

AMENDMENT DESCRIPTION

REV. DATE

PROPOSED SUBDIVISION OF LOT 1 D.P.592091 20-22 MACPHERSON STREET, WARRIEWOOD

CIVIL WORKS **DEVELOPMENT APPLICATION**

DRAWING No.	DRAWING TITLE
359-21C-DA-0001	COVER SHEET, LOCALITY PLAN AND INDEX SHEET
359-21C-DA-0002	GENERAL NOTES
359-21C-DA-0003	LEGEND
359-21C-DA-0004	KEY PLAN
359-21C-DA-0021	DEMOLITION PLAN
359-21C-DA-0051	BULK EARTHWORKS PLAN
359-21C-DA-0061	BULK EARTHWORKS SITE SECTIONS SHEET 1 OF 3
359-21C-DA-0062	BULK EARTHWORKS SITE SECTIONS SHEET 2 OF 3
359-21C-DA-0063	BULK EARTHWORKS SITE SECTIONS SHEET 3 OF 3
359-21C-DA-0101	ROAD AND DRAINAGE PLAN SHEET 1 OF 2
359-21C-DA-0102	ROAD AND DRAINAGE PLAN SHEET 2 OF 2
359-21C-DA-0151	TYPICAL ROAD CROSS SECTIONS
359-21C-DA-0152	NARRABEEN CREEK CROSS SECTION
359-21C-DA-0201	ROAD No.01, No.3, No.04 & No.05 LONGITUDINAL SECTION
359-21C-DA-0202	ROAD No.02 LONGITUDINAL SECTION
359-21C-DA-0701	POST-DEVELOPMENT CATCHMENT PLAN
359-21C-DA-0702	INTERIM CATCHMENT PLAN
359-21C-DA-0751	TEMPORARY OSD/WSUD BASIN No.1 PLAN AND SECTIONS
359-21C-DA-0752	OSD TANK PLAN AND SECTION
359-21C-DA-0753	STORMWATER DRAINAGE DETAILS
359-21C-DA-0901	SEDIMENT AND EROSION CONTROL PLAN
359-21C-DA-0902	SEDIMENT AND EROSION CONTROL DETAILS
359-21C-DA-0911	BIN PAD LOCATION PLAN

COLONIAL CREDITS PTY. LTD.		Project: PROPOSED SUBDIVISION OF	
NORTHERN BEACHES COUNCIL		LOT 1 D.P.592091	
 Scale: AS SHOWN	Datum: AHD	20-22 MACPHERSON STREET, WARRIEWOOD	



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www.craigandrhodes.com.au	C&R Ref.	Drawing Ref.	Revision
© Craig & Rhodes Pty Ltd	359-21	359-21C-DA-0001	H

^{0mm}	A 50mm B 100mm C 150mm D SENERAL NOTES	200mm E 250mm F 300mm G 350mm H 33. ALL TRAFFIC CONTROL DEVICES SHALL REMAIN ERECTED OUTSIDE WORKING HOURS WITH	400mm I 450mm J 500mm K 550mm L	600mm
1.	ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH NORTHERN BEACHES COUNCIL ENGINEERING DESIGN SPECIFICATION AND ENGINEERING CONSTRUCTION SPECIFICATION.	FLASHING YELLOW LIGHTS ON BARRIER BOARDS TO BE IN OPERATION AFTER DARK. 34. ROADS ADJOINING THE SITE MUST BE KEPT CLEAN AND FREE OF ALL EXCAVATED/TRANSPORTED	23. UNLESS SPECIFIED ALL DRAINAGE GRATES TO BE CLASS 'D' GALVANISED MILD STEEL TO AS 3996 (LATEST EDITION).	23. THE CONTRAC APPROPRIATE
2.	SERVICES SHOWN ON THESE PLAN ARE NOT GUARANTEED COMPLETE OR CORRECT AND HAVE BEEN LOCATED FROM INFORMATION SUPPLIED BY THE RELEVANT SERVICE PROVIDERS AND	SPOIL MATERIAL. 35. SITE FILLING AND COMPACTION IS TO BE CARRIED OUT UNDER THE SUPERVISION OF A	24. upvc pipes shall be supplied with sufficient quantities of solvent for making of the pipe joints.	TOPSOIL 1. PRIOR TO SPE
	FIELD INVESTIGATIONS. THE CONTRACTOR SHALL LOCATE AND LEVEL ALL EXISTING SERVICES PRIOR TO COMMENCING CONSTRUCTION AND SHALL MAKE ALL NECESSARY ARRANGEMENTS WITH THE RELEVANT SERVICE PROVIDERS TO RELOCATE OR ADJUST AS FOUND NECESSARY.	CHARTERED GEOTECHNICAL ENGINEER AND SHALL BE IN ACCORDANCE WITH NORTHERN BEACHES COUNCIL. "WORKS SPECIFICATION - CIVIL (CURRENT REVISION)". MINIMUM STANDARD	25. uPVC PIPES SHALL BE TRANSPORTED, HANDLED AND STACKED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.	SHALL BE INS 2. UNLESS NOTE
3.	UTILITY ADJUSTMENTS ARE TO BE AT THE DEVELOPER'S EXPENSE.	COMPACTION DETERMINED IN THE RELEVANT GEOTECHNICAL REPORT MUST BE ACHIEVED AND CERTIFIED BY "NATA" REGISTERED LAB AND DETAILS SUBMITTED TO COUNCIL.	26. uPVC PIPE LAYING SHALL BEGIN AT THE DOWNSTREAM END OF THE LINE WITH THE SOCKET END OF THE PIPE FACING UPSTREAM. WHEN THE PIPES ARE LAID, THE BARREL OF EACH PIPE SHALL	AND ANY RUB
4.	CONDUITS SHALL BE PLACED WHERE REQUIRED BY THE RELEVANT AUTHORITIES.	36. RESIDENTIAL LOTS TO BE INDIVIDUALLY CLASSIFIED. 37. AGRICULTURAL LINES TO BE INSTALLED AS REQUIRED AT THE DIRECTION OF THE SITE	BE IN CONTACT WITH THE BEDDING MATERIAL THROUGHOUT ITS FULL LENGTH. 27. THE uPVC PIPE ENDS SHALL BE THOROUGHLY CLEANED BEFORE THE JOINT IS MADE. JOINTING	3. AFTER PREPA SPECIFIED LA
5.	THE CONTRACTOR SHALL NOT ENTER UPON OR DO ANY WORK WITHIN ADJACENT LANDS WITHOUT PRIOR WRITTEN PERMISSION OF THE LAND OWNER.	SUPERINTENDENT AND/OR COUNCIL'S ENGINEER.	SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS DIRECTIONS USING JOINTING SOLVENT AND PRIMER.	4. THE FINISHED READY FOR C
⊇ 6.	THE CONTRACTOR SHALL MAINTAIN SERVICES AND ALL WEATHER ACCESS AT ALL TIMES TO THE PUBLIC FOOTWAYS, ROADWAYS AND PROPERTIES ADJACENT TO THE SITE IN A SAFE CONDITION TO THE SATISFACTION OF COUNCIL'S ENGINEER AND THE SUPERINTENDENT.	STRUCTURES	28. THE PIPE CLASS DOES NOT TAKE ACCOUNT OF ANY CONSTRUCTION LOADING	5. WHERE TOPS OTHER HARD SURFACES UN
7.	THE CONTRACTOR SHALL OBTAIN ALL LEVELS FROM ESTABLISHED BENCH MARKS. SURVEY MARKS SHOWN THUS $\blacktriangle \Delta \square$ SHALL BE MAINTAINED AT ALL TIMES. WHERE RETENTION IS NOT POSSIBLE THE SUPERINTENDENT SHALL BE NOTIFIED AND CONSENT RECEIVED PRIOR TO THEIR	39. DRIVEWAYS/LAYBACKS TO HAVE MINIMUM 0.6m CLEARANCE FROM ANY PROPOSED & EXISTING UTILITIES, INCLUDING: ELECTRICAL TURRETS, LIGHT POLES, TELECOMMUNICATION PITS, STORMWATER GULLY PITS & STREET TREES. DRIVEWAYS/LAYBACKS TO HAVE A 6.0m CLEARANCE FROM KERB-RETURN TANGENT POINTS.	 SALINITY MANAGEMENT CONTRACTOR TO AVOID EXPOSURE AND DISTURBANCE OF SODIC SOIL BY MINIMISING CUT AND FILL. IN GENERAL EXCAVATION SHOULD BE KEPT UNDER 1.0m IF POSSIBLE. DEEPER EXCAVATIONS IN EXCESS OF 1.0m SHALL BE COVERED AND RETAINED BY RETAINING WALLS. 	1. ALL TURF AND BY THE SUPE
8. 9.	REMOVAL. BENCHMARK, SSM'S PERMANENT MARKS TO BE AHD. CONSTRUCTION/CIVIL WORK MAY ONLY BE CARRIED OUT ON THE SITE BETWEEN THE HOURS OF	 VEHICULAR CROSSINGS SHOWN ON THESE PLANS ARE INDICATIVE ONLY. SUBSOIL DRAINAGE SHALL BE PROVIDED ALONG THE CUT SIDE OF ALL NEW ROADS WHERE NO DRAINAGE IS PROVIDED, ALONG THE CENTRE LINE OF HALF ROAD CONSTRUCTION WORKS, AT LOW SPOTS, WHERE REQUIRED BY THE PAVEMENT DESIGN REPORT, AND WHERE DIRECTED BY 	 EXCAVATION DEEPER THAN 1.0m SHALL BE AVOIDED AND IF CARRIED OUT, SHOULD BE BACKFILLED IN THE SAME ORDER. ALTERNATIVELY THE MODERATELY TO HIGH SALINE MATERIAL SHALL BE TREATED BY USING LIME AND/OR USED IN FILL AT DEPTHS MORE THAN 1.0m FROM FINISHED LEVEL. 	 SUBSTITUTION SUPERINTEND PROTECT THE
5	7.00am TO 5.00pm MONDAY TO FRIDAY AND 8.00am to 1.00pm ON SATURDAY. NO WORK PERMITTED TO BE CARRIED OUT ON SUNDAYS OR PUBLIC HOLIDAYS UNLESS OTHERWISE APPROVED BY NORTHERN BEACHES COUNCIL .	COUNCIL'S ENGINEER AND THE SUPERINTENDENT. 42. LIGHT POLES, STREET NAME POLES AND BUS SHELTERS IN THIS SUBDIVISION WILL BE BLACK	3. BUILDING PLATFORM IN CUT AREAS GREATER THAN 1.0m SHALL BE MONITORED FOR SALINITY BY SOIL SAMPLING AND LABORATORY TESTING BY THE CONTRACTOR.	WELL ESTABL MAXIMUM POS
400	 PLANT, GOODS & MATERIALS SHALL NOT BE DELIVERED ON THE SITE OUTSIDE THE APPROVED HOURS OF OPERATION. 	POWDER COATED TO THE SATISFACTION OF NORTHERN BEACHES COUNCIL AND SHALL COMPLY WITH COUNCIL SPECIFICATIONS. STORMWATER DRAINAGE	 APPROPRIATE BATTER SLOPES FOR EXCAVATIONS SHALL BE ADOPTED BY THE CONTRACTOR TO PREVENT EROSION AND SCOURING. UNDER GOOD DRAINAGE CONDITIONS, THE FOLLOWING BATTER SLOPES OR LESS SHALL BE ADOPTED; 	4. ALLOW FOR M WITHIN ONE M
11	I. THE CONTRACTOR SHALL CLEAR AND DISPOSE OF ONLY THOSE TREES THAT HAVE BEEN APPROVED TO BE REMOVED. TREES THAT ARE NOT TO BE REMOVED SHALL BE PRESERVED. NO TREE SHALL BE FELLED, LOPPED OR REMOVED WITHOUT PRIOR APPROVAL FROM NORTHERN BEACHES COUNCIL.	1. ALL STORMWATER WORKS ARE TO BE UNDERTAKEN GENERALLY IN ACCORDANCE WITH AS 3500 (LATEST EDITION) STORMWATER DRAINAGE.	MATERIAL RECOMMENDEDMINIMUM BATTER SLOPES-COMPACTED FILL2.5 HORIZONTAL : 1 VERTICAL-VERY STIFF RESIDUAL CLAY2 HORIZONTAL : 1 VERTICALWEATHERED SUMAL FOR TOTOLE0.5 HORIZONTAL : 1 VERTICAL	1. THE BOUNDAI BE RELIED UP PROPERTY BO
° 12	2. FELLED TREES SHALL BE SALVAGED FOR REUSE AS WOODCHIP MULCH OR LOG FORM FOR SITE REHABILITATION, NON-SALVAGEABLE MATERIAL SUCH AS STUMPS AND ROOTS SHALL BE	2. UNLESS NOTED OTHERWISE, ALL STEEL REINFORCED CONCRETE PIPES ARE TO BE CLASS 2 AND RUBBER RING JOINTED. RUBBER RINGS SHALL BE MANUFACTURED AND TESTED IN ACCORDANCE WITH AS1646 (LATEST EDITION). THE EXCAVATED TRENCH WIDTH FOR PIPE LAYING MUST BE AT	-WEATHERED SHALE/SILTSTONE 0.5 HORIZONTAL : 1 VERTICAL 5. SITE ROADWORKS BY THE CONTRACTOR SHALL BE PLANNED TO REDUCE CUTTING AND FILLING	SURVEY
11	 DISPOSED OFF SITE AS NOMINATED BY THE SUPERINTENDENT. 3. SITE SHEDS, STOCKPILES, MATERIALS AND VEHICLE PARKING SHALL BE LOCATED AWAY FROM TREES ON THE SITE TO PREVENT SOIL COMPACTION. STOCKPILING OF MATERIALS SHALL NOT BE DEPENDENT OF ADDRESS OF	 LEAST 400mm WIDER THAN THE OUTER DIAMETER OF THE PIPE. PIPES ARE TO BE LAID CENTRALLY WITHIN THE EXCAVATED TRENCH. 3. ALL PIPEWORK SHALL BE BEDDED IN ACCORDANCE WITH NORTHERN BEACHES COUNCIL 	TO THE ABSOLUTE MINIMUM AND THE EARTHWORKS UNDERTAKEN IN STAGES TO ALLEVIATE EROSION AND LOCALISED INSTABILITY PROBLEM. TO MINIMISE THE EFFECTS OF EROSION, ALL ROAD BATTERS, WHETHER IN CUT OR FILL TO BE STABILISED BY PLANTING (OR THE APPLICATION OF SPRAYED-ON MULCH) WITH APPROPRIATE SPECIES OF VEGETATION AS SOON AS PRACTICAL AFTER CONSTRUCTION.	SURVEY DETAIL B
	PERMITTED WITHIN TREE PROTECTION AREAS. ALL AREAS FOR STOCKPILING SHALL BE APPROVED BY THE SUPERINTENDENT.	"WORKS SPECIFICATION SUBDIVISION/DEVELOPMENTS".4. IN WET OR UNSTABLE GROUND CONDITIONS WHERE THE TRENCH BOTTOM REQUIRES FURTHER	6. PREVENTION OF SOIL EROSION, TUNNELING AND SALT SCALDS SHALL BE TREATED BY THE	DATE: 12.11.202
	 ALL SOIL AND WATER MANAGEMENT DEVICES SHALL BE INSTALLED AND APPROVED PRIOR TO WORKS COMMENCING. 	STABILIZING, ADDITIONAL BEDDING OF 20mm AND/OR 30mm NOMINAL SIZE AGGREGATE (AS DIRECTED BY THE SUPERINTENDENT), SHALL BE PLACED BELOW THE STANDARD BEDDING TO A DEPTH DETERMINED BY THE SUPERINTENDENT. WHERE ORDERED BY THE SUPERINTENDENT AN	CONTRACTOR USING GYPSUM OR LIME. SEDIMENT AND EROSION CONTROL	
~ 15	5. ALL EROSION AND POLLUTION CONTROL MEASURES SHALL BE MAINTAINED IN GOOD WORKING ORDER AND REPAIR THROUGHOUT THE COURSE OF BUILDING CONSTRUCTION OR DEVELOPMENT WORK ON THE SITE AND UNTIL THE WORKS HAVE BEEN COMPLETED TO THE	APPROVED FILTER FABRIC SHALL BE USED IN CONJUNCTION WITH THE ADDITIONAL BEDDING.5. THE BED AND HAUNCH MATERIAL SHALL BE COMPACTED FOR THE FULL WIDTH OF THE TRENCH	 THESE NOTES ARE TO BE READ IN CONJUNCTION WITH LANDCOM'S SOILS AND CONSTRUCTION 'MANAGING URBAN STORMWATER'. 	DRAWING REFERE DATE: 07.03.2023
	SATISFACTION OF COUNCIL AND THE SUPERINTENDENT.	TO THE SATISFACTION OF THE SUPERINTENDENT. 6. CHASES SHALL BE FORMED WHERE NECESSARY TO PREVENT SOCKETS, FLANGES OR THE LIKE	2. SEDIMENT AND EROSION CONTROL SHALL BE IMPLEMENTED PRIOR TO AND MAINTAINED DURING AND AFTER THE CONSTRUCTION WORKS TO THE SATISFACTION OF HTE SUPERINTENDENT.	
<u>,</u>	SOON AS PRACTICAL AFTER COMPLETION OF EARTHWORKS.	 FROM BEARING ON THE TRENCH BOTTOM OR THE UNDERLAY. 7. THE CONTRACTOR SHALL ENSURE THAT ANY EXISTING STRUCTURES LOCATED ADJACENT TO 	3. SOIL AND SEDIMENT CONTROL DEVICES SHALL BE AS SHOWN IN THE DRAWINGS. THE CONTRACTOR SHALL REGULARLY MAINTAIN ALL SEDIMENT AND EROSION CONTROL DEVICES	
0	PROVIDED AS DETAILED. UPON COMPLETION OF WORKS, MINIMUM 150mm THICK TOPSOIL SHALL BE SPREAD ON ALL FOOTPATHS, BERMS, BATTERS AND SITE REGRADED AREAS. EXCESS TOPSOIL SHALL BE DISPOSED OF AS DIRECTED BY THE SUPERINTENDENT.	 8. THE CONTRACTOR MUST LEAVE ALL STORMWATER DRAINAGE WORKS UNCOVERED UNTIL ANY 	AND REMOVE ACCUMULATED SEDIMENT FROM SUCH DEVICES BEFORE 50% CAPACITY IS REACHED. ALL THE ACCUMULATED SEDIMENT SHALL BE RE-SPREAD OR REMOVED IN ACCORDANCE WITH THE SUPERINTENDENTS INSTRUCTIONS. THE DEVICES SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL SUCH TIME AS THE DISTURBED AREAS HAVE BEEN	
18	 ALL EARTHWORKS TO BE IN ACCORDANCE WITH A.S.3798 & TO BE CARRIED OUT TO THE SATISFACTION OF THE SUPERINTENDENT. UNSOUND MATERIALS ARE TO BE REMOVED FROM ROADS AND LOTS PRIOR TO FILLING. 	9. PIPE LAYING SHALL BEGIN AT THE DOWNSTREAM END OF THE LINE WITH THE SOCKET ENDS OF	REHABILITATED TO A CONDITION SATISFACTORY TO THE SUPERINTENDENT. 4. NO DISTURBANCE OF SITE PERMITTED OTHER THAN THE IMMEDIATE AREA OF THE WORKS.	
19	9. SURPLUS EXCAVATED MATERIAL SHALL BE DISPOSED OF IN CONSULTATION WITH THE	9. THE PIPE LATING SHALL BEGIN AT THE DOWNSTREAM END OF THE LINE WITH THE SOCKET ENDS OF THE PIPE FACING UPSTREAM. THE BARREL OF EACH PIPE SHALL BE IN CONTACT WITH THE BEDDING MATERIAL THROUGHOUT ITS FULL LENGTH.	5. COUNCIL TO RE-INSPECT TREES PRIOR TO THE CONSTRUCTION WORKS COMMENCING.	
	SUPERINTENDENT. DOCUMENTATION OF THE DISPOSAL SITE SHALL BE PROVIDED TO COUNCIL PRIOR TO COMMENCEMENT OF WORKS.	10. FOR RUBBER RING JOINTS THE PIPE ENDS SHALL BE THOROUGHLY CLEANED BEFORE THE JOINT IS MADE. THE TWO PIPE SECTIONS SHALL THEN BE TIGHTLY JOINED WITH THEIR INNER	6. NO TREES ARE TO BE REMOVED WITHOUT PRIOR COUNCIL CONSENT.	
20	 ALL SITE FILLING SHALL BE PLACED IN LAYERS NOT EXCEEDING 300mm AND COMPACTED TO 95% STANDARD COMPACTION AND SHALL BE CONTROLLED BY AN APPROVED N.A.T.A. SOILS LABORATORY. 	SURFACES AT THE MANUFACTURER'S NOMINATED LAYING GAP.	 VEHICULAR ACCESS TO THE SITE SHALL BE CONTROLLED THROUGH THE ACCESS POINTS IDENTIFIED ON THE DRAWINGS. VEHICLES NOT REQUIRED IN THE PERFORMANCE OF THE WORKS SHALL BE PARKED OFF SITE AWAY FROM DISTURBED AREAS. 	
2	1. WHERE LOT FILLING IN EXCESS OF 300mm IS PROPOSED, LEVELS ARE TO BE TAKEN ON THE STRIPPED SURFACE PRIOR TO THE COMMENCEMENT OF FILLING AND ON THE FINISHED	PLUGS, OR TAPE SURROUNDS OR OTHER APPROVED MEANS PRIOR TO BACKFILL MATERIAL BEING PLACED.	8. A VEHICLE WASHDOWN BAY INCLUDING A 25mmØ HOSE SHALL BE PROVIDED.	
	SURFACE. SUCH LEVELS ARE TO BE SHOWN ON THE WORK-AS-EXECUTED PLAN.	12. CUTTING OPERATIONS FOR CONCRETE PIPE AND BOX CULVERTS SHALL PROVIDE NEAT END SURFACES. THE CUT SURFACES SHALL BE GIVEN TWO COATS OF A SUPERINTENDENT APPROVED	9. THESE PLANS ARE SUPPLEMENTARY TO THE CONTRACTORS ENVIRONMENTAL MANAGEMENT PLAN FOR CONSTRUCTION AND SHALL BE READ IN CONJUNCTION WITH THE CONTRACTORS EROSION & SEDIMENT CONTROL PLANS	
<u>i</u> 22	 ALL LAND DISTURBED BY EARTHWORKS SHALL BE SPRAY-GRASSED, OR SIMILARLY TREATED TO ESTABLISH GRASS COVER. SEED MIXTURES ARE TO BE APPROVED BY COUNCIL PRIOR TO SPRAYING. ALL GRASSED AREAS SHALL BE REGULARLY WATERED AND MAINTAINED UNTIL EXPIRATION OF THE MAINTENANCE PERIOD. 	EPOXY PAINT. 13. JOINTS SHALL NOT BE MADE UNDERWATER. THE TRENCH SHALL BE DEWATERED TO FACILITATE JOINT MAKING AND INSPECTION. PRECAUTIONS SHALL BE TAKEN TO PREVENT EROSION OF	10. THE CONTRACTOR SHALL ENSURE TEMPORARY CONTROLS DO NOT DAMAGE EXISTING STRUCTURES.	
23	 THE CONTRACTOR SHALL MAINTAIN DUST AND SEDIMENT CONTROL THROUGHOUT THE DURATION OF THE PROJECT. 	JOINT MATERIAL BY MOVING CURRENTS OF WATER. 14. COMPLETED CEMENT MORTAR JOINTS SHALL BE KEPT DAMP AND PROTECTED FROM THE DIRECT	11. ALL EROSION AND SEDIMENT CONTROL MEASURES TO BE INSTALLED PRIOR TO SITE DISTURBANCE.	
24	 CATCH DRAINS TO BE CONSTRUCTED AS REQUIRED AT THE DIRECTION OF THE SITE SUPERINTENDENT AND/OR COUNCIL'S ENGINEER. 	RAYS OF SUN UNTIL BACKFILLING TAKES PLACE. 15. DRAINAGE LINES SHALL BE CONSTRUCTED TO THE TOLERANCES AS FOLLOWS:	12. ALL SEDIMENT CONTROL STRUCTURES TO BE INSPECTED FOLLOWING EACH RAINFALL EVENT FOR STRUCTURAL DAMAGE AND ALL TRAPPED SEDIMENT TO BE REMOVED TO A NOMINATED SITE.	
25	5. CONDUIT TRENCHES, SUB-SOIL DRAINS AND STORMWATER DRAINAGE LINES TO BE BACKFILLED WITH APPROVED WASHED RIVER SAND, FLOODED AND VIBRATED. CONDUIT TRENCHES TO BE	 FINISHED LEVEL AT ANY INVERT ±15mm PROVIDED THAT NO POINT IS LEVEL OR AT A HIGHER LEVEL THAN CORRESPONDING POINT OF STREAM, GRADING ±0.2% AT ANY POINT. 	13. THE CONTRACTOR SHALL INFORM ALL SUB-CONTRACTORS OF THEIR OBLIGATIONS UNDER THE EROSION AND SEDIMENT CONTROL PLAN	
1	GRADED AT A MINIMUM ONE PERCENT (1%). GRADE TO EITHER SUB-SOIL OR STORMWATER DRAINAGE LINES.	- NOT WITHSTANDING THE TOLERANCES ABOVE EACH PIPE SHALL HAVE A MINIMUM FALL	14. THE CONTRACTOR MUST ENSURE THE SUITABILITY AND INTEGRITY OF ALL WORKS AT THE END OF EACH DAYS WORK.	
26	 SUB-GRADE IN ROCK IS TO BE RIPPED, SCARIFIED, SPREAD AND COMPACTED TO A MINIMUM DEPTH OF 300mm BELOW THE FINISHED SUB-GRADE LEVEL 	(APPROVED BY THE SUPERINTENDENT) IN THE DIRECTION OF FLOW. 16. BACKFILL MATERIAL SHALL BE INSPECTED AND APPROVED BY THE SUPERINTENDENT PRIOR TO	15. PUBLIC ROADS ARE TO BE SWEPT FREE OF DEBRIS RESULTING FROM CONSTRUCTION	
27	 DETAILS OF ALL SOIL TESTS AND THE PAVEMENT DESIGN ARE TO BE SUBMITTED TO PRINCIPAL CERTIFYING AUTHORITY (PCA) PRIOR TO INSPECTION OF SUBGRADE. 	PLACING AND COMPACTION. 17. ALL BACKFILL FOR STORMWATER DRAINAGE WORKS IS TO BE COMPACTED IN LAYERS NOT	ACTIVITIES. SWEEPING SHALL BE UNDERTAKEN AT A MINIMUM TWICE WEEKLY. 16. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE LOCATED ON EXISTING ACCESS	
28	3. NO BUILDING MATERIALS, MACHINERY OR THE LIKE ARE TO BE STORED ON THE ROAD OR FOOTPATH. THE PATHWAY IS TO BE KEPT IN A CLEAN, TIDY & SAFE CONDITION DURING THE CONSTRUCTION PERIOD.	EXCEEDING 300mm LOOSE THICKNESS AND COMPACTED WITHOUT DAMAGING OR DISPLACING THE PIPEWORK. 18. BACKFILL FOR STORMWATER PITS AND PIPES SHALL BE COMPACTED TO AT LEAST 95% (98%	TRACKS OR ROADWAYS SO AS NOT TO ENCROACH ON TRAFFIC. ALL EROSION CONTROL MEASURES PLACED SHALL BE CLEARLY IDENTIFIABLE. EROSION CONTROL MEASURES SHALL BE COORDINATED WITH THE CONTRACTORS TRAFFIC MANAGEMENT PLANS IN ORDER TO LIMIT 'CLUTTERING' OF THE EXISTING TRAFFICABLE AREAS.	
	9. ALL NEW WORKS SHALL MAKE SMOOTH CONNECTION WITH THE EXISTING INTERFACE.	UNDER ROADS) OF THE MAXIMUM DRY DENSITY AT -2% TO +2% OF OPTIMAL MOISTURE CONTENT AND GRADED IN ACCORDANCE WITH AS 3500.3 (LATEST EDITION).	17. PROVIDE TOPSOIL WITH TURF OR GRASS SEEDING ON ALL BATTERS & DISTURBED AREAS.	
30	D. THE SITE IS TO BE SURROUNDED BY A SECURITY FENCE & THE GATE MUST BE LOCKED OUTSIDE THE OPERATING HOURS. NOTICES COMPLYING WITH A.S.1319 AND DISPLAYING THE WORDS "DANGER - DEMOLITION IN PROGRESS", OR SIMILAR MESSAGE SHALL BE FIXED TO THE FENCING	19. ALL CONNECTIONS TO EXISTING DRAINAGE PITS SHALL BE MADE IN A TRADESMAN-LIKE MANNER AND THE INTERNAL WALL OF THE PIT AT THE POINT OF ENTRY SHALL BE CEMENT RENDERED WITH AN EPOXY GROUT TO ENSURE A SMOOTH FINISH.	18. TURFED AREAS ADJACENT TO CONSTRUCTION AREA ARE TO BE MAINTAINED TO PROVIDE A VEGETATED BUFFER STRIP.	
-	AT APPROPRIATE PLACES TO WARN THE PUBLIC.	20. STEP IRONS ARE TO BE PROVIDED IN DRAINAGE PITS MORE THAN 1.2m DEEP.	19. THE CONTRACTOR SHALL STRIP AND STOCKPILE TOPSOIL PRIOR TO EXCAVATION OR FILLING. TOPSOIL SHALL BE RESPREAD ON THE COMPLETION OF EARTHWORKS.	
	 THE CONTRACTOR SHALL PROVIDE A MINIMUM 24 HOURS NOTICE TO SUPERINTENDENT OR COUNCIL'S ENGINEER FOR ALL INSPECTIONS. 	21. PROVIDE A MINIMUM OF 3.0m LENGTH OF 100 DIA. SUBSOIL DRAINAGE PIPE WRAPPED IN FABRIC SOCK AT UPSTREAM END OF EACH COUNCIL PIT.	20. THE CONTRACTOR SHALL STABILISE ALL DISTURBED AREAS AND STOCKPILES WITHIN 14 DAYS.	
32	 THE CONTRACTOR SHALL UNDERTAKE TRAFFIC CONTROL MEASURES IN ACCORDANCE WITH COUNCIL'S TRAFFIC MANAGEMENT POLICY AND SHALL DISPLAY ALL APPROPRIATE WARNING SIGNS THROUGHOUT THE DURATION OF CONSTRUCTION. 	22. UNLESS DIRECTED OTHERWISE BY THE SUPERINTENDENT, ALL DRAINAGE PITS TO BE CAST INSITU, THE GRADE OF CONCRETE TO BE USED SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 32MPA. STEEL REINFORCING BARS SHALL COMPLY WITH THE REQUIREMENTS OF AS1302 (LATEST EDITION). WELDED WIRE REINFORCING SHALL COMPLY WITH AS1304.	 THE CONTRACTOR SHALL INSTALL A STRIP OF TURF BEHIND THE KERB IN ACCORDANCE WITH THE COUNCIL SPECIFICATION. THE CONTRACTOR SHALL PROVIDE TURFING AROUND ALL SURFACE INLET PITS. 	
G 17.04.	23 ISSUED FOR DEVELOPMENT APPLICATION S.Y. N.M. 23 ISSUED FOR DEVELOPMENT APPLICATION T.F. T.L.	Authorised for issue by: Principal: COLONIAL CREDITS PTY. LTD.	Project: PROPOSED SUBDIVISION OF	د KCRA
E 04.04. D 21.03.	23 ISSUED FOR DEVELOPMENT APPLICATION T.F. N.M. 23 ISSUED FOR DEVELOPMENT APPLICATION Z.Y. T.L. 23 ISSUED FOR DEVELOPMENT APPLICATION Z.Y. T.L. 23 ISSUED FOR DEVELOPMENT APPLICATION Z.Y. T.L.	L.G.A. NORTHERN BEACHES COUNCIL	LOT 1 D.P.592091	ξομο
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00mm	М	650mm	N	700mm	0	750mm	Р
	OR IS TO IMPLE		ENT AND EROSIC RKS.	ON CONTROL	MEASURES		
SOIL							
			BGRADE MATER		MPORTED TOPS	OIL	

ESS NOTED OTHERWISE, ALLOW FOR CLEARING AND REMOVING STONES EXCEEDING 25 mm ANY RUBBISH BROUGHT TO THE SURFACE DURING THE CULTIVATION OF THE SUBGRADE.

R PREPARATION OF THE SUBGRADE SURFACE, PLACE TOPSOIL AS APPROPRIATE FOR THE IFIED LANDSCAPE TREATMENTS AND AS INDICATED BY THE DRAWINGS.

FINISHED SURFACE OF THE TOPSOIL SHALL BE SMOOTH, FREE OF LUMPS OF SOIL AND LEFT DY FOR CULTIVATING AND PLANTING.

RE TOPSOILING IS CARRIED OUT ADJACENT TO KERBS, FOOTPATHS, MOWING STRIPS OR ER HARD PAVED SURFACES, THE TOPSOIL SHALL BE FINISHED FLUSH WITH THOSE FACES UNLESS OTHERWISE SPECIFIED.

AND PLANTING

FURF AND OTHER MATERIALS SPECIFIED SHALL BE SUBJECT TO INSPECTION AND APPROVAL HE SUPERINTENDENT.

STITUTION OF SPECIES SHALL ONLY OCCUR WITH THE PRIOR APPROVAL OF THE ERINTENDENT.

FECT THE NEWLY PLANTED AREAS AGAINST TRESPASS AND TRAFFIC UNTIL THE GRASS IS LESTABLISHED. FENCING, WHERE USED, SHALL BE 1.2m HIGH STAR PICKET TYPE, WITH MUM POST SPACING OF 5m.

W FOR MAKING OVER AND RE-TURFING ALL AREAS WHERE THE GRASS FAILS TO GROW IN ONE MONTH FROM THE DATE OF ORIGINAL PLANTING.

VEY NOTES

BOUNDARY LINEWORK IN THIS DRAWING SET IS FOR INFORMATION ONLY AND SHOULD NOT ELIED UPON. THE CONTRACTOR IS TO ENSURE THAT ALL WORKS ASSOCIATED WITH THE PERTY BOUNDARIES ARE TO BE SETOUT OR VERIFIED BY A REGISTERED SURVEYOR.

VEY DETAIL DETAIL BY: CRAIG & RHODES

B REFERENCE: 359-21G T01 [00]

CALCULATIONS CULATIONS BY: CRAIG & RHODES

GREFERENCE: 359-21G L01 [01] - PLAN



ABN 77 050 209 991 ACN 050 209 991 Suite 7.01, Level 7, 3 Rider Boulevard, Rhodes, NSW, 2138 PO Box 3220, Rhodes NSW 2138 Tel. (02) 9869-1855 reception@crhodes.com.au	GENERAL NOTES	
www.craigandrhodes.com.au	Drawing Ref.	Revision
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^{0mm} A1	A 50mm B	100mm C	150mm D 200mm	E 250mm F 30
5	LEGEND - CIVIL			LEGEND - DRAINAG
500mm	DESCRIPTION	PROPOSED	EXISTING	DESCRIPTION
200	LIMIT OF CONSTRUCTION	_/////		SUBSOIL DRAINAGE LINE
	CIVIL WORKS BOUNDARY	·····		SUBSOIL DRAINAGE FLUSHING POINT
0	SITE WORKS BOUNDARY DESIGN CONTOUR - MAJOR			STORMWATER DRAINAGE LINE
10	DESIGN CONTOUR - MINOR			RCBC CULVERT LINE
450mm	MASONRY RETAINING WALL			FLOW DIRECTION AND PIPE SIZE
45	ROCK RETAINING WALL			STUB, CAP AND BURY FOR
	FENCE LOCKABLE GATE		//	FUTURE CONNECTION
o	GUIDE POST	•	•	TEMPORARILY BLOCK PIPE
0,	SITE FENCE	oo		STRUCTURAL STORMWATER PIT (LINTEL/GRATE VARIABLE)
400mm	GUARD RAIL	<u> </u>		STORMWATER PIT - ONGRADE
40	BATTER (EARTHWORKS)			STORMWATER PIT - SAG
	CENTRELINE / CHAINAGE	·		STORMWATER PIT -
ω	KERB LINE			SURFACE INLET STORMWATER PIT -
	KERB LINE (FUTURE)			JUNCTION PIT
350mm	KERB RETURN LABEL			STORMWATER PIT LABEL (DRAINAGE LINE No. \ DRAINAGE PIT No.)
35				
	SURFACE LEVEL			CONCRETE HEADWALL WITH RIPRAP SCOUR PROTECTION
4	VEHICULAR CROSSING	VC		
	DRIVEWAY			STACKED ROCK HEADWALL WITH
300mm				RIPRAP SCOUR PROTECTION
				OVERLAND FLOW PATH
	LEGEND - PAVEMEN	<u>IT</u>		CATCHMENT DIRECTION
9	DESCRIPTION	PROPOSED	EXISTING	EARTHBANK (LOW FLOW)
E	ROAD			SWALE
250mm				ROOF WATER OUTLET TO KERB
	TEMPORARY			ROOF WATER CONNECTION TO REAR OF LINTEL
	FOOTPATH			BASIN FENCE
5				BASIN BIO FILTER
E				
200mm	LEGEND - SURVEY			
	DESCRIPTION	PROPOSED	EXISTING	
	TREES			
4		E.		
150mm	EXISTING TREES TO BE REMOVED (MUST BE CONCORDANT WITH ARBORIST REPORT)			
15(,			
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mm				

- [Н	25.05.23	ISSUED FOR DEVELOPMENT APPLICATION	S.Y.	N.M.					Authorised for issue by:
-	G	17.04.23	ISSUED FOR DEVELOPMENT APPLICATION	T.F.	T.L.		0	0		
	F	14.04.23	ISSUED FOR DEVELOPMENT APPLICATION	T.F.	N.M.	APPROVED	APPROVED	APPROVED		
	Е	04.04.23	ISSUED FOR DEVELOPMENT APPLICATION	Z.Y.	T.L.	COMPANY 190-45001	COMPANY ISO 14001	COMPARENT!		
	D	21.03.23	ISSUED FOR DEVELOPMENT APPLICATION	Z.Y.	T.L.			Surge Management		
E	С	16.03.23	ISSUED FOR DEVELOPMENT APPLICATION	Z.Y.	W.C.				DIAL 1100	O's set set
Ш	REV.	DATE	AMENDMENT DESCRIPTION	DES.	DRN.	Certification Services	Certification Services	915 Certification Services	BEFORE YOU DIG	Signature:

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PROPOSED	EXISTING	FUTURE	TEMPORARY	DESCRIPTIO
	SSSSSSSS			O/H ELECTRICAL LINE
				ELECTRICAL LINE
				ELECTRICAL PILLAR
				STREET LIGHT
				POWER POLE
				ELECTRICAL SUBSTATIC
**	*			WATER LINE
				WATER HYDRANT
*	*			WATER STOP VALVE
				RECYCLE WATER
				COMMUNICATION LINE
				GAS LINE
				SEWER LINE
				SEWER RISING MAIN
				SEWER LINE CONCRETE
				SEWER MAINTENANCE F
				SEWER MS/TMS
				NBN LINE
				TELECOMS LINE
				FIBRE OPTIC LINE
				COMBINED SERVICES T
				<u>ABBREVIATI</u>
				RKG ROLL KE
				K&G KERB AN
				KO KERB ON ES EDGE ST
				DD DISH DRA
				PR PRAM RA
				VC VEHICUL
				RW RETAININ
				S.G.G.P. STANDAR
				G.S.I.P. GRATED
				JP JUNCTIO HW HEADWA
OO	······O·····O······O······			GPT GROSS P
+ + + +	+ + + +			TOW TOP OF V
+ + + + + + + + + + + + + + + + + + +	+ $+$ $+$ $+$ $+$ $+$			BOW BOTTOM
1		1		TFSL TOP FINI
				BFSL BOTTOM

K&G	KEKB A
KO	KERB O
ES	EDGE S
DD	DISH DF
PR	PRAM R

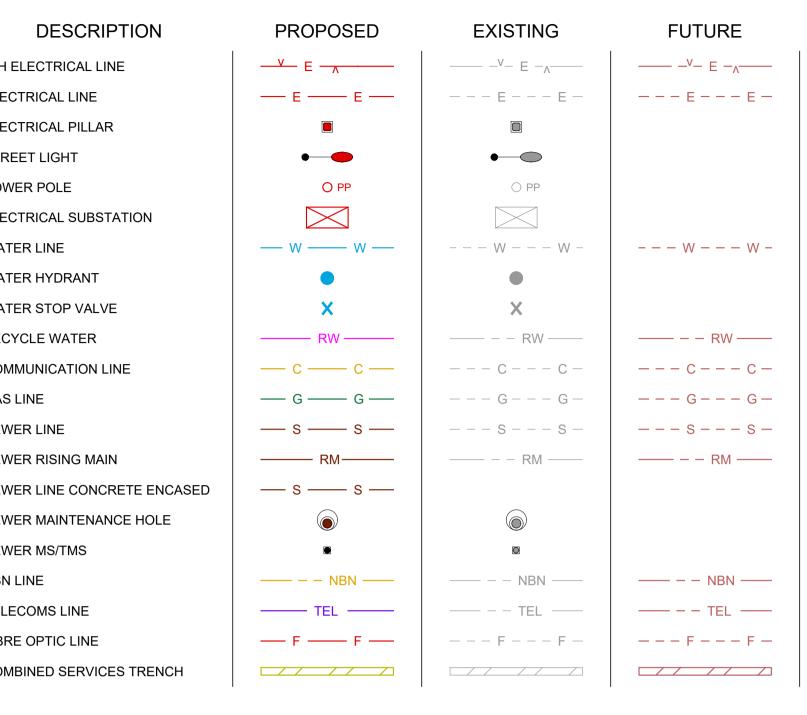
KO	KERB ONLY
ES	EDGE STRIP
DD	DISH DRAIN
PR	PRAM RAMP
VC	VEHICULAR C
RW	RETAINING W
S.G.G.P.	STANDARD G
G.S.I.P.	GRATED SUR
JP	JUNCTION PIT
HW	HEADWALL
GPT	GROSS POLL
TOW	TOP OF WALL
BOW	BOTTOM OF V
TFSL	TOP FINISHED
BFSL	BOTTOM FINIS
RCP	STEEL REINFO
RRJ	RUBBER RING
C1 or C2	PIPE CLASS
MH	MAINTENANC
MS	MAINTENANC
TMS	TERMINAL MA
RP	RODDING POI
HYD	HYDRANT
SV	STOP VALVE
SAG	LOW POINT
CREST	HIGH POINT
PP	POWER POLE
ES	EDGE STRIP

C1 or

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NORTHERN BE	EACHES COUNCIL	LOT 1 D.P.592091	E E	DL/
Scale: AS SHOWN	Datum: AHD	20-22 MACPHERSON STREET, WARRIEWOOD		TA

600mm	М	650mm	N	700mm	0	750mm	Р
		1					

LEGEND - SERVICES

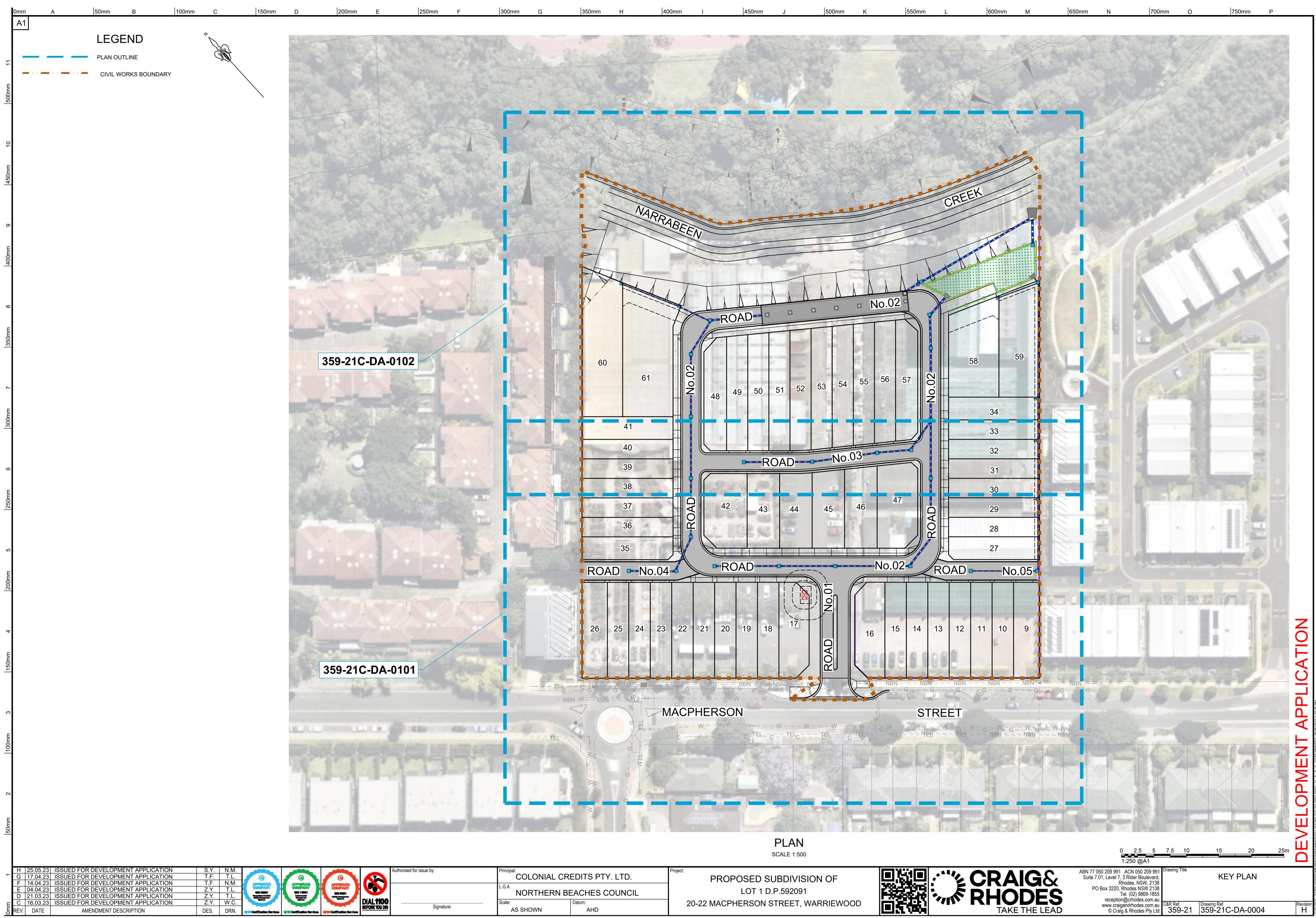


BBREVIATIONS

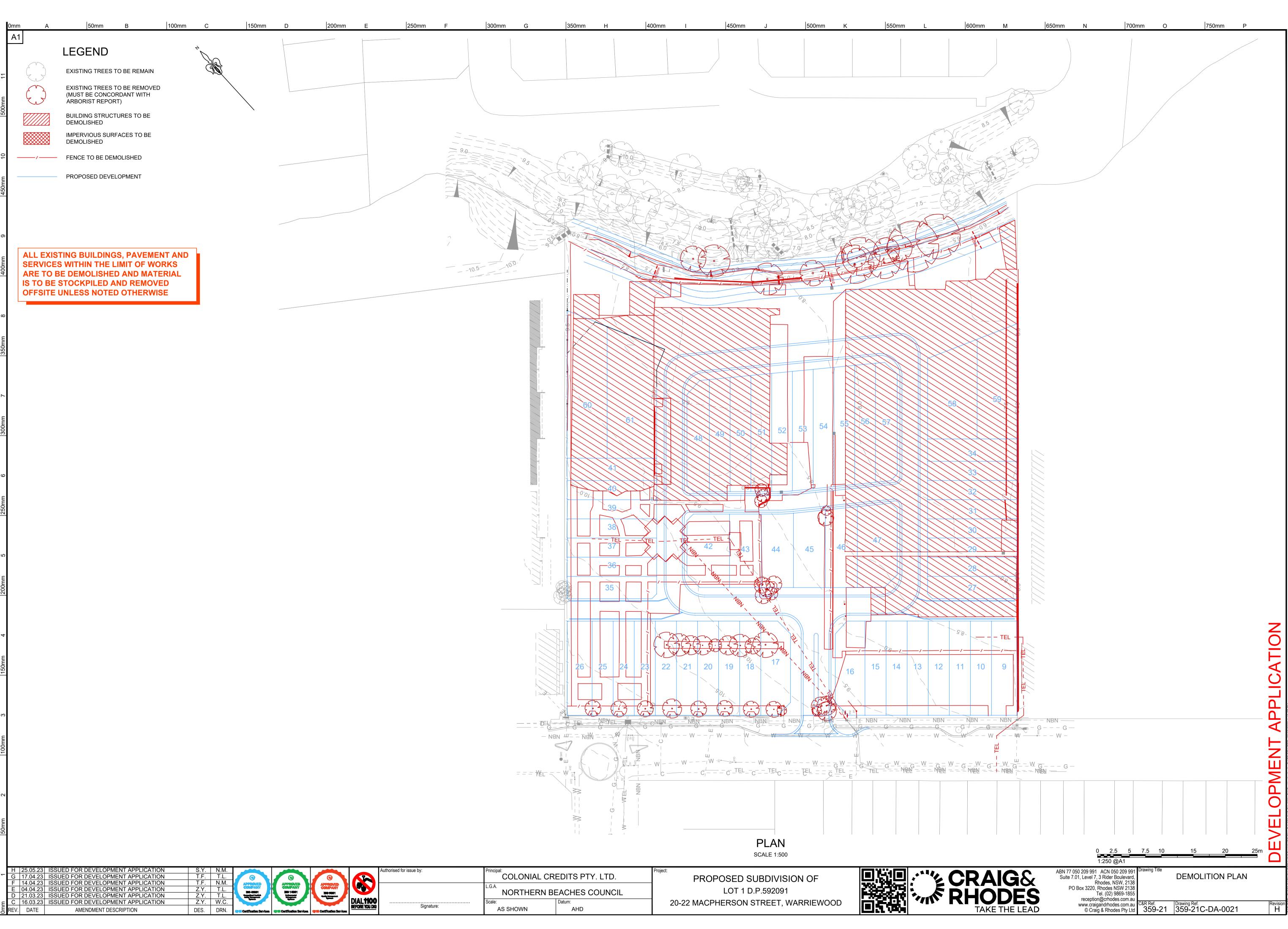
ROLL KERB AND GUTTER KERB AND GUTTER ONLY STRIP DRAIN RAMP CULAR CROSSING INING WALL DARD GRATED GULLY PIT ED SURFACE INLET PIT TION PIT WALL SS POLLUTANT TRAP OF WALL OM OF WALL FINISHED SURFACE LEVEL OM FINISHED SURFACE LEVEL L REINFORCED CONCRETE PIPE ER RING JOINT CLASS TENANCE HOLE TENANCE SHAFT INAL MAINTENANCE SHAFT ING POINT ANT VALVE POINT POINT R POLE



Suite 7.01, Level 7, 3 Rider Boulevard, Rhodes, NSW, 2138 PO Box 3220, Rhodes NSW 2138 Tel. (02) 9869-1855		LEGEND	
reception@crhodes.com.au www.craigandrhodes.com.au © Craig & Rhodes Pty Ltd	C&R Ref. 359-21	Drawing Ref. 359-21C-DA-0003	Revision H



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NORTHERN BE	EACHES COUNCIL	LOT 1 D.P.592091		DHC
Scale: AS SHOWN	Datum: AHD	20-22 MACPHERSON STREET, WARRIEWOOD	*/1/*	TA



	Н	25.05.23	ISSUED FOR DEVELOPMENT APPLICATION	S.Y.	N.M.					Authorised for issue by:
-	G	17.04.23	ISSUED FOR DEVELOPMENT APPLICATION	T.F.	T.L.	0	0	0		
	F	14.04.23	ISSUED FOR DEVELOPMENT APPLICATION	T.F.	N.M.	APPROVED	APPROVED COMPANY	APPROVED		
	Е	04.04.23	ISSUED FOR DEVELOPMENT APPLICATION	Z.Y.	T.L.	COMPANY 199-45001	ISO 14001	COMPANY		
	D	21.03.23	ISSUED FOR DEVELOPMENT APPLICATION	Z.Y.	T.L.			Sto 9001		
E		16.03.23	ISSUED FOR DEVELOPMENT APPLICATION	Z.Y.	W.C.				DIAL 1100	0:
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\1			
	CUT FI	LL DEPTH LE	EGEND
	LOWER VALUE	UPPER VALUE (m)	COLOUR
	-3.5	-4	
	-3	-3.5	
	-2.5	-3	
	-2	-2.5	
	-1.5	-2	
	-1	-1.5	
	-0.5	-1	
	0	-0.5	
	0	0.5	
	0.5	1	
	1	1.5	
	1.5	2	
	2	2.5	
	2.5	3	
	3	3.5	
	3.5	4	

50mm

в

CUT FILL VOLUMES (APPROX.):

CUT = -1,899m³

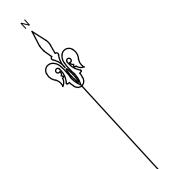
FILL = 21,196m³

BALANCE = 19,297m³ (IMPORTED FILL)

ALLOWANCES USED IN CALCULATIONS:

ALLOWS 450mm BOXING DEPTH FOR ALL ROADS.
 DOES NOT ALLOW FOR STRIPPING & REPLACEMENT OF TOPSOIL.

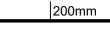
- 3. DOES NOT ALLOW FOR EXCAVATION OF DRAINAGE TRENCHES. 4. DOES NOT ALLOW FOR ANY UNSUITABLE MATERIAL FOUND ANYWHERE ON SITE. 5. DESIGN CONTOURS AND CUT FILL HATCH SHOWN IN THIS PLAN ARE THE FINAL
- SURFACE.



D

150mm

100mm C



F

250mm F

300mm G

350mm H

400mm I

450mm

500mm K

550mm L

600mm M

650mm N

700mm O

750mm P



H25.05.23ISSUED FOR DEVELOPMENT APPLICATIONG17.04.23ISSUED FOR DEVELOPMENT APPLICATIONF14.04.23ISSUED FOR DEVELOPMENT APPLICATIONE04.04.23ISSUED FOR DEVELOPMENT APPLICATIOND21.03.23ISSUED FOR DEVELOPMENT APPLICATIONC16.03.23ISSUED FOR DEVELOPMENT APPLICATIONBEVDATEAMENIOMENT DESCRIPTION thorised for issue by: DIAL 1100 BEFORE YOU DIG
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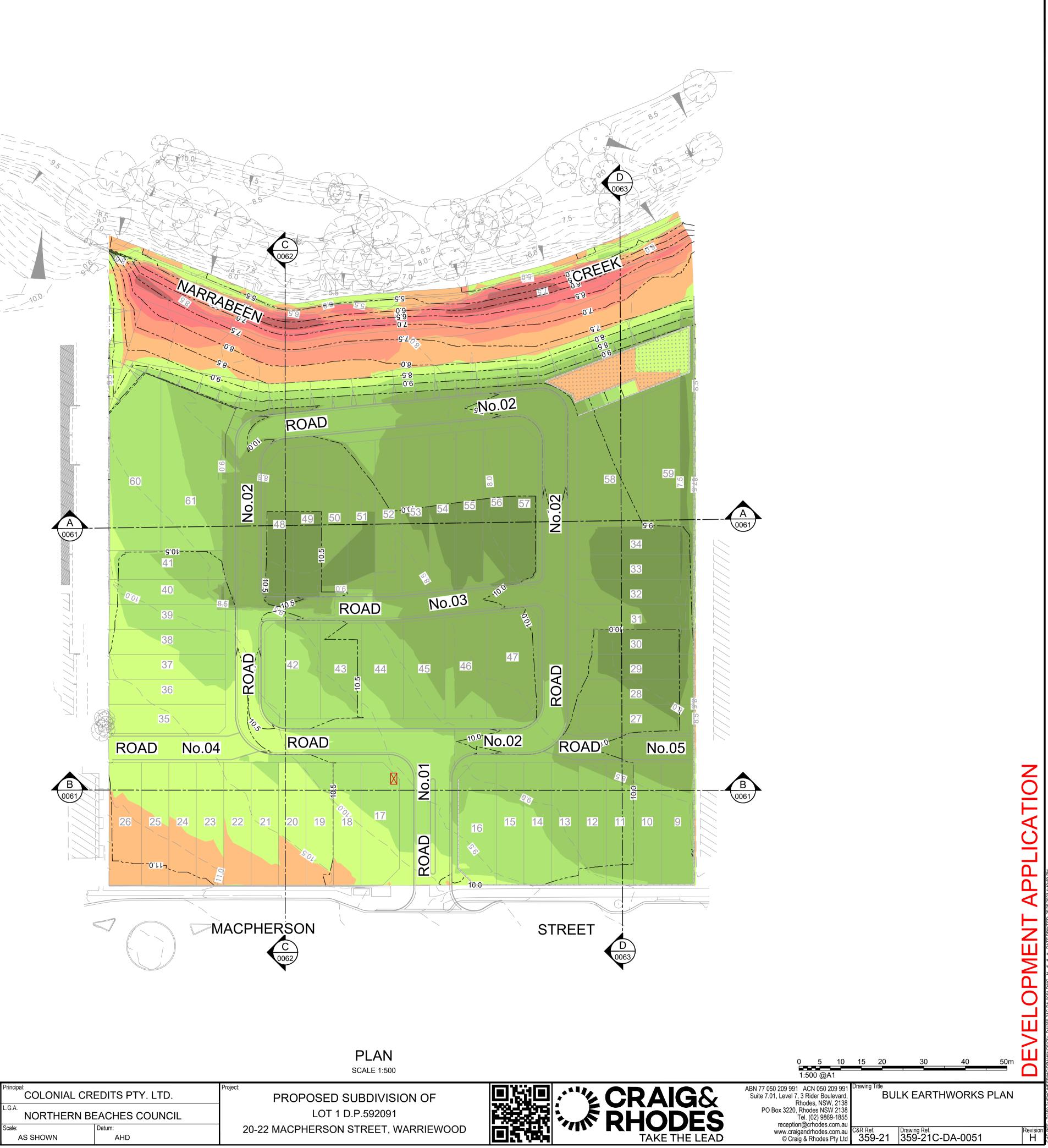
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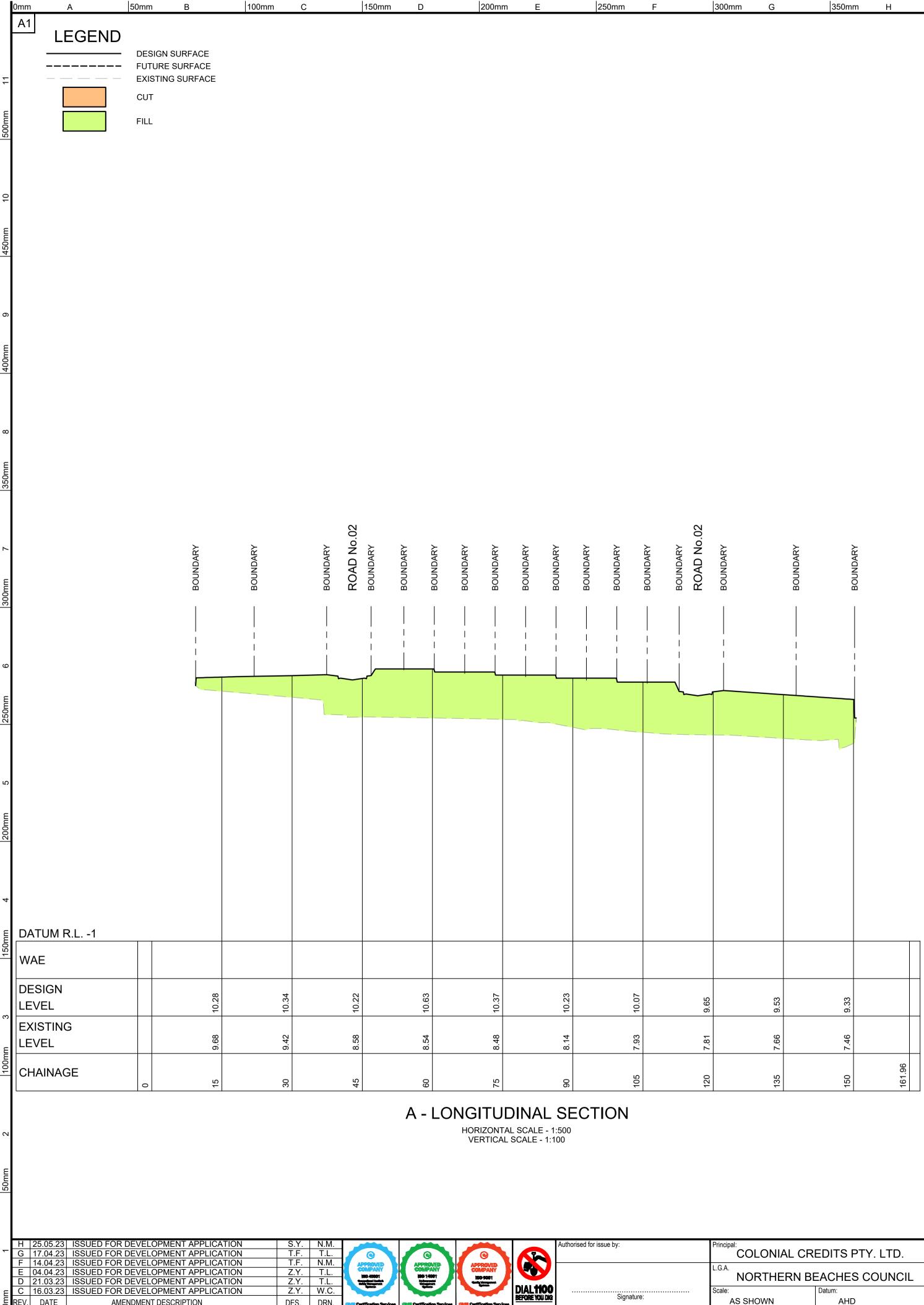
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 DRN.
 APPROVED COMPANY 190-45001 Satisfication Satisfication APPROVED COMPANY 190-14001 Bithminital Bithminital Bithminital Bithminital APPROVED COMPANY ISO FOOT Swilly Miniganities REV. DATE AMENDMENT DESCRIPTION Catification **Certification Services** Cartification Sarvice

Signature:



L.G.A. NORTHERN BEACHES COUNCIL Scale: AS SHOWN AHD LOT 1 D.P.592091 20-22 MACPHERSON STREET, WARRIEWOOD	Principal: COLONIAL CREDITS PTY. LTD.	Project: PROPOSED SUBDIVISION OF		CR/
	NORTHERN BEACHES COUNCIL Scale: Datum:			RHC



DES. DRN.

Certification Services

Cartification Services.

AMENDMENT DESCRIPTION

REV. DATE

Principal: COLONIAL CREDITS PTY. LTD.							
L.G.A. NORTHERN BI	EACHES COUNCIL						
Scale:	Datum:	20					
AS SHOWN	AHD						

Signature:

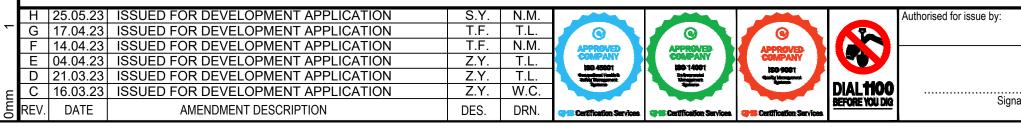


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STING /EL	10.89	10.68			9.69		9.02			8.30	
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600mm M 650mm N 700mm O 750mm P

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Suite 7.01, Level 7, 3 Rider Boulevard, BULK EARTHWORKS	
Rhodes, NSW, 2138 PO Box 3220, Rhodes NSW 2138 Tel. (02) 9869-1855 reception@crhodes.com.au	
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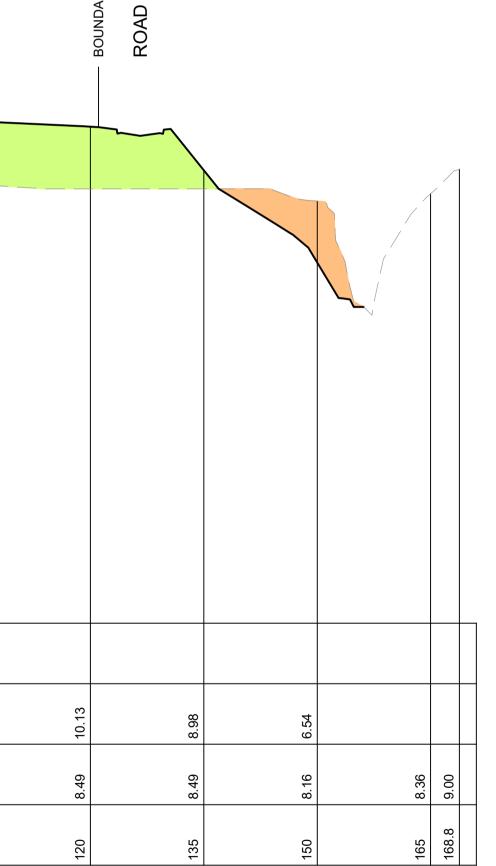
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	50mm												



Signature:

Principal: COLONIAL CR	EDITS PTY. LTD.	Project:
L.G.A. NORTHERN BI	EACHES COUNCIL	
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AS SHOWN	AHD	_



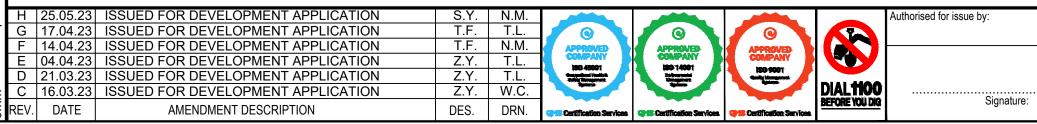


350mm	Н	400mm	I	450mm	J	500mm	Κ

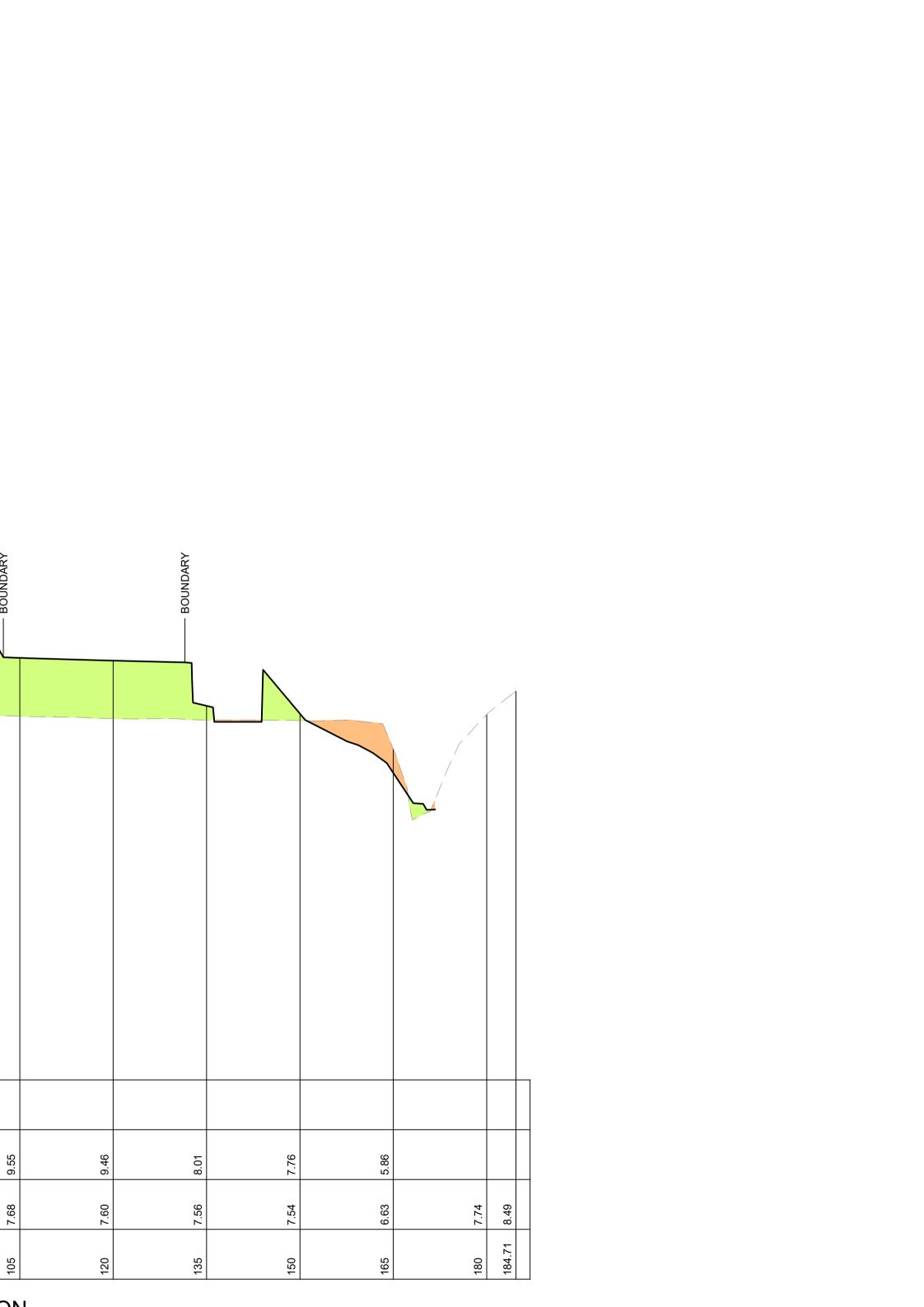
	0 5 1:500 @A1 0 1	2	15 3	20	30 6	40 8	50m 10m	JEVE
IG& DES THE LEAD	1:100 @A1 ABN 77 050 209 991 ACN 050 20 Suite 7.01, Level 7, 3 Rider Boule Rhodes, NSW, PO Box 3220, Rhodes NSW Tel. (02) 9869 reception@crhodes.co www.craigandrhodes.co	9 991 evard, 2138 2138 -1855 om.au	Drawing		BULK EAR SITE SE SHEET Drawing Ref. 359-21C-E	CTIONS 2 OF 3		Revisior

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		CUT FILL													
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HORIZONTAL SCALE - 1:500 VERTICAL SCALE - 1:100



REV. DATE

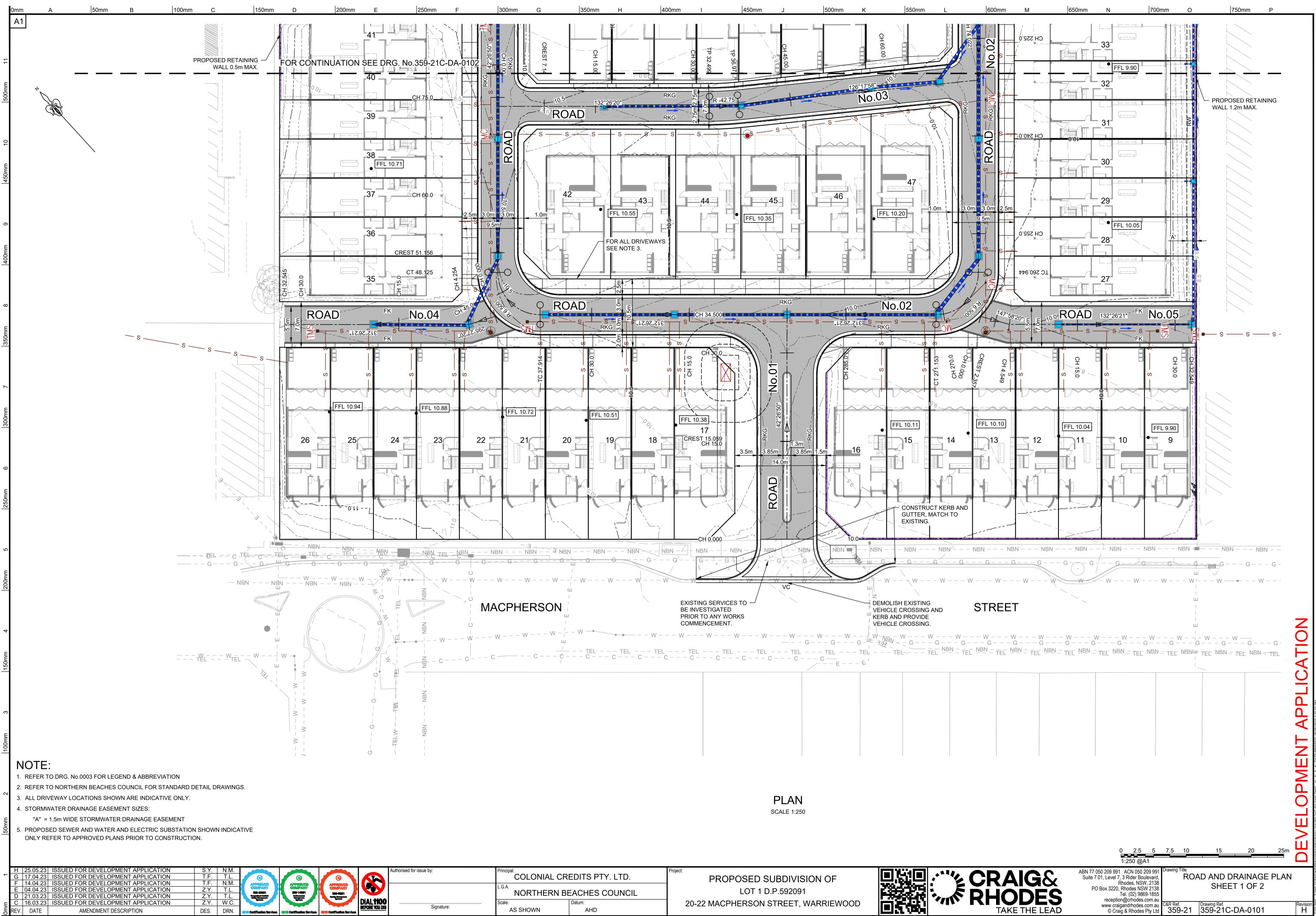


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NORTHERN BI	EACHES COUNCIL					
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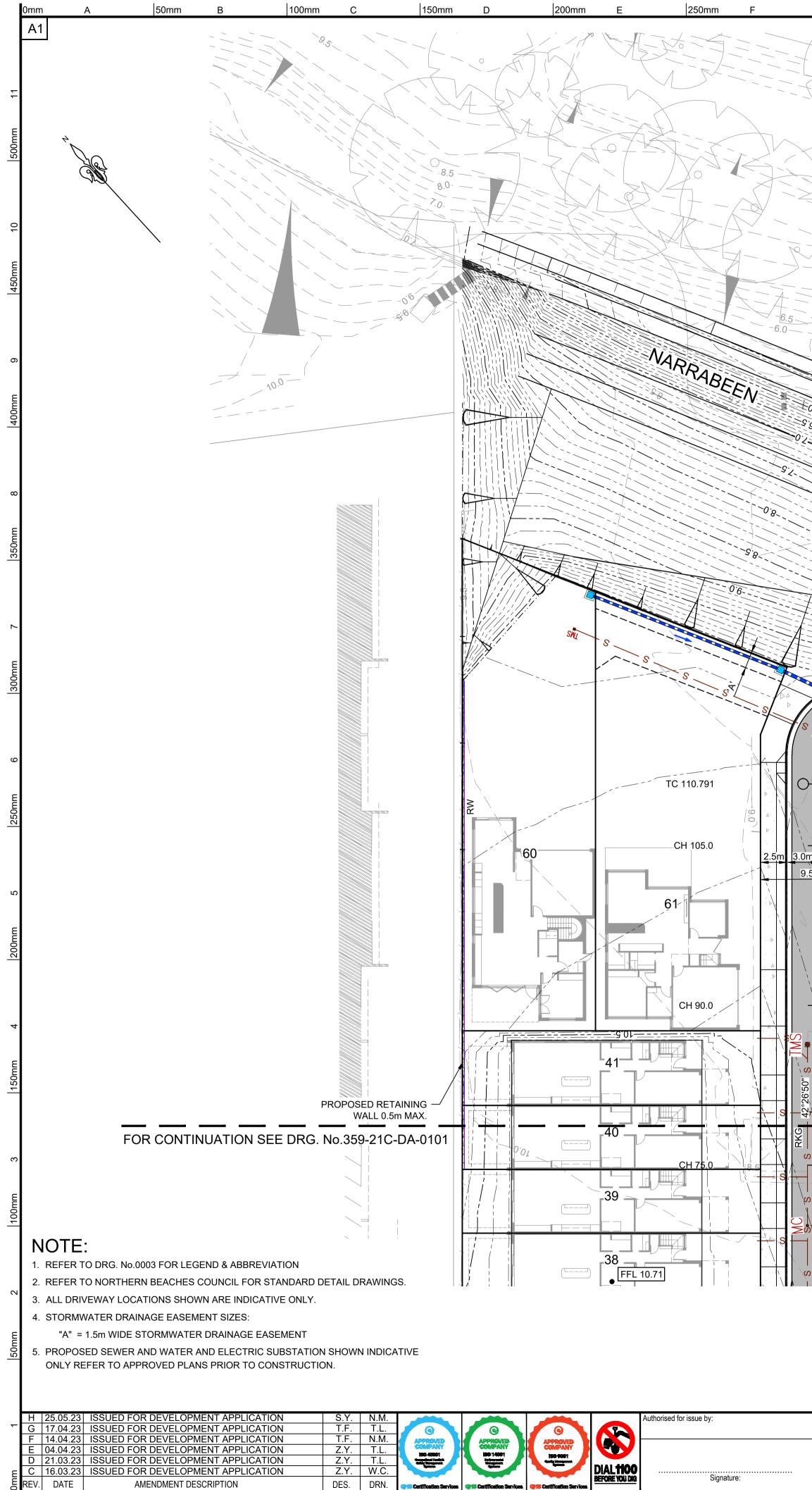


APPLICATION

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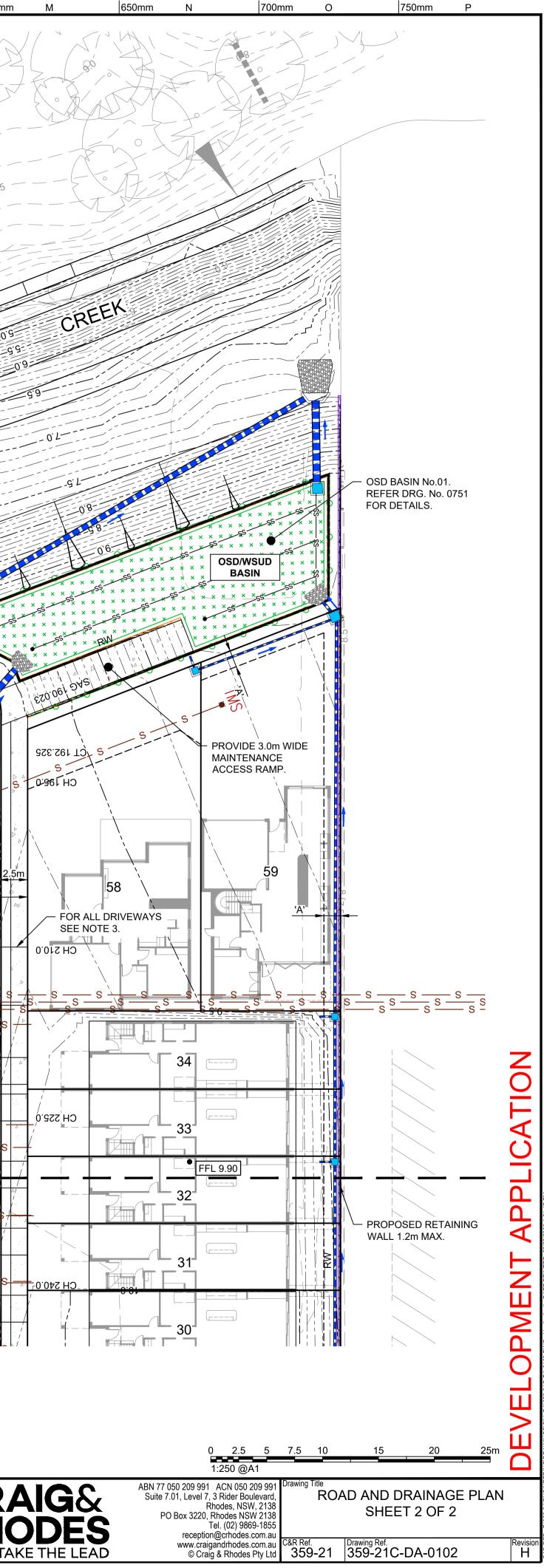


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Scale:	Datum:	LOT 1 D.P.592091 20-22 MACPHERSON STREET, WARRIEWOOD		RHC
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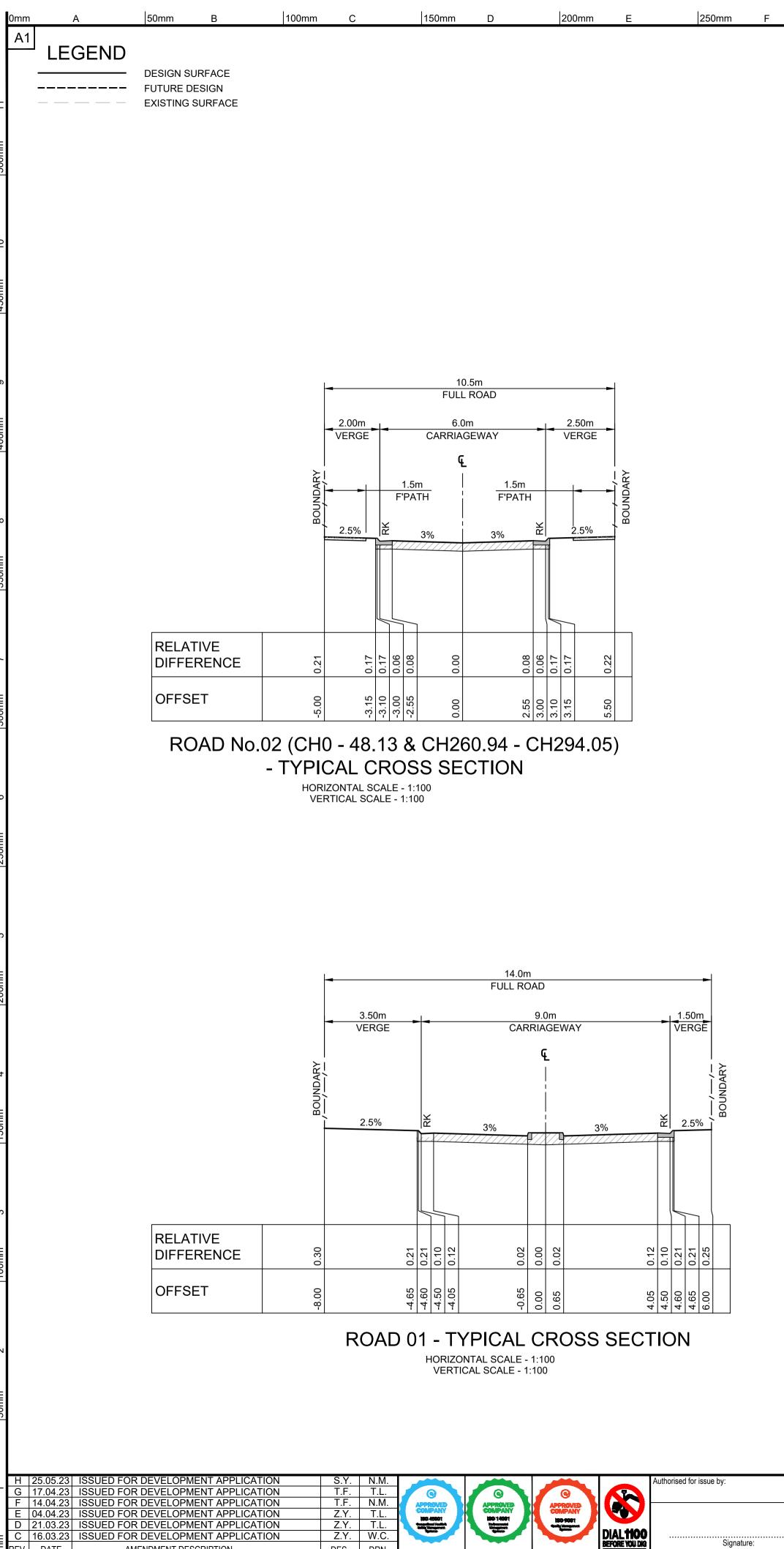


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Principal: COLONIAL CREDITS PTY. LTD.	Project: PROPOSED SUBDIVISION OF	回题回、"% CRA
L.G.A. NORTHERN BEACHES COUNCIL	LOT 1 D.P.592091	
Scale: Datum: AS SHOWN AHD	20-22 MACPHERSON STREET, WARRIEWOOD	



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DES. DRN.

16.03.23 ISSUED FOR DEVELOPMENT APPLICATION

REV. DATE

AMENDMENT DESCRIPTION

Signature:

300mm G

350mm H

400mm

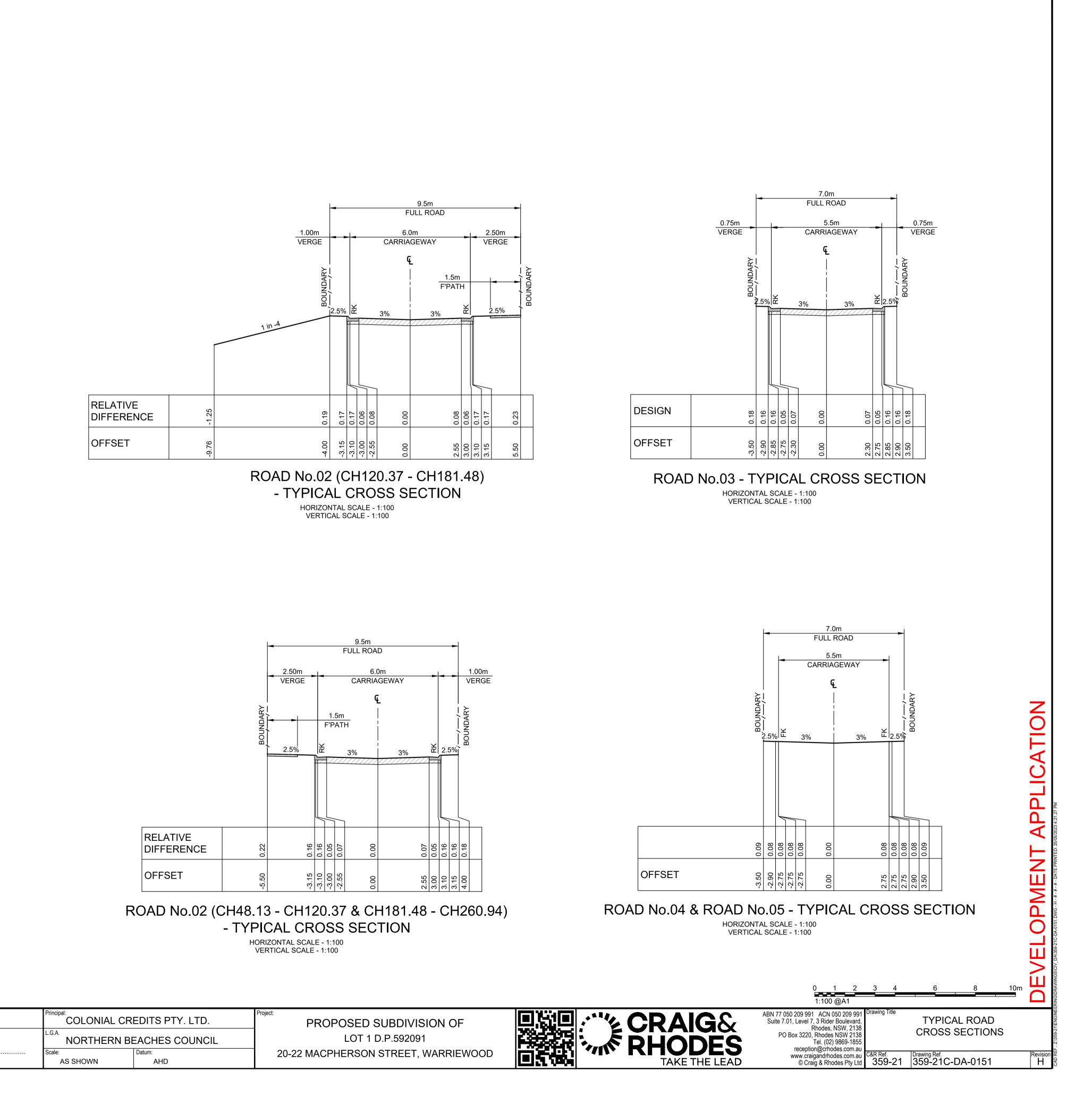
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450mm

500mm K

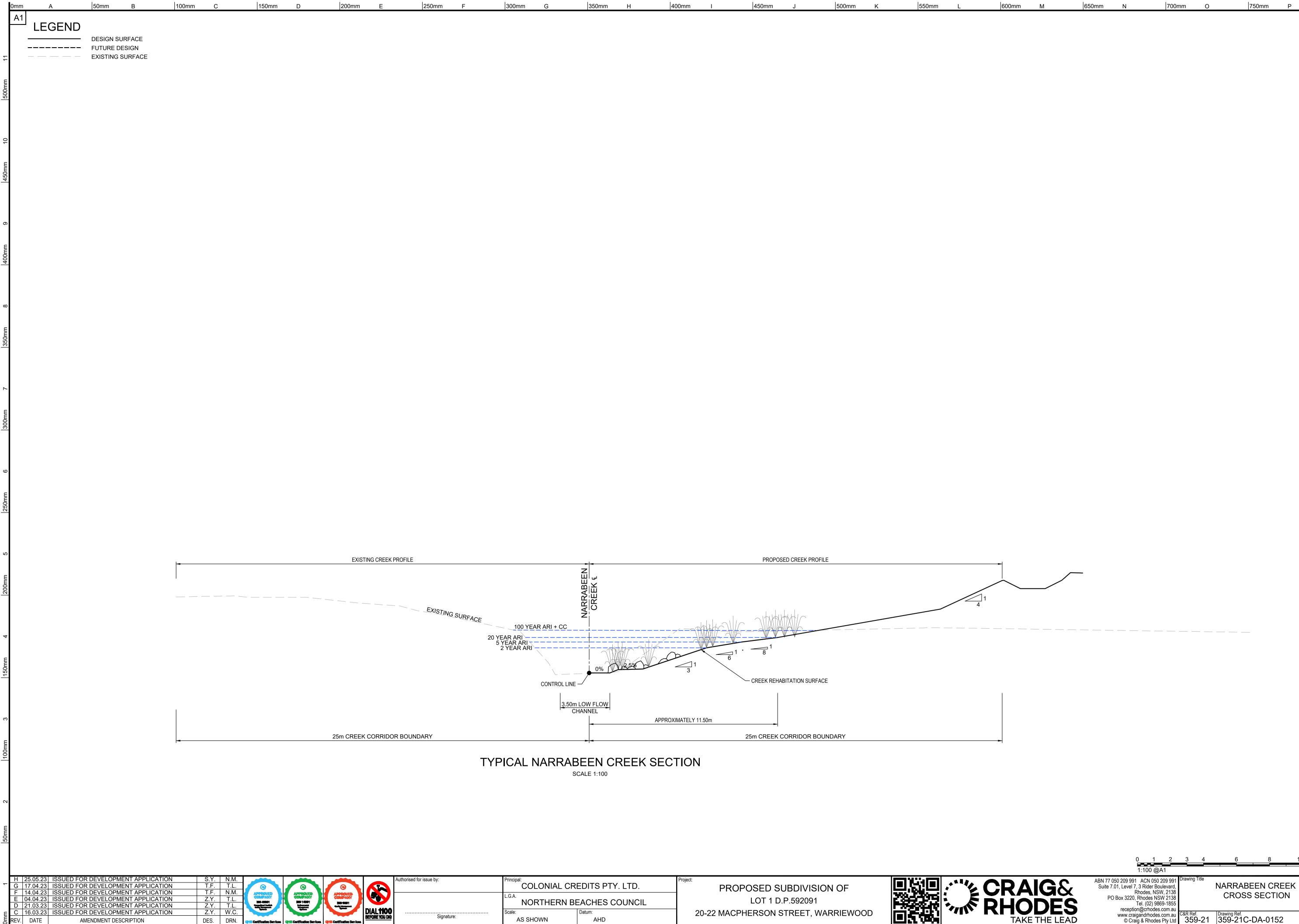
550mm

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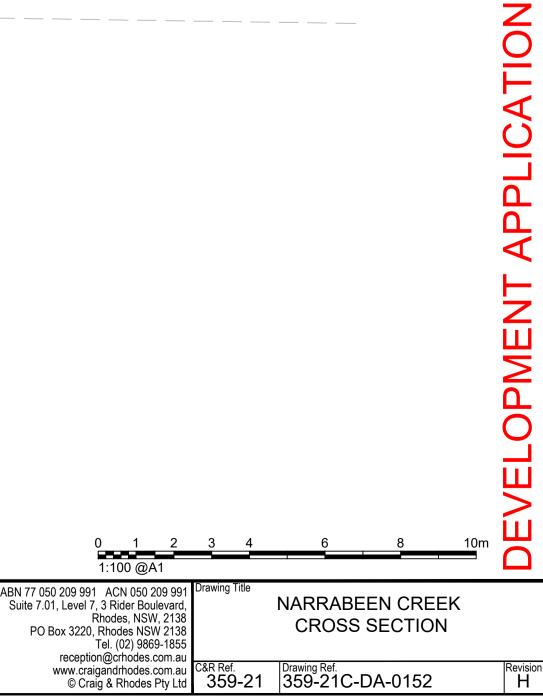


600mm M



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NORTHERN BI	EACHES COUNCIL	LOT 1 D.P.592091		рцс
Scale: AS SHOWN	Datum: AHD	20-22 MACPHERSON STREET, WARRIEWOOD	*/[*	TAK

	650r

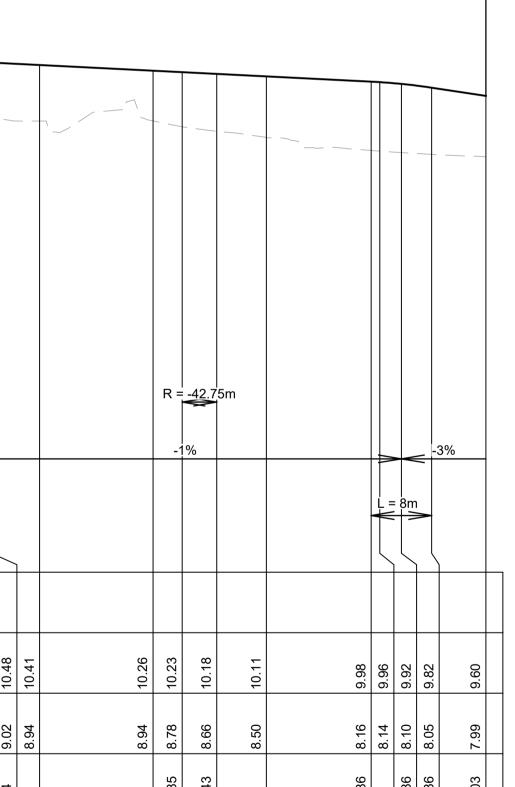


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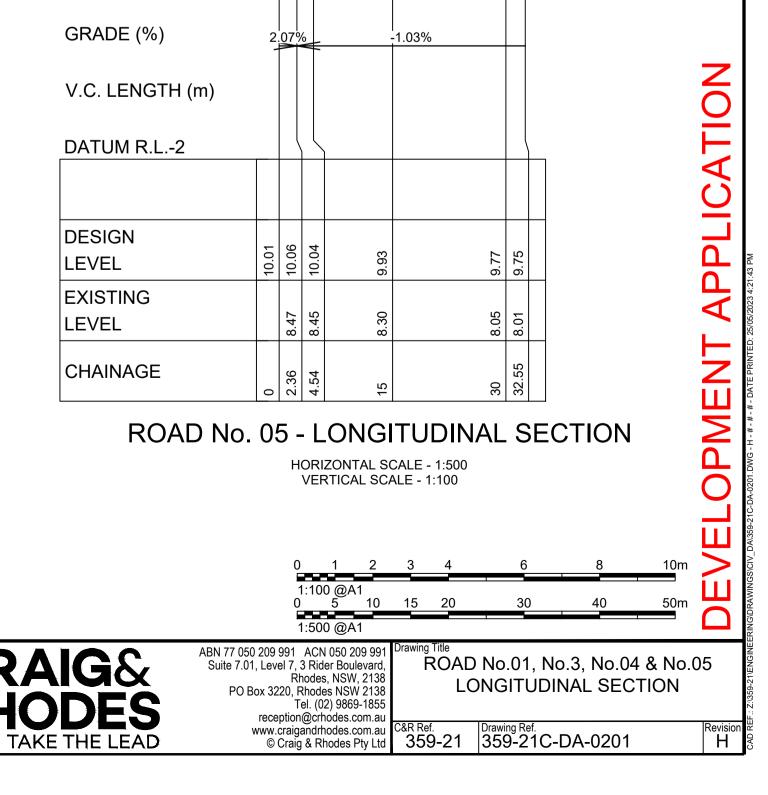
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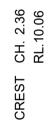
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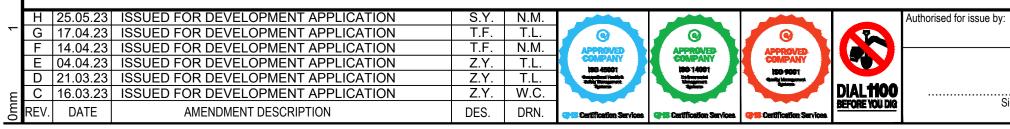


HORIZ GEOMETRY





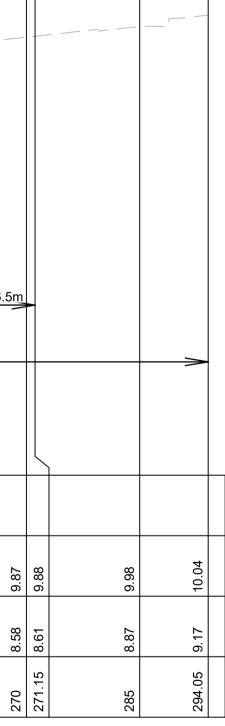
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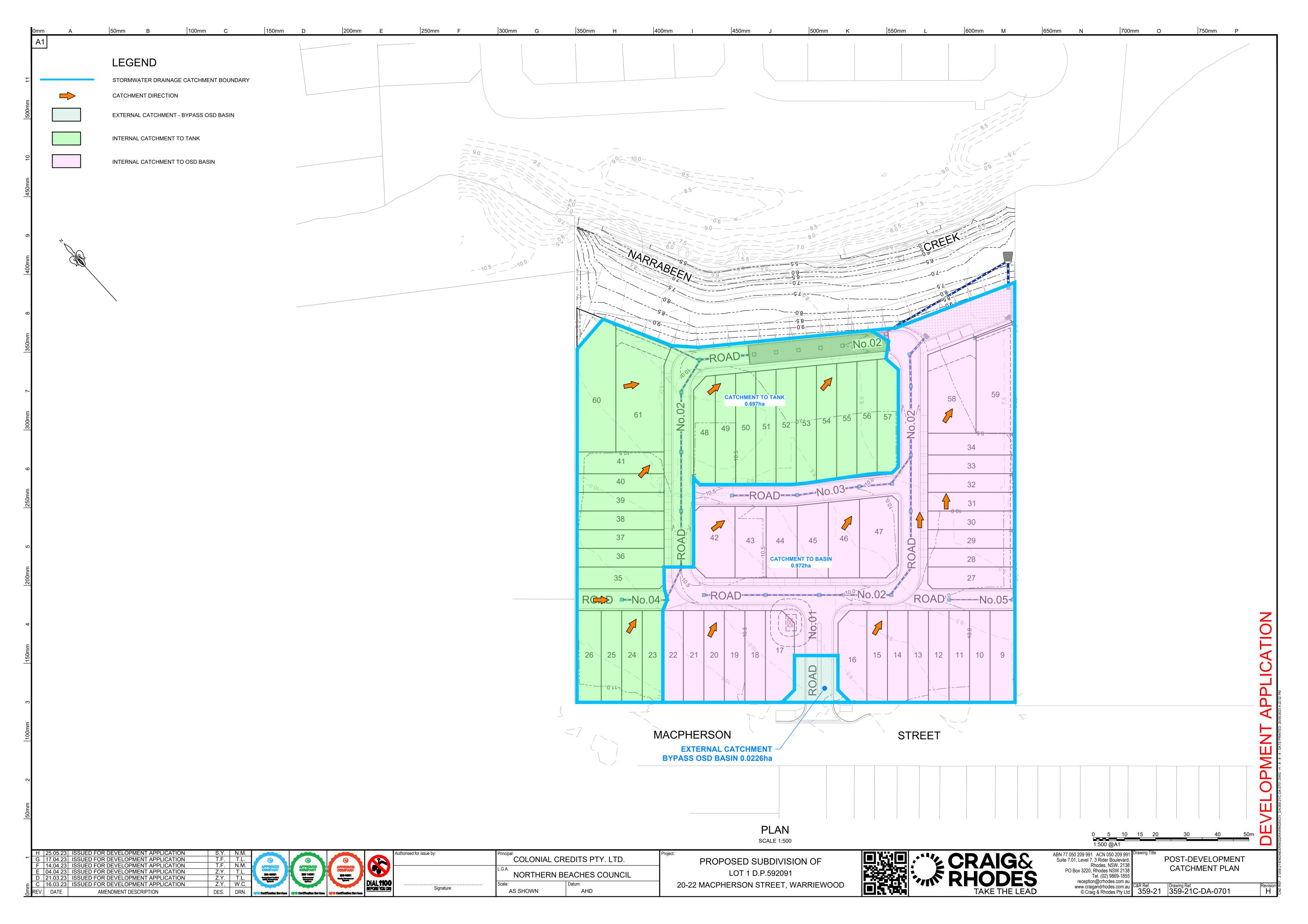
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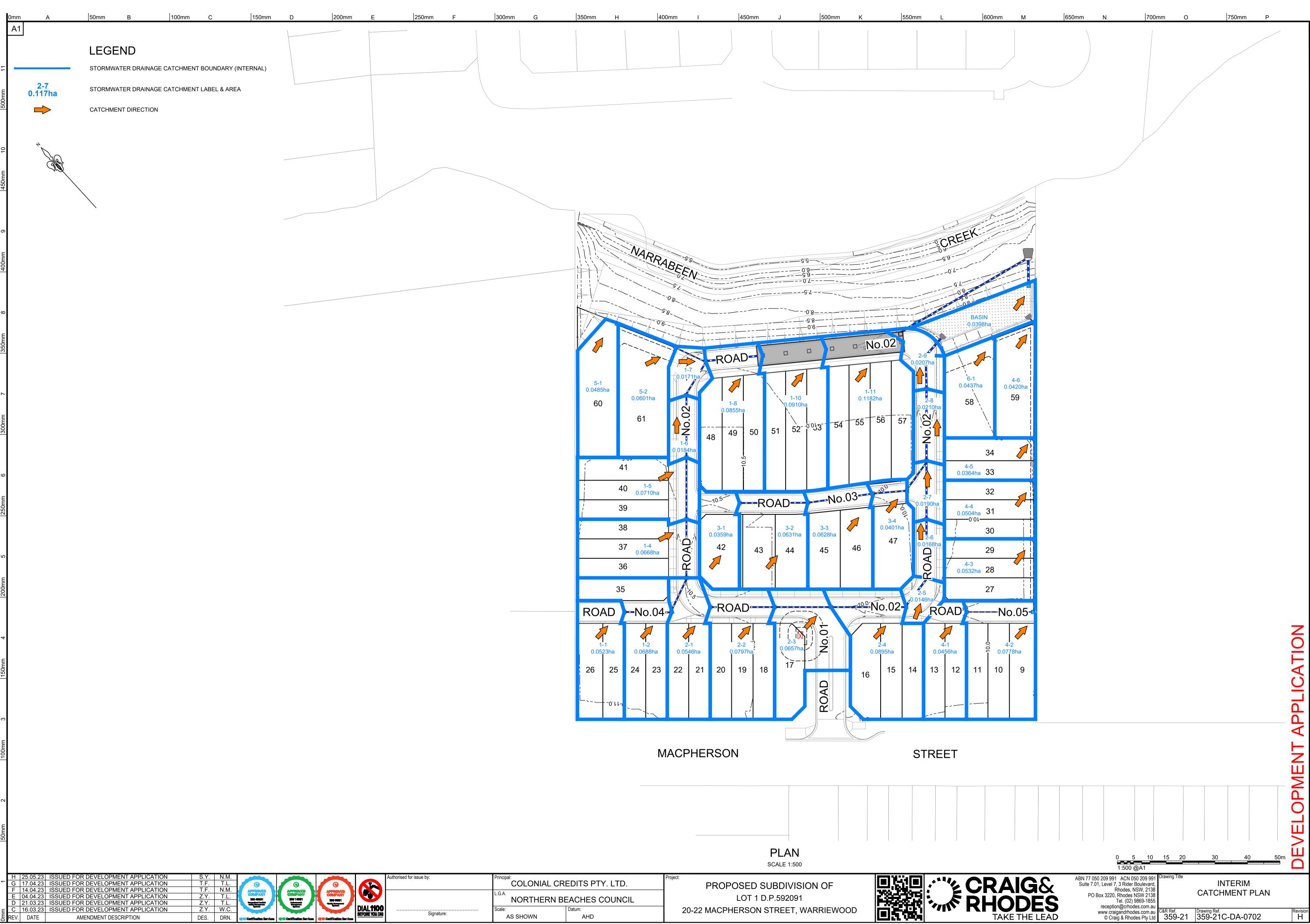




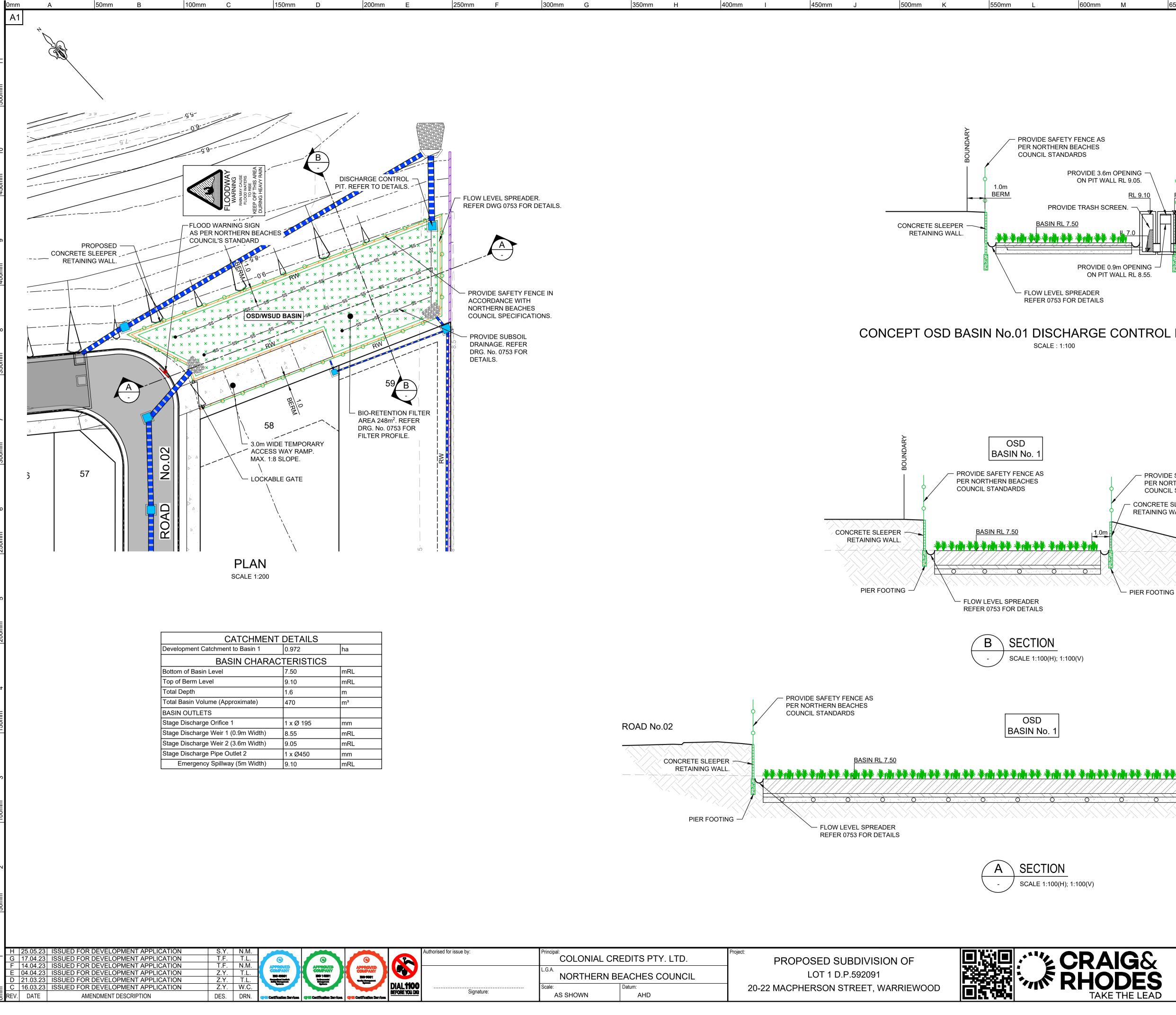
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ABN 77 050 209 991 ACN 050 209 991 Suite 7.01, Level 7, 3 Rider Boulevard, Rhodes, NSW, 2138 PO Box 3220, Rhodes NSW 2138 Tel. (02) 9869-1855 reception@crhodes.com.au						
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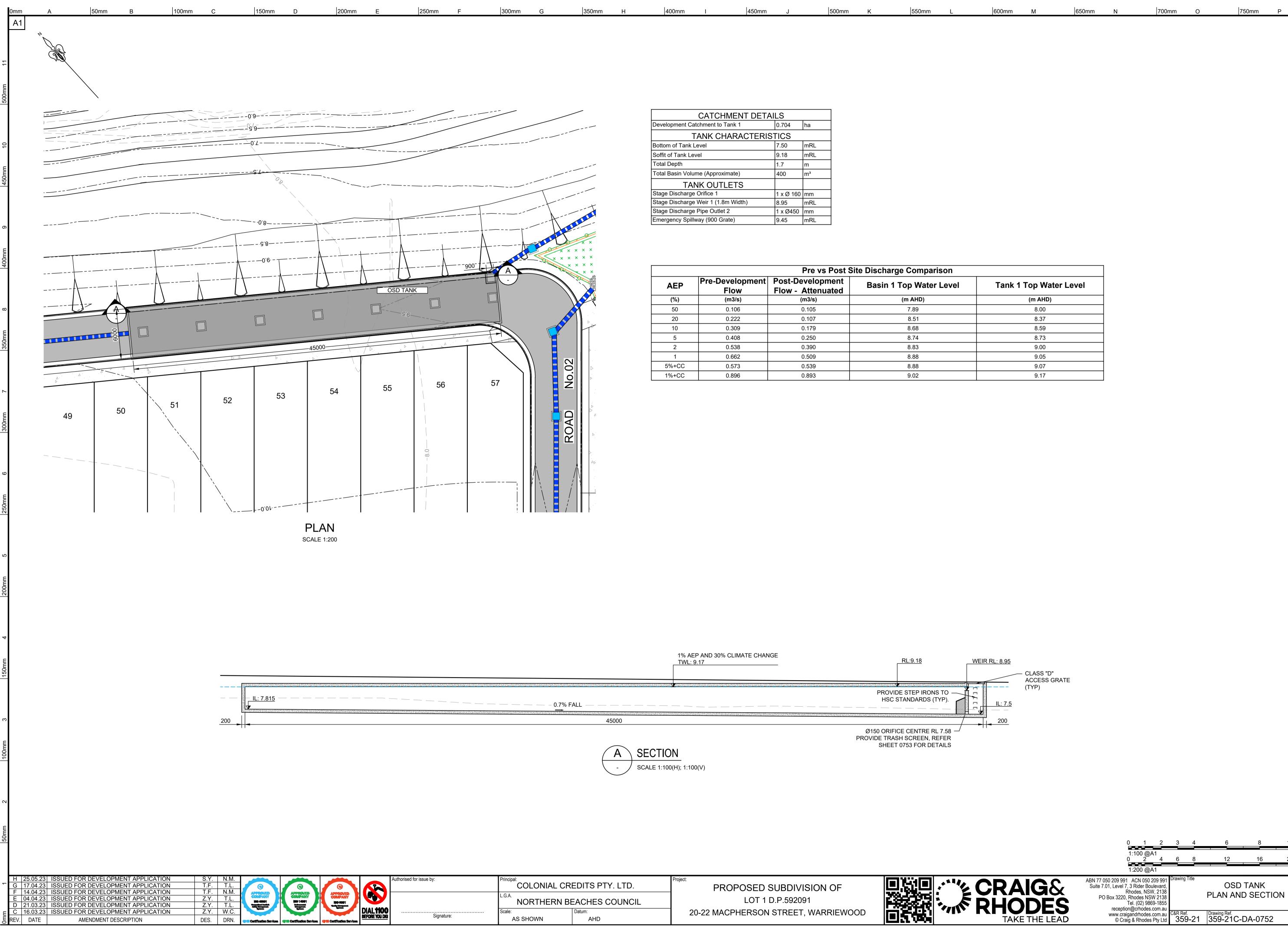


CATCHMENT DETAILS							
Development Catchment to Basin 1	0.972	ha					
BASIN CHARAG	CTERISTICS	6					
Bottom of Basin Level	7.50	mRL					
Top of Berm Level	9.10	mRL					
Total Depth	1.6	m					
Total Basin Volume (Approximate)	470	m³					
BASIN OUTLETS							
Stage Discharge Orifice 1	1 x Ø 195	mm					
Stage Discharge Weir 1 (0.9m Width)	8.55	mRL					
Stage Discharge Weir 2 (3.6m Width)	9.05	mRL					
Stage Discharge Pipe Outlet 2	1 x Ø450	mm					
Emergency Spillway (5m Width)	9.10	mRL					



n	М	650mm	Ν	700mm	0	750mm	Р
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CATCHMENT DETAILS					
Development Catchment to Tank 1	0.704	ha			
TANK CHARACTERIS	TICS				
Bottom of Tank Level	7.50	mRL			
Soffit of Tank Level	9.18	mRL			
Total Depth	1.7	m			
Total Basin Volume (Approximate)	400	m³			
TANK OUTLETS					
Stage Discharge Orifice 1	1 x Ø 160	mm			
Stage Discharge Weir 1 (1.8m Width)	8.95	mRL			
Stage Discharge Pipe Outlet 2	1 x Ø450	mm			
Emergency Spillway (900 Grate)	9.45	mRL			

AEP	Pre-Development Flow	Post-Development Flow - Attenuated	Basin 1 Top Water Level	Tank 1 Top Water Level
(%)	(m3/s)	(m3/s)	(m AHD)	(m AHD)
50	0.106	0.105	7.89	8.00
20	0.222	0.107	8.51	8.37
10	0.309	0.179	8.68	8.59
5	0.408	0.250	8.74	8.73
2	0.538	0.390	8.83	9.00
1	0.662	0.509	8.88	9.05
5%+CC	0.573	0.539	8.88	9.07
1%+CC	0.896	0.893	9.02	9.17

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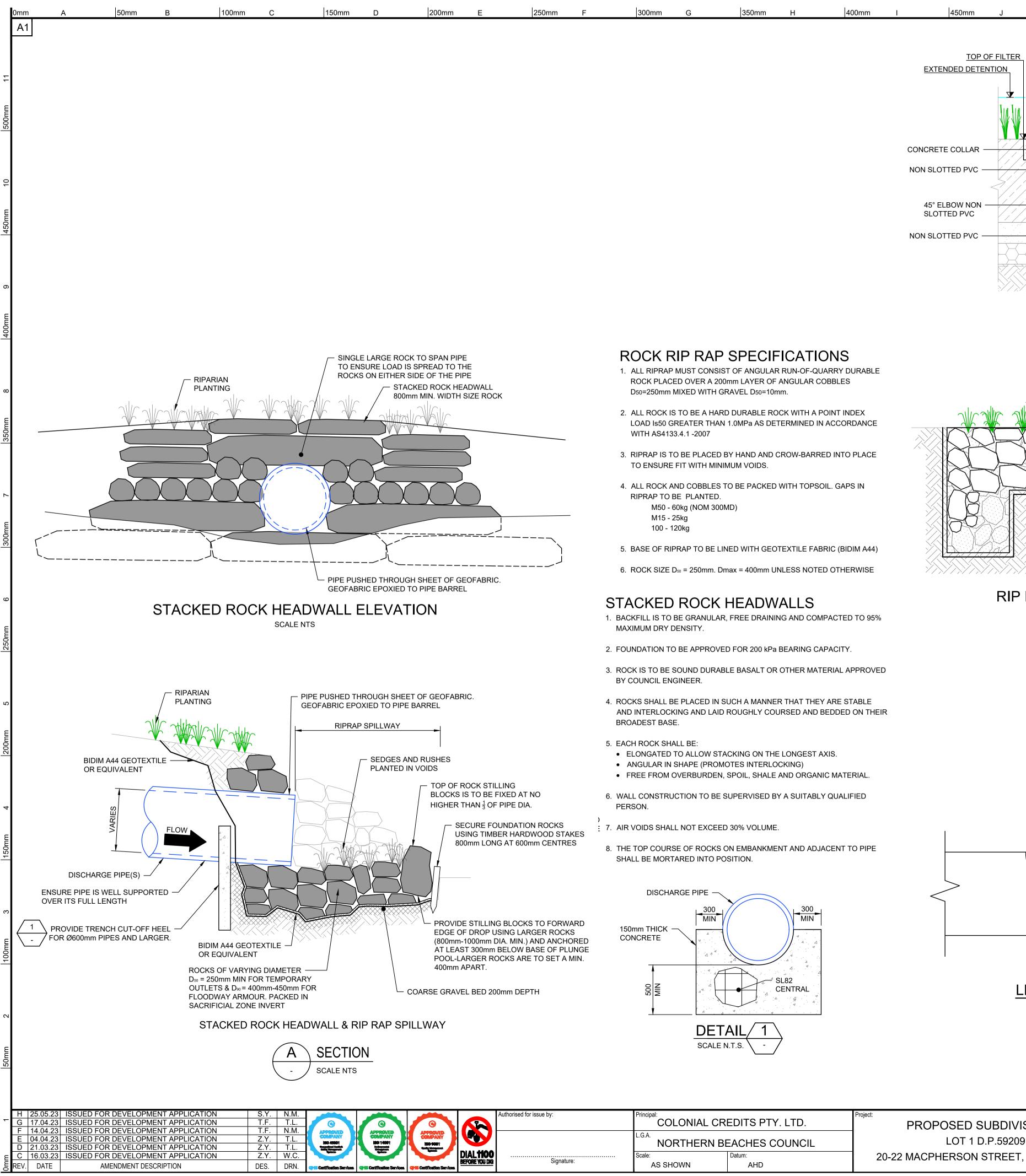


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N 77 050 209 991 ACN 050 209 991 uite 7.01, Level 7, 3 Rider Boulevard, Rhodes, NSW, 2138 PO Box 3220, Rhodes NSW 2138 Tel. (02) 9869-1855 reception@crhodes.com.au	Drawing Title	OSD PLAN AN	TANK D SECTI	ON	
www.craigandrhodes.com.au © Craig & Rhodes Pty Ltd	C&R Ref. 359-21	Drawing Ref. 359-21C-	DA-0752		Revision H

APPLICATION

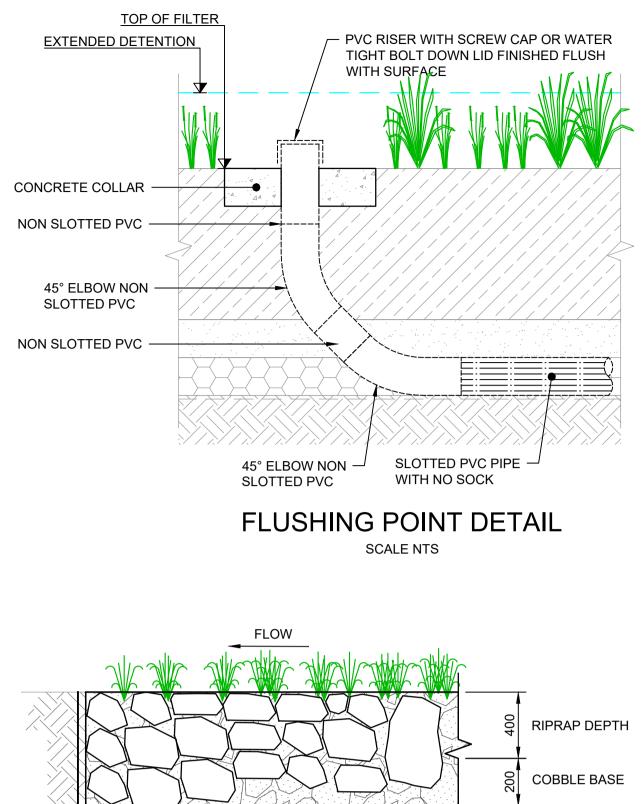
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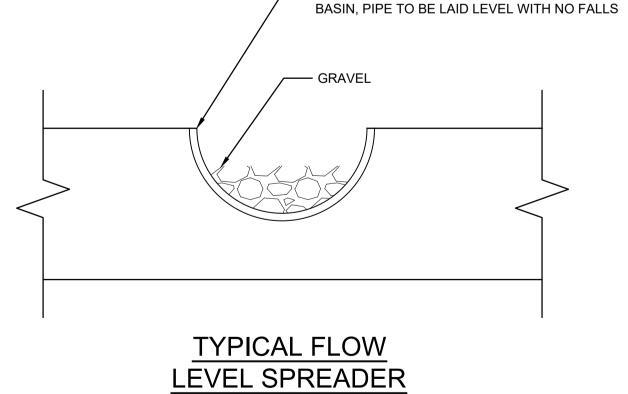
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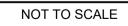
KEY ROCKWORK INTO BED

AT DOWNSTREAM END





– 225Ø HALF PIPE TOP TO FINISH FLUSH WITH



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BIDIM A44 GEOTEXTILE OR EQUIVALENT

> **RIP RAP DETAIL** SCALE NTS

 \cap

BIORETENTION NOTES

- 1. A 100mm THICK COARSE SAND TRANSITION LAYER IS TO BE INSTALLED OVER THE GRAVEL DRAINAGE LAYER TO COMPLY WITH THE FOLLOWING PARTICLE SIZE DISTRIBUTION:
 - 1-4mm 100% PASSING 1.0mm - 80% PASSING 0.7mm - 44% PASSING
 - 0.5mm 8.5% PASSING
- 2. FILTER MEDIA IS TO BE FREE OF RUBBISH AND DELETERIOUS MATERIAL AND LIGHTLY COMPACTED ONLY (TO 90% STANDARD COMPACTION)
- 3. FILTER MEDIA SATURATED HYDRAULIC CONDUCTIVITY TO BE 180mm/hr. PERMEABILITY IS TO BE TESTED USING THE A.S.4419 (LATEST EDITION) (SOILS FOR LANDSCAPING AND GARDEN USE) METHODS (APPENDIX H)
- 4. FILTER MEDIA PARTICLE SIZE DISTRIBUTION IS TO BE AS FOLLOWS:
 - CLAY 2-4% (<0.002 mm)
 - SILT 4-8% (0.002-0.05mm) • VERY FINE SAND 5-10% (0.05-0.1mm)
 - FINE SAND 10-30% (0.1-0.5mm)
 - MEDIUM SAND 40-70% (0.5-1.0mm)
 - COARSE SAND 7-10% (1.0-2.0mm) • FINE GRAVEL <3% (2.0-3.4mm)

THE COMBINED PERCENTAGE OF CLAY & SILT MAY NOT EXCEED 12% UNDER ANY CIRCUMSTANCES.

- 5. FILTER MEDIA IS TO COMPLY WITH A.S.4419 (LATEST EDITION), INCLUDING TESTING **REQUIREMENTS AND THE FOLLOWING:**
 - a. BULK DENSITY AS SPECIFIED FOR 'NATURAL SOILS AND SOIL BLENDS' > 0.7 kg/L
 - b. ORGANIC MATTER CONTENT BETWEEN 3 AND 10% c. WETTABILITY - AS SPECIFIED FOR 'NATURAL SOILS AND SOIL BLENDS' > 5 mm/min.
 - d. pH 5.5 7.5 (pH 1:5 IN WATER)
 - e. ELECTRICAL CONDUCTIVITY (EC) AS SPECIFIED FOR 'NATURAL SOILS AND SOIL BLENDS' < 1.20 ds/m f. PHOSPHOROUS - < 5 mg/kg
 - g. NITROGEN DRAWDOWN (NDI) AS SPECIFIED FOR 'NATURAL SOILS AND SOIL BLENDS'
 - > 0.5 NDI 150 h. TOXICITY - AS SPECIFIED FOR 'NATURAL SOILS AND SOIL BLENDS'
 - i. DISPERSIBILITY AS SPECIFIED FOR 'NATURAL SOILS AND SOIL BLENDS' CATEGORY
 - 1 OR 2 j. PERMEABILITY - SATURATED HYDRAULIC CONDUCTIVITY 80mm/hr ±20% AT 90% STANDARD COMPACTION
 - k. TEXTURE SANDY LOAM I. LARGE PARTICLES - AS SPECIFIED FOR 'NATURAL SOILS AND SOIL BLENDS'
- 6. ESTABLISHMENT OF BIO-RETENTION SYSTEM IN ACCORDANCE WITH CONSTRUCTION & ESTABLISHMENT GUIDELINES: SWALES, BIO-RETENTION SYSTEMS & WETLANDS (WATER BY DESIGN 2010).
- 7. BASIN/FILTER MEDIA TO BE CONSTRUCTED WHEN 80% OF DWELLINGS ARE CONSTRUCTED.
- 8. BASIN TO BE REMOVED AS INSTRUCTED BY CAMDEN COUNCIL WHEN REGIONAL INFRASTRUCTURE WORKS ARE COMPLETE. ALL REDUNDANT DRAINAGE WORKS, RETAINING WALLS AND OTHER ASSOCIATED WORKS ARE TO BE DISUSED/CAPPED AND THE BASINS FILLED IN ACCORDANCE WITH CAMDEN COUNCIL'S SPECIFICATIONS.

EARTHWORKS - BASINS

- 1. THE CONTRACTOR SHALL PROVIDE PROPER FENCING, GUARDING & LIGHTING AND OBSERVATION OF ALL EARTHWORKS, TEMPORARY ROADWAYS, FOOTWAYS, GUARDS & FENCES AS MAY BE RENDERED NECESSARY FOR THE ACCOMMODATION AND PROTECTION OF PEDESTRIANS, VEHICLES, ANIMALS & THE PUBLIC
- 2. ALL EARTHWORKS SHALL BE CARRIED OUT IN THE LOCATIONS SHOWN AND TO THE LEVELS, WIDTHS AND BATTER SLOPES INDICATED ON THE DRAWINGS
- 3. EXCAVATED MATERIAL NOT MEETING THE SPECIFICATIONS FOR FILL MATERIAL SHALL BE DISPOSED OFF SITE IN AN APPROPRIATE MANNER
- 4. WHERE EARTHWORKS ARE REQUIRED IN THE VICINITY OF EXISTING SERVICES. THE CONTRACTOR SHALL SUPPORT ALL SERVICES DURING THE WORKS
- 5. THE CONTRACTOR SHALL, AT ITS OWN EXPENSE, DO ALL THINGS NECESSARY TO DIVERT ANY WATER INTERFERING WITH THE PROCESS OF WORKS, KEEP THE EXCAVATIONS AND TRENCHES FREE FROM WATER WHILE THE WORKS ARE IN PROGRESS AND PREVENT ANY DAMAGE TO THE WORKS BY WATER DUE TO FLOODS OR OTHER CAUSES. THE CONTRACTOR SHALL HAVE PUMPING EQUIPMENT FOR KEEPING THE EXCAVATION OR TRENCHES CONSTANTLY DEWATERED DURING THE TIMES THE WORKS ARE IN PROGRESS. ANY WORK OR MATERIAL DAMAGED BY WATER SHALL BE MADE GOOD BY THE CONTRACTOR.
- 6. WHERE DIRECTED BY THE SUPERINTENDENT THE BOTTOM OF TRENCHES OR EXCAVATIONS SHALL BE COMPACTED PRIOR TO THE PLACING OF ANY BEDDING OR CONCRETE MATERIALS. SHOULD, IN THE OPINION OF THE SUPERINTENDENT, THE FOUNDATION MATERIAL BE INCAPABLE OF EFFECTIVE COMPACTION, THE MATERIAL SHALL BE REMOVED AND REPLACED WITH APPROPRIATE MATERIAL
- 7. MATERIAL SHALL BE INSPECTED & APPROVED BY THE SUPERINTENDENT PRIOR TO USE. RELEVANT MATERIAL SPECIFICATION SHEETS ARE TO BE PROVIDED BY THE CONTRACTOR.
- 8. SUBSOIL DRAINAGE PIPES WITHIN THE BIORETENTION SYSTEM ARE TO BE SLOTTED 100mm uPVC CONSISTENT WITH AS/NZS 1254. JOINTS ARE TO BE SOLVENT CEMENT GLUED AND BENDS ARE TO BE 45° TO MINIMISE BLOCKAGE.

EXCAVATIONS - BASINS

- 1. ALL TOPSOIL TO BE STRIPPED AND STOCKPILED FOR FUTURE USE. STRIPPED SURFACES ARE TO BE ROLLED AND INSPECTED BY A GEOTECHNICAL ENGINEER PRIOR TO CONTINUING WORKS. DEPTH OF TOPSOIL STRIPPING TO BE BETWEEN 125mm AND 200mm (TO BE CONFIRMED BY THE SUPERINTENDENT PRIOR TO CONSTRUCTION)
- 2. WHERE ROCK IS EXPOSED DURING EXCAVATION, THE CONTRACTOR SHALL CEASE EXCAVATION AT THIS LOCATION AND CONTACT THE SUPERINTENDENT WHO WILL THEN ADVISE ON THE LEVEL TO WHICH THE EXCAVATION IS TAKEN.

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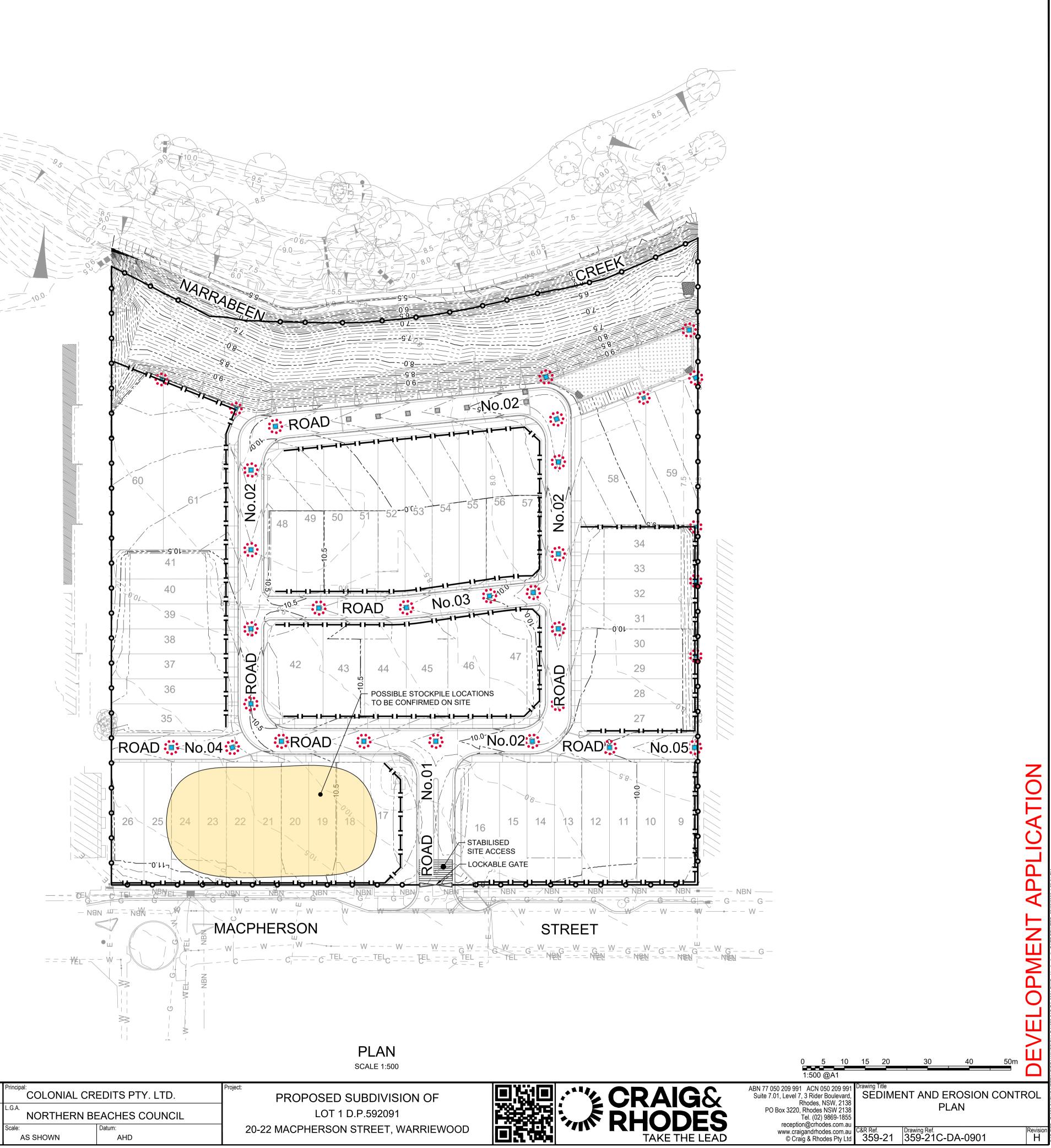
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ABN 77 050 209 991 ACN 050 209 991 Suite 7.01, Level 7, 3 Rider Boulevard, Rhodes, NSW, 2138 PO Box 3220, Rhodes NSW 2138 Tel. (02) 9869-1855 reception@crhodes.com.au		ORMWATER DRAINAGE DETAILS	Ē
www.craigandrhodes.com.au	C&R Ref.	Drawing Ref.	Revision
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0mm	А	50mm	В	100mm	С	150mm	D	200mm	Е	250mm	F
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450mm											
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REFER TO DRG. No.0902 FOR SEDIMENT AND EROSION CONTROL DETAILS.

	Н	25.05.23	ISSUED FOR DEVELOPMENT APPLICATION	S.Y.	N.M.					Authorised for issue by:
-	G	17.04.23	ISSUED FOR DEVELOPMENT APPLICATION	T.F.	T.L.		0	0		
	F	14.04.23	ISSUED FOR DEVELOPMENT APPLICATION	T.F.	N.M.	APPROVED	APPROVED COMPANY	APPROVED. COMPANY		
	Е	04.04.23	ISSUED FOR DEVELOPMENT APPLICATION	Z.Y.	T.L.	COMPANY 190-45601	COMPANY ISO 14001			
	D	21.03.23	ISSUED FOR DEVELOPMENT APPLICATION	Z.Y.	T.L.			Sing Memorrant		
F	С	16.03.23	ISSUED FOR DEVELOPMENT APPLICATION	Z.Y.	W.C.				DIAL 1100	
Ш	REV.	DATE	AMENDMENT DESCRIPTION	DES.	DRN.	Certification Services	Certification Services	Certification Services	BEFORE YOU DIG	Signatur



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350mm H

300mm G

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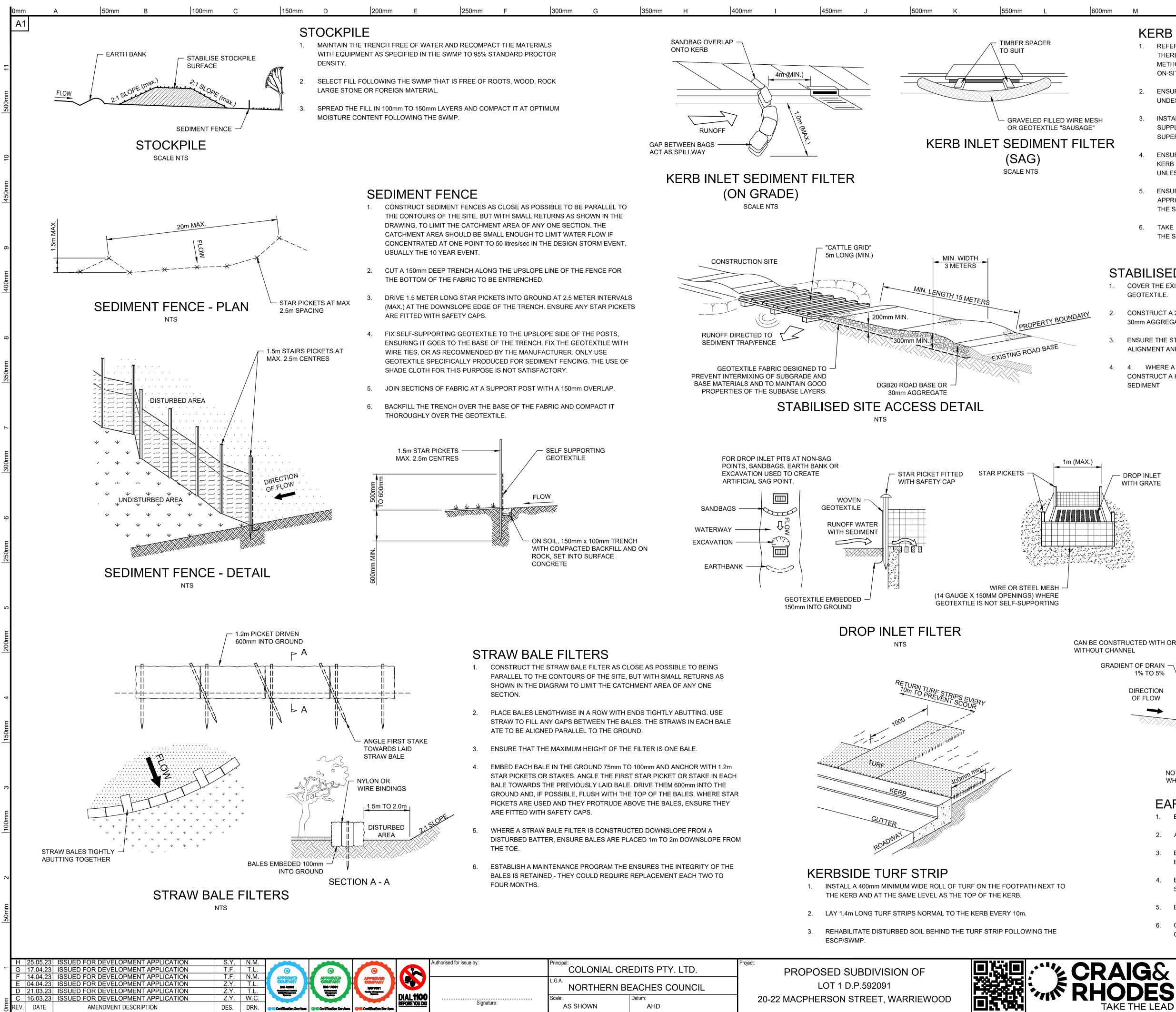
550mm L

600mm M

650mm N

700mm O

750mm P



M

0

K [1.	ERB INLET SEDIMENT FILTER REFER TO APPROVED PLANS FOR LOCATION AND INSTALLATION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, DIMENSIONS, OR METHOD OF INSTALLATION, CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.	
2.	ENSURE THAT THE INSTALLATION OF THE SEDIMENT TRAP WILL NOT CAUSE UNDESIRABLE SAFETY OR FLOODING ISSUES.	
3.	INSTALL SEDIMENT TRAP IN ACCORDANCE WITH STANDARD DRAWING SUPPLIED WITH THE APPROVED PLAN, OR AS DIRECTED BY THE SITE SUPERVISOR.	
4.	ENSURE THE SEDIMENT TRAP IS CONSTRUCTED UP-SLOPE OF AN ON-GRADE KERB INLET. THE SEDIMENT TRAP MUST NOT SURROUND THE KERB INLET UNLESS SPECIFICALLY DIRECTED BY THE SITE SUPERVISOR.	
5.	ENSURE THE SEDIMENT TRAP FULLY ENCLOSES THE KERB INLET. USE APPROPRIATE SPACERS TO ENSURE THE SEDIMENT TRAP DOES NOT BLOCK THE SIDE-ENTRY INLET.	
6.	TAKE ALL NECESSARY MEASURE TO MINIMISE THE SAFETY RISK CAUSED BY THE STRUCTURE	
	LISED SITE ACCESS THE EXISTING SANDSTONE SUBGRADE AREA WITH NEEDLE-PUNCHED XTILE.	
	RUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR AGGREGATE.	
	E THE STRUCTURE IS AT LEAST 15 METERS LONG OR TO BUILDING /IENT AND AT LEAST 3 METERS WIDE.	
	VHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, RUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE ENT	
- DROP IN WITH GR/	ATE 1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OF STRAW	
11.	BALES.2. FOLLOW STANDARD DRAWINGS OF STRAW BALE FILTERS AND SEDIMENT	
	FENCES FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1m CENTRES.	
	3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.	
¥••	4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.	
RUCTED	with or \neg	
1% To DIREC		Z
OF FL		
<i>4.14</i>		DEVELOPMENT APPLICATION
	NOTE: ONLY TO BE USED AS TEMPORARY BANK WHERE MAXIMUM UPSLOPE LENGTH IS 80 METRES	<u>Ц</u>
	EARTHBANK (LOW FLOW)	. AF
	 BUILD WITH GRADIENTS BETWEEN 1% AND 5%. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE - WORK AROUND THEM. 	L Z
	3. ENSURE THE STRUCTURES ARE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT COULD IMPEDE WATER FLOW.	ME
	 BUILD THE DRAINS WITH CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTIONS, NOT V SHAPED. 	ЫdС
	5. ENSURE BANKS ARE PROPERLY COMPACTED TO PREVENT FAILURE.	EL(
	6. COMPLETE PERMANENT OR TEMPORARY STABILISATION WITHIN 10 DAYS OF CONSTRUCTION.	DEV
١G	ABN 77 050 209 991 ACN 050 209 991 Drawing Title Suite 7.01, Level 7, 3 Rider Boulevard, SEDIMENT AND EROSION CONTI	ROL
	Rhodes, NSW, 2138 PO Box 3220, Rhodes NSW 2138 Tel. (02) 9869-1855 reception@crhodes.com.au	

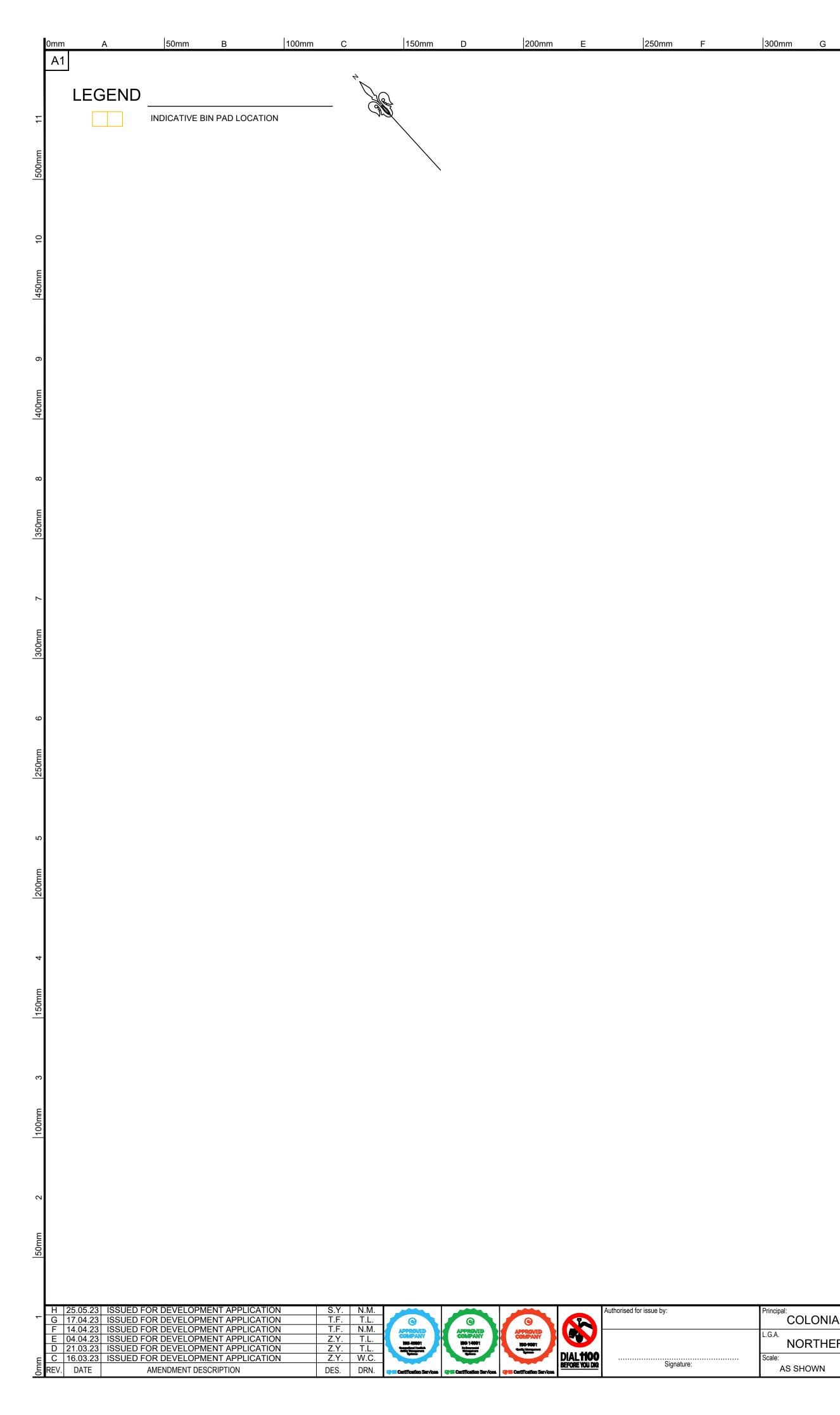
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 Drawing Ref.

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Principal: COLONIAL CREDITS PTY. LTD.	Project: PROPOSED SUBDIVISION OF	■弦■ ベ゙タ CRA
NORTHERN BEACHES COUNCIL	LOT 1 D.P.592091	
Scale: Datum: AS SHOWN AHD	20-22 MACPHERSON STREET, WARRIEWOOD	

PLAN SCALE 1:500

No.02 ROAD LOT 59 -- LOT 60 58 60 LOT 58 No.02 No.02 49 50 51 52 53 54 55 61 56 57 LOT 34 -LOT 33 -34 ____ LOT 41 LOT 40 LOT 39 LOT 32 -----41 33 40 32 No.03 LOT 55 LOT 57
 33
 LOT 54
 LOT 31

 LOT 56
 LOT 29

 LOT 27
 LOT 27
 ___ LOT 48 39 31 LOT 38 LOT 37 LOT 36 LOT 35 42 LOT 26 LOT 25 LOT 24 LOT 23 LOT 53 LOT 54 LOT 56 -LOT 50 LOT 51 38 30 47 37 LOT 09 LOT 10 LOT 11 LOT 12 LOT 13 43 44 46 45 29 36 28 LOT 22 - LOT 21 - LOT 20 - LOT 18 LOT 16 - LOT 14 -27 35 LOT 17 LOT 15 NO.02 └── LOT 19 ROAD ROAD ROAD No.04 N No.01 17 26 25 24 23 22 21 20 19 18 15 14 13 12 11 10 16 ROAD MACPHERSON STREET

350mm H

400mm I

NARRABEEN

CREEK

650mm N

700mm O

750mm P

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AIG& ODES AKE THE LEAD	Suite 7.01, Level 7, 3 Rider Boulevard, Rhodes, NSW, 2138 PO Box 3220, Rhodes NSW 2138 Tel. (02) 9869-1855 reception@crhodes.com.au	B ^{C&R Ref.} 359-21	IN PAD LOC Drawing Ref. 359-21C-D	′LAN	Revision	CAD REF.: 2:\359-21\EN(