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TRAFFIC IMPACT ASSESSMENT

PROPOSED SOLAR FARM PETERSONS ARMIDALE WINERY & GUESTHOUSE 347 DANGARSLEIGH ROAD, ARMIDALE

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1. Introduction

1.1 Background

New England Surveying and Engineering have been engaged by ITP Development Pty Limited (ITP) to undertake a Traffic Impact Assessment (TIA) for a proposed 6MW solar farm at 347 Dangarsleigh Road, Armidale.

The TIA will detail existing site and traffic conditions, outline the proposed development and predicted traffic generation, and consider mitigation measures for any traffic impacts.

1.2 Scope and Study Area

The TIA will consider existing traffic, construction traffic and post-development traffic in the vicinity of the development site at 347 Dangarsleigh Road, and possible freight routes from the New England Highway to the site.

1.3 Consultation

Prior to report commencement, contact was made with engineering staff at Armidale Regional Council to seek advice and information on roads and access, traffic volumes and any known traffic issues in proximity to the site.

2. Existing Conditions

2.1 Land Use and Zoning

The proposed solar farm will occupy approximately 12.6 hectares within Lot 494 DP66672 and Lot 2 DP569410. These lots comprise part of a larger property located east of Dangarsleigh Road, approximately 4km south-east of Armidale as shown in Figure 1. The property has a 1.25km frontage to Dangarsleigh Road, and has a heritage listing in the Armidale Dumaresq Local Environmental Plan 2012 for the 'Palmerston' house, outbuildings and grounds. The former property perimeter is enclosed by an old hawthorn hedge varying from 3.5 metres to 8.0 metres in height.

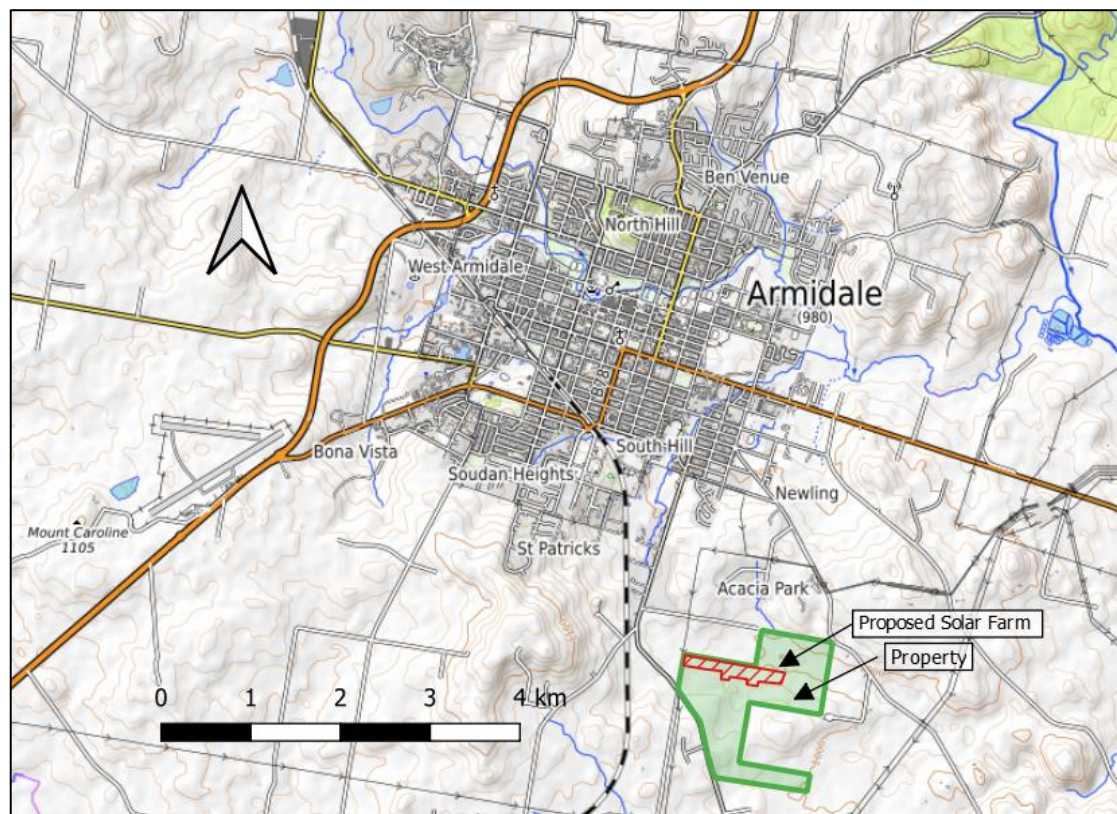


Figure 2.1 - Locality Plan (source: Open Street Map, 2019)

The subject land and all adjoining lots are zoned RU4 (Primary Production Small Lots) pursuant to the Armidale Dumaresq Local Environmental Plan 2012.

Most of the property on which the development is situated is used for livestock grazing, and also contains a vineyard associated with Peterson's Winery and Guesthouse.

2.2 Adjacent Land Uses / Approvals

The environment around the proposed solar farm is rural, comprising predominately livestock grazing and small rural holdings. Peterson's Guest House and Winery is located approximately 900 metres south-east of the proposed solar farm.

An existing 11kV overhead powerline runs through the property, and within the road reserve adjacent the western property boundary. The Armidale waste management facility is located north of the property off Long Swamp Road.

2.3 Surrounding Road Network

Dangarsleigh Road runs in a north-south orientation and collects traffic from numerous smaller roads to the south including Dangars Falls Road, Enmore Road and Elliotts Road. North of the property Old Gostwyck Road merges with Dangarsleigh Road, feeding into Kentucky Street within the city of Armidale.

Dangarsleigh Road past the subject property comprises a fully sealed two-lane, two-way road having two 3m wide traffic lanes in each direction. There are shoulders of width one (1) metre on each side of the road, with 0.5m sealed adjacent the carriageway. Edge lines are marked adjacent the northern part of the property frontage. The speed limit is 80km/h along Dangarsleigh Road, changing to 100km/h 150 metres south of the primary Petersons Winery and Guesthouse access.

The nearest cross streets to the proposed development access are:

- the intersection of Dangarsleigh Road and Simmons Road, north of the site. Simmons Road is an unsealed road, extending south to Knobs Road; and
- the intersection of Dangarsleigh Road and Red Hill Way, south of the site. Red Hill Way and Durham Road are two-way sealed roads servicing an 11-lot rural residential subdivision;

2.4 Traffic Volumes

Armidale Regional Council traffic counts were taken on Dangarsleigh Road, approximately 250 metres north of the intersection with Dangar Falls Road, between the dates of 2 September 2014 and 29 September 2014.

The Average Annual Daily Traffic (AADT) during this count was 341 vehicles per day in both north and south directions, including 8.5% heavy vehicles representing 27 heavy vehicle movements per day. The peak morning traffic was 32 vehicles per hour between 8:00am and 9:00am, and peak evening traffic was 32 vehicles per hours between 4:30pm and 5:30pm. Full traffic counts are shown in Appendix A.

Assuming a steady annual growth rate of 5% over the 5-year period since the traffic count was conducted, the 2019 AADT is estimated at up to 360 vehicles per day, suggesting peak morning and afternoon traffic of 34 vehicles per hour.

There are an estimated 34 dwellings which may enter Dangarsleigh Road between where the traffic counts were taken and the development site. As the development is in a rural area, each dwelling is expected to generate 7 daily vehicle trips, and 0.7 peak hour vehicle trips. Accounting for these dwellings, the estimated 2019 AADT on Dangarsleigh Road at the site is 600 vehicles per day, and estimated peak traffic is 58 vehicles per hour.

Given the large number of rural residential allotments on Dangarsleigh Road and with Armidale as the principal hub, it is assumed that northbound and southbound traffic is split 75:25 for AM peak hour and the reverse for PM peak hour.

2.5 Site Access

There are two property access points from Dangarsleigh Road.

The primary driveway at 345 Dangarsleigh Road shown in Figures 2.3 and 2.4 is used by the public to access Peterson's Winery and Guesthouse, and is understood to have been previously used for heavy vehicle access to the property. The access has a width of approximately 5.6 metres between the entrance posts, and is bitumen sealed within approximately 13 metres of the edge of bitumen on Dangarsleigh Road.



Figure 2.2 - Access from Dangarsleigh Road to Peterson's Guest House and Winery



Figure 2.3 – Primary Internal Access Driveway

The secondary driveway shown in Figure 2.4 is located approximately 510m north of the primary driveway and provides general rural property access. The driveway is approximately 4.5 metres wide at the existing 375Ø culvert, placed in approximately 2003 when Council upgraded Dangarsleigh Road along the property frontage. The existing access gates are in line with the boundary fence, located 8m from the edge line, and open with approximately 4.7 metres clear width.



Figure 2.4 – Secondary Property Access from Dangarsleigh Road

2.6 Parking

At present there are large gravel parking areas at Petersons Guest House and Winery suitable for its current use as a guest house and catering for weddings with over 100 guests. There is ample space available on the property for on-site parking.

3. Proposed Development

3.1 Site Plan

ITP Development propose constructing a solar farm comprising approximately 16,000 panels with AC power generation capacity of 5MW. A new section of 11kV overhead powerline will be constructed to link the inverter station with existing powerlines passing through the property. A security fence will be constructed around the perimeter of the solar farm.

Figure 3.1 shows the location of the proposed solar farm and internal access road extension from the northern-most (secondary) Dangarsleigh Road property entrance. A larger scale concept design plan is shown in Drawing ARM1B-G-210 which is included in the Development Application submission.

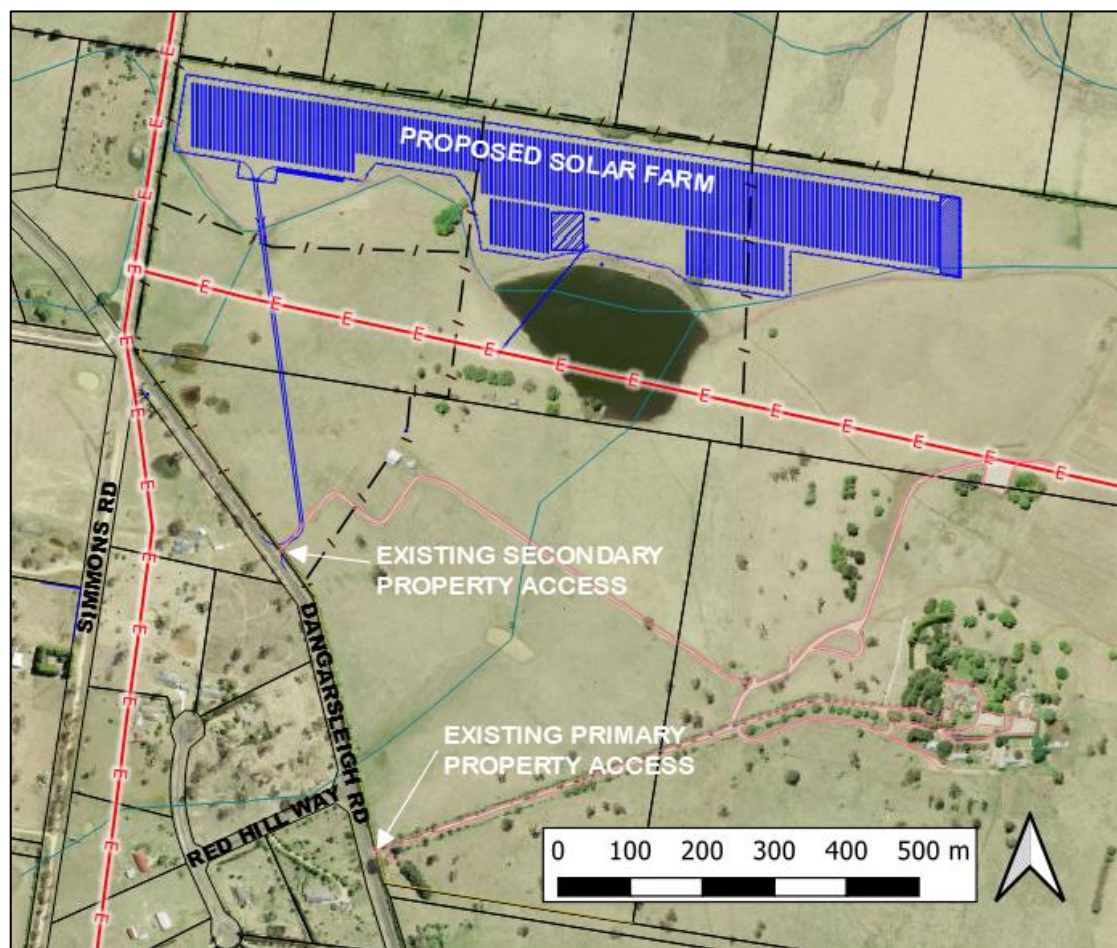


Figure 3.1 – Proposed Solar Farm

3.2 Proposed Access and Parking

Access to the solar farm is planned to occur from a new internal access track to be constructed from the existing internal roadway, approximately 45 metres east of the northern-most Dangarsleigh Road property entrance. A culvert will be constructed where the internal access track crosses the unnamed non-perennial watercourse.

To minimise any impact to the existing hawthorn hedge inside the property perimeter, it is intended that the existing driveways from Dangarsleigh Road will be used where possible.

A construction car park will be created east of the solar farm compound entrance, with capacity for 40 light vehicles, and a lay down area constructed within the fenced compound for the delivery and handling of source materials.

Details of parking and manoeuvring areas within the solar farm compound were not available at the time of preparing this report, however it is recognised that such areas will need to be designed and constructed consistent with the provisions of AS/NZS2890.1 to ensure there is adequate width for passing and space for the design service vehicle to enter and exit the development in a forward direction, and with a pavement suitable for the mass loadings.

3.3 Sight Distance at Existing Property Access Points

Sight distances have been evaluated for the existing property entrances off Dangarsleigh Road based on the criteria within Section 3 of the *Austroads Guide to Road Design - Part 4A: Unsignalised and Signalised Intersections*. The results of this evaluation are summarised in Table 3.1.

3.3.1 Approach Sight Distance

It can be noted from Table 3.1 that the desirable Approach Sight Distances (ASD) are not available to car drivers on the Dangarsleigh Road approaches to either of the two existing driveways, and only available to truck drivers approaching the primary access from the north. The provision of ASD ensures motorists can observe the intersection and any markings, and slow from full design speed to make the turn.

Section 3.4 of the Austroads guide acknowledges that ASD criteria often cannot be achieved on roadways having tighter horizontal and vertical alignments, and ASD is often not necessary at domestic driveways due to the familiarity of the driveway location by the users. At other than domestic accesses, ASD is not required where other means are provided to provide perception of the access to motorists.

3.3.2 Safe Intersection Sight Distance

The provision of Safe Intersection Sight Distance (SISD) will allow motorists on Dangarsleigh Road or exiting the development to observe approaching vehicles moving into a collision situation, and decelerate to a stop before reaching the collision point.

Table 3.1 – Estimated Sight Distance Availability and Requirement at Existing Property Access Driveways

		PRIMARY ACCESS - GUESTHOUSE & WINERY 345 DANGARSLEIGH RD				SECONDARY ACCESS - FARM GATE 347 DANGARSLEIGH RD			
		NORTHERN SIDE		SOUTHERN SIDE		NORTHERN SIDE		SOUTHERN SIDE	
Road Geometry		Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal
Approach Sight Distance 1.1m to 0.0m (Cars)	Available	76m	390m	74m	240m	79m	510m	78m	160m
	Required	96m	✗	98m	✗	95m	✗	100m	✗
Approach Sight Distance 2.4m to 0.0m (Trucks)	Available	500m	390m	110m	240m	145m	510m	115m	160m
	Required	147m	✓	151m	✗	142m	✓	158m	✗
Safe Intersection Sight Distance Car awaiting property egress	Available	475m	390m	355m*	240m	>800m	510m	540m	160m
Right-turning car ingress	Available	--	--	400m*	>700m	--	--	530m	116m
1.1m to 1.25m	Required	177m	✓	188m	✓	174m	✓	191m	✗
Safe Intersection Sight Distance Truck awaiting property egress	Available	480m	390m	420m	240m	>800m	510m	545m	160m
Right-turning truck ingress	Available			410m	>700m			535m	116m
2.4m to 1.25m	Required	209m	✓	219m	✓	203m	✓	225m	✗
Minimum Gap Sight Distance 1.1m to 0.65m (Cars)	Available	457m	390m	132m	240m	>800m	510m	170m	160m
	Required	111m	✓	111m	✓	111m	✓	111m	✓

Notes:

- The limiting available sight distance considering both vertical and horizontal geometry is highlighted in **bold** font;
- * SISD to the south of the primary access is based on views of the second ridge (Fig. 4.3). Low vehicles will be temporarily unsighted for a short period.
- Vertical sight distances are based on Armidale Regional Council design drawings for the rehabilitation of Dangarsleigh Road;
- Approach sight distances are for vehicles travelling on Dangarsleigh Road;
- Approach sight distances are based on 85th percentile speed of 80km/h, reaction time of 2.0 seconds (for an alert driver anticipating slowing for the access), and coefficient of deceleration of 0.46 (cars) and 0.22 (trucks);
- Safe Intersection sight distances are based on decision time of 5 seconds and coefficient of deceleration of 0.362 (cars) and 0.24 (trucks);

SISD is available on the northern approach to each access. The design longitudinal section for Dangarsleigh Road indicates that vehicles may be temporarily unsighted on the southern approach to the primary access due to vertical geometry, though longer-range views to the next ridge allow motorists to egress safely after stopping at the intersection. SISD is not available on the southern approach to the secondary access due to horizontal curve constraints.

3.3.3 Minimum Gap Sight Distance

Minimum Gap Sight Distance (MGSD) is based on the traffic gap that drivers are prepared to accept when manoeuvring at intersections. A critical acceptance gap of 5 seconds is available at both the existing primary and secondary accesses, being most limited to the southern approach at each access.

3.4 Geometric Design of Existing Property Access Points

The existing property entrances have been evaluated for the swept path of various Austroads design vehicles.

3.4.1 Primary Access

Existing intersection geometry at the primary access allows for Austroads design vehicles including the:

- car five (5) metres in length; and
- design single unit truck/bus 12.5m long

to perform a left turn into and out of the primary access without crossing the centreline of Dangarsleigh Road, and with adequate clearance to existing fencing.

Vehicles having a larger swept path such as the 19m prime mover and semi-trailer, and the B-Double 25m in length having a desirable minimum turning radius of 15 metres to the outer wheel path, are constrained by both the existing timber paling entrance fencing and the width of pavement in the throat of the intersection, though even with if these constraints were moved these larger heavy vehicles would be required to briefly use the entire pavement width of Dangarsleigh Road for left-in, left-out turning manoeuvres. The Austroads 19m B-Double could perform left-in, left-out turning manoeuvres to and from Dangarsleigh Road with some more modest fencing and pavement improvements.

Localised earthworks and pavement widening would be required at the sharp corners inside the property to ensure that heavy vehicles on the primary access could manoeuvre onto the secondary access track.

Disadvantages of using the primary property access for construction traffic include the longer distance to the solar farm site, and the interaction of construction traffic with guest traffic. There are opportunities for vehicles travelling in opposite directions to pass along the internal driveway.

3.4.2 Secondary Access

Existing geometry allows for the Austroads design car five (5) metres in length to enter and exit the development without crossing the centreline of Dangarsleigh Road, including allowance for stopping clear of traffic to open the existing gates.

Neither the Austroads design prime mover and semi-trailer 19m in length, nor the B-Double 25m in length, are able to access the secondary access without significant upgrades, which should be consistent with Armidale Regional Council standard drawing 030-073, including widening of the 375mm diameter culvert, removal of the existing timber gates and gate-posts, clearing of some hedge on either side of the access, and providing a recessed entrance.

Given the constrained Safe Intersection Sight Distance at this access, it would be safer and more viable to develop a new access instead of upgrading this access.

3.4.3 Access Commentary

Of the two existing property access points from Dangarsleigh Road, the primary (southern-most) access is currently the most suited for heavy vehicle access for the solar farm construction as it offers the most favourable site geometry and available sight distances.

While offering a shorter travel distance to the solar farm site, the secondary access is constrained with no recessed entrance gates, limited gate and culvert width for heavy vehicle manoeuvres, and restricted sight distance to the south.

3.5 Potential Alternative Site Access

There is potential to develop a new site access from existing public roads at various locations around the site perimeter, such as those points described in Table 3.2 and highlighted in Figure 3.2.

Table 3.2 – Potential Alternative Site Access

Access	Comment
1	Potential new recessed heavy vehicle access from Dangarsleigh Road complying with Armidale Regional Council (ARC) standard drawing 030-073
2	Potential new access from the Simmons Road, noted to be a Crown road and is presently unformed north of Dangarsleigh Road
3	Potential new access from Simmons Road, noted to be a Crown road and is presently unformed south of Roseneath Lane
4	Potential new property access beyond the current end of Roseneath Lane. This option would also require works within an unformed Crown road reserve
5	Potential new property access near the intersection of Long Swamp Road and Roseneath Lane, within a Council public road reservation

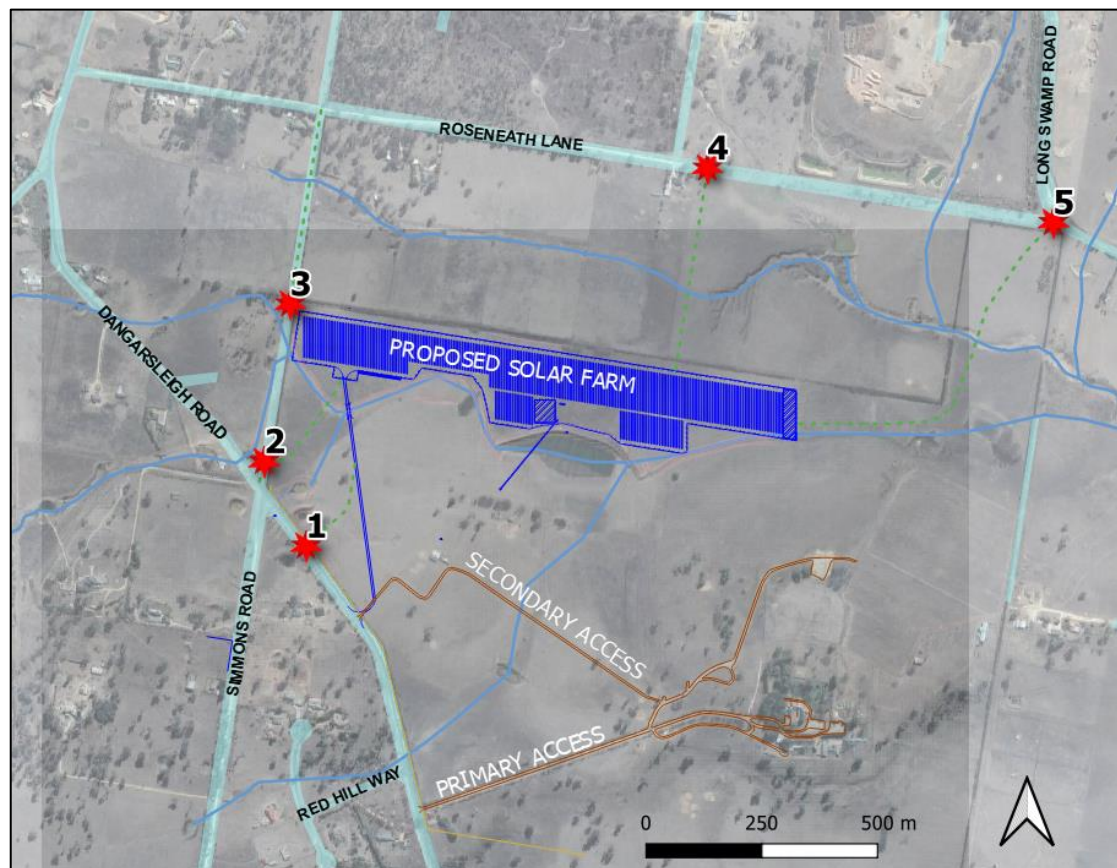


Figure 3.2 – Potential Alternative Site Access

Site 1 is located on a straight section of Dangarsleigh Road having adequate sight distances in each direction. A new access could be constructed suitable for 25m B-Double access, to either supplement or replace the existing secondary access which has substandard geometry and sight distances. A culvert of length approximately 9.5m would be required, aligned with the existing drain inside the property. Hedge removal in the order of 12 metres lineal length would be needed to construct the access. Such hedging would be less visible than the existing gap in the hedging at the secondary access, which is located near a horizontal curve.

Site 2 again offers good sight distance however there is a significant level difference between the Dangarsleigh Road pavement and surrounding natural surface of the unformed Simmons Road, and no notable advantages above Site 1.

Sites 2, 3 and 4 would all require fencing, pavement and drainage works within unformed Crown land. Discussions would be required with the Crown lands office, Council and possibly any enclosure permit holder to determine the viability of and approve the use of the respective sections of Crown roads for site access. The need for improvement works on the Crown roads is likely to trigger a requirement for the roads to be gazetted as Council public roads, and upgraded accordingly.

Sites 3 and 4 would require heavy vehicle travel on Roseneath Lane which is unsealed and narrows to single lane near the intersection with Simmons Road. Works may be

required to widen or improve Roseneath Lane, and manage dust during the construction phase. An advantage of Site 3 is that any track would require a lesser waterway crossing to reach the solar farm.

Internal tracks from all potential road access points will cross a non-perennial stream, and any works within 40m of these water courses will require NSW Natural Resources Access Regulator controlled activity approval. Approval may also be required from NSW Department of Primary Industries (Fisheries) where there will be dredging or reclamation works near creeks.

4. Development Traffic Impacts and Mitigation

4.1 Traffic Generation

The solar farm will take approximately three (3) months to construct.

An initial establishment phase of 2 weeks will see the completion of site earthworks including the access roads and pads for the construction lay down area, and fencing of the site compound. During this period, traffic is estimated to comprise 6 to 8 light vehicle trips daily for contractor staff vehicles, and an average 6 to 8 truck and trailer movements for importing gravel, plant and machinery.

The construction phase will take an estimated 10 weeks after the completion of site earthworks. During this phase, photo-voltaic components will progressively be delivered to the site and constructed to form the panel arrays. It is estimated that an equivalent of 45 B-Double loads of materials and equipment will be required for the solar farm, including the freighting of photo-voltaic (PV) modules, inverter station, mounting system, plant and equipment. An average of one (1) B-Double delivery is expected daily during the construction phase, generally arriving on site between 10:00am and 2:00pm, however there may be up to 4 deliveries in any day.

It is estimated that there will be a peak of 50 construction workers on site during construction of the solar farm, with staff typically assumed to be on site between 7:00am and 4:00pm Monday to Friday. A total of 40 temporary car spaces is considered appropriate during the construction phase, based on a rate of 1.2 persons per vehicle, though there is ample space on site to accommodate occasional variations.

The final commissioning stage is expected to require up to 10 specialist electrical contractors during weekdays for a two-week period. Vehicle generation is expected to comprise light cars and single-rigid trucks to 12.5m length.

Once the solar farm is operational, traffic generation will reduce to approximately one light car or truck per quarter for maintenance purposes.

4.2 Traffic Distribution and Assignments

Construction workers are likely to be travelling daily from Armidale, arriving on site between 6:30am and 8:00am in cars/utilities or with a shuttle bus service, and departing the site between 4:00pm and 5:00pm. Vehicle movements will generally comprise a left-turn into the development, and a right-turn to egress onto Dangarsleigh Road. It is assumed only 5% of vehicles will perform the alternate manoeuvre.

Most components of the solar farm will be imported, landing at a port in either Sydney or Brisbane, after which components will be freighted to the site. The site can be accessed from the New England Highway by a number of routes, including:

- From the roundabout near Armidale Airport via Waterfall Way (including Uralla Road and Dangars Street), Kentucky Street, and Dangarsleigh Road;
- Via Platform Road, Old Gostwyck Road, Knobs Road and Dangarsleigh Road;
- Via Platform Road, Old Gostwyck Road, and Dangarsleigh Road.

The NSW Roads and Maritime Services (RMS) Restricted Access Vehicle Map shows that each of these routes may be accessed by B-Doubles up to 25/26 metres in length operating on the General Mass Limits and Concessional Mass Limits networks, subject to travel restrictions south of the intersection between Dangarsleigh Road and Old Gostwyck Road. The site cannot be accessed on public roads by 4.6 metre high vehicles without a pre-approved over-dimension permit.

The hourly distribution of trips is summarised in Figure 4.1 for the existing situation, during the construction peak, and post-development, based on the assumption of a new site access between Red Hill Way and Simmons Road.

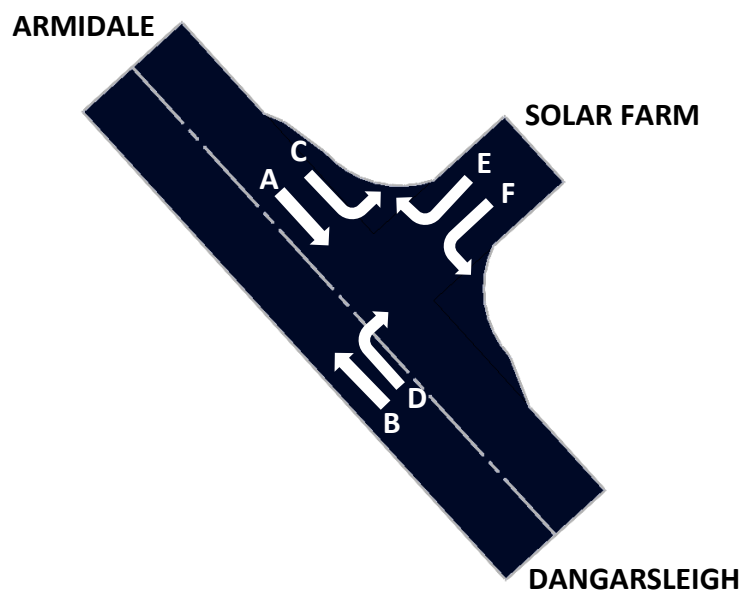


Figure 4.1 – Peak Hourly Volumes at Solar Farm Access, Dangarsleigh Road

ARROW	PRE-DEVELOPMENT		CONSTRUCTION PHASE		POST-DEVELOPMENT	
	AM	PM	AM	PM	AM	PM
A	14	14	14	14	14	14
B	44	44	44	44	44	44
C	0	0	38	0	0	0
D	0	0	2	0	0	0
E	0	0	0	38	0	0
F	0	0	0	2	0	0

4.3 Impact of Generated Traffic

The estimated peak hour traffic generated during construction of the solar farm is 40 vehicles per hour, representing an increase in peak hour traffic of approximately 169% on Dangarsleigh Road adjoining the development. While this percentage increase appears high, most of the generated traffic will be travelling in the opposite direction to the existing peak flows on Dangarsleigh Road, and the overall peak hour volume of less than 100 vehicles per hour is well within the capacity of the existing road.

The functional classification of Dangarsleigh Road and surrounding public roads will not be altered by the development, and overall the impact of generated traffic is considered to be minor.

4.4 Recommended Works

It is recommended that all internal circulation roads, parking and manoeuvring areas are designed and constructed for the design number, dimension and mass of the design service vehicles, and in compliance with the provisions of AS/NZS2890.1 Off Street Parking and Armidale Regional Council. Internal roads should have regular hard-standing provision for heavy vehicles travelling in opposite directions to pass.

Given the short-term nature of the traffic-generating works and the rural environs, it is considered that unsealed pavements would be suitable for all internal roads, parking and manoeuvring areas.

It is further recommended that, subject to heritage and cost considerations, either:

4.4.1 Replace existing secondary property access with a new property access

The preferred access improvements involve constructing a new heavy vehicle access from Dangarsleigh Road to the property, to be located approximately 180 metres north of and replace the existing northern-most access (as denoted by location 1 in Figure 3.2). This access should be designed and constructed in compliance with Armidale Regional Council standard drawing 030-073 (Sheet 1 of 2), and having a 6 metre wide grid at the access point, suitable for B-Double ingress and egress.

The new access would replace the existing secondary property access which only has geometry and off-street queuing capability suitable for light cars and utilities, and has inadequate Safe Intersection Sight Distance on the southern approach. The proposed new access would enable B-Doubles to safely access the site, and be beneficial in the future for the existing rural enterprise on the land and for maintenance access to the solar farm.

It is noted that a new rural access would require removal of a short section of hawthorn hedging which may have some heritage value. Such hedging can be offset by additional plantings within the current secondary access which can be closed, and would be less visible to passing traffic being located on a straight section of roadway.

4.4.2 Alternative 1 – Upgrade the existing primary property access

An alternative to constructing a new heavy vehicle access from Dangarsleigh Road is to upgrade the existing primary access to Petersons Guest House and Winery (as pictured in Figures 2.2 and 2.3) to be suitable for B-Double access. A swept path for the desired left-turn ingress is shown in Figure 4.2.

The works would require removal of existing fencing and signage, trimming and removal of hedging/vegetation, protection for the electricity stay cable, and pavement widening. Additional earthworks and pavement construction would be required to improve tracks inside the property suitable for heavy vehicle manoeuvres. Suitable signage would be desirable to delineate the access in lieu of achieving Approach Sight Distance for drivers unfamiliar with the access location and arrangements.

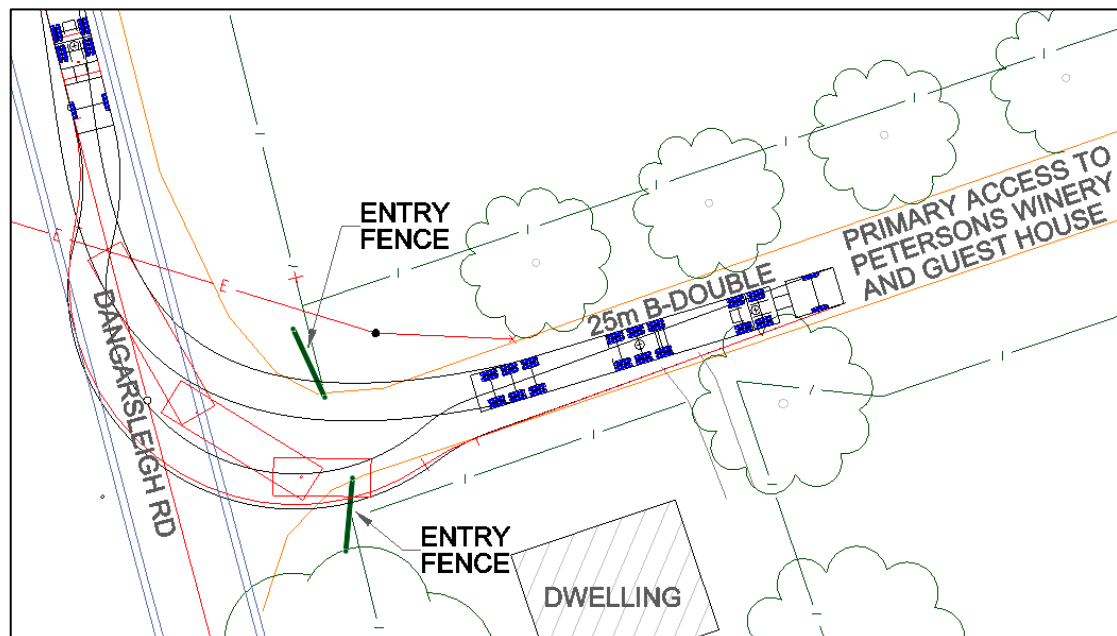


Figure 4.2 - Swept Path for Left-Turn 25m B-Double Ingress at Existing Primary Access

With any improvement of the existing primary property access it would be desirable to reshape the batter south of the driveway and east of Dangarsleigh Road, as shown in Figure 4.3, and ensure that vegetation is kept low to maintain sightlines.



Figure 4.3 – View north of the existing primary Petersons property access

The option of upgrading the existing primary access is considered less desirable than relocating the northern-most access, as it would require construction vehicles to travel a further distance to access the solar farm, additional internal roadworks, and would require the interaction of construction vehicles with public vehicles accessing the guest house and winery.

4.4.3 Alternative 2 – Split freight to use the existing property access points

If heritage or other constraints rule out the options identified in both sections 4.4.1 and 4.4.2, it would be possible (though not efficient) to split divisible loads arriving on B-Doubles or semi-trailers in Armidale or nearby, and use a vehicle type which can safely negotiate the existing primary property access such as single-unit trucks for site delivery.

Cars and utilities could use the existing secondary access for site ingress, though would need to use the primary property access for right-turn site egress onto Dangarsleigh Road for the improved sight distances.

Traffic control could be implemented for turning each movement to bring indivisible loads to the site, temporarily stopping traffic on Dangarsleigh Road while a heavy vehicle having appropriate swept path characteristics performed a wide swing off the western edge of Dangarsleigh Road before turning into the primary property access. Localised earthworks and pavement widening may be required for supporting the heavy vehicle loading off the existing carriageway.

5. Conclusions

This report has considered the proposed solar farm development in the context of existing road and traffic conditions, additional traffic to be generated by the development during the construction and operational stages, and improvements required to ensure that access geometry and safe intersection sight distances are achieved for the design traffic. It is concluded that:

- Traffic generation resulting from up to 50 staff being on site during the construction period can be readily accommodated by Dangarsleigh Road and surrounding roads and intersections;
- There is adequate area within the site to design and construct internal circulation roads, parking and manoeuvring areas for predicted traffic volumes and loads in compliance with the provisions of AS2890.1 and Armidale Regional Council. The internal access should have well-spaced suitable for heavy vehicles to pass opposing traffic. Authority approvals may be required for any waterway crossings.
- It is recommended that the northern-most property access be replaced by a new property access located approximately 180 metres to the north of the existing access, to provide intersection geometry which will permit B-Double access to the site and to achieve safe intersection sight distances. Construction of such an access would require the removal of a length of perimeter hawthorn hedging, which could be partially offset if desired by new plantings in place of the superseded secondary property access. If such vegetation removal is not deemed acceptable for heritage reasons, the alternative access options and associated improvement works described in Section 4.4.2 or 4.4.3 are an option.

Appendix A

Dangarsleigh Road Traffic Data

Prepared by Armidale Regional Council

Armidale Dumaresq Council

Dangarsleigh Rd. Edwards Ln to Dangars Falls Rd.250m Nth of Dangars Falls Rd

Profile:

Filter time: 16:00 Tuesday, 2 September 2014 => 14:25 Monday, 29 September 2014

Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

Speed range: 10 - 160 km/h.

Direction: North, South (bound)

In profile: Vehicles = 9157 / 9164 (99.92%)

* Virtual Day - Total=341, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
0	0	0	0	0	2	9	22	32	24	26	25	24	25	26	28	31	27	16	7	5	5	3	1
0	0	0	0	0	0	1	4	8	5	6	5	6	6	6	7	7	8	6	2	1	2	1	0
0	0	0	0	0	0	1	7	10	5	6	6	6	6	6	7	6	7	5	2	1	1	1	0
0	0	0	0	0	1	3	5	7	7	7	7	6	6	8	7	9	7	3	1	2	1	1	0
0	0	0	0	0	1	4	6	7	6	7	6	7	7	6	7	8	6	2	1	1	1	1	0

AM Peak 0800 - 0900 (32), AM PHF=0.84 PM Peak 1630 - 1730 (32), PM PHF=0.87

Numbers have been rounded to the nearest integer.

Class Bins

Class 1 - 8028 (87.67%)

Class 2 - 354 (3.87%)

Class 3 - 557 (6.08%)

Class 4 - 72 (0.79%)

Class 5 - 4 (0.04%)

Class 6 - 16 (0.17%)

Class 7 - 75 (0.82%)

Class 8 - 18 (0.20%)

Class 9 - 28 (0.31%)

Class 10 - 5 (0.05%)

Class 11 - 0 (0.00%)

Class 12 - 0 (0.00%)

