Boorowa Solar Farm

Traffic Impact Assessment Report

F8641

9478 Murray Valley Hwy
PO Box 313
KERANG VICTORIA 3579
Ph: (03) 5452 2490
Fax: 03) 5452 2566
E-mail: pmc@pricemerrett.com.au
www.pricemerrett.com.au

ABN: 62 903 527 353
ACN: 139 256 938

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Project Details

Project Name	Boorowa Solar Farm
Client	ITP Renewables P/L
Report Authors	Mark Carter
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Author: Price Merrett Consulting Pty. Ltd.

Table of Contents

1 Introduction

This report entails a Traffic Impact Assessment Report (TIAR) for the development of the 5.0 MW Boorowa Solar Farm on Meads Lane on the outskirts of Boorowa NSW. 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 of Meads Lane 2.3km south west of Boorowa.

2 Existing Conditions

2.1 Location

The site crosses 8 parcels know as allotment 130-133 & 136-139 of DP2493. It is located on the south west corner of Lachlan Valley Way and Meads Lane Boorowa, NSW 2586.

The development falls within the Hilltops Shire Council on land zoned RU1 'Primary Production'. The proposed solar site is currently used for primary production and has been a grazing paddock.

Boorowa is located approximately 100 km north west of Goulburn and is located centrally on the Lachlan Valley Way (B81). Lachlan Valley Way runs north-south from Cowra to Yass which intersects the Hume Highway near Yass which is on the main route between Sydney and Adelaide (M31).

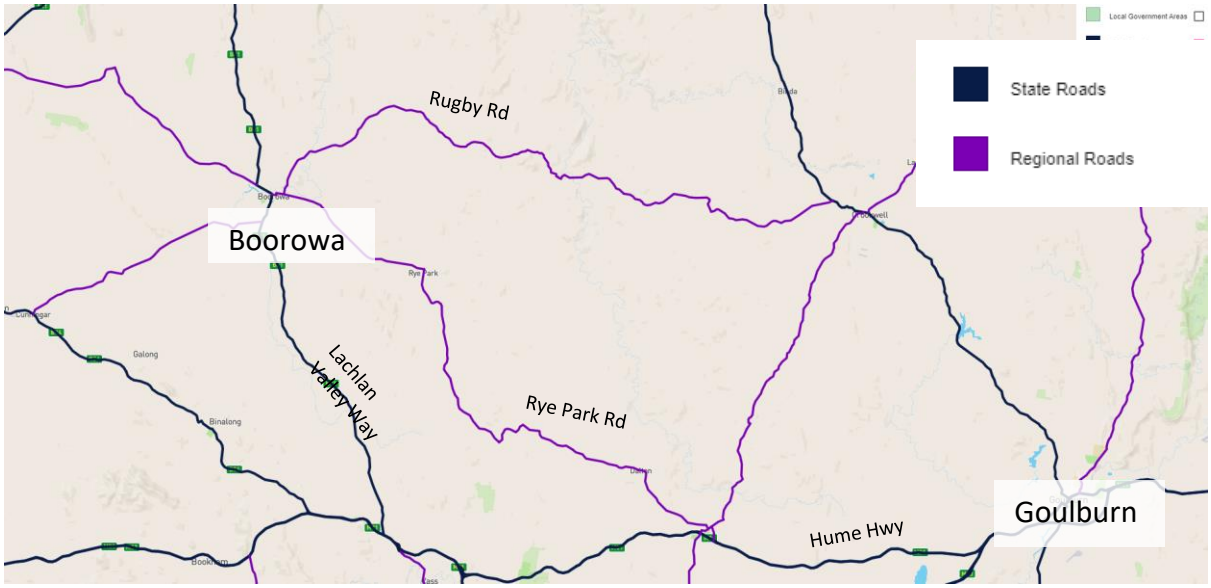


Figure 1 – Locality Map – State and Regional Roads

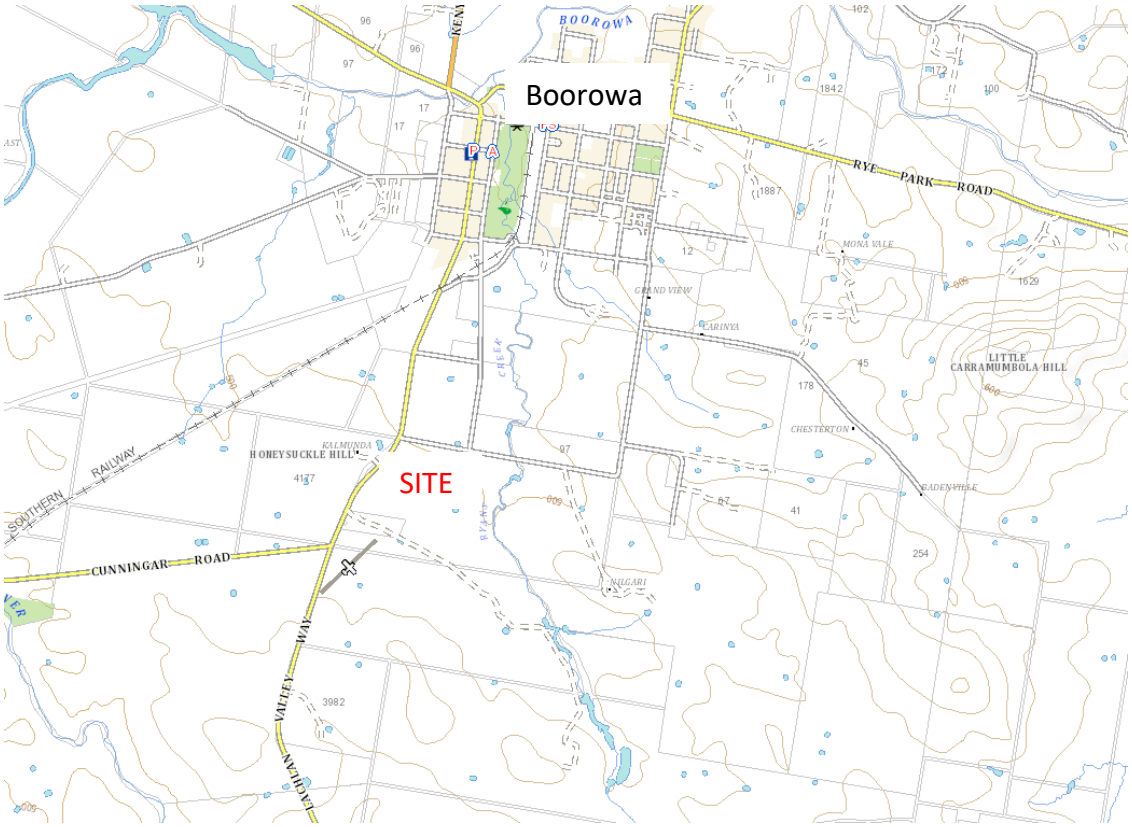


Figure 2 – Site Location

Figure 3 – Development location Google Earth backing

2.2 Access Arrangement

The existing site is accessed from Lachlan Valley Way via a gravel driveway located along the western boundary. This access will remain for the current property surrounding the proposed development. A new access will be located off Meads Lane for the proposed solar site.

Figure 4 – Existing Site Access of Lachlan Valley Way

2.3 Meads Lane

Meads Lane is a local road approximately 5.6m seal width and table drains. The road reserve is 20m in width and falls to the east at a grade of around 1:200. Meads Lane is only sealed from Lachlan Valley Way to approximately 900m then turns to gravel road.

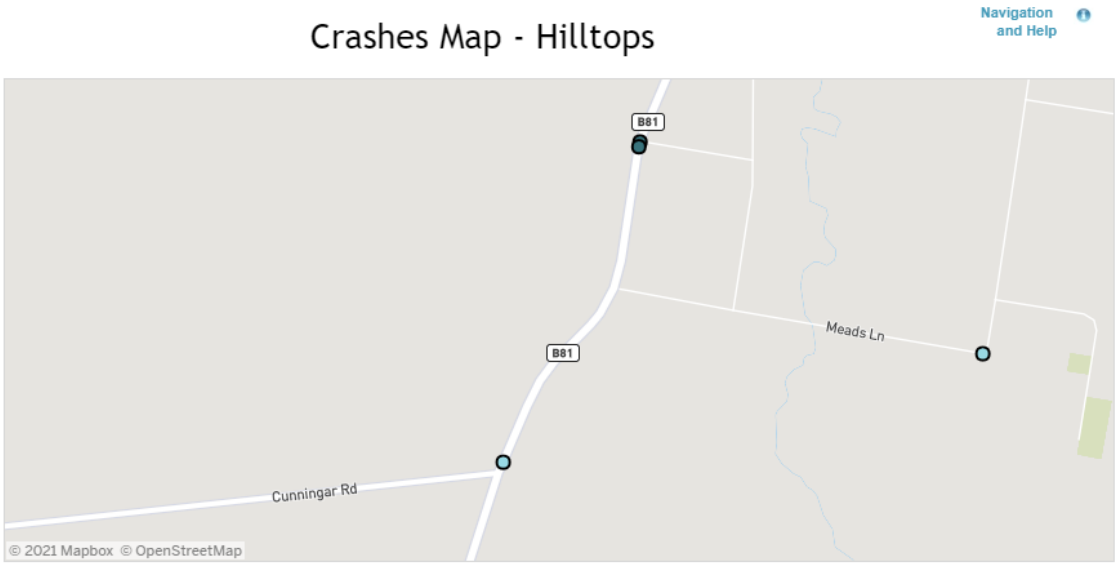
A handful of properties exist along Meads Road and there are currently no major traffic generating facilities along the road. Therefore, traffic numbers are expected to be below 300 vpd.

Services along Meads Lane include overhead power which is located on the north side against the boundary. Telecommunications line run within the property south of Meads Lane Road reserve. Gas is located along the east side of Lachlan Valley Way.

Figure 5 – Meads Lane Looking East at proposed access location (on right)

2.4 Crash History

There are no crash incidents listed at the intersection of Lachlan Valley Way and Meads Lane.



Repo..	Crash ID	Degree of crash	RUM - code	RUM - description	Type of location	Natural lighting	Longitude	Lattitude	No Killed	No Injured
2015	1067104	Minor/Other Inj..	67	Struck animal	Divided road	Darkness	148.705016	-34.464321	-	1
	1067747	Serious Injury	87	Off lft/lft bnd=>obj	T-junction	Daylight	148.711418	-34.451973	-	3
2017	1138674	Serious Injury	71	Off rd left => obj	2-way undivided	Daylight	148.711364	-34.452159	-	1
2019	1215804	Minor/Other Inj..	80	Off left/right bend	L-junction	Daylight	148.727464	-34.460138	-	1

Figure 6 – Crash History from NSW Transport interactive map

3 Development Proposal

The solar development will include 12,100 solar panel PV modules, mounted on a tracking system, and the associated infrastructure to support the use.

Other infrastrcture across the site will include electrical inverters, battery energ storage facilities (BESS), underground and/or above electrical cabling, telecommunications equipment, a substation, amenities and storage facilities, vehicle access and parking areas, along with security fencing and gates.

To facilitate the construction of the facility, a temporary construction compound is required for construction and decommissioning phases of the proposed solar farm. The construction compound would include:

- Temporary construction offices;
- Car and bus parking areas;
- A staff amenity lock (including portable toilets, showers and a kitchen) designed to cater for peak staff numbers during the construction period; and
- Laydown areas.

All land required for the temporary construction compound, if not used as part of the array area, would be restored to its current condition.

The solar development is considered relatively small scale and will have a footprint of less than 11.99 Ha.

The solar farm is to have an AC capacity of 5.0 MW and will cover an area of approximately 11.48ha which will take up approximately a quarter of the overall property of 38.4 Ha.

During construction phase there will be a large number of heavy vehicles (approx. 45 of 26m B-doubles) accessing the site delivering panel components.

It is likely to take up to 12 weeks to complete delivery of equipment. Installation of the components will be occurring during delivery therefore completion of the site should occur within approximately 14 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. Two-way trips).
- 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:

- 45 Semi Trailers 19m (or approximately 30 B-Doubles 26m 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

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

3.1 Transport Route

Equipment for the solar development is likely to be transported on trucks from Sydney. Figure 7 shows the likely transport route from Goulburn to the Site.

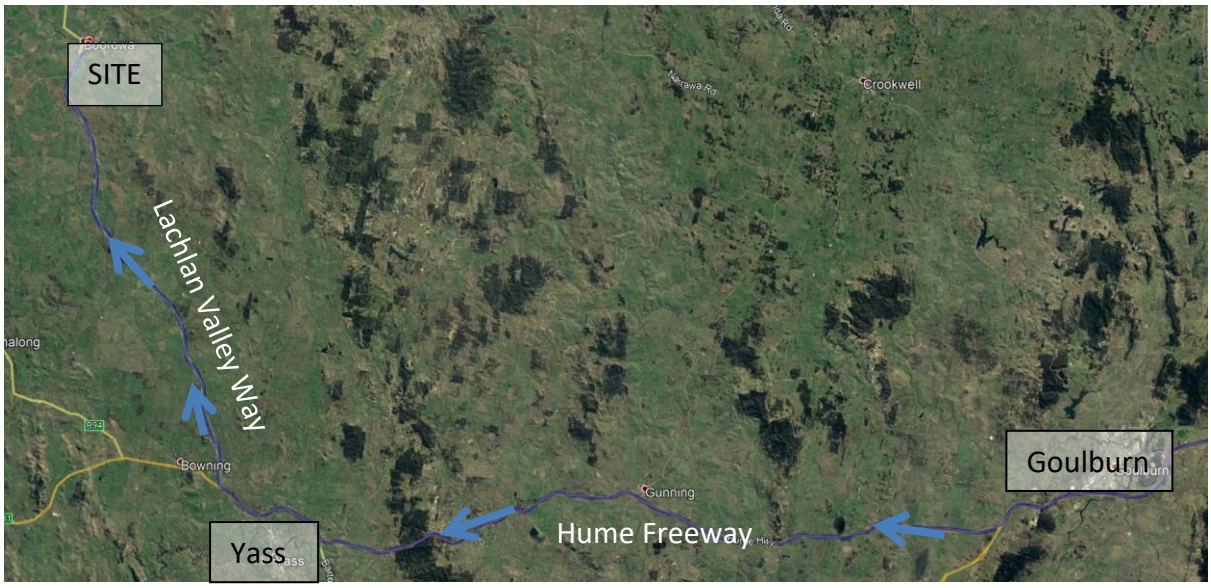


Figure 7 - Vehicle route to site

Figure 7 indicates Lachlan Valley Way is an approved 26m B-Double Roadway. Meads Lane is a local road and may require a permit for B-Double access.

Figure 8 - No B-Double approved routes

3.2 Proposed Access Arrangement

The proposed access off Meads Lane will be located approximately 105m from the intersection of Lachlan Valley Way. The new access will need to accommodate B-Doubles during the construction phase. Once the site is completed traffic generation will be low and typically only light to medium vehicles (class 1 to class 5 vehicles).

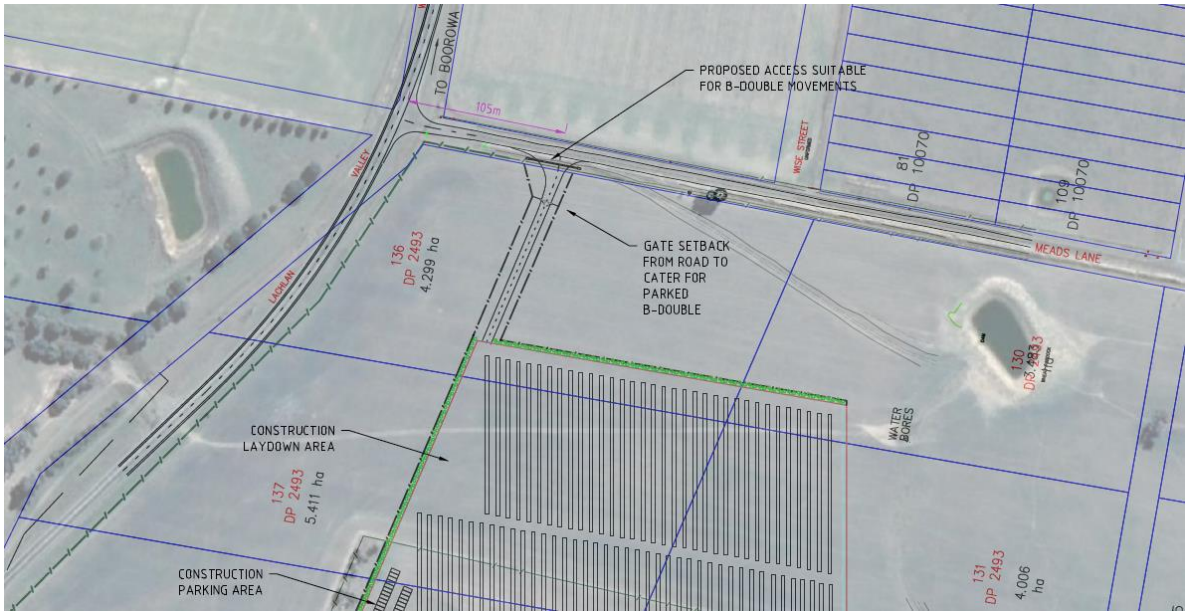


Figure 9 – Site Access Location

Figure 10 – Looking east along Meads Lane with proposed access between sign and tree

Figure 11 – Looking west along Meads Lane from proposed access towards Lachlan Valley Way

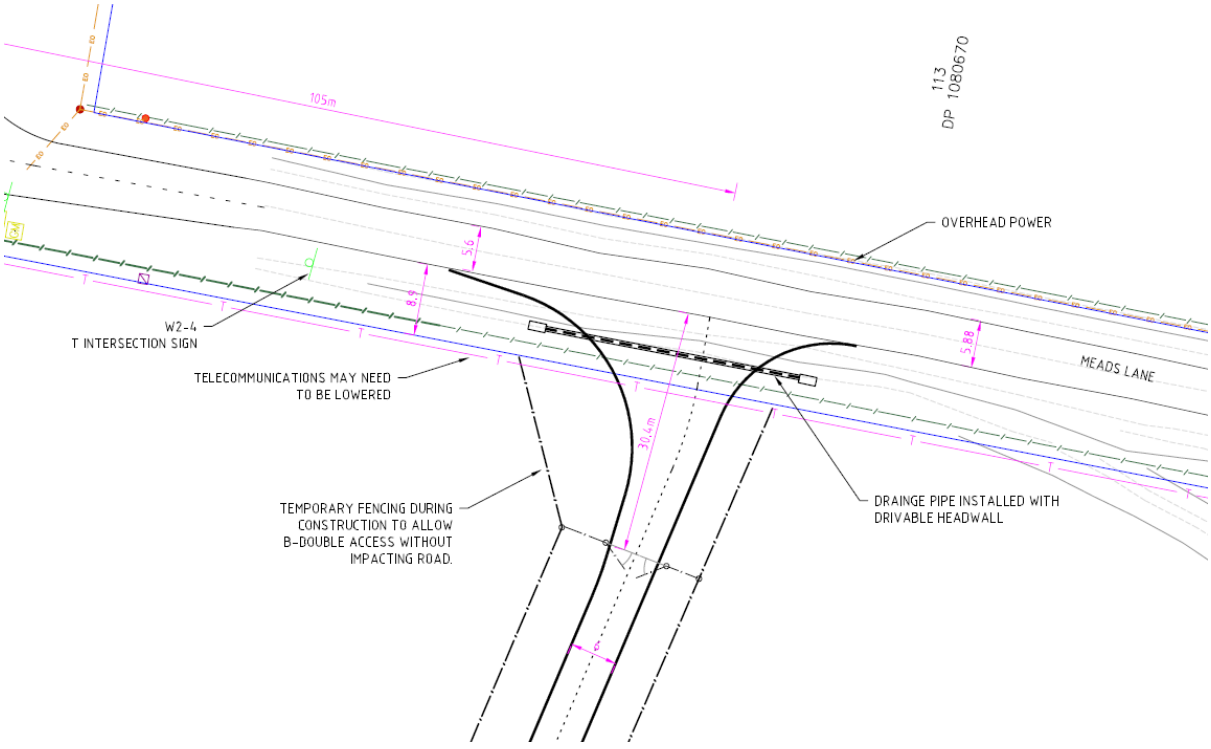


Figure 12 – Proposed Access Arrangement off Meads Lane

The proposed access will accommodate B-Double turning into and out of the site from the west. The existing boundary fence would need to be set back at the access location to accommodate a vehicle pulling off Meads Lane.

A culvert with driveable endwalls would also need to be installed for drainage purposes.

Safe intersection site distances should be provided for access points. The proposed access is within the 100 km/hr zone however vehicle speed coming from Lachlan Valley Way will be restricted due to the short distance (105m) to the access. There are no obstructions at the proposed access that would limit site lines along Meads Lane.

3.3 Existing Intersection - Lachlan Valley Way and Meads Lane

The existing access has sufficient site lines for the 100km/hr zone. The intersection is considered sufficient for the low number of vehicles proposed to access the site during the construction and ongoing operation of the solar farm.

Figure 13 – Site distance looking north from Meads Lane along Lachlan Valley Way

Figure 14 – Site distance looking south at Meads Lane along Lachlan Valley Way

4 Traffic Engineering Assessment

4.1 Traffic Impacts

During the 12-week construction period an estimated 45 B-Doubles will access the site with an expected daily maximum likelihood of 4 trucks non-peak. 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. 40 light vehicle one-way trips for 50 construction workers (worst case without shuttle bus and one person per vehicle). If a shuttle bus is commissioned then service to and from site will be 2 vehicle trips per day.

A maximum of 50 construction workers are likely to generate approximately 35 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. This is based on the number of vehicles being 80% of the workforce. These will be light vehicles and or shuttle bus service. These movements are expected to be 90% between Boorowa township and the site, therefore predominately left turn in to the site during the morning peak and right turn out of the site in the afternoon.

Traffic including truck movements generated at the site are highly unlikely to impact the local traffic conditions due to the low number of vehicles. Further analysis is therefore not deemed necessary.

4.1 Proposed Site Access

The access for the development has been located on Meads Lane which is a low volume local roadway.

The proposed access is located 105m from Lachlan Valley Way ensuring there are no traffic conflicts between the access and the intersection.

The proposed access will accommodate a B-Double vehicle movement.

Fencing alterations would be required to ensure a B-Double can pull off the road and not have the rear block Meads Lane.

5 Conclusion

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

The main findings and proposed upgrades are outlined below:

Recommendations

i. A new access from Meads Lane will need to accommodate B-Double movements.
ii. Permits may need to be sought for B-Double access along Meads Lane.
iii. Dilapidation survey to be undertaken prior to construction works.

Findings

iv. Sight lines for the proposed access are adequate.

Proposed Works

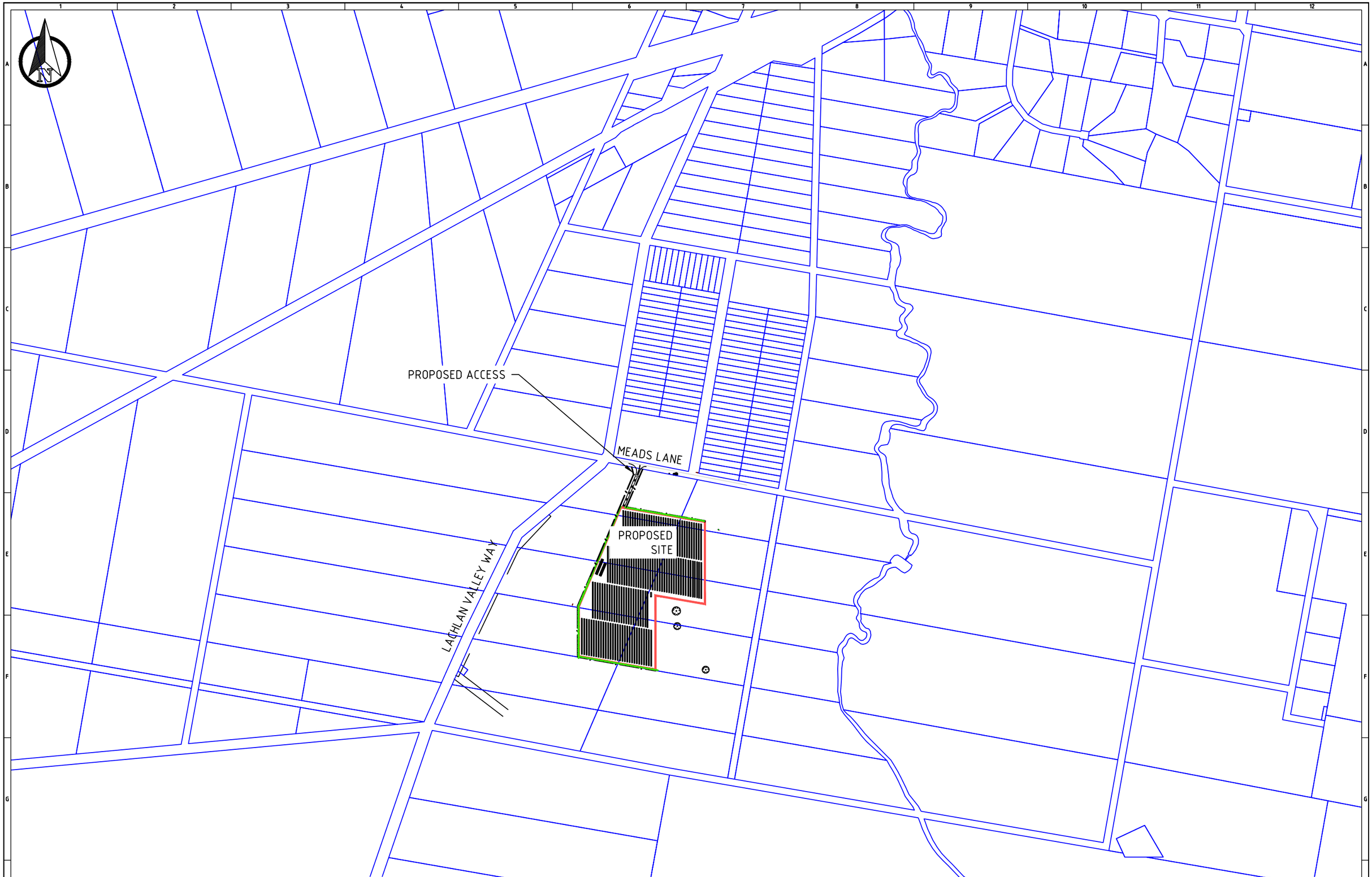
iii. New access to be designed and constructed to a standard to accommodate initial construction phase.
iv. New culvert under proposed access of the access with trafficable headwalls.

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)

7 Appendix A

Drawing



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pricemerrett CONSULTING
Engineers, Surveyors, Irrigation Consultants

Kerang
9478 Murray Valley Highway
PO Box 313
3579 Vic
Ph: (03) 5452 2490
Fax: (03) 5452 2566

Swan Hill
69 Beveridge St
PO Box 1172
3585 Vic
Ph: (03) 5032 3685
Fax: (03) 5032 2472

www.pricemerrett.com.au

Email:
Kerang: pmc@pricemerrett.com.au
Swan Hill: pmash@pricemerrett.com.au

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Engineers, Surveyors, Irrigation Consultants

Kerang
9478 Murray Valley Highway
PO Box 313
3579 Vic
Ph: (03) 5452 2490
Fax: (03) 5452 2566

Swan Hill
69 Beveridge St
PO Box 1172
3585 Vic
Ph: (03) 5032 3685
Fax: (03) 5032 2472

www.pricemerrett.com.au

Email:
Kerang: pmc@pricemerrett.com.au
Swan Hill: pmash@pricemerrett.com.au

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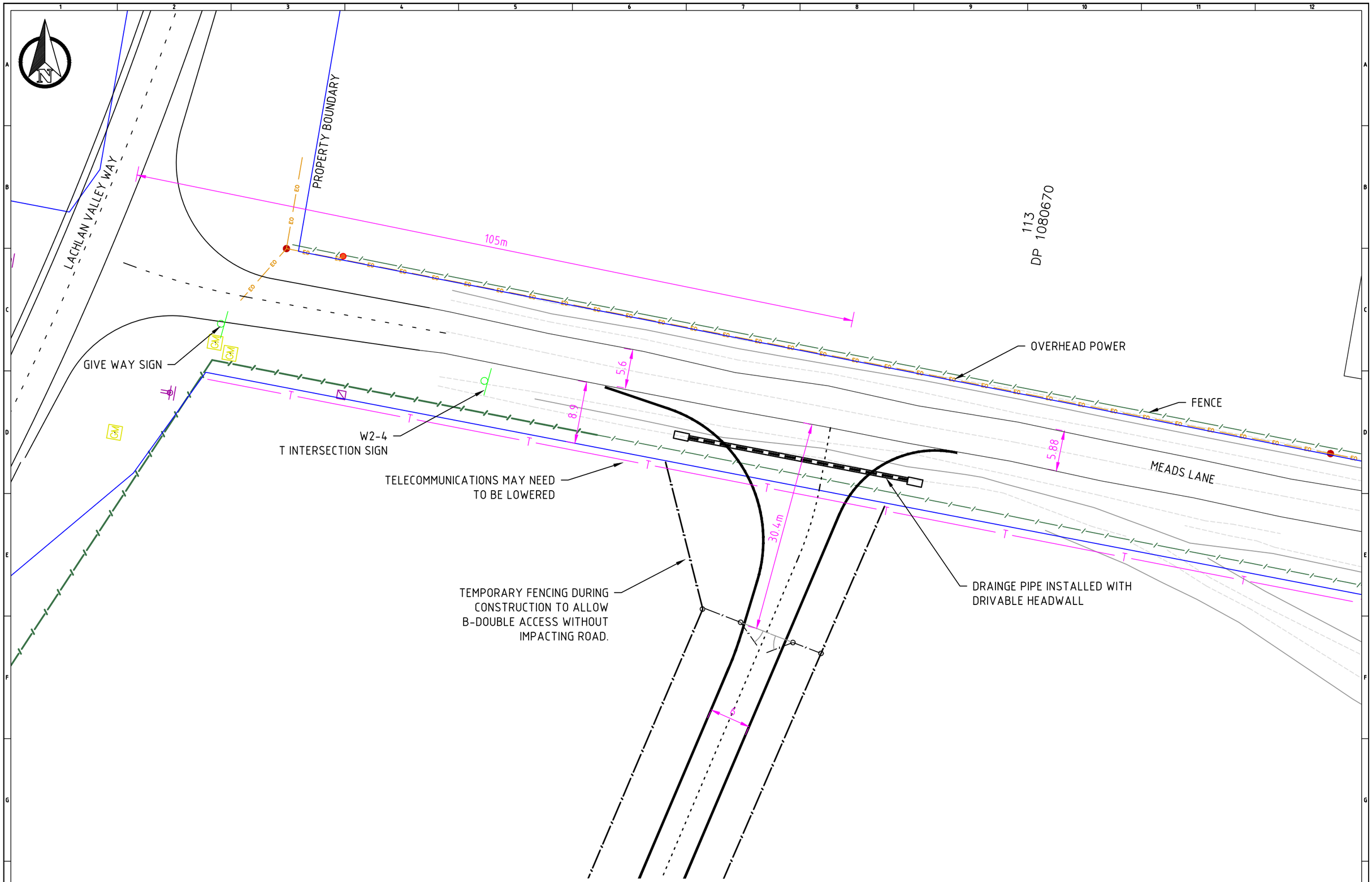

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Kerang
9478 Murray Valley Highway
PO Box 313
3579 Vic
Ph: (03) 5452 2490
Fax: (03) 5452 2566

Swan Hill
69 Beveridge St
PO Box 1172
3585 Vic
Ph: (03) 5032 3685
Fax: (03) 5032 2472

www.pricemerrett.com.au

Email:
Kerang: pmc@pricemerrett.com.au
Swan Hill: pmash@pricemerrett.com.au

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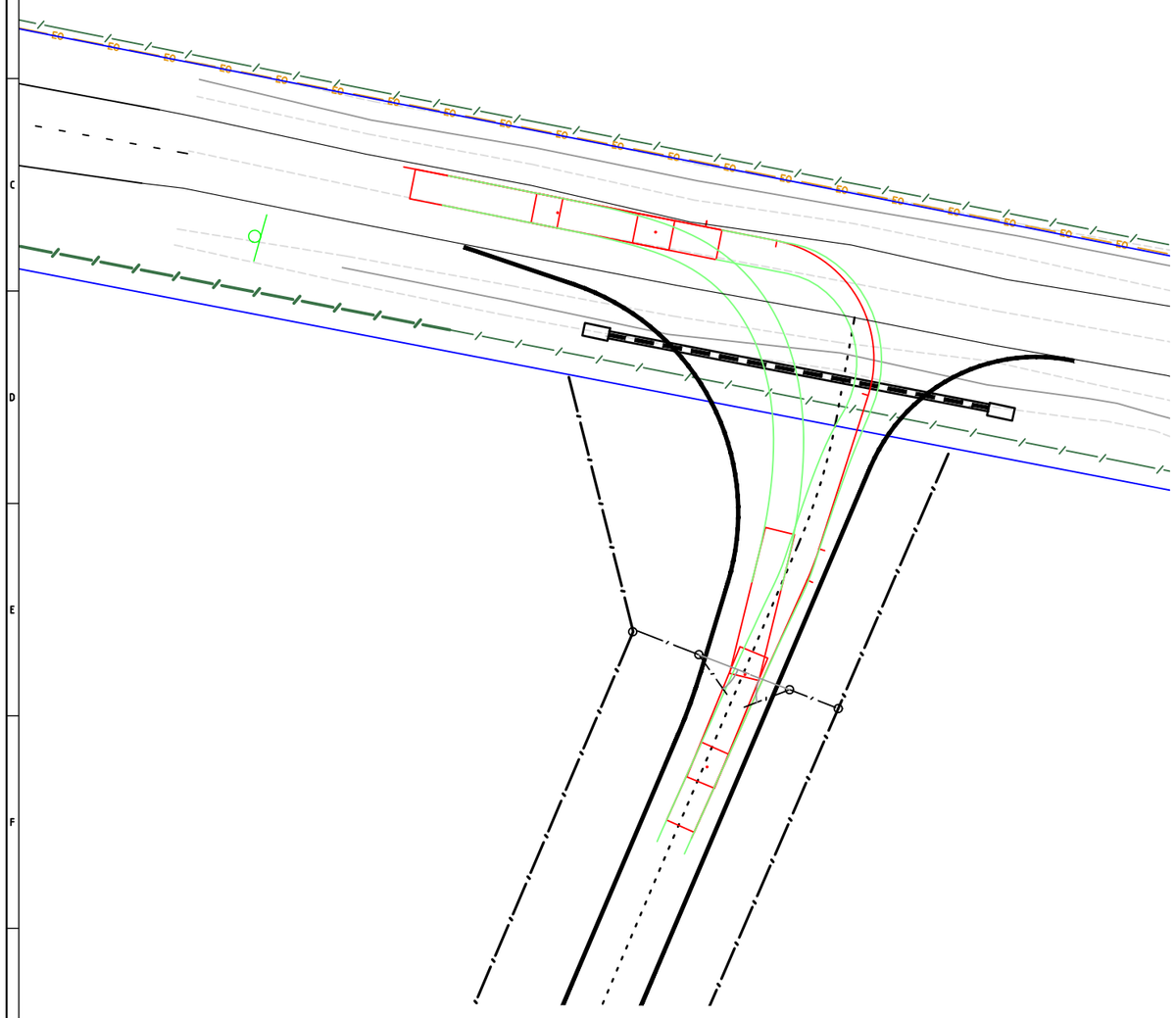
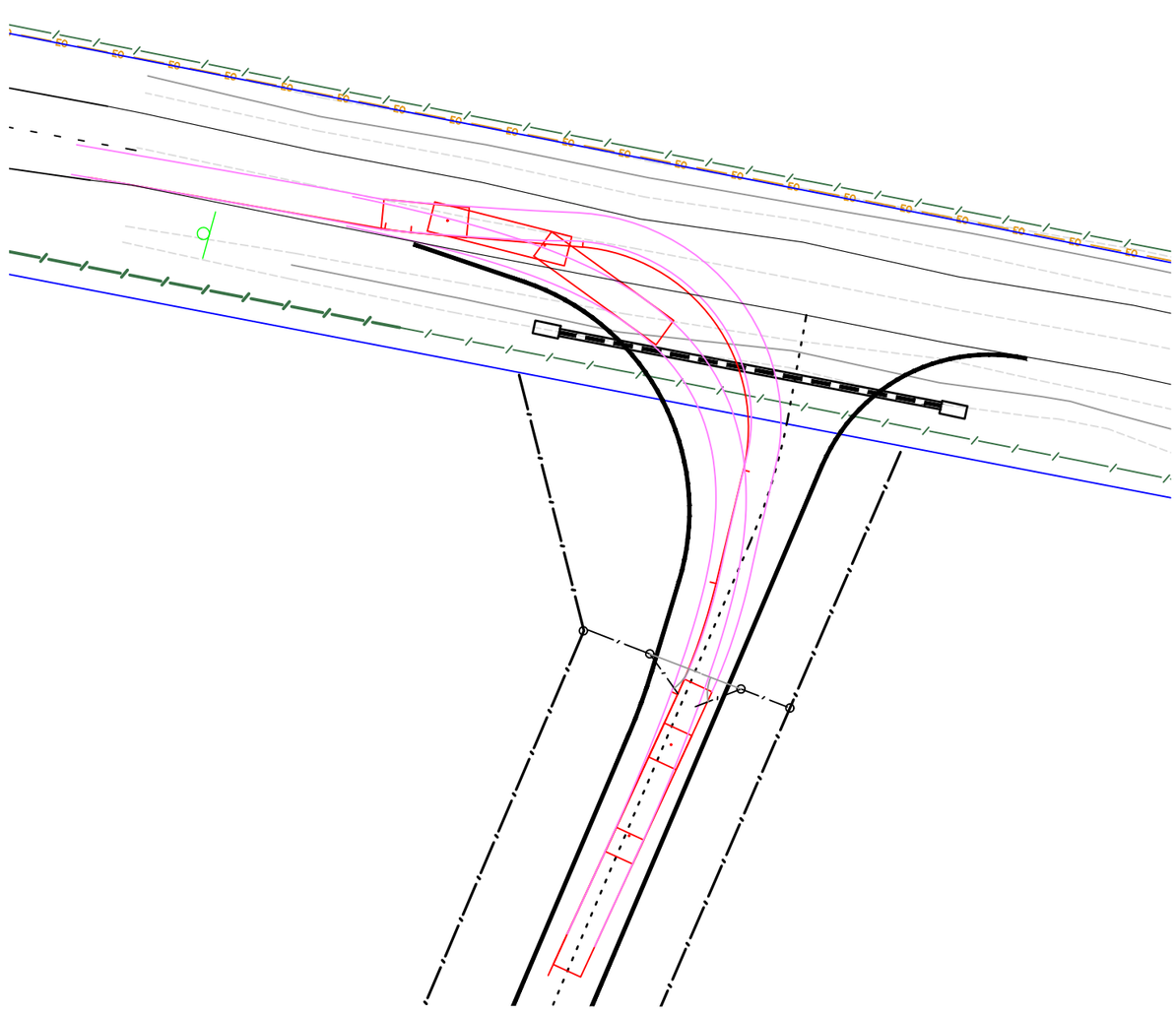


26m B-DOUBLE ENTERING



26m B-DOUBLE EXIT

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Kerang
9478 Murray Valley Highway
PO Box 313
3579 Vic
Ph: (03) 5452 2490
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69 Beveridge St
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Kerang: pmc@pricemerrett.com.au
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