

PROPOSED SUBDIVISION - HILLVIEW EAST

442 LOUTH PARK ROAD - LOUTH PARK

DA 22-1260 MODIFICATION


CLIENT: NEWPRO25 PTY LTD

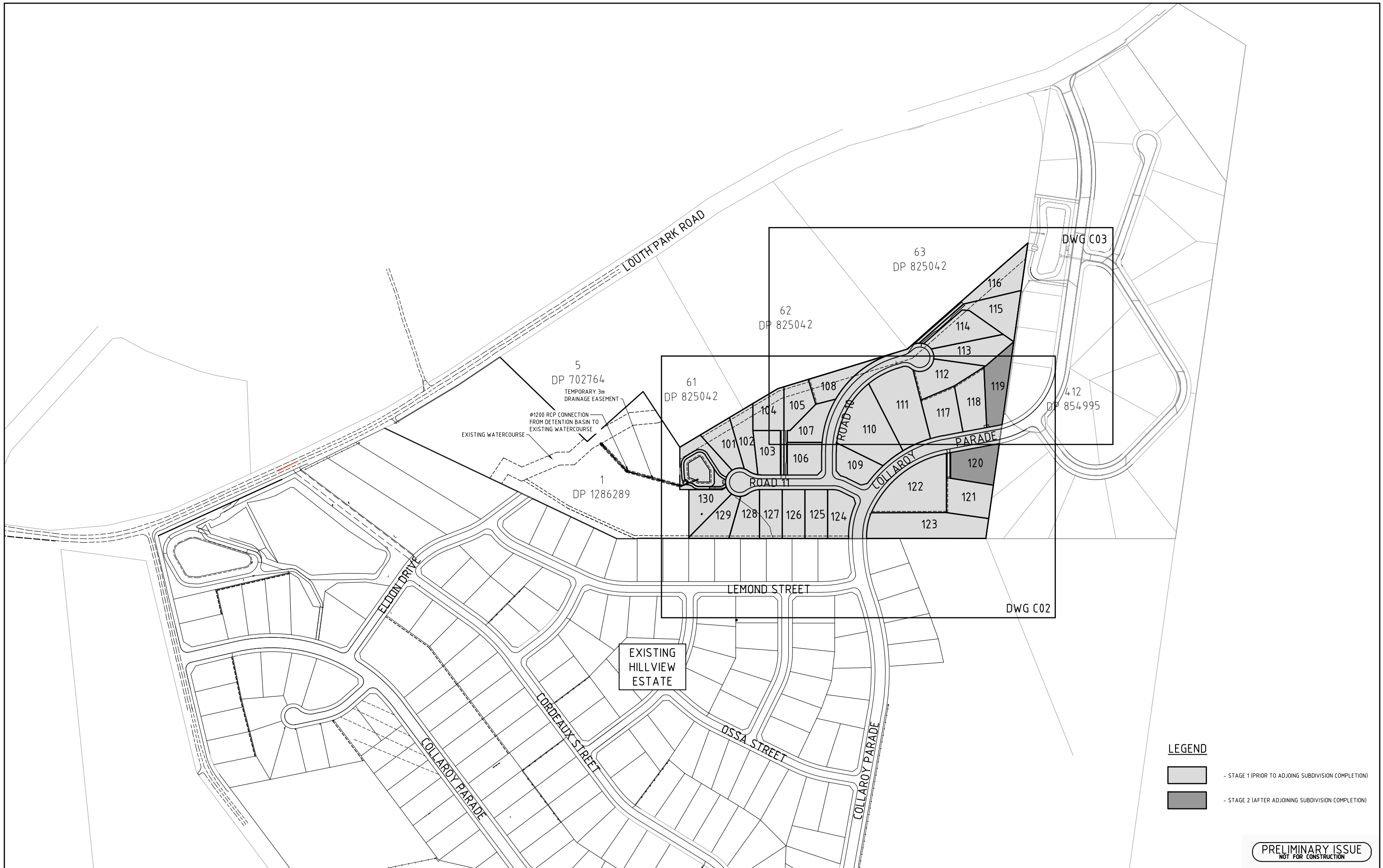
CONSENT AUTHORITY: MAITLAND CITY COUNCIL

DATE: DECEMBER 2024

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PRELIMINARY ISSUE
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14 BASIN AMENDMENTS 13 LAYOUT REVISED				A.M I.H	18.12.24 14.11.24	Project Approval IAN HILL (B.E) Consulting Civil Engineer			Drawing No C00	Revision 14			A1 SHEET
REVISION	Description	Drawn	App'd	Date									

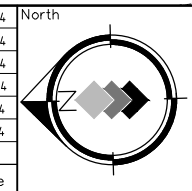


LEGEND

	- STAGE 1 (PRIOR TO ADJOINING SUBDIVISION COMPLETION)
	- STAGE 2 (AFTER ADJOINING SUBDIVISION COMPLETION)

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
9	GENERAL REVISION	A.M	I.H	01.07.24
8	GENERAL AMENDMENT	A.M	I.H	16.05.24
7	GENERAL AMENDMENTS	A.M	I.H	15.05.24
5	LAYOUT AMENDMENTS	A.M	I.H	05.03.24
14	BASIN AMENDMENTS	A.M	I.H	18.12.24
13	REVISED LAYOUT	DB	I.H	14.11.24
10-12	NOT ISSUED			



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Designed A.M	Scale 1:500	Client
Cad Reference 21360C dC01 r14		
Project Approval IAN HILL (B.E) Consulting Civil Engineer		

GCA
ENGINEERING SOLUTIONS

A.B.N. 92 086 017 745
1 HARTLEY DRIVE, THORNTON NSW 2322
PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
GENERAL ARRANGEMENT PLAN

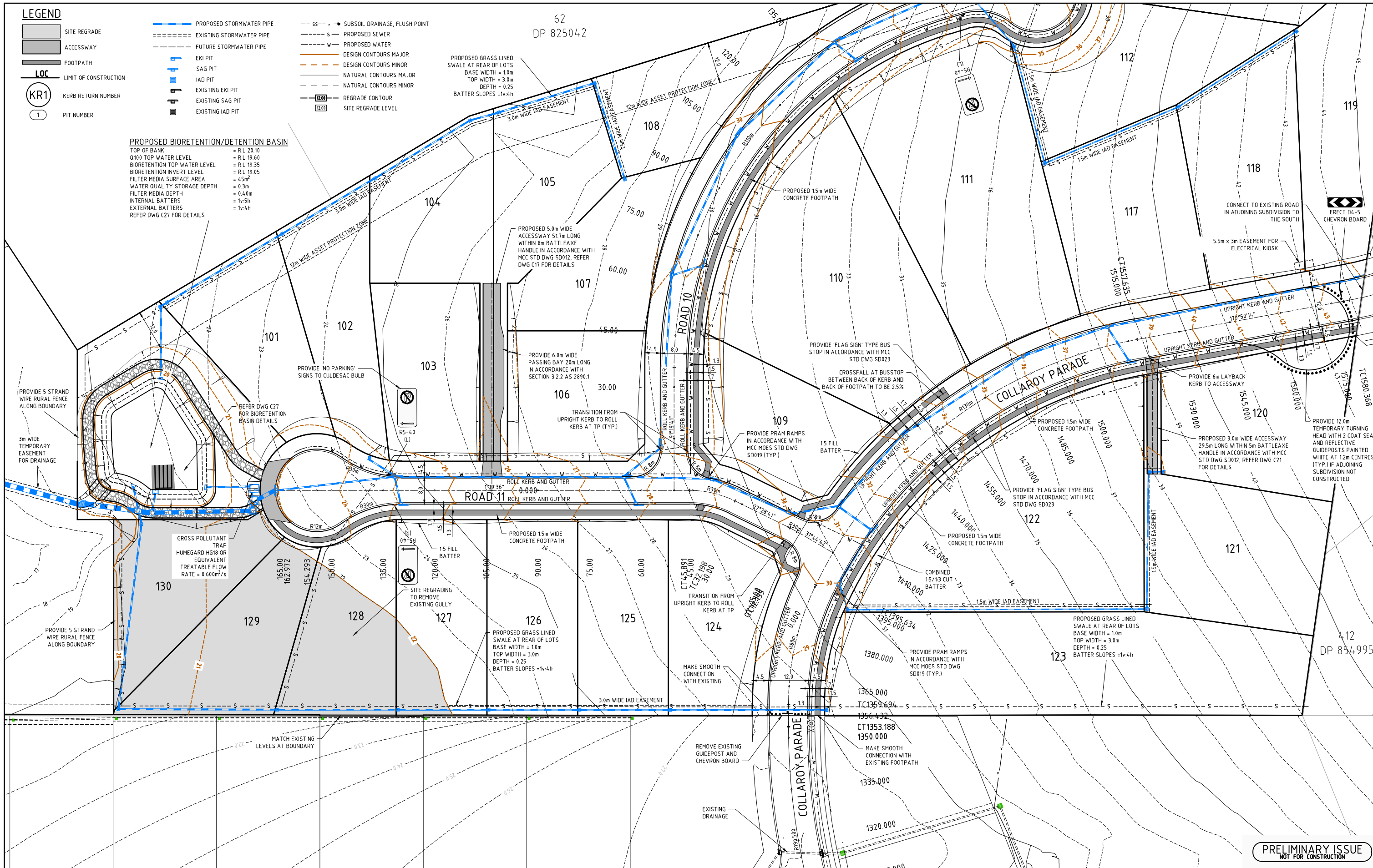
Project No 21360C	
Drawing No C01	Revision 14
A1 SHEET	

LEGEND

- SITE REGRADE
- ACCESSWAY
- FOOTPATH
- LIMIT OF CONSTRUCTION
- KERB RETURN NUMBER
- PIT NUMBER
- PROPOSED STORMWATER PIPE
- EXISTING STORMWATER PIPE
- FUTURE STORMWATER PIPE
- EKI PIT
- SAG PIT
- IAD PIT
- EXISTING EKI PIT
- EXISTING SAG PIT
- EXISTING IAD PIT
- SUBSOIL DRAINAGE, FLUSH POINT
- PROPOSED SEWER
- PROPOSED WATER
- DESIGN CONTOURS MAJOR
- DESIGN CONTOURS MINOR
- NATURAL CONTOURS MAJOR
- NATURAL CONTOURS MINOR
- REGRADE CONTOUR
- SITE REGRADE LEVEL

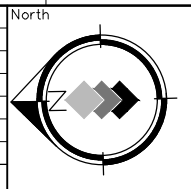
PROPOSED BIORETENTION/DETENTION BASIN

- TOP OF BANK = R.L. 20.10
- Q100 TOP WATER LEVEL = R.L. 19.60
- BIORETENTION TOP WATER LEVEL = R.L. 19.35
- BIORETENTION INVERT LEVEL = R.L. 19.05
- FILTER MEDIA SURFACE AREA = 4.5m²
- WATER QUALITY STORAGE DEPTH = 0.3m
- FILTER MEDIA DEPTH = 0.40m
- INTERNAL BATTERS = 1v:5h
- EXTERNAL BATTERS = 1v:4h
- REFER DWG C27 FOR DETAILS



PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
14	BASIN AMENDMENTS	A.M	I.H	18.12.24
13	REVISED LAYOUT	DB	I.H	14.11.24
12	COUNCIL COMMENTS	A.M	I.H	12.08.24
11	BASIN AMENDMENTS	A.M	I.H	06.08.24
10	SIGNAGE AMENDMENTS	A.M	I.H	04.07.24
9	COUNCIL COMMENTS	A.M	I.H	27.06.24
8	GENERAL AMENDMENT	A.M	I.H	16.05.24



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Designed: A.M
Scale: 1:500
Cad Reference: 21360C dC02 r14
Project Approval: IAN HILL (B.E.) Consulting Civil Engineer

























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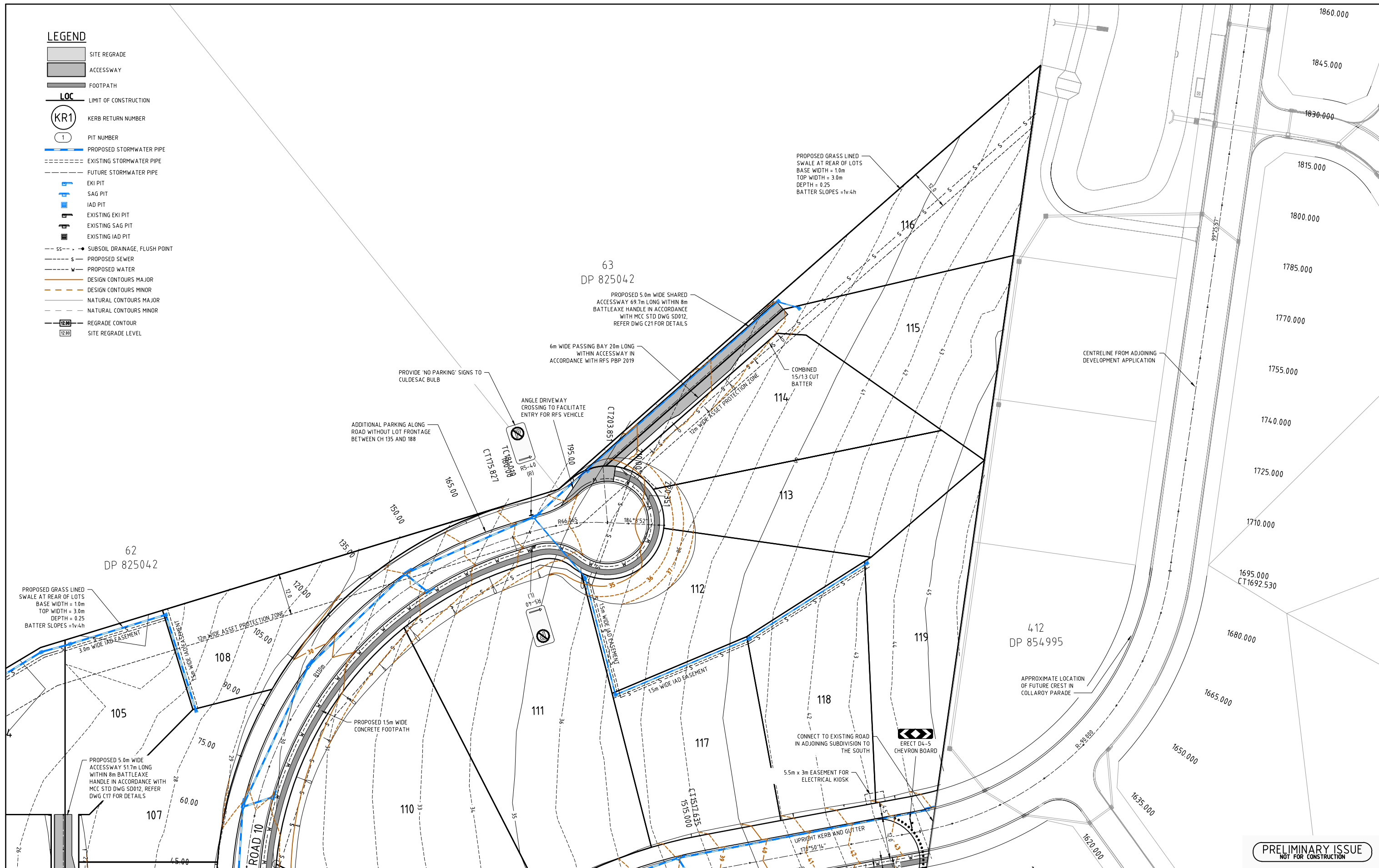


PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
PLAN SHEET (1 OF 2)

Project No	21360C
Drawing No	C02
Revision	14
A1 SHEET	

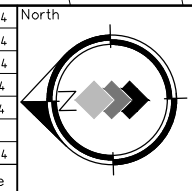
LEGEND

-  SITE REGRADE
-  ACCESSWAY
-  FOOTPATH
-  LOC LIMIT OF CONSTRUCTION
-  KERB RETURN NUMBER
-  PIT NUMBER
-  PROPOSED STORMWATER PIPE
-  EXISTING STORMWATER PIPE
-  FUTURE STORMWATER PIPE
-  EKI PIT
-  SAG PIT
-  IAD PIT
-  EXISTING EKI PIT
-  EXISTING SAG PIT
-  EXISTING IAD PIT
-  SUBSOIL DRAINAGE, FLUSH POINT
-  PROPOSED SEWER
-  PROPOSED WATER
-  DESIGN CONTOURS MAJOR
-  DESIGN CONTOURS MINOR
-  NATURAL CONTOURS MAJOR
-  NATURAL CONTOURS MINOR
-  REGRADE CONTOUR
-  SITE REGRADE LEVEL



PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
9	COUNCIL COMMENTS	A.M	I.H	27.06.24
6	WATER AND SEWER ADDED	DB	I.H	22.03.24
5	LAYOUT AMENDMENTS	A.M	I.H	04.03.24
14	LOT NUMBER AMENDMENTS	A.M	I.H	18.12.24
13	REVISED LAYOUT	DB	I.H	14.11.24
11-12	NOT ISSUED			
10	SIGNAGE AMENDMENTS	A.M	I.H	04.07.24



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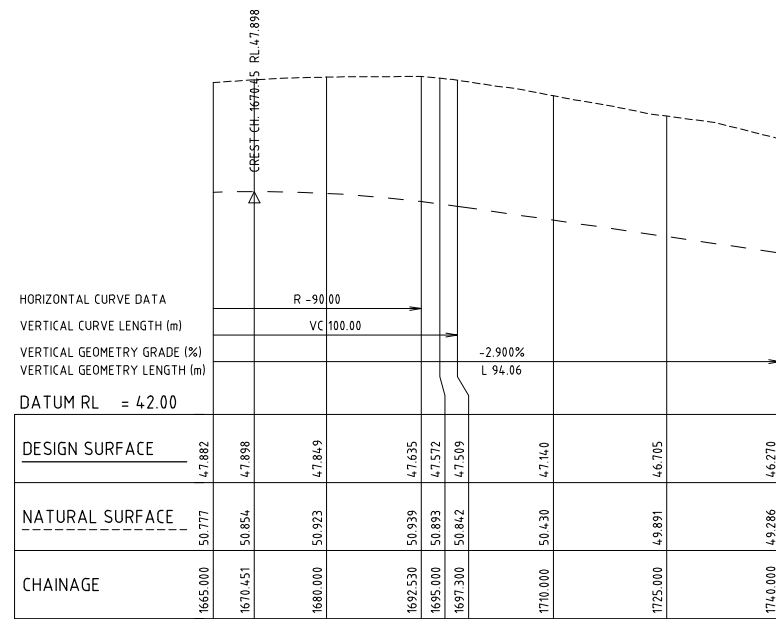
Designed: A.M
Scale: 1:500
Cad Reference: 21360C dC03 r14
Project Approval: IAN HILL (B.E)
Consulting Civil Engineer

Client: _____



PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
PLAN SHEET (2 OF 2)

Project No		21360C
Drawing No	Revision	
C03	14	
A1 SHEET		



A1 SCALE: HORIZONTAL 1:500, VERTICAL 1:100
LONGITUDINAL SECTION COLLARROY PARADE

EXISTING CONSTRUCTION

PROPOSED CONSTRUCTION

FUTURE CONSTRUCTION

HORIZONTAL CURVE DATA

VERTICAL CURVE LENGTH (m)	VC 50.00
VERTICAL GEOMETRY GRADE (%)	6.786%
VERTICAL GEOMETRY LENGTH (m)	L 80.08

DATUM RL = 22.00

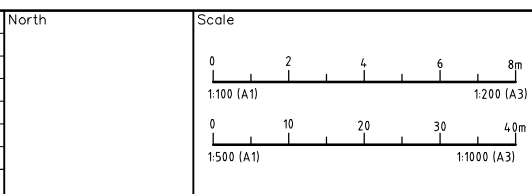
DATUM RL = 22.00

DESIGN SURFACE	27.954	28.329	28.409	28.450	28.572	28.614	28.710	29.228	29.507	29.938	29.973	30.598	30.842	30.936	31.859	32.136	32.877	33.656	33.897	34.715	34.976	35.859	36.137	37.322	38.507	38.715	39.692	40.877	42.062	43.247	43.671	43.671	44.432	45.008	45.585	45.973	46.523	47.219	47.608	47.672	47.882	
NATURAL SURFACE	27.850	28.268	28.314	28.450	28.572	28.614	28.710	29.556	29.870	30.333	30.369	30.598	31.219	31.305	31.859	32.136	32.877	33.982	34.204	34.715	34.976	35.859	36.137	37.504	37.322	38.678	38.507	39.854	40.877	42.282	43.468	43.671	43.671	44.432	45.008	45.585	45.973	46.523	47.219	47.608	47.672	47.882
CHAINAGE	1335.000	1350.000	1353.188	1356.432	1359.694	1361.397	1365.000	1380.000	1386.397	1395.000	1395.634	1406.748	1410.000	1411.397	1425.000	1440.000	1451.479	1455.000	1455.000	1466.479	1470.000	1481.479	1485.000	1500.000	1515.000	1517.635	1530.000	1545.000	1560.000	1575.000	1580.368	1580.368	1590.000	1597.300	1605.000	1610.749	1620.000	1635.000	1647.300	1650.000	1665.000	

A1 SCALE: HORIZONTAL 1:500, VERTICAL 1:100
LONGITUDINAL SECTION COLLARROY PARADE

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

13	REVISED LAYOUT	DB	IH	14.11.24
6-12	NOT ISSUED			
5	LAYOUT AMENDMENTS	A.M	I.H	04.03.24
4	LAYOUT AMENDMENTS	A.M	I.H	30.03.23
1	ORIGINAL ISSUE	A.M	I.H	08.06.22
REVISION	Description	Drawn	App'd	Date



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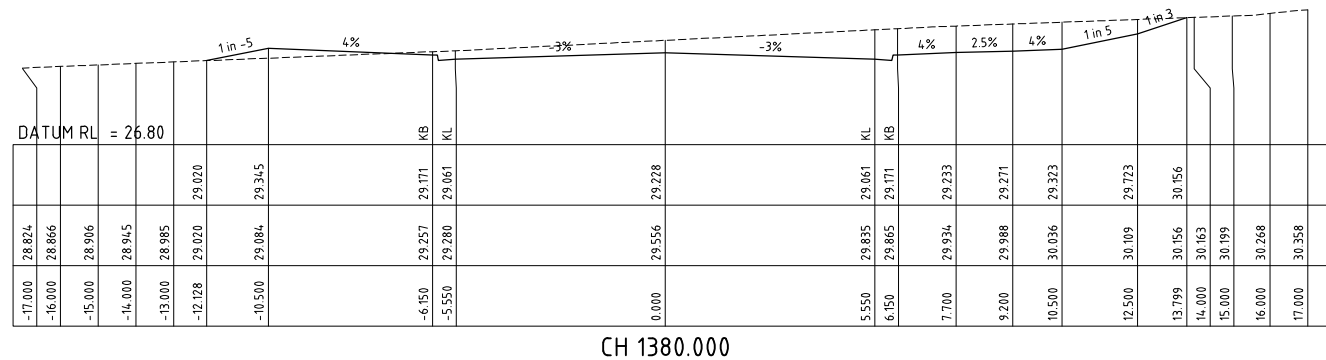
Designed: A.M
Scale: 1:500H/1:100V
Cad Reference: 21360C dC04 r13
Project Approval: IAN HILL (B.E)
Consulting Civil Engineer

Client

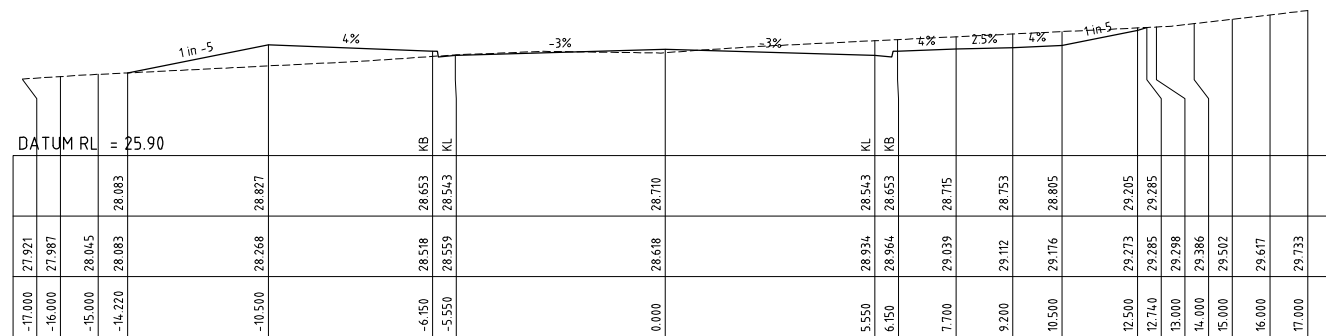


PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
COLLARROY PARADE LONGITUDINAL SECTION

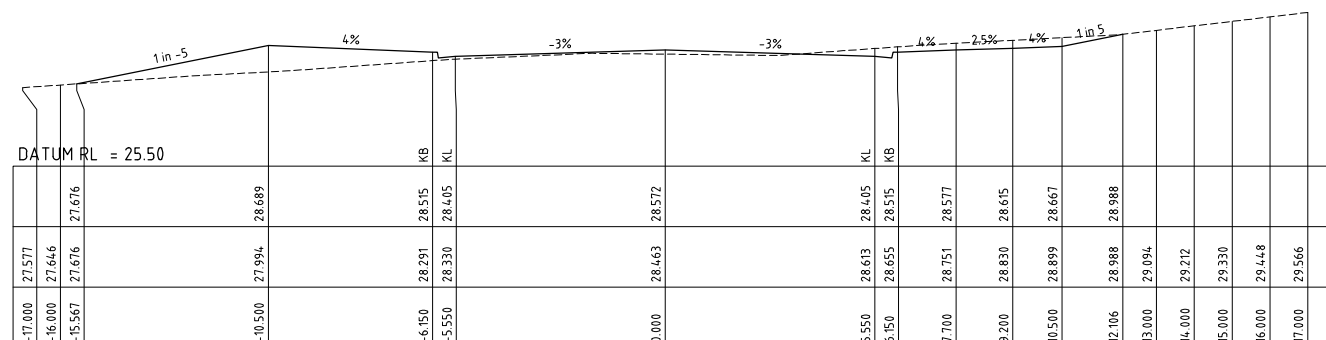
Project No	21360C	
Drawing No	C04	Revision 13
A1 SHEET		



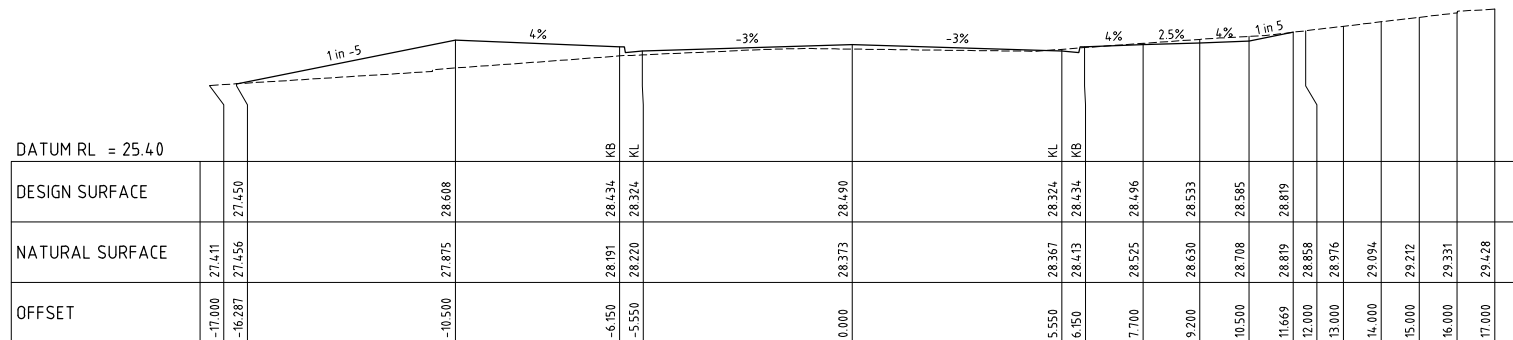
CH 1380.000



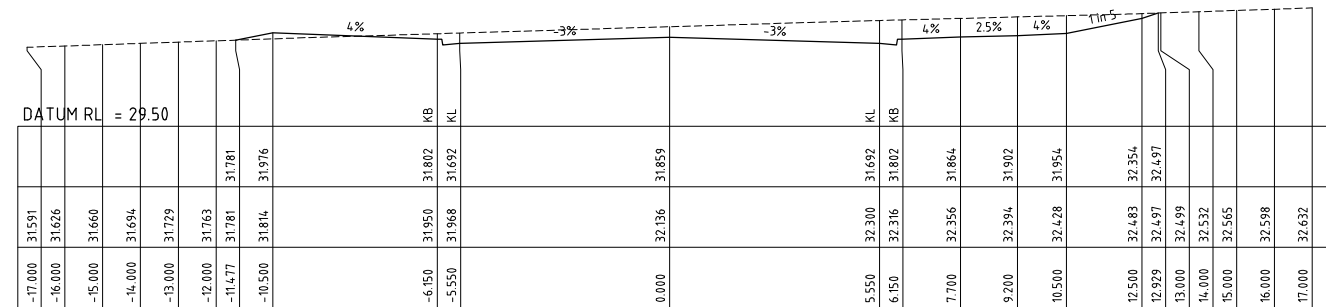
CH 1365.000



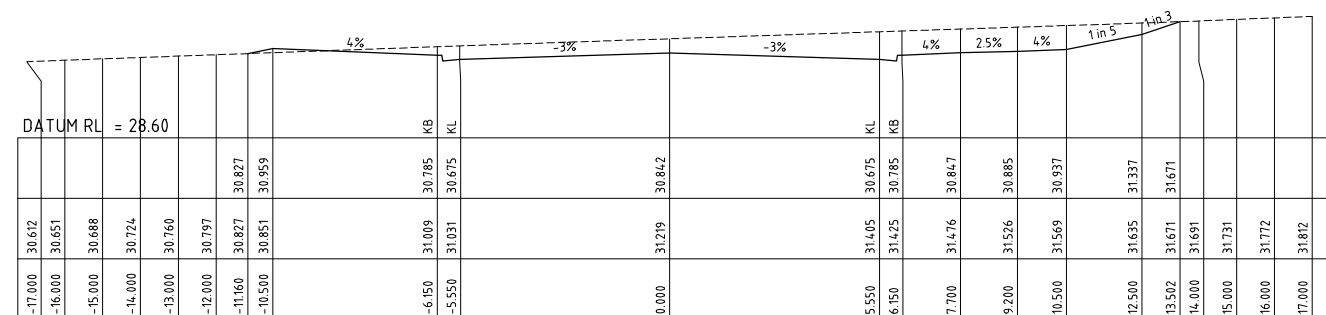
CH 1359.694



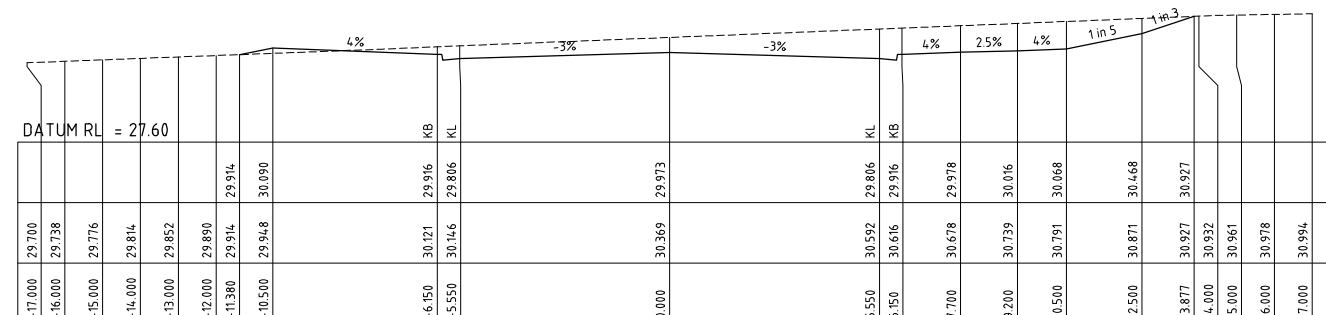
CH 1356.432



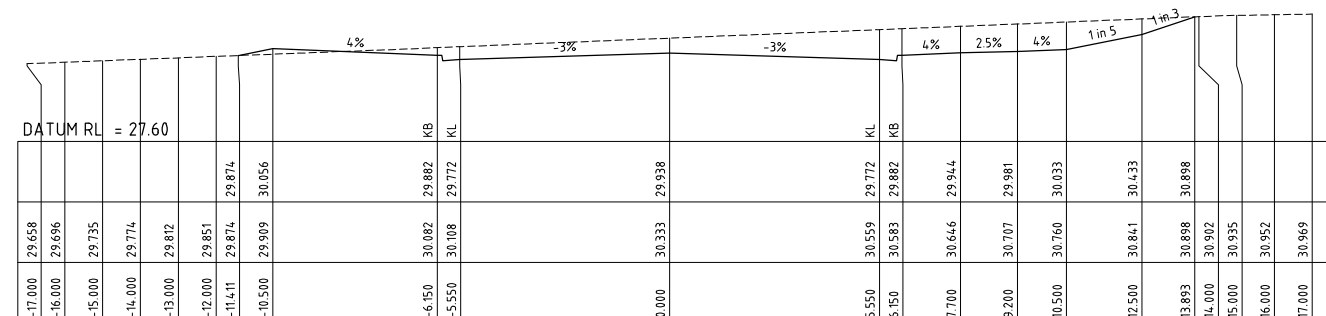
CH 1425.000



CH 1410.000



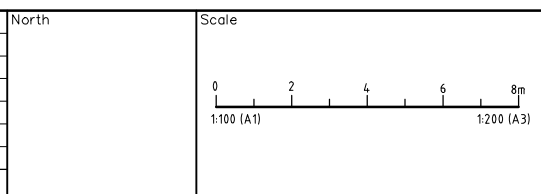
CH 1395.634



CH 1395.000

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
13	LAYOUT REVISED	DB	IH	14.11.24
6-12	NOT ISSUED			
5	LAYOUT AMENDMENTS	A.M	I.H	04.03.24
3	LAYOUT AMENDMENTS	A.M	I.H	14.03.23
1	ORIGINAL ISSUE	A.M	I.H	08.06.22



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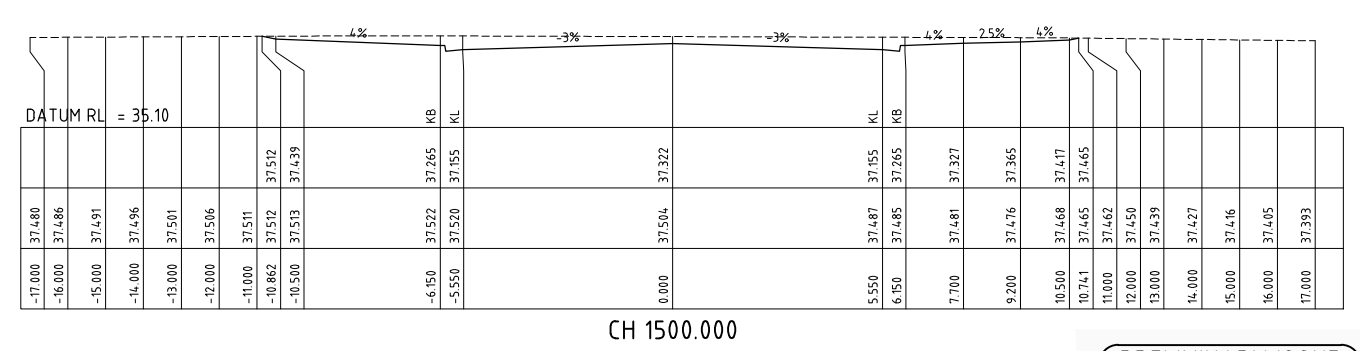
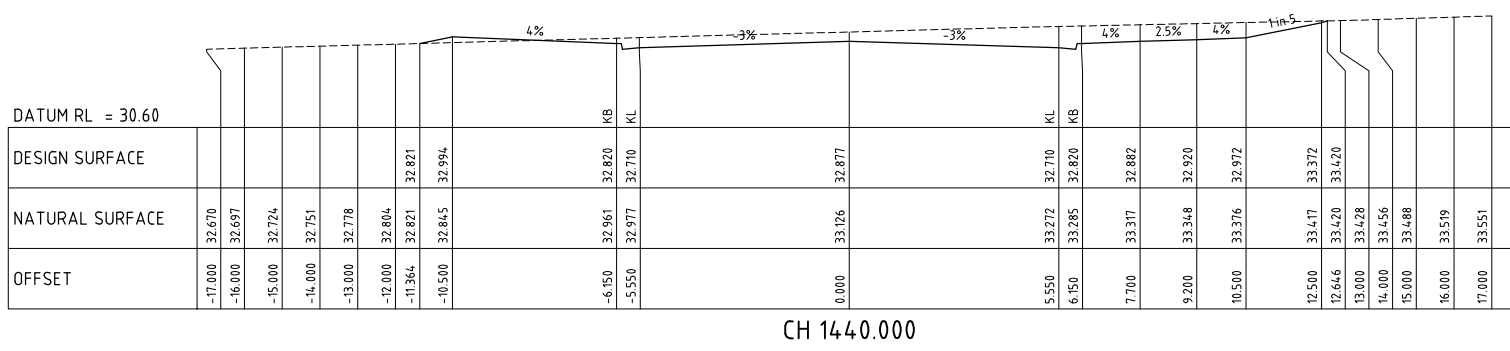
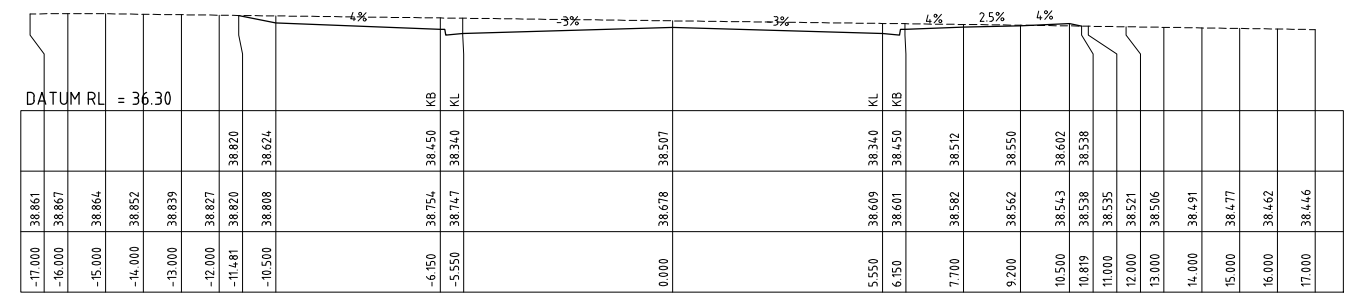
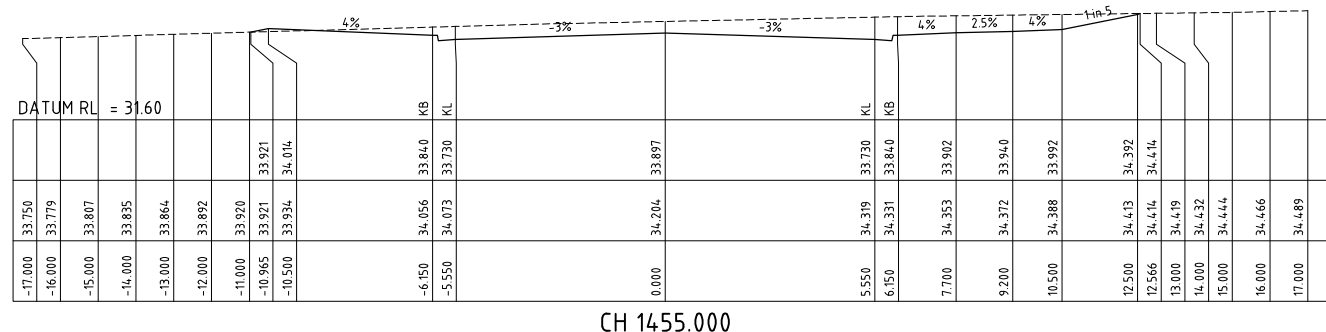
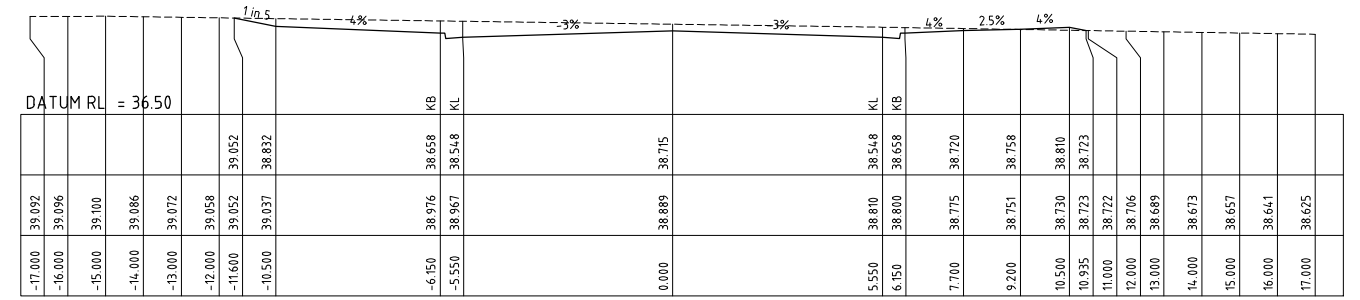
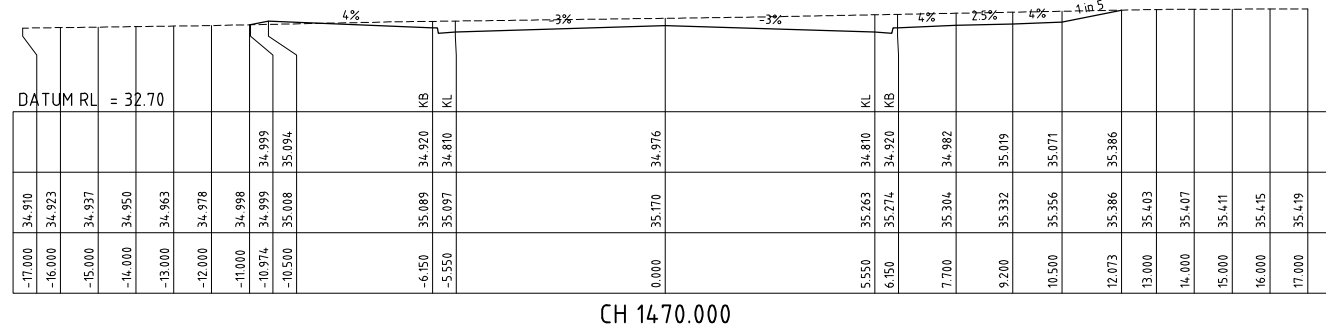
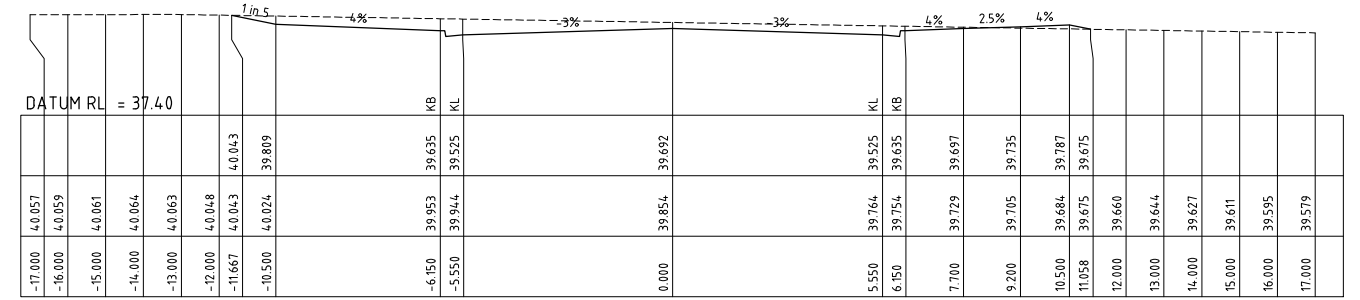
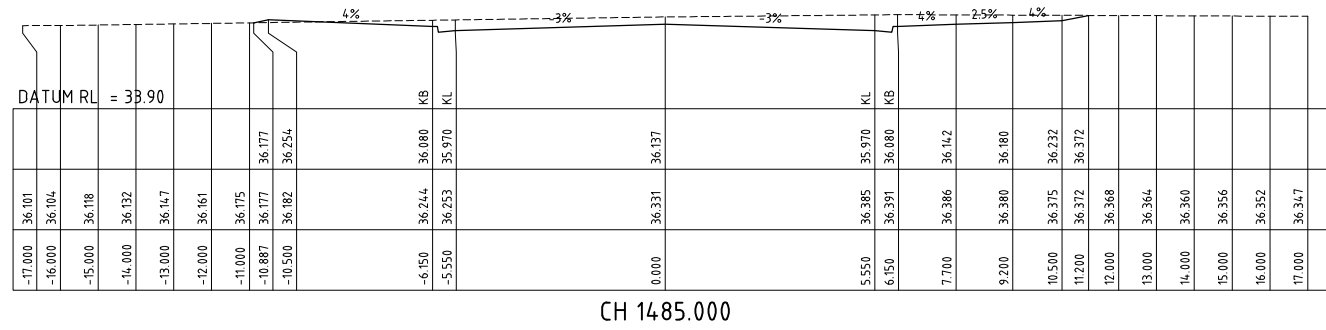
Designed A.M
Scale 1:100
Cad Reference 21360C dC05 r13
Project Approval IAN HILL (B.E)
Consulting Civil Engineer

Client



PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
COLLARROY PARADE CROSS SECTIONS (1 OF 3)

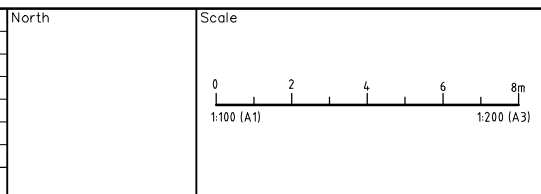
Project No	21360C
Drawing No	C05
Revision	13
A1 SHEET	



DESIGN SURFACE	NATURAL SURFACE	OFFSET
32.670	32.670	-17.000
32.697	32.697	-16.000
32.724	32.724	-15.000
32.751	32.751	-14.000
32.778	32.778	-13.000
32.804	32.804	-12.000
32.821	32.821	-11.384
32.994	32.994	-10.500
32.820	32.820	-6.150
32.710	32.710	-5.550
32.877	32.877	0.000
32.820	32.820	5.550
32.882	32.882	7.700
32.920	32.920	9.200
32.972	32.972	10.500
33.372	33.372	12.500
33.420	33.420	12.646
33.428	33.428	13.000
33.456	33.456	14.000
33.488	33.488	15.000
33.519	33.519	16.000
33.551	33.551	17.000

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
13	LONGITUDINAL SECTION COLLAROY PARADE		DB IH	14.11.24
6-12	NOT ISSUED			
5	LAYOUT AMENDMENTS		A.M I.H	04.03.24
3	LAYOUT AMENDMENTS		A.M I.H	14.03.23
1	ORIGINAL ISSUE		A.M I.H	08.06.22



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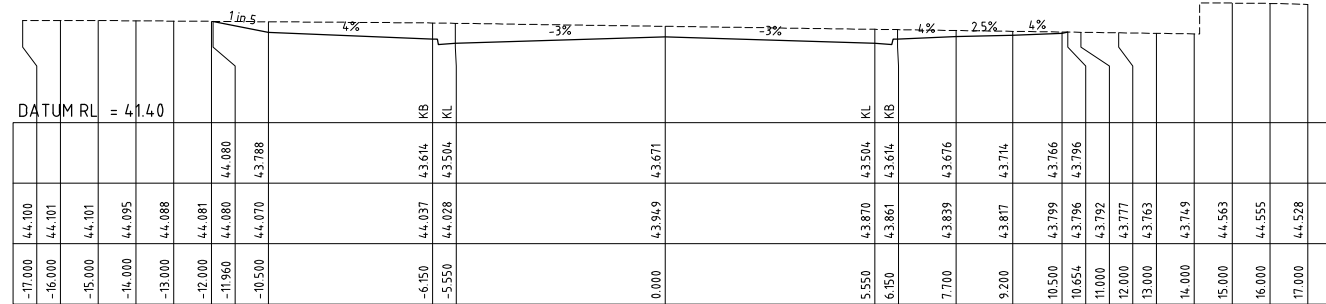
Designed **A.M**
Scale **1:100**
Cad Reference **21360C dC06 r13**
Project Approval **IAN HILL (B.E)**
Consulting Civil Engineer

Client

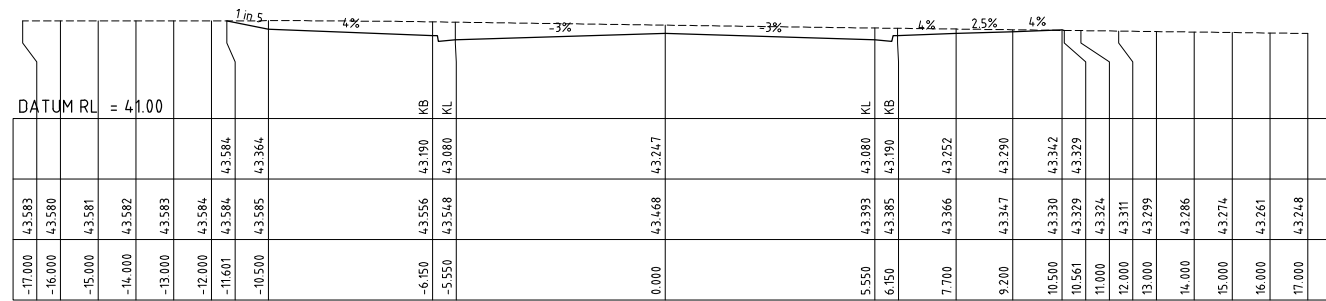


PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
COLLAROY PARADE CROSS SECTIONS (2 OF 3)

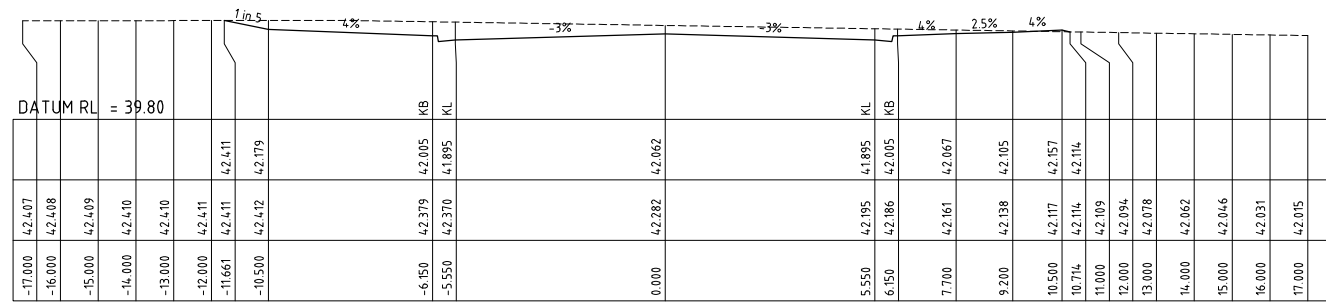
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Drawing No C06	Revision 13
A1 SHEET	



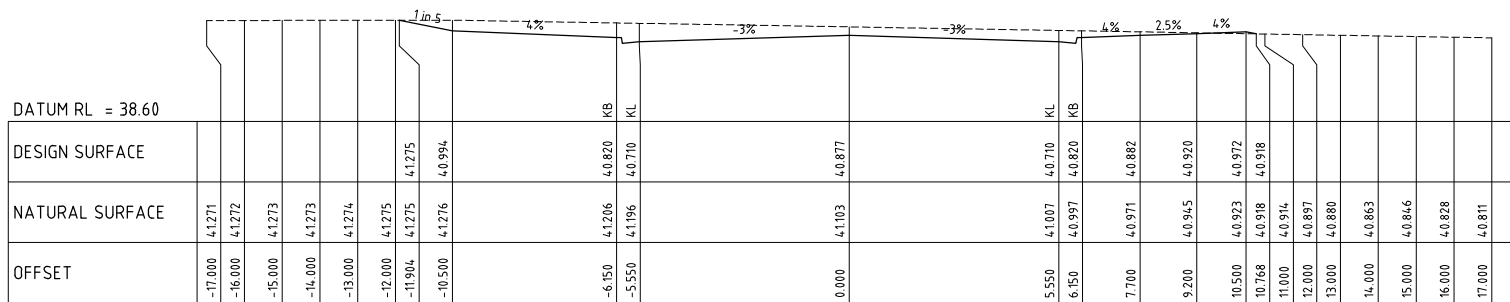
CH 1580.368



CH 1575.000



CH 1560.000

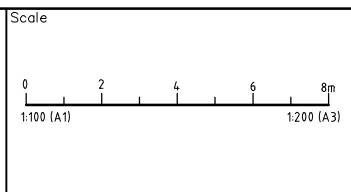


CH 1545.000

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
13	REVISED LAYOUT	DB	IH	14.11.24
6-12	NOT ISSUED			
5	LAYOUT AMENDMENTS	A.M	I.H	04.03.24
3	LAYOUT AMENDMENTS	A.M	I.H	14.03.23
1	ORIGINAL ISSUE	A.M	I.H	08.06.22

North



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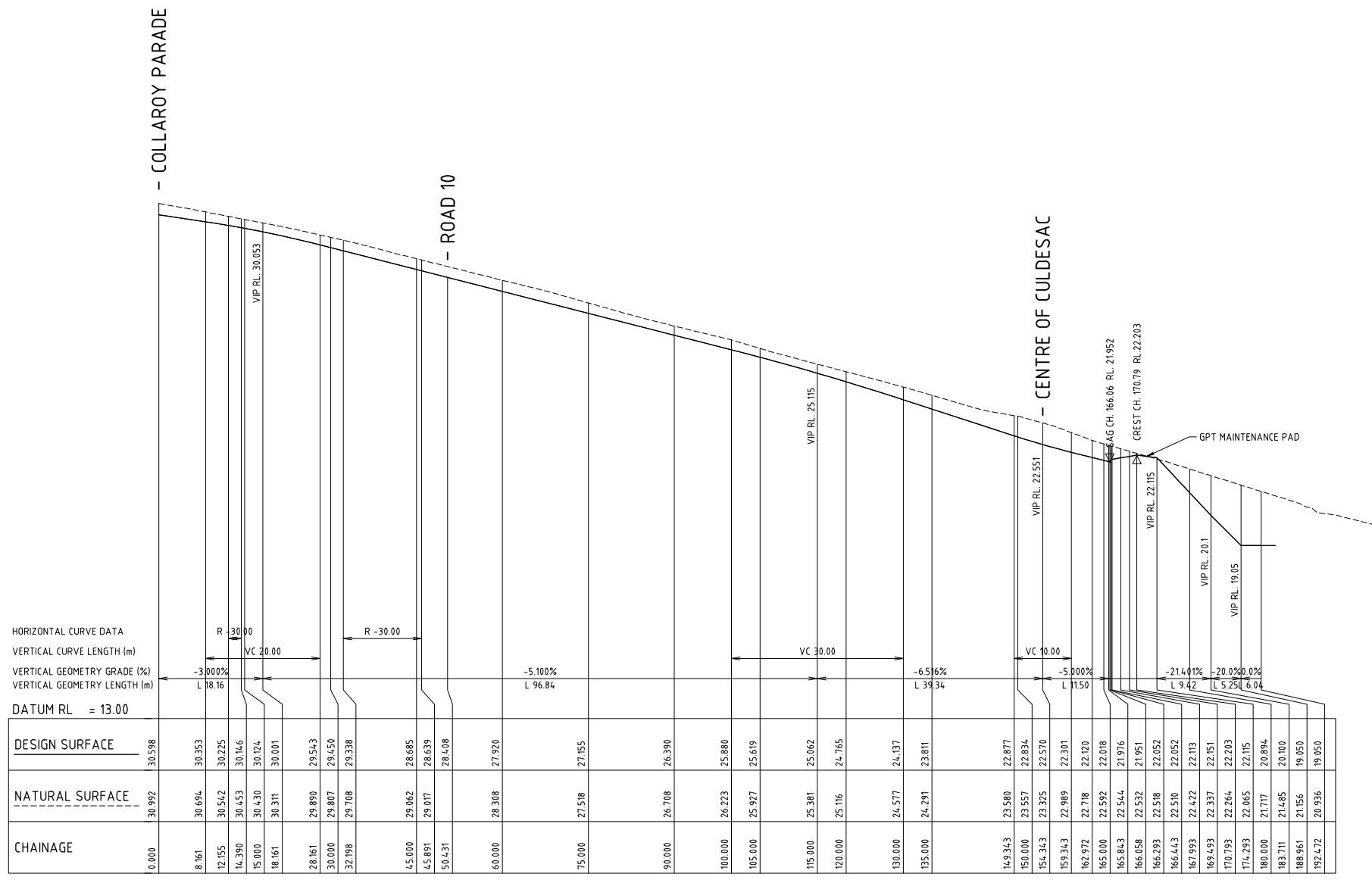
Designed
A.M
Scale
1:100
Cad Reference
21360C dC07 r13
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client



PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
COLLARROY PARADE CROSS SECTIONS (3 OF 3)

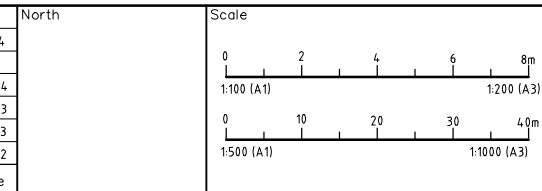
Project No	21360C	
Drawing No	C07	Revision 13
A1 SHEET		



A1 SCALE: HORIZONTAL 1:500, VERTICAL 1:100
LONGITUDINAL SECTION ROAD 11

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
13	REVISED LAYOUT	DB	IH	14.11.24
6-12	NOT ISSUED			
5	LAYOUT AMENDMENTS	A.M	I.H	04.03.24
4	LAYOUT AMENDMENTS	A.M	I.H	28.03.23
3	LAYOUT AMENDMENTS	A.M	I.H	16.03.23
1	ORIGINAL ISSUE	A.M	I.H	08.06.22



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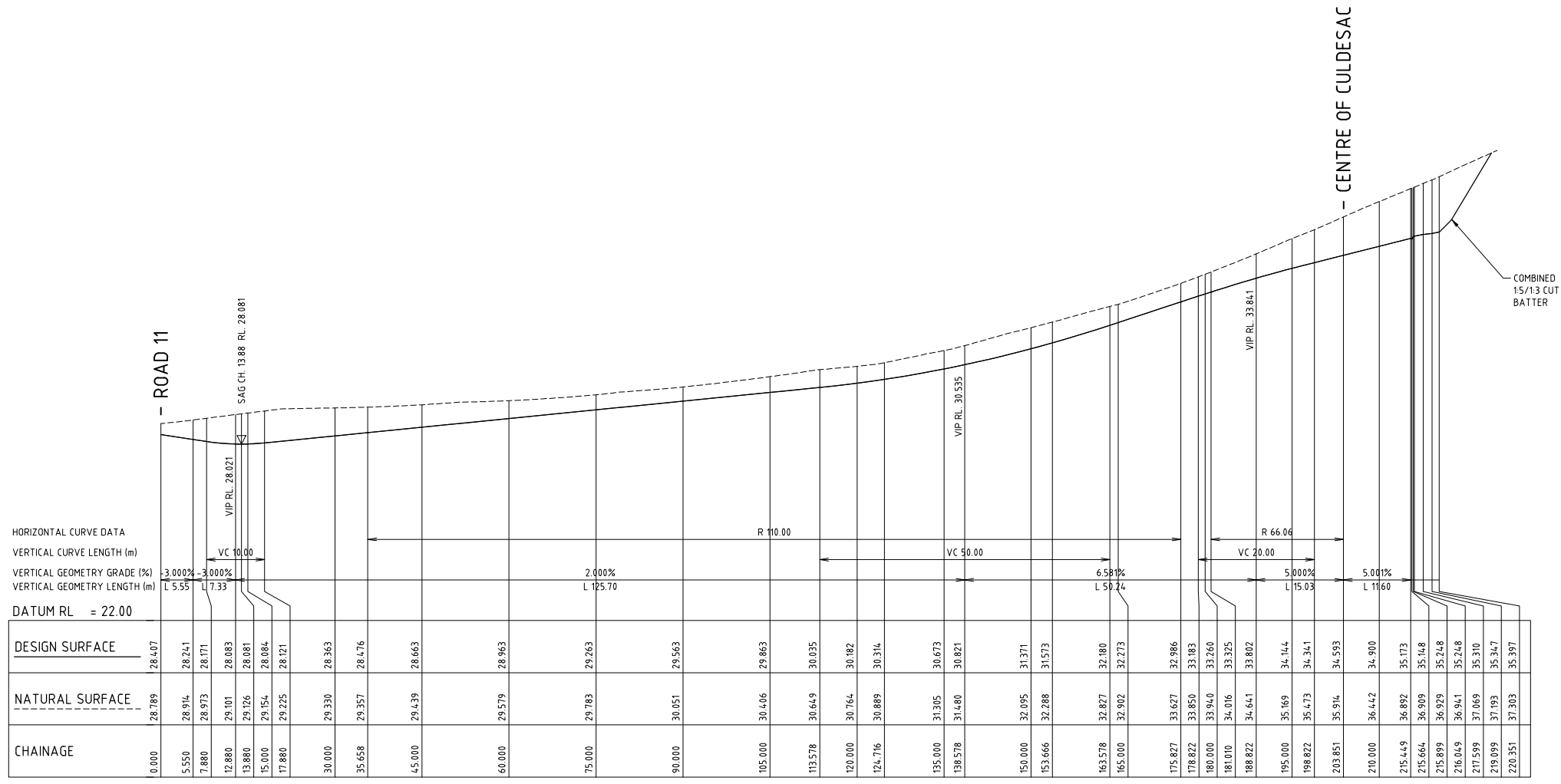
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Cad Reference
21360C dC09 r13
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client



PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
ROAD 11 LONGITUDINAL SECTION

Project No 21360C	
Drawing No C09	Revision 13
A1 SHEET	



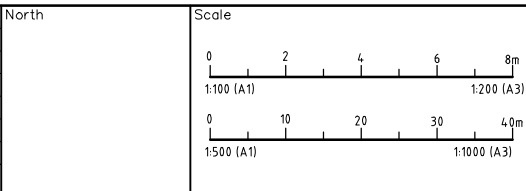
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 VERTICAL GEOMETRY GRADE (%)
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 DATUM RL = 22.00

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5.550	28.914	28.241
7.880	28.973	28.771
12.880	29.101	28.083
13.880	29.126	28.081
15.000	29.154	28.084
17.880	29.225	28.121
30.000	29.330	28.363
35.658	29.357	28.476
45.000	29.439	28.663
60.000	29.579	28.963
75.000	29.783	29.263
90.000	30.051	29.563
105.000	30.406	29.863
113.578	30.649	30.035
120.000	30.764	30.182
124.716	30.889	30.314
135.000	31.305	30.673
138.578	31.480	30.821
150.000	32.095	31.371
153.666	32.288	31.573
163.578	32.827	32.180
165.000	32.912	32.273
175.827	33.627	32.986
178.827	33.850	33.183
180.000	33.940	33.260
181.010	34.016	33.325
188.822	34.641	33.802
195.000	35.169	34.144
198.822	35.473	34.341
203.851	35.914	34.593
210.000	36.442	34.900
215.449	36.892	35.173
215.664	36.909	35.148
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216.049	36.941	35.248
217.599	37.069	35.310
219.099	37.193	35.347
220.351	37.303	35.397

A1 SCALE: HORIZONTAL 1:500, VERTICAL 1:100
 LONGITUDINAL SECTION ROAD 10

PRELIMINARY ISSUE
 NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
13	REVISED LAYOUT	DB	IH	14.11.24
6-12	NOT ISSUED			
5	LAYOUT AMENDMENTS	A.M	I.H	04.03.24
3	LAYOUT AMENDMENTS	A.M	I.H	14.03.23
1	ORIGINAL ISSUE	A.M	I.H	08.06.22



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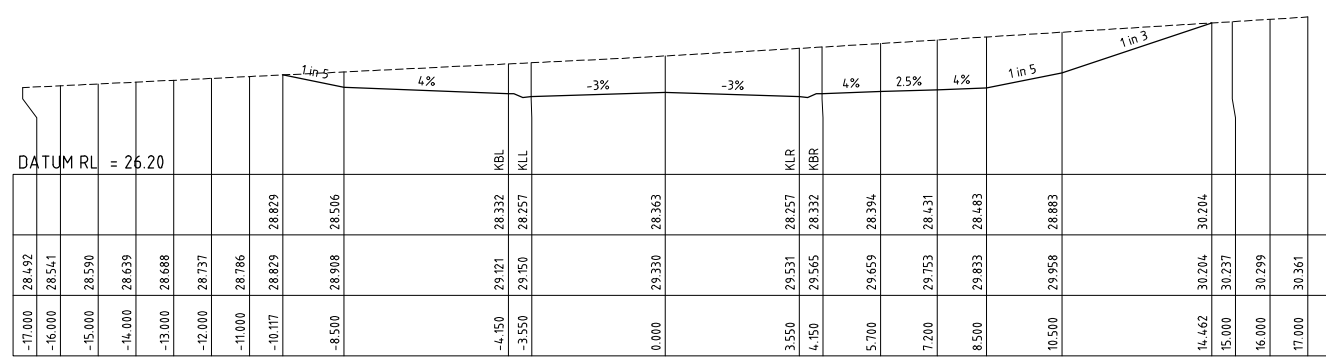
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 Cad Reference
 21360C dC12 r13
 Project Approval
 IAN HILL (B.E)
 Consulting Civil Engineer

Client

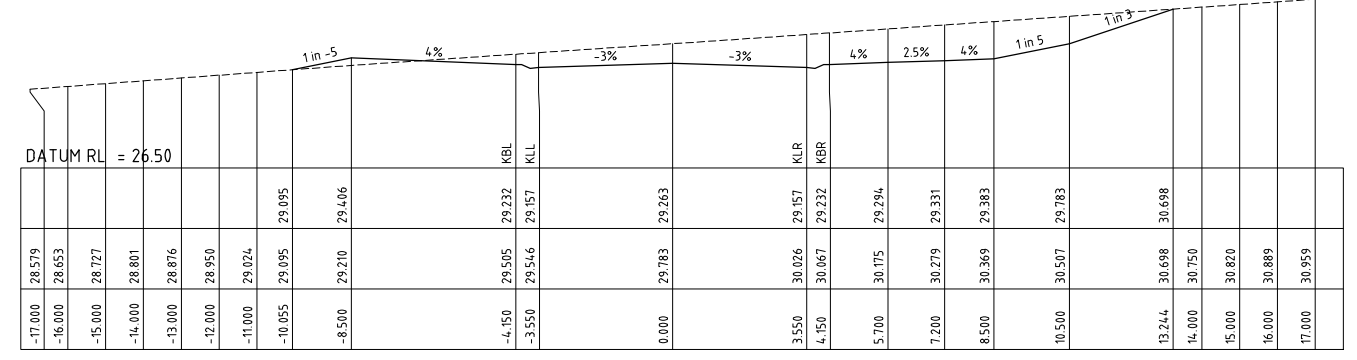


PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
 ROAD 10 LONGITUDINAL SECTION

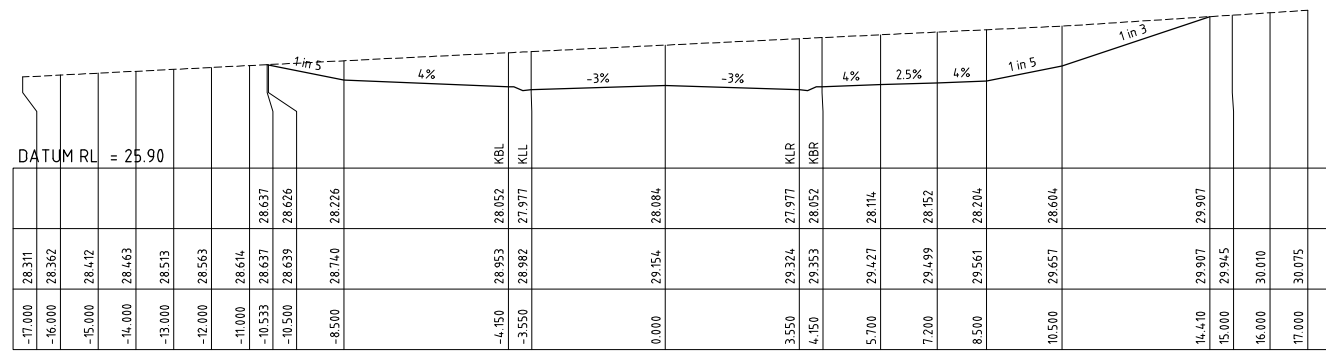
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Drawing No	C12	Revision	13
A1 SHEET			



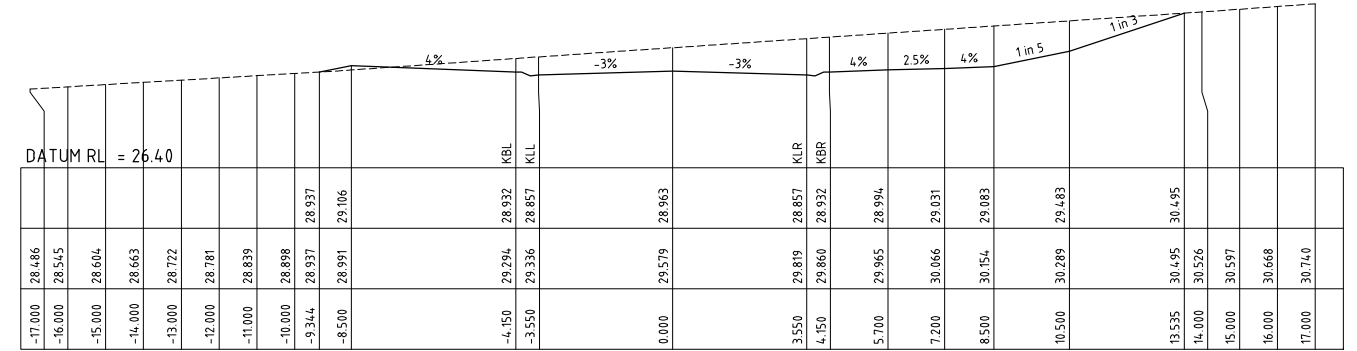
CH 30.00



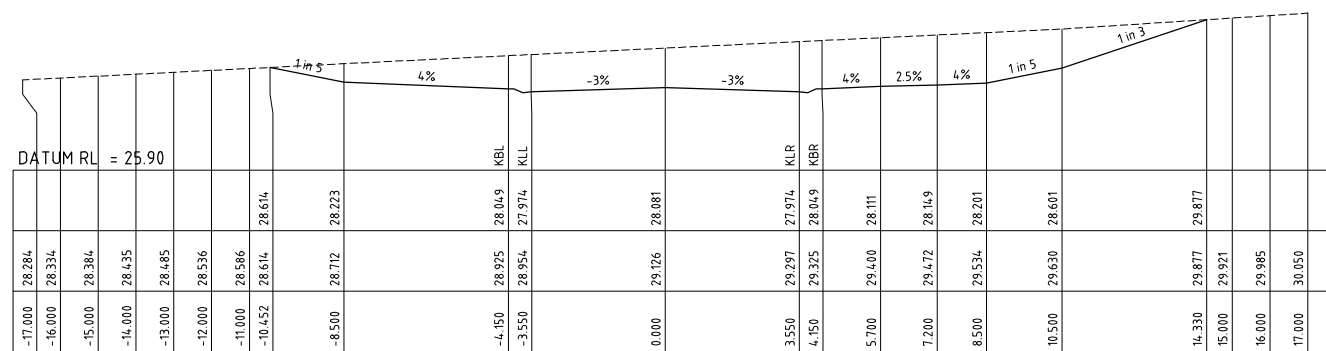
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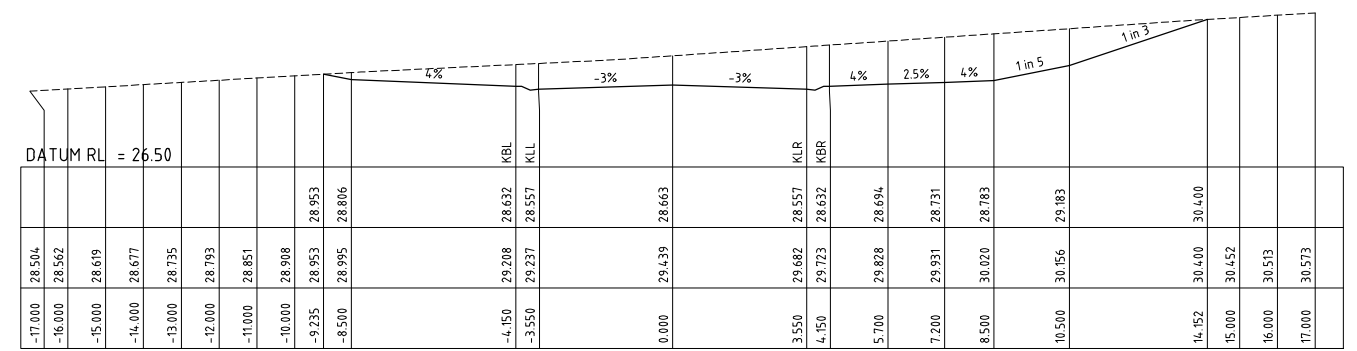
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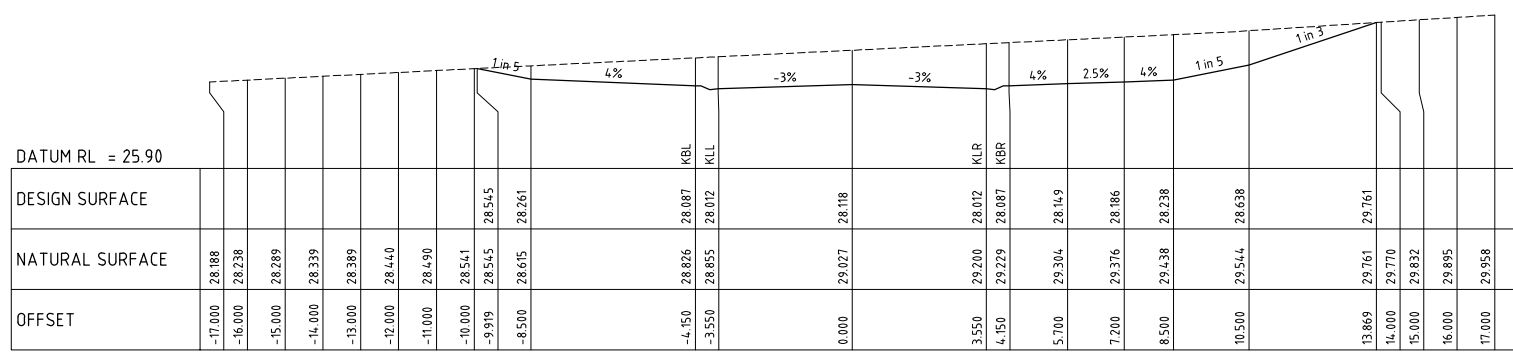
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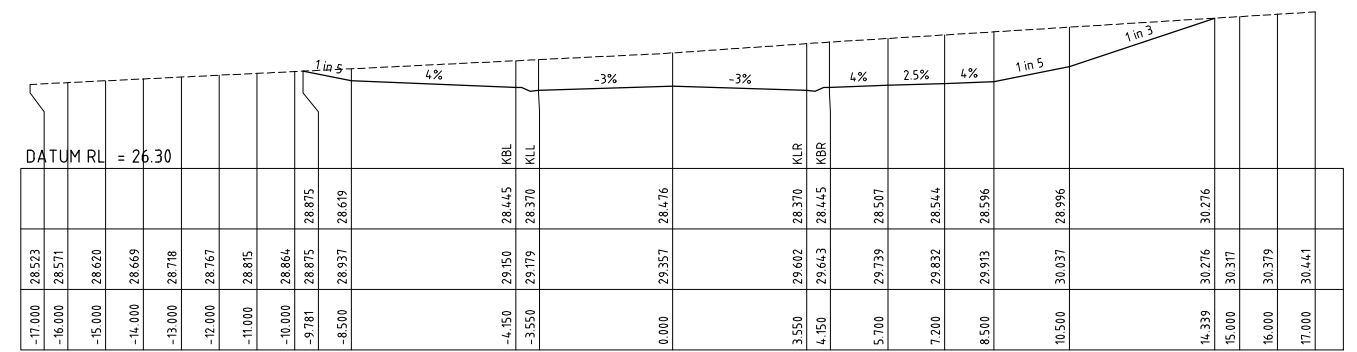
CH 13.880



CH 45.00



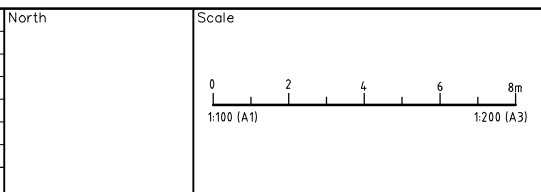
CH 10.00



CH 35.658

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
13	REVISED LAYOUT		DB IH	14.11.24
6-12	NOT ISSUED			
5	LAYOUT AMENDMENTS		A.M IH	04.03.24
3	LAYOUT AMENDMENTS		A.M IH	14.03.23
1	ORIGINAL ISSUE		A.M IH	09.06.22



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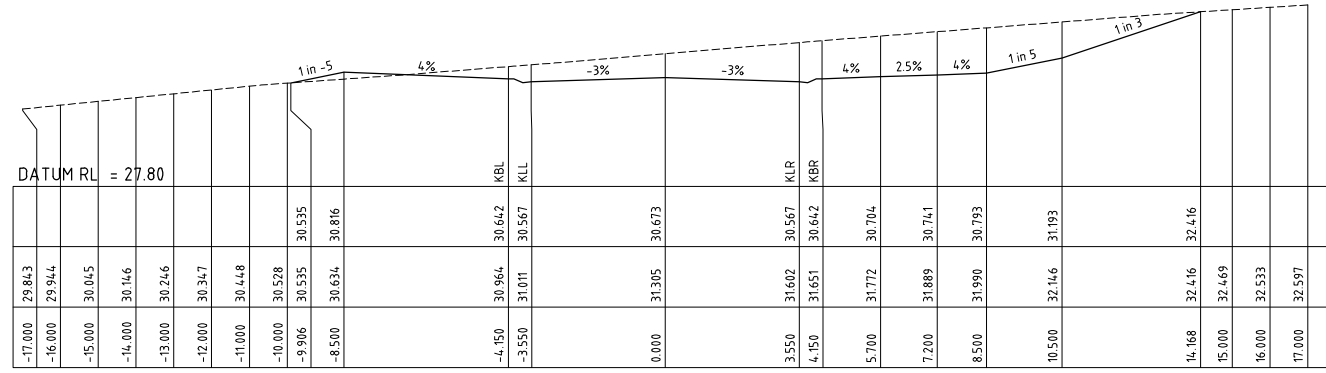
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Scale: 1:100
Cad Reference: 21360C dC13 r13
Project Approval: IAN HILL (B.E)
Consulting Civil Engineer

Client: [Blank]

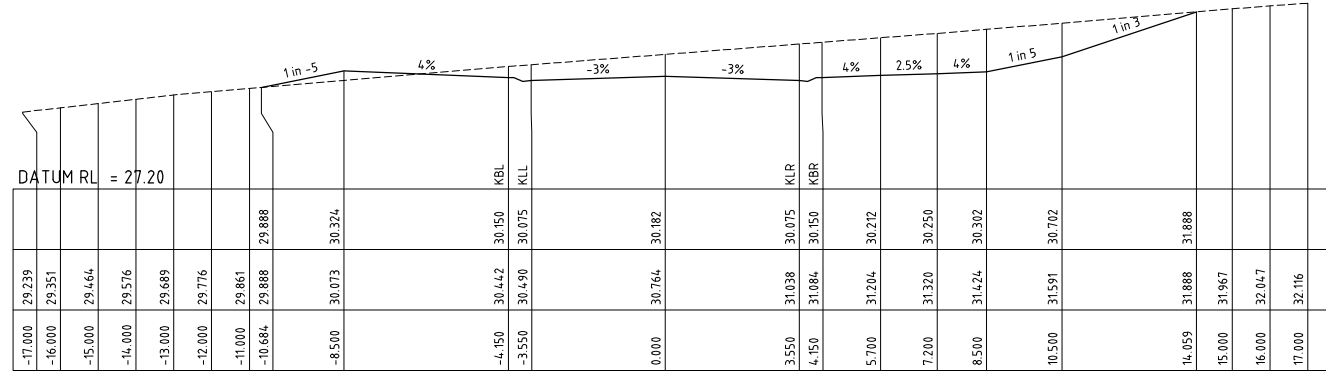


PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
ROAD 10 CROSS SECTIONS (1 OF 3)

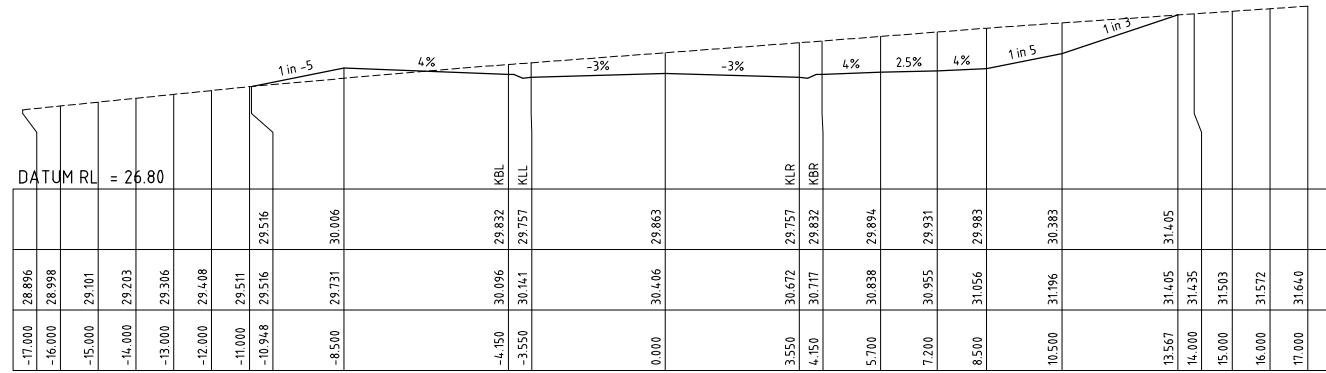
Project No	21360C	
Drawing No	C13	Revision 13
A1 SHEET		



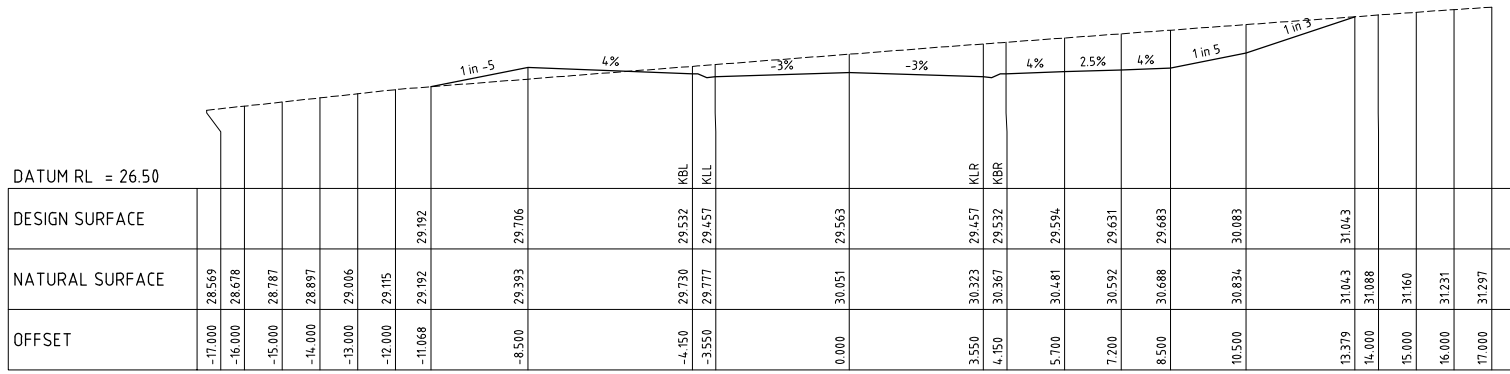
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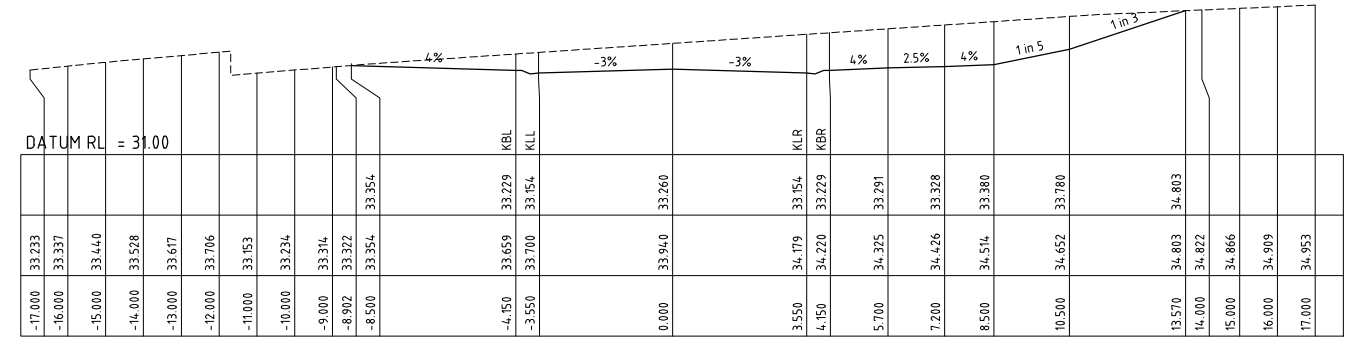
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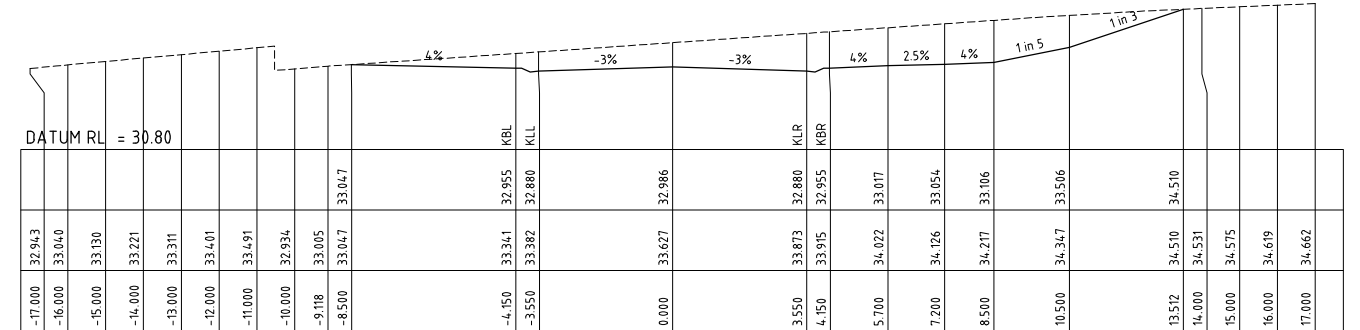
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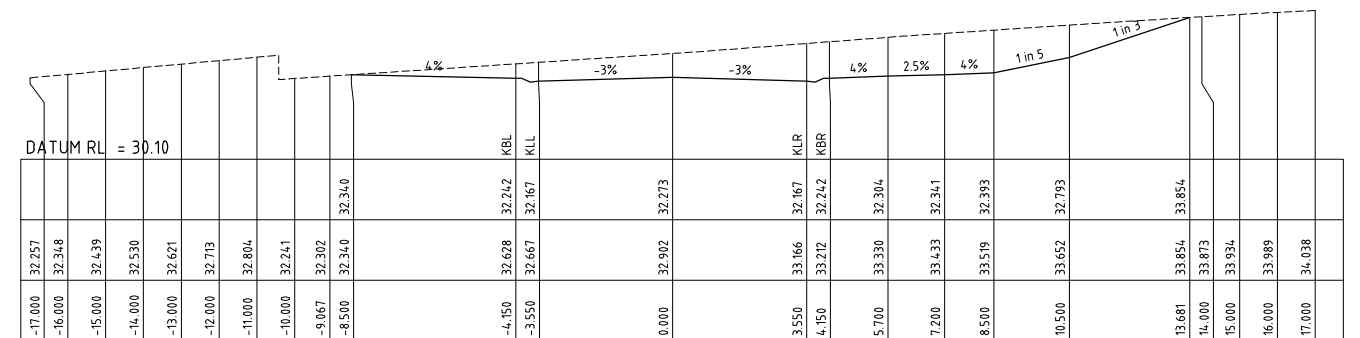
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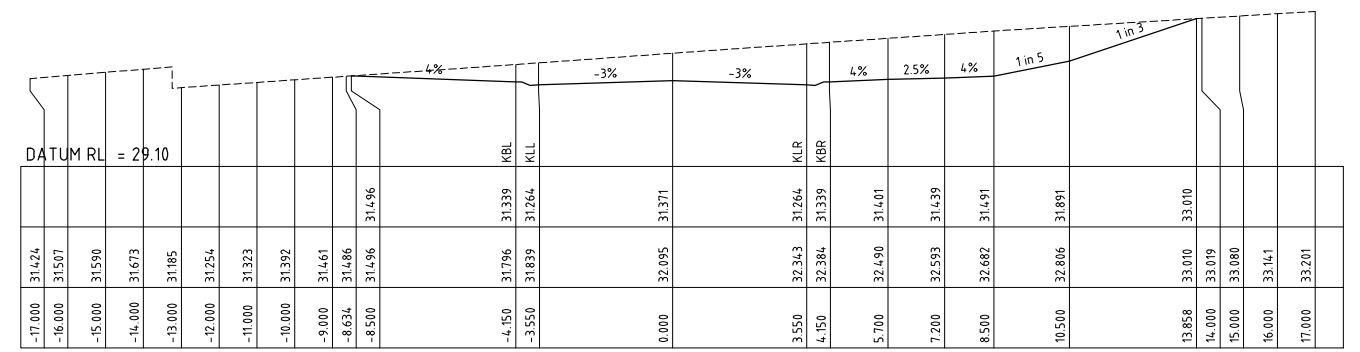
CH 180.000



CH 175.827



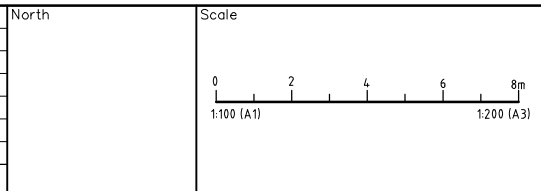
CH 165.000



CH 150.000

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
13	REVISED LAYOUT	DB	IH	14.11.24
6-12	NOT ISSUED			
5	LAYOUT AMENDMENTS	A.M	I.H	04.03.24
3	LAYOUT AMENDMENTS	A.M	I.H	14.03.23
1	ORIGINAL ISSUE	A.M	I.H	09.06.22



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Designed: A.M
Scale: 1:100
Cad Reference: 21360C dC14 r13
Project Approval: IAN HILL (B.E)
Consulting Civil Engineer

GCA
ENGINEERING SOLUTIONS

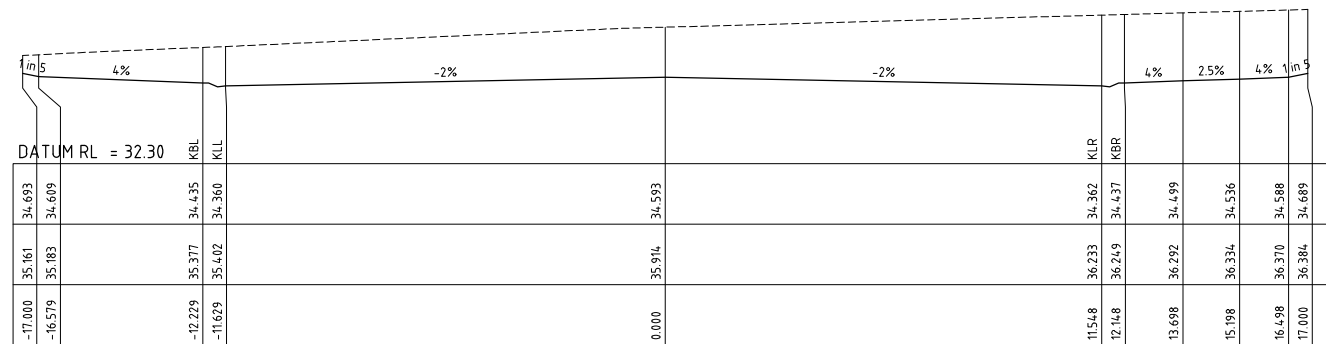
A.B.N. 92 086 017 745
1 HARTLEY DRIVE, THORNTON NSW 2322
PO BOX 3337, THORNTON NSW 2322
PHONE: (02) 4964 1811

PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST

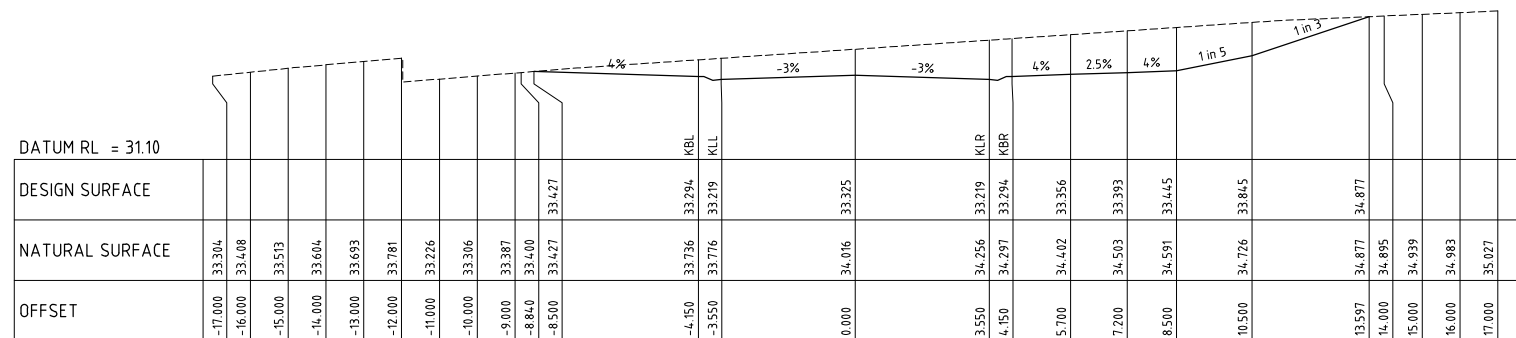
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Drawing No: C14
Revision: 13

ROAD 10 CROSS SECTIONS (2 OF 3)

A1 SHEET



CH 203.851

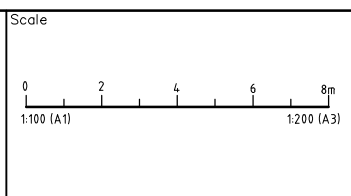


CH 181.010

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
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6-12	NOT ISSUED			
5	LAYOUT AMENDMENTS	A.M	I.H	04.03.24
3	LAYOUT AMENDMENTS	A.M	I.H	14.03.23
1	ORIGINAL ISSUE	A.M	I.H	09.06.22

North



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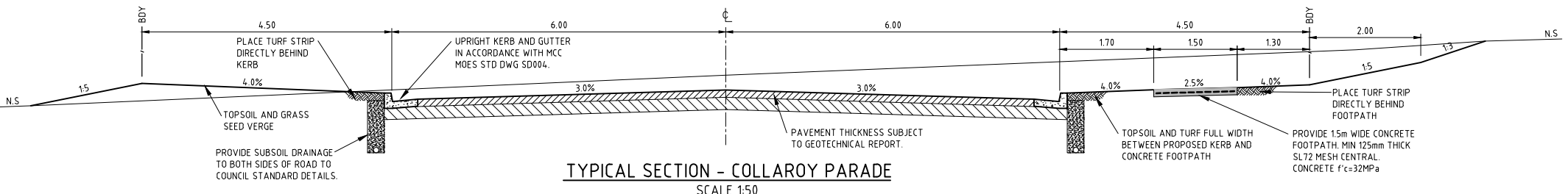
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Cad Reference
21360C dC15 r13
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

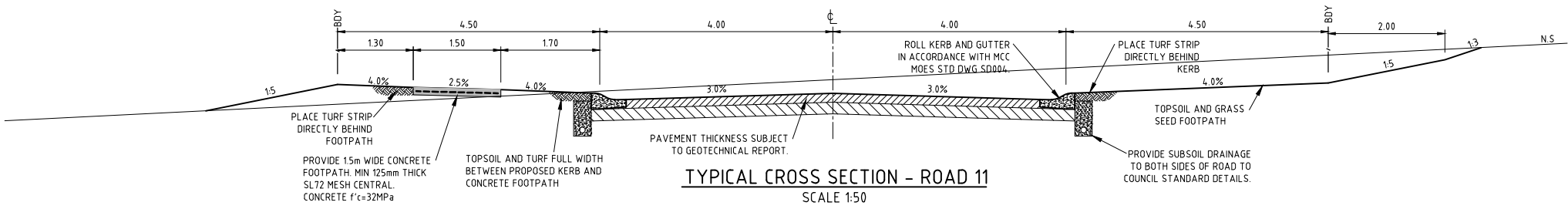


PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
ROAD 10 CROSS SECTIONS (3 OF 3)

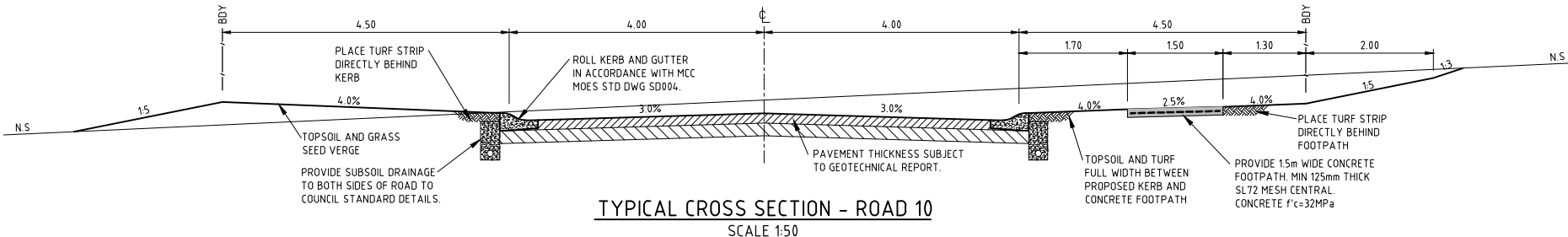
Project No 21360C	
Drawing No C15	Revision 13
A1 SHEET	



TYPICAL SECTION - COLLAROY PARADE
SCALE 1:50



TYPICAL CROSS SECTION - ROAD 11
SCALE 1:50



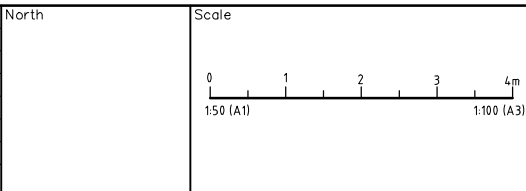
TYPICAL CROSS SECTION - ROAD 10
SCALE 1:50

NOTES:

- ALL DIMENSIONS OF EASEMENTS AND LOTS ARE SUBJECT TO REGISTRATION OF DEPOSITED PLAN.
- ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH THE APPROVED PLANS SUBJECT TO MAITLAND CITY COUNCIL'S MANUAL OF ENGINEERING STANDARDS.
- EROSION CONTROL DEVICES AND SILTATION TRAPS TO BE INSTALLED BEFORE SITE IS DISTURBED IN ACCORDANCE WITH THE ATTACHED EROSION AND SEDIMENTATION CONTROL PLAN. COUNCIL IS TO INSPECT ALL EROSION AND SEDIMENT CONTROLS PRIOR TO ANY WORK COMMENCING.
- DENUDED AREAS TO BE SEEDED IMMEDIATELY UPON COMPLETION OF TOP SOIL SPREADING.
- ALL REINFORCED CONC. STORMWATER DRAINAGE PIPES ARE TO BE RUBBER RING JOINTED.
- ALL EKI PIT GRATES TO BE SADDINGTONS GGLCD OR SIMILAR WITH RHS FRONT AND BACK.
- ALL PITS DEEPER THAN 1.2m ARE TO BE CONSTRUCTED WITH STEP IRONS IN ACCORDANCE WITH MCC MANUAL OF ENGINEERING STANDARDS STD DWG SD039, SD043 AND ARE TO HAVE INCREASED INTERNAL DIMENSIONS TO ALLOW ACCESS IN ACCORDANCE WITH CONFINED SPACE REGULATIONS.
- ALL STREET DRAINAGE PITS TO BE CONSTRUCTED IN ACCORDANCE WITH MCC MANUAL OF ENGINEERING STANDARDS SD039.
- ALL INTERALLOTMENT DRAINAGE PITS TO BE CONSTRUCTED IN ACCORDANCE WITH MCC MANUAL OF ENGINEERING STANDARDS SD043.
- ALL INTERALLOTMENT DRAINAGE PIPES TO BE SEWER GRADE UPVC (UNLESS OTHERWISE SHOWN) OR AN APPROVED EQUIVALENT. THE MINIMUM SLOPE OF INTERALLOTMENT DRAINAGE LINES SHALL BE 1%, THE INTERALLOTMENT DRAINAGE LINE SHALL BE A MINIMUM OF 0.5m FROM THE BOUNDARY AND LOCATED IN AN EASEMENT 1.5m WIDE.
- ALL EXISTING UNDERGROUND SERVICES MUST BE LOCATED AND EXPOSED PRIOR TO EARTHWORKS COMMENCING AND IT IS THE RESPONSIBILITY OF THOSE PERSONS USING THIS PLAN TO CONFIRM BOTH POSITION & LEVEL OF THESE UTILITIES IN CONJUNCTION WITH THE APPROPRIATE AUTHORITY.
- SUBSOIL DRAINS ARE TO BE PROVIDED IN ACCORDANCE WITH COUNCIL'S STD DWG SD035 AND SD032, AND WHERE NECESSARY, AS DIRECTED BY COUNCIL DURING WORKS.
- PAVEMENT THICKNESS TO BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE APPROVED GEOTECHNICAL REPORT AND TO THE SATISFACTION OF MAITLAND CITY COUNCIL. PAVEMENT DESIGN, PAVEMENT MATERIALS AND DEPTH TO BE APPROVED BY THE SUBDIVISION AND DEVELOPMENT ENGINEER ACTING AS THE PRINCIPAL CERTIFIER FOLLOWING SUBGRADE INSPECTION.
- EASEMENT FOR BATTER TO BE CREATED WHERE FILL BATTERS ARE 3(H):1(V) OR STEEPER OR WHERE DEPTH OF FILL AT BOUNDARY EXCEEDS 600mm.
- WORKING HOURS ON SITE SHALL BE IN ACCORDANCE WITH EPA & COUNCIL REQUIREMENTS.
- VEHICULAR ACCESS AND ALL SERVICES ARE TO BE MAINTAINED AT ALL TIMES TO ADJOINING PROPERTIES AFFECTED BY CONSTRUCTION WORKS.
- MAINTENANCE ON THE SEEDED AND TURFED AREAS SHALL BE OVER A 3 MONTH PERIOD. TURF THE FULL WIDTH OF ALL EARTH DISH DRAINS. LAY 600mm WIDE TURF STRIPS TO EACH SIDE OF CONCRETE ACCESSWAYS, PATHWAYS, AT THE REAR OF ALL KERB AND GUTTERING AND AT THE TOP OF CUT BATTERS. MULCH (IF AVAILABLE FROM SITE CLEARING) AND SEED ALL OTHER DISTURBED AREAS, INCLUDING TRENCHES. NO PERMANENT MULCH/WOODCHIP IS PERMITTED WITHIN FLOWPATHS AND PUBLIC AREAS.
- ALL PERAMBULATOR RAMPS TO BE CONSTRUCTED AS SHOWN ON PLANS AND IN ACCORDANCE WITH MAITLAND CITY COUNCIL'S MANUAL OF ENGINEERING STANDARDS STD DWG SD019.
- TRAFFIC CONTROL MEASURES TO BE IN ACCORDANCE WITH AS 1742.3-1996.
- ALL LEVELS MUST BE OBTAINED FROM ESTABLISHED BENCH MARKS AS DIRECTED BY THE SUPERVISOR.
- THE CONTRACTOR IS TO ENSURE THAT ALL THE NECESSARY SERVICE PIPE CONDUITS AND FITTINGS ARE IN PLACE PRIOR TO THE FINAL WEARING COURSE BEING LAID.
- PROVIDE STREET NAME SIGNS AT ALL INTERSECTIONS, DOUBLE BLADED WHERE NECESSARY IN ACCORDANCE WITH MCC MANUAL OF ENGINEERING STANDARDS STD DWG SD029.
- ALL SITE FILLING TO BE CONTROLLED FILL TO AS3798 WITH TESTING TO BE CARRIED OUT BY A NATA REGISTERED LABORATORY.
- PAVEMENT PROOF ROLLING AND LEVEL CHECKS, DENSITY AND BENKELMAN BEAM TESTING TO BE IN ACCORDANCE WITH COUNCIL'S MANUAL OF ENGINEERING STANDARDS.
- ALL FILL MATERIAL WITHIN LOTS INCLUDING BATTERS SHALL BE PLACED IN ACCORDANCE WITH AS3978 TO LEVEL 1 INSPECTION AND TESTING.
- WHERE APPROVED CONSTRUCTION WORK REQUIRES THE REMOVAL OF TREES, THE CONTRACTOR IS TO ENGAGE THE SERVICES OF A SUITABLY QUALIFIED ECOLOGIST TO INSPECT THE SITE AND IDENTIFY ANY TREE WHICH IS LIKELY TO BE A HABITAT TREE. THE ECOLOGIST IS ALSO TO BE ON SITE DURING THE FELLING OF ANY IDENTIFIED TREE AND ENSURE THAT ANY DISPLACED OR INJURED WILDLIFE IS COLLECTED AND FORWARDED TO AN APPROPRIATE WILDLIFE RESCUE SERVICE. THE ECOLOGIST IS TO REPORT TO COUNCIL ON ACTION TAKEN AS PART OF TREE CLEARING OPERATIONS.

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
13	REVISED LAYOUT	DB	IH	14.11.24
6-12	NOT ISSUED			
5	GENERAL REVISION	A.M	I.H	04.03.24
4	LAYOUT AMENDMENTS	A.M	I.H	30.03.23
3	LAYOUT AMENDMENTS	A.M	I.H	14.03.23
1	ORIGINAL ISSUE	A.M	I.H	08.06.22



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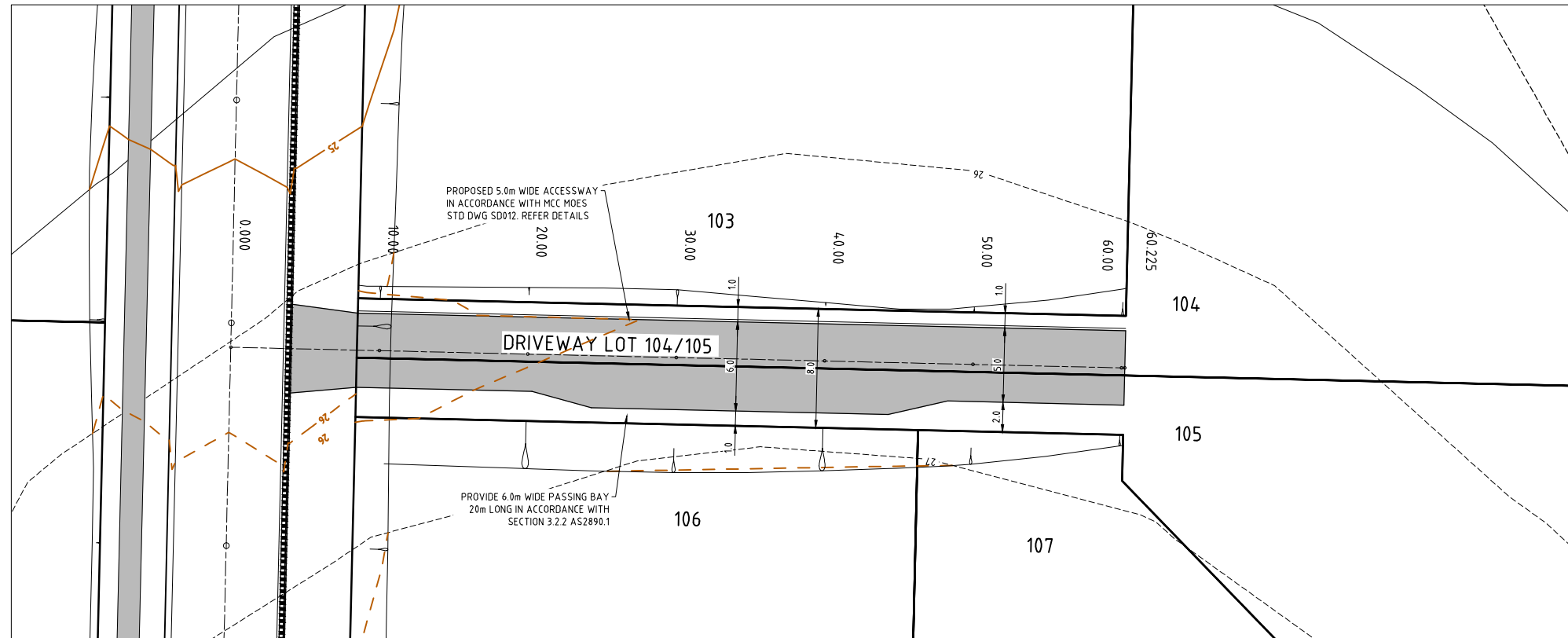
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21360C dC16 r13
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

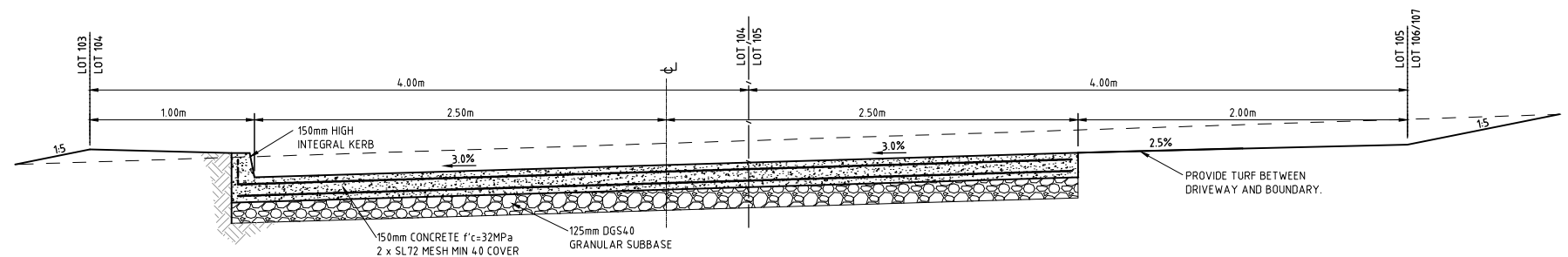


PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
TYPICAL SECTIONS, DETAILS AND NOTES

Project No	21360C	
Drawing No	C16	Revision
		13
A1 SHEET		



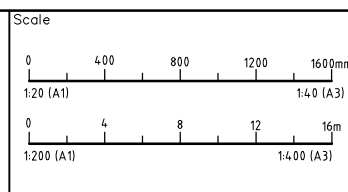
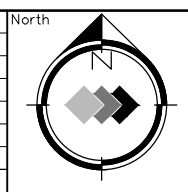
ACCESSWAY LOT 104 / 105 DETAIL PLAN
SCALE 1:200



ACCESSWAY LOT 104 / 105 TYPICAL SECTION
SCALE 1:20

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
13	REVISED LAYOUT	DB	IH	14.11.24
10-12	NOT ISSUED			
9	COUNCIL COMMENTS	A.M	I.H	01.07.24
5	LAYOUT AMENDMENTS	A.M	I.H	04.03.24
4	LAYOUT AMENDMENTS	A.M	I.H	30.03.23
3	GENERAL REVISION	A.M	I.H	17.03.23
14	LOT NUMBER AMENDMENTS	A.M	I.H	18.12.24



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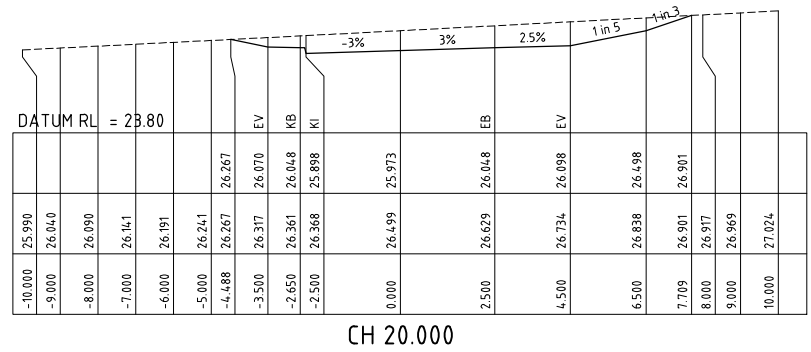
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Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

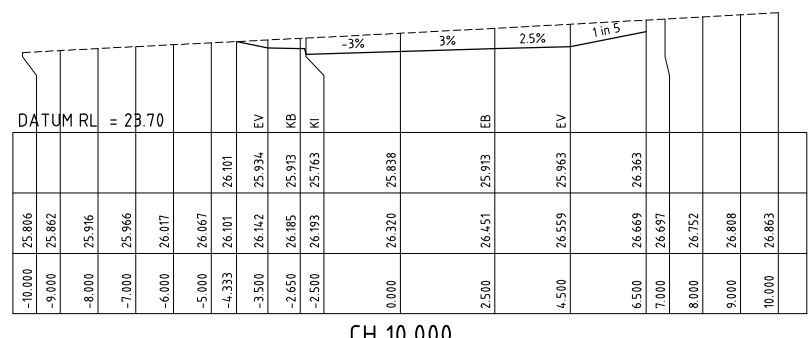


PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
ACCESSWAY LOT 104 & 105 TYPICAL DETAILS

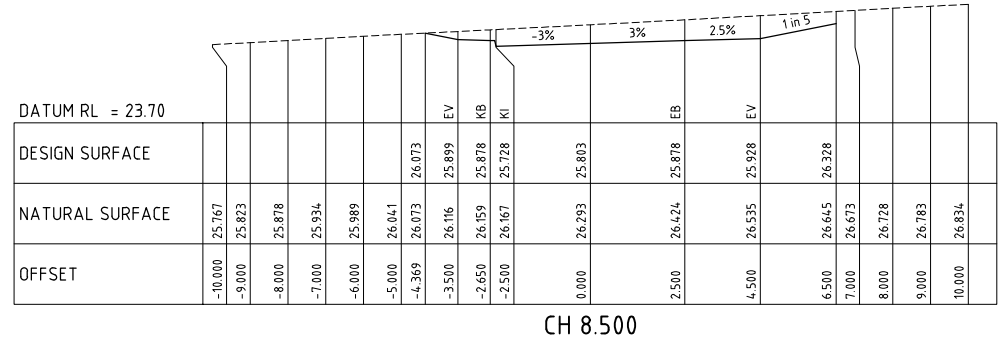
Project No 21360C	
Drawing No C17	Revision 14
A1 SHEET	



CH 20.00



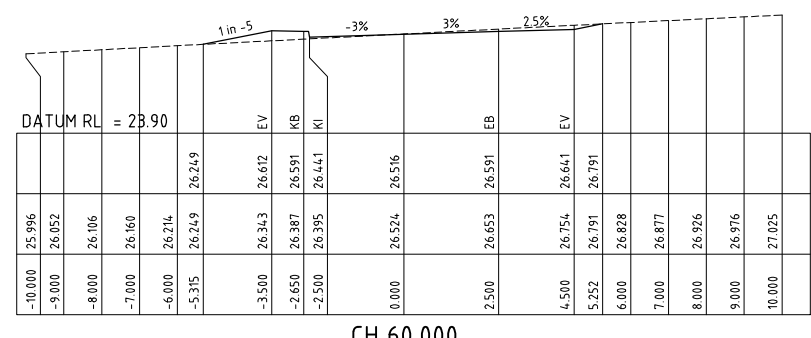
CH 10.00



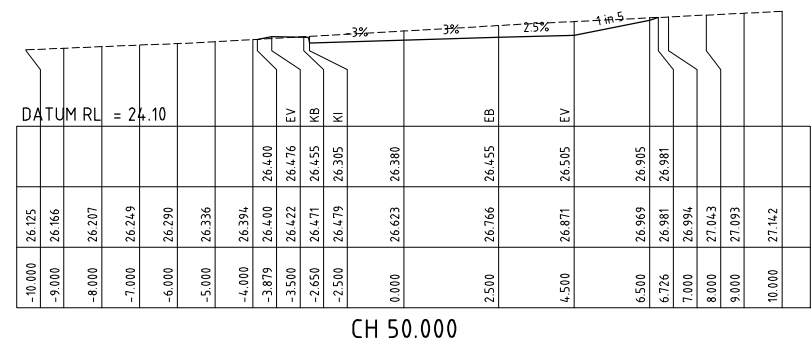
CH 8.500



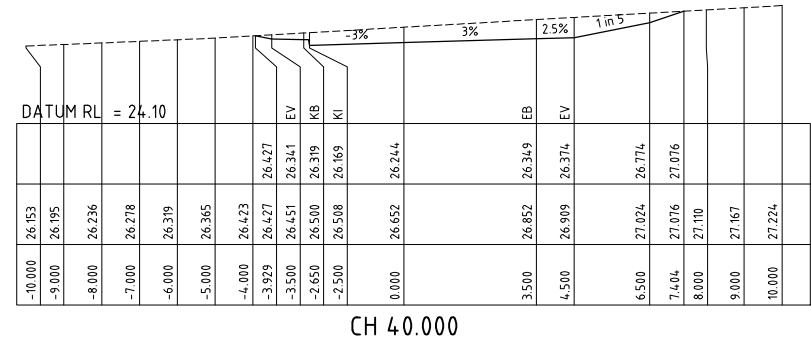
CH 60.225



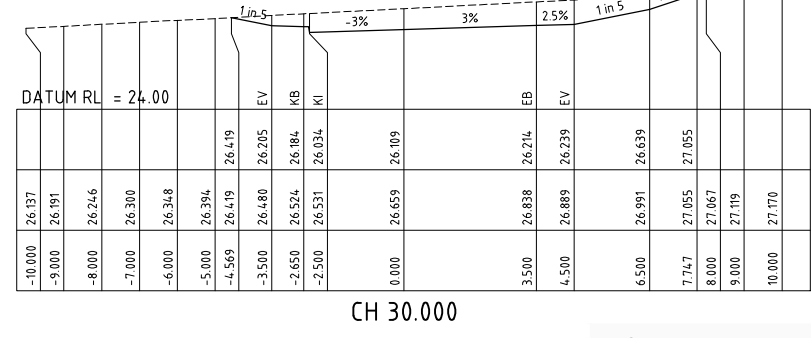
CH 60.000



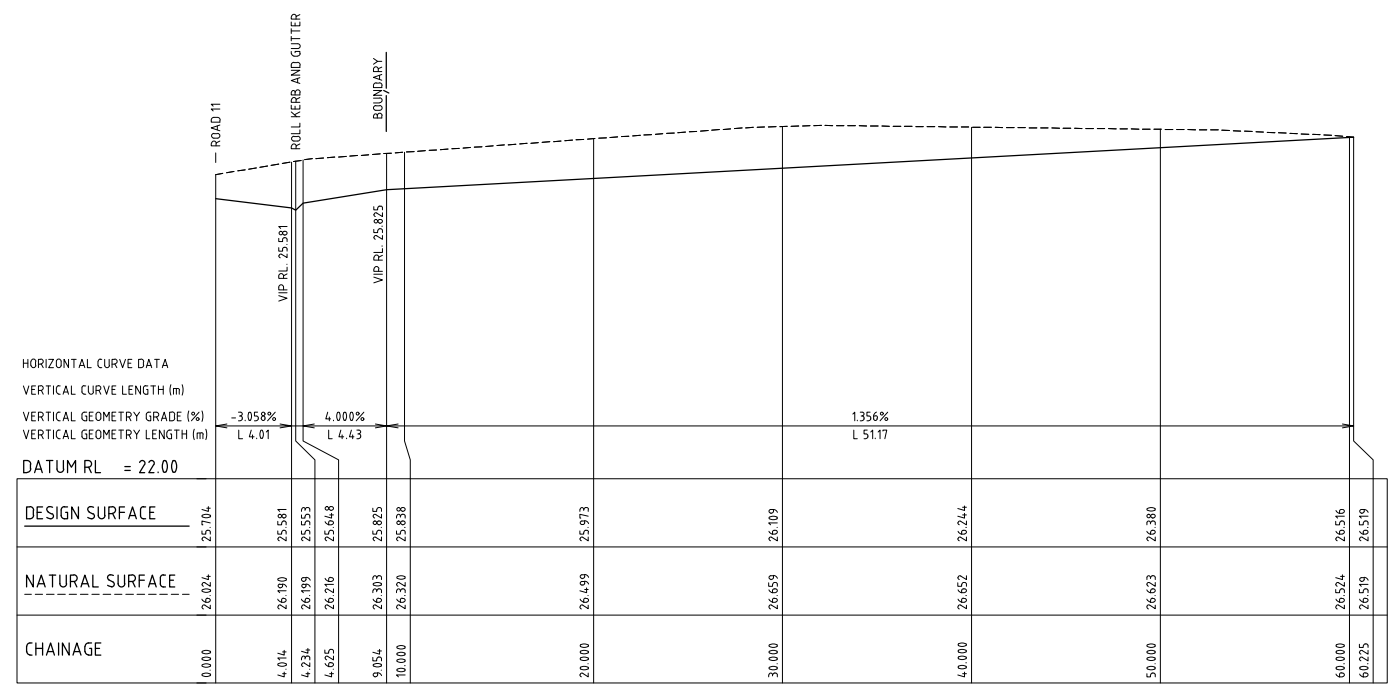
CH 50.000



CH 40.000



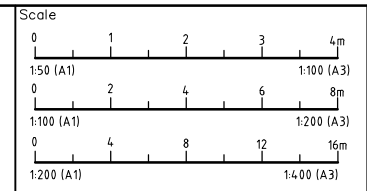
CH 30.000



A1 SCALE: HORIZONTAL 1:200, VERTICAL 1:50
 LONGITUDINAL SECTION DRIVEWAY LOT 104/105

PRELIMINARY ISSUE
 NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
13	REVISED LAYOUT	DB	IH	14.11.24
10-12	NOT ISSUED			
9	COUNCIL COMMENTS	A.M	I.H	01.07.24
5	LAYOUT AMENDMENTS	A.M	I.H	04.03.24
4	LAYOUT AMENDMENTS	A.M	I.H	30.03.23
3	GENERAL REVISION	A.M	I.H	17.03.23
14	LOT NUMBER AMENDMENTS	A.M	I.H	18.12.24



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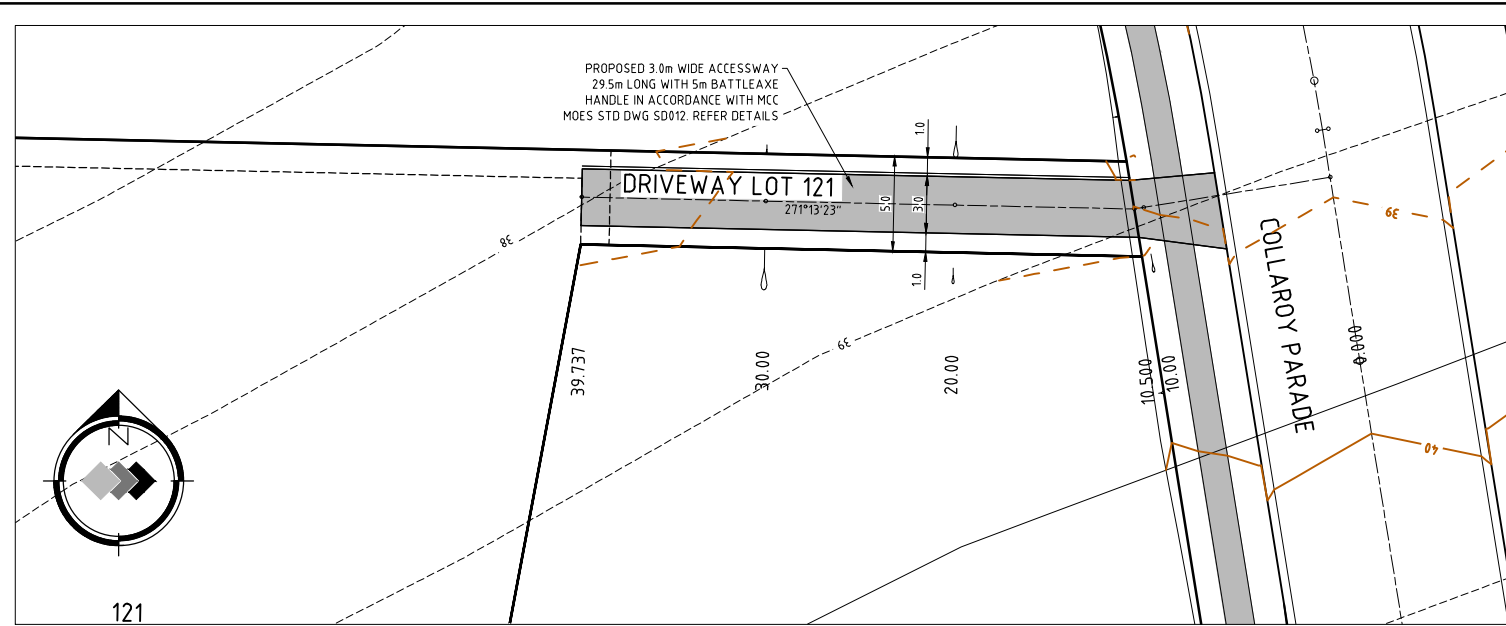
Designed: A.M
 Scale: AS SHOWN
 Client: [Blank]

Cad Reference: 21360C dC18 r14
 Project Approval: IAN HILL (B.E)
 Consulting Civil Engineer

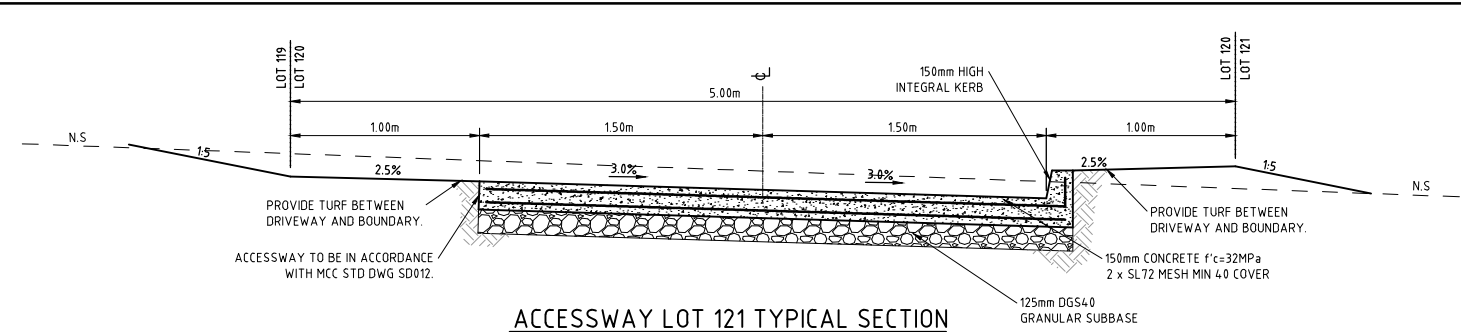


PROPOSED SUBDIVISION
 442 LOUTH PARK ROAD
 LOUTH PARK - HILL VIEW EAST
 ACCESSWAY LOT 105 & 106 LONGITUDINAL
 AND CROSS SECTIONS

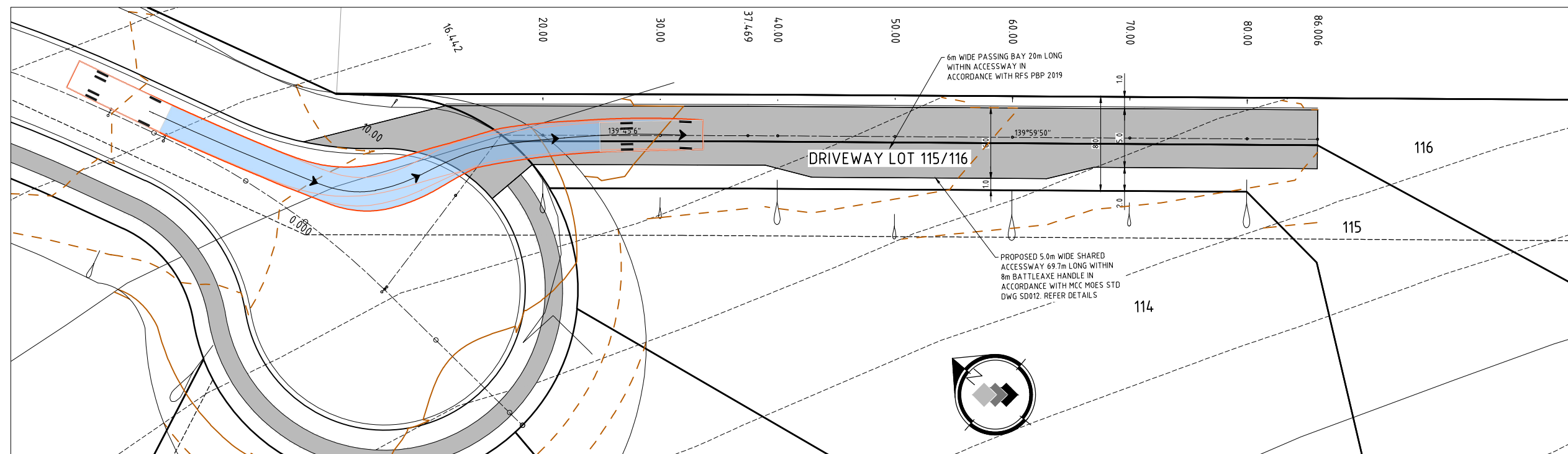
Project No	21360C	
Drawing No	C18	Revision 14
A1 SHEET		



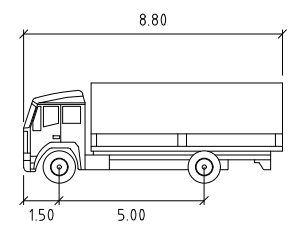
ACCESSWAY LOT 121 DETAIL PLAN
SCALE 1:200



ACCESSWAY LOT 121 TYPICAL SECTION
SCALE 1:20

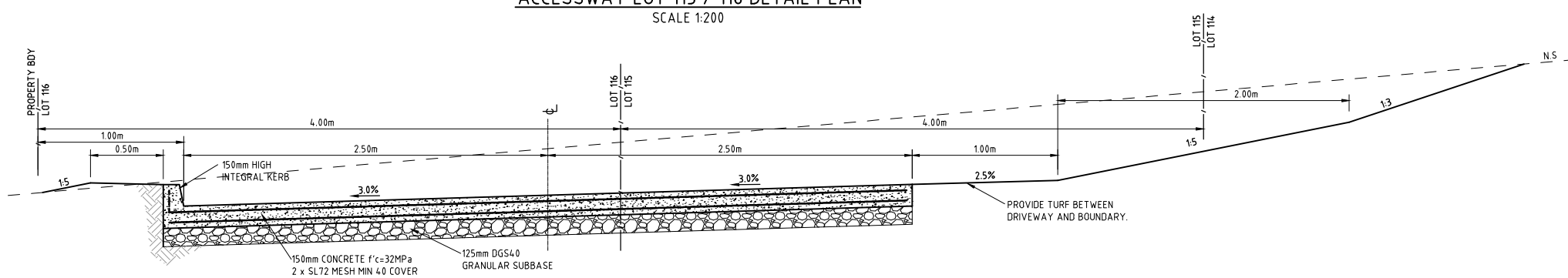


ACCESSWAY LOT 115 / 116 DETAIL PLAN
SCALE 1:200



MRV

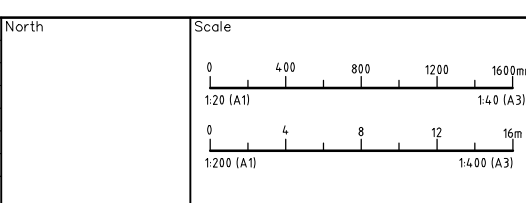
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Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 34.0



ACCESSWAY LOT 115 / 116 TYPICAL SECTION
SCALE 1:20

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
13	REVISED LAYOUT	DB	IH	14.11.24
10-12	NOT ISSUED			
9	COUNCIL COMMENTS	DB	IH	27.06.24
6-8	NOT ISSUED			
5	LAYOUT AMENDMENTS	A.M	I.H	04.03.24
3	LAYOUT AMENDMENTS	A.M	I.H	14.03.23
14	LOT NUMBER AMENDMENTS	A.M	I.H	18.12.24



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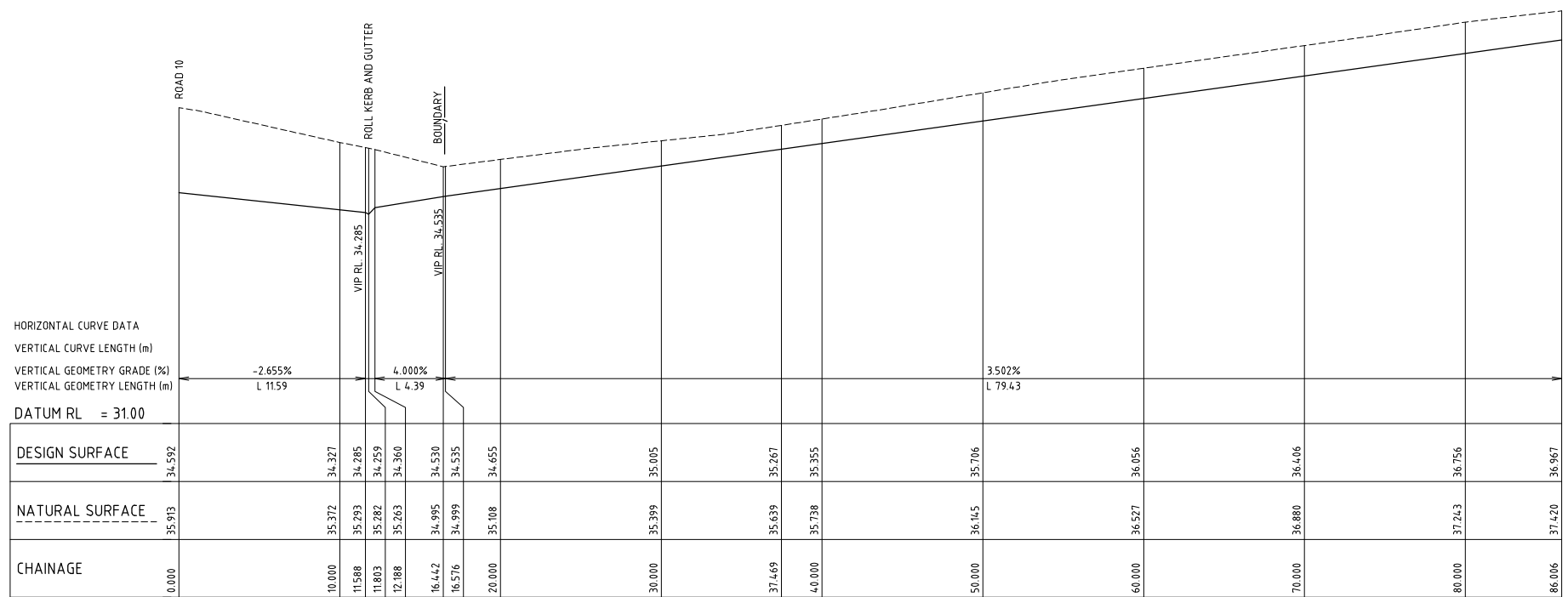
Designed: A.M
Scale: AS SHOWN
Cad Reference: 21360C dC21 r14
Project Approval: IAN HILL (B.E)
Consulting Civil Engineer

Client



PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
ACCESSWAY LOT 115,116 & 121 TYPICAL DETAILS

Project No		21360C	
Drawing No	C21	Revision	14
A1 SHEET			



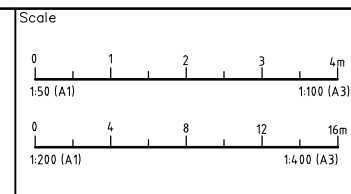
A1 SCALE: HORIZONTAL 1:200, VERTICAL 1:50

LONGITUDINAL SECTION DRIVEWAY LOT 115 / 116

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
14	LOT NUMBER AMENDMENTS	A.M	I.H	18.12.24
13	REVISED LAYOUT	DB	I.H	14.11.24
10-12	NOT ISSUED			
9	COUNCIL COMMENTS	A.M	I.H	01.07.24
5	LAYOUT AMENDMENTS	A.M	I.H	04.03.24
3	LAYOUT AMENDMENTS	A.M	I.H	14.03.23
1	ORIGINAL ISSUE	A.M	I.H	09.06.22

North
Scale



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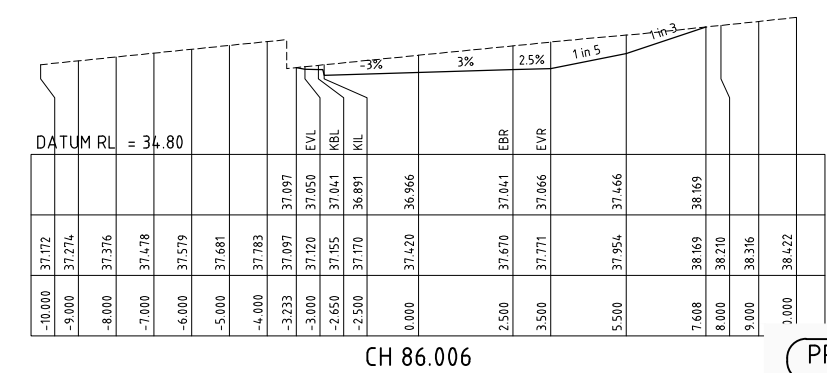
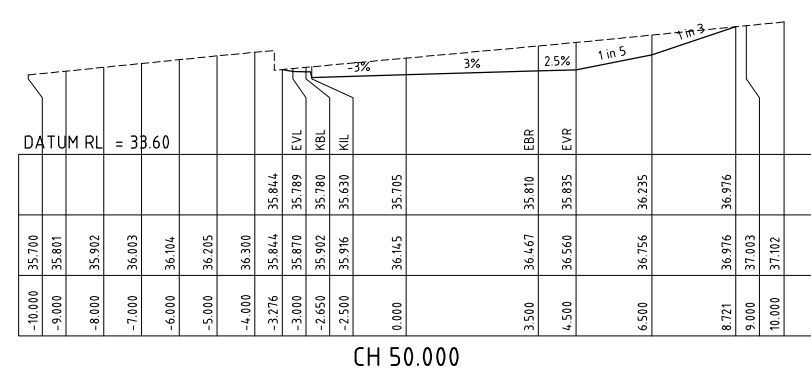
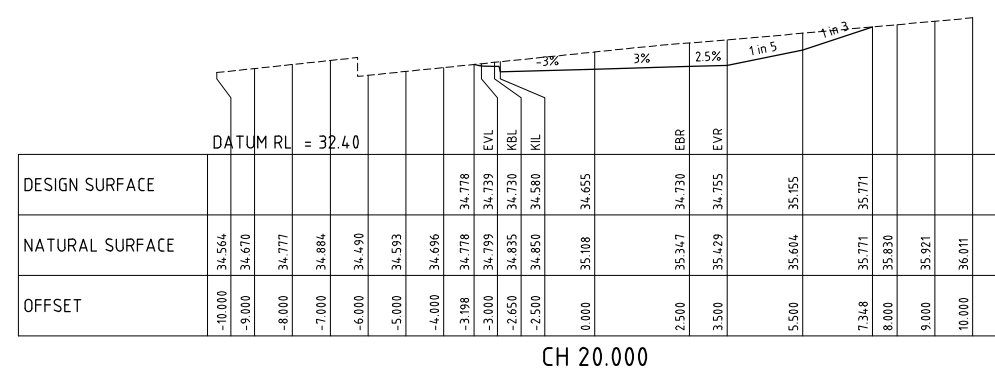
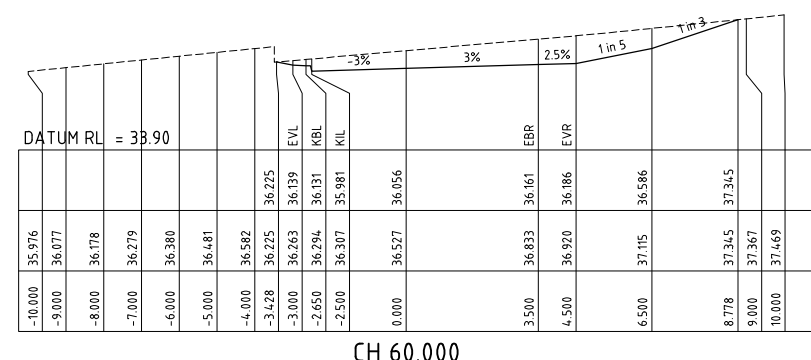
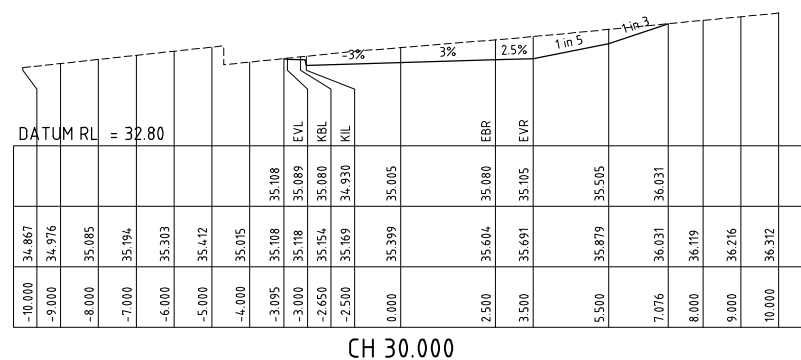
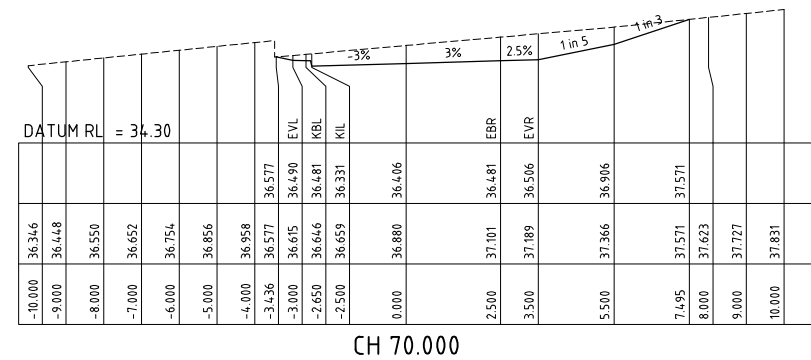
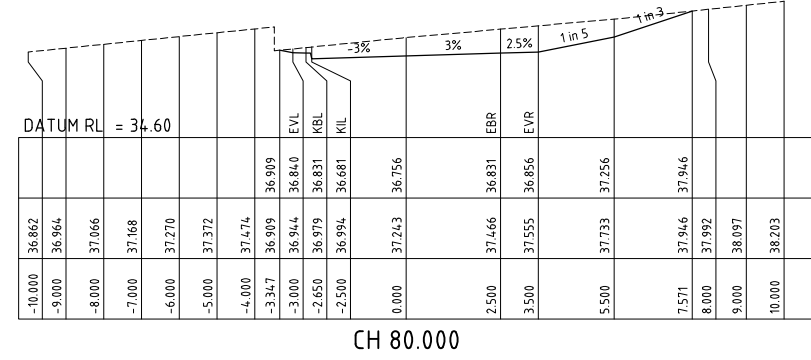
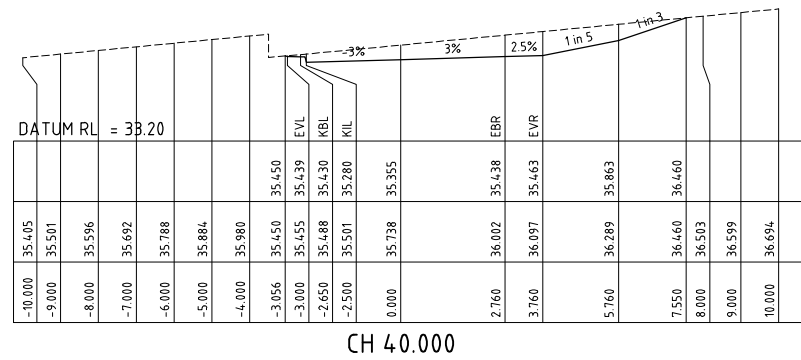
Designed A.M	Scale AS SHOWN
Cad Reference 21360C dC22 r14	
Project Approval IAN HILL (B.E) Consulting Civil Engineer	

Client

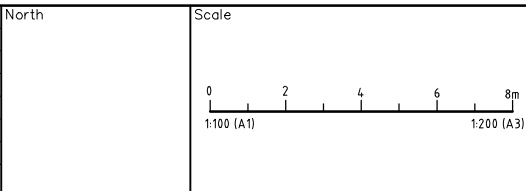


PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
ACCESSWAY LOT 115 / 116 LONGITUDINAL SECTION

Project No 21360C	
Drawing No C22	Revision 14
A1 SHEET	



REVISION	Description	Drawn	App'd	Date
14	LOT NUMBER AMENDMENTS	A.M	I.H	18.12.24
13	REVISED LAYOUT	DB	I.H	14.11.24
10-12	NOT ISSUED			
9	COUNCIL COMMENTS	A.M	I.H	01.07.24
5	LAYOUT AMENDMENTS	A.M	I.H	04.03.24
3	LAYOUT AMENDMENTS	A.M	I.H	16.03.23
1	ORIGINAL ISSUE	A.M	I.H	09.06.22



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Designed: A.M
Scale: AS SHOWN
Cad Reference: 21360C dC23 r14
Project Approval: IAN HILL (B.E) Consulting Civil Engineer

Client



PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
ACCESSWAY LOT 115 / 116 CROSS SECTIONS

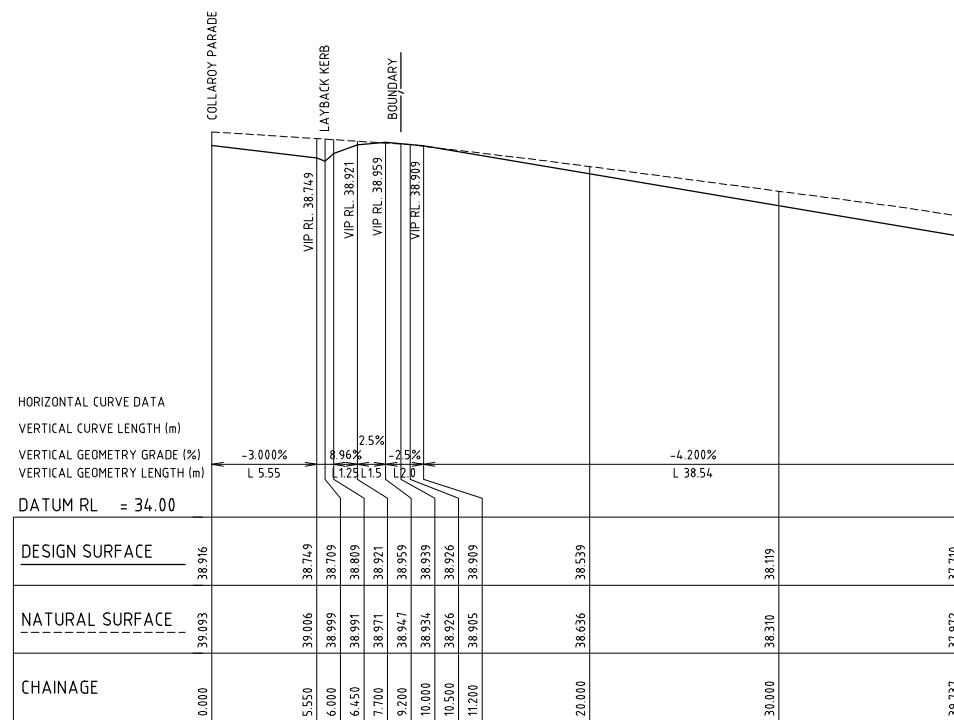
Project No
21360C

Drawing No
C23

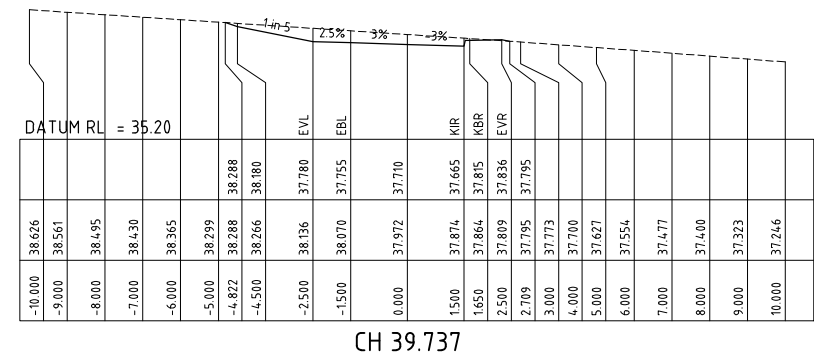
Revision
14

A1 SHEET

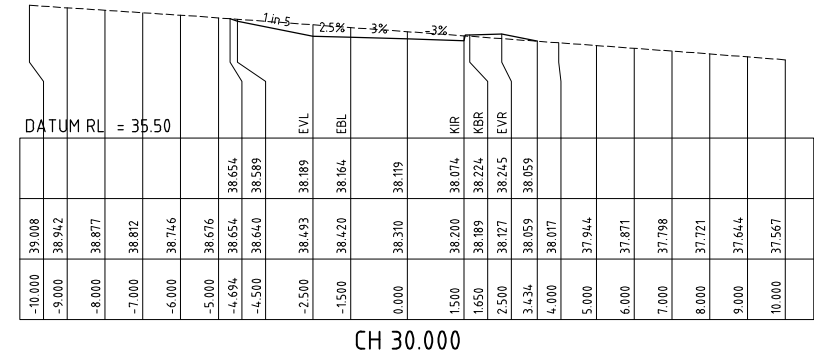
PRELIMINARY ISSUE
NOT FOR CONSTRUCTION



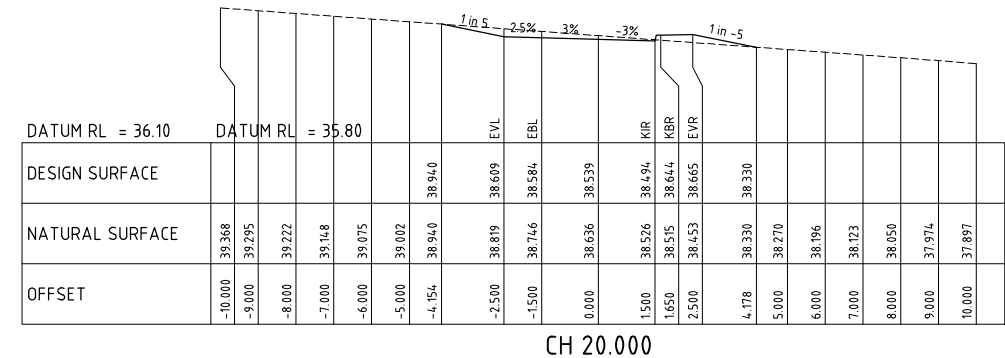
A1 SCALE: HORIZONTAL 1:200, VERTICAL 1:50
LONGITUDINAL SECTION ACCESSWAY LOT 121



CH 39.737



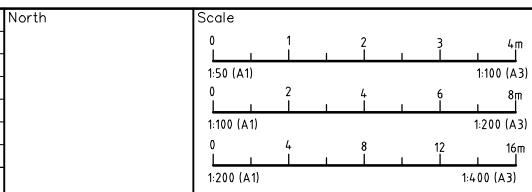
CH 30.000



CH 20.000

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
14	LOT NUMBER AMENDMENTS	A.M	I.H	18.12.24
13	REVISED LAYOUT	DB	I.H	14.11.24
10-12	NOT ISSUED			
9	COUNCIL COMMENTS	A.M	I.H	01.09.24
5	LAYOUT AMENDMENTS	A.M	I.H	04.03.24
3	LAYOUT AMENDMENTS	A.M	I.H	14.03.23
1	ORIGINAL ISSUE	A.M	I.H	09.06.22



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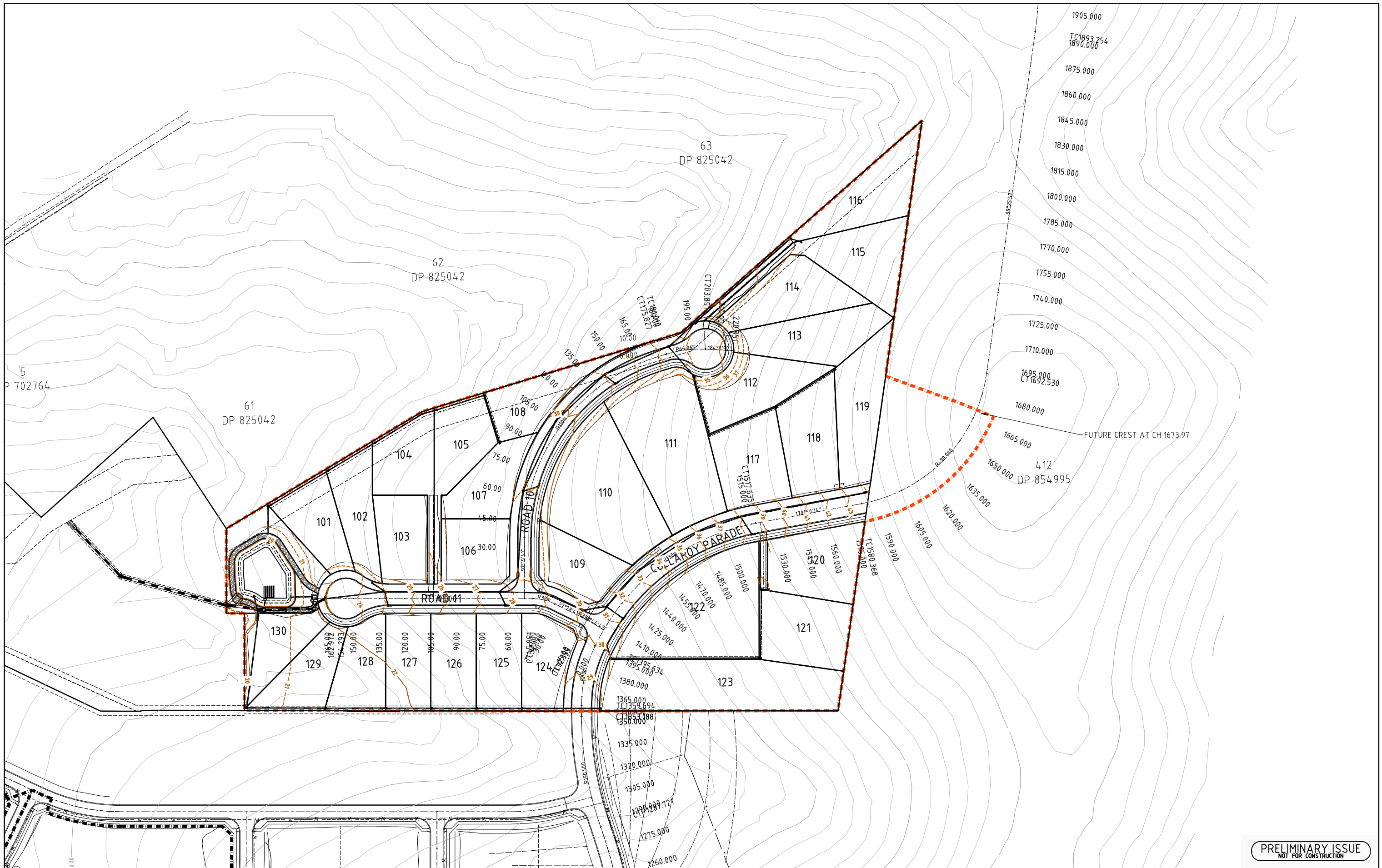
Designed
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Scale
AS SHOWN
Cad Reference
21360C dC24 r14
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client



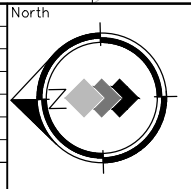
PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
ACCESSWAY LOT 121 LONGITUDINAL
AND CROSS SECTIONS

Project No 21360C	
Drawing No C24	Revision 14
A1 SHEET	



PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
13	REVISED LAYOUT	D.B	I.H	14.11.24
10-12	NOT ISSUED			
9	GENERAL REVISION	A.M	I.H	01.07.24
7	GENERAL REVISION	A.M	I.H	15.05.24
5	LAYOUT AMENDMENTS	A.M	I.H	04.02.24
4	LAYOUT AMENDMENTS	A.M	I.H	30.03.23
14	BASIN AMENDMENTS	A.M	I.H	18.12.24



Scale
0 20 40 60 80m
1:1000 (A1) 1:2000 (A3)

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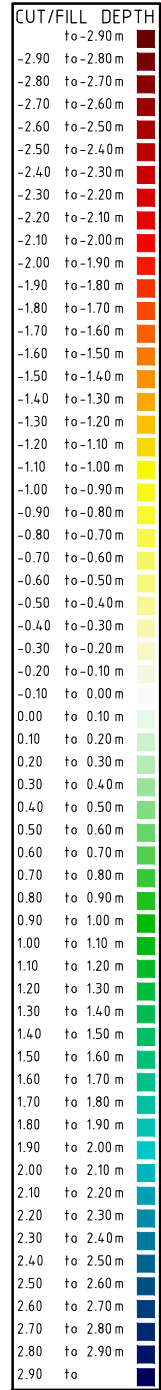
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Scale
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Cad Reference
21360C dC25 r14
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client



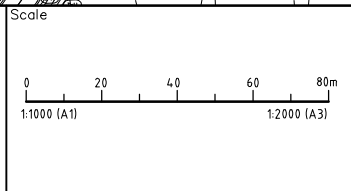
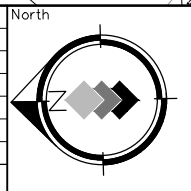
PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
OVERALL CATCHMENT PLAN

Project No		21360C	
Drawing No	C25	Revision	14
A1 SHEET			



PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
13	REVISED LAYOUT	D.B	I.H	14.11.24
10-12	NOT ISSUED			
9	COUNCIL COMMENTS	A.M	I.H	01.07.24
7	GENERAL REVISION	A.M	I.H	15.05.24
5	LAYOUT AMENDMENTS	A.M	I.H	04.03.24
4	LAYOUT AMENDMENTS	A.M	I.H	30.03.23
14	BASIN AMENDMENTS	A.M	I.H	18.12.24



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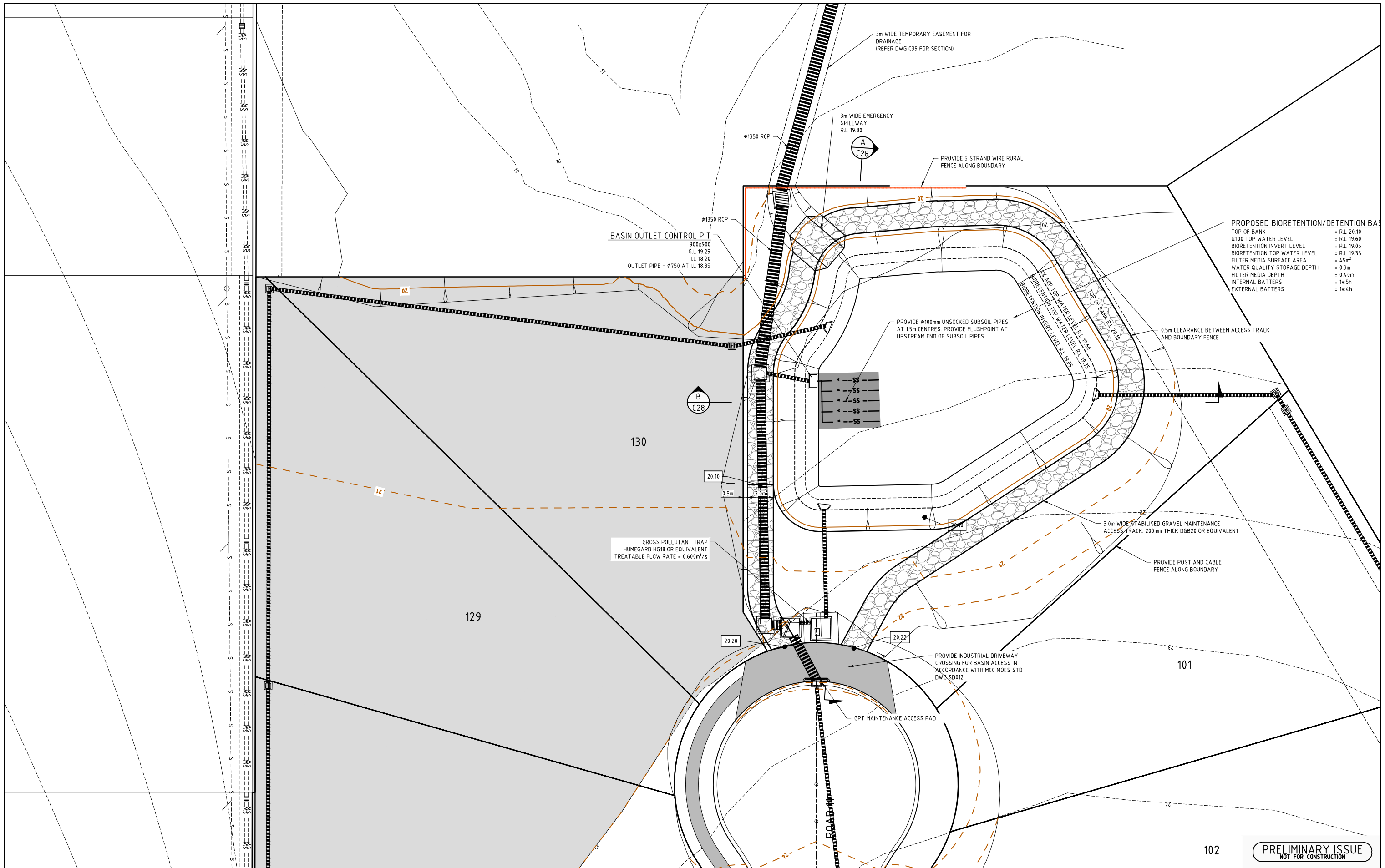
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Cad Reference: 21360C dC26 r14
Project Approval: IAN HILL (B.E)
Consulting Civil Engineer

Client:

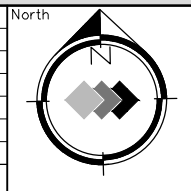


PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
EARTHWORKS PLAN

Project No	21360C	
Drawing No	C26	Revision 14
A1 SHEET		

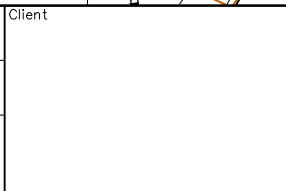


REVISION	Description	Drawn	App'd	Date
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12	COUNCIL COMMENTS	AM	I.H.	12.08.24
11	BASIN AMENDMENTS	AM	I.H.	06.08.24
9	COUNCIL COMMENTS	AM	I.H.	27.06.24
7	GENERAL AMENDMENTS	AM	I.H.	15.05.24
5	LAYOUT AMENDMENTS	AM	I.H.	04.03.24
14	BASIN AMENDMENTS	AM	I.H.	18.12.24



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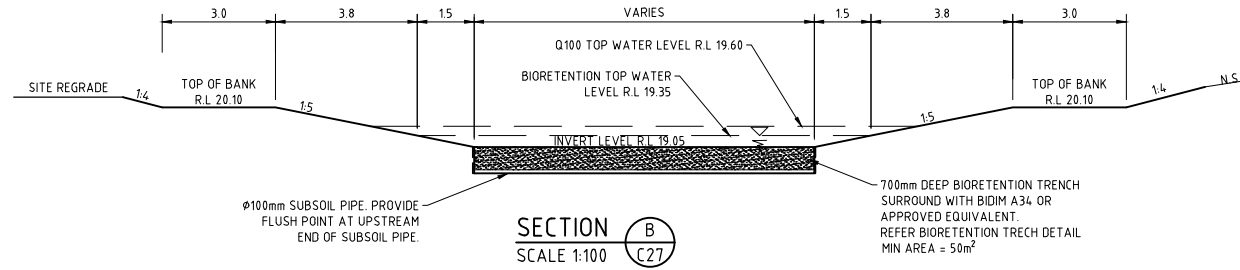
Designed: A.M.
 Scale: 1:200
 Client:
 Cad Reference: 21360C dC27 r14
 Project Approval: IAN HILL (B.E.) Consulting Civil Engineer



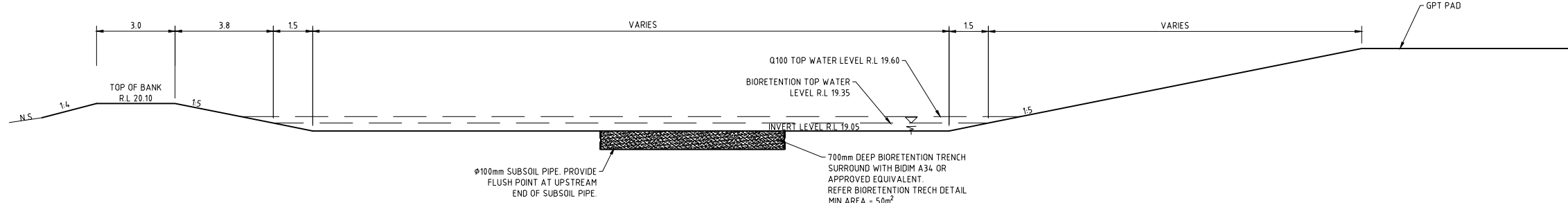
GCA
 ENGINEERING SOLUTIONS
 A.B.N. 92 086 017 745
 1 HARTLEY DRIVE, THORNTON NSW 2322
 PO BOX 3337, THORNTON NSW 2322
 PHONE: (02) 4964 1811

PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
 BIORETENTION BASIN PLAN

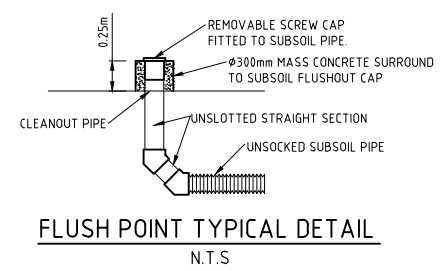
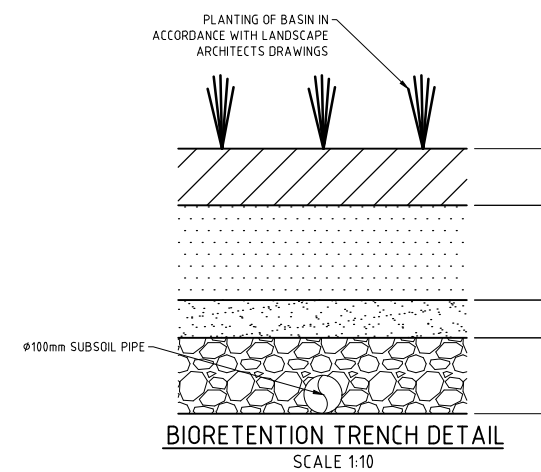
Project No		21360C	
Drawing No	Revision	C27	14
A1 SHEET			



SECTION B
SCALE 1:100

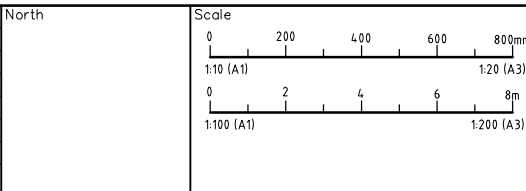


SECTION A
SCALE 1:100



PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
14	BASIN AMENDMENTS	A.M	I.H	18.12.24
13	REVISED LAYOUT	D.B	I.H	14.11.24
10-12	NOT ISSUED			
9	COUNCIL COMMENTS	A.M	I.H	01.07.24
7	GENERAL AMENDMENTS	A.M	I.H	15.05.24
5	LAYOUT AMENDMENTS	A.M	I.H	04.03.24
4	ORIGINAL ISSUE	A.M	I.H	31.03.23

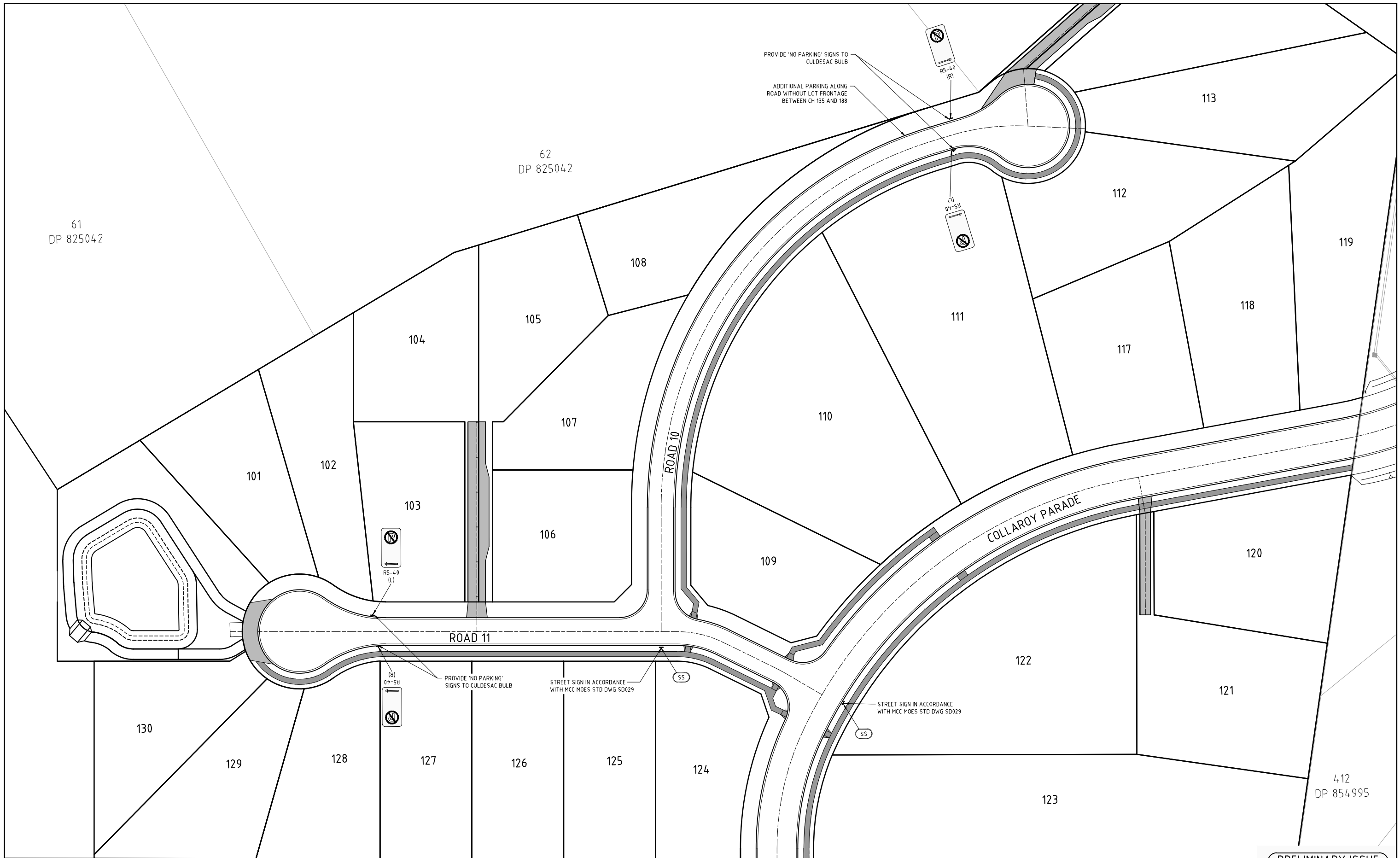


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Designed: A.M
Scale: 1:100/1:10
Cad Reference: 21360C dC28 r14
Project Approval: IAN HILL (B.E.) Consulting Civil Engineer

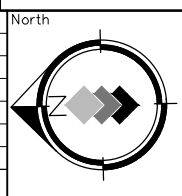
PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
BIORETENTION BASIN DETAILS

Project No	21360C	
Drawing No	C28	Revision 14
A1 SHEET		



PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
13	REVISED LAYOUT	D.B	I.H	14.11.24
11-12	NOT ISSUED			
10	SIGNAGE AMENDMENTS	A.M	I.H	04.07.24
9	GENERAL REVISION	A.M	I.H	01.07.24
7	GENERAL REVISION	A.M	I.H	15.05.24
5	LAYOUT AMENDMENTS	A.M	I.H	04.03.24
14	LOT NUMBER AMENDMENTS	A.M	I.H	09.06.22



Scale
0 10 20 30 40m
1:500 (A1) 1:1000 (A3)

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Designed
A.M
Scale
1:500
Cad Reference
21360C dC29 r14
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client



PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
LINEMARKING AND SIGNAGE PLAN

Project No		21360C
Drawing No	Revision	
C29	14	
A1 SHEET		

LEGEND:



STOCKPILE



STRAW BALE



STABILISED SITE ACCESS



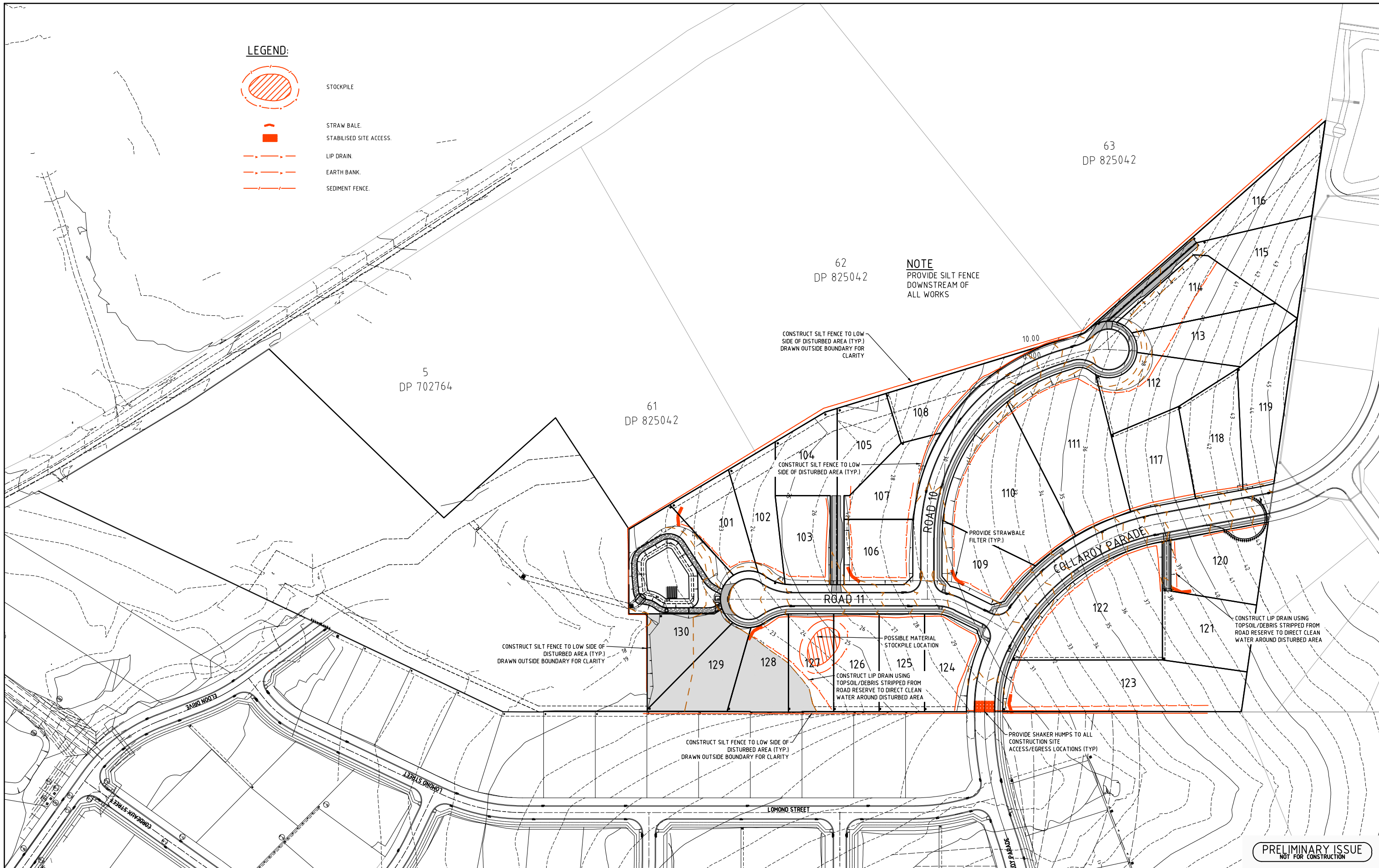
LIP DRAIN



EARTH BANK



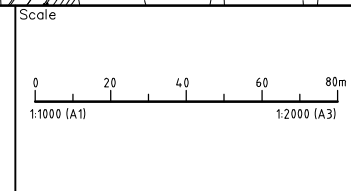
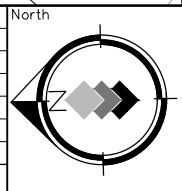
SEDIMENT FENCE



NOTE
PROVIDE SILT FENCE
DOWNSTREAM OF
ALL WORKS

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
13	REVISED LAYOUT	D.B	I.H	14.11.24
10-12	NOT ISSUED			
9	GENERAL REVISION	A.M	I.H	01.07.24
7	GENERAL REVISION	A.M	I.H	15.05.24
5	LAYOUT AMENDMENTS	A.M	I.H	04.03.24
4	LAYOUT AMENDMENTS	A.M	I.H	30.03.23
14	BASIN AMENDMENTS	A.M	I.H	18.12.24



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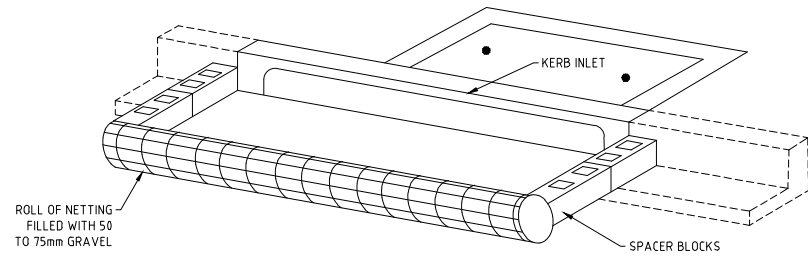
Designed
A.M
Scale
1:1000
Cad Reference
21360C dC30 r14
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client

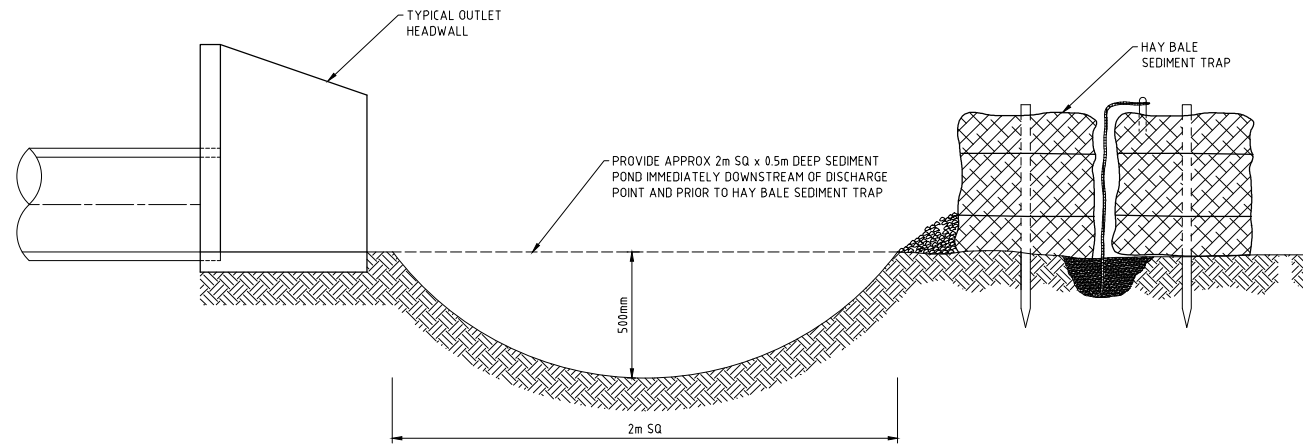


PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
SOIL AND WATER MANAGEMENT PLAN

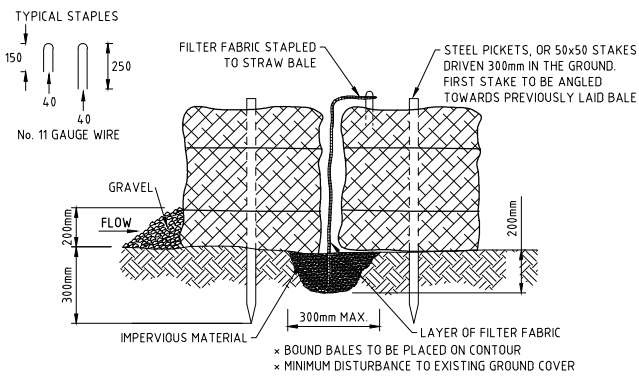
Project No		21360C
Drawing No	Revision	
C30	14	
A1 SHEET		



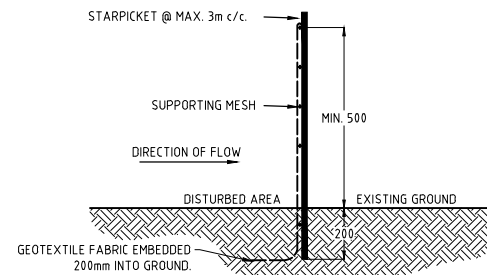
SEDIMENT BARRIER OF STORMWATER PITS
N.T.S.



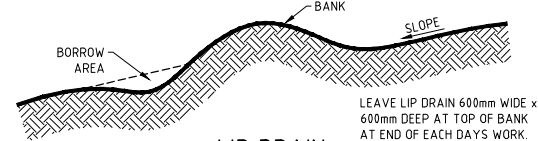
TYPICAL SEDIMENT TREATMENT AT DISCHARGE LOCATION
N.T.S.



HAY BALE DETAIL
N.T.S.



SEDIMENT FENCE.



LIP DRAIN
N.T.S.

TYPICAL CONSTRUCTION SCHEDULE

	WEEK							
	1	2	3	4	5	6	7	8
CONSTRUCT ALL TEMPORARY SEDIMENT BASINS	█							
PLACE SILT FENCE ALONG ROAD BOUNDARIES AS SHOWN	█							
PLACE SILT FENCE BELOW AREAS TO BE REGRADED	█							
CONSTRUCT ALL DIVERSION BANKS CATCHING CLEAN WATER	█							
ROAD CONSTRUCTION AND REGRADE		█	█	█	█	█	█	█
PLACE SILT FENCE AROUND TOPSOIL STOCKPILES		█	█	█	█			
PLACE SEDIMENT BARRIERS AROUND STORMWATER PITS AT COMPLETION OF DRAINAGE			█	█				
PLACE STRIP TURF PARALLEL TO DESIGN CONTOURS ALONG ROAD AS SHOWN							█	█

EROSION CONTROL

- EROSION CONTROL DEVICES AND SILTATION TRAPS TO BE INSTALLED BEFORE SITE IS DISTURBED IN ACCORDANCE WITH N.S.W. DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT GUIDELINES AND APPROVED BY COUNCIL INSPECTOR.
- ALL PERIMETER AND CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN EARTHWORKS AND/OR CLEARING.
- SILT TO BE REMOVED FROM TEMPORARY SEDIMENT CONTROL BASINS AS DIRECTED BY COUNCIL INSPECTOR OR DEPARTMENT OF LAND AND WATER CONSERVATION REPRESENTATIVE TO MAINTAIN SILTATION STORAGE CAPACITY IN TEMPORARY BASINS.
- FILTRATION BUFFER ZONES ARE TO BE FENCED OFF AND ACCESS PROHIBITED TO ALL PLANT AND MACHINERY.
- HAY BALE BARRIERS AND GEOTEXTILE FENCES ARE TO BE CONSTRUCTED TO TOE OF BATTER PRIOR TO COMMENCEMENT OF EARTHWORKS IMMEDIATELY AFTER CLEARING OF VEGETATION BEFORE REMOVAL OF TOPSOIL.
- SANDBAGS TO BE USED DURING ROAD CONSTRUCTION TO DIVERT STORMWATER INTO PITS WHEN SUBGRADE IS UP TO KERB LEVEL.
- ALL TEMPORARY EARTH BERMS, DIVERSION AND SILT DAM EMBANKMENTS ARE TO BE MACHINE COMPACTED, SEEDED & MULCHED FOR TEMPORARY VEGETATION COVER AS SOON AS THEY HAVE BEEN FORMED.
- CLEAN WATER IS TO BE DIVERTED AWAY FROM DISTURBED GROUND AND INTO DRAINAGE SYSTEM.
- ALL SEDIMENT TRAPPING STRUCTURES AND DEVICES ARE TO BE INSPECTED AFTER STORMS FOR STRUCTURAL DAMAGE OR CLOGGING. TRAPPED MATERIAL IS TO BE REMOVED TO A SAFE APPROVED LOCATION.
- ALL TOPSOIL IS TO BE STOCKPILED ON SITE FOR RE-USE (AWAY FROM TREES AND DRAINAGE LINES). MEASURES SHALL BE APPLIED TO PREVENT EROSION OF THE STOCKPILES.
- ALL FILLS ARE TO BE LEFT WITH A LIP AT THE TOP OF THE SLOPE AT THE END OF EACH DAY'S EARTHWORKS. THE HEIGHT OF THE LIP SHALL BE A MINIMUM OF 200mm.
- ALL CUT AND FILL SLOPES ARE TO BE SEEDED AND MULCHED WITHIN 10 DAYS OF COMPLETION OF FORMATION.
- UNDERSCRUBBING OF VEGETATION TO BE RESTRICTED TO SLASHING TO MINIMISE SOIL DISTURBANCE.
- UPON COMPLETION OF ALL EARTHWORKS OR AS DIRECTED BY COUNCIL, SOIL CONSERVATION TREATMENTS SHALL BE APPLIED TO RENDER AREAS THAT HAVE BEEN DISTURBED, EROSION PROOF WITHIN 14 DAYS.
- DENUDED AREAS TO BE STRIP TURF OR HYDROMULCH SEEDED WITH THE SEED MIX BELOW OR APPROVED BY DEPARTMENT OF LAND AND WATER CONSERVATION REPRESENTATIVE, WITHIN 14 DAYS OF PRACTICAL COMPLETION OF EARTHWORKS. STRIPS ARE TO BE PLACED ACROSS THE CONTOUR AT RIGHT ANGLES TO THE DIRECTION OF SLOPE.

HYDROMULCH SEEDMIXES

SUMMER MIX		AUTUMN MIX	
MATERIAL	APPLICATION RATE	MATERIAL	APPLICATION RATE
JAPANESE MILLET	30 Kg/Ha	OATS	20 Kg/Ha
COUCH	10 Kg/Ha	RYE GRASS	10 Kg/Ha
CARPET GRASS	10 Kg/Ha	RED CLOVER	5 Kg/Ha
HAIFA WHITE CLOVER	5 Kg/Ha	WHITE CLOVER	5 Kg/Ha
BINDER	200 l/Ha	COUCH	10 Kg/Ha
PULP	1000 Kg/Ha	FERTILISER ENRICHER	300 Kg/Ha
FERTILISER	300 Kg/Ha	OR	
		DYNAMIC LIFTER	1000Kg/Ha

- THE AREA OVER ALL STORMWATER AND SEWER LINES NOT WITHIN ROAD RESERVES IS TO BE MULCHED AND SEEDED WITHIN 14 DAYS AFTER BACKFILL.
- NO MORE THAN 150m OF TRENCH IS TO BE OPEN AT ANY ONE TIME.
- AREAS OVER ELECTRICITY, TELEPHONE AND GAS SUPPLY TRENCHES ARE TO BE SEEDED AND MULCHED BY THE RELEVANT AUTHORITY WITHIN 14 DAYS AFTER BACKFILL.
- ALL FOOTPATHS, BERMS AND BATTERS AND SITE REGRADE AREAS ARE TO BE TOPSOILED WITH MINIMUM 75mm OF SELECTED SITE TOPSOIL AND GRASSED.
- STRIPS OF TURF ARE TO BE PLACED IMMEDIATELY BEHIND THE KERB AND GUTTER ON ALL NEW ROADS AND AT LOCATIONS AS DETERMINED BY COUNCIL'S SUPERVISING OFFICER.
- ALL FINAL EROSION PREVENTION MEASURES INCLUDING THE ESTABLISHMENT OF GRASSING ARE TO BE COMPLETED PRIOR TO THE SUBDIVISION FINAL INSPECTION. ALL EROSION DEVICES ARE TO BE MAINTAINED UNTIL THE END OF THE MAINTENANCE PERIOD.

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
13	REVISED LAYOUT	DB	I.H.	14.11.24
6-12	NOT ISSUED			
5	GENERAL REVISION	AM	I.H.	04.03.24
4	DRAWING NUMBER CHANGE	AM	I.H.	30.03.23
3	GENERAL REVISION	AM	I.H.	17.03.23
1	ORIGINAL ISSUE	AM	I.H.	09.06.22

North	Scale
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Designed A.M.	Scale N.T.S.
Cad Reference 21360C dC31 r13	
Project Approval IAN HILL (B.E) Consulting Civil Engineer	

Client

GCA
ENGINEERING SOLUTIONS
A.B.N. 92 086 017 745
1 HARTLEY DRIVE, THORNTON NSW 2322
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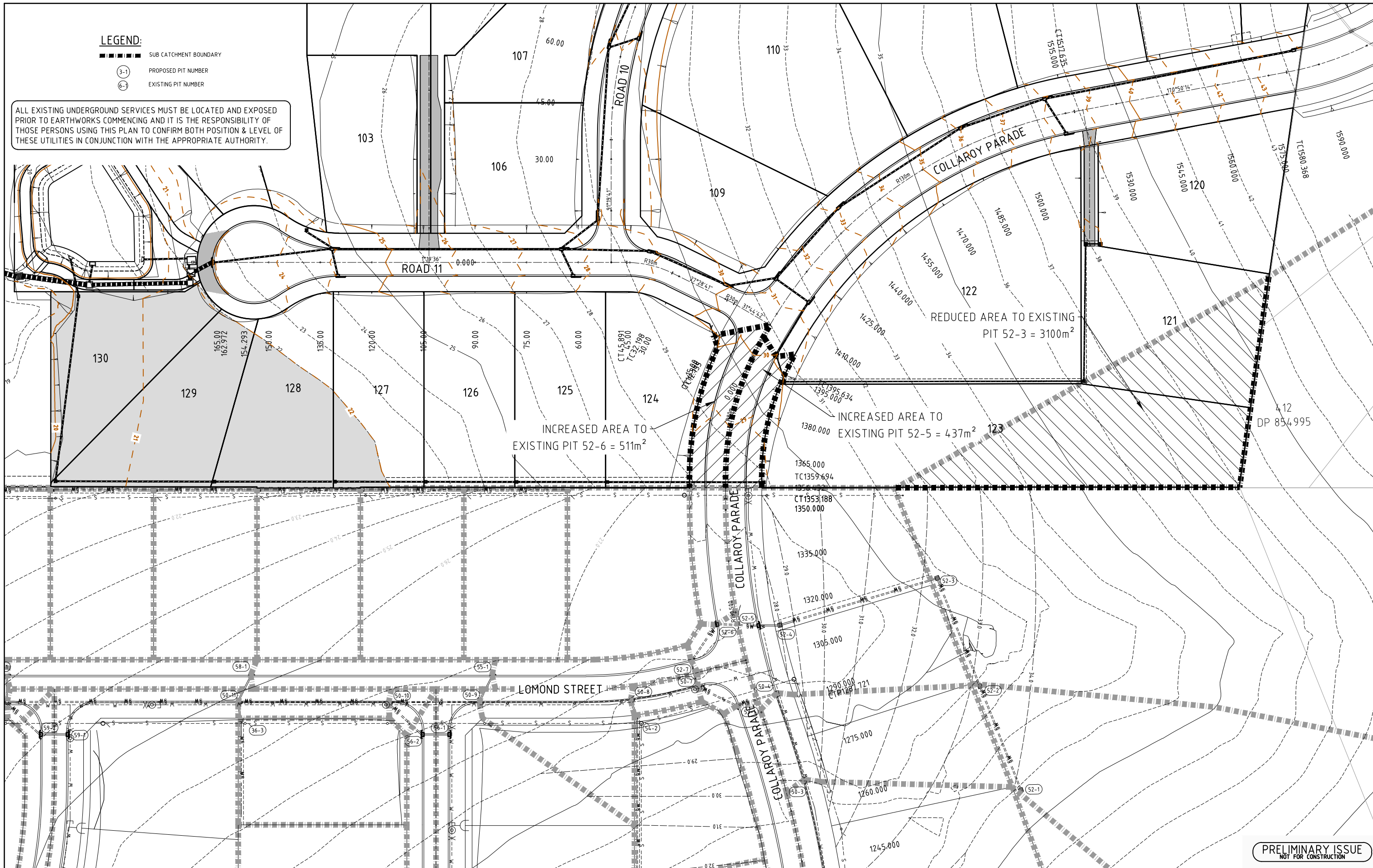
PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
SOIL AND WATER MANAGEMENT DETAILS

Project No	21360C	
Drawing No	C31	Revision 13
A1 SHEET		

LEGEND:

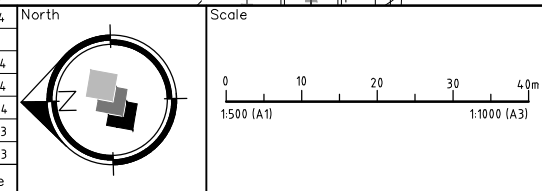
- ▬▬▬▬▬▬ SUB CATCHMENT BOUNDARY
- ⊖(3-1) PROPOSED PIT NUMBER
- ⊖(6-) EXISTING PIT NUMBER

ALL EXISTING UNDERGROUND SERVICES MUST BE LOCATED AND EXPOSED PRIOR TO EARTHWORKS COMMENCING AND IT IS THE RESPONSIBILITY OF THOSE PERSONS USING THIS PLAN TO CONFIRM BOTH POSITION & LEVEL OF THESE UTILITIES IN CONJUNCTION WITH THE APPROPRIATE AUTHORITY.



PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
13	REVISED LAYOUT	D.B	I.H	14.11.24
10-12	NOT ISSUED			
9	GENERAL AMENDMENTS	A.M	I.H	01.07.24
7	GENERAL REVISION	A.M	I.H	15.05.24
5	LAYOUT AMENDMENTS	A.M	I.H	04.03.24
4	DRAWING NUMBER CHANGE	A.M	I.H	30.03.23
3	ORIGINAL ISSUE	A.M	I.H	20.03.23



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Designed A.M Scale 1:500

Cad Reference 21360C dC32 r13

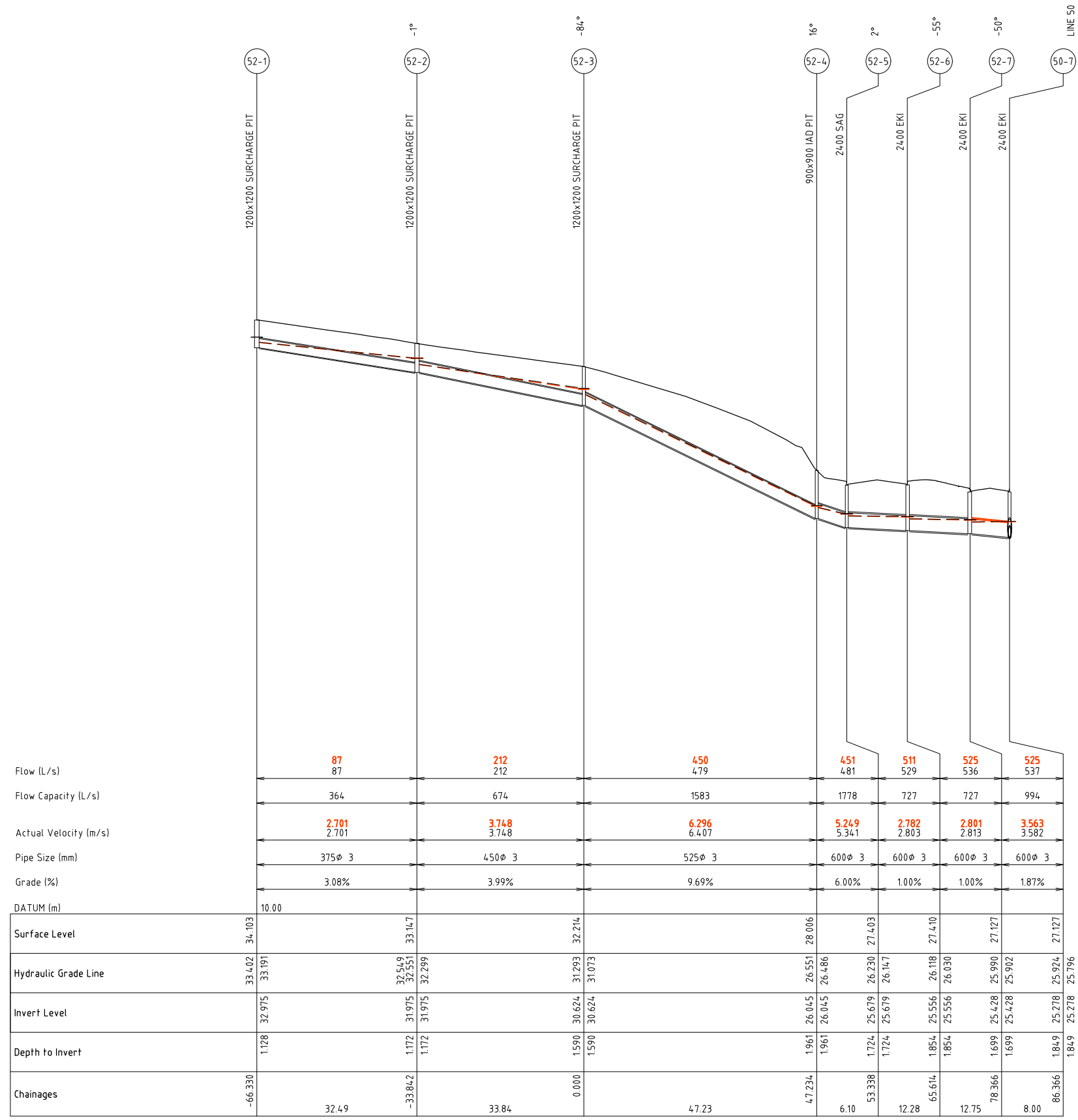
Project Approval IAN HILL (B.E) Consulting Civil Engineer

Client



PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
EXISTING CATCHMENT PLAN

Project No	21360C	
Drawing No	C32	Revision 13
A1 SHEET		



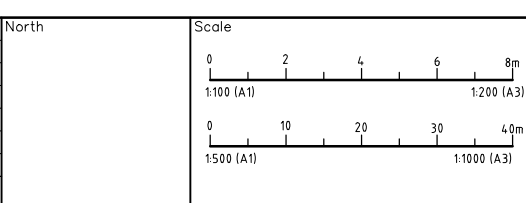
NOTE:
 VALUES NOTED IN RED ARE WITH THE ADDITIONAL CATCHMENT FROM THE PROPOSED HILLVIEW EAST DEVELOPMENT LESS THE AREA THAT HILLVIEW EAST IS CAPTURING SEPARATELY. VALUES IN BLACK ARE AS PER THE APPROVED HILLVIEW STAGE 6 & 7 DESIGN.

THE ADJUSTED CATCHMENTS RESULT IN A SLIGHTLY REDUCED FLOW WITHIN THE EXISTING NETWORK

LINE 52

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
13	REVISED LAYOUT	DB	I.H.	14.11.24
6-12	NOT ISSUED			
5	GENERAL REVISION	AM	I.H.	04.03.24
4	DRAWING NUMBER CHANGE	AM	I.H.	30.03.23
3	ORIGINAL ISSUE	AM	I.H.	20.03.23



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Designed
A.M.
Scale
1:500H/1:100V
Cad Reference
21360C dC33 r13
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client



PROPOSED SUBDIVISION
 442 LOUTH PARK ROAD
 LOUTH PARK - HILLVIEW EAST
 EXISTING DRAINAGE LINE 52

Project No	21360C	
Drawing No	C33	Revision
		13
A1 SHEET		

Q10 HYDROLOGY

Minor 10 Year Storm Event																												
Name	Catch ID	Tc Method	Catch Length	Catch Slope	Catch Retardanc	Time Tc	Intensity I	Runoff C	Area A	Full CA	Full Sum CA	Full Qc=CA	Partial CA	Partial Sum CA	Partial Qc=CA	Catchment Flow Qc	Approach Flow Qa	Road Capacity	Flooded Depth	Flooded Width	Flooded Vel.Dep	Road Grade	Road Xfall	Max Pond Depth	Inlet Curve Nan	Inlet Flow Qg	Bypass Flow Qb	Bypass Node
(-)	(-)	(-)	(m)	(%)	(-)	(min)	(mm/hr)	(-)	(ha)	(ha)	(ha)	(L/s)	(ha)	(ha)	(L/s)	(L/s)	(L/s)	(L/s)	(m)	(m)	(sq.m/s)	(%)	(%)	(m)	(-)	(L/s)	(L/s)	(-)
52-1	2P	Automatic Wa	150.00	6.5	0.150	17.07	87.34	0.36	0.7830	0.2795	0.3578	86.8	0.2070	0.2853	79.8	86.8	86.8									86.8		-
52-2	2P	Automatic Wa	200.00	6.5	0.100	15.67	90.70	0.36	1.1160	0.3983	0.5099	128.5	0.3983	0.5099	128.5	128.5	128.5									128.5		-
52-3	2P	Automatic Wa	250.00	6.5	0.100	18.46	84.12	0.36	2.3130	0.8256	1.0569	247.0	0.8256	1.0569	247.0	247.0	247.0									247.0		-
52-4	3I	Direct				6.00	136.79	0.90	0.0300	0.0270	0.0270	10.3	0.0270	0.0270	10.3	10.3	10.3									10.3		-
52-5	1P	Automatic Wa	100.00	4.0	0.170	6.00	136.79	0.36	0.0386	0.0138	0.2544	89.5	0.0138	0.2206	83.8	89.5	90.6	442.4	0.076					0.200	Inlet Cap	90.6		52-7
	1I	Automatic Wa	100.00	2.9	0.011	6.00	136.79	0.90	0.0901	0.0811			0.0811															
	2P	Automatic Wa	80.00	7.4	0.100	7.61	126.62	0.36	0.1667	0.0595			0.0469															
	2I	Automatic Wa	80.00	7.4	0.100	7.61	126.62	0.90	0.1111	0.1000			0.0788															
52-6	1P	Automatic Wa	100.00	4.0	0.170	6.00	136.79	0.36	0.0277	0.0099	0.0682	25.9	0.0099	0.0682	25.9	25.9	25.9	503.0	0.081	1.89	0.04	0.6	3.0	0.5% Grade	25.9		52-7	
	1I	Automatic Wa	80.00	2.9	0.011	6.00	136.79	0.90	0.0648	0.0583			0.0583															
52-7	1P	Direct				6.00	136.79	0.36	0.0028	0.0010	0.0069	2.6	0.0010	0.0069	2.6	2.6	2.6	295.5	0.032	0.51	0.01	1.9	3.0	1-2% Grade	2.6		55-1	
	1I	Direct				6.00	136.79	0.90	0.0066	0.0059			0.0059															

Q10 HYDRAULICS

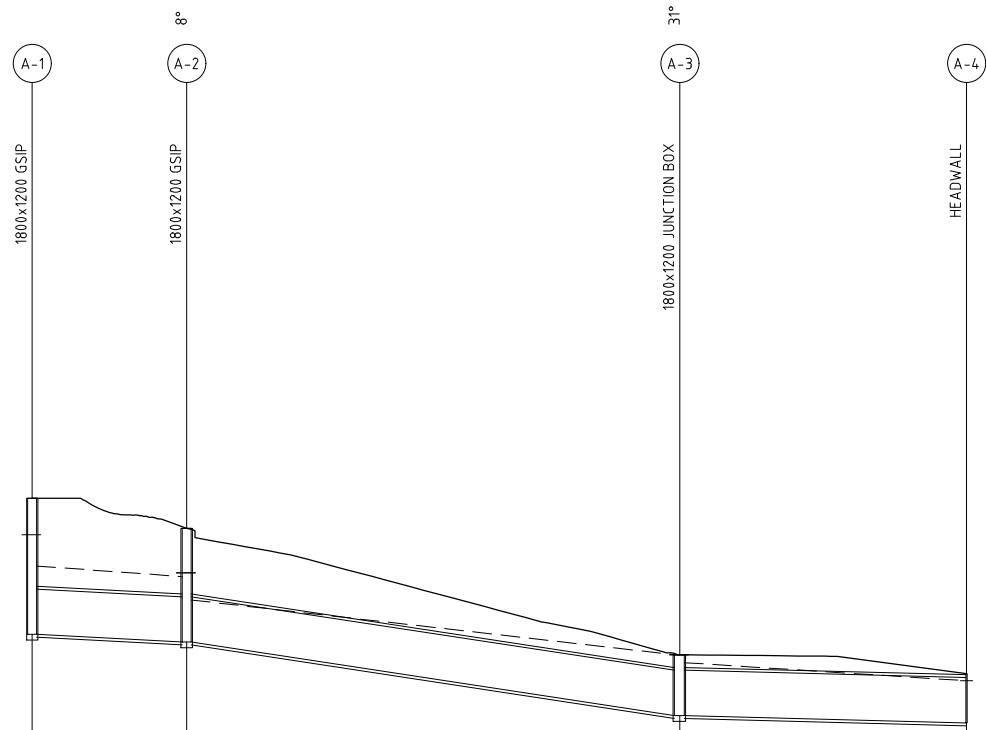
Minor 10 Year Storm Event																																											
Pipe ID	Pipe Type	Pipe Length	Pipe Size	Full Pipe Area Af	Pipe Grade	Pipe Grade	Full-area Tct	Full-area I	Full-area Sum CA	Full-area Qc=CA	Part-area Tct	Part-area I	Part-area Sum CA	Part-area Qc=CA	Peak Flow Qrat	Net Bypass Flow Qb	Pipe Flow Q	Excess Pip Flow Qx	Capacity Flow Qcap	Q/Qcap Ratio	Full Pipe Vel Vf=Q/V	Norm Dep Vel Vn=Q/V	Crit Depth Vel Vc=Q/V	Capacity V Vcap=Qca	US Node Grate RL	Pipe US IL	Pipe DS IL	DS Node Grate RL	Pipe DS Bend	Pipe DS Drop	US Node Ku	US Node Kw	Pipe V/head	P/head Lo (Ku.V/head)	WSE Loss (Kw.V/head)	Pipe T/head Lo	US Node HGL	Pipe US HGL	Pipe DS HGL	DS Node HGL	HGL Grade	F'board US	
(-)	(-)	(m)	(mm)	(sq.m)	(%)	(1 in)	(min)	(mm/hr)	(ha)	(L/s)	(min)	(mm/hr)	(ha)	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)	(-)	(m/s)	(m/s)	(m/s)	(m/s)	(m)	(m)	(m)	(m)	(deg)	(m)	(-)	(-)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(%)	(m)	
52-1 to 52-2	3	32.49	375	0.11	3.08	32.5	17.07	87.34	0.3578	86.8	12.65	100.68	0.2853	79.8	86.8		86.8			363.7	0.24	0.79	2.7	1.32	3.29	34.1	32.98	31.98	33.15	-0.8	0	6.72		0.03	0.21		0.7	33.4	33.19	32.55	32.55	1.97	0.7
52-2 to 52-3	3	33.84	450	0.159	3.99	25	17.34	86.69	0.8677	209	15.67	90.7	0.8403	211.7	211.7		211.7			673.5	0.31	1.33	3.75	1.73	4.23	33.15	31.98	30.62	32.21	-84.3	0	2.77	2.78	0.09	0.25	0.25	1.07	32.55	32.3	31.29	31.29	2.97	0.6
52-3 to 52-4	3	47.23	525	0.216	9.69	10.3	18.46	84.12	1.9246	449.7	17.63	86.02	1.8767	448.4	449.7		449.7			1583.1	0.28	2.08	6.3	2.28	7.31	32.21	30.62	26.05	28.01	15.6	0	1		0.22	0.22		4.56	31.29	31.07	26.55	26.55	9.57	0.92
52-4 to 52-5	3	6.1	600	0.283	6	16.7	18.86	83.27	1.9516	451.4	18.02	85.08	1.9037	449.9	451.4		451.4			1778.2	0.25	1.6	5.25	2.03	6.29	28.01	26.05	25.68	27.4	2.2	0	0.5		0.13	0.07		0.33	26.55	26.49	26.23	26.23	4.19	1.46
52-5 to 52-6	3	12.28	600	0.283	1	99.8	18.91	83.16	2.206	509.6	18.07	84.97	2.1581	509.4	509.6		510.7			726.7	0.7	1.81	2.78	2.16	2.57	27.4	25.68	25.56	27.41	-55	0	0.5		0.17	0.08		0.09	26.23	26.15	26.12	26.12	0.23	1.17
52-6 to 52-7	3	12.75	600	0.283	1	99.6	19.01	82.93	2.2741	523.9	18.17	84.75	2.2262	524.1	524.1		525.2			727.3	0.72	1.86	2.8	2.19	2.57	27.41	25.56	25.43	27.13	-50.4	0	0.5		0.18	0.09		0.1	26.12	26.03	25.99	25.99	0.31	1.29
52-7 to 50-7	3	8	600	0.283	1.87	53.3	19.12	82.7	2.2811	524	18.28	84.52	2.2332	524.3	524.3		525.4			994.1	0.53	1.86	3.56	2.19	3.52	27.13	25.43	25.28	27.13	88.4	0	0.5		0.18	0.09		0.05	25.99	25.9	25.92	25.92	-0.27	1.14

Q100 HYDROLOGY

Major 100 Year Storm Event																													
Name	Catch ID	Tc Method	Catch Length	Catch Slope	Catch Retardanc	Time Tc	Intensity I	Runoff C	Area A	Full CA	Full Sum CA	Full Qc=CA	Partial CA	Partial Sum CA	Partial Qc=CA	Catchment Flow Qc	Approach Flow Qa	Road Capacity	Flooded Depth	Flooded Width	Flooded Vel.Dep	Road Grade	Road Xfall	Max Pond Depth	Choke Factor	Inlet Curve Nan	Inlet Flow Qg	Bypass Flow Qb	Bypass Node
(-)	(-)	(-)	(m)	(%)	(-)	(min)	(mm/hr)	(-)	(ha)	(ha)	(ha)	(L/s)	(ha)	(ha)	(L/s)	(L/s)	(L/s)	(L/s)	(m)	(m)	(sq.m/s)	(%)	(%)	(m)	(-)	(-)	(L/s)	(L/s)	(-)
52-1	2P	Automatic Wa	150.00	6.5	0.150	13.76	149.70	0.43	0.7830	0.3354	0.4224	175.6	0.2496	0.3366	159.4	175.6	175.6										175.6		-
	2I	Automatic Wa	150.00	6.5	0.100	10.24	170.48	1.00	0.0870	0.0870			0.0870																
52-2	2P	Automatic Wa	200.00	6.5	0.100	12.63	155.59	0.43	1.1160	0.4780	0.6020	260.2	0.4780	0.6020	260.2	260.2	260.2										260.2		-
	2I	Automatic Wa	200.00	6.5	0.100	12.63	155.59	1.00	0.1240	0.1240			0.1240																
52-3	2P	Automatic Wa	250.00	6.5	0.100	14.90	143.82	0.43	2.3130	0.9907	1.2477	498.5	0.9907	1.2477	498.5	498.5	498.5										498.5		-
	2I	Automatic Wa	250.00	6.5	0.100	14.90	143.82	1.00	0.2570	0.2570			0.2570																
52-4	3I	Direct				6.00	211.26	1.00	0.0300	0.0300	0.0300	17.6	0.0300	0.0300	17.6	17.6	17.6										17.6		-
52-5	1P	Automatic Wa	100.00	4.0	0.170	6.00	211.26	0.43	0.0386	0.0165	0.2891	167.9	0.0165	0.2825	165.8	167.9	232.0	0.0	0.200					0.200	0.00	Inlet Cap	-228.8	460.8	52-7
	1I	Automatic Wa	100.00	2.9	0.011	6.00	211.26	1.00	0.0901	0.0901			0.0901																
	2P	Automatic Wa	80.00	7.4	0.100	6.23	209.03	0.43	0.1667	0.0714			0.0688																
	2I	Automatic Wa	80.00	7.4	0.100	6.23	209.03	1.00	0.1111	0.1111			0.1070																
52-6	1P	Automatic Wa	100.00	4.0	0.170	6.00	211.26	0.43	0.0277	0.0119	0.0766	45.0	0.0119	0.0766	45.0	45.0	45.0	503.0	0.095	2.38	0.05	0.6	3.0	0.80	0.5% Grade	34.8	10.2	52-7	
	1I	Automatic Wa	80.00	2.9	0.011	6.00	211.26	1.00	0.0648	0.0648			0.0648																
52-7	1P	Direct				6.00	211.26	0.43	0.0028	0.0012	0.0078	4.6	0.0012	0.0078	4.6	4.6	475.6	295.5	0.132	4.94	0.25	1.9	3.0	0.80	1-2% Grade	185.7	289.8	55-1	
	1I	Direct				6.00	211.26	1.00	0.0066	0.0066			0.0066																

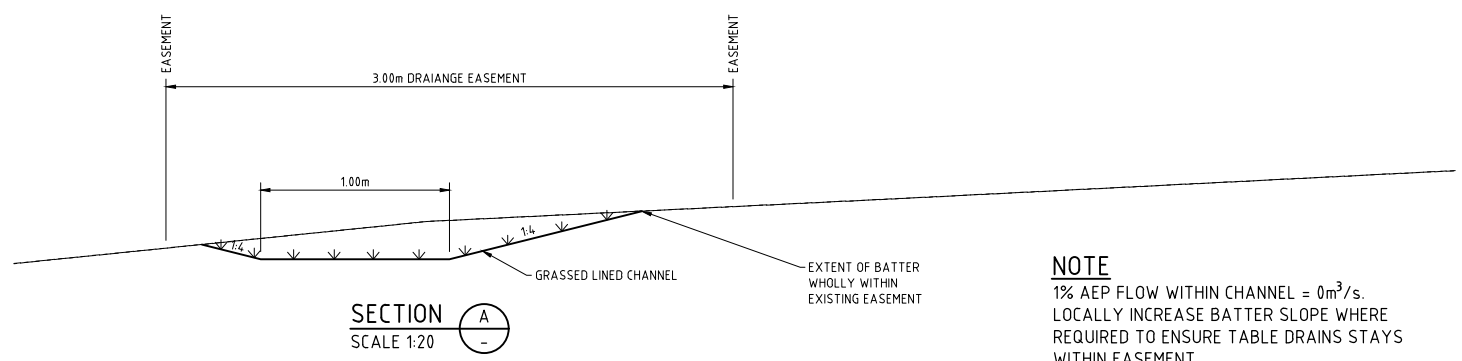
Q100 HYDRAULICS

Major 100 Year Storm Event																																										
Pipe ID	Pipe Type	Pipe Length	Pipe Size	Full Pipe Area Af	Pipe Grade	Pipe Grade	Full-area Tct	Full-area I	Full-area Sum CA	Full-area Qc=CA	Part-area Tct	Part-area I	Part-area Sum CA	Part-area Qc=CA	Peak Flow Qrat	Net Bypass Flow Qb	Pipe Flow Q	Excess Pip Flow Qx	Capacity Flow Qcap	Q/Qcap Ratio	Full Pipe Vel Vf=Q/V	Norm Dep Vel Vn=Q/V	Crit Depth Vel Vc=Q/V	Capacity V Vcap=Qca	US Node Grate RL	Pipe US IL	Pipe DS IL	DS Node Grate RL	Pipe DS Bend	Pipe DS Drop	US Node Ku	US Node Kw	Pipe V/head	P/head Lo (Ku.V/head)	WSE Loss (Kw.V/head)	Pipe T/head Lo	US Node HGL	Pipe US HGL	Pipe DS HGL	DS Node HGL	HGL Grade	F'board US
(-)	(-)	(m)	(mm)	(



Flow (L/s)	4560		4560		4560	
Actual Velocity (m/s)	4.032		6.396		4.032	
Pipe Size (mm)	1200Ø 3		1200Ø 3		1200Ø 3	
Grade (%)	1.00%		2.98%		0.50%	
DATUM (m)	-3.00					
Surface Level	20.100	19.307	15.962	15.460		
Hydraulic Grade Line	19.137	18.130	18.029	17.410	15.962	15.274
Invert Level	16.500	16.296	14.350	14.160	14.350	14.160
Depth to Invert	3.600	3.011	1.612	1.300	1.612	1.300
Chainages	0.000	20.44	65.23	123.603		

LINE A



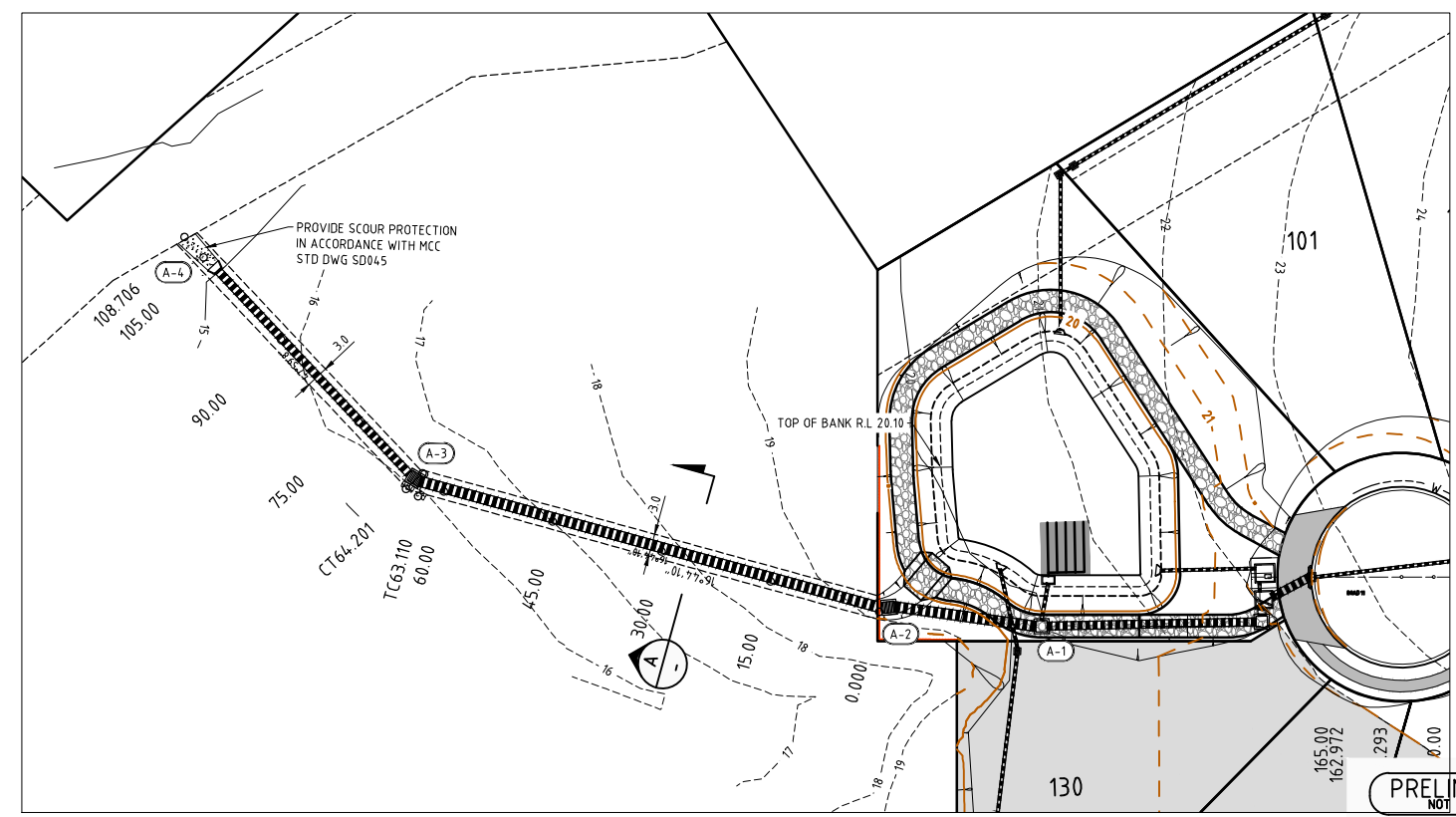
NOTE
 1% AEP FLOW WITHIN CHANNEL = 0m³/s.
 LOCALLY INCREASE BATTER SLOPE WHERE
 REQUIRED TO ENSURE TABLE DRAINS STAYS
 WITHIN EASEMENT

HYDROLOGY

Node Name	Direct Flow Qdg (L/s)	Approach Flow Qa (L/s)
(-)		
A-1	4560	4560
A-2	0	0
A-3	0	0
A-4	0	0

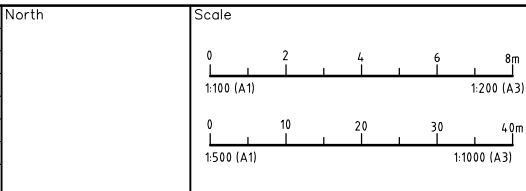
HYDRAULICS

Pipe ID	Pipe Type	Pipe Length (m)	Pipe Size (mm)	Full Pipe Area Af (sq.m)	Pipe Grade (%)	Direct Node Flow Qdg (L/s)	Pipe Flow Q (L/s)	Excess Pipe Flow Qx (L/s)	Capacity Flow Qcap (L/s)	Q/Qcap Ratio	Full Pipe Vel Vf=Q/Af (m/s)	Norm Depth Vel Vn=Q/An (m/s)	Crit Depth Vel Vc=Q/Ac (m/s)	Capacity Vel Vcap=Qcap/Af (m/s)	US Node Grate RL (m)	Pipe US IL (m)	DS Node Grate RL (m)	Pipe DS IL (m)	DS Bend (deg)	DS Drop (m)	US Node Ku	US Node Kw	Pipe V'head (m)	P'head Loss (Ku.V'head) (m)	WSE Loss (Kw.V'head) (m)	Pipe T'head Loss (m)	US Node HGL (m)	Pipe US HGL (m)	Pipe DS HGL (m)	DS Node HGL (m)	HGL Grade (%)	Fboard US	
(-)	(-)																																
A-1 to A-2	3	20.44	1200	1.131	1	4560	4560		3900.4	1.17	4.03	4.03	4.16	3.45	20.1	16.5	16.3	19.31	8.1	0	1		0.83	0.83		0.28	19.14	18.31	18.03	18.13	1.37	0.96	
A-2 to A-3	3	65.23	1200	1.131	2.98	4560	4560		6736	0.68	4.03	6.4	4.16	5.96	19.31	16.3	14.35	15.96	31.3	0	0.75	0.87	0.83	0.62	0.72	1.5	18.13	17.41	15.96	15.96	2.22	1.18	
A-3 to A-4	3	37.93	1200	1.131	0.5	4560	4560	366.8	2758	1.65	4.03	4.03	4.16	2.44	15.96	14.35	14.16	15.46	0	0.3	0.3	0.7	0.21		0.43	15.96	15.75	15.27	15.27	1.26	0		



PRELIMINARY ISSUE
 NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
A.M	I.H			18.12.24
14	BASIN AMENDMENTS	A.M	I.H	18.12.24
13	REVISED LAYOUT	D.B	I.H	14.11.24
12	NOT ISSUED			
11	GENERAL AMENDMENT	A.M	I.H	05.08.24
10	OVERLAND CHANNEL ADDED	A.M	A.S	02.08.24
9	ORIGINAL ISSUE	A.M	I.H	01.07.24



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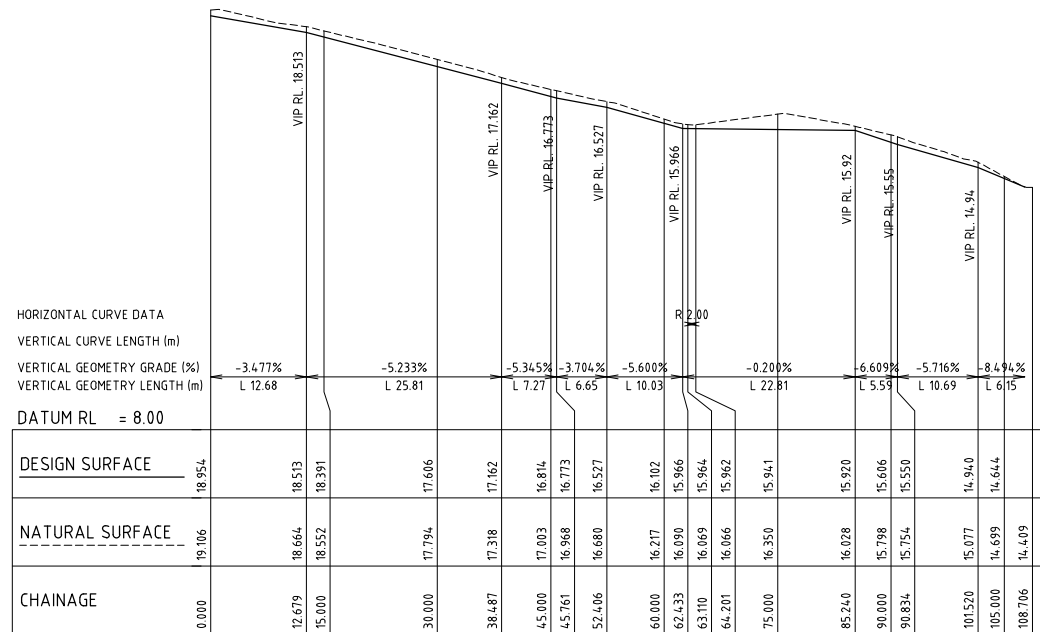
Designed
 A.M
 Scale
 1:500h/1:100v
 Client
 Cad Reference
 21360C dC35 r14
 Project Approval
 IAN HILL (B.E)
 Consulting Civil Engineer



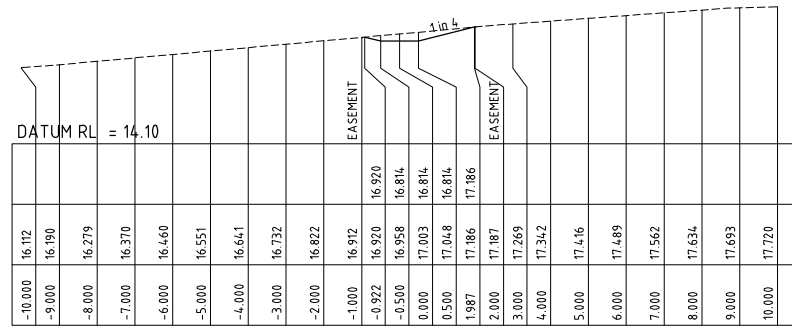
PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
 BASIN OUTLET PIPE DRAINAGE LINE

Project No	21360C	
Drawing No	C35	Revision
		14
A1 SHEET		

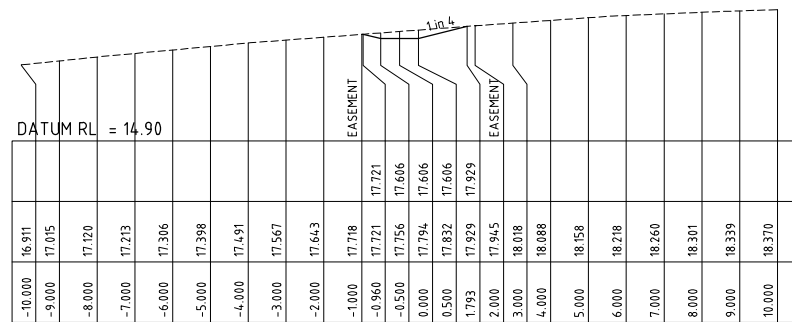
DRAINAGE RESERVE



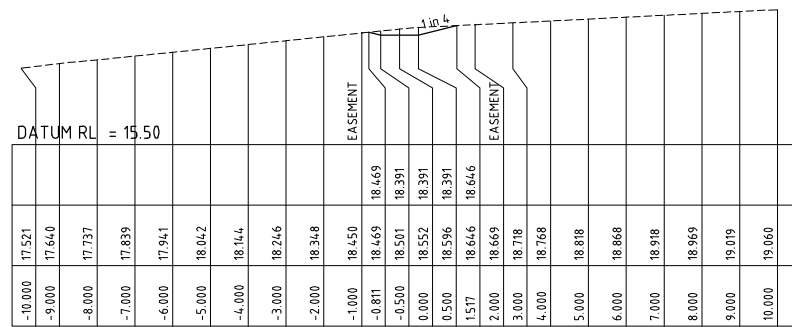
A1 SCALE: HORIZONTAL 1:500, VERTICAL 1:100
LONGITUDINAL SECTION EMERGENCY TABLE DRAIN



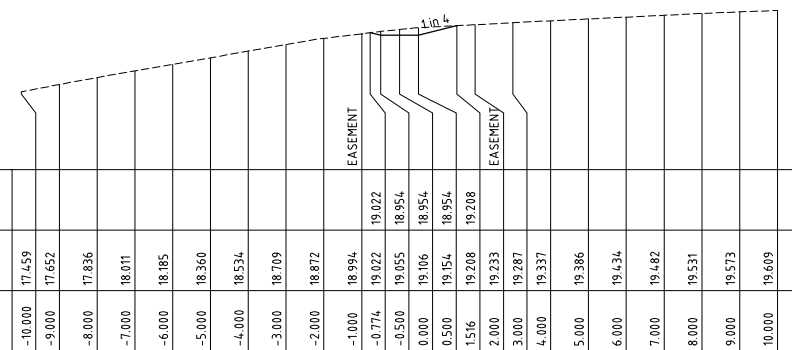
CH 45.000



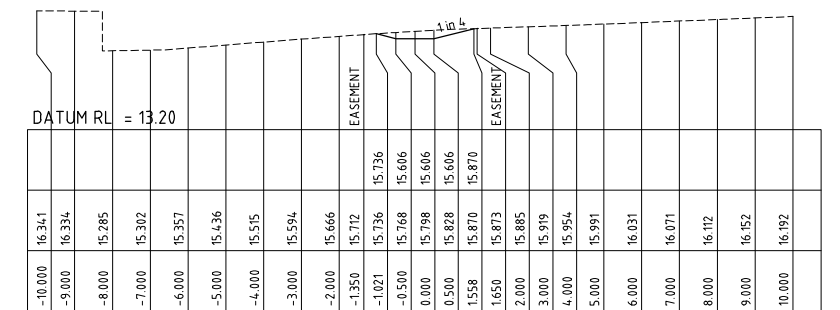
CH 30.000



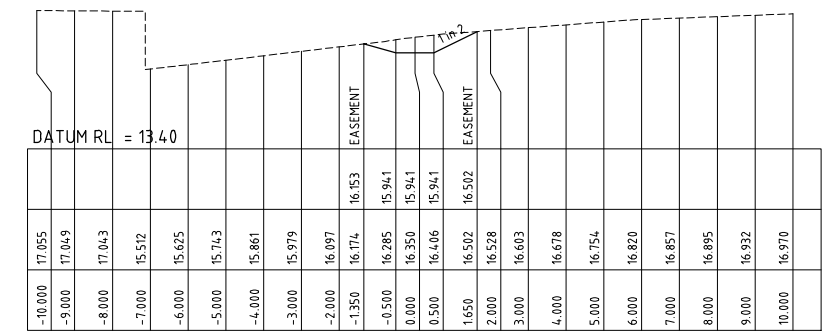
CH 15.000



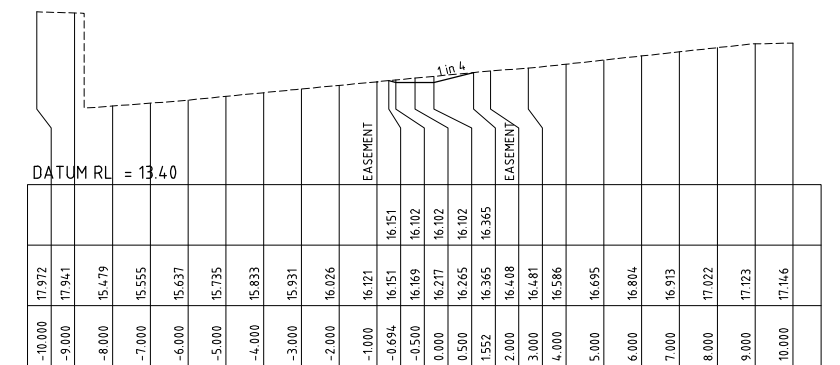
CH 0.000



CH 90.000



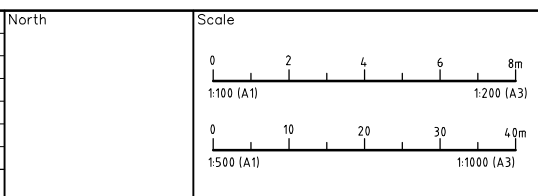
CH 75.000



CH 60.000

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REVISION	Description	Drawn	App'd	Date
13	REVISED LAYOUT	DB	IH	14.11.24
12	COUNCIL COMMENTS	AM	IH	12.08.24
11	ORIGINAL ISSUE	AM	IH	06.08.24



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Designed
A.M
Scale
1:500h/1:100v
Cad Reference
21360c dC36 r13
Project Approval
IAN HILL (B.E)
Consulting Civil Engineer

Client



PROPOSED SUBDIVISION
442 LOUTH PARK ROAD
LOUTH PARK - HILLVIEW EAST
EMERGENCY TABLE DRAIN
LONG AND CROSS SECTIONS

Project No	21360C	
Drawing No	C36	Revision
		13
A1 SHEET		