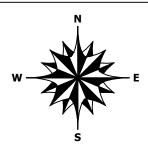
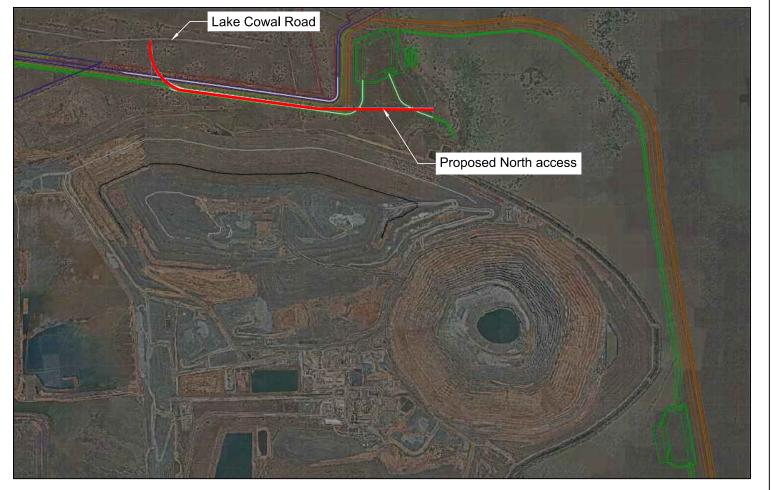


# COWAL GOLD MINE OPERATIONS LAKE COWAL, NSW, 2671 NORTHERN ACCESS ROAD AND CULVERT CROSSINGS



	DRAWING TABLE	
DRAWING NUMBER	TITLE	REVISION
NAR_C001	Title page	А
NAR_C002	Construction notes	А
NAR_C003	Construction notes	А
NAR_C004	Existing conditions	А
NAR_C301	Overall design layout	Α
NAR_C302	Design layout - CH0.00 - 100.00	Α
NAR_C303	Design layout - CH100.00 - 600.00	Α
NAR_C304	Design layout - CH600.00 - 1100.00	Α
NAR_C305	Design layout - CH1100.00 - 1565.00	А
NAR_C306	Design layout - CH1560.00 - 1993.54	А
NAR_C307	Typical sections & Pavement design	А
NAR_C308	Northern Access Road longitudinal section - CH0.00 - 500.00	A
NAR_C309	Northern Access Road longitudinal section - CH500.00 - 1000.00	А
NAR_C310	Northern Access Road longitudinal section - CH1000.00 - 1500.00	A
NAR_C311	Northern Access Road longitudinal section - CH1500.00 - 1993.54	А
NAR_C312	Lake Protection Bund intersection longitudinal section	А
NAR_C313	Northern Access Road cross sections	A
NAR_C801	Culvert crossing - UCDS Channel	А
NAR_C802	Culvert crossing - ICDS NWRD toe drain West	A
NAR_C803	Culvert crossing - ICDS NWRD toe drain South	A



LOCALITY MAP N.T.S.

Source of map: Projence



RE\	/: DESCRIPTION:	DATE:	DRAWN:	REVIEWED:	APPROVED:	APPROVED BY:		Ingen Consulting Pty Ltd	CLIENT:	PROJECT:	DRAWING TITLE:	
Α	Draft For Review	28/03/23	МС	MK	MK	Michiel Kamphorst,		ACN: 623 948 112	<b>Evolution Mining (Cowal) Pty Ltd</b>	North Access Road	Title page	
						MSc, BSc, RPEng, RPEQ, NER		,	Cowal Gold Operations	Cowal Gold Mine Operations		
						†	INGEN	p: +614 1726 4987	Lake Cowal Road	Lake Cowal, NSW, 2671		
-				+	-	-		e: michiel@ingenconsulting.com.au	Lake Cowal, NSW 2671		PROJECT NUMBER:	ORIGINAL SIZE:
						Signed: Date: <b>28/03/23</b>	CONSULTING	w: www.ingenconsulting.com.au			J1230	A3
						]	ENGINEERED WITH PURPOSE	Copyright in the drawings, information and data	recorded in this document is the property of Ingen C	Consulting. This document and the information are	DRAWING NUMBER:	REVISION:
								1 '	I this document may not be used, copied, or reproduc	, ,, ,	J1230_NAR_C001	A
						1		I which it was supplied by Inden Consulting. This of	document shall only be used for construction if stamp	ped and approved for construction.		

#### **GENERAL**

- 1. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE FOLLOWING DOCUMENTS:
  - OTHER PROVIDED ENGINEERING DRAWINGS;
  - GEOTECHNICAL ENGINEERING REPORTS;
  - TECHNICAL SPECIFICATIONS;
  - SUPPLEMENTARY SPECIFICATIONS;
  - WRITTEN INSTRUCTIONS.
- ALL CONSTRUCTION MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT SPECIFICATION FOR THE WORKS TOGETHER WITH THE REQUIREMENTS OF ALL THE RELEVANT CODES OF PRACTICE REFERRED TO THEREIN AND THE REQUIREMENTS OF TfNSW STANDARDS AND SPECIFICATIONS.
- 3. ALL LOCATIONS, ORIENTATION AND LEVELS SHALL BE VERIFIED ON SITE BEFORE COMMENCING ANY WORK. DISCREPANCIES SHALL BE REFERRED TO THE SITE SUPERINTENDENT.
- 4. DO NOT OBTAIN DIMENSIONS FROM SCALING.
- 5. NATURAL SURFACE LEVELS ON THE DRAWINGS ARE INDICATIVE ONLY.
- 6. ANY PERMITS AND APPROVALS REQUIRED FOR CONSTRUCTION OF PERMANENT OR TEMPORARY WORKS SHALL BE OBTAINED BY THE CONTRACTOR.
- 7. Tfnsw standard details are to be adopted unless stated otherwise.
- DESIGN SUBJECT TO GROUND CONDITIONS. PRESENCE OF SHALLOW ROCK MAY REQUIRE DESIGN SURFACE TO BE LIFTED TO MINIMISE ROCK BREAKING.

#### **ROADWORKS**

- NOTWITHSTANDING THE DETAILS SHOWN ON THE DRAWINGS ALL PUBLIC ROAD WORKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH TINSW STANDARD SPECIFICATIONS AND DRAWINGS.
- 2. GEOTECHNICAL TEST RESULTS ARE TO BE FORWARDED TO THE SUPERINTENDENT PRIOR TO FINAL BOXING. TESTS SHALL INCLUDE SOAKED CBR AND/OR OTHER TESTS AS REQUESTED BY THE SUPERINTENDENT. THESE TESTS SHALL BE USED TO CONFIRM THE PAVEMENT DESIGN SHOW ON THESE DRAWINGS.
- 3. THE PAVEMENT DESIGN ON THE DRAWINGS IS NOT FOR CONSTRUCTION UNTIL FINAL CBR TESTS ARE REVIEWED AND APPROVED BY THE SITE SUPERINTENDENT. CONSTRUCTION OF THE PAVEMENT TO THE DESIGN SHOWN ON THE DRAWINGS PRIOR TO RECEIPT OF THE FINAL CBR TEST SHALL BE UNDERTAKEN AT THE CONTRACTOR'S OWN RISK.
- 4. THE CONTRACTOR SHALL OBTAIN THE LOCATION OF ALL SERVICES AND PROTECT THESE SERVICES PRIOR TO WORKING IN THE VICINITY. ANY DAMAGE WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- 5. WORK TO ANY SERVICES SHOULD BE DONE IN CONSULTATION WITH THE APPROPRIATE SERVICE PROVIDER.
- EXISTING ROADS/STRUCTURES WITHIN THE LIMITS OF THE CONSTRUCTION WORKS SHALL BE PROTECTED FROM DAMAGE. ANY DAMAGE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

#### **PAVEMENTS**

- GRANULAR PAVEMENT MATERIAL OF PUBLIC ROADS TO BE IN ACCORDANCE WITH TRNSW CONSTRUCTION SPECIFICATIONS AND ALL DOCUMENTS REFERENCED WITHIN THESE SPECIFICATIONS.
- 2. GEOTECHNICAL TESTING IS TO BE UNDERTAKEN AS DIRECTED BY THE SUPERVISING ENGINEER AT MINIMUM AT COMPLETION OF THE BULK EARTHWORKS TO TRNSW SPECIFICATION
- 3. SAMPLING SHALL BE CARRIED OUT IN ACCORDANCE WITH RMS GUIDELINES.
- 4. TRAFFIC NUMBERS ARE BASED ON THNSW GUIDELINES.
- 5. FINAL PAVEMENT DESIGN IS SUBJECT TO SUPERVISING ENGINEER'S DIRECTION AND MAY RESULT IN AN AMENDMENT TO THE PAVEMENT DESIGN SHOWN ON THIS DRAWING
- 6. PAVEMENT DESIGN IS BASED ON TRNSW GUIDELINES.

#### ABBREVIATIONS USED ON THE PLANS

SW STORMWATER K+C CONCRETE KERB AND CHANNEL W WATER AC ASPHALTIC CONCRETE FIRE HYDRANT TOB TOP OF BANK SV SLUICE VALVE BOB BOTTOM OF BANK

CL

CENTRELINE

B'DY BOUNDARY

GV GATE VALVE
EB EDGE OF BITUMEN
ES EDGE OF SHOULDER

NRLG NORHERN RIVERS LOCAL GOVERNMENT

#### SUBGRADE PREPARATION GENERAL

- 1. CLEARING, STRIPPING AND GRUBBING MUST BE CARRIED OUT IN ALL AREAS SUBJECT TO EARTHWORKS (AS TRAFFICABILITY CONDITIONS ALLOW).
- SOILS CONTAINING ORGANIC MATTER MUST BE STRIPPED FROM THE CONSTRUCTION ARE AND MUST NOT BE USED FOR STRUCTURAL FILL.
- 3. DEPRESSIONS FORMED BY THE REMOVAL OF EXISTING STRUCTURES, VEGETATION, UNDERGROUND ELEMENTS ETC. MUST HAVE ALL DISTURBED WEAKENED SOIL CLEANED OUT AND MUST BE BACKFILLED WITH COMPACTED SELECT MATERIAL.
- 4. IN AREAS WHERE WEAK SOILS FORM THE SUBGRADE THE SUPERVISING ENGINEER MAY DIRECT THE INSTALLATION OF A BRIDGING/WORKING LAYER TO SUPPORT CONSTRUCTION EQUIPMENT AND ALLOW FOR THE PLACEMENT OF FILL.
- EXISTING SOILS ARE KNOW TO LOSE STRENGTH IF THEY BECOME WET AND THE CONTRACTOR MUST MAKE EFFORT TO AVOID WETTING.

#### SUBGRADE PREPARATION ROADWORKS

- THE SUBGRADE MUST BE PROOF ROLLED UNDER THE SUPERVISION OF AN NER ENGINEER USING A STATIC VEHICLE WITH A TARE WEIGHT IS TO BE TO THE INSPECTING ENGINEER'S SATISFACTION AND RMS STANDARD.
- AREA DEMONSTRATING EXCESSIVE MOVEMENT UNDER PROOF ROLLING MUST BE DRIED AND RECOMPACTED OR REMOVED AND REPLACE WITH COMPACTED FILL.
- . ANY FILL MATERIAL ENCOUNTERED SHOULD BE CONSIDERED UNCONTROLLED AND REQUIRING TREATMENT.

#### **EXCAVATION**

- ALL EXCAVATIONS DEEPER THAN 1.5M WILL NEED TO BE TEMPORARILY SUPPORTED OR BATTERED TO UNSURE SAFETY.
- 2. TEMPORARY CUT BATTERS ARE TO BE MAXIMUM SLOPE OF 1:1.

#### PAVEMENT TESTING

- 1. MINIMUM OF THREE (3) SUBGRADE CBR (4 DAY SOAKED) TESTS PER LOT TO BE COMPLETED WITH SAMPLES TAKEN AT 300mm DEEP WITHIN EXTENTS OF NEW PAVEMENT. TESTES TO BE COMPLETED ONE (1) WEEK PRIOR TO PAVEMENT PREPARATION AND RESULTS ISSUED TO INGEN CONSULTING.
- 2. THE SURFACE OF THE SUBGRADE/FILL MATERIAL AND BASE SHALL BE COMPACTED TO 98% DDR, TRIMMED, PROFILED, PROOF ROLLED AND CHECK LEVELLED PRIOR TO PLACING AND COMPACTING OF CBR45 (TYPE 2.3) PAVEMENT BASE.
- 3. PAVEMENT BASE TO BE INSPECTED PRIOR TO BOXING AND REINFORCEMENT.
- TESTING OF SUBGRADE, PAVEMENT BASE-COURSE AND CONCRETE TESTING SHALL BE UNDERTAKE BY THE CONTRACTOR AND RESULTS PROVIDED TO THE SUPERINTENDENT.



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Α	Draft For Review	28/03/23	MC	MK	МК	Mic
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DATE:

DRAWN: REVIEWED: APPROVED: APPROVED BY:

MC MK MK MK Michiel Kamphorst,
MSc, BSc, RPEng, RPEQ, NER

Date: 28/03/23



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Evolution Mining (Cowal) Pty Ltd
Cowal Gold Operations
Lake Cowal Road
Lake Cowal, NSW 2671

PROJECT:
North Access Road
Cowal Gold Mine Operations
Lake Cowal, NSW, 2671

DRAWING TITLE: Construction notes

PROJECT NUMBER: ORIGINAL SIZE:

J1230 A3

DRAWING NUMBER: REVISION:

J1230 NAR C002 A

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#### **BULK EARTHWORKS**

- 1. ALL EARTHWORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THINSW, UNDER LEVEL 1 SUPERVISION.
- 2. INSITU SOILS ARE NOT TO BE USED A STRUCTURAL FILL.
- 3. IMPORTED GENERAL FILL MUST BE COHESIVE IN NATURE AND GOOD QUALITY LOW PLASTICITY WITH:
- 3.1. A LIQUID LESS THAN 45%
- 3.2. PLASTICITY INDEX OF LESS THAN 15%
- 3.3. SOAKED CBR GREATER THAN 10%
- 3.4. MAXIMUM PARTICLE SIZE OF 75mm
- 3.5. AT LEAST 80% PASSIVE THE 19mm SIEVE.
- 4. FILL MATERIAL MUST BE PLACED IN LAYERS NOT EXCEEDING 150mm AS PER RMS STANDARDS.
- 5. UNLESS DIRECTED OTHERWISE BY THE SUPERINTENDENT, MINIMUM RELATIVE STANDARD COMPACTION OF ALL EARTHWORKS IS TO A DENSITY NOT LESS THAN 98%.
- 6. THE SUB-BASE MATERIAL SHOULD BE COMPACTED TO A DENSITY NOT LESS THAN 98% OF MAXIMUM DRY
- 7. UNLESS DIRECTED OTHERWISE BY THE SUPERINTENDENT, ALL FILL SHALL BE PLACED AT BETWEEN +2% AND -2% OPTIMUM MOISTURE CONTENT.
- 8. FIELD DENSITY TESTING MUST BE CARRIED OUT TO CHECK THE STANDARD OF COMPACTION ACHIEVED AND THE MOISTURE CONTENT IN ACCORDANCE WITH AS3798-2007.
- 9. BATTER SLOPES IN THE EXISTING FILLING CUT TO BE NO DEEPER THAN 2m, MAY BE DESIGN FOR TEMPORARY CONDITION OF 1:1.5 AND PERMANENT SLOPES OF 1:2.5.
- 10. ALL OF THE SITE SHALL BE KEPT FREE DRAINING DURING ALL PHASES OF THE PROJECT.
- 11. NOTWITHSTANDING THE LIMITS AND FILLING SHOWN ON THE CROSS SECTION THE ACTUAL LIMITS SHALL BE DETERMINED ON SITE BY THE SUPERINTENDENT DURING CONSTRUCTION AND SIMILARLY THE FINISHED SURFACE CONTOURS MAY BE ADJUSTED BY WRITTEN DIRECTION OF THE SUPERINTENDENT DURING CONSTRUCTION.
- 12. ALL LEVELS PROVIDED ARE TO FINISHED FLOOR & FINISHED SURFACE LEVEL UNLESS SPECIFIED OTHERWISE.
- 13. WHERE A RISK OF SOME FUTURE DIFFERENTIAL SETTLEMENT CAN BE ACCEPTED EXCAVATE SORT AND RE COMPACT THE TOP 0.5m.
- 14. ALL VERGES ARE TO BE STABILIZED/LANDSCAPED AS PER THE APPROVED LANDSCAPING PLANS AND RMS STANDARDS.

		,
		Property Boundary
	XXXXXXXXXX	Building (Ground Floor Footprint)
		Building (Roof Footprint)
		Easement
<del></del>		Fence
		Vegetation
$\longrightarrow\longrightarrow\longrightarrow$	$\longrightarrow\longrightarrow\longrightarrow$	Service - Table Drain
		Services - Stormwater Pipeline
Junction Pit Gully Pit	Junction Pit Gully Pit	Services - Stormwater Pit
		Services - Headwall
		Services - Rainwater Tank
— S — S — S — — dS — dS — dS — (DBYD)	—s—s—s—s—	Services - Sewer Main
		Services - Sewer Manhole
W W W (DBYD)	— w—— w—— w—	Services - Water Main
$\bigvee$	igwedge	Services - Water Meter
(FH)	FH	Services - Fire Hydrants
— <u>E</u> — E — E — (DBYD) — dE — dE — (UG) — UGE — UGE — (UG)	—E——E——E—	Services - Power Line
Electrical Pit Electrical Pole	Electrical Pit Electrical Pole	Services - Electrical Pit
	-T	Service - Telstra Line
		Service - Telstra Pit
		Road - Alignment and Chainage
		Road - Concrete
		Road - Bitumen
		Road - Gravel
		Cut Batter
		Fill Batter
	→ FFL 35.00	Finish Surface Level

**PROPOSED** 

50.0

Contours (0.25m)



REV:	DESCRIPTION:	DATE:	DRAWN:	REVIEWED:	APPROVED:	APPROVED BY:
Α	Draft For Review	28/03/23	МС	MK		Michiel Kamphorst,
						MSc, BSc, RPEng, RPEQ, NER
						Signed: Date: <b>28/03/23</b>

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**LEGEND** 

**EXISTING** 

\_\_\_\_

Lta	
	Ltd

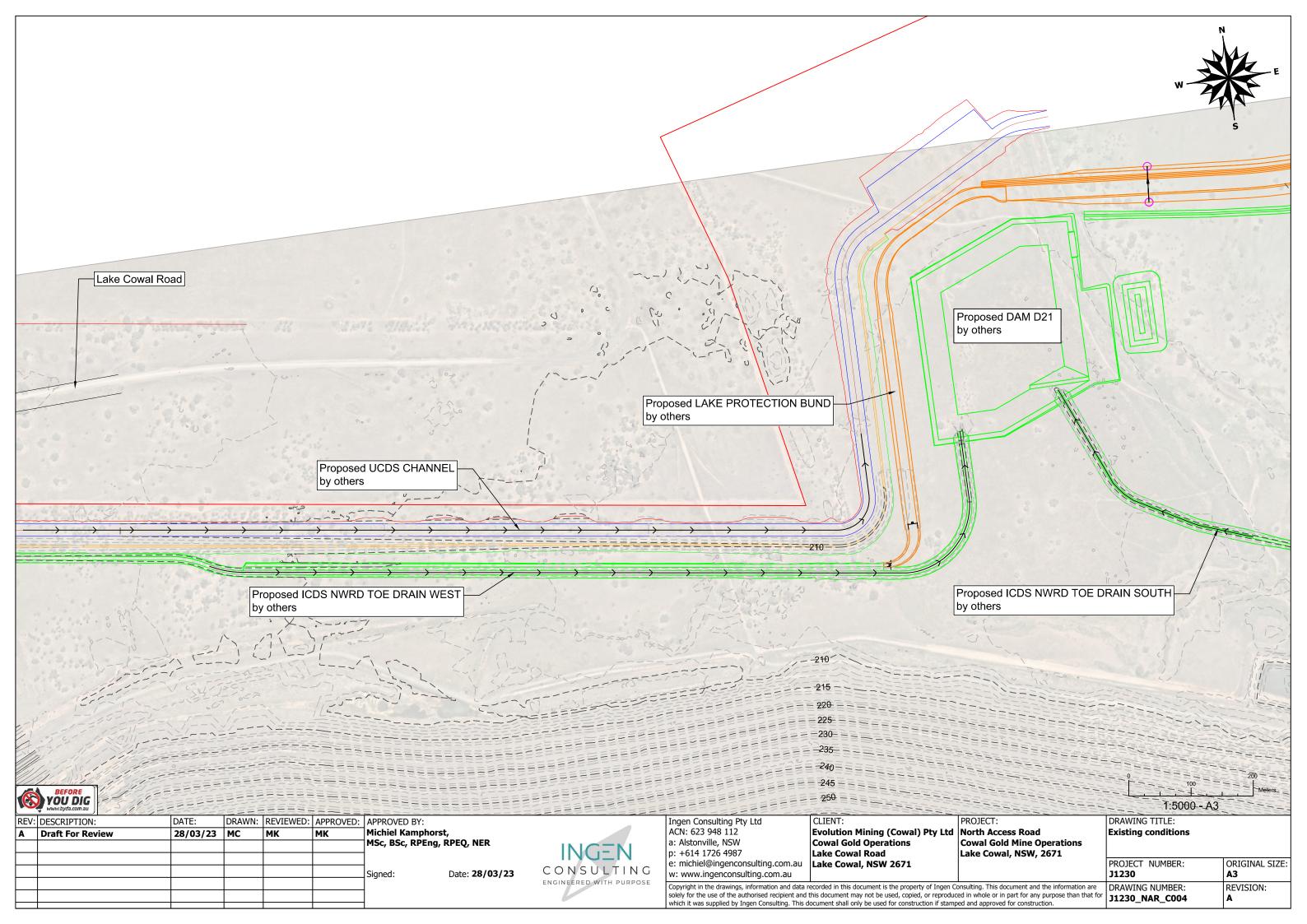
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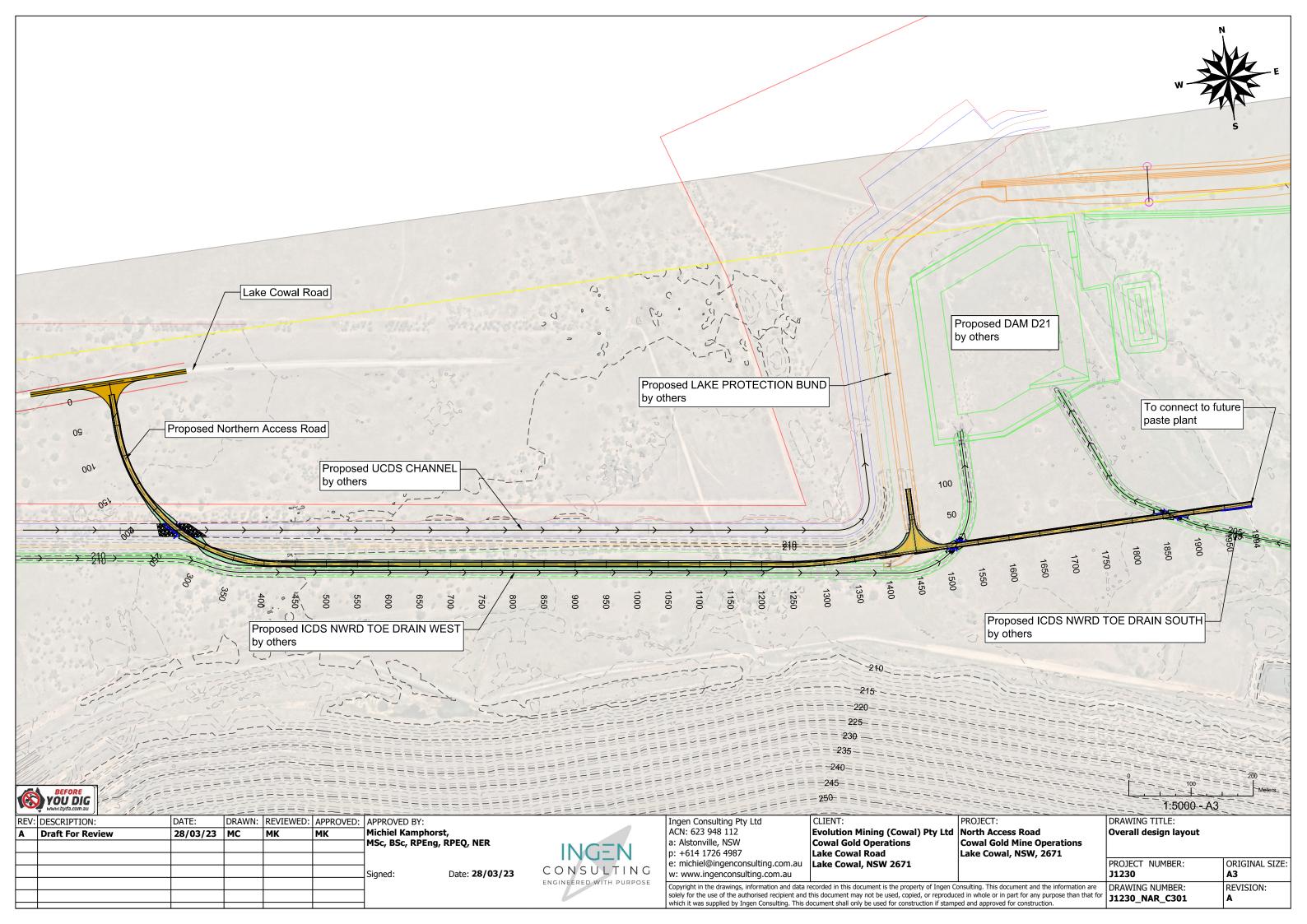
PROJECT.
North Access Road
<b>Cowal Gold Mine Operation</b>
Lake Cowal, NSW, 2671

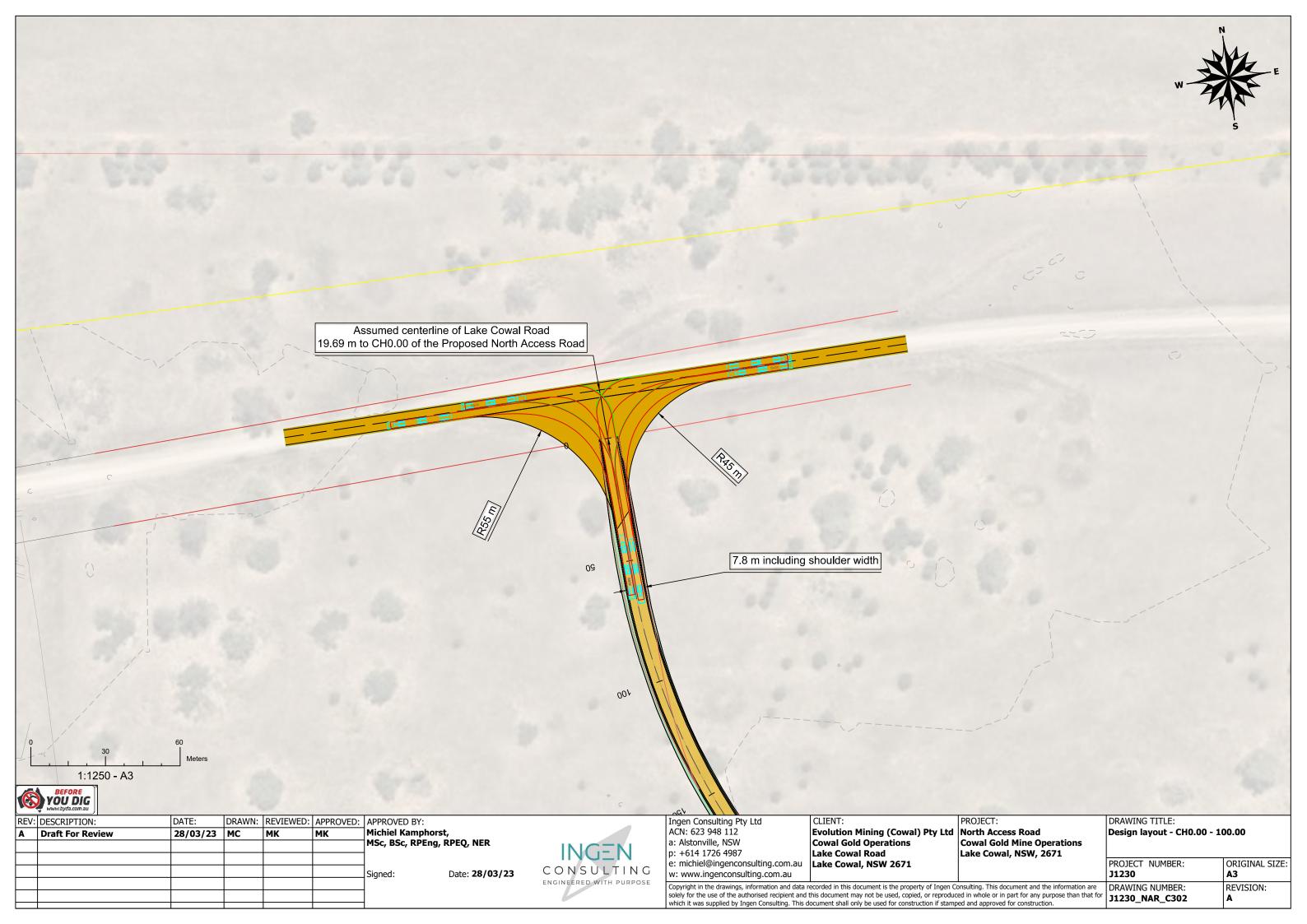
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Construction notes

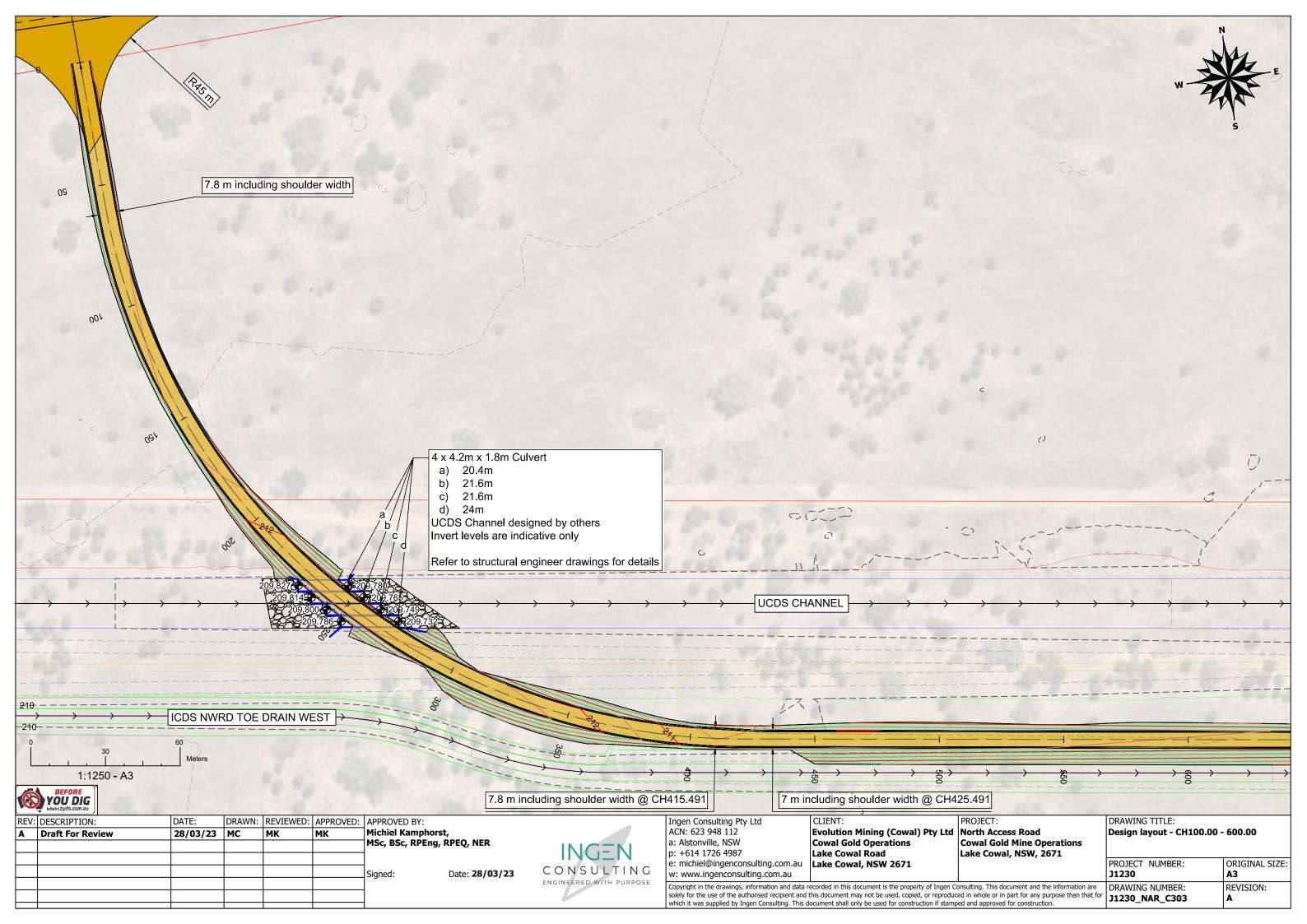
	PROJECT NUMBER: <b>J1230</b>	ORIGINAL SIZE: A3
n are	DRAWING NUMBER:	REVISION:

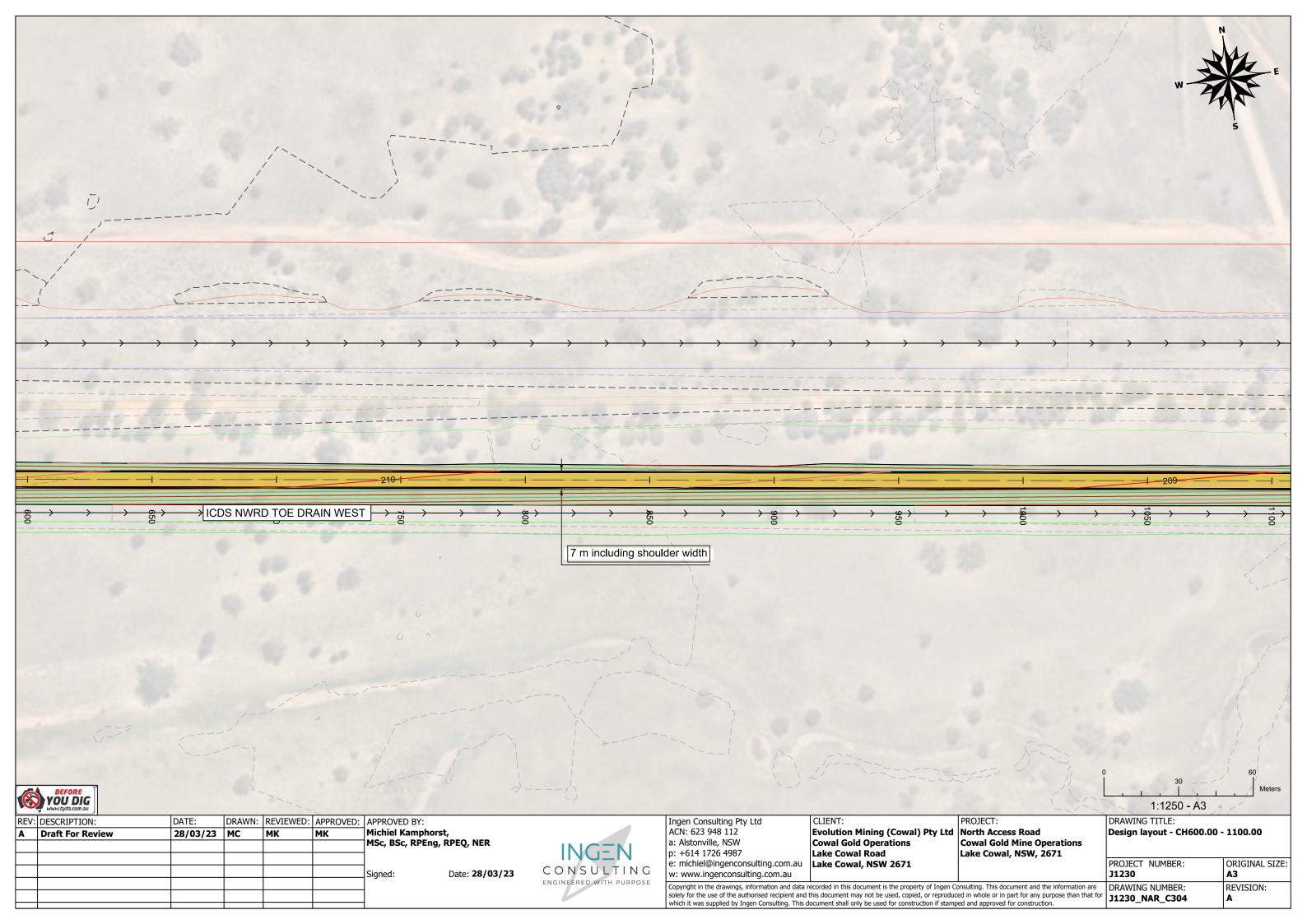
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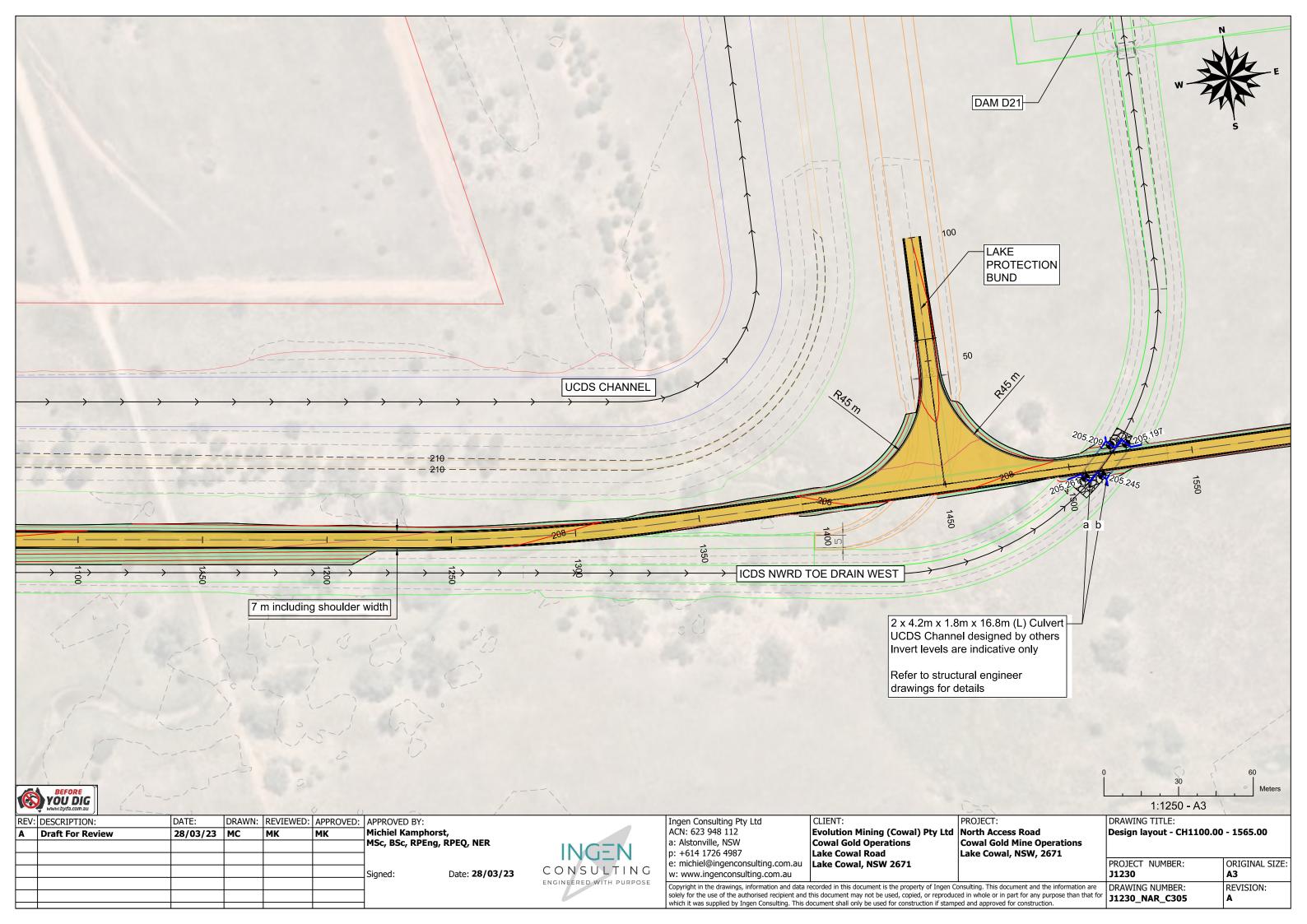


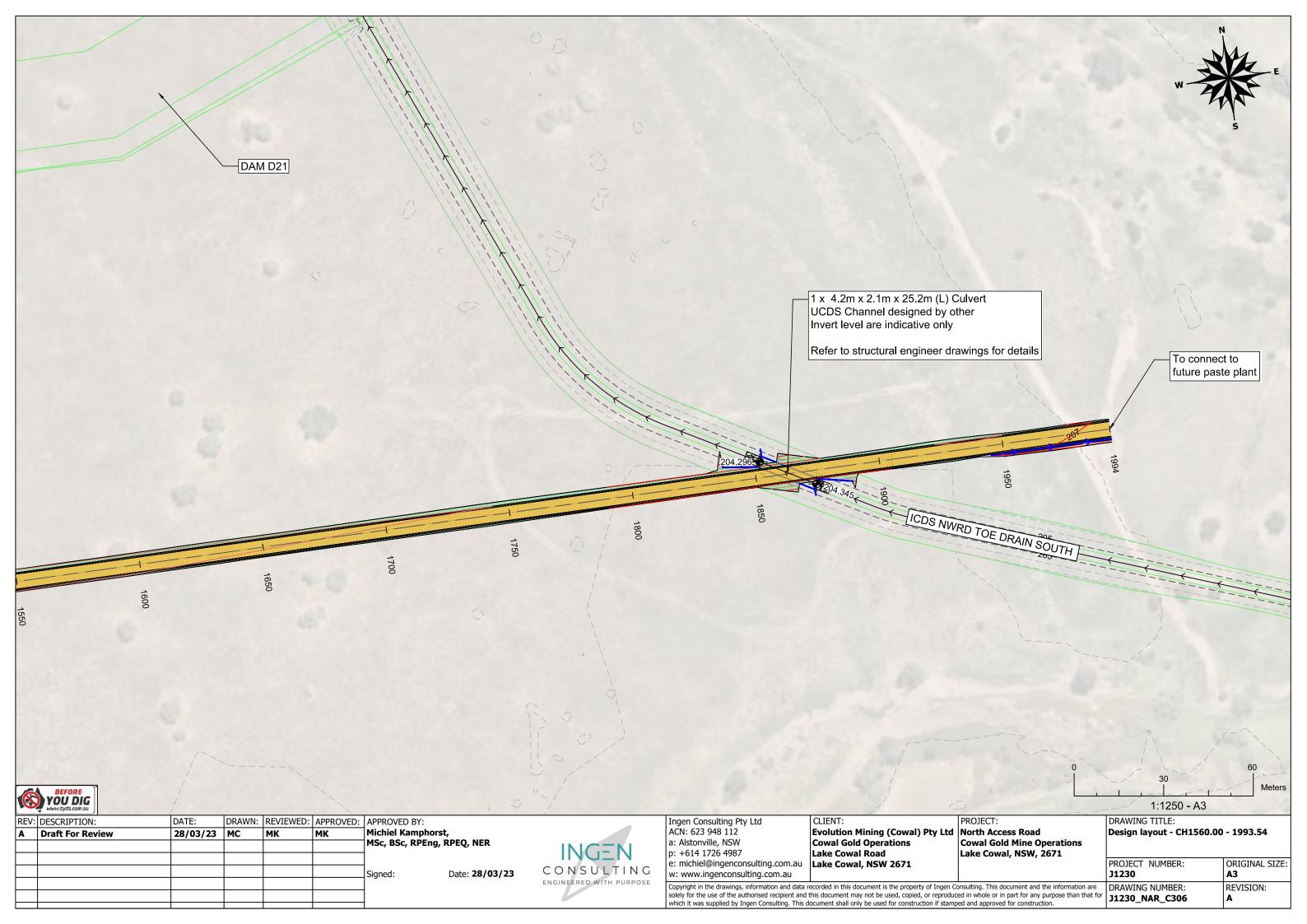


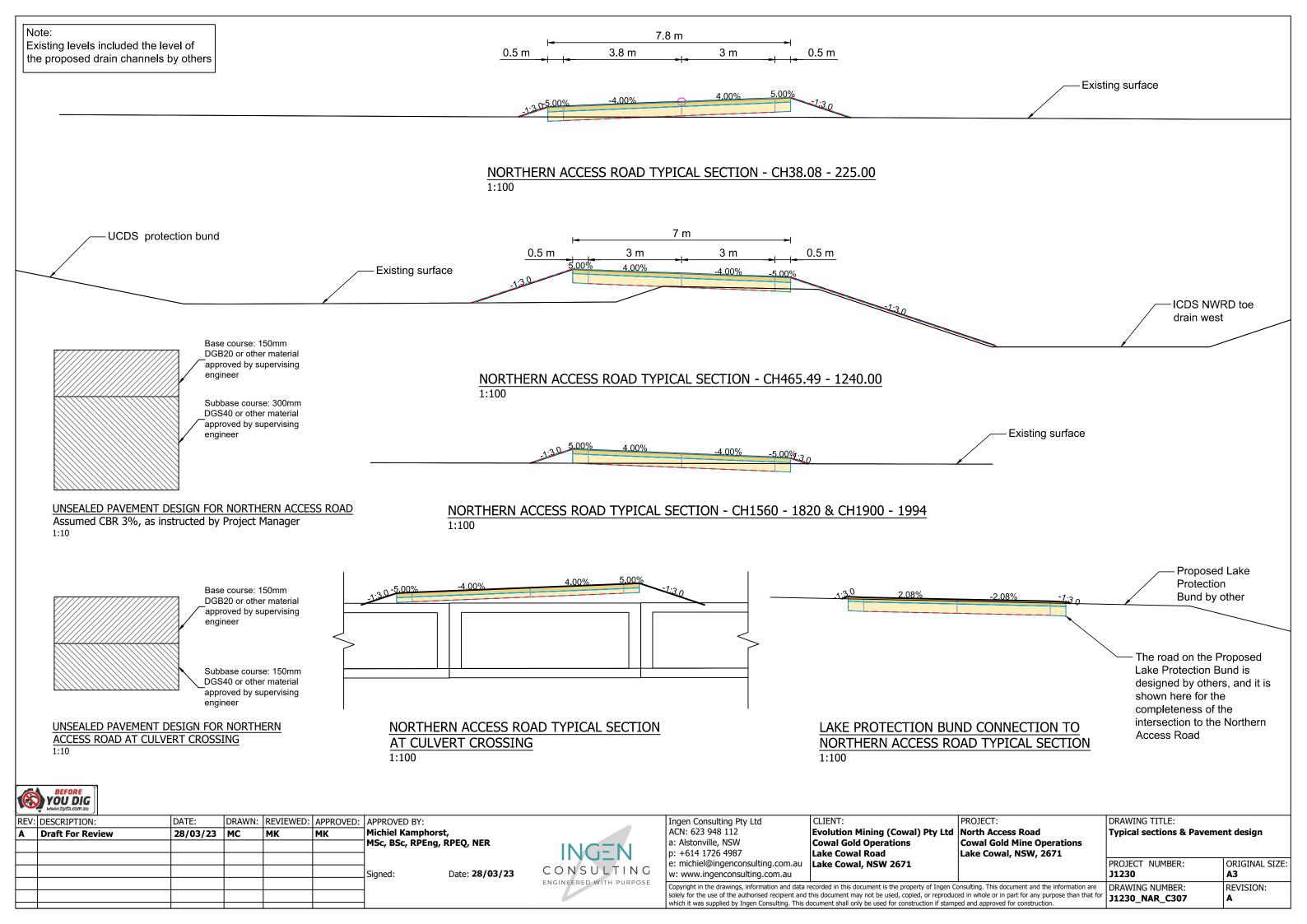


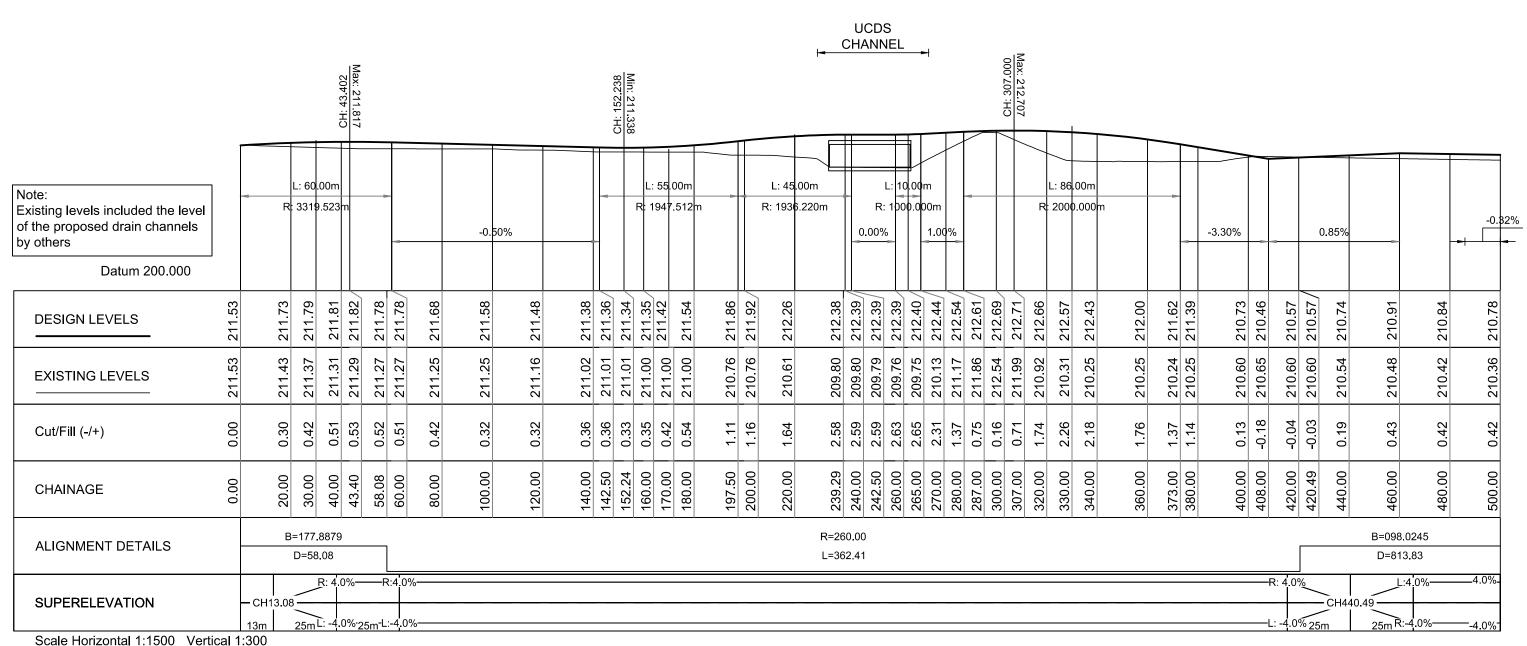












#### NORTH ACCESS RD LONGITUDINAL SECTION



REV:	DESCRIPTION:	DATE:	DRAWN:	REVIEWED:	APPROVED:	APPROVED BY:	
Α	<b>Draft For Review</b>	28/03/23	МС	MK		Michiel Kamphorst	,
						MSc, BSc, RPEng, I	RPEQ, NER
						  Signed:	Date: 28/03/23



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CLIENT:	PROJECT:
<b>Evolution Mining (Cowal) Pty Ltd</b>	North Access Road
Cowal Gold Operations	Cowal Gold Mine Operations
Lake Cowal Road	Lake Cowal, NSW, 2671
Lake Cowal, NSW 2671	

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Ingen Consulting Pty Ltd	CLIENT:	PROJECT:	DRAWING TITLE:	
ACN: 623 948 112	Evolution Mining (Cowal) Pty Ltd	North Access Road	Northern Access Road long	gitudinal
a: Alstonville, NSW	Cowal Gold Operations	Cowal Gold Mine Operations	section - CH0.00 - 500.00	
p: +614 1726 4987	Lake Cowal Road	Lake Cowal, NSW, 2671		
e: michiel@ingenconsulting.com.au	Lake Cowal, NSW 2671		PROJECT NUMBER:	ORIGINAL SIZE:
w: www.ingenconsulting.com.au			J1230	A3
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Note: Existing levels included the level of the proposed drain channels by others																										
Datum 200.000	<b>-</b>												-	0.32%												
DESIGN LEVELS	210.78	210.72	210.65	210.59	210.52	210.46	210.40	210.33	210.27	210.21	210.14	210.08	210.01	209.95	209.89	209.82	209.76	209.70	209.63	209.57	209.50	209.44	209.38	209.31	209.25	209.19
EXISTING LEVELS	210.36	210.30	210.23	210.17	210.11	210.05	209.99	209.93	209.86	209.80	209.74	209.68	209.62	209.56	209.50	209.43	209.37	209.31	209.25	209.19	209.13	209.06	209.00	208.94	208.88	208.82
Cut/Fill (-/+)	0.42	0.42	0.42	0.42	0.41	0.41	0.41	0.41	0.40	0.40	0.40	0.40	0.40	0.39	0.39	0.39	0.39	0.38	0.38	0.38	0.38	0.38	0.37	0.37	0.37	0.37
CHAINAGE	500.00	520.00	540.00	560.00	580.00	00.009	620.00	640.00	00.099	00.089	700.00	720.00	740.00	760.00	780.00	800.00	820.00	840.00	860.00	880.00	00.006	920.00	940.00	00.096	00.086	1000 00
ALIGNMENT DETAILS														)98.0245 =813.83									,			
SUPERELEVATION	4.0% -																									—-4.0% —-4.0%

Scale Horizontal 1:1500 Vertical 1:300

#### NORTH ACCESS RD LONGITUDINAL SECTION



REV:	DESCRIPTION:	DATE:	DRAWN:	REVIEWED:	APPROVED:	APF
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PPROVED BY: lichiel Kamphorst, ISc, BSc, RPEng, RPEQ, NER

> Date: 28/03/23 gned:



Ingen Consulting Pty Ltd ACN: 623 948 112

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p: +614 1726 4987 e: michiel@ingenconsulting.com.au | Lake Cowal, NSW 2671 w: www.ingenconsulting.com.au

CLIENT: Evolution Mining (Cowal) Pty Ltd | North Access Road **Cowal Gold Operations** Lake Cowal Road

PROJECT: **Cowal Gold Mine Operations** Lake Cowal, NSW, 2671

DRAWING TITLE: Northern Access Road longitudinal section - CH500.00 - 1000.00

PROJECT NUMBER: **J1230** ORIGINAL SIZE: DRAWING NUMBER: J1230\_NAR\_C309 REVISION:

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LAKE **PROTECTION** BUND Existing levels included the level .: 57<mark>.</mark>18m L: 60.00m : 60.00m L: 18.00m of the proposed drain channels by others R: 12416.720m R: 2810.948m R: 2601 466m R: 2079.998m Datum 200.000 .32% -0.80% .33% -0.879 207.64 207.64 207.61 207.62 208.23 208.24 208.24 208.10 207.70 208.14 209.19 209.12 209.06 208.99 208.93 208.74 208.68 208.61 208.52 44 88 208.18 207.74 207.86 207.99 208.01 207.80 88 **DESIGN LEVELS** 207. 207.61 207.61 207.45 208.82 208.76 208.70 208.63 208.45 208.33 208.26 208.11 208.10 207.98 207.46 207.25 207.37 208.48 208.43 207.50 207.62 207.75 207.50 208.57 208.39 208.17 208.14 207.54 207.50 207.95 207.26 5 **EXISTING LEVELS** 208. 0.12 0.03 0.03 0.16 0.16 -0.23 -0.19 0.36 0.35 0.15 0.61 0.29 0.63 0.31 0.36 0.36 0.35 0.35 0.30 0.08 0.49 0.62 0.35 0.34 0.34 69 0 0.34 0.11 0.37 0.37 Cut/Fill (-/+) 1040.00 1200.00 1280.00 1286.85 1339.37 1340.00 1352.54 1360.00 1401.41 1458.59 1460.00 1020.00 1060.00 1080.00 1100.00 1120.00 1160.00 1180.00 1210.00 1234.32 1240.00 1380.00 1491.00 1500.00 1140.00 1220.00 1260.00 1270.00 1300.00 1330.00 1390.00 1400.00 1420.00 1430.00 1436.08 1440.00 **CHAINAGE** B=098.0245 R=750.00 B=090.0000 **ALIGNMENT DETAILS** D=813.83 L=105.04 D=654.17 4.0% **SUPERELEVATION** Scale Horizontal 1:1500 Vertical 1:300 NORTH ACCESS RD LONGITUDINAL SECTION

CLIENT:

**Evolution Mining (Cowal) Pty Ltd** 

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**Cowal Gold Operations** 

Lake Cowal, NSW 2671

**Lake Cowal Road** 

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CONSULTING

ENGINEERED WITH PURPOSE

PROJECT:

North Access Road

Cowal Gold Mine Operations

Lake Cowal, NSW, 2671

DRAWING TITLE:

PROJECT NUMBER:

DRAWING NUMBER:

J1230\_NAR\_C310

J1230

**Northern Access Road longitudinal** 

ORIGINAL SIZE:

REVISION:

А3

section - CH1000.00 - 1500.00

YOU DIG

**Draft For Review** 

DATE:

28/03/23 MC

DRAWN: REVIEWED: APPROVED: APPROVED BY:

MK

Michiel Kamphorst, MSc, BSc, RPEng, RPEQ, NER

Signed:

Date: 28/03/23

REV: DESCRIPTION:

**ICDS ICDS NWRD NWRD** TOE TOE DRAIN **DRAIN** SOUTH Max: 207 397 298 9861 :HO Existing levels included the level of the proposed drain channels L: 60,00r by others L: 40.00m R: 2079.998mR; 4960.807m R: 19843.229m R: 6666 667 R: 2307.692m Datum 200.000 00% 2.009 207.79 207.79 207.78 207.78 207.76 207.72 207.34 207.36 207.40 207.39 207.34 207.28 206.98 206.94 206.72 207.68 207.52 207.48 207.36 207.32 207.17 **DESIGN LEVELS** 207. 207 207. 207 206.97 206.91 206.72 207.45 207.41 207.03 207.11 207.15 207.25 207.25 205.28 206.52 207.47 207.46 207.36 207.26 207.18 207.06 207.01 207.00 207.25 207.24 207.12 207.00 206.99 204.69 207.01 207.02 206.97 207.02 207.01 207.31 **EXISTING LEVELS** 0.03 2.50 1.26 0.31 0.31 0.36 0.83 0.26 0.31 0.32 0.28 0.30 0.20 0.22 0.29 0.05 0.09 0.03 0.32 0.25 2.47 0.18 0.32 0.31 Cut/Fill (-/+) 1980.00 1982.52 1993.54 1520.00 1525.00 1530.00 1535.00 1800.00 1922.52 1936.37 1940.00 1952.52 1960.00 1580.00 1620.00 1640.00 1660.00 1680.00 1700.00 1720 00 1740.00 1760.00 1780.00 1840.00 1540.00 1560.00 1600.00 1860.00 1880.00 1890.00 1900.00 1910.00 1920.00 **CHAINAGE** B=090.0000 **ALIGNMENT DETAILS** D=654.17 4.0% **SUPERELEVATION** Scale Horizontal 1:1500 Vertical 1:300

YOU DIG

**Draft For Review** 

DATE:

28/03/23 MC

DRAWN: REVIEWED: APPROVED: APPROVED BY:

Michiel Kamphorst, MSc, BSc, RPEng, RPEQ, NER

Signed:

Date: 28/03/23

REV: DESCRIPTION:

NORTH ACCESS RD LONGITUDINAL SECTION

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w: www.ingenconsulting.com.au

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CLIENT:

Evolution Mining (Cowal) Pty Ltd

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**Cowal Gold Operations** 

Lake Cowal, NSW 2671

**Lake Cowal Road** 

PROJECT:

North Access Road

Cowal Gold Mine Operations

Lake Cowal, NSW, 2671

DRAWING TITLE:

PROJECT NUMBER:

DRAWING NUMBER:

J1230\_NAR\_C311

J1230

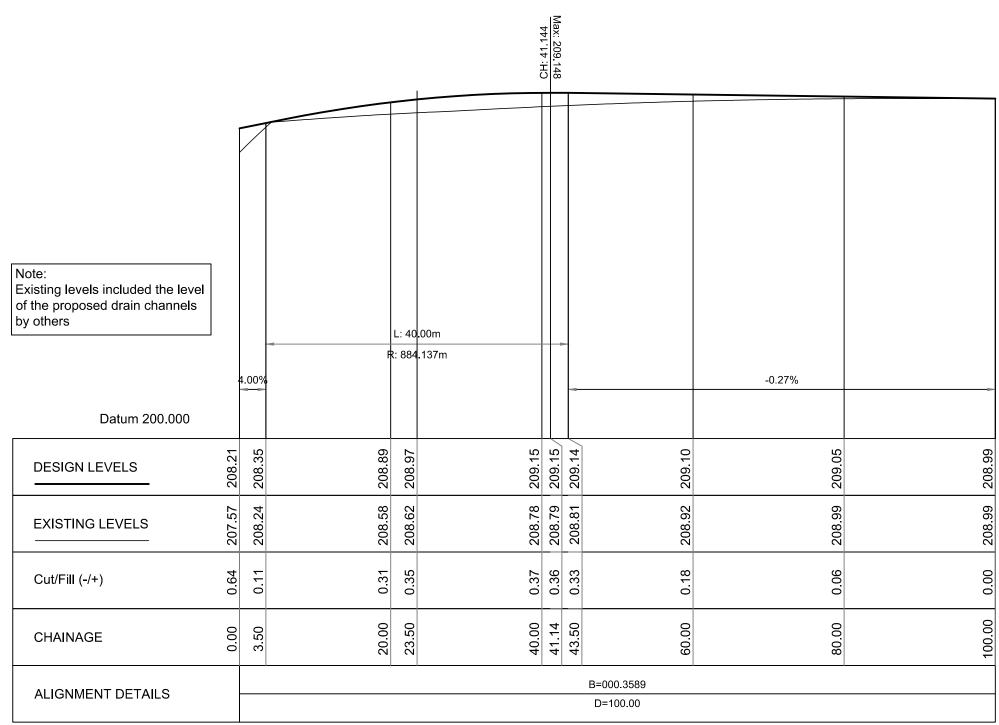
**Northern Access Road longitudinal** 

ORIGINAL SIZE:

REVISION:

А3

section - CH1500.00 - 1993.54



Scale Horizontal 1:500 Vertical 1:100

#### LAKE PROTECTION BUND INTERSECTION LONGITUDINAL SECTION



EV:	DESCRIPTION:	DATE:	DRAWN:	REVIEWED:	APPROVED:	APPROVED BY:	
١	Draft For Review	28/03/23	MC	MK		Michiel Kamphorst	•
						MSc, BSc, RPEng, F	RPEQ, NER
						  Sianed:	Date: <b>28/03/23</b>
						3	



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14 1726 4987	Lake Cowal Road
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CLIENT:

	PROJECT:
td	North Access Road Cowal Gold Mine Operation
	<b>Cowal Gold Mine Operation</b>
	Lake Cowal, NSW, 2671
	• •

	DRAWING TITLE:	
	Lake Protection Bund inter	section
	longitudinal section	
	PROJECT NUMBER:	ORIGINAL SIZE:
	J1230	A3
	DRAWING NUMBER:	REVISION:
r	J1230_NAR_C312	A

c. michicl@ingchconsulting.com.au	Lake Cowai, NSW 2071		ľ
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		у/ <del>2-</del> {	169	% -4.00%	4.00% 5	<b>V</b> 9	cal <sub>1:3.0</sub>
		W.B.	lical				
Datum: 210.000							
PROPOSED LEVELS	211.25	211.40	211.42	211.58	211.70	211.72	<del>-</del>
EXISTING LEVELS	211.25	211.25	<del>-</del>	211.25	211.25	211.25	<del>-</del>
LEVEL DIFFERENCE	00.0	0.15	0.17	0.32	0.44	0.47	0.00
OFFSETS	47,4-	-4.30	-3.80	0.00	3.00	3.50	16.4
Scale Horizontal 1:100	Vertical 1:100		-				

Scale Horizontal 1:100 Vertical 1:100

Chainage: 100

		Ve f	<u>00</u> °	% -4.00%	4.00%	.QQ	ocal <sub>1:3.0</sub>	
Datum: 210.000								
PROPOSED LEVELS	211.00	<u> </u>	211.19	211.34	211.46	211.48	_	
EXISTING LEVELS	211.00	211.00	211.00	211.01	211.01	211.01	7.	
LEVEL DIFFERENCE	0.00		0.18	0.33	0.45	0.48	0.00	
OFFSETS	-4.78	-4.30	-3.80	00.0	3.00	3.50	4.93	

Scale Horizontal 1:100 Vertical 1:100

Chainage: 150

	Ve	1891	% -0.00%	-0.00%	(	0.007	(Cal	
Datum: 210.000								
PROPOSED LEVELS	211.08	211.53	_		211.53	211.53	211.50	
EXISTING LEVELS	211.68	211.67	211 53		211.50	211.50	211.50	
LEVEL DIFFERENCE	-0.59	-0.13	000		0.03	0.03	0.00	
OFFSETS	4.30	-3.80	C		3.00	3.50	3.59	
Scale Horizontal 1:100	Vertical 1:100							

Chainage: 0

		1:3100	100°	<del>// -4.00%</del>	4,00%	.QQ	tical -1:3.0	
Datum: 210.000		'						
PROPOSED LEVELS	211.29	211.63	211.66	211.81	211.93	211.95	211.25	
EXISTING LEVELS	211.29	211.29	211.29	211.27	211.25	211.25	211.25	
LEVEL DIFFERENCE	0.00	0.34	0.37	0.54	0.68	0.70	0.00	
OFFSETS	-5.31	-4.30	-3.80	0.00	3.00	3.50	5.61	

Scale Horizontal 1:100 Vertical 1:100

Chainage: 50

REV:	DESCRIPTION:	DATE:	DRAWN:	REVIEWED:	_	APPROVED BY:	
Α	Draft For Review	28/03/23	MC	MK	• • • • •	Michiel Kamphorst	•
						MSc, BSc, RPEng,	RPEQ, NER
						Signed:	Date: <b>28/03/23</b>
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						1	



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	CLIENT:
	<b>Evolution Mining (Cowal) Pty Ltd</b>
	Cowal Gold Operations
	Lake Cowal Road
au	Cowal Gold Operations Lake Cowal Road Lake Cowal, NSW 2671

PROJECT.
North Access Road Cowal Gold Mine Operations
<b>Cowal Gold Mine Operations</b>
Lake Cowal, NSW, 2671

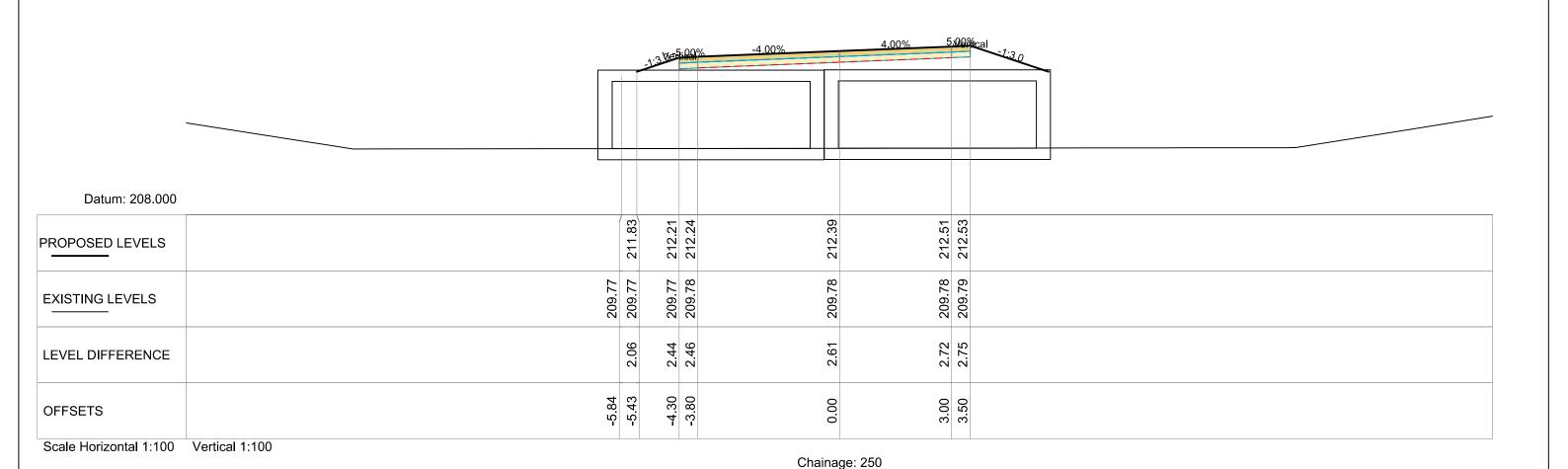
DRAWING TITLE: Northern Access Road cros	s sections
PROJECT NUMBER: J1230	ORIGINAL SIZE:

REVISION:

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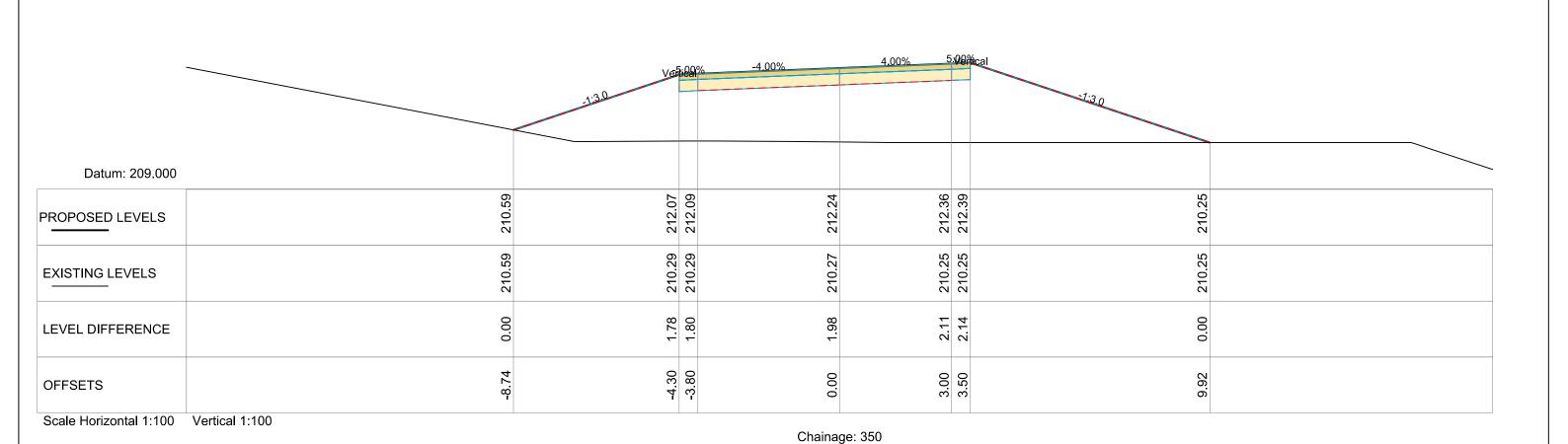
11230\_NAR\_C313



5.00% ical Datum: 210.000 210.76 211.92 212.04 212.07 210.75 PROPOSED LEVELS 210.76 210.76 210.76 210.76 210.75 **EXISTING LEVELS** 1.16 0.00 0.98 1.28 0.00 LEVEL DIFFERENCE 80 0.00 3.00 7.43 **OFFSETS** Scale Horizontal 1:100 Vertical 1:100

Ingen Consulting Pty Ltd ACN: 623 948 112 DRAWN: REVIEWED: APPROVED: APPROVED BY: DRAWING TITLE: REV: DESCRIPTION: DATE: CLIENT: PROJECT: Michiel Kamphorst, Evolution Mining (Cowal) Pty Ltd | North Access Road Northern Access Road cross sections **Draft For Review** 28/03/23 MC МК MSc, BSc, RPEng, RPEQ, NER a: Alstonville, NSW **Cowal Gold Operations** Cowal Gold Mine Operations p: +614 1726 4987 Lake Cowal Road Lake Cowal, NSW, 2671 e: michiel@ingenconsulting.com.au ORIGINAL SIZE: Lake Cowal, NSW 2671 PROJECT NUMBER: CONSULTING Date: 28/03/23 J1230 Signed: w: www.ingenconsulting.com.au А3 ENGINEERED WITH PURPOSE Copyright in the drawings, information and data recorded in this document is the property of Ingen Consulting. This document and the information are DRAWING NUMBER: REVISION: solely for the use of the authorised recipient and this document may not be used, copied, or reproduced in whole or in part for any purpose than that for which it was supplied by Ingen Consulting. This document shall only be used for construction if stamped and approved for construction. J1230\_NAR\_C314

Chainage: 200



5.00% cal Datum: 209.000 212.01 212.69 212.81 212.84 211.04 212 ( PROPOSED LEVELS 212.01 212.09 212.28 212.37 211.04 212.54 **EXISTING LEVELS** 0.00 0.16 0.00 0.23 0.73 LEVEL DIFFERENCE 80 0.00 3.00 8.91 OFFSETS 4 ო

Scale Horizontal 1:100 Vertical 1:100

DRAWN: REVIEWED: APPROVED: APPROVED BY: REV: DESCRIPTION: DATE: Michiel Kamphorst, **Draft For Review** 28/03/23 MC МК MSc, BSc, RPEng, RPEQ, NER

Signed:

Date: 28/03/23



### Chainage: 300

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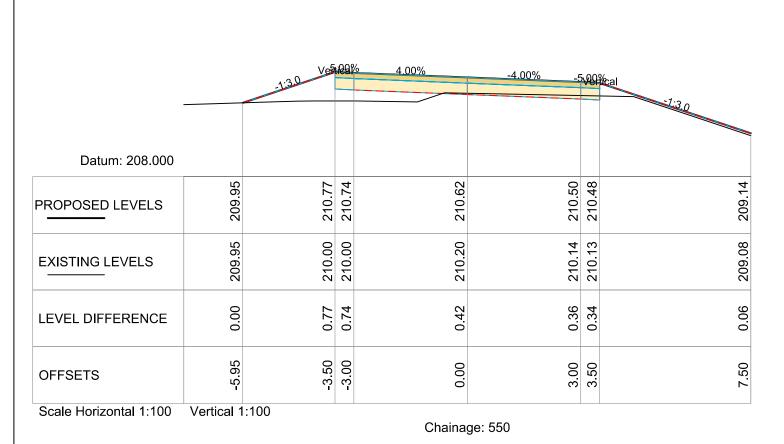
#### CLIENT: PROJECT: Evolution Mining (Cowal) Pty Ltd | North Access Road **Cowal Gold Operations** Lake Cowal Road Lake Cowal, NSW 2671

## Cowal Gold Mine Operations Lake Cowal, NSW, 2671

## DRAWING TITLE: Northern Access Road cross sections

ORIGINAL SIZE: PROJECT NUMBER: J1230 А3 DRAWING NUMBER: REVISION: J1230\_NAR\_C315

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Ve5ti291% 4.00% -4.00% Datum: 206.000 210.45 210.18 209.48 210.30 PROPOSED LEVELS 209 48 209.47 209.47 209.90 83 **EXISTING LEVELS** 209.8 96 0 0.00 0.35 0.05 LEVEL DIFFERENCE 6 40 -3.50 0.00 3.00 **OFFSETS** Scale Horizontal 1:100 Vertical 1:100

		1.3.Ve5	iego	6 -4.00%	4.00%	2. <b>0</b> 6	acah:3.0	
Datum: 208.000								
PROPOSED LEVELS	210.12	210.55	210.58	210.73	210.85	210.87	210.46	
EXISTING LEVELS	210.25	210.25	210.25	210.60	210.62	210.61	210.59	
LEVEL DIFFERENCE	-0.13	0:30	0.33	0.12	0.23	0.26	-0.13	
OFFSETS	-5.59	-4.30	-3.80	0:00	3.00	3.50	4.74	
Scale Horizontal 1:100	Vertical 1:10	0					1	

Chainage: 400

Datum: 208.000 210.88 210.78 210.03 210.82 PROPOSED LEVELS 210.00 210.00 210.51 210.45 210.44 **EXISTING LEVELS** 0.88 0.31 0.32 0.04 LEVEL DIFFERENCE -3.50 9 0.00 3.00 **OFFSETS** 

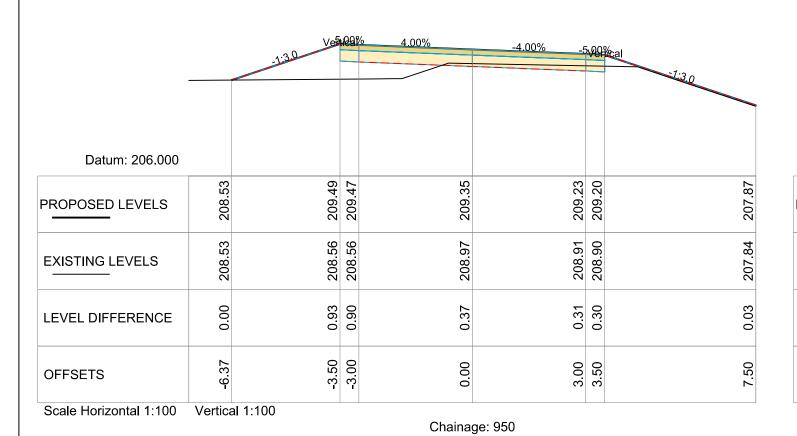
Chainage: 650

Scale Horizontal 1:100 Vertical 1:100

REV:	DESCRIPTION:	DATE:	DRAWN:	REVIEWED:	APPROVED:	APPROVED BY:			
Α	Draft For Review	28/03/23	MC	MK	• • • • •	Michiel Kamphorst,			
						MSc, BSc, RPEng, RPEQ, NER			
						Signed: Date: <b>28/03/23</b>			

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		Chainage: 450		
a: Alstonville, NSW p: +614 1726 4987	•	PROJECT: North Access Road Cowal Gold Mine Operations Lake Cowal, NSW, 2671	DRAWING TITLE: Northern Access Road cros PROJECT NUMBER: J1230	s sections  ORIGINAL SIZE: A3
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-4.00% Datum: 206.000 208.91 208.26 209.03 207. PROPOSED LEVELS 208.26 208.25 208.25 208.66 208.60 **EXISTING LEVELS** 207 0.00 0.92 0.36 0.30 LEVEL DIFFERENCE -3.50 0.00 3.00 **OFFSETS** Scale Horizontal 1:100 Vertical 1:100

Chainage: 1050

		1:30 Ves	199	4.00%	-4.00%	<b>100</b>	Tral -1:3.0
Datum: 206.000							
PROPOSED LEVELS	209.25	210.13	210.10	209.98	209.86	209.84	208.50
EXISTING LEVELS	209.25	209.25	209.25	209.59	209.53	209.52	208.46
LEVEL DIFFERENCE	0.00	0.88	0.85	0.39	0.33	0.32	0.04
OFFSETS	-6.13	-3.50	-3.00	0.00	3.00	3.50	7.50
Scale Horizontal 1:100	Vertical	1:100				1	

		-1:30 Ves	189	4.00%	-4.00%	5 <b>\QQ</b>	*cal
Datum: 206.000							
PROPOSED LEVELS	209.00	209.81	209.78	209.66	209.54	209.52	208.19
EXISTING LEVELS	209.00	209.00	208.99	209.28	209.22	209.21	208.15
LEVEL DIFFERENCE	0.00	0.81	0.79	0.38	0.32	0.31	0.03
OFFSETS	-5.93	-3.50	-3.00	0.00	3.00	3.50	7.50
Scale Horizontal 1:100	Vertical 1:100						

Chainage: 750 REV: DESCRIPTION: DRAWN: REVIEWED: APPROVED: APPROVED BY: DATE: Michiel Kamphorst, MSc, BSc, RPEng, RPEQ, NER **Draft For Review** 28/03/23 MC МК Date: 28/03/23 Signed:

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Chainage: 850 CLIENT: Ingen Consulting Pty Ltd

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p: +614 1726 4987	Lake
	Lake
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LINI.	PROJECT.
olution Mining (Cowal) Pty Ltd	North Access Road
wal Gold Operations	<b>Cowal Gold Mine Operation</b>
ce Cowal Road	Lake Cowal, NSW, 2671
ce Cowal, NSW 2671	

a: Alstonville, NSW p: +614 1726 4987	•	Cowal Gold Mine Operations Lake Cowal, NSW, 2671	Northern Access Road Cros	s sections	
e: michiel@ingenconsulting.com.au w: www.ingenconsulting.com.au	Lake Cowal, NSW 2671		PROJECT NUMBER: <b>J1230</b>	ORIGINAL SIZE: A3	
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DRAWING TITLE:

		_1:3.0 Ve5	1:00?	4.00%	-4.60%	5,00	rcal
Datum: 206.000							
PROPOSED LEVELS	207.57	208.08	208.06	207.94	207 82	207.79	
EXISTING LEVELS	207.57	207.59	207.60	207.62	208.07	208.06	
LEVEL DIFFERENCE	0.00	0.49	0.46	0.32	4 C C	-0.27	
OFFSETS	-5.06	-3.50	-3.00	0.00	C	3.50	
Scale Horizontal 1:100	Vertical 1:100			Chainaç	ge: 1300		

1.3. Ve5ti291% Datum: 206.000 207.49 207.34 207.61 PROPOSED LEVELS 207.38 207.47 56 57 **EXISTING LEVELS** 207. -0.07 0.38 0.00 0.14 LEVEL DIFFERENCE -3.50 0.00 3.00 OFFSETS Scale Horizontal 1:100 Vertical 1:100

Chainage: 1350

Ve5ti291% Datum: 206.000 208.85 208.59 208.56 207.23 207.81 PROPOSED LEVELS **EXISTING LEVELS** 0.29 0.00 1.05 0.01 LEVEL DIFFERENCE -3.50 -6.64 0.00 3.00 7.50 OFFSETS Scale Horizontal 1:100 Vertical 1:100

1:30 Ve5i29% -4.00% -5\00%calo Datum: 206.000 208.20 208.18 208.01 208.47 208.32 PROPOSED LEVELS 207.89 207.88 208.09 208.03 208.02 208.01 **EXISTING LEVELS** 0.00 0.58 0.23 0.10 LEVEL DIFFERENCE -3.50 0.00 3.00 OFFSETS Scale Horizontal 1:100 Vertical 1:100

Chainage: 1150

Chainage: 1250

REV:	DESCRIPTION:	DATE:	DRAWN:	REVIEWED:	APPROVED:	APPROVED BY:	
Α	Draft For Review	28/03/23	МС	MK	MK	Michiel Kamphorst,	
						MSc, BSc, RPEng, RPEQ, NER	
						Signed: Date: <b>28/03/23</b>	

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e: michiel@ingenconsulting.com.au	Lake Cowal, NSW 2671	l
w: www.ingenconsulting.com.au		l

 I	DRAWING Northern
, ,	PROJECT

	DRAWING TITLE:		
	<b>Northern Access</b>	Road cros	s sections
	PROJECT NUMBER	<b>!:</b>	ORIGINAL SIZE:
	J1230		A3
are	DRAWING NUMBER	₹:	REVISION:

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DRAWING NUMBER:

J1230\_NAR\_C318

Draft For Review	28/03/23 MC	MK	MK	Michiel Kamphorst MSc, BSc, RPEng, F	, RPEQ, NER		ACN: 623 948 112 a: Alstonville, NSW p: +614 1726 4987		Evolution Mining Cowal Gold Oper Lake Cowal Road	ration	val) Pty Ltd S	North Access Cowal Gold M Lake Cowal, N	line Operations	Nort	iern Access Ro	oad cross sections
: DESCRIPTION:	DATE: DRAWI		IEWED: APPROVE				Ingen Consulting Pty Lt		CLIENT:		D. E	Chainage			VING TITLE:	
OFFSETS Scale Horizontal 1:100	Vertical 1:100	-3.50	-3.00	0.00	3.50	4.59	OFFSETS Scale Horizontal 1:10	n Verti	cal 1:100	-3.50	-3.00	0.00	<u>ح</u> «	3.50	4.53	
LEVEL DIFFERENCE	0.00	0.30	0.33	0.31	0.95	0.98	LEVEL DIFFERENC	E	2.04	2.71	2.68	2.56	c 67 67	2.40	2.06	
EXISTING LEVELS	207.61	207.60	207.59	207.50	206.73	206.32	EXISTING LEVELS		205.26	205.22	205.22	205.23	700 700 700	205.24	205.24	
PROPOSED LEVELS	207.61		207.93	207.80	207.68	207.30	PROPOSED LEVELS	3	207.30	207 93	207.91	207.79	79 700	207.64	207.30	
Datum: 204.000							Datum: 204.0	00								
		1.465	<u>99</u> % 4.01%	-4.00%	-5,000	(cal 3.0			130	Ve	QQ1% 4	.00%	-4.00%	-5,00%	130	
Scale Horizontal 1.100	vertical 1.100		C	chainage: 1600			— Assumed headwall by others	oo veru	Cai 1.100			Chainage	e: 1700			
OFFSETS Scale Horizontal 1:100	Vertical 1:100	-3.50	-3.00	0.00	3.00	4.08	OFFSETS  Scale Horizontal 1:10	20 Vorti	cal 1:100	-3.50	-3.00	0.00	<u>ح</u>	3.50	5.	
LEVEL DIFFERENCE	00:00	0.47		0.33	0.22		LEVEL DIFFERENC	E	00.00	0.46		0.32		0.18		
EXISTING LEVELS	207.32	207.32	207.32	207.31	207.31	207.30	EXISTING LEVELS		207.13	207.13	207.13	207.12	207 12	207.12	71.107	
PROPOSED LEVELS	207.32	207.79	207.76	207.64	207.52	207.30	PROPOSED LEVELS	3	207.13	207.59	207.56	207.44	207.32	207.30	71.702	
Datum: 206.000							Datum: 206.0	00								
				-4.00%	-5,200	1. O				3.0	<del>Q</del> 9% 4	00%	-4.00%	-5\N9%	<b>!</b> o	

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DRAWING NUMBER:

11230\_NAR\_C319

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PROJECT NUMBER: **J1230** 

ORIGINAL SIZE:

REVISION:

		1:31005	1891	4.00%	-4.00%	-5 <b>√0</b> 0	<b>₹16</b> 3n
Datum: 206.000							
PROPOSED LEVELS	207.03	207.37	207.35	207.23	207 11	207.08	207.00
EXISTING LEVELS	207.03	207.03	207.02	207.01	207 00	207.00	207.00
LEVEL DIFFERENCE	00.0	0.35	0.32	0.22	, ,	0.08	00.00
OFFSETS	-4.53	-3.50	-3.00	0.00	00	3.50	
Scale Horizontal 1:100	Vertical 1:100						

Chainage: 1900

Chainage: 1800

	<u>.</u>	<b>\</b> ∕ <b>∂</b> •	1691	<u>4.00%</u>	-4.00% -	<del>.                                    </del>	<del>0/</del>	- 0	
Datum: 206.000						Vei	cal	2:2.0	
PROPOSED LEVELS	206.70	206.86	206.84	206.72	206.60	206.57	206.27	206.75	
EXISTING LEVELS	206.70	206.70	206.70	206.72	206.74	206.74	206.75	206.75	
LEVEL DIFFERENCE	0.00	0.16	0.13	0.00	-0.14	-0.17	-0.48	00.0	
OFFSETS	-3.99	-3.50	-3.00	0.00	3.00	3.50	4.40	5.36	

Scale Horizontal 1:100 Vertical 1:100

Chainage: 1994

		1:3 Ve	1991	<u>4.00%</u>	-4.00%	5 <b>\QQ</b>	a and a second
Datum: 206.000							
PROPOSED LEVELS	206.99	207.39	207.36	207.24	207.12	207.10	206.98
EXISTING LEVELS	206.99	206.99	206.99	206.99	206.98	206.98	206.98
LEVEL DIFFERENCE	0.00	0.39	0.37	0.25	0.14	0.11	0.00
OFFSETS	4.68	-3.50	-3.00	0.00	3.00	3.50	3.84
Scale Horizontal 1:100	Vertical 1:100				ı		1

REV: DESCRIPTION:

A Draft For Review 28/03/23 MC MK MK Michiel Kamphorst, MSc, BSc, RPEng, RPEQ, NER

Signed: Date: 28/03/23



	7:30 Ve5:00% 4.00% -4.00% -5:00%cal						%cal
Datum: 204.000			_				
PROPOSED LEVELS	206.01	207.31	207.28	207.16	207.04	207.02	205.66
EXISTING LEVELS	206.01	204.89	204.74	204.32	204.33	204.47	205.66
LEVEL DIFFERENCE	00.00	2.42	2.54	2.84	2.71	2.55	0.00
OFFSETS	-7.38	-3.50	3 00	0.00	3.00	3.50	7.57

Scale Horizontal 1:100 Vertical 1:100

Chainage: 1865

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	ACN: 623 948 112	Evolution Mining (Cowal) Pty Ltd	North Access Road	Northern Access Road cros	s sections		
	a: Alstonville, NSW	Cowal Gold Operations					
	p: +614 1726 4987	Lake Cowal Road	Lake Cowal, NSW, 2671				
G	e: michiel@ingenconsulting.com.au	Lake Cowal, NSW 2671		PROJECT NUMBER:	ORIGINAL SIZE:		
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