

FLOODWAY UPGRADE

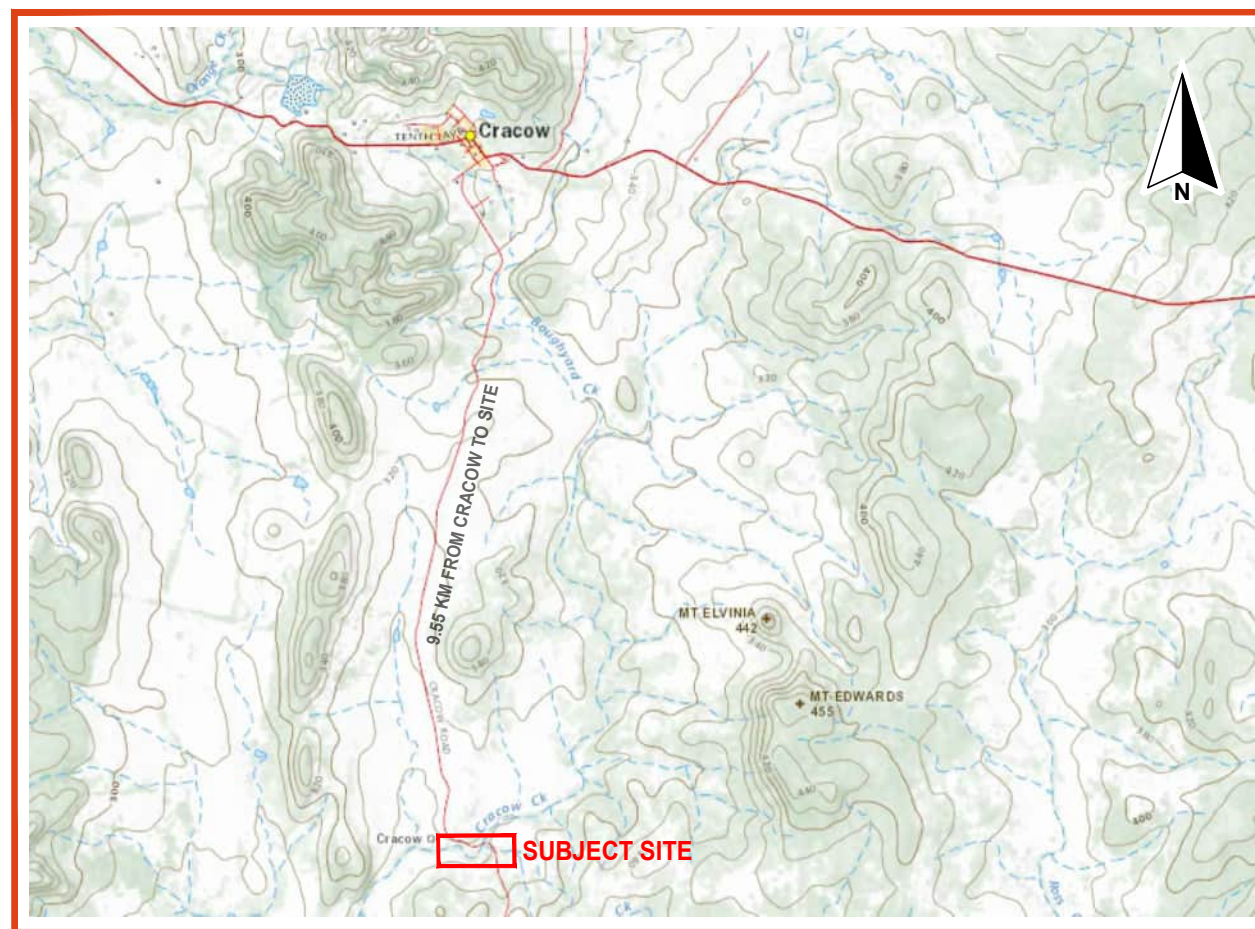
CRACOW ROAD, CHAINAGE 76950, CRACOW

BANANA SHIRE COUNCIL

D22.291

CIVIL DESIGN

PLEASE NOTE THAT THE CHAINAGES SHOWN ON THIS DRAWING ARE REVERSED COMPARED TO OTHER DRAWINGS IN THIS PACKAGE. THESE WILL BE AMENDED IN A SUBSEQUENT IFC PACKAGE. THE START CHAINAGE IS 76860 AND THE END CHAINAGE IS 77065. WHILST THE CHAINAGE NOTATIONS ARE WRONG, THE PROPOSED CROSS SECTIONS ARE CORRECT FOR THEIR LOCATION AND WILL NOT IMPACT THE TENDERING PROCESS.



LOCALITY PLAN

(Not To Scale)



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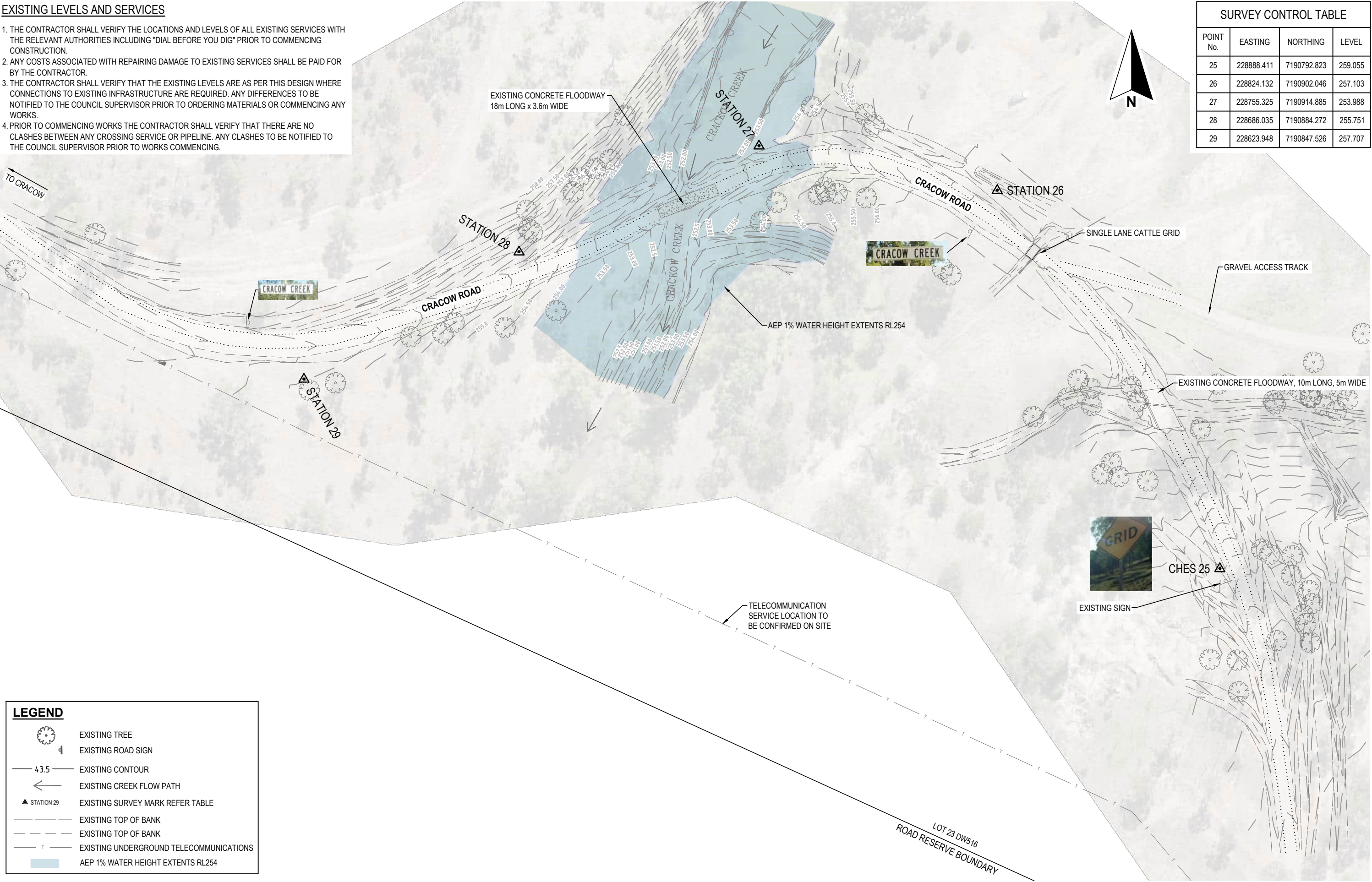
FOR INFORMATION

PENDING APPROVAL

EXISTING LEVELS AND SERVICES

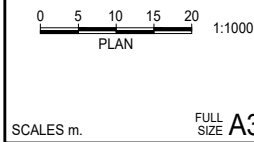
1. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND LEVELS OF ALL EXISTING SERVICES WITH THE RELEVANT AUTHORITIES INCLUDING "DIAL BEFORE YOU DIG" PRIOR TO COMMENCING CONSTRUCTION.
2. ANY COSTS ASSOCIATED WITH REPAIRING DAMAGE TO EXISTING SERVICES SHALL BE PAID FOR BY THE CONTRACTOR.
3. THE CONTRACTOR SHALL VERIFY THAT THE EXISTING LEVELS ARE AS PER THIS DESIGN WHERE CONNECTIONS TO EXISTING INFRASTRUCTURE ARE REQUIRED. ANY DIFFERENCES TO BE NOTIFIED TO THE COUNCIL SUPERVISOR PRIOR TO ORDERING MATERIALS OR COMMENCING ANY WORKS.
4. PRIOR TO COMMENCING WORKS THE CONTRACTOR SHALL VERIFY THAT THERE ARE NO CLASHES BETWEEN ANY CROSSING SERVICE OR PIPELINE. ANY CLASHES TO BE NOTIFIED TO THE COUNCIL SUPERVISOR PRIOR TO WORKS COMMENCING.

SURVEY CONTROL TABLE			
POINT No.	EASTING	NORTHING	LEVEL
25	228888.411	7190792.823	259.055
26	228824.132	7190902.046	257.103
27	228755.325	7190914.885	253.988
28	228686.035	7190884.272	255.751
29	228623.948	7190847.526	257.707



LEGEND

- EXISTING TREE
- EXISTING ROAD SIGN
- 43.5 EXISTING CONTOUR
- EXISTING CREEK FLOW PATH
- STATION 29 EXISTING SURVEY MARK REFER TABLE
- EXISTING TOP OF BANK
- EXISTING TOP OF BANK
- EXISTING UNDERGROUND TELECOMMUNICATIONS
- AEP 1% WATER HEIGHT EXTENTS RL254



FOR INFORMATION

PENDING APPROVAL

REV	REVISION DESCRIPTION	DATE
A	PRELIMINARY REVIEW WITH BSC & DAF	09/11/2022
B	2ND PRELIMINARY REVIEW WITH BSC	25/11/2022
1	CONSTRUCTION ISSUE	05/12/2022
2	SAFETY & FLOODWAY PLAN ADDED, DRAFTING REVISIONS	07/02/2023



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Designed	TAH
Checked	ACD
Approved	G J BROWN
RPEQ 7682	Sign

BANANA SHIRE COUNCIL
FLOODWAY UPGRADE
CRACOW ROAD, CHAINAGE 76950, CRACOW
EXISTING FEATURES
LAYOUT PLAN

Dwg No.	D22.291-01
CIVIL	
Revision	2

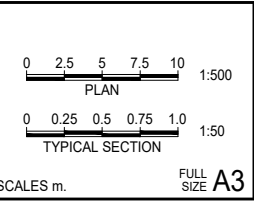
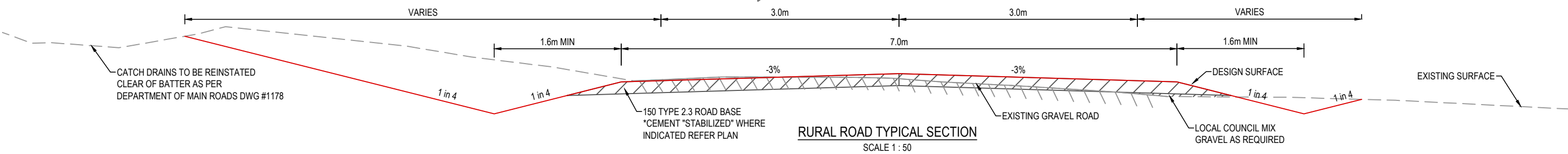
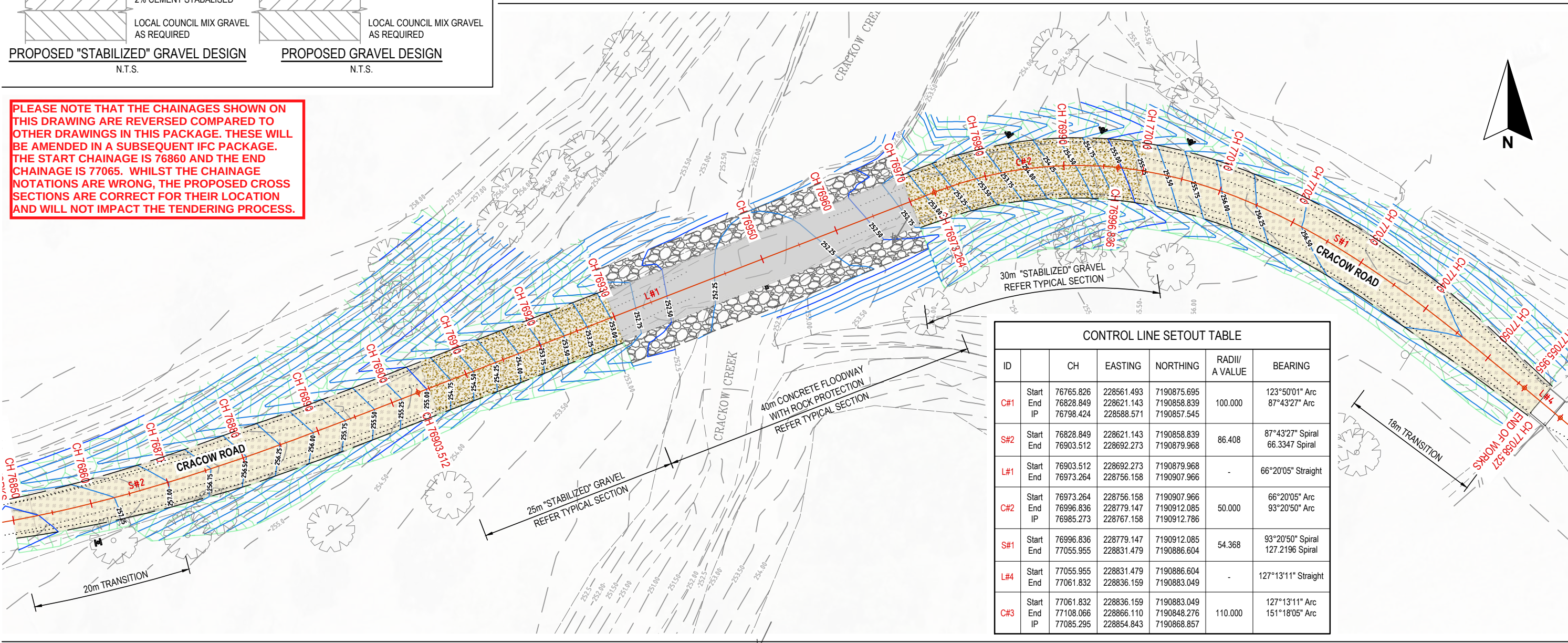
	EXISTING TREE		PROPOSED CONCRETE FLOODWAY
	EXISTING STREET SIGN		PROPOSED "STABILIZED" GRAVEL
	EXISTING CONTOUR		PROPOSED GRAVEL
	EXISTING CREEK FLOW PATH		PROPOSED EDGE OF "STABILIZED" GRAVEL
	EXISTING TOP OF BANK		PROPOSED SIGN REFER D22.291-07
	EXISTING TOP OF BANK		PROPOSED ROCK PROTECTION
	EXISTING TELECOMMUNICATIONS		EXTENT OF DISTURBED BANKS

PROPOSED "STABILIZED" GRAVEL DESIGN
N.T.S.

PROPOSED GRAVEL DESIGN
N.T.S.

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1.	CONTROL TESTING OF THE EARTHWORKS SHALL BE UNDERTAKEN IN ACCORDANCE WITH A.S.3798.	6.	SUPERVISION IN ACCORDANCE WITH AS 3798.	6.4.1.	EDGE OF CONSTRUCTED PAVEMENT -50mm TO 300mm
2.	ROAD EMBANKMENTS SHALL ACHIEVE THE FOLLOWING MINIMUM STANDARDS:	6.1.	THE LIMITS AND TOLERANCES APPLICABLE INCLUDE:	6.4.2.	AVERAGE WIDTH DETERMINED FROM 3 RANDOM SITES OVER ANY 200mm ROAD LENGTH, OR PART THEREOF, SHALL NOT BE LESS THAN THE SPECIFIED WIDTH.
2.1.	GREATER THAN OR EQUAL TO 0.3M BELOW SUBGRADE: 95% M.D.D.R STANDARD	6.1.1.	STOCKPILE SITES:	6.5.	SURFACE LEVEL:
2.2.	LESS THAN 0.3M BELOW PAVEMENT SUBGRADE: 98% M.D.D.R STANDARD	6.1.1.1.	RELATIVE COMPACTION >95%,	6.5.1.	SUBBASE LEVELS <±10mm FROM DESIGN LEVEL
2.3.	NON COHESIVE MATERIAL: MATERIAL SHALL ACHIEVE 80% M.D.D.R STANDARD.	6.1.2.	HEIGHT <3.0m,	6.5.2.	BASE LEVELS <±10mm FROM DESIGN LEVEL
3.	FIELD DENSITY TESTS SHALL BE TAKEN AT THE FOLLOWING MINIMUM FREQUENCIES:	6.1.3.	BATTER < 1:1.5 AND >1:3	6.5.3.	BASE LEVELS ADJACENT TO KERB AND GUTTER <±5mm FROM HE LIP LEVELS OF ADJACENT GUTTERS MINUS DESIGN THICKNESS OF WEARING SURFACE
3.1.	SUBGRADE FILL AND ROAD PAVEMENT: 1 TEST/200CU.M OR 1 TEST/200MM THICKNESS/1000SQ.METRES (WHICHEVER IS GREATER)	6.2.	SPREADING PAVEMENT MATERIALS: COMPACTED LAYER THICKNESS >100mm AND <200mm	6.5.4.	SHAPE DEVIATION FROM A 3.0m STRAIGHT EDGE ON BASE SURFACE IMMEDIATELY PRIOR TO SEALING SHALL BE LESS THAN 12mm.
4.	ROAD PAVEMENTS SHALL BE PLACED AND COMPACTED TO ACHIEVE A M.D.D.R OF 100% STANDARD.	6.3.	COMPACTION ACCEPTANCE: RELATIVE COMPACTION >100% (STANDARD COMPACTION EFFORT)		
5.	EARTHWORKS GREATER THAN 0.4m DEPTH TO BE CONTROL LEVEL 1	6.4.	WIDTH OF PAVEMENT:		



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2	SAFETY & FLOODWAY PLAN ADDED, DRAFTING REVISIONS	07/02/2023

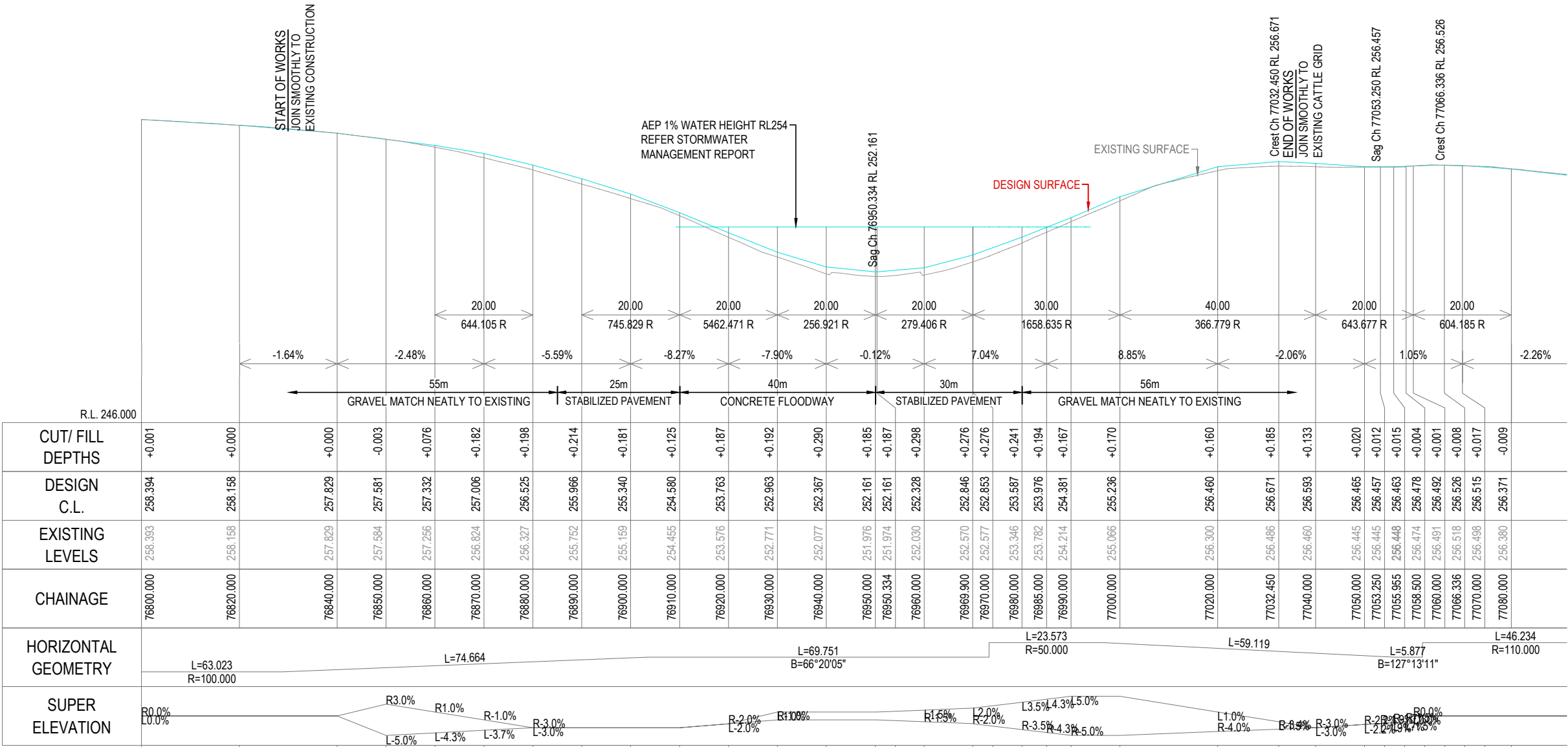
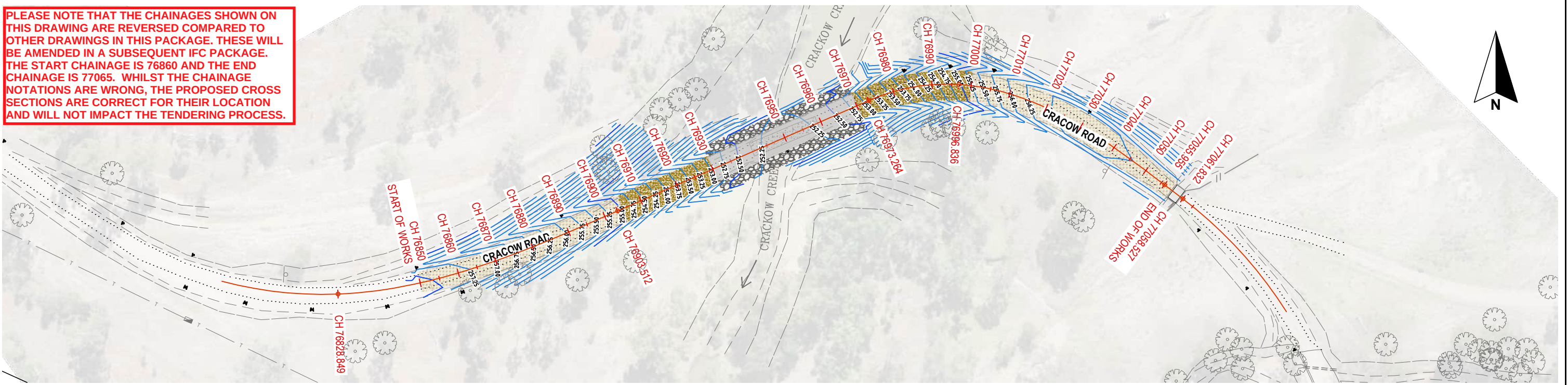


	Drafted	CZM
	Designed	TAH
	Checked	ACD
	Approved	G J BROWN
u	RPEQ 7682	Sign 

BANANA SHIRE COUNCIL
FLOODWAY UPGRADE
CRACOW ROAD, CHAINAGE 76950, CRACOW
PROPOSED WORKS
FLOODWAY LAYOUT PLAN & DETAILS

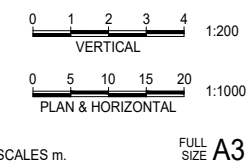
Dwg No.	D22.291-03
	CIVIL
Revision	2

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NOTE :
REFER SURVEY CONTROL SETOUT SHEET -01

LEGEND	
	EXISTING TREE
	EXISTING STREET SIGN
	EXISTING CREEK FLOW PATH
	EXISTING TOP OF BANK
	EXISTING TOP OF BANK
	EXISTING TELECOMMUNICATIONS
	12.0 PROPOSED CONTOUR
	PROPOSED CONCRETE FLOODWAY
	PROPOSED "STABILIZED" GRAVEL
	PROPOSED GRAVEL
	PROPOSED EDGE OF "STABILIZED" GRAVEL
	PROPOSED SIGN REFER D22.291-07
	PROPOSED ROCK PROTECTION



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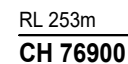
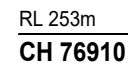
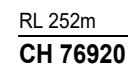
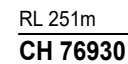
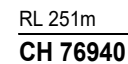
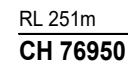
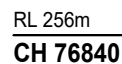
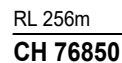
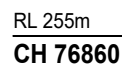
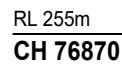
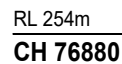
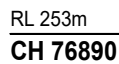
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Designed	TAH
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BANANA SHIRE COUNCIL
FLOODWAY UPGRADE
CRACOW ROAD, CHAINAGE 76950, CRACOW
LONGITUDINAL SECTION
WORKING PLAN AND SETOUT

Dwg No.	D22.291-04
CIVIL	
Revision	2

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PENDING APPROVAL



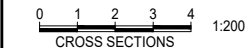
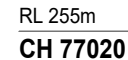
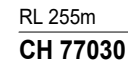
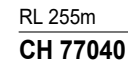
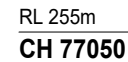
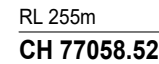
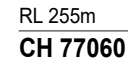
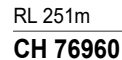
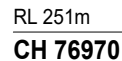
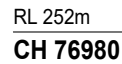
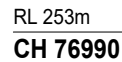
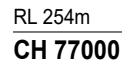
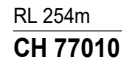
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BANANA SHIRE COUNCIL
FLOODWAY UPGRADE
CRACOW ROAD, CHAINAGE 76950, CRACOW
CROSS SECTIONS
SHEET 1 OF 2

Dwg No.	D22.291-05
	CIVIL
Revision	2

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FLOODWAY UPGRADE
CRACOW ROAD, CHAINAGE 76950, CRACOW
CROSS SECTIONS
SHEET 2 OF 2

Dwg No.	D22.291-06
	CIVIL
Revision	2

RL 52.5

EARTHWORKS LEVELS

EXISTING TREE

EXISTING STREET SIGN

43.5

EXISTING CONTOUR

EXISTING CREEK FLOW PATH

EXISTING TOP OF BANK

EXISTING TOP OF BANK

PROPOSED SIGN

REFER D22.291-10

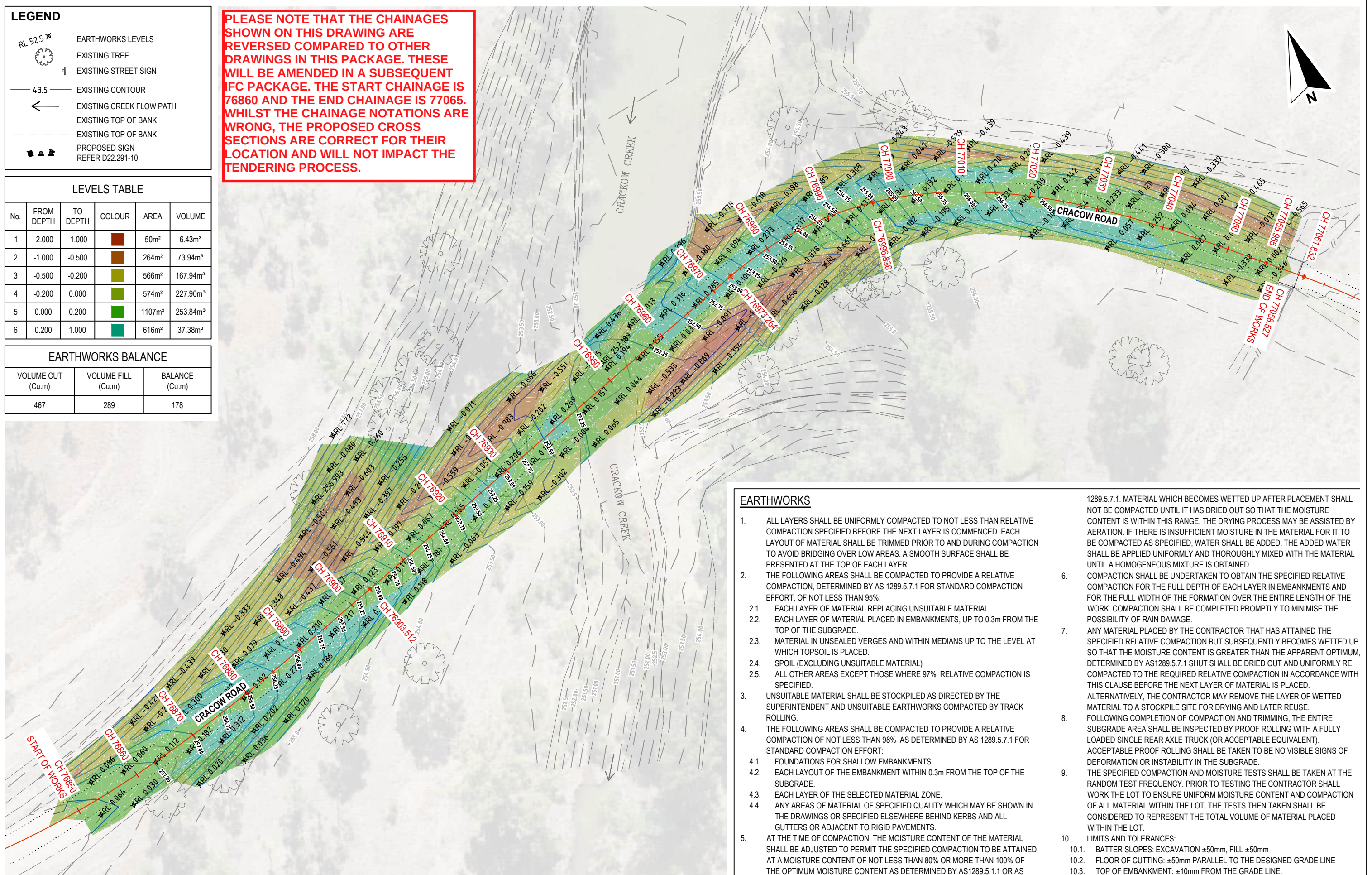
LEVELS TABLE

No.	FROM DEPTH	TO DEPTH	COLOUR	AREA	VOLUME
1	-2.000	-1.000		50m²	6.43m³
2	-1.000	-0.500		264m²	73.94m³
3	-0.500	-0.200		566m²	167.94m³
4	-0.200	0.000		574m²	227.90m³
5	0.000	0.200		1107m²	253.84m³
6	0.200	1.000		616m²	37.38m³

EARTHWORKS BALANCE

VOLUME CUT (Cu.m)	VOLUME FILL (Cu.m)	BALANCE (Cu.m)
467	289	178

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EARTHWORKS

1.

ALL LAYERS SHALL BE UNIFORMLY COMPACTED TO NOT LESS THAN RELATIVE COMPACTION SPECIFIED BEFORE THE NEXT LAYER IS COMMENCED. EACH LAYOUT OF MATERIAL SHALL BE TRIMMED PRIOR TO AND DURING COMPACTION TO AVOID BRIDGING OVER LOW AREAS. A SMOOTH SURFACE SHALL BE PRESENTED AT THE TOP OF EACH LAYER.
2.

THE FOLLOWING AREAS SHALL BE COMPACTED TO PROVIDE A RELATIVE COMPACTION, DETERMINED BY AS 1289.5.7.1 FOR STANDARD COMPACTION EFFORT, OF NOT LESS THAN 95%:

2.1.

EACH LAYER OF MATERIAL REPLACING UNSUITABLE MATERIAL.

2.2.

EACH LAYER OF MATERIAL PLACED IN EMBANKMENTS, UP TO 0.3m FROM THE TOP OF THE SUBGRADE.

2.3.

MATERIAL IN UNSEALED VERGES AND WITHIN MEDIANS UP TO THE LEVEL AT WHICH TOPSOIL IS PLACED.

2.4.

SPOIL (EXCLUDING UNSUITABLE MATERIAL)

2.5.

ALL OTHER AREAS EXCEPT THOSE WHERE 97% RELATIVE COMPACTION IS SPECIFIED.
3.

UNSUITABLE MATERIAL SHALL BE STOCKPILED AS DIRECTED BY THE SUPERINTENDENT AND UNSUITABLE EARTHWORKS COMPACTED BY TRACK ROLLING.
4.

THE FOLLOWING AREAS SHALL BE COMPACTED TO PROVIDE A RELATIVE COMPACTION OF NOT LESS THAN 98% AS DETERMINED BY AS 1289.5.7.1 FOR STANDARD COMPACTION EFFORT:

4.1.

FOUNDATIONS FOR SHALLOW EMBANKMENTS.

4.2.

EACH LAYOUT OF THE EMBANKMENT WITHIN 0.3m FROM THE TOP OF THE SUBGRADE.

4.3.

EACH LAYER OF THE SELECTED MATERIAL ZONE.

4.4.

ANY AREAS OF MATERIAL OF SPECIFIED QUALITY WHICH MAY BE SHOWN IN THE DRAWINGS OR SPECIFIED ELSEWHERE BEHIND KERBS AND ALL GUTTERS OR ADJACENT TO RIGID PAVEMENTS.
5.

AT THE TIME OF COMPACTION, THE MOISTURE CONTENT OF THE MATERIAL SHALL BE ADJUSTED TO PERMIT THE SPECIFIED COMPACTION TO BE ATTAINED AT A MOISTURE CONTENT OF NOT LESS THAN 80% OR MORE THAN 100% OF THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY AS1289.5.1.1 OR AS
6.

COMPACTION SHALL BE UNDERTAKEN TO OBTAIN THE SPECIFIED RELATIVE COMPACTION FOR THE FULL DEPTH OF EACH LAYER IN EMBANKMENTS AND FOR THE FULL WIDTH OF THE FORMATION OVER THE ENTIRE LENGTH OF THE WORK. COMPACTION SHALL BE COMPLETED PROMPTLY TO MINIMISE THE POSSIBILITY OF RAIN DAMAGE.
7.

ANY MATERIAL PLACED BY THE CONTRACTOR THAT HAS ATTAINED THE SPECIFIED RELATIVE COMPACTION BUT SUBSEQUENTLY BECOMES WETTED UP SO THAT THE MOISTURE CONTENT IS GREATER THAN THE APPARENT OPTIMUM, DETERMINED BY AS1289.5.7.1 SHUT SHALL BE DRIED OUT AND UNIFORMLY RE COMPACTED TO THE REQUIRED RELATIVE COMPACTION IN ACCORDANCE WITH THIS CLAUSE BEFORE THE NEXT LAYER OF MATERIAL IS PLACED. ALTERNATIVELY, THE CONTRACTOR MAY REMOVE THE LAYER OF WETTED MATERIAL TO A STOCKPILE SITE FOR DRYING AND LATER REUSE.
8.

FOLLOWING COMPLETION OF COMPACTION AND TRIMMING, THE ENTIRE SUBGRADE AREA SHALL BE INSPECTED BY PROOF ROLLING WITH A FULLY LOADED SINGLE REAR AXLE TRUCK (OR ACCEPTABLE EQUIVALENT). ACCEPTABLE PROOF ROLLING SHALL BE TAKEN TO BE NO VISIBLE SIGNS OF DEFORMATION OR INSTABILITY IN THE SUBGRADE.
9.

THE SPECIFIED COMPACTION AND MOISTURE TESTS SHALL BE TAKEN AT THE RANDOM TEST FREQUENCY. PRIOR TO TESTING THE CONTRACTOR SHALL WORK THE LOT TO ENSURE UNIFORM MOISTURE CONTENT AND COMPACTION OF ALL MATERIAL WITHIN THE LOT. THE TESTS THEN TAKEN SHALL BE CONSIDERED TO REPRESENT THE TOTAL VOLUME OF MATERIAL PLACED WITHIN THE LOT.
10.

LIMITS AND TOLERANCES:

10.1.

BATTER SLOPES: EXCAVATION ±50mm, FILL ±50mm

10.2.

FLOOR OF CUTTING: ±50mm PARALLEL TO THE DESIGNED GRADE LINE

10.3.

TOP OF EMBANKMENT: ±10mm FROM THE GRADE LINE.

0 2.5 5 7.5 10

1:500

PLAN

FOR INFORMATION

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2	SAFETY & FLOODWAY PLAN ADDED, DRAFTING REVISIONS	07/02/2023

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Drafted

Designed

Checked

Approved

RPEQ 7682

CZM

TAH

ACD

G J BROWN

Sign

BANANA SHIRE COUNCIL

FLOODWAY UPGRADE

CRACOW ROAD, CHAINAGE 76950, CRACOW

EARTHWORKS

CUT & FILL PLAN AND TABLE

Dwg No.

D22.291-07

CIVIL

Revision

2

C:\OneDrive - DILEIGH CONSULTING ENGINEERS PTY LTD\Data\2022\22.291_BSC Cracow Rd 76950 FloodwayC Dwg2. IFCRev 2\D22.291.dwg, 7, 22/02/2023 4:26:19 PM, adam, ISO full bleed A3 (420.00 x 297.00 MM), 1:1

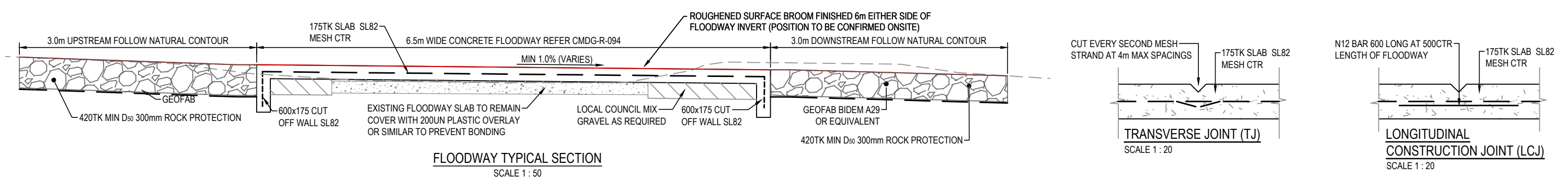
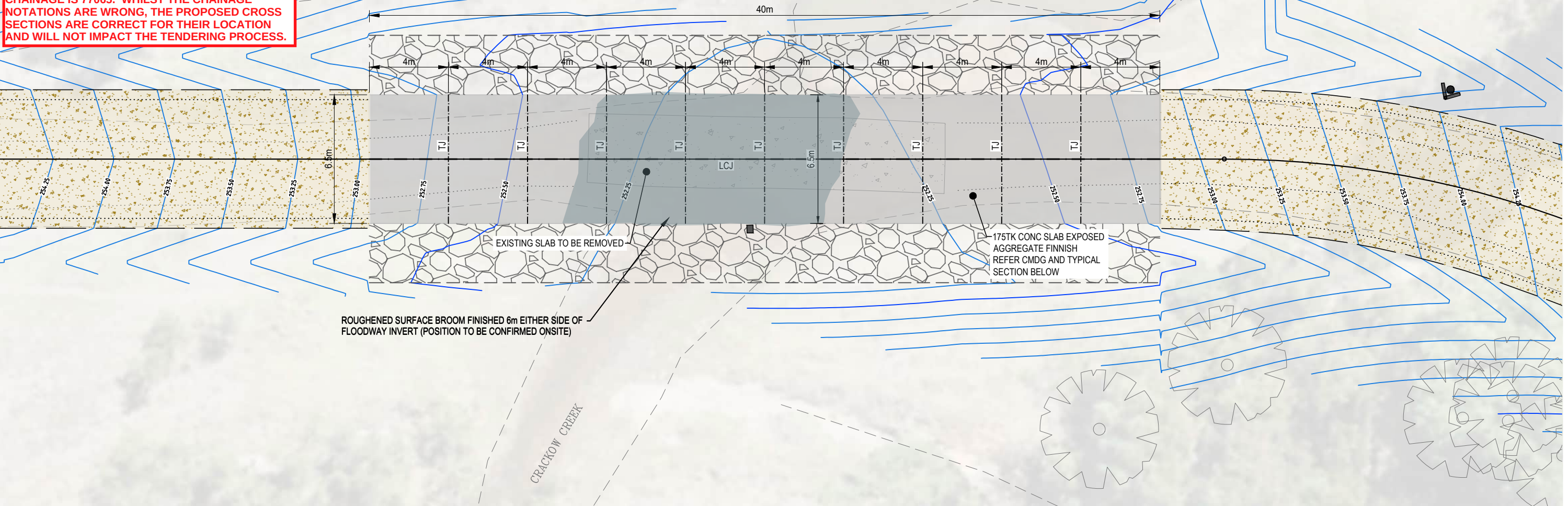
CONCRETE

1. PATH CONCRETE TO BE 32MPa, 100mm MINIMUM THICKNESS, BROOM FINISHED, FIBRE REINFORCED.
2. FIBRE REINFORCED CONCRETE TO USE CERTIFIED FIBRE MIX IN ACCORDANCE WITH TMR SPECIFICATION MRTS273 AND IN ACCORDANCE WITH AS 1379 AND AS 3600.
3. SPACING OF SAWN JOINTS AND EXPANSION JOINTS TO AS PER CMDG-R-058. EXPANSION JOINT SYSTEM FOR FBRE REINFORCED CONCRETE TO BE 'DANLEY PAVEX EXPANDA' SYSTEM OR APPROVED EQUIVALENT.
4. WHERE NEW CONCRETE PATHS AND KERB ARE ADJOINING (CENTENARY PARK) INSTALL 'ABLEFLEX' EXPANSION JOINT OR APPROVED EQUIVALENT AT INTERFACE (I.E. NOT DOWLED).
5. FOR PROPRIETARY JOINT SYSTEMS (E.G. 'DANLEY PAVEX EXPANDA', 'ABLEFLEX') REFER TO MANUFACTURER'S TECHNICAL GUIDELINES AND FOLLOW RECOMMENDED INSTALLATION PROCEEDURES.
6. PATHWAY CONNECTION TO EXISTING PATHS AND DRIVEWAYS TO BE DOWLED AS PER CMDG-R-058.
7. HYDRANTS AND VALVES INTERSECTING WITH PATHS TO BE RAISED TO NEW SHARED PATH FINISHED LEVEL UNLESS OTHERWISE DIRECTED BY DRAWINGS. NEW HYDRANT, VALVE SURROUNDS TO BE INSTALLED IN ACCORDANCE WITH CMDG-W-060.
8. CONCRETE PATH DESIGNED IN ACCORDANCE WITH CMDG-R-051 AND AS 1428.

LEGEND

- EXISTING TREE
- EXISTING STREET SIGN
- EXISTING CREEK FLOW PATH
- 12.0 PROPOSED CONTOUR
- PROPOSED CONCRETE FLOODWAY
- PROPOSED "STABILIZED" GRAVEL
- PROPOSED SIGN REFER D22.291-07
- PROPOSED ROCK PROTECTION

PLEASE NOTE THAT THE CHAINAGES SHOWN ON THIS DRAWING ARE REVERSED COMPARED TO OTHER DRAWINGS IN THIS PACKAGE. THESE WILL BE AMENDED IN A SUBSEQUENT IFC PACKAGE. THE START CHAINAGE IS 76860 AND THE END CHAINAGE IS 77065. WHILST THE CHAINAGE NOTATIONS ARE WRONG, THE PROPOSED CROSS SECTIONS ARE CORRECT FOR THEIR LOCATION AND WILL NOT IMPACT THE TENDERING PROCESS.



0 1 2 3 4 1:200
PLAN

0 0.25 0.5 0.75 1.0 1:50
DETAIL

SCALES m. FULL SIZE A3

FOR INFORMATION

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DILEIGH
CIVIL / STRUCTURAL DESIGN & PROJECT MANAGEMENT

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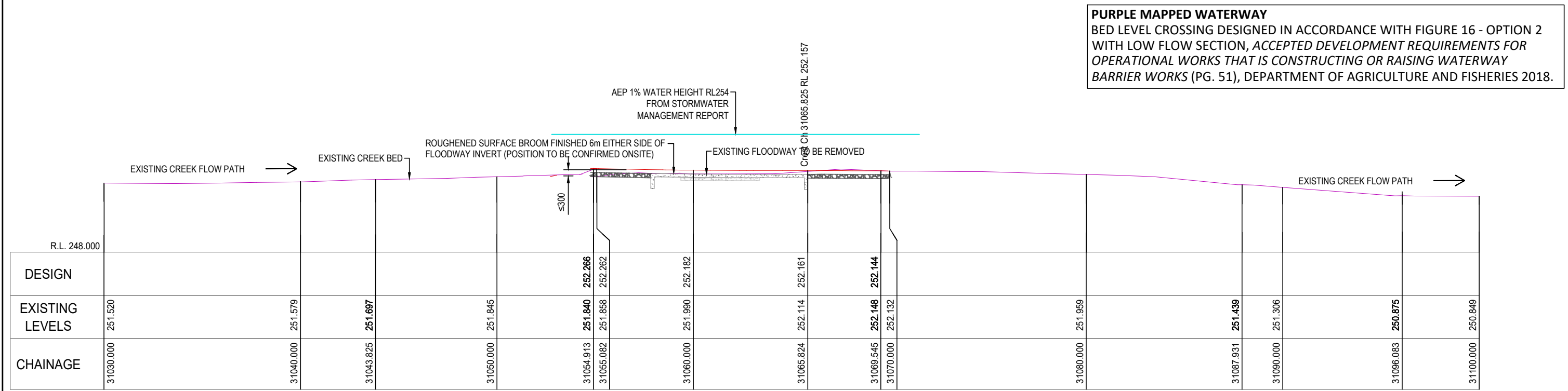
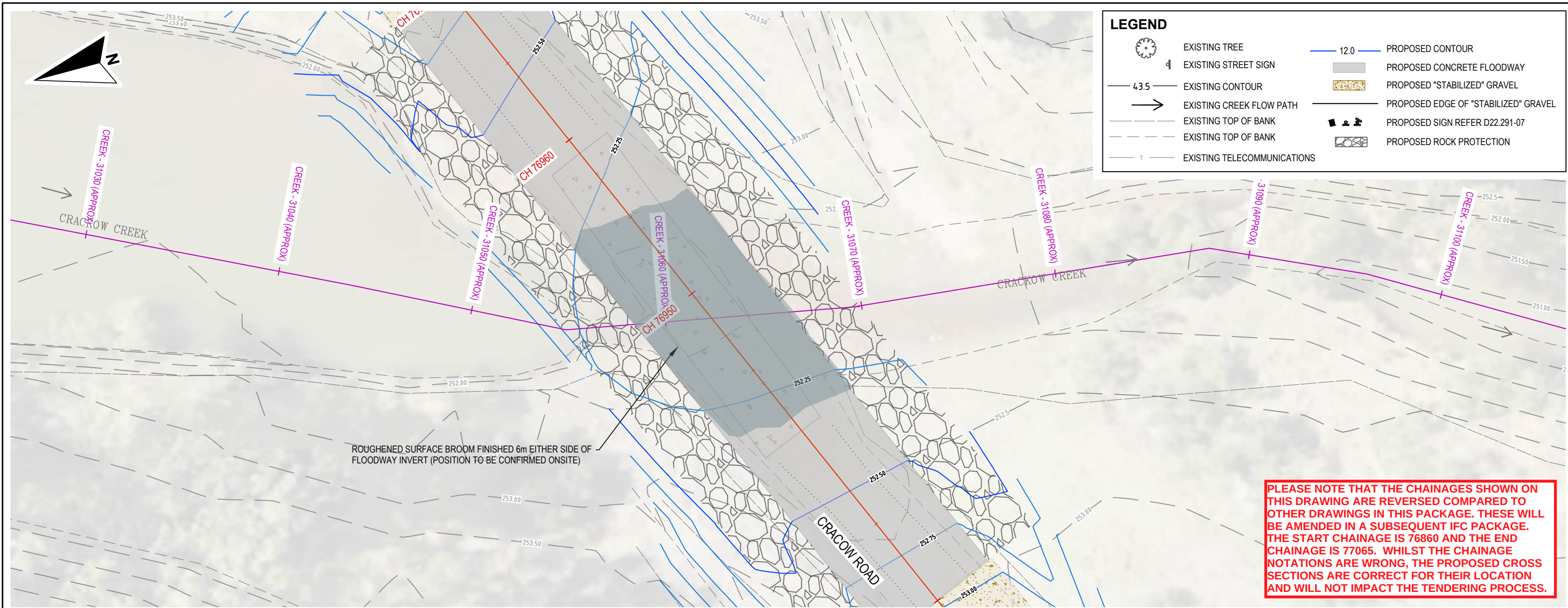
Drafted	CZM
Designed	TAH
Checked	ACD
Approved	G J BROWN
RPEQ 7682	Sign

BANANA SHIRE COUNCIL
FLOODWAY UPGRADE
CRACOW ROAD, CHAINAGE 76950, CRACOW
PROPOSED FLOODWAY
LAYOUT PLAN AND DETAILS

Dwg No.
D22.291-08

CIVIL

Revision
2



0 1 2 3 4
VERTICAL
1:200

0 1 2 3 4
PLAN & HORIZONTAL
1:200

SCALES m. FULL SIZE A3

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Approved	G J BROWN
RPEQ 7682	Sign

BANANA SHIRE COUNCIL
FLOODWAY UPGRADE
CRACOW ROAD, CHAINAGE 76950, CRACOW
CRACOW CREEK
STREAM PROFILE

Dwg No.
D22.291-09
CIVIL
Revision
2

 EXISTING TREE

 EXISTING STREET SIGN

 EXISTING CREEK FLOW PATH

 EXISTING TOP OF BANK

 EXISTING TOP OF BANK

 EXISTING TELECOMMUNICATIONS

 PROPOSED CONCRETE FLOODWAY

 PROPOSED "STABILIZED" GRAVEL

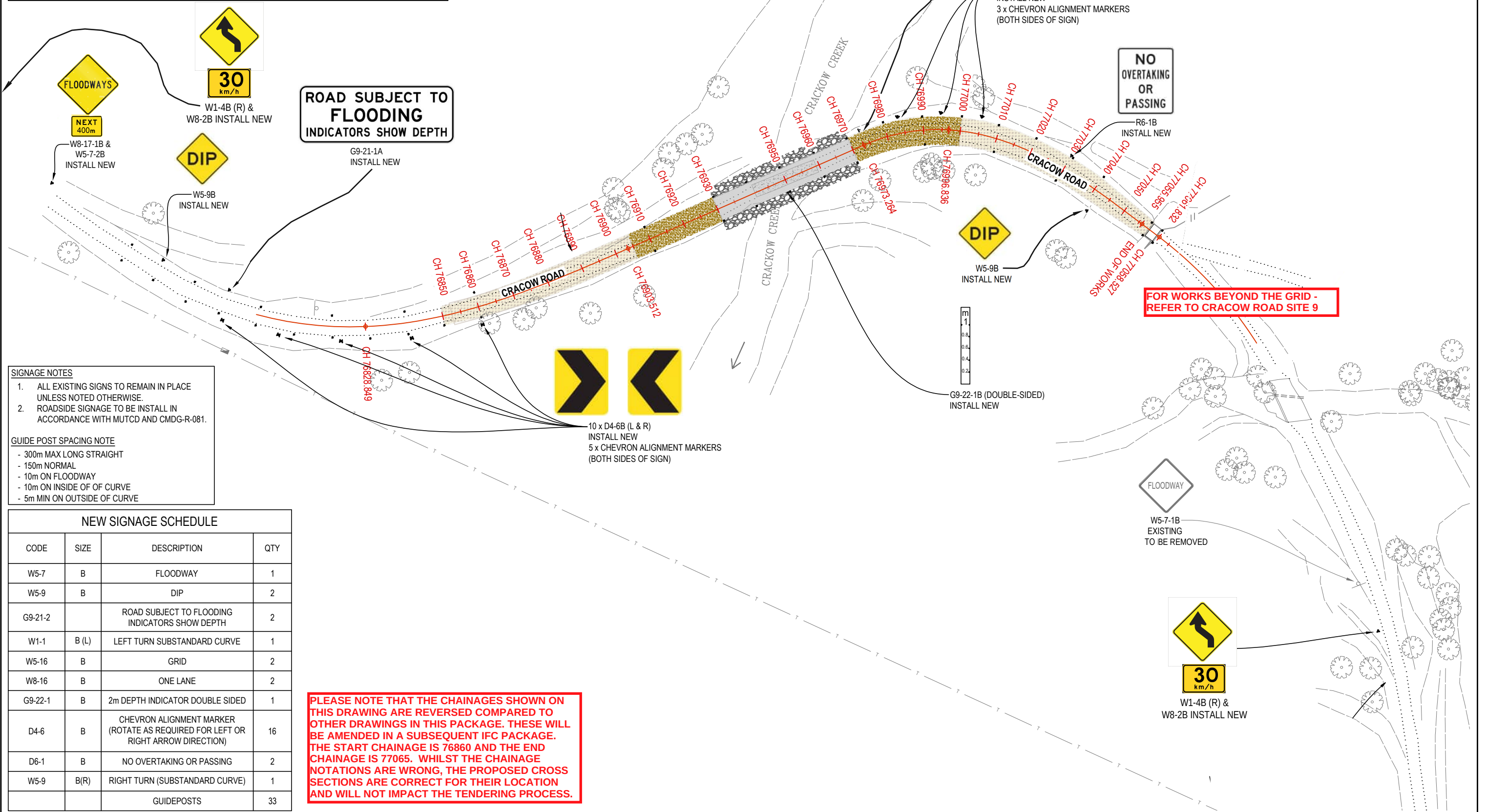
 PROPOSED GRAVEL

 PROPOSED EDGE OF "STABILIZED" GRAVEL

 PROPOSED SIGN REFER D22.291-07

 PROPOSED ROCK PROTECTION

 PROPOSED GUIDE POSTS



0 5 10 15 20
PLAN

1:1000

SCALES m.

FOR INFORMATION

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2	SAFETY & FLOODWAY PLAN ADDED, DRAFTING REVISIONS	07/02/2023
3	SIGNAGE UPDATE BY BANANA SHIRE COUNCIL	30/11/2023

SIGNAGE PLAN AMENDED FROM THE ORIGINAL ISSUE BY BANANA SHIRE COUNCIL TO TIE INTO CRACOW ROAD SITE 9. SIGNAGE TO BE UPDATED IN IFC ISSUE.

Drafted

Designed

Checked

Approved

RPEQ

Sign

BANANA SHIRE COUNCIL
FLOODWAY UPGRADE
CRACOW ROAD, CHAINAGE 76950, CRACOW
SIGNAGE
LAYOUT PLAN

Dwg No.
D22.291-10

CIVIL

Revision
2

ENVIRONMENTAL MANAGEMENT NOTES:

1. PRIOR TO THE COMMENCEMENT OF EARTHWORKS, TOPSOIL SHALL BE STRIPPED AND STOCKPILED FROM SELECT AREAS ONLY FOR RE-SPREADING OVER DISTURBED AREAS PRIOR TO REVEGETATION AND LANDSCAPING.
2. PRIOR TO THE COMMENCEMENT OF ANY EARTHWORKS ALL SEDIMENT CONTROL DEVICES WILL BE ERRECTED WHERE SHOWN ON THE DRAWINGS OR OTHERWISE DIRECTED BY THE ENGINEER.
3. ALL DISTURBED AREAS ON-SITE AND IN ROAD RESERVE WILL BE RE-TOPSOILED, TURFED OR LANDSCAPED.
4. ALL SOIL CONSERVATION AND ENVIRONMENTAL PROTECTION MEASURES SHALL BE MONITORED BY THE CONTRACTOR AT REGULAR INTERVALS DURING CONSTRUCTION. SEDIMENT CONTROL DEVICES WILL BE MONITORED AFTER RAIN EVENTS AND MADE GOOD WHERE NECESSARY. THIS WILL ALSO BE CARRIED OUT DURING THE DEFECTS LIABILITY PERIOD.
5. SILT FENCES SHALL BE INSTALLED ON THE LOW SIDE OF ALL STOCKPILES WHERE REQUIRED.
6. SILT FENCES SHALL REMAIN ON SITE UNTIL ALL CONSTRUCTION ACTIVITIES ARE COMPLETE AND THERE IS 90% VEGETATION COVERAGE OF PROPOSED LANDSCAPED AREAS.

NOISE MANAGEMENT:

1. **WORKING HOURS** - WORKING HOURS FOR THE SITE ARE TO BE 6.30am TO 6.30pm MONDAY TO SATURDAY. NO WORK TO BE UNDERTAKEN OUTSIDE OF TIMES SPECIFIED UNDER ANY CIRCUMSTANCES.
2. **NOISE MINIMISATION METHODS** - NOISE WILL BE MINIMISED USING THE FOLLOWING METHODS:-

2.1. RESTRICTED WORKING HOURS AS DETAILED ABOVE

2.2. NOISE GENERATING MACHINERY TO OPERATED ONLY WHEN NECESSARY TO UNDERTAKE WORKS - VEHICLES AND MACHINERY ARE NOT TO BE LEFT 'IDLING' WHEN NOT IN USE.

2.3. NOISE SHIELDING ON PLANT TO BE INSPECTED PRIOR TO COMMENCEMENT OF WORKS AND MADE GOOD WHERE FOUND TO BE FAULTY.

2.4. VEHICLES AND MACHINERY TO BE REGULARLY MAINTAINED TO REDUCE ENGINE NOISE THROUGH INFREQUENT MAINTENANCE.

DUST MANAGEMENT:

1. **MINIMISING DUST GENERATION** - THE FOLLOWING WORK PRACTICES WILL BE USED TO MINIMISE DUST GENERATION:-

1.1. WIND CONDITIONS ON SITE ARE TO BE MONITORED AND SITE WORKS STOPPED IF WIND STRENGTH IS SUCH THAT EFFORTS TO MINIMISE AND/OR SUPPRESS DUST ARE INEFFECTIVE.

1.2. SOIL STABILISATION OF BATTERS (THROUGH TOPSOILING AND REVEGETATION) TO BE UNDERTAKEN IMMEDIATELY AFTER FINAL TRIM TO MINIMISE EXPOSURE OF BARE EARTH.

1.3. STOCKPILES INTENDING TO BE LEFT IN PLACE FOR 28 DAYS OR GREATER SHALL BE GRASS SEEDED.
2. **DUST SUPPRESSION** -

2.1. WET DOWN DUST GENERATING SURFACES DAILY PRIOR TO COMMENCEMENT OF WORK USING WATER TRUCKS, SPRINKLERS AND HOSE WATERING BY HAND.

2.2. ADDITIONAL WETTING DOWN OF SITE AREAS IS TO BE UNDERTAKEN AS NEEDED DURING THE COURSE OF THE DAY WHERE WORK AREAS HAVE DRIED AND ARE GENERATING DUST.

WEED MANAGEMENT:

1. **MOVEMENT OF SOIL** - EXISTING TOP SOIL IS TO BE STOCKPILED AND RE-USED ON SITE AFTER SITE WORKS ARE COMPLETE, ANY ADDITIONAL TOP SOIL REQUIRED IS TO BE FREE OF PLANT SEEDS PRIOR TO SPREADING ON SITE.
2. **FILL MATERIAL** - FILL MATERIAL TO BE IMPORTED ON SITE IS TO BE 'CLEAN FILL' AND FREE FROM ANY ORGANIC MATTER OR MATERIALS.

WASTE MANAGEMENT:

1. ALL LITTER AND WASTE TO BE CONTAINED ON SITE IN CONTAINERS PROVIDED FOR THAT PURPOSE.
2. ALL WASTE TO BE FURTHER DISPOSED OFF SITE IN A RESPONSIBLE MANNER.
3. WHERE POSSIBLE MINIMISE WASTE THROUGH WASTE MINIMIZATION AND RE-USE.

EROSION AND SEDIMENT MANAGEMENT:

DRAINAGE MANAGEMENT - WHERE POSSIBLE, RAINWATER DISCHARGE FROM UPSTREAM PROPERTIES IS TO BE DIRECTED AWAY FROM WORKS THROUGH TEMPORARY BUNDING.

1. **SOIL STABILISATION** -

1.1. EXPOSED EARTH SHALL BE TOPSOILED, VEGETATED, AND LANDSCAPED AS SOON AS POSSIBLE AFTER TRIMMING.

1.2. RE-VEGETATED AND LANDSCAPED AREAS SHALL BE REGULARLY WATERED TO ASSIST ESTABLISHMENT OF COVER.

1.3. ALL BANKS AND BATTERS ARE TO BE REGULARLY INSPECTED TO IDENTIFY AREAS OF EROSION AND RESHAPED TO PREVENT FURTHER EROSION IF NECESSARY - RECTIFICATION WORKS ARE TO BE RE-VEGETATED IMMEDIATELY.
2. **STOCKPILE PROTECTION** -

2.1. STOCKPILES ARE TO BE SITUATED SUCH THAT THEY ARE NOT IN ANY STORMWATER FLOW PATHS.

2.2. SILT FENCING IS TO BE INSTALLED TO DOWNSTREAM SIDE OF STOCKPILE AREAS PRIOR TO THEIR USE.

2.3. STOCKPILES INTENDING TO BE LEFT IN PLACE FOR 28 DAYS OR GREATER SHALL BE GRASS SEEDED.

2.4. STOCKPILES TO HAVE A MAXIMUM SLOPE OF 2H:1V.
3. **SEDIMENT TRAPS** -

3.1. SILT FENCING & SEDIMENT TRAPS TO BE INSTALLED AT AREAS OF SITE DISCHARGE AS SHOWN ON PLAN.

3.2. SILT FENCING TO BE INSTALLED TO DOWNSTREAM SIDE OF STOCKPILE AREAS, STRIPPED AREAS, AND ANY OTHER AREAS OF BARE EARTH WHERE SILT LADEN RUNOFF CAN BE GENERATED.

3.3. SEDIMENT FENCING TO BE INSTALLED IN ACCORDANCE WITH SEDIMENT FENCE DETAILS ON THIS SHEET.

3.4. SEDIMENT FENCE LAYOUT SHALL CONFORM TO "TYPICAL LAYOUT ACROSS GRADE" AS DETAILED ON STANDARD DRAWING **CMDG-D-050**.

3.5. SILT FENCES AND SEDIMENT TRAPS SHALL REMAIN ON SITE UNTIL ALL CONSTRUCTION ACTIVITIES ARE COMPLETE AND THERE IS 90% VEGETATION COVERAGE OF PROPOSED LANDSCAPED AREAS.

ACID SULFATE SOILS:

1. DUE TO THE ELEVATION AND SITE GEOLOGY IT IS UNLIKELY THAT A.S.S. WILL BE ENCOUNTERED ON THIS SITE.
2. IF A.S.S. ARE ENCOUNTERED ON THE SITE DURING CONSTRUCTION ENGAGE A SUITABLY QUALIFIED ENVIRONMENTAL CONSULTANT TO PRODUCE AN A.S.S. MANAGEMENT PLAN FOR IT.

FAUNA MANAGEMENT:

1. ANY CLEARING OF REMNANT VEGETATION WILL REQUIRE A FAUNA SPOTTER / CATCHER TO BE IN ATTENDANCE.

VEGETATION MANAGEMENT:

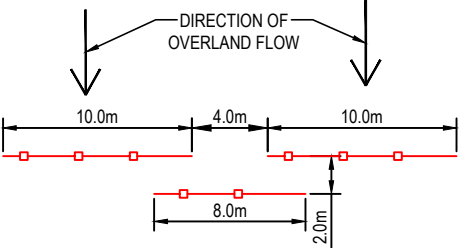
1. WHERE VEGETATION COVENANT EXISTS ON SITE. THIS AREA TO BE CLEARLY PEGGED AND FLAGGED OR FENCED PRIOR TO WORK COMMENCING ON SITE TO PREVENT ANY CLEARING IN THIS AREA.

BUSH FIRE MANAGEMENT:

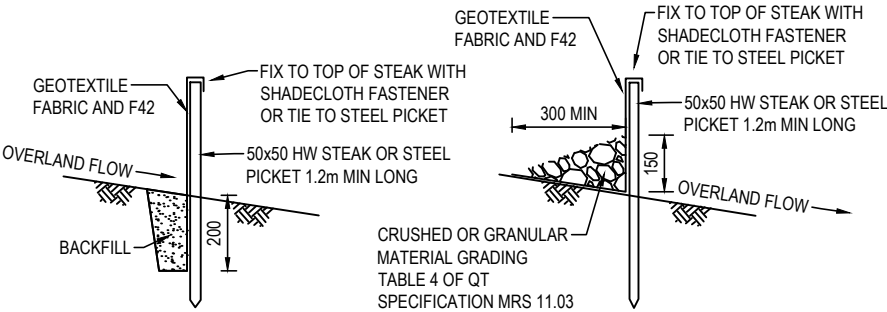
1. SITE MAY BE IN A BUSH FIRE HAZARD ZONE PLEASE CHECK WITH LOCAL AUTHORITIES.
2. ANY CLEARED VEGETATION TO BE MULCHED AND USED ON SITE.
3. MULCHED STOCK PILES TO BE NO MORE THAN 2.0m HIGH AND WET DOWN DAILY.
4. REMOVE MULCH FROM SITE IF SAFE TO DO SO SHOULD BUSHFIRES THREATEN THE AREA.

EMERGENCY VEHICLE ACCESS:

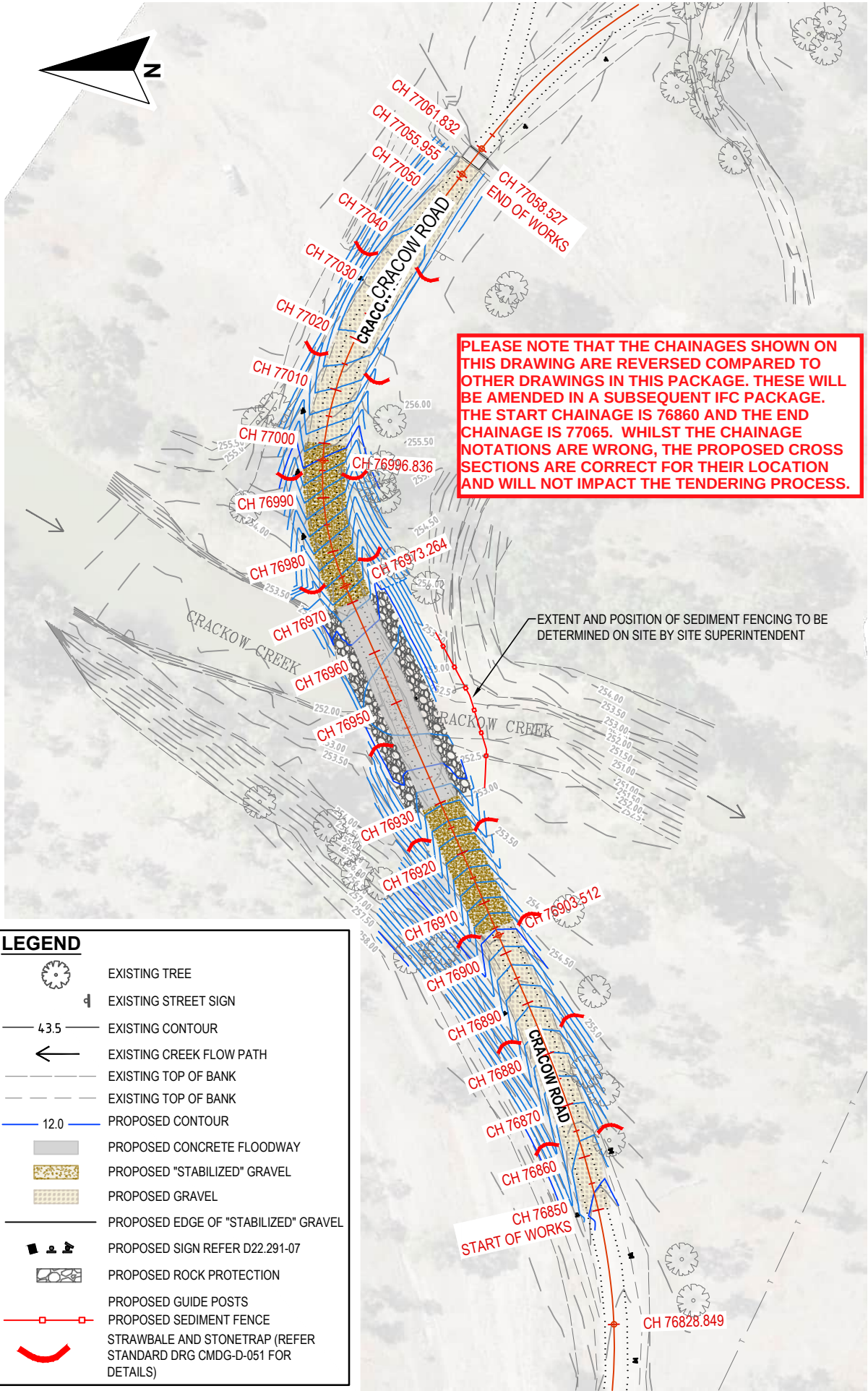
5. MAINTAIN CLEAR ACCESS TO SITE FOR EMERGENCY VEHICLES AT ALL TIMES



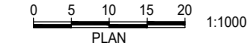
SEDIMENT FENCE DETAIL
N.T.S



SEDIMENT FENCE DETAIL
N.T.S



LEGEND	
	EXISTING TREE
	EXISTING STREET SIGN
	EXISTING CONTOUR
	EXISTING CREEK FLOW PATH
	EXISTING TOP OF BANK
	EXISTING TOP OF BANK
	PROPOSED CONTOUR
	PROPOSED CONCRETE FLOODWAY
	PROPOSED "STABILIZED" GRAVEL
	PROPOSED GRAVEL
	PROPOSED EDGE OF "STABILIZED" GRAVEL
	PROPOSED SIGN REFER D22.291-07
	PROPOSED ROCK PROTECTION
	PROPOSED GUIDE POSTS
	PROPOSED SEDIMENT FENCE
	STRAWBALE AND STONETRAP (REFER STANDARD DRG CMDG-D-051 FOR DETAILS)



SCALES m.

FULL SIZE

A3

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Checked	ACD
Approved	G J BROWN
RPEQ 7682	Sign

BANANA SHIRE COUNCIL
FLOODWAY UPGRADE
CRACOW ROAD, CHAINAGE 76950, CRACOW
ENVIRONMENTAL MANAGMENT
NOTES & LAYOUT PLAN

Dwg No.	D22.291-11
	CIVIL
Revision	2

ITEM	EVENT/TASK	HAZARDS OR ENVIRONMENTAL IMPACTS	INITIAL RISK			CONTROL MEASURES	RESIDUAL RISK			EXECUTION OF CONTROLS
			CONSEQUENCE	LKELIHOOD	RISK RATING		CONSEQUENCE	LKELIHOOD	RISK RATING	
1.1	BUSH FIRE	SITE IS IN A LOW TO MODERATE BUSH FIRE HAZARD ZONE, SITE IS LARGELY CLEARED WITH SOME NATURAL WATER DAMMING.	4	2	MODERATE (8)	ALTERNATE ACCESS ROUTES AND ESCAPE PLANS TO BE COMMUNICATED AS PART OF SITE INDUCTION.	4	1	LOW (4)	CONTRACTOR
1.2	VEHICLE ENCROACHMENT INTO ROAD WORKS	ROAD WILL BE CLOSED WITH NO ALTERNATE ROUT PROVIDED. (MINIMAL CONSTRUCTION TIME FRAME REQUIRED.)	4	3	HIGH (12)	A SUITABLE TRAFFIC MANAGEMENT PLAN IS TO BE DEVELOPED AND IMPLEMENT IN ORDER TO ADEQUATELY ALERT ROAD USERS OF THE CONSTRUCTION WORKS AND MANAGE TRAFFIC SPEED AND TRAVEL PATH IN ORDER TO MINIMISE RISK TO CONTRACTORS WORKING ON SITE	4	1	LOW (4)	CONTRACTOR
1.3	TELECOMMUNICATION SERVICE HAZARD	UNDERGROUND TELECOMMUNICATION SERVICE PRESENT AT SITE.	2	3	MODERATE (6)	UNDERGROUND TELECOMMUNICATION INFRASTRUCTURE HAS BEEN IDENTIFIED ON DRAWINGS. WHERE TELECOMMUNICATION CROSSES THE ROAD OR IS LOCATED IN THE ROAD RESERVE, THE CONTRACTOR IS TO CONSULT WITH THE RELEVANT SERVICE AUTHORITY TO CONFIRM THAT THE ACCEPTABLE SAFE CLEARANCE (HORIZONTAL AND VERTICAL) IS ACHIEVED.	2	1	LOW (2)	CONTRACTOR
1.4	FLASH FLOODING HAZARD	ISOLATED POSSIBILITY OF REMOTE WORKING CONDITUIONSMINIMAL TO NO SHELTER FROM ELEMENTS ON SITE. NO SAFE DRINKING WATER. POOR TO NO TELCOMMUNICATION RECEPTION. ISOLATED LOCATION.	3	3	HIGH (9)	WEATHER FORECAST TO BE MONITORED AND TAKEN INTO CONSIDERATION FOR CONSTRUCTION PLANNING. EQUIPMENT AND TO BE STORED HIGHER THAN CREEK BANK.	3	2	MODERATE (6)	CONTRACTOR
1.5	VEHICLES TRAVEL THROUGH TIGHT HORIZONTAL CURVE	VEHICLES WITHOUT ADEQUATE WARNING COULD LOSE TRACTION AND / CONTROL	4	3	HIGH (12)	IMPROVE SAFETY OF TIGHT HORIZONTAL CURVE BY WIDENING ROADWAY, PROVIDING SUPERELEVATION ON CURVE, PROVIDING ADEQUATE WARNING SIGNAGE ON APPROACH TO CURVE.	3	2	MODERATE (6)	DESIGN

DESIGN HAZARD NOTES

1. THE DETAILED DESIGN AND DOCUMENTATION OF THESE WORKS HAS BEEN INTERNALLY REVIEWED FOR DESIGN SAFETY IN ACCORDANCE WITH SECTION 22 OF THE WORK HEALTH AND SAFETY ACT 2011 QLD
2. THIS REPORT SUMMARISES THIS INTERNAL REVIEW FOR DESIGN SAFETY
3. THIS REPORT IN NO WAY RELIEVES THE PRINCIPAL, CONTRACTOR OR ANY OTHER PARTY OF THEIR OWN OBLIGATIONS AND RESPONSIBILITIES UNDER THE WORK HEALTH AND SAFETY ACT 2011 QLD, INCLUDING BUT NOT LIMITED TO CONSULTATION WITH THE DESIGNER UNDER SECTION 294 OF THE ACT, PREPARATION OF SATISFACTORY WORK METHOD STATEMENTS AND DUTY OF CARE.
4. IT IS A REQUIREMENT UNDER SECTION 296 OF THE WORK HEALTH AND SAFETY ACT 2011 QLD THAT A COPY OF THIS REPORT BE PROVIDED TO THE CONTRACTOR BY THE ENTITY COMMISSIONING THE WORK SHOWN ON THESE DRAWINGS
5. AS PER THE DEPARTMENT OF JUSTICE AND THE ATTORNEY-GENERAL - WORKPLACE HEALTH AND SAFETY QUEENSLAND, A WRITTEN REPORT IS NOT REQUIRED FOR DESIGNS THAT HAVE TYPICAL FEATURES

CONSTRUCTION HAZARD NOTES

6. UNDER THE QUEENSLAND WORK HEALTH AND SAFETY ACT 2011, THE WORK HEALTH AND SAFETY REGULATION 2011 AND OTHER LEGISLATION AND GUIDELINES, THE PRINCIPAL CONTRACTOR HAS SPECIFIC OBLIGATIONS IN RELATION TO THE SAFE OPERATION OF THE SITE AND OF THE WORKS. TO ASSIST THE PRINCIPAL CONTRACTOR IN COMPLYING WITH THESE OBLIGATIONS THE PROJECT DESIGNERS HAVE IDENTIFIED BY DRAWING NOTES, AREAS WHERE POTENTIAL HAZARDS MAY ARISE. THESE NOTES OR ADVICE SHALL NOT RELIEVE THE PRINCIPAL CONTRACTOR OF ANY OBLIGATION UNDER THE RELEVANT LEGISLATION OR GUIDELINE(S). THE PRINCIPAL CONTRACTOR SHALL REMAIN RESPONSIBLE FOR THE PREPARATION OF AN APPROPRIATE WORK HEALTH SAFETY MANAGEMENT PLAN AND SAFE WORK METHOD STATEMENTS FOR THE SITE.
7. PURSUANT TO THE WORK HEALTH AND SAFETY ACT 2011 QLD WE HEREBY ADVISE THAT OUR DESIGN SAFETY REVIEW HAS IDENTIFIED UNUSUAL OR ATYPICAL DESIGN FEATURES THAT MAY PRESENT ADDITIONAL HAZARDS OR RISKS DURING THE CONSTRUCTION PHASE AND THESE ARE LISTED IN THE CONSTRUCTION HAZARD SCHEDULE.

CONSEQUENCE TABLE	
SEVERITY	CONSEQUENCE
5 - CATASTROPHIC	FATALITY OR LIFE THREATENING HEALTH IMPACTS TO MULTIPLE PERSONS. HUGE COST OR TIME LOSS.
4 - MAJOR	EXTENSIVE OR PERMANENT INJURY OR LIFE THREATENING HEALTH IMPACTS TO ONE PERSON. IRREVERSIBLE HEALTH IMPACTS TO MULTIPLE PERSONS. MAJOR FINANCIAL OR TIME LOSS.
3 - MODERATE	INJURY TO MULTIPLE PERSONS REQUIRING MEDICAL ASSISTANCE. REVERSIBLE HEALTH IMPACTS TO MULTIPLE PERSONS. IRREVERSIBLE HEALTH IMPACTS TO ONE PERSON. HIGH FINANCIAL OR TIME LOSS.
2 - MINOR	INJURY TO ONE OR MULTIPLE PERSONS TREATABLE WITH FIRST AID. REVERSIBLE HEALTH IMPACTS TO ONE PERSON. MODERATE FINANCIAL OR TIME LOSS.
1 - INSIGNIFICANT	NEAR INSIGNIFICANT AMOUNT OF HARM TO ONE PERSON WITH NO INJURY OR ONGOING HEALTH EFFECTS. MINIMAL FINANCIAL OR TIME LOSS.

LIKELIHOOD TABLE	
LIKELIHOOD	DESCRIPTION
5 - ALMOST CERTAIN	IS EXPECTED TO OCCUR IN MOST CIRCUMSTANCES. MINIMUM FREQUENCY ONCE PER YEAR.
4 - LIKELY	WILL PROBABLY OCCUR IN MOST CIRCUMSTANCES. MINIMUM FREQUENCY ONCE IN 5 YEARS.
3 - POSSIBLE	MIGHT OCCUR AT SOME TIME. MINIMUM FREQUENCY ONCE IN 10 YEARS.
2 - UNLIKELY	COULD OCCUR AT SOME TIME. MINIMUM FREQUENCY ONCE IN 30 YEARS.
1 - RARE	MAY OCCUR ONLY IN EXCEPTIONAL CIRCUMSTANCES. FREQUENCY IS LESS THAN ONCE IN 30 YEARS.

RISK ANALYSIS MATRIX						
		CONSEQUENCE				
		1 - INSIGNIFICANT	2 - MINOR	3 - MODERATE	4 - MAJOR	5 - CATASTROPHIC
LIKELIHOOD	5 - ALMOST CERTAIN	MODERATE (5)	HIGH (10)	HIGH (15)	EXTREME (20)	EXTREME (25)
	4 - LIKELY	LOW (4)	MODERATE (8)	HIGH (12)	EXTREME (16)	EXTREME (20)
	3 - POSSIBLE	LOW (3)	MODERATE (6)	HIGH (9)	HIGH (12)	HIGH (15)
	2 - UNLIKELY	LOW (2)	LOW (4)	MODERATE (6)	MODERATE (8)	HIGH (10)
	1 - RARE	LOW (1)	LOW (2)	LOW (3)	LOW (4)	MODERATE (5)

RISK EVALUATION	
RISK LEVEL	ACTION REQUIRED
EXTREME (16+)	UNACCEPTABLE RISK. DO NOT PROCEED WITHOUT RISK MITIGATION CONTROLS OR RE-DESIGN.
HIGH (9-15)	UNACCEPTABLE RISK. RISK MITIGATION CONTROLS NEEDED. CONSIDER RE-DESIGN OR FURTHER REVIEW.
MODERATE (5-8)	RISK MAY BE ACCEPTABLE. FURTHER REVIEW REQUIRED TO DETERMINE ACTION.
LOW (1-4)	ACCEPTABLE. MANAGE RISK THROUGH ROUTINE PROCEDURES AND ADMINISTRATIVE CONTROLS.

05101520
PLAN

1:1000

SCALES m.

FULL SIZE A3

FOR INFORMATION

PENDING APPROVAL

REV	REVISION DESCRIPTION	DATE
A	PRELIMINARY REVIEW WITH BSC & DAF	09/11/2022
B	2ND PRELIMINARY REVIEW WITH BSC	25/11/2022
1	CONSTRUCTION ISSUE	05/12/2022
2	SAFETY & FLOODWAY PLAN ADDED, DRAFTING REVISIONS	07/02/2023

DILEIGH

CIVIL / STRUCTURAL DESIGN & PROJECT MANAGEMENT

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BANANA SHIRE COUNCIL
FLOODWAY UPGRADE
CRACOW ROAD, CHAINAGE 76950, CRACOW
SAFETY IN DESIGN
RISKS AND CONTROLS

Dwg No.
D22.291-12

CIVIL

Revision
2

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