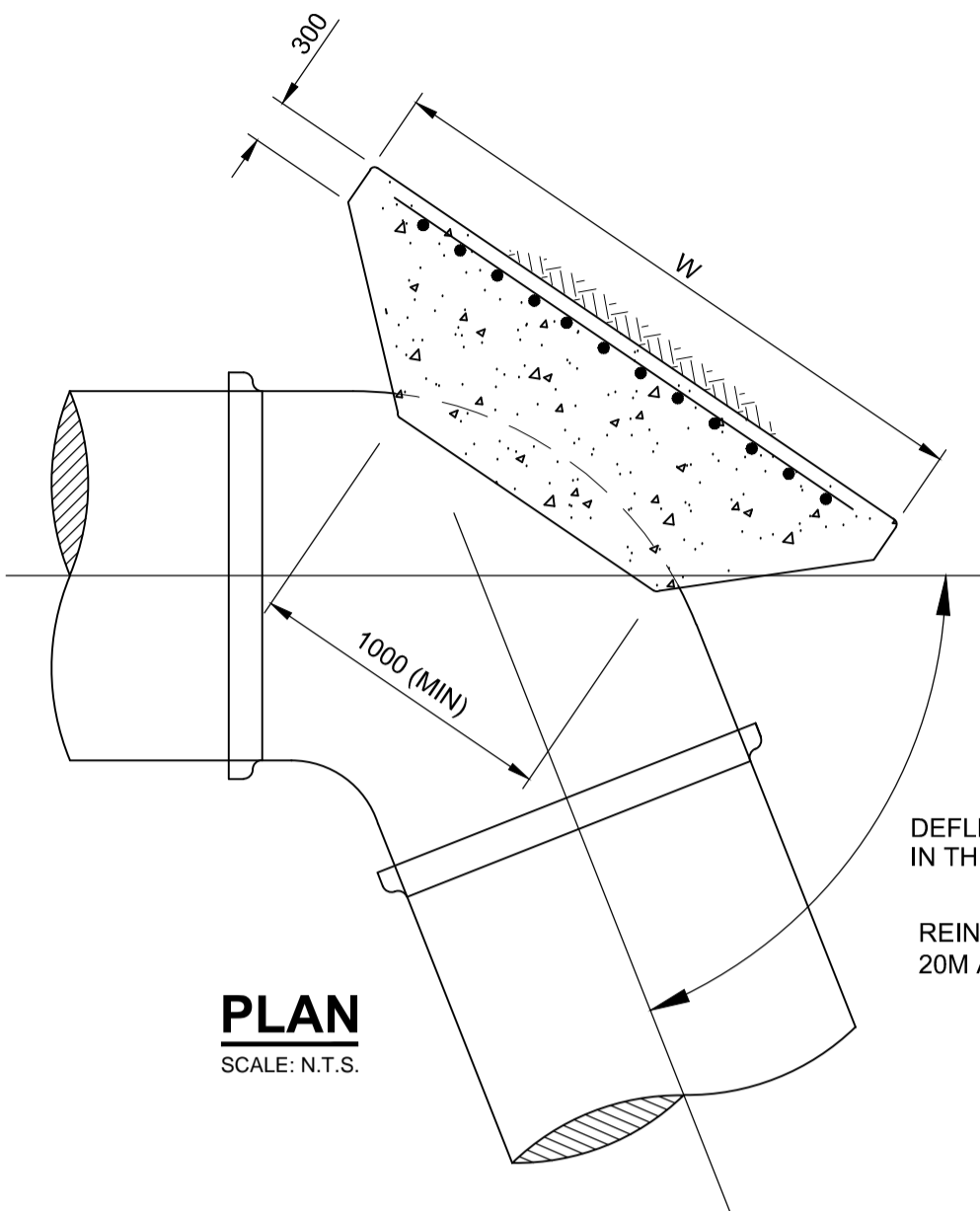


THRUST BLOCK DATA TABLE

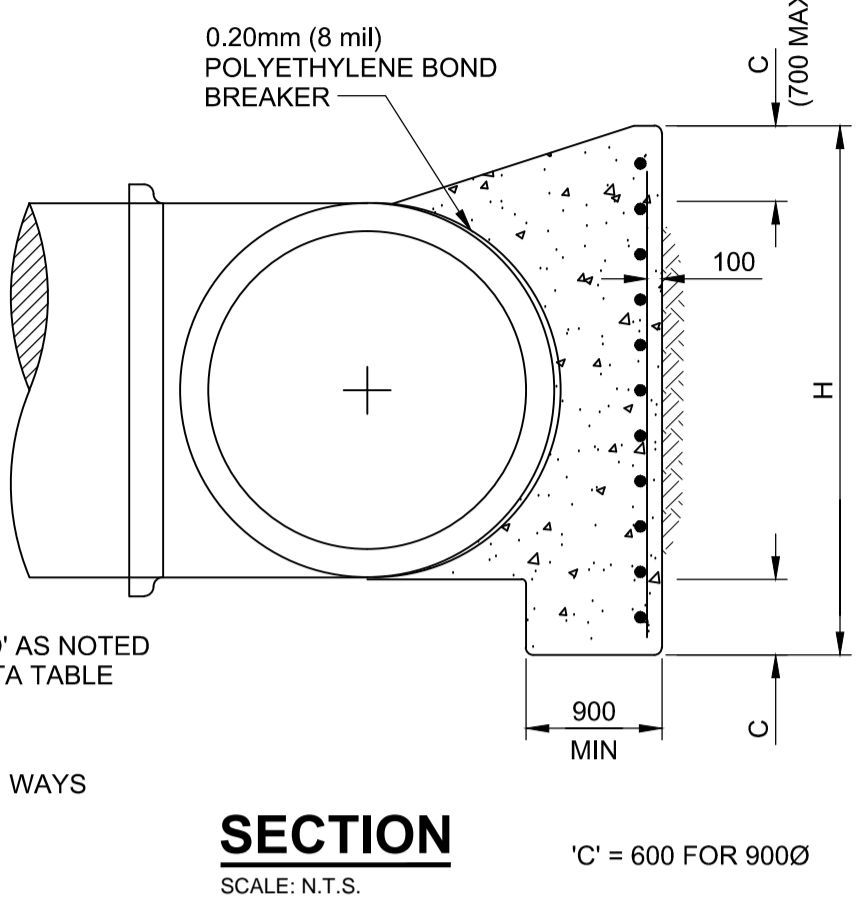
SIZE	BEARING AREA A (m ²)	H (m)	W (m)	DEFLECTION ANGLE D
9000 FM	10.85	2.40	4.55	45°
9000 FM	12.00	2.65	4.55	50°

DESIGN CRITERIA

	PRESSURE	SOIL BEARING
PRESSURE TEST	830 KPa	58 KPa
LONG TERM	700 KPa	48 KPa



PLAN
SCALE: N.T.S.

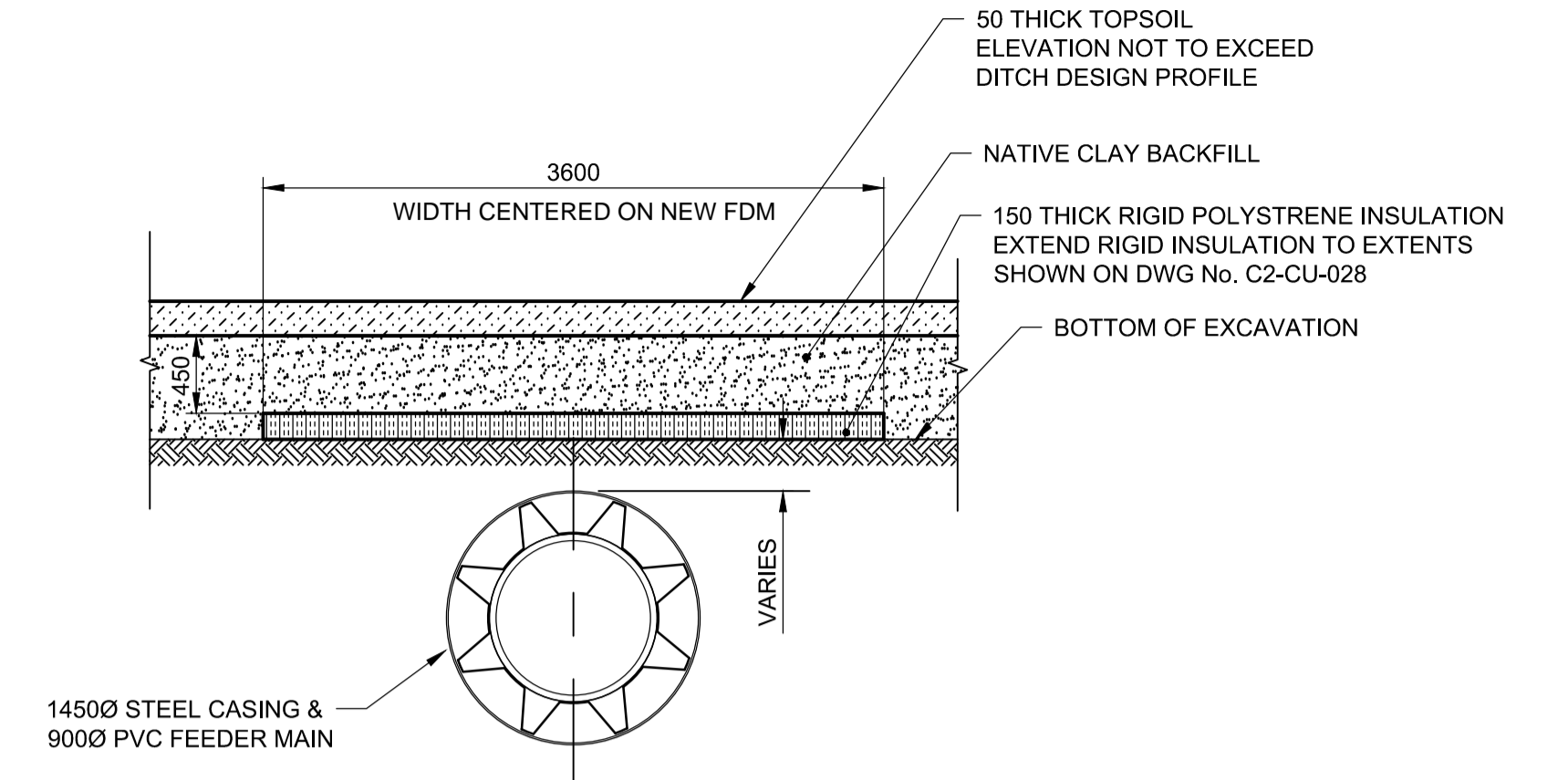


SECTION
SCALE: N.T.S.

DEFLECTION ANGLE 'D' AS NOTED IN THRUST BLOCK DATA TABLE

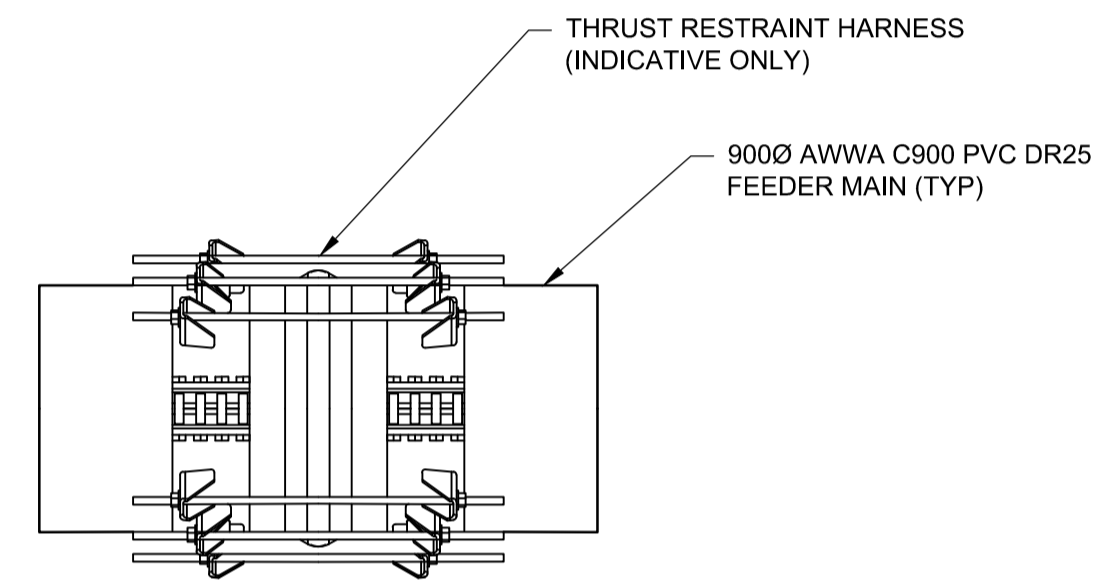
REINFORCING: 20M AT 300 O.C. BOTH WAYS

BENDS
SCALE: N.T.S.



INSULATION DETAIL FOR MIDTOWN FEEDER MAIN AT C.N. CROSSING

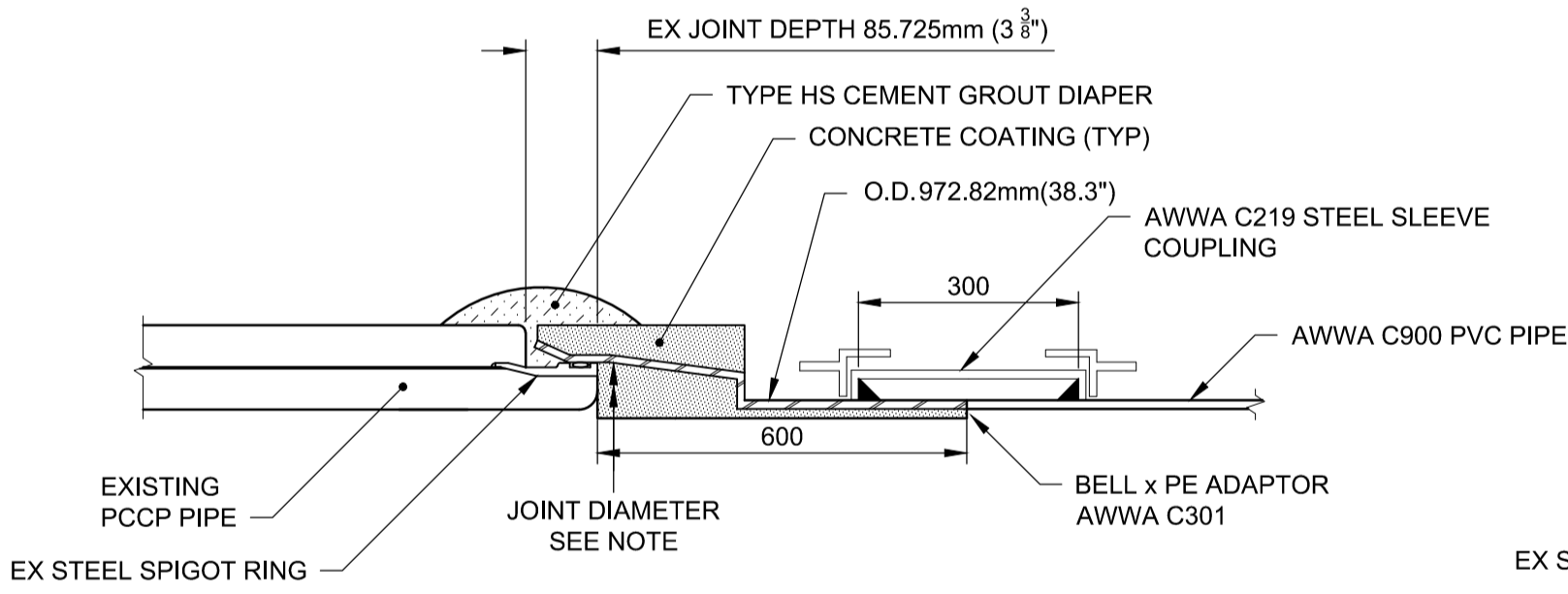
1:40



JOINT RESTRAINT DETAIL

1:25

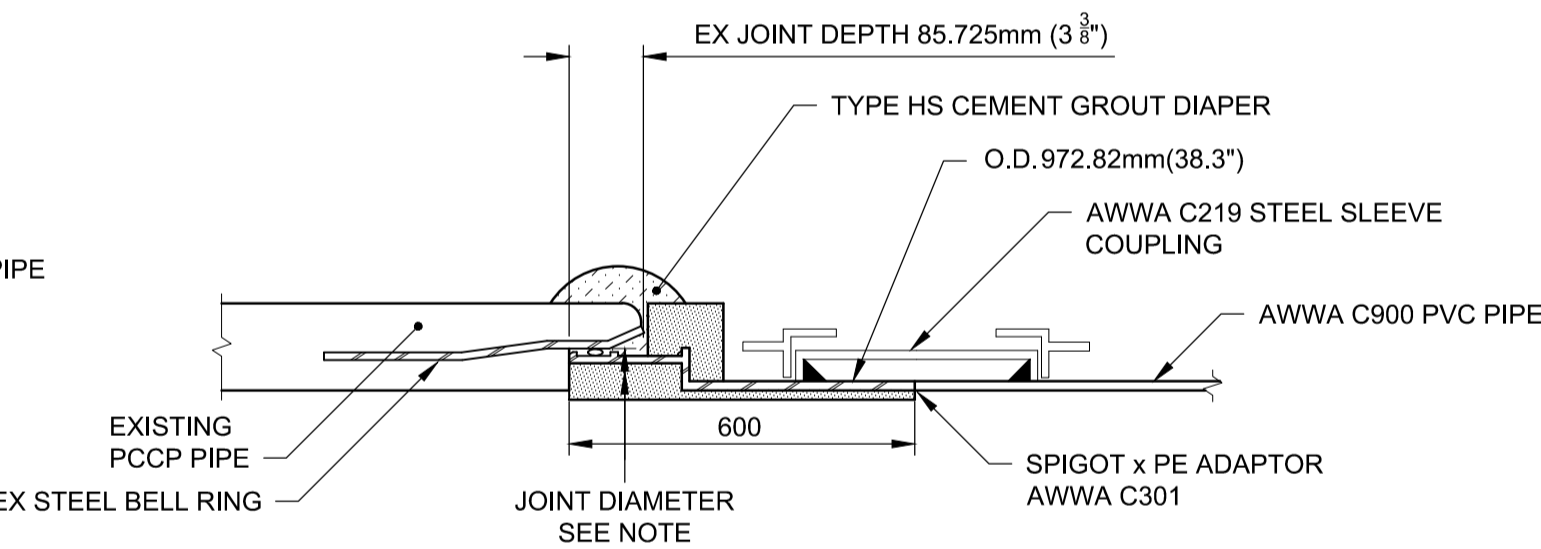
NOTE: RESTRAINT TO BE SIZED TO MATCH EITHER THE BELL OR THE PIPE BARREL AS REQUIRED FOR THE RESTRAINT SYSTEM



DETAIL

N.T.S.

EXISTING PCCP SPIGOT TO PVC CONNECTION



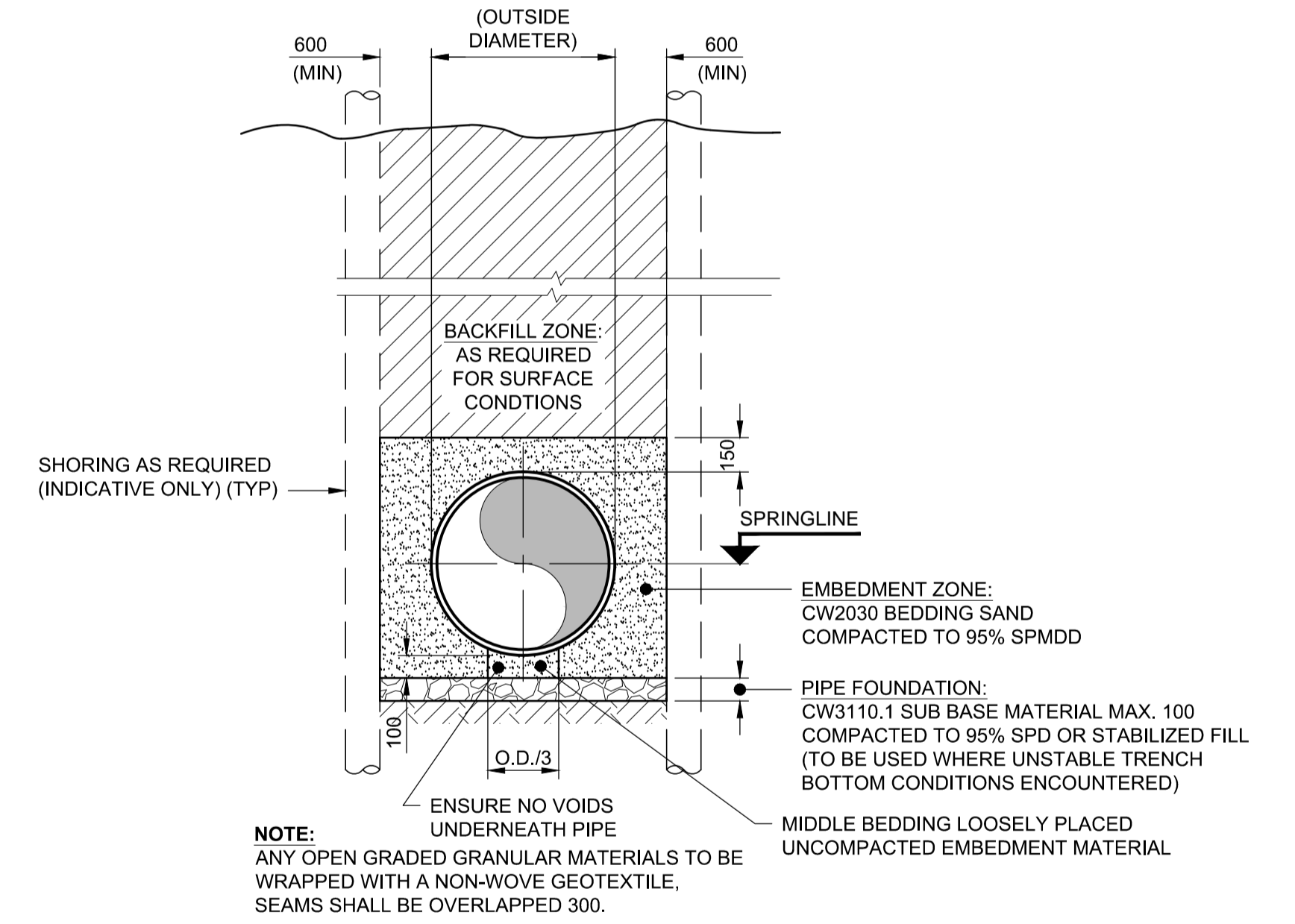
DETAIL

N.T.S.

EXISTING PCCP BELL TO PVC CONNECTION

NOTES:

- COAT ALL EXPOSED STEEL INCLUDING PIPE COUPLING AS PER AWWA C210
- WRAP COUPLINGS & STEEL COMPONENTS WITH PETROLATUM CORROSION PROTECTION WRAP
- CONFIRM O' RING DIAMETERS
- GROUT INTERIOR GAP
- CONTRACTOR TO CONFIRM JOINT DIAMETERS PRIOR TO PROCUREMENT OF ADAPTORS
- JOINT DIAMETERS:
 - 900 (NOM) Ø: 990.6mm (39")



DETAIL

MIDTOWN FEEDER MAIN & CASING INSTALLATION (TRENCH DETAIL)

N.T.S.

WARNING

IF POWER EQUIPMENT OR EXPLOSIVES ARE TO BE USED FOR EXCAVATION ON THIS PROJECT THE CONTRACTOR MUST:

- NOTIFY THE GAS COMPANY OF THE PROPOSED LOCATION OF EXCAVATION.
- TAKE PRECAUTION TO AVOID DAMAGE TO GAS COMPANY INSTALLATIONS SEE PROVINCIAL REGULATION 210/72 FOR DETAILS.
- OBTAIN EXCAVATION PERMITS PRIOR TO CONSTRUCTION.

150 WM	150 WM	150 WM	150 WM	150 WM	150 WM	150 WM	150 WM
HYDRANT	HYDRANT	SURVEY BAR	SURVEY BAR	HYDRANT	HYDRANT	LAND DRAINAGE SEWER	LAND DRAINAGE SEWER
VALVE	VALVE	CURB STOP	CURB STOP	VALVE	VALVE	WASTE WATER SEWER	WASTE WATER SEWER
LAND DRAINAGE SEWER	LAND DRAINAGE SEWER	REDUCER	REDUCER	LAND DRAINAGE SEWER	LAND DRAINAGE SEWER	SEWER SERVICE PIPE	SEWER SERVICE PIPE
WASTE WATER SEWER	WASTE WATER SEWER	COUPLING	COUPLING	WASTE WATER SEWER	WASTE WATER SEWER	SEWER SERVICE PIPE	SEWER SERVICE PIPE
SEWER SERVICE PIPE	SEWER SERVICE PIPE	ANODE	ANODE	PAVEMENT CROWN	PAVEMENT CROWN	SEWER SERVICE PIPE	SEWER SERVICE PIPE
DRAINAGE CONNECTION PIPE	DRAINAGE CONNECTION PIPE	HYDRO	HYDRO	N/W PROPERTY LINE	N/W PROPERTY LINE	DRAINAGE CONNECTION PIPE	DRAINAGE CONNECTION PIPE
MANHOLE	MANHOLE	MTS	MTS	S/E PROPERTY LINE	S/E PROPERTY LINE	MANHOLE	MANHOLE
CATCH BASIN	CATCH BASIN	GAS	GAS	N/W GUTTER	N/W GUTTER	CATCH BASIN	CATCH BASIN
CURB INLET	CURB INLET	TESTHOLE	TESTHOLE	S/E GUTTER	S/E GUTTER	CURB INLET	CURB INLET
CULVERT	CULVERT	LAMP STANDARD	LAMP STANDARD	S/E GUTTER	S/E GUTTER	CULVERT	CULVERT
EXISTING	NEW	EXISTING	NEW	EXISTING	NEW	EXISTING	NEW

UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES DATE

LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

B.M. ELEV.	NO.	REVISIONS	DATE	BY
	2	ISSUED FOR ADDENDUM 5	17/03/02	WJd
	1	ISSUED FOR ADDENDUM 1	17/01/25	DKD
	0	ISSUED FOR TENDER	17/01/09	DKD

DESIGNED BY		CHECKED BY	
ADB			
DRAWN BY		APPROVED BY	
WJd			
HOR. SCALE		RELEASED FOR CONSTRUCTION	
AS NOTED			
VERTICAL		DATE	
AS NOTED			

ENGINEER'S SEAL	CONSULTANT PROJECT NUMBER
A. D. BRAUN Member 24453 REGISTERED PROFESSIONAL ENGINEER	60321148

THE CITY OF WINNIPEG PUBLIC WORKS DEPARTMENT	
WAVERLEY STREET UNDERPASS AT CN MILE 3.89 RIVERS SUB CONTRACT 2: UNDERPASS STRUCTURE, RAILWORKS, ROADWORKS, LAND DRAINAGE SEWER, PUMPING STATION AND LANDSCAPING WORKS	CITY DRAWING NUMBER U239-2016-C2-CU-030
EXISTING MIDTOWN FEEDER MAIN RAIL CROSSING FM OFF-LINE REPLACEMENT DETAILS 2	SHEET 30 OF 41
	CONSULTANT DRAWING NUMBER C2-CU-030

APEGM
Certificate of Authorization
AECOM Canada Ltd.
No. 4671 Date: _____

METRIC

WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

BID OPPORTUNITY NO. 473-2016

PA:60321148-900-Work\9100-DD CAD 200-SHEETS\Municipal\63353-C2-CU-Midtown FM Off-line Replacement.dwg