



TRIAXIAL
CONSULTING

COMPLEX PROBLEMS
RESOLVED SIMPLY

Suite 12, Level 14, 327 Pitt St
Sydney NSW 2000

triaxial.com.au
1300 874 294

PROVISION OF CONSULTING ENGINEERING SERVICES

**MUDGEES SOLAR FARM PROJECT
33 BLAIN ROAD, CAERLEON NSW 2850
LOTS 86, 90, 91, 92, 289 DP756894**

TRAFFIC ASSESSMENT REPORT

27 MAY 2021

REFERENCE: TX15150.00-01.RPT.RS-REV0

SYDNEY | ADELAIDE | BAROSSA | DARWIN | MUDGEES

Document Control:

| | | | |
|--------------------------|------------------------------|--------------------|--------------------|
| Client | Mid-Western Regional Council | | |
| Prepared By: | Triaxial Consulting Ltd | | |
| Report Author | Rawdon Stanford | | |
| File Reference: | TX15150.00-01.rpt | | |
| Report Date: | 27 th May 2021 | | |
| Current Revision: | 0 | | |
| Revision History: | Report Author | Reviewed By | Report Date |
| 0 | Ra.S | Ji.D | 27/05/21 |

INDEX

1 Introduction 4

2 Proposal 4

3 Design Service Vehicles 5

4 Existing Traffic Conditions 5

5 Proposed Traffic Management Plan 9

6 Summary 11

Appendix A - Site photosError! Bookmark not defined.

Appendix B – Triaxial Plan MX10595.00-CM1.0Error! Bookmark not defined.

1 INTRODUCTION

Triaxial have been engaged Mid-Western Regional Council (MWRC) to prepare a traffic assessment report. The purpose of this report is to assess the traffic implications of the development proposal. This report is to be included in the development application lodged with Mid-Western Regional Council.

The site is currently utilised as grazing land and is shown in the photo below:



Figure 1: Existing Site

2 PROPOSAL

2.1 DEVELOPMENT SITE

The site is proposed to be utilised for the construction of a solar farm on an area of approximately 50Ha size located at 33 Blain Road, Caerleon.

The proposed development site is located near Mudgee, approximately 2.4km from the intersection of Hill End Road with the Castlereagh Highway. The site is currently zoned as RU1 primary production. The proposed site has not been identified as a possible future residential release area in the Mudgee Urban Release Strategy (2014). The closest proposed residential development is located over 800 metres away (Caerleon Estate) with a proposed subdivision of in the planning stage, noted as area 18 on the Mudgee Urban Release Strategy (2014). The site is surrounded by a mixture existing farming land, environmental management and infrastructure land.

Access to the site will be off the Hill End road as if to enter the Mudgee Waste Management Facility. This road is sealed for 300m, then peels to the right to allow access to the Mudgee Sewer Treatment Plant and is then unsealed approximately 600m.

Hill End Road is a two lane 4m wide sealed road with a 1m wide shoulder and table drains either side.

The access road is a two lane 3.5m wide sealed road with a 1m wide shoulder and table drains either side. Where this access road is unsealed, it is constructed from a single lane, 5m wide unsealed road with a 1m wide shoulder and table drains either side.

3 DESIGN SERVICE VEHICLES

3.1 CONSTRUCTION PHASE 0-3 MONTHS

It is proposed that the following vehicles will access the site during the following stages of the project:

Vehicles accessing the site during construction will consist of:

- 60 B-Double trucks (total number of B-Doubles over the construction phase).
- Light vehicles suitable for transporting up to 20 workers for an anticipated construction period of 12 weeks.
- Bus service for workers if required.

3.2 TYPICAL USE DURING OPERATIONAL PHASE

The following list depicts the weekly schedule of vehicles required for the facility to operate.

- Maintenance access vehicles (2 light vehicles) access to the site in 3 monthly intervals.

4 EXISTING TRAFFIC CONDITIONS

4.1 ROAD HIERARCHY – SURROUNDING ROAD NETWORK

The NSW administrative road hierarchy comprises the following road classifications, which align with generic road hierarchy as follows:

- **Castlereagh Highway (B55)** is a state highway, managed by Roads and Maritime Services, with primary function of providing vehicular access between Mudgee and Ilford.

The B55 Castlereagh Highway is listed as an approved B-Double Route by RMS as shown in Figure 2 and is classified as an Arterial road in the Mudgee Township Traffic Management Plan (2014).

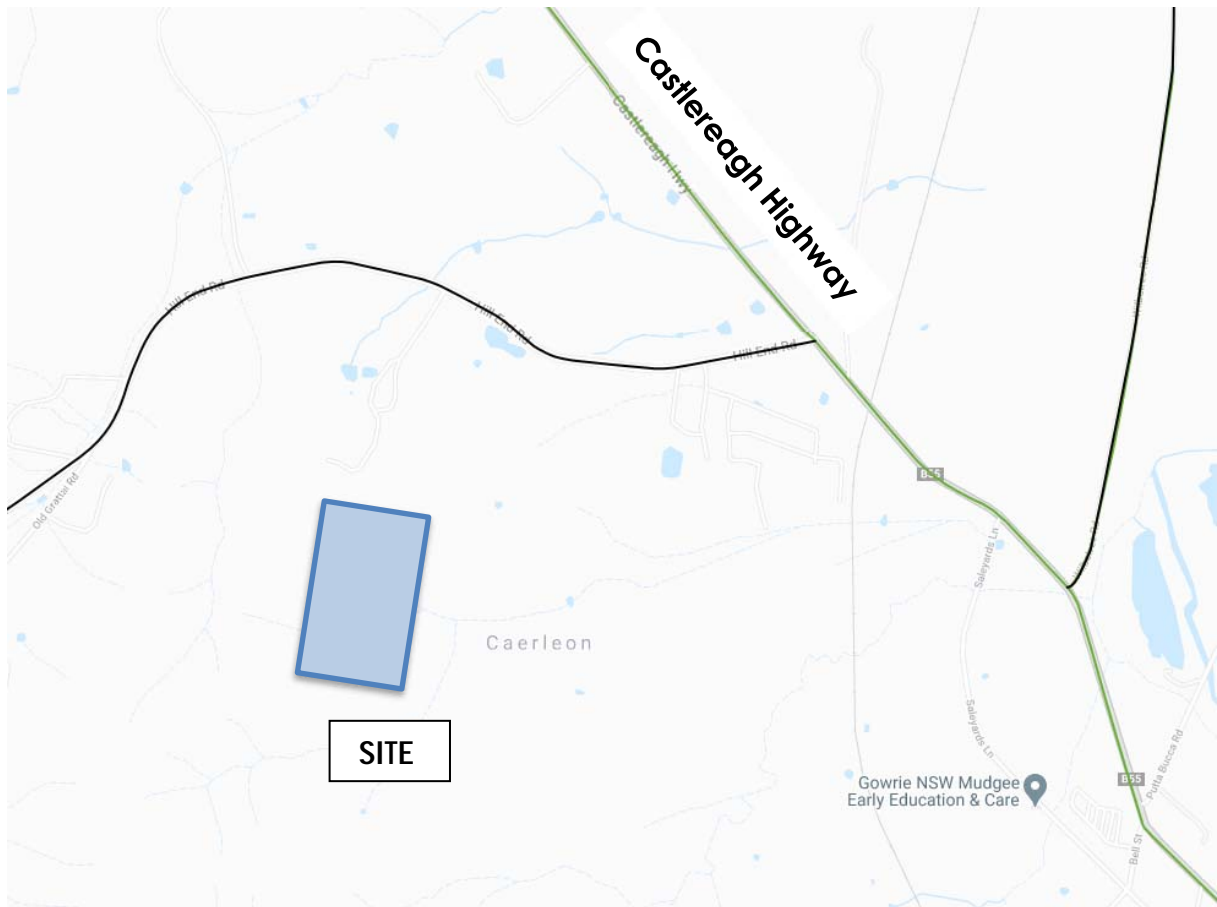


Figure 2: Existing travel conditions. Source: RMS website: <http://www.rms.nsw.gov.au/business-industry/heavy-vehicles/maps/restricted-access-vehicles-map/map/>

4.2 EXISTING TRAFFIC DATA

Traffic data was sourced from the Mudgee Township Traffic Management Study (2014) produced by Gennaoui Consulting.

Traffic counts for the nearest traffic count station to the site, being Sydney Road near the Burrundulla Road intersection and the corresponding level of service is detailed in table 3.7 of the report as shown below:

| Street | Location | | Lanes | N/E | S/W | Total | LoS |
|-----------------|---------------------|----------------|-------|-----|-----|-------------|-----|
| Church Street | Mortimer | & Market | 4UP | 437 | 435 | 872 | A |
| Church Street | Gladstone | & Mortimer | 4UP | 515 | 525 | 1040 | A |
| Church Street | Mealy St | & Denison St | 4UP | 486 | 542 | 1028 | B |
| Church Street | Denison | & Gladstone | 4UP | 495 | 525 | 1020 | A |
| Church Street | Horatio St | & Inglis St | 4UP | 411 | 518 | 929 | A |
| Church Street | Meares St | & Railway X | 2U* | 340 | 462 | 802 | A |
| Douro Street | Gladstone | & Mortimer | 4UP | 329 | 439 | 768 | A |
| Douro Street | Denison | & Gladstone | 4UP | 354 | 443 | 797 | A |
| Douro Street | at Railway X | | 2U* | 282 | 415 | 697 | A |
| Horatio Street | Church St | & Perry | 4UP | 335 | 332 | 667 | A |
| Market Street | Douro St | & Perry | 4UP | 307 | 336 | 643 | A |
| Market St | Douro St | & Court | 4UP | 312 | 368 | 680 | A |
| Mortimer Street | Church | & Perry | 4UP | 308 | 326 | 634 | A |
| Sydney Road | at Railway Crossing | | 2U* | 572 | 517 | 1089 | A |
| Sydney Road | Burrundulla | & Industrial | 4UP* | 329 | 402 | 731 | A |
| Ulan | Short | & Pitt / Lue | 2U* | 423 | 410 | 833 | A |
| Ulan | Pitt/ Lue | & Henry Lawson | 2U* | 330 | 366 | 696 | A |

Figure 3: Existing traffic count and corresponding level of service

As can be seen from the above table, the existing condition along Church Street at Mortimer and Market is operating with a carriageway level of service A, the highest available.

The existing operation of the closest major intersection, being the intersection of Bell Street / Putta Bucca Road with the Castlereagh Highway has been listed as a level of service A. This is shown in the figure below:

Table 3.8: Existing Operation of Intersection in Mudgee

| Intersections | Afternoon Peak | | School Period | |
|---|----------------|-----|---------------|-----|
| | Ave Delay | LoS | Ave Delay | LoS |
| Roundabout Controlled | | | | |
| Castlereagh Rd with Bell & Putta Bucca Rd * | 12.0 | A | | |
| Church St with Short St * | 12.1 | A | | |
| Church St with Market St * | 13.0 | A | | |
| Church St with Mortimer St * | 13.7 | A | | |
| Church St with Gladstone St * | 11.8 | A | | |
| Church St with Horatio St * | 13.7 | A | | |
| Church Street with Madeira Rd | 8.7 | A | 8.7 | A |
| Douro St with Market St * | 12.4 | A | | |
| Perry St with Market St * | 12.2 | A | | |
| Perry St with Lovejoy St * | 11.0 | A | | |
| Ulan Rd with Pitt Ln and Lue Rd @ | 10.8 | A | | |
| Sign Controlled Intersections | | | | |
| Bellevue Rd with Henry Bayly Dr @ | 7.0 | A | | |
| Castlereagh Rd with Bell Street @ | 8.2 | A | | |
| Castlereagh Rd with Putta Bucca Rd @ | 7.9 | A | | |
| Castlereagh Rd with Bell & Putta Bucca Rd * | 10.5 | A | | |
| Castlereagh Road with Hill End Road # | 16.4 | B | | |
| Church St with Denison St @ | 29.1 | C | | |
| Church St with Meares St @ | 19.6 | B | | |
| Douro St with Denison St @ | 20.3 | B | 21.6 | B |
| Douro St with Gladstone St @ | 19.7 | B | | |
| Douro St with Horatio Street * | 10.3 | A | 10.6 | A |
| Douro St with Inglis St @ | 8.0 | A | | |
| Fairydale Ln with Gladstone St @ | 6.0 | A | | |
| Lewis St with Gladstone St @ | 12.1 | A | 13.5 | A |
| Lewis St with Mortimer St @ | 10.4 | A | 11.6 | A |
| Perry St with Gladstone St @ | 9.0 | A | 10.1 | A |
| Sydney Rd with Industrial Rd @ | 11.0 | A | | |
| Sydney Rd with Lion St and Burrudulla Rd * | 18.5 | B | | |
| Ulan Rd with Henry Lawson Dr @ | 8.2 | A | | |

* Analysed with SIDRA Software @ Analysed with INTANAL software
Source: Traffix (2012)

Figure 4: Existing intersection level of service

As the construction phase of the project will be the main traffic generator and the operational phase will not introduce any traffic onto the road network, the existing conditions for the carriageway and intersection level of service have been adopted for this report.

5 PROPOSED TRAFFIC MANAGEMENT PLAN

5.1 PROJECTED TRAFFIC GENERATION POTENTIAL – TOTAL DEVELOPMENT

Based on advice from the client and a review of previous solar farm installations the proposed traffic generation for the development is separated into the construction and operational phases of the project as shown below. It is proposed to have up to 200 workers accessing the site during the construction phase, with work carried out between 7am – 4pm Monday to Friday.

Construction equipment is to be delivered to site via heavy vehicles (nominated as 25m long B-Doubles at this stage) between 10am – 2pm daily, hence not contributing to the AM or PM peak times.

Construction vehicle average trips per hour:

| | |
|---|---------------------------|
| B-Double | 1vtph (out of peak times) |
| Light vehicle access (workers – worst case) | 20vtph |
| Light vehicle access (workers with bus service) | 5vtph |
| Total Development | 50vtph max. |

Vehicle average trips per day (vtpd) during construction are listed below:

| | |
|---|-------------------|
| B-Double | 4vtpd |
| Light vehicle access (workers – worst case) | 40vtpd |
| Light vehicle access (workers with bus service) | 10vtpd |
| Total Development | 54vtd max. |

No reduction in these rates has been allowed for with pedestrian and cycle access to the facility. It is assumed that if all workers are accessing the site using light vehicles, there will be at least 2 workers per vehicle. Extra daily trips have been allowed for to access Mudgee township during the day if required. No weekend trips are expected.

As previously described the site will be unmanned during the operational phase and is expected to generate only up to two light vehicle trips in every 3-month period.

It is important to note that the greatest interaction with traffic external to the site will be during the peak PM period, estimated to be between 4pm – 5pm. The AM peak period with traffic heading to the site will not generate as many interactions due to the expected peak arrival time of 6am – 7am by the workers. During both peak AM and PM times it is important to note that the majority of the traffic will be moving against the primary direction of the peak flow, with the current peak vehicle movements heading out of Mudgee to the North to access the 3 coal mines.

The peak vehicle trips as listed in this report will have only a very minor impact on the surrounding road network. It is not envisaged that the development will cause a decrease in the level of service to either the road carriageway along the Castlereagh Highway.

5.2 PROPOSED SITE ENTRY

The existing site entrance has been checked for the turning path of a B-Double truck, with a sealed entrance a minimum of 26 metres into the site to minimise disruption to Hill End Road and ensure that a B-Double is able to que off the road if required to when accessing the site before entering the site access gate.

The proposed site entry location is located on a straight section of the Hill End Road and will have in excess of 300m of sight distance in either direction in accordance with the requirements of Austroads Guide to Road Design and Mid-Western Regional Council DCP requirements for a

5.3 CONSTRUCTION WORKER SITE ACCESS

As the site is located on the Northern side of Mudgee and easily accessible via the Castlereagh Highway through the Mudgee township, the construction worker site access and parking areas should be constructed in accordance with appropriate safe construction site management principles.

Depending on the accommodation arrangements made by the successful building contractor in the construction phase of the project, action should be taken to minimise any impacts on the Mudgee town area by the provision of a bus service to convey workers to site.

It is recommended that a bus service be utilised for workers to access the site during the construction phase.

6 SUMMARY

In summary, the proposed solar farm will cause no discernible long-term effects to the surrounding road network once constructed due to the unmanned operation of the site requiring only minimal regular maintenance on a three-monthly basis by minimal staff.

Construction traffic appropriately managed with a bus service for workers and out of peak hour deliveries to the site, combined with the construction of an appropriate site entry catering for B-Double access will ensure traffic impacts are minimised during the short term construction phase of the project.