

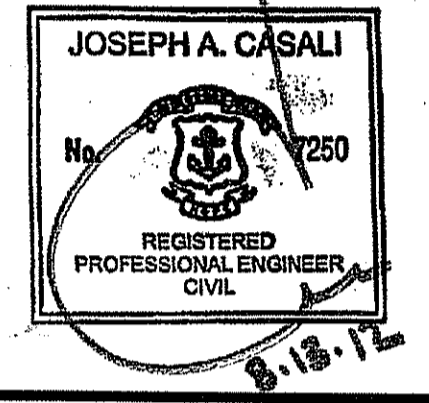
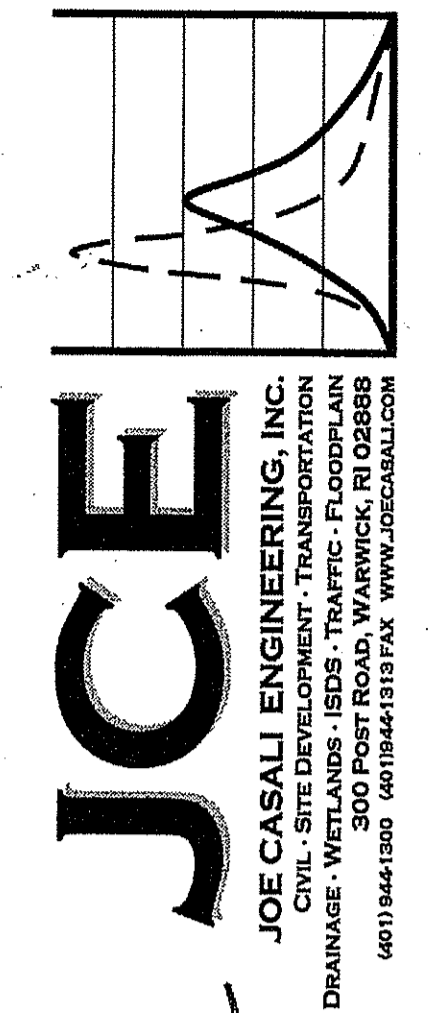
**SITE PLANS FOR A
PROPOSED 4,600 SF**

McDONALD'S RESTAURANT (#3793)

**736 BRANCH AVENUE
PROVIDENCE, RHODE ISLAND
AP 99, LOT 470**

ZONING DISTRICT: C-4

Environmental Management
AUG 14 2012
Office of Water Resources



McDONALD'S RESTAURANT
736 BRANCH AVENUE
PROVIDENCE, RHODE ISLAND
AP 99 LOT 470

Matthew D. Wencel
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED SEP 10 2012 FILE # 12-0026
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

SUBMITTED TO:
RIDEM - OFFICE OF WATER RESOURCES, FRESHWATER WETLANDS

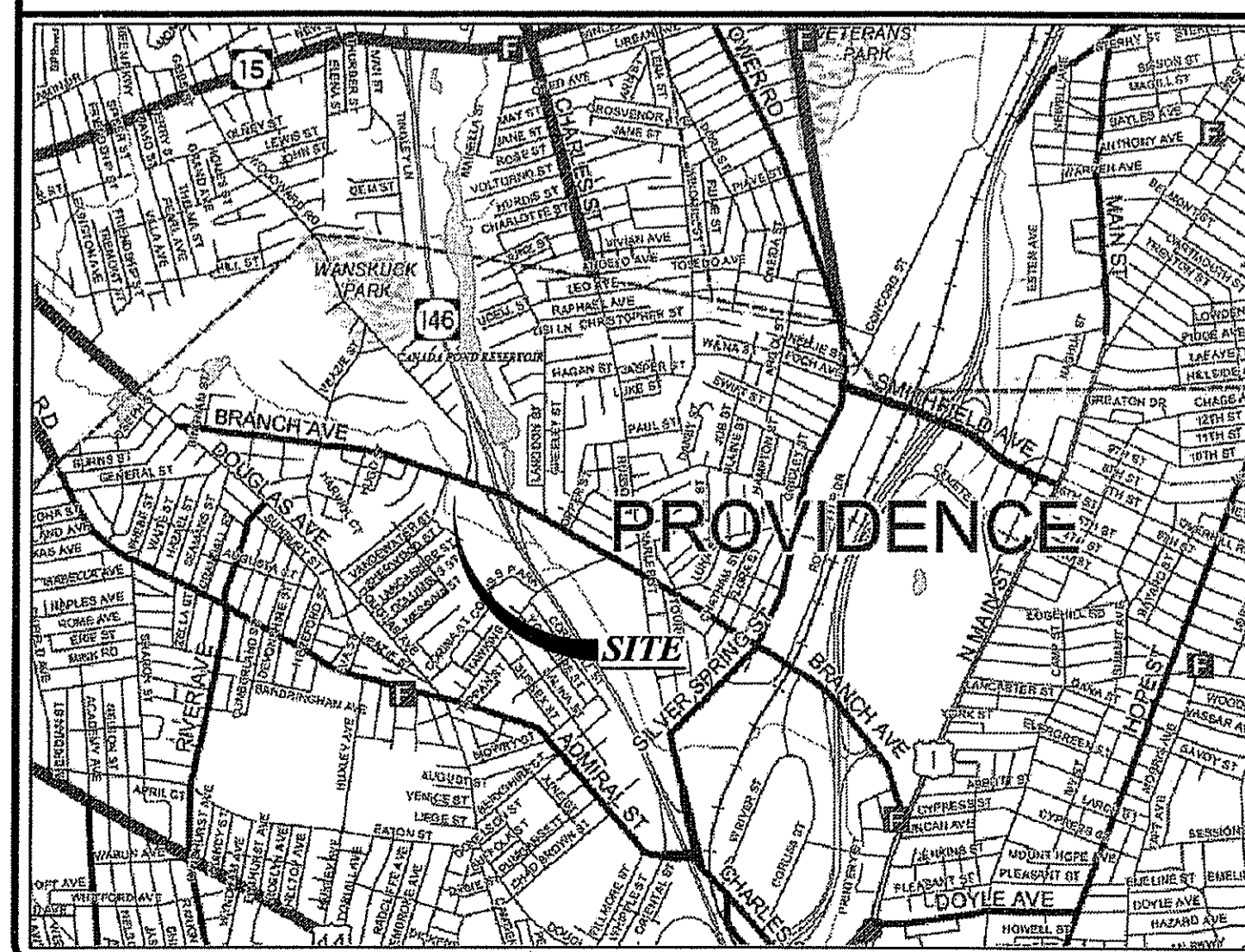
PROJECT TEAM

OWNER: BRANCH LAND, LLC.
BRANCH AVENUE ASSOCIATES, LLC.
15 MAPLE AVENUE
MORRISTOWN, NJ 07960

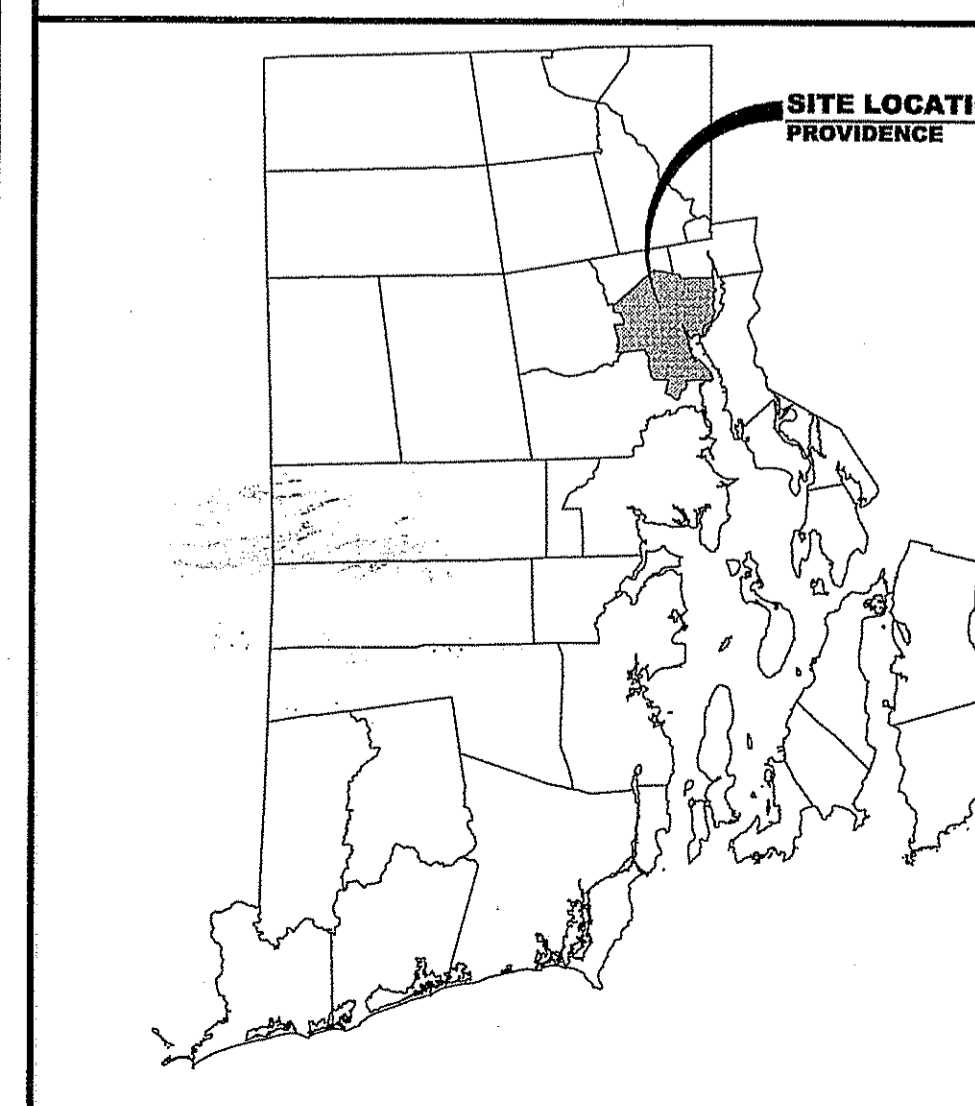
CIVIL: JOE CASALI ENGINEERING, INC.
300 POST ROAD
WARWICK, RI 02888
PHONE: 401-944-1300
FAX: 401-944-1313

SURVEYOR: LOUIS FEDERICI ASSOCIATES
365 SMITH STREET
PROVIDENCE, RI 02908
PHONE: 401-331-1570
FAX: 401-331-1593

LOCUS MAP (NOT TO SCALE)



STATE WIDE MAP



INDEX OF DRAWINGS

SHEET NO.	PLAN
1	COVER SHEET
2	GENERAL NOTES
3	EXISTING CONDITIONS PLAN
4	SITE PLAN
5	GRADING AND DRAINAGE PLAN
6	DETAILS I
7	DETAILS II
8	DETAILS III
REFERENCE PLANS	
1 OF 1	TOPOGRAPHIC AND PERIMETER SURVEY OF LAND FOR MCDONALD'S USA AT 736 BRANCH AVE. IN PROVIDENCE, RI PREPARED BY LOUIS FEDERICI ASSOCIATES, DATED 10/13/11

REVISIONS:

NO.	DATE	DESCRIPTION
1	6/19/12	RIDEM COMMENTS
2	8/13/12	RIDEM COMMENTS

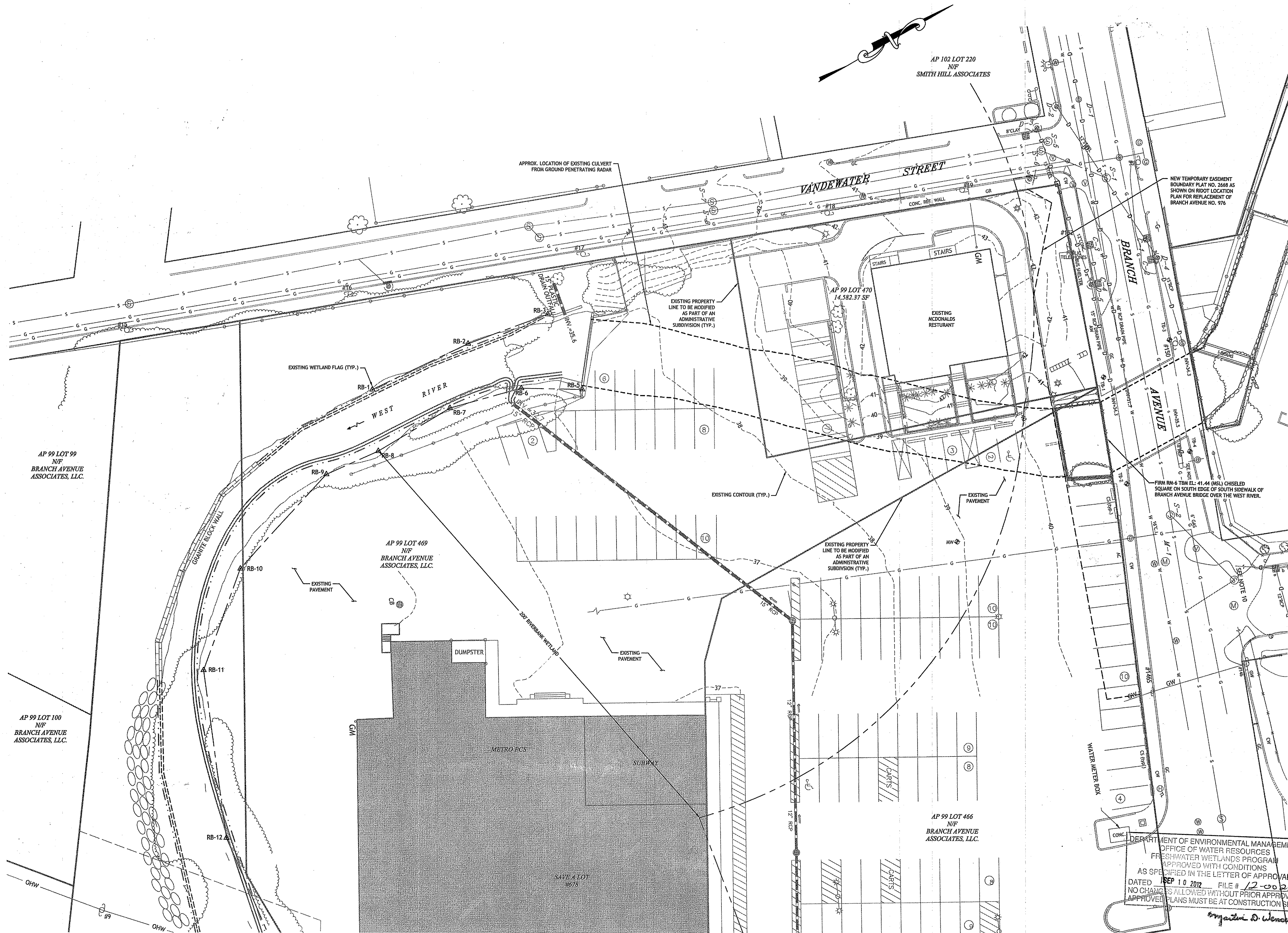
DESIGNED BY: GEC
DRAWN BY: WMLJR
CHECKED BY: JAC
DATE: FEB 2012
PROJECT NO: 05-85d

PERMIT SET
NOT FOR CONSTRUCTION

COVER SHEET

SHEET 1 OF 8

C:\05-05 Hampshire Real Estate\05-85b McDonalds\ACAD\PLAN-SET\VENSTEIN [RIDEM PLANSET].dwg Aug. 13, 2012 3:50pm



AP 102 LOT 220
N/F
SMITH HILL ASSOCIATES

AP 99 LOT 99
N/F
BRANCH AVENUE ASSOCIATES, LLC.

AP 99 LOT 469
N/F
BRANCH AVENUE ASSOCIATES, LLC.

AP 99 LOT 100
N/F
BRANCH AVENUE ASSOCIATES, LLC.

AP 99 LOT 466
N/F
BRANCH AVENUE ASSOCIATES, LLC.

NEW TEMPORARY EASEMENT
BOUNDARY PLAT NO. 2668 AS
SHOWN ON RIDOT LOCATION
PLAN FOR REPLACEMENT OF
BRANCH AVENUE NO. 976

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
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SCALE (FEET)
0 10 20 40 80
1 INCH = 20 FT

JCE
JOE CASALI ENGINEERING, INC.
CIVIL - SITE DEVELOPMENT - TRANSPORTATION
DRAINAGE - WETLANDS - EROSION CONTROL - PLANNING
300 PO BOX 1805 - WUPIC - PROVIDENCE, RI 02902
(401) 944-1300 (401) 944-1313 FAX WWW.JCEONLINE.COM

JOSEPH A. CASALI
No. 7250
REGISTERED
PROFESSIONAL ENGINEER
CIVIL
8.18.12

McDONALD'S RESTAURANT
736 BRANCH AVENUE
PROVIDENCE, RHODE ISLAND
AP 99 LOT 470

REVISIONS:		
NO.	DATE	DESCRIPTION
1	6/19/12	RIDEM COMMENTS
2	8/13/12	RIDEM COMMENTS

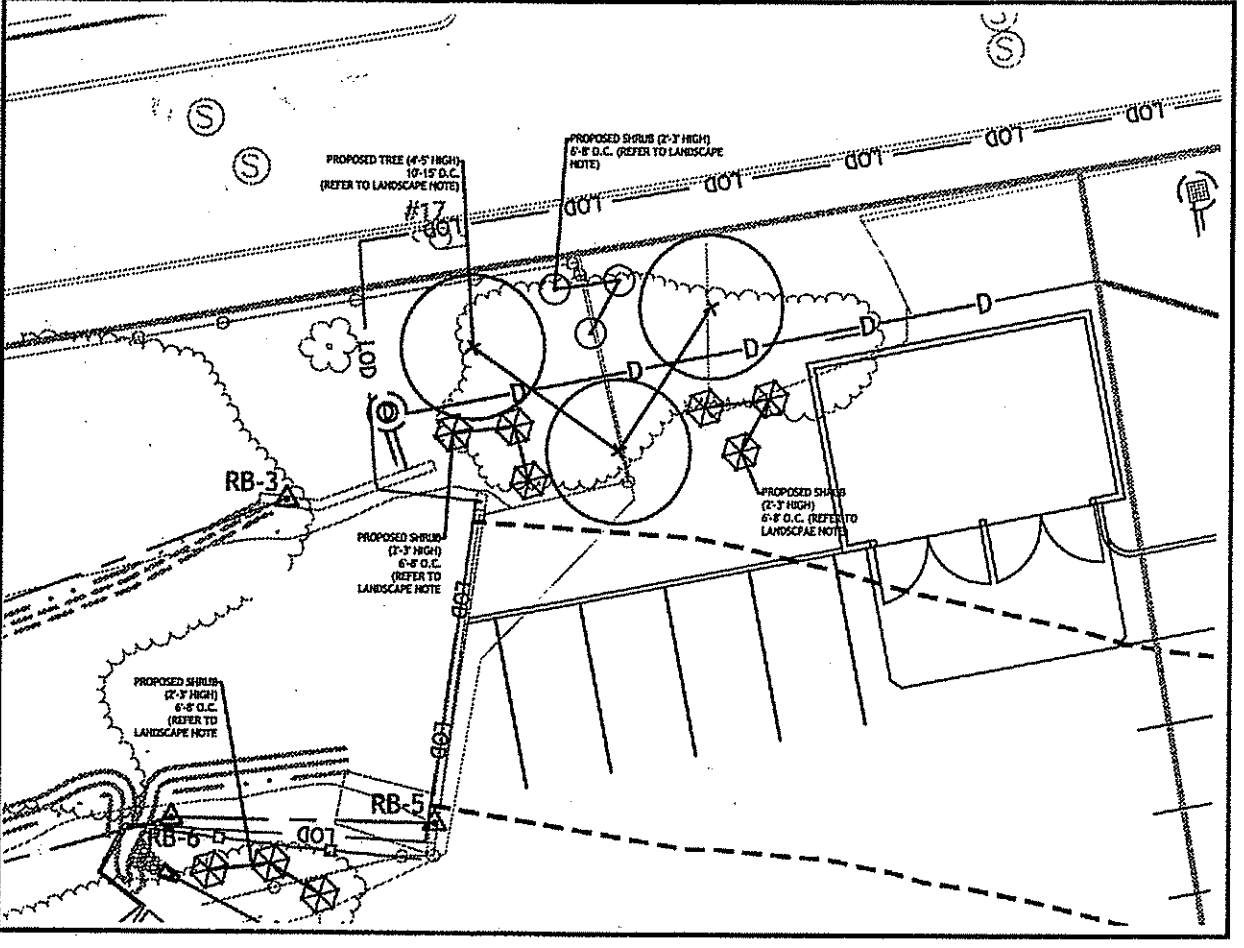
DESIGNED BY:	GEC
DRAWN BY:	WMLJR
CHECKED BY:	JAC
DATE:	FEB 2012
PROJECT NO.:	05-85d

PERMIT SET
NOT FOR CONSTRUCTION

**EXISTING
CONDITIONS
PLANS**

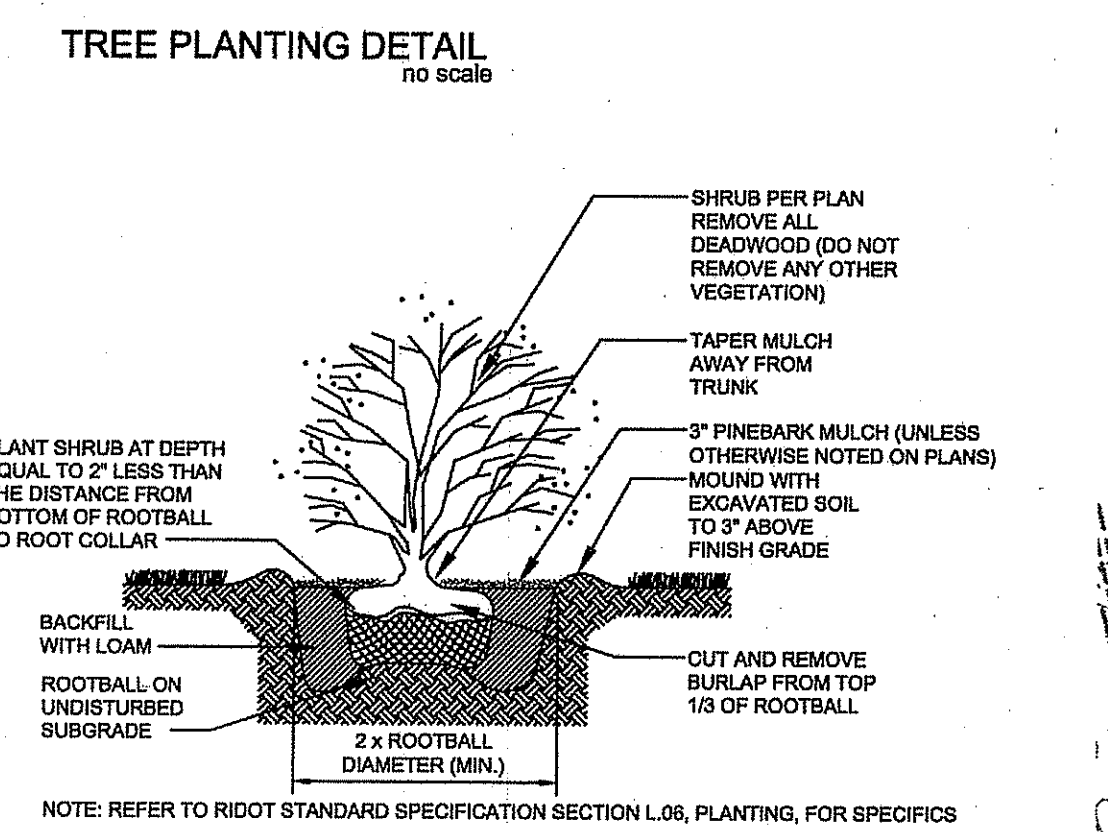
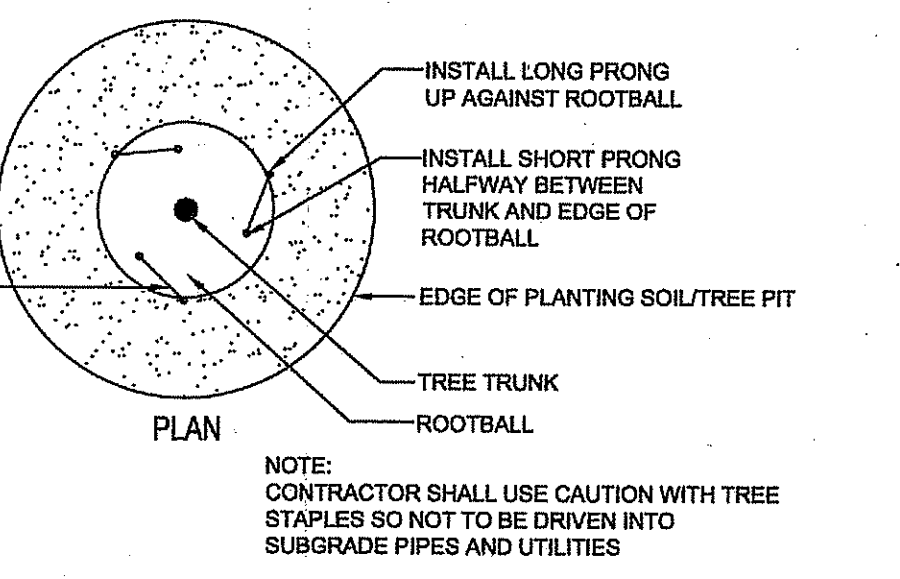
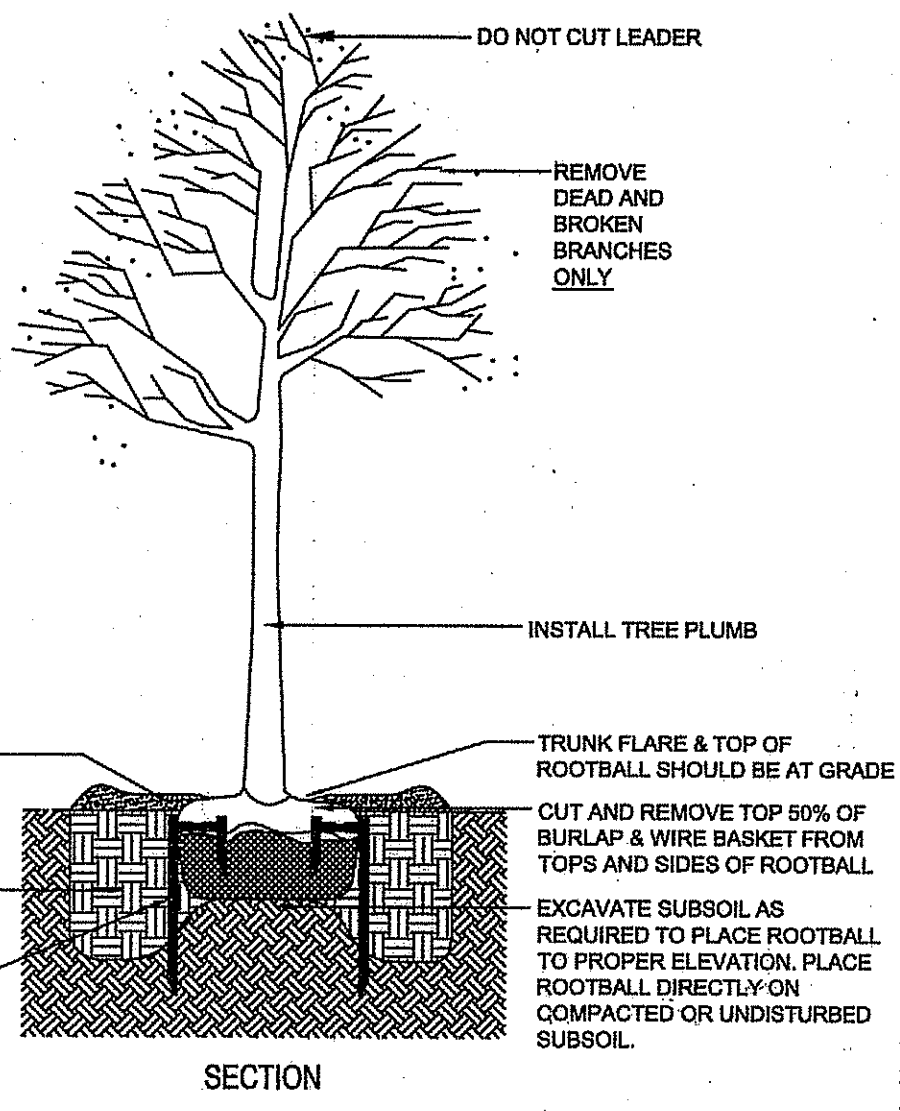
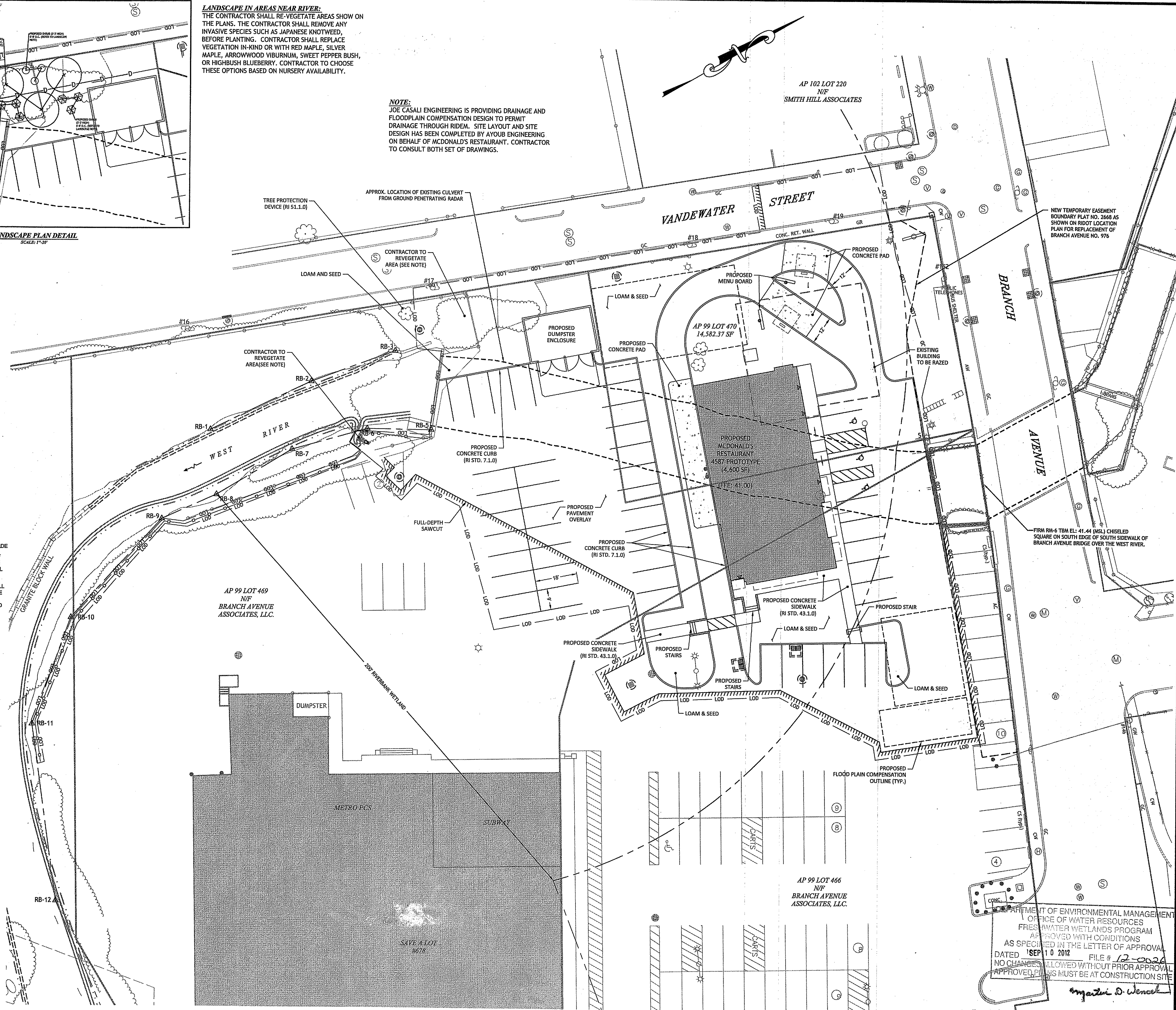
**SHEET
3 OF 8**

- LEGEND**
- EXISTING PROPERTY LINE
 - - - PROPOSED PROPERTY LINE
 - - - ABUTTING PROPERTY LINE
 - - - BUILDING SETBACK LINE
 - - - WETLAND EDGE
 - WF WETLAND FLAG
 - 50' PERIMETER WETLAND
 - 100' RIVERBANK WETLAND
 - 200' RIVERBANK WETLAND
 - EXISTING EASEMENT
 - EXISTING CONTOUR
 - PROPOSED CONTOUR
 - SLOPES > 15%
 - EXISTING STONE WALL
 - IRON PIN
 - DRILL HOLE
 - CONCRETE BOUND
 - EXISTING CURB
 - GUARD RAIL
 - DRAIN LINE
 - DRAINAGE MANHOLE
 - CATCH BASIN
 - UTILITY POLE
 - OVERHEAD WIRES
 - UNDERGROUND ELECTRIC
 - VERIZON LINE
 - WATER LINE
 - WATER SHUT OFF VALVE
 - WELL
 - SEWER
 - SMH
 - N/F NOW OR FORMERLY
 - EXISTING LIMIT OF WOODLAND (APPROXIMATE)
 - HAY BALES
 - LIMIT OF DISTURBANCE
 - LEDGE TEST
 - 06-01 SOIL EVALUATION
 - TP



LANDSCAPE IN AREAS NEAR RIVER:
THE CONTRACTOR SHALL RE-VEGETATE AREAS SHOWN ON THE PLANS. THE CONTRACTOR SHALL REMOVE ANY INVASIVE SPECIES SUCH AS JAPANESE KNOTWEED, BEFORE PLANTING. CONTRACTOR SHALL REPLACE VEGETATION IN-KIND OR WITH RED MAPLE, SILVER MAPLE, ARROWWOOD VIBURNUM, SWEET PEPPER BUSH, OR Highbush BLUEBERRY. CONTRACTOR TO CHOOSE THESE OPTIONS BASED ON NURSERY AVAILABILITY.

NOTE:
JOE CASALI ENGINEERING IS PROVIDING DRAINAGE AND FLOODPLAIN COMPENSATION DESIGN TO PERMIT DRAINAGE THROUGH RIDEM. SITE LAYOUT AND SITE DESIGN HAS BEEN COMPLETED BY AYOUB ENGINEERING ON BEHALF OF MCDONALD'S RESTAURANT. CONTRACTOR TO CONSULT BOTH SET OF DRAWINGS.



JCE
JOE CASALI ENGINEERING, INC.
DRAINAGE, WETLANDS, SDBS, TRAFFIC, FLOODPLAIN
300 POST ROAD, WARWICK, RI 02886
(401) 944-1300 (401) 944-1313 FAX WWW.JCEONLINE.COM

JOSEPH A. CASALI
No. 7250
REGISTERED PROFESSIONAL ENGINEER
CIVIL
9.13.12

MCDONALD'S RESTAURANT
736 BRANCH AVENUE
PROVIDENCE, RHODE ISLAND
AP 99 LOT 470

REVISIONS:

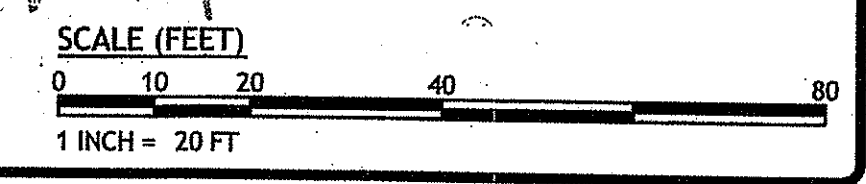
NO.	DATE	DESCRIPTION
1	6/19/12	RIDEM COMMENTS
2	8/13/12	RIDEM COMMENTS

DESIGNED BY: GEC
DRAWN BY: WMLJR
CHECKED BY: JAC
DATE: FEB 2012
PROJECT NO: 05-354

PERMIT SET
NOT FOR CONSTRUCTION

SITE PLAN

SHEET 4 OF 8

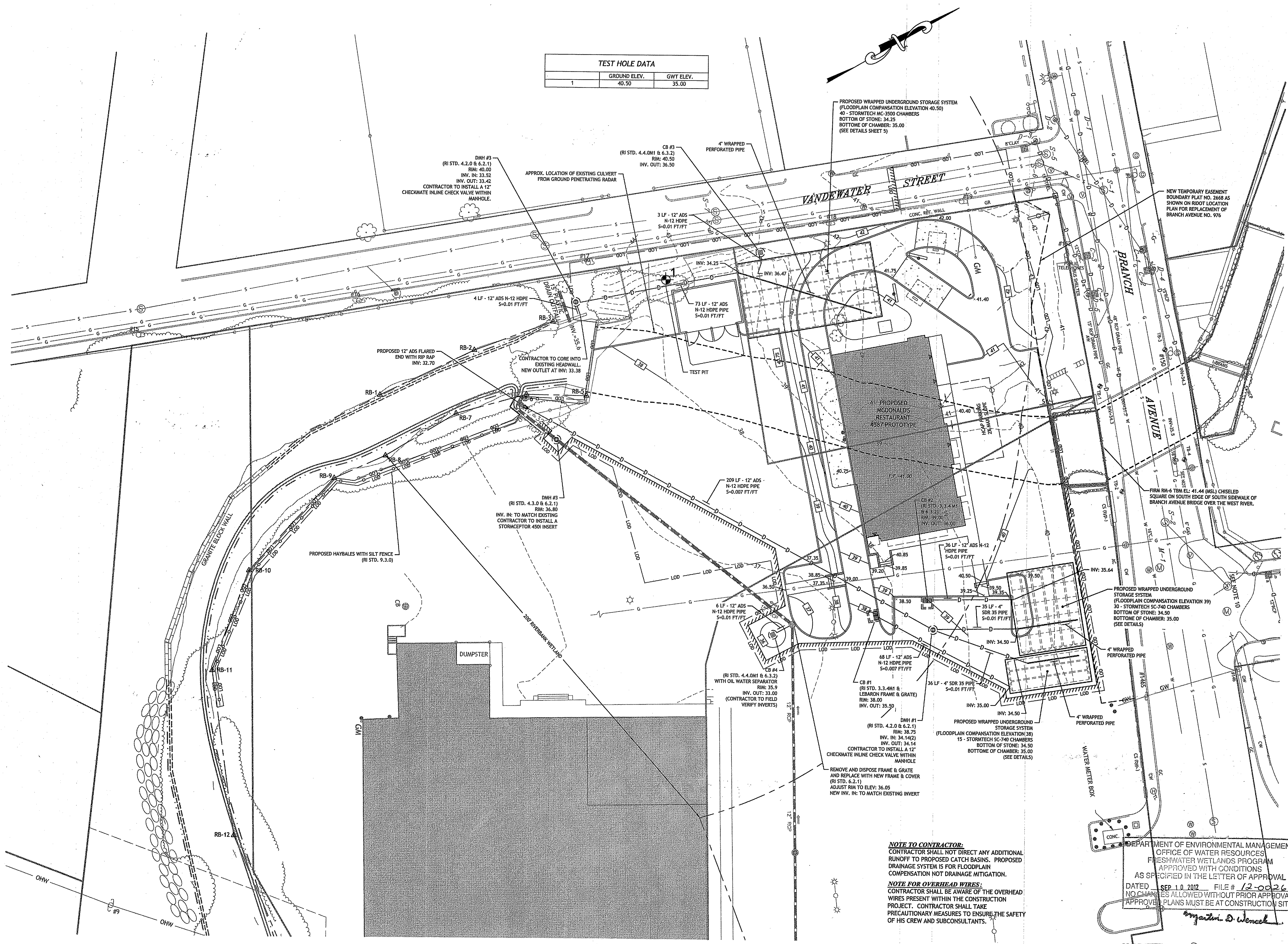


Q:\05-85 Hampshire Real Estate\05-85 McDonalds\ACAD\PLAN-SET\FEINSTEIN RIDEM PLANSET.dwg Aug. 13, 2012 3:51pm

Q:\05-85 Hampshire Real Estate\05-85 McDonalds\CAD\PLAN-SET\FEINSTEIN [RIDEH PLANSET].dwg Aug. 13, 2012 3:51pm

TEST HOLE DATA		
	GROUND ELEV.	GWT ELEV.
1	40.50	35.00

PROPOSED WRAPPED UNDERGROUND STORAGE SYSTEM
(FLOODPLAIN COMPENSATION ELEVATION 40.50)
40 - STORMTECH SC-2500 CHAMBERS
BOTTOM OF STONE: 34.25
BOTTOM OF CHAMBER: 35.00
(SEE DETAILS SHEET 9)

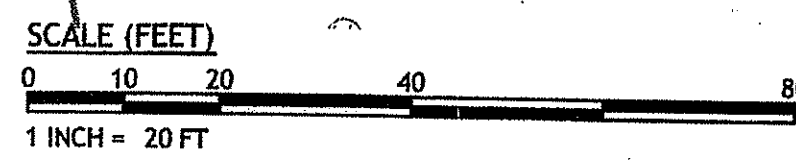


NOTE TO CONTRACTOR:
CONTRACTOR SHALL NOT DIRECT ANY ADDITIONAL RUNOFF TO PROPOSED CATCH BASINS. PROPOSED DRAINAGE SYSTEM IS FOR FLOODPLAIN COMPENSATION NOT DRAINAGE MITIGATION.

NOTE FOR OVERHEAD WIRES:
CONTRACTOR SHALL BE AWARE OF THE OVERHEAD WIRES PRESENT WITHIN THE CONSTRUCTION PROJECT. CONTRACTOR SHALL TAKE PRECAUTIONARY MEASURES TO ENSURE THE SAFETY OF HIS CREW AND SUBCONSULTANTS.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED SEP 10 2012 FILE # 12-0026
NO CLAIMS ALLOWED WITHOUT PRIOR APPROVAL
APPROVAL PLANS MUST BE AT CONSTRUCTION SITE

Signature: D. Wenzel



JCE
JOE CASALI ENGINEERING, INC.
CIVIL - SITE DEVELOPMENT - TRANSPORTATION
DRAINAGE - WETLANDS - EROSION CONTROL - FLOODPLAIN
1001 944-1300 1001944-1313 FAX WWW.JCEONLINE.COM

JOSEPH A. CASALI
No. 250
REGISTERED PROFESSIONAL ENGINEER
CIVIL
8-13-12

MCDONALD'S RESTAURANT
736 BRANCH AVENUE
PROVIDENCE, RHODE ISLAND
AP 99 LOT 470

REVISIONS:	
NO.	DATE DESCRIPTION
1	6/19/12 RIDEM COMMENTS
2	8/13/12 RIDEM COMMENTS

DESIGNED BY: GEC
DRAWN BY: WMLJR
CHECKED BY: JAC
DATE: FEB 2012
PROJECT NO: 05-854

PERMIT SET
NOT FOR CONSTRUCTION

GRADING & DRAINAGE PLAN

SHEET 5 OF 8

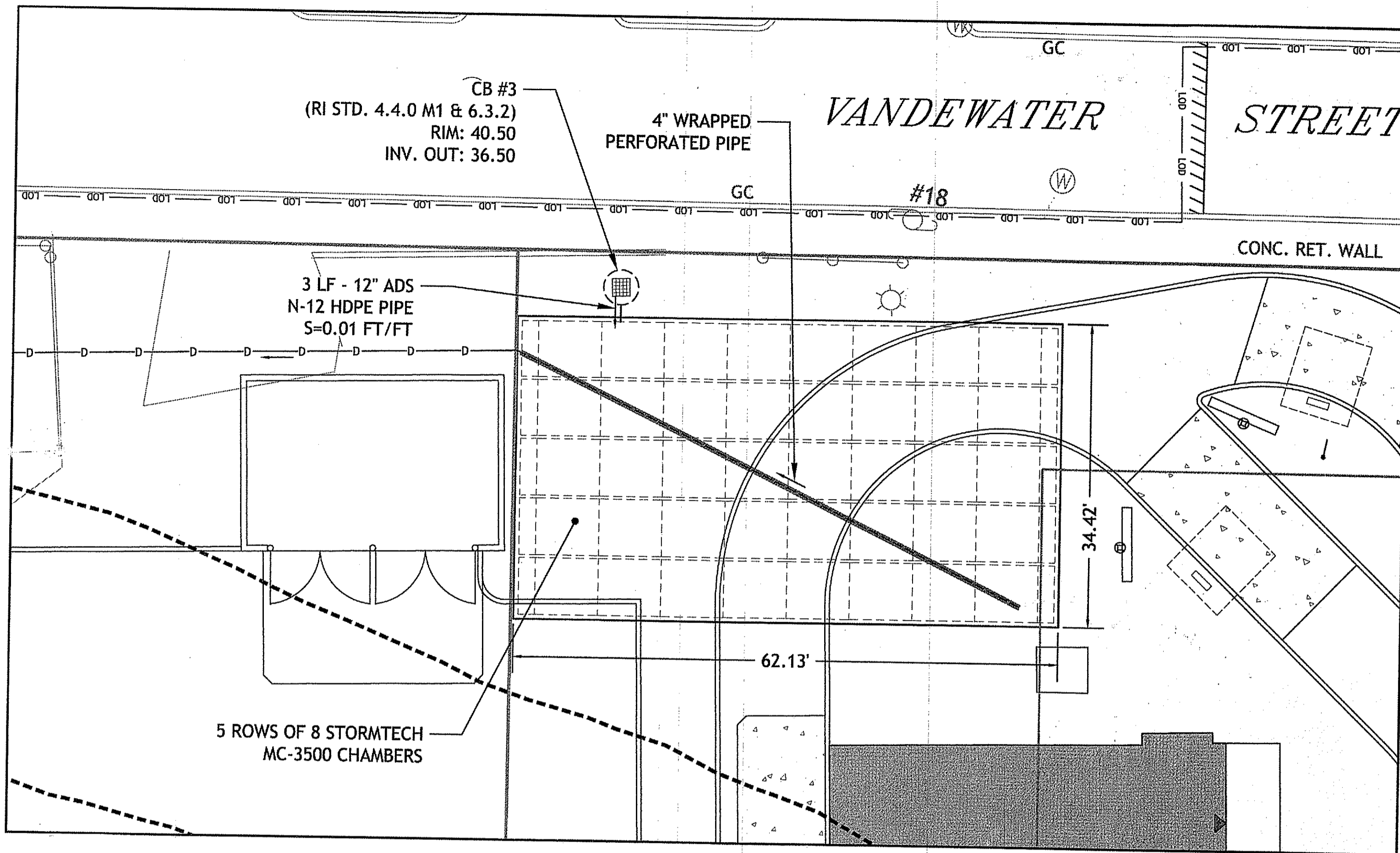
STORMTECH GENERAL NOTES

- ALL DESIGN SPECIFICATIONS FOR STORMTECH MC-3500 CHAMBERS SHALL BE IN ACCORDANCE WITH THE STORMTECH MC-3500 DESIGN MANUAL.
- THE INSTALLATION OF STORMTECH MC-3500 CHAMBERS SHALL BE IN ACCORDANCE WITH THE LATEST STORMTECH MC-3500 INSTALLATION INSTRUCTIONS.
- THE CONTRACTOR IS ADVISED TO REVIEW AND UNDERSTAND THE INSTALLATION INSTRUCTIONS PRIOR TO BEGINNING SYSTEM INSTALLATION. CALL 1-888-892-2694 OR VISIT WWW.STORMTECH.COM TO RECEIVE A COPY OF THE LATEST STORMTECH MC-3500 INSTALLATION INSTRUCTIONS.
- CHAMBERS SHALL MEET THE DESIGN REQUIREMENTS AND LOAD FACTORS SPECIFIED IN SECTION 12.12 OF THE LATEST EDITION OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

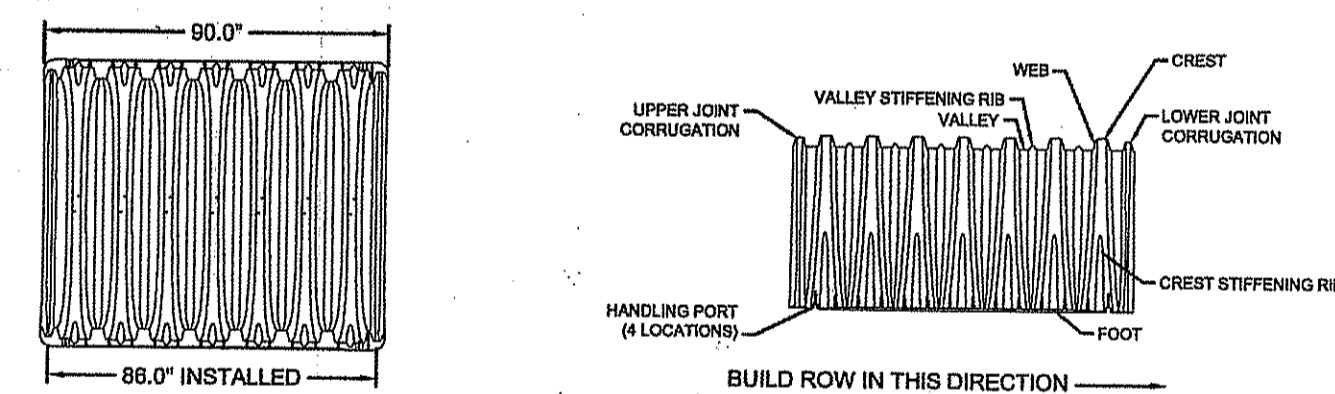
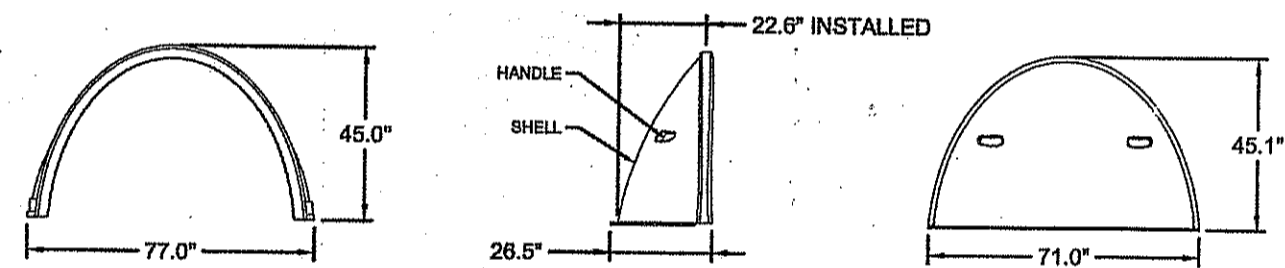
MC-3500 STORMWATER CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH MC-3500 OR APPROVED EQUAL.
- CHAMBERS SHALL BE MADE FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS THAT WOULD IMPEDE FLOW.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12 ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- ONLY CHAMBERS THAT ARE APPROVED BY THE ENGINEER WILL BE ALLOWED. THE CONTRACTOR SHALL SUBMIT (3 SETS) OF THE FOLLOWING TO THE ENGINEER FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE:
 - A STRUCTURAL EVALUATION BY A REGISTERED STRUCTURAL ENGINEER THAT DEMONSTRATES THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12 ARE MET.
 - STRUCTURAL CROSS SECTION DETAIL ON WHICH THE STRUCTURAL CROSS SECTION IS BASED.
- THE INSTALLATION OF CHAMBERS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S LATEST INSTALLATION INSTRUCTIONS.

Note per DEM: The engineer for the applicant shall set inverts for StormTech stormwater structure during construction. The contractor shall ensure that the applicant's engineer has field-verified inverts.



UNDERGROUND INJECTION CONTROL SYSTEM (MC-3500)
 1" = 10'

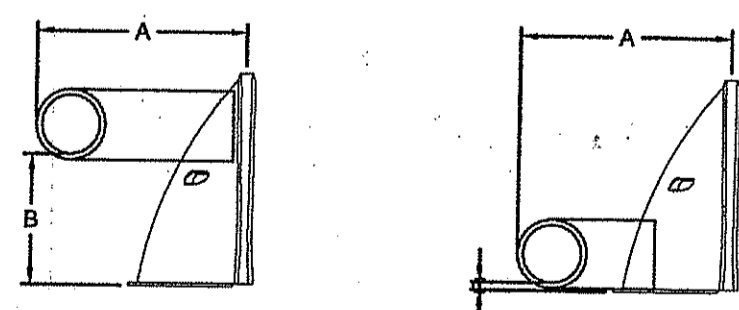


NOMINAL MC-3500 CHAMBER SPECIFICATIONS

SIZE (L x W x H)	90" x 77" x 45"
CHAMBER STORAGE	113.0 ft ³
MINIMUM INSTALLED STORAGE	178.8 ft ³
WEIGHT	124 lbs.

NOMINAL MC-3500 END CAP SPECIFICATIONS

SIZE (L x W x H)	26.5" x 71" x 45"
ENDCAP STORAGE	15.6 ft ³
MINIMUM INSTALLED STORAGE	45.6 ft ³
WEIGHT	43 lbs.



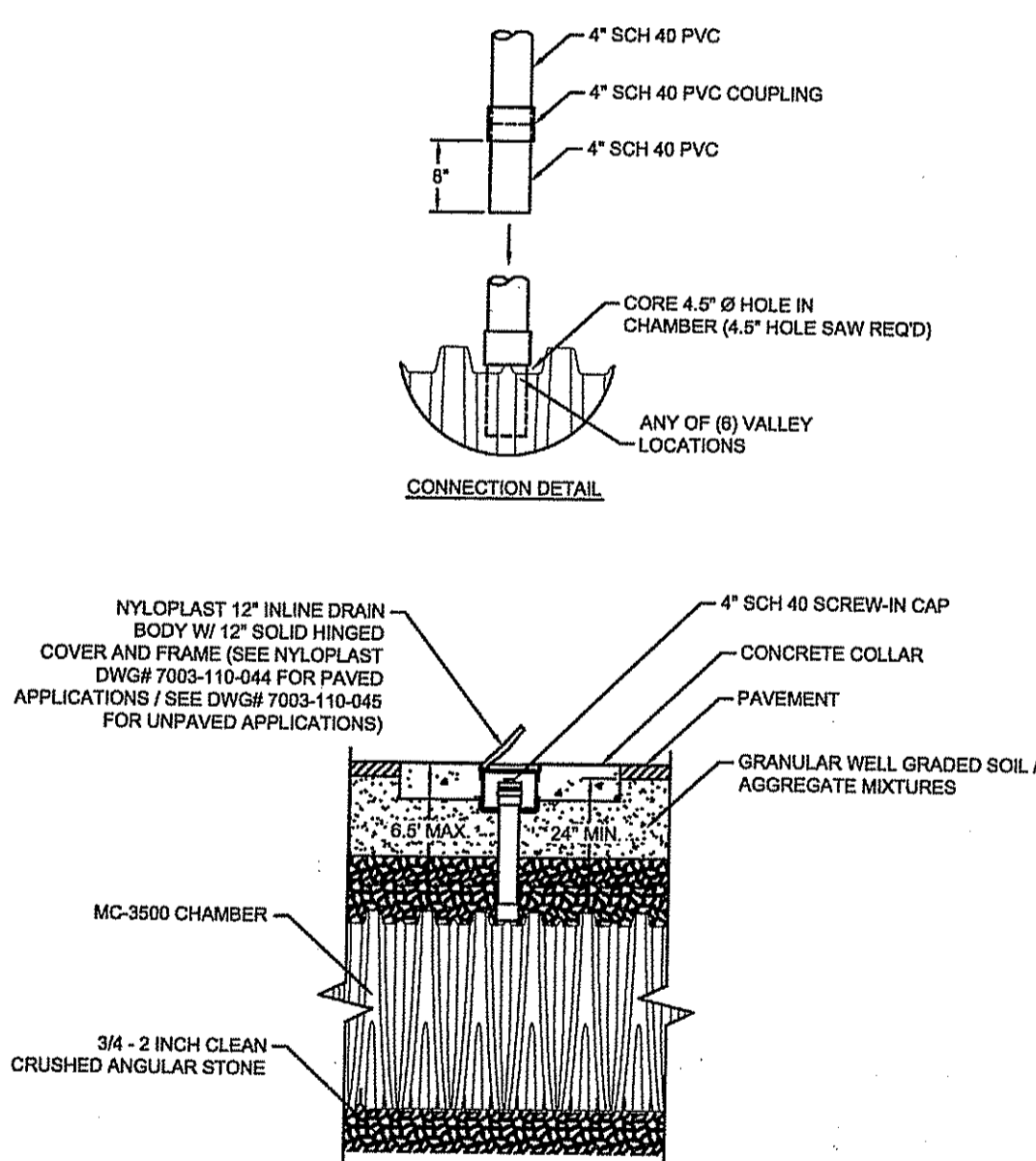
STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
 STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"

PART#	STUB	A	B	C
MC3500TEPE12T	12" (300 mm)	47.62" (1.21 m)	26.36" (670 mm)	N/A
MC3500TEPE12B	12" (300 mm)	49.33" (1.25 m)	N/A	1.39" (34 mm)
MC3500TEPE15T	15" (375 mm)	55.25" (1.40 m)	23.39" (594 mm)	N/A
MC3500TEPE15B	15" (375 mm)	53.56" (1.36 m)	N/A	1.50" (38 mm)
MC3500TEPE18T	18" (450 mm)	61.39" (1.56 m)	20.03" (509 mm)	N/A
MC3500TEPE18B	18" (450 mm)	56.77" (1.44 m)	N/A	1.77" (45 mm)
MC3500TEPE24B	24" (600 mm)	24" TOP STUB CORED ENDCAP NOT AVAILABLE	N/A	2.06" (52 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL

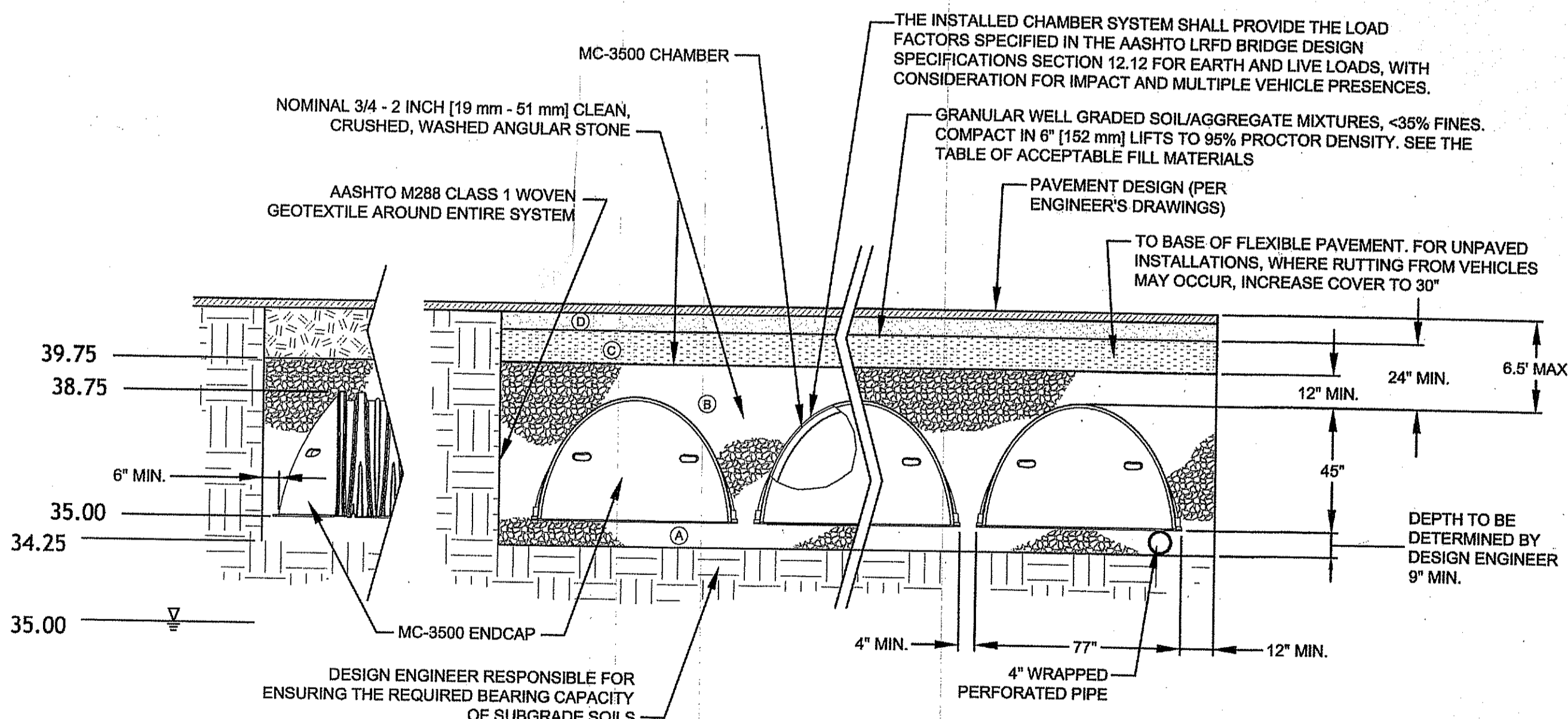
STORMTECH INVENTORIED MANIFOLDS AND PRECORED END CAPS INCLUDE 24" (600 mm) BOTTOM (MC3500TEPE24B), 18" (450 mm) BOTTOM (MC3500TEPE18B) AND 15" (375 mm) TOP (MC3500TEPE15T). OTHER PIPE SIZES AND PRECORED END CAPS ARE AVAILABLE UPON SPECIAL ORDER.

MC-3500 CHAMBER SPECIFICATIONS
 NTS



- NOTES:
- INSPECTION PORTS MAY BE CONNECTED THROUGH ANY OF (6) CHAMBER CORRUGATION VALLEYS.
 - ALL PVC FITTINGS ARE TO BE SOLVENT CEMENTED.

MC-3500 INSPECTION PORT DETAIL
 NTS



DESIGN ENGINEER RESPONSIBLE FOR ENSURING THE REQUIRED BEARING CAPACITY OF SUBGRADE SOILS

ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO M3 DESIGNATION*	COMPACTION/DENSITY REQUIREMENT
① FILL MATERIAL FOR LAYER TO STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBGRADE MAY BE PART OF THIS LAYER.	ANY SOLID ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK CLASS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRENGTH MATERIAL AND PREPARATION REQUIREMENTS.
② FILL MATERIAL FOR LAYER TO STARTS FROM THE TOP OF THE EMBEMENT STONE (B LAYER) TO THE BOTTOM OF THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBGRADE MAY BE PART OF THIS LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <30% FINES. MOST PAVEMENT SUBGRADE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	3, 557, 4, 487, 5, 55, 57, 6, 67, 68, 7, 76, 8, 85, 9, 10	BEAR COMPACTION AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYER IN 6" (152 mm) LIFTS TO A MIN. PER STANDARD PROCTOR DENSITY.
③ EMBEMENT 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).	3, 557, 4, 487, 5, 55, 57	NO COMPACTION REQUIRED.
④ FOUNDATION STONE BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBERS.	CLEAN, CRUSHED, WASHED, ANGULAR STONE. NOMINAL SIZE DISTRIBUTION BETWEEN 3/4 - 2 INCH (19 - 51 mm).	3, 55, 4, 487, 5, 55, 57	PLATE COMPACTION OR ROLL TO ACHIEVE A 90% STANDARD PROCTOR DENSITY 1.

PLEASE NOTE:
 1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE WASHED, CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR #4 (47.5 mm) M3 STONE."
 2. AS AN ALTERNATE TO PROCTOR TESTING AND FIELD DENSITY MEASUREMENTS ON OPEN GRADED STONE, STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'C' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (152 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH AN APPROPRIATE COMPACTOR.

JOE CASALI ENGINEERING, INC.
 CIVIL - SITE DEVELOPMENT - TRANSPORTATION
 DRAINAGE - WETLANDS - ESDS - TRAFFIC - FLOODPLAIN
 300 POST ROAD, WARWICK, RI 02886
 (401) 844-1500 / (401) 844-1515 FAX / WWW.JOECSA.COM

JOSEPH A. CASALI
 No. 7250
 REGISTERED PROFESSIONAL ENGINEER
 CIVIL
 8-13-12

MCDONALD'S RESTAURANT
 736 BRANCH AVENUE
 PROVIDENCE, RHODE ISLAND
 AP 99 LOT 470

REVISIONS:

NO.	DATE	DESCRIPTION
1	6/19/12	RIDEM COMMENTS
2	8/13/12	RIDEM COMMENTS

DESIGNED BY: GEC
 DRAWN BY: WMLR
 CHECKED BY: JAC
 DATE: FEB 2012
 PROJECT NO: 05-834

PERMIT SET
 NOT FOR CONSTRUCTION

DETAILS I

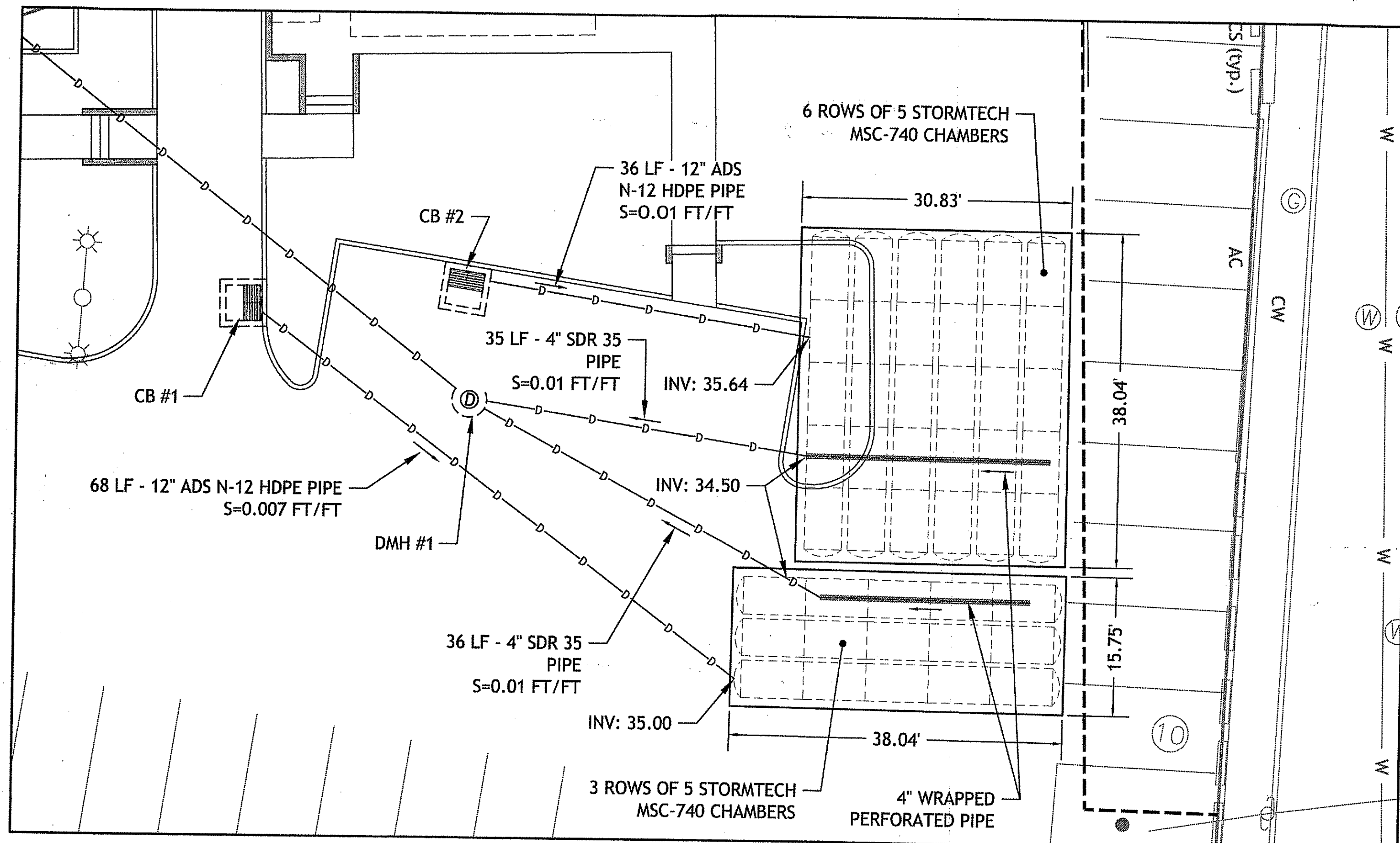
SHEET 6 OF 8

STORMTECH GENERAL NOTES:

- STORMTECH LLC ("STORMTECH") REQUIRES INSTALLING CONTRACTORS TO USE AND UNDERSTAND STORMTECH'S LATEST INSTALLATION INSTRUCTIONS PRIOR TO BEGINNING SYSTEM INSTALLATION.
- 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 REPRESENTATIVES CAN THEN ANSWER QUESTIONS OR ADDRESS COMMENTS ON THE STORMTECH CHAMBER SYSTEM AND INFORM THE INSTALLING CONTRACTOR OF THE MINIMUM INSTALLATION REQUIREMENTS BEFORE BEGINNING SYSTEMS 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.
- STORMTECH'S REQUIREMENTS FOR SYSTEMS WITH PAVEMENT DESIGN (ASPHALT, CONCRETE PAVERS, ETC.): MINIMUM COVER IS 18 INCHES NOT 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.
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE DESIGN ENGINEER.
- ASHTO M288 CLASS 2 NON-WOVEN GEOTEXTILE (FILTER FABRIC) MUST BE USED AS INDICATED IN THE PROJECT PLANS.
- STONE PLACEMENT BETWEEN CHAMBERS ROWS AND AROUND PERIMETER MUST FOLLOW INSTRUCTIONS AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.
- BACKFILLING OVER THE CHAMBERS MUST FOLLOW REQUIREMENTS AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.
- 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.
- 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.
- 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.

STORMWATER CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH SC-740, SC-310 OR APPROVED EQUAL.
- CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418-05, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE ASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12 ARE MET FOR: LONG-DURATION DEAD LOADS AND SHORT-DURATION LIVE LOADS, BASED ON THE ASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- ONLY CHAMBERS THAT ARE APPROVED BY THE ENGINEER WILL BE ALLOWED. THE CONTRACTOR SHALL SUBMIT (3 SETS) OF THE FOLLOWING TO THE ENGINEER FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE:
 - A STRUCTURAL EVALUATION BY A REGISTERED STRUCTURAL ENGINEER THAT DEMONSTRATES THAT THE LOAD FACTORS SPECIFIED IN THE ASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12 ARE MET. THE 50-YEAR CREEP MODULUS DATA SPECIFIED IN ASTM F2418-05 MUST BE USED AS PART OF THE ASHTO STRUCTURAL EVALUATION TO VERIFY LONG-TERM PERFORMANCE.
 - A CERTIFICATION BY THE MANUFACTURER THAT THE CHAMBERS ARE IN ACCORDANCE WITH ASTM F2418-05.
- CHAMBERS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.
- ALL DESIGN SPECIFICATIONS FOR CHAMBERS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S LATEST DESIGN MANUAL.
- THE INSTALLATION OF CHAMBERS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S LATEST INSTALLATION INSTRUCTIONS.

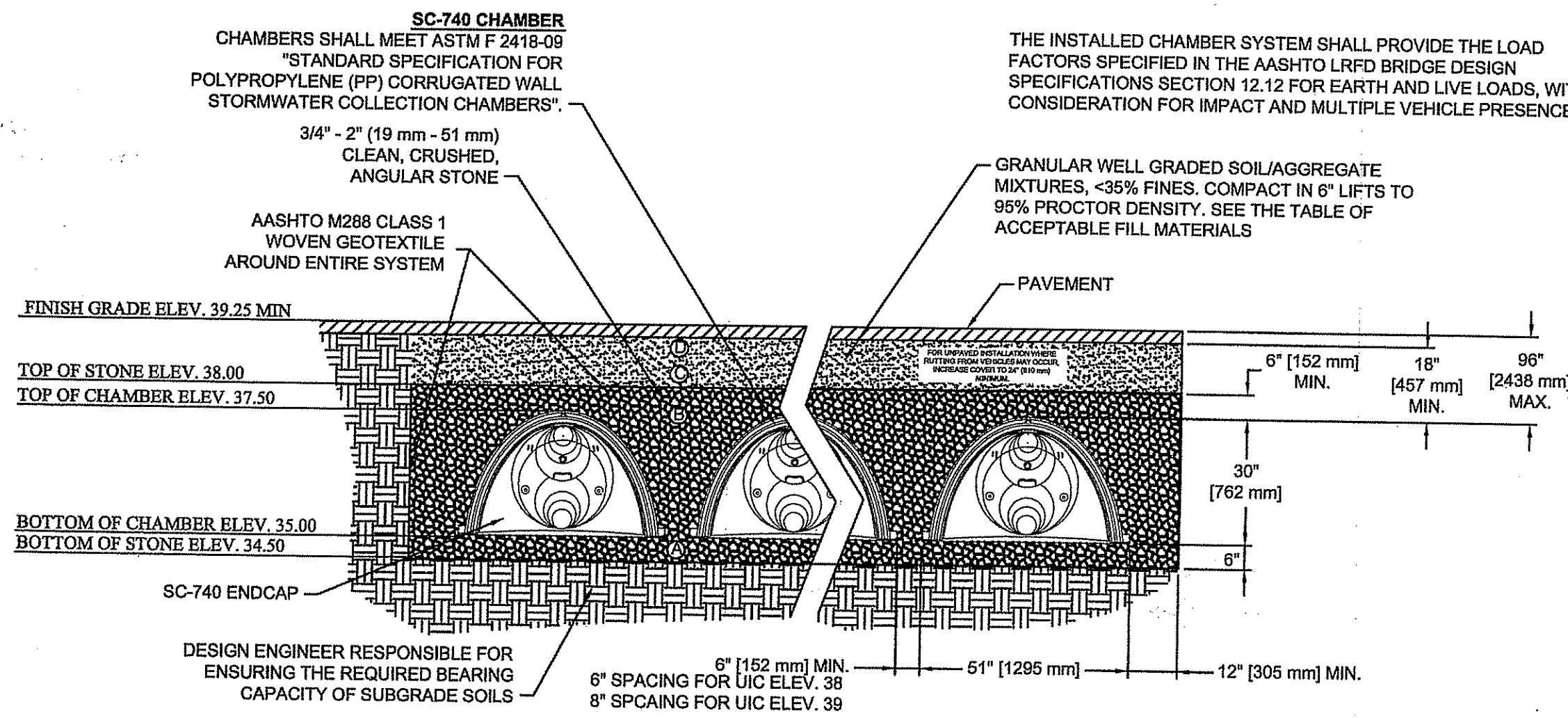


UNDERGROUND INJECTION CONTROL SYSTEMS (SC-740)
 1" = 10'

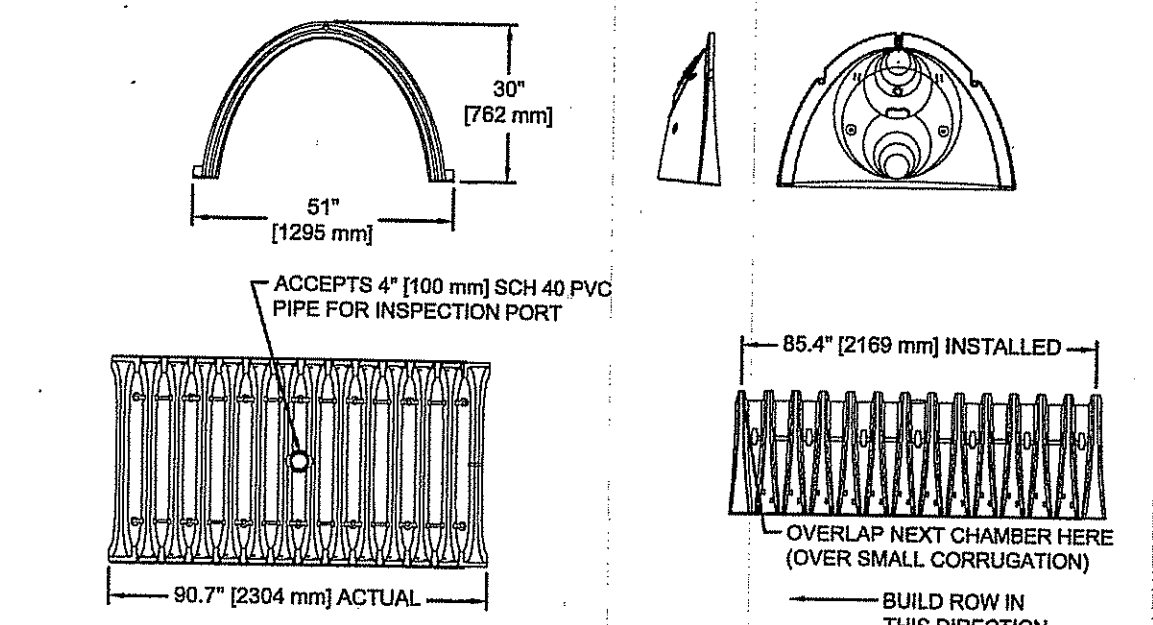
ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	ASHTO M43 DESIGNATION ¹	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 FINISH GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THIS 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. FINED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
② FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE (IF LAYER TO 18" (457 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, 457, 5, 56, 57, 8, 97, 98, 7, 78, 9, 98, 9, 10	BEGIN COMPACTION AFTER 12" (305 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (152 mm) LIFTS TO A MIN. 95% STANDARD PROCTOR DENSITY. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
③ EMBEDMENT STONE SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE (A LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4" - 2 INCH (19 - 51 mm)	3, 357, 4, 457, 5, 56, 57	NO COMPACTION REQUIRED.
④ FOUNDATION STONE BELOW CHAMBERS FROM THE SURFACE 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, 457, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A 90% STANDARD PROCTOR DENSITY ¹ .

PLEASE NOTE:
 1. THE LISTED ASHTO 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 (ASHTO 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 COMPACTED IN 6" (152 mm) LIFTS USING TWO FULL COVERAGES WITH AN APPROPRIATE COMPACTOR.



SC-740 STANDARD CROSS SECTION



SC-740 INSPECTION PORT DETAIL

NOMINAL CHAMBER SPECIFICATIONS
 SIZE (W x H x INSTALLED LENGTH) 51.0" x 30.0" x 85.4" (1295 mm x 762 mm x 2169 mm)
 CHAMBER STORAGE 45.9 CUBIC FEET (1.30 m³)
 MINIMUM INSTALLED STORAGE 74.9 CUBIC FEET (2.12 m³)
 WEIGHT 75 lbs. (33.6 kg)

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

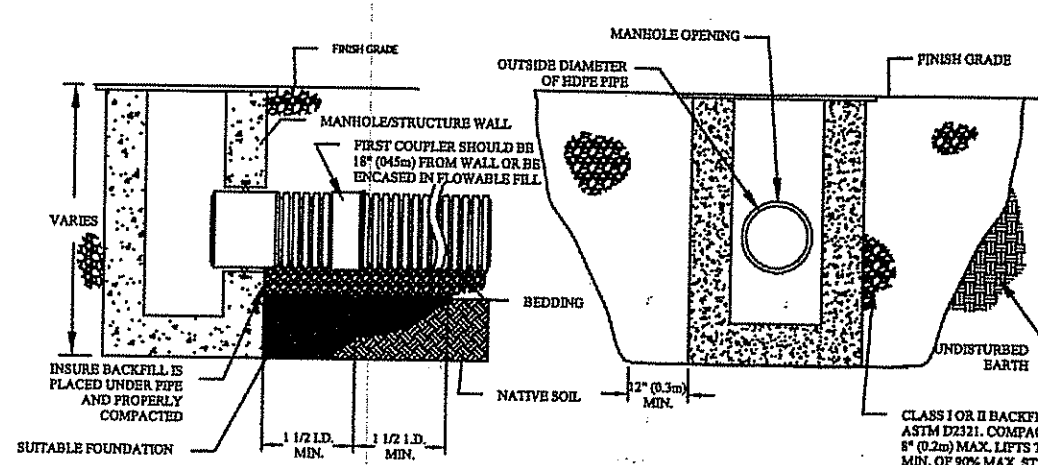
PART#	STUB	A	B	C
SC740EPE06T	6" (150 mm)	10.90" (277 mm)	18.80" (470 mm)	N/A
SC740EPE08B	6" (150 mm)	10.90" (277 mm)	N/A	0.50" (13 mm)
SC740EPE08T	6" (150 mm)	12.20" (310 mm)	16.50" (419 mm)	N/A
SC740EPE08B	8" (200 mm)	12.20" (310 mm)	N/A	0.60" (15 mm)
SC740EPE10T	10" (250 mm)	13.40" (340 mm)	14.50" (368 mm)	N/A
SC740EPE10B	10" (250 mm)	13.40" (340 mm)	N/A	0.70" (18 mm)
SC740EPE12T	12" (300 mm)	14.70" (373 mm)	12.50" (318 mm)	N/A
SC740EPE12B	12" (300 mm)	14.70" (373 mm)	N/A	1.20" (30 mm)
SC740EPE15T	15" (375 mm)	18.40" (467 mm)	9.00" (229 mm)	N/A
SC740EPE15B	15" (375 mm)	18.40" (467 mm)	N/A	1.30" (33 mm)
SC740EPE18T	18" (450 mm)	19.70" (500 mm)	5.00" (127 mm)	N/A
SC740EPE18B	18" (450 mm)	19.70" (500 mm)	N/A	1.60" (41 mm)
SC740EPE24B	24" (600 mm)	18.50" (470 mm)	N/A	0.10" (3 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL

ALL STUBS, EXCEPT FOR THE SC740EPE24B ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

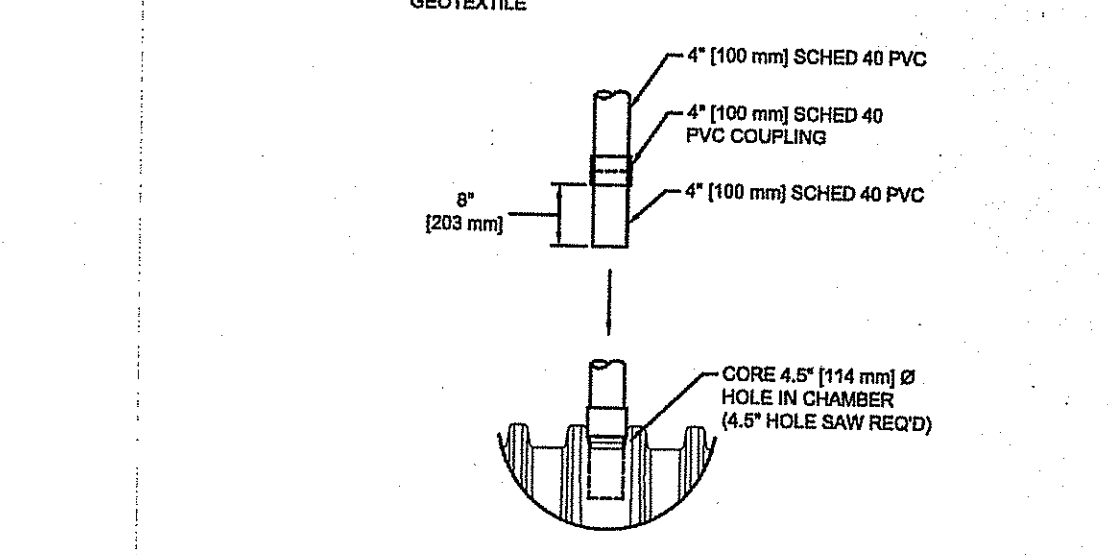
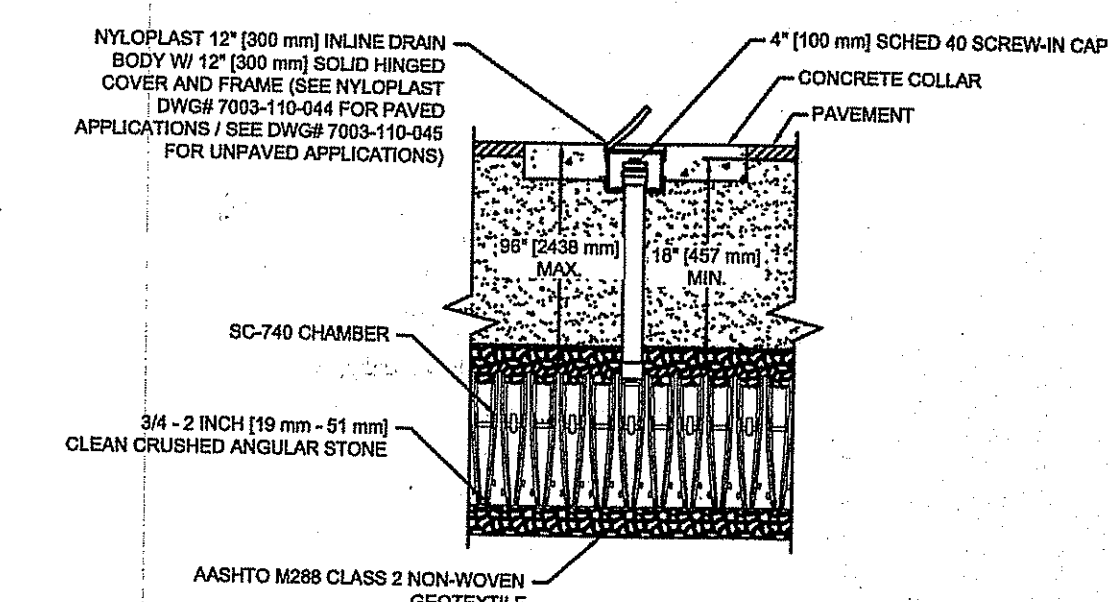
*FOR THE SC740EPE24B THE 24" (600 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 1.78" (44 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

SC-740 TECHNICAL SPEC.



- NOTES:
- MAXIMUM INSERTION ANGLE SHALL NOT EXCEED REQUIREMENTS AS SPECIFIED BY THE MANUFACTURER.
 - SEE STANDARD DETAILS STD-202 (A-B) THROUGH STD-204 (A-E) FOR STRUCTURE CONNECTIONS, PRODUCT INFORMATION AND DIMENSIONAL PIPE DATA. INSTALLATION RECOMMENDATIONS ARE ALSO SPECIFIED IN TECHNICAL NOTE 5.04: HDPE CONNECTIONS TO MANHOLES AND STRUCTURES.
 - PERFORMANCE HIGHLY DEPENDENT ON INSTALLATION. CONTRACTOR MUST INSURE MANHOLE GASKET IS UNIFORMLY SEATED AROUND STRUCTURE ADAPTER. EXTRA PRECAUTIONS MUST BE TAKEN TO PREVENT DIFFERENTIAL SETTLEMENT BETWEEN THE PIPE AND MANHOLE.

STRUCTURE CONNECTION INSTALLATION DETAIL:
 N.T.S.



- NOTES:
- INSPECTION PORT MUST BE CONNECTED THROUGH KNOCK-OUT LOCATED AT CENTER OF CHAMBER.
 - ALL SCHEDULE 40 FITTINGS TO BE SOLVENT CEMENTED.

SC-740 INSPECTION PORT DETAIL

JOE CASALI ENGINEERING, INC.
 CIVIL - SITE DEVELOPMENT - TRANSPORTATION
 DRAINAGE - WETLANDS - ISDS - TRAFFIC - FLOODPLAIN
 300 POST ROAD, WARWICK, RI 02886
 (401) 844-1300 (401) 844-1313 FAX WWW.JOECASALI.COM

JOSEPH A. CASALI
 No. 7250
 REGISTERED PROFESSIONAL ENGINEER
 CIVIL
 8-13-12

McDONALD'S RESTAURANT
 736 BRANCH AVENUE
 PROVIDENCE, RHODE ISLAND
 AP 99 LOT 470

REVISIONS:

NO.	DATE	DESCRIPTION
1	6/19/12	RIDEM COMMENTS
2	8/13/12	RIDEM COMMENTS

DESIGNED BY: GBC
 DRAWN BY: WJLJR
 CHECKED BY: JAC
 DATE: FEB 2012
 PROJECT NO: 05-854

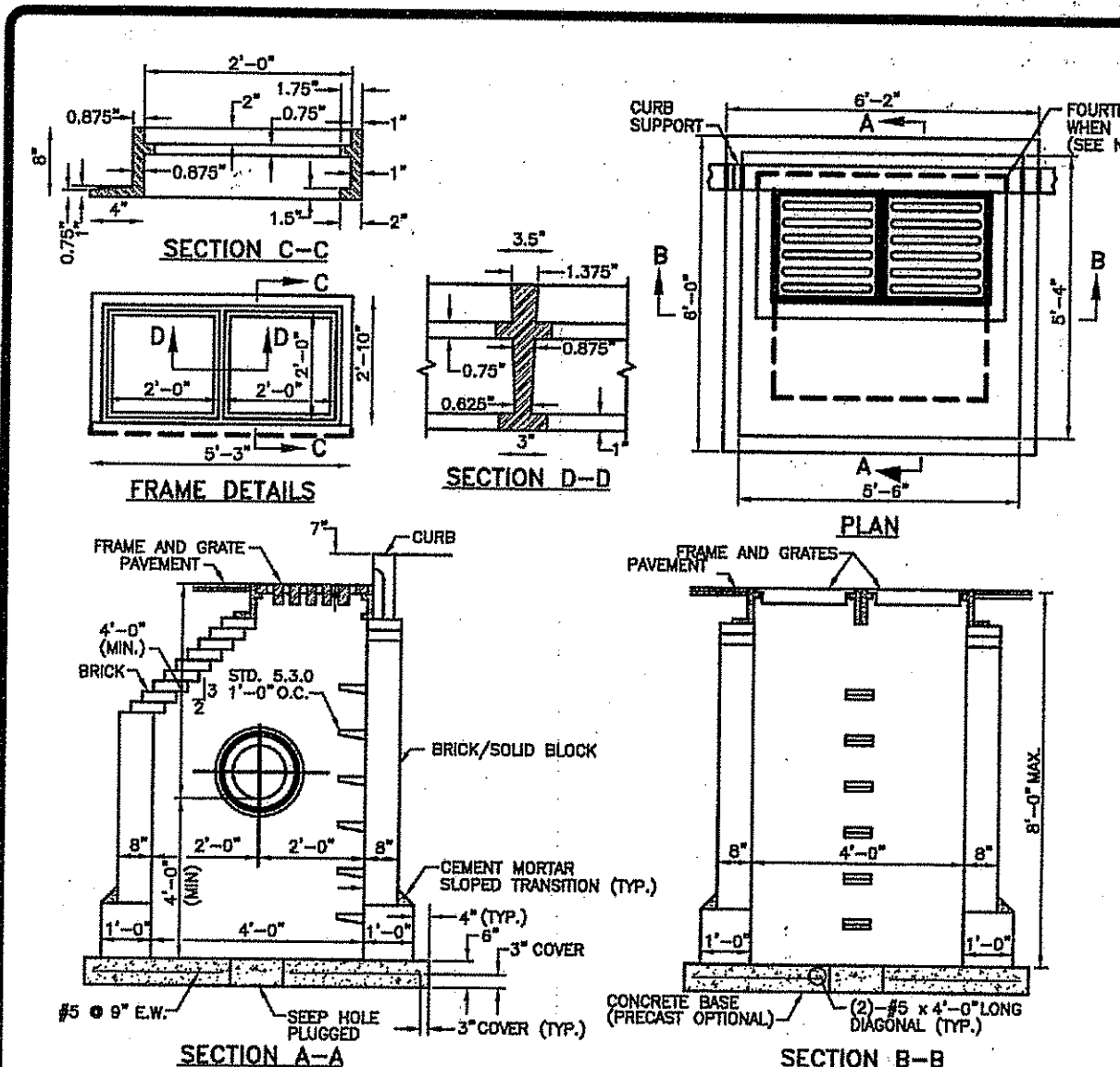
PERMIT SET
 NOT FOR CONSTRUCTION

DETAILS II

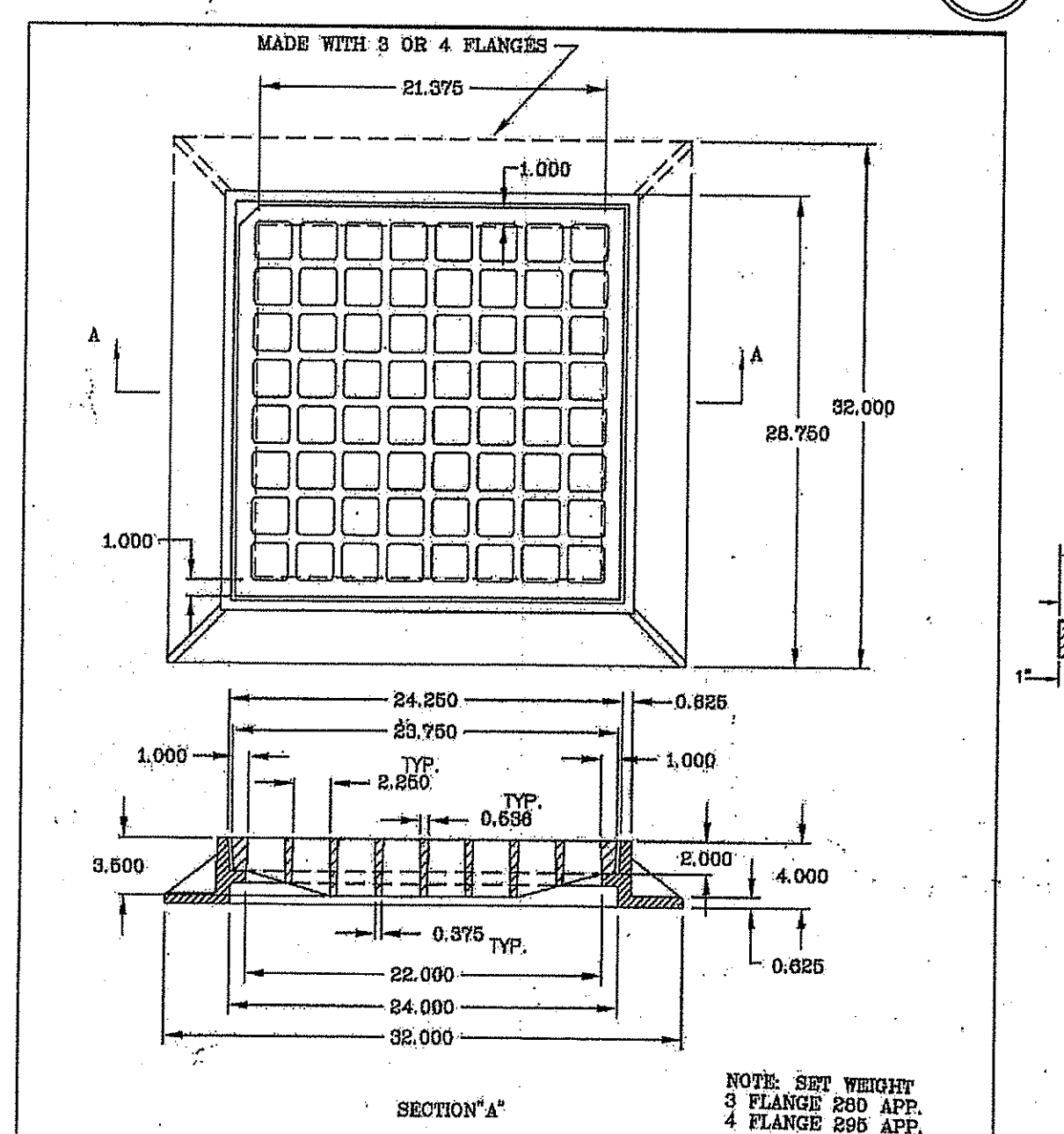
SHEET 7 OF 8

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 FRESHWATER WETLANDS PROGRAM
 APPROVED WITH CONDITIONS
 AS SPECIFIED IN THE LETTER OF APPROVAL
 DATED 16 SEP 10 2012 FILE # 12-0026
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE

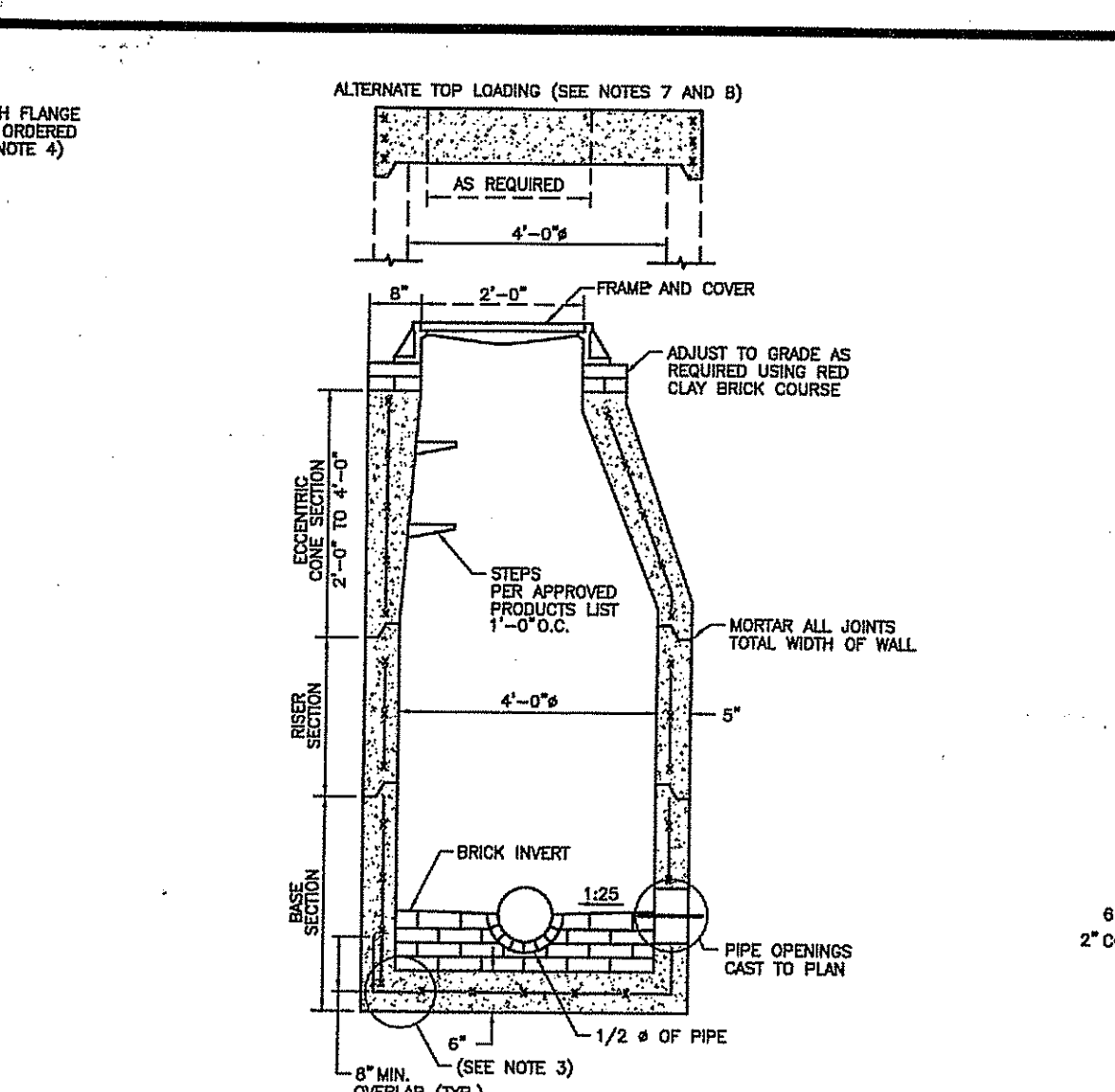
Q:\05-85 Hampshire Real Estate\05-85B_McDonalds\AC\DW\PLAN-SET\FIN\SET1.dwg Aug. 13, 2012 3:54pm



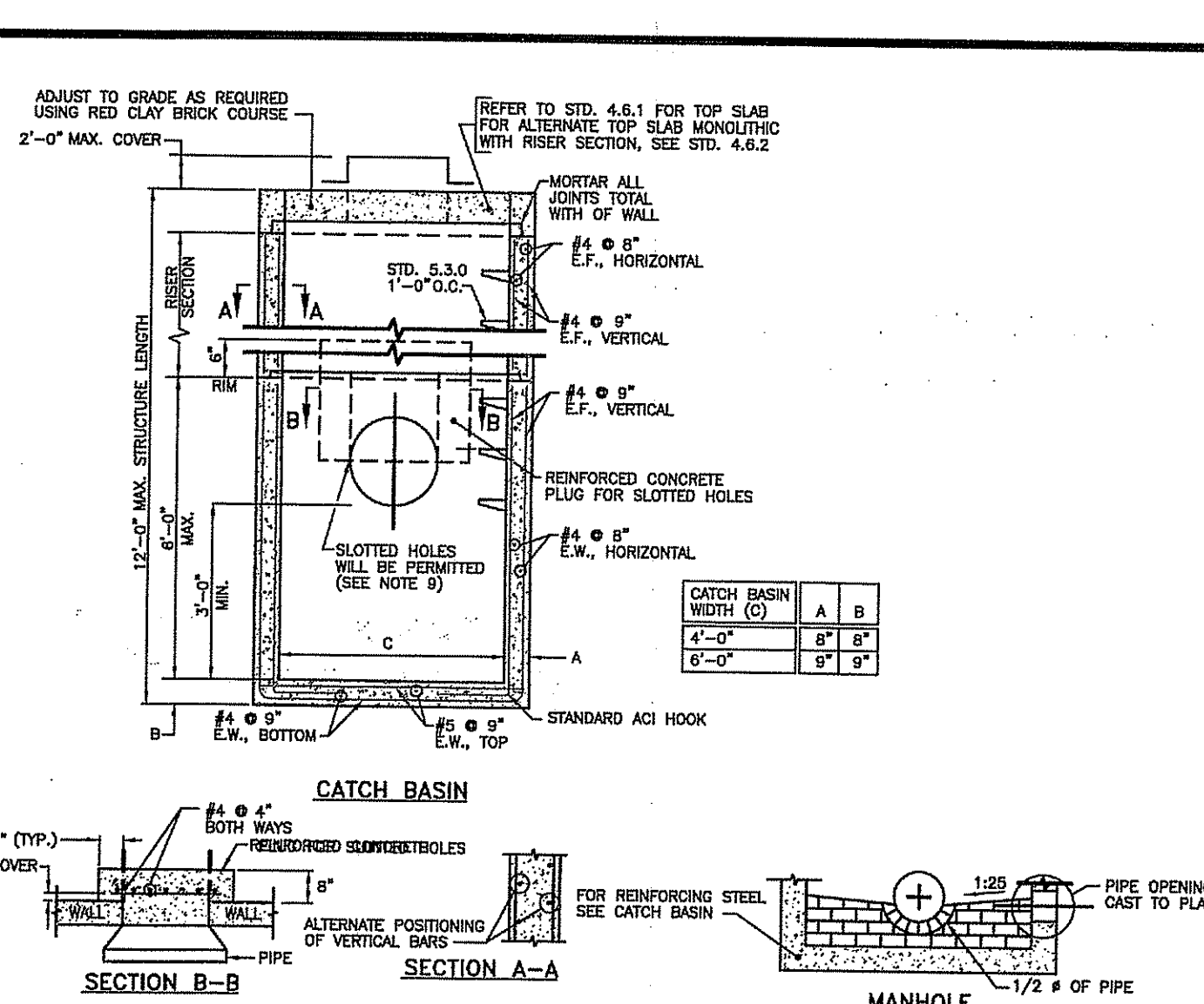
BRICK/SOLID BLOCK DOUBLE GRATE CATCH BASIN
 GRAPE PARALLEL TO EDGE OF PAVEMENT
 R.I. STANDARD 3.3.4 M1



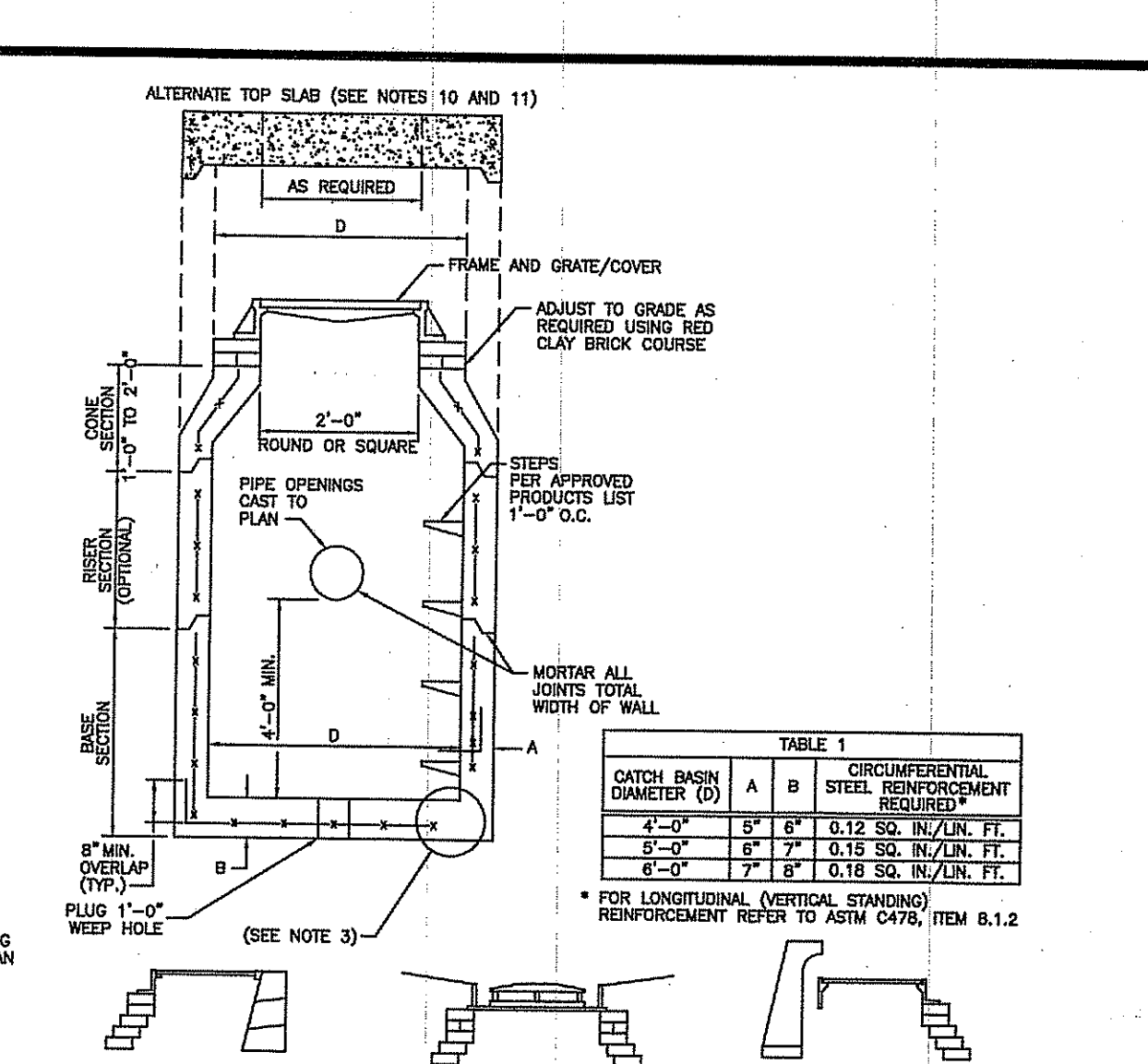
PRECAST 4'-0" OR 6'-0" SQUARE MANHOLE OR CATCH BASIN
 R.I. STANDARD 4.3.0



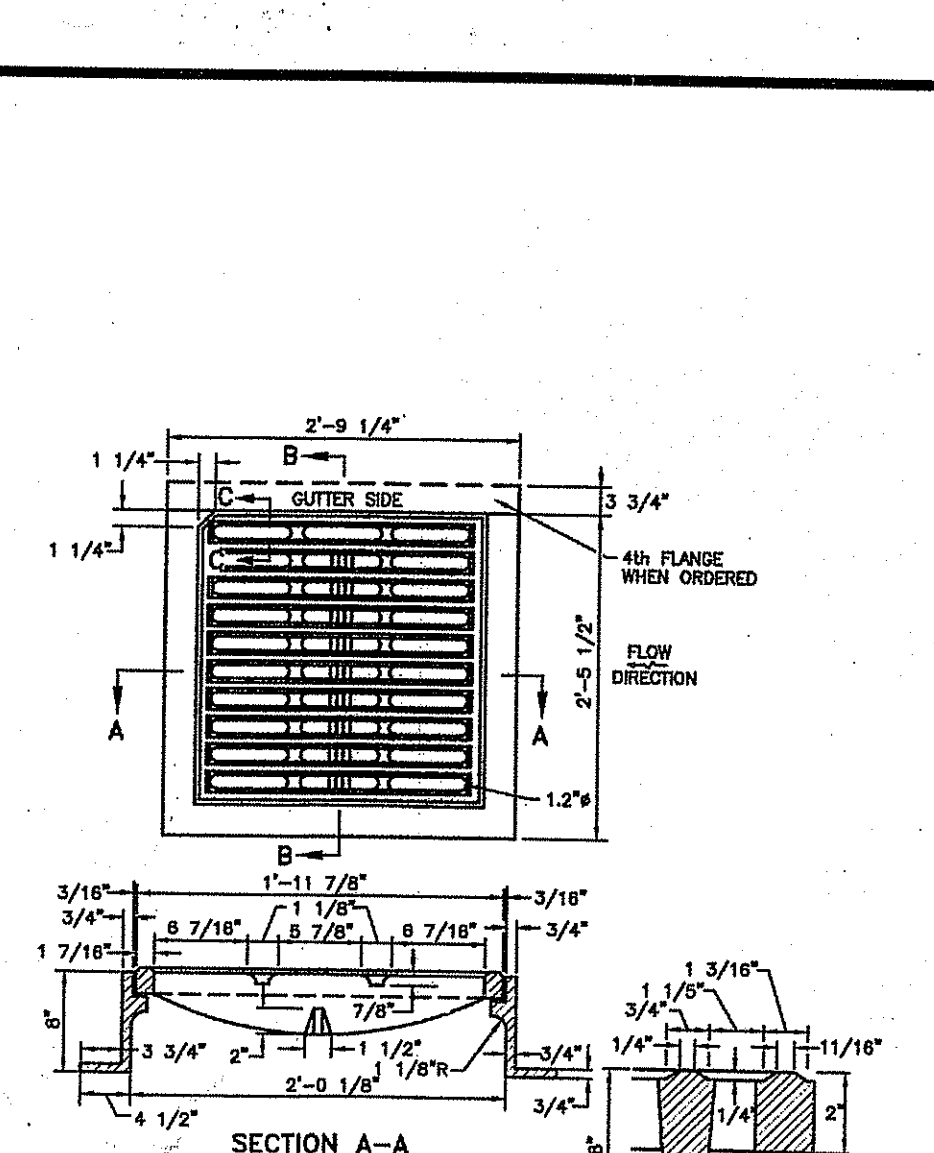
PRECAST 4'-0" ROUND MANHOLE
 R.I. STANDARD 4.2.0



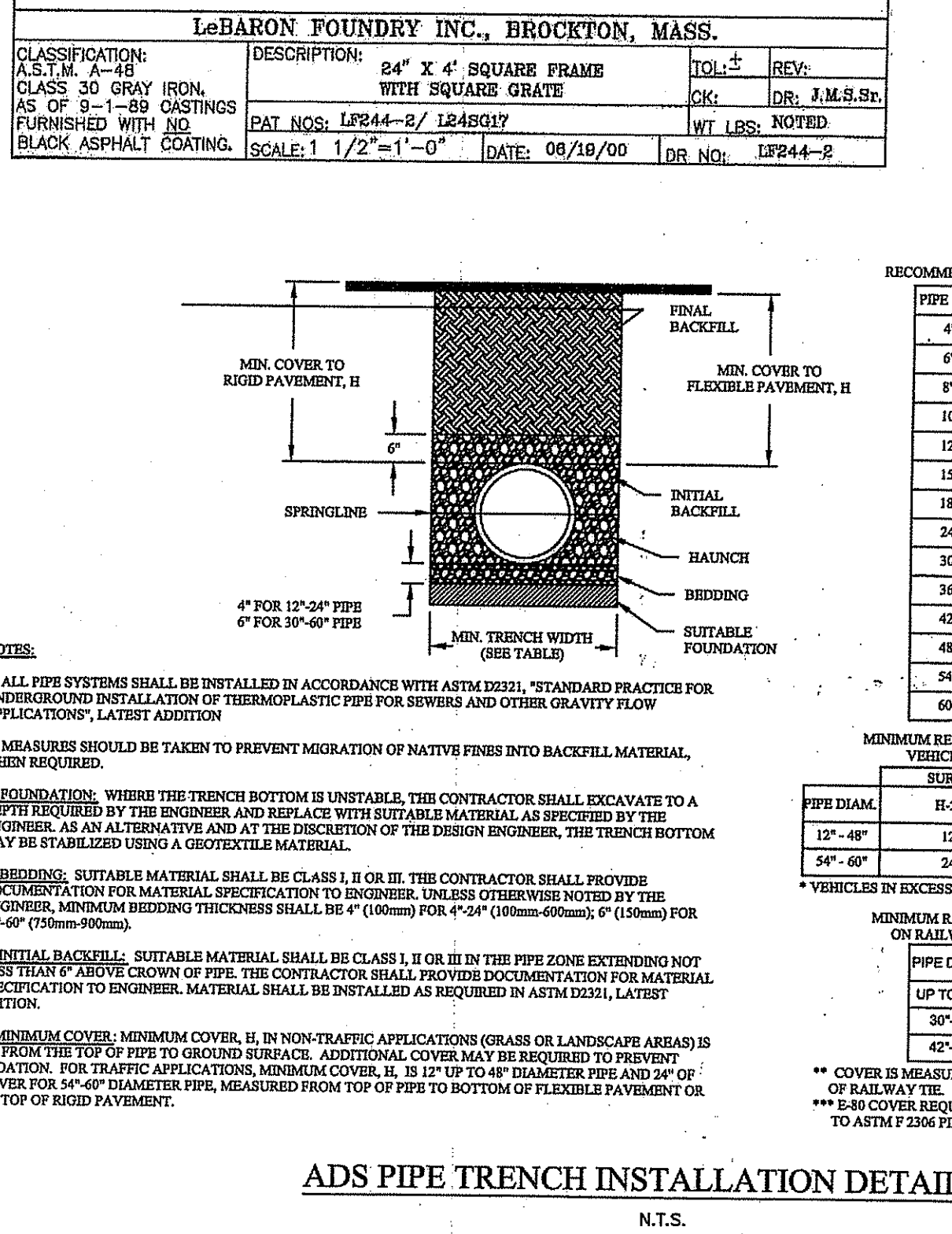
PRECAST 4'-0" OR 6'-0" SQUARE MANHOLE OR CATCH BASIN
 R.I. STANDARD 4.3.0



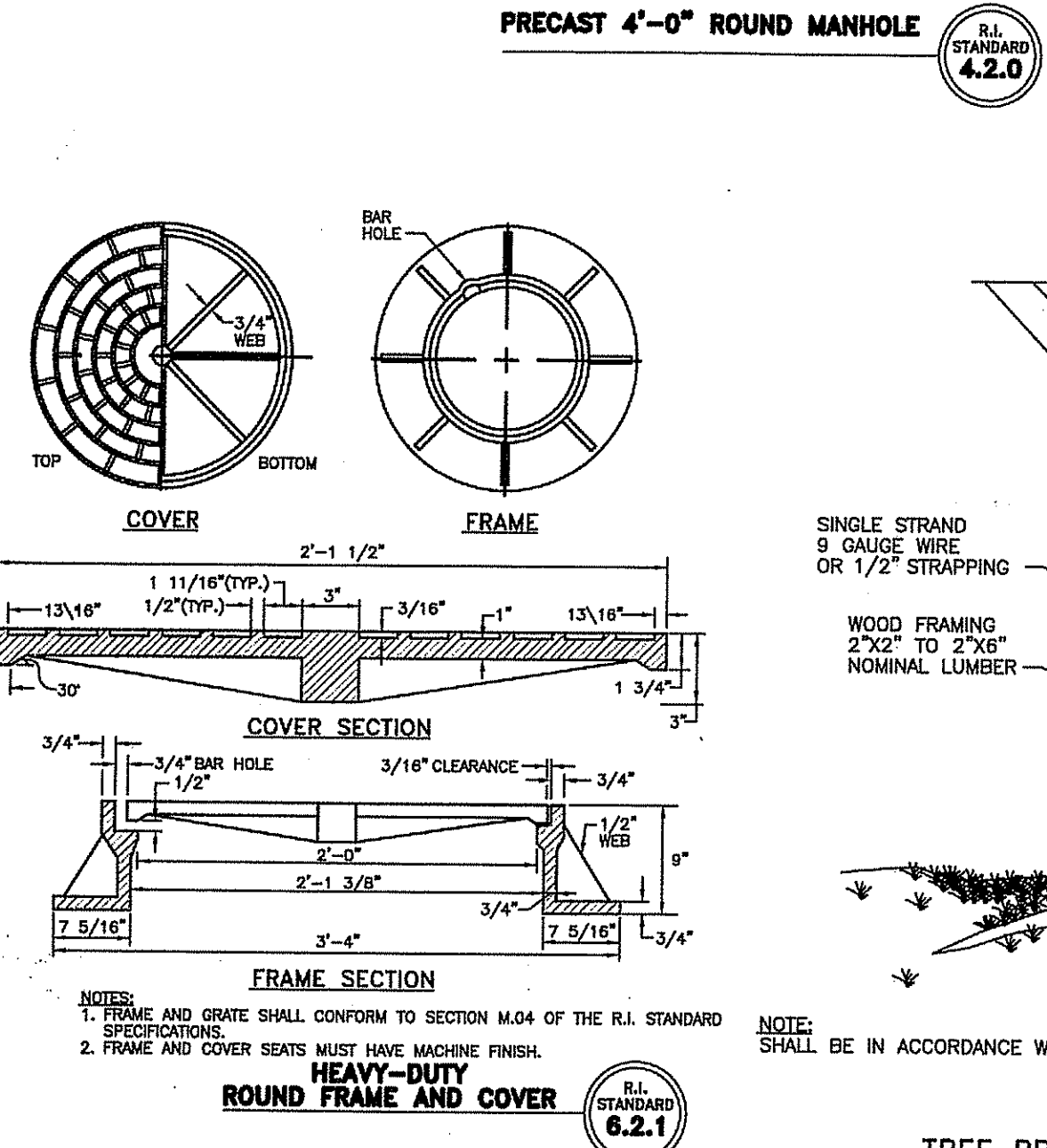
PRECAST 4'-0", 5'-0" OR 6'-0" ROUND CATCH BASIN
 R.I. STANDARD 4.4.0 M1



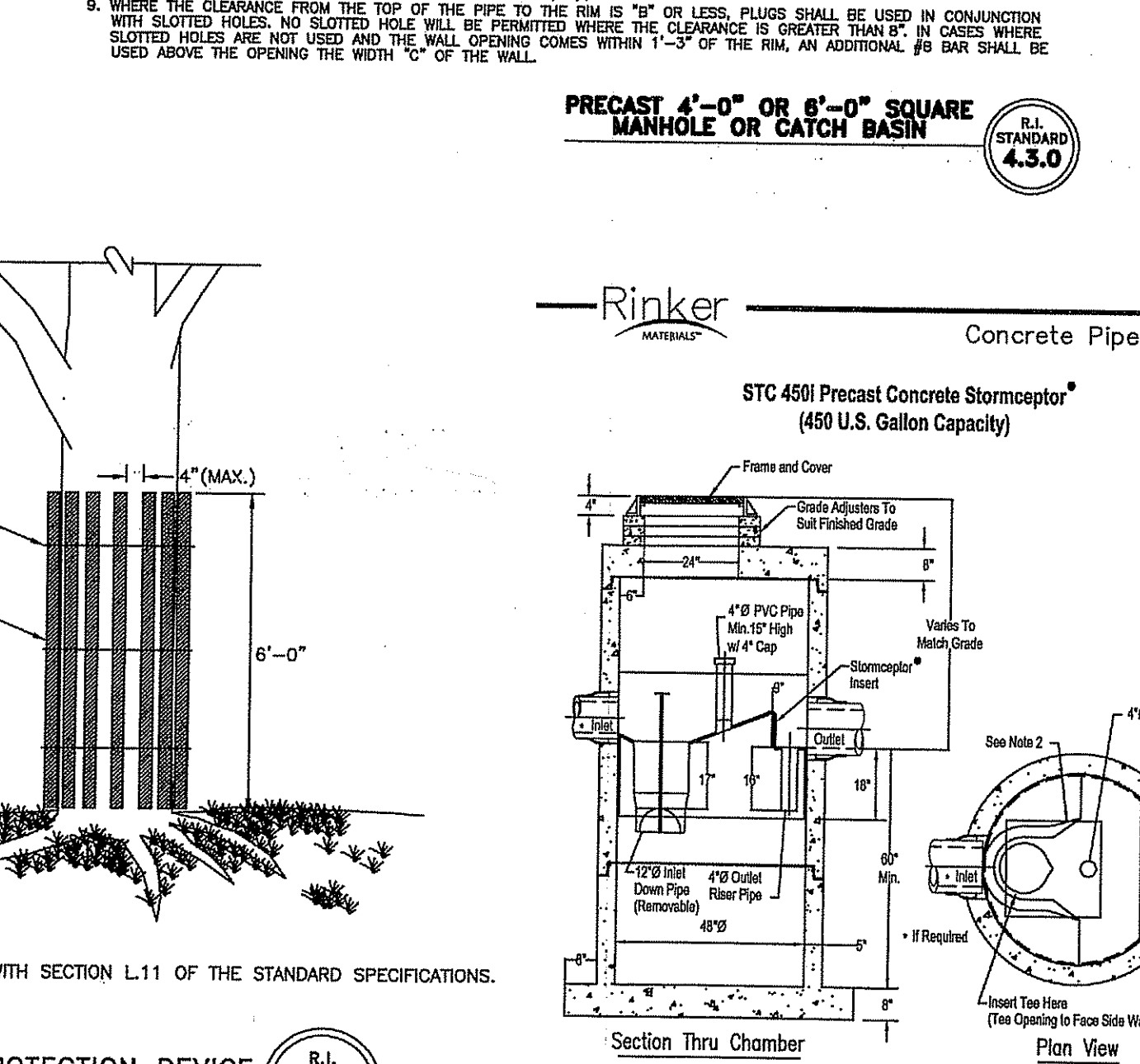
SQUARE FRAME AND GRATE (BICYCLE SAFE)
 R.I. STANDARD 6.3.2



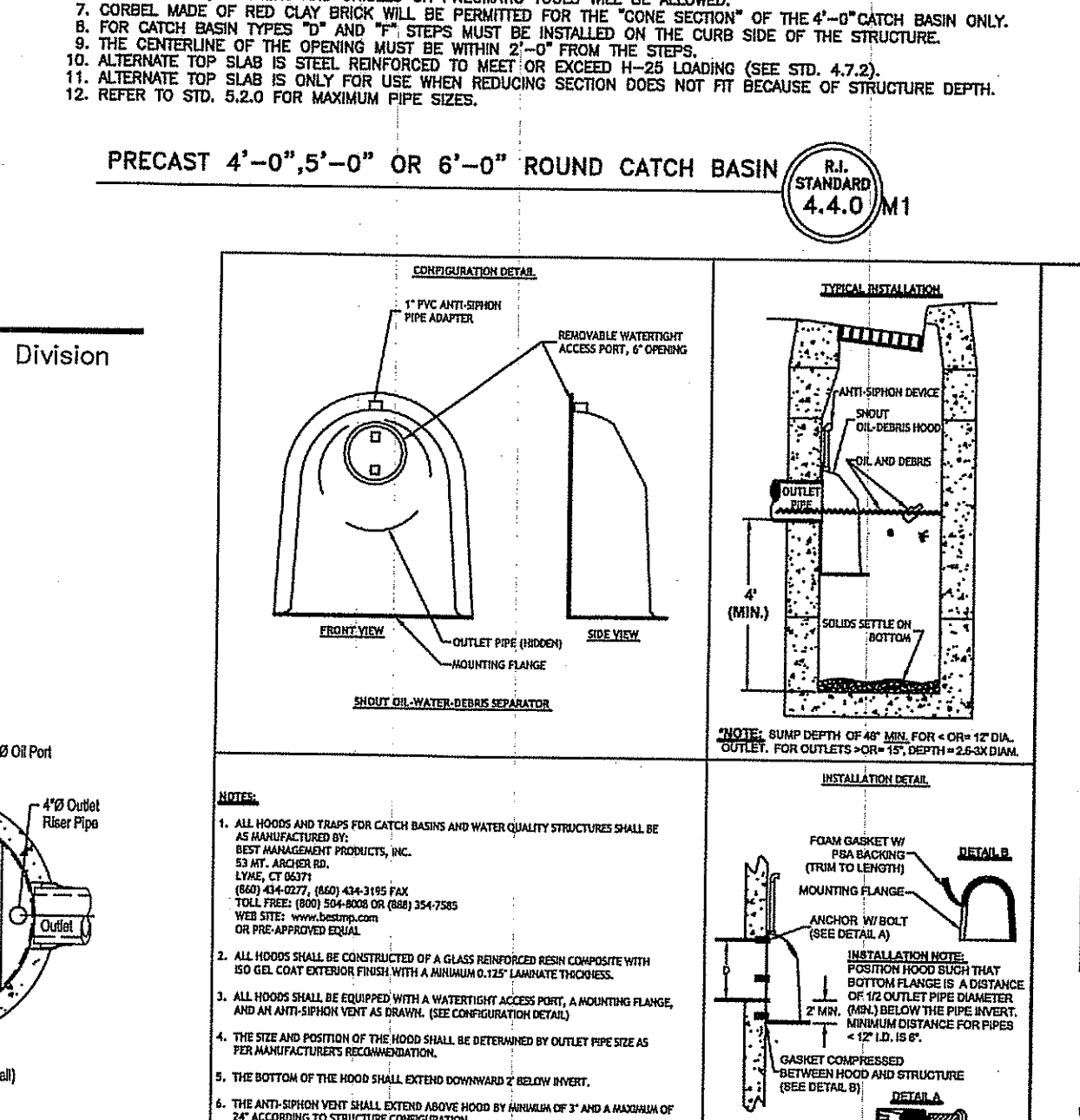
ADS PIPE TRENCH INSTALLATION DETAIL.
 N.T.S.



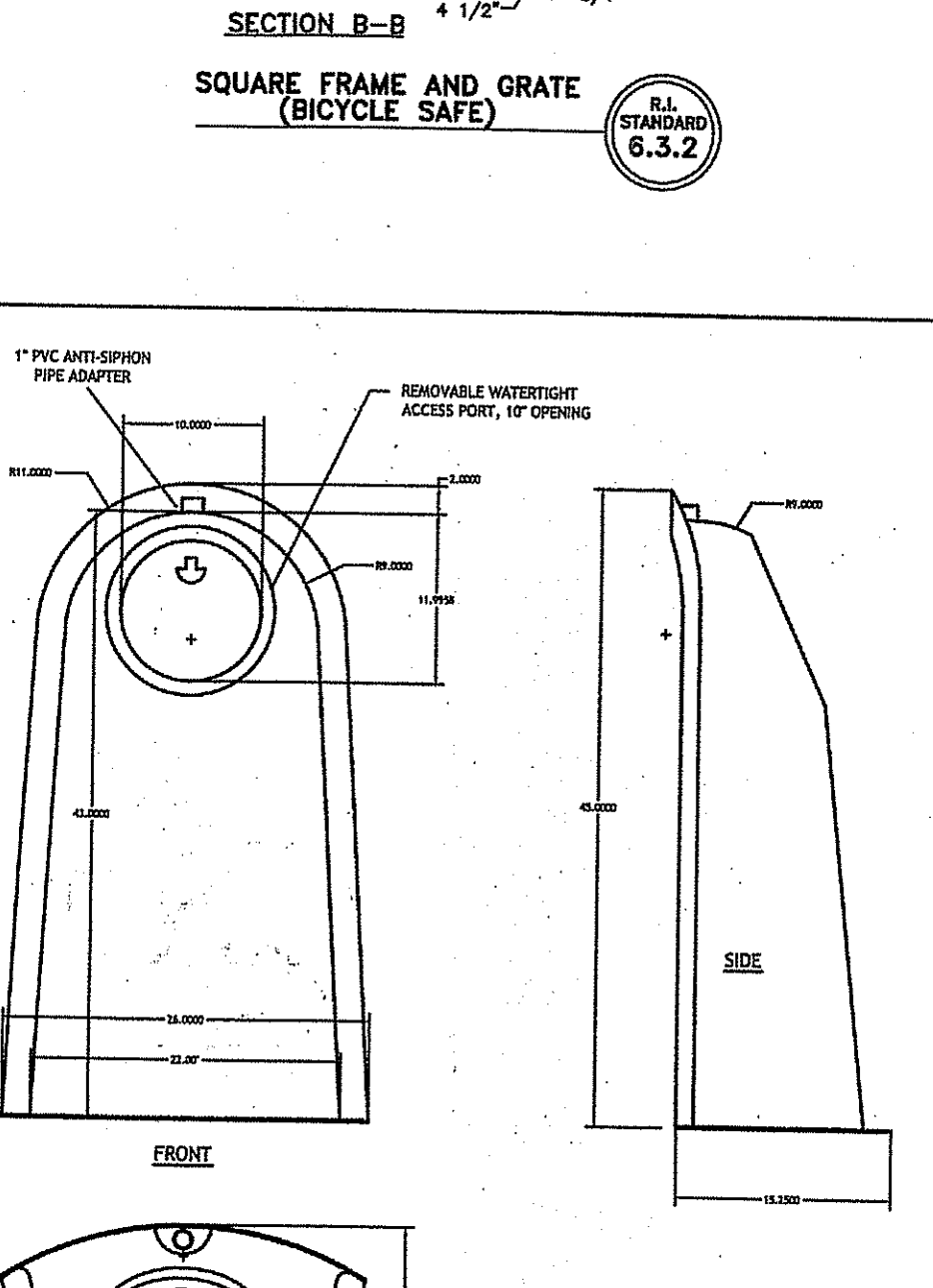
HEAVY-DUTY ROUND FRAME AND COVER
 R.I. STANDARD 6.2.1



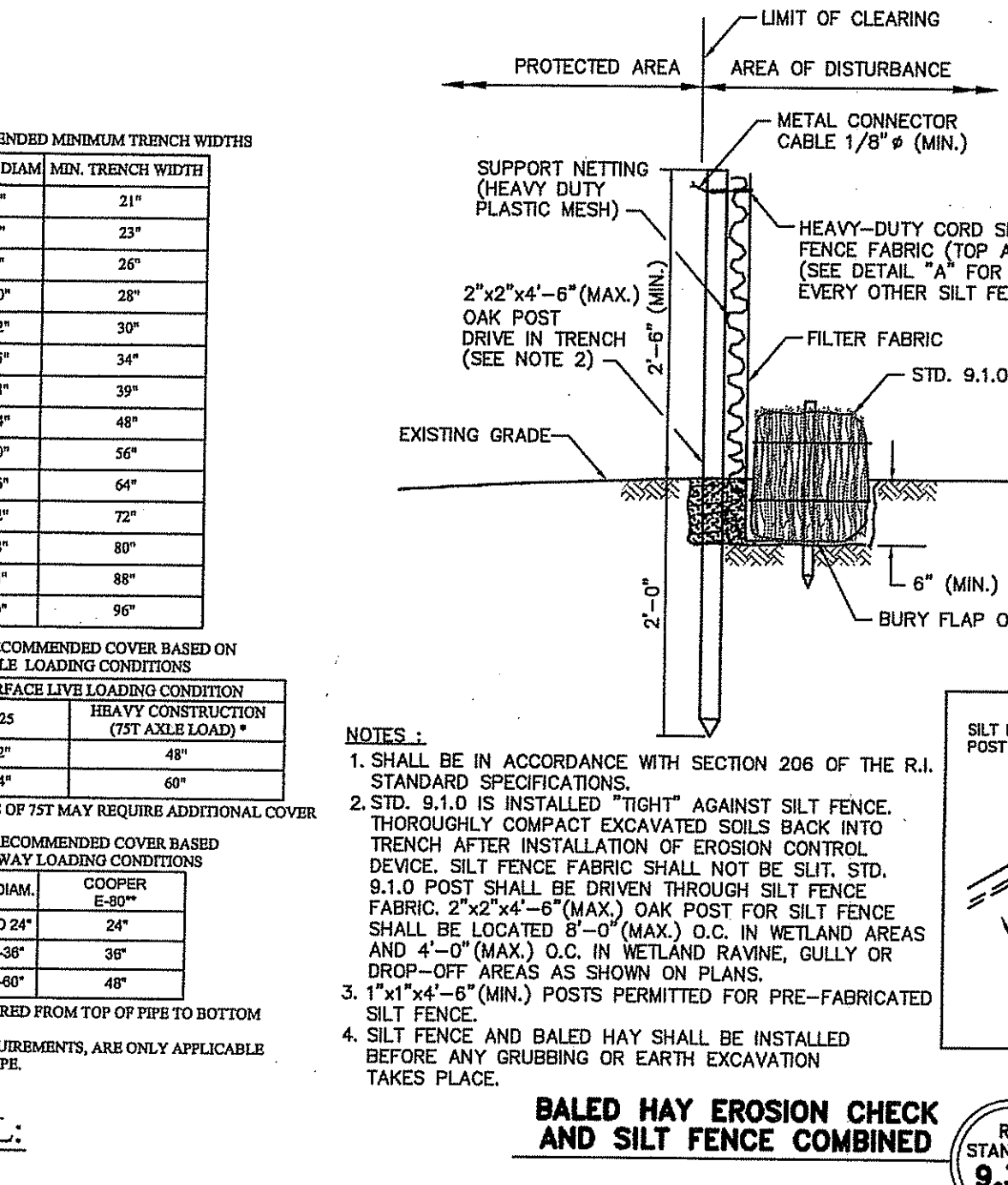
TREE PROTECTION DEVICE
 R.I. STANDARD 51.1.0



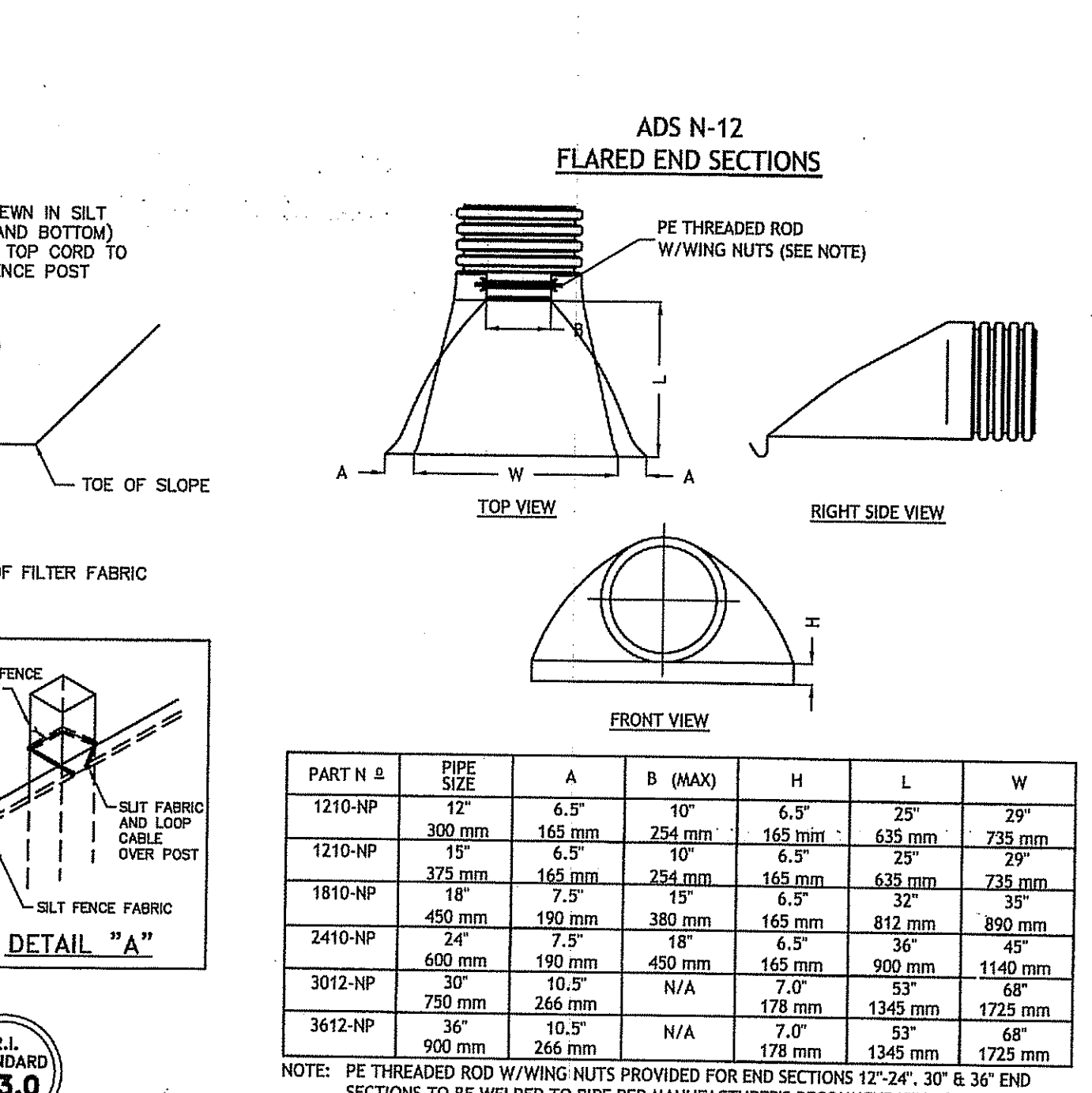
STC 450i Precast Concrete Stormceptor
 (450 U.S. Gallon Capacity)



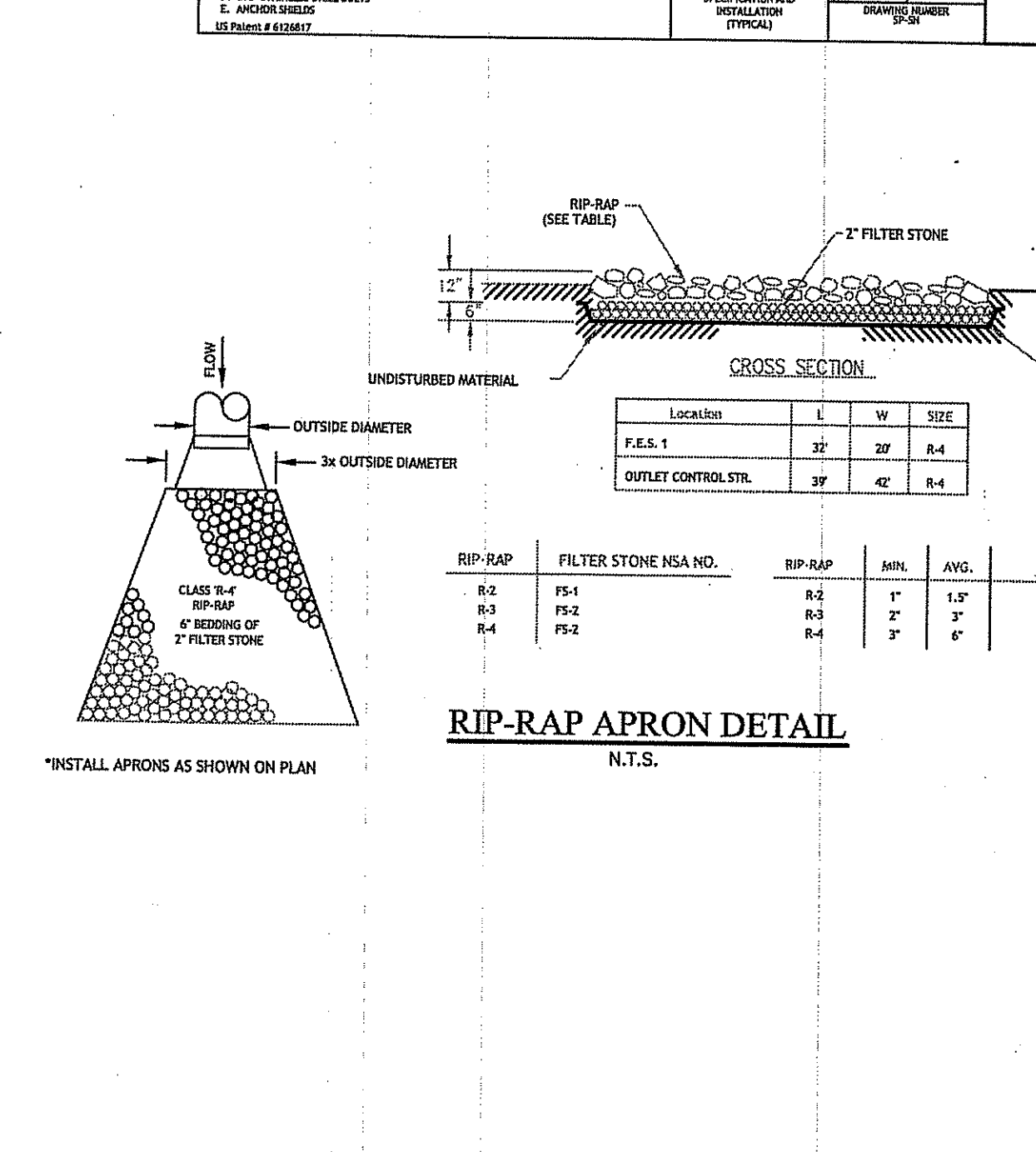
RIP-RAP APRON DETAIL
 N.T.S.



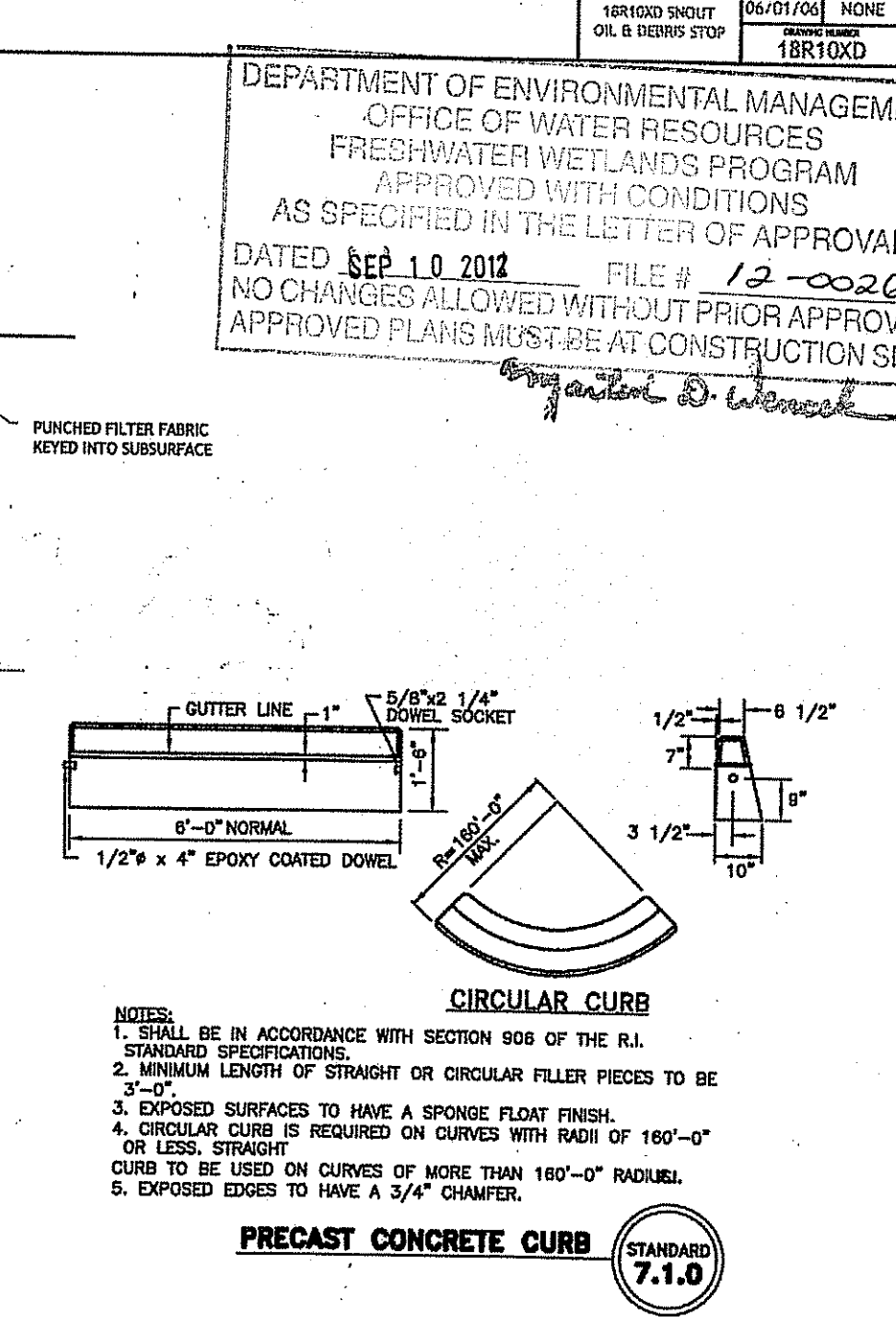
ADS N-12 FLARED END SECTIONS



BALED HAY EROSION CHECK AND SILT FENCE COMBINED
 R.I. STANDARD 3.9.0



CIRCULAR CURB
 R.I. STANDARD 7.1.0



PRECAST CONCRETE CURB
 R.I. STANDARD 7.1.0

JOE CASALI ENGINEERING, INC.
 CIVIL - SITE DEVELOPMENT - TRANSPORTATION
 DRAINAGE - WETLANDS - TRAFFIC - FLOODPLAIN
 401/844-1330 401/844-1313 FAX 401/844-1330

JOSEPH A. CASALI
 REGISTERED PROFESSIONAL ENGINEER
 CIVIL
 No. 7250
 8/13/16

McDONALD'S RESTAURANT
 736 BRANCH AVENUE
 PROVIDENCE, RHODE ISLAND
 AP 99 LOT 470

REVISIONS:

NO.	DATE	DESCRIPTION
1	6/19/12	RIDEM COMMENTS
2	8/13/12	RIDEM COMMENTS

DESIGNED BY: GBC
 DRAWN BY: WMLJR
 CHECKED BY: JAC
 DATE: FEB 2012
 PROJECT NO: 05-854

PERMIT SET
 NOT FOR CONSTRUCTION

DETAILS III

SHEET 8 OF 8