

#### 4.3.2 LOCAL SIGHT DISTANCE

Using Google Earth Pro, we assessed the road grades to ascertain the requirements for sight distances. The grades are shown in the following table and are assessed based on the average grades on a 200m long approach to the conflict points.

The south-west approach on Stroud Hill Road features an average descending grade of approximately 1.8%, while the north-east approach has an average descending grade of 8.8%.

**Table 7 - Local Road Grades and Speed Limits**

|                               | Stroud Hill Road Southwest Approach | Stroud Hill Road Northeast Approach |
|-------------------------------|-------------------------------------|-------------------------------------|
| a = grade (%)                 | -1.8%                               | -8.8%                               |
| Speed Limit<br>(Design Speed) | 100km/h<br>(110km/h)                | 100km/h<br>(110km/h)                |

In the absence of data on operational speed on key roads, we will rely on the design speed (derived from sign-posted speed). **Table 8 and Table 9** shows the requirements and availability of key sight distance parameters.

TS 02642\_1.00 Supplement to Austroads Guide to Road Design stipulates that TfNSW practice is to use following driver reaction times:

- > 2.5s for design speed 110km/h and above;
- > 2.0s for design speed of 100km/h;
- > 1.5s for design speed of 90km/h and less.

**Table 8 - Local Sight Distance Requirements**

| Road Name                           | Speed Limit<br>(Design Speed) | Reaction Time (s) | Coefficient of Deceleration | SISD (m) | SSD/ASD (m) |
|-------------------------------------|-------------------------------|-------------------|-----------------------------|----------|-------------|
| Stroud Hill Road Southwest Approach | 100km/h<br>(110km/h)          | 2.5               | 0.36                        | 307.35   | 215.68      |
|                                     |                               |                   | 0.29                        | 343.19   | 251.53      |

|                                     |                      |     |      |        |        |
|-------------------------------------|----------------------|-----|------|--------|--------|
| Stroud Hill Road Northeast Approach | 100km/h<br>(110km/h) | 2.5 | 0.36 | 343.19 | 251.53 |
|                                     |                      |     | 0.29 | 403.89 | 312.22 |

Desktop review of Nearmaps confirms that the existing geometry of Stroud Hill Road provides adequate Safe Intersection Sight Distance (SISD) on the southwest and northeast approaches; This finding was confirmed during the on-site visit.

**Table 9 - Local Sight Distances**

| Approach                            | Available Sight Distance |
|-------------------------------------|--------------------------|
| Stroud Hill Road Southwest Approach | 386m                     |
| Stroud Hill Road Northeast Approach | 420m                     |

## 4.4 Parking Requirements

### 4.4.1 CAR PARKING

**Table 10 - Car parking provision rates**

| Guideline document                                                           | Car parking requirement                                                                                    |
|------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| Dungog Development Control Plan (DCP)<br>Part C No. 20 – Off street parking. | Any Other Building or Land Use (not elsewhere defined):<br>To be determined by Council in individual cases |

During the construction period, a designated temporary parking area will be established within the site boundaries. This area will accommodate all vehicles associated with construction staff, contractors, and site visitors. This approach ensures that no construction-related parking occurs on Stroud Hill Road or Fosterton Road, aligning with the objectives of the DCP.

The BESS facility is designed to be unmanned and remotely operated, resulting in a minimal requirement for permanent parking. Parking demand will be limited to intermittent visits for routine maintenance and inspections.

Given the infrequent nature of these visits, no formalised or line-marked parking bays are proposed.

A sufficient hardstand area will be provided within the site's secure compound to safely accommodate maintenance and service vehicles as needed and will be in accordance with the standards set out in the DCP.

- > The layout will be designed so that all vehicles can enter and leave the site in a forward direction
- > The parking area will be constructed with a permanent, all-weather surface, such as a two-coat bitumen seal or concrete, and will incorporate adequate drainage.
- > The dimensional requirements for parking spaces and accessways will conform to the latest Australian Standard (AS 2890).

#### 4.4.2 ACCESSIBLE PARKING

**Table 11 - Accessible car parking provision rates**

| Guideline document                                                        | Car parking provision                                                                                                                                                                                                    | Spaces required |
|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Dungog Development Control Plan (DCP) Part C No. 20 – Off street parking. | Where car parking is provided in excess of five (5) spaces, provision shall be made for parking for persons with a disability at the rate of one (1) space per one hundred (100) or part thereof of car spaces provided. | Not required    |

As the total number of proposed permanent parking spaces will not exceed five (5) car parking bays, the DCP does not trigger a mandatory requirement for a dedicated accessible parking space to be provided

#### 4.4.3 BICYCLE AND MOTORCYCLE PARKING

The DCP does not outline any provisions of bicycle parking facilities.

Given the remote rural location of the site and the nature of the development as an unmanned facility requiring only occasional maintenance visits, the demand for bicycle parking is anticipated to be nil.

Accordingly, no dedicated bicycle parking facilities are proposed as part of this development.

#### 4.4.4 DELIVERY AND SERVICE

All loading and unloading activities for the development will occur entirely on-site. The site layout will include a designated hardstand area for delivery and service vehicles, ensuring they do not need to stand on any public road, including Stroud Hill Road or Fosterton Road.

The internal access road and loading areas will be designed to ensure that all vehicles, including heavy vehicles, can enter and exit the site in a forward motion. As per the DCP, under no circumstances will vehicles be permitted to reverse onto a main road.

Any loading dock or dedicated hardstand area will be designed to meet the minimum dimensions outlined in the DCP. The design will accommodate the type and size of delivery vehicles anticipated during both the construction and operational phases of the development.

## 5. IMPACT OF PROPOSED DEVELOPMENT

### 5.1 Trip Generation

The preferred hierarchy of data sources for traffic generation rates is:

- > Traffic generation survey of an existing development similar to the proposed development in terms of its land use, scale, location, etc.
- > Guide to Transport Impact Assessment TS 00085 (2024) which supersedes the Guide to Traffic Generating Developments (GTGD 2002) and Updated Traffic Surveys Technical Direction (TDT 2013/04a).
- > First principles assessment preferably based on forecast usage data.

As there are no available traffic surveys of similar developments and the above referenced documents do not sufficiently cover similar developments, first principles have been adopted based on forecasted rates and worker numbers on the site.

### 5.2 Traffic Impact of the Proposed Development

The traffic impact of the proposed development is assessed for its two distinct phases:

- > the construction phase and
- > the operational phase.

The construction of the solar farm and BESS is anticipated to occur over a period of 3 months. This phase will involve the movement of light vehicles for the construction workforce and heavy vehicles for the delivery of materials and components.

Construction activities are proposed to take place between 7:00 am and 6:00 pm, Monday to Saturday.

The project will have a peak workforce of around 15 people, gradually reducing to approximately 4 people toward the completion of works. In the absence of an accommodation strategy for out-of-town workers, this Traffic Impact Statement (TIS) assumes an average vehicle occupancy of 1 person per car. While the Applicant may organise mini-bus transport for workers, the following assessment adopts a worst-case scenario assuming that all employees travel individually by private car.

A total of approximately 50 semi-trailer loads (carrying containers and components) is expected over the entire construction period; however other construction-related heavy vehicles will access the site in this period. Given the scale of works, it is expected that the construction of this Project will generate a maximum of 30 heavy vehicle movements per day. It is not expected that any high-risk heavy vehicles requiring escort will need to access the site. The Applicant will seek to use local contractors and suppliers throughout the construction period.

To quantify the anticipated level of construction traffic, trip generation rates have been established based on the expected number of employees and the delivery vehicle schedule. These rates are summarised **Table 12**, which provides estimated trip numbers for both light and heavy vehicles during daily and peak-hour periods.

**Table 12 - Trip generation rates**

| Yield                                         | Trip generation                                                                                                                                                                  |
|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>15 Construction Employees at Peak</b>      | <ul style="list-style-type: none"> <li>AM peak hour = 15 trips</li> <li>PM peak hour = 15 trips</li> <li>Daily = 40 trips a day (inclusive of employees and visitors)</li> </ul> |
| <b>30 Heavy Vehicles at Peak</b>              | <ul style="list-style-type: none"> <li>AM peak hour = 8 trips</li> <li>PM peak hour = 8 trips</li> <li>Daily = 60 trips a day</li> </ul>                                         |
| <b>Routine Maintenance (Every 1-2 months)</b> | <ul style="list-style-type: none"> <li>AM peak hour = 1 trips</li> <li>PM peak hour = 1 trips</li> <li>Daily = 2 trips a day</li> </ul>                                          |
| <b>Unscheduled Maintenance</b>                | <ul style="list-style-type: none"> <li>AM peak hour = 2 trips</li> <li>PM peak hour = 2 trips</li> <li>Daily = 4 trips a day</li> </ul>                                          |

*Note – It is assumed that construction employees will be arriving and departing around the same time and heavy vehicles will arrive throughout the day.*

Using these trip generation rates **Table 13** presents the calculation of total vehicular trips expected during the construction phase, combining both employee and heavy vehicle movements.

**Table 13 - Calculation of vehicular trips**

| Phase              | Yield                              | Daily Traffic Generation | Peak Hour Traffic Generation |    |
|--------------------|------------------------------------|--------------------------|------------------------------|----|
|                    |                                    |                          | AM                           | PM |
| Construction Phase | 15 Employees and 20 Heavy Vehicles | 100                      | 23                           | 23 |

The proposed development is expected to generate 23 vehicular trips in the AM peak and 23 vehicular trips in the PM peak during the construction phase. The surrounding road network is expected to successfully absorb the additional traffic. Given the short construction duration, the limited number of total trips, and the existing capacity of the surrounding road network, it is anticipated that the additional traffic generated by the project will be successfully absorbed without adverse operational impacts on nearby roads or intersections.

Following the completion of construction, the project will transition into its operational phase, which will span a period of approximately 25–30 years. During this phase, the solar farm and BESS will operate remotely and autonomously, requiring minimal on-site human presence. Typical traffic movements will be limited to periodic maintenance visits by technical staff, unscheduled maintenance, occasional deliveries of replacement parts, and vegetation management activities.

It is anticipated that the operational phase will generate no more than 2–4 light vehicle trips per day on average, with no significant heavy vehicle movements except during infrequent maintenance events.

Consequently, the operational traffic volume will be negligible compared to that experienced during the short construction phase and is not expected to have any measurable impact on the surrounding road network.

Overall, the proposed development is considered to have a temporary and moderate traffic impact during construction, followed by a long-term period of very low traffic generation during operation. The surrounding transport network will therefore be fully capable of accommodating the project's traffic demands throughout its lifecycle.

### 5.3 Trip Distribution

The total projected traffic movements to and from the site have been based on the surrounding land uses, anticipated desire lines and the nature of the proposed development. These estimates consider peak hour flows, nearby intersections and likely distribution patterns. Estimated traffic distribution percentages are outlined in the table below for reference.

**Table 14 - Trip Distribution Routes**

| Route                                   | Percentage                                |
|-----------------------------------------|-------------------------------------------|
| To the southwest into Dungog and beyond | <b>90%</b> [90 VPD; AM 20 VPH; PM 20 VPH] |
| To the northeast along Stroud Hill Road | <b>10%</b> [10 VPD; AM 3 VPH; PM 3 VPH]   |

**Figure 11 - Traffic distribution - daily**

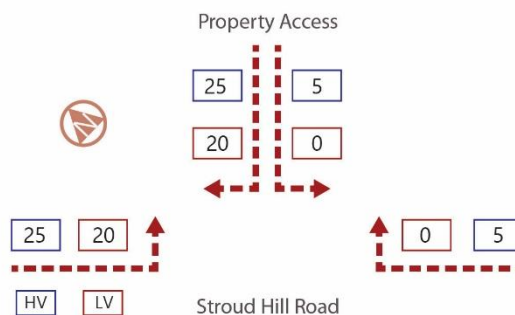


Figure 12 - Traffic distribution - AM peak

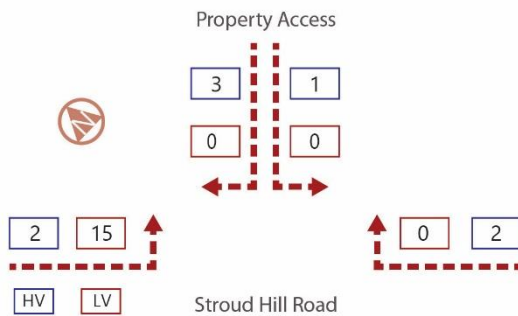
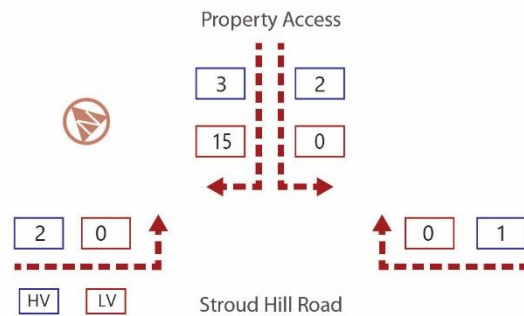


Figure 13 - Traffic distribution - PM peak



## 5.4 Proposed Developments in the Surrounding Area

A review was undertaken of the NSW Major Projects planning portal and the "Developments on Exhibition" section of the Dungog Shire Council website to identify any other proposed projects in the area.

This review confirmed that there are no other major developments proposed or currently under assessment in the immediate vicinity of the subject site. Therefore, no cumulative traffic impacts from other projects need to be considered in this assessment.

## 5.5 Site-Specific Issues and Proposed Remedial Measures

The assessment of the additional traffic generated by the proposed development, concluded the following:

| How many site-specific issues need to be discussed? | One (1)                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Site-Specific Issue No 1                            | Local Roads with no preapproval for RAV and OSOM vehicles                                                                                                                                                                                                                                                                                                 |
| Remedial Measure / Response                         | <p>The applicant does not intend to use RAV or OSOM vehicles during the construction phase. If the need for these types of vehicles arises, the Applicant at the time will need to secure relevant permits.</p> <p>The Applicant will work within the current limitations of the network in terms of allowable vehicle types, dimensions and weights.</p> |

## APPENDICES

# APPENDIX A

## DEVELOPMENT SITE PLAN



