Hay Solar Farm Development
Traffic Impact Assessment Report

F8487

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SURVEYING

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IRRIGATION

PROJECT MANAGEMENT

Version	Doc version	Written by	Approved by	Date issued
1	Draft	Mark Carter		10/02/2019
2	Issued for Approval	Mark Carter	Mark Carter	15/02/2019

Project Details

Project Name	Hay Solar Farm
Client	ITP Renewables
Report Authors	Mark Carter
PMC Project Reference	F8487

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1 Introduction

This report entails a Traffic Impact Assessment Report (TIAR) for the development of the Hay Solar Farm on the Mid Western Highway (B64). The TIAR will review, traffic volumes, traffic growth and accident statistics to evaluate the adequacy of the proposed works for safe operation of the intersection into the future. A new site access has been proposed on the south west of the Mid Western Highway.

The traffic and transport implications of the proposed development are documented in this report.

2 Existing Conditions

2.1 Location

The subject site is within the 'Primary Production' land zone. The site is located on Lot 110 DP1187931, Mid Western Hwy, Hay, NSW 2711 (referred to as "Hay 2A"). The development falls within the Hay Shire Council area.

The site is located north of the Mid Western Highway on the outskirt of Hay township. Across the unmade roadway to the west, the site adjoins RU5 zoned land. There is a power substation facility on the adjoining land west of the site. The proposed solar site is currently used for primary production and has been flood irrigated via a central channel.

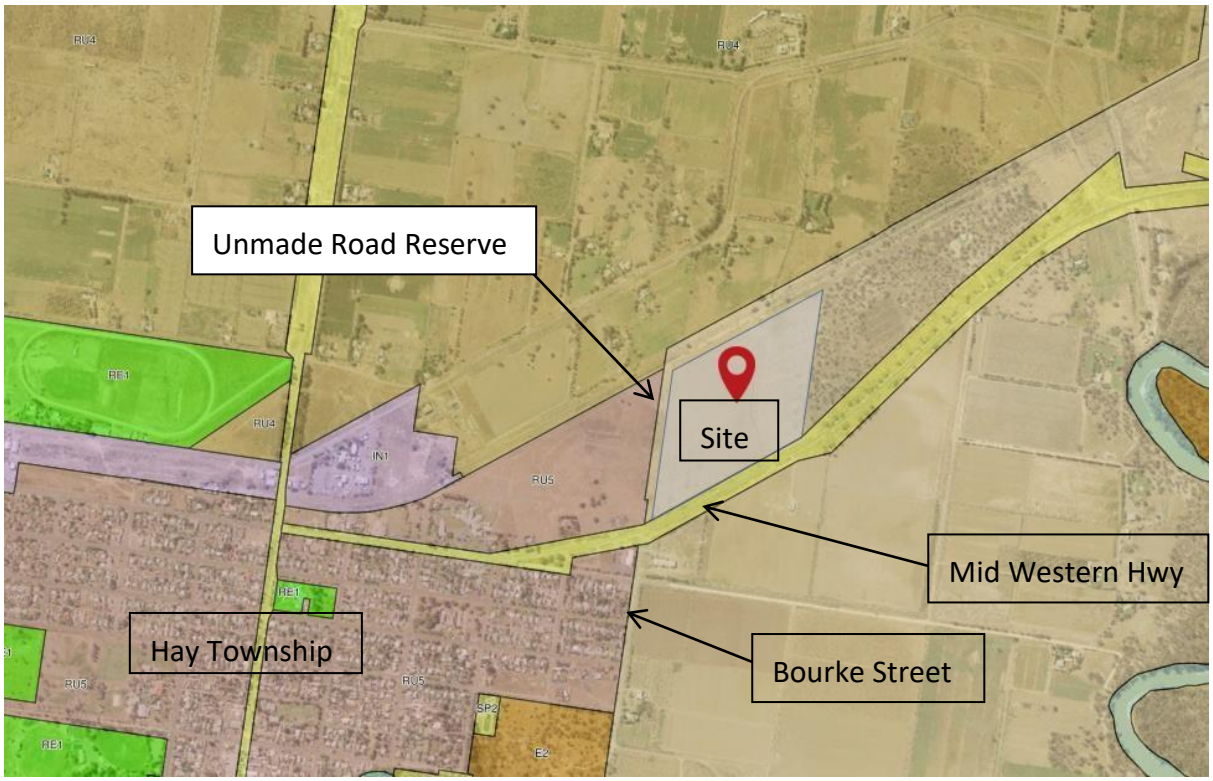


Figure 1 – Site Location (Image from NSW Planning Portal)

Property Report for Mid Western Highway, Hay, 2711

Property Details

Address:	Mid Western Highway, Hay, 2711
Lot/Section/Plan no:	110/-/DP1187931
Council:	HAY

Planning Controls associated with this property

Land Zoning

- RU1 - Primary Production : (pub. 2011-12-09)

Bushfire Prone Land

- Vegetation Buffer

Land Application LEP

- Included : Hay Local Environmental Plan 2011 (pub. 2011-12-09)

Minimum Lot Size

- AC - 90.00 ha : Range [500000 - 999999 sqm (50 - 99.9 ha)] (pub. 2011-12-09)

Other spatial data associated with this property

Local Government Area

- Hay

Suburbs

- Hay

Figure 2 – Property details

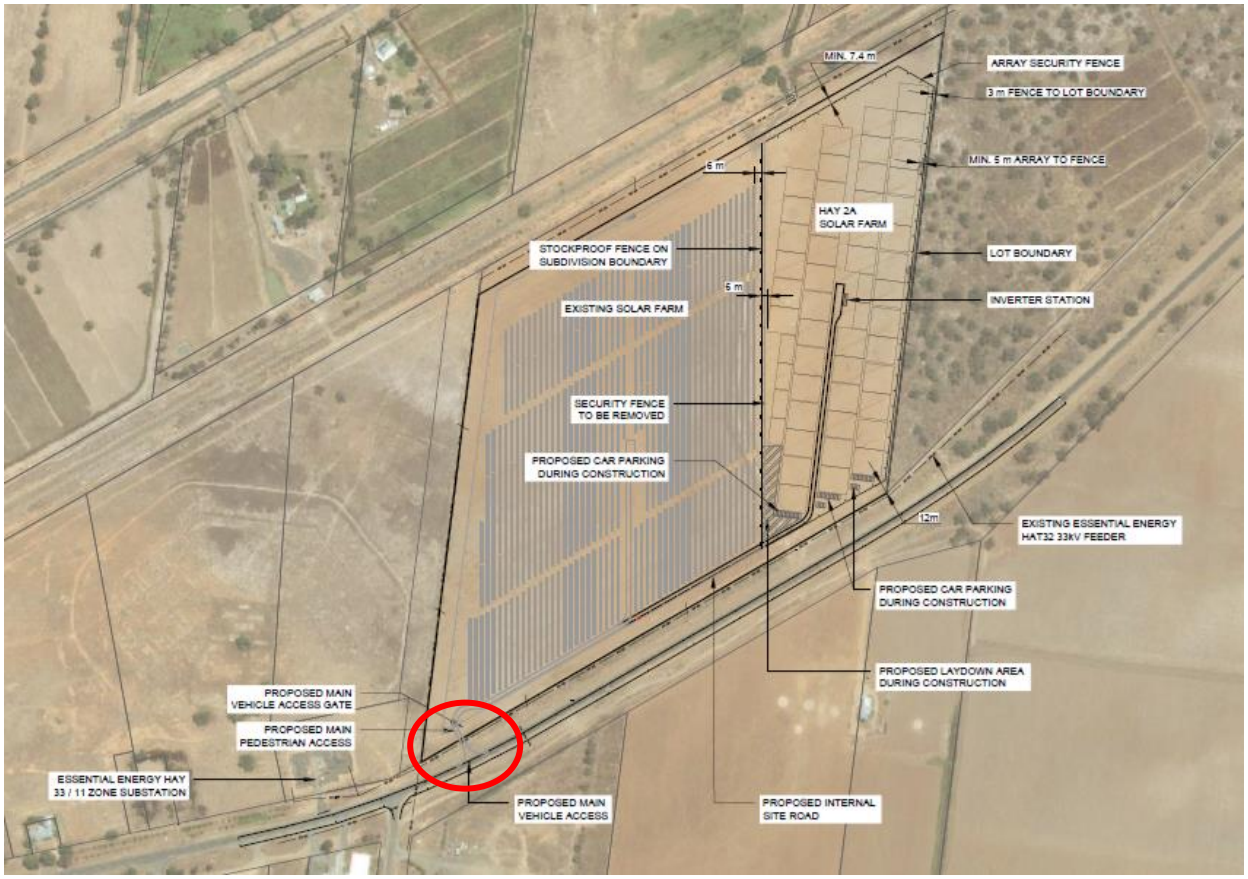


Figure 3 – Proposed Solar development and access point

2.2 Existing Access Arrangement

The existing site is accessed from the Mid Western Hwy (B64) at the south east side of the property as shown in Figure 3. There is an unmade road reserve running along the western and northern boundary to the property.

The existing access to the property is located approximately 115m from the eastern boundary of the site. The access is dirt surface and gate is located approximately 27m from the edge line.

Safe intersection site distances should be provided for access points. The existing access is within the 110 km/hr zone and therefore would have SISD of 285m for a reaction time of 2.0 sec.

2.3 Mid Western Highway

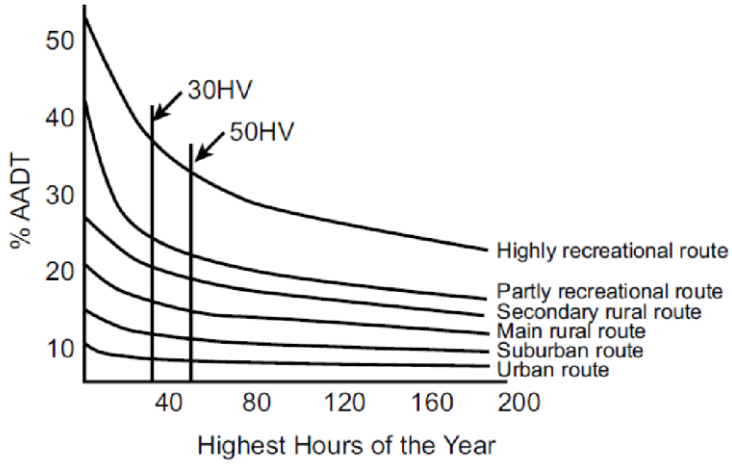
Mid Western Highway is a 522-kilometre state highway located in the central western and northern Riverina regions of New South Wales, Australia. The highway services rural communities and links the Great Western, Mitchell, Olympic, Newell, Cobb and Sturt highways. The Mid-Western Highway forms part of the most direct route road link between Sydney and Adelaide, with its eastern terminus in Bathurst and western terminus in Hay.

The speed limit on the Mid Western Highway road fronting the site ranges from 50km/hr on the west end and changes to 110 km/hr approximately 165m from the western boundary.

Lane widths on the Mid Western Highway near the western boundary are approximately 3.5m with 0.8m sealed shoulders and roughly 0.6m unsealed shoulder.

Traffic count data on the Mid Western Highway at the location of the solar site are:

- Two way, average daily volume : 776
- Heavy vehicle percentages (class 3 to 12) : 44 %



- Peak hourly can be estimated based on 15% ADT based on the Austroads chart, which is 58 VPH.

3 Proposal

The solar farm is to have a DC capacity of 8MW and will cover an area of approximately 6.2ha which will take up approximately half of the site.

During construction phase there will be a large number of heavy vehicles (19m) accessing the site delivering panel components.

It is likely take up to 10 weeks to complete delivery of equipment. Installation of the components will be occurring during delivery therefore completion of the site should occur within approximately 12 weeks. Upon completion of construction, the traffic generation at the site will be very low and only comprise the infrequent service vehicles.

During the construction phase the work site will involve the following:

Week 1 – 2

Establishment phase

Earthworks and general site establishment and fencing to construct new access and site compound development. This will comprise graders, rollers and water carts.

The existing access would be used during the initial works until the new western access point is accessible.

Likely traffic generation during this period is:

- 6 to 8 light vehicle trips per day (earthworks contractor's staff 4-5).
- 10-15 Truck and trailer loads of gravel over approximately 2-3 days

Week 3-10

Construction Phase

Main construction of piers, installation of panels and underground infrastructure.

Site operation includes:

- 50 construction workers
- Operating hours 7am to 4pm Monday to Friday
- Potential shuttle bus service to and from the site.

Expected traffic generation during the construction phase will be:

- 33 Semi Trailers (19m articulated) including
    - 6 for site establishment (buildings etc)

- 2 for delivery of inverters
- 12 for delivery of mounting systems
- 7 for delivery of balance of system
- 6 for demobilisation

- 20 x B Double (26m articulated) for PV Module delivery

Week 10-12

Commissioning

Specialist electrical contractors will commission the site through light or heavy rigid vehicles 12m.

- 10 construction workers
- Operating hours 7am to 4pm Monday to Friday

Transport Route

The trucks delivering the solar system will likely come from Melbourne which would take a route through Shepparton, Tocumwal, Finley, Deniliquin and up the B75 to Hay and turn onto the B64- Mid Western Highway.

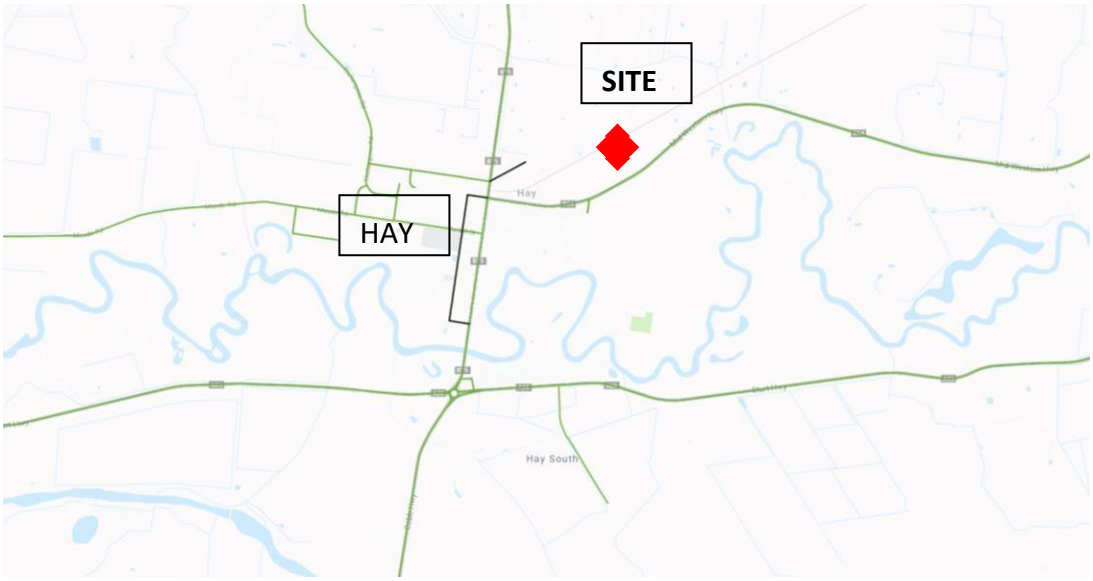


Figure 4 – B Double approved Roads – RMS interactive map.

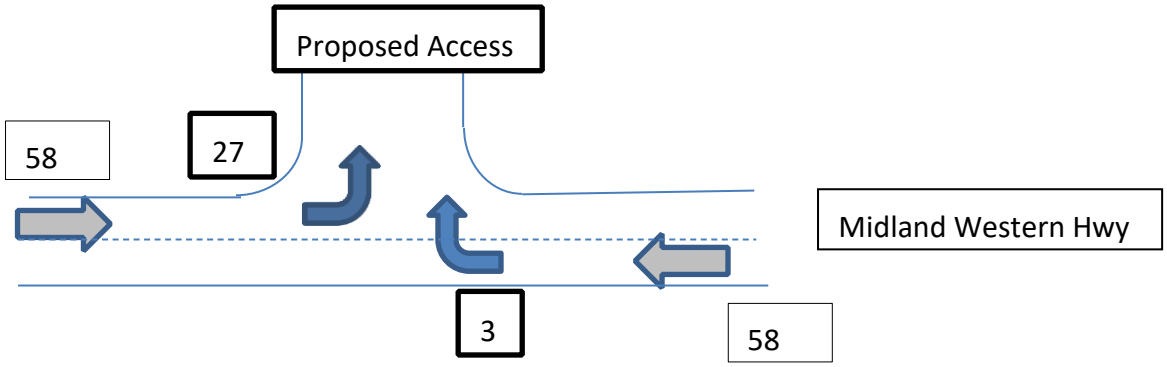
4 Traffic Engineering Assessment

4.1 Traffic Impacts

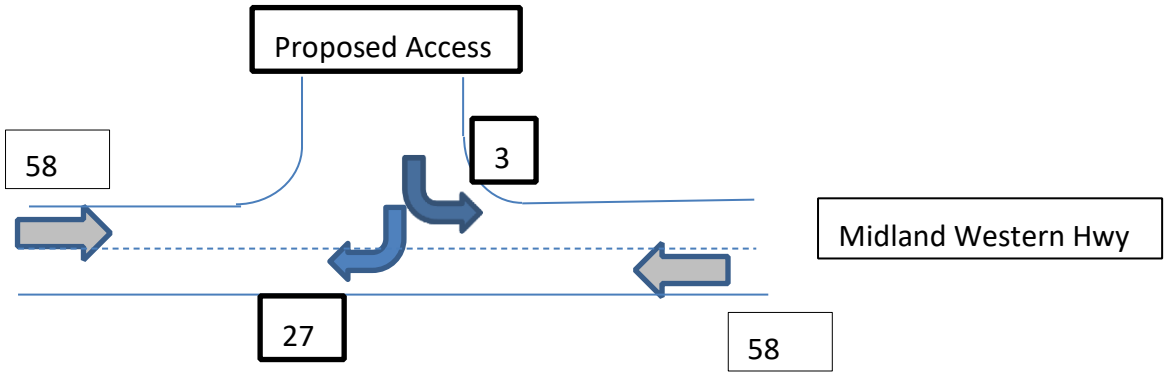
During the 12-week construction period up to 48 semi-articulated trucks and 20 B-Doubles will access the site with an expected daily maximum likelihood of 4 trucks. The trucks will access the site throughout the day generally between 10am and 2 pm and would therefore not contribute to morning or afternoon peak hour.

Construction workers are likely to be in the order of 20-30 vehicles entering the site in the morning between 6:30 to 8:00am and leaving at the afternoon peak around 4:00 to 5:00pm. These will be light vehicles and or shuttle bus service. These movements are expected to be 90% between Hay township and the site, therefor predominately left turn in to the site during the morning peak and right turn out of the site in the afternoon.

AM Peak



PM Peak



The turning movements are very low and impacts from short term construction works will be minimal.

4.1 Proposed Site Access

The proposed access for the development has been located towards the western end of the site within the 50 km/hr zone. The reduced speed zone will lessen the impact if the current site access were to be used and also move the access closer to the RU5 zoning. The proposed access would be located on the inside of a large radius bend (900m) however this would not impact the sight lines.

The new access would accommodate a 19m vehicle and have minor alterations to the fence to allow 30m between the new gate and the northern edge line of the Mid Western Highway.

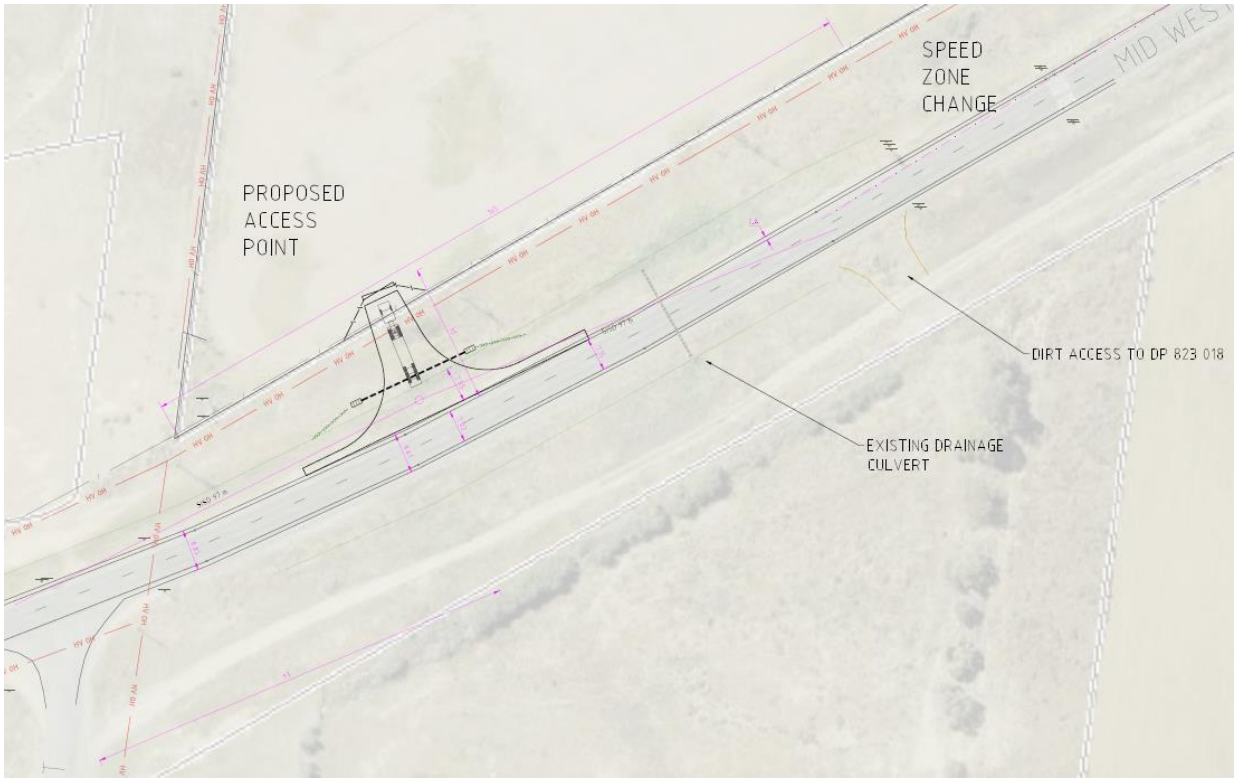


Figure 5 – Proposed western access arrangement

5 Conclusion

The relevant documents, plans and traffic counts have been perused for access requirements to the proposed solar farm development off the Mid Western Highway.

The main findings and proposed upgrades are outlined below:

Recommendations

i. The existing access point to Lot 110 DP 1187931 should be relocated to improve safety during the construction phase.
ii. Proposed access point is suitable and there are no major geometry issues.
iii. Dilapidation survey to be undertaken prior to construction works.

Findings iv. Sight lines for the proposed access are adequate.
v. Separation distances from existing driveways to the proposed access are adequate.

Proposed Works iii. New culvert under proposed western access.
iv. New access to be designed and constructed to a standard to accommodate initial construction phase.
v. Construction vehicle signs to be erected during construction phase to notify motorist.

6 References

- Austroads Guide to Road Design Part4A: Unsignalised and Signalised Intersections (2017)
- Austroads Guide to Road Design : Part 3 (2016)
- Austroads Guide to Traffic Management Part 3: Traffic Studies and Analysis (2017)
- RTA traffic NSW Guide to Traffic Generating Developments (2002)