Proposed Establishment of a Railway Freight Terminal

Lots 3, 4 & 5 in DP 1201358
The Irrigation Way, Wumbulgal

TRAFFIC AND PARKING ASSESSMENT REPORT

8 March 2017

Ref 17129

VARGA TRAFFIC PLANNING Pty Ltd
Transport, Traffic and Parking Consultants

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TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

Document Verification

Location:	The Irrigation Way, Wumbulgal	**Job Number**		17129	
Revision	**Details**	**Prepared**		**Approved**	
		By	**Date**	**By**	**Date**
Final	Final for Submission	CP	08/03/17	CP	08/03/17

1. INTRODUCTION

This report has been prepared to accompany a development application to Council for the establishment of a railway freight terminal development proposal on Lots 4 & 5 in DP1201358, The Irrigation Way, Wumbulgal (Figure 1).

The railway freight terminal currently operates out of a premises in Griffith's CBD. The development proposal involves the relocation of the existing facility to the subject site which lies in between Griffith and Leeton, thereby reducing heavy vehicle movements in the CBD. The proposed freight terminal seeks to operate out of the site 24 hours per day, 7 days per week.

The subject site also comprises a number of other businesses including a grain storage and handling facility, a hay storage and processing facility, a cotton module storage and pressing facility and a mainline loading facility for containers and bulk grain from silos. From a traffic generation perspective it is pertinent to note that these existing businesses are seasonal, with different peak periods to each other during the year.

Operational characteristics of the proposed railway freight terminal and the other existing businesses are detailed in Chapter 2 of this report, including staffing numbers, traffic volumes, vehicle types and travel routes.

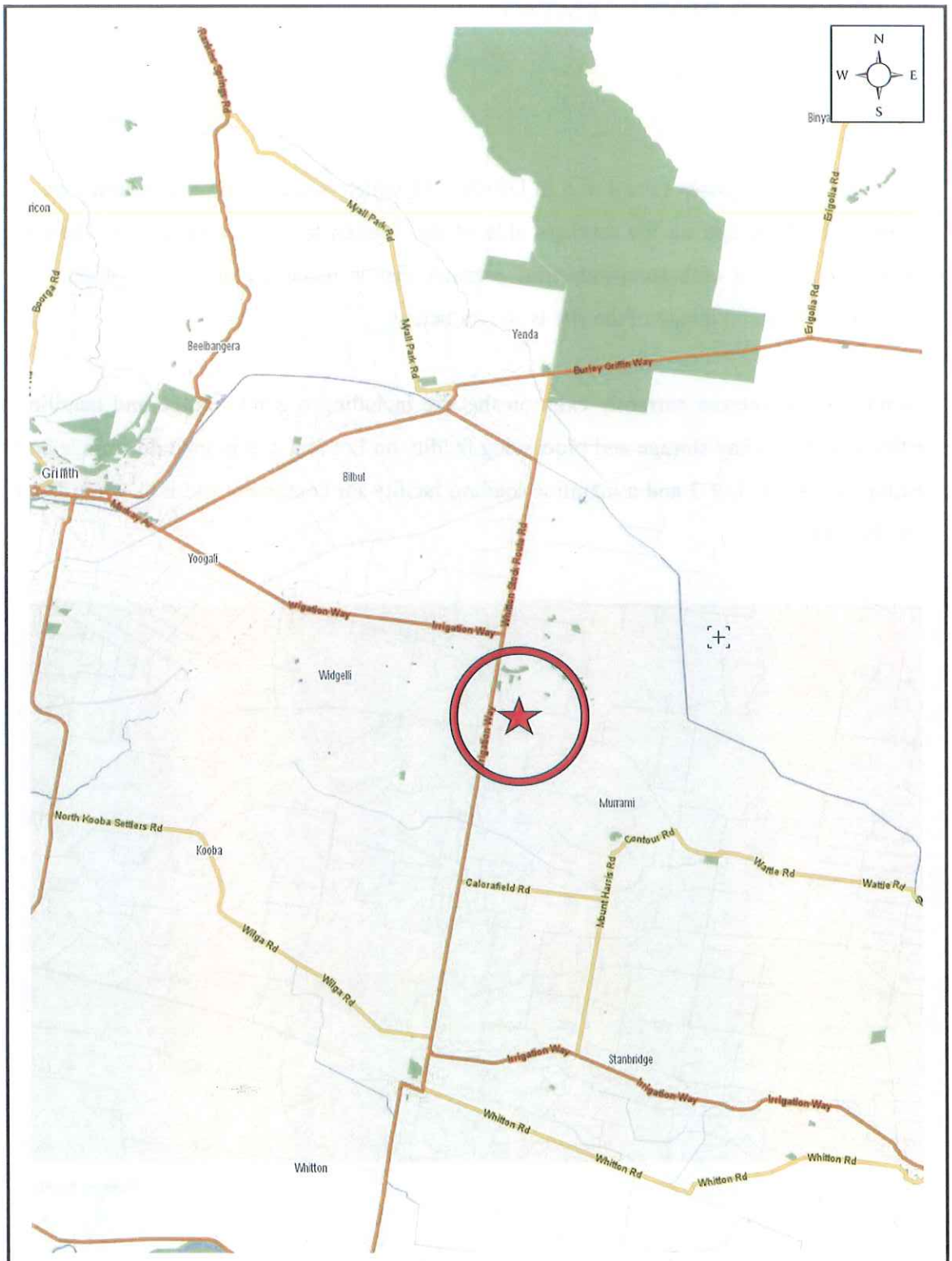
The purpose of this report is to assess the traffic and parking implications of the development proposal and to that end this report:

- describes the site and provides details of the development proposal
- reviews the road network in the vicinity of the site, and the traffic conditions on that road network
- estimates the traffic generation potential of the development proposal, and assigns that traffic generation to the road network serving the site

- assesses the traffic implications of the development proposal in terms of road network capacity

- reviews the geometric design features of the proposed car parking and loading facilities for compliance with the relevant codes and standards

- assesses the adequacy and suitability of the quantum of off-street car parking and loading provided on the site.



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LOCATION
FIGURE 1

2. PROPOSED DEVELOPMENT

Site

The subject site comprises Lots 4 & 5 in DP1201358 which is located on the eastern side of The Irrigation Way and on the southern side of the Temora to Roto railway line. The site currently forms part of a rural-industrial precinct that is made up of Lots 3, 4 & 5 in DP1201358. An aerial image of the site is shown below.

A number of businesses currently exist on the site including a grain storage and handling facility on Lot 4, a hay storage and processing facility on Lot 3, a cotton module storage and pressing facility on Lot 3 and a mainline loading facility for containers and bulk grain from silos also on Lot 3.

Source: SixMaps

Vehicular access to the site is provided via an existing entry/exit driveway located midway along The Irrigation Way site frontage which includes CHR and AUL turning treatments. The intersection treatment was required by the RMS as part of the first development application for the grain storage and handling facility and subsequent development applications for the hay storage and processing facility and then the cotton module storage and pressing facility.

Detailed design drawings of the existing site access driveway, including CHR and AUL turning treatments and B-triple swept turning paths, are reproduced in full in Appendix A.

Proposed Development

The development proposal involves the establishment of a railway freight terminal on Lots 4 & 5 in DP1201358. The freight terminal will be located on what is currently vacant land and will comprise two (2) sidings off the adjoining railway line, hardstand area to load/unload/store containers, vehicle parking areas for trucks and cars and an office building.

Off-street car parking is to be provided for up to 35 cars, including 2 disabled spaces on a new formal hardstand area outside the office building. A further 14 truck parking bays are to be provided to the north of the car parking area and administration building.

The types of vehicles likely to be associated with the railway freight terminal range from passenger cars and vans to semi-trailers, B-doubles and B-triples.

Vehicular access to the site is to be provided via the abovementioned entry/exit driveway off The Irrigation Way which includes CHR and AUL turning treatments. The driveway leads to a 7m wide internal roadway which extends to the rear of the site – i.e. the eastern end – to service the existing businesses located on Lots 3 & 4 in DP1201358.

Plans of the proposed development have been prepared by *Miestudio* and are reproduced in the following pages.

Expected Operational Characteristics

The Western Riverina region of NSW and in particular the Griffith area is a key source of a wide range of agricultural and consumer products including wine, fresh produce, grain and cotton. A large proportion of their products are currently exported via Melbourne and Sydney and rail provides a cost effective and reliable method of enabling products to be forwarded to port in a timely manner.

Considering that trains to/from Griffith are dependent upon timetabling of the wider rail network in NSW and Victoria, the proposed freight terminal therefore seeks consent to operate out of the site 24 hours per day, 7 days per week to enable trains to arrive and depart at different times of the day.

The terminal is expected to generate up to 250 heavy vehicle movements per day (i.e. 125 trips IN & 125 trips OUT), plus light vehicle movements associated with approximately 10 full-time equivalent staff and the occasional visitor.

Freight will generally be brought to site in a container which has been packed at its source (e.g. a winery), with the majority of incoming containers coming from several existing sources in Griffith, Yenda, Bilbul, Hanwood and Wumbulgal. All containers are anticipated to be transported to the site via The Irrigation Way.

In order to provide a cumulative assessment it is also important to detail the operational characteristics of the existing businesses on the site, with key statistics listed below.

Cotton Module Storage & Pressing Facility

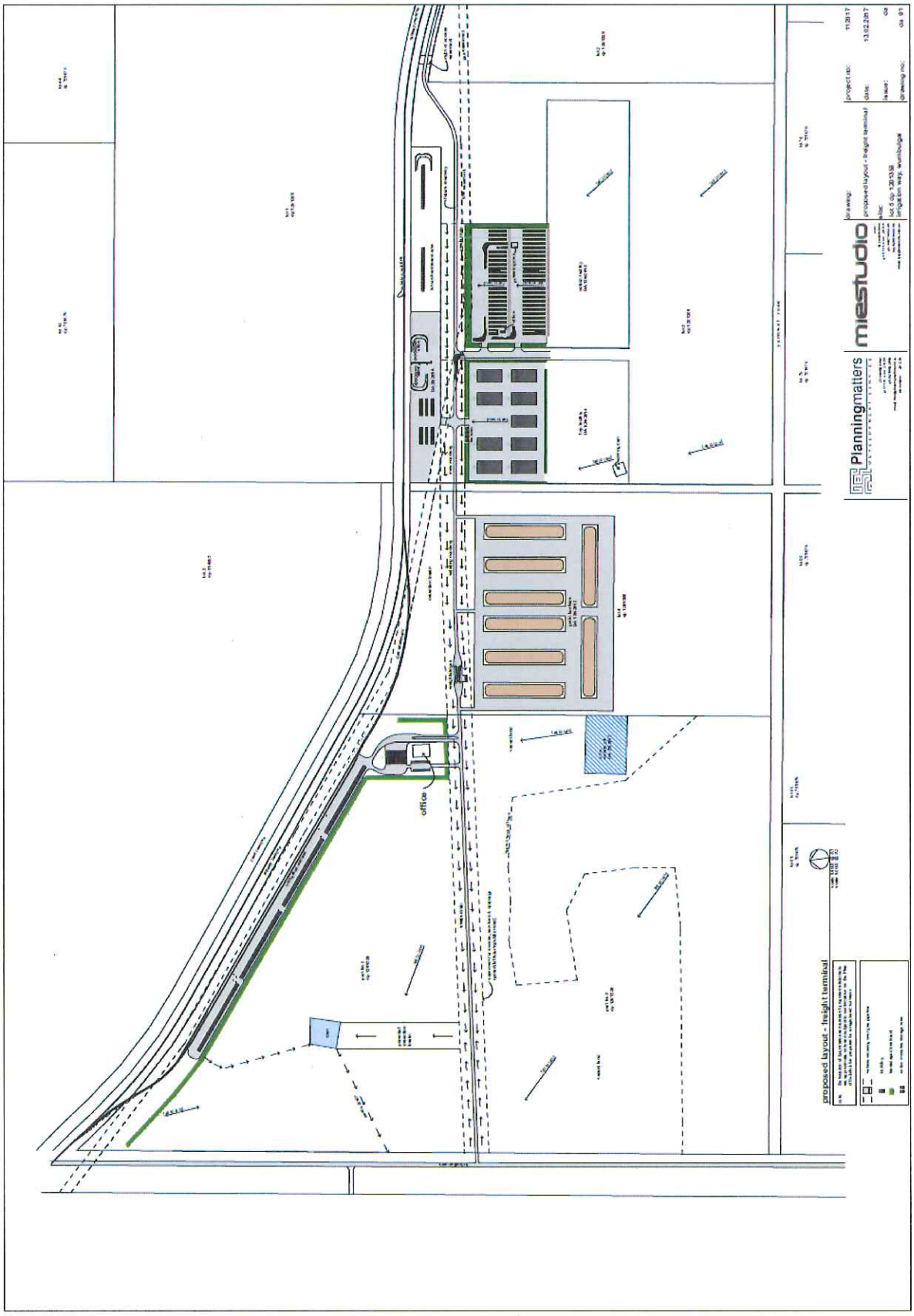
- Peak period is March to July
- 10-15 full-time equivalent staff
- 20-30 passenger vehicle trips per day
- 10-20 heavy vehicle trips per day during peak period
- All pressed cotton module bales leave the site in containers via rail

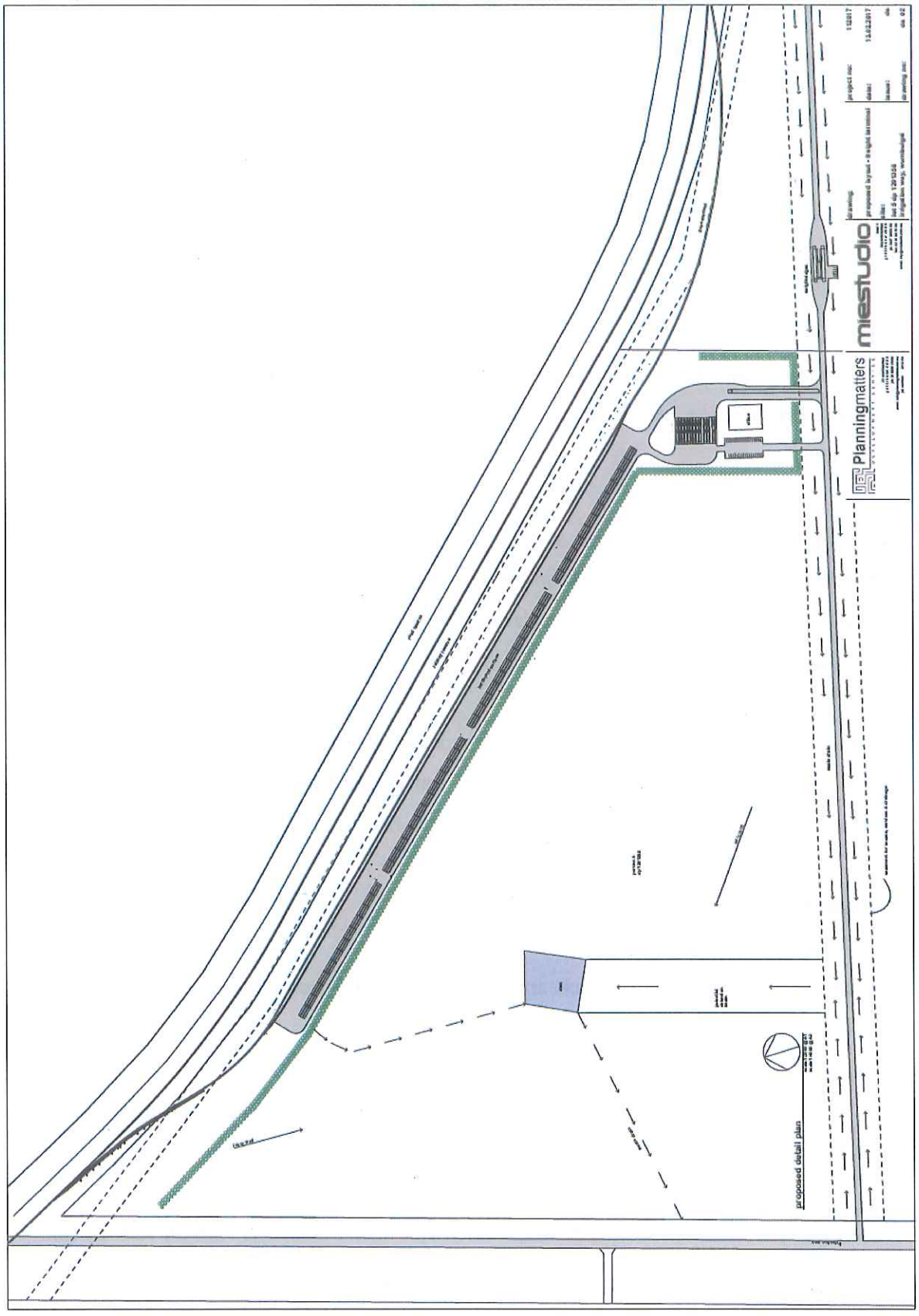
Hay Storage & Processing Facility

- Peak period is October to December
- Secondary peak period is January to March
- 8 full-time equivalent staff
- 10-15 passenger vehicle trips per day
- 20-30 heavy vehicle trips per day during peak period (October to December)
- 10-15 heavy vehicle trips per day during secondary peak period (January to March)
- 5-10 heavy vehicle trips per day during non-peak period (April to September)
- All processed hay leaves the site in containers via rail

Grain Storage & Handling Facility

- Peak period is November to December
- 10-20 full-time equivalent staff during peak period
- 2-5 full-time equivalent staff during non-peak period
- 10-20 passenger vehicle trips per day during peak period
- 5-10 passenger vehicle trips per day during non-peak period
- 50-100 heavy vehicle trips per day during peak period
- 10-15 heavy vehicle trips per day during non-peak period associated with grain removal
- Approximately 90% of grain leaves the site in bulk or in containers via rail


office
proposed layout - freight terminal
mies studio
Planningmatters


miestudio
Planningmatters
proposed detail plan

3. TRAFFIC ASSESSMENT

Road Hierarchy

The road hierarchy allocated to the road network in the vicinity of the site by the Roads and Maritime Services is illustrated on Figure 2.

Burley Griffin Way (B94) is classified by the RMS as a *State Highway* and provides the key east-west road link in the area, linking Griffith to Ardlethan. It typically carries one traffic lane in each direction in the vicinity of the site with turning treatments provided at key locations.

The Irrigation Way (also known as Griffith Road) is classified as a rural highway and provides the key north-south road link in the area, linking Yoogali to Narrandera. It also typically carries one traffic lane in each direction in the vicinity of the site, with turning treatments provided at key locations.

Whitton Stock Route Road is also classified as a rural highway and provides a link between Yenda and Whitton. It also typically carries one traffic lane in each direction in the vicinity of the site and intersects with The Irrigation Way to the north of the site.

Existing Traffic Controls

The existing traffic controls which apply to the road network in the vicinity of the site comprise:

- a 100 km/h SPEED LIMIT which applies to The Irrigation Way and most other rural highways in the area
- a LEVEL CROSSING on The Irrigation Way where it intersects with the railway line
- CHR and AUL TURNING LANES on The Irrigation Way where it intersects with the subject site's vehicular access driveway.

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ROAD HIERARCHY
FIGURE 2

Existing Traffic Conditions

An indication of the existing traffic conditions on the road network in the vicinity of the site is provided by reference to the RMS's most recently available *Annual Average Daily Traffic* data from 2006 which indicates that Irrigation Way, near the level crossing, carried in the order of 1,400 vehicles per day, of which approximately 18-20% are heavy vehicles. During the detailed design of the site access driveway the RMS advised to assume a growth rate of 5% per annum. Based on this annual 5% growth rate, Irrigation Way would likely carry in the order of 2,280 vehicles per day in 2016.

Peak period volumes were not available however if the general rule-of-thumb of 10% of the daily volume is used, the peak hourly volume along this section of Irrigation Way would be in the order of 228 vehicles per hour (bi-directional), including approximately 45 heavy vehicles.

Projected Traffic Generation

The traffic implications of development proposals primarily concern the effects that any *additional* traffic flows may have on the operational performance of the nearby road network during the weekday morning and afternoon peak periods.

In order to determine the traffic generation potential of the proposed freight terminal, reference is made to the expected operational characteristics detailed in Chapter 2 of this report.

As noted in the foregoing, the proposed freight terminal is expected to generate in the order of up to 250 heavy vehicle movements per day (i.e. 125 trips IN & 125 trips OUT), plus say, up to 60 light vehicle trips per day associated with staff and the occasional visitor (i.e. 30 trips IN & 30 trips OUT).

Also as noted in the foregoing, the three other existing businesses on the site have different peak operating periods; the cotton facility's peak is March to July, the hay facility's peak is October to December and January to March whilst the grain facility's peak is November to December.

The peak period of the entire site is therefore expected to be between November and December when the hay and grain facilities are at their peak, as well as the proposed freight terminal (which will operate steadily all year round).

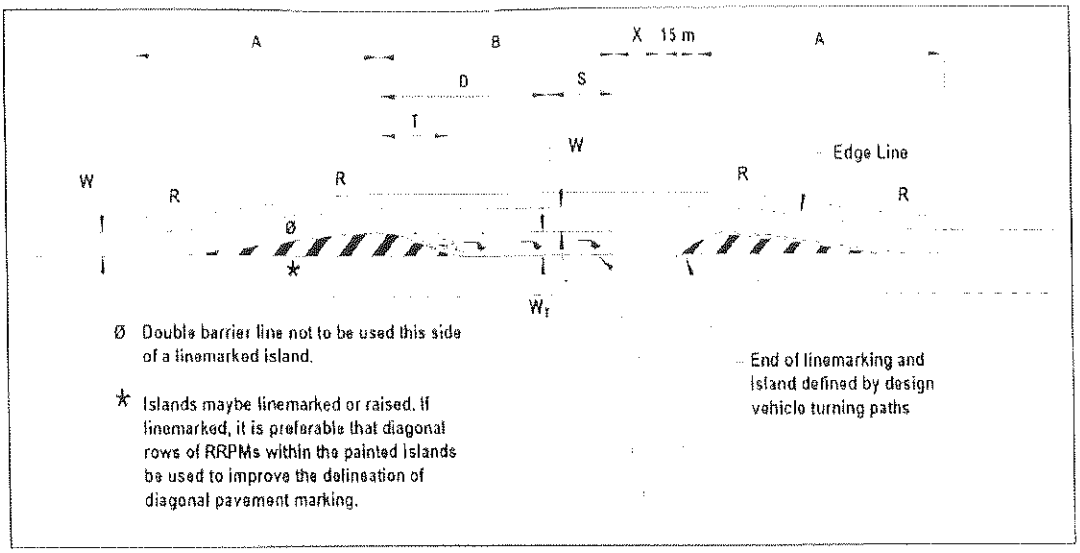
Accordingly, the cumulative traffic generation of the entire site during November and December is expected to be in the order of between 400 and 475 vehicle trips *per day*, comprising light and heavy vehicles (IN & OUT combined).

If it is assumed that 10% of the above *daily* traffic volumes will occur during the morning and afternoon peak periods, the site could be expected to generate in the order of say, 45 *peak hour* vehicle trips, comprising light and heavy vehicles (IN & OUT combined).

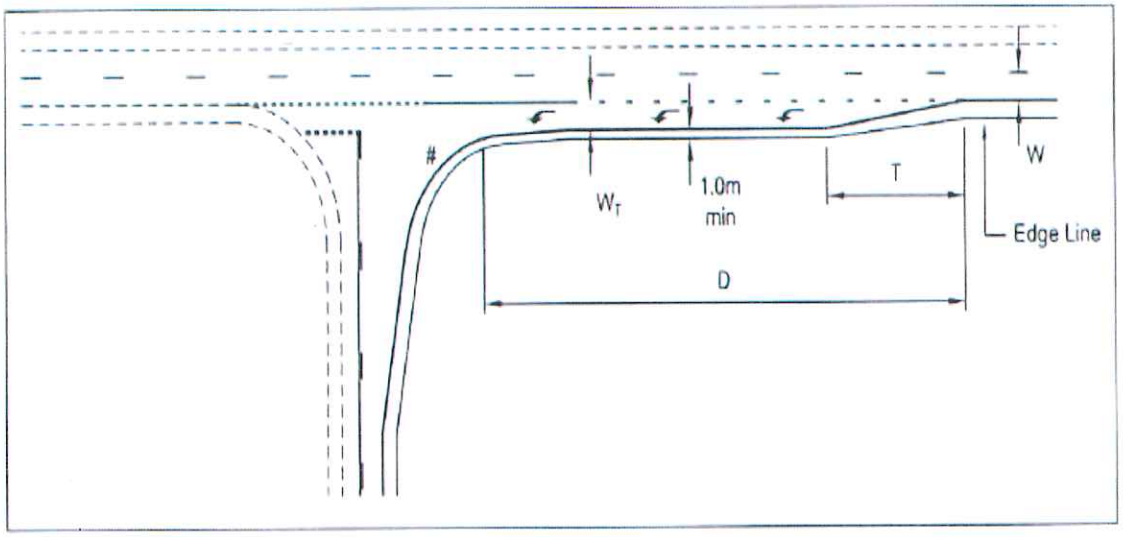
That projected increase in traffic activity as a consequence of the development proposal is minimal and will clearly not have any unacceptable traffic implications in terms of road network capacity, nor will it require any infrastructure/road network upgrades, as is demonstrated by the following section of this report.

Site Access Driveway

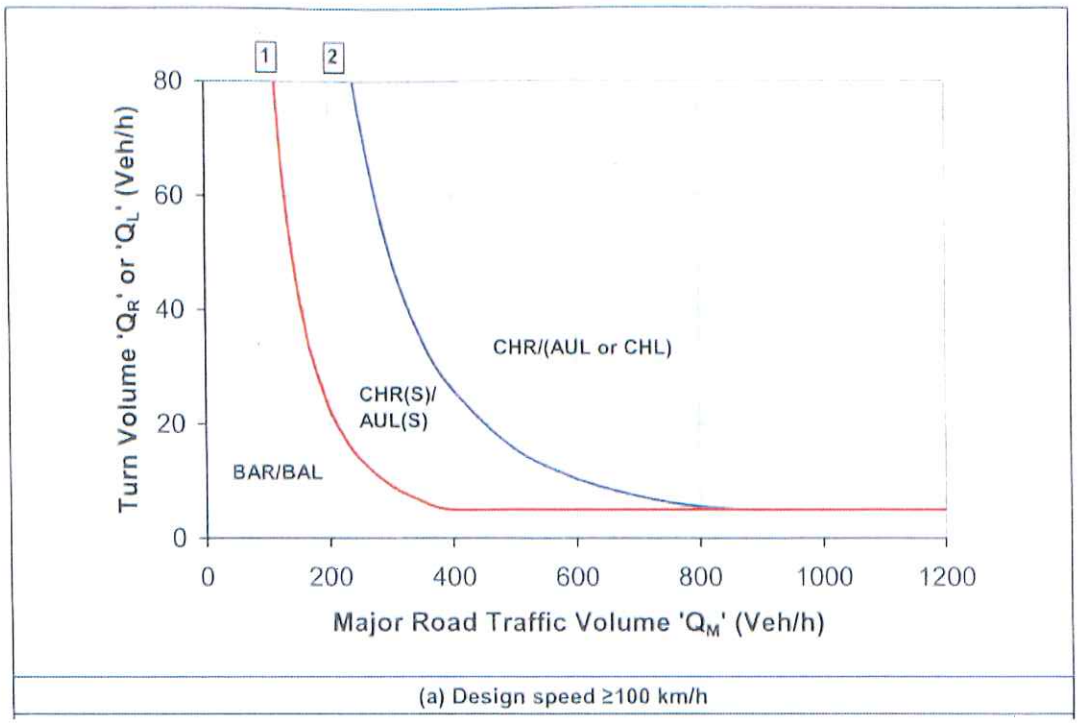
The intersection of Irrigation Way and the site access driveway comprises a 150m long channelised right turn (CHR) treatment on a two-way rural road as shown on the Austroads extract below (Figure 7.7 from the *Guide to Road Design Part 4A: Unsignalised and Signalised Intersections)*.



The intersection also comprises a 150m long auxiliary left turn lane treatment (AUL) on a rural road as shown on the Austroads extract below (Figure 8.4 from the *Guide to Road Design Part 4A: Unsignalised and Signalised Intersections).*



In order to determine whether the existing site access driveway with CHR and AUL turning treatments is sufficient to accommodate the proposed increase in turning movements into/out of the site, reference is made to Figure 4.9(a) of the Austroads publication, *Guide to Road Design Part 4A: Unsignalised and Signalised Intersections.*



As noted in the foregoing, two-way traffic flows along Irrigation Way in the vicinity of the site during the morning and afternoon weekday are typically in the order of 228 vehicles per hour (bi-directional), including approximately 45 heavy vehicles.

When the above parameters are considered in the context of Figure 4.9(a), the existing CHR and AUL turning treatments will be sufficient to accommodate the proposed increase in turning movements into/out of the site as a consequence of the proposed development.

Furthermore, the road geometry on The Irrigation Way in the vicinity of the site is straight with consistent flat grade, and excellent visibility is therefore available in both directions.

In the circumstances, it is clear that the existing site access driveway is sufficient and that no infrastructure/road upgrades are required.

4. PARKING IMPLICATIONS

Kerbside Parking Restrictions

Given the rural nature of The Irrigation Way and the surrounding area, there are generally no kerbside parking restrictions which apply in the vicinity of the site, including along the site frontage.

Off-Street Parking Provisions

As Leeton Shire Council does not have any specific off-street parking requirements applicable to the development proposal, reference is therefore made to the expected operational characteristics of the proposed railway freight terminal which are detailed in Chapter 2 of this report, in order to determine the facility's peak parking demand.

If it is assumed that *all* of the 10 full-time staff drive to the terminal in their private vehicles individually, *plus* up to say, 5 visitors at any given time yields a peak parking requirement of 15 car parking spaces.

The proposed development makes provision for a total of up to 35 off-street car parking spaces (including 2 disabled spaces) which more than adequately caters for proposed and projected operational requirements, whilst it is anticipated that the proponent may initially only construct as many parking spaces as are required to service staffing numbers (i.e. 15 spaces).

The geometric design layout of the proposed car parking facilities have been designed to comply with the relevant requirements specified in the Standards Australia publication *Parking Facilities Part 1 - Off-Street Car Parking AS2890.1* in respect of parking bay dimensions (5.5m x 2.5m) and aisle widths (13.0m).

Loading/Servicing Provisions

The proposed railway freight terminal will be serviced by a variety of trucks including semi-trailers, B-doubles and B-triples. The existing vehicular access driveway off The Irrigation Way has been designed to accommodate the swept turning path requirements of the B-triple as shown on the RMS-approved plans in Appendix A. Internally, the proposed layout also accommodates the swept turning path requirements of a B-triple. Detailed design drawings showing swept turning paths can be submitted to Council in conjunction with the CC applications.

Conclusion

The proposed development involves the establishment of a new railway freight terminal on Lots 4 & 5 in DP1201358.

Vehicular access to the site is to be provided via an existing entry/exit driveway off The Irrigation Way which includes CHR and AUL turning treatments.

During the weekday morning and afternoon "on-site" peak periods in November and December (i.e. the busiest period), the entire subject site is expected to generate in the order of 45 vehicle movements per hour, comprising both light and heavy vehicle movements, half of which will be associated with the freight terminal (both directions, IN and OUT combined).

That projected increase in traffic activity as a consequence of the development proposal is minimal and will clearly not have any unacceptable traffic implications in terms of road network capacity, nor will it require any infrastructure/road network upgrades.

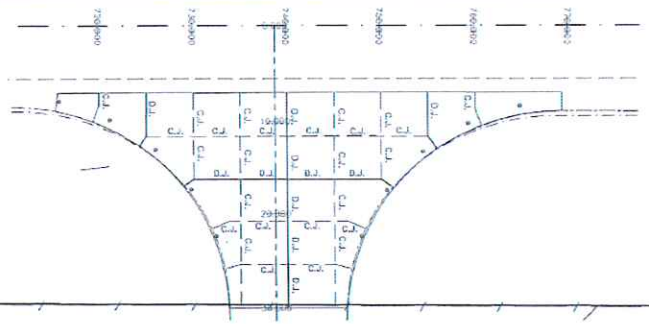
Off-street car parking is to be provided for a total of up to 35 parking spaces (including 2 disabled spaces), which is expected to comfortably satisfy the anticipated future operational requirements. The geometric design layout of the proposed car parking facilities have been designed to comply with the relevant requirements specified in *AS2890.1.*

Furthermore, the existing new vehicular access driveway into the railway freight terminal has been designed to accommodate the swept turning path requirements of B-triple trucks.

It is therefore reasonable to conclude that the proposed railway freight terminal will not have any unacceptable implications in terms of traffic, servicing, access or parking implications and is therefore recommended for approval.

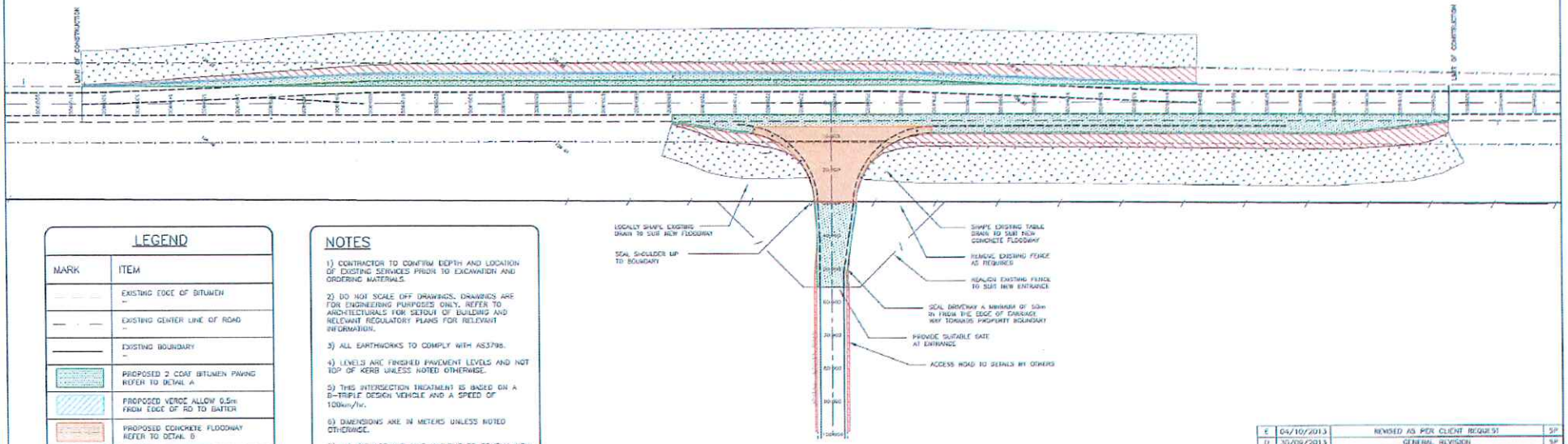
APPENDIX A

APPROVED DRIVEWAY DRAWINGS



C.J. AND D.J. PLAN

IRRIGATION (MAIN ROAD 80) WAY



LEGEND

MARK	ITEM
	EXISTING EDGE OF BITUMEN
	EXISTING CENTER LINE OF ROAD
	EXISTING BOUNDARY
	PROPOSED 2 COAT BITUMEN PAVING REFER TO DETAIL A
	PROPOSED VEROC ALLOW 0.5m FROM EDGE OF RD TO BATTER
	PROPOSED CONCRETE FLOODWAY REFER TO DETAIL B
	PROPOSED FILL BATTER EXTENTS TO BE DETERMINED ON SITE
	PROPOSED DRAIN REALIGNMENT TO MATCH IN WITH EXISTING
	EXISTING TABLE DRAIN
	FOG LINE/ LANE WIDTH
	EXISTING FENCE LINE

NOTES

1) CONTRACTOR TO CONFIRM DEPTH AND LOCATION OF EXISTING SERVICES PRIOR TO EXCAVATION AND ORDERING MATERIALS.

2) DO NOT SCALE OFF DRAWINGS. DRAWINGS ARE FOR ENGINEERING PURPOSES ONLY. REFER TO ARCHITECTURALS FOR SETOUT OF BUILDING AND RELEVANT REGULATORY PLANS FOR RELEVANT INFORMATION.

3) ALL EARTHWORKS TO COMPLY WITH AS3798.

4) LEVELS ARE FINISHED PAVEMENT LEVELS AND NOT TOP OF KERB UNLESS NOTED OTHERWISE.

5) THIS INTERSECTION TREATMENT IS BASED ON A B-TRIPLE DESIGN VEHICLE AND A SPEED OF 100km/hr.

6) DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.

7) ALL SIGNAGE AND LINE MARKING TO COMPLY WITH RELEVANT AUSTRALIAN STANDARDS, RMS GUIDELINES AND COUNCIL REQUIREMENTS

8) DRAINAGE IS TO BE CONFIRMED WITH ADDITIONAL SURVEY PRIOR TO ISSUE FOR CONSTRUCTION

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UNDER GROUND SERVICES ARE APPROXIMATE ONLY. CONTACT RELEVANT AUTHORITY PRIOR TO ANY EXCAVATION OR CONSTRUCTION

E	04/10/2013	REVISED AS PER CLIENT REQUEST	SP
D	30/09/2013	GENERAL REVISION	SP
C	17/07/2013	ENTRANCE RELOCATED	SP
B	24/06/2013	ISSUED FOR LAYOUT APPROVAL	SP
A	13/6/13	ISSUED FOR REVIEW	AX
No.	DATE	DETAILS	BY

Project:
PROPOSED CHR & AUL
LOT 98, DP 751679
IRRIGATION WAY, WUMBULGAL

Sheet Title:
PAVEMENT PLAN

Client: PLANNING MATTERS

Scale: 1:500 (A1) 1:1000 (A3)

Designed: A.Xeros

Drawn: S.Parnell

Date: JUNE 2013

Ckk'd.

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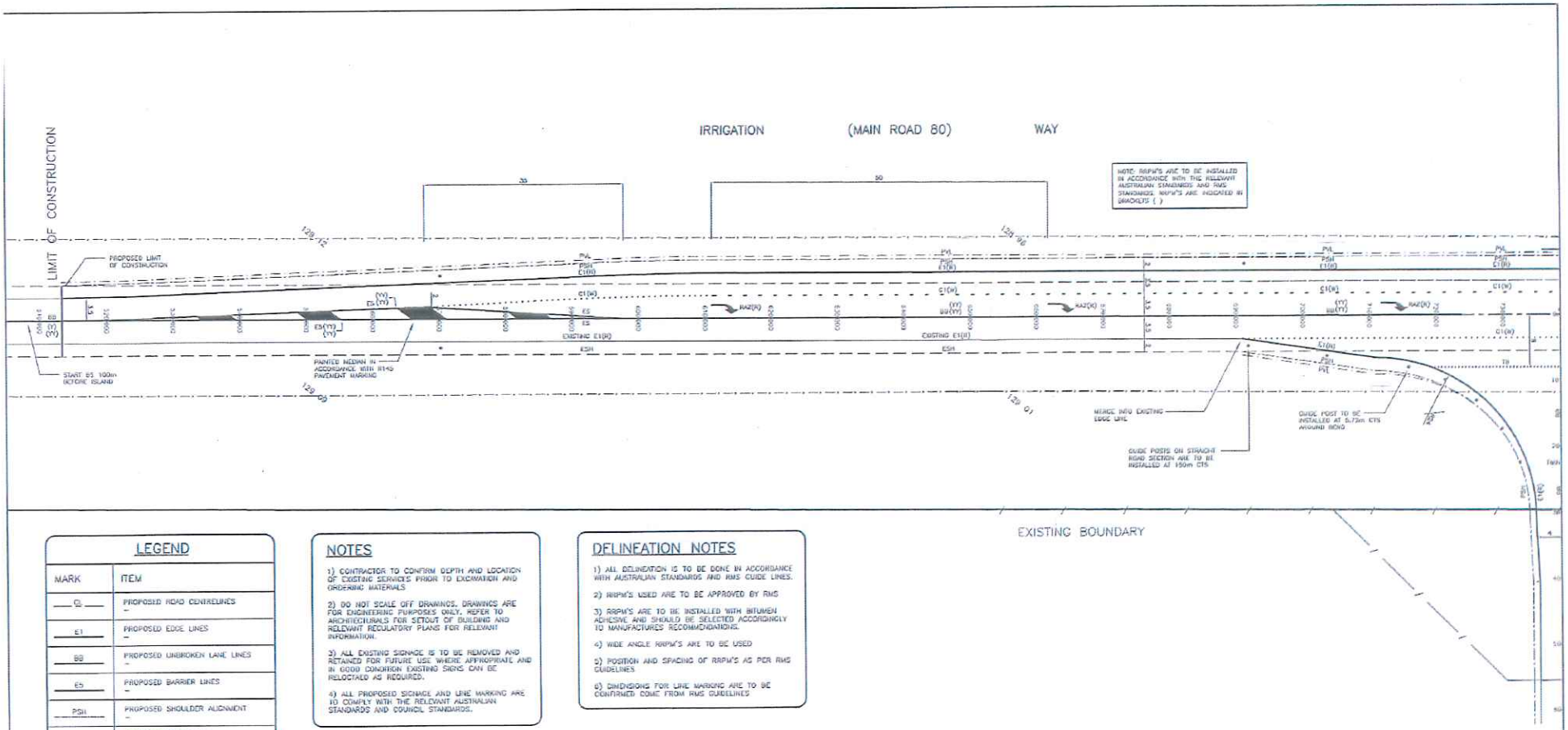

LEGEND

MARK	ITEM
C/L	PROPOSED ROAD CENTRELINES
E1	PROPOSED EDGE LINES
BB	PROPOSED UNBROKEN LANE LINES
ES	PROPOSED BARRIER LINES
PSH	PROPOSED SHOULDER ALIGNMENT
PVL	PROPOSED VERGE LINE
C1(W)	PROPOSED BROKEN LANE LINES
TB	PROPOSED GIVEWAY LINES
RAZ(R)	PROPOSED INTERSECTION ARROWS
	PROPOSED ISLAND
ESH	EXISTING SHOULDER LINES
	EXISTING TABLE DRAIN
	EXISTING FENCE LINE
	EXISTING BOUNDARY LINE

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3) ALL EXISTING SIGNAGE IS TO BE REMOVED AND RETAINED FOR FUTURE USE WHERE APPROPRIATE AND IN GOOD CONDITION EXISTING SIGNS CAN BE RELOCTAED AS REQUIRED.

4) ALL PROPOSED SIGNAGE AND LINE MARKING ARE TO COMPLY WITH THE RELEVANT AUSTRALIAN STANDARDS AND COUNCIL STANDARDS.

DELINEATION NOTES

1) ALL DELINEATION IS TO BE DONE IN ACCORDANCE WITH AUSTRALIAN STANDARDS AND RMS GUIDE LINES.

2) RRPM'S USED ARE TO BE APPROVED BY RMS

3) RRPM'S ARE TO BE INSTALLED WITH BITUMEN ADHESIVE AND SHOULD BE SELECTED ACCORDINGLY TO MANUFACTURES RECOMMENDATIONS.

4) WIDE ANGLE RRPM'S ARE TO BE USED

5) POSITION AND SPACING OF RRPM'S AS PER RMS GUIDELINES

6) DIMENSIONS FOR LINE MARKING ARE TO BE CONFIRMED COMC FROM RMS GUIDELINES

No.	DATE	DETAILS	BY
E	04/10/2013	REVISED AS PER CLIENT REQUEST	SP
D	30/09/2013	GENERAL REVISION	SP
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A	13/6/13	ISSUED FOR REVIEW	AX

Project:
PROPOSED CHR & AUL
LOT 98, DP 751679
IRRIGATION WAY, WUMBULGAL

Sheet Title:
LINE MARKING LAYOUT 1

Client: PLANNING MATTERS

Scale: 1:250 (A1) 1:500 (A3)

Design: A.Xeros

Drawn: S.Parnell

Date: JUNE 2013

Chk'd:

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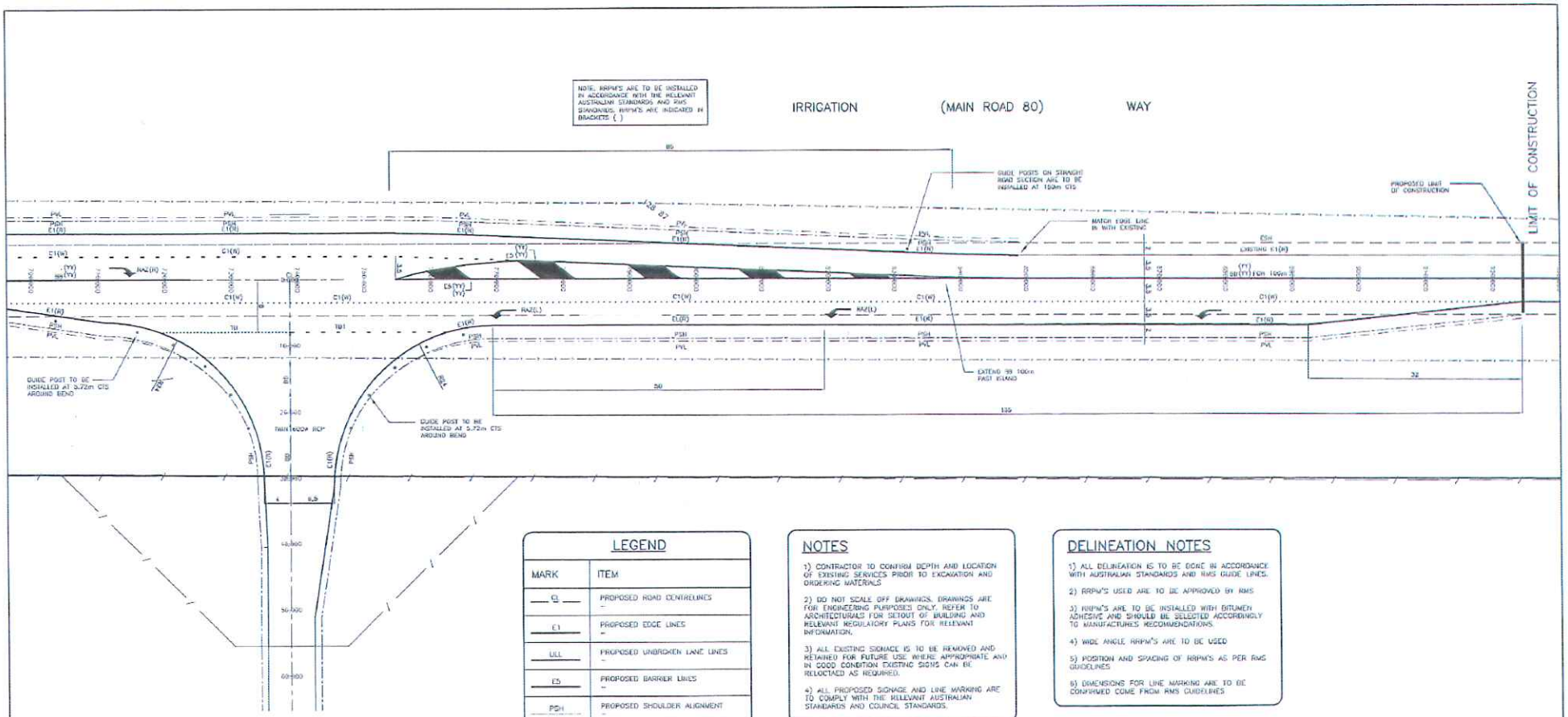

LEGEND

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	EXISTING TABLE DRAIN
	EXISTING FENCE LINE
	EXISTING BOUNDARY LINE

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5) POSITION AND SPACING OF RRPM'S AS PER RMS GUIDELINES

6) DIMENSIONS FOR LINE MARKING ARE TO BE CONFIRMED COME FROM RMS GUIDELINES

Rev.	DATE	DETAILS	BY
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C	17/07/2013	ENTRANCE RELOCATED	SP
B	24/06/2013	ISSUED FOR LAYOUT APPROVAL	SP
A	13/6/13	ISSUED FOR REVIEW	AE

Project:
PROPOSED CHR & AUL
LOT 98, DP 751679
IRRIGATION WAY, WUMBULGAL

Sheet Title:
LINE MARKING LAYOUT 2

Client: PLANNING MATTERS

Scale: 1:250 (A1) 1:500 (A3)

Design: A.Xeros

Drawn: S.Parnell

Date: JUNE 2013

Dwg no: 130264-19 E 24

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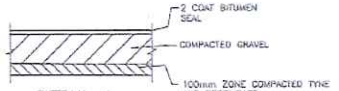
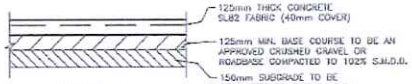


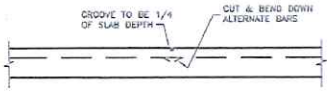
DETAIL A
TYP. PAVING DETAIL
(2 COAT BITUMEN SEAL)

NOTE: DETAILS OF PAVEMENT DESIGN TO BE CONFIRMED AFTER SOIL TEST IS CONDUCTED.

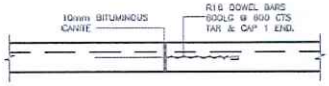


DETAIL B
TYP. PAVING DETAIL
(125mm CONC.)

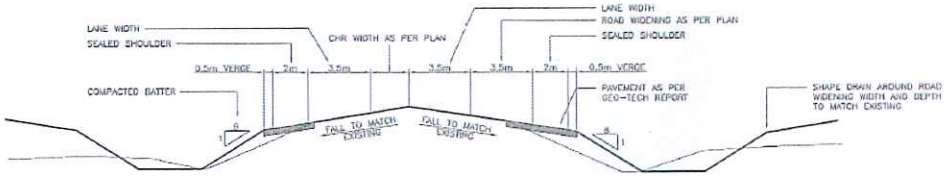
NOTE: PROVIDE DOWEL JOINTS "D.J." @ MAX. 15000CTS. & CONTROL JOINTS "C.J." @ MAX. 5000CTS.



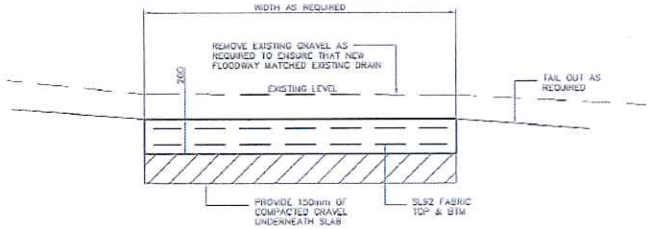
CONTROL JOINT DETAIL 'C.J.'



DOWEL JOINT DETAIL 'D.J.'



TYPICAL CROSS SECTION



CROSS SECTION THRU CONCRETE FLOODWAY

CONCRETE NOTES:

1. WORKMANSHIP AND MATERIALS TO BE IN ACCORDANCE WITH AS 3600 CONCRETE STRUCTURES AND CURRENT SAA CODES.
2. CONCRETE CHARACTERISTICS:

ELEMENT	GRADE (MPa 28 DAYS)	SLUMP (mm)	MAX. AGG. (mm)	ADDITIVES
SLAB	N32	80	20	NIL

3. CONCRETE TO BE PLACED USING MECHANICAL VIBRATORS.
4. SLAB THICKNESS' DO NOT INCLUDE FINISH.
5. REINFORCING BARS AND REINFORCING FABRIC TO BE IN ACCORDANCE WITH RESPECTIVE SAA CODES.
(i) AS 1302 STEEL REINFORCING BARS FOR CONCRETE:
– R DENOTES PLAIN ROUND STRUCTURAL GRADE BARS, fsy=230MPa
– H DENOTES TEMPORE STRUCTURAL GRADE DEFORMED BARS, fsy=500MPa
(ii) AS 1304 WELDED WIRE REINFORCING FABRIC FOR CONCRETE:
– RF DENOTES HIGH TENSILE WELDED WIRE FABRIC, fsy=500MPa
6. CLEAR CONCRETE COVER TO REINFORCEMENT TO BE:

ELEMENT		COVER (mm)
SURFACES IN CONTACT WITH GROUND		
– WITHOUT MEMBRANE		50
– WITH MEMBRANE	SLAB	20
	FOOTING	50
ABOVE GROUND INTERIOR		20
ABOVE GROUND EXTERIOR		20

7. MASONRY SUPPORTING SLABS TO HAVE 2 LAYERS ALCOR "SLIP JOINT" BETWEEN THE TWO SURFACES.
8. SLABS ABUTTING MASONRY OR CONCRETE TO HAVE 10mm ZIPPED ABELFLEX BETWEEN THE SURFACE AND SEALED WITH SIKAFLEX 15LM.

2 COAT BITUMEN SEAL NOTES:

MATERIALS
MATERIALS AND THEIR WORKMANSHIP SHALL BE THE BEST OF THEIR RESPECTIVE KINDS AND UNLESS SPECIFIED SHALL CONFORM TO SUCH STANDARD SPECIFICATIONS ISSUED BY THE AUSTRALIAN STANDARDS ASSOCIATION SHALL APPLY.

WORKS
THE CONTRACTOR IS NOT TO ENTER INTO, UPON OR DO ANY WORK WITHIN ADJACENT LANDS WITHOUT THE WRITTEN PERMISSION OF THE SUPERINTENDANT.

THE CONTRACTOR IS TO MAINTAIN ALL WEATHER ACCESS AT ALL TIMES.

SUB GRADE
THE SUB GRADE SHALL BE THOROUGHLY TRIMMED AND CONSOLIDATED WITH AN APPROVED ROLLER TO ACHIEVE A 98% STANDARD DRY DENSITY TO AS 1289 E2.1.

ALL SOFT AND YIELDING AND OTHER UNSUITABLE MATERIAL SHALL BE REMOVED AND REPLACED.

SUB BASE
CONSTRUCT TO THICKNESS SHOWN IN FINE CRUSHED ROCK COMPACTED TO ACHIEVE A 102% STANDARD MAXIMUM DRY DENSITY TO AS 1289 C15.4.1. THE MATERIALS SHALL BE SPREAD ON THE SUB GRADE IN TWO LAYERS WITHOUT SEGREGATION, EACH LAYER HAVING A COMPACTED THICKNESS NOT EXCEEDING 75mm BUT GREATER THAN 25mm.

ALL SUB BASE MATERIAL SHALL COMPLY WITH RTA QGS 40 SPECIFICATION.

BASE
CONSTRUCT TO THICKNESS SHOWN IN FINE CRUSHED ROCK COMPACTED TO ACHIEVE A 102% STANDARD MAXIMUM DRY DENSITY TO AS 1289 C15.4.1. THE MATERIALS SHALL BE SPREAD ON THE SUB BASE IN TWO LAYERS WITHOUT SEGREGATION, EACH LAYER HAVING A COMPACTED THICKNESS NOT EXCEEDING 75mm BUT GREATER THAN 25mm.

ALL BASE MATERIAL SHALL COMPLY WITH RTA QGS 20 SPECIFICATION.

2 COAT BITUMEN SEAL
PRIOR TO APPLICATION OF THE BITUMINOUS SEAL TO THE PREPARED PAVEMENT SURFACE, THE PAVEMENT SHALL BE SWEPT AS NECESSARY BY THE USE OF A MECHANICAL OPERATED ROTARY BROOM TO A UNIFORM CLEAN SURFACE, SUCH BROOMING BEING SUPPLEMENTED BY HAND BROOMING IF NECESSARY. ALL KERB, GUTTERS, DISH CROSSINGS, BILT PITS AND SURROUNDING WORKS ARE TO BE ADEQUATELY PROTECTED FROM TAR STAINING BY SUITABLE COVERING.

THE BITUMEN SEAL SHALL BE A TWO (2) COAT PROCESS BEING ONE APPLICATION OF HOT BITUMEN SEAL WITH 20mm AGGREGATE FOLLOWED BY A HOT BITUMEN SEAL WITH 10mm AGGREGATE.

COVER AGGREGATE:
AFTER THE APPLICATION OF EACH BITUMEN COAT, THE BITUMEN SHALL BE EVENLY COVERED WITH PRECOATED AGGREGATE IN ACCORDANCE WITH THE SPECIFICATION FOR SEALING GENERALLY.

INCORPORATION OF AGGREGATE:
IMMEDIATELY COVER AGGREGATE IS SPREAD INCORPORATION SHALL COMMENCE BY ROLLING WITH AN APPROVED PNEUMATIC TIRED ROLLER WHICH SHALL BE SELF PROPELLED. ROLLING SHALL CONTINUE FOR A MINIMUM OF EIGHT (8) PASSES BUT IN ANY CASE SUCH ROLLING SHALL CONTINUE FOR A TIME EQUIVALENT TO 30 MINUTES FOR EACH 500 LITRES OF BINDER SPRAYED.

BITUMEN SEAL AS FOLLOWS:-

COAT	BITUMEN	AGGREGATE
FIRST COAT	1.76 LITRES/m²	20mm @ 1m² /70m²
SECOND COAT	1.0 LITRES/m²	10mm @ 1m² /110m²

PAVEMENT SWEEPING:
AT A TIME TO BE DETERMINED BY THE ENGINEER THE FINISHED PRIMED PAVEMENT SHALL BE SWEPT CLEAN AND GUTTERS CLEANED OF LOOSE AND UNINCORPORATED COVER AGGREGATE. THE COST OF WHICH SHALL BE INCLUDED IN THE LUMP SUM AND SCHEDULE OF RATES GENERALLY.

No.	DATE	DETAILS	BY
E	04/10/2013	REVISED AS PER CLIENT REQUEST	SP
D	30/09/2013	GENERAL REVISION	SP
C	17/07/2013	ENTRANCE RELOCATED	SP
B	24/06/2013	ISSUED FOR LAYOUT APPROVAL	SP
A	13/6/13	ISSUED FOR REVIEW	AR

Project:
PROPOSED CHR & AUL
LOT 98, DP 751679
IRRIGATION WAY, WUMBULGAL

Sheet Title:
DETAILS AND NOTES

Client: PLANNING MATTERS

Scale: 1:20 (A1) 1:40 (A3)

Design: A.Xeros

Drawn: S.Parnell

Date: JUNE 2013

Chk'd:

Sheet No. 24

130264–20 E

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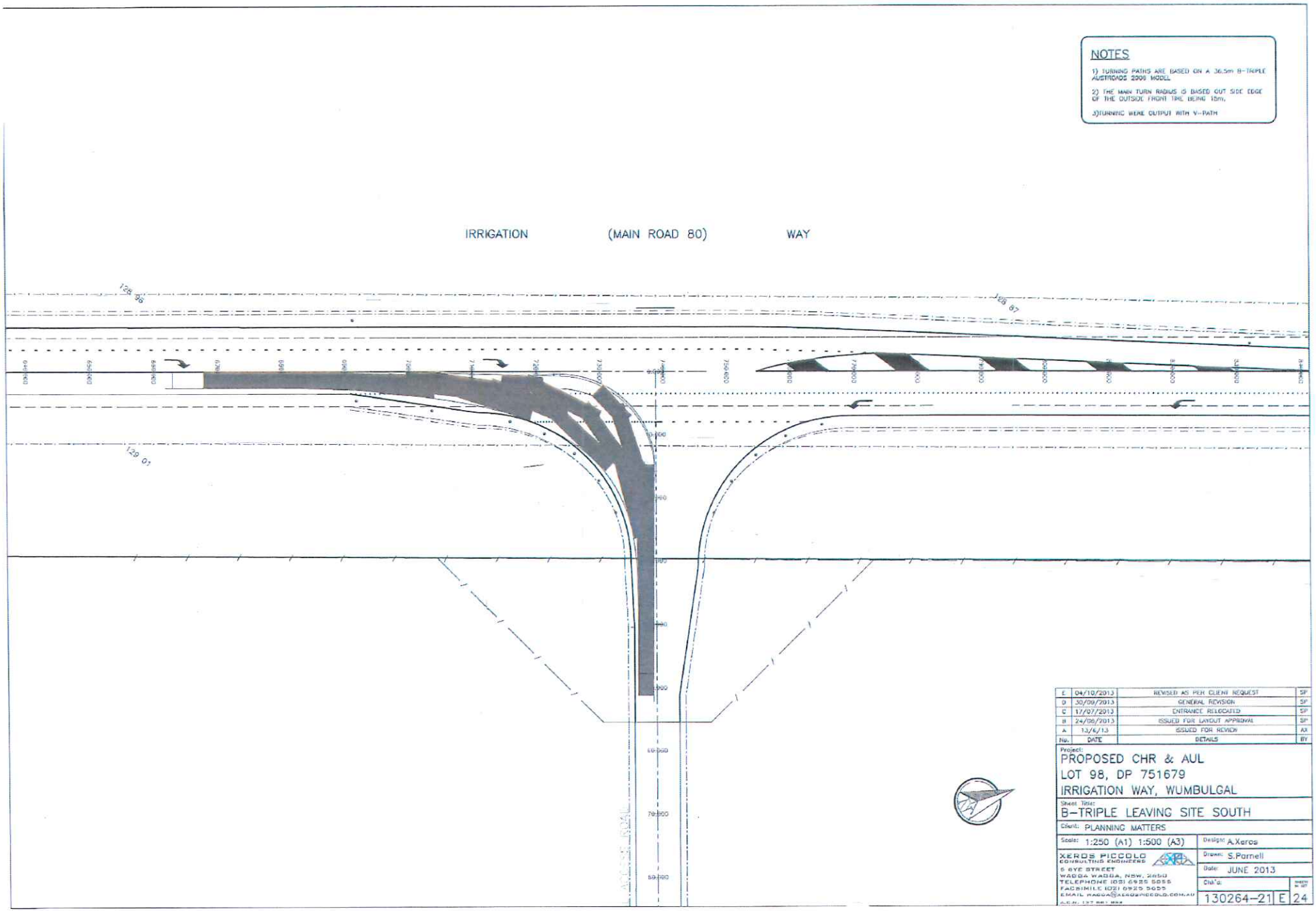
NOTES

1) TURNING PATHS ARE BASED ON A 36.5m B-TRIPLE AUSTROADS 2006 MODEL

2) THE MAIN TURN RADIUS IS BASED OUT SIDE EDGE OF THE OUTSIDE FRONT TIRE BEING 15m.

3)TURNING WERE OUTPUT WITH V-PATH



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Project:
PROPOSED CHR & AUL
LOT 98, DP 751679
IRRIGATION WAY, WUMBULGAL

Sheet Title:
B-TRIPLE LEAVING SITE SOUTH

Client: PLANNING MATTERS

Scale: 1:250 (A1) 1:500 (A3)

Design: A.Xeros

Drawn: S.Parnell

Date: JUNE 2013

Chk'd:

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130264-21 E 24

NOTES

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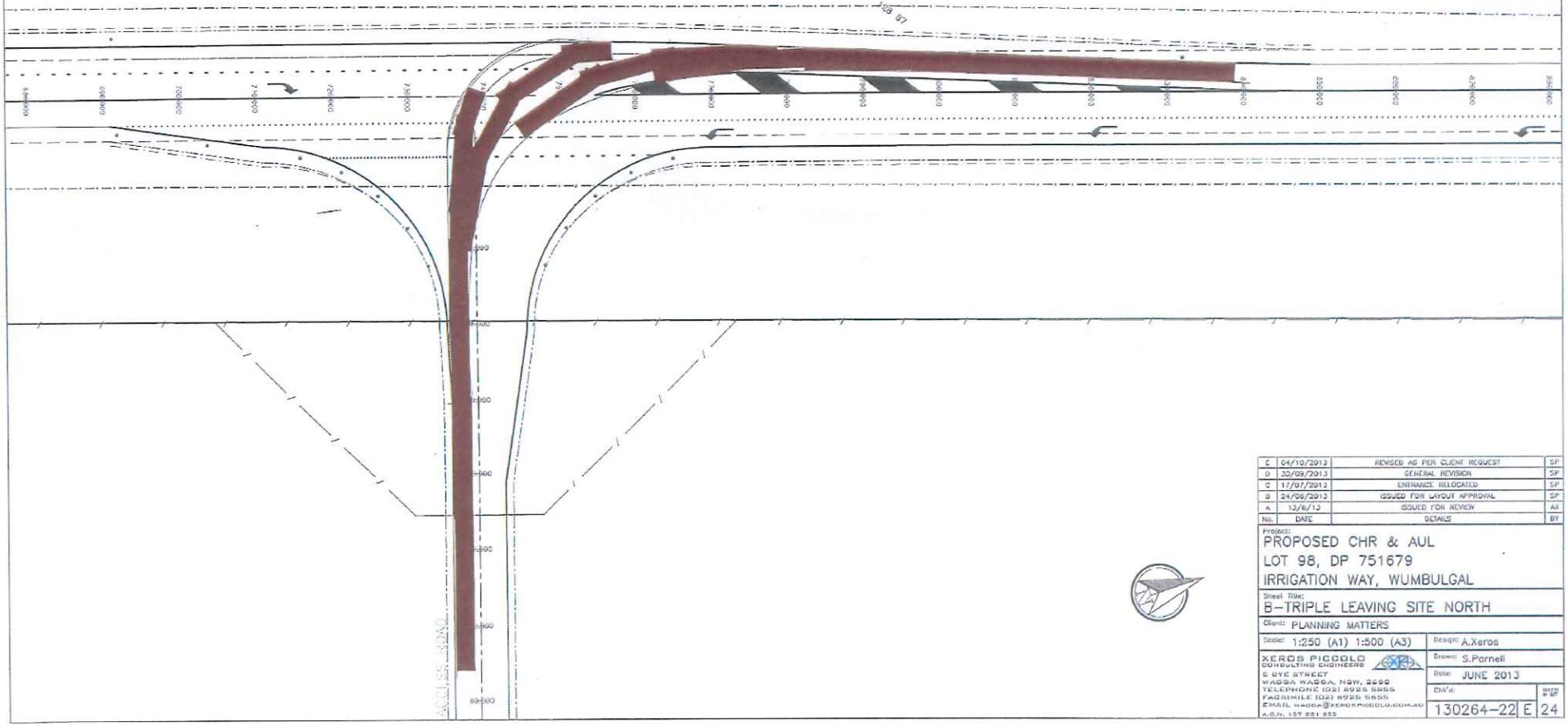
IRRIGATION (MAIN ROAD 80) WAY



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Project:
PROPOSED CHR & AUL
LOT 98, DP 751679
IRRIGATION WAY, WUMBULGAL

Sheet Title:
B-TRIPLE LEAVING SITE NORTH

Client: PLANNING MATTERS

Scale: 1:250 (A1) 1:500 (A3)

Design: A.Xeros

Drawn: S.Parnell

Date: JUNE 2013

Chk'd:

Sheet No. of No.

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130264-22 E 24

NOTES

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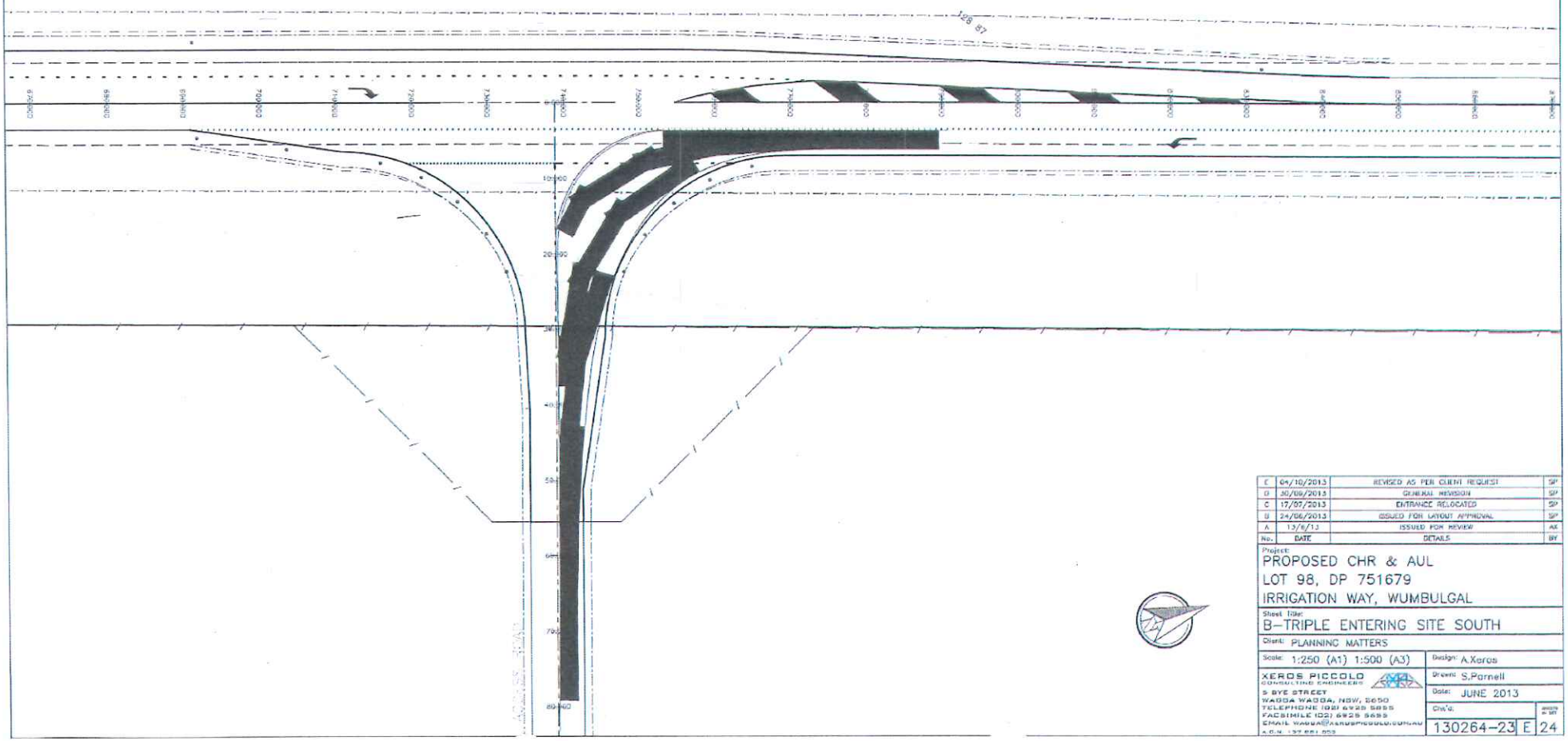
IRRIGATION (MAIN ROAD 80) WAY



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IRRIGATION WAY, WUMBULGAL

Sheet Title:
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Client: PLANNING MATTERS

Scale: 1:250 (A1) 1:500 (A3)

Design: A.Xeros

Drawn: S.Parnell

Date: JUNE 2013

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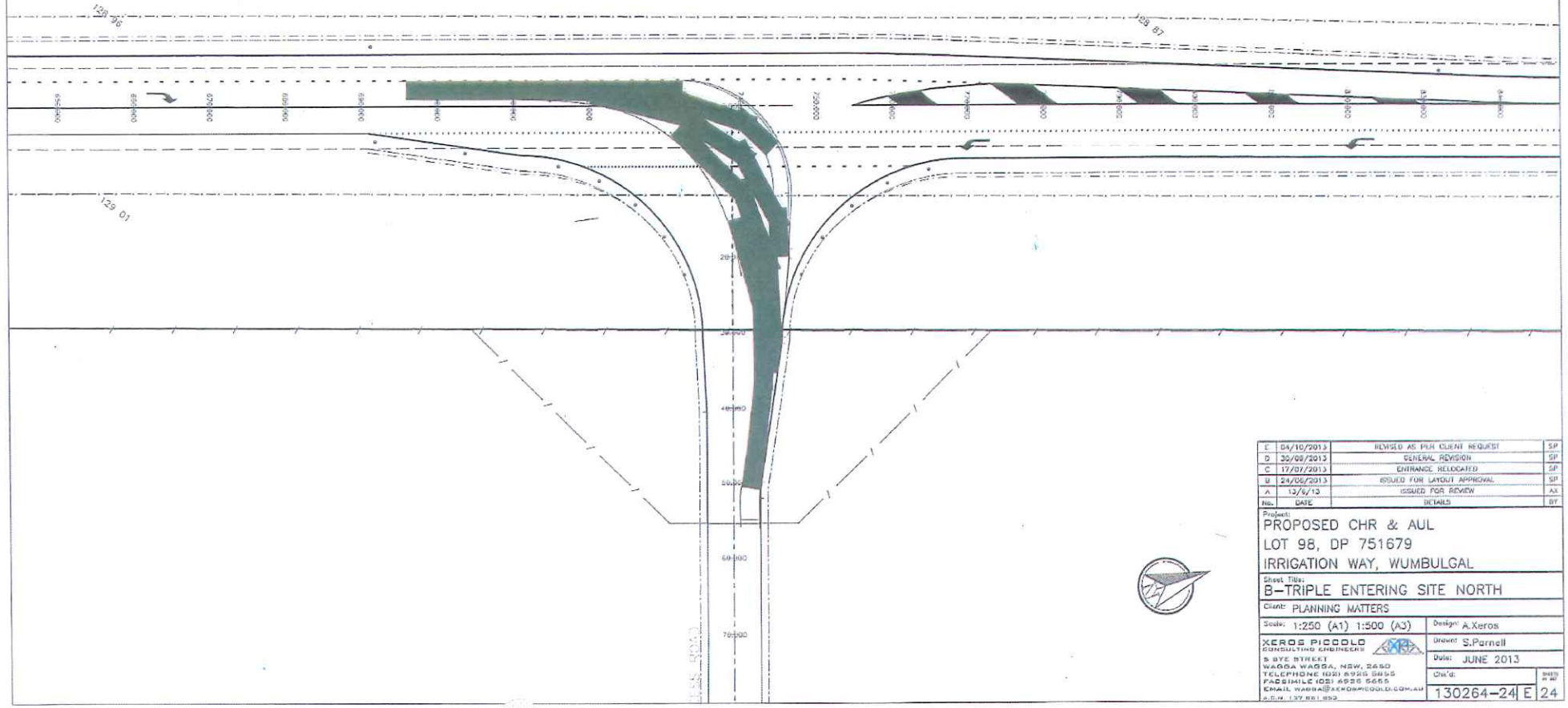
NOTES

1) TURNING PATHS ARE BASED ON A 30.0m B-TRIPLE AUSTROADS 2006 MODEL

2) THE MAIN TURN RADIUS IS BASED OUT SIDE EDGE OF THE OUTSIDE FRONT TIRE BEING 10m.

3)TURNING WERE OUTPUT WITH V-PATH

IRRIGATION (MAIN ROAD 80) WAY



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IRRIGATION WAY, WUMBULGAL

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