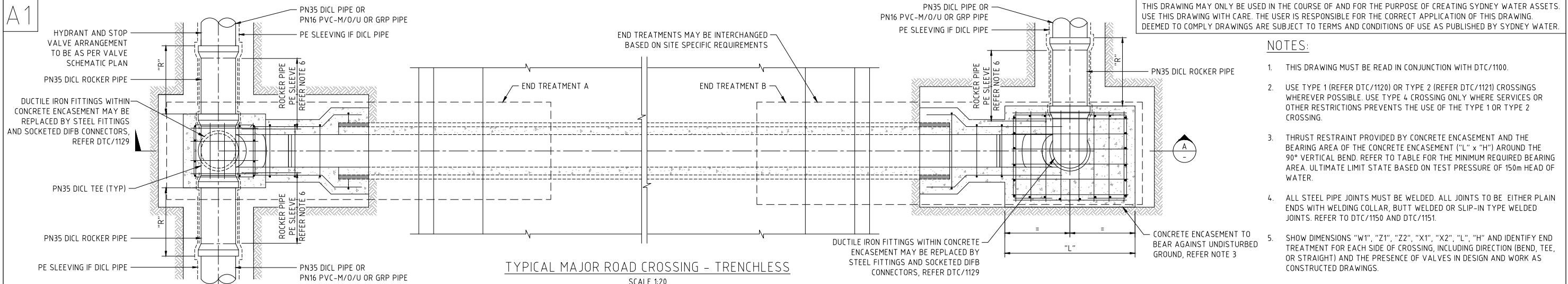


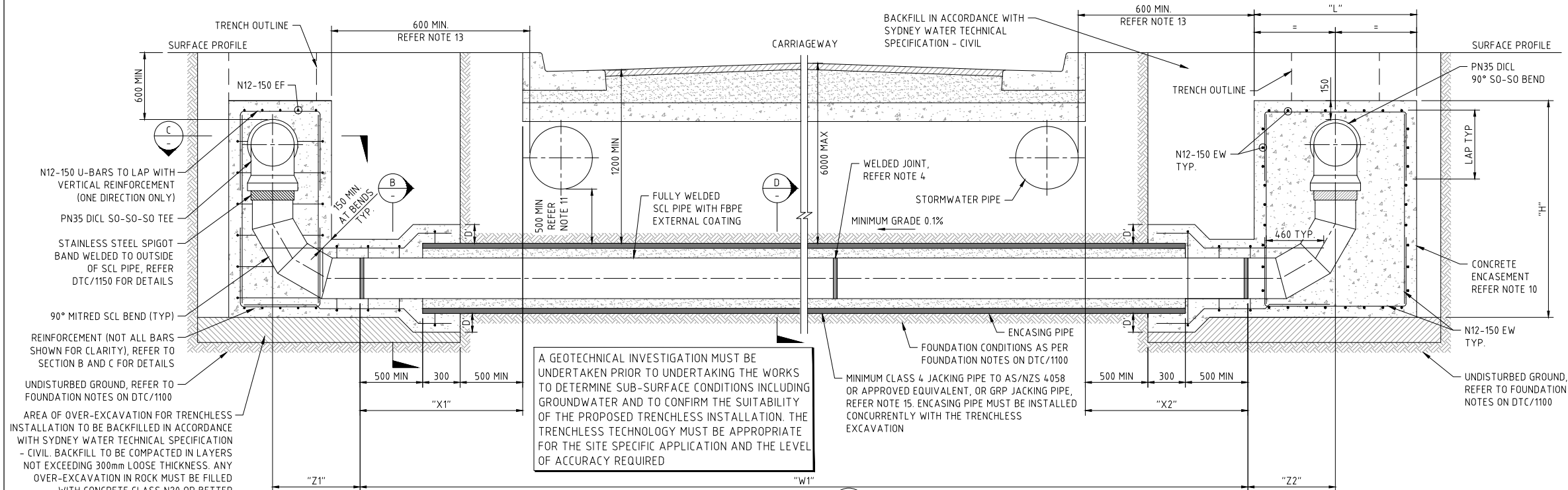
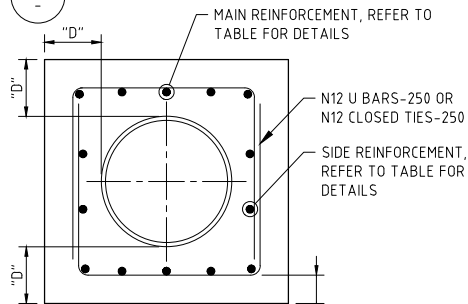
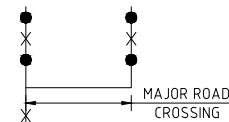
A1



TYPICAL MAJOR ROAD CROSSING - TRENCHLESS

SCALE 1:20

VALVES AND HYDRANTS NOT SHOWN FOR CLARITY. REFER TO VALVES AND HYDRANTS SCHEMATIC.

SECTION A
SCALE 1:20SECTION B
SCALE 1:10VALVES AND HYDRANTS
SCHEMATIC PLAN
SCALE NTS

ROCKER PIPE DIMENSIONS		
PIPE SIZE (DN)	"R" MIN	"R" MAX
150	300	450
200	400	600
250	500	750
300	600	900

STEEL PIPE DIMENSIONS		ENCASING PIPE		
PIPE SIZE (DN)	OUTSIDE DIAMETER (OD)	WALL THICKNESS (WT)	NOMINAL SIZE (DN)	INTERNAL DIAMETER (ID) MIN
150	168	5.0	225	229
200	219	5.0	300	292
250	273	5.0	375	369
300	324	5.0	450	445

SECTION B - CONCRETE ENCASMENT REINFORCEMENT DETAILS			
MAIN SIZE	MAIN REO (T&B)	SIDE REO (T&B)	"D"
DN150	4N24	NIL	200
DN200	5N20	NIL	250
DN250	5N20	2N16	300
DN300	5N24	2N16	300

THRUST ANCHOR BLOCK DETAILS FOR 90° BENDS								
BRANCH DN	BRANCH OD	DESIGN PRESSURE HEAD	TEST PRESSURE HEAD	THRUST T	SOIL TYPE ¹	REQUIRED BEARING AREA	H MIN	L MIN
(mm)	(mm)	(m)	(m)	(kN)	-	(m ²)	(mm)	(mm)
150	177	120	150	36.2	S1	0.724	1100	700
150	177	120	150	36.2	S2	0.362	1100	500
150	177	120	150	36.2	S3	0.181	1100	500
200	232	120	150	62.2	S1	1.243	1300	800
200	232	120	150	62.2	S2	0.622	1300	550
200	232	120	150	62.2	S3	0.311	1300	550
250	286	120	150	94.5	S1	1.889	1450	1150
250	286	120	150	94.5	S2	0.945	1450	600
250	286	120	150	94.5	S3	0.472	1450	600
300	345	120	150	137.5	S1	2.749	1550	1600
300	345	120	150	137.5	S2	1.375	1550	700
300	345	120	150	137.5	S3	0.687	1550	650

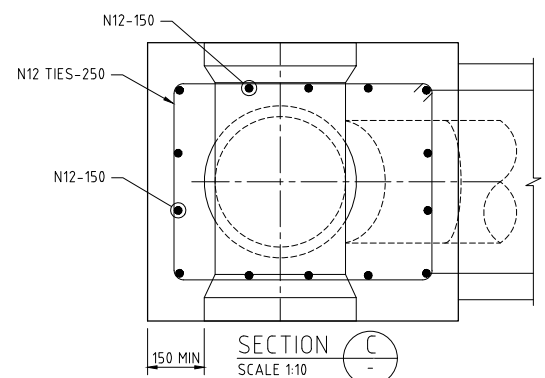
1. REFER TABLE F6 ON DTC/1100 FOR SOIL TYPES.

NOTES:

- THIS DRAWING MUST BE READ IN CONJUNCTION WITH DTC/1100.
- USE TYPE 1 (REFER DTC/1120) OR TYPE 2 (REFER DTC/1121) CROSSINGS WHEREVER POSSIBLE. USE TYPE 4 CROSSING ONLY WHERE SERVICES OR OTHER RESTRICTIONS PREVENTS THE USE OF THE TYPE 1 OR TYPE 2 CROSSING.
- THRUST RESTRAINT PROVIDED BY CONCRETE ENCASMENT AND THE BEARING AREA OF THE CONCRETE ENCASMENT ("L" x "H") AROUND THE 90° VERTICAL BEND. REFER TO TABLE FOR THE MINIMUM REQUIRED BEARING AREA. ULTIMATE LIMIT STATE BASED ON TEST PRESSURE OF 150m HEAD OF WATER.
- ALL STEEL PIPE JOINTS MUST BE WELDED. ALL JOINTS TO BE EITHER PLAIN ENDS WITH WELDING COLLAR, BUTT WELDED OR SLIP-IN TYPE WELDED JOINTS. REFER TO DTC/1150 AND DTC/1151.
- SHOW DIMENSIONS "W1", "Z1", "Z2", "X1", "X2", "L", "H" AND IDENTIFY END TREATMENT FOR EACH SIDE OF CROSSING, INCLUDING DIRECTION (BEND, TEE, OR STRAIGHT) AND THE PRESENCE OF VALVES IN DESIGN AND WORK AS CONSTRUCTED DRAWINGS.
- TAPE 700 LONG PE SLEEVING TO DICL ROCKER PIPES. SLEEVING TO EXTEND 150 INTO CONCRETE ENCASMENT.
- MINIMUM COVER TO REINFORCEMENT FROM EXPOSED FACE MUST BE 70mm U.N.O.
- DO NOT APPLY ANY THRUST LOADS FOR AT LEAST 14 DAYS AFTER POURING CONCRETE.
- FORM ALL CONSTRUCTION JOINTS. SCABBLE JOINT TO EXPOSE AGGREGATE TO 5mm DEPTH AND WIRE BRUSH CLEAN PRIOR TO FORMING. SOAK EXISTING CONCRETE SURFACE WITH WATER AND REMOVE ALL EXCESS WATER IMMEDIATELY PRIOR TO PLACING CONCRETE.
- CONCRETE ENCASMENT MUST BE COMPLETED IN A SINGLE POUR WITH NO CONSTRUCTION JOINTS.
- GREATER CLEARANCES MAY BE REQUIRED. THE CLEARANCE REQUIREMENT FOR ALL SERVICES AND ADDITIONAL CONTROLS FOR TEMPORARY SUPPORT OF OTHER EXPOSED UTILITIES MUST BE DETERMINED IN CONSULTATION WITH THE RELEVANT UTILITY AUTHORITY AND WITH SITE SPECIFIC SAFETY CONSIDERATIONS.
- DESIGNER TO CONSULT WITH THE RELEVANT ROAD AUTHORITY AND COMPLY WITH THE ROAD AUTHORITY'S REQUIREMENTS.
- 1000 MIN HORIZONTAL CLEARANCE TO ELECTRICITY CONDUITS AND CABLES. 600 MIN HORIZONTAL CLEARANCE TO ALL OTHER SERVICES.
- ADDITIONAL FITTINGS MAY BE REQUIRED FOR DISINFECTION AND OZONATION PURPOSES.
- TRENCHLESS CONTRACTOR TO DETERMINE JACKING FORCES AND CONFIRM WITHIN ALLOWABLE LIMITS.
- GROUT TO HAVE A MINIMUM COMPRESSIVE STRENGTH 0.3 MPa AND MAXIMUM 1.5 MPa AT 7 DAYS. TESTING TO BE IN ACCORDANCE WITH AS 1012.9:2014.
- DESIGNER TO UNDERTAKE SETTLEMENT ANALYSIS AND GROUNDWATER IMPACT ASSESSMENT IN CONSULTATION WITH THE ROAD AUTHORITY.

REFERENCE DRAWINGS:

DTC/1100 WATER MAINS CONSTRUCTION NOTES
DTC/1129 WATER MAINS ≤ DN300 STEEL TEE & BEND CONNECTION DETAILS
DTC/1150 STEEL WATER MAINS DN150 TO DN1200 STEEL PIPE JOINTING
DTC/1151 STEEL WATER MAINS DN150 TO DN1200 STEEL PIPE JOINTING WELDED - PLAIN ENDS

**Sydney**
WATER

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APPROVED

NORBERT SCHAEFER
ENGINEERING MODERNISATION MANAGER

ENGINEERING & TECHNICAL SUPPORT

B
A
LETTERGENERAL UPDATE
ORIGINAL ISSUE

DETAILS OF ISSUE / AMENDMENT

NS
PNGAPP'D
DATE31/07/24
31/01/12

DEEMED TO COMPLY DRAWINGS

MAJOR ROADWAY CROSSING
WATER MAINS ≤ DN300
TYPE 4 - TRENCHLESS INSTALLTION
SCL MAIN IN ENCASING PIPE**DTC****1123**

ISSUE

B

DATE

31/07/24