

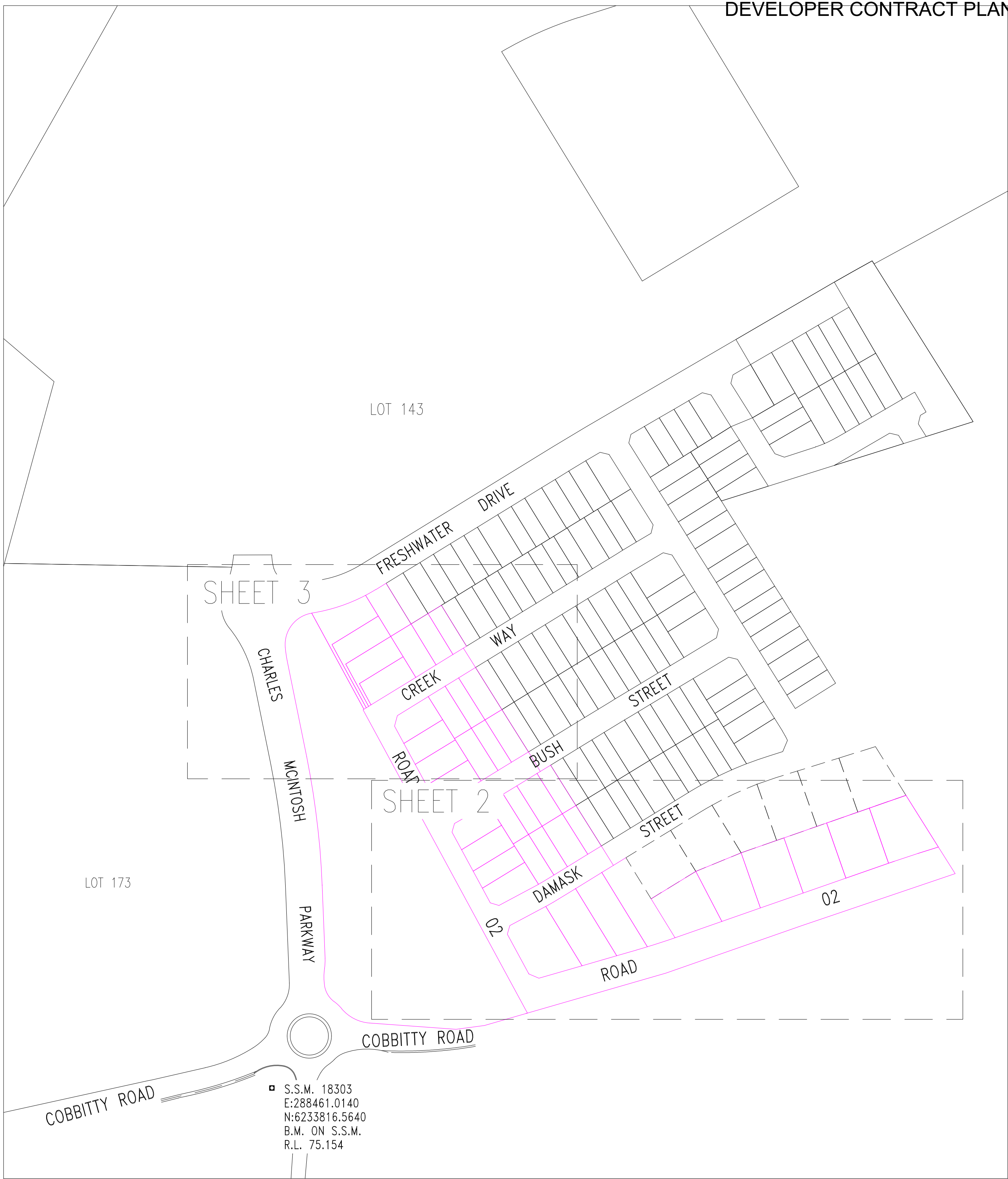
1. DESIGNER AND WSC:
ORION CONSULTING ENGINEERS PTY LTD
SUITE 4.04/12 Century Circuit, Norwest, NSW 2153
PH.: 02 8660 0035
www.theoriongroup.au

FOR: MIRVAC HOMES (NSW) PTY LTD
ADDRESS : LEVEL 28/200 GEORGE ST SYDNEY NSW 200
CONTACT : 0416 623 295
2. THE PROPOSED WORKS AND MATERIALS SHALL BE IN ACCORDANCE WITH THE SYDNEY WATER TECHNICAL SPECIFICATION – CIVIL VERSION 11.0 AS WELL AS THE SEWERAGE CODE OF AUSTRALIA WSA 02–2002–2.2 SYDNEY WATER EDITION VERSION 4 (2017) INCLUDING THE SYDNEY WATER SUPPLEMENT & APPENDICES. THE CONTRACTOR MUST HAVE A COPY OF THESE ON SITE AT ALL TIMES.
3. ALL STRUCTURES SHALL BE CONSTRUCTED TO PROPOSED FINISHED SURFACE LEVELS. ALL LEVELS REFER TO PROPOSED FINISHED SURFACE LEVELS. CONTRACTOR TO LIAISE WITH ROAD AND/OR CIVIL CONTRACTOR TO VERIFY ALL LEVELS IN PARTICULAR IN OR ADJACENT TO ROADS. WSC TO BE INFORMED OF ANY DISCREPANCIES.
4. ALL BUILDING LAYOUTS, FINISHED SURFACE LEVELS, STORMWATER INFORMATION, AND GENERAL CIVIL ENGINEERING DETAILS TAKEN FROM 'ORION CONSULTING ENGINEERS' ENGINEERING PLANS REVISION 'A' DATED '03.10.24'
5. THE CONTRACTOR IS TO APPLY THE CONDITIONS OF THE SYDNEY WATER TECHNICAL SPECIFICATION – CIVIL VERSION 11.0 REGARDING BACKFILLING AND TESTING (SECTIONS C2.7 AND C2.8). A CONSTRUCTION QUALITY ASSURANCE PLAN IS TO BE SUBMITTED TO THE WSC AS PER THE REQUIREMENTS.
- THIS PLAN IS TO CLEARLY SPECIFY HE NUMBER OF TESTS REQUIRED FOR THE WORKS.
- NOTE: A HIGHER LEVEL OF COMPACTION MAY BE REQUIRED TO BE COMPLIED WITH (FOR EXAMPLE IN TINSW ROADS, ETC). THE CONTRACTOR SHALL LIAISE WITH THE CIVIL CONTRACTOR OR SITE SUPERINTENDENT REGARDING REQUIREMENTS.
6. ALL LEVELS ELECTRONICALLY GENERATED. NO LEVEL BOOK AVAILABLE.
7. THE REVIEW OF ENVIRONMENTAL FACTORS IS AN INTEGRAL PART OF THIS DESIGN AND SHALL BE READ IN CONJUNCTION WITH THIS PLAN, ALL MITIGATION MEASURES IN THE REF SHALL BE ADHERED TO.
8. PRIOR TO ANY EXCAVATION THE CONSTRUCTOR MUST HAVE A CURRENT COPY OF THE UNDERGROUND SERVICES REPORT, THIS IS TO BE READ IN CONJUNCTION WITH THIS PLAN.
9. SERVICES SHOWN FROM 'DIAL BEFORE YOU DIG' SERVICES SEARCH ARE INDICATIVE ONLY AND SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO ANY EXCAVATION WORKS ON SITE.
10. BUILDING OVER/ADJACENT TO SEWER – CONDITIONS MAY APPLY. REFER TO ORION CONSULTING ENGINEERS PTY LTD FOR DETAILS.
11. ALL EXCAVATION, SHORING EXCAVATION AND STABILITY OF ANY ADJACENT STRUCTURES, SERVICES OR DWELLINGS IS THE RESPONSIBILITY OF THE CONTRACTOR. USE OF SHORING BOXES IS NOT A FORM OF STABILITY CONTROL. NEITHER IS SAND CEMENT BACKFILL OR CONCRETE ENCASEMENT. DILAPIDATION REPORTS TO BE PROVIDED WHERE REQUIRED.
12. ALL JUNCTIONS FOR THE PCS'S SHALL BE LOCATED 0.7m MIN. OFF THE DOWNSTREAM PROPERTY BOUNDARY (CURRENT AND FUTURE) OR DOWNSTREAM EASEMENT BOUNDARY OR MINIMUM 1.0m MIN. OFF THE DOWNSTREAM STRUCTURE. ALL PCS's TO BE CLEAR OF DRIVEWAYS, FOR LOCATION OF DRIVEWAYS CONTRACTOR TO LIAISE WITH CIVIL CONTRACTOR OR SITE SUPERINTENDENT FOR CONFIRMATION OF LOCATIONS.
➤ DENOTES STANDARD PCS CONNECTION (REFER DTC–2120 ISSUE B DATE 31.07.24)
13. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE THE CHAINAGES FOR THE PCS's, THE LENGTH OF THE PCS's, THE TYPE OF CONNECTION USED, THE LOCATION OF THE IO AND THE INVERT LEVEL AT THE PCP (IF APPLICABLE) TO THE WSC FOR WAC PURPOSES.
14. THE TOTAL LENGTH OF THE DN100 PCS's EXCLUDING RISERS IS APPROXIMATELY 17.0m. PCS's TO HAVE MINIMUM STIFFNESS RATING OF SN10. JOINTING TO BE SOLVENT WELDED.
15. CONTRACTOR TO ENSURE THAT WORKS ARE CONSTRUCTED IN ACCORDANCE WITH SYDNEY WATER'S DEEMED TO COMPLY DRAWINGS:
FOR ALL MH'S DTC–2000 (ISSUE D 31.07.24), DTC–2220 (ISSUE E 31.07.24), DTC–2202 (ISSUE F 31.07.24), DTC–2203 (ISSUE C 31.07.24), DTC–2221 (ISSUE D 31.07.24), DTC–2222 (ISSUE D 31.07.24), DTC–2223 (ISSUE C 31.07.24)
16. PIPES TO BE CONCRETE ENCASED SHOWN ACCORDINGLY:  – REFER TO SEW–1205–V
17. AREAS HATCHED THUS NOT DRAINED:– 
18. ALL MCs & MSs TO CONFORM TO WSA–137–2019 VERSION 3.1, "INDUSTRY STANDARD FOR UNPLASTICISED POLYVINYL CHLORIDE (PVCU), POLYPROPYLENE (PP) AND POLYETHYLENE (PE) MAINTENANCE SHAFTS, MAINTENANCE CHAMBERS AND MAINTENANCE HOLES FOR SEWERAGE".
19. ANY CONCRETE WORKS TO CONFORM TO SECTION 3 TECHNICAL SPECIFICATION – CIVIL VERSION 11.0, CONCRETE TESTING TO BE UNDERTAKEN AS PER SECTION 3.12.
20. THE CONSTRUCTOR SHALL ONLY USE PRODUCTS AND MATERIALS APPROVED FOR USE BY SYDNEY WATER. IF AN ALTERNATIVE IS REQUIRED, THE CONSTRUCTOR OR ACCREDITED SUBCONSULTANT MAY PREPARE A DEVIATION FROM STANDARDS FOR SYDNEY WATER REVIEW & APPROVAL.

PLAN FOR CONSTRUCTION

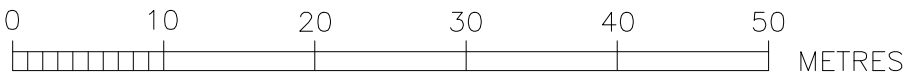
02 / 12 / 2025

For and on behalf of
Orion Consulting Engineers Pty Ltd
(ABN 25 604 069 981)



LOCALITY PLAN
(NOT TO SCALE)

➤ DENOTES EXISTING PCP. CONSTRUCTOR TO CONFIRM PCP CONNECTION IS EXISTING AND IT SATISFY THE STANDARD PCP LOCATION IN RELATION TO LOT BOUNDARIES .



MAINTENANCE STRUCTURE SCHEDULE						
LINE	CHAINAGE	TYPE	DN RISER	CLASS OF COVER	MATERIAL	COMMENTS
1	16.68	M.C.	DN600	B	P.P.	AWASHAFT PP 600
1	21.48	M.C.	DN600	B	P.P.	AWASHAFT PP 600
1	49.20	M.C.	DN600	B	P.P.	AWASHAFT PP 600
1	55.40	M.C.	DN600	B	P.P.	AWASHAFT PP 600
1	143.13	M.H.	DN1050	B	CONCRETE	DTC–2203
1	200.36	M.S.	DN300	B	P.V.C.	
1	318.44	M.C.	DN600	B	P.P.	AWASHAFT PP 600
2	52.02	T.M.S.	DN300	B	P.V.C.	
3	42.17	T.M.S.	DN300	B	P.V.C.	
4	2.50	M.C.	DN600	B	P.P.	AWASHAFT PP 600
4	57.80	M.C.	DN600	B	P.P.	AWASHAFT PP 600

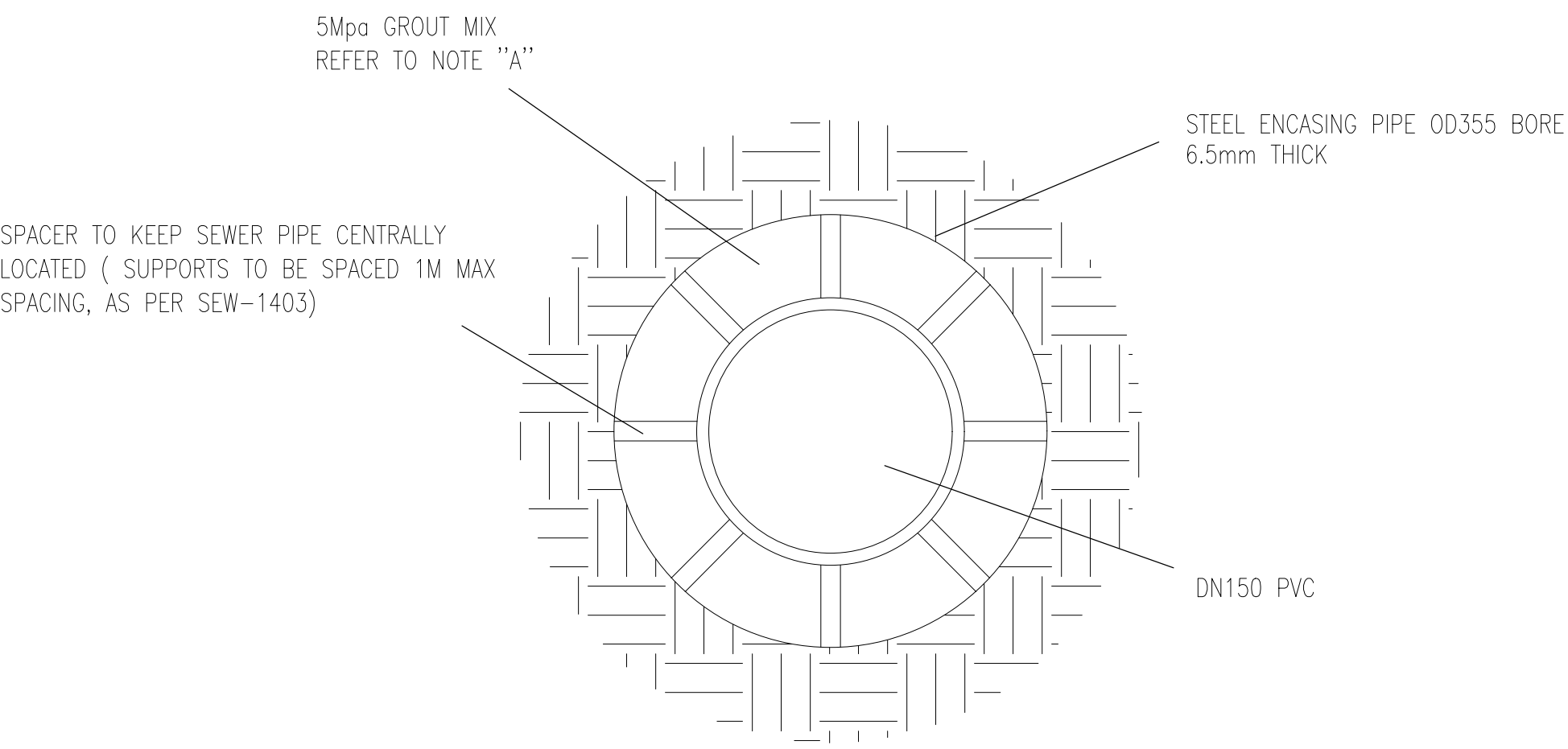
3	L1 CH270.94–294.94 TO BE BORED	RA	14.11.2025
2	LABELLED MC AT MC SYMBOLS AS PER SWC COMMENTS	RA	26.2.2025
1	ISSUE FOR APPROVAL	RA	31.1.2025
No.	AMENDMENT DESCRIPTION	BY	DATE

PLAN TO BE READ IN CONJUNCTION WITH CURRENT SYDNEY WATER STANDARDS SYDNEY WATER CORPORATION	TYPE		DATE	REF.	TYPE		DATE	REF.	WORK AS CONSTRUCTED CERTIFICATION						PIPE SCHEDULE					GDA 2020 AUSTRALIAN HEIGHT DATUM		NO AMENDMENTS ARE TO BE MADE TO THIS PLAN WITHOUT REFERENCE TO SYDNEY WATER. THIS PLAN IS NOT NECESSARILY UP TO DATE OR CORRECT AND SYDNEY WATER ACCEPTS NO RESPONSIBILITY.	 SYDNEY WATER CORPORATION			
	PROP WATER: DN100 WATER — DN100 WATER	15.11.24	DESIGN							DEVELOPER						SIZE DN	TYPE	CLASS	LENGTH	PIPE JOINING METHOD / NOTES	PLAN 1:500 SECTION { HOR. 1:500 VERT. 1:125				U.B. DIRECTORY MAP 304/A13 41th edition	
PRIOR TO COMMENCEMENT OF EXCAVATION FOR PROPOSED AND EXISTING SERVICES CONTACT :- DIAL BEFORE YOU DIG Ph. 1100 ELECTRICITY ENDEAVOUR ENERGY Ph. 131 003 GAS JEMENA GAS Ph. 1300 880 906 TELECOMMUNICATIONS TELSTRA Ph. 1800 114 918 SYDNEY WATER Ph. 132 092 GIVING AT LEAST 48 HOURS NOTICE.	PROP STORMWATER: SWD — — — SWD	03.10.24	ENG.						WATER SERVICE CO-ORDINATOR						355OD	U.P.V.C.	SN8	470.43	RRJ	BORE ENCASING PIPE		CROSS SECTIONS NATURAL		SHEET 1 OF 5		File No. 23-0580
									CONSTRUCTOR																	
									COMPLETED	W.A.C. PREPARED																
									DESIGNER																	
									I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS.										DESIGN HEAD m		NO BOUNDARY TRAPS REQUIRED.					

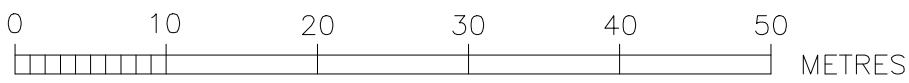


NOTE "A"
GROUTING MIX : 5Mpa NON SHRINK GROUT MIX TO BE USED – CEMENT /FLY ASH/WATER WITH 0.49 W/C RATIO AND 300mm SLUMP (REFER TO BELOW EXAMPLE MIX DESIGN RECOMMENDED BY TUNNELING CONTRACTOR)
(MIX TO COMPLY WITH TECH SPEC CIVIL WORKS VERSION 11 (4.19.4.20)

Compressive Strength : MPa at 28 Days	w/cm Ratio :	0.49
Aggregate size :	Slump	300mm
Usage :	Slump with SuperP :	
Placement :	Air % :	0.0 ± 0.0 %
Mix analysis		
Product Code - Description - Type - Supplier Name - Supplier City	F.M.	Gsb Abs. Qty SSD Volume
Cement & Mineral additive		
C-GP-GLQ - 2-SL CEMENT - Gladstone SL - - Cement Australia, Kandos	3.150	120 kg 0.038 m³
FASH-MTP - 2-Flyash - Fly Ash - -	2.150	1050 kg 0.488 m³
Water		
Water - 4-WATER - Mains Water - -	1.000	578 kg (578.1 L) 0.578 m³
Air		
Admixture & Other constituent		
P300RI - 3-Pozzolith 300 Ri - Retarder - - BASF, Sydney	1.000	1800 ml/m³ 0.002 m³ / 0.002 m³
GLEN27 - 3-GLENIUM 27 - High Range Water Reducer - - BASF, Sydney	1.000	1750 ml/m³ 0.002 m³ / 0.002 m³
Total		1748 kg 1.104 m³
Unit Weight : 1.583 kg/m³		



TYPICAL BORE CROSS SECTION FOR DN150 SEWER PIPE
DETAIL '1'
(NOT TO SCALE)



WORK AS CONSTRUCTED CERTIFICATION		SYDNEY WATER CORPORATION	
DEVELOPER	W.S.C.	Case No. 217504WW	
CONSTRUCTOR	COMPLETED	SHT 2 OF 5 SHTS.	
DESIGNER		SYDNEY WATER CORPORATION	
I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS		FOR DETAILS OF SERVICES SEE SHEET 1	

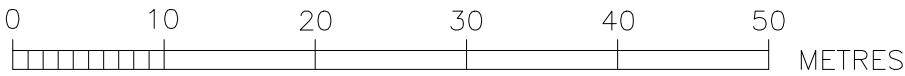


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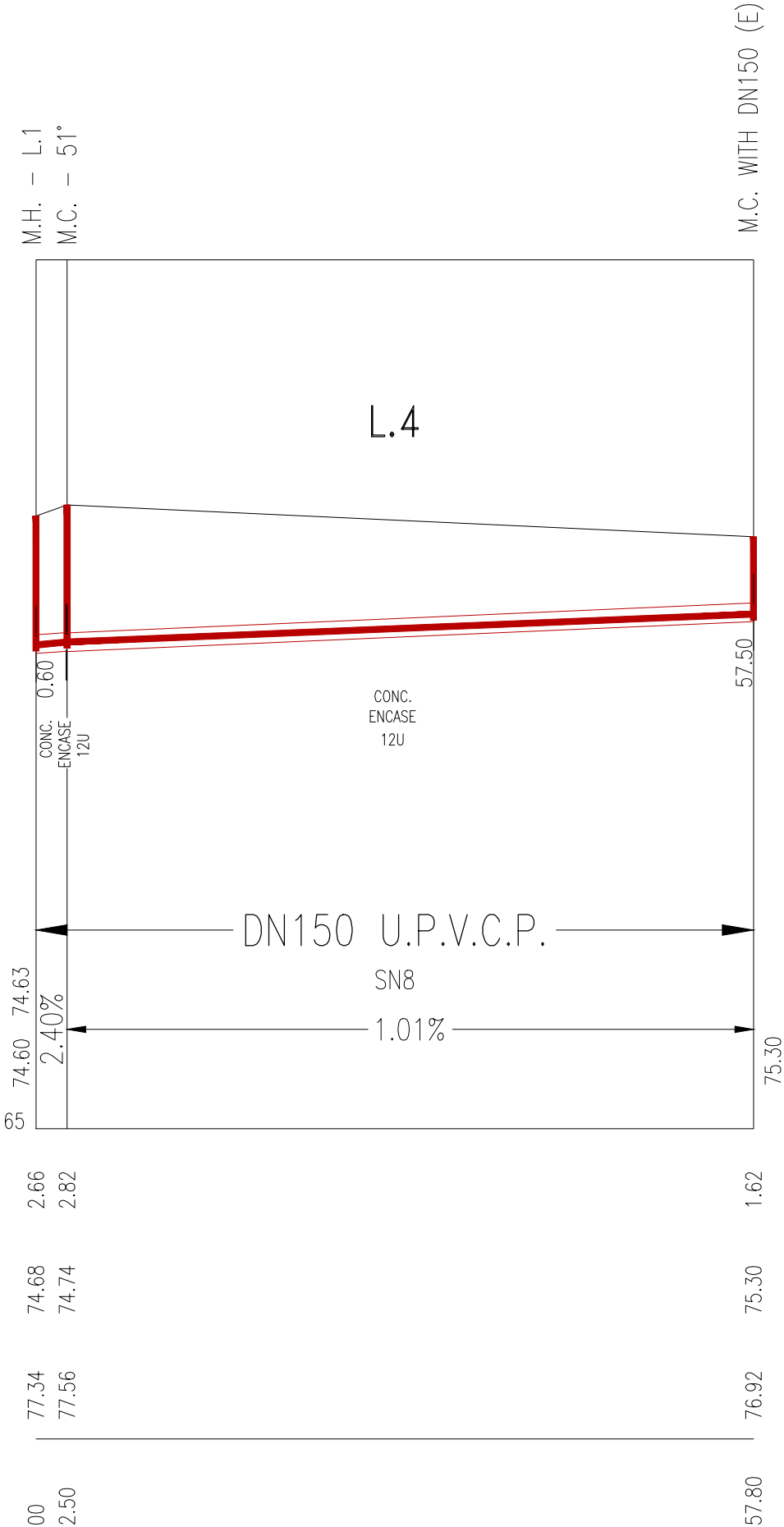
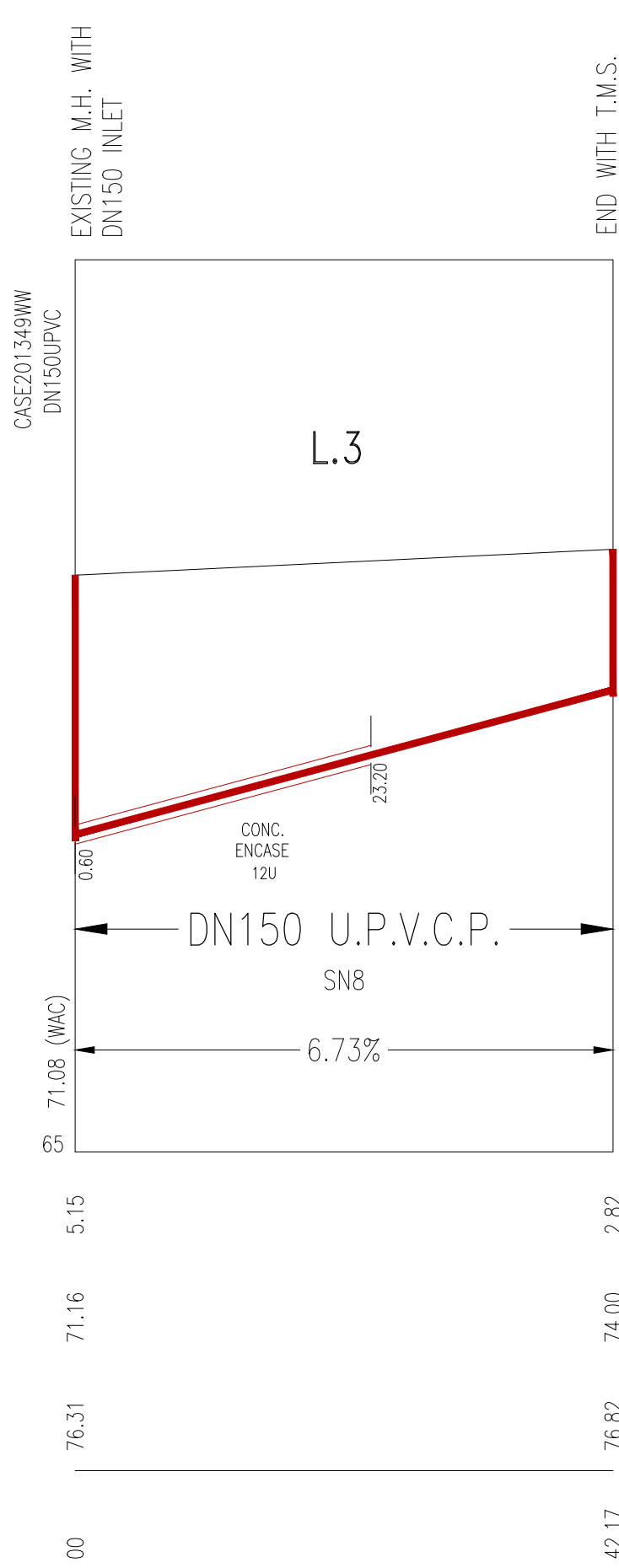
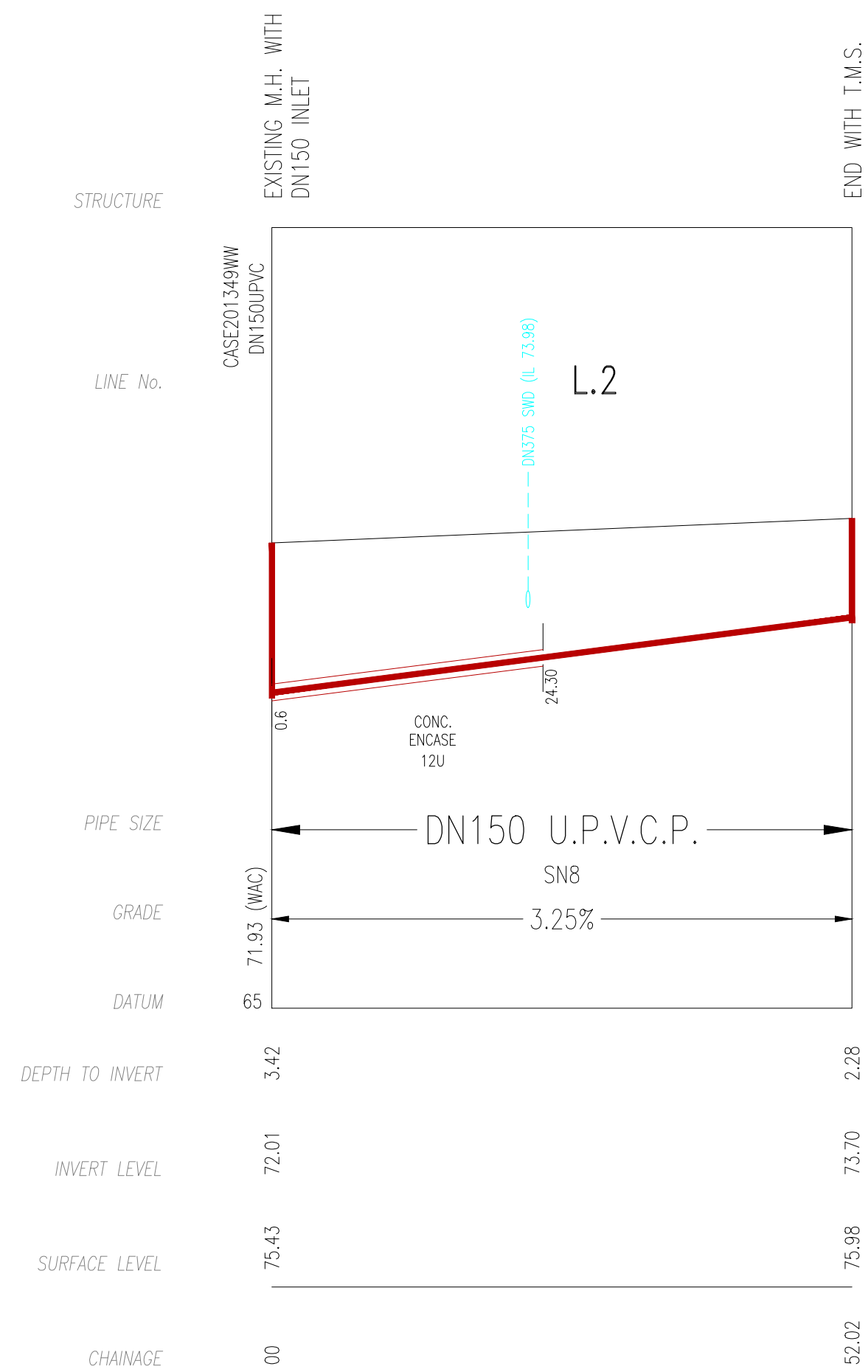
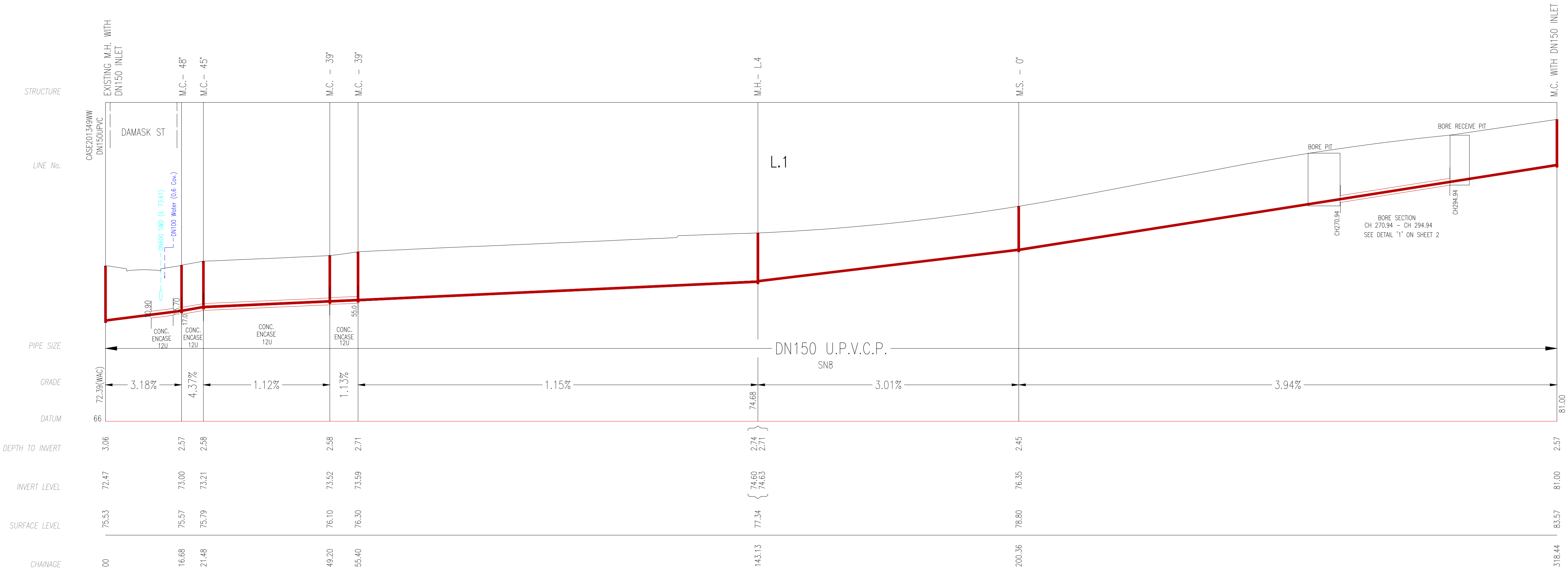
PLAN FOR CONSTRUCTION

02 / 12 / 2025

For and on behalf of
Orion Consulting Engineers Pty Ltd
(ABN 25 604 069 981)



WORK AS CONSTRUCTED CERTIFICATION		SYDNEY WATER CORPORATION		
DEVELOPER			Case No. 217504WW SHT 3 OF 5 SHTS.	
W.S.C.				
CONSTRUCTOR				
COMPLETED		SYDNEY WATER CORPORATION FOR DETAILS OF SERVICES SEE SHEET 1		
W.A.C. PREPARED				
DESIGNER				
I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS				



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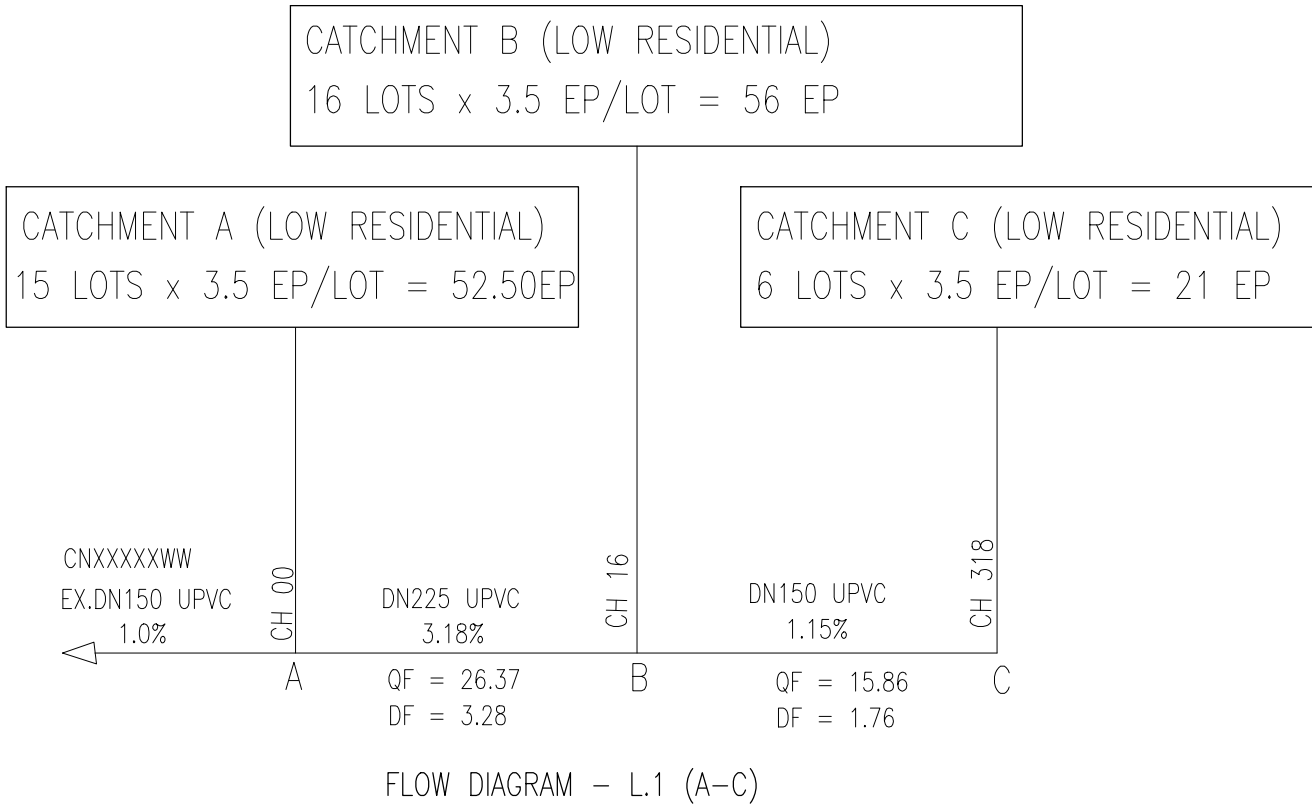
WORK AS CONSTRUCTED CERTIFICATION		Sydney WATER		SYDNEY WATER CORPORATION	
DEVELOPER		Case No. 217504WW		SHT	4 OF 5 SHTS.
W.S.C.					
CONSTRUCTOR					
COMPLETED					
W.A.C. PREPARED					
DESIGNER		SYDNEY WATER CORPORATION			
I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS		FOR DETAILS OF SERVICES SEE SHEET 1			

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PLAN FOR CONSTRUCTION

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FLOW SCHEDULE

Section	Line No	Chainage	Pipe Status	Total Area	Total Gravity	Total Grav + Pump	Pipe Material	Pipe Size (DN)	Pipe Size (ID)	Pipe Grade	Design Flow (DF)	Actual PDWF	Qf (Capacity)	Velocity @ Qf	Velocity @ PDWF	SHEAR STRESS	Grade Check	Max EP Check	Self Cleansing	Slime Control	Capacity Check
		m		Ha	EP	EP		mm	mm	%	L/s	L/s	L/s	m/s	m/s	Pa		for dia <=300			
C-B	1	318	new	0.57	21	21	PVC-U PN16	150	148	1.15	1.76	0.59	15.86	0.93	0.44	1.37		RETIC 800EP MAX	Self Cleansing OK	NA - Reticulation	Capacity OK
B-A	1	16	new	2.29	77	77	PVC-U PN16	150	148	3.18	3.28	1.09	26.37	1.54	0.76	3.98		RETIC 1586EP MAX	Self Cleansing OK	NA - Reticulation	Capacity OK

PROPOSED SEWER FLOW AND CAPACITY
(NOT TO SCALE)

WORK AS CONSTRUCTED CERTIFICATION		Sydney WATER SYDNEY WATER CORPORATION	
DEVELOPER		Case No. 217504WW SHT 5 OF 5 SHTS.	
W.S.C.			
CONSTRUCTOR			
COMPLETED			
W.A.C. PREPARED		SYDNEY WATER CORPORATION FOR DETAILS OF SERVICES SEE SHEET 1	
DESIGNER			
I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS			