Meinhardt (QLD) Pty Ltd
A.B.N. 49 010 014 776

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Chevron Island, Queensland 4217

T: +61 7 5528 6411

Meinhardtgroup.com

11 October 2021

Nambucca Valley Council
PO Box 177
Macksville NSW 2447

RE: Development of Seniors Living and Aged Care Facilities, 24 Coronation Road, Congarinni North, NSW
Further Information Request

Meinhardt Group was commissioned by Congarinni North Pty Ltd to prepare this report to support the development of the proposed Seniors Living and Aged Care Facilities project at Congarinni North.

The main objective of this report is to address Nambucca Valley Council's concerns in relation to the proposed access road, TransGrid infrastructure and flood impact on other properties. This report should be read in conjunction with Meinhardt's Infrastructure Service Assessment and Concept Design Report dated 31 May 2021 as well as reference a meeting with Council on 28 September 2021 to discuss and agree RFI requirements.

Site Access – Power Lines

The access road documented in the Concept Design Report did not meet all the requirements for clearances to the existing TransGrid infrastructure. Meinhardt had several discussions with TransGrid officers to review and resolve these issues and has received an *Acceptance Letter* from TransGrid approving the access design and route.

A summary of new changes to the access road are summarised below:

- *Road realignment* – Road location has been shifted to the north to achieve TransGrid's minimum horizontal exclusion zone clearance to the transmission line structures as well as 30m clearance from the landside structure.
- *Road regrading* – Road grading changed to achieve TransGrid's minimum vertical clearance from the maximum sag of the transmission lines conductors. (6,7m minimum) amended

In addition to the above, an existing dam was incorrectly identified in a letter from Essential Energy as 'proposed'. It was confirmed to them than any proposed water bodies for stormwater treatment of the development will be located and constructed in accordance with TransGrid guidelines.

The new regraded access road configuration complies with all TransGrid requirements. Copy of the drawings submitted to TransGrid and their response/approval are included in Attachment A.

Site access – Flooding Considerations

Nambucca Valley Council advised their concerns regarding the possible flood impacts to neighbouring properties and access during flood events.

A meeting was held on 29 September 2021 with Nambucca Valley Council. In this meeting Brad Lane confirmed the following requirement:

- *Access road levels need to be at least the same level of Joffre Street.*
- *Access road design need to consider options of culverts, bridging and impacts by debris.*
- *Flood Impacts to neighbouring properties. This requires flood modelling*.

To address the above, the following works where completed:

Reprofiling/reconstruction design works at Coronation Road

A 286m long section of Coronation Road is proposed to be modified and ensure the access road to the site is above 2.8m AHD. Lidar information dated 2016 from Geoscience Australia indicate the minimum road crest level at Joffre St is 2.75m.

Please refer to Coronation Longitudinal Section Plan on Attachment B.

Design for access road and intersection to Coronation Road

The access road and intersection to Coronation Road design was updated to suit new profile at Coronation Road. New design still complies with TransGrid requirements.

New Flood Impact Assessment

A new Flood Impact Assessment (FIA) was completed by Water Modelling Solutions. Meinhardt provided design tins of the road design as per civil drawings in Appendix B. This report addresses the Impacts, mitigation strategies and an overview of flooding conditions. This report is included in Attachment C.

Flood Impact Assessment Discussion

This section provides an engineering overview of the FIA report.

a. The works required that the access road and Coronation Road need to achieve the same level of flood immunity as Joffre Street create a large blockage to the natural flood path in the area.

b. Survey data indicates the proposed access road blocks three main flow streams form the upper catchment. To maintain existing catchment conditions and mitigate flooding impacts to neighbouring properties, it will be necessary to specify three sets of culverts (or bridges).

c. The FIA report documented two scenarios for culvert configuration that achieve acceptable level of mitigation. Considering the flood level for the 1% AEP (Annual Exceedance Probability) flood event is around 4.2m AHD, there is the opportunity to reduce the levels on the access road (to no less than 2.8m), to allow more flood flows over and across the road, reduce the extent of earthworks and reduce the size of the culvert crossings. It is anticipated that if in the future changes are proposed to the access road configuration, further flood modelling will be required.

d. The development recommends to adopt the mitigation strategy as per design scenario A on the FIA report, this is three set of culverts with 40 x 3.6w 2.4h reinforced concrete box culverts.

e. FIA report indicates the proposed access road to Joffre Street has an immunity of at least 10% AEP.

f. Blockage Risk Review:

- Peak Flow Velocity figures included in the report (FIA Appendix C-5 and C6) indicate the velocities at the flood plain southwest of the site remain below 1 m/s for all storms up to 1% AEP. Based on this and considering the nature/use of the upstream catchment and the size of the culvert infrastructure to be provided, the risk of culvert blockage is very low.
- Design philosophy will specify three sets of culvert crossings (or bridges) to drain the existing streams servicing the southwest catchment. A total of 40 culverts 3.6w 2.4h RCBC will be provided. It can be implied form the FIA report that if we experience a 20% blockage (32/40), any impacts will be minimal and will be contained within the flood plains adjacent to the site.
- Based on the above, it is anticipated that large blockages can only be caused by large volume/low weight debris (eg. cars), so the installation of debris deflectors will need to be design for during implementation phase.

Conclusions

Based on the above and information contained on the Appendixes, the development of the proposed Seniors Living and Aged Care Facilities project at Congarinni North can be developed in accordance with Nambucca Valley Council's requirements

- Mitigation design works discussed above are recommended to ensure the access road and developments works have no adverse flood impacts to neighbouring properties.
- The proposed access road will provide safe flood free access to the site in relative frequent flood events (up to 10% AEP flood events).
- The proposed access road design complies with TransGrid requirements.

We trust this report (and supplementary documentation) provides Nambucca Valley Council sufficient information to satisfy Council's concerns in regards the access road. Other relevant civil drawings have been included in Attachment D for reference and completeness.

Should you wish to discuss further any aspect related to this report, please do not hesitate to contact us.

Yours faithfully

MEINHARDT URBAN

Juan Castro (RPEQ 19428)

Associate Director – Civil

Encl. Attachment A: Submission and Response by TransGrid
Attachment B: Civil Drawings Coronation Longitudinal Section Plan
Road 1 Longitudinal Section Sheet 1 of 3
Attachment C: Flood Impact Assessment Report by Water Modelling Solutions dated 7/10/21
Attachment D: Relevant Civil Engineering Design Drawings

Attachment A: Submission and Response by TransGrid

Juan Castro

Subject: FW: 2021-201 CNR-19276, 24 Coronation Road, Congarinni North (DA2021/056) Lot 188 in DP 755537 & Lot 155 in DP 755537

Attachments: 2021-201; 01.07.21 Unacceptable Letter.pdf; 122896_SK01-SK02 - FOR TRANSGRID INFO-SK01.pdf; ROAD 1 REALIGN TIN FILE.dwg

---

From: Mihail Trifu
Sent: Friday, 16 July 2021 5:32 PM
To: Easements&Development@transgrid.com.au
Cc: Michael.Platt@transgrid.com.au; Johann Mouton <Johann.Mouton@meinhardtgroup.com>; Steve Fittock <Steve.Fittock@meinhardtgroup.com>; Juan Castro <Juan.Castro@meinhardtgroup.com>
Subject: FW: 2021-201 CNR-19276, 24 Coronation Road, Congarinni North (DA2021/056) Lot 188 in DP 755537 & Lot 155 in DP 755537

Hi Michael,

In response to the matters mentioned in the info we received from Transgrid (attached for your convenience), please find attached the pdf of the sketches and the relevant tin cad file for the alternative entry road proposal in order to achieve a minimum 6.7m ground clearance, as specified by AS7000, as requested in the Unacceptable Letter.
Please mention the info we provide in the attached documents needs to be confirm by Transgrid.
As also shown in the sketches, we request Transgrid to supply relevant "As Constructed" details to Meinhardt to confirm design comply to specifications.

Please do not hesitate to contact us if further information is required.

Regards,

Mihail Trifu
Civil Designer

MEINHARDT
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E: mihail.trifu@bradleesmeinhardt.com

Infrastructure & Environment | Structures | MEP | Project Management | Urban Development | Façade Engineering | Environmentally Sustainable Design | Fire Performance Engineering | Integrated Design Management | Mission Critical Facility Design

From: Easements&Development <Easements&Development@transgrid.com.au>
Sent: Thursday, 1 July 2021 3:15 PM
To: Johann Mouton <Johann.Mouton@meinhardtgroup.com>
Cc: 'ben.lane@nambucca.nsw.gov.au' <ben.lane@nambucca.nsw.gov.au>
Subject: 2021-201 CNR-19276, 24 Coronation Road, Congarinni North (DA2021/056) Lot 188 in DP 755537 & Lot 155 in DP 755537

Good Afternoon,

TransGrid Reference Number: 2021-201

Location: **CNR-19276, 24 Coronation Road, Congarinni North (DA2021/056) Lot 188 in DP 755537 & Lot 155 in DP 755537**

Proposal: **Seniors Housing (276 Self-contained dwellings, 75 bed care facility)**

TransGrid: **Coffs Harbour – Kempsey 132KV TL (Feeder 9W6/9W2, Structure Span 289-291)**

Please find attached TransGrid response to: **2021-201 CNR-19276, 24 Coronation Road, Congarinni North (DA2021/056) Lot 188 in DP 755537 & Lot 155 in DP 755537**

Regards
Michael

Michael Platt
Development Assessment & Control Officer | Network Planning and Operations

Transgrid | 200 Old Wallgrove Road, Wallgrove, NSW, 2766
T: (02) 9620 0161 **M:** 0427 529 997
E: Michael.Platt@transgrid.com.au **W:** www.transgrid.com.au

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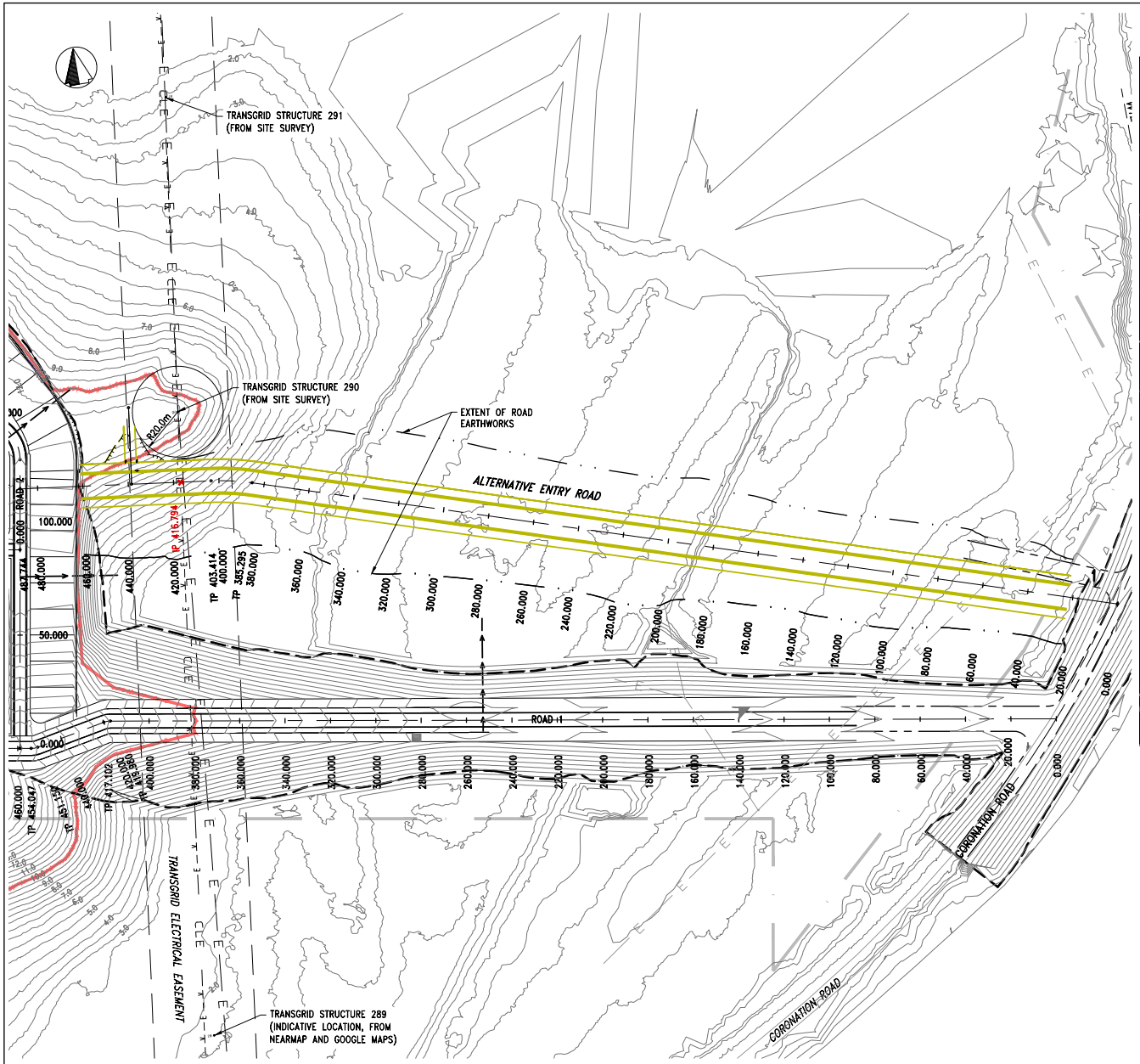
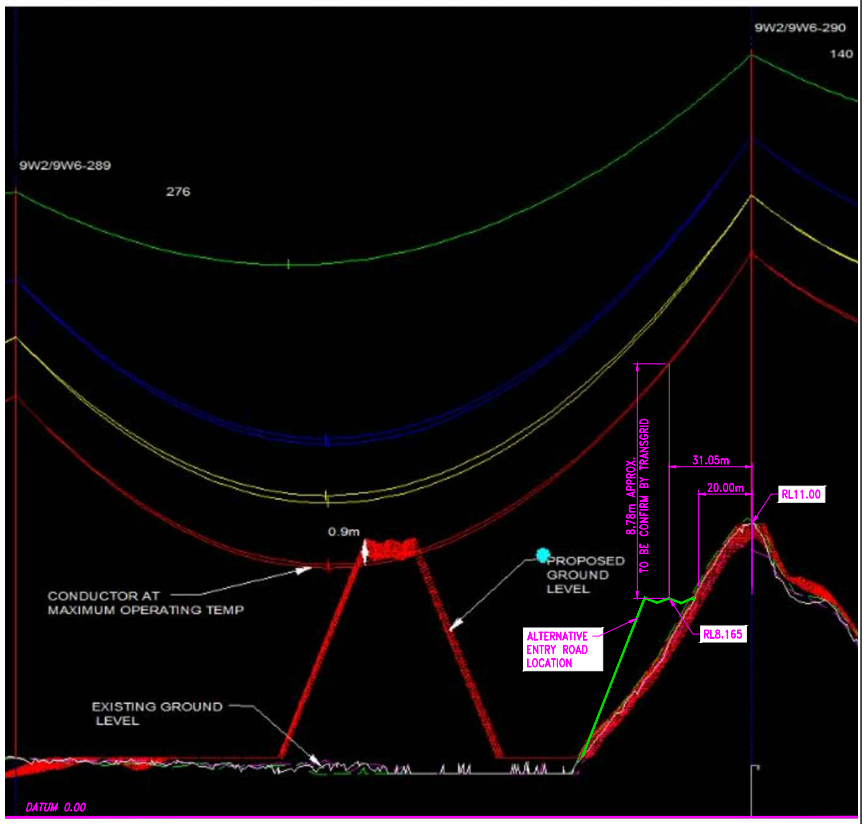


LAYOUT
SCALE 1:100

Figure 4 - PLS-CADD Proposed Ground Level - Profile View (289-290)



ALTERNATIVE ENTRY ROAD UNDER TRANSGRID TRANSMISSION LINES CONDUCTORS
SECTION ROAD CH416.794
SCALE VERT 1:100
HORIZ 1:1000

TRANSGRID TO SUPPLY "AS CONSTRUCTED" DETAILS TO MEINHARDT TO CONFIRM DESIGN COMPLY TO SPECIFICATIONS.

LEGEND

- FINISHED SURFACE CONTOURS
- NOMINAL KERB LINE
- TOP OF BATTER
- TOE OF BATTER
- OVERLAND FLOW PATH
- RETAINING WALL
- EXISTING STORMWATER
- EXISTING SEWER
- EXISTING WATER
- EXISTING ELECTRICAL
- EXISTING SWALE DRAIN
- PMF FLOOD LEVEL RL10.00 LINE
- LIMIT OF WORKS

1 : 100 VERT. (FULL SIZE A1)
1 : 200 VERT. (REDUCED SIZE A3)
1 : 1000 HORIZ. (FULL SIZE A1)
1 : 2000 HORIZ. (REDUCED SIZE A3)
1 : 1000 (FULL SIZE A1)
1 : 2000 (REDUCED SIZE A3)

CLIENT	CONGARINNI NORTH PTY LTD	PROJECT No	122896
JOB TITLE	MACKSVILLE 24 CORONATION ROAD CONGARINNI NRTH	SKETCH No	SK01
DRAWING TITLE	ENTRY ROAD CROSSING UNDER TRANSGRID TRANSMISSION LINES CONDUCTORS	REV	A
		DATE	15/07/2021

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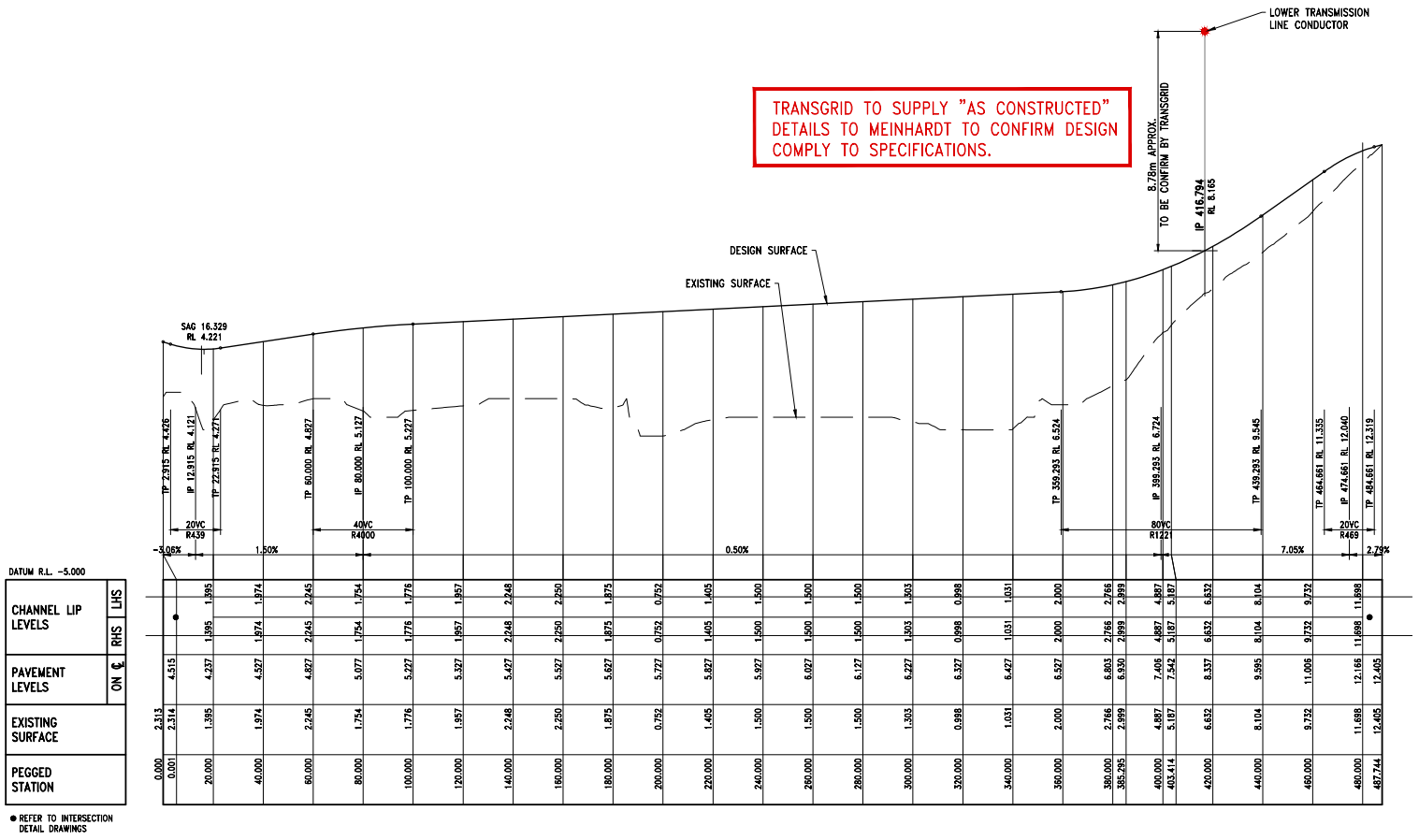
dlcs ISO 9001 certified



ROAD 1 (ALTERNATIVE ENTRY ROAD)

SCALE VERT 1:100
HORIZ 1:1000

1 : 100 VERT. (FULL SIZE A1)
1 : 200 VERT. (REDUCED SIZE A3)
1 : 1000 HORIZ. (FULL SIZE A1)
1 : 2000 HORIZ. (REDUCED SIZE A3)

CLIENT	CONGARINNI NORTH PTY LTD
JOB TITLE	MACKSVILLE 24 CORONATION ROAD CONGARINNI NRTH
DRAWING TITLE	ENTRY ROAD CROSSING UNDER TRANSGRID TRANSMISSION LINES CONDUCTORS
PROJECT No	122896
SKETCH No	SK02
REV	A
DATE	15/07/2021

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Juan Castro

Subject: FW: 2021-201 CNR-19276, 24 Coronation Road, Congarinni North (DA2021/056) Lot 188 in DP 755537 & Lot 155 in DP 755537
Attachments: 01.07.21 Unacceptable Letter.pdf; 18.08.21 Acceptable Letter.pdf

From: Easements&Development <Easements&Development@transgrid.com.au>
Sent: Wednesday, 18 August 2021 11:33 AM
To: Johann Mouton <Johann.Mouton@meinhardtgroup.com>; 'mihail.trifu@bradleesmeinhardt.com' <mihail.trifu@bradleesmeinhardt.com>
Subject: 2021-201 CNR-19276, 24 Coronation Road, Congarinni North (DA2021/056) Lot 188 in DP 755537 & Lot 155 in DP 755537

Good Morning,

TransGrid Reference Number: 2021-201

Location: CNR-19276, 24 Coronation Road, Congarinni North (DA2021/056) Lot 188 in DP 755537 & Lot 155 in DP 755537

Proposal: Seniors Housing (276 Self-contained dwellings, 75 bed care facility)

TransGrid: Coffs Harbour – Kempsey 132KV TL (Feeder 9W6/9W2, Structure Span 289-291)

Please find attached TransGrid 18.08.21 conditional approval letter for this matter. I have attached TransGrid 01.07.21 Unacceptable Letter FYI & review.

Please be advised:

i. **Alternative Road 1 is the only proposed road that has been deemed acceptable.**

Regards

Michael

Michael Platt
Development Assessment & Control Officer | Network Planning and Operations

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ABN 70 250 995 390

Sydney West

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F (02) 9620 0384

18/08/2021

Johann Mouton
Director Infrastructure (QLD)
Meinhardt Urban PTY LTD
Level 2 135 Wickham Terrace
Spring Hill QLD 4000

Dear Johann

TransGrid Reference Number: 2021-201

Location: CNR-19276, 24 Coronation Road, Congarinni North (DA2021/056) Lot 188 in DP 755537 & Lot 155 in DP 755537

Proposal: Seniors Housing (276 Self-contained dwellings, 75 bed care facility)

TransGrid: Coffs Harbour – Kempsey 132KV TL (Feeder 9W6/9W2, Structure Span 289-291)

Please be advised that after reviewing your proposal, TransGrid **gives its permission** subject to the following conditions:

1. General Conditions:

i. All works must be carried out as per Plans: 2021-201.msg, 122896_SK01-SK02 - FOR TRANSGRID INFO-SK01.pdf, FW 2021-201 CNR-19276 24 Coronation Road Congarinni North (DA2021 056) Lot 188 in DP 755537 & Lot 155 in DP 755537.msg, ROAD 1 REALIGN TIN FILE.dwg

ii. TransGrid shall be notified of any amendments/ modifications to the proposal which may change proposed distances to TransGrid structures or conductors.

iii. All works must be carried out in accordance with NSW WorkCover ***'Working near overhead powerlines' Code of Practice 2006***.

iv. All fencing (including temporary fencing) must comply with ***TransGrid's Fencing Guidelines***.

v. No mounds of earth or other materials may be left on the easement during and after earthworks, as this creates a hazard by reducing the vertical clearances to transmission lines.

vi. During construction, traffic control measures need to be implemented to prevent vehicles colliding with TransGrid's transmission towers.

2. Technical Conditions:

a) Summary of Findings:

i. The proposed "alternative road 1" was checked in PLS-CADD for ground clearance at Tmax (85°C). The proposed road has a total clearance to the closest survey point of 7.52m, which is above the acceptable limit of 6.7m.

ii. Exclusion zone clearance of 20m has been maintained to structure 290.

iii. The contact civil designer Mihail Trifu was contacted for clarification. Road 1 is to be considered superseded.

iv. This assessment is ONLY checking "alternative entry road".

b) Works Acceptable:

i. Conditional

c) Notes

i. Works acceptable on the condition that "Road 1" is superseded. This road was not assessed.

ii. Alternative Road 1 is the only proposed road that has been deemed acceptable.

iii. Dust: Works must not create excessive quantities of dust and proponent must employ dust suppression. A dust management plan is not expected to be provided to TransGrid, but provision must be made for such a plan to avoid causing damage to the transmission line such as dust pollution on insulators.

iv. The requirements mentioned in the 'Unacceptable Letter' should also be complied during construction, such as fencing, storage, batter, access and maintenance conditions, etc'

Please note, this is TransGrid's permission as easement holder only, and it does not constitute planning approval under the Environmental Planning and Assessment Act 1979.

If you have any questions, please do not hesitate to contact TransGrid's Easements & Development Team at Easements&Development@transgrid.com.au.

A. Please find attached TransGrid's easement Guidelines, Fencing Guidelines for your review

B. Please see link to TransGrid online guidelines : https://www.transgrid.com.au/being-responsible/public-safety/Living-and-working-with-electricity-transmission-lines/Pages/default.aspx
C. Please see link to the PDF version: https://www.transgrid.com.au/being-responsible/public-safety/Living-and-working-with-electricity-transmission-lines/Documents/Easement%20Guidelines.pdf

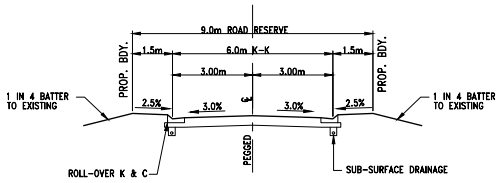
Yours faithfully

Easements & Development Team
TransGrid

Attachment B: Civil Drawings

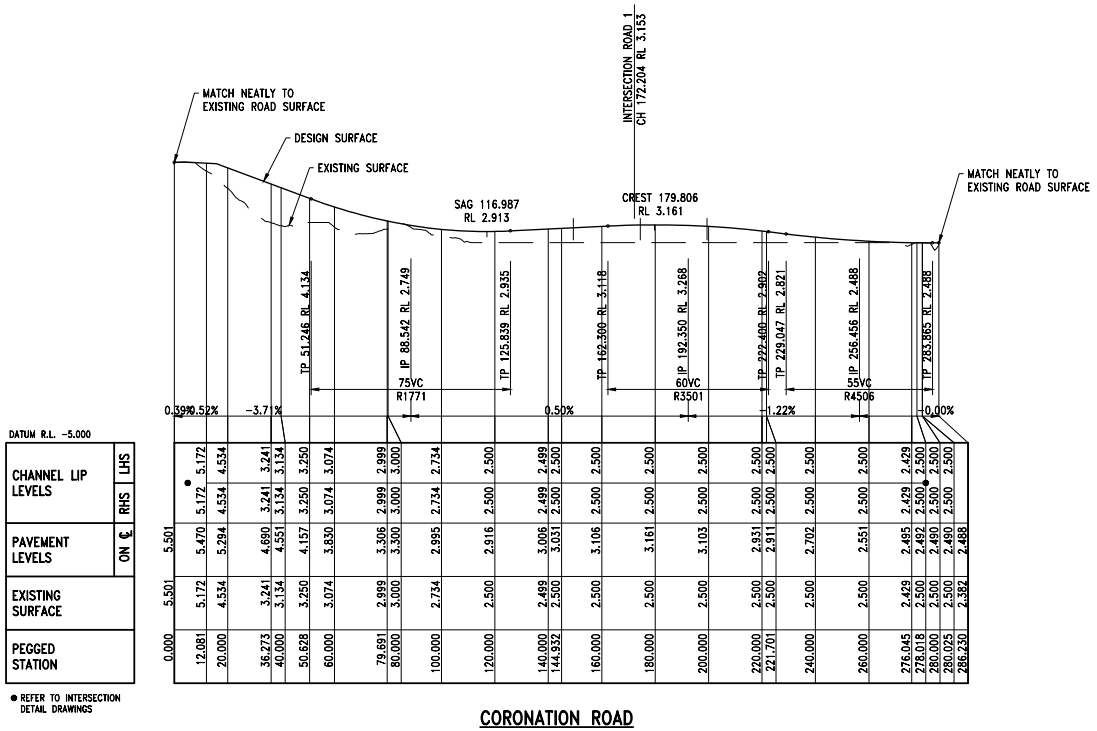
Coronation Longitudinal Section Plan

Road 1 Longitudinal Section Sheet 1 of 3



CORONATION ROAD

SCALE 1:100

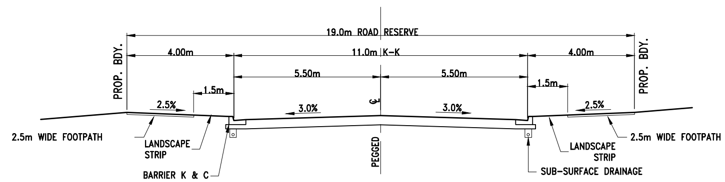


● REFER TO INTERSECTION DETAIL DRAWINGS

CORONATION ROAD

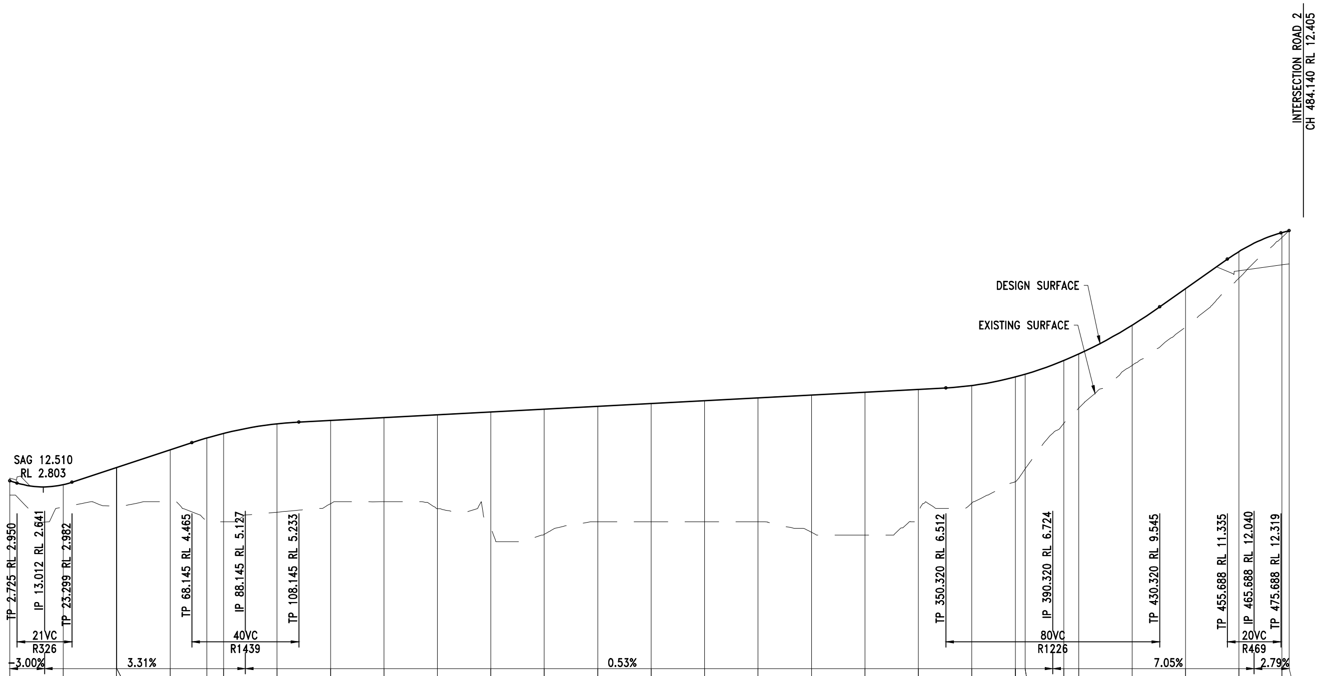
1 0 1 2 3 4 5m
1 : 100 VERT. (FULL SIZE A1)
1 : 200 VERT. (REDUCED SIZE A3)
10 0 10 20 30 40 50m
1 : 1000 HORIZ. (FULL SIZE A1)
1 : 2000 HORIZ. (REDUCED SIZE A3)

CLIENT: CONGARINNI NORTH PTY LTD		PROJECT No: 122896	Meinhardt Urban Pty Ltd A.B.N. 29 064 159 191 Brisbane - Level 2, 135 Wickham Terrace, Spring Hill QLD 4000 Gold Coast - Level 1, 34 Thomas Drive, Chevron Island QLD 4217 Sunshine Coast - 8 Pikki Street, Maroochydore QLD 4558 Postal PO Box 2293, Southport QLD 4215 T: +61 7 5528 6411 F: +61 7 5528 6422 info@meinhardtgroup.com http://www.meinhardtgroup.com © Copyright
JOB TITLE: MACKSVILLE 24 CORONATION ROAD CONGARINNI NRTH		SKETCH No: SK7439	
DRAWING TITLE: CORONATION ROAD LONGITUDINAL SECTION		REV: A DATE: 06/10/2021	



COLLECTOR ROAD (ROAD 1: CH0.000–1050.955)

SCALE 1:100



DATUM R.L. –5.000

PEGGED STATION	EXISTING SURFACE	PAVEMENT LEVELS ON ℄	CHANNEL LIP LEVELS RHS	CHANNEL LIP LEVELS LHS
0.000	2.500	3.032	•	
20.000	2.052	2.889	2.052	2.052
39.814	2.103	3.528	2.103	2.103
40.000	2.104	3.534	2.104	2.104
60.000	2.250	4.196	2.250	2.250
73.721	1.506	4.639	1.506	1.506
80.000	1.500	4.809	1.500	1.500
100.000	1.857	5.167	1.857	1.857
120.000	2.174	5.295	2.174	2.174
140.000	2.248	5.401	2.248	2.248
160.000	1.992	5.507	1.992	1.992
180.000	1.263	5.612	1.263	1.263
200.000	1.033	5.718	1.033	1.033
220.000	1.500	5.824	1.500	1.500
240.000	1.500	5.929	1.500	1.500
260.000	1.500	6.035	1.500	1.500
280.000	1.500	6.141	1.500	1.500
300.000	1.106	6.246	1.106	1.106
320.000	0.996	6.352	0.996	0.996
340.000	1.653	6.458	1.653	1.653
360.000	2.198	6.602	2.198	2.198
376.322	2.999	6.925	2.999	2.999
380.000	3.486	7.028	3.486	3.486
394.441	5.187	7.539	5.187	5.187
400.000	5.754	7.781	5.754	5.754
420.000	7.350	8.861	7.350	7.350
440.000	8.789	10.228	8.789	8.789
460.000	10.620	11.619	10.620	10.620
476.044	12.145	12.329	12.145•	12.145
478.771	12.405	12.405		

• REFER TO INTERSECTION DETAIL DRAWINGS

ROAD 1

1 : 100 VERT. (FULL SIZE A1)
1 : 200 VERT. (REDUCED SIZE A3)
1 : 1000 HORIZ. (FULL SIZE A1)
1 : 2000 HORIZ. (REDUCED SIZE A3)

CLIENT	CONGARINNI NORTH PTY LTD
JOB TITLE	MACKSVILLE 24 CORONATION ROAD CONGARINNI NRTH
DRAWING TITLE	ROAD 1 LONGITUDINAL SECTION SHEET 1 OF 3
PROJECT No	122896
SKETCH No	SK7422
REV	B
DATE	06/10/2021

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info@meinhardtgroup.com
http://www.meinhardtgroup.com

MEINHARDT

dlcs ISO 9001 certified

Attachment C: *Flood Impact Assessment Report by Water Modelling Solutions dated 7/10/21*

Meinhardt Urban Pty Ltd
Level 2, 135 Wickham Terrace
Spring Hill QLD 4000
Australia

Attn: Juan Castro
Associate Director - Civil
T | +61 4 1052 8294
E | Juan.Castro@meinhardtgroup.com

Water Modelling Solutions
A | Unit 15, 7 O'Connell Terrace
Bowen Hills QLD 4006 Australia
P | 07 3252 7448
E | admin@watermodelling.com.au
W | watermodelling.com.au
ABN | 85 700 247 836
Ref | 10622-L01-A
Date | 7 October 2021

24 Coronation Road, Congarinni North - Flood Impact Assessment

Dear Juan,

As requested, Water Modelling Solutions have undertaken a flood impact assessment (FIA) of the proposed development at 24 Coronation Road, Congarinni North. The following letter report summarises the work undertaken and highlights the findings.

1 BACKGROUND AND SCOPE

The proposed development (the Site) is located at 24 Coronation Road, Congarinni North in the Mid North Coast of New South Wales within the Nambucca Valley Council (Council) Local Government Area (LGA). The suburb of Congarinni North and its surroundings are primarily rural farming areas. The closest main town is Macksville. The Site borders Taylors Arm, a tributary to Nambucca River. The Site is shown in Figure 1-1 and covers an area of approximately 57 ha and drains in a predominantly eastern and northern direction.

Figure 1-1 The Site - Photo Sourced from realestate.com.au

The proposed development for 24 Coronation Road is seniors living. The habitable areas are located outside of the areas at risk of flooding; however, reprofiling works on Coronation Road and a new access road, which is partially flooded, also form part of the proposed development resulting in a FIA being required. The site plan is provided in Appendix A.

Meinhardt (NSW) Pty Ltd undertook a FIA in relation to the proposed development in 2016; however, due to the changes to the proposed plans made since then, the assessment has to be updated.

Since the original FIA was undertaken, the following changes have been made in the developed case scenario:

- New access road is now planned. This road cuts the natural drainage path requiring culverts to be added; and
- Changes to Coronation Road to comply with Council's request. The current road sits at around 2.0 mAHD, with the new road raised to be at 2.8 mAHD.

As part of the FIA undertaken in 2016, a hydrologic (WBNM) model and a 2D hydraulic (TUFLOW) model were developed and adopted in this study.

2 SCOPE

The primary objectives of the FIA are to:

- Assess the existing flood behaviour at the Site for the 10%, 5%, 2% and 1% Annual Exceedance Probability (AEP) events using the models already developed by Meinhardt;
- Assess the flood behaviour under developed conditions for the same range of design events as the existing case;
- Assess the impacts on any neighbouring properties and size culverts under the new access road to minimise any impacts; and
- Summarise the modelling approach and findings including discussion about times of closure of any access roads as well as the required culvert configuration to minimise any positive afflux.

3 AVAILABLE DATA

The following data was made available to us to assist in undertaking the FIA:

- Flood study report developed by WMAwater (2013) titled *Hydraulic Modelling Report Nambucca River and Warrell Creek*. The WBNM and TUFLOW models developed as part of this study were since used by Meinhardt to undertake the FIA for the Site;
- The previous FIA undertaken by Meinhardt titled *Summary of Flood Impact Assessment. Development of Seniors Living and Aged Care facilities 24 Coronation Road, Congarinni North, NSW* (Meinhardt, 2016);
- WBNM and TUFLOW model files which formed the basis of the above FIA; and
- Design TINs of the new access road to be included in the developed case model.

4 HYDRAULIC MODELLING

4.1 EXISITING CASE MODELLING

The existing case hydraulic TUFLOW model provided by Meinhardt was rerun for the existing case scenario for the 10%, 5%, 2% and 1% AEP events. For the 10%, 5%, and 2% AEP events the 48-hour storm was critical, while for the 1% AEP the 36-hour storm was critical.

4.1.1 Hydrology

No changes were made to the WBNM model developed by WMAwater and used by Meinhardt as the basis for the FIA submitted in 2016.

4.1.2 Model Domain, Grid Size and Software Version

The hydraulic TUFLOW model has a 20 m grid resolution. The overbank flow and the Nambucca River, Warrell Creek and its tributaries are all represented in the 2D domain. The 2D domain covers an area of approximately 242 km^2. Since 2016, numerous versions of TUFLOW have been released including bug-fixes and additional functions/features making the models more reliable.

The recent TUFLOW version (2020-10-AA) has been adopted for this assessment. The latest versions of TUFLOW incorporate the HPC (Heavily Parallelised Compute) model run engine. TUFLOW HPC is an explicit solver for the full 2D Shallow Water Equations (SWE), including a sub-grid scale eddy viscosity model. HPC can be used in GPU (Graphics Processing Unit) mode to improve simulation speed. TUFLOW HPC GPU was used for this assessment.

4.1.3 Topography

The model topography has been read in using Z point files derived from point inspection of Aerial Laser Survey (ALS) data. This has been supplemented in several locations by Z point data derived from contour information, where ALS coverage was not available. River bathymetry was read into the model from a hydro-survey dataset. Z shape and Z line modifiers have also been used throughout the model to refine the topography. These modifications enforce creek inverts, set road crest levels, define known drainage pathways and other similar functions.

4.1.4 1D Network

A 1D network was used to define the main channel on the Upper Nambucca River, mid Warrell Creek, Tilly Willy Creek and the Macksville Town Drain. Several 1D network files have also been used to define the transverse culvert crossings throughout the catchment.

4.1.5 Boundary Conditions

Design flow hydrographs from the WBNM model have been simulated in the hydraulic model. 2D flow time boundary inflows have been used for Taylors Arm and Newee Creek. 1D time-flow boundary inflows have been used for the Upper Nambucca River, mid Warrell Creek and Tilly Willy Creek. Source area (SA) inflow hydrographs have been used for local inflow locations throughout the 2D model domain.

A single 2D stage-time downstream boundary was created 1.5 km east from the Nambucca River mouth at Nambucca. The tailwater conditions were based on recorded tide levels at Coffs Harbour.

4.1.6 Hydraulic Roughness

The Manning's n roughness values adopted for the different land uses in the model are listed in Table 4-1. These values are unchanged from the adopted model. Existing case 1D culverts and pipes were given a Manning's n roughness value of 0.015, which is a standard value for a rough pre-cast concrete structure.

Table 4-1 Adopted Model Roughness Parameters - Existing Case

Land Use	Manning's n
Low Density Residential and Farm Land	0.04
Medium Density Residential	0.06
Dense/Thick Trees	0.08
Grass/Open Space	004
Main River Estuary	0.025
Overbank, Coastal Mangroves and Low Vegetation	0.06
Vegetated Creeks	0.045
Roads, Railway Lines and 2D Culverts	0.02
Mangroves and Dense Timber	0.3
Channel (lightly vegetated banks)	0.02
Channel (vegetated banks)	0.035
Channel (forested banks)	0.055

4.2 DEVELOPED CASE MODELLING

The following section outlines the changes made to the TUFLOW model to represent the developed case. The developed case model amendments have been implemented based on the site plan and design TINs provided by Meinhardt, see also Appendix A.

4.2.1 Topography Amendments

The proposed development includes a new raised access road and road lifting of a 280 m length of Coronation Road, where it meets the proposed access road. The design surface was provided by Meinhardt as a TIN, which was converted to a raster and imported into TUFLOW. The road to be raised has been reinforced with terrain modifiers (Z shapes) to ensure the road crest is properly represented in the model.

4.2.2 Hydraulic Roughness

The hydraulic roughness has been updated to reflect the land use changes as a result of the proposed development. A Manning's n value of 0.02 has been applied to the proposed road upgrade. This value is in line with the value range recommended in the ARR 2019 guidelines.

4.2.3 Hydraulic Structures

The proposed access road runs perpendicular to the river creating an impediment to out of bank flow during a flood event. It has therefore been necessary to provide conveyance structures under the access road to avoid unreasonable afflux upstream of the Site. Three banks of large culverts (3600 mm x 2400 mm RCBCs) have been simulated in two design scenarios. Scenario A has a total of 40 culverts while Scenario B has a total of 32 culverts. The culvert configuration of these scenarios is summarised in Table 4-2. The design case layout for the proposed access track and Coronation Road upgrade is shown in Figure 4-1. An alternative configuration with a total of 27 culverts was also tested for the 1% AEP event but found to produce unacceptable afflux at building locations on the east bank of the river.

Table 4-2 Design Case Scenarios - Culvert Configuration

Culvert Bank Location	Design Scenario A Culvert Configuration	Design Scenario B Culvert Configuration
Culvert Bank 1	10/ 3600 mm x 2400 mm RCBCs	8/ 3600 mm x 2400 mm RCBCs
Culvert Bank 2	15/ 3600 mm x 2400 mm RCBCs	12/ 3600 mm x 2400 mm RCBCs
Culvert Bank 3	15/ 3600 mm x 2400 mm RCBCs	12/ 3600 mm x 2400 mm RCBCs

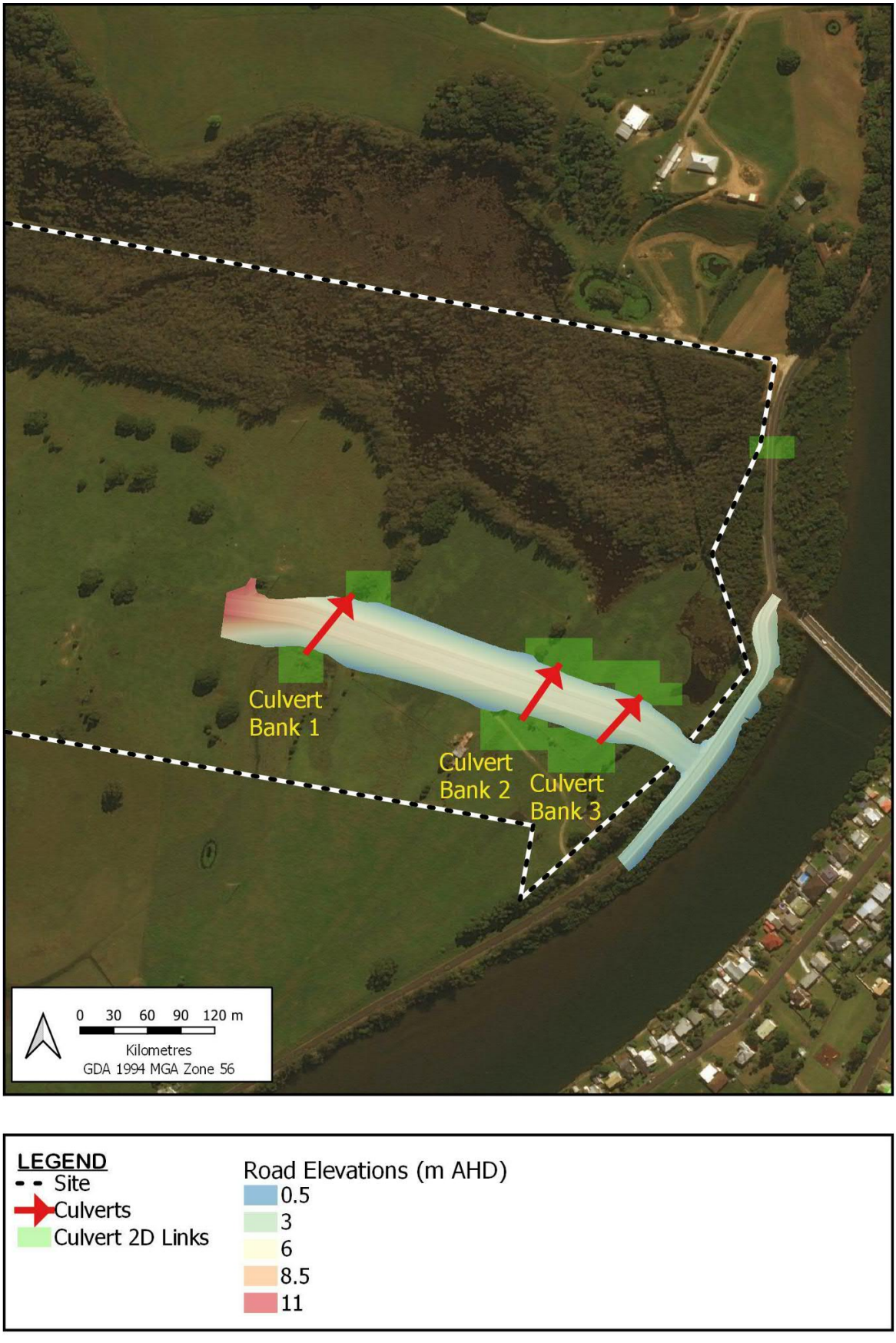


Figure 4-1 Design Layout

5 RESULTS

Water level afflux mapping for all modelled design events is provided in Appendix B. Peak depth, water level and velocity mapping is provided in Appendix C for the 1% AEP event for both developed scenarios. As can be seen in the mapping, there is little difference between the Scenario A and B results. In both scenarios, neighbouring buildings remain free of positive afflux to within 10 mm. Modest affluxes up to 60 mm can be observed onsite, immediately south of the access road, while offsite impacts to Coronation Road, open space and forest is typically limited to less than 30 mm.

The peak water level in the 1% AEP Scenario B event is approximately 4.2 m AHD. Model results demonstrate that the raised access track and intersection with Coronation Road have a 10% AEP immunity. The road is inundated at a level of 3.15 m AHD in the 5% AEP flood event, representing 350 mm of water over the lowest point of the road upgrade. Velocities immediately upstream and downstream of the culvert locations are less than 1 m/s in the 1% AEP event. Peak barrel velocities in the culverts do not exceed 1.2 m/s.

6 KEY LIMITATIONS AND ASSUMPTIONS

All flood assessments and modelling rely on assumptions to provide appropriate advice. The following limitations and assumptions should be considered when interpreting the findings of this investigation:

- The sole purpose of this report is to provide flood risk advice to Meinhardt Urban Pty Ltd in relation to the proposed aged care development at 24 Coronation Rd, Congarinni North NSW 2447.
- WMS has utilised the Nambucca River and Warrell Creek flood models as the basis of assessment. This assessment therefore adopts the assumptions and methodologies of Nambucca River and Warell Creek Studies. The modelling is assumed to be free from errors and fit for purpose.
- The Nambucca River and Warrell Creek Study for which this assessment is based pre-dates the latest Australian Rainfall and Runoff (ARR) 2019 Guidelines.
- The provided model is a course catchment-wide flood model. Minor flow paths between landform features are not captured by this model. The focus of this assessment is river flooding and so the model type is considered appropriate for use in this type of assessment.
- Four flood events have been assessed, the 10%, 5%, 2% and 1% AEP events. Analysis of these events is appropriate for the study needs, but results from this assessment should not be used to infer the flood results of other events.
- No blockage assessment has been undertaken as a part of this FIA, although the large culvert sizes proposed and low flood velocities at the culvert locations are likely to minimise the risk of blockage.
- This report is to be read in full with no excerpts to be representative of the findings.
- Alterations to the proposed development or variations to underlying conditions that could alter flood characteristics may require the report and its conclusions to be re-evaluated.

7 SUMMARY

Hydrologic and hydraulic models developed as part of the *Nambucca River and Warrell Creek Flood Study* (WMAwater, 2013) were adopted to undertake this FIA. The existing case model provided by Meinhardt was rerun in TUFLOW. The developed case model was modified based on design TINs provided by Meinhardt and the hydraulic model used to size the culverts under the new access road to minimise any positive afflux on neighbouring properties.

Hydraulic modelling results show that the proposed development does not result in any major impacts on neighbouring properties, and that a flood compatible access solution to the proposed development is achievable. The proposed access road has a 10% AEP immunity and is submerged by approximately 350 mm of water in the 5% AEP Scenario B design case event.

Of the two design scenarios presented, Scenario B is likely to be the preferred culvert arrangement. This scenario includes 32 RCBCs (3600 mm x 2400 mm) and achieves a very similar flood risk outcome to Scenario A with a need for less culverts. Another scenario with 27 of the same sized culverts was found to provide insufficient capacity and resulted in building impacts in the 1% AEP event that was tested. A significant reduction in the number of culverts is therefore unlikely to be achievable with the proposed access road and intersection levels.

It is understood Council has requested that the Coronation Road be raised to provide safe passage in minor flood events. The access road must therefore be raised to tie into the Coronation Road levels. Unmitigated, this causes significant afflux. There may be opportunity to optimise the road design further to reduce a need for culverts. This may be subject to council requirements. There may also be opportunity to make emergency access arrangements with flood free properties to the south of the Site to provide safe passage in the event of a flood. Doing this would allow the access road to remain at grade, likely eliminating the need for large

mitigation structures. The proposed access road and Coronation Road raised levels have a 10% AEP flood immunity. For larger flood events a shelter in place strategy or alternative access will need to be adopted regardless of the final road and culvert configuration.

Please do not hesitate to contact me if you require further clarification.

Yours sincerely,

Mark Lovell
Senior Engineer

Reviewed by
Monika Balicki (RPEQ 18349)
Director

REFERENCES

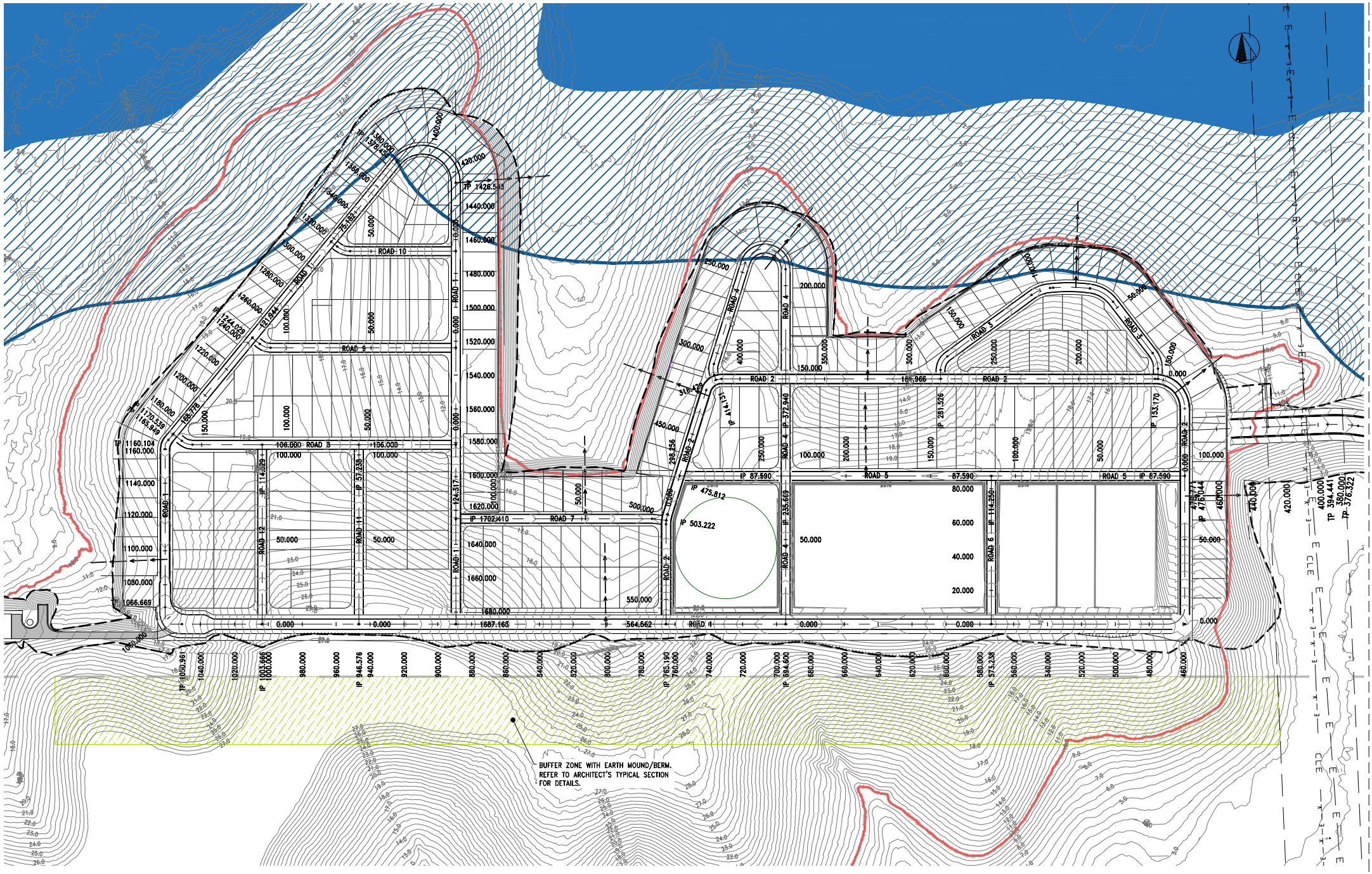
Meinhardt (2016). *Summary of Flood Impact Assessment. Development of Seniors Living and Aged Care facilities 24 Coronation Road, Congarinni North, NSW*. 6 October 2016.

WMAwater (2013). *Hydraulic Modelling Report Nambucca River and Warrell Creek – Additional Analysis. Final Report.* November 2013.

WMAwater (2013). *Hydraulic Modelling Report Nambucca River and Warrell Creek. Final Report.* November 2013.

Appendix A	Site Plan
Appendix B	Afflux Mapping
Appendix C	Peak Depth, Water Level and Velocity Mapping

APPENDIX A - SITE PLAN



UPDATED ROAD/LOT LAYOUT
SUBJECT TO ARCHITECT'S
AMENDED LAYOUT DESIGN

NOTE:
REFER TO SHEET 2 OF 2
FOR NOTES AND LEGEND.

10 0 10 20 30 40 50m
1 : 1000 (FULL SIZE A1)
1 : 2000 (REDUCED SIZE A3)

CLIENT	CONGARINNI NORTH PTY LTD
JOB TITLE	MACKSVILLE 24 CORONATION ROAD CONGARINNI NRTH
DRAWING TITLE	ROADWORKS LAYOUT SHEET 1 OF 2
PROJECT No	122896
SKETCH No	SK7420
REV	B
DATE	07/10/2021

Meinhardt Urban Pty Ltd
A.B.N. 29 064 159 191
Brisbane - Level 2, 135 Wickham Terrace, Spring Hill QLD 4000
Gold Coast - Level 1, 34 Thomas Drive, Chevron Island QLD 4217
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T: +61 7 5528 6411
F: +61 7 5528 6422
info@meinhardtgroup.com
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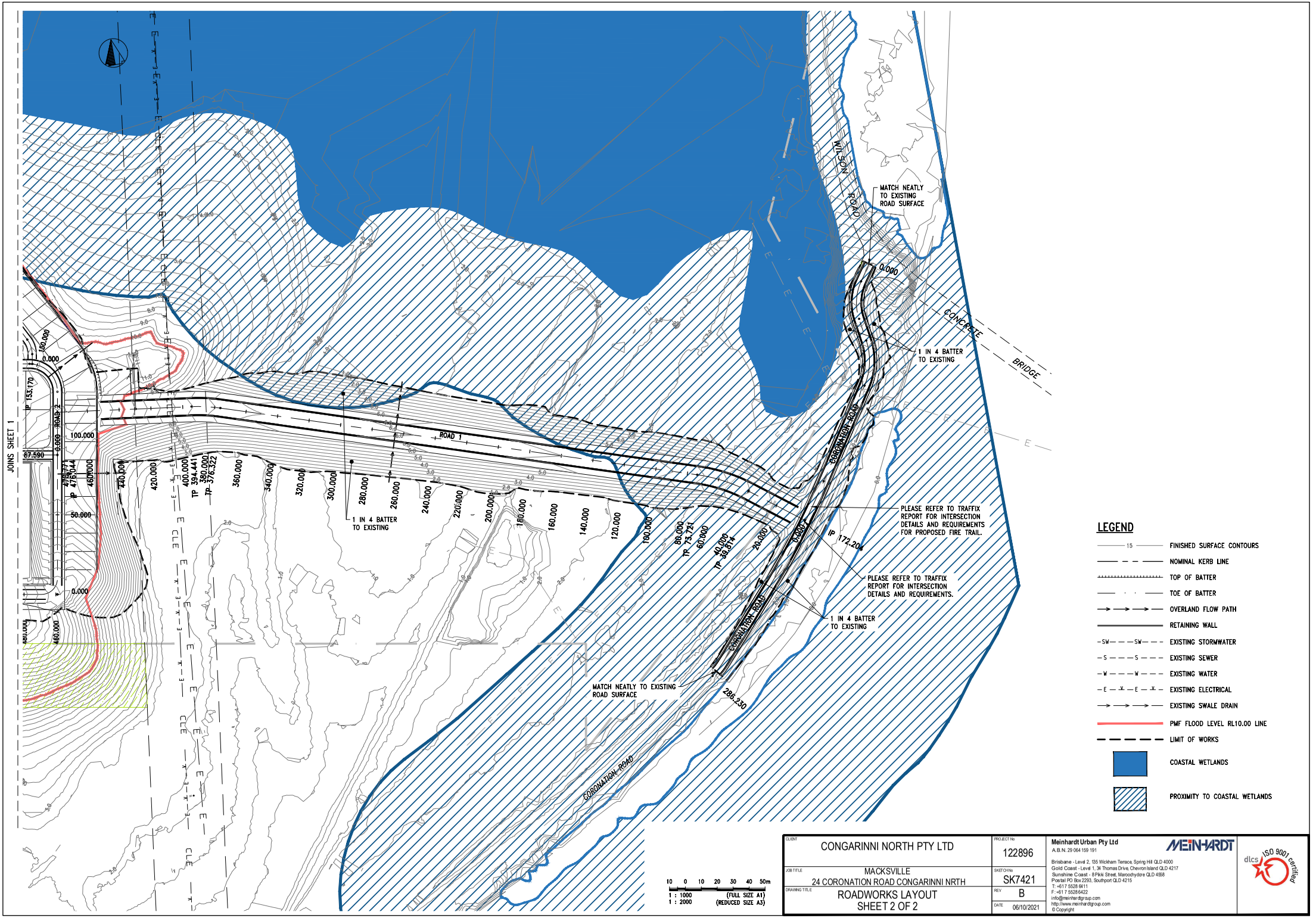

CLIENT: CONGARINNI NORTH PTY LTD		PROJECT No: 122896	Meinhardt Urban Pty Ltd A.B.N. 29 064 159 191 Brisbane - Level 2, 135 Wickham Terrace, Spring Hill QLD 4000 Gold Coast - Level 1, 34 Thomas Drive, Chevron Island QLD 4217 Sunshine Coast - 8 Pikki Street, Marcoochydore QLD 4558 Postal PO Box 2293, Southport QLD 4215 T +61 7 5528 6411 F +61 7 5528 6422 info@meinhardtgroup.com http://www.meinhardtgroup.com © Copyright
JOB TITLE: MACKSVILLE 24 CORONATION ROAD CONGARINNI NRTH		SKETCH No: SK7421	
DRAWING TITLE: ROADWORKS LAYOUT SHEET 2 OF 2		REV: B DATE: 06/10/2021	

APPENDIX B - AFFLUX MAPPING

WATER MODELLING solutions

Appendix B-1
Scenario A
Afflux
10% AEP Flood Event

LEGEND

- Site
- Culverts

Afflux (m)

- Was Wet Now Dry
- <-0.02
- -0.02 to -0.01
- -0.01 to 0.01
- 0.01 to 0.02
- 0.02 to 0.05
- 0.05 to 0.10
- 0.10 to 0.30
- >0.30
- Was Dry Now Wet

24 Coronation Road FIA

A3 scale: 1:10,000
Projection: MGA Zone 56

0 250 500 m

Job No: 10622
Date: 6/10/2021

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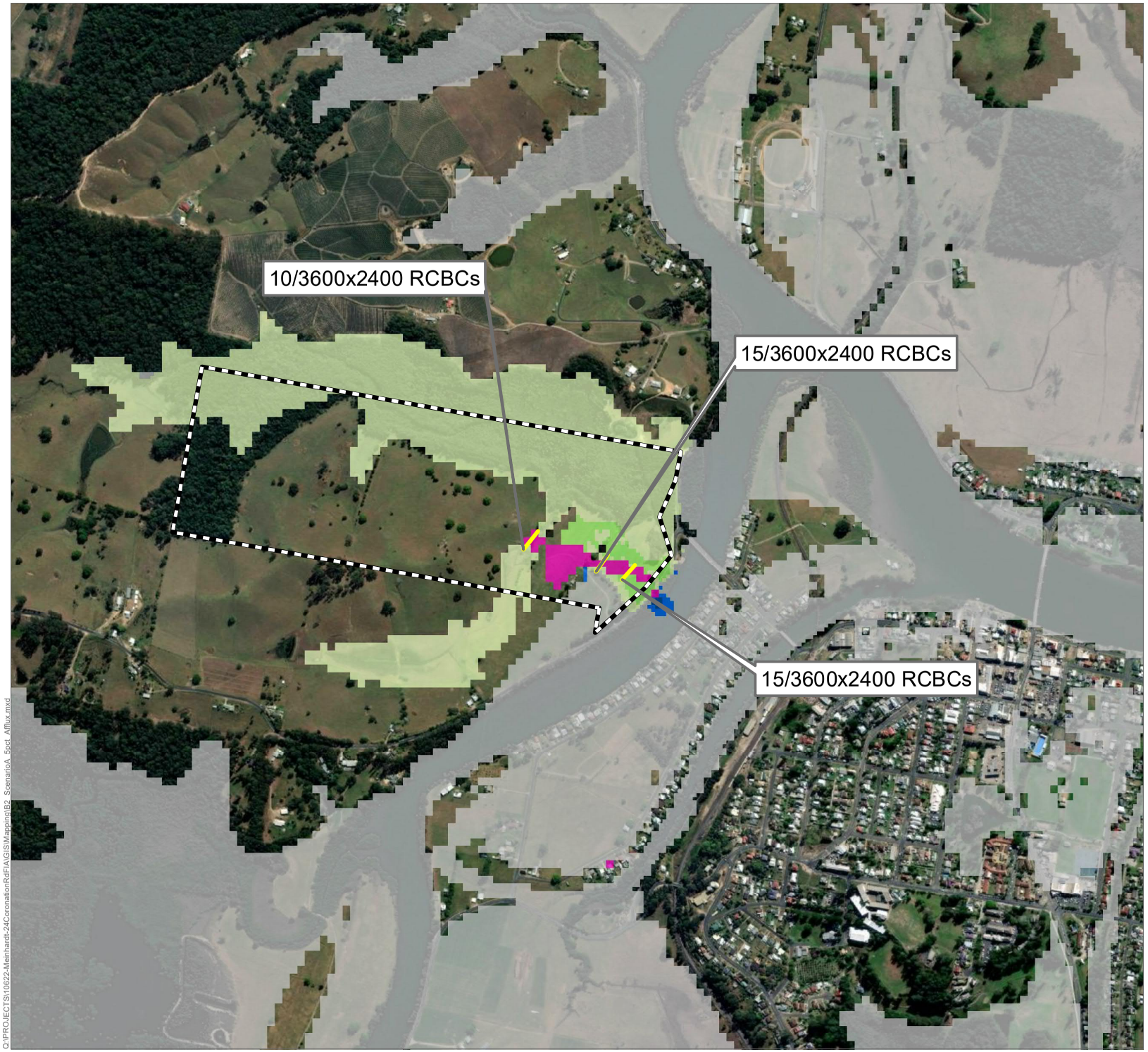

WATER MODELLING solutions

Appendix B-2
Scenario A
Afflux
5% AEP Flood Event

LEGEND

- Site
- Culverts

Afflux (m)

- Was Wet Now Dry
- <-0.02
- -0.02 to -0.01
- -0.01 to 0.01
- 0.01 to 0.02
- 0.02 to 0.05
- 0.05 to 0.10
- 0.10 to 0.30
- >0.30
- Was Dry Now Wet

24 Coronation Road FIA

A3 scale: 1:10,000
Projection: MGA Zone 56

0 250 500 m

Job No: 10622
Date: 6/10/2021

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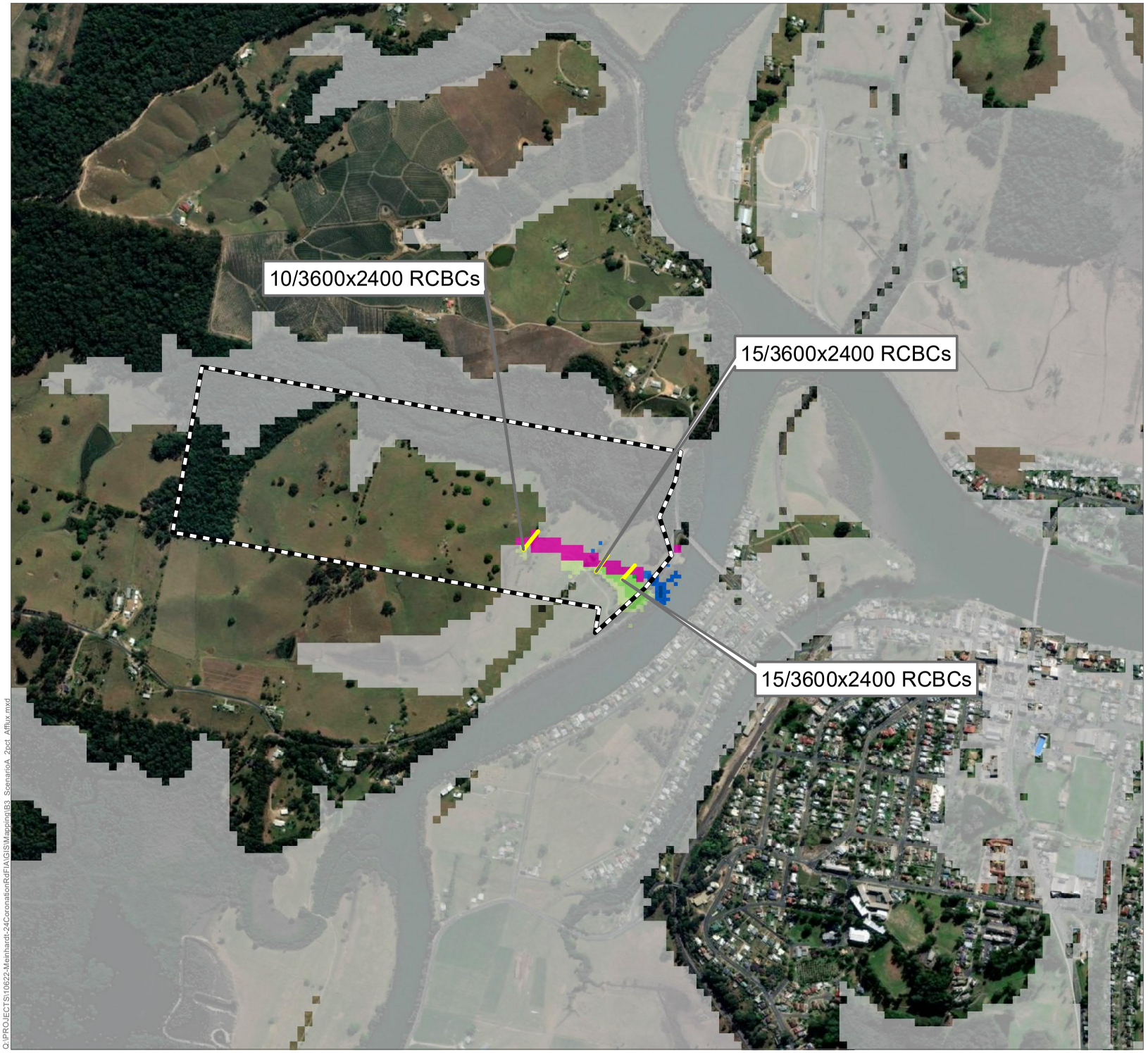

WATER MODELLING solutions

Appendix B-3
Scenario A
Afflux
2% AEP Flood Event

LEGEND

- Site
- Culverts

Afflux (m)

- Was Wet Now Dry
- <-0.02
- -0.02 to -0.01
- -0.01 to 0.01
- 0.01 to 0.02
- 0.02 to 0.05
- 0.05 to 0.10
- 0.10 to 0.30
- >0.30
- Was Dry Now Wet

24 Coronation Road FIA

A3 scale: 1:10,000
Projection: MGA Zone 56
0 250 500 m
Job No: 10622
Date: 6/10/2021

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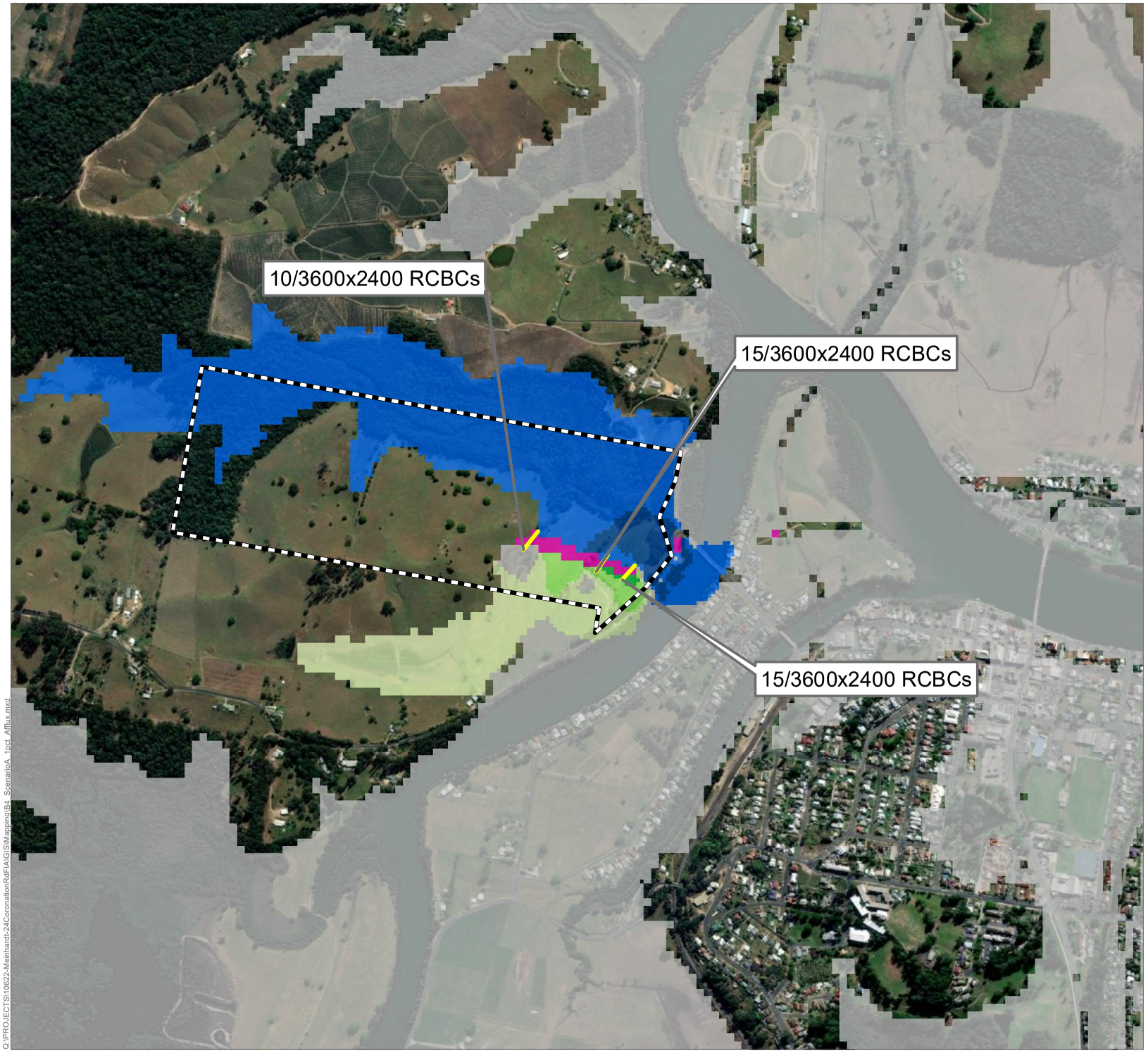

WATER MODELLING solutions

Appendix B-4
Scenario A
Afflux
1% AEP Flood Event

LEGEND

- Site
- Culverts

Afflux (m)

- Was Wet Now Dry
- <-0.02
- -0.02 to -0.01
- -0.01 to 0.01
- 0.01 to 0.02
- 0.02 to 0.05
- 0.05 to 0.10
- 0.10 to 0.30
- >0.30
- Was Dry Now Wet

24 Coronation Road FIA

A3 scale: 1:10,000
Projection: MGA Zone 56
0 250 500 m
Job No: 10622
Date: 6/10/2021

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WATER MODELLING solutions

Appendix B-5
Scenario B
Afflux
10% AEP Flood Event

LEGEND

- Site
- Culverts

Afflux (m)

- Was Wet Now Dry
- <-0.02
- -0.02 to -0.01
- -0.01 to 0.01
- 0.01 to 0.02
- 0.02 to 0.05
- 0.05 to 0.10
- 0.10 to 0.30
- >0.30
- Was Dry Now Wet

24 Coronation Road FIA

A3 scale: 1:10,000
Projection: MGA Zone 56
0 250 500 m
Job No: 10622
Date: 6/10/2021

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WATER MODELLING solutions

Appendix B-6
Scenario B
Afflux
5% AEP Flood Event

LEGEND

- Site
- Culverts

Afflux (m)

- Was Wet Now Dry
- <-0.02
- -0.02 to -0.01
- -0.01 to 0.01
- 0.01 to 0.02
- 0.02 to 0.05
- 0.05 to 0.10
- 0.10 to 0.30
- >0.30
- Was Dry Now Wet

24 Coronation Road FIA

A3 scale: 1:10,000
Projection: MGA Zone 56

0 250 500 m

Job No: 10622
Date: 6/10/2021

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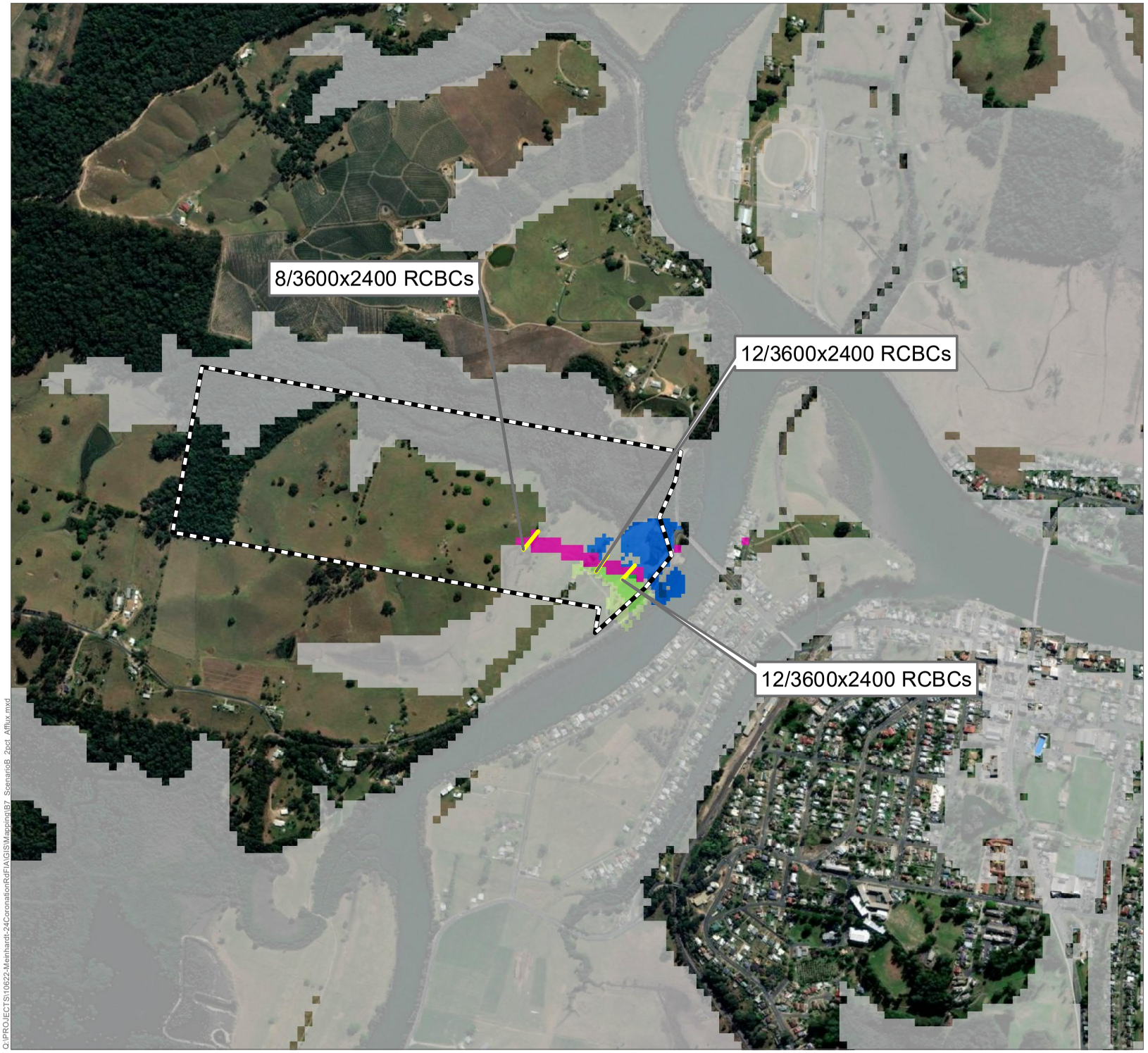

solutions
WATER MODELLING

Appendix B-7
Scenario B
Afflux
2% AEP Flood Event

LEGEND

- Site
- Culverts

Afflux (m)

- Was Wet Now Dry
- <-0.02
- -0.02 to -0.01
- -0.01 to 0.01
- 0.01 to 0.02
- 0.02 to 0.05
- 0.05 to 0.10
- 0.10 to 0.30
- >0.30
- Was Dry Now Wet

24 Coronation Road FIA

A3 scale: 1:10,000
Projection: MGA Zone 56
0 250 500 m
Job No: 10622
Date: 6/10/2021

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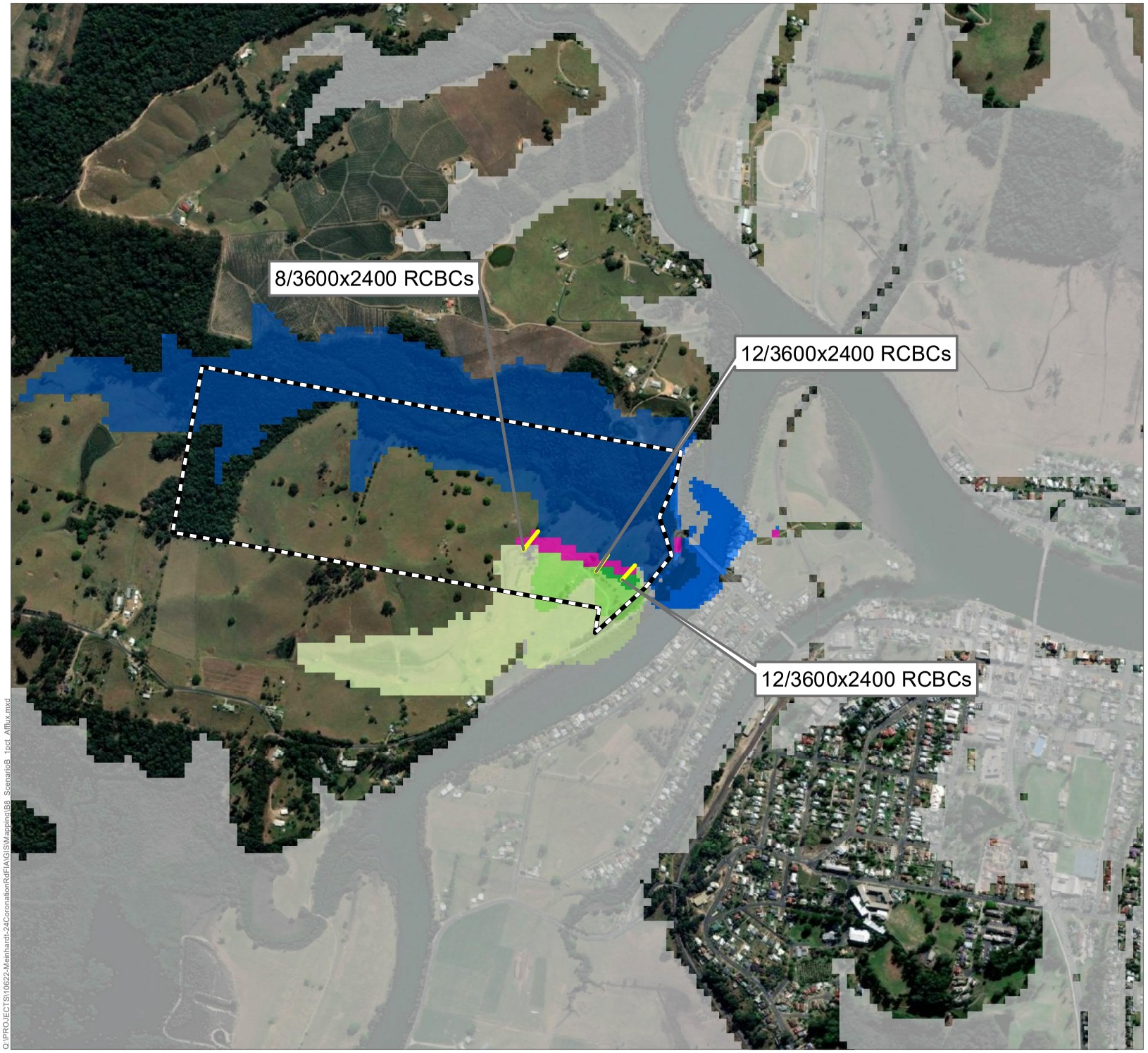

WATER MODELLING solutions

Appendix B-8
Scenario B
Afflux
1% AEP Flood Event

LEGEND

- Site
- Culverts

Afflux (m)

- Was Wet Now Dry
- <-0.02
- -0.02 to -0.01
- -0.01 to 0.01
- 0.01 to 0.02
- 0.02 to 0.05
- 0.05 to 0.10
- 0.10 to 0.30
- >0.30
- Was Dry Now Wet

24 Coronation Road FIA

A3 scale: 1:10,000
Projection: MGA Zone 56

0 250 500 m

Job No: 10622
Date: 6/10/2021

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APPENDIX C - PEAK DEPTH, WATER LEVEL AND VELOCITY MAPPING

WATER MODELLING solutions

Appendix C-1
Scenario A
Peak Depth
1% AEP Flood Event

LEGEND

- Site
- Culverts

Peak Depth (m)

- <0.5
- 0.5 - 1.0
- 1.0 - 2.0
- 2.0 - 3.0
- 3.0 - 4.0
- >4.0

24 Coronation Road FIA

A3 scale: 1:10,000
Projection: MGA Zone 56

0 250 500 m

Job No: 10622
Date: 6/10/2021

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WATER MODELLING solutions

Appendix C-2
Scenario B
Peak Depth
1% AEP Flood Event

LEGEND

- Site
- Culverts

Peak Depth (m)

- <0.5
- 0.5 - 1.0
- 1.0 - 2.0
- 2.0 - 3.0
- 3.0 - 4.0
- >4.0

24 Coronation Road FIA

A3 scale: 1:10,000
Projection: MGA Zone 56

0 250 500 m

Job No: 10622
Date: 6/10/2021

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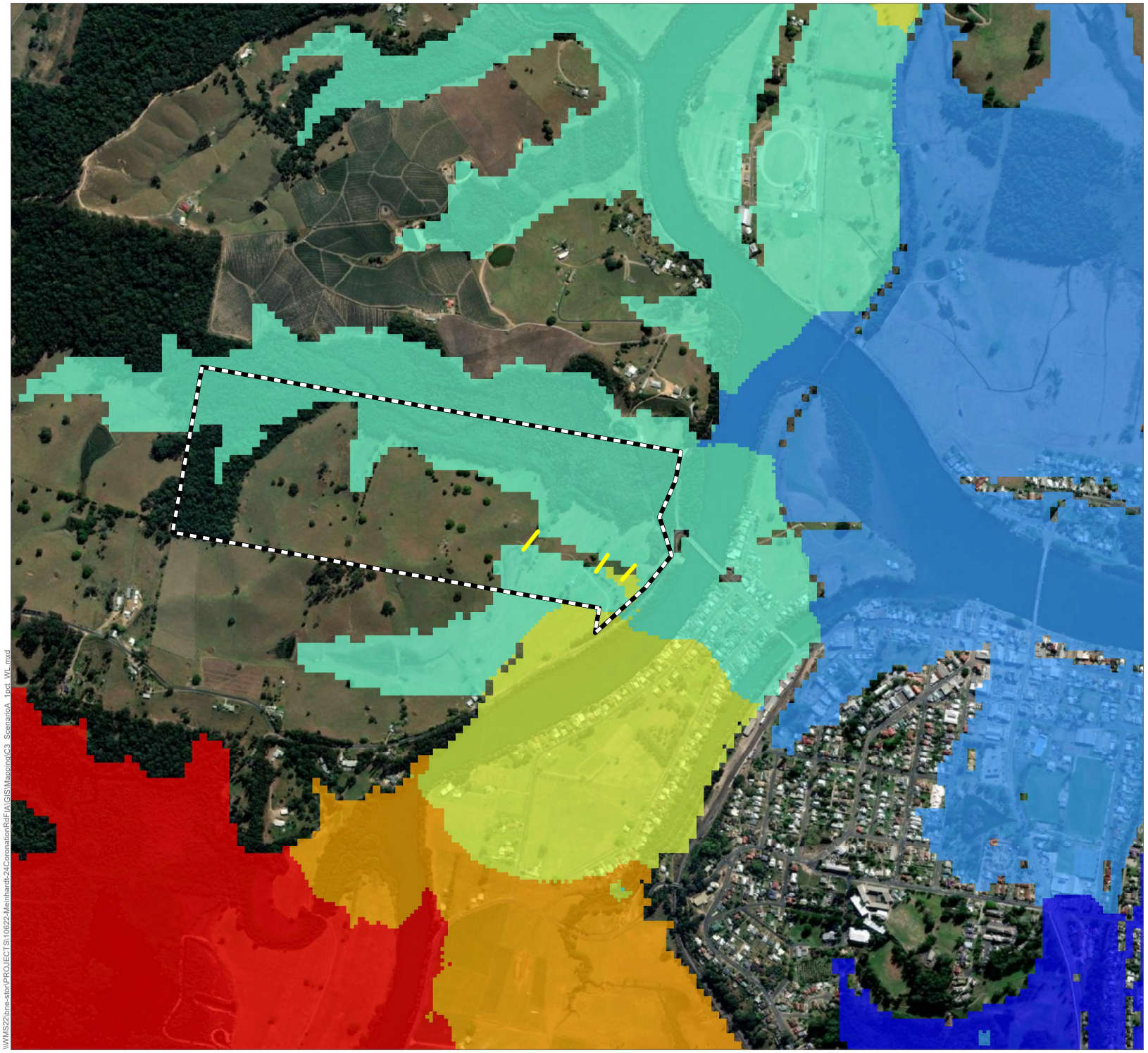

WATER MODELLING solutions

Appendix C-3
Scenario A
Peak Water Level
1% AEP Flood Event

LEGEND

- Site
- Culverts

Peak Water Level (mAHD)

- <3.50
- 3.50 - 4.00
- 4.00 - 4.25
- 4.25 - 4.50
- 4.50 - 4.75
- >4.75

24 Coronation Road FIA

A3 scale: 1:10,000
Projection: MGA Zone 56

0 250 500 m

Job No: 10622
Date: 6/10/2021

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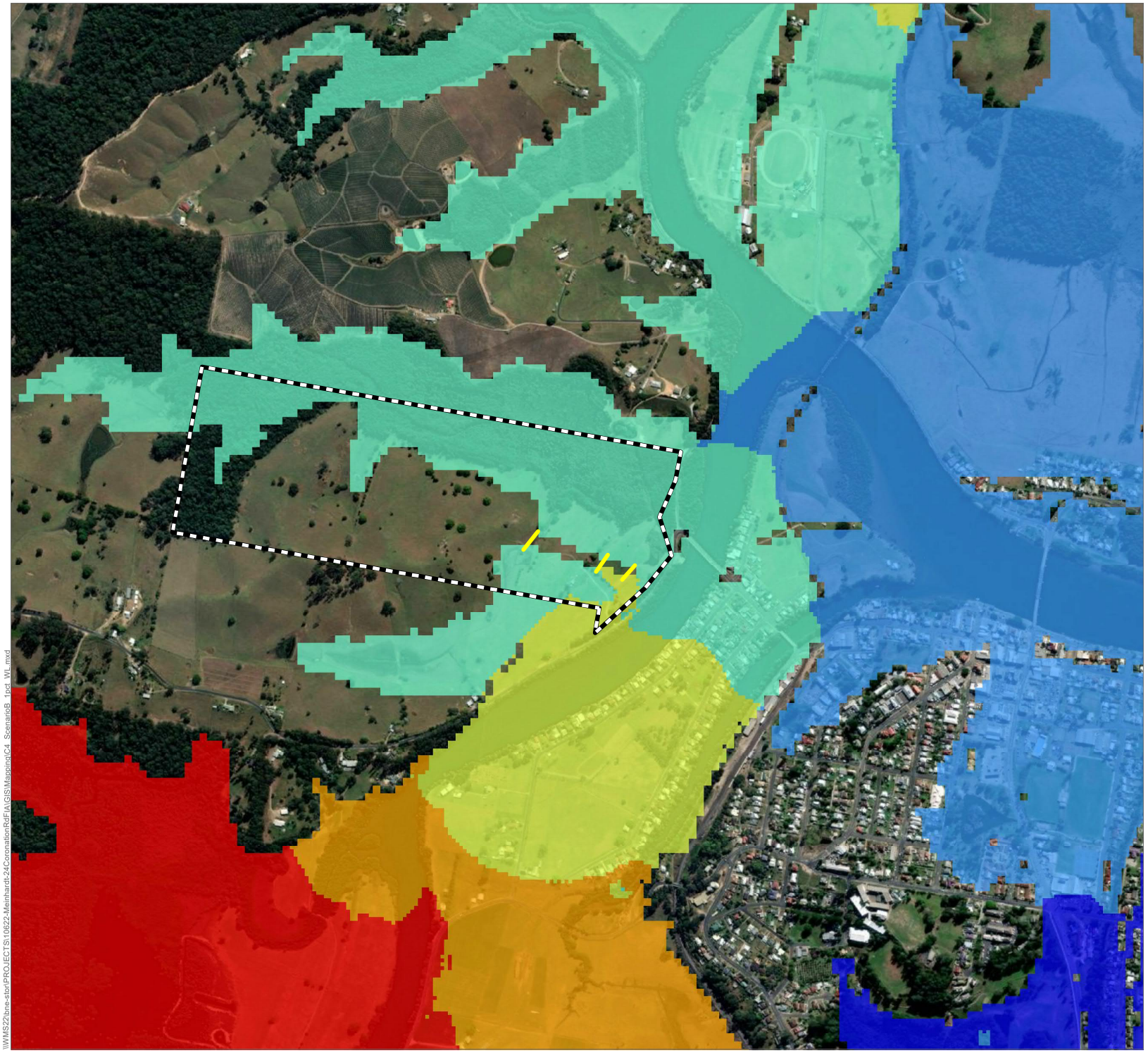

WATER MODELLING solutions

Appendix C-4
Scenario B
Peak Water Level
1% AEP Flood Event

LEGEND

- Site
- Culverts

Peak Water Level (mAHD)

- <3.50
- 3.50 - 4.00
- 4.00 - 4.25
- 4.25 - 4.50
- 4.50 - 4.75
- >4.75

24 Coronation Road FIA

A3 scale: 1:10,000
Projection: MGA Zone 56

0 250 500 m

Job No: 10622
Date: 6/10/2021

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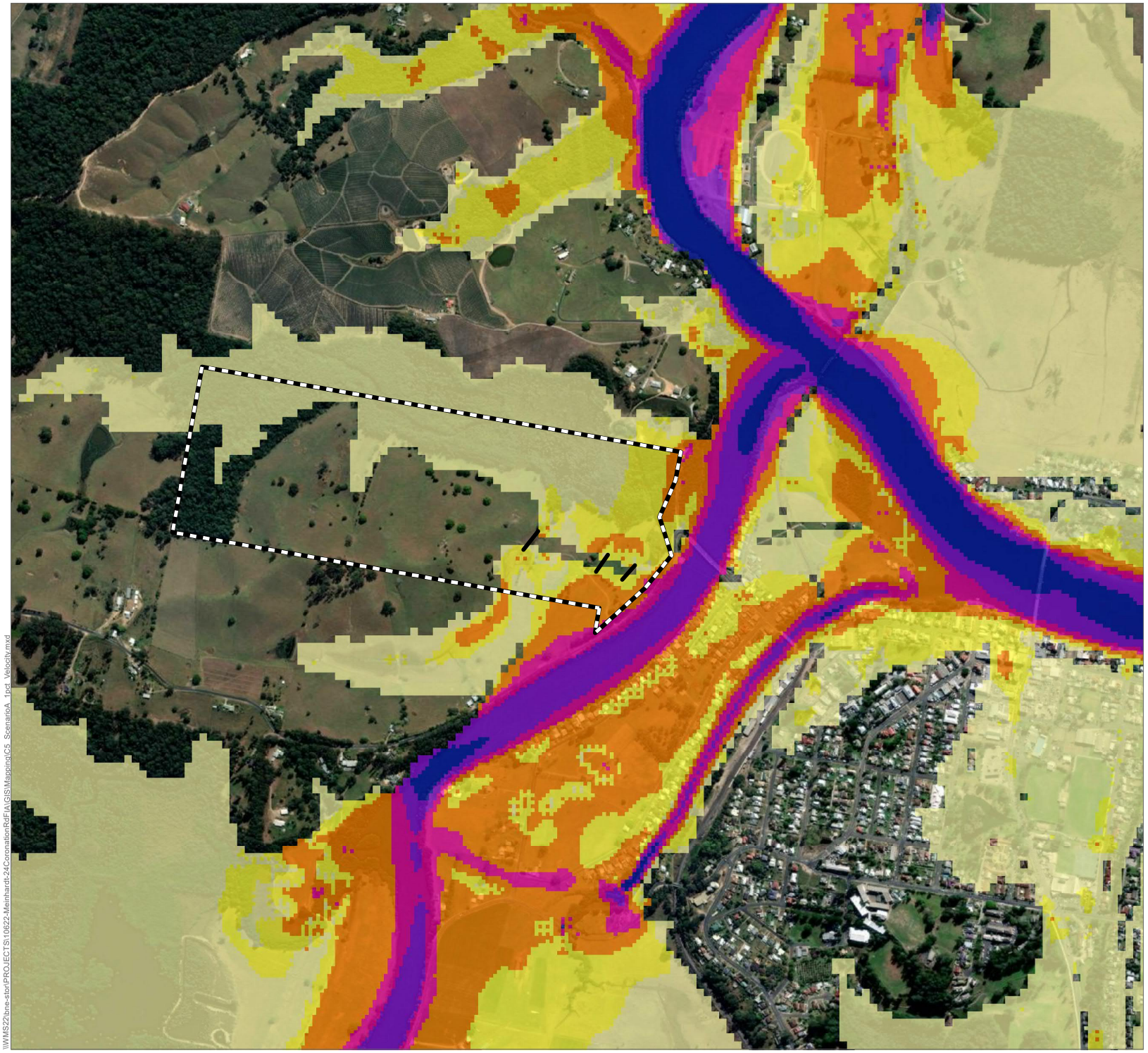

WATER MODELLING solutions

Appendix C-5
Scenario A
Peak Velocity
1% AEP Flood Event

LEGEND

- Site
- Culverts

Peak Velocity (m/s)

- < 0.25
- 0.25 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- > 2.00

24 Coronation Road FIA

A3 scale: 1:10,000
Projection: MGA Zone 56

0 250 500 m

Job No: 10622
Date: 6/10/2021

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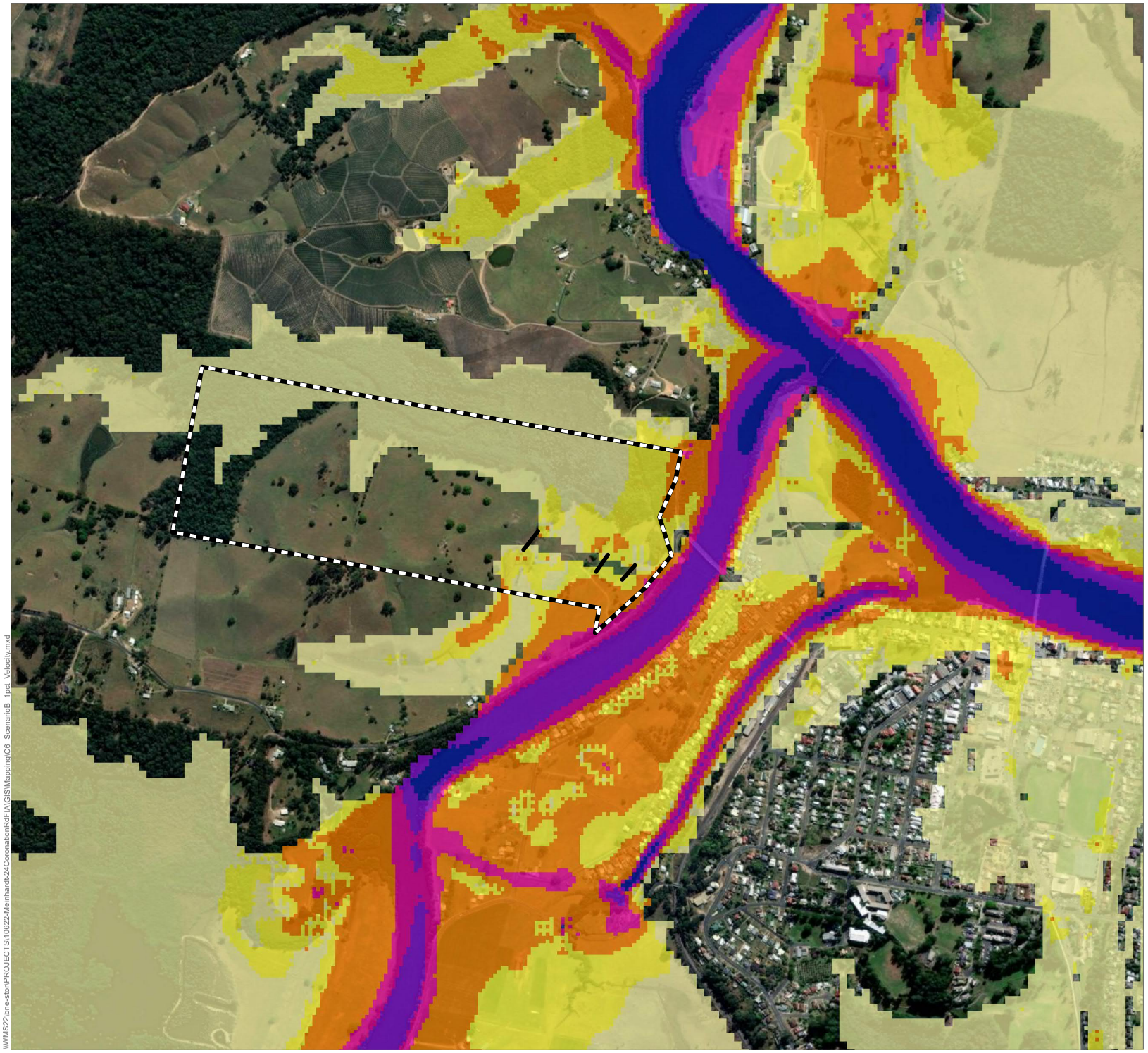


WATER MODELLING solutions

Appendix C-6
Scenario B
Peak Velocity
1% AEP Flood Event

LEGEND

- Site
- Culverts

Peak Velocity (m/s)

- < 0.25
- 0.25 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- > 2.00

24 Coronation Road FIA

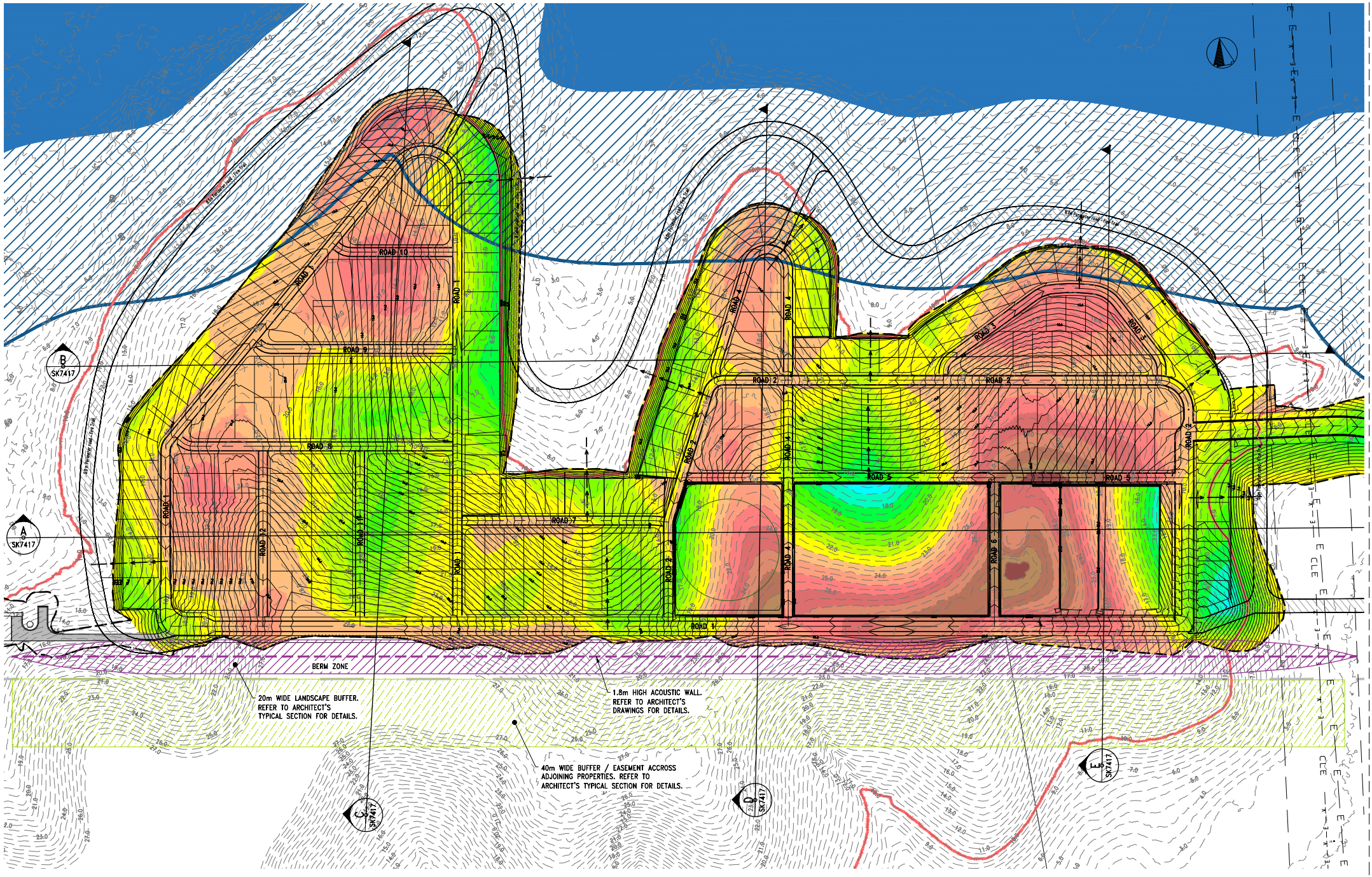
A3 scale: 1:10,000
Projection: MGA Zone 56

0 250 500 m

Job No: 10622
Date: 6/10/2021

\\WMS22\bne-stor\PROJECTS\10622-Meinhardt-24CoronationRdFIA\GIS\Mapping\C6_ScenarioB_1pct_Velocity.mxd

Attachment D: Relevant Civil Engineering Design Drawings



UPDATED ROAD/LOT LAYOUT SUBJECT TO ARCHITECT'S AMENDED LAYOUT DESIGN

NOTE:
REFER TO SHEET 2 OF 2 FOR NOTES AND LEGEND.

10 0 10 20 30 40 50m
1 : 1000 (FULL SIZE A1)
1 : 2000 (REDUCED SIZE A3)

CLIENT: CONGARINNI NORTH PTY LTD	PROJECT No: 122896
JOB TITLE: MACKSVILLE 24 CORONATION ROAD CONGARINNI NRTH	SKETCH No: SK7413
DRAWING TITLE: EARTHWORKS CUT-FILL SHADE PLAN SHEET 1 OF 2	REV: B
	DATE: 07/10/2021

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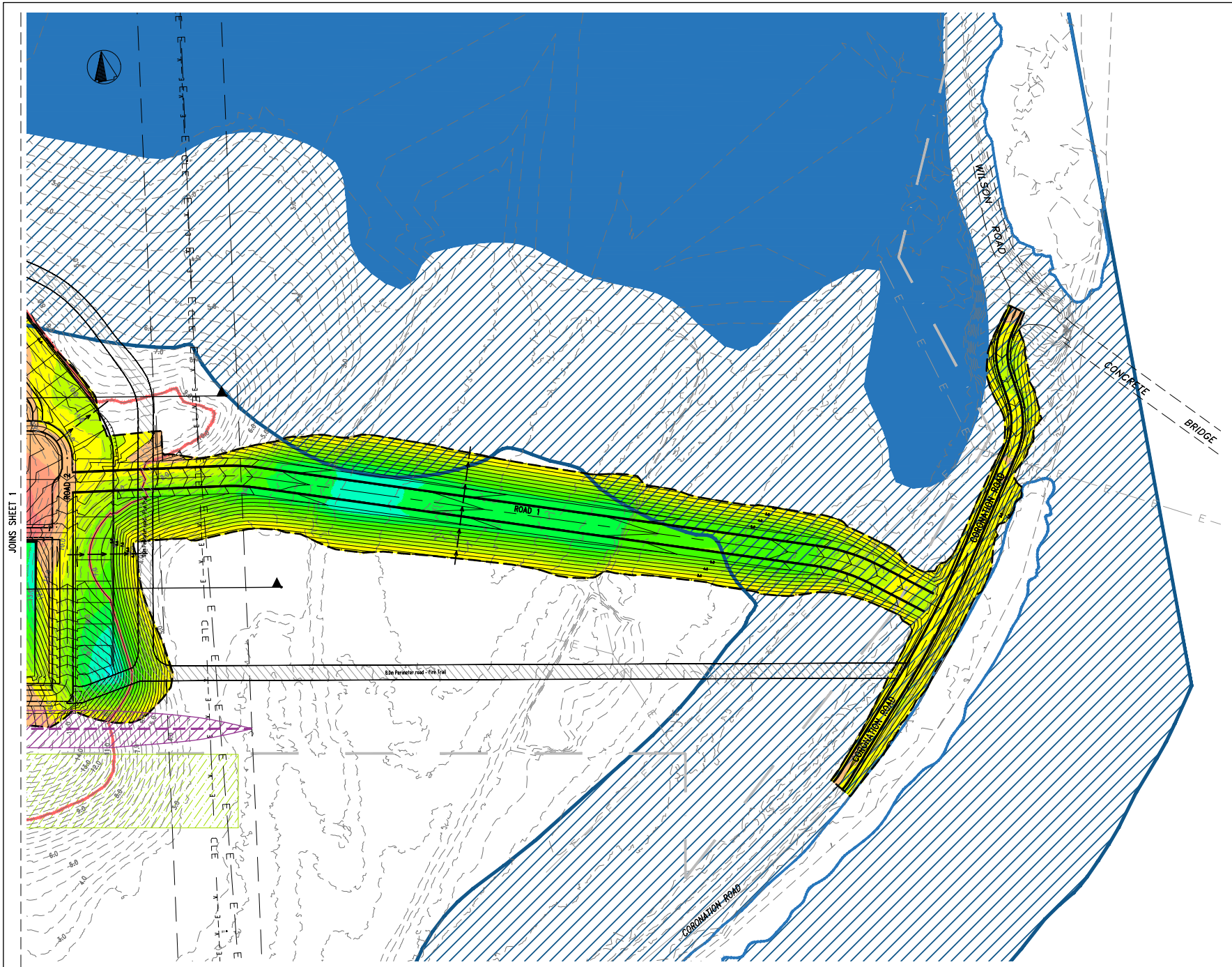

CUT/FILL LEGEND

1	−8.00m	TO	−7.00m
2	−7.00m	TO	−6.00m
3	−6.00m	TO	−5.00m
4	−5.00m	TO	−4.00m
5	−4.00m	TO	−3.00m
6	−3.00m	TO	−2.00m
7	−2.00m	TO	−1.00m
8	−1.00m	TO	0.00m
9	0.00m	TO	1.00m
10	1.00m	TO	2.00m
11	2.00m	TO	3.00m
12	3.00m	TO	4.00m
13	4.00m	TO	5.00m
14	5.00m	TO	6.00m
15	6.00m	TO	7.00m
16	7.00m	TO	8.00m
17	8.00m	TO	9.00m

LEGEND

- 15 — DESIGN SURFACE CONTOURS
- 12 — EXISTING SURFACE CONTOURS
- NOMINAL KERB LINE
- TOP OF BATTER
- TOE OF BATTER
- RETAINING WALL
- SW — EXISTING STORMWATER
- S — EXISTING SEWER
- W — EXISTING WATER
- E — EXISTING ELECTRICAL
- EXISTING SWALE DRAIN
- PMF FLOOD LEVEL RL10.00 LINE
- LIMIT OF WORKS
- COASTAL WETLANDS
- PROXIMITY TO COASTAL WETLANDS

10 0 10 20 30 40 50m
1 : 1000 (FULL SIZE A1)
1 : 2000 (REDUCED SIZE A3)

CLIENT: CONGARINNI NORTH PTY LTD

JOB TITLE: MACKSVILLE
24 CORONATION ROAD CONGARINNI NRTH

DRAWING TITLE: EARTHWORKS CUT-FILL SHADE PLAN
SHEET 2 OF 2

PROJECT No: 122896
SKETCH No: SK7414
REV: B
DATE: 07/10/2021

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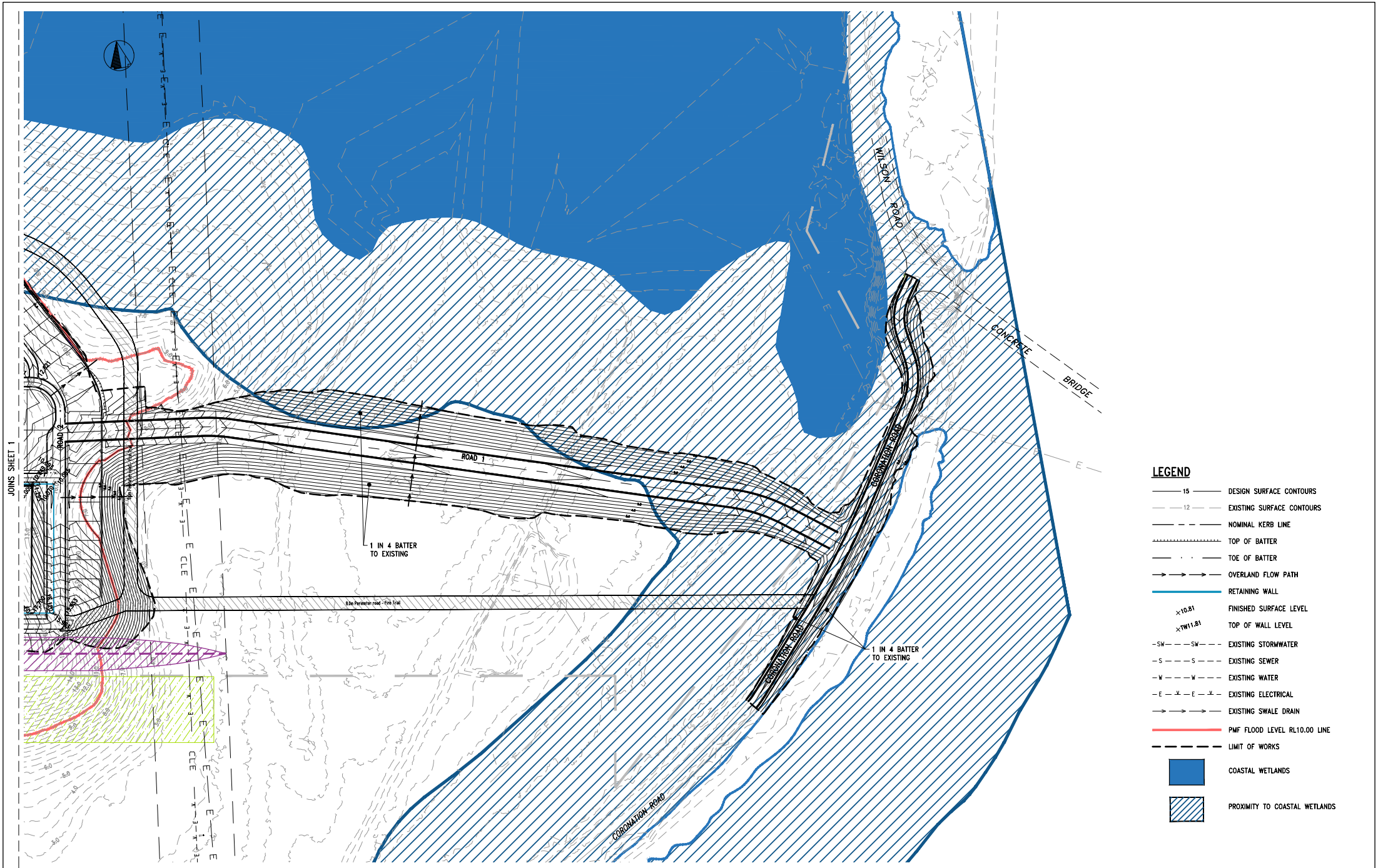

10 0 10 20 30 40 50m
1 : 1000 (FULL SIZE A1)
1 : 2000 (REDUCED SIZE A3)

CLIENT: CONGARINNI NORTH PTY LTD

JOB TITLE: MACKSVILLE
24 CORONATION ROAD CONGARINNI NRTH

DRAWING TITLE: EARTHWORKS LAYOUT
SHEET 2 OF 2

PROJECT No: 122896
SKETCH No: SK7416
REV: B
DATE: 07/10/2021

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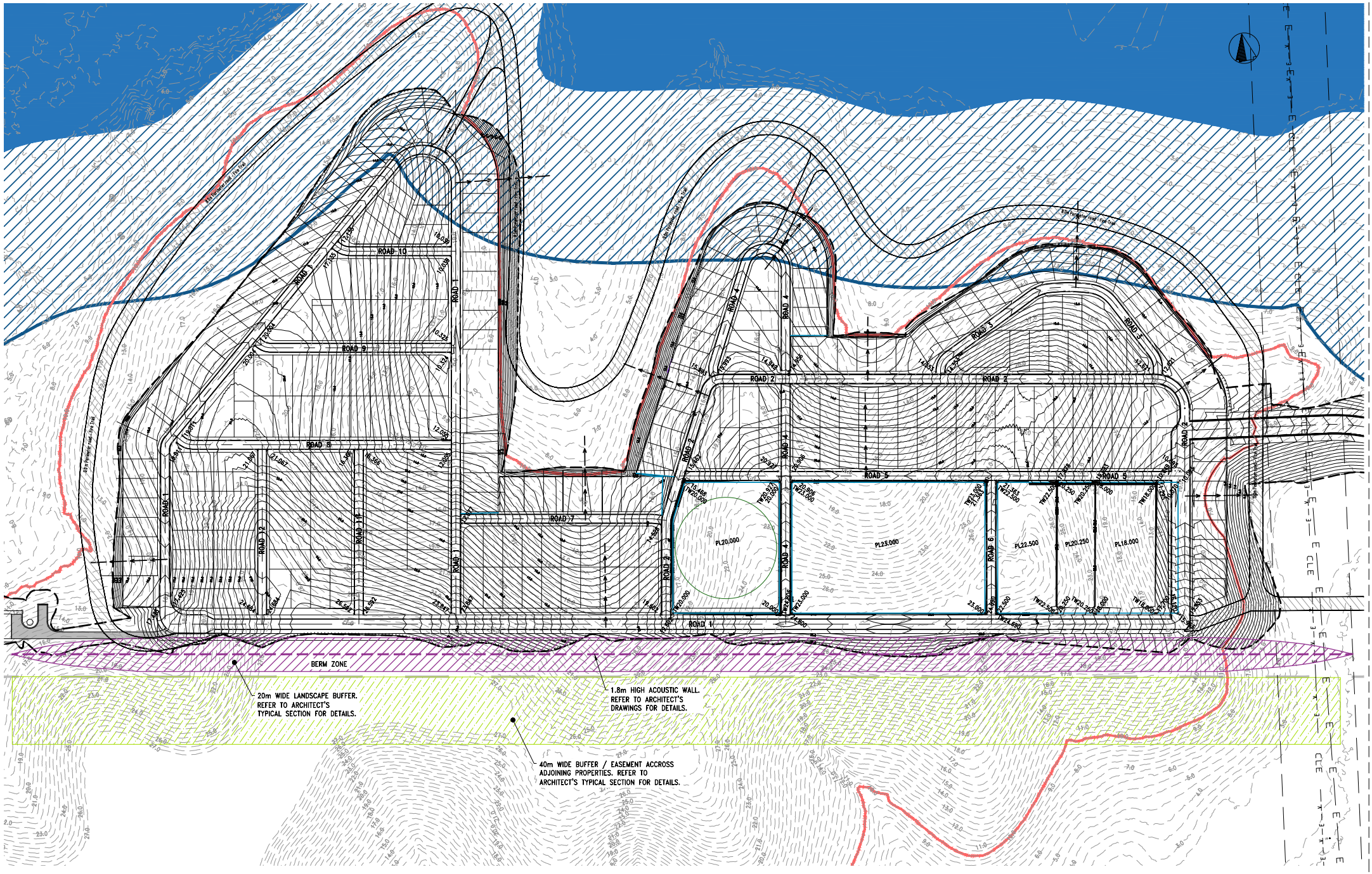

UPDATED ROAD/LOT LAYOUT SUBJECT TO ARCHITECT'S AMENDED LAYOUT DESIGN

NOTE:
REFER TO SHEET 2 OF 2 FOR NOTES AND LEGEND.

10 0 10 20 30 40 50m
1 : 1000 (FULL SIZE A1)
1 : 2000 (REDUCED SIZE A3)

CLIENT	CONGARINNI NORTH PTY LTD
JOB TITLE	MACKSVILLE 24 CORONATION ROAD CONGARINNI NRTH
DRAWING TITLE	EARTHWORKS LAYOUT SHEET 1 OF 2
PROJECT No	122896
SKETCH No	SK7415
REV	B
DATE	07/10/2021

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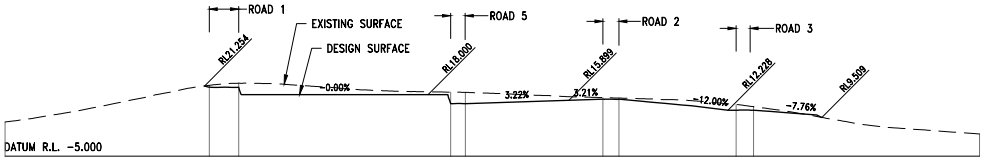
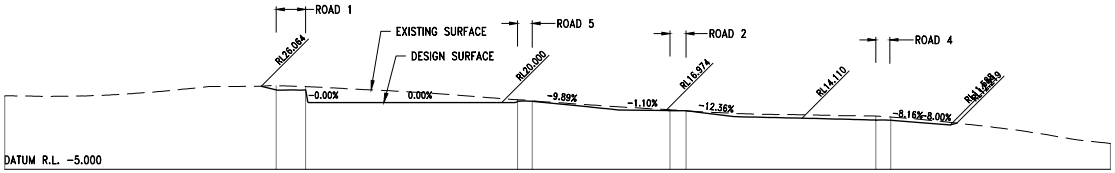
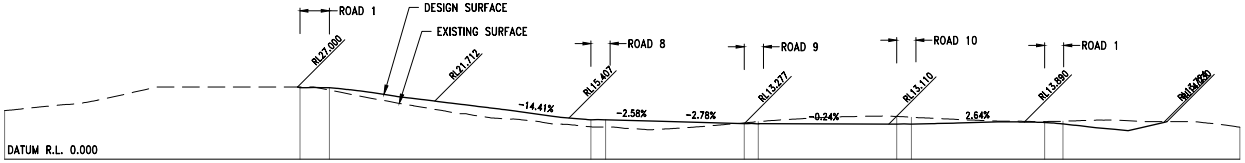


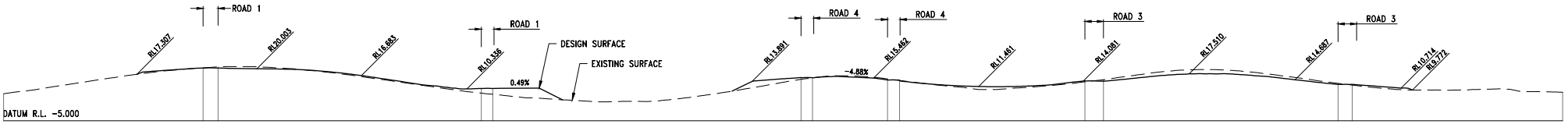
SECTION E
HORIZ SCALE 1:1000 VERT SCALE 1:1000 SK7413



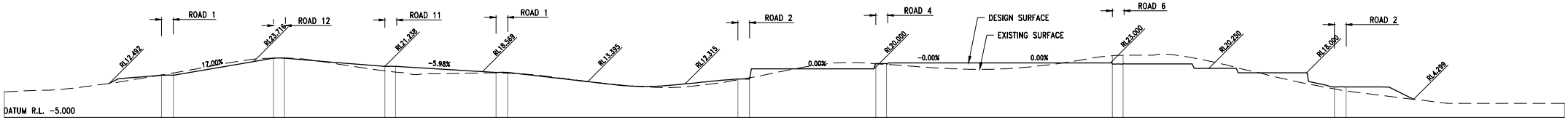
SECTION D
HORIZ SCALE 1:1000 VERT SCALE 1:1000 SK7413



SECTION C
HORIZ SCALE 1:1000 VERT SCALE 1:1000 SK7413



SECTION B
HORIZ SCALE 1:1000 VERT SCALE 1:1000 SK7413



SECTION A
HORIZ SCALE 1:1000 VERT SCALE 1:1000 SK7413

10 0 10 20 30 40 50m
1 : 1000 (FULL SIZE A1)
1 : 2000 (REDUCED SIZE A3)

CLIENT	CONGARINNI NORTH PTY LTD
JOB TITLE	MACKSVILLE 24 CORONATION ROAD CONGARINNI NRTH
DRAWING TITLE	EARTHWORKS SECTIONS
PROJECT No	122896
SKETCH No	SK7417
REV	A
DATE	18/12/2020

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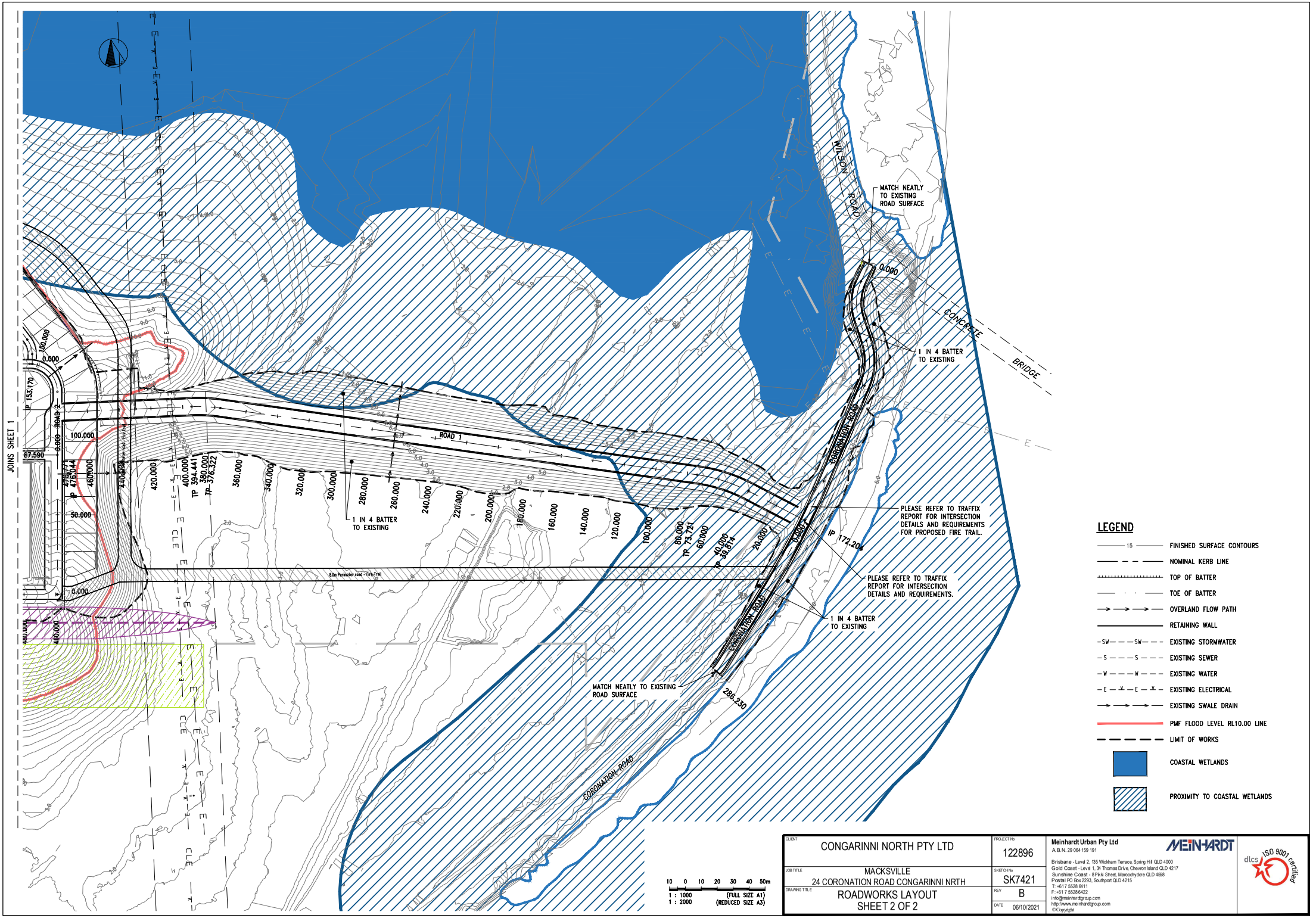
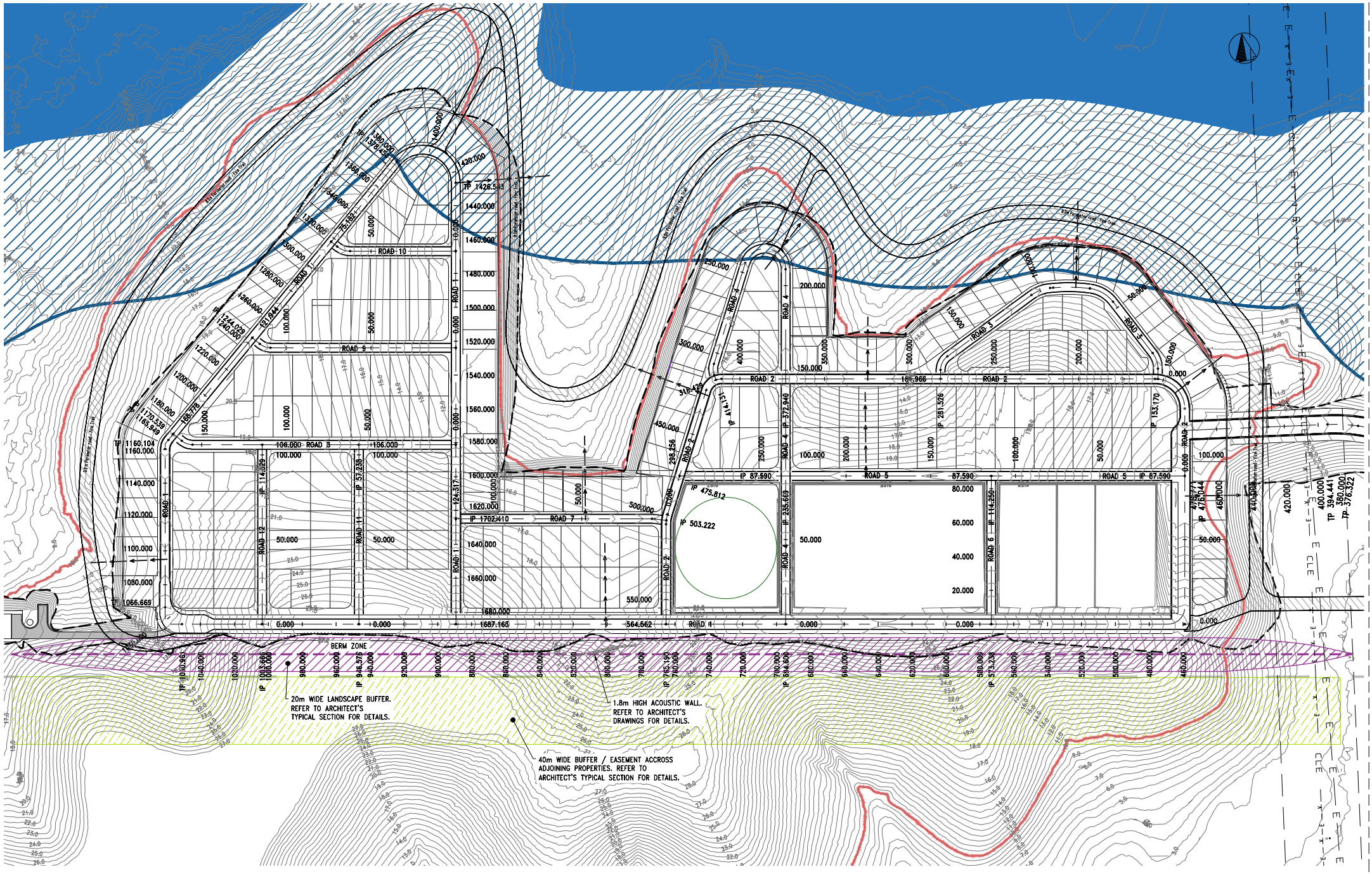


CLIENT: CONGARINNI NORTH PTY LTD		PROJECT No: 122896	Meinhardt Urban Pty Ltd A.B.N. 29 064 159 191 Brisbane - Level 2, 135 Wickham Terrace, Spring Hill QLD 4000 Gold Coast - Level 1, 34 Thomas Drive, Chevron Island QLD 4217 Sunshine Coast - 8 Pikki Street, Marcoochydore QLD 4558 Postal PO Box 2293, Southport QLD 4215 T +61 7 5528 6411 F +61 7 5528 6422 info@meinhardtgroup.com http://www.meinhardtgroup.com ©Copyright
JOB TITLE: MACKSVILLE 24 CORONATION ROAD CONGARINNI NRTH		SKETCH No: SK7421	
DRAWING TITLE: ROADWORKS LAYOUT SHEET 2 OF 2		REV: B DATE: 06/10/2021	



UPDATED ROAD/LOT LAYOUT
SUBJECT TO ARCHITECT'S
AMENDED LAYOUT DESIGN

NOTE:
REFER TO SHEET 2 OF 2
FOR NOTES AND LEGEND.

10 0 10 20 30 40 50m
1 : 1000 (FULL SIZE A1)
1 : 2000 (REDUCED SIZE A3)

CLIENT	CONGARINNI NORTH PTY LTD
JOB TITLE	MACKSVILLE 24 CORONATION ROAD CONGARINNI NRTH
DRAWING TITLE	ROADWORKS LAYOUT SHEET 1 OF 2
PROJECT No	122896
SKETCH No	SK7420
REV	B
DATE	07/10/2021

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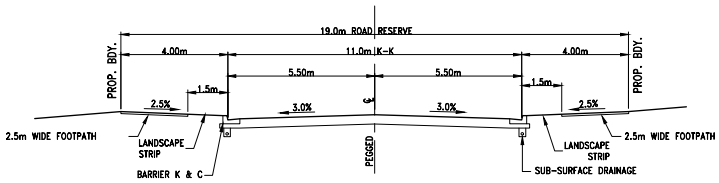
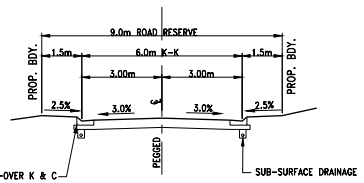


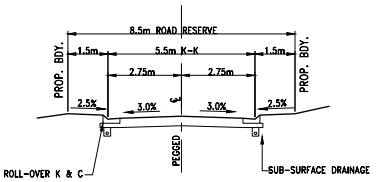
COLLECTOR ROAD (ROAD 1: CH0.000-1050.955)

SCALE 1:100



9m INTERNAL ROAD (ROAD 1: CH1050.955-1165.953)

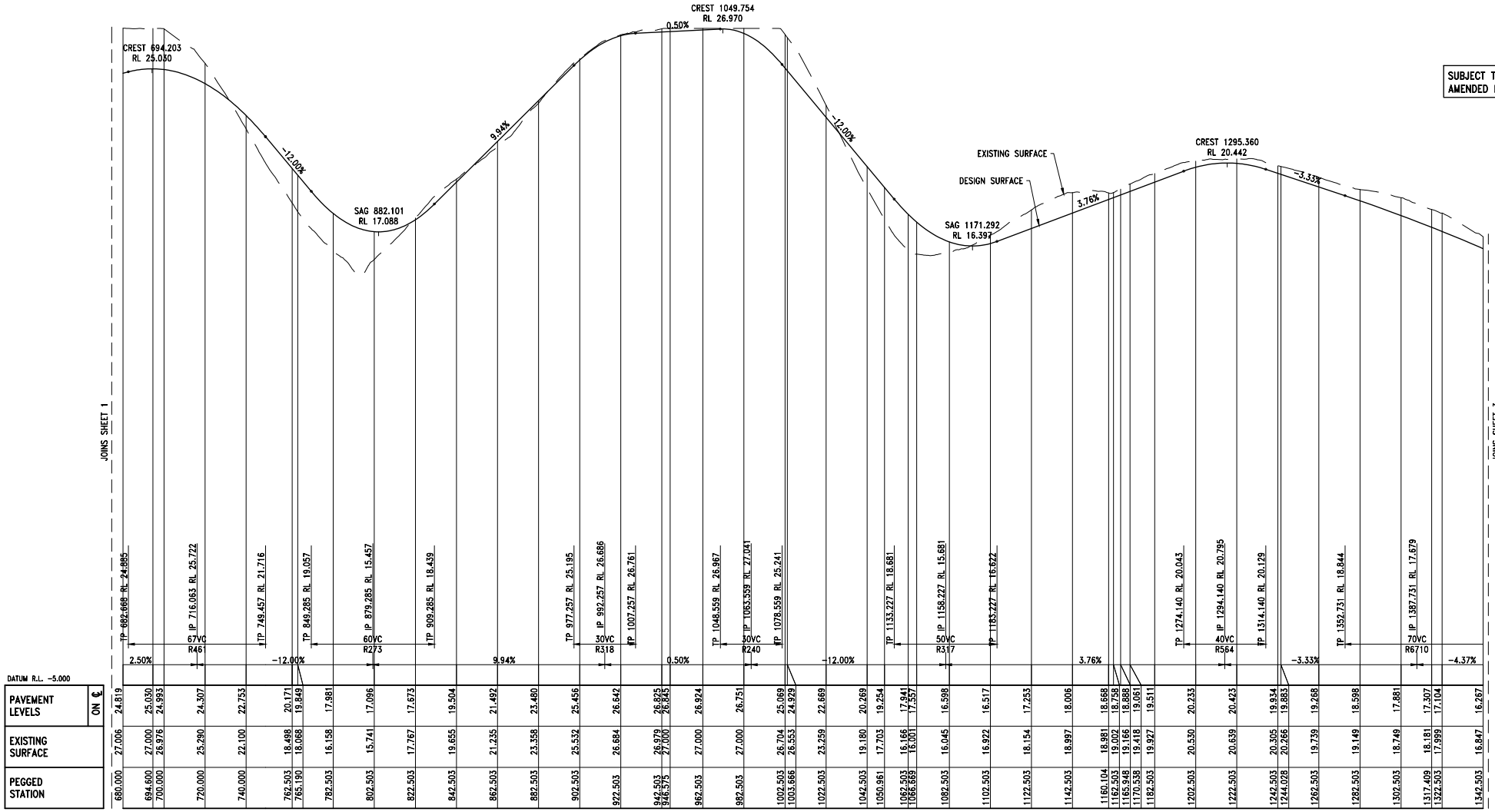
SCALE 1:100



8.5m INTERNAL ROAD (ROAD 1: CH1165.953-1597.053)

SCALE 1:100

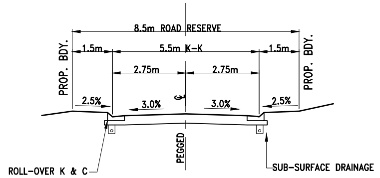
SUBJECT TO ARCHITECT'S AMENDED LAYOUT DESIGN



ROAD 1

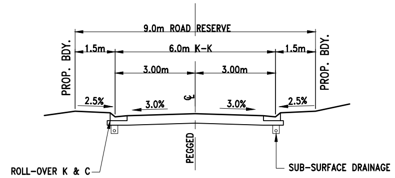
1 0 1 2 3 4 5m
1 : 100 VERT. (FULL SIZE A1)
1 : 200 VERT. (REDUCED SIZE A3)
10 0 10 20 30 40 50m
1 : 1000 HORIZ. (FULL SIZE A1)
1 : 2000 HORIZ. (REDUCED SIZE A3)

CLIENT: CONGARINNI NORTH PTY LTD		PROJECT No: 122896	Meinhardt Urban Pty Ltd A.B.N. 29 064 159 191 Brisbane - Level 2, 135 Wickham Terrace, Spring Hill QLD 4000 Gold Coast - Level 1, 34 Thomas Drive, Chevron Island QLD 4217 Sunshine Coast - 8 Pikki Street, Maroochydore QLD 4558 Postal PO Box 2293, Southport QLD 4215 T: +61 7 5528 6411 F: +61 7 5528 6422 info@meinhardtgroup.com http://www.meinhardtgroup.com ©Copyright
JOB TITLE: MACKSVILLE 24 CORONATION ROAD CONGARINNI NRTH		SKETCH No: SK7423	
DRAWING TITLE: ROAD 1 LONGITUDINAL SECTION SHEET 2 OF 3		REV: B DATE: 07/10/2021	



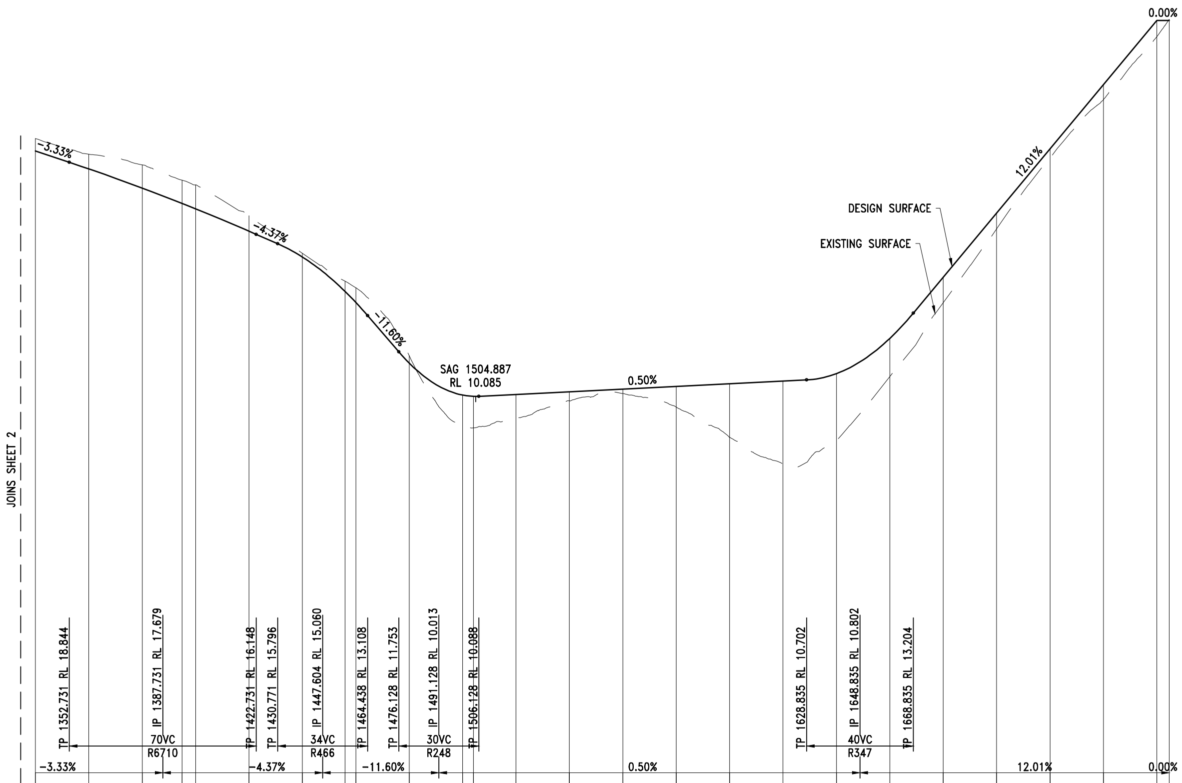
8.5m INTERNAL ROAD (ROAD 1: CH1165.953-1597.053)

SCALE 1:100



9m INTERNAL ROAD (ROAD 1: CH1597.053-END)

SCALE 1:100



DATUM R.L. -5.000

PAVEMENT LEVELS (ON ℄)	19.268	18.598	17.881	17.307	17.104	16.267	15.301	14.015	13.602	11.334	10.134	10.087	10.158	10.258	10.358	10.458	10.558	10.658	10.937	12.255	14.545	16.947	19.350	21.752	24.154	24.154
EXISTING SURFACE	19.739	19.149	18.749	18.181	17.999	16.847	15.439	14.397	14.152	11.608	8.952	8.906	9.258	9.919	10.192	9.685	8.556	7.558	8.433	10.828	13.596	16.355	19.010	21.193	23.549	24.201
PEGGED STATION	1262.503	1282.503	1302.503	1317.409	1322.503	1342.503	1362.503	1378.453	1382.503	1402.503	1422.503	1426.542	1442.503	1462.503	1482.503	1502.503	1522.503	1542.503	1562.503	1582.503	1602.503	1622.503	1642.503	1662.503	1682.503	1687.163

● REFER TO INTERSECTION DETAIL DRAWINGS

ROAD 1

SUBJECT TO ARCHITECT'S AMENDED LAYOUT DESIGN

1 0 1 2 3 4 5m
1 : 100 VERT. (FULL SIZE A1)
1 : 200 VERT. (REDUCED SIZE A3)
10 0 10 20 30 40 50m
1 : 1000 HORIZ. (FULL SIZE A1)
1 : 2000 HORIZ. (REDUCED SIZE A3)

CLIENT: CONGARINNI NORTH PTY LTD

JOB TITLE: MACKSVILLE
24 CORONATION ROAD CONGARINNI NRTH

DRAWING TITLE: ROAD 1 LONGITUDINAL SECTION
SHEET 3 OF 3

PROJECT No: 122896

SKETCH No: SK7424

REV: B

DATE: 07/10/2021

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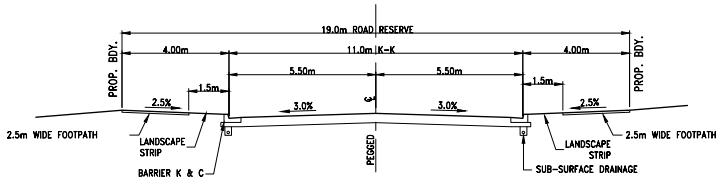
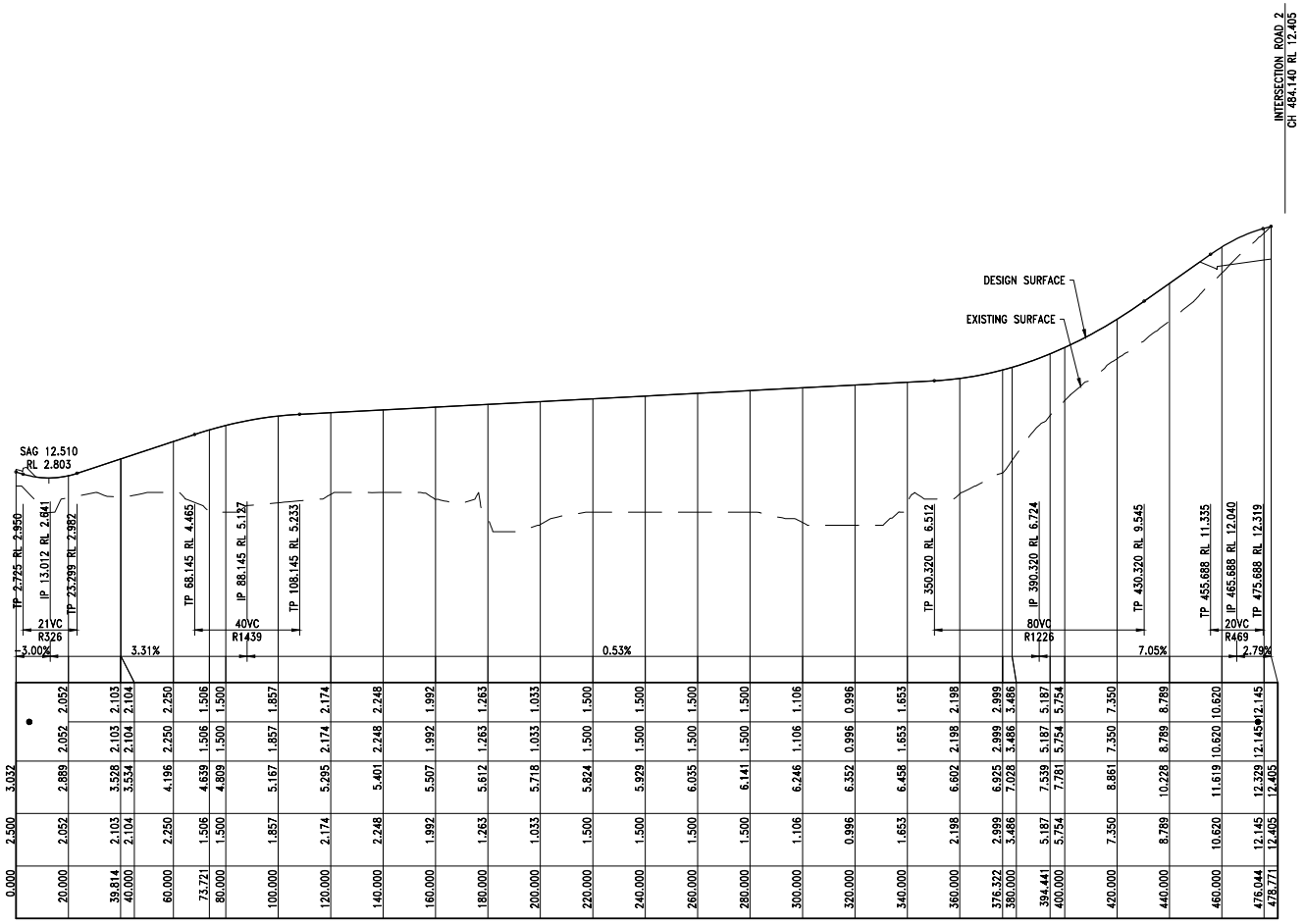


COLLECTOR ROAD (ROAD 1: CH0.000–1050.955)

SCALE 1:100



DATUM R.L. -5.000

CHANNEL LIP LEVELS	LHS	2.052 2.103 2.104 2.250 1.506 1.500 1.857 2.174 2.248 1.992 1.263 1.033 1.500 1.500 1.500 1.500 1.106 0.996 1.653 2.198 2.999 3.486 5.187 5.754 7.350 8.789 10.620 12.145 12.405
	RHS	2.052 2.103 2.104 2.250 1.506 1.500 1.857 2.174 2.248 1.992 1.263 1.033 1.500 1.500 1.500 1.500 1.106 0.996 1.653 2.198 2.999 3.486 5.187 5.754 7.350 8.789 10.620 12.145 12.405
PAVEMENT LEVELS	ON ℄	3.032 2.889 3.528 3.534 4.196 4.639 4.809 5.167 5.295 5.401 5.507 5.612 5.718 5.824 5.929 6.035 6.141 6.246 6.352 6.458 6.602 6.925 7.028 7.539 7.781 8.861 10.228 11.619 12.329 12.405
EXISTING SURFACE		2.500 2.052 2.103 2.104 2.250 1.506 1.500 1.857 2.174 2.248 1.992 1.263 1.033 1.500 1.500 1.500 1.500 1.106 0.996 1.653 2.198 2.999 3.486 5.187 5.754 7.350 8.789 10.620 12.145 12.405
PEGGED STATION		0.000 20.000 39.814 40.000 60.000 73.721 80.000 100.000 120.000 140.000 160.000 180.000 200.000 220.000 240.000 260.000 280.000 300.000 320.000 340.000 360.000 376.322 380.000 394.441 400.000 420.000 440.000 460.000 476.044 478.771

● REFER TO INTERSECTION DETAIL DRAWINGS

ROAD 1

1 0 1 2 3 4 5m
1 : 100 VERT. (FULL SIZE A1)
1 : 200 VERT. (REDUCED SIZE A3)
10 0 10 20 30 40 50m
1 : 1000 HORIZ. (FULL SIZE A1)
1 : 2000 HORIZ. (REDUCED SIZE A3)

CLIENT: CONGARINNI NORTH PTY LTD
JOB TITLE: MACKSVILLE
24 CORONATION ROAD CONGARINNI NRTH
DRAWING TITLE: ROAD 1 LONGITUDINAL SECTION
SHEET 1 OF 3

PROJECT No: 122896
SKETCH No: SK7422
REV: B
DATE: 06/10/2021

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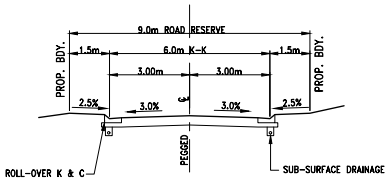
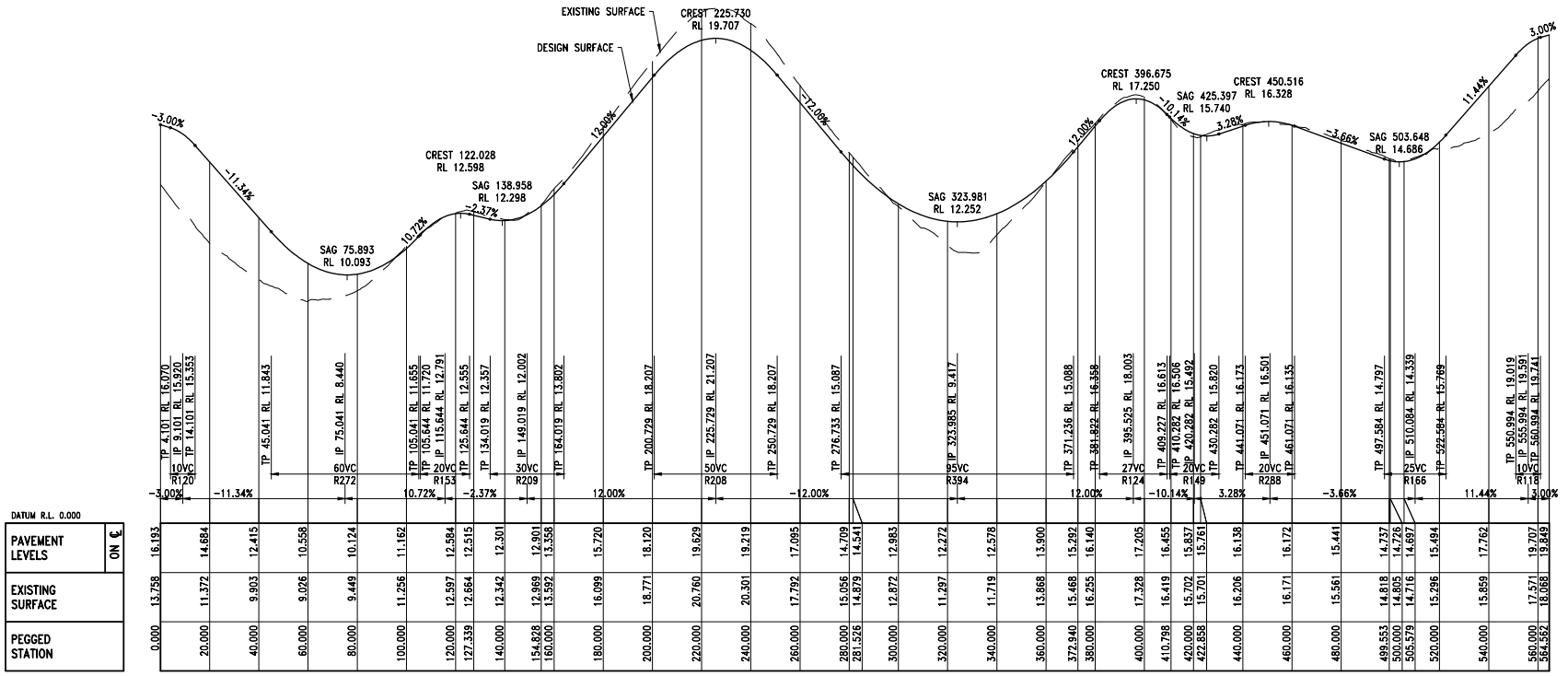


9m INTERNAL ROAD (ROAD 2)

SCALE 1:100



ROAD 2

SUBJECT TO ARCHITECT'S AMENDED LAYOUT DESIGN

1 : 100 VERT. (FULL SIZE A1)
1 : 200 VERT. (REDUCED SIZE A3)
1 : 1000 HORIZ. (FULL SIZE A1)
1 : 2000 HORIZ. (REDUCED SIZE A3)

CLIENT	CONGARINNI NORTH PTY LTD
JOB TITLE	MACKSVILLE 24 CORONATION ROAD CONGARINNI NRTH
DRAWING TITLE	ROAD 2 LONGITUDINAL SECTION
PROJECT No	122896
SKETCH No	SK7425
REV	B
DATE	07/10/2021

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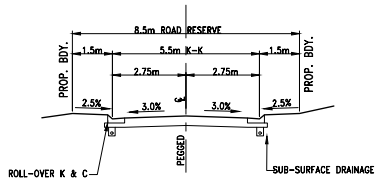
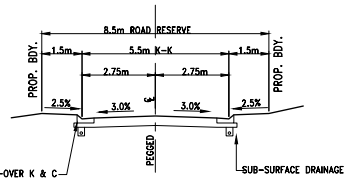


8.5m INTERNAL ROAD (ROAD 3)

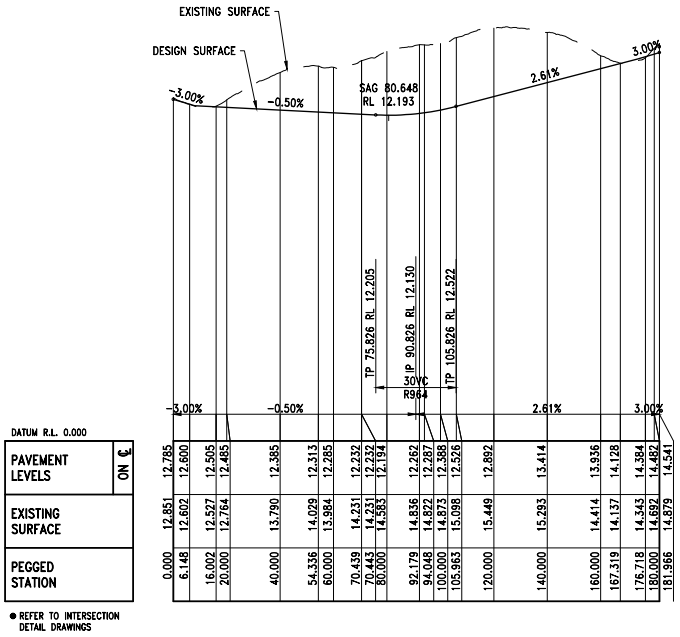
SCALE 1:100



8.5m INTERNAL ROAD (ROAD 4)

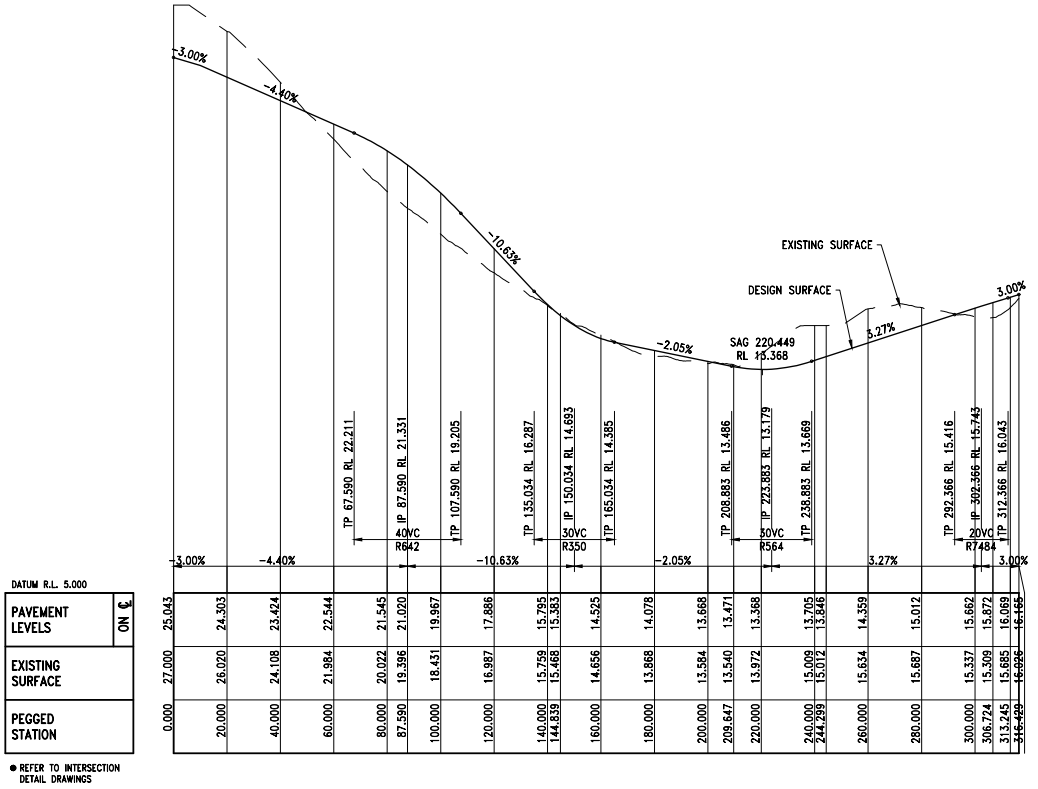
SCALE 1:100

SUBJECT TO ARCHITECT'S AMENDED LAYOUT DESIGN



● REFER TO INTERSECTION DETAIL DRAWINGS

ROAD 3



● REFER TO INTERSECTION DETAIL DRAWINGS

ROAD 4

1 : 100 VERT. (FULL SIZE A1)
1 : 200 VERT. (REDUCED SIZE A3)
1 : 1000 HORIZ. (FULL SIZE A1)
1 : 2000 HORIZ. (REDUCED SIZE A3)

CLIENT	CONGARINNI NORTH PTY LTD
JOB TITLE	MACKSVILLE 24 CORONATION ROAD CONGARINNI NRTH
DRAWING TITLE	ROAD 3 & 4 LONGITUDINAL SECTIONS
PROJECT No	122896
SKETCH No	SK7426
REV	B
DATE	07/10/2021

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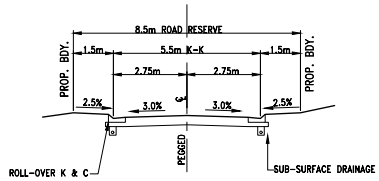
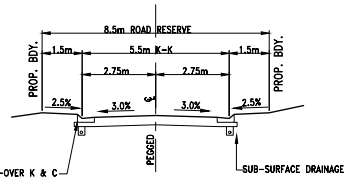
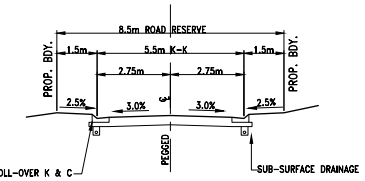


8.5m INTERNAL ROAD (ROAD 5)
SCALE 1:100

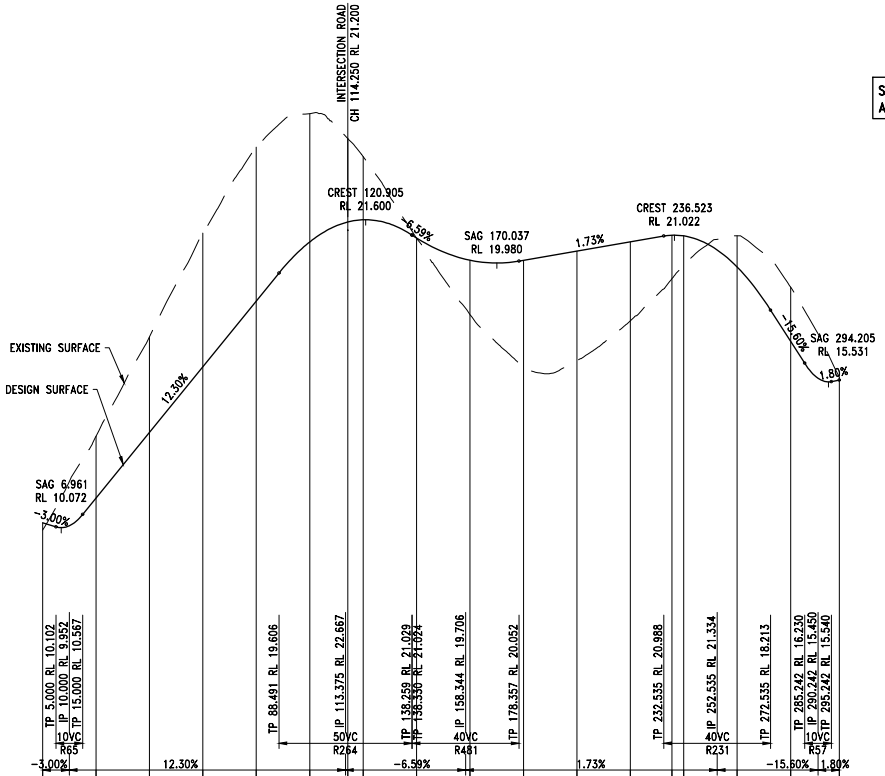


8.5m INTERNAL ROAD (ROAD 6)
SCALE 1:100



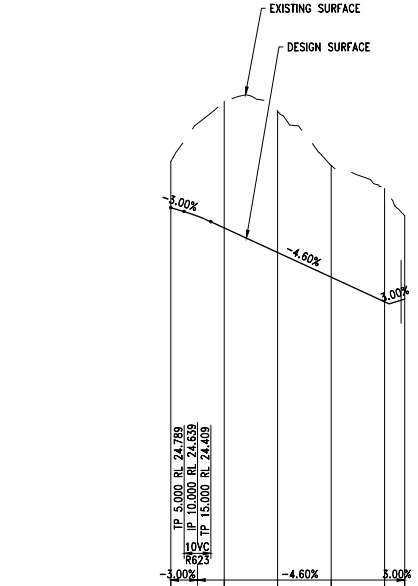
8.5m INTERNAL ROAD (ROAD 7)
SCALE 1:100

SUBJECT TO ARCHITECT'S AMENDED LAYOUT DESIGN



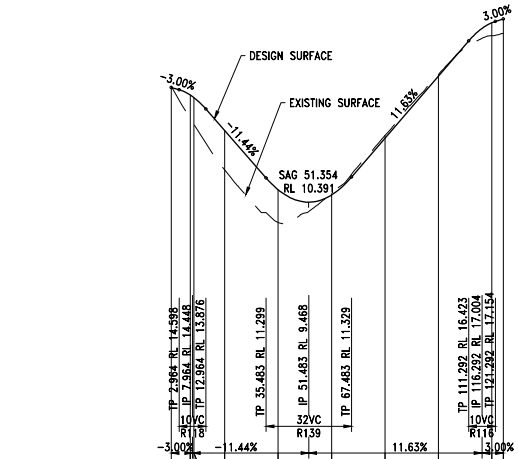
● REFER TO INTERSECTION DETAIL DRAWINGS

ROAD 5



● REFER TO INTERSECTION DETAIL DRAWINGS

ROAD 6



● REFER TO INTERSECTION DETAIL DRAWINGS

ROAD 7

1 0 1 2 3 4 5m
1 : 100 VERT. (FULL SIZE A1)
1 : 200 VERT. (REDUCED SIZE A3)
10 0 10 20 30 40 50m
1 : 1000 HORIZ. (FULL SIZE A1)
1 : 2000 HORIZ. (REDUCED SIZE A3)

CLIENT: CONGARINNI NORTH PTY LTD
PROJECT No: 122896
JOB TITLE: MACKSVILLE
24 CORONATION ROAD CONGARINNI NRTH
SKETCH No: SK7427
DRAWING TITLE: ROAD 5, 6 & 7 LONGITUDINAL SECTIONS
REV: B
DATE: 07/10/2021

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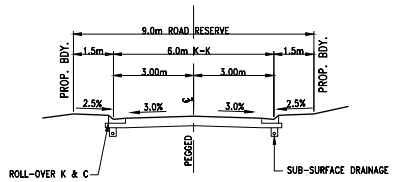
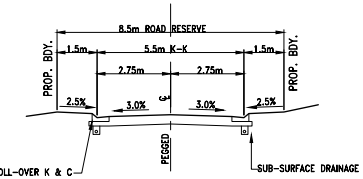


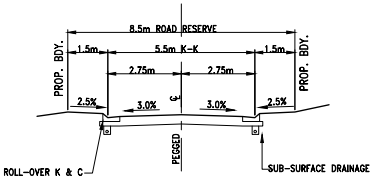
9m INTERNAL ROAD (ROAD 8)

SCALE 1:100



8.5m INTERNAL ROAD (ROAD 9)

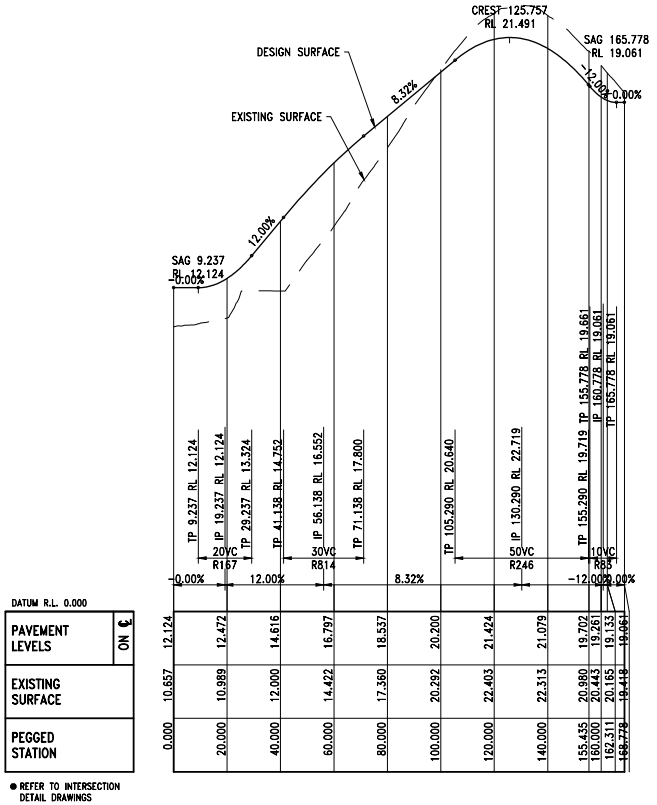
SCALE 1:100



8.5m INTERNAL ROAD (ROAD 10)

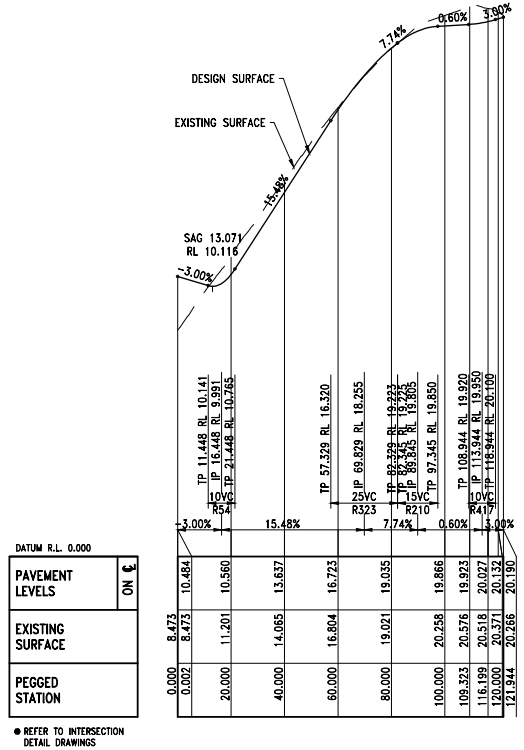
SCALE 1:100

SUBJECT TO ARCHITECT'S AMENDED LAYOUT DESIGN



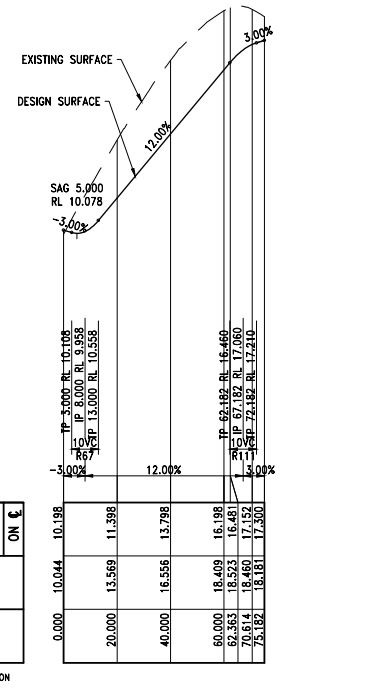
● REFER TO INTERSECTION DETAIL DRAWINGS

ROAD 8



● REFER TO INTERSECTION DETAIL DRAWINGS

ROAD 9



● REFER TO INTERSECTION DETAIL DRAWINGS

ROAD 10

1 0 1 2 3 4 5m

1 : 100 VERT. (FULL SIZE A1)
1 : 200 VERT. (REDUCED SIZE A3)

10 0 10 20 30 40 50m

1 : 1000 HORIZ. (FULL SIZE A1)
1 : 2000 HORIZ. (REDUCED SIZE A3)

CLIENT: CONGARINNI NORTH PTY LTD

PROJECT No: 122896

JOB TITLE: MACKSVILLE
24 CORONATION ROAD CONGARINNI NRTH

SKETCH No: SK7428

DRAWING TITLE: ROAD 8, 9 & 10 LONGITUDINAL SECTIONS

REV: B

DATE: 07/10/2021

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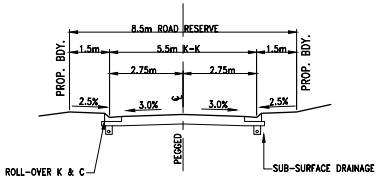
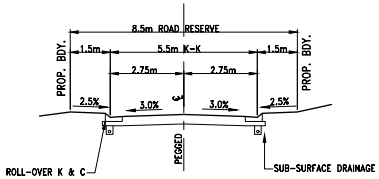


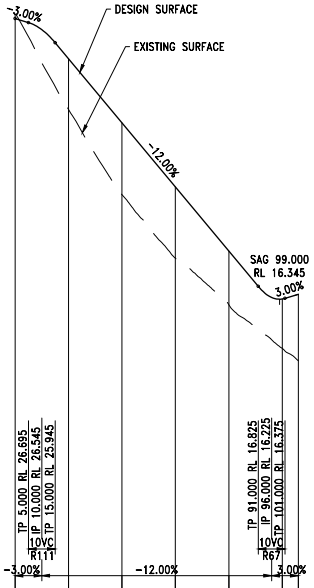
8.5m INTERNAL ROAD (ROAD 11)

SCALE 1:100



8.5m INTERNAL ROAD (ROAD 12)

SCALE 1:100

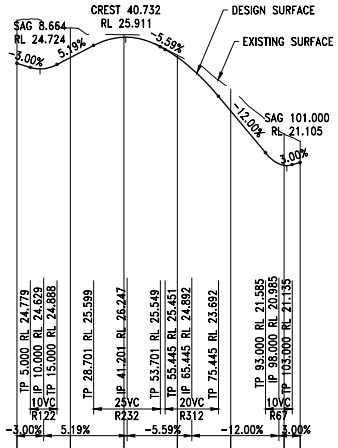


DATUM R.L. 5.000

CHANNEL LIP LEVELS	LHS	26.845 / 23.442 / 20.256 / 17.879 / 16.140 / 14.502
	RHS	23.442 / 20.256 / 17.879 / 16.140 / 14.502
PAVEMENT LEVELS	ON ℄	25.345 / 22.945 / 20.545 / 18.145 / 16.352 / 16.525
EXISTING SURFACE		27.000 / 23.442 / 20.256 / 17.879 / 16.140 / 14.502 / 14.039
PEGGED STATION		0.000 / 20.000 / 40.000 / 60.000 / 80.000 / 100.000 / 106.000

● REFER TO INTERSECTION DETAIL DRAWINGS

ROAD 11



DATUM R.L. 10.000

CHANNEL LIP LEVELS	LHS	26.260 / 26.002 / 25.240 / 23.969 / 22.292
	RHS	26.260 / 26.002 / 25.240 / 23.969 / 22.292
PAVEMENT LEVELS	ON ℄	24.929 / 25.148 / 25.910 / 25.163 / 23.145 / 21.113 / 21.225
EXISTING SURFACE		26.553 / 26.260 / 26.002 / 25.240 / 23.969 / 22.292 / 22.016
PEGGED STATION		0.000 / 20.000 / 40.000 / 60.000 / 80.000 / 100.000 / 106.000

● REFER TO INTERSECTION DETAIL DRAWINGS

ROAD 12

SUBJECT TO ARCHITECT'S AMENDED LAYOUT DESIGN

1 0 1 2 3 4 5m
1 : 100 VERT. (FULL SIZE A1)
1 : 200 VERT. (REDUCED SIZE A3)
10 0 10 20 30 40 50m
1 : 1000 HORIZ. (FULL SIZE A1)
1 : 2000 HORIZ. (REDUCED SIZE A3)

CLIENT	CONGARINNI NORTH PTY LTD
JOB TITLE	MACKSVILLE 24 CORONATION ROAD CONGARINNI NRTH
DRAWING TITLE	ROAD 11 & 12 LONGITUDINAL SECTIONS
PROJECT No	122896
SKETCH No	SK7429
REV	B
DATE	07/10/2021

Meinhardt Urban Pty Ltd
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Brisbane - Level 2, 135 Wickham Terrace, Spring Hill QLD 4000
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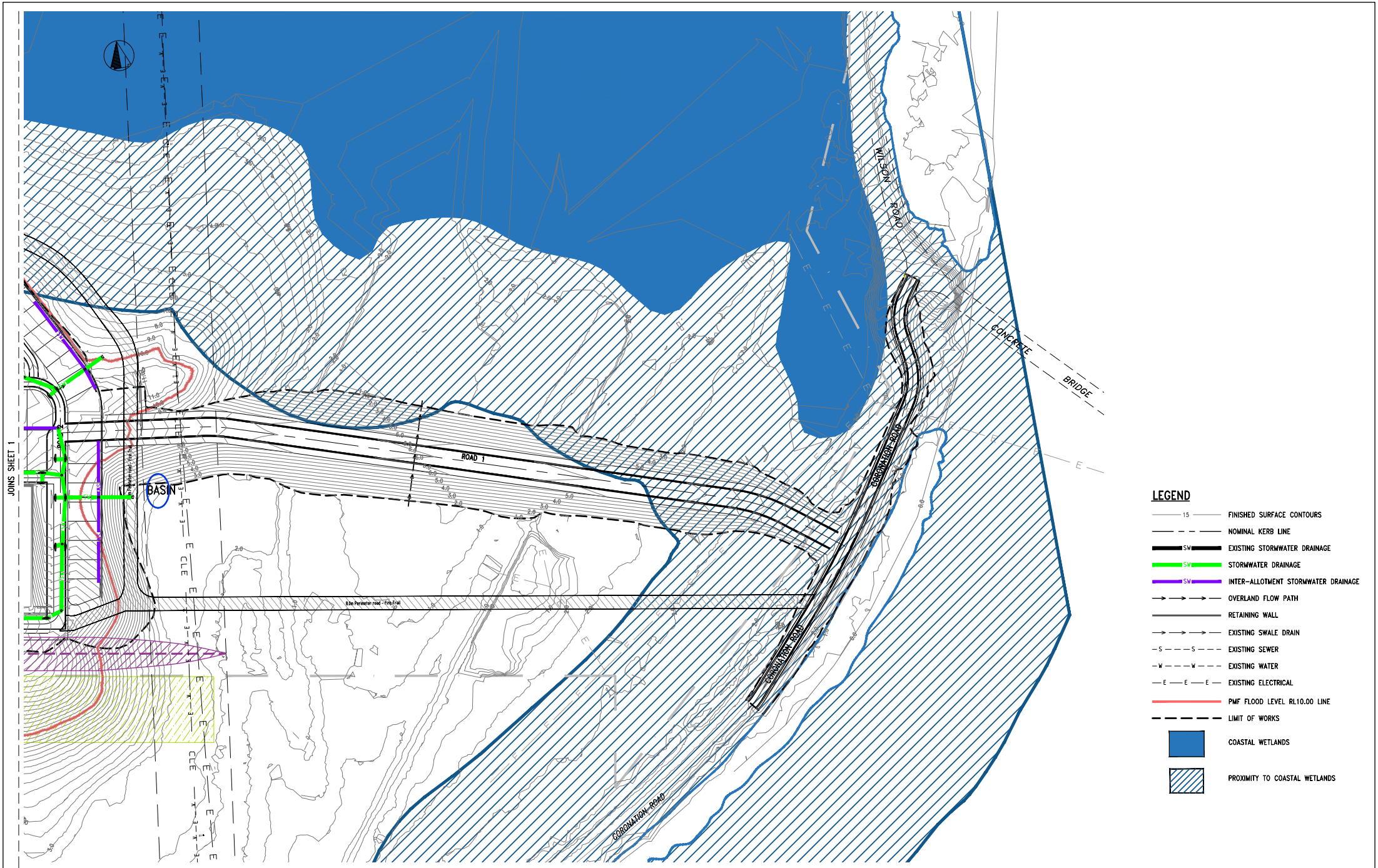

NOTE:
SERVICES LAYOUTS ARE SCHEMATIC ONLY AND SUBJECT TO DETAILED DESIGN AND AUTHORITY APPROVALS

NOTE:
BASIN LOCATIONS SHOWN ARE INDICATIVE ONLY AND SUBJECT TO PREPARATION OF FINAL SITE-BASED STORMWATER MANAGEMENT PLAN

10 0 10 20 30 40 50m
1 : 1000 (FULL SIZE A1)
1 : 2000 (REDUCED SIZE A3)

CLIENT: CONGARINNI NORTH PTY LTD
JOB TITLE: MACKSVILLE
24 CORONATION ROAD CONGARINNI NRTH
DRAWING TITLE: DRAINAGE LAYOUT
SHEET 2 OF 2

PROJECT No: 122896
SKETCH No: SK7431
REV: B
DATE: 07/10/2021

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Brisbane - Level 2, 135 Wickham Terrace, Spring Hill QLD 4000
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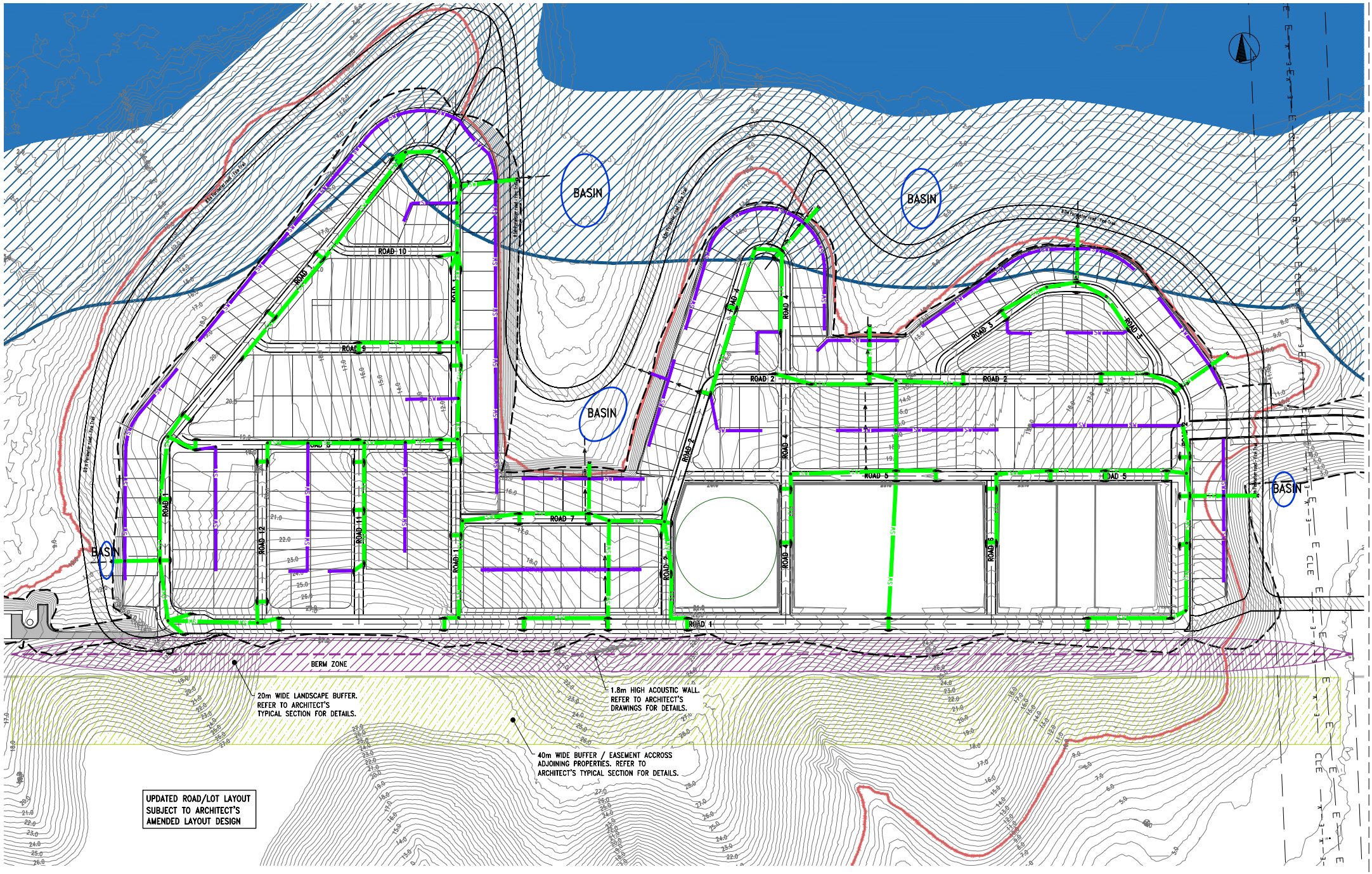

NOTE:
REFER TO SHEET 2 OF 2 FOR NOTES AND LEGEND.

NOTE:
SERVICES LAYOUTS ARE SCHEMATIC ONLY AND SUBJECT TO DETAILED DESIGN AND AUTHORITY APPROVALS

NOTE:
BASIN LOCATIONS SHOWN ARE INDICATIVE ONLY AND SUBJECT TO PREPARATION OF FINAL SITE-BASED STORMWATER MANAGEMENT PLAN

10 0 10 20 30 40 50m
1 : 1000 (FULL SIZE A1)
1 : 2000 (REDUCED SIZE A3)

CLIENT	CONGARINNI NORTH PTY LTD
JOB TITLE	MACKSVILLE 24 CORONATION ROAD CONGARINNI NRTH
DRAWING TITLE	DRAINAGE LAYOUT SHEET 1 OF 2
PROJECT No	122896
SKETCH No	SK7430
REV	B
DATE	07/10/2021

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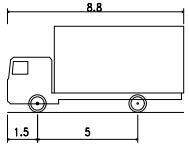
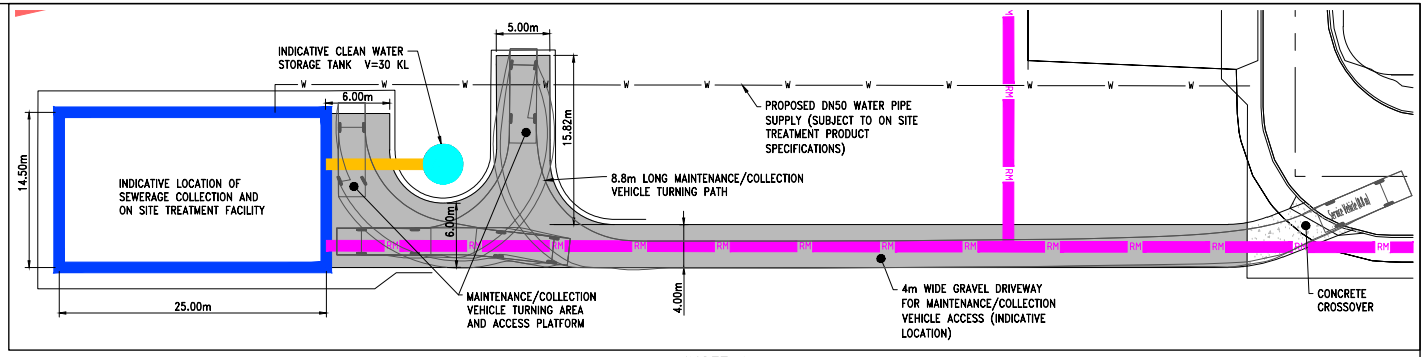
LEGEND

- FINISHED SURFACE CONTOURS
- NOMINAL KERB LINE
- EXISTING SEWER
- ø150 GRAVITY SEWER
- ø150 RISING MAIN
- RETAINING WALL
- EXISTING STORMWATER
- EXISTING WATER
- EXISTING ELECTRICAL
- PMF FLOOD LEVEL RL10.00 LINE
- LIMIT OF WORKS
- ABSORPTION TRENCH

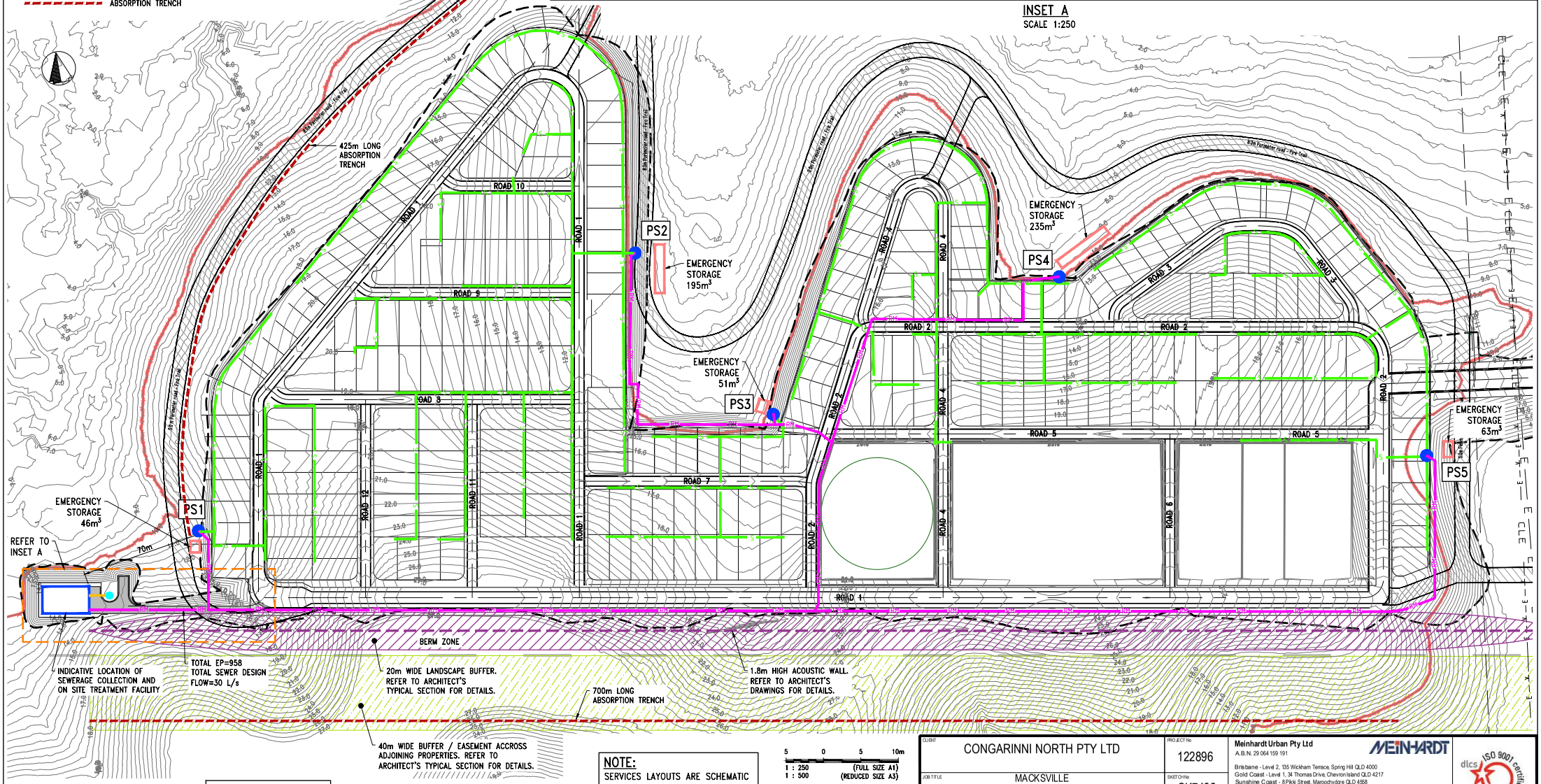


Service Vehicle (8.8 m)

Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.427m
Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	12.500m



INSET A
SCALE 1:250



UPDATED ROAD/LOT LAYOUT SUBJECT TO ARCHITECT'S AMENDED LAYOUT DESIGN

NOTE:
SERVICES LAYOUTS ARE SCHEMATIC ONLY AND SUBJECT TO DETAILED DESIGN AND AUTHORITY APPROVALS

5 0 5 10m
1 : 250 (FULL SIZE A1)
1 : 500 (REDUCED SIZE A3)

10 0 10 20 30 40 50m
1 : 1000 (FULL SIZE A1)
1 : 2000 (REDUCED SIZE A3)

CLIENT: CONGARINNI NORTH PTY LTD
PROJECT No: 122896
JOB TITLE: MACKSVILLE
24 CORONATION ROAD CONGARINNI NRTH
SKETCH No: SK7432
DRAWING TITLE: SEWERAGE RETICULATION LAYOUT SHEET 1 OF 2
REV: F
DATE: 07/10/2021

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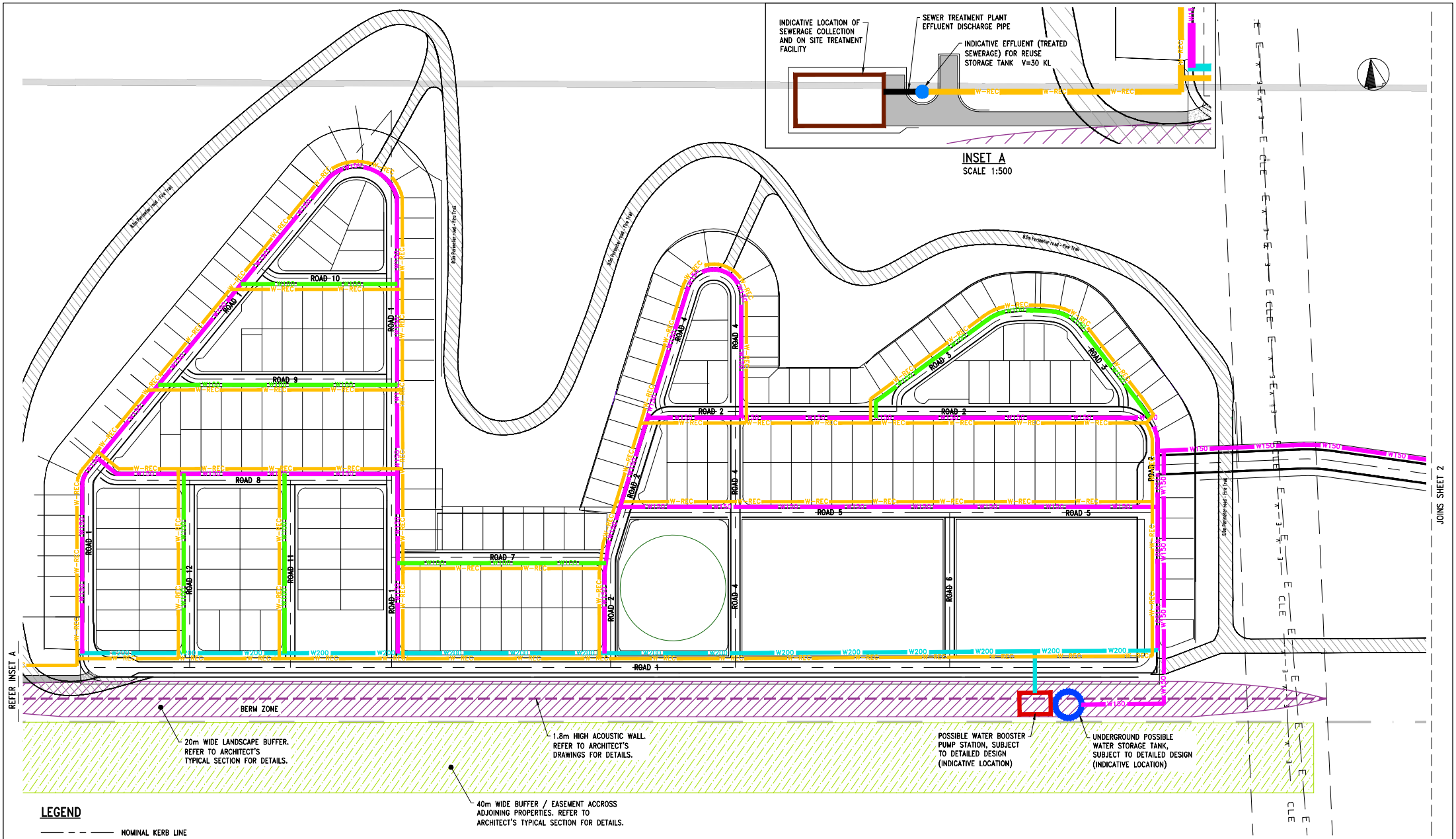

LEGEND

- NOMINAL KERB LINE
- W200 — ø200 WATER MAIN
- W150 — ø150 WATER MAIN
- W100 — ø100 WATER MAIN
- W-REC — ø100 RECYCLED WATER MAIN
- RETAINING WALL
- S — S — EXISTING SEWER
- SW — SW — EXISTING STORMWATER
- W — W — EXISTING WATER
- E — E — E — EXISTING ELECTRICAL

NOTE:
SERVICES LAYOUTS ARE SCHEMATIC ONLY AND SUBJECT TO DETAILED DESIGN AND AUTHORITY APPROVALS

UPDATED ROAD/LOT LAYOUT SUBJECT TO ARCHITECT'S AMENDED LAYOUT DESIGN

10 0 10 20 30 40 50m
1 : 1000 (FULL SIZE A1)
1 : 2000 (REDUCED SIZE A3)

CLIENT	CONGARINNI NORTH PTY LTD
JOB TITLE	MACKSVILLE 24 CORONATION ROAD CONGARINNI NRTH
DRAWING TITLE	WATER RETICULATION LAYOUT SHEET 1 OF 2
PROJECT No	122896
SKETCH No	SK7434
REV	C
DATE	07/10/2021

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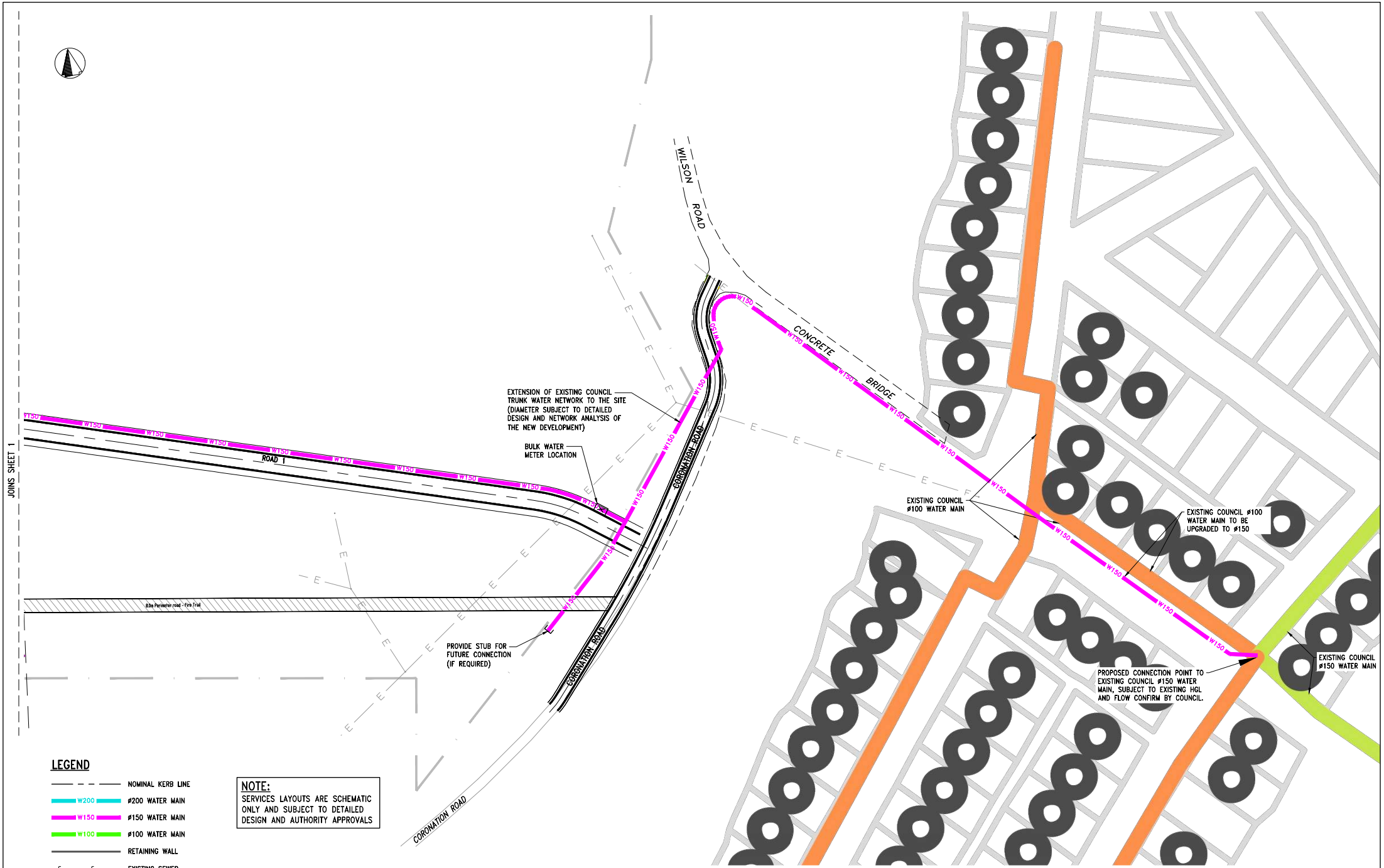

LEGEND

- NOMINAL KERB LINE
- W200 ø200 WATER MAIN
- W150 ø150 WATER MAIN
- W100 ø100 WATER MAIN
- RETAINING WALL
- -S---S--- EXISTING SEWER
- -SW---SW--- EXISTING STORMWATER
- -W---W--- EXISTING WATER
- —E—E—E— EXISTING ELECTRICAL
- LIMIT OF WORKS

NOTE:
SERVICES LAYOUTS ARE SCHEMATIC ONLY AND SUBJECT TO DETAILED DESIGN AND AUTHORITY APPROVALS

NOTE:
PART OF THIS DRAWING IS REPRODUCED FROM "NAMBUCCA SHIRE COUNCIL – NAMBUCCA WATER SERVICING STRATEGY, EXISTING & FUTURE SYSYTEM ANALYSIS, DRAFT – MAY 2014, PROJECT No: 3882, DRAWING EXHIBIT 3C, FILENAME: Ex –03", WITH INFORMATION ADDED BY MEINHARDT.

10 0 10 20 30 40 50m
1 : 1000 (FULL SIZE A1)
1 : 2000 (REDUCED SIZE A3)

CLIENT	CONGARINNI NORTH PTY LTD
JOB TITLE	MACKSVILLE 24 CORONATION ROAD CONGARINNI NRTH
DRAWING TITLE	WATER RETICULATION LAYOUT SHEET 2 OF 2
PROJECT No	122896
SKETCH No	SK7435
REV	C
DATE	07/10/2021

Meinhardt Urban Pty Ltd
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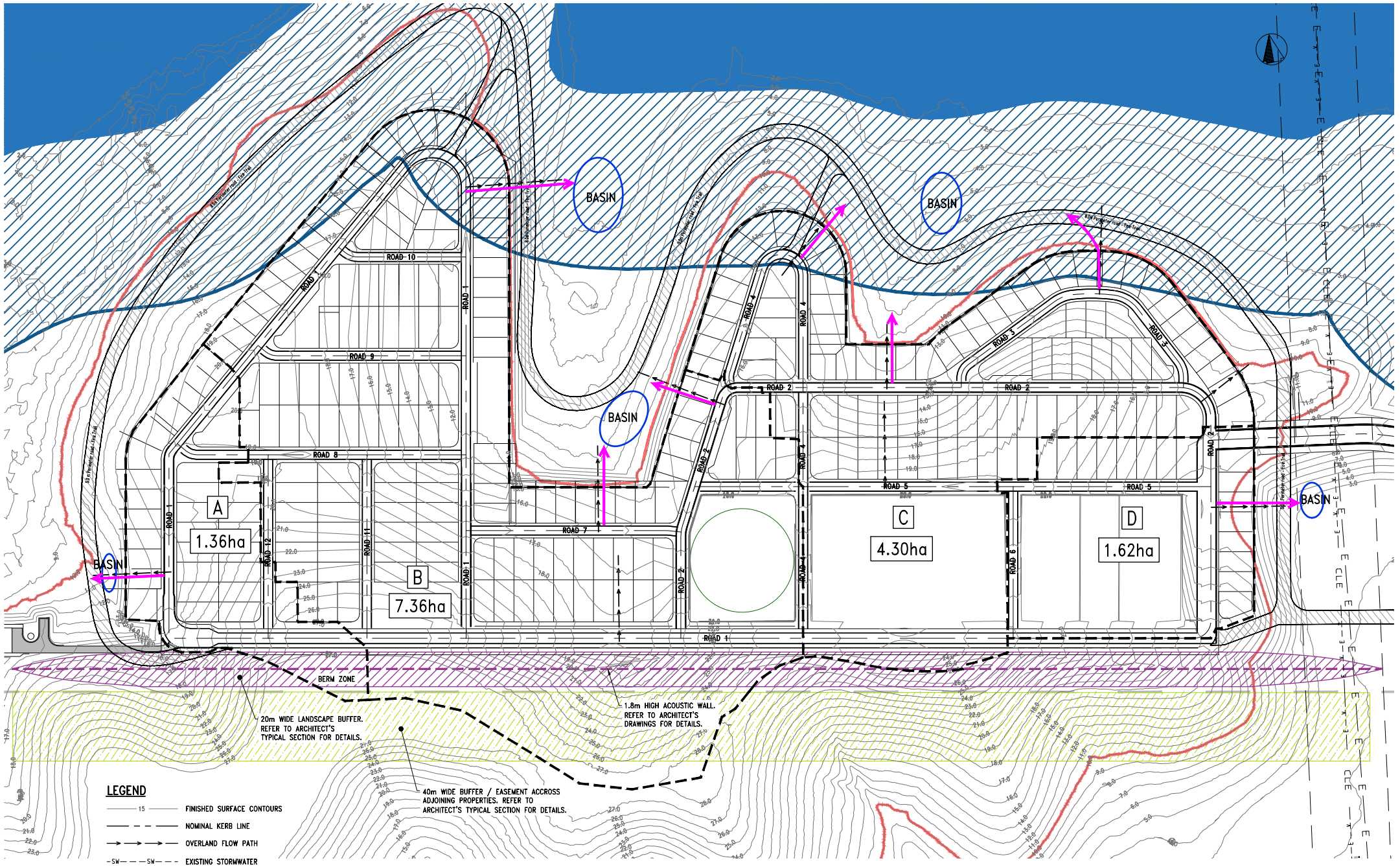
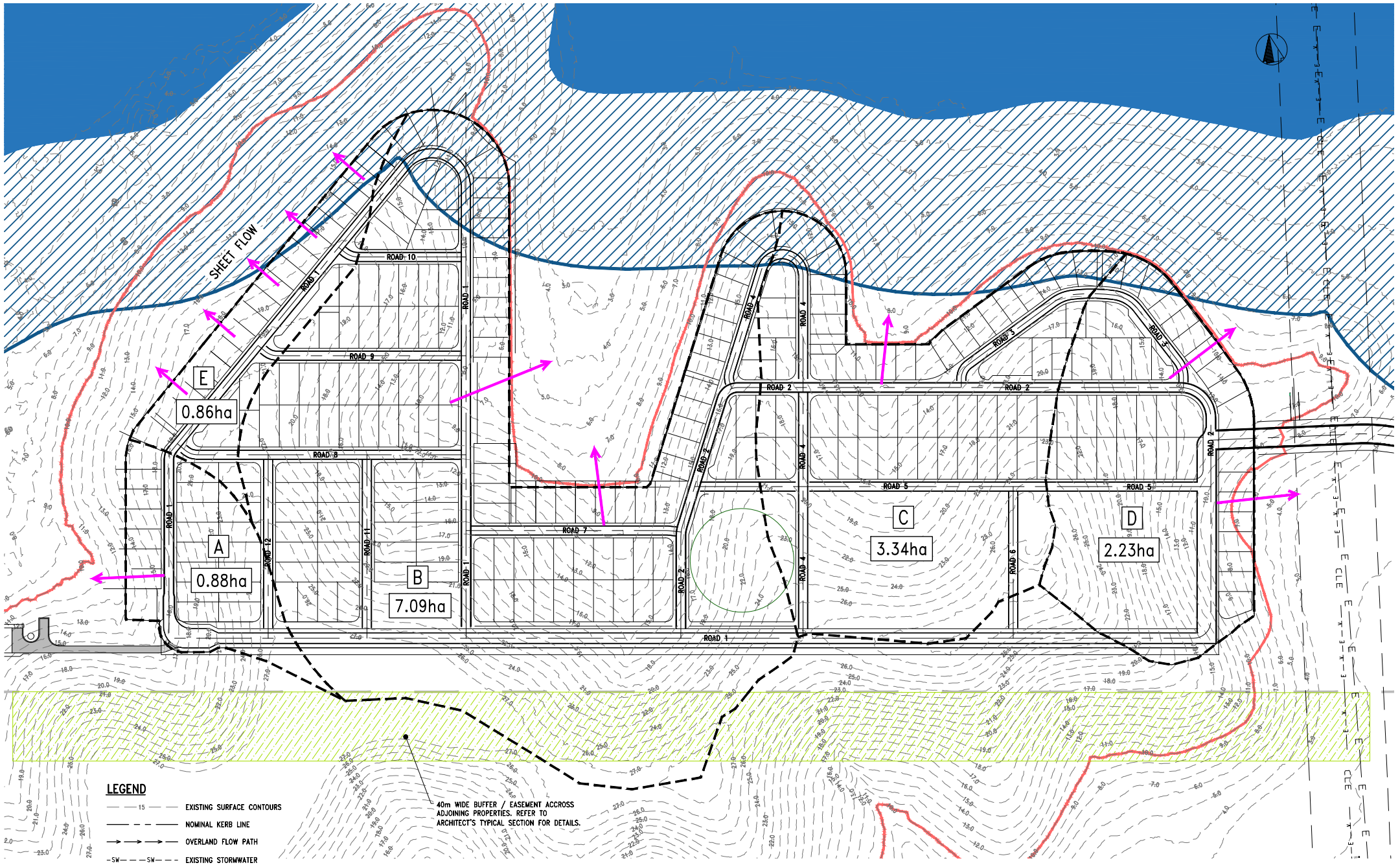


CLIENT: CONGARINNI NORTH PTY LTD		PROJECT No: 122896	Meinhardt Urban Pty Ltd A.B.N. 29 064 159 191 Brisbane - Level 2, 135 Wickham Terrace, Spring Hill QLD 4000 Gold Coast - Level 1, 34 Thomas Drive, Chevron Island QLD 4217 Sunshine Coast - 8 Pikki Street, Maroochydore QLD 4558 Postal PO Box 2293, Southport QLD 4215 T: +61 7 5528 6411 F: +61 7 5528 6422 info@meinhardtgroup.com http://www.meinhardtgroup.com ©Copyright
JOB TITLE: MACKSVILLE 24 CORONATION ROAD CONGARINNI NRTH		SKETCH No: SK7436	
DRAWING TITLE: STORMWATER POST-DEVELOPMENT CATCHMENT PLAN		REV: C DATE: 07/10/2021	



LEGEND

- EXISTING SURFACE CONTOURS
- NOMINAL KERB LINE
- OVERLAND FLOW PATH
- EXISTING STORMWATER
- PMF FLOOD LEVEL RL10.00 LINE
- CATCHMENT BOUNDARY
- COASTAL WETLANDS
- PROXIMITY TO COASTAL WETLANDS

UPDATED ROAD/LOT LAYOUT SUBJECT TO ARCHITECT'S AMENDED LAYOUT DESIGN

10 0 10 20 30 40 50m
1 : 1000 (FULL SIZE A1)
1 : 2000 (REDUCED SIZE A3)

CLIENT: CONGARINNI NORTH PTY LTD

JOB TITLE: MACKSVILLE
24 CORONATION ROAD CONGARINNI NRTH

DRAWING TITLE: STORMWATER PRE-DEVELOPMENT CATCHMENT PLAN

PROJECT No: 122896
SKETCH No: SK7437
REV: B
DATE: 07/10/2021

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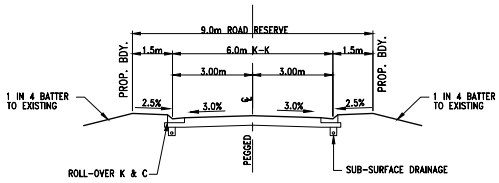
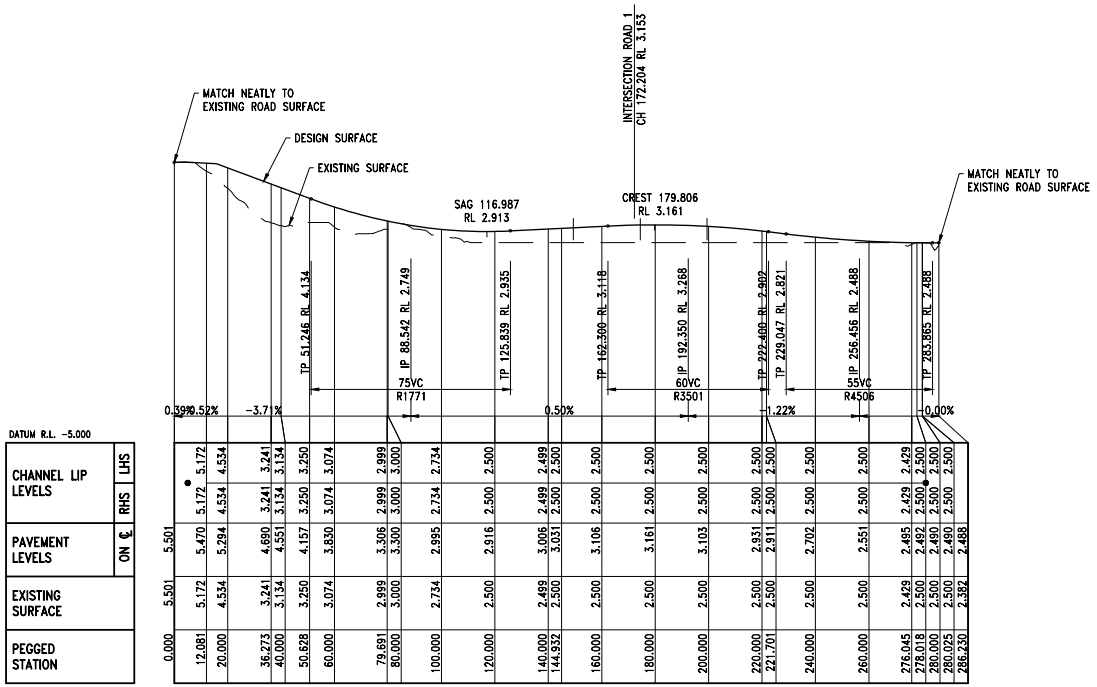


CORONATION ROAD

SCALE 1:100



● REFER TO INTERSECTION DETAIL DRAWINGS

CORONATION ROAD

1 0 1 2 3 4 5m
1 : 100 VERT. (FULL SIZE A1)
1 : 200 VERT. (REDUCED SIZE A3)
10 0 10 20 30 40 50m
1 : 1000 HORIZ. (FULL SIZE A1)
1 : 2000 HORIZ. (REDUCED SIZE A3)

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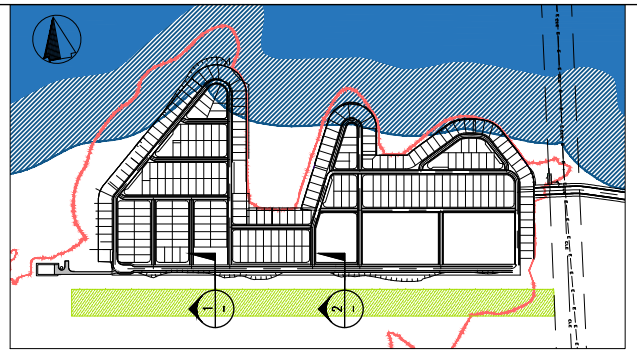
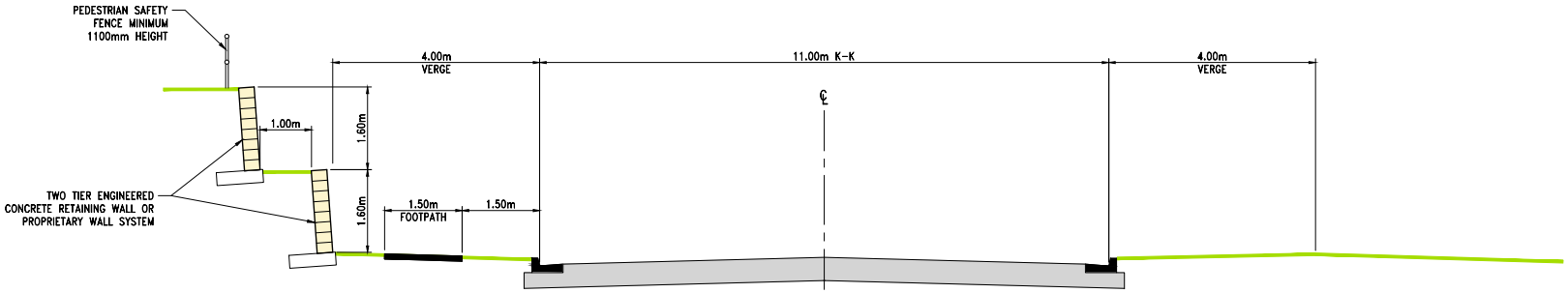
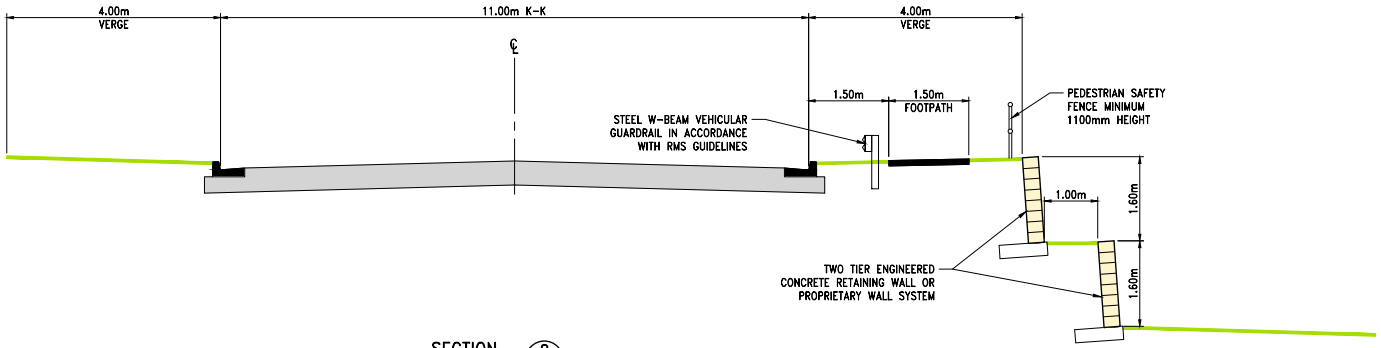
JOB TITLE: MACKSVILLE 24 CORONATION ROAD CONGARINNI NRTH		SKETCH No: SK7439	
DRAWING TITLE: CORONATION ROAD LONGITUDINAL SECTION		REV: A DATE: 06/10/2021	



KEY PLAN
NOT TO SCALE



SECTION 1
SCALE 1:50(A1)



SECTION 2
SCALE 1:50(A1)

RETAINING WALLS SUBJECT TO ARCHITECT'S AMENDED LAYOUT DESIGN

0.5 0 0.5 1.0 1.5 2.0 2.5m
1 : 50 (FULL SIZE A1)
1 : 100 (REDUCED SIZE A3)

CLIENT	CONGARINNI NORTH PTY LTD
JOB TITLE	MACKSVILLE 24 CORONATION ROAD CONGARINNI NRTH
DRAWING TITLE	TYPICAL RETAINING WALL ARRANGEMENTS
PROJECT No	122896
SKETCH No	SK7440
REV	B
DATE	07/10/2021

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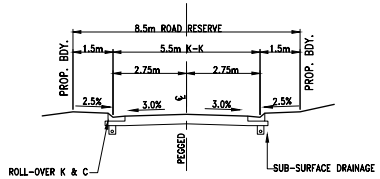
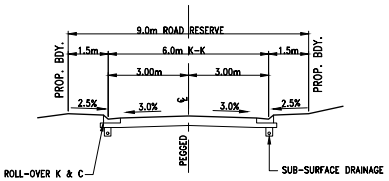


8.5m INTERNAL ROAD

(ROAD 1: CH1243.45-1674.55, ROAD 3, 4, 5, 6, 7, 9, 10, 11, 12)

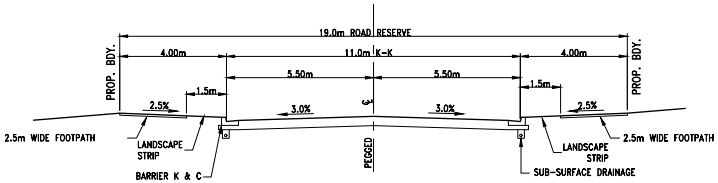
SCALE 1:100



9m INTERNAL ROAD

(ROAD 1: CH1128.452-1243.45, CH1674.55-END, ROAD 2, ROAD 8)

SCALE 1:100



COLLECTOR ROAD

(ROAD 1: CH0.000-1128.452)

SCALE 1:100

1 0 1 2 3 4 5m

1 : 100 (FULL SIZE A1)

1 : 200 (REDUCED SIZE A3)

CLIENT: CONGARINNI NORTH PTY LTD	PROJECT No: 122896
JOB TITLE: MACKSVILLE 24 CORONATION ROAD CONGARINNI NRTH	SKETCH No: SK7441
DRAWING TITLE: TYPICAL ROAD SECTIONS	REV: A
	DATE: 11/02/2021

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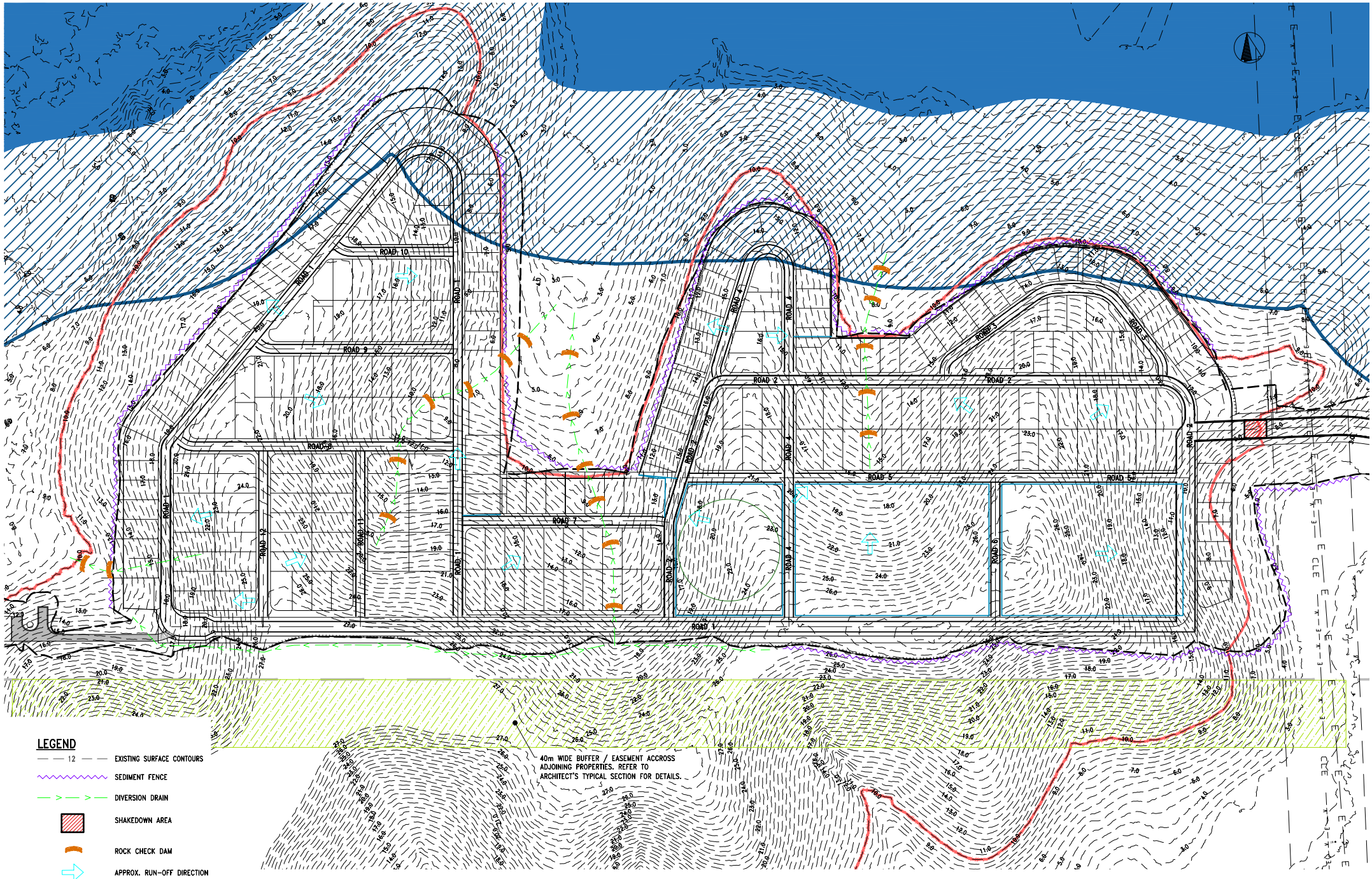

LEGEND

- 12 EXISTING SURFACE CONTOURS
- SEDIMENT FENCE
- DIVERSION DRAIN
- SHAKEDOWN AREA
- ROCK CHECK DAM
- APPROX. RUN-OFF DIRECTION
- COASTAL WETLANDS
- PROXIMITY TO COASTAL WETLANDS

UPDATED ROAD/LOT LAYOUT SUBJECT TO ARCHITECT'S AMENDED LAYOUT DESIGN

CONCEPT ONLY

10 0 10 20 30 40 50m
1 : 1000 (FULL SIZE A1)
1 : 2000 (REDUCED SIZE A3)

CLIENT	CONGARINNI NORTH PTY LTD	PROJECT No	122896
JOB TITLE	MACKSVILLE 24 CORONATION ROAD CONGARINNI NRTH	SKETCH No	SK7442
DRAWING TITLE	EROSION & SEDIMENT CONTROL MANAGEMENT PLAN - PHASE 1	REV	B
		DATE	07/10/2021

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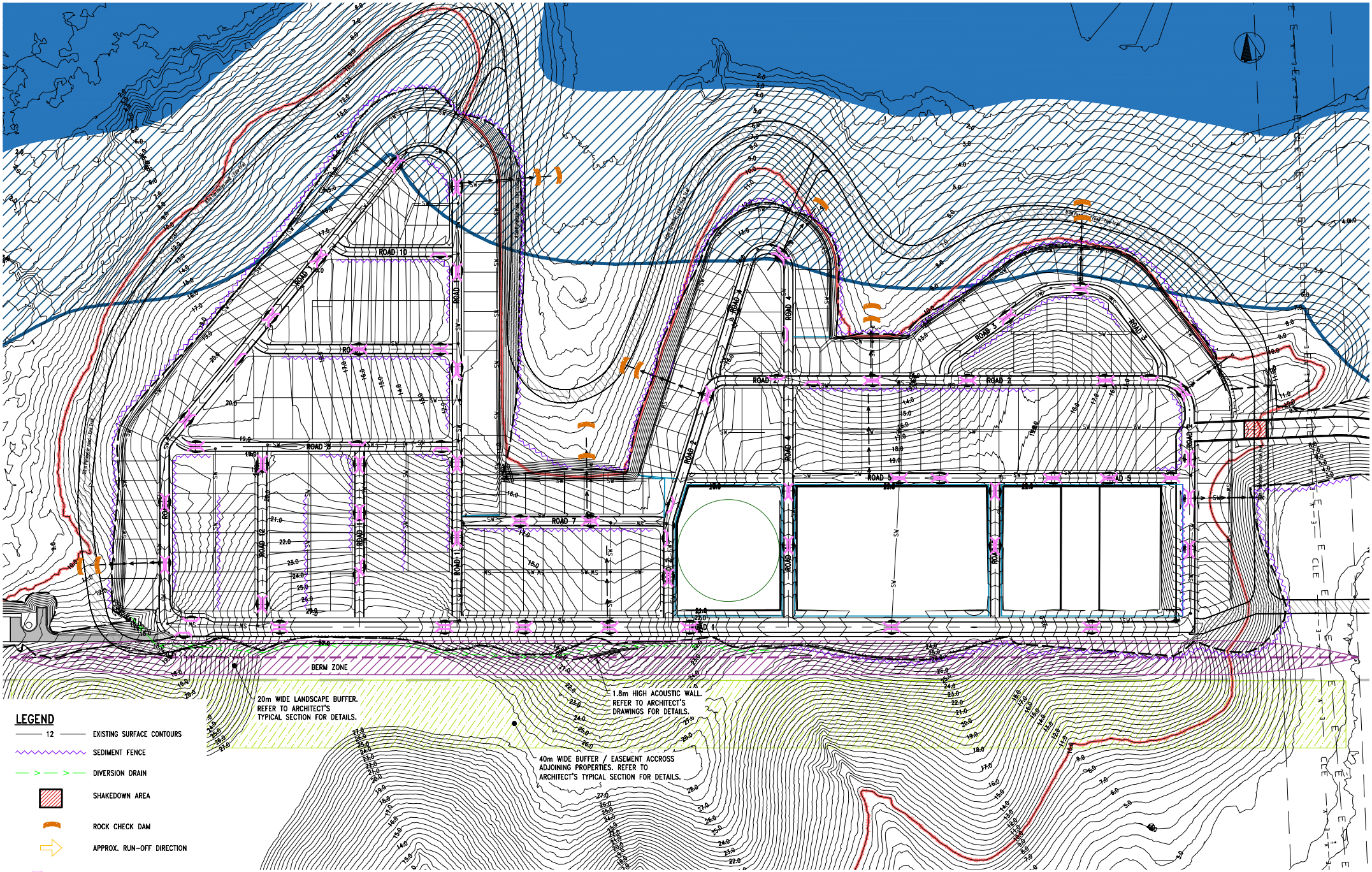

LEGEND

- 12 — EXISTING SURFACE CONTOURS
- SEDIMENT FENCE
- DIVERSION DRAIN
- SHAKEDOWN AREA
- ROCK CHECK DAM
- APPROX. RUN-OFF DIRECTION
- SEDIMENT TRAP
- COASTAL WETLANDS
- PROXIMITY TO COASTAL WETLANDS

UPDATED ROAD/LOT LAYOUT SUBJECT TO ARCHITECT'S AMENDED LAYOUT DESIGN

CONCEPT ONLY

10 0 10 20 30 40 50m
1 : 1000 (FULL SIZE A1)
1 : 2000 (REDUCED SIZE A3)

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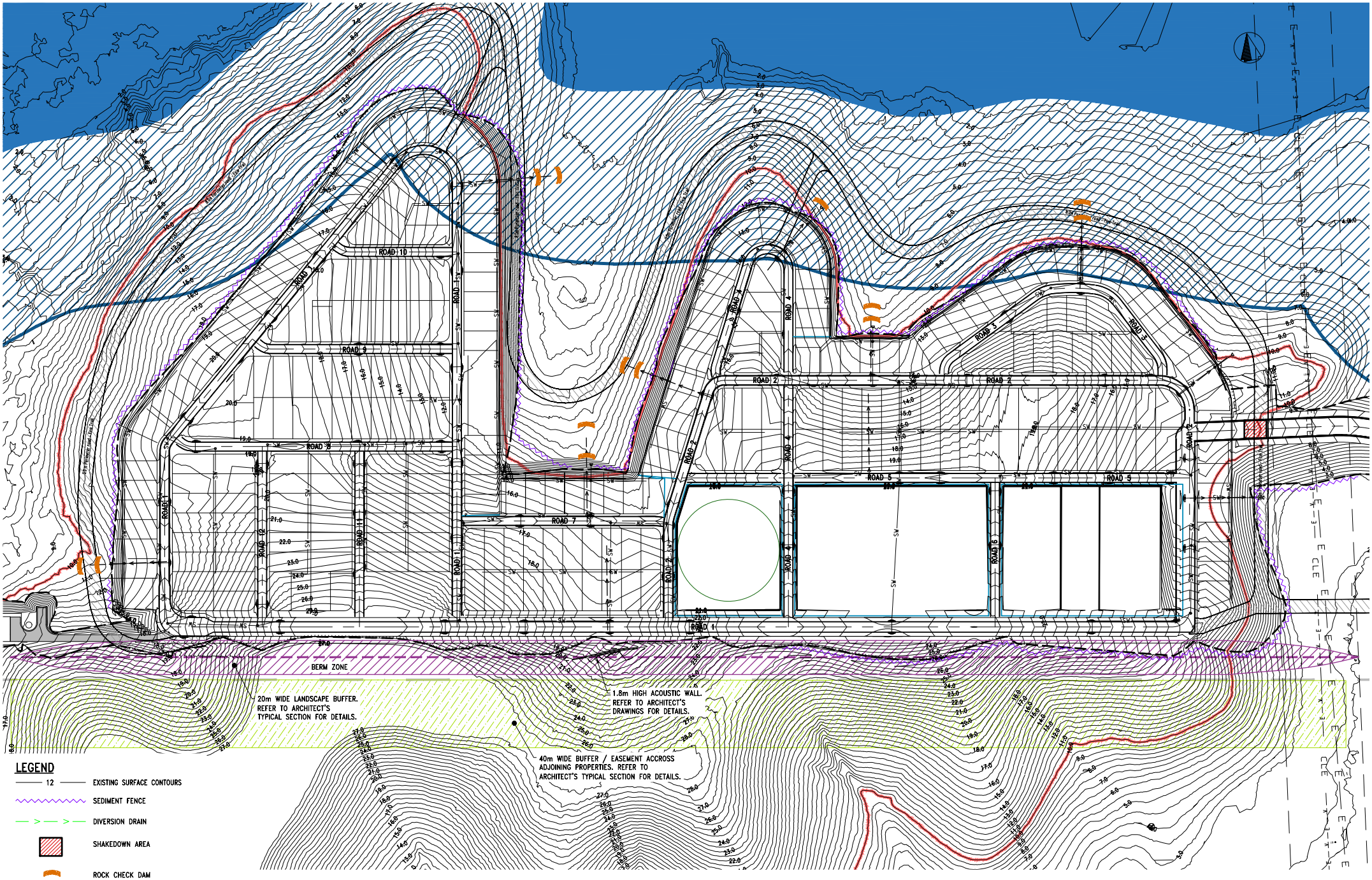
JOB TITLE: MACKSVILLE 24 CORONATION ROAD CONGARINNI NRTH		SKETCH No: SK7443	
DRAWING TITLE: EROSION & SEDIMENT CONTROL MANAGEMENT PLAN - PHASE 2		REV: B DATE: 07/10/2021	



LEGEND

- 12 — EXISTING SURFACE CONTOURS
- SEDIMENT FENCE
- DIVERSION DRAIN
- SHAKEDOWN AREA
- ROCK CHECK DAM
- COASTAL WETLANDS
- PROXIMITY TO COASTAL WETLANDS

UPDATED ROAD/LOT LAYOUT SUBJECT TO ARCHITECT'S AMENDED LAYOUT DESIGN

CONCEPT ONLY

10 0 10 20 30 40 50m
1 : 1000 (FULL SIZE A1)
1 : 2000 (REDUCED SIZE A3)

CLIENT	CONGARINNI NORTH PTY LTD
JOB TITLE	MACKSVILLE 24 CORONATION ROAD CONGARINNI NRTH
DRAWING TITLE	EROSION & SEDIMENT CONTROL MANAGEMENT PLAN - PHASE 3
PROJECT No	122896
SKETCH No	SK7444
REV	B
DATE	07/10/2021

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