24 August 2021

Rob Beckett
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FRV
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Dear Rob Beckett

Re: Walla Walla Solar Farm Modification (SSD 9874; our reference: 21-200) Traffic Impact Assessment Review

NGH were engaged by FRV to undertake an addendum traffic impact assessment of proposed changes to the above project to inform a Modification Application being lodged under Section 4.55(1A) of the *Environmental Planning and Assessment Act 1979*.

The approach and findings are documented as attached.

If you have any questions, please contact me on 0425 283 868. I would be pleased to discuss this project with you further.

Yours sincerely,

Les Seddon
Principal Environmental Consultant
0425 283 868
NGH Pty Ltd

Introduction

The Walla Walla Solar Farm is located off Benambra Road, approximately 2.6 kilometres (km) west of Olympic Highway in the Greater Hume Local Government Area (LGA) as shown in Figure 1.

The Walla Walla Solar Farm Development Consent was approved by the Independent Planning Commission of NSW on 27 November, 2020 (Application Number: SSD 9874) under Section 4.38 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). A traffic impact assessment (TIA) was undertaken to supplement the Environmental Impact Statement (EIS) in 2019 by Ontoit traffic consultants (Ontoit, 2019).

Walla Walla Solar Farm Pty Ltd (WWSF) are seeking approval to modify the approved Development Consent under the EP&A Act, and as a result have engaged NGH to undertake a traffic impact assessment review to assess any additional traffic impacts as a result of the proposed modifications.

Scope of the Modification

During detailed design, Walla Walla Solar Farm Pty Ltd (WWSF) have identified three aspects of the consented project that require amendment. The proposed amendments are:

1. An increase in the maximum height of power poles for the onsite substation, from 21 metres (m) to 36m.
2. An increase in the maximum height of solar panels from 4m to 4.85m above ground level.
3. An amendment to the construction access and transport route for construction traffic associated with construction of the substation.

All other solar farm infrastructure proposed remains as described in the Development Consent. No changes to the project boundary or affected lots are required.

Construction access and transport route

The current project approval provides for over dimensional vehicle access to the substation during construction via Benambra Road with all other construction vehicle access via internal Solar Farm access tracks from the main site entry at the north east corner.

TransGrid proposes to undertake construction of the substation prior to other aspects of the solar farm being constructed, including access tracks.

As such, the only viable way to access the proposed sub-station site access (herein referred to as the alternate access), is from Benambra Road to the west of Schneiders Road (Figure 1).

Figure 1 Walla Walla Solar Farm proposed modified access point for all traffic during substation construction

Approach to assessment

This review has been prepared by NGH to provide a traffic assessment for the proposed modification. The methodology is based on a comparison of the traffic impact assessment undertaken as part of the EIS, and the proposed changes for the modification. The following components have been undertaken to achieve this:

- Review the original traffic impact assessment.
- Assessment of potential impacts from the traffic modifications and sensitivity at key sensitive receivers.
- Consultation with potentially impacted receivers.
- Potential cumulative impacts.
- Additional mitigation measures required for the modification.

Findings of 2019 TIA

Findings of the TIA (Ontoit, 2019) relevant to the modification are presented below.

Existing road conditions:

Benambra Road is managed by Council and was classified as a local road acting as a key part of the road network surrounding the site. An existing quarry is located north of Benambra Road and the intersections from the Olympic Highway to Benambra Road have been upgraded to accommodate the quarry generated traffic. Being a local road in the area, it was considered to have the following characteristics:

- The majority of Benambra Road is a sealed carriageway around 7.0 metres in width with one-lanein each direction (i.e. 2 x 3.5 metre wide traffic lanes).
- Approximately 3.3 kilometres of the road is an unsealed gravel road with a width of around 7.0 metres (i.e. 2 x 3.5 metre wide traffic lanes).
- Road is slippery when wet due to a thin layer of quarried material.
- Poor drainage along the road.
- No central median.
- No posted speed limits.

Schneiders Road is a minor part of the road network surrounding the proposed site and was classified as a local road which is managed by Council. Schneiders Road would not be utilised by construction traffic but crossed at two location points to access from the east to the west of the development and vice versa. Schneiders Road would also provide emergency access during operations. Being a minor local road in the area of Walla Walla, it reflects the following characteristics:

- Unsealed single carriageway approximately 7.0 metres in width with one-lane in each direction (i.e. 2 x 3.5m traffic lanes) and no posted speed limits.

Traffic data

The existing traffic data was collected from Council for Schneiders Road and Benambra Road as part of the TIA (Ontoit, 2019). Traffic counters were located along road corridors near the site for the TIA. Data collected is presented in Table 1.

Table 1 Traffic volumes (source Ontoit 2019)

Location	Average Total Weekly Volume	Average Daily Traffic Volume	Average Weekly Volume of Freight Vehicles
Schneiders Road between Benambra Road and Rockville Road	453	65	14
Benambra Road 100m east of Schneiders Road	941	134	232
Benambra Road 100m west of Schneiders Road	848	121	248

Technical assessment

A swept path analysis was undertaken as part of the TIA to assess the capability of the Olympic Highway/Benambra Road intersection to provide for large vehicles accessing the site. The analysis identified that the Benambra Road/Olympic Highway intersection had the capability to allow 36 metre A-Double trucks to negotiate the turn. As no increase in vehicle size is proposed as part of the modification, no further assessment for turns was required.

The main access point was found to need to be constructed to provide for 36-metre-long A-double vehicles and be sealed or at a minimum be spread with crushed blue metal or gravel to reduce dust. Planned access points included:

- Main construction and operation access located at the north eastern corner of the development site.
- Access to the TransGrid substation.
- Two crossing points along Schneiders Road.

Due to the generally flat nature of the site, the TIA found that there appears to be no issues that would affect the provision of access points anywhere along the surrounding road network.

There are two bus services that utilise a route along Benambra Road (Figure 2); one operates in the morning (at around 7:00- 7:45am) and one operates in the afternoon (at around 3:30-4:00pm). There is a bus stop currently located at the end of Benambra Road.

Operation of the bus route was considered to have minimal impact upon the TIA.

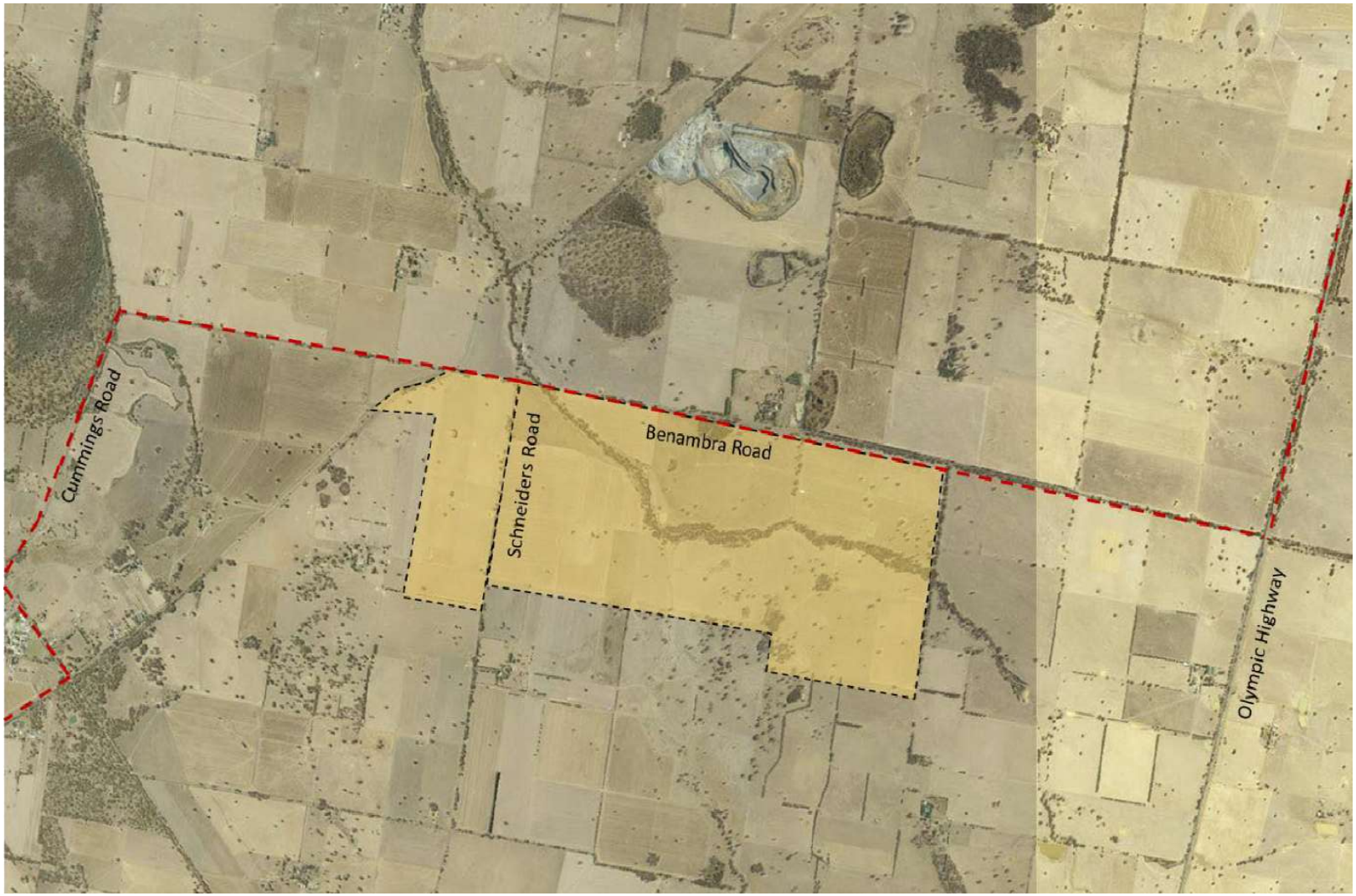

Figure 2 Bus route (source Ontoit 2019)

Access points

Approved access points to the site are shown in Figure 3. These access points for the site are located away from residential dwellings and to minimise the potential impact on local road operations. The main site access point for construction traffic is from the sealed section of Benambra Road, around 2.6 kilometres west of Olympic Highway in the north eastern corner of the subject site.

A secondary access to the western portion of the site, referred to as the sub-station access, was approved from Benambra Road to the west of Schneiders Road. This access was expected to have less activity and be mainly for access to the sub-station both during construction phase and the operational phase.

Schneiders Road would not be used for site access but given that the site straddles Schneider Road, access crossing points from one side of the subject site to the other were approved.

The TIA concluded there was no requirement for passing bays for trucks on Benambra Road, given that the main site access for construction traffic would be located at the north eastern corner of the development site only 2.6 kilometres from Olympic Highway.

Construction traffic

The construction phase for the project will be approximately 16-20 months. It was anticipated that the greatest travel demand would be during the construction phase due to:

- Estimates of approximately 250 workers during the peak construction period (8-12 months).
- During the peak period, approximately 400 light vehicle movements (200 vehicles) per day could be expected to travel to / from the site.
- To reduce total vehicle movements, of the proponent would provide a bus service between the site and the Walla Walla township:
- Based on the provision of bus services, it is estimated that light vehicle traffic would be reduced to approximately 120 movements (60 trips each way) during the peak construction phase (considering movements to be a one-directional trip).
- a peak of 45 heavy vehicles per day during the first four to six months of the peak construction period.
- These heavy vehicle movements will be mainly truck and dog configuration with several mixer trucks and articulated loads.

Peak traffic periods were expected to occur between 7:30am to 9:00am and 3:00pm to 5:00pm Monday to Friday. Table 2 outlines the estimated peak period vehicle demand for the construction phase.

Table 2 Estimated 'worst case' vehicle demand for the construction phase

Type of vehicle	Movement (single trip)
Fulltime workers	Up to 250 construction personnel.
Heavy	Daily: Up to 45 movements per day[1].
Light	Daily: Up to 200 movements per day.
Total	**Up to 245 vehicle movements per day** (reduced to 105 movements per day by provision of a bus service).

It was not anticipated that the peak figures would be a consistent daily demand throughout the anticipated 16–20-month construction phase. The peak vehicle demand needed to be predicted to ensure there is sufficient capacity in the surrounding transport network to provide for the construction phase activity.

The approved transport route is via Benambra Road and the Olympic Highway. During the EIS, Benambra Road's estimated capacity was observed to be approximately 600 vehicles per hour (300 vehicles per lane). The adopted existing capacity versus existing and future estimated traffic volumes from the EIS is shown in Table 3.

The traffic conditions along Benambra Road, during the construction phase (estimated 16-20-months) of the approved project were summarised as follows:

- Benambra Road eastbound (west of Olympic Highway) – will operate above a satisfactory level.
- Benambra Road westbound (east of Cummings Road) – will continue to operate above a satisfactory level.
- Schneiders Road northbound (south of Benambra Road) – will operate above satisfactory level.
- Olympic Highway (east of Benambra Road) – while limited current traffic data is available the additional traffic generated by the project is expected to have minimal impact on traffic flows along Olympic Highway and so it is expected that it will continue to operate above satisfactory level.

Access to the Project would be as follows:

- The main access route to the site is expected to be via the Olympic Highway and Benambra Road to a main access point from Benambra Road in the north eastern corner of the subject site around 2.6 kilometres from Olympic Highway;
- A secondary access to the western portion of the site, referred to as the sub-station access, is expected to be provided from Benambra Road to the west of Schneiders Road; and
- Schneiders Road will not be used for site access, however the project has approval for two crossing points across Schneiders Road, from one side of the subject site to the other.

The access arrangements were considered to provide the optimal arrangements for site access. With the primary access route to the site considered to be via Olympic Highway, it was considered appropriate that the main access be from Benambra Road as close as possible to Olympic Highway. The provision of crossing points on Schneiders Road was considered appropriate to provide for access between the two separable portions of the site and to have minimal impact on other road users.

[1] As per the definition for *Vehicle Movement* in the Conditions of Consent as 'one vehicle entering and leaving the site'

Summary of 2019 assessment

The primary impacts of the project were considered to be related to activity during the anticipated 16-20 month construction period. It was found possible that the additional construction traffic will result in some additional delays and queues particularly for traffic travelling along Benambra Road and at the intersection with Olympic Highway. Once fully operational, it was found the subject site will generate minimal traffic due to the small number of full-time employees with negligible impact on the traffic operating conditions.

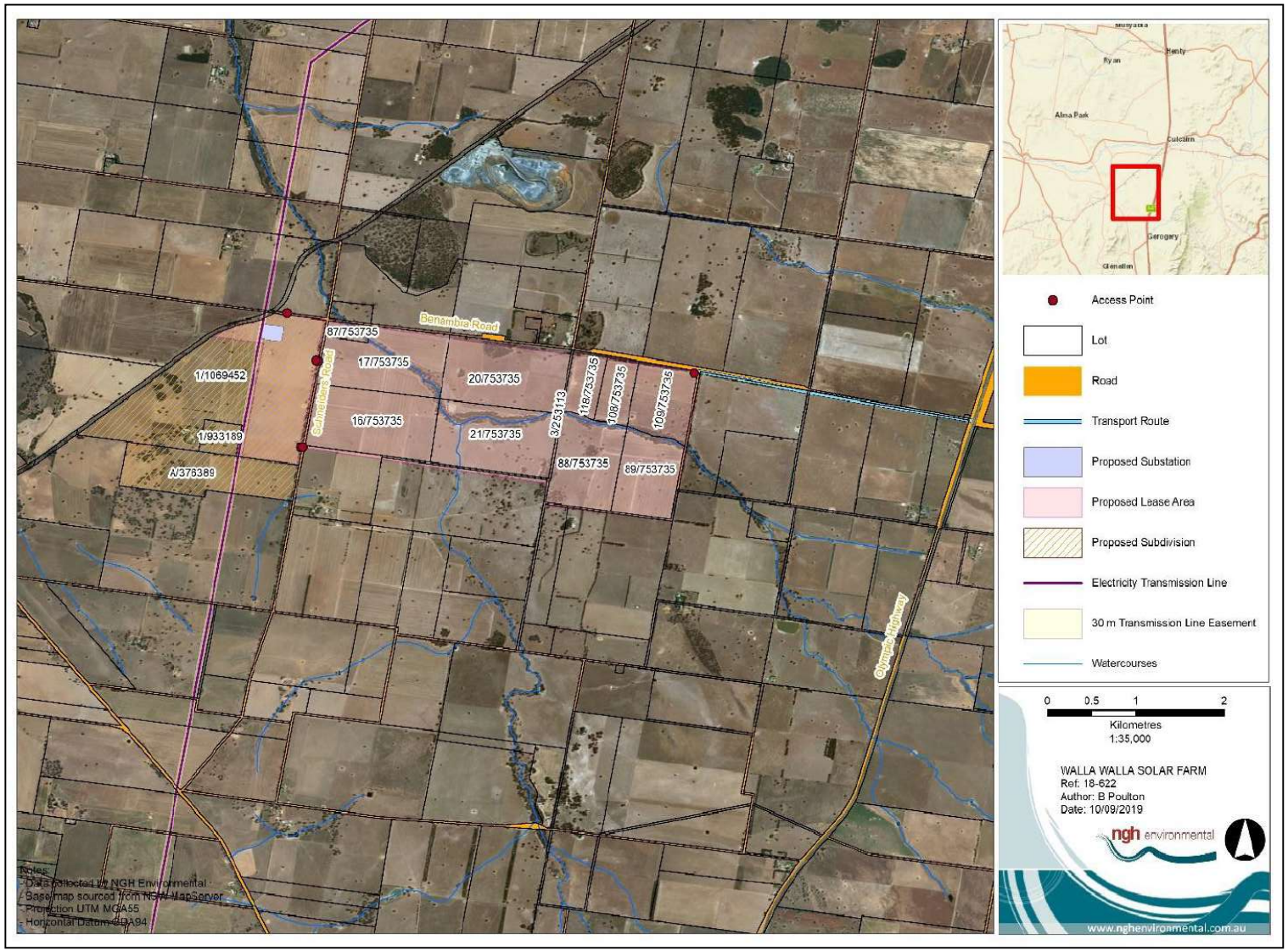

Figure 3 Approved access points to the site (source EIS (NGH Pty Ltd 2019))

Assessment of potential impact

Based on similar recent project experience TransGrid have estimated the following personnel on site and vehicle movements to the substation along Benambra Road from the Olympic Highway during peak periods relevant to specific activities.

- 30 persons
- 15 light vehicles per day
- 10 heavy vehicles per day.

The following normal construction hours would apply with vehicle movements expected during these times:

- 7am-5pm, Monday to Friday
- 8am – 1pm, Saturday.

Traffic control measures for construction and over dimensional vehicle access would be outlined in the project's Traffic Management Plan.

The use of Benambra Road and the Substation access by over-dimensional vehicles has been previously assessed and approved.

Road capacity

Based on the predicted construction personnel and vehicle volumes the estimated daily traffic volumes required for this modification are outlined in Table 3 compared to the approved traffic impacts on road capacity.

Based on existing traffic volumes, there are approximately 121 daily vehicle movements on average along Benambra Road west of Schneiders Road. This includes an average of 35 heavy vehicle movements per day. Currently, the conditions of consent prevent the development from using this section of Benambra Road during construction, with the exception of over-dimensional vehicles.

The proposed modification would result in up to 50 additional one-way vehicle movements per day along Benambra Road, west of Schneiders Road. It is acknowledged that the majority of these movements would likely occur within the AM or PM peak periods.

These vehicles would not be in addition to the vehicle limits as described in the EIS, and no increase to the approved maximum daily vehicle limits is proposed as part of this modification. As shown in Table 3, Benambra Road has sufficient capacity to accommodate the additional 50 vehicle movements, even within peak periods, without significantly impacting the road's overall performance.

There are approximately 134 daily vehicle movements on average along Benambra Road east of Schneiders Road. There would be no additional vehicle movements above what has previously been assessed and approved by the Department, in its assessment of the original DA.

The future traffic conditions along the primary corridors, during and after the substation construction phase (estimated 6 -12 months) can be summarised as follows:

- Benambra Road eastbound (west of Olympic Highway) – will operate above a satisfactory level.
- Benambra Road westbound (east of Cummings Road) – will continue to operate above a satisfactory level.
- Schneiders Road northbound (south of Benambra Road) – will operate above satisfactory level.
- Olympic Highway – no change.

Table 3 Existing road capacity compared with predicted movements

Road/Section	Existing Average Daily Volume	Existing Capacity	Existing AM Peak Volume	Approved AM Peak Volume during solar farm construction	Proposed AM Peak Volume during substation construction
	(one way movements per day)	(one way movements per hour)			
Benambra Road east of Primary Site Access	>134[1]	>600[1]	>5[1]	100	No change
Benambra Road west of Primary Site Access and east of Schneiders Road	134 (including 33 freight)	600[2]	5	10	15 light vehicle[3] 10 heavy vehicle
Benambra Road 100m west of Schneiders Road	121 (including 35 freight)	600	4	10	
Schneiders Road between Rockville Road and Benambra Road	65 (including 2 freight)	450-600	4	10	No change
Olympic Highway east of Benambra Road		1000-1500	unknown	unknown	No change

[1]*Volume and capacity not previously reported but assumed greater on sealed section than worst case capacity on unsealed section.*

[2]*Assumes worst case capacity of unsealed section of Benambra Rd 100m east of Schneiders Rd*

[3]*Assumes all estimated daily sub-station related construction vehicles travel to site in peak am period*

Intersection capacity

Based on the traffic flows estimated, the Schneider Road and Olympic Highway intersections are expected to continue to operate within capacity.

Parking Impacts

There are no anticipated changes to construction parking impacts.

Public Transport Impacts

In addition to over dimensional vehicles there is the potential for buses to pass construction traffic on the unsealed sections of Benambra Road. Ongoing consultation with bus route operators will occur during development of the Traffic Management Plan to ensure any additional mitigation measures are considered and implemented where necessary.

Operational Impacts

There are no anticipated changes to operational impacts.

Consultation

FRV consulted with Council regarding road capacity, conditions and dust suppression.

Council advised that whilst the upgrade of Benambra Road currently formed part of its Delivery Program, no firm dates or commitment had been made at this stage regarding to undertake these works.

Council did not raise objection with FRV's approach to use the unsealed section of Benambra Road, as long as the condition of Benambra Road was maintained throughout the construction period, in accordance with the conditions of the development consent.

Ongoing consultation will be undertaken with stakeholders during preparation of the project Traffic Management Plan.

Cumulative Impacts

There are no known external projects or activities that would be affected by utilising the unsealed section of Benambra Rd between the solar farm access and the substation access during construction of the substation.

Decreasing the vehicle movements into the main solar farm access will temporarily lessen the previously considered cumulative impacts of vehicles ingressing and egressing the solar farm on local, quarry and other potential solar farms using Benambra Road between the Olympic Highway and Weeanera Road.

The use of Benambra Road and the substation access for a small limited number of over-dimensional vehicle deliveries has been previously assessed and approved.

Mitigation Measures

Mitigation measures presented in the TIA (Ontoit, 2019) included:

- Undertake a road dilapidation survey and report prior to and post construction activity. Any identified deterioration to the existing road network in the vicinity of the proposed solar farm will need to be returned to the same standard as pre-construction.

- Construct the main access point at the north eastern corner of the development site on Benambra Road. This option would enable free flowing traffic during the construction period, minimising delays, while improving safety and visibility.
- Construct the sub-station access point for the TransGrid substation on Benambra Road, to the west of Schneiders Road, to be used for transformer delivery and operations.
- Maintain access points on Schneiders Road and provide signage warning local traffic of construction vehicles crossing the road.
- Traffic data be collected at the Olympic Highway and Benambra Road intersection to more accurately assess impacts of the construction activity on existing traffic operations.
- Further information regarding the level of activity of light goods and service vehicles during both the construction phase and operational phase would assist in understanding site requirements when preparing the Traffic Management Plan prior to construction.
- Traffic travel pattern data relating to both the quarry and the proposed solar farm would assist in understanding the impact on intersections surrounding the site prior to construction.
- A Traffic Management Plan should be produced and approved prior to the commencement of any activity at the site.
- The Traffic Management Plan should note the operating hours of the school bus route on Benambra Road and incorporate this into construction phase operational planning.
- A temporary car park facility should be constructed on the subject site to provide for the anticipated construction staff vehicles.
- The proponent could consider contracting a local based bus company to provide a shuttle bus service for transporting construction staff movement to and from site.

The existing mitigation measures are considered adequate and provide for addressing potential impacts at appropriates project timing.

References

Ontoit 2019, *Walla Walla Solar Farm Project Traffic Impact Assessment*, prepared for NGH and FRV.

NGH Pty Ltd 2019, *Walla Walla Solar Farm EIS*, prepared for FRV.