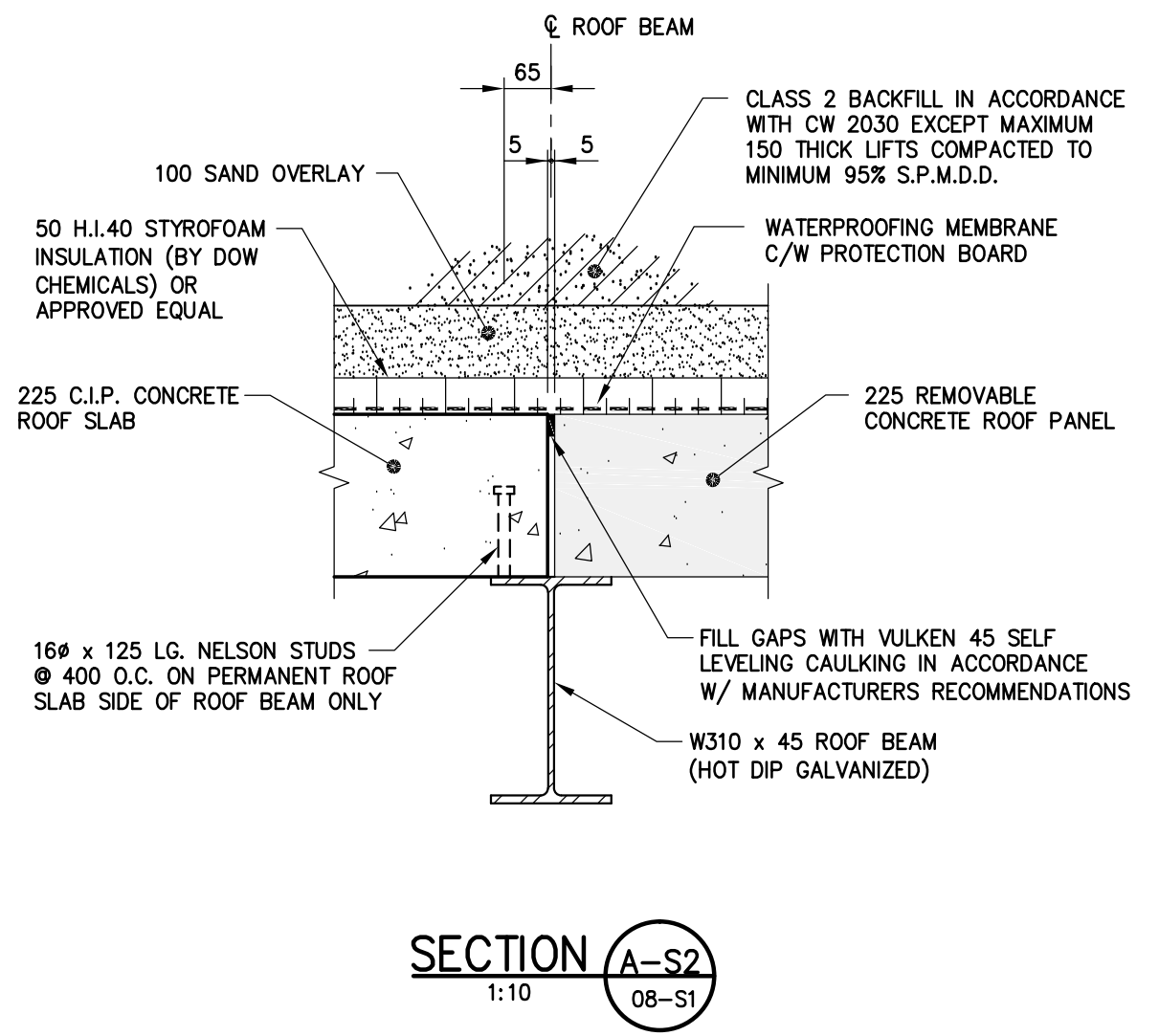
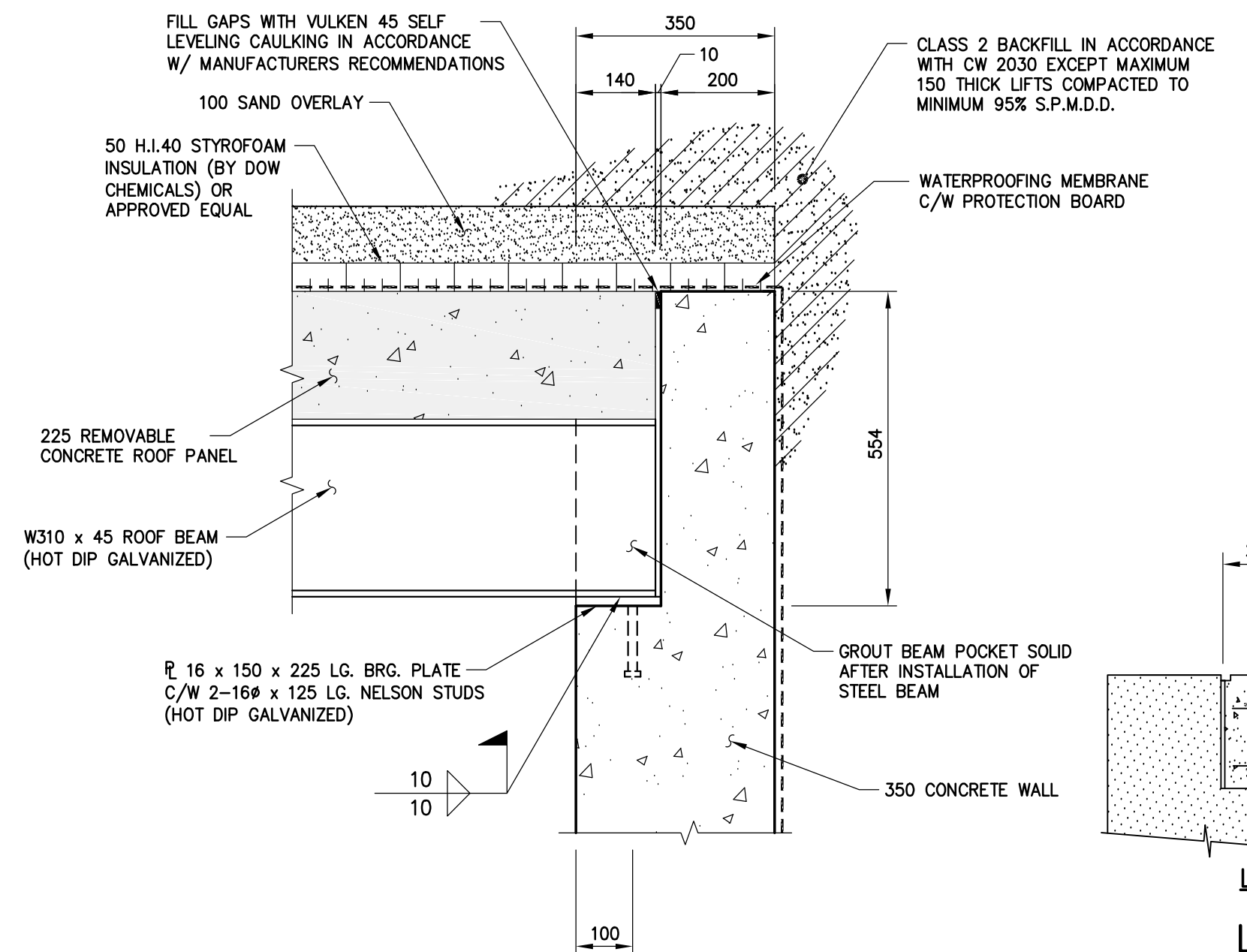


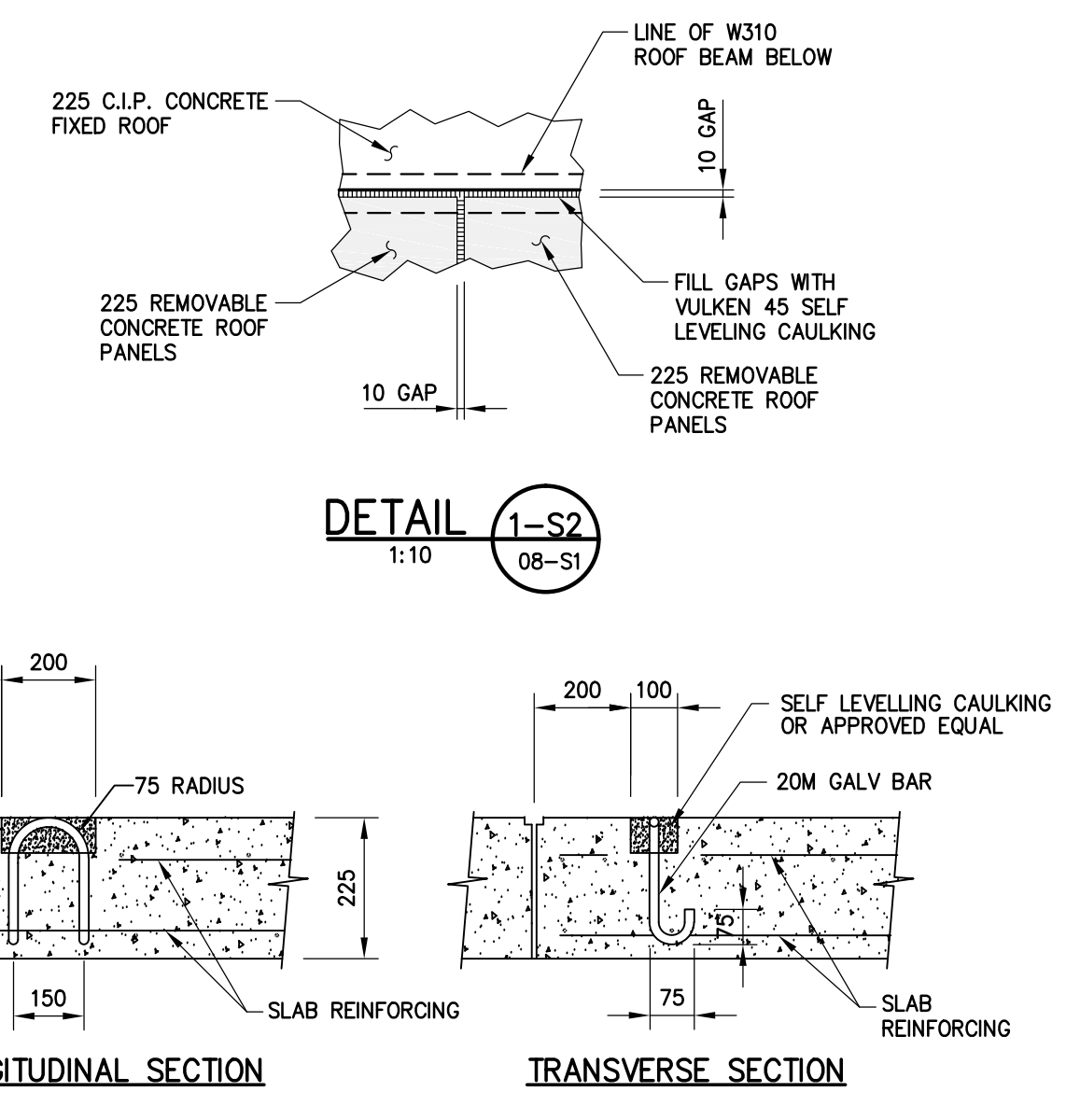
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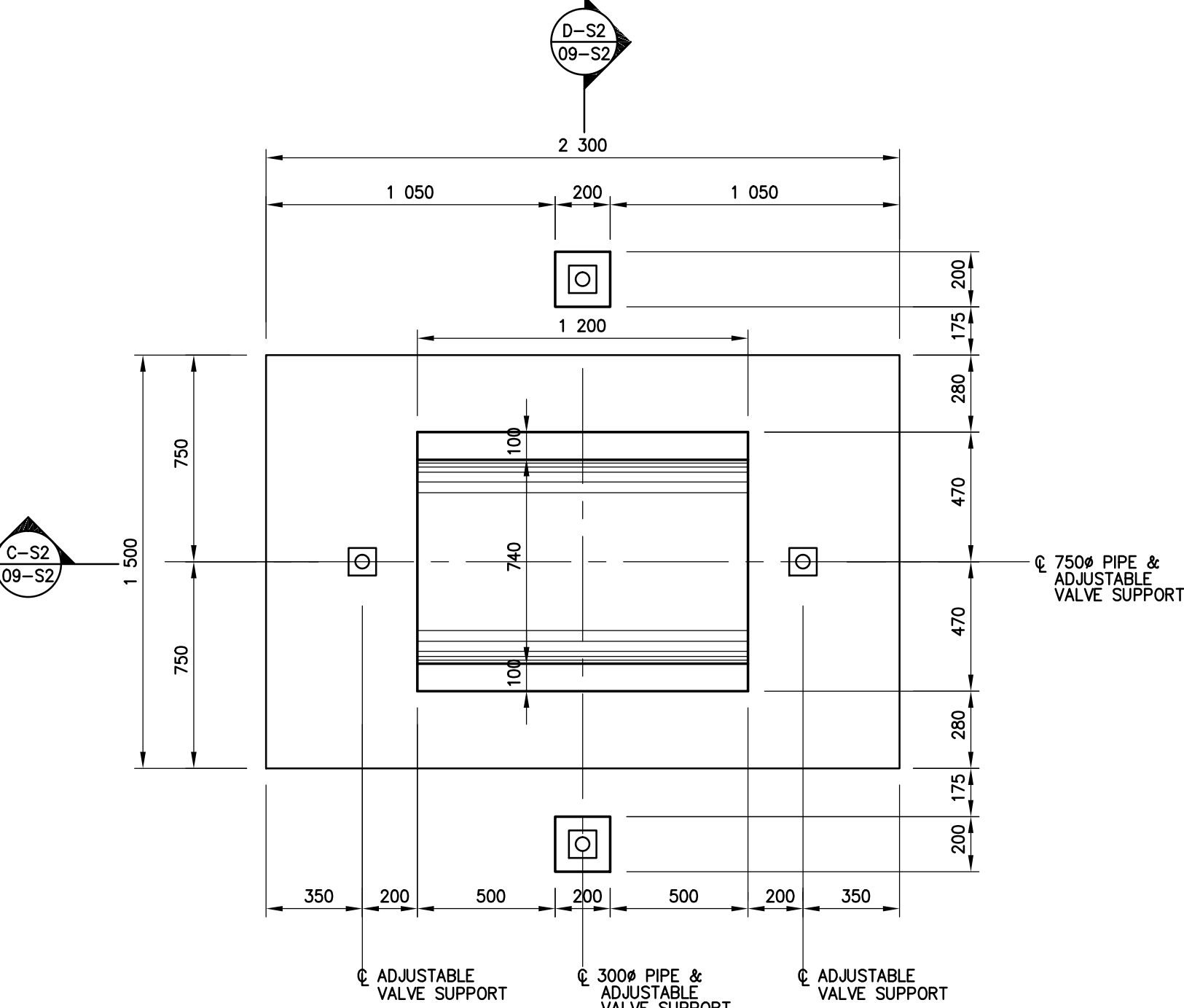
SECTION A-S2
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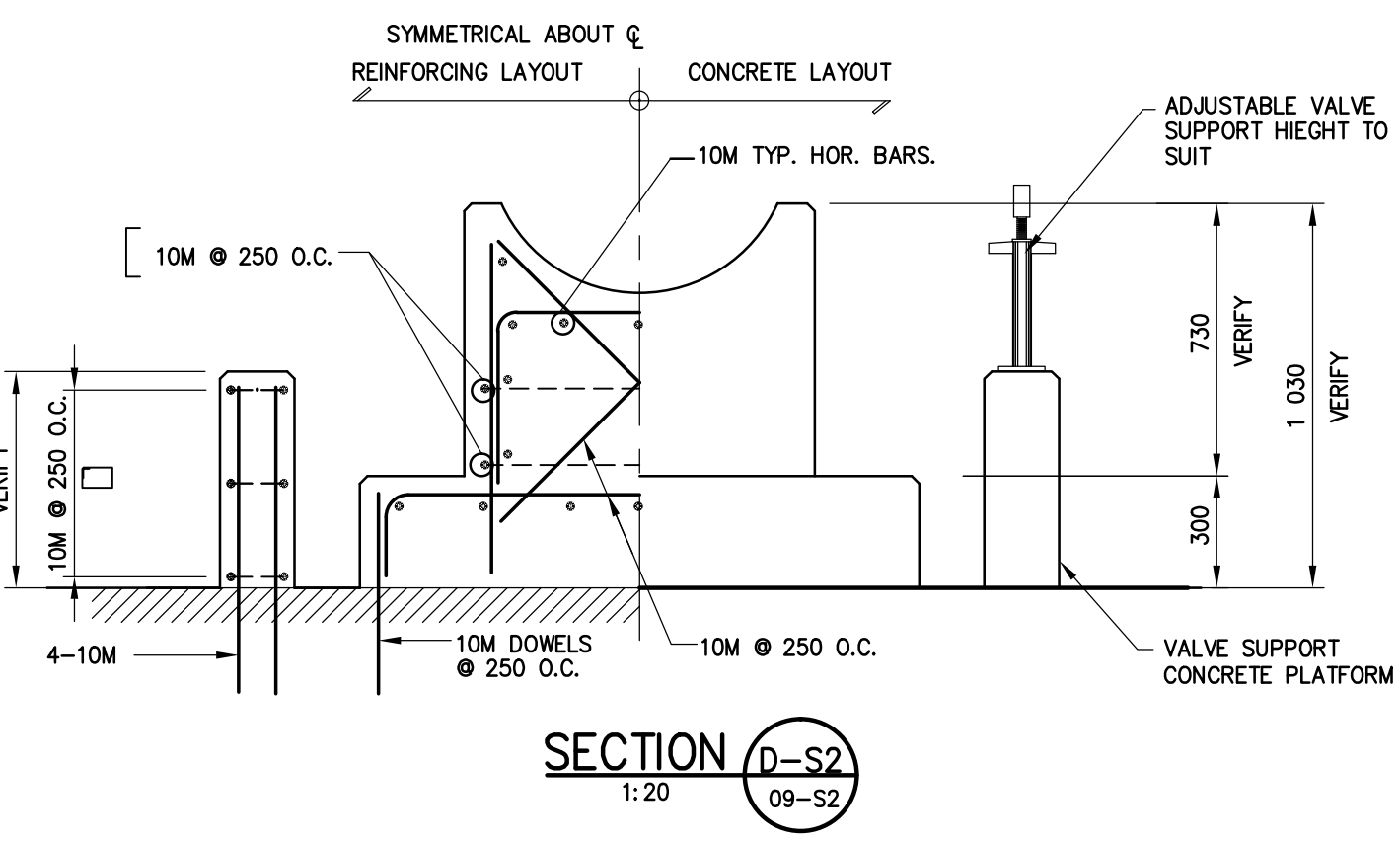
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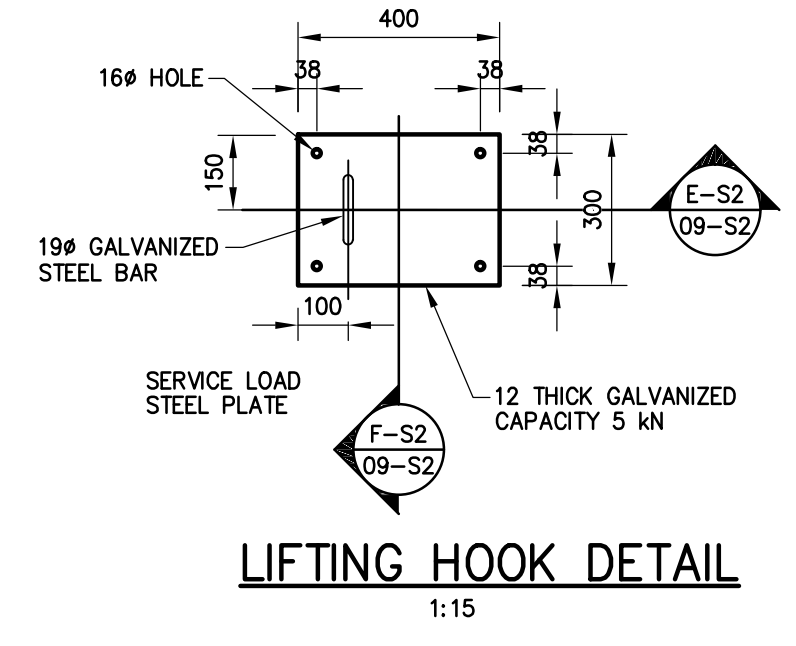
LONGITUDINAL SECTION
 TRANSVERSE SECTION
 LIFTING LUG DETAILS FOR REMOVABLE PANELS
 1:15



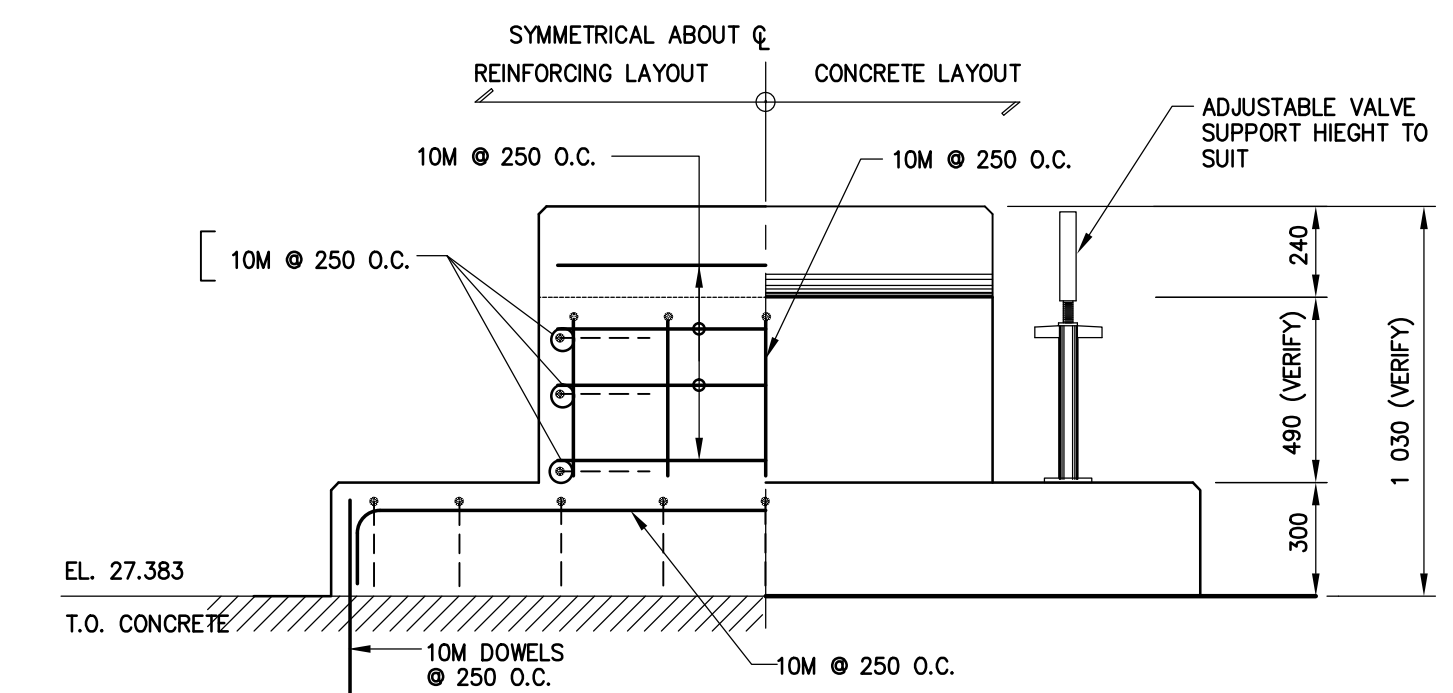
PIPE CROSS BENCHING LAYOUT
1:20



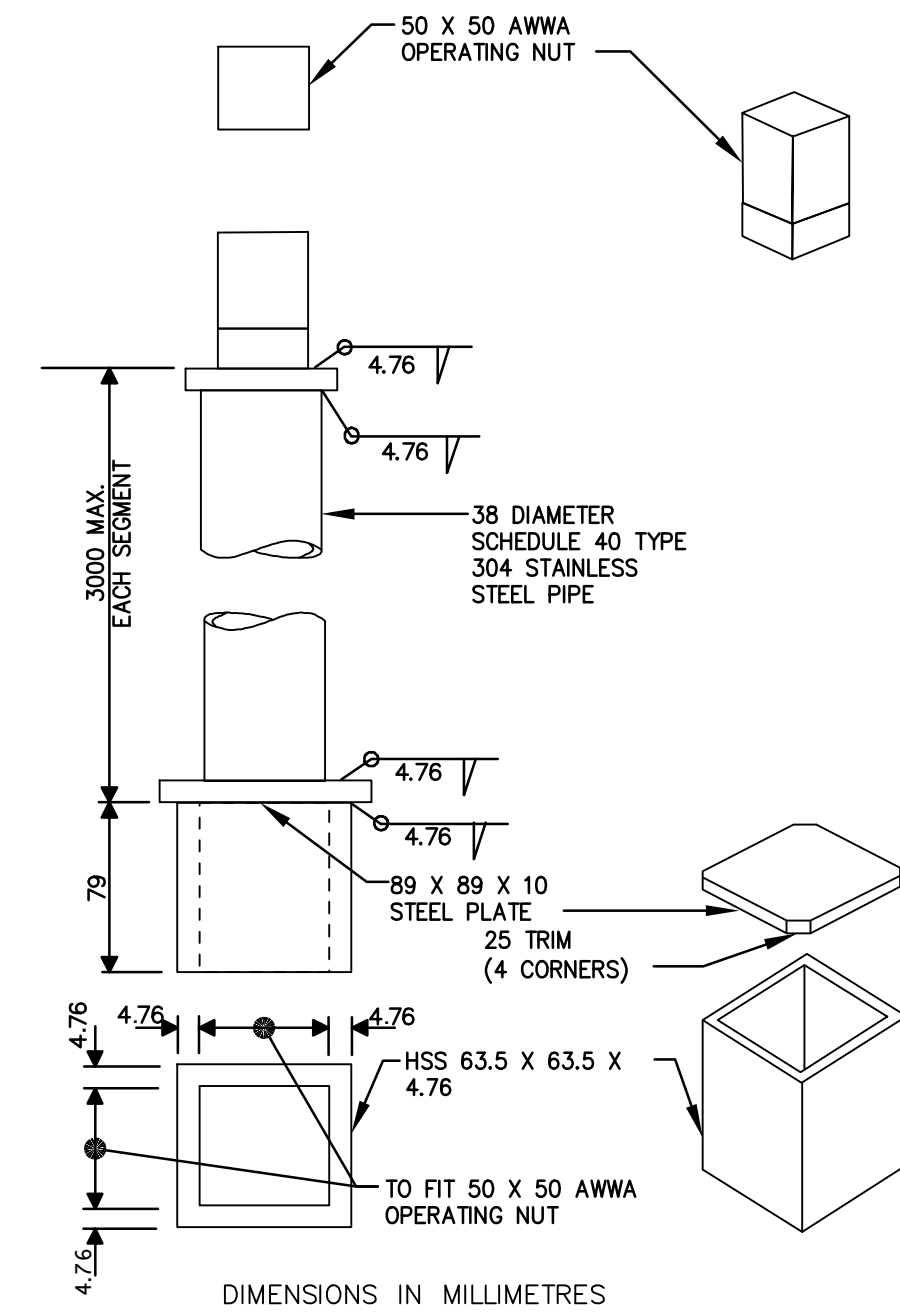
SECTION D-S2
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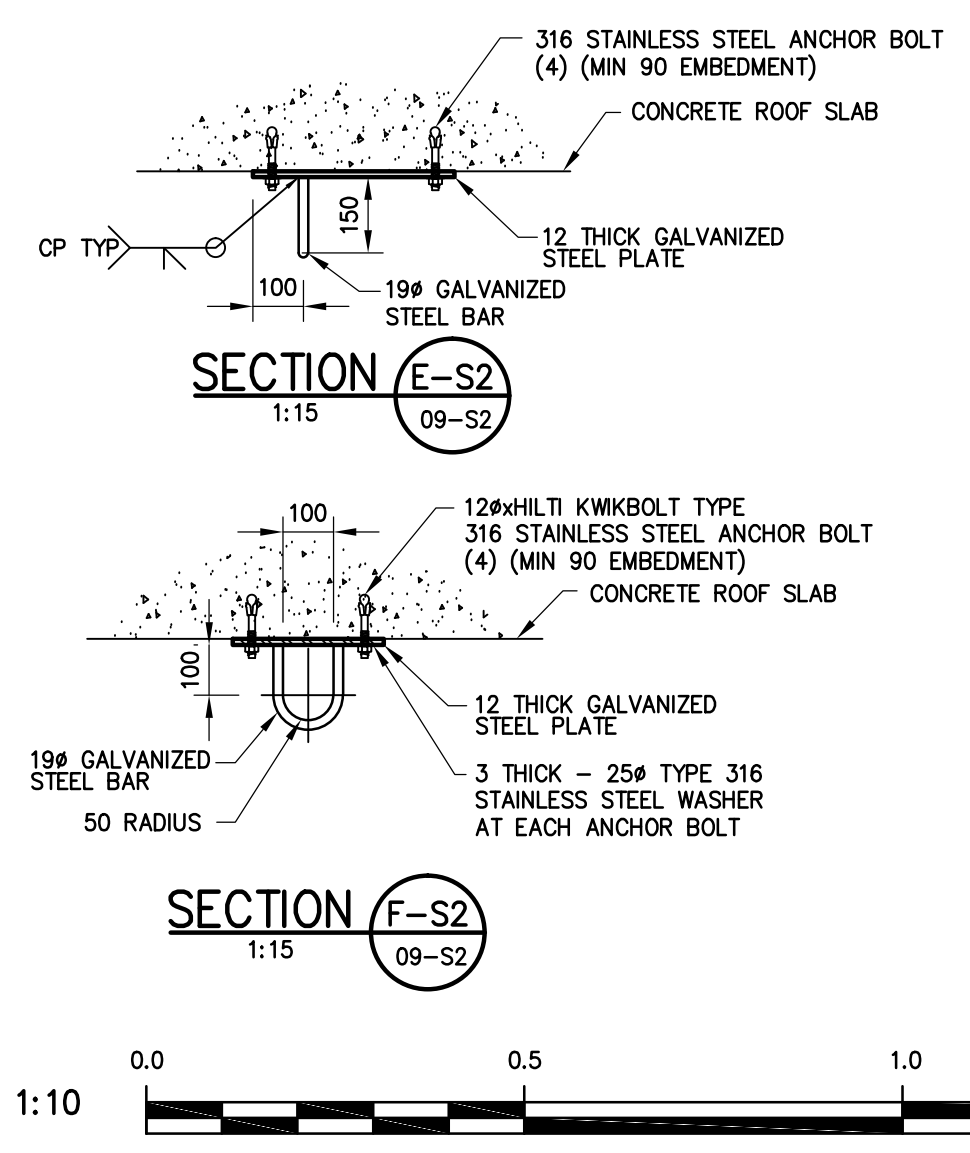
LIFTING HOOK DETAIL
1:15



SECTION C-S2
1:20



VALVE STEM EXTENSION
N.T.S.



SECTION E-S2
1:15

SECTION F-S2
1:15



GENERAL NOTES:

- DESIGN IS IN ACCORDANCE WITH THE NATIONAL BUILDING CODE OF CANADA 1995 EDITION PLUS 1998 MANITOBA AMENDMENTS. CONCRETE WALLS ARE DESIGNED IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN ACI 350R FOR WATERTIGHT STRUCTURES.
- EXCAVATE ALL TOP SOIL, ORGANIC MATERIAL AND LOOSE OR UNSUITABLE FILL TO THE APPROVAL OF THE CONTRACT ADMINISTRATOR.
- THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXISTENCE, LOCATION AND ELEVATION OF ALL UTILITIES AND/OR CONCEALED STRUCTURES AT THE PROJECT SITE, AND SHALL BE RESPONSIBLE FOR NOTIFYING THE APPROPRIATE COMPANY, DEPARTMENT OR PERSON(S) OF ITS INTENTION TO CARRY OUT ITS OPERATIONS.
- CONSTRUCTION JOINT LOCATIONS ARE TO BE APPROVED BY THE CONTRACT ADMINISTRATOR.
- DO NOT SCALE THE DRAWINGS.
- VERIFY ALL DIMENSIONS, ELEVATIONS AND SCOPE OF WORK PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- VERIFY ALL MECHANICAL OPENINGS.
- VERIFY ANY MAJOR OPENINGS THAT ARE REQUIRED BUT NOT SHOWN ON THE DRAWINGS WITH THE CONTRACT ADMINISTRATOR.
- STRUCTURAL DRAWINGS SHOW THE COMPLETED STRUCTURE. THEY DO NOT SHOW THE COMPONENTS WHICH MAY BE NECESSARY FOR SAFETY DURING CONSTRUCTION.
- THE CONTRACTOR IS RESPONSIBLE FOR SAFETY IN AND ABOUT THE JOB SITE DURING CONSTRUCTION.
- IF ANY UNSOUND STRUCTURAL CONDITIONS ARE OBSERVED OR CREATED DURING CONSTRUCTION, REPORT THEM IMMEDIATELY TO THE CONTRACT ADMINISTRATOR.
- STRUCTURAL DRAWINGS MAY NOT SHOW ALL MECHANICAL OPENINGS. REFER TO MECHANICAL DRAWINGS FOR ACTUAL LOCATIONS AND ELEVATIONS OF OPENINGS. NOTIFY THE CONTRACT ADMINISTRATOR OF ANY ADDITIONAL OPENING REQUIREMENTS.
- DESIGN LOADS ARE AS NOTED BELOW:

FLOOR LIVE LOADS:	3.6 kPa
ALL AREAS	
ROOF LIVE LOADS:	6.0 kPa
ALL AREAS	
FOUNDATION WALL LOADS:	6.0 kPa ADDITIONAL CONSTRUCTION LOAD
LIVE LOAD	$P = K_0 (\gamma \times H + q)$
LATERAL FORCE	WHERE $K_0 = 0.7$, $\gamma = 20 \text{ kN/m}^3$, $H = \text{HT. OF FILL (m)}$, $q = 6.0 \text{ kPa}$

FOUNDATIONS:

- FOUNDATIONS DESIGNED IN ACCORDANCE WITH RECOMMENDATIONS CONTAINED IN THE MAY 19 2010 GEOTECHNICAL INVESTIGATION BY DYREGROV CONSULTANTS.
- ALL GRANULAR BACKFILL SHALL BE COMPACTED IN MAXIMUM 150mm LIFTS AND COMPACTED TO 95% S.P.M.D.D. UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL NOT USE HEAVY COMPACTION EQUIPMENT OVER ROOF OF CHAMBER.

CAST IN PLACE CONCRETE:

- TO BE READ IN CONJUNCTION WITH CW 2160 AND AS AMENDED IN ACCORDANCE WITH THESE NOTES.
- CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF CSA A23.1.
- CONCRETE MIX SHALL BE IN ACCORDANCE WITH ALTERNATIVE 1, AND SHALL HAVE THE FOLLOWING PROPERTIES:
 - CEMENT TYPE 50
 - CLASS OF EXPOSURE: S-1
 - MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS: 35MPa
 - MAXIMUM SLUMP: 80mm ± 20mm
 - AIR CONTENT: 5 - 8%
 - MAXIMUM WATER/CEMENT RATIO: 0.40
 - CONCRETE COVER SHALL BE 50mm.
- FORMWORK, SHORING AND BRACING SHALL MEET DESIGN CODE AND CSA A23.1 REQUIREMENTS, AND BE CONSTRUCTED ACCURATELY SO THAT RESULTANT FINISHED CONCRETE CONFORMS TO THE SHAPES, LINES AND DIMENSIONS INDICATED ON THE DRAWINGS. DRAWINGS FOR SHORING SHALL BE SUBMITTED TO CONTRACT ADMINISTRATOR BEARING THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA.
- FOR COLD WEATHER CONCRETING, ALL ICE, SNOW AND FROST SHALL BE REMOVED FROM THE FORMWORK. CONCRETE SHALL NOT BE PLACED AGAINST ANY CONTACT SURFACE, INCLUDING REINFORCING STEEL, THAT WILL LOWER THE TEMPERATURE OF THE CONCRETE BELOW 10° C. CONCRETE SHALL NOT BE LESS THAN 10° C NOR MORE THAN 30° C WHEN DEPOSITED. CONCRETE SHALL BE ENCLOSED, AND THIS AREA SHALL HAVE A TEMPERATURE OF NOT LESS THAN 10° C FOR A PERIOD OF 5 DAYS.
- THREE CONCRETE TEST CYLINDERS AND ONE SLUMP/AIR TEST SHALL BE TAKEN EACH DAY THAT CONCRETE IS PLACED, AND SHALL BE REPEATED FOR EVERY 20 m³ OF CONCRETE PLACED EACH DAY UNLESS OTHERWISE DIRECTED BY THE CONTRACT ADMINISTRATOR.
- NOTIFY THE CONTRACT ADMINISTRATOR OR TESTING AGENCY 48 HOURS PRIOR TO PLACING CONCRETE.
- EXTERIOR SURFACES OF CHAMBER TO BE COVERED WITH WATERPROOFING MEMBRANE C/W PROTECTION BOARD.

REINFORCING STEEL:

- TO BE READ IN CONJUNCTION WITH CW 2160 AND AS AMENDED IN ACCORDANCE WITH THESE NOTES.
- ALL REINFORCING STEEL SHALL CONFORM TO CSA G30.18M, GRADE 400.
- PERFORM CONCRETE REINFORCING WORK IN ACCORDANCE WITH CSA A23.1.
- LAPS SHALL BE AT LEAST 40 BAR DIAMETERS, LOCATE REINFORCING SPLICES NOT INDICATED IN THE DRAWINGS AT POINTS OF MINIMUM STRESS.
- BEFORE PLACING CONCRETE, ENSURE REINFORCING IS CLEAN, FREE OF LOOSE SCALE, DIRT OR OTHER FOREIGN MATTER THAT WOULD REDUCE OR PREVENT BOND TO THE CONCRETE.
- SHOP DRAWINGS SHALL BE SUBMITTED WHICH CLEARLY INDICATE BAR SIZES, SPACINGS, LOCATIONS AND QUANTITIES OF REINFORCING STEEL.

STRUCTURAL STEEL:

- ALL STRUCTURAL STEEL SHAPES AND PLATES SHALL BE IN ACCORDANCE WITH CSA G40.21-M, GRADE 300W, EXCEPT W, HP AND HSS SECTIONS WHICH SHALL BE GRADE 350W CLASS C.
- ALL GALVANIZING SHALL COMPLY WITH THE LATEST EDITION OF CSA G164, WITH MINIMUM ZINC COATING OF 600g/m². TOUCH UPS TO BE MADE WITH GALVALLOY OR GAL-VZ.
- ALL BOLTS TO BE ASTM A316 STAINLESS STEEL, UNLESS OTHERWISE INDICATED.

METRIC
 WHOLE NUMBERS INDICATE MILLIMETRES
 DECIMALIZED NUMBERS INDICATE METRES

APEGM
 Certificate of Authorization
 MMM Group Limited
 No. 4531 Date: June 14, 2010

MMM GROUP
 MMM Group Limited
 Suite 111 - 93 Lombard Ave.
 Winnipeg, MB R3B 3B1
 T: 204-943-3178
 F: 204-943-4949
 www.mmm.ca

DESIGNED BY	EH	CHECKED BY	JPL
DRAWN BY	RCS	APPROVED BY	-
HOR. SCALE	AS SHOWN	RELEASED FOR CONSTRUCTION	-
VERTICAL	-	DATE	-

ENGINEER'S SEAL
E. HO
 Member
 22317
 PROVINCE OF MANITOBA
 REGISTERED PROFESSIONAL ENGINEER

THE CITY OF WINNIPEG
 WATER AND WASTE DEPARTMENT

2010 FEEDERMAIN INSTALLATION AND ASSOCIATED WORKS
BISON DRIVE
OFFTAKE VALVE CHAMBER
CONCRETE DETAILS 2 OF 2

CONSULTANT DRAWING NUMBER
550911-S2

SHEET
9 OF 10

CITY DRAWING NUMBER
D12120

NOTE:
 These design documents are prepared solely for the use by the party with whom the design professional has entered into a contract and there are no representations of any kind made by the design professional to any party with whom the design professional has not entered into a contract.

A = DETAIL/SECTION No.
 B = DRAWING WHERE SHOWN
 C = DRAWING WHERE TAKEN