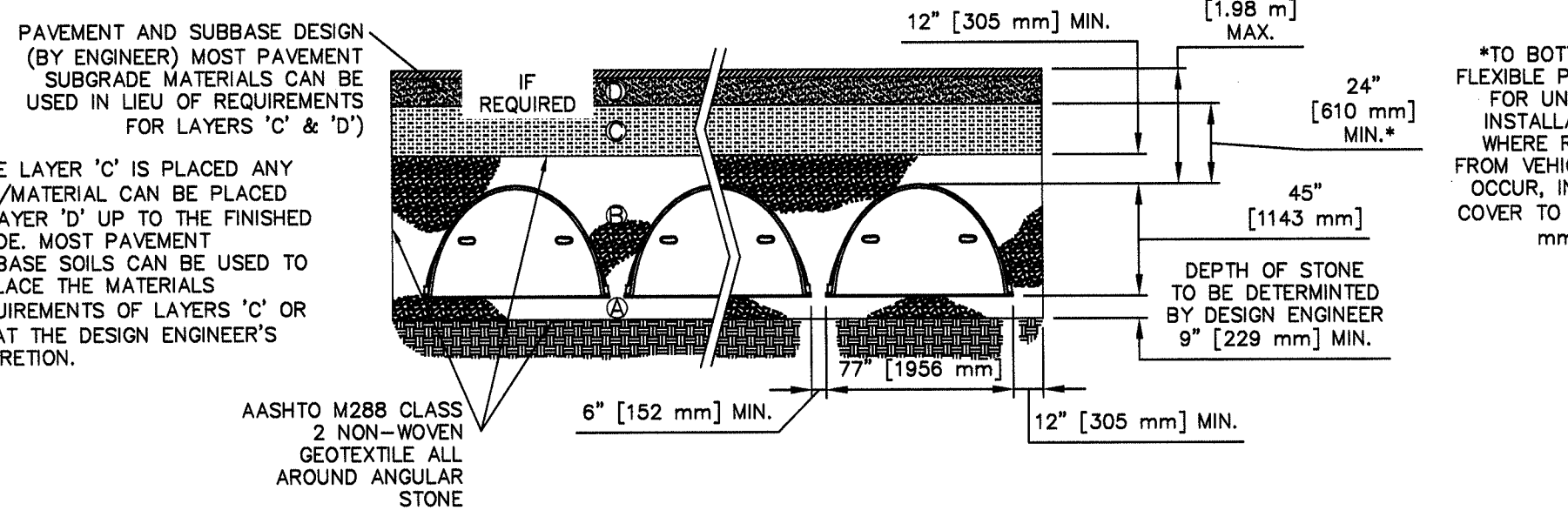
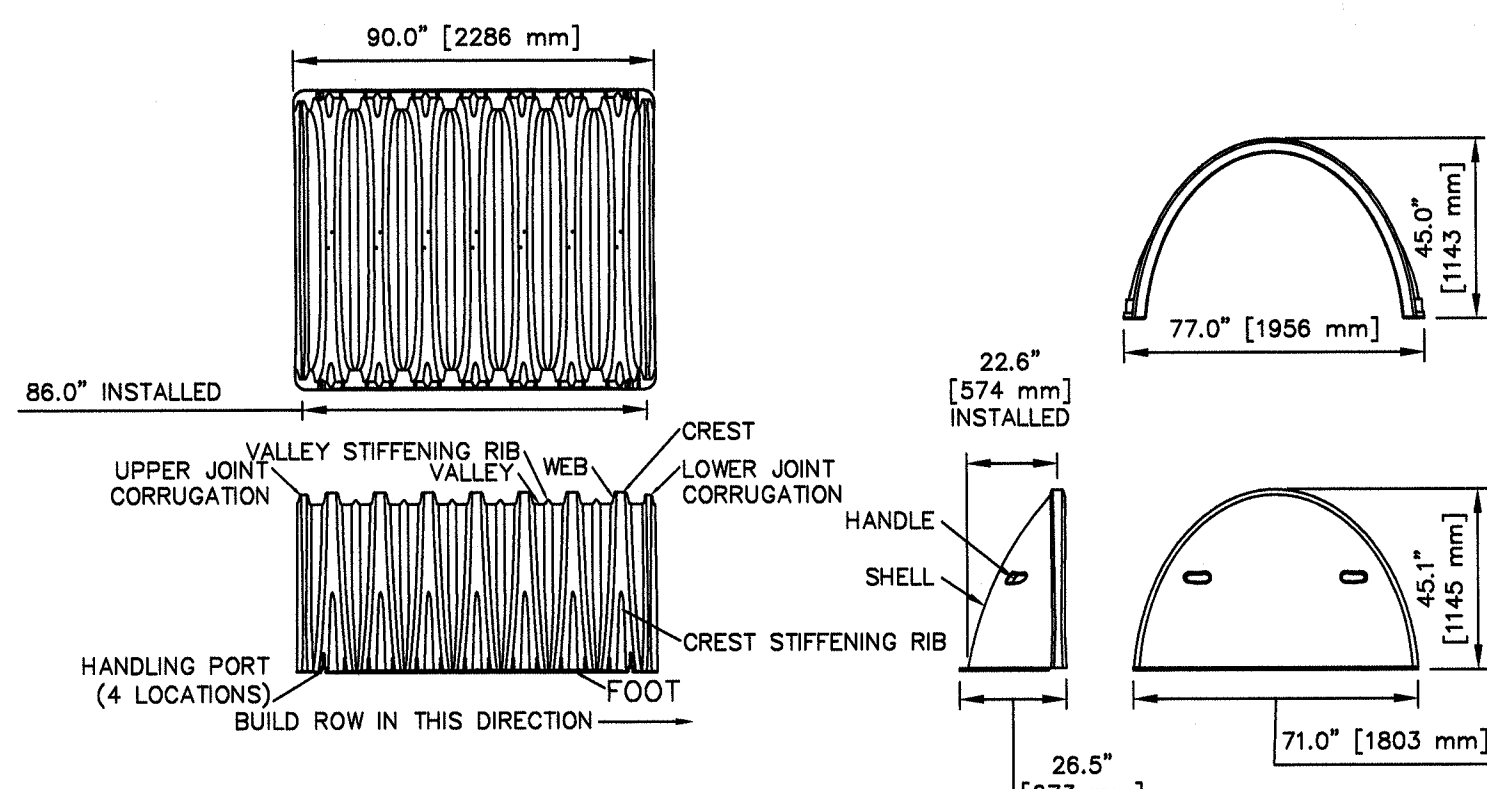


MATERIAL LOCATION	DESCRIPTION	AASHTO M43 DESIGNATION	COMPACTION/DENSITY REQUIREMENT
① FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRONGER MATERIAL AND PREPARATION REQUIREMENTS.
② FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE (8" LAYER) TO 24" [610 mm] ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THIS LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES < 35% FINES. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTION AFTER 24" [610 mm] OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" [152 mm] MAX LIFTS TO A MIN. 95% STANDARD PROCTOR DENSITY.
③ EMBEDMENT STONE SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4 - 2 INCH [19 - 51 mm]	467, 5, 56, 57	NO COMPACTION REQUIRED.
④ FOUNDATION STONE BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4 - 2 INCH [19 - 51 mm]	3, 35, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A 95% STANDARD PROCTOR DENSITY.

PLEASE NOTE:
 1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: 'CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE.'
 2. AS AN ALTERNATE TO PROCTOR TESTING AND FIELD DENSITY MEASUREMENTS ON OPEN GRADED STONE, STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTIONED IN 8" (229 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH AN APPROPRIATE COMPACTOR.



STORMTECH MC-3500 ACCEPTABLE FILL
NOT TO SCALE



NOMINAL MC-3500 CHAMBER SPECIFICATIONS

SIZE (L x W x H)	90" x 77" x 45" [2286 mm x 1956 mm x 1143 mm]
CHAMBER STORAGE	113.0 ft ³ [3.20 m ³]
MINIMUM INSTALLED STORAGE	178.8 ft ³ [5.01 m ³]
WEIGHT	124 lbs. [56.2 kg]

NOMINAL MC-3500 END CAP SPECIFICATIONS

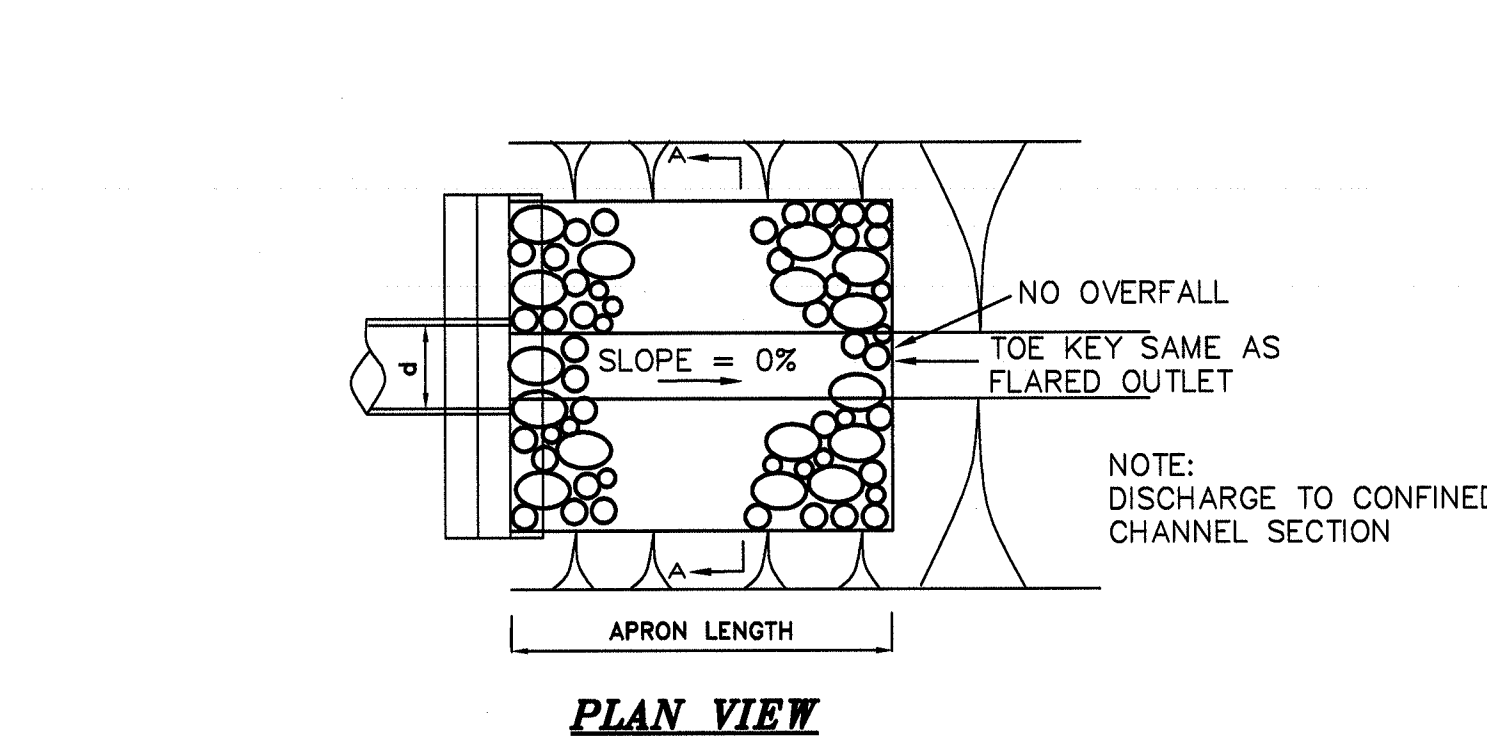
SIZE (L x W x H)	25.5" x 71" x 45" [673 mm x 1803 mm x 1143 mm]
ENDCAP STORAGE	15.6 ft ³ [0.44 m ³]
MINIMUM INSTALLED STORAGE	45.6 ft ³ [1.29 m ³]
WEIGHT	43 lbs. [19.5 kg]

PART NUMBERS ENDING WITH "B" ARE FOR STUBS AT BOTTOM OF END CAP. PART NUMBERS ENDING WITH "T" ARE FOR STUBS AT TOP OF END CAP.

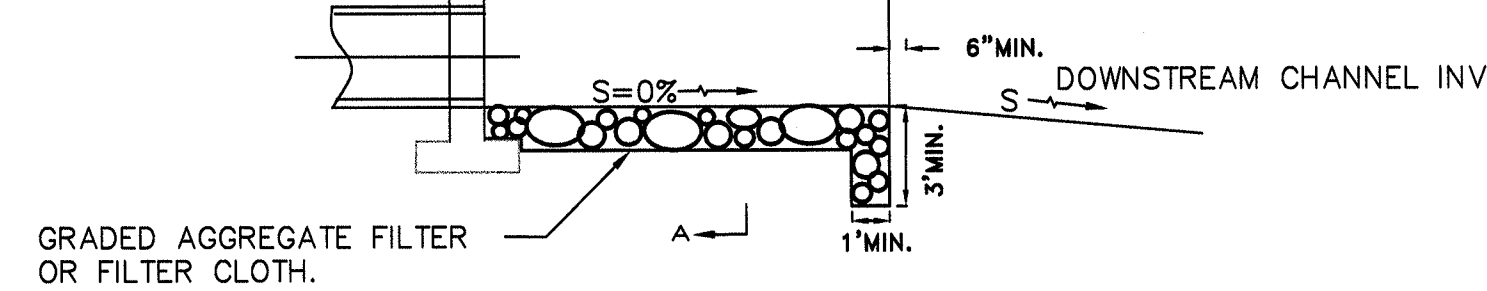
PARTS	STUB	B	C
MC3500TEPE12T	12" [300 mm]	26.36" [670 mm]	N/A
MC3500TEPE12B	12" [300 mm]	N/A	1.35" [34 mm]
MC3500TEPE15T	15" [375 mm]	23.39" [594 mm]	N/A
MC3500TEPE15B	15" [375 mm]	N/A	1.50" [38 mm]
MC3500TEPE18T	18" [450 mm]	20.03" [509 mm]	N/A
MC3500TEPE18B	18" [450 mm]	N/A	1.77" [45 mm]
24" STUB CORED ENDCAP NOT AVAILABLE			
MC3500TEPE24B	24" [600 mm]	N/A	2.06" [52 mm]

NOTE: ALL DIMENSIONS ARE NOMINAL. STORMTECH INVENTORED MANIFOLDS AND PRECORED END CAPS INCLUDE 24" (600 MM) BOTTOM (MC3500TEPE24B), 18" (450 MM) BOTTOM (MC3500TEPE18B) AND 15" (375 MM) TOP (MC3500TEPE15T). OTHER PIPE SIZES AND PRECORED END CAPS ARE AVAILABLE UPON SPECIAL ORDER.

MC-3500 TECHNICAL SPECIFICATIONS
NOT TO SCALE

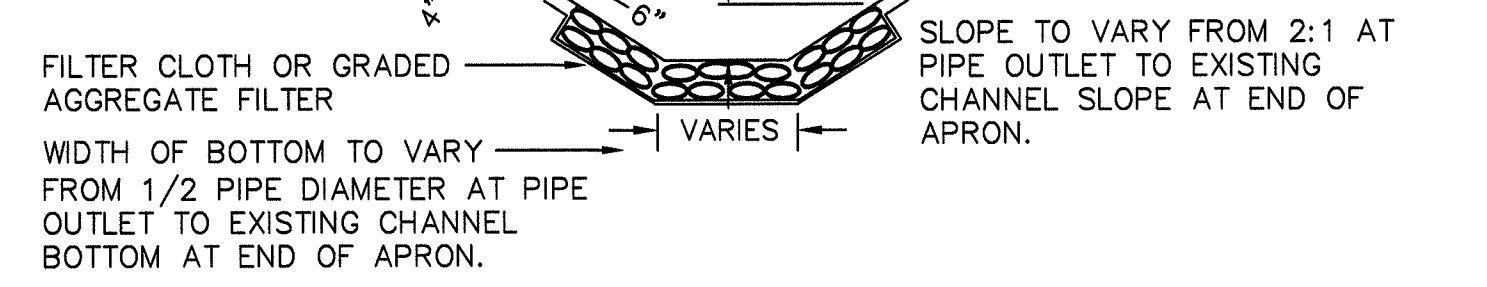


PLAN VIEW



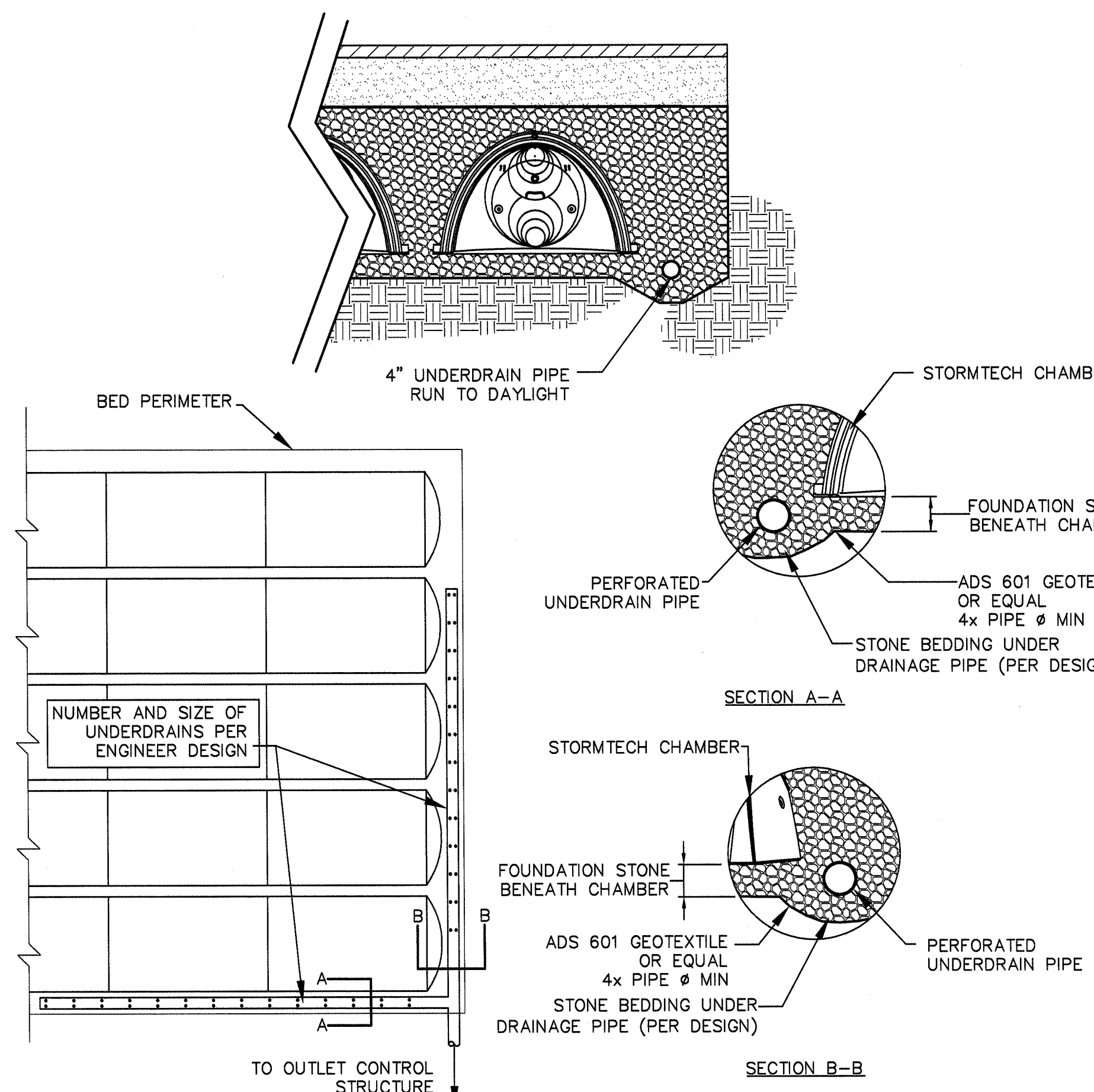
PROFILE VIEW

MINIMUM DEPTH OF RIPRAP = MAXIMUM DEPTH OF FLOW (DOWNSTREAM NORMAL DEPTH OR DISCHARGE DEPTH, WHICHEVER IS GREATER).

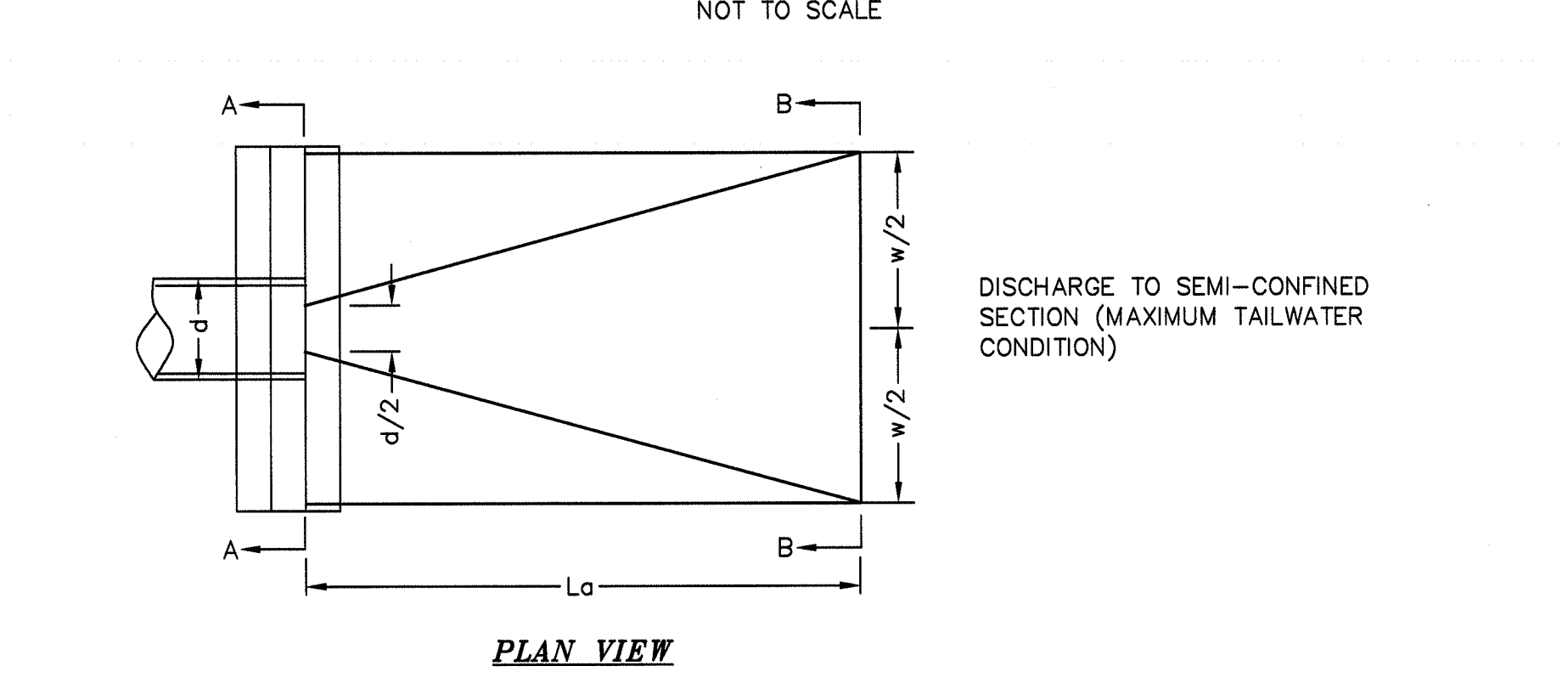


CROSS SECTION A-A

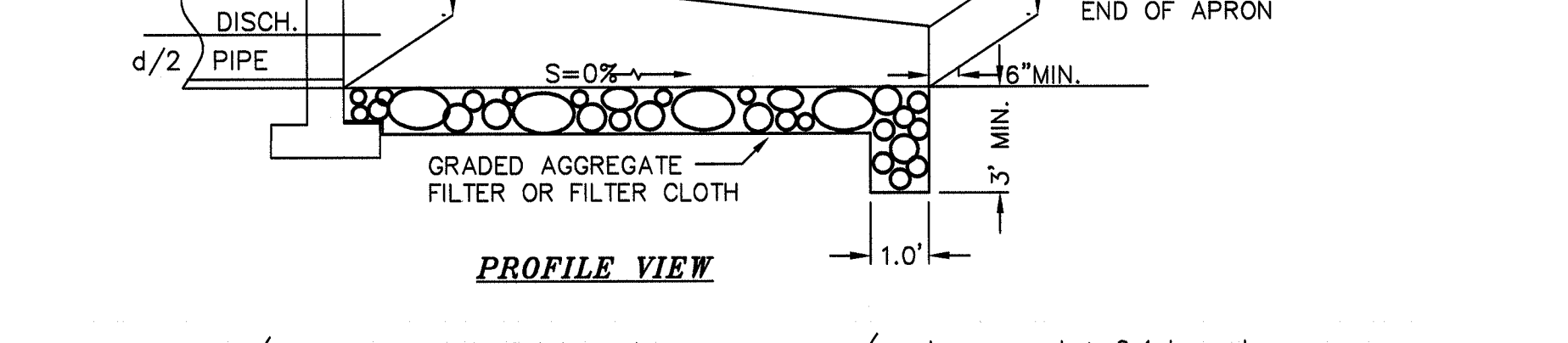
RIP RAP OUTLET PROTECTION TO DOWNSTREAM CHANNEL
NOT TO SCALE



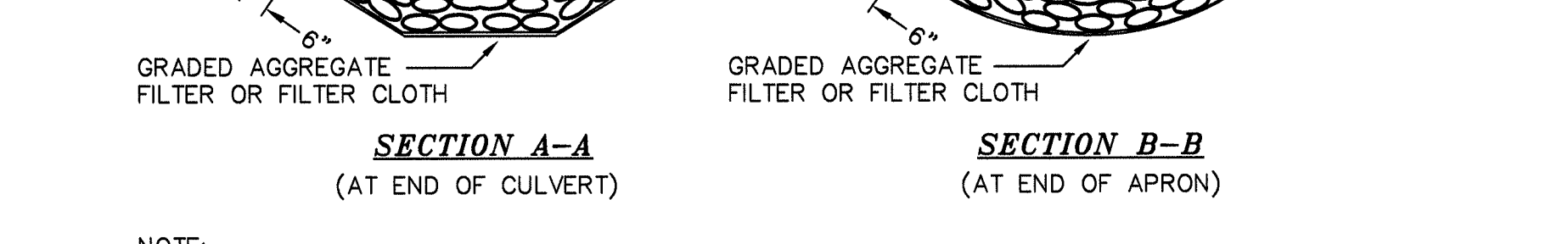
TYPICAL UNDERDRAIN LAYOUT
NOT TO SCALE



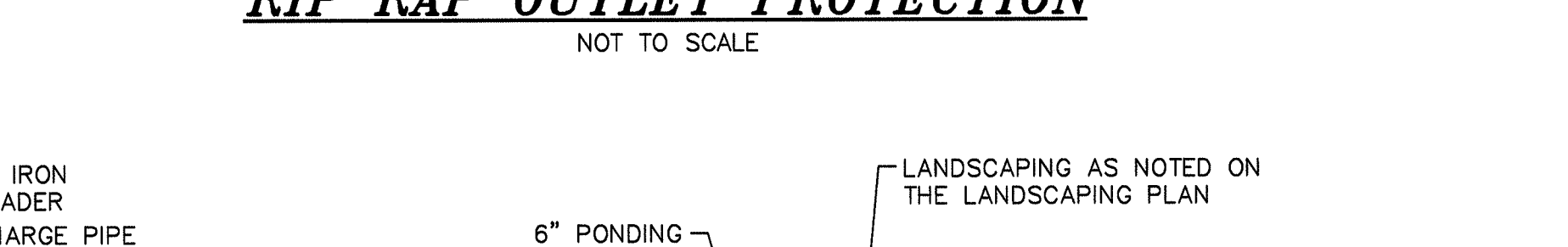
PLAN VIEW



PROFILE VIEW

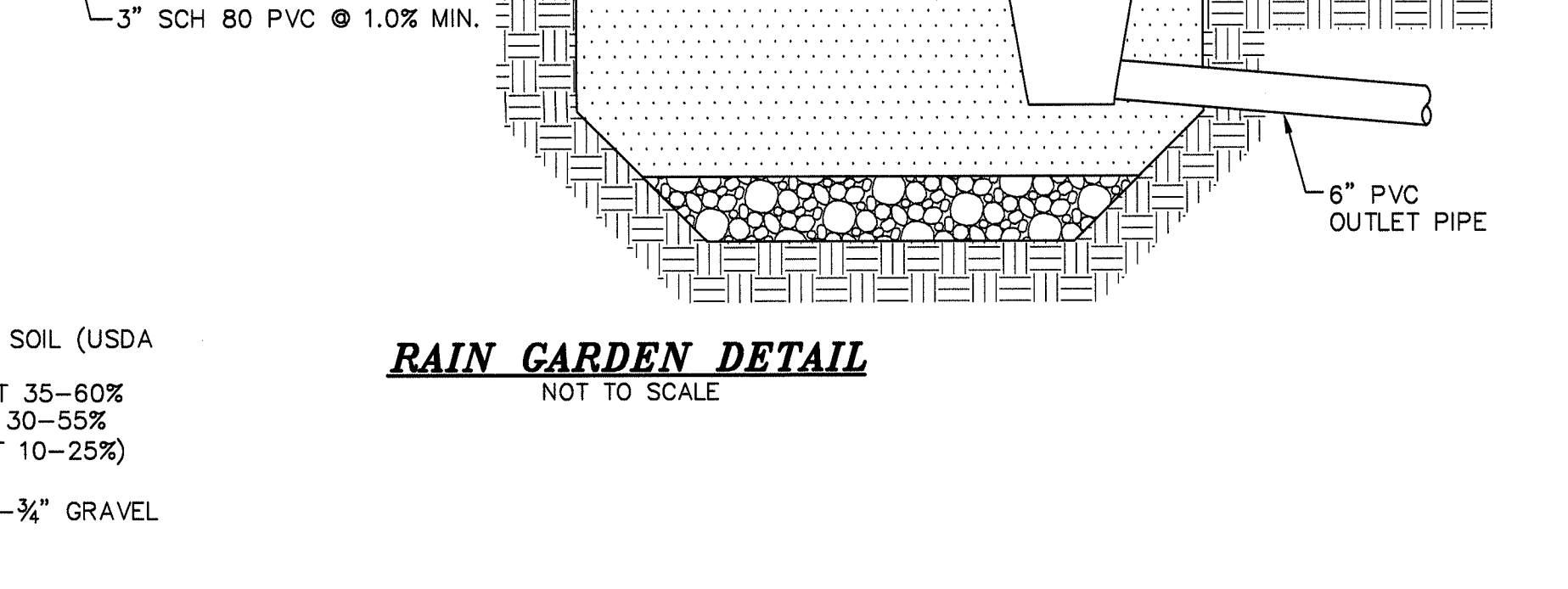


SECTION A-A (AT END OF CULVERT)

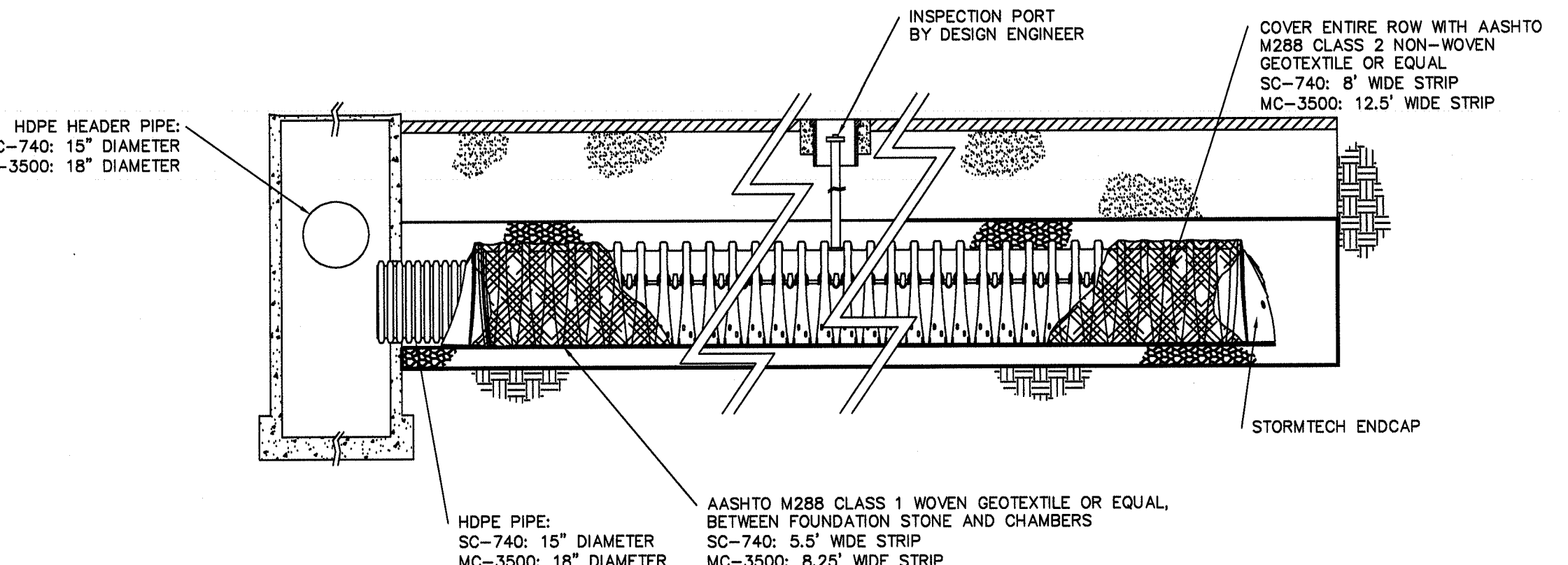


SECTION B-B (AT END OF APRON)

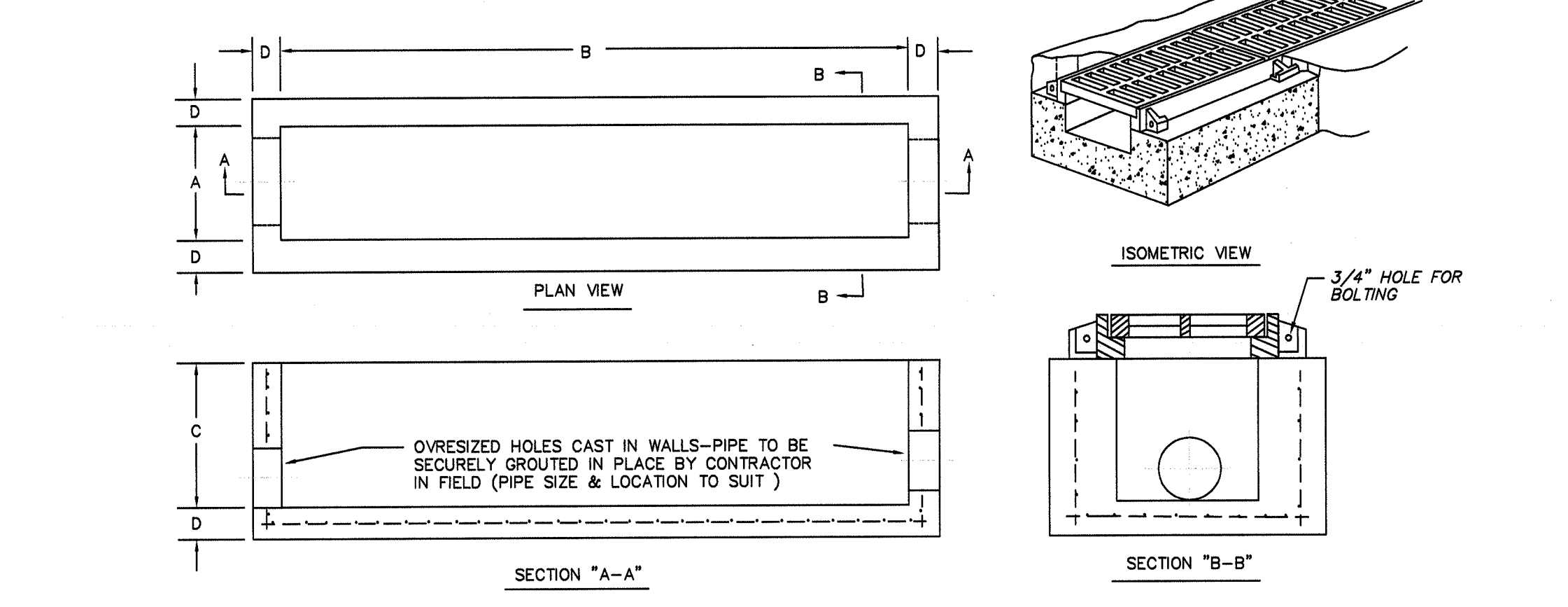
RIP RAP OUTLET PROTECTION
NOT TO SCALE



RAIN GARDEN DETAIL
NOT TO SCALE



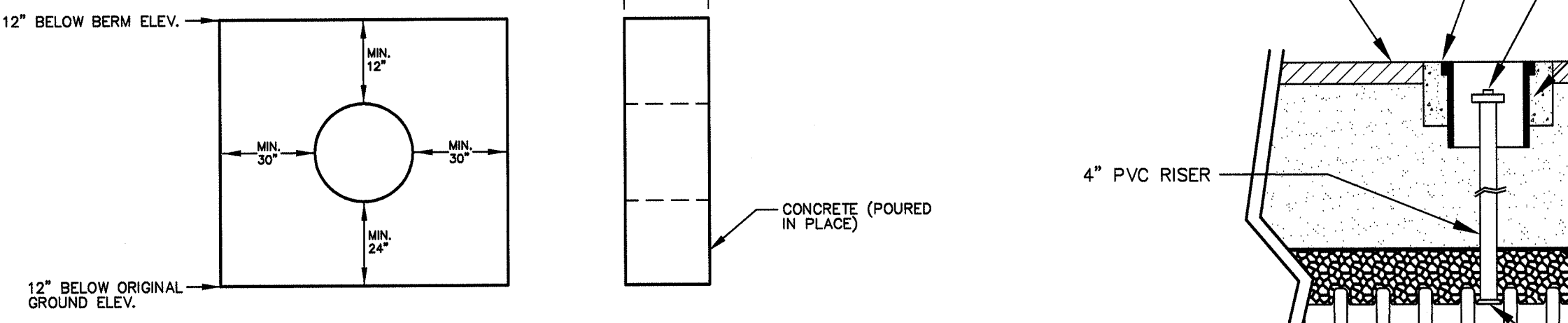
ISOLATOR ROW PROFILE
NOT TO SCALE



DIMENSION SCHEDULE

1. PRECAST CONCRETE TRENCH DRAIN AS MANUFACTURED BY PRECAST CONCRETE SALES COMPANY.
2. CONCRETE TO TEST 4000 PSI @ 28 DAYS.
3. HEAVY DUTY CAST IRON GRATES:
 - 12" WIDE, MODEL PCS-4527
 - 18" WIDE, MODEL PCB-4528

PRECASE CONCRETE TRENCH DRAIN
NOT TO SCALE



ANTI - SEEP COLLAR DETAIL
NOT TO SCALE

1. WHEN CASTING ANTI-SEEP COLLAR, EXCAVATION SHALL BE DONE BY HAND TO MINIMIZE DISTURBANCE TO SURROUNDING MATERIAL.
2. CONCRETE STRENGTH 3500 PSI AT 28 DAYS
3. OUTLET PIPE FOR RETENTION BASIN TO HAVE TWO COLLARS IF OUTLET LENGTH EXCEEDS 45 FEET.
4. ANTI-SEEP COLLARS SHALL BE PROVIDED WHERE NECESSARY.

INSPECTION PORT DETAIL
NOT TO SCALE

COPIES FROM THE ORIGINAL OF THIS DOCUMENT NOT MARKED WITH AN ORIGINAL OF THE PROFESSIONAL ENGINEER'S AND/OR LAND SURVEYOR'S STAMP OR EMBOSSED SEAL SHALL NOT BE CONSIDERED VALID, TRUE COPIES.

STORMTECH GENERAL NOTES

1. STORMTECH LLC ("STORMTECH") REQUIRES INSTALLING CONTRACTORS TO USE AND UNDERSTAND STORMTECH'S LATEST INSTALLATION INSTRUCTIONS PRIOR TO BEGINNING SYSTEM INSTALLATION.
2. OUR TECHNICAL SERVICES DEPARTMENT OFFERS INSTALLATION CONSULTATIONS TO INSTALLING CONTRACTORS. CONTACT OUR TECHNICAL SERVICES REPRESENTATIVE AT LEAST 30 DAYS PRIOR TO SYSTEM INSTALLATION TO ARRANGE A PRE-INSTALLATION CONSULTATION. OUR REPRESENTATIVE CAN THEN ANSWER QUESTIONS OR ADDRESS COMMENTS ON THE STORMTECH CHAMBER SYSTEM AND INFORM THE INSTALLING CONTRACTOR OF THE MINIMUM INSTALLATION REQUIREMENTS BEFORE BEGINNING THE SYSTEM'S CONSTRUCTION. CALL 1-888-892-2694 TO SPEAK TO A TECHNICAL SERVICE REPRESENTATIVE OR VISIT WWW.STORMTECH.COM TO RECEIVE A COPY OF OUR INSTALLATION INSTRUCTIONS.
3. STORMTECH'S REQUIREMENTS FOR SYSTEMS WITH PAVEMENT DESIGN (ASPHALT, CONCRETE PAVERS, ETC.); MINIMUM COVER IS 18 INCHES INCLUDING PAVEMENT; MAXIMUM COVER IS 96 INCHES INCLUDING PAVEMENT. FOR INSTALLATIONS THAT DO NOT INCLUDE PAVEMENT, WHERE RUTTING FROM VEHICLES MAY OCCUR, MINIMUM REQUIRED COVER IS 24 INCHES, MAXIMUM COVER IS 96 INCHES.
4. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE DESIGN ENGINEER.
5. AASHTO M288 CLASS 2 NON-WOVEN GEOTEXTILE (FILTER FABRIC) MUST BE USED AS INDICATED IN THE PROJECT PLANS.
6. STONE PLACEMENT BETWEEN CHAMBERS ROWS AND AROUND PERIMETER MUST FOLLOW INSTRUCTIONS AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.
7. BACKFILLING OVER THE CHAMBERS MUST FOLLOW REQUIREMENTS AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.
8. THE CONTRACTOR MUST REFER TO STORMTECH'S INSTALLATION INSTRUCTIONS FOR A TABLE OF ACCEPTABLE VEHICLE LOADS AT VARIOUS DEPTHS OF COVER. THIS INFORMATION IS ALSO AVAILABLE AT STORMTECH'S WEBSITE: WWW.STORMTECH.COM. THE CONTRACTOR IS RESPONSIBLE FOR PREVENTING VEHICLES THAT EXCEED STORMTECH'S REQUIREMENTS FROM TRAVELING ACROSS OR PARKING OVER THE STORMWATER SYSTEM. TEMPORARY FENCING, WARNING TAPE AND APPROPRIATELY LOCATED SIGNS ARE COMMONLY USED TO PREVENT UNAUTHORIZED VEHICLES FROM ENTERING SENSITIVE CONSTRUCTION AREAS.
9. THE CONTRACTOR MUST APPLY EROSION AND SEDIMENT CONTROL MEASURES TO PROTECT THE STORMWATER SYSTEM DURING ALL PHASES OF SITE CONSTRUCTION PER LOCAL CODES AND DESIGN ENGINEER'S SPECIFICATIONS.
10. STORMTECH PRODUCT WARRANTY IS LIMITED. SEE CURRENT PRODUCT WARRANTY FOR DETAILS TO ACQUIRE A COPY CALL STORMTECH AT 1-888-892-2694 OR VISIT WWW.STORMTECH.COM.

STORMTECH PRODUCT SPECIFICATION

1. GENERAL
 - 1.1 STORMTECH CHAMBERS ARE DESIGNED TO CONTROL STORMWATER RUNOFF. AS A SUBSURFACE RETENTION SYSTEM, STORMTECH CHAMBERS RETAIN AND ALLOW EFFECTIVE INFILTRATION OF WATER INTO THE SOIL. AS A SUBSURFACE DETENTION SYSTEM, STORMTECH CHAMBERS DETAIN AND ALLOW FOR THE METEDED FLOW OF WATER TO AN OUTFALL.
2. CHAMBER PARAMETERS
 - 2.1 THE CHAMBER SHALL BE INJECTION MOLDED OF POLYPROPYLENE RESIN TO BE INHERENTLY RESISTANT TO ENVIRONMENTAL STRESS CRACKING (ESCR), AND TO MAINTAIN ADEQUATE STIFFNESS THROUGH HIGHER TEMPERATURES EXPERIENCED DURING INSTALLATION AND SERVICE.
 - 2.2 THE NOMINAL CHAMBER DIMENSIONS OF THE STORMTECH SC-740 SHALL BE 30.0 INCHES TALL, 51.0 INCHES WIDE AND 90.7 INCHES LONG. THE NOMINAL CHAMBER DIMENSIONS OF THE STORMTECH SC-310 SHALL BE 18.0 INCHES TALL, 34.0 INCHES WIDE AND 90.7 INCHES LONG. THE INSTALLED LENGTH OF A JOINED CHAMBER SHALL BE 85.4 INCHES.
 - 2.3 THE CHAMBER SHALL HAVE A CONTINUOUSLY CURVED SECTION PROFILE.
 - 2.4 THE CHAMBER SHALL BE OPEN-BOTTOMED.
 - 2.5 THE CHAMBER SHALL INCORPORATE AN OVERLAPPING CORRUGATION JOINT SYSTEM TO ALLOW CHAMBER ROWS OF ALMOST ANY LENGTH TO BE CREATED. THE OVERLAPPING CORRUGATION JOINT SYSTEM SHALL BE EFFECTIVE WHILE ALLOWING A CHAMBER TO BE TRIMMED TO SHORTEN ITS OVERALL LENGTH.
 - 2.6 THE NOMINAL STORAGE VOLUME OF A JOINED STORMTECH SC-740 CHAMBER SHALL BE 74.9 CUBIC FEET PER CHAMBER WHEN INSTALLED PER STORMTECH'S TYPICAL DETAILS (INCLUDES THE VOLUME OF CRUSHED ANGULAR STONE WITH AN ASSUMED 40% POROSITY). THIS EQUATES TO 2.2 CUBIC FEET OF STORAGE/SQUARE FOOT OF BED. THE NOMINAL STORAGE VOLUME OF AN INSTALLED STORMTECH SC-310 CHAMBER SHALL BE 31.0 CUBIC FEET PER CHAMBER WHEN INSTALLED PER STORMTECH'S TYPICAL DETAILS (INCLUDES THE VOLUME OF CRUSHED ANGULAR STONE WITH AN ASSUMED 40% POROSITY). THIS EQUATES TO 1.3 CUBIC FEET OF STORAGE/SQUARE FOOT OF BED.
 - 2.7 THE CHAMBER SHALL HAVE FORTY-EIGHT ORIFICES PENETRATING THE SIDEWALLS TO ALLOW FOR LATERAL CONVEYANCE OF WATER.
 - 2.8 THE CHAMBER SHALL HAVE TWO ORIFICES NEAR ITS TOP TO ALLOW FOR EQUALIZATION OF AIR PRESSURE BETWEEN ITS INTERIOR AND EXTERIOR.
 - 2.9 THE CHAMBER SHALL HAVE BOTH OF ITS ENDS OPEN TO ALLOW FOR UNIMPEDED HYDRAULIC FLOWS AND VISUAL INSPECTIONS DOWN A ROW'S ENTIRE LENGTH.
 - 2.10 THE CHAMBER SHALL HAVE 14 CORRUGATIONS.
 - 2.11 THE CHAMBER SHALL HAVE A CIRCULAR, INDENTED, FLAT SURFACE ON THE TOP OF THE CHAMBER FOR AN OPTIONAL 4-INCH INSPECTION PORT.
 - 2.12 THE CHAMBER SHALL BE ANALYZED AND DESIGNED USING AASHTO METHODS FOR THERMOPLASTIC CULVERTS CONTAINED IN THE LRFD BRIDGE DESIGN SPECIFICATIONS, 2ND EDITION, INCLUDING INTERIM SPECIFICATIONS THROUGH 2001. DESIGN LIVE LOAD SHALL BE THE AASHTO HS20 TRUCK. DESIGN SHALL CONSIDER EARTH AND LIVE LOADS AS APPROPRIATE FOR THE MINIMUM TO MAXIMUM SPECIFIED DEPTH OF FILL.
 - 2.13 THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2000 CERTIFIED FACILITY.
3. END CAP PARAMETERS
 - 3.1 THE END CAP SHALL BE INJECTION MOLDED OF POLYETHYLENE RESIN TO HELP FACILITATE FACTORY MANUFACTURED PIPE FITTINGS.
 - 3.2 THE END CAP SHALL BE DESIGNED TO FIT INTO ANY CORRUGATION OF A CHAMBER, WHICH ALLOWS CAPPING A CHAMBER THAT HAS ITS LENGTH TRIMMED; SEGMENTING ROWS INTO STORAGE BASINS OF VARIOUS LENGTHS.
 - 3.3 THE END CAP SHALL HAVE SAW GUIDES TO ALLOW EASY CUTTING FOR VARIOUS DIAMETERS OF PIPE THAT MAY BE USED TO INLET THE SYSTEM.
 - 3.4 THE END CAP SHALL HAVE EXCESS STRUCTURAL ADEQUACIES TO ALLOW CUTTING AN ORIFICE OF ANY SIZE AT ANY INVERT ELEVATION.
 - 3.5 THE PRIMARY FACE OF AN END CAP SHALL BE CURVED OUTWARD TO RESIST HORIZONTAL LOADS GENERATED NEAR THE EDGES OF BEDS.
 - 3.6 THE END CAP SHALL BE MANUFACTURED IN AN ISO 9001:2000 CERTIFIED FACILITY.

LANC & TULLY
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DRAINAGE DETAILS SHEET 2 OF 2
PREPARED FOR
GLENMERE PRESERVE
VILLAGE OF FLORIDA
ORANGE COUNTY, NEW YORK

Date: OCTOBER 8, 2012
Revisions: NOVEMBER 30, 2012

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Checked By: AS NOTED
Scale: AS NOTED
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