METROPOLITAN PLANNING AUTHORITY

PSP 1202 - Lindum Vale Infrastructure Costing Study

PROJECT REPORT

JUNE 2016

WSP | PARSONS BRINCKERHOFF

PSP 1202 - Lindum Vale Infrastructure Costing Study

PROJECT REPORT

Metropolitan Planning Authority

Project no: 2113307A-CIV-REP-001 RevA.docx
Date: June 2016

REV	DATE	DETAILS
A	15/06/2016	For information

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TABLE OF CONTENTS

LIST OF APPENDICES

1 PROJECT BACKGROUND

1.1 General

The Metropolitan Planning Authority (MPA) is currently preparing the Lindum Vale Precinct Structure Plan (PSP). To assist the preparation of the PSPs, WSP | Parsons Brinckerhoff was engaged to develop concept designs and cost estimates for intersection projects and road projects within the PSP as noted below. This report details all the significant design parameters used for the following design projects:

- Intersection 1 – Signalised T-intersection at Mickleham Road / Connector Road (interim arrangement only)
- Intersection 2 – Signalised intersection at Mickleham Road / Mt Ridley Road (interim and ultimate arrangement)
- Intersection 3 – Signalised intersection at Mt Ridley Road / Connector Boulevard (interim and ultimate arrangement)
- Mt Ridley Road – Interim design and land take assessment

1.2 Previous work completed

A number of previous studies and investigations have been completed in the PSP area. Below is a brief summary of those made available to WSP | Parsons Brinckerhoff

1.2.1 Mt Ridley Road Corridor Planning Study, Jacobs, July 2014

A corridor planning study for the Mt Ridley Road Corridor was completed by Jacobs for VicRoads in July 2014. This study identified environmental and planning constraints and a concept design for Mt Ridley Road. This work was used as an input to the concept design work undertaken for the intersections and road projects along Mt Ridley Road.

1.2.2 Ultimate Design for Mickleham Road, GTA Consultants, April 2015

GTA Consultants prepared an ultimate horizontal design along Mickleham Road for VicRoads. This work was used as an input to the concept design work undertaken for the intersections and road projects along Mickleham Road.

1.2.3 Phase 1 and Preliminary Phase 2 Environmental Site Assessment - Lindum Vale PSP Area, Parsons Brinckerhoff, April 2013

Parsons Brinckerhoff was engaged by MAB Corporation Pty. Ltd. to undertake an Environmental Site Assessment (ESA) of the Lindum Vale PSP area. The report found that there is a “low” potential for soil contamination but that any excavated soil to be removed off site must be tested and classified.

1.2.4 Lindum Vale Environmental Assessment further works for 1920 Mickleham Road, Parsons Brinckerhoff, September 2014

Parsons Brinckerhoff was engaged by MAB Corporation Pty. Ltd. to undertake an environmental assessment of a property on Mickleham Road, near the Mt Ridley Road intersection. As the road and intersection projects do not affect this property, this environmental assessment was not relevant.

Figure 1.1 Lindum Vale - Future Urban Structure (source: MPA)

2 REFERENCE INFORMATION

2.1 Information provided

The following information was made available to WSP | Parsons Brinckerhoff by MPA:

- Lindum Vale Precinct Structure Plan – Traffic and Transport Assessment (Cardno)
- Phase 1 and Preliminary Phase 2 Environmental Site Assessment – Lindum Vale PSP Area (Parsons Brinckerhoff)
- Environmental Site Assessment Lindum Vale PSP Area Further Works – 1920 Mickleham Road, Mickleham, Victoria (Parsons Brinckerhoff)
- Connector Street (25.5m) typical cross section (MPA)
- Connector Street (28.5 – 31.5m) – Boulevard typical cross section (MPA)
- Growth Area Road Network Planning – Guidelines & Policy Principles (VicRoads & MPA)
- Future Urban Structure - PSP 1202 – Lindum Vale Precinct Structure Plan (MPA)
- Mt Ridley Road Corridor Planning Study, Jacobs, July 2014
- Ultimate Design for Mickleham Road, GTA Consultants, April 2015
- Phase 1 and Preliminary Phase 2 Environmental Site Assessment - Lindum Vale PSP Area, Parsons Brinckerhoff, April 2013
- Lindum Vale Environmental Assessment further works for 1920 Mickleham Road, Parsons Brinckerhoff, September 2014
- Other data supplied in the form of CAD files included:
  - Cadastral boundaries
  - Connector Road outline
  - Aerial imagery

2.2 Design standards

Relevant design standards used for the intersection and road design include:

- Austroads Guide to Road Design (AGRD) – Part 3: Geometric Design
- Austroads Guide to Road Design (AGRD) – Part 4: Intersections and Crossings - General
- Austroads Guide to Road Design (AGRD) – Part 4A: Unsignalised and Signalised Intersections
- Austroads Guide to Road Design (AGRD) – Part 6A: Pedestrian and Cyclist Paths
- VicRoads Supplement to the Austroads Guide to Road Design: Part 3, Part 4, Part 4A and Part 6A.
- VicRoads Traffic Engineering Manual Volume 2 – Chapter 16: Longitudinal Lines
- VicRoads Traffic Engineering Manual Volume 2 – Chapter 17: Transverse Lines
- VicRoads Bus Priority Guidelines

3 DESIGN CRITERIA AND ASSUMPTIONS

3.1 Precedence of documents

The general order of precedence for design standards and parameters used for the intersections and road designs is as shown below:

1. MPA specific requirements
2. Austroads Guide to Road Design and corresponding VicRoads Supplements
3. Lindum Vale Precinct Structure Plan – Traffic and Transport Assessment
4. VicRoads Growth Area Network Planning Guidance (working document)

3.2 Design criteria adopted

3.2.1 Design speed

Table 3.1 Design speed adopted for each road type

ROAD TYPE	ROAD ENVIRONMENT	POSTED SPEED LIMIT	DESIGN SPEED	REFERENCE
Connector Street - Boulevard	Urban (when developed)	60 km/h	60 km/h	Growth Area Road Network Planning – Guidance and Policy Principles
Connector Street	Urban (when developed)	60 km/h	60 km/h	Growth Area Road Network Planning – Guidance and Policy Principles
Arterial (primary)	Urban (when developed)	80 km/hr	80 km/hr	Growth Area Road Network Planning – Guidance and Policy Principles

3.2.2 Horizontal geometry

Table 3.2 Horizontal geometry design limits

CRITERIA	VALUE	COMMENT	REFERENCE
Minimum radius for adverse cross fall	60 km/h = 200m 80 km/h = 500m	Urban Side friction factor = 0.17 Urban Side friction factor = 0.13	VicRoads Supplement to AGRD, Part 3, Table V7.2
Minimum radius for horizontal curves with superelevation	60 km/h = 98m 80 km/h = 240m	Desirable min. friction factor	AGRD, Part 3, Table 7.5
Minimum horizontal curve length	60 km/h = 100m 80 km/h = 180m		AGRD, Part 3, Table 7.6
Merge Taper Length	130m		Parsons Brinckerhoff Road Design App

3.2.3 Intersection turn lane lengths

The MPA provided sketches of the desired intersection arrangements required at each of the intersection locations. The turn lane lengths are based on the values nominated in *Table 4-1* from the *Growth Area Road Network Planning – Guidelines & Policy Principles* document, and as shown below:

Table 3.3 Typical turn lane lengths adopted for ultimate arrangement

ROAD TYPE	TURN LANE	ASSUMED TURN VOLUME	TOTAL TURN LANE LENGTH (INC. TAPER)
Primary Arterial	Left	400 veh/hr	100m (inc. 25m taper)
	Single Right	200 veh/hr	200m (inc. 25m taper)
	Double Right	400 veh/hr	170m (inc. 55m taper)
Secondary Arterial	Left	400 veh/hr	100m (inc. 20m taper)
	Single Right	200 veh/hr	200m (inc. 20m taper)
Connector Street	Left	500 veh/hr	100m (inc. 15m taper)
	Right	500 veh/hr	100m (inc. 30m taper)

3.2.4 Cross section

The cross sections adopted for the connector roads are shown in Figure 3.1 and Figure 3.2.

- Intersection 1 – connector street cross section
- Intersection 3 – connector boulevard cross section

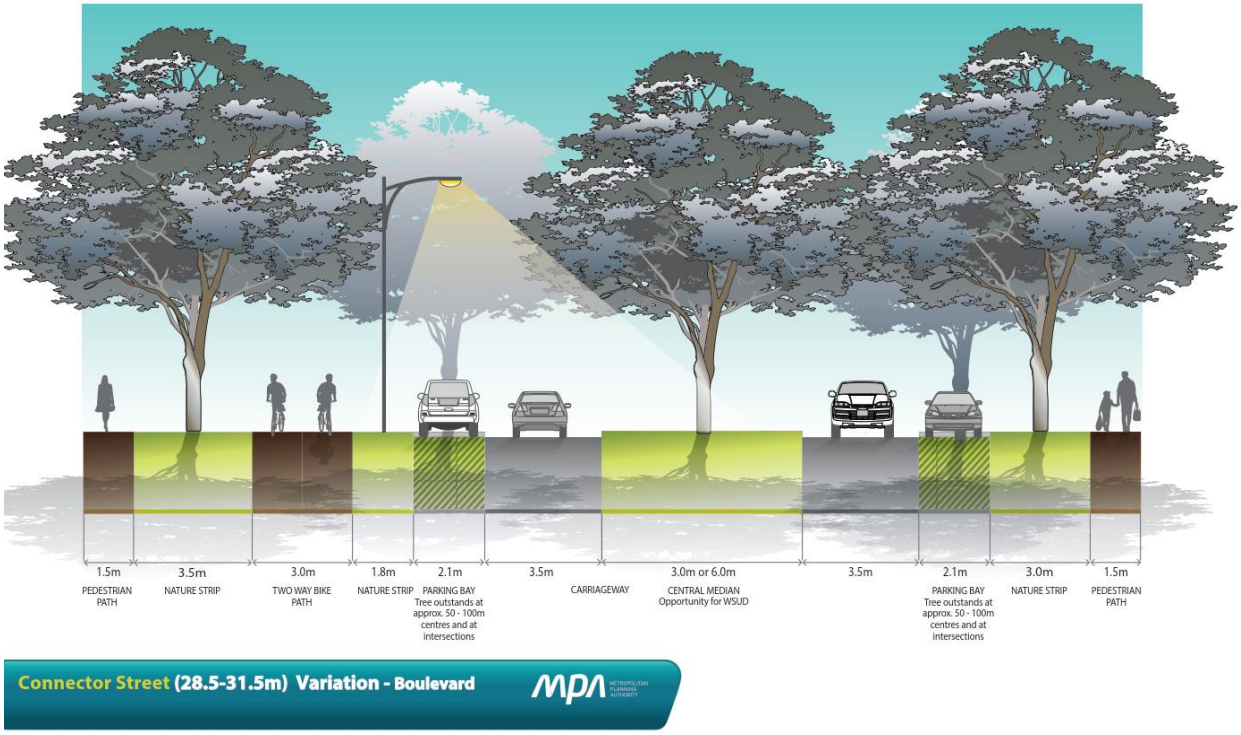


Figure 3.1 - Boulevard connector street cross section

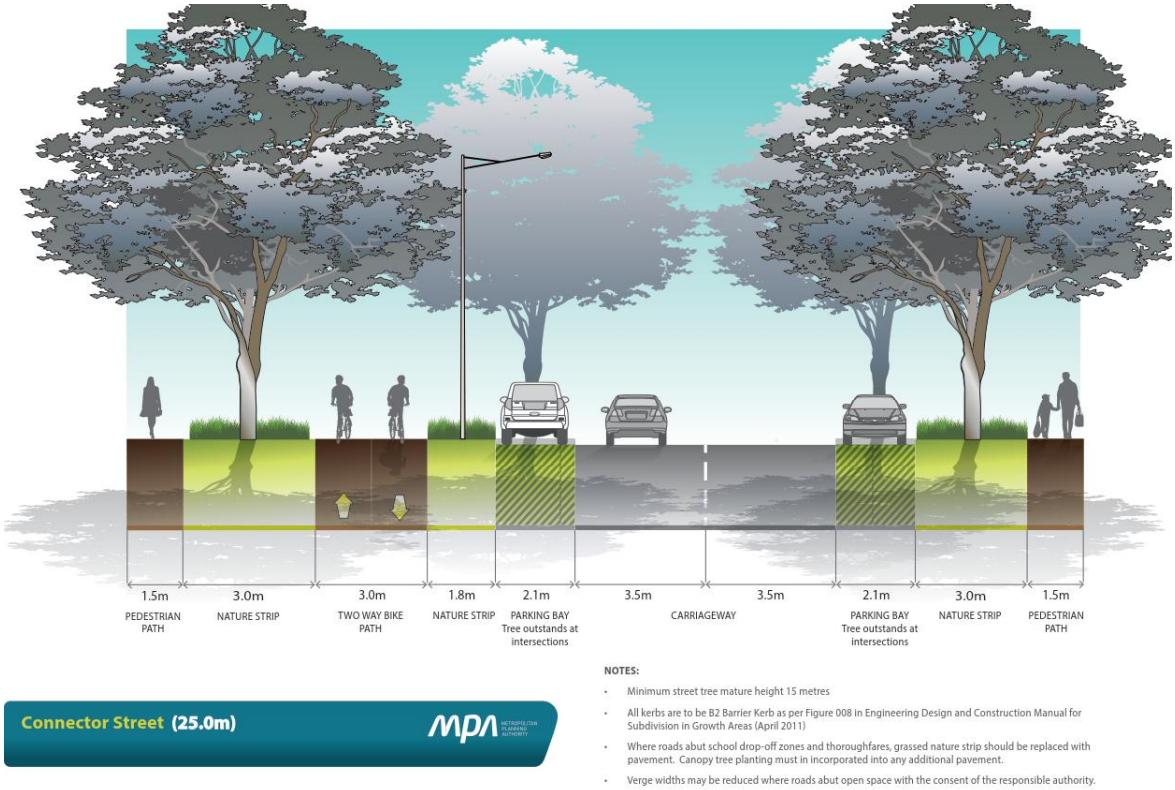


Figure 3.2 - Connector street cross section

For the arterial roads, the cross sections were derived from the previous work completed by Jacobs and GTA Consultants for the ultimate design of Mt Ridley Road and Mickleham Road respectively with dual carriageway, 6 lane cross sections.

The cross section adopted for the ultimate design of Mt Ridley Road has:

- 6 x 3.5m lane
- Central median (varies in width between 2.5m minimum and 6.0m)
- 2.5m verge
- 3.0m shared path on both sided
- Kerbs (median and edge of left lane)

The cross section adopted for the interim design of Mt Ridley Road varies but has the following elements:

- Single through lane in each direction
- Where single lane between kerbs is provided, 3.5m wide lane is provided with a 1.5m shoulder
- Central median in the vicinity of intersections 2 and 3 (varies in width)
- 2.5m verge
- 3.0m shared path on both sides
- Kerbs (median and edge of left lane)

The cross section for the ultimate design of Mickleham Road is as per the GTA Consultants ultimate design.

The cross section for the interim design of Mt Ridley Road transitions from a single carriageway 2 lane cross section (2x3.5m lanes with kerbs) to a dual carriageway cross section at intersection 2. A 2.5m verge and 3.0m shared path were provided on the eastern side of Mickleham Road only.

The intersection lane arrangements were derived from the Cardno report. It must be noted that there were discrepancies between the previous designs prepared by Jacobs and GTA Consultants and the intersection layouts identified by Cardno. As a result, clarification was sought from MPA regarding the desired intersection lane arrangements to be used in the design. This also resulted in minor changes to the cross section adopted along the arterial roads in the vicinity of the intersections.

3.2.4.1 Design vehicles and swept paths

The design vehicles adopted for the intersection configurations are as per *Austroads Design Vehicles and Turning Path Templates Guid*e. The design vehicles were used to establish the intersection size and configuration. The FLPs shown in the drawings do not consider the swept path of a check vehicle (a larger vehicle than the design vehicle which may need to operate with reduced clearances or encroach into adjacent lanes) as the location of signs and traffic signals have not yet been established and therefore would provide limited benefit.

The left turn movements have been assessed at a 5km/h design speed and the right turn movements at 15km/h. Clearances provided for opposing right turn movements are 1m for single opposing vehicles and 2m for two opposing vehicles as per Section 7.2 of *Austroads Guide to Road Design Part 4A*.

Table 3.4 Design Vehicles

INTERSECTION TYPE	INTERSECTIONS	DESIGN VEHICLE
Arterial/Arterial	Intersection 2	Prime mover and semi-trailer (19m)
Arterial/Collector (Connector)	Intersection 1 & 3	Single unit truck/bus (12.5m)

4 DESIGN DEVELOPMENT

4.1 Interim on ultimate

To minimise redundant work, the interim design of intersections was completed after the ultimate configuration was established. The outside kerbs are established for the ultimate arrangement and used in the interim. When the road is upgraded to the ultimate arrangement in the future, construction occurs from the outside in and thus the outside kerb should not need to be altered.

On the concept design drawings for the interim intersection arrangement, as the outside kerb line is set for the ultimate arrangement, a nominal transition has been shown to tie back into the existing road cross section.

4.2 Intersection 1 (Mickleham Rd/Connector Rd – Interim Design)

The interim intersection arrangement has been developed using the GTA Consultants Ultimate Design of Mickleham Road to set out the outside kerbs. The MPA connector street cross section was used for the connector street. The location of the intersection for the interim design was as per the MPA preferred location which is approximately 60m to the north of the intersection location shown by GTA Consultants.

The interim intersection arrangement has two through lanes on Mickleham Road in each direction with a right and left turning pocket for access into the connector street. The carriageways are separated by a median. The outside kerbs match the ultimate design before transitioning back to the existing cross section (2x3.5m lanes) along Mickleham Road.

The ultimate design shown on drawings 2113307A-CIV-0110 and 2113307A-CIV-0120 is the GTA Consultants Ultimate Design prepared for VicRoads. WSP | Parsons Brinckerhoff has not undertaken any design work on the ultimate design.

4.3 Intersection 2 (Mickleham Rd/Mt Ridley Rd – Interim and Ultimate Design)

The ultimate intersection arrangement layout of intersection 2 was provided by MPA. It required double right turn lanes from Mickleham Road northbound into Mt Ridley Road and single right turn lanes for the other legs. Left turning slip lanes on all approaches were required.

The ultimate intersection ties into the GTA Ultimate Design of Mickleham Road. East of the intersection along Mt Ridley Road, the design transitions to a two lane cross section as required by MPA. To the west along Mt Ridley Road, the design continues as a 6 lane dual carriageway cross section, similar to the ultimate design by Jacobs (although no wide kerb side lane is provided).

It must be noted that the ultimate intersection arrangement differs to that shown by GTA Consultants and Jacobs. The lane arrangement is different and the provisions for bus lanes have been removed at the request of MPA.

The interim intersection arrangement used the left turn slip lanes provided by the ultimate design. Two through lanes are provided along Mickleham Road and single through lanes along Mt Ridley Road. Single right turning lanes are provided on all intersection legs. As the intersection is designed to use the ultimate outside kerb position, resultant wide medians occur.

The interim intersection ties into a single carriageway 2 lane (2x3.5m) cross section to the west, north and south of the intersection. To the east of the intersection, the interim intersection design continues as a dual carriageway with single lane (3.5m wide plus 1.5m shoulder) to intersection 3.

4.4 Intersection 3 (Mt Ridley Rd/Connector Boulevard – Interim and Ultimate Design)

The ultimate intersection arrangement has been developed using the Jacobs Ultimate Design of Mt Ridley Road with a slight modification to remove the wide kerbside lanes. The MPA boulevard connector street cross section was used for the connector street for both the ultimate and interim condition. A though lane with right and left turning pockets were provided along the boulevard connector.

For the interim intersection, a single though lane with right and left turning pockets were provided along Mt Ridley Road in each direction. For the ultimate intersection, three through lanes were provided in each direction with right and left turning pockets.

The interim intersection uses the outside ultimate design kerb lines through the intersection before transitioning down to a 2 lane (2x3.5m lanes) cross section to the east along Mt Ridley Road.

4.5 Land take calculations

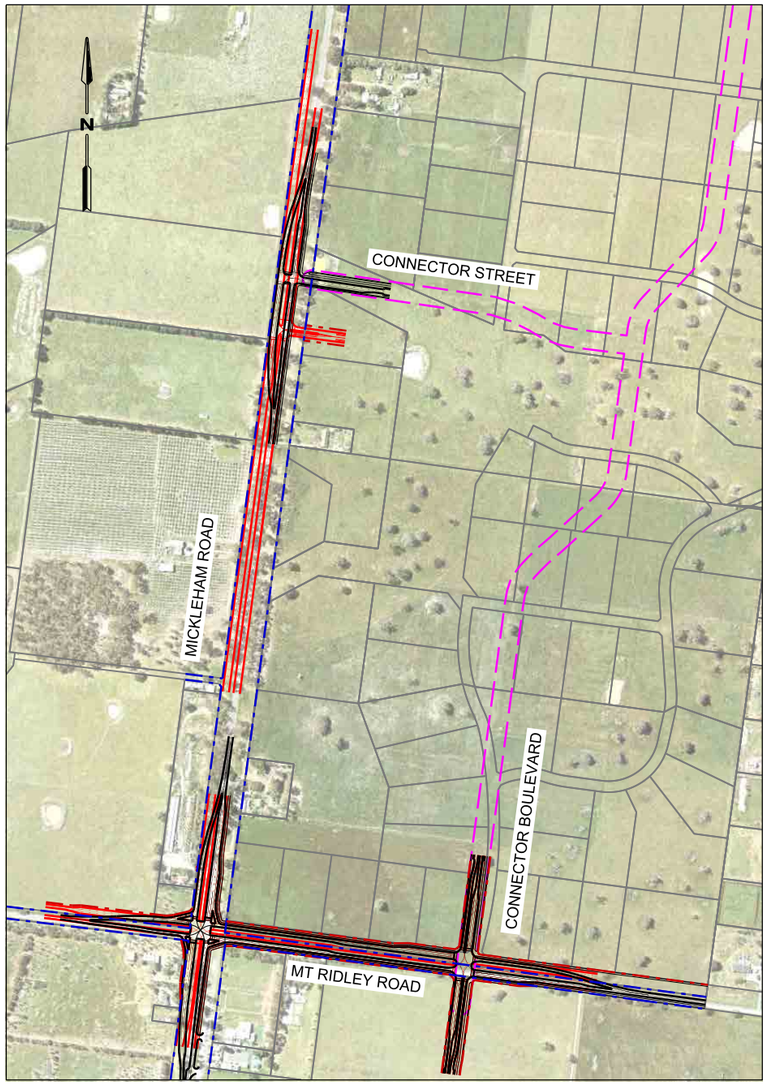
Using the cadastral information, the land take required for the ultimate arrangement of the intersection projects. It should be noted that the proposed right of way (ROW) boundary was assumed to be at the back of path rather than at the extent of the batters. The area of land take was calculated and shown on the drawings in Appendix A.

Appendix A

CONCEPT DESIGN DRAWINGS

METROPOLITAN PLANNING AUTHORITY

LINDUM VALE INFRASTRUCTURE COSTINGS STUDY



LOCALITY PLAN 1:10000

LEGEND

- CONNECTOR ROAD OUTLINE
- PROPOSED ROW BOUNDARY
- EXISTING ROW BOUNDARY
- CADASTRAL BOUNDARY
- INTERIM LAYOUT
- ULTIMATE LAYOUT
- PROPOSED LAND TAKE AREA

DRAWINGS

GENERAL

2113307A-CIV-001	LOCALITY PLAN AND DRAWING DETAILS	SHEET 001

INTERSECTION 1: MICKLEHAM ROAD - CONNECTOR STREET

2113307A-CIV-100	INTERIM INTERSECTION LAYOUT	SHEET 100
2113307A-CIV-101	INTERIM INTERSECTION LAYOUT	SHEET 101
2113307A-CIV-102	INTERIM INTERSECTION LAYOUT	SHEET 102
2113307A-CIV-110	ULTIMATE INTERSECTION LAYOUT	SHEET 110
2113307A-CIV-120	INTERIM & ULTIMATE LAYOUT	SHEET 120

INTERSECTION 2: MICKLEHAM ROAD - MT RIDLEY ROAD

2113307A-CIV-200	INTERIM INTERSECTION LAYOUT	SHEET 200
2113307A-CIV-201	INTERIM INTERSECTION LAYOUT	SHEET 201
2113307A-CIV-202	INTERIM INTERSECTION LAYOUT	SHEET 202
2113307A-CIV-203	INTERIM INTERSECTION LAYOUT	SHEET 203
2113307A-CIV-210	ULTIMATE INTERSECTION LAYOUT	SHEET 210
2113307A-CIV-211	ULTIMATE INTERSECTION LAYOUT	SHEET 211
2113307A-CIV-212	ULTIMATE INTERSECTION LAYOUT	SHEET 212
2113307A-CIV-213	ULTIMATE INTERSECTION LAYOUT	SHEET 213
2113307A-CIV-220	INTERIM & ULTIMATE LAYOUT	SHEET 220

INTERSECTION 3: MT RIDLEY ROAD - CONNECTOR BOULEVARD

2113307A-CIV-300	INTERIM INTERSECTION LAYOUT	SHEET 300
2113307A-CIV-301	INTERIM INTERSECTION LAYOUT	SHEET 301
2113307A-CIV-302	INTERIM INTERSECTION LAYOUT	SHEET 302
2113307A-CIV-310	ULTIMATE INTERSECTION LAYOUT	SHEET 310
2113307A-CIV-311	ULTIMATE INTERSECTION LAYOUT	SHEET 311
2113307A-CIV-320	INTERIM & ULTIMATE LAYOUT	SHEET 320

DRAFT CONCEPT PLAN
FOR DISCUSSION PURPOSES ONLY
This draft plan has been prepared to show a concept for discussion purposes only and has no formal or official status.

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PROJECT
COSTINGS STUDY - LINDUM VALE
LOCALITY PLAN AND DRAWING INDEX
SHEET 001

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PROJECT
COSTINGS STUDY - LINDUM VALE
MICKLEHAM ROAD
INTERIM INTERSECTION LAYOUT
SHEET 100

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COSTINGS STUDY - LINDUM VALE
MICKLEHAM ROAD - CONNECTOR STREET
INTERIM INTERSECTION LAYOUT
SHEET 101

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PROJECT
COSTINGS STUDY - LINDUM VALE
MICKLEHAM ROAD
INTERIM INTERSECTION LAYOUT
SHEET 102

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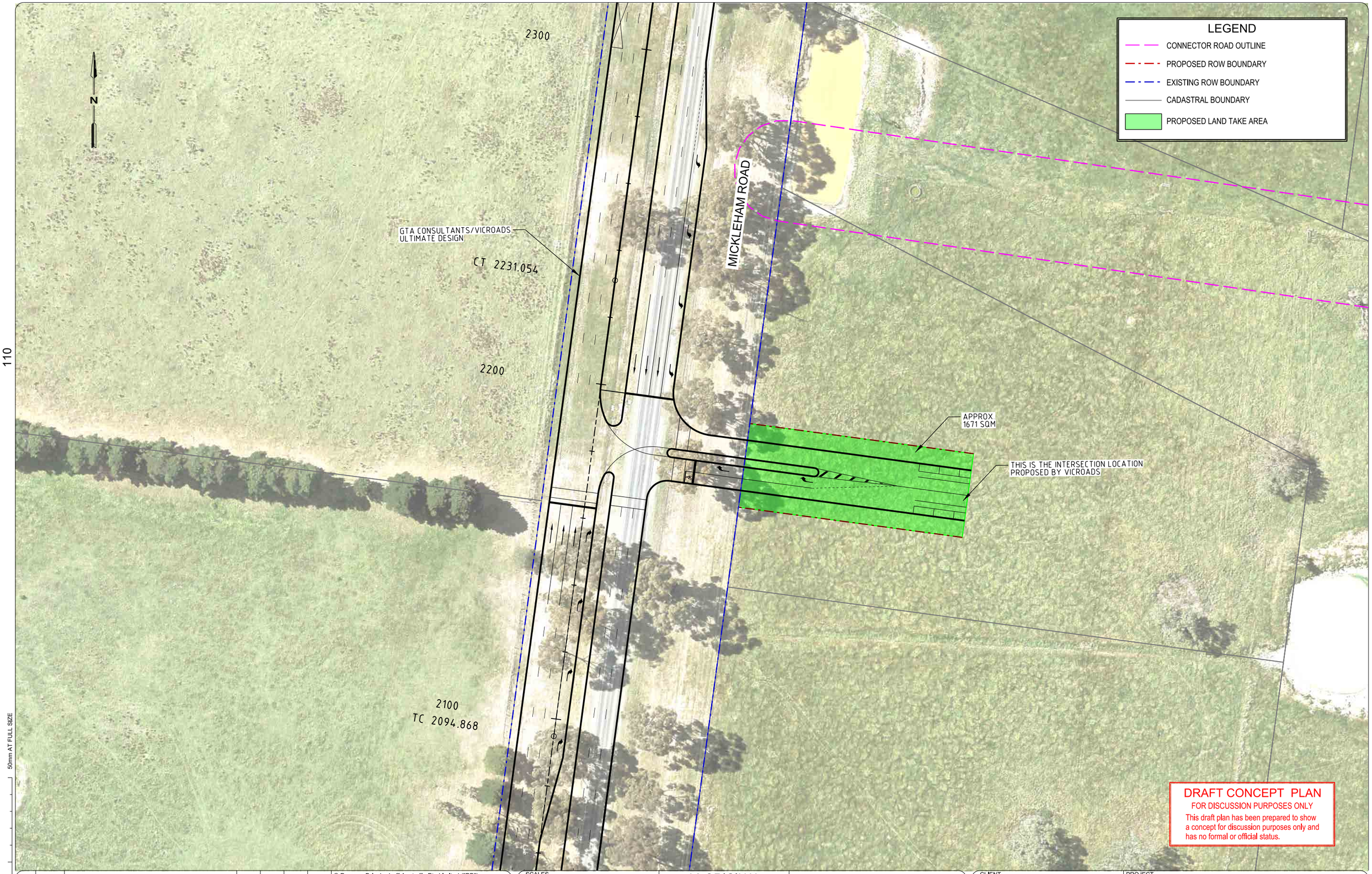

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PROJECT
COSTINGS STUDY - LINDUM VALE
MICKLEHAM ROAD - CONNECTOR STREET
ULTIMATE INTERSECTION LAYOUT
SHEET 110

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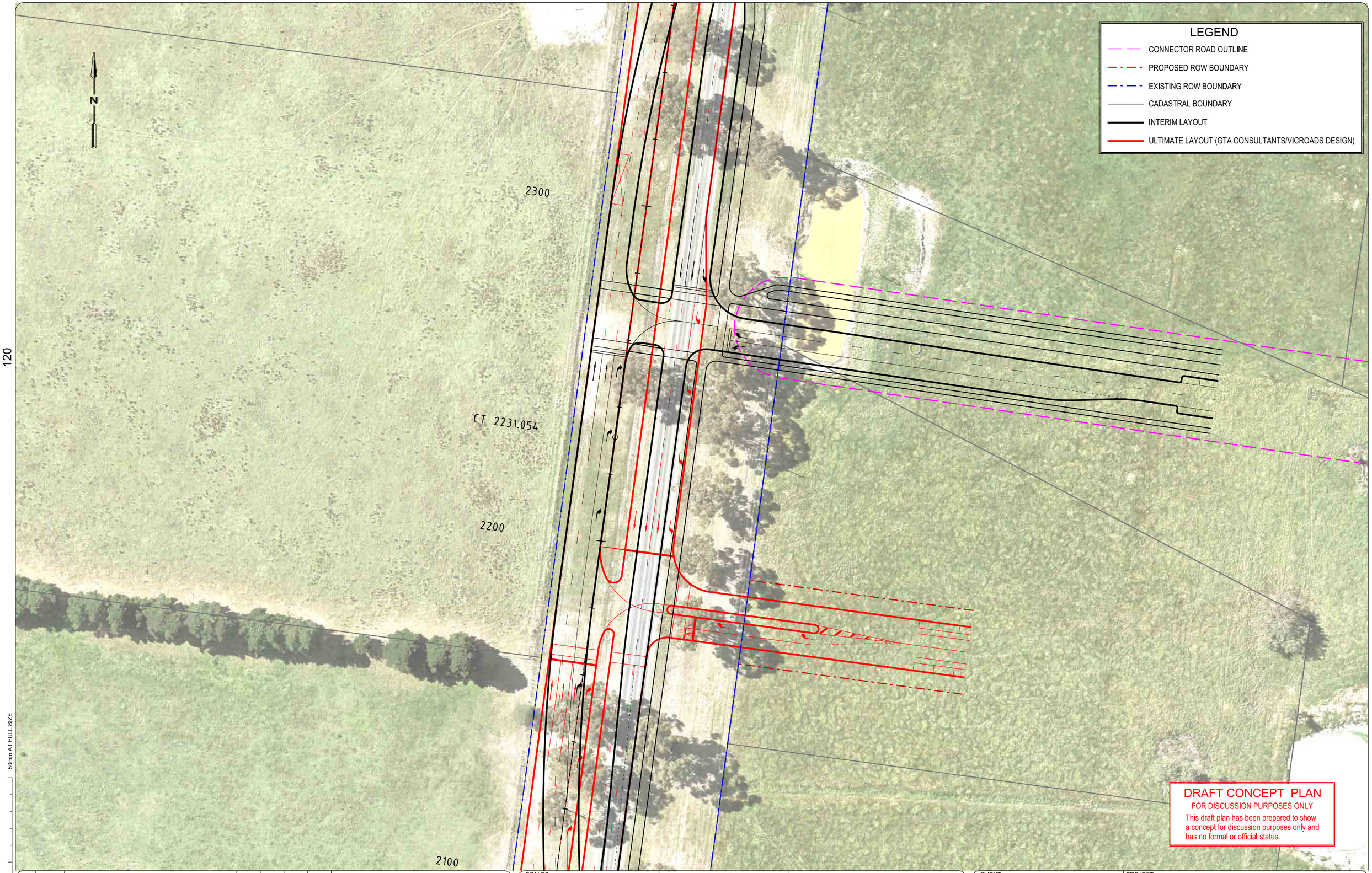

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COSTINGS STUDY - LINDUM VALE
MICKLEHAM ROAD - CONNECTOR STREET
INTERIM AND ULTIMATE INTERSECTION LAYOUT
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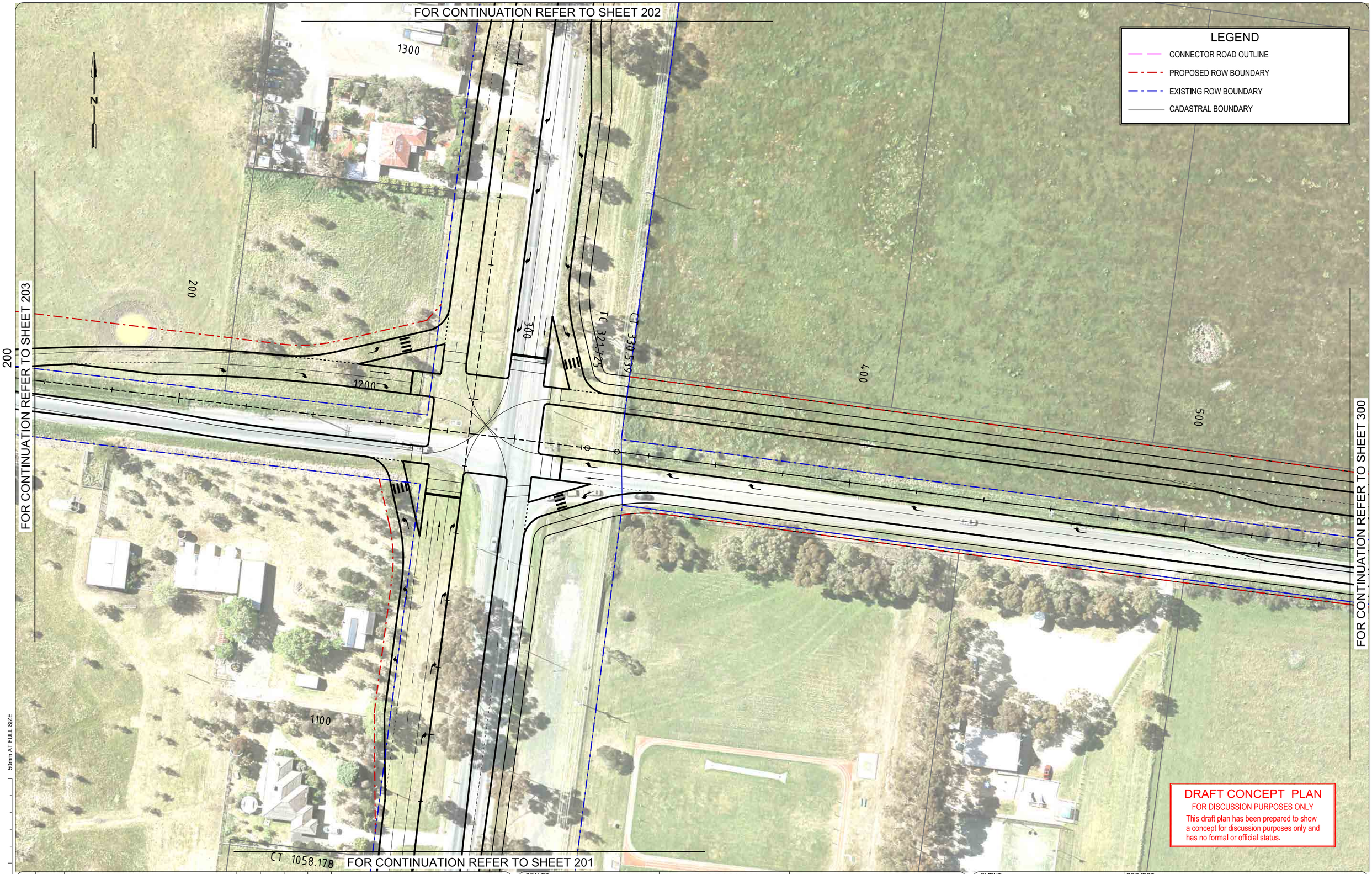

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VERIFY ALL DIMENSIONS ON SITE

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PARSONS BRINCKERHOFF AUSTRALIA PTY LIMITED

SIGNED

DATE

PARSONS BRINCKERHOFF
Level 15
28 Freshwater Place
Southbank, Melbourne
VIC 3006
PO BOX 19016
Melbourne VIC 3006
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ABN 80 078 004 798
Telephone +61 3 9861 1111
Facsimile +61 3 9861 1144
Email: melbourne@pb.com.au

CLIENT
MPA METROPOLITAN PLANNING AUTHORITY

PROJECT
COSTINGS STUDY - LINDUM VALE
MICKLEHAM ROAD - MT RIDLEY ROAD
INTERIM INTERSECTION LAYOUT
SHEET 200

PROJECT No.	DISCIPLINE	NUMBER	REV.
2113307A	CIV	200	B

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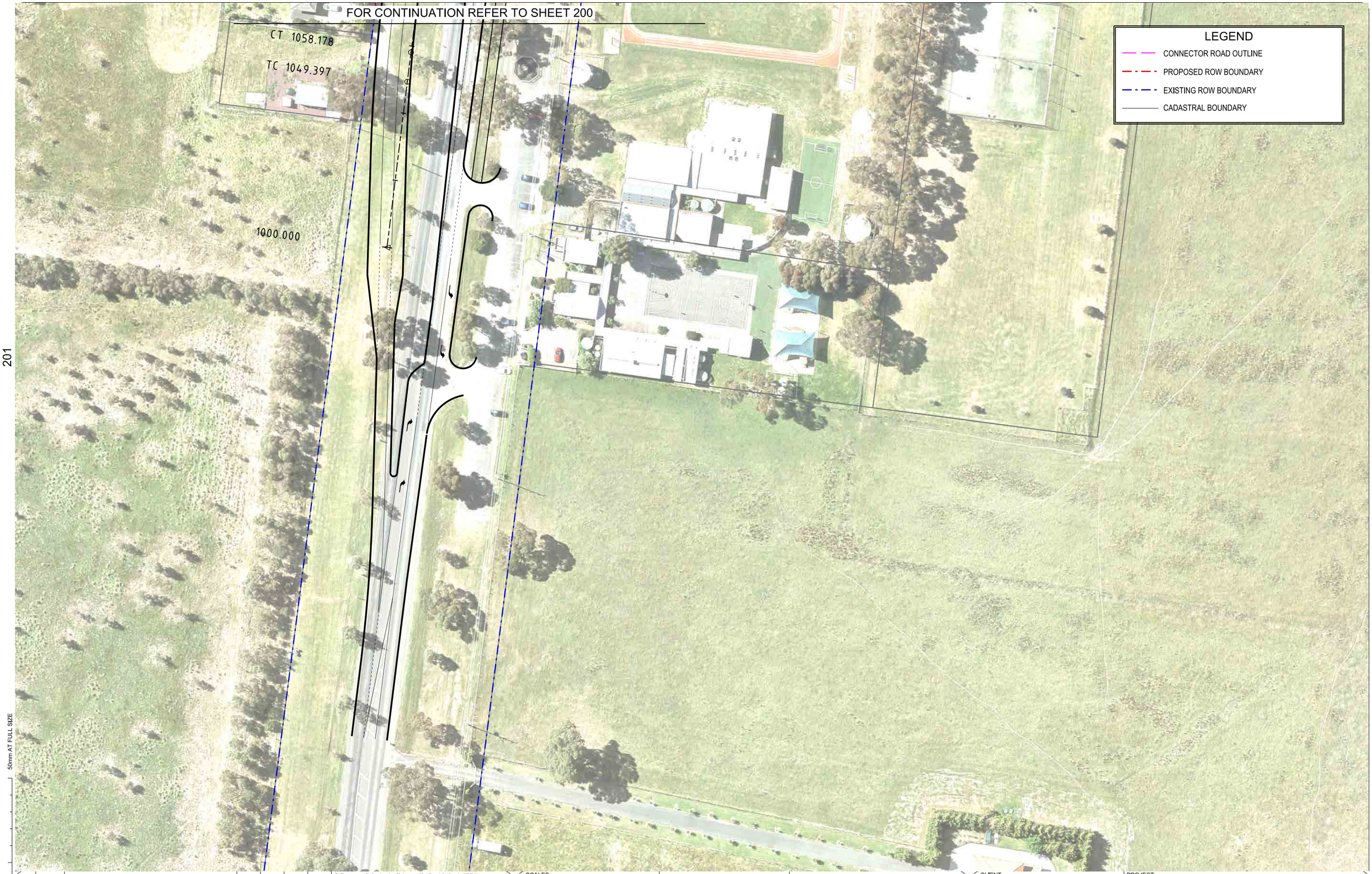
FOR CONTINUATION REFER TO SHEET 200



LEGEND

- CONNECTOR ROAD OUTLINE
- PROPOSED ROW BOUNDARY
- EXISTING ROW BOUNDARY
- CADASTRAL BOUNDARY

201

50mm AT FULL SIZE

REV	DATE	DESCRIPTION	DRAWN	CHECK	DESIGN	VERIFY
A	14/06/2016	FOR INFORMATION	DH	GW	DH	DR

SCALES

0 10 20 30

Full Size 1:1000 A3
SCALE (m)

A3 ORIGINAL
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PROJECT
COSTINGS STUDY - LINDUM VALE
MICKLEHAM ROAD - MT RIDLEY ROAD
INTERIM INTERSECTION LAYOUT
SHEET 201

PROJECT No.	DISCIPLINE	NUMBER	REV.
2113307A	CIV	201	A

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202

50mm AT FULL SIZE

REV	DATE	DESCRIPTION	DRAWN	CHECK	DESIGN	VERIFY
A	14/06/2016	FOR INFORMATION	DH	GW	DH	DR

SCALES

0 10 20 30

Full Size 1:1000 A3
SCALE (m)

A3 ORIGINAL
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PROJECT
COSTINGS STUDY - LINDUM VALE
MICKLEHAM ROAD - MT RIDLEY ROAD
INTERIM INTERSECTION LAYOUT
SHEET 202

PROJECT No.	DISCIPLINE	NUMBER	REV.
2113307A	CIV	202	A

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50mm AT FULL SIZE

REV	DATE	DESCRIPTION	DRAWN	CHECK	DESIGN	VERIFY
A	14/06/2016	FOR INFORMATION	DH	GW	DH	DR

SCALES

0 10 20 30

Full Size 1:1000 A3
SCALE (m)

A3 ORIGINAL
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MICKLEHAM ROAD - MT RIDLEY ROAD
INTERIM INTERSECTION LAYOUT
SHEET 203

PROJECT No.	DISCIPLINE	NUMBER	REV.
2113307A	CIV	203	A

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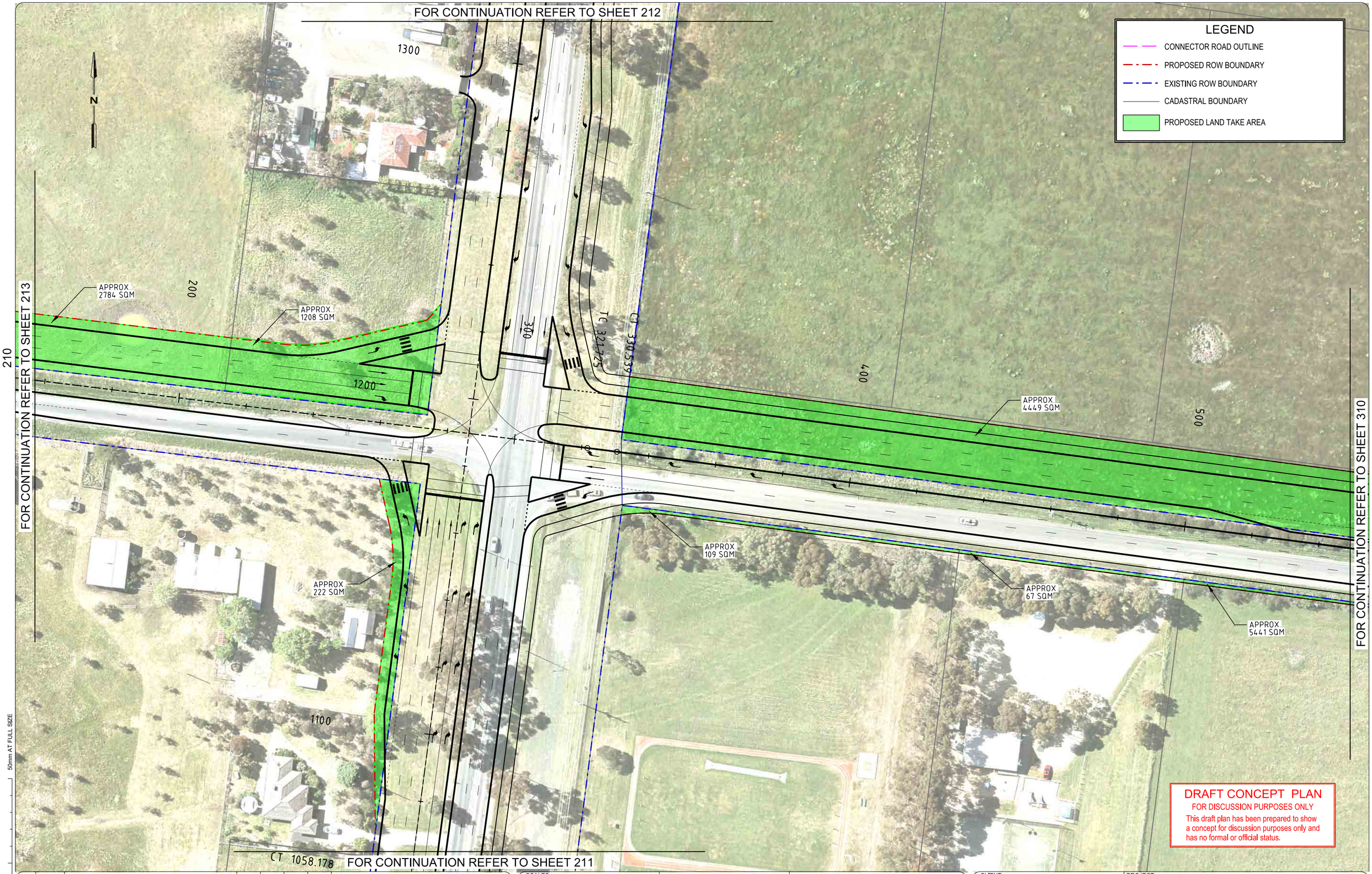

50mm AT FULL SIZE

REV	DATE	DESCRIPTION	DRAWN	CHECK	DESIGN	VERIFY
B	14/06/2016	FOR INFORMATION	DH	GW	DH	DR
A	17/08/15	FOR INFORMATION	JB	DH	JB	

SCALES
0 10 20 30
Full Size 1:1000 A3
SCALE (m)

A3 ORIGINAL
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PROJECT
COSTINGS STUDY - LINDUM VALE
MICKLEHAM ROAD - MT RIDLEY ROAD
ULTIMATE INTERSECTION LAYOUT
SHEET 210

PROJECT No.	DISCIPLINE	NUMBER	REV.
2113307A	CIV	210	B

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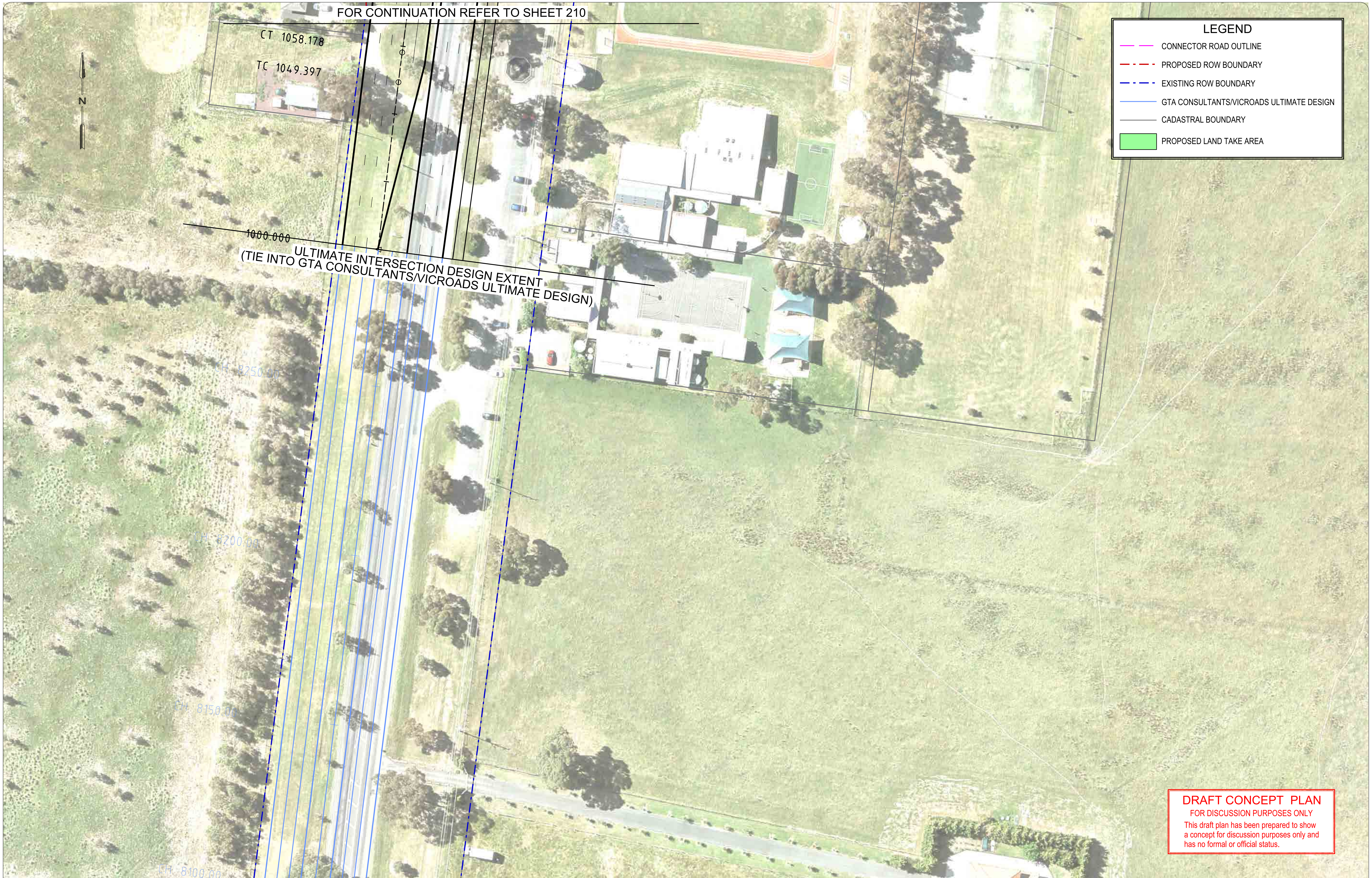

211

50mm AT FULL SIZE

REV	DATE	DESCRIPTION	DRAWN	CHECK	DESIGN	VERIFY
A	14/06/2016	FOR INFORMATION	DH	GW	DH	DR

SCALES

0 10 20 30

Full Size 1:1000 A3
SCALE (m)

A3 ORIGINAL
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PROJECT

COSTINGS STUDY - LINDUM VALE

MICKLEHAM ROAD - MT RIDLEY ROAD
ULTIMATE INTERSECTION LAYOUT
SHEET 211

PROJECT No.	DISCIPLINE	NUMBER	REV.
2113307A	CIV	211	A

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212

50mm AT FULL SIZE

REV	DATE	DESCRIPTION	DRAWN	CHECK	DESIGN	VERIFY
A	14/06/2016	FOR INFORMATION	DH	GW	DH	DR

SCALES
0 10 20 30
Full Size 1:1000 A3
SCALE (m)

A3 ORIGINAL
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PROJECT
COSTINGS STUDY - LINDUM VALE
MICKLEHAM ROAD - MT RIDLEY ROAD
ULTIMATE INTERSECTION LAYOUT
SHEET 212

PROJECT No.	DISCIPLINE	NUMBER	REV.
2113307A	CIV	212	A

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50mm AT FULL SIZE

REV	DATE	DESCRIPTION	DRAWN	CHECK	DESIGN	VERIFY
A	14/06/2016	FOR INFORMATION	DH	GW	DH	DR

SCALES

0 10 20 30

Full Size 1:1000 A3
SCALE (m)

A3 ORIGINAL
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PROJECT
COSTINGS STUDY - LINDUM VALE
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ULTIMATE INTERSECTION LAYOUT
SHEET 213

PROJECT No.	DISCIPLINE	NUMBER	REV.
2113307A	CIV	213	A

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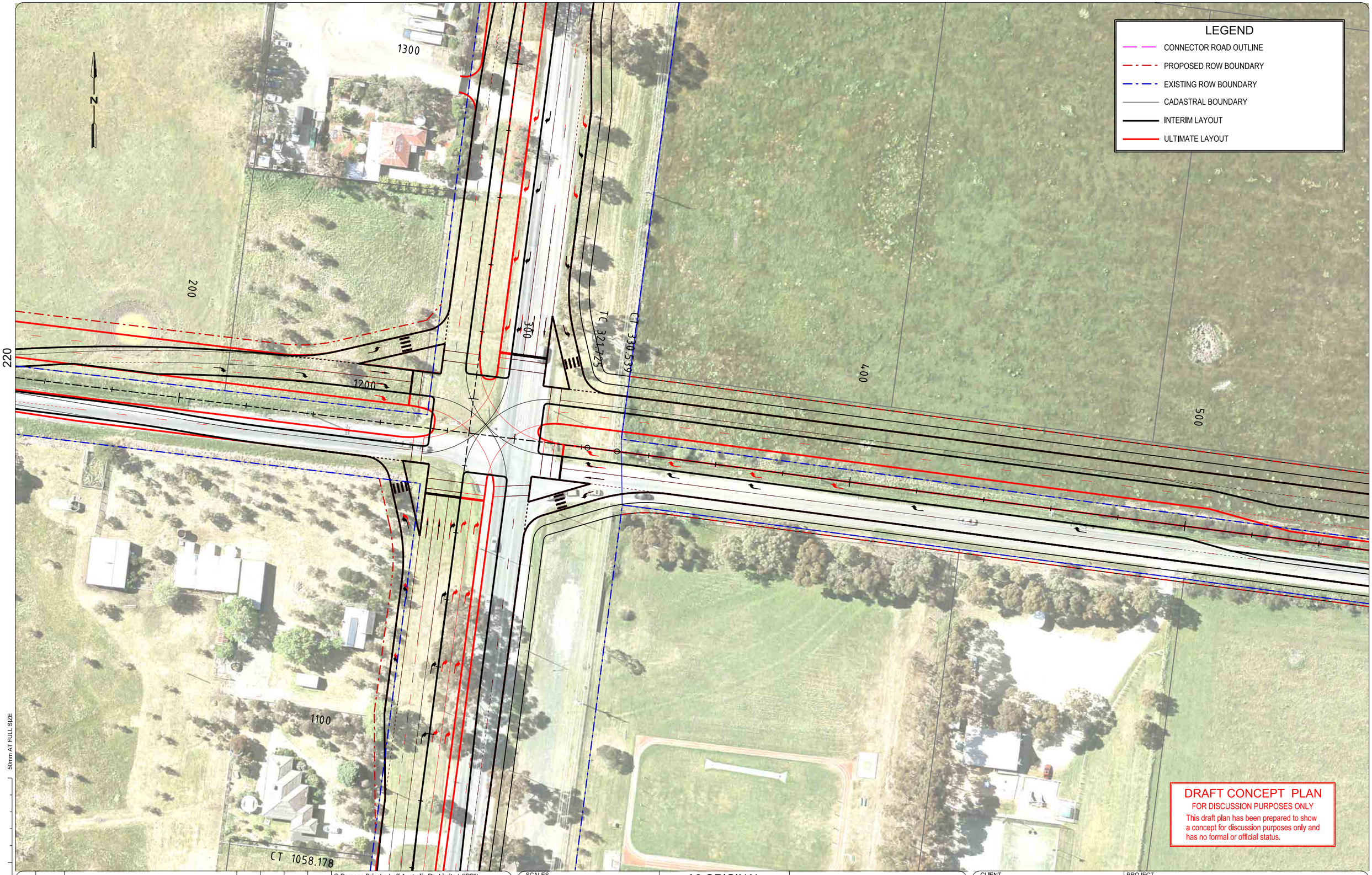

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REV	DATE	DESCRIPTION	DRAWN	CHECK	DESIGN	VERIFY
B	14/06/2016	FOR INFORMATION	DH	GW	DH	DR
A	17/08/15	FOR INFORMATION	JB	DH	JB	

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SCALES
0 10 20 30
Full Size 1:1000 A3
SCALE (m)

A3 ORIGINAL
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PROJECT
COSTINGS STUDY - LINDUM VALE
MICKLEHAM ROAD - MT RIDLEY ROAD
INTERIM & ULTIMATE LAYOUT
SHEET 220

PROJECT No.	DISCIPLINE	NUMBER	REV.
2113307A	CIV	220	B

50mm AT FULL SIZE

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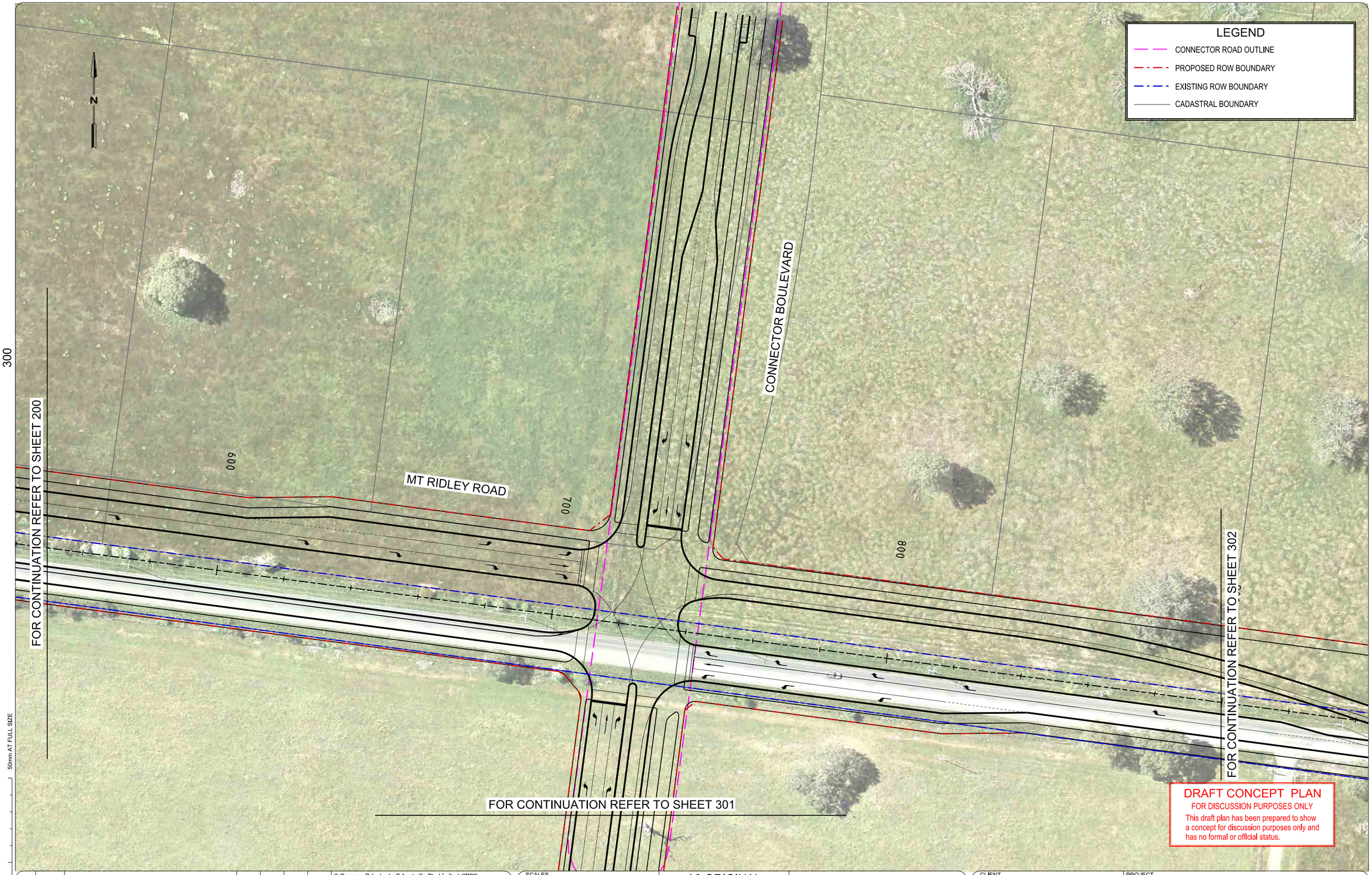

DRAFT CONCEPT PLAN
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300

50mm AT FULL SIZE

REV	DATE	DESCRIPTION	DRAWN	CHECK	DESIGN	VERIFY
B	14/06/2016	FOR INFORMATION	DH	GW	DH	DR
A		FOR INFORMATION	JB	DH	JB	

SCALES
0 10 20 30
Full Size 1:1000 A3
SCALE (m)

A3 ORIGINAL
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PROJECT
COSTINGS STUDY - LINDUM VALE
MT RIDLEY ROAD - CONNECTOR BOULEVARD
INTERIM INTERSECTION LAYOUT
SHEET 300

PROJECT No.	DISCIPLINE	NUMBER	REV.
2113307A	CIV	300	B

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301

50mm AT FULL SIZE

REV	DATE	DESCRIPTION	DRAWN	CHECK	DESIGN	VERIFY
B	14/06/2016	FOR INFORMATION	DH	GW	DH	DR
A		FOR INFORMATION	JB	DH	JB	

SCALES
0 10 20 30
Full Size 1:1000 A3
SCALE (m)

A3 ORIGINAL
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PROJECT
COSTINGS STUDY - LINDUM VALE
MT RIDLEY ROAD - CONNECTOR BOULEVARD
INTERIM INTERSECTION LAYOUT
SHEET 301

PROJECT No.	DISCIPLINE	NUMBER	REV.
2113307A	CIV	301	B

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302

N

FOR CONTINUATION REFER TO SHEET 300

900

1000

MT RIDLEY ROAD

1100

1124.297

LEGEND

- CONNECTOR ROAD OUTLINE
- PROPOSED ROW BOUNDARY
- EXISTING ROW BOUNDARY
- CADASTRAL BOUNDARY

DRAFT CONCEPT PLAN

FOR DISCUSSION PURPOSES ONLY

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50mm AT FULL SIZE

REV	DATE	DESCRIPTION	DRAWN	CHECK	DESIGN	VERIFY
B	14/06/2016	FOR INFORMATION	DH	GW	DH	DR
A		FOR INFORMATION	JB	DH	JB	

SCALES

0 10 20 30

Full Size 1:1000 A3
SCALE (m)

A3 ORIGINAL

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PROJECT

COSTINGS STUDY - LINDUM VALE

MT RIDLEY ROAD
INTERIM INTERSECTION LAYOUT
SHEET 302

PROJECT No.	DISCIPLINE	NUMBER	REV.
2113307A	CIV	302	B

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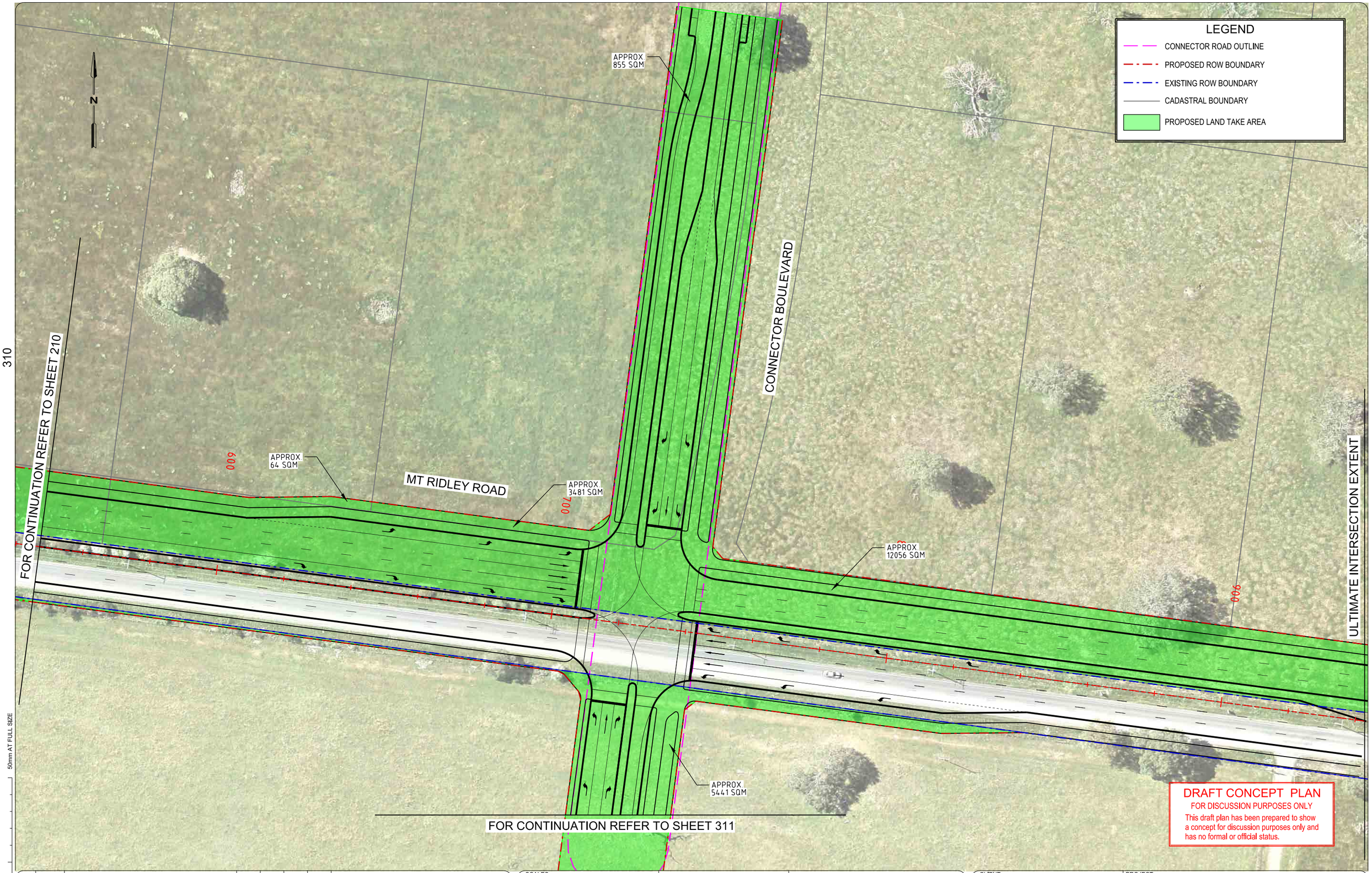

310

50mm AT FULL SIZE

REV	DATE	DESCRIPTION	DRAWN	CHECK	DESIGN	VERIFY
B	14/06/2016	FOR INFORMATION	DH	GW	DH	DR
A		FOR INFORMATION	JB	DH	JB	

SCALES

0 10 20 30

Full Size 1:1000 A3
SCALE (m)

A3 ORIGINAL
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PROJECT
COSTINGS STUDY - LINDUM VALE
MT RIDLEY ROAD - CONNECTOR BOULEVARD
ULTIMATE INTERSECTION LAYOUT
SHEET 310

PROJECT No.	DISCIPLINE	NUMBER	REV.
2113307A	CIV	310	B

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REV	DATE	DESCRIPTION	DRAWN	CHECK	DESIGN	VERIFY
B	14/06/2016	FOR INFORMATION	DH	GW	DH	DR
A		FOR INFORMATION	JB	DH	JB	

SCALES
0 10 20 30
Full Size 1:1000 A3
SCALE (m)

A3 ORIGINAL
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COSTINGS STUDY - LINDUM VALE
MT RIDLEY ROAD - CONNECTOR BOULEVARD
ULTIMATE INTERSECTION LAYOUT
SHEET 311

PROJECT No.	DISCIPLINE	NUMBER	REV.
2113307A	CIV	311	B

50mm AT FULL SIZE

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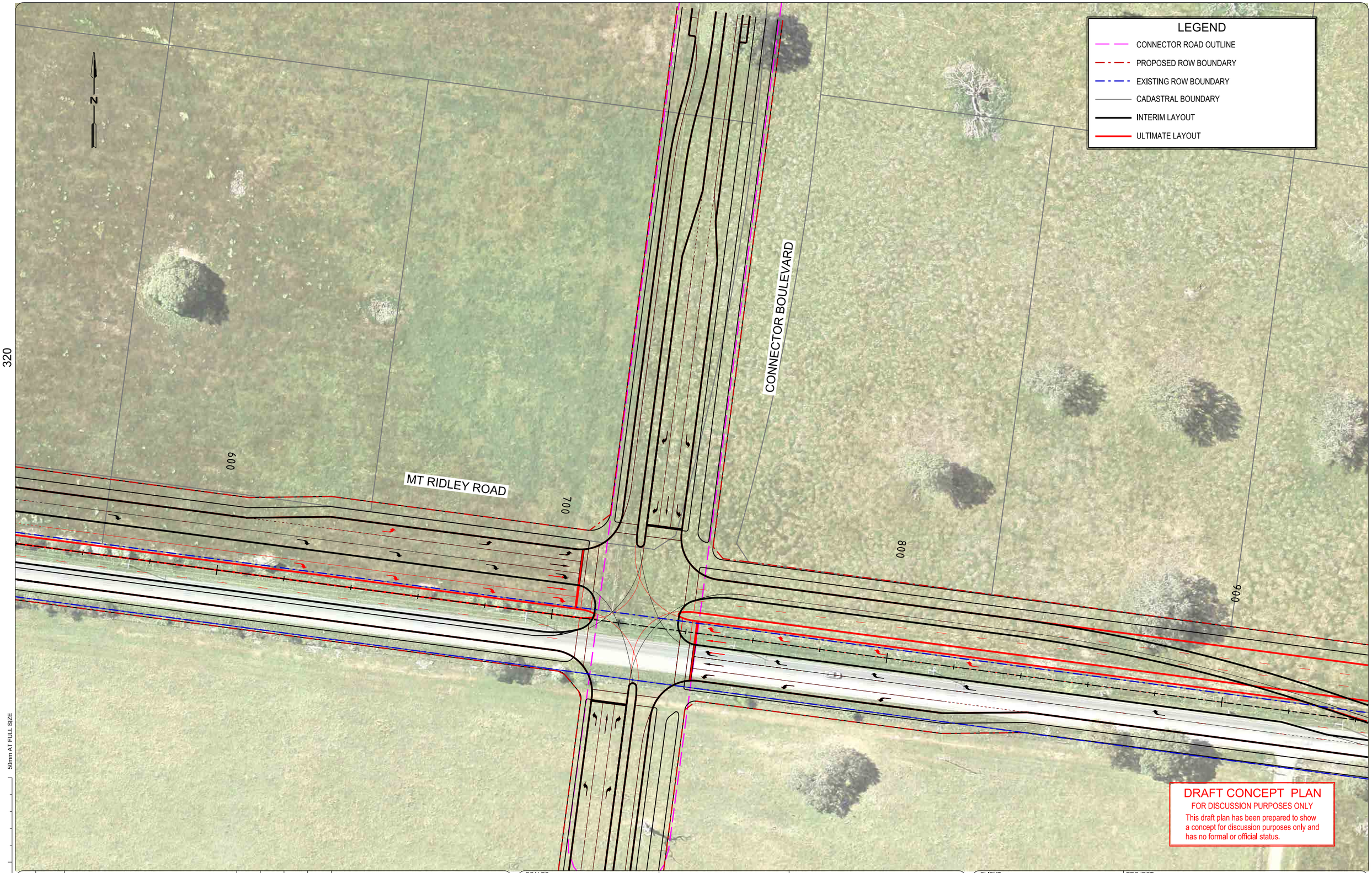

320

50mm AT FULL SIZE

REV	DATE	DESCRIPTION	DRAWN	CHECK	DESIGN	VERIFY
B	14/06/2016	FOR INFORMATION	DH	GW	DH	DR
A		FOR INFORMATION	JB	DH	JB	

SCALES

0 10 20 30

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SCALE (m)

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COSTINGS STUDY - LINDUM VALE

MT RIDLEY ROAD - CONNECTOR BOULEVARD
INTERIM & ULTIMATE LAYOUT
SHEET 320

PROJECT No.	DISCIPLINE	NUMBER	REV.
2113307A	CIV	320	B

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