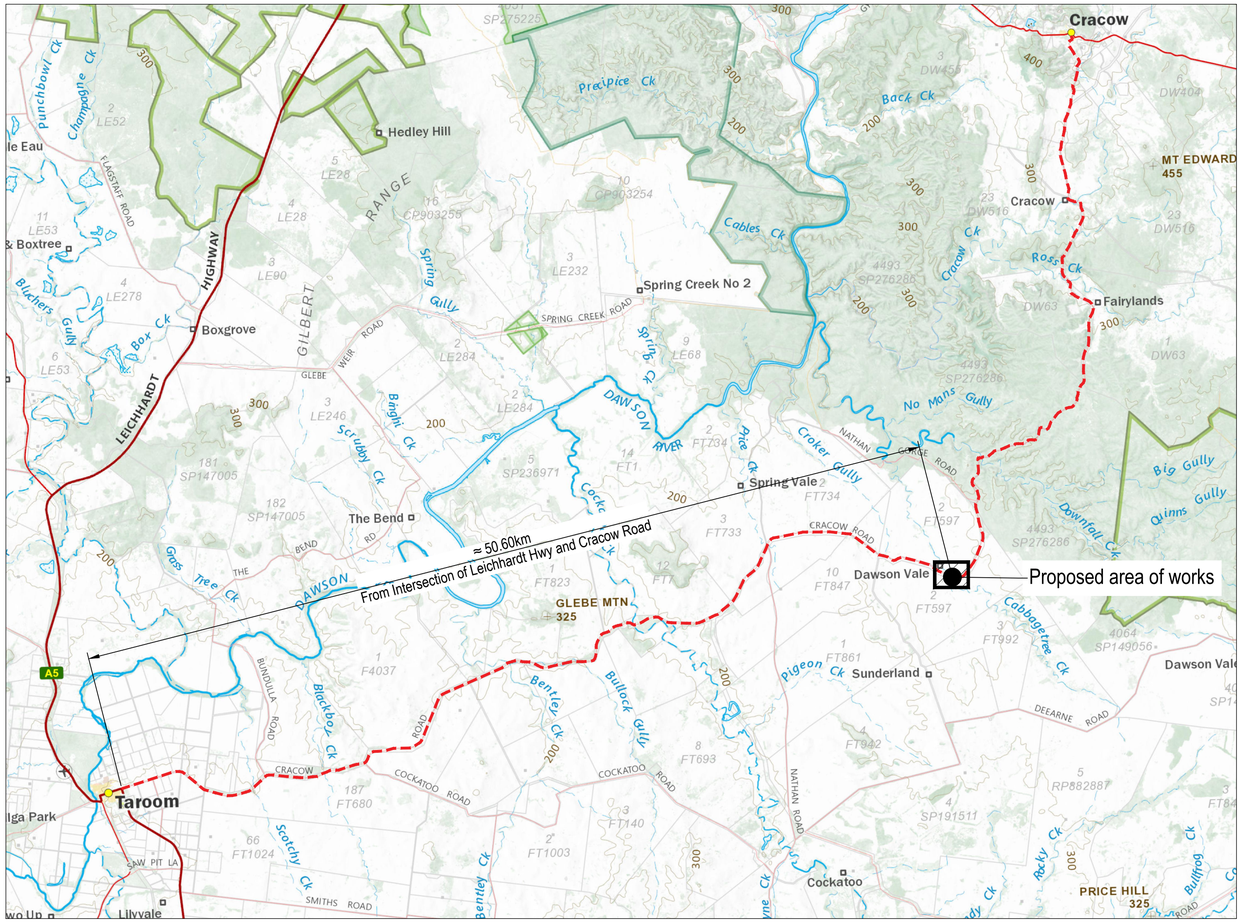
CRACOW ROAD, CABBAGETREE CREEK

ROAD AND FLOODWAY UPGRADE



LOCALITY PLAN
(Not to scale)

DRAWING INDEX

Drawing Number	Date	Drawing Description
001	Sep-23	Project Cover Sheet
002	Sep-23	General Notes
300	Sep-23	Survey Control and Services Plan
400	Sep-23	Roadworks and Setout Plan Sheet 1
500	Sep-23	Pavement Plan
600	Sep-23	Longitudinal Section Sheet 1
700	Sep-23	Typical Cross Sections
800	Sep-23	Annotated Cross Sections Sheet 1

DRAWING INDEX

Drawing Number	Date	Drawing Description
801	Sep-23	Annotated Cross Sections Sheet 2
802	Sep-23	Annotated Cross Sections Sheet 3
803	Sep-23	Annotated Cross Sections Sheet 4
1000	Sep-23	Supplementary Signs and Linemarking Details
1200	Sep-23	Floodway Details
1600	Sep-23	Limit of Clearing Plan
1700	Sep-23	Temporary Erosion and Sediment Control Sheet 1
1701	Sep-23	Temporary Erosion and Sediment Control Sheet 2

STANDARD DRAWINGS:
ROADWORKS

Dwg.	Rev.	Description
CMDG-R-081	E	SIGN LOCATION AND INSTALLATION DETAILS
CMDG-R-094	B	FLOODWAY - BED LEVEL CROSSING

DEPARTMENT OF TRANSPORT AND MAIN ROADS - STANDARD DRAWINGS:
ROAD FURNITURE

1170	D	Flood Depth Indicators - Installation

GENERAL EARTHWORKS AND PROPERTY ACCESS

1178	E	Diversion of Water from Roadway and Table Drains

A	Issued for Construction			
20.01	Revisions/Descriptions	Drawn	Approved	Date

Scales

Dimensions shown in metres except where shown otherwise

crc
quality people client focused solution driven
245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

Title: CRACOW ROAD UPGRADE (Ch. 50425m - 50725m)
SITE 1 - CABBAGETREE CREEK FLOODWAY
PROJECT COVER SHEET

Drawn: B Doherty
Designed: B Doherty

ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/09/23

Job No.	CRC00285
Drawing No.	001
Revision	A
Series No.	1 of 16

XREFS :- X_CRC_BSC_TITLE.dwg

Last Modified :- Oct 06, 2023 - 11:06am

SAFETY IN DESIGN NOTES:

1. Potential safety hazards identified by the Designer have been assessed for this project in accordance with Safe Design of Structures - Code of Practices by Safe Work Australia, 2012. Refer to the ***Safety In Design Report*** for the potential safety hazards.
2. Disclaimer: It must be acknowledged that new and/or different risks may become apparent during each project phase.The designer has ensured, so far as reasonably practicable, that the structure/municipal work is designed to minimise risk to the health and safety of persons involved in construction or use related activities. Further, in Appendix A - Safety in Design Risk Register of the ***Safety In Design Report***, assumptions may have been made within the different project phases as to how the project and/or project elements will be constructed and maintained. This may differ from the end methods adopted.
3. Any person who undertakes alterations, variations or modifications to these design drawings, without consultation and approval from the original or subsequent designer, will assume the duties of a designer and will be held responsible for the safety in design for this project.
4. All works must comply with W.H. & S. Act, 2011.

GENERAL NOTES:

1. Works shall be undertaken generally in accordance with the relevant CMDG construction specifications except where specific DTMR specification requirements are detailed within these Project specific Drawings. The most current version shall be adopted, unless noted otherwise.
2. Works to be measured in accordance with project specific *Supplementary Specification for Measurement and Work Operations for Work Items.*
3. If any archaeological or cultural material is exposed on the work site all works shall cease. The D.E.H.P., Aboriginal Land Council and I.C.C. are to be notified.
4. All works are to comply with the requirements of the Environmental Protection Act, 1994.
5. Disposal/movement of material in areas of Red Imported Fire Ants are to comply with the D.A.F.F. regulations. Refer the Department's website: ***www.daff.qld.gov.au/fireants*** for the current information.
6. Prior to commencement of work a Risk Management Plan to minimise the chance of spreading Fire Ants is to be completed.
7. The positions shown on drawings for public utilities services are based on the B.Y.D.A. information supplied at time of design and are indicative only. Prior to construction the current Service Authority information is to be obtained from B.Y.D.A. (website: www.byda.com.au). The position and depth of each service is to be verified by the relevant Service Authority on site before the start of any construction.
8. Where these drawings make reference to the Administrator or Contract Administrator it shall mean the Superintendent managing the works.
9. Prior to commencement of work contact the Superintendent if any PSM's are in the vicinity of the work site.
10. Order of Precedence of Documents, Ambiguities or Discrepancies - The following order of precedence shall apply where there is any ambiguity, discrepancy or inconsistency between the design documents comprising the Contract, with the higher in the list having a higher priority:
    a. These Project Specific Drawings
    b. Technical Specifications
    c. Standard Drawings

    The several documents forming the Contract are to be taken as mutually explanatory of one another. If either party discovers any ambiguity or discrepancy in any document prepared for the purpose of executing the Work Under the Contract, that party shall notify the Superintendent in writing of the ambiguity or discrepancy as soon as possible,
11. The Scheme Drawings listed on the Project Cover Sheet are to be read as a whole and not in isolation. Any isolated drawing separated from the control set will be considered voided and is not to be used.
12. All drawings are to be read in conjunction with the project's specification and all relevant Standard Drawings.
13. All drawings are to be read in conjunction with the Abbreviation Table shown.
14. Materials and workmanship - Where materials, material components, workmanship and procedures are not specifically described by the Contract, they shall be in accordance with the relevant Australian Standard. Where no Australian Standard is available, other specifications shall be used in the following order of priority:
    a. manufacturer's recommendations, and
    b. accepted industry standards.

    At a minimum materials and workmanship shall be the best of their respective kinds and fit for the purpose for which they are intended.

    Any product trade names have been used to establish a quality requirement. Written approval to be obtained prior to using any substitutions.
15. Dimensions / Levels - All levels and setout points shall be confirmed on site by a registered surveyor prior to construction. The Contractor shall seek clarification from the Superintendent for any discrepancy prior to proceeding with works. Dimensions shall not be scaled from drawings.
16. Set Out of Individual Installations - The Contractor shall set out an installation as shown on the Drawings in sufficient detail to identify the location, length and levels of the proposed installation. Once the initial set out is complete the Superintendent will determine the design appropriateness of the set out with regard to the actual site conditions. The Superintendent may direct amendments to the set-out details. Payment for such amendments will be made at appropriate rates in the Schedule of Rates or, where such rates are not deemed by the Superintendent to be appropriate, as determined by the Superintendent. Installations to be set out in accordance with the above requirements include:
    a. drainage pipes, culverts, slabs and structures
    b. landscaping
    c. traffic control
17. Existing Services - Locate service prior to commencing works. Services are shown on these drawings for information only. No responsibility is taken for the accuracy or completeness of the information supplied. Take care to protect services from damage, and report any hits or damage to the service authority immediately.

EROSION AND SEDIMENT CONTROL NOTES:

1. During construction all necessary precautions shall be taken to control erosion and downstream sedimentation. Monitor the prevailing weather conditions and protect any downstream construction and gully inlets.
2. All sediment control devices, sediment fences, check dams, straw bales, stone traps and entry/exit sediment traps are to be in accordance with the E&SC plans within these project drawings or amended as required by the Contractor's suitably qualified professional.

EARTHWORK NOTES:

1. All unsuitable material is to be stripped prior to placement of structural fill.
2. All unsuitable material is to be removed in accordance with the specification or as directed by the Superintendent.
3. All contaminated soil to be removed in accordance with the specification or as directed by the Superintendent.
4. Earthwork quantities include existing road pavement excavated where applicable.
5. Earthwork quantities include unsuitable and or contaminated material except where noted otherwise.
6. Earthwork quantities in cut are bank (nett) volumes and in fill are compacted volumes.
7. Class A1 or B material to comply with the requirements of TMR MRTS04, and specific requirements within these project drawings.

LINEMARKING NOTES:

1. All linemarking, signs and traffic devices shall comply with the M.U.T.C.D. - current edition.
2. Ensure that signage has clear sight distance, otherwise adjust location accordingly.
3. Superseded linemarking and signage to be removed.

SERVICE ADJUSTMENT NOTES:

1. Service Authority infrastructure adjustments are to be performed by contractors approved by the relevant service authority.

BEFORE YOU DIG www.byda.com.au

XREFS :- X_CRC_BSC_TITLE.dwg

Last Modified :- Oct 06, 2023 - 11:06am

A	Issued for Construction			
20.01	Revisions/Descriptions	Drawn	Approved	Date

Scales

Dimensions shown in metres except where shown otherwise

crc quality people client focused solution driven
245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

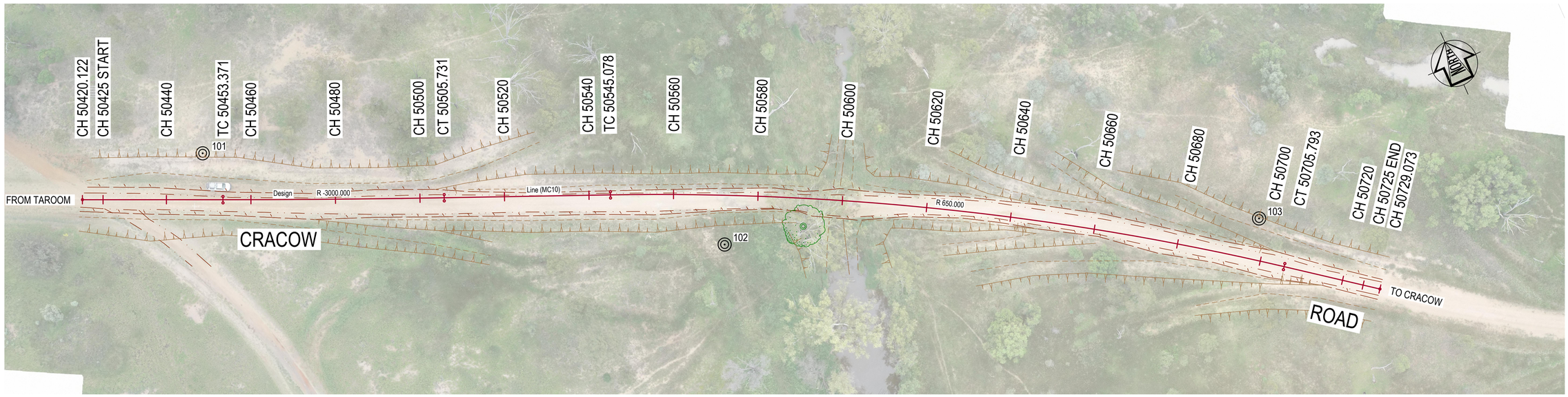
Title: CRACOW ROAD UPGRADE (Ch. 50425m - 50725m)
SITE 1 - CABBAGETREE CREEK FLOODWAY
GENERAL NOTES

Drawn: B Doherty
Designed: B Doherty

ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/09/23

Job No.	CRC00285
Drawing No.	002
Revision	A
Series No.	2 of 16



PLAN
Scale: 1:500

LEGEND

403 ◎ - Survey Mark and Label

ENGINEERING SURVEY CONTROL

STATION	EASTING	NORTHING	LEVEL	REMARKS
101	221832.894	7171612.668	252.813	PBMK
102	221936.944	7171542.703	250.373	PBMK
103	222054.986	7171496.893	252.929	PBMK

PERMANENT SURVEY MARKS

PSM	EASTING	NORTHING	LEVEL	LOCATION
PM32323	222713.999	7171433.257	261.481	PPMK - Approx. Ch. 51390m, LHS, ≈10m off carriageway

WARNING!

BEWARE OF UNDERGROUND SERVICES

The location of underground services has been compiled from engineering survey and interpolated from Dial Before You Dig as provided by the Service Authorities. No responsibility is taken for the accuracy of the interpolated information supplied. Ensure all services are accurately located prior to commencement of work.

A	Issued for Construction			
20.01	Revisions/Descriptions	Drawn	Approved	Date

Scales

Scale A 0 5 10 15 20 25 1:500

Dimensions shown in metres except where shown otherwise

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quality people client focused solution driven
245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

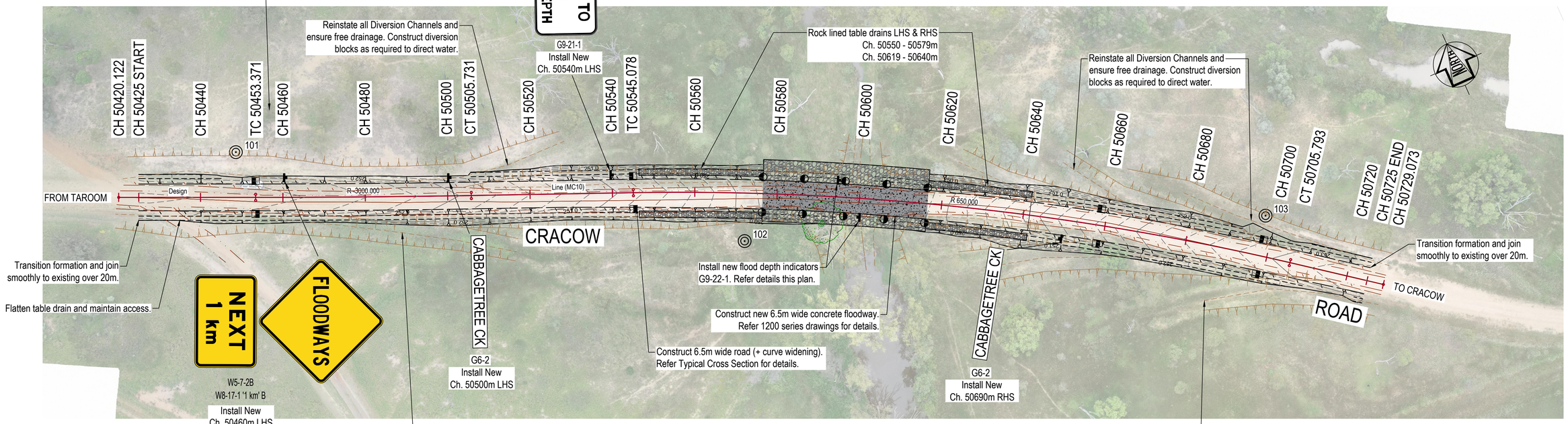
Title: CRACOW ROAD UPGRADE (Ch. 50425m - 50725m)
SITE 1 - CABBAGETREE CREEK FLOODWAY
SURVEY CONTROL AND SERVICES PLAN

Drawn: B Doherty
Designed: B Doherty

ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/09/23

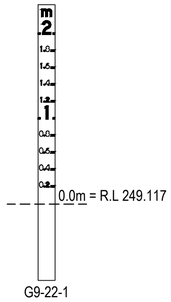
Job No.	CRC00285
Drawing No.	300
Revision	A
Series No.	3 of 16



PLAN
Scale: 1:500

DESIGN LINE SETOUT (MC10)

POINT	CHAINAGE	EASTING	NORTHING	LEVEL	BEARING	RAD/SPIRAL	A.LENGTH	D.ANGLE
IP 1	50420.122	221802.438	7171614.207	252.858	114°00'00.00"			
TC	50453.371	221832.813	7171600.683	252.713	114°00'00.00"			
IP 2	50479.551	221856.730	7171590.034	252.416		R = -3000.000	52.360	1°00'00.00"
CT	50505.731	221880.829	7171579.805	251.939	113°00'00.00"			
TC	50545.078	221917.048	7171564.431	250.882	113°00'00.00"			
IP 3	50625.435	221991.397	7171532.871	250.168		R = 650.000	160.716	14°10'00.00"
CT	50705.793	222055.761	7171484.076	253.097	127°10'00.00"			
IP 4	50749.073	222090.249	7171457.929	253.649	127°10'00.00"			



G9-22-1
Install New
Ch. 50595m LHS
Ch. 50600m RHS

LEGEND

- Red / White - Flexible Guidepost
- Red / White - Flexible Tubular Guidepost
- New Sign Location
- Existing Sign Location
- 403 - Survey Mark and Label

WARNING!

BEWARE OF UNDERGROUND SERVICES

The location of underground services has been compiled from engineering survey and interpolated from Dial Before You Dig as provided by the Service Authorities. No responsibility is taken for the accuracy of the interpolated information supplied. Ensure all services are accurately located prior to commencement of work.

	Revisions/Descriptions	Drawn	Approved	Date
A	Issued for Construction			
20.01				

Scales

Scale A 0 5 10 15 20 25 1:500

Dimensions shown in metres except where shown otherwise

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quality people client focused solution driven
245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

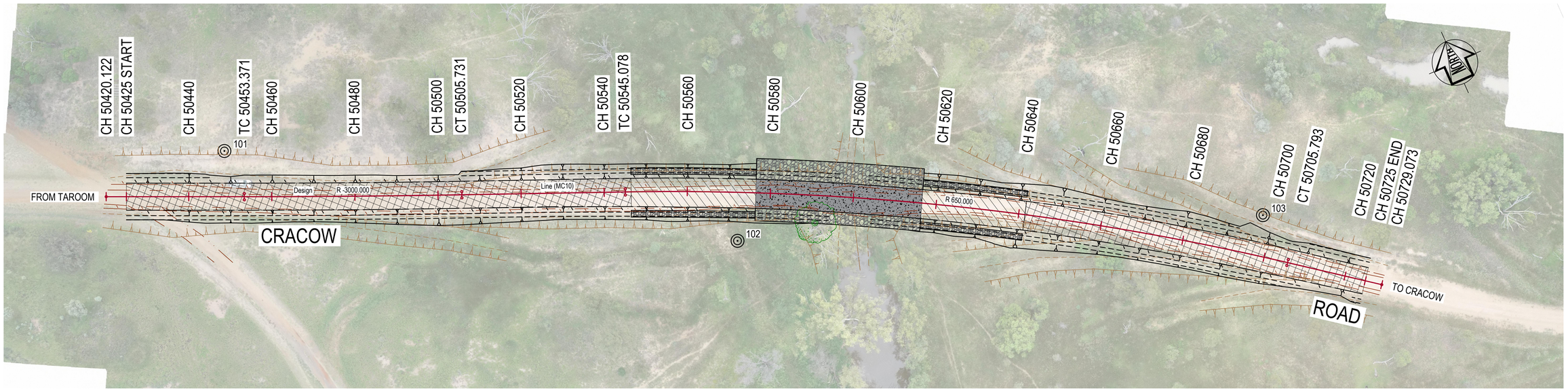
Client: Banana SHIRE — SHIRE OF OPPORTUNITY

Title: CRACOW ROAD UPGRADE (Ch. 50425m - 50725m)
SITE 1 - CABBAGETREE CREEK FLOODWAY
ROADWORKS AND SETOUT PLAN

Drawn: B Doherty
Designed: B Doherty

ENGINEERING CERTIFICATION (RPEQ)				
ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/09/23

Job No.	CRC00285
Drawing No.	400
Revision	A
Series No.	4 of 16



PLAN

Scale: 1:500

LEGEND

New pavement to be constructed. Refer Pavement Type 1 Details.

New pavement to be constructed. Refer Pavement Type 2 Details.

New concrete floodway to be constructed. Refer Standard Drawing CMDG-R-094

PAVEMENT TYPE 1 DETAILS

New pavement to be constructed

150mm Overlay, Full width,

Imported Unsealed Pavement Material **

Design Subgrade CBR 7 (soaked)

150mm Total thickness

PAVEMENT TYPE 2 DETAILS

New pavement to be constructed
(Ch. 50546.500 - 50576.500m & Ch. 50616.500 - 50641.500m)

150mm Stabilised Base, Full Width,

Imported Unsealed Pavement Material **

Insitu stabilised, GB binder (Cement/Fly Ash)
Target UCS value 1 - 2 MPa at 7 Days. Contractor to undertake additive testing to confirm percentage of stablising agent by mass. A nominal 3% by mass used for estimating purposes only.

Design Subgrade CBR 7 (soaked)

150mm Total thickness

All works to be carried out in accordance with the relevant CMDG Construction Specifications.

PAVEMENT DESIGN
(Lower Order Roads Design Guide)

Design Period:	20 Years
Design Traffic:	5.1 x 10^4 DESA
Design Subgrade CBR:	7 (Soaked)

**
UNSEALED PAVEMENT SPECIFICATION
(Lower Order Roads Design Guide)

Imported Unsealed Pavement Material to satisfy the following specifications

Grading Coefficient (Gc):	16 - 34
Shrinkage Product (Sp):	100 - 240
WPI:	< 1200
PI:	> 7%
Passing 0.075mm Sieve:	> 15%

WARNING!

BEWARE OF UNDERGROUND SERVICES
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		Drawn	Approved	Date
A	Issued for Construction			
20.01	Revisions/Descriptions			

Scales

Scale A 0 5 10 15 20 25 1:500

Dimensions shown in metres except where shown otherwise

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quality people client focused solution driven
245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

Title: CRACOW ROAD UPGRADE (Ch. 50425m - 50725m)
SITE 1 - CABBAGETREE CREEK FLOODWAY
PAVEMENT PLAN

Drawn: B Doherty
Designed: B Doherty

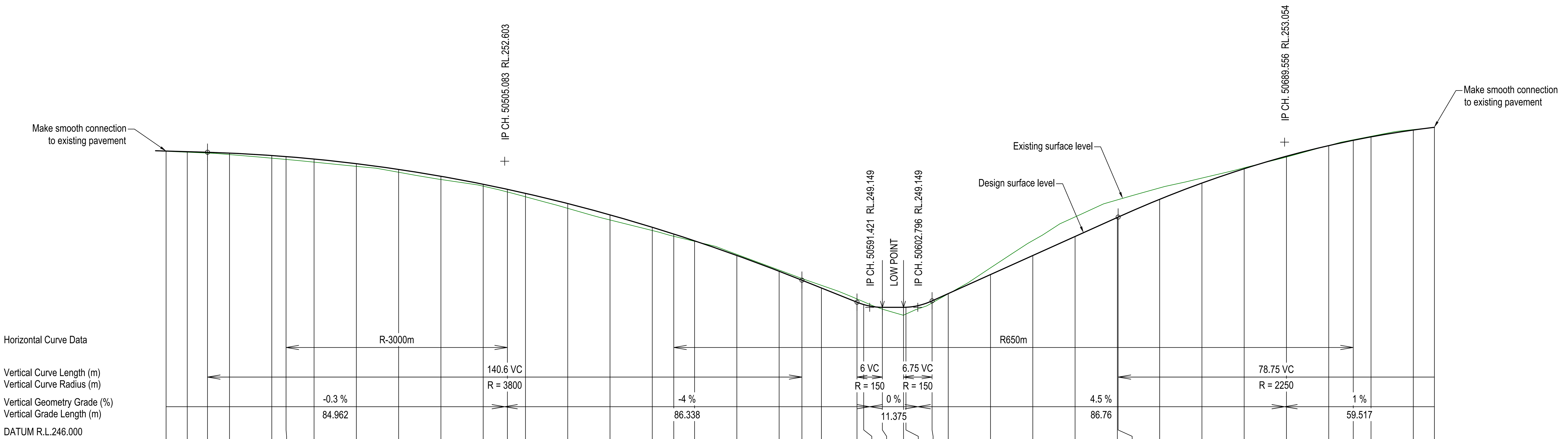
ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/09/23

Job No.	CRC00285
Drawing No.	500
Revision	A
Series No.	5 of 16

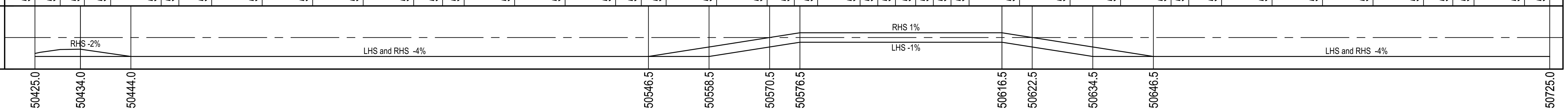
Last Modified : - Oct 06, 2023 - 11:07am

XREFS :- X_CRC_BSC_TITLE.dwg ; X_HATCH.dwg ; X_SURVEY.dwg ; X_CONTROL.dwg ; X_DESIGN.dwg ; X_IMAGE.dwg ; X_TADPOLES.dwg



DESIGN CHAINAGE	CUT / FILL DEPTHS	DESIGN LINE LEVELS	EXISTING SURFACE LEVELS
50425.000	0.006	252.843	252.837
50430.000	0.012	252.828	252.816
50434.783	0.018	252.814	252.796
50440.000	0.035	252.795	252.760
50450.000	0.063	252.738	252.675
50453.371	0.068	252.713	252.644
50460.000	0.073	252.655	252.581
50470.000	0.064	252.545	252.481
50480.000	0.067	252.409	252.342
50490.000	0.076	252.247	252.171
50500.000	0.046	252.059	252.013
50505.731	0.063	251.939	251.876
50510.000	0.082	251.844	251.762
50520.000	0.114	251.603	251.489
50530.000	0.121	251.335	251.214
50540.000	0.077	251.042	250.965
50545.078	0.054	250.882	250.829
50550.000	0.013	250.722	250.709
50560.000	-0.025	250.375	250.400
50570.000	-0.027	250.002	250.030
50575.383	-0.039	249.791	249.830
50580.000	-0.062	249.606	249.669
50588.421	-0.078	249.269	249.347
50590.000	-0.066	249.215	249.280
50594.421	0.043	249.149	249.107
50599.421	0.185	249.149	248.964
50600.000	0.16	249.151	248.990
50606.171	0.048	249.301	249.254
50610.000	0.006	249.474	249.467
50620.000	-0.159	249.924	250.083
50630.000	-0.353	250.374	250.727
50640.000	-0.462	250.824	251.286
50650.000	-0.415	251.274	251.689
50650.181	-0.412	251.282	251.694
50660.000	-0.27	251.702	251.972
50670.000	-0.118	252.086	252.204
50680.000	-0.02	252.426	252.447
50690.000	0.021	252.721	252.700
50700.000	-0.001	252.972	252.974
50705.793	-0.012	253.097	253.109
50710.000	-0.013	253.178	253.192
50720.000	-0.01	253.340	253.350
50725.000	0	253.405	253.405

SUPER ELEVATION



LONGITUDINAL SECTION

Horizontal Scale A
Vertical Scale B

	Revisions/Descriptions	Drawn	Approved	Date
A	Issued for Construction			
20.01	Revisions/Descriptions	Drawn	Approved	Date

Scales
Scale A 0 5 10 15 20 25 1:500
Scale B 0 0.5 1.0 1.5 2.0 2.5 1:50
Dimensions shown in metres except where shown otherwise

crc
quality people client focused solution driven
245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client
Banana SHIRE
SHIRE OF OPPORTUNITY

Title
CRACOW ROAD UPGRADE (Ch. 50425m - 50725m)
SITE 1 - CABBAGETREE CREEK FLOODWAY
LONGITUDINAL SECTION

Drawn: B Doherty
Designed: B Doherty

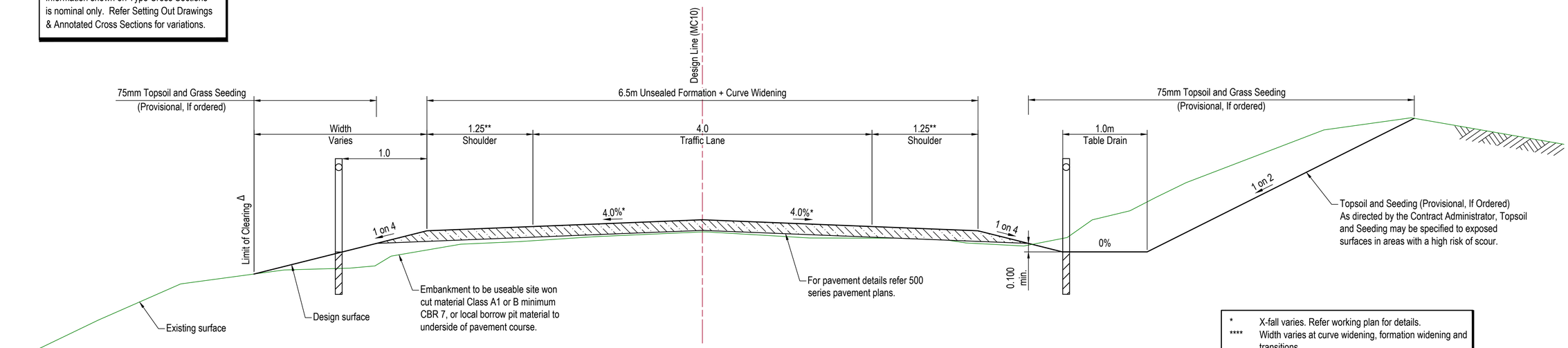
ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/09/23

Job No.	CRC00285
Drawing No.	600
Revision	A
Series No.	6 of 16

XREFS :- X_CRC_BSC_TITLE.dwg ; X_MC10_LSECT_01.dwg
Last Modified :- Oct 06, 2023 - 11:07am

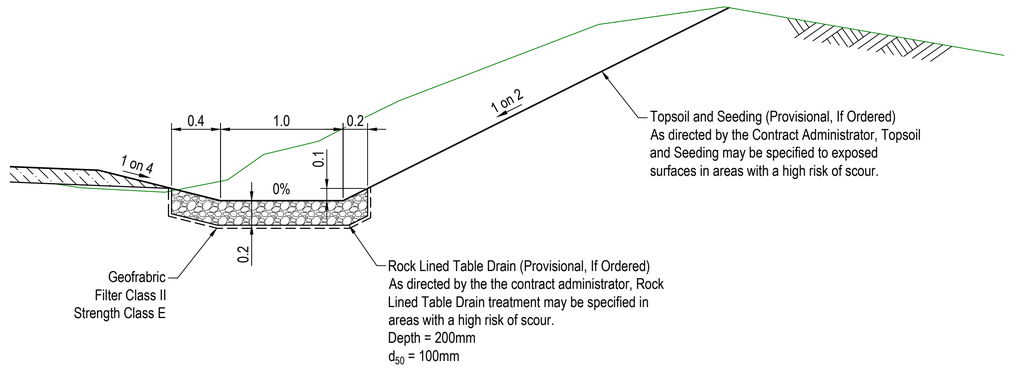
Information shown on Type Cross Sections is nominal only. Refer Setting Out Drawings & Annotated Cross Sections for variations.



* X-fall varies. Refer working plan for details.
**** Width varies at curve widening, formation widening and transitions to existing. Refer 400 and 800 series plans for details.
Δ Refer 1600 series plans for Limit of Clearing details.

TYPICAL CROSS SECTION A

Ch. START - END (MC10)
(Excluding Floodway)
Not to Scale



ROCK LINED TABLE DRAIN

Not to Scale

WARNING!

BEWARE OF UNDERGROUND SERVICES
The location of underground services has been compiled from engineering survey and interpolated from Dial Before You Dig as provided by the Service Authorities. No responsibility is taken for the accuracy of the interpolated information supplied. Ensure all services are accurately located prior to commencement of work.

A	Issued for Construction			
20.01	Revisions/Descriptions	Drawn	Approved	Date

Scales: N.T.S

Dimensions shown in metres except where shown otherwise

crc quality people client focused solution driven
245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

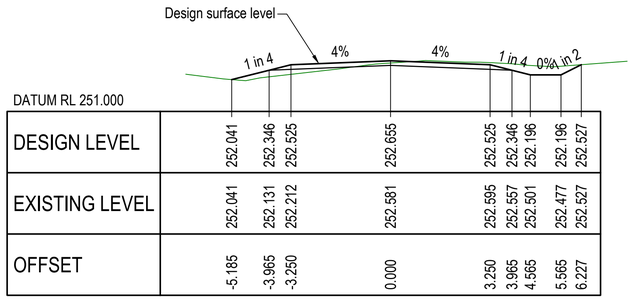
Title: CRACOW ROAD UPGRADE (Ch. 50425m - 50725m)
SITE 1 - CABBAGETREE CREEK FLOODWAY
TYPICAL CROSS SECTIONS

Drawn: B Doherty
Designed: B Doherty

ENGINEERING CERTIFICATION (RPEQ)				
ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/09/23

Job No.	CRC00285
Drawing No.	700
Revision	A
Series No.	7 of 16

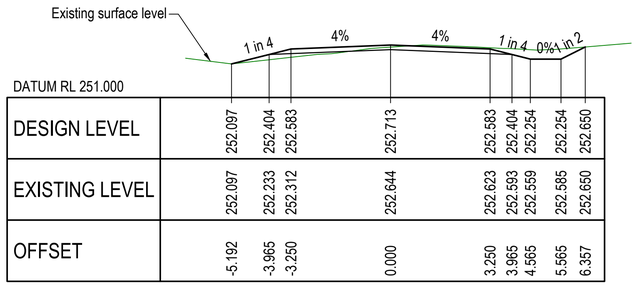
Last Modified :- Oct 06, 2023 - 11:07am
XREFS :- X_CRC_BSC_TITLE.dwg



DATUM RL 251.000

DESIGN LEVEL	252.041	252.346	252.525	252.655	252.525	252.346	252.196	252.527
EXISTING LEVEL	252.041	252.131	252.212	252.581	252.595	252.557	252.501	252.477	252.527
OFFSET	-5.185	-3.965	-3.250	0.000	3.250	3.965	4.565	5.565	6.227

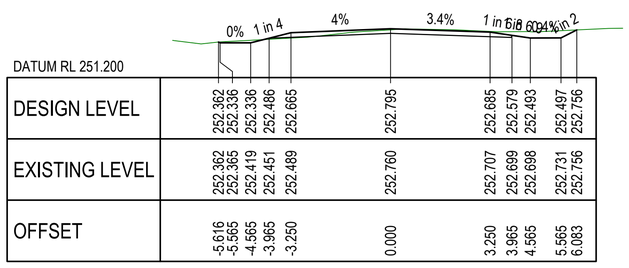
CH. 50460.000



DATUM RL 251.000

DESIGN LEVEL	252.097	252.404	252.583	252.713	252.583	252.404	252.254	252.650
EXISTING LEVEL	252.097	252.233	252.312	252.644	252.623	252.593	252.559	252.585	252.650
OFFSET	-5.192	-3.965	-3.250	0.000	3.250	3.965	4.565	5.565	6.357

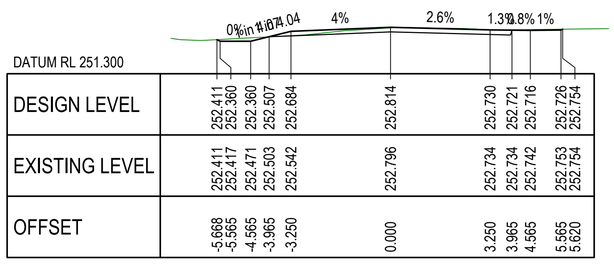
CH. 50453.371



DATUM RL 251.200

DESIGN LEVEL	252.362	252.336	252.486	252.665	252.795	252.685	252.579	252.493	252.497	252.756
EXISTING LEVEL	252.362	252.365	252.419	252.451	252.489	252.760	252.707	252.699	252.698	252.731	252.756
OFFSET	-5.616	-5.565	-4.565	-3.965	-3.250	0.000	3.250	3.965	4.565	5.565	6.083

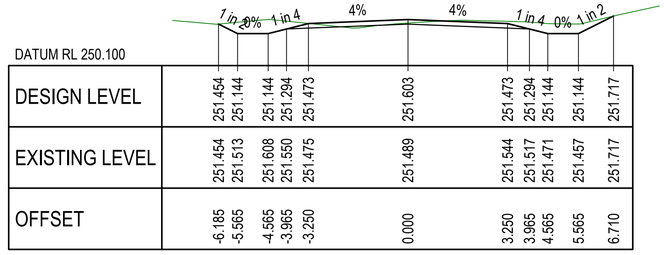
CH. 50440.000



DATUM RL 251.300

DESIGN LEVEL	252.411	252.360	252.507	252.684	252.814	252.730	252.721	252.716	252.726	252.754
EXISTING LEVEL	252.411	252.417	252.471	252.503	252.542	252.796	252.734	252.734	252.742	252.753	252.754
OFFSET	-5.668	-5.565	-4.565	-3.965	-3.250	0.000	3.250	3.965	4.565	5.565	5.620

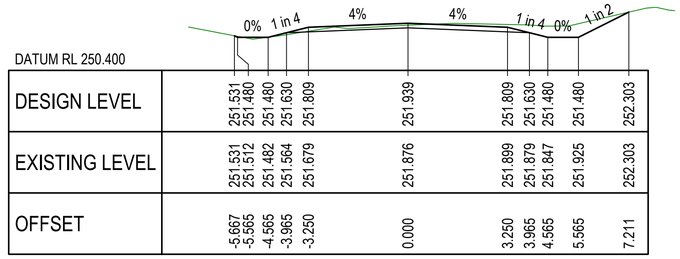
CH. 50434.783



DATUM RL 250.100

DESIGN LEVEL	251.454	251.144	251.144	251.294	251.473	251.603	251.473	251.294	251.144	251.717
EXISTING LEVEL	251.454	251.513	251.608	251.550	251.475	251.489	251.544	251.517	251.471	251.457	251.717
OFFSET	-6.185	-5.565	-4.565	-3.965	-3.250	0.000	3.250	3.965	4.565	5.565	6.710

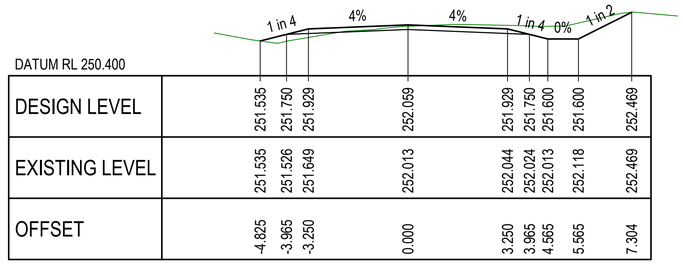
CH. 50520.000



DATUM RL 250.400

DESIGN LEVEL	251.531	251.480	251.480	251.630	251.809	251.939	251.809	251.630	251.480	251.480	252.303
EXISTING LEVEL	251.531	251.512	251.482	251.564	251.679	251.876	251.899	251.879	251.847	251.925	251.585	252.303
OFFSET	-5.667	-5.565	-4.565	-3.965	-3.250	0.000	3.250	3.965	4.565	5.565	7.211

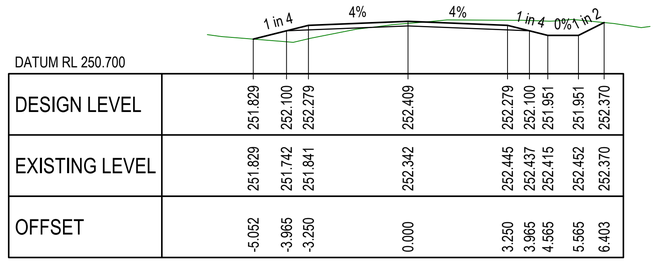
CH. 50505.731



DATUM RL 250.400

DESIGN LEVEL	251.535	251.750	251.929	252.059	251.929	251.750	251.600	251.600	252.469
EXISTING LEVEL	251.535	251.526	251.649	252.013	252.044	252.024	252.013	252.118	252.469
OFFSET	-4.825	-3.965	-3.250	0.000	3.250	3.965	4.565	5.565	7.304

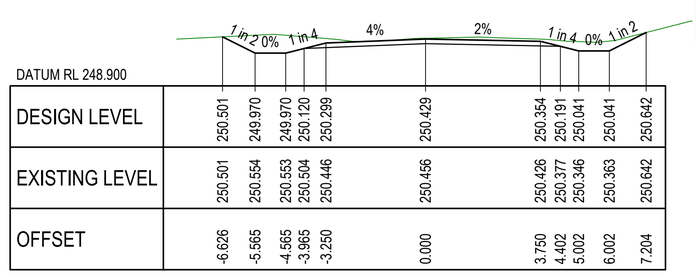
CH. 50500.000



DATUM RL 250.700

DESIGN LEVEL	251.829	252.100	252.279	252.409	252.279	252.100	251.951	251.951	252.370
EXISTING LEVEL	251.829	251.742	251.841	252.342	252.445	252.437	252.415	252.452	252.370
OFFSET	-5.052	-3.965	-3.250	0.000	3.250	3.965	4.565	5.565	6.403

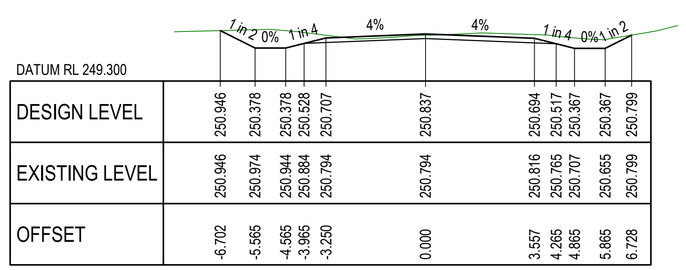
CH. 50480.000



DATUM RL 248.900

DESIGN LEVEL	250.501	249.970	249.970	250.120	250.299	250.429	250.354	250.191	250.041	250.041	250.642
EXISTING LEVEL	250.501	250.554	250.553	250.504	250.446	250.456	250.426	250.377	250.346	250.363	250.642
OFFSET	-6.626	-5.565	-4.565	-3.965	-3.250	0.000	3.750	4.402	5.002	6.002	7.204

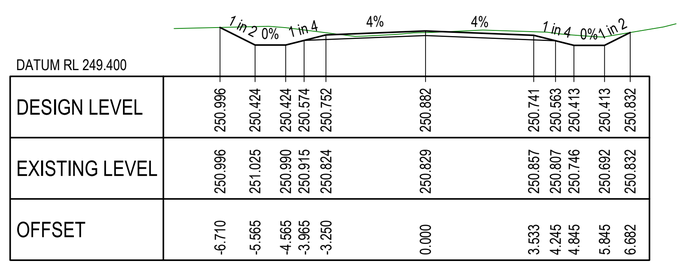
CH. 50558.500



DATUM RL 249.300

DESIGN LEVEL	250.946	250.378	250.378	250.528	250.707	250.837	250.694	250.517	250.367	250.367	250.799
EXISTING LEVEL	250.946	250.974	250.944	250.884	250.794	250.794	250.816	250.765	250.707	250.655	250.799
OFFSET	-6.702	-5.565	-4.565	-3.965	-3.250	0.000	3.557	4.265	4.865	5.865	6.728

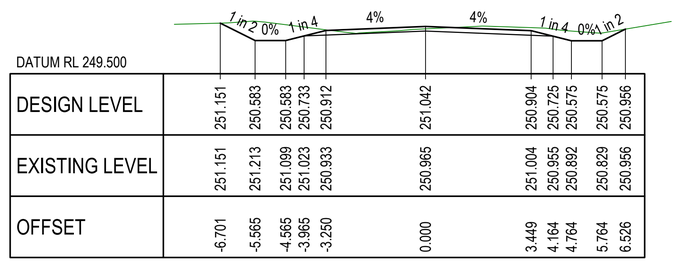
CH. 50546.500



DATUM RL 249.400

DESIGN LEVEL	250.996	250.424	250.424	250.574	250.752	250.882	250.741	250.563	250.413	250.413	250.832
EXISTING LEVEL	250.996	251.025	250.990	250.915	250.824	250.829	250.857	250.807	250.746	250.692	250.832
OFFSET	-6.710	-5.565	-4.565	-3.965	-3.250	0.000	3.533	4.245	4.845	5.845	6.682

CH. 50545.078



DATUM RL 249.500

DESIGN LEVEL	251.151	250.583	250.583	250.733	250.912	251.042	250.904	250.725	250.575	250.575	250.956
EXISTING LEVEL	251.151	251.213	251.099	251.023	250.933	250.965	251.004	250.955	250.892	250.829	250.956
OFFSET	-6.701	-5.565	-4.565	-3.965	-3.250	0.000	3.449	4.164	4.764	5.764	6.526

CH. 50540.000

WARNING!

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CROSS SECTIONS

Scale A

A	Issued for Construction			
20.01	Revisions/Descriptions	Drawn	Approved	Date

Scales

Scale A 0 1.0 2.0 3.0 4.0 5.0 1:100

Dimensions shown in metres except where shown otherwise

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quality people client focused solution driven
245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

Title: CRACOW ROAD UPGRADE (Ch. 50425m - 50725m)
SITE 1 - CABBAGETREE CREEK FLOODWAY
ANNOTATED CROSS SECTIONS SHEET 1

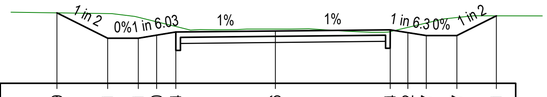
Drawn: B Doherty
Designed: B Doherty

ENGINEERING CERTIFICATION (RPEQ)				
ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/09/23

Job No.	CRC00285
Drawing No.	800
Revision	A
Series No.	8 of 16

XREFS :- X_CRC_BSC_TITLE.dwg - X_MC10_XSECT_01.dwg

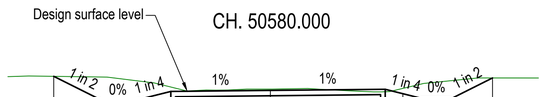
Last Modified :- Oct 06, 2023 - 11:07am



DATUM RL 247.900

DESIGN LEVEL	250.199	249.371	249.371	249.470	249.574	249.606	249.644	249.552	249.457	250.101
EXISTING LEVEL	250.199	250.175	250.054	249.907	249.754	249.669	249.586	249.724	249.867	250.045	250.101
OFFSET	-7.132	-5.475	-4.475	-3.875	-3.250	0.000	3.750	4.327	4.927	5.927	7.216

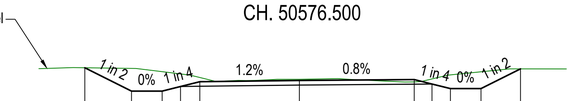
CH. 50580.000



DATUM RL 248.100

DESIGN LEVEL	250.206	249.408	249.408	249.558	249.714	249.746	249.784	249.640	249.490	249.490	250.154
EXISTING LEVEL	250.206	250.183	250.076	250.002	249.857	249.790	249.704	249.812	249.955	250.068	250.154
OFFSET	-7.072	-5.475	-4.475	-3.875	-3.250	0.000	3.750	4.327	4.927	5.927	7.254

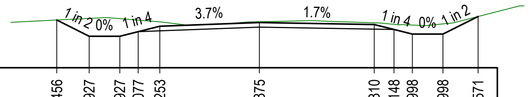
CH. 50576.500



DATUM RL 248.400

DESIGN LEVEL	250.208	249.445	249.445	249.595	249.752	249.791	249.822	249.676	249.526	249.526	250.170
EXISTING LEVEL	250.208	250.186	250.079	250.005	249.889	249.830	249.746	249.842	249.974	250.075	250.170
OFFSET	-7.005	-5.480	-4.480	-3.880	-3.250	0.000	3.750	4.331	4.931	5.931	7.219

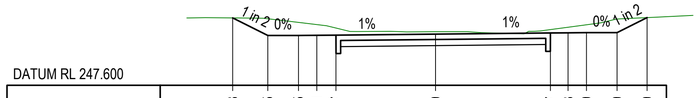
CH. 50575.383



DATUM RL 248.900

DESIGN LEVEL	250.456	249.927	249.927	250.077	250.253	250.375	250.310	250.148	249.998	249.998	250.571
EXISTING LEVEL	250.456	250.509	250.502	250.453	250.396	250.400	250.365	250.315	250.293	250.330	250.571
OFFSET	-6.615	-5.556	-4.556	-3.956	-3.250	0.000	3.750	4.395	4.995	5.995	7.141

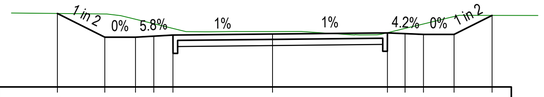
CH. 50560.000



DATUM RL 247.600

DESIGN LEVEL	249.798	249.225	249.225	249.231	249.237	249.269	249.307	249.313	249.319	249.319	249.809
EXISTING LEVEL	249.798	249.771	249.652	249.581	249.468	249.347	249.417	249.494	249.574	249.764	249.809
OFFSET	-6.622	-5.475	-4.475	-3.875	-3.250	0.000	3.750	4.327	4.927	5.927	6.908

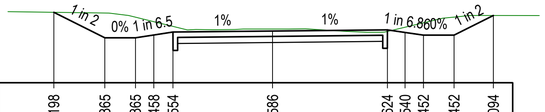
CH. 50588.421



DATUM RL 247.700

DESIGN LEVEL	250.098	249.323	249.323	249.358	249.394	249.426	249.464	249.440	249.415	249.415	250.034
EXISTING LEVEL	250.098	250.082	249.910	249.763	249.610	249.509	249.470	249.610	249.756	249.999	250.034
OFFSET	-7.026	-5.475	-4.475	-3.875	-3.250	0.000	3.750	4.327	4.927	5.927	7.166

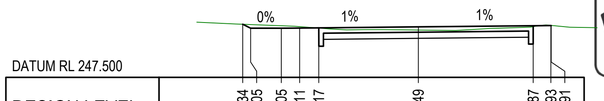
CH. 50584.500



DATUM RL 247.900

DESIGN LEVEL	250.198	249.365	249.365	249.458	249.554	249.586	249.624	249.540	249.452	249.452	250.094
EXISTING LEVEL	250.198	250.174	250.038	249.891	249.738	249.651	249.574	249.711	249.855	250.042	250.094
OFFSET	-7.140	-5.475	-4.475	-3.875	-3.250	0.000	3.750	4.327	4.927	5.927	7.210

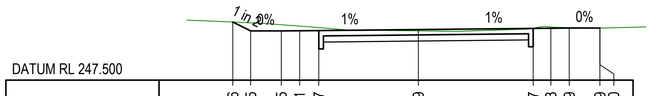
CH. 50580.500



DATUM RL 247.500

DESIGN LEVEL	249.234	249.105	249.105	249.111	249.117	249.149	249.187	249.193	249.191
EXISTING LEVEL	249.234	249.224	249.185	249.156	249.109	249.045	249.157	249.196	249.196
OFFSET	-5.734	-5.475	-4.475	-3.875	-3.250	0.000	3.750	4.327	4.337

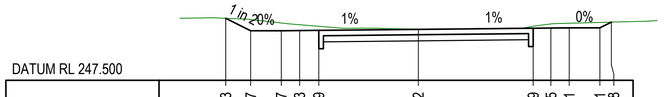
CH. 50596.500



DATUM RL 247.500

DESIGN LEVEL	249.396	249.105	249.105	249.111	249.117	249.149	249.187	249.193	249.199	249.199	249.200
EXISTING LEVEL	249.396	249.369	249.308	249.262	249.213	249.107	249.194	249.235	249.217	249.200	249.200
OFFSET	-6.057	-5.475	-4.475	-3.875	-3.250	0.000	3.750	4.327	4.927	5.927	5.930

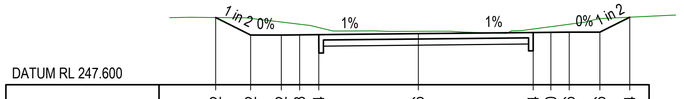
CH. 50594.421



DATUM RL 247.500

DESIGN LEVEL	249.523	249.117	249.117	249.123	249.129	249.162	249.199	249.205	249.211	249.211	249.398
EXISTING LEVEL	249.523	249.484	249.371	249.314	249.263	249.174	249.262	249.339	249.362	249.388	249.398
OFFSET	-6.287	-5.475	-4.475	-3.875	-3.250	0.000	3.750	4.327	4.927	5.927	6.301

CH. 50592.500



DATUM RL 247.600

DESIGN LEVEL	249.792	249.222	249.222	249.228	249.234	249.266	249.304	249.310	249.316	249.316	249.804
EXISTING LEVEL	249.792	249.764	249.646	249.575	249.465	249.344	249.417	249.494	249.574	249.759	249.804
OFFSET	-6.617	-5.475	-4.475	-3.875	-3.250	0.000	3.750	4.327	4.927	5.927	6.903

CH. 50588.500

WARNING!

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CROSS SECTIONS

Scale A

A	Issued for Construction			
20.01	Revisions/Descriptions	Drawn	Approved	Date

Scales

Scale A 0 1.0 2.0 3.0 4.0 5.0 1:100

Dimensions shown in metres except where shown otherwise

crc quality people client focused solution driven

245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

Title: CRACOW ROAD UPGRADE (Ch. 50425m - 50725m)
SITE 1 - CABBAGETREE CREEK FLOODWAY
ANNOTATED CROSS SECTIONS SHEET 2

Drawn: B Doherty
Designed: B Doherty

ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/09/23

Job No.	CRC00285
Drawing No.	801
Revision	A
Series No.	9 of 16

XREFS :- X_CRC_BSC_TITLE.dwg : X_MC10_XSECT_02.dwg

Last Modified :- Oct 06, 2023 - 11:07am

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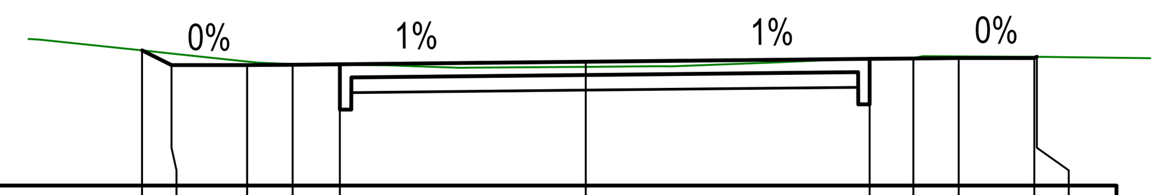
DATUM RL 247.600

DESIGN LEVEL	249.460	249.257	249.257	249.263	249.269	249.301	249.339	249.345	249.351	249.351	249.417
EXISTING LEVEL	249.460	249.417	249.320	249.283	249.273	249.254	249.327	249.372	249.424	249.418	249.417
OFFSET	-5.882	-5.475	-4.475	-3.875	-3.250	0.000	3.750	4.327	4.927	5.927	6.059

CH. 50606.171

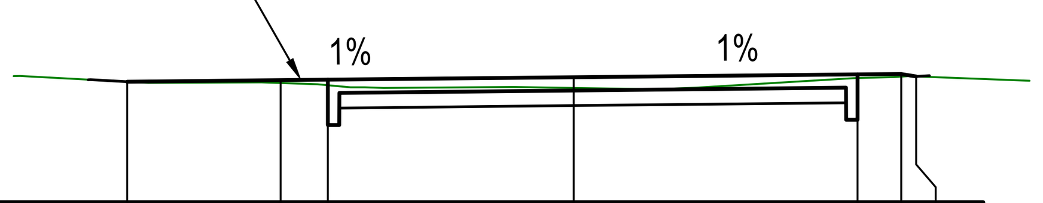


DATUM RL 247.600

DESIGN LEVEL	249.385	249.191	249.191	249.197	249.203	249.235	249.273	249.279	249.285	249.285	249.301
EXISTING LEVEL	249.385	249.344	249.239	249.207	249.197	249.169	249.270	249.284	249.307	249.301	249.301
OFFSET	-5.864	-5.475	-4.475	-3.875	-3.250	0.000	3.750	4.327	4.927	5.927	5.959

CH. 50604.500

Design surface level

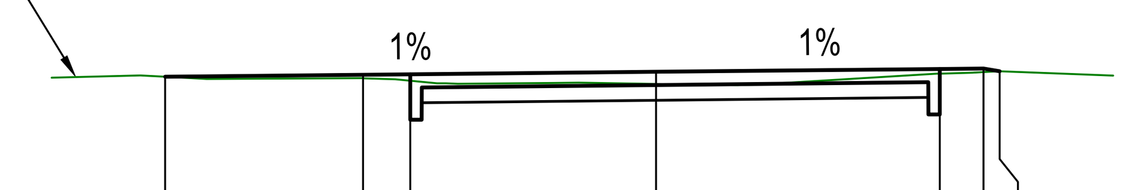


DATUM RL 247.500

DESIGN LEVEL	249.094	249.115	249.121	249.153	249.191	249.197	249.164
EXISTING LEVEL	249.094	249.078	249.048	249.013	249.143	249.162	249.164
OFFSET	-5.903	-3.875	-3.250	0.000	3.750	4.327	4.524

CH. 50600.500

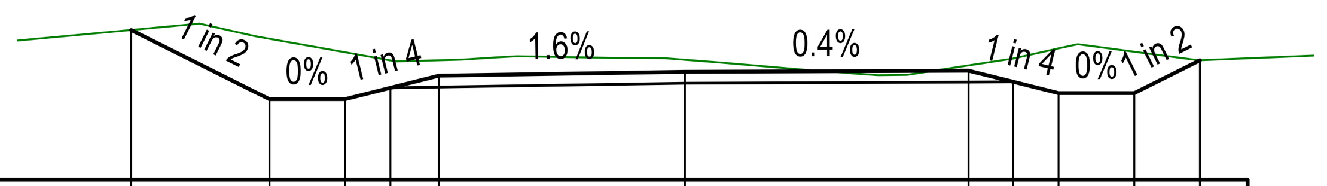
Existing surface level



DATUM RL 247.500

DESIGN LEVEL	249.086	249.112	249.118	249.151	249.188	249.194	249.158
EXISTING LEVEL	249.086	249.066	249.032	248.990	249.127	249.146	249.158
OFFSET	-6.491	-3.875	-3.250	0.000	3.750	4.327	4.541

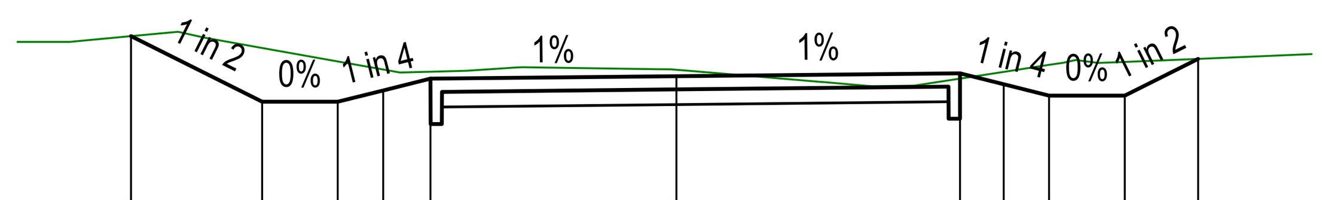
CH. 50600.000



DATUM RL 248.500

DESIGN LEVEL	250.476	249.562	249.562	249.712	249.872	249.924	249.939	249.792	249.642	249.642	250.076
EXISTING LEVEL	250.476	250.360	250.182	250.075	250.076	250.083	250.009	250.100	250.233	250.189	250.076
OFFSET	-7.318	-5.491	-4.491	-3.891	-3.250	0.000	3.750	4.340	4.940	5.940	6.809

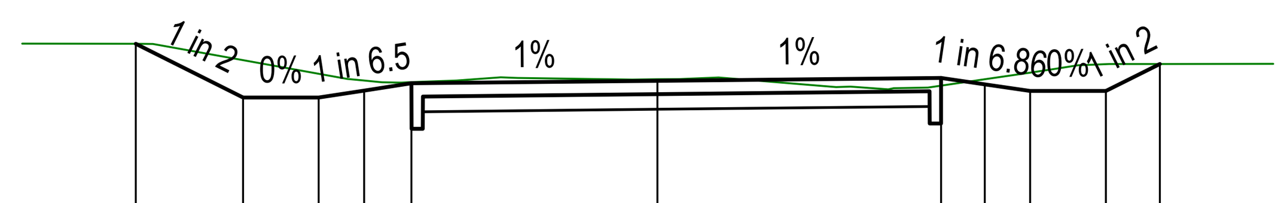
CH. 50620.000



DATUM RL 248.100

DESIGN LEVEL	250.294	249.428	249.428	249.578	249.734	249.766	249.804	249.660	249.510	249.510	249.995
EXISTING LEVEL	250.294	250.138	249.960	249.853	249.824	249.851	249.734	249.823	249.915	249.954	249.995
OFFSET	-7.208	-5.475	-4.475	-3.875	-3.250	0.000	3.750	4.327	4.927	5.927	6.897

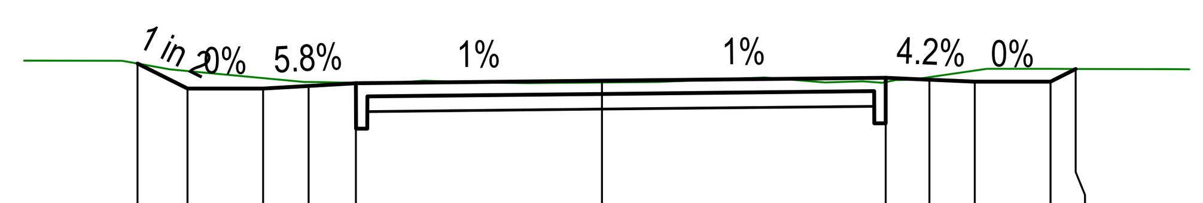
CH. 50616.500



DATUM RL 247.900

DESIGN LEVEL	250.075	249.365	249.365	249.458	249.554	249.586	249.624	249.540	249.452	249.452	249.809
EXISTING LEVEL	250.075	249.859	249.679	249.590	249.569	249.607	249.522	249.607	249.695	249.806	249.809
OFFSET	-6.894	-5.475	-4.475	-3.875	-3.250	0.000	3.750	4.327	4.927	5.927	6.641

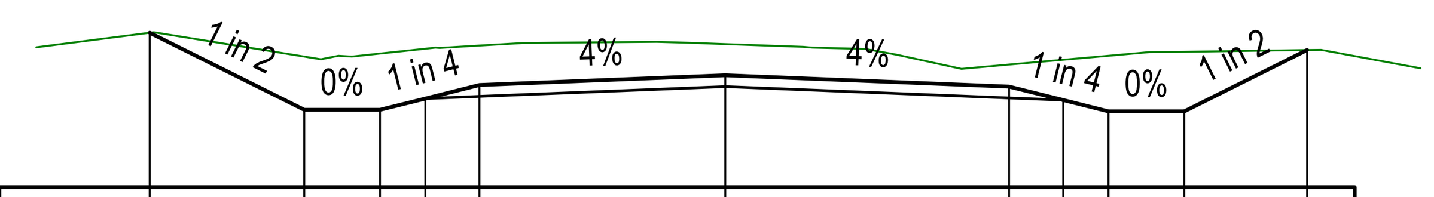
CH. 50612.500



DATUM RL 247.700

DESIGN LEVEL	249.633	249.303	249.303	249.338	249.374	249.406	249.444	249.420	249.395	249.395	249.561
EXISTING LEVEL	249.633	249.534	249.441	249.389	249.379	249.384	249.388	249.452	249.541	249.562	249.561
OFFSET	-6.135	-5.475	-4.475	-3.875	-3.250	0.000	3.750	4.327	4.927	5.927	6.261

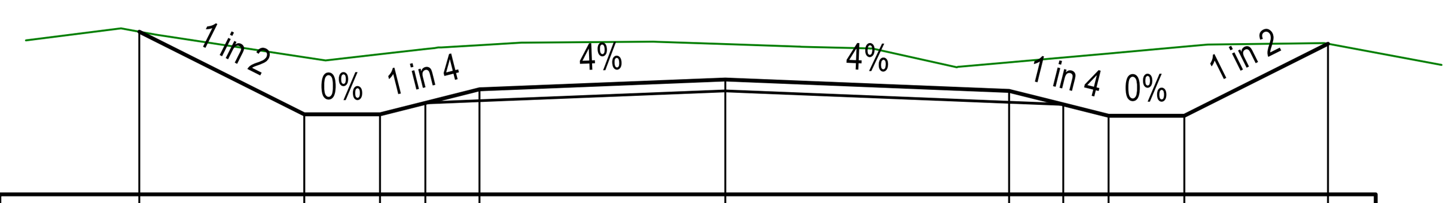
CH. 50608.500



DATUM RL 249.800

DESIGN LEVEL	251.844	250.823	250.823	250.973	251.152	251.282	251.132	250.953	250.803	250.803	251.615
EXISTING LEVEL	251.844	251.529	251.569	251.633	251.674	251.694	251.422	251.486	251.539	251.593	251.615
OFFSET	-7.608	-5.565	-4.565	-3.965	-3.250	0.000	3.750	4.465	5.065	6.065	7.688

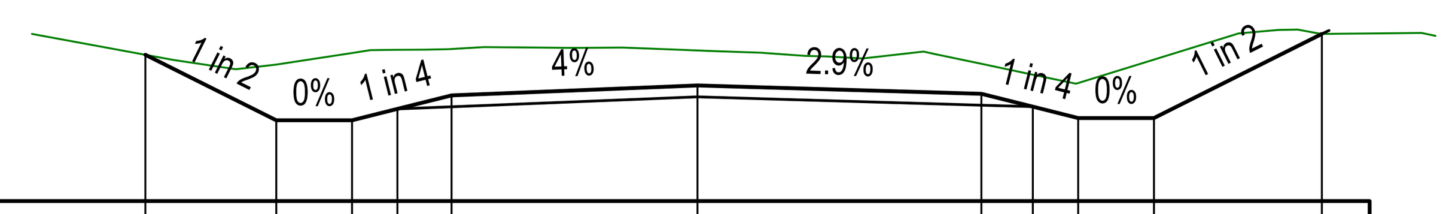
CH. 50650.181



DATUM RL 249.600

DESIGN LEVEL	251.747	250.657	250.657	250.807	250.986	251.116	250.966	250.788	250.638	250.638	251.587
EXISTING LEVEL	251.747	251.411	251.450	251.518	251.569	251.583	251.343	251.406	251.460	251.549	251.587
OFFSET	-7.745	-5.565	-4.565	-3.965	-3.250	0.000	3.750	4.465	5.065	6.065	7.964

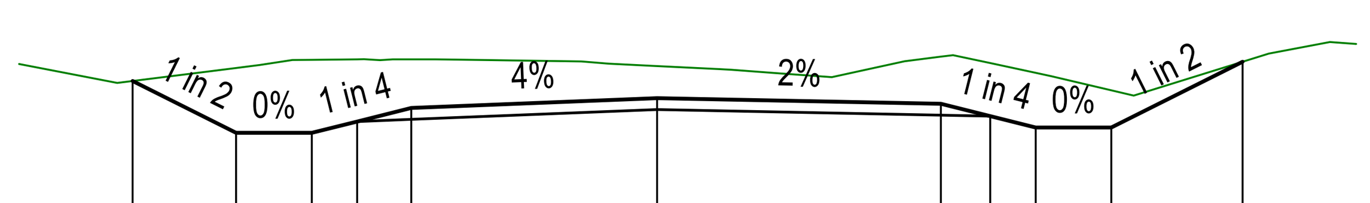
CH. 50646.500



DATUM RL 249.300

DESIGN LEVEL	251.230	250.365	250.365	250.515	250.694	250.824	250.714	250.544	250.394	250.394	251.504
EXISTING LEVEL	251.230	251.099	251.253	251.294	251.305	251.286	251.110	250.967	250.856	251.165	251.504
OFFSET	-7.294	-5.565	-4.565	-3.965	-3.250	0.000	3.750	4.430	5.030	6.030	8.249

CH. 50640.000



DATUM RL 249.100

DESIGN LEVEL	250.802	250.118	250.118	250.268	250.446	250.576	250.501	250.338	250.188	250.188	251.057
EXISTING LEVEL	250.802	250.974	251.082	251.088	251.089	251.000	251.124	251.039	250.911	250.679	251.057
OFFSET	-6.934	-5.565	-4.565	-3.965	-3.250	0.000	3.750	4.402	5.002	6.002	7.739

CH. 50634.500

CROSS SECTIONS

Scale A

A	Issued for Construction			
20.01	Revisions/Descriptions	Drawn	Approved	Date

Scales

Scale A 0 1.0 2.0 3.0 4.0 5.0 1:100

Dimensions shown in metres except where shown otherwise

quality people client focused solution driven

245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client

Banana SHIRE — SHIRE OF OPPORTUNITY

Title

CRACOW ROAD UPGRADE (Ch. 50425m - 50725m)
SITE 1 - CABBAGETREE CREEK FLOODWAY
ANNOTATED CROSS SECTIONS SHEET 3

Drawn: B Doherty

Designed: B Doherty

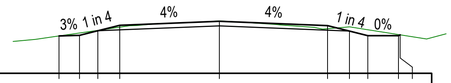
ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/09/23

Job No.	CRC00285
Drawing No.	802
Revision	A
Series No.	10 of 16

XREFS :- X_CRC_BSC_TITLE.dwg ; X_MC10_XSECT_03.dwg

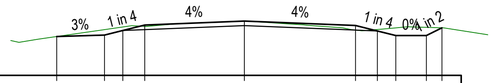
Last Modified :- Oct 06, 2023 - 11:07am



DATUM RL 251.400

DESIGN LEVEL	252.618	252.638	252.788	252.967	253.097	252.956	252.777	252.627	252.655
EXISTING LEVEL	252.618	252.715	252.802	252.905	253.109	252.855	252.914	252.821	252.664
OFFSET	-5.234	-4.565	-3.965	-3.250	0.000	3.533	4.248	4.848	5.848

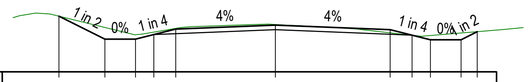
CH. 50705.793



DATUM RL 251.200

DESIGN LEVEL	252.467	252.513	252.663	252.842	252.972	252.827	252.648	252.498	252.752
EXISTING LEVEL	252.467	252.692	252.779	252.799	252.974	252.677	252.696	252.749	252.767
OFFSET	-6.126	-4.565	-3.965	-3.250	0.000	3.630	4.345	4.945	5.945

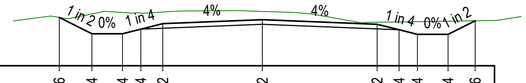
CH. 50700.000



DATUM RL 250.900

DESIGN LEVEL	252.717	251.967	251.967	252.117	252.296	252.426	252.276	252.097	251.947	252.211
EXISTING LEVEL	252.717	252.349	252.112	252.197	252.319	252.447	252.174	252.096	252.086	252.168	252.211
OFFSET	-7.065	-5.565	-4.565	-3.965	-3.250	0.000	3.750	4.465	5.065	6.065	6.593

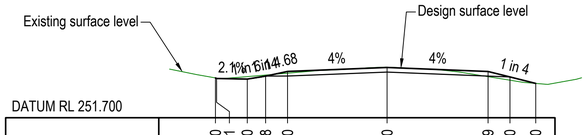
CH. 50680.000



DATUM RL 250.200

DESIGN LEVEL	251.776	251.244	251.244	251.394	251.572	251.702	251.552	251.374	251.224	251.224	251.666
EXISTING LEVEL	251.776	251.891	251.936	251.921	251.951	251.972	251.620	251.629	251.637	251.650	251.666
OFFSET	-6.630	-5.565	-4.565	-3.965	-3.250	0.000	3.750	4.465	5.065	6.065	6.950

CH. 50660.000



DATUM RL 251.700

DESIGN LEVEL	253.000	252.981	252.960	253.058	253.210	253.340	253.209	253.030	252.820
EXISTING LEVEL	253.000	252.993	253.042	253.093	253.153	253.350	253.040	252.925	252.820
OFFSET	-5.603	-5.565	-4.565	-3.965	-3.250	0.000	3.297	4.012	4.852

CH. 50720.000

WARNING!

BEWARE OF UNDERGROUND SERVICES

The location of underground services has been compiled from engineering survey and interpolated from Dial Before You Dig as provided by the Service Authorities. No responsibility is taken for the accuracy of the interpolated information supplied. Ensure all services are accurately located prior to commencement of work.

CROSS SECTIONS

Scale A

A	Issued for Construction			
20.01	Revisions/Descriptions	Drawn	Approved	Date

Scales

Scale A 0 1.0 2.0 3.0 4.0 5.0 1:100

Dimensions shown in metres except where shown otherwise

crc
quality people client focused solution driven
245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

Title: CRACOW ROAD UPGRADE (Ch. 50425m - 50725m)
SITE 1 - CABBAGETREE CREEK FLOODWAY
ANNOTATED CROSS SECTIONS SHEET 4

Drawn: B Doherty
Designed: B Doherty

ENGINEERING CERTIFICATION (RPEQ)				
ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/09/23

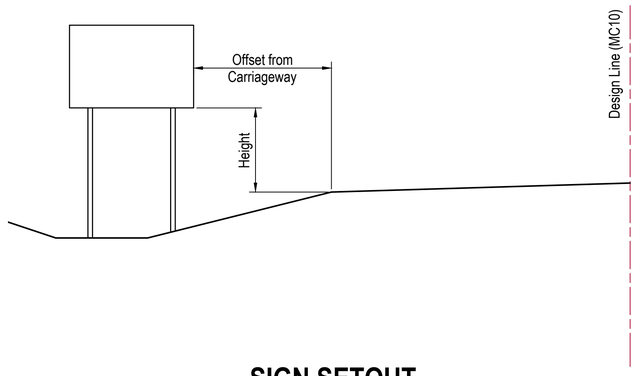
Job No.	CRC00285
Drawing No.	803
Revision	A
Series No.	11 of 16

XREFS :- X_CRC_BSC_TITLE.dwg ; X_MC10_XSECT_04.dwg

Last Modified :- Oct 06, 2023 - 11:07am

SIGN SCHEDULE

CHAINAGE (M)	POSITION	SIGN DESCRIPTION	SIGN TYPE	WORK DESCRIPTION	SIGN DETAILS					STIFFENER DETAILS				SUPPORT DETAILS							NEW FOOTING DETAILS			
					WIDTH (mm)	HEIGHT (mm)	AREA (m^2)	OFFSET FROM CARRIAGEWAY (mm)	HEIGHT ABOVE CARRIAGEWAY (mm)	TYPE	No.	SPACING (mm)	No. OF BRACKETS	Type	No.	SPACING (mm)	DIMENSION (mm) OD	MATERIAL	POST LENGTH 1 (mm)	POST LENGTH 2 (mm)	SLEEVE LENGTH (mm)	SLEEVE SIZE (mm)	DIA. (mm)	DEPTH (mm)
50460	LHS	Warning, floodways with supplementary plate	W5-7-2B & W8-17-1 '1 km' B	Install New	750	750	0.56	2000	1500	1	0	0	0	CHS Steel	1	-	60.3	C350	3500 C.T.S	-	-	-	300	750
50500	LHS	Guide, "CABBAGETREE CK"	G6-2	Install New				2000	1500	2	0	0	0	CHS Steel	1	-	60.3	C350	3500 C.T.S	-	-	-	300	750
50540	LHS	Guide, "Road Subject to Flooding"	G9-21-1	Install New	2150	800	1.7200	2000	1500	1	3	350	6	CHS Steel	2	1500	60.3	C350	3500 C.T.S	3500 C.T.S	-	-	300	750
50595	LHS	Guide, Flood depth marker	G9-22-1	Install New	Refer Details in DTMR Std Drg 1170 - Flood Depth Indicators - Installation																			
50604	RHS	Guide, Flood depth marker	G9-22-1	Install New																				
50650	RHS	Guide, "CABBAGETREE CK"	G6-2	Install New				2000	1500	2	0	0	0	CHS Steel	1	-	60.3	C350	3500 C.T.S	-	-	-	300	750



SIGN SETOUT

PAVEMENT MARKING TYPES

No.	TYPE	EXAMPLE	WIDTH	DESCRIPTION
LONGITUDINAL LINES				
C	Barrier Line (Single)	▬▬▬▬	100mm	Continuous (on floodway)

XREFS :- X_CRC_BSC_TITLE.dwg

Last Modified :- Oct 06, 2023 - 11:07am

A	Issued for Construction			
20.01	Revisions/Descriptions	Drawn	Approved	Date

Scales

Dimensions shown in metres except where shown otherwise

crc
quality people client focused solution driven
245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

Title: CRACOW ROAD UPGRADE (Ch. 50425m - 50725m)
SITE 1 - CABBAGETREE CREEK FLOODWAY
SUPPLEMENTARY SIGNS AND LINEMARKING DETAILS

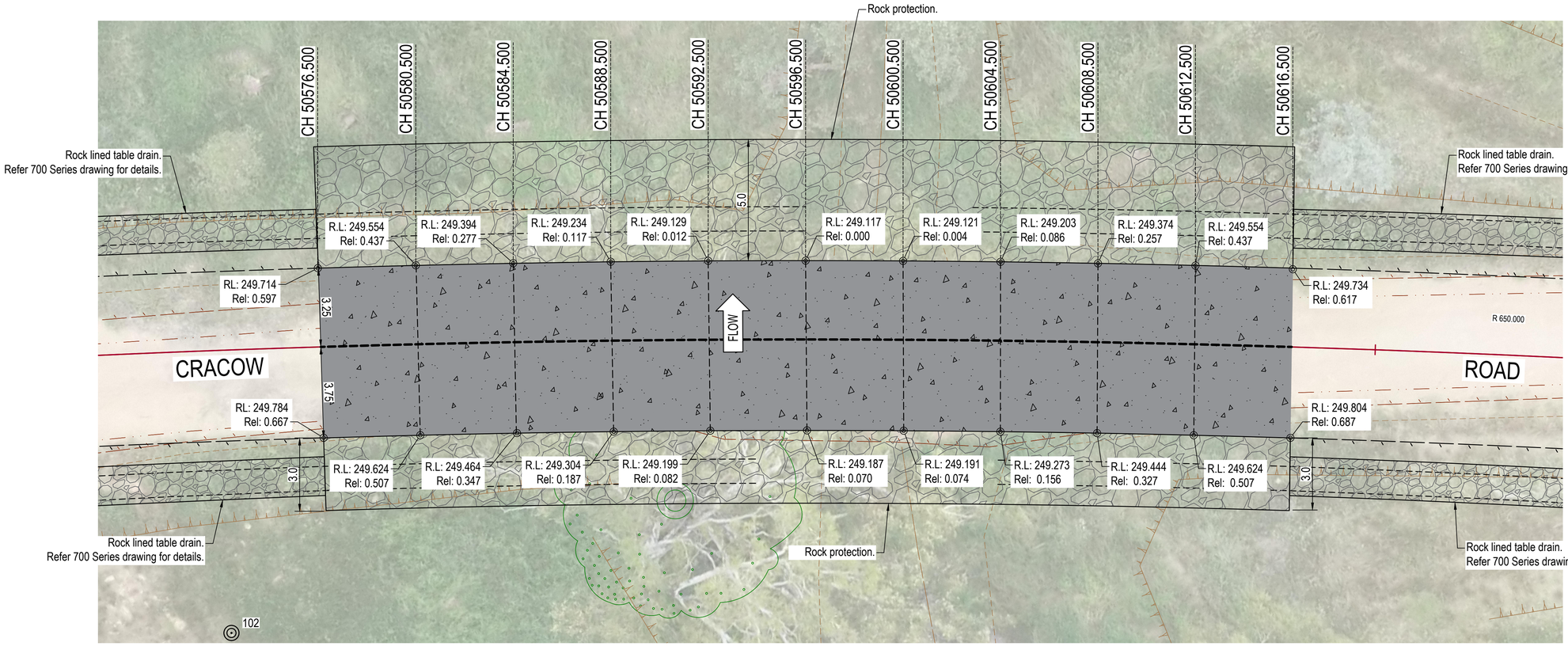
Drawn: B Doherty
Designed: B Doherty

ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/09/23

Job No.	CRC00285
Drawing No.	1000
Revision	A
Series No.	12 of 16

Refer 400 series drawings for sign details.

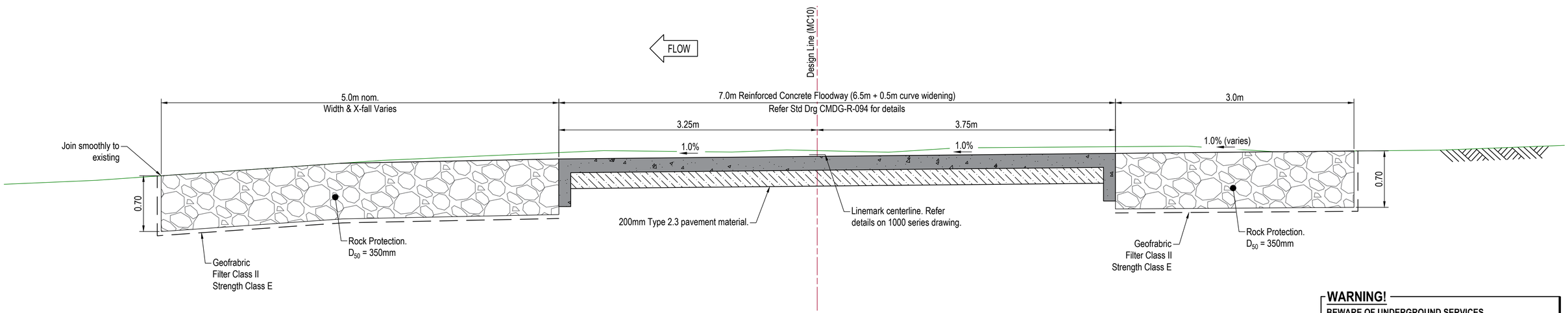


PLAN

Scale: 1:100

LEGEND

R.L: Reduced Level AHD
Rel: Height relative to lowest point on floodway



TYPICAL CROSS SECTION B

Chge 50576.500 - 50616.500 (MC10 - Floodway)
Not to Scale

WARNING!

BEWARE OF UNDERGROUND SERVICES

The location of underground services has been compiled from engineering survey and interpolated from Dial Before You Dig as provided by the Service Authorities. No responsibility is taken for the accuracy of the interpolated information supplied. Ensure all services are accurately located prior to commencement of work.

A	Issued for Construction			
20.01	Revisions/Descriptions	Drawn	Approved	Date

Scales

Scale A 0 1.0 2.0 3.0 4.0 5.0 1:100

Dimensions shown in metres except where shown otherwise

crc quality people client focused solution driven
245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

Title: CRACOW ROAD UPGRADE (Ch. 50425m - 50725m)
SITE 1 - CABBAGETREE CREEK FLOODWAY
FLOODWAY DETAILS

Drawn: B Doherty
Designed: B Doherty

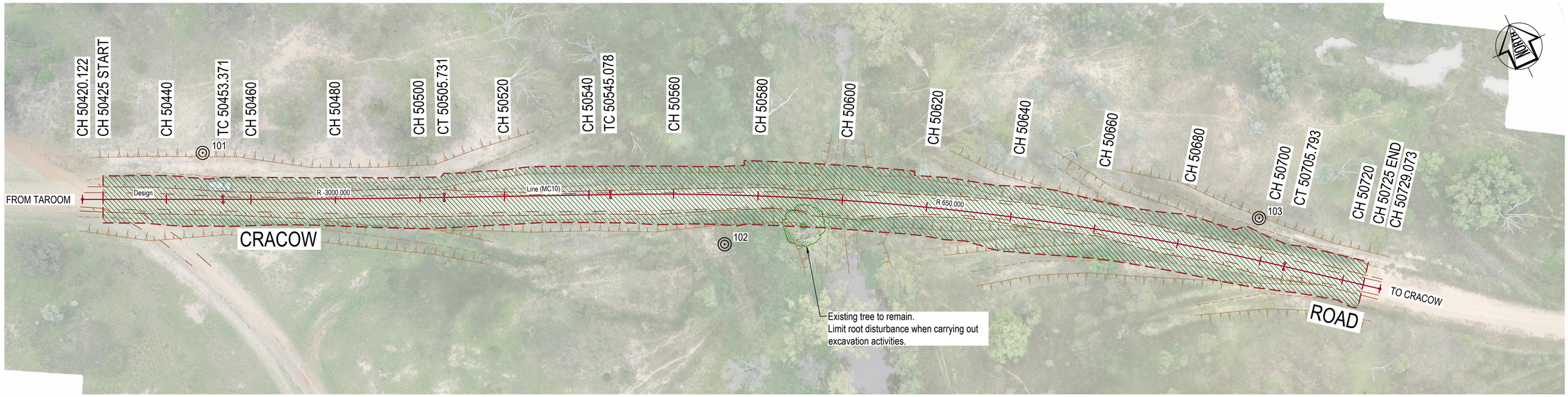
ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/09/23

Job No.	CRC00285
Drawing No.	1200
Revision	A
Series No.	13 of 16

XREFS :- X_CRC_BSC_TITLE.dwg ; X_IMAGE.dwg ; X_SURVEY.dwg ; X_CONTROL.dwg ; X_DESIGN.dwg ; X_HATCH.dwg

Last Modified :- Oct 06, 2023 - 11:07am



PLAN

Scale: 1:500

DESIGN LINE MC10

CHAINAGE	OFFSET LHS	OFFSET RHS
50425	5.565	5.565
50435	5.673	5.635
50445	5.193	6.373
50455	5.182	6.381
50465	5.146	6.087
50475	5.018	6.176
50485	5.034	6.635
50495	4.847	7.100
50505	4.847	7.238
50515	6.045	6.872

DESIGN LINE MC10

CHAINAGE	OFFSET LHS	OFFSET RHS
50525	6.800	6.524
50535	6.864	6.436
50545	6.711	6.680
50555	6.597	7.192
50565	6.588	6.976
50575	6.982	7.207
50585	6.959	7.141
50595	5.966	4.337
50605	5.881	5.994
50615	7.110	6.832

DESIGN LINE MC10

CHAINAGE	OFFSET LHS	OFFSET RHS
50625	7.482	7.184
50635	6.898	7.918
50645	7.644	8.030
50655	7.145	7.310
50665	6.377	6.749
50675	6.627	6.639
50685	6.758	6.609
50695	7.381	6.611
50705	5.265	5.950
50715	5.661	5.110

LEGEND

- Tree to be removed
- Limit of clearing
- 403 - Survey Mark and Label

A	Issued for Construction			
20.01	Revisions/Descriptions	Drawn	Approved	Date

Scales

Scale A 0 5 10 15 20 25 1:500

Dimensions shown in metres
except where shown otherwise

crc
quality people client focused solution driven
245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

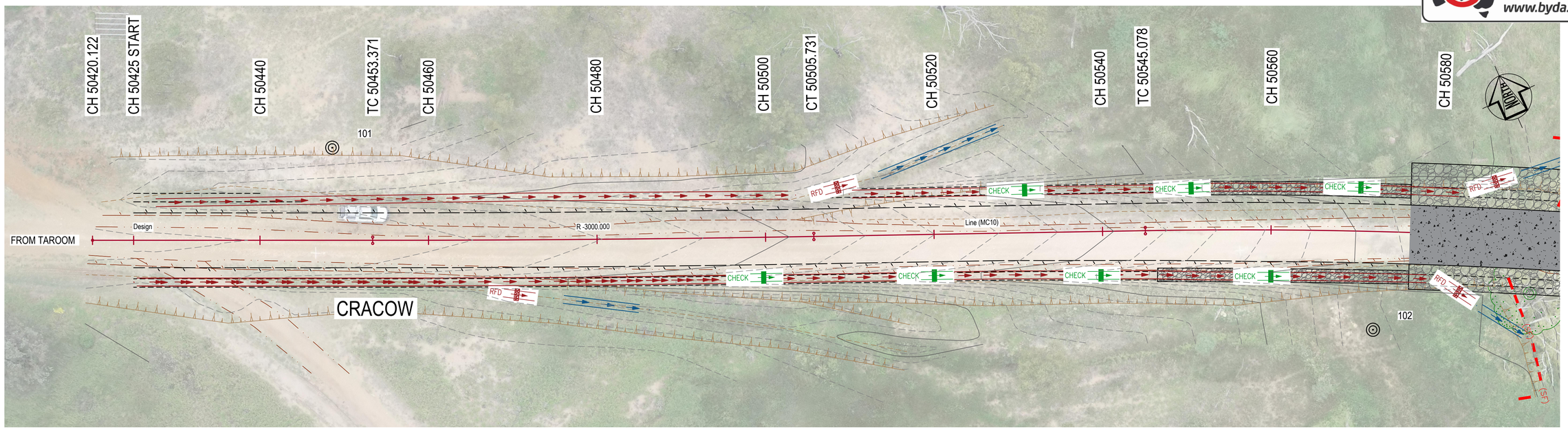
Title: CRACOW ROAD UPGRADE (Ch. 50425m - 50725m)
SITE 1 - CABBAGETREE CREEK FLOODWAY
LIMIT OF CLEARING PLAN

Drawn: B Doherty
Designed: B Doherty

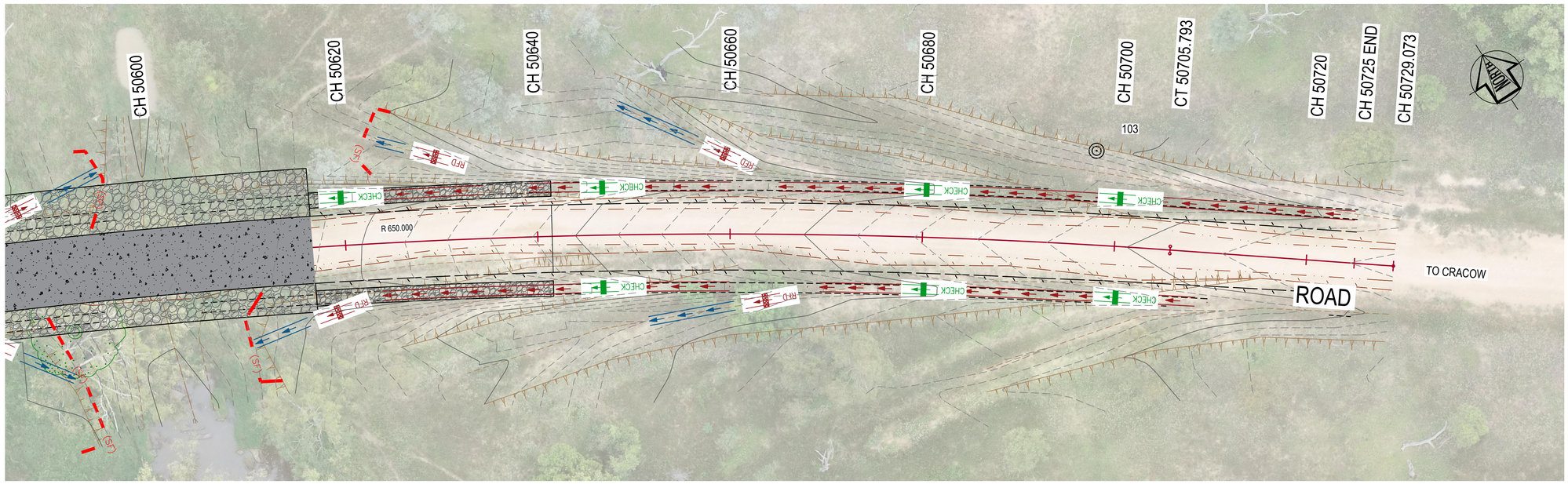
ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	T Penrose		24087	26/09/23

Job No.	CRC00285
Drawing No.	1600
Revision	A
Series No.	14 of 16



PLAN
Scale: 1:250



PLAN
Scale: 1:250

LEGEND

- Diversion Bank
- (SF) Silt Fence
- Geo Log
- Dirty Water Flow
- Clean Water Flow
- CHECK Rock Check Dam
- RFD End of line rock check dam (to act as rock filter dam)
- Existing Trees
- 403 Survey Mark and Label

A	Issued For Construction			
20.01	Revisions/Descriptions	Drawn	Approved	Date

Scales
Scale A 0 2 4 6 8 10 12 1:250
Dimensions shown in metres except where shown otherwise

crc
quality people client focused solution driven
245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

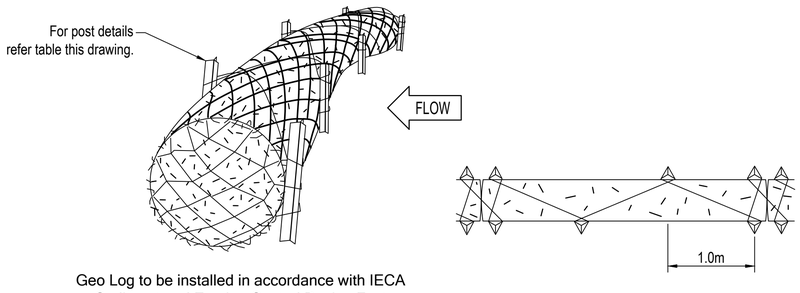
Title: CRACOW ROAD UPGRADE (Ch. 50425m - 50725m)
SITE 1 - CABBAGETREE CREEK FLOODWAY
TEMPORARY EROSION AND SEDIMENT CONTROL SHEET 1

Drawn: B Doherty
Designed: B Doherty

ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	P Meredith		15268	

Job No.	CRC00285
Drawing No.	1700
Revision	A
Series No.	15 of 16



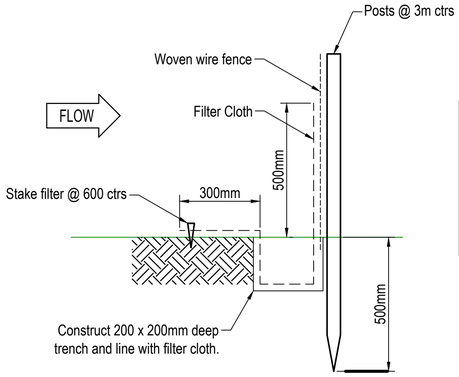
Geo Log to be installed in accordance with IECA Sediment and Erosion Control Design Fact Sheets - Instream Practices

GEO-LOG STAKING METHOD

N.T.S

MATERIALS

MATERIAL	TYPE
Posts (either)	1.5kg/m (min) Steel Star Picket or 1500mm^2 (min) Hardwood or 2500mm^2 (min) Softwood
Fence	Woven wire 14 guarge 150mm max aperture
Filter Cloth	Filter as specified (terram 100, polyfelt ts500, Bidim u24 or equivalent)
Prefabricated Unit	Geofab, envirofence or approved equivalent



Erection Notes

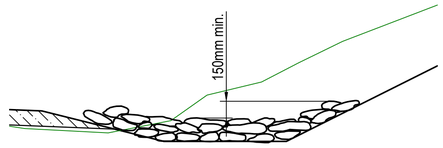
Woven fence to be fastened securely to fence posts with wire ties or staples. Filter cloth to be fastened securely to woven wire fence with teis speaced every 600mm at top of mid section. When two sections of filter cloth adjoin each other they shall be overlapped by 150mm and folded and material removeed when bulging of fence occurs.

SILT FENCE

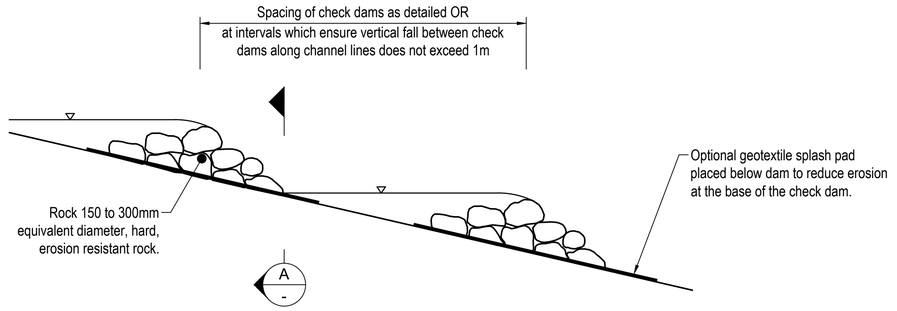
N.T.S

LEGEND

- Diversion Bank
- (SF) Silt Fence
- Geo Log
- Dirty Water Flow
- Clean Water Flow
- CHECK Rock Check Dam
- RFD End of line rock check dam (to act as rock filter dam)
- Existing Trees



SECTION A -

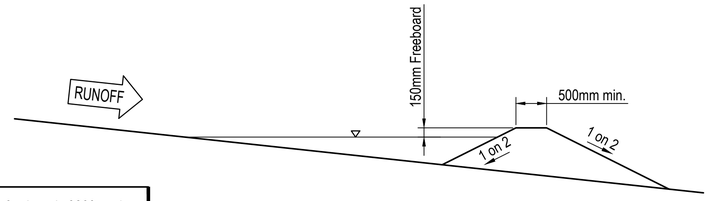


ROCK CHECK DAM

N.T.S

Notes

1. Design and construction of all sediment management devices is the contractors responsibility and shall be completed and effective prior to:
   (i) Stripping of topsoil and grass.
   (ii) Bulk earthworks to the site.
   (iii) Service installations.
2. All sediment management devices are to remain in place until notice from the Contract Administrator
3. Both temporary and permanent sediment management devices shall be maintained at a suitable level/condition throughout construction. Sediment fences are to be cleaned out when capacity is reduced by 30%.
4. If erosion and sediment control devices have been found to be deficient or failed in service, due to unforeseen circumstances, corrective action is to be undertaken immediately which may include amendments/additions to the original approved erosion control plans. such additions or amendments are to be approved by the Contract Administrator.
5. All erosion and sediment control devices are to be inspected at least weekly, before and after rainfall events. Any damage or excess erosion/sediment is to be repaired/managed as required to maintain control devices.
6. Devices shown on the drawings shall not necessarily be limited to the locations shown. Additional devices may be required as directed by Contract Administrator.
7. Rock check dams to be installed per detail this drawing in drainage channels with slopes greater than 2%. Spacing of check dams to be at every 1.0m vertical drop in drainage channel.
8. Contract Administrator to order installation of topsoil and grass seeding to disturbed areas.
9. The contractor shall ensure all turfed and/or seeded areas are regularly watered to ensure vegetation is maintained until there is 80% coverage.
10. Stockpiles shall be protected from erosion and sediment loss by:
    - The installation of diversion works on the upstream side.
    - The use of silt fences or other approved controls on the downstream side.
    - Compaction.
    - Re-vegetation if left exposed for longer than 30 days



A minimum freeboard of 300mm is recommended for non-vegetated earth embankments.

DIVERSION BANK

N.T.S

	Revisions/Descriptions	Drawn	Approved	Date
A	Issued For Construction			
20.01				

Scales

Dimensions shown in metres except where shown otherwise

crc quality people client focused solution driven
245 Mary Street, GYMPIE, QLD, 4570
ABN 73 617 924 437 Ph: 0477 322 555

Client: Banana SHIRE — SHIRE OF OPPORTUNITY

Title: CRACOW ROAD UPGRADE (Ch. 50425m - 50725m)
SITE 1 - CABBAGETREE CREEK FLOODWAY
TEMPORARY EROSION AND SEDIMENT CONTROL SHEET 2

Drawn: B Doherty
Designed: B Doherty

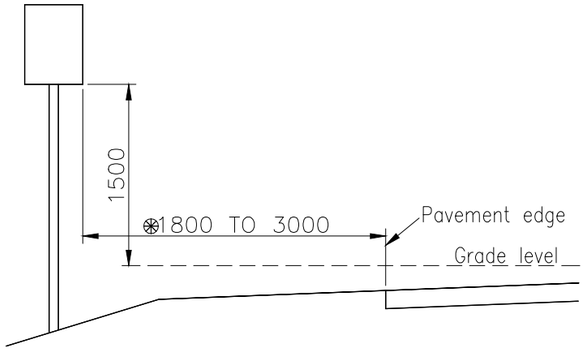
ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	NO.	DATE
Civil	P Meredith		15268	

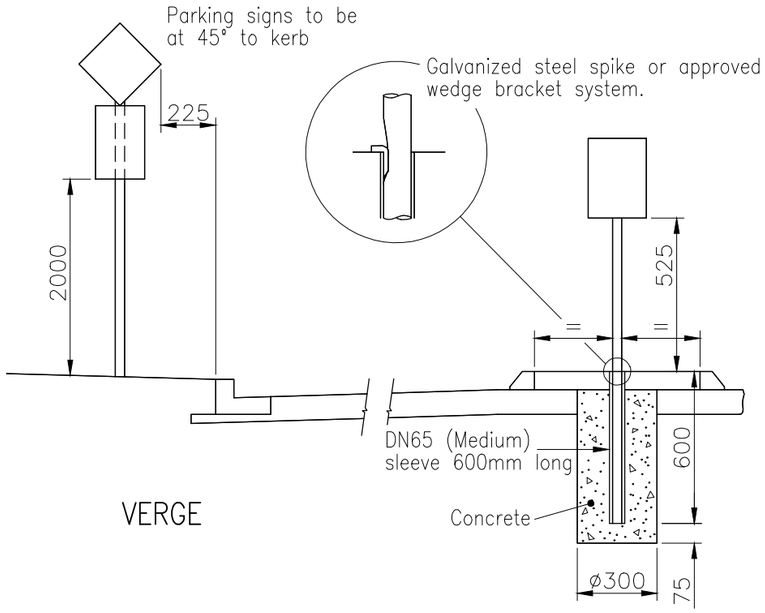
Job No.	CRC00285
Drawing No.	1701
Revision	A
Series No.	16 of 16

XREFS :- X_CRC_BSC_TITLE.dwg

Last Modified :- Oct 06, 2023 - 11:08am



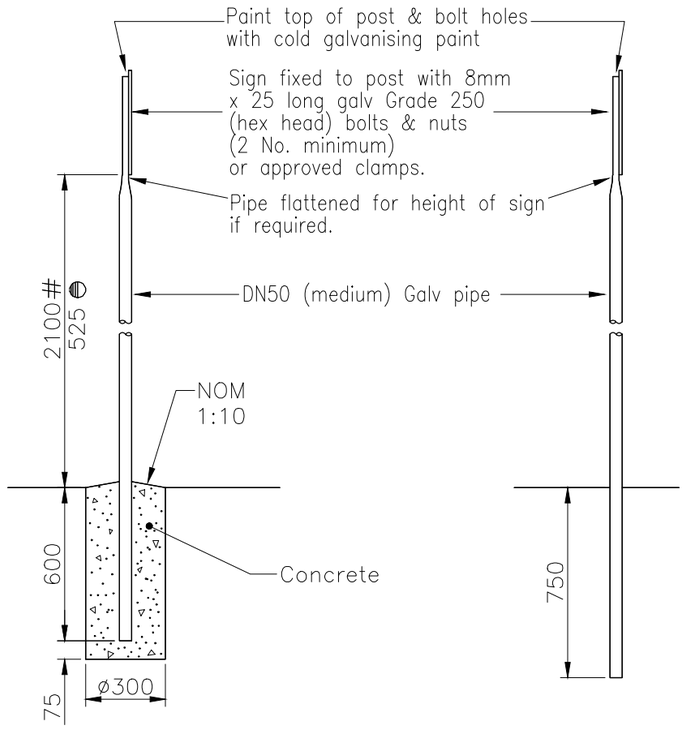
LOCATION OF SIGNS – RURAL ROADS



VERGE

MEDIAN

LOCATION OF SIGNS – STREETS



STREETS

RURAL ROADS

NOTES:

1. All signs to be reflectorised Class 1 to AS1743 unless noted otherwise.
2. Size & sign type has been included in the schedule and/or in the project drawings. Special standards are to be provided at large signs when indicated in the project drawings.
3. All signs are to be approved by the Superintendent prior to erection.
4. Where signs are to be erected in streets where footpaths are not constructed to permanent levels the Rural Roads type base shall be adopted.
5. Signs shall be out of aluminium or aluminium alloy not less than 2mm thick to AS 2848.
6. The DN65 sleeve and spike shall only be used on medians.
7. All pipes to be galvanised. Steel pipe to AS 1074. Galvanising to AS/NZS 4680.
8. Concrete N25 in accordance with AS 1379 and AS 3600.
9. Hexagonal head bolts to AS 1111.
   Nuts to AS 1112.
   Washers to AS 1237.
   Galvanizing to AS 1214.
10. All dimensions in millimetres.
11. Sleeve to be provided as directed by Council

LEGEND

\# on footpaths

⊛ As directed by the Superintendent

⊖ on medians

APPLICABILITY TABLE

Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes

REVISIONS		DATE
E	IRC ADDED	12/2016
D	GRC AND LSC ADDED	09/2014
C	MRC ADDED	04/2011
B	NOTE 11 ADDED	07/2010
A	POST AMALGAMATION REVIEW	01/2010

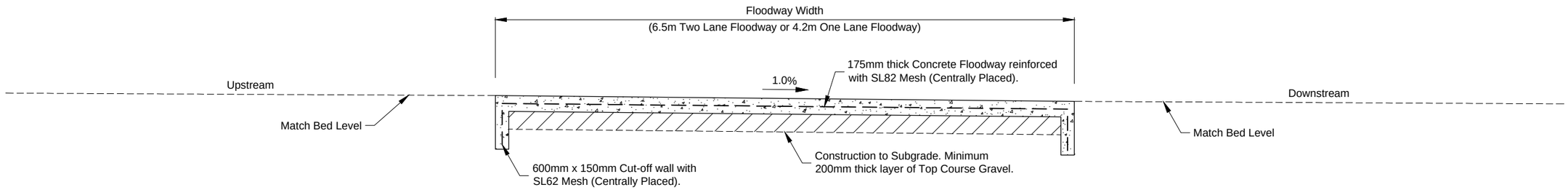
Capricorn Municipal Development Guidelines

Incorporating:

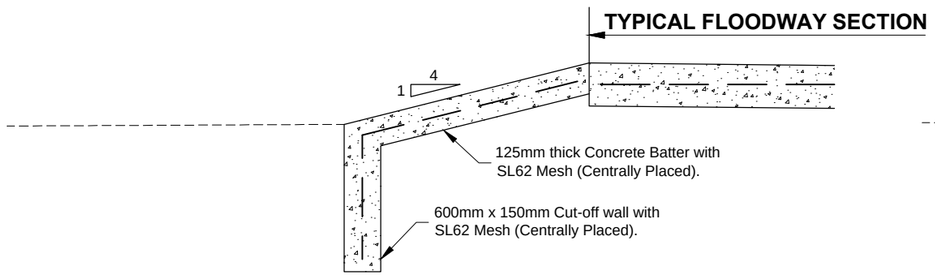
Banana Shire Council (BSC)
Central Highlands Regional Council (CHRC)
Gladstone Regional Council (GRC)
Isaac Regional Council (IRC)
Livingstone Shire Council (LSC)
Maranoa Regional Council (MRC)
Rockhampton Regional Council (RRC)

SIGN LOCATION AND INSTALLATION DETAILS

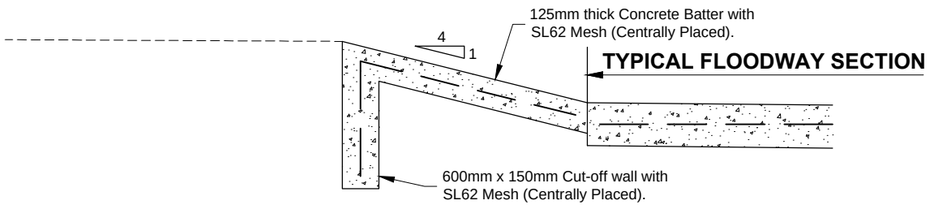
ROADS
STANDARD DRAWING
CMDG-R-081
REV. A B C D E



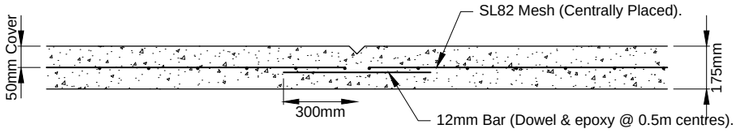
TYPICAL SECTION
Scale 1: 50



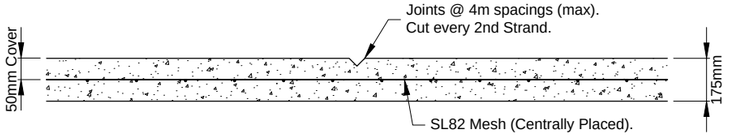
EDGE PROTECTION - FILL SITUATION
Scale 1: 25



EDGE PROTECTION - CUT SITUATION
Scale 1: 25



LONGITUDINAL CONSTRUCTION JOINT
Scale 1: 25



TRANSVERSE JOINT
Scale 1: 25

NOTES:
1. **Provide Transverse joints at 4.0m spacings.**
2. **Provide longitudinal joints at centreline for two-lane floodway.**
3. **Provide longitudinal joints at shoulder where edge-protection is required.**
4. **Concrete strength to be 32 MPa.**
5. **Lap Reinforcement fabric 250mm.**
6. **Floodway signage to be installed in accordance with MUTCD (Part 2, Figure 4.27).**
7. **Delineation to be installed on floodway shoulder at maximum 5m centres and spaced evenly to suit floodway length. Delineation to be installed at centreline of two-lane floodway.**
8. **Floodway depth markers to be installed at lowest point on floodway aligned to downstream side.**

WATERWAY BARRIER WORKS - COMPLIANCE NOTES:
1. **Floodway site to be checked on Queensland Government Spatial Data Layer "*Queensland Waterways for Waterway Barrier Works*" to determine if assessable or self-assessable codes apply.**
2. **The lowest level of the floodway must be installed at the level of lowest point of the natural stream bed (Within the footprint of the crossing.)**
3. **There must be a height difference of at least 100mm from the lowest point of the crossing to the edges of the low flow section of the crossing.**
4. **The level of the remainder of the crossing must be no higher than the lowest point of the natural stream bed outside of the low flow channel.**
5. **Refer to *Code for self-assessable development, Minor waterway barrier works, Part 4: Bed level crossings* for more information and alternative treatments.**

APPLICABILITY TABLE

Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	No	Yes	Yes	Yes
Applicable DWG	CMDG-R-094A						

REVISIONS		DATE
B	IRC ADDED	12/2016
A	ORIGINAL ISSUE	04/2016

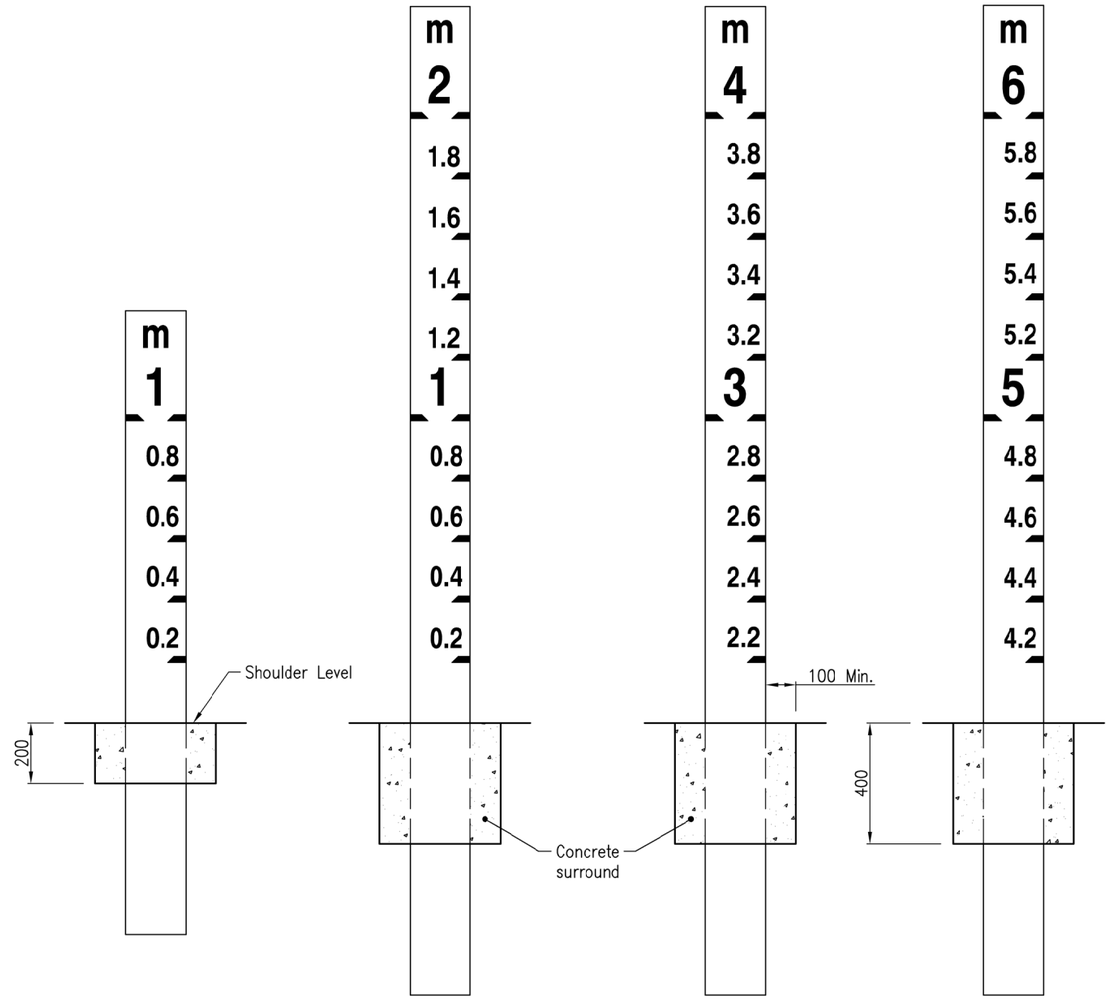
Capricorn Municipal Development Guidelines

Incorporating:

Banana Shire Council (BSC)
Central Highlands Regional Council (CHRC)
Gladstone Regional Council (GRC)
Isaac Regional Council (IRC)
Livingstone Shire Council (LSC)
Maranoa Regional Council (MRC)
Rockhampton Regional Council (RRC)

FLOODWAY – BED LEVEL CROSSING

ROADS
STANDARD DRAWING
CMDG-R-094
REV. A B



G9-22-1A G9-22-1B G9-22-2 G9-22-3

NOTES:

FLOOD DEPTH INDICATORS:

1. To be located at the chainages specified or as directed by the Superintendent.
2. Zero mark to be set at the lowest pavement level on the section of road subject to flooding.
3. G9-22-2 and G9-22-3 indicators to be erected on progressively higher ground where flood depths are in excess of 1.5m or 3.5m respectively.
4. To conform with the details as shown in the MUTCD.

CONCRETE SURROUND:

5. To be class N20/20 and provide 100mm minimum cover all round.
6. Dimensions are in millimetres unless shown otherwise.

ASSOCIATED DEPARTMENTAL DOCUMENTS:

Standard Drawings
Specifications
Manual of Uniform Traffic Control Devices Part 2 (MUTCD)

REFERENCED DOCUMENTS:

Departmental Specifcctions:
MRTS14 Road Furniture
MRTS70 Concrete

Australian Standards:
AS1743 Road Signs – Specifications

Department of Transport and Main Roads

FLOOD DEPTH INDICATORS

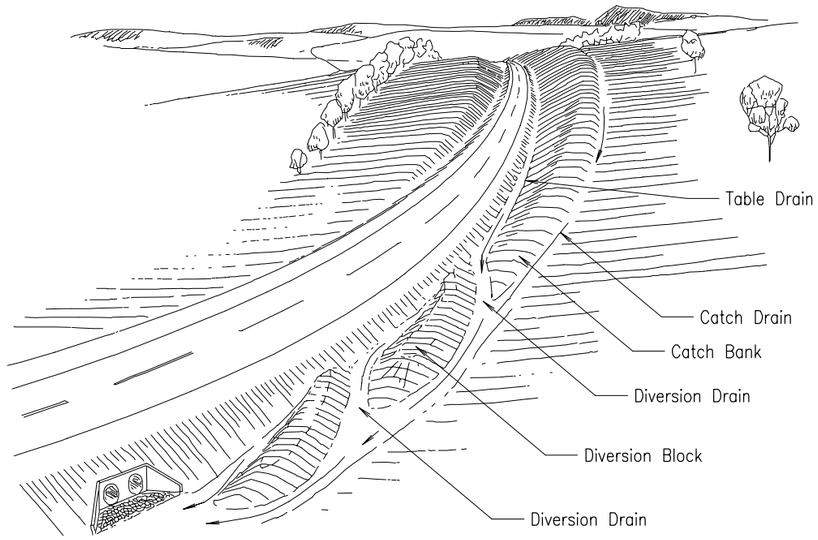
INSTALLATION

Queensland Government

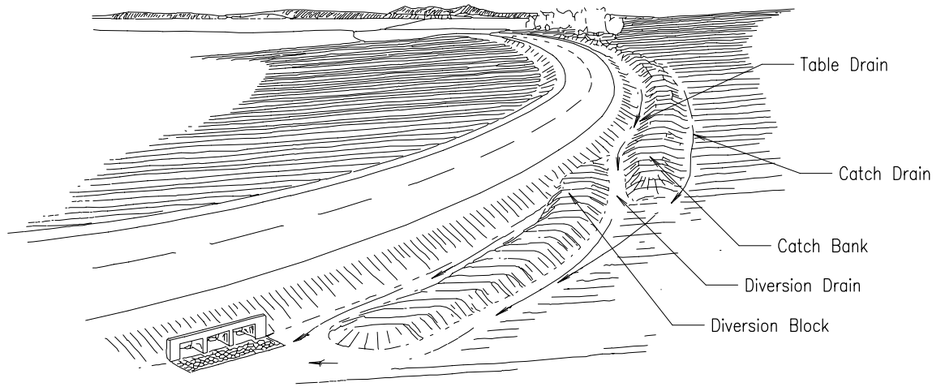
A3
Not to Scale

Standard Drawing No
1170
Date 11/2022

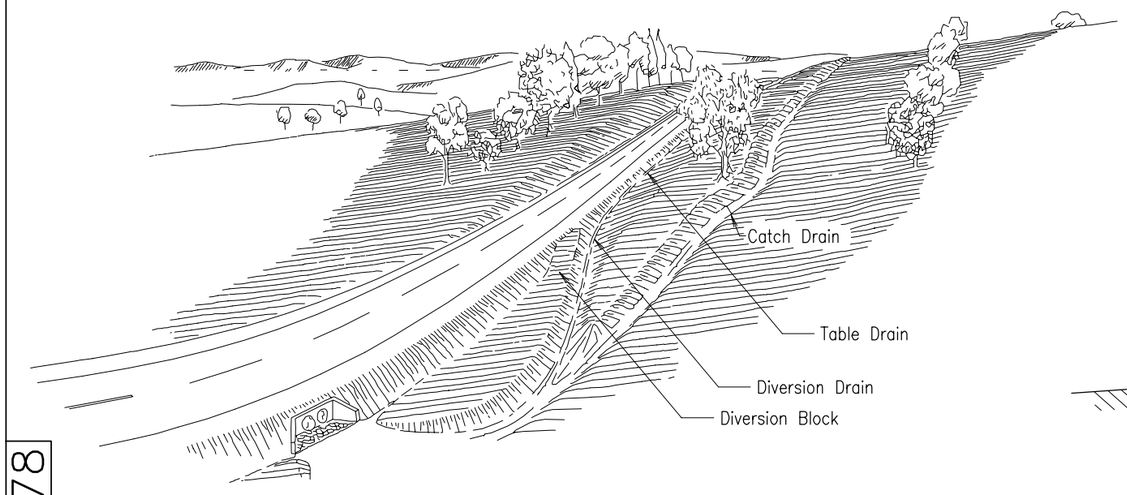
A B C D



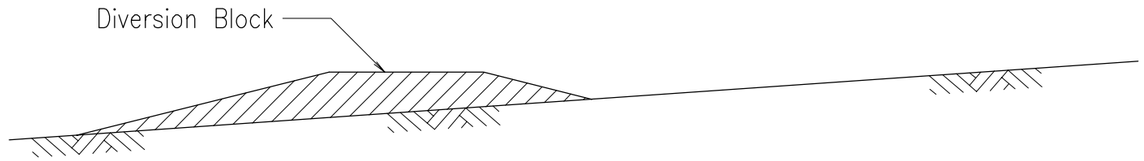
CATCH BANK ON
EARTHWORKS SECTIONS



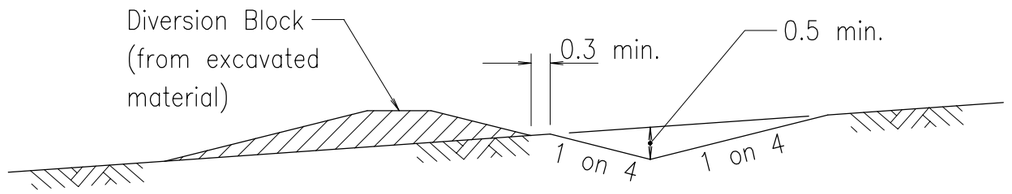
CATCH BANK ON
LOW FORMATION SECTIONS



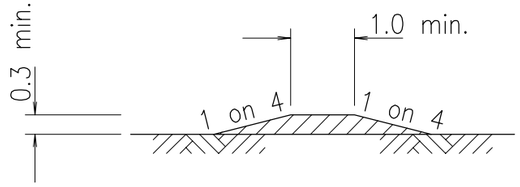
CATCH DRAINS ON
EARTHWORKS SECTIONS



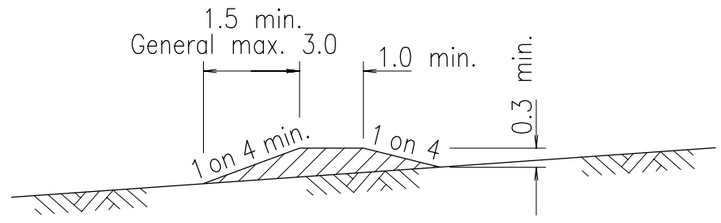
DIVERSION DRAIN IN ERODIBLE SOILS



DIVERSION DRAIN IN NON-ERODIBLE SOILS



DIVERSION BLOCK



CATCH BANK

NOTES:

1. DIVERSION DRAINS, unless shown otherwise in the scheme documents, shall be constructed at culverts and at intervals not exceeding 120m on grades up to 2%, 60m on grades 2% to 4%, 30m on grades 4% to 8% and 15m on grades over 8% (except in cuttings). They shall **have a cross sectional area at least equal to the cross sectional area of the table drains carrying water to them.**
2. ERODIBLE SOILS have sodic and/or dispersive characteristics. Soil testing is required prior to design.
3. DRAINAGE INTO PRIVATE PROPERTIES, with the cooperation of property owners, is to be discharged into contour banks and behind diversion banks to dams where possible.
4. DIMENSIONS are in metres unless shown otherwise.

ASSOCIATED DOCUMENTS:

Department of Main Roads Manual of Standard Drawings Roads
Department of Main Roads Manual of Standard Specifications Roads
Department of Main Roads Road Drainage Design Manual

REFERENCED DOCUMENTS:

Standard Drawings:

1045 Revegetation Treatment of Cut Batters

Standard Specifications:

General Earthworks

1178

DIVERSION OF WATER	Queensland Government Department of Main Roads	
DIVERSION OF WATER FROM ROADWAY AND TABLE DRAINS	Size A3	Drawing No 1178
	Scales as shown	Date 10/03
		A B C D E

quality people client focused solution driven

Cracow Road – Site 1

Cabbagetree Creek Floodway

Safety in Design

Client: Banana Shire Council

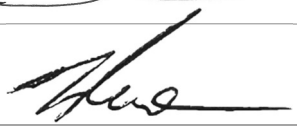
22/08/2023

Document Control

Document History

Date	Version	Name	Position	Action (Review/endorse/approve)
26/05/2023	0.1	Bryan Doherty	Senior Designer (Civil)	Draft for internal review
22/08/2023	0.2	Bryan Doherty	Senior Designer (Civil)	Final

Certification

Date	Name	Position	Signature
22/08/2023	B. Doherty	Senior Designer	
22/08/2023	T. Penrose	RPEQ	

Contents

1. Purpose of this Document

The purpose of this document is to identify and control project specific risks, where possible, in the civil design phase to ensure the safety of constructors, maintenance providers and end users. All risks identified as part of the design are documented in this report and provided for appropriate risk management in future phases. Risks unable to be closed out in the design phase are be documented in the report and communicated to the Client, for action in the construction and or later phases. This document has been produced to provide support to the design undertaken for Cracow Road, Cabbagetree Creek Floodway.

2. Project Scope and Objectives

Scope of works for this project include,

- Pavement widening and overlay and stabilized floodway approaches.
- Geometric improvements.
- Floodway reconstruction.
- Signage and road edge guideposts.

3. Safe Design

Safe design begins from the outset or planning phase of a project and is further refined in the concept and development phases. Safe design covers the:

- Design of a project or a component of a project and its intended purpose or future use
- Materials being used
- Possible methods of construction, maintenance, and operation of the product, and
- Legislation, codes of practice and standards that need to be complied with.

Safe design is a collaborative effort between all parties involved throughout the lifecycle of the project and where possible should eliminate or minimize the risk of project lifecycle occupational health and safety hazards as early as practical. It also encompasses the management and documentation of remaining risks so all parties involved can understand and be aware of all risks identified in the design phase of the project lifecycle.

Safe design consists of a balance between cost, functionality, and aesthetics; without compromise to the health and safety of those who will construct, use, and maintain the product and community expectations. While not all risks can be eliminated or it be cost effective to remove all risks, Safe Design principles in the planning phase should aim to:

- Prevent injury and disease
- Improve useability of products, systems, and facilities
- Improve productivity in all phases
- Reduce operation costs
- Better predict and manage production and operational costs over the lifecycle of a product
- Comply with legislation, and
- Incorporate innovative design which fosters safer design practices and demands new thinking.

4. Duty of Care/Disclaimer

This document is not intended to be a standalone document, it should be read in conjunction with the *Work Health and Safety Act 2011* and the *Work Health and Safety Regulation 2011*. The Act and Regulation applies to all phases of a project lifecycle from concept, through design, construction, maintenance, and decommissioning and provides that all risks to health and safety be eliminated, so far as is practical or minimised so far as is reasonably practical where they cannot be eliminated. To properly manage exposure to a risk, a person must:

- Identify hazards
- Assess risks that may result because of the hazards
- Identify appropriate control measures to eliminate of minimise the level of risk
- Implement control measures, and
- Monitor and review the effectiveness of control measures.

To comply with the above, assumptions are made during the assessment as to what construction and maintenance practices may be adopted which may differ from actual methods adopted by those undertaking the works. Use of this document does not remove any obligation of any party involved, either during or after this document is published. A duty of care applies to all parties during subsequent phases and it is incumbent on those involved to further assess risks and hazards include:

- the client
- project managers
- constructor
- maintenance personnel
- users
- visitors
- demolishers, and
- disposers.

Further Safety advice, hazard identification, risk assessment or control measures may indicate other risks associated with the project that have not been identified in the document. Reference is made to the principle of what is considered 'reasonably practical' regarding the extent of Safe Design achievable by the designers.

Use of this document does not remove the obligation of the client, constructor end user or other parties during the lifecycle of the project.

Any party who has read this document and disagrees with the assessment or requires clarification of an item should contact the Project Designer at their earliest opportunity.

5. Risk Management

Table 1 – Methods of controlling risk in order of preference

Method	
Elimination	Remove the risk by modifying the design
Substitution	Remove or reduce the risk by modifying the design
Isolation	Physically separate the hazard
Engineered Control	Using *Design Safety* measure to reduce risks
Administration	Using formal process to reduce the risk
PPE	Ensure appropriate Personal Protective Equipment is used or worn.

The Risk Assessment Matrix is intended to assist our designers in:

- Fulfilling their obligations under the Work Health and Safety Act 2011.
- Achieving safe, economical and efficient constructions for our clients.
- Consulting and communicating with all parties involved in a project (designers, client, end-users, constructors etc.) to establish the hazards and risks identified during the design phase associated with the construction, operation, maintenance and decommissioning of a project.
- Consulting and communicating with all parties involved in a project on the controls that have or are required to mitigate these risks. This is not an exhaustive list and all parties should therefore undertake a thorough review of this document to satisfy themselves that it accurately reflects the intended purpose.
- Consulting and communicating to all parties the controls adopted to mitigate these risks and any residual risks that are considered present during construction, operation, maintenance and decommission that may need continual monitoring to achieve a safe working environment.

6. Appendix A – Safe Design Risk Register

Safety in Design Register

Cracow Road, Site 1, Cabbagetree Creek Floodway Upgrade

Hazards							Controls				Action		
				Raw Risk (no controls)				Residual Risk					
				Likelihood	Consequence			Likelihood	Consequence				
No.	Project Phase	Risk Description	Consequence Description	1. Very Unlikely 2. Unlikely 3. Possible 4. Likely 5. Almost Certain	A. Minor B. Major C. Severe D. Critical E. Catastrophic	Risk Rating	Mitigation Strategy / Control Measures	1. Very Unlikely 2. Unlikely 3. Possible 4. Likely 5. Almost Certain	A. Minor B. Major C. Severe D. Critical E. Catastrophic	Risk Rating	Responsibility	By When	Comments / Notes
1	Pre-Design	Insufficient/inaccurate data collection. (e.g. GIS, Traffic Data, LIDAR, Aerial photography)	Risk results in inadequate or substandard design that could lead to potential safety risk to travelling public, Constructors and maintenance workers.	4	D	Significant	Project is adequately scoped, discussed and documented during pre-detailed design phases to ensure data collection is appropriate. Detailed survey has been supplied for this project	1	C	Low	Designer/ Principal	Detailed Design	Residual risk with Principal
2	Pre-Design	Poor Scoping/Client brief on project requirements.	Risk results in inadequate design that could lead to potential safety risk. EDD, design exceptions, funding constraints.	4	D	Significant	Risks identified and accepted by Client. Mitigating treatments incorporated into design to the available funding.	2	B	Negligible	Designer/ Principal	Detailed Design	Residual risk with Principal Client decisions recorded within Design Decision Register.
1	Design	Errors and omissions in design.	Errors/omissions in design resulting in inadequate or substandard design that could lead to potential safety risk to travelling public. Constructor, maintenance – workers	3	E	Extreme	Design has been carried out in accordance with quality management procedures to avoid potential for errors in design. Design has been carried out in accordance with Australian Standards and quality management procedures in line with scope and deliverables to avoid potential for errors in design.	1	D	Moderate	Designer/ Principal	Detailed Design	Residual risk with Principal
2	Design	Design methodology poorly considers construction practices leading to potential safety risks for both construction workplace and the travelling public.	E.g. Traffic management, working near overhead power lines, lifting, trenching, site access, materials storage and handling (Asbetos identified within site), working close to travelling public due to corridor restrictions.	4	E	Extreme	Design incorporates learnings from previous projects and include recommendations from industry experts on appropriate site treatments in the design.	2	C	Low	Designer/ Principal	Detailed Design	Residual Risk transferred to Contractor.
3	Design	Project exceeds budget	Identified saftety issues will not be addressed leading to an unsafe environment for the travelling public.	3	D	Significant	BSC to prepare contingency plans to reduce project cost to within budget constraints.	2	D	Moderate	BSC	Detailed Design	Residual risk with Principal
4	Design	Hazards in designated clear zones and road corridor.	Poor Scoping of project requirements resulting in inadequate design that could lead to potential safety risk to travelling public, constructor, maintenance. Impact of errant vehicle resulting in injury or death.	3	E	Extreme	Risks identified and accepted by BSC. Mitigating treatments have been incorporated into the design. Hazard Treatment Evaluation undertaken in accordance with Austroads and the information available at the time of detailed design.	2	D	Moderate	Designer/ Principal	Detailed Design	Residual risk with Principal
5	Design	Inadequate treatment of private entrance or turnout design.	This could lead to potential safety risk to travelling public. SISD, ASD, angles, vertical clearance, appropriate layout, design vehicle.	3	D	Significant	Private entrances and turnouts to be designed in accordance with BSC standard drawing and incorporating validated road function, traffic volumes and usage. Key stakeholder consultation, EDD/Design Exceptions.	1	D	Moderate	Designer/ Principal	Detailed Design	Residual Risk with Principal
6	Design	Services not identified during design.	This could lead to the potential safety risk of constructors and/or closure of key services to the general public.	4	D	Significant	• Contact DBYD and other relevant authorities to identify existing services (DBYD received 17/02/23). •Locating Investigations carried during the development of the design returned no existing infrastructure is present on site. •Contractor to carry out field inspection and locating activities to confirm no existing infrstrcutre is present. • Contractor to complete service locations to verify existing infrastructure.	2	D	Moderate	Designer/ Principal	Detailed Design	Residual Risk with Principal and Contractor
1	Construction	Drainage during construction	Poor drainage during construction affecting pavements/traffic/etc	3	B	Low	Maintain flow paths during construction where practical. Make pumping equipment available if required.	2	A	Negligible	Contractor	Construction	Residual risk with Principal and contractor
2	Construction	Exposure to asbestos	Existing abandoned conduits/pits/culverts may be present which could be exposed during construction.	2	D	Moderate	Details of existing services/culverts where known have been provided. Contractor to undertake appropriate intestigations as required.	1	D	Moderate	Contractor	Construction	Residual risk with Principal and Contractor It is unknown if any asbestos infrastructure is located within the project limit.
3	Construction	Deep excavation of trenches	Trench collapse injuries	2	E	Significant	Depth of culverts to be minimised where possible. Contractor to employ appropriate temporary work measures.	1	E	Moderate	Contractor	Construction	Residual risk with Principal and contractor
4	Construction	Design changes made by Contractor or Administrator following design completion	Design changes do not meet safety requirements.	3	C	Moderate	Contractor / Administrator to advise the Designer or any proposed design changes. Follow RFI process.	1	C	Low	BSC	Construction	Residual risk with Principal and contractor
5	Construction	Working in vicinity of High Voltage Ergon power lines, both overhead and underground.	Death or serious injury	2	E	Significant	Contractor to identify all services and have construction procedures for working near HV services.	1	E	Moderate	Contractor	Construction	Constructors shall conduct their own DBYD and verify all utilities on site prior to commencing any roadworks.
6	Construction	The risk of traffic not being managed adequately.	Traffic chaos, delays and accidents caused by lack of controls.	2	E	Significant	Designer has nominated traffic volumes in design documentation. It is noted that the traffic volumes are low. Contractor to engage a suitably qualified traffic manager to implement traffic management controls considering road function; traffic volumes; constructability and road users.	1	E	Moderate	Contractor	Construction	Residual Risk with Principal and Contractor
7	Construction	Working on top of high and steep embankments	Injury due to personnel fall or overturning construction plant	3	E	Extreme	Consider construction methodology prior to implemenation.	2	D	Moderate	Contractor	Construction	Residual risk with Principal and contractor
8	Construction	Lighting levels during construction.	Inadequate lighting of conflict points during construction resulting in confusion/collisions	2	B	Negligible	Temporary standalone LED lighting, if required.	1	B	Negligible	BSC	Construction	Residual risk with Principal and contractor
9	Construction	Disruption / damage to existing services	Constructors may damage existing services during construction. Service may/may not have been shown on design plans.	3	D	Significant	Constructors to conduct dial before you dig and no work shall be carried out over utility or within 3m of services without prior notification to the appropriate service authorities. Contractor to complete service locations to verify no existing infrastructure is present. Appropriate demarcations and planning by contractor to highlight any locations where work activities are undertaking in the vicinity of existing services.	2	D	Moderate	Contractor	Construction	Constructors shall conduct their own DBYD and verify all utilities on site prior to commencing any roadworks or excavations.
10	Construction	Unexpected weather events resulting in potential injury to construction personnel and/or travelling public	Sudden weather events resulting in the need to evacuate the site.	4	D	Significant	Constructor to consider location, likely duration and characteristics of project to determine likelihood of event and consider project specific mitigation strategies via risk management.	3	D	Significant	Contractor	Construction	Residual Risk with Principal and Contractor
11	Construction	Unearthing unexpected soil types e.g. acid sulphate soil, sodic soils or contaminated soil from rail reserves. resulting in potential safety risk to construction personnel and general public.	This results in potential safety risk to construction personnel and general public.	3	D	Significant	• Design to consider location and likelihood of encountering specific soil type. • Site inspection and/or geotechnical investigation to confirm presence of soils requiring specific treatment. • Include comments in "notes to contract administrators" advising of potential for presence of hazardous materials. • Experienced construction staff that can recognise potential hazards	3	C	Moderate	Contractor	Construction	Residual Risk with Principal and Contractor
12	Construction	Incorrect or unsuitable surface treatment either temporary or permanent resulting in potential safety risk to the travelling public. e.g. line marking removal, appropriate seal design	This results in potential safety risk to construction personnel and general public.	3	D	Significant	Constructor to consider road function, traffic volumes, location and seasonal conditions to propose suitable surface treatment.	2	E	Significant	Contractor	Construction	Residual Risk with Principal and Contractor
1	Maintenance	Final product leads to potential safety issues with maintenance activities.	Personel cannot undertake maintainance activities safely due to the proposed design.	3	C	Moderate	Design to consider maintenance requirements including provision of safe environment to facilitate maintenance activities including safe ingress and egress and clear work area. E.g. batter slopes, under bridge inspections, gardens in medium strips, allowance for access tracks etc.	1	E	Moderate	BSC	Ongoing	Residual risk with Principal
2	Maintenance	Inadequate as constructed information.	Existing conditions not accurately reflected.	4	E	Extreme	Adequate handover to maintenance provider.	1	D	Moderate	BSC	Ongoing	Residual risk with Principal
1	Finalisation	Not applying all the appropriate standards.	This could result in an unsafe design.	3	D	Significant	Carry out appropriate design reviews and RPEQ approvals	1	D	Moderate	Designer	Ongoing	Residual risk with Principal