

# New Addition For Independence Square II

## Independence Square Foundation University of Rhode Island

KINGSTON, RHODE ISLAND



**PARE CORPORATION**  
ENGINEERS - SCIENTISTS - PLANNERS  
8 BLACKSTONE VALLEY PLACE  
LINCOLN, RI 02865  
401-334-4100



**SACOCCIO  
& ASSOCIATES, INC.**

1085 Park Avenue tel 401.842.7970  
Cranston, RI 02910 fax 401.842.7975



SCALE: 1"=500'

### INDEX OF DRAWINGS

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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED DEC 14 2007 FILE # 07-0214  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

*Charles A. [Signature]*

SEPTEMBER 2007 (REVISION 1)  
DECEMBER 2007 (REVISION 2)  
RIDEM PERMIT SUBMISSION



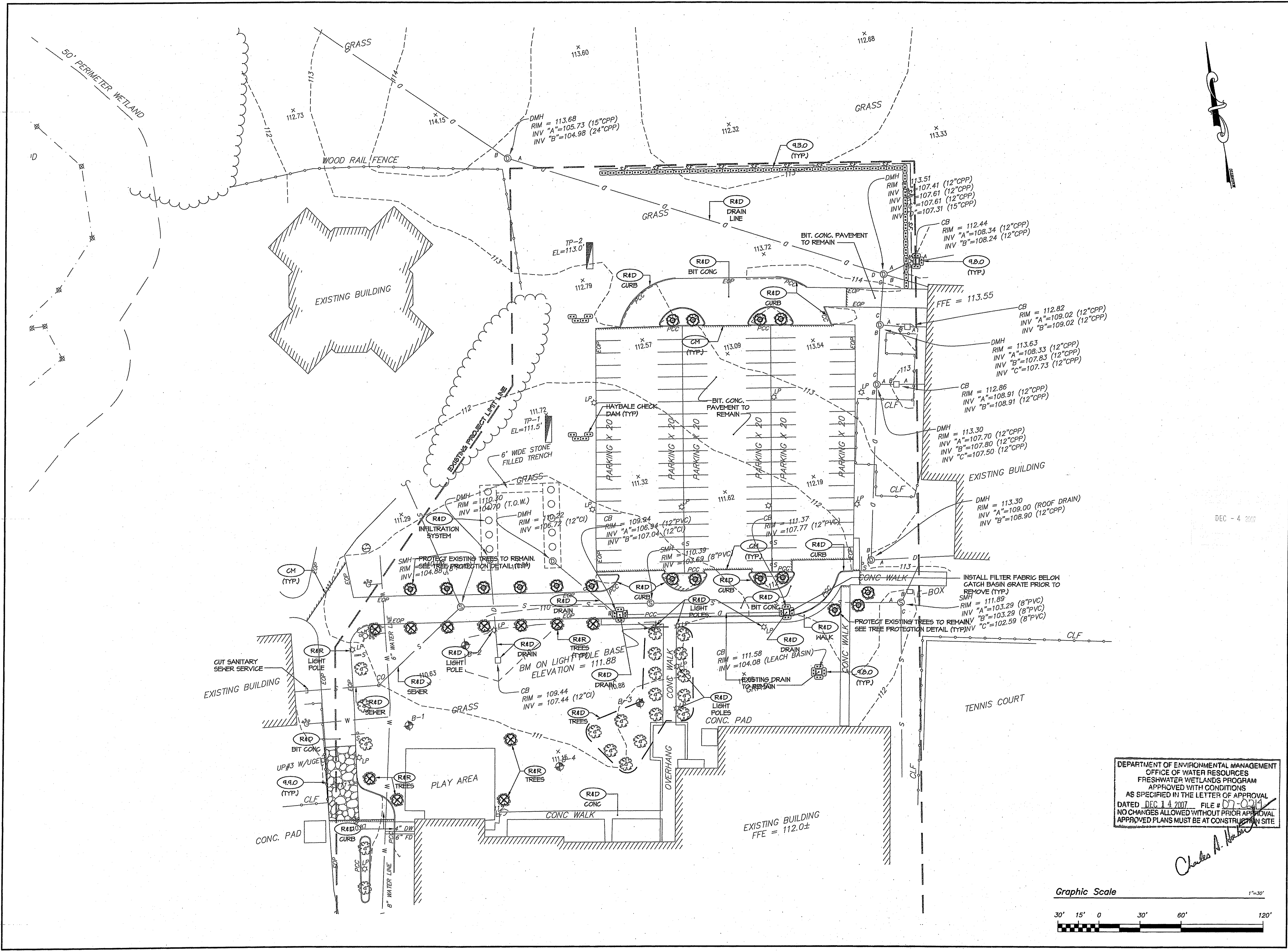
**NEW ADDITION FOR  
 INDEPENDENCE SQUARE II  
 INDEPENDENCE SQUARE FOUNDATION  
 UNIVERSITY OF RHODE ISLAND  
 KINGSTON, RHODE ISLAND**

SCOTT D. LINDGREN  
 No. BC336  
 REGISTERED PROFESSIONAL ENGINEER  
 STATE OF RHODE ISLAND  
 12/31/07

REVISIONS:  
 1 8-07-07 RIDEM COMMENTS

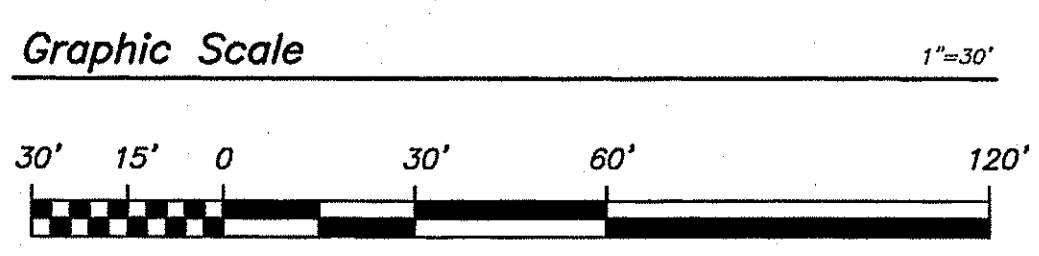
PROJECT NO.: 06237.00  
 DATE: MAY 2007  
 SCALE: 1"=30'  
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 CHECKED BY: SDL  
 DRAWN BY: AKD  
 APPROVED BY: SDL  
 DRAWING TITLE:

DEMOLITION PLAN  
 DRAWING NO.:  
**C2**  
 SHEET NO. 3 OF 9



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
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DEC - 4 2007

APPLICANT:  
**University of Rhode Island**  
 525 Plains Road  
 Kingston, RI 02881

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SCOTT D. LINDGREN  
 No. 8036  
 REGISTERED  
 PROFESSIONAL ENGINEER  
 CIVIL  
 12/3/07

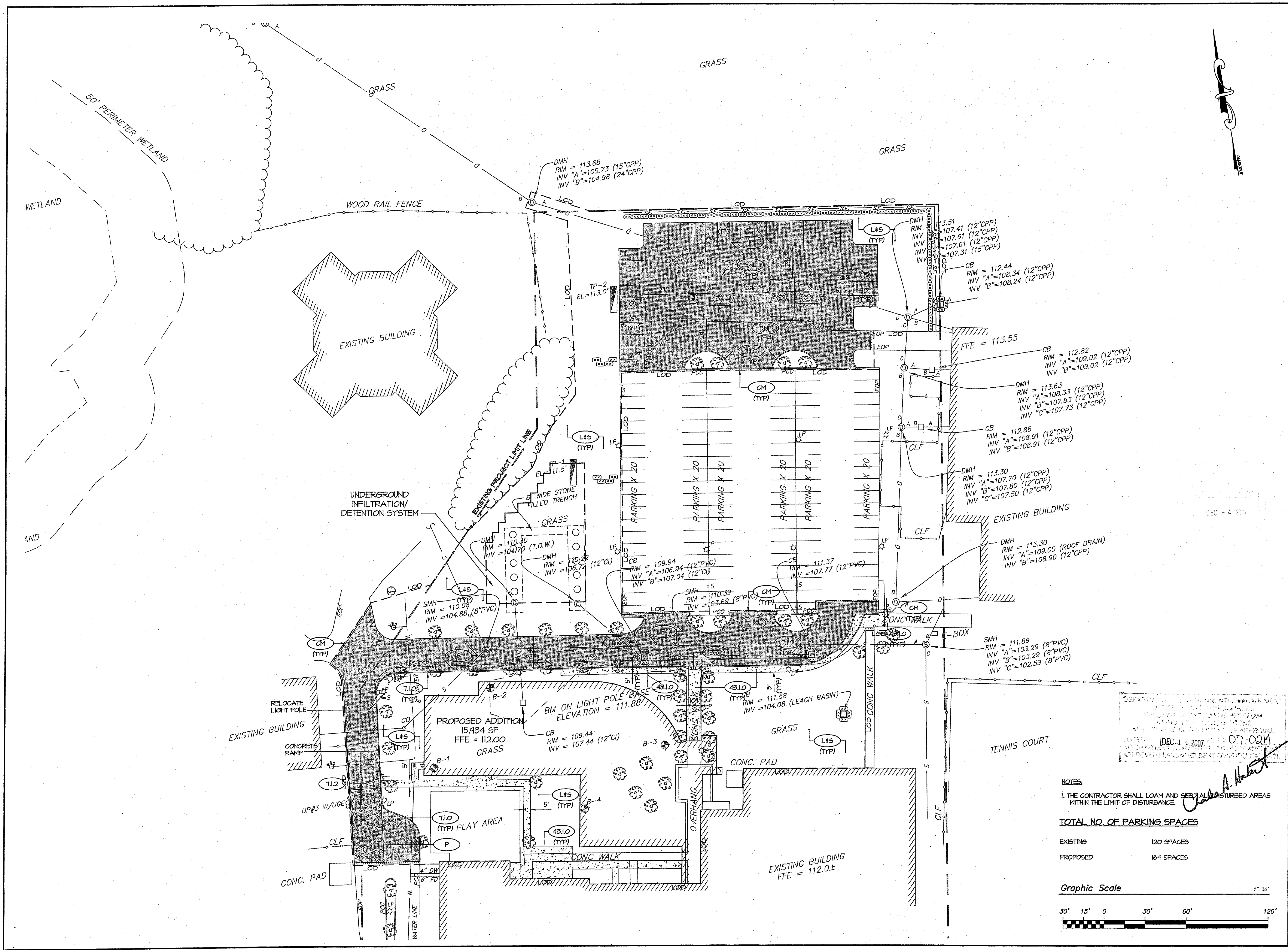
REVISIONS:  
 1 9-07-07 RIDEM COMMENTS

DEPARTMENT OF LAND USE AND PLANNING  
 100 STATE HOUSE AVENUE  
 PROVISIONAL APPROVAL  
 DATE: DEC 11 2007 07:02A  
 APPROVED: [Signature]

PROJECT NO.: 06237.00  
 DATE: MAY 2007  
 SCALE: 1"=30'  
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 CHECKED BY: SDL  
 DRAWN BY: AKD  
 APPROVED BY: SDL  
 DRAWING TITLE:

GENERAL PLAN

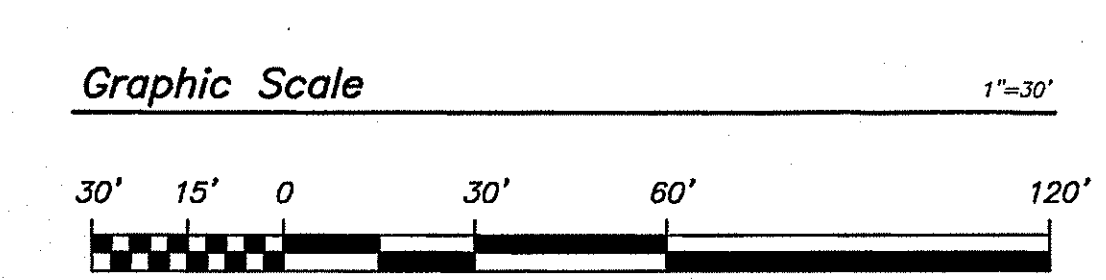
DRAWING NO.:  
**C3**  
 SHEET NO. 4 OF 9



NOTES:  
 1. THE CONTRACTOR SHALL LOAM AND SEED ALL DISTURBED AREAS WITHIN THE LIMIT OF DISTURBANCE.

**TOTAL NO. OF PARKING SPACES**

EXISTING	120 SPACES
PROPOSED	164 SPACES

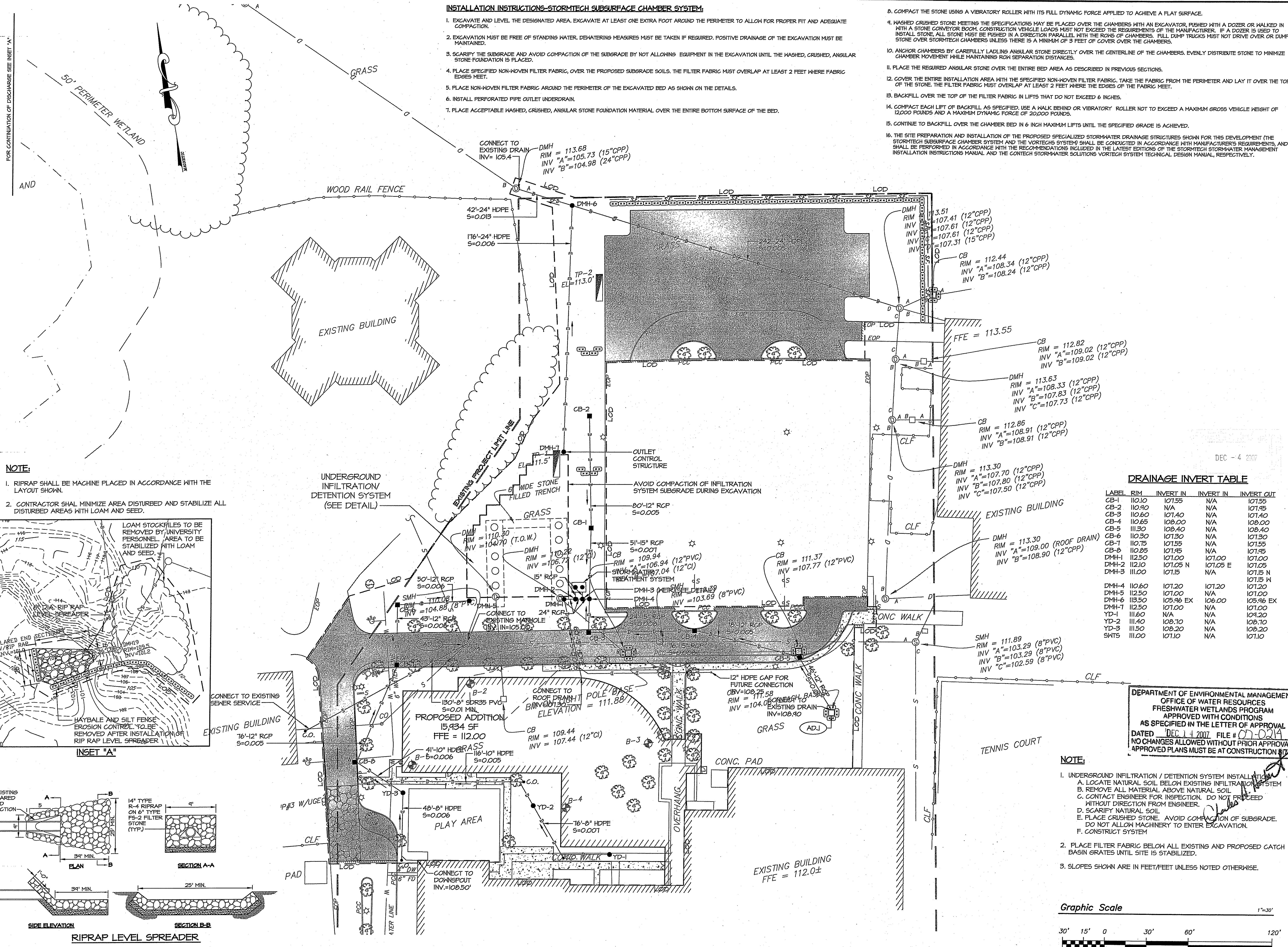




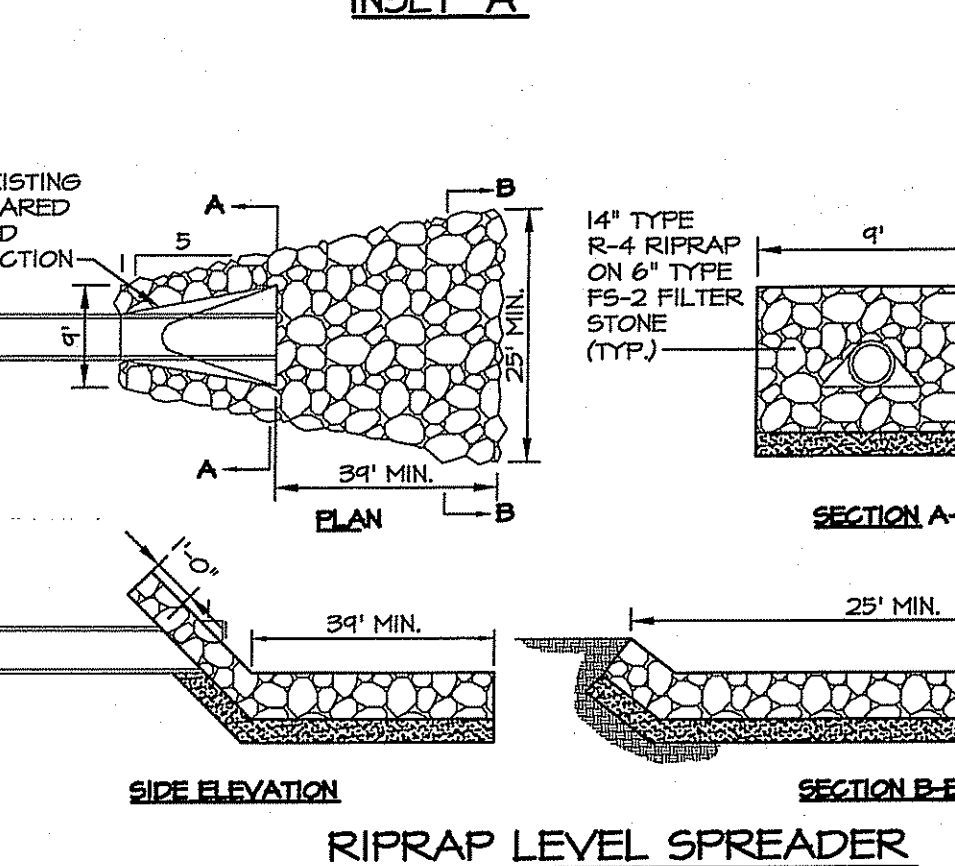
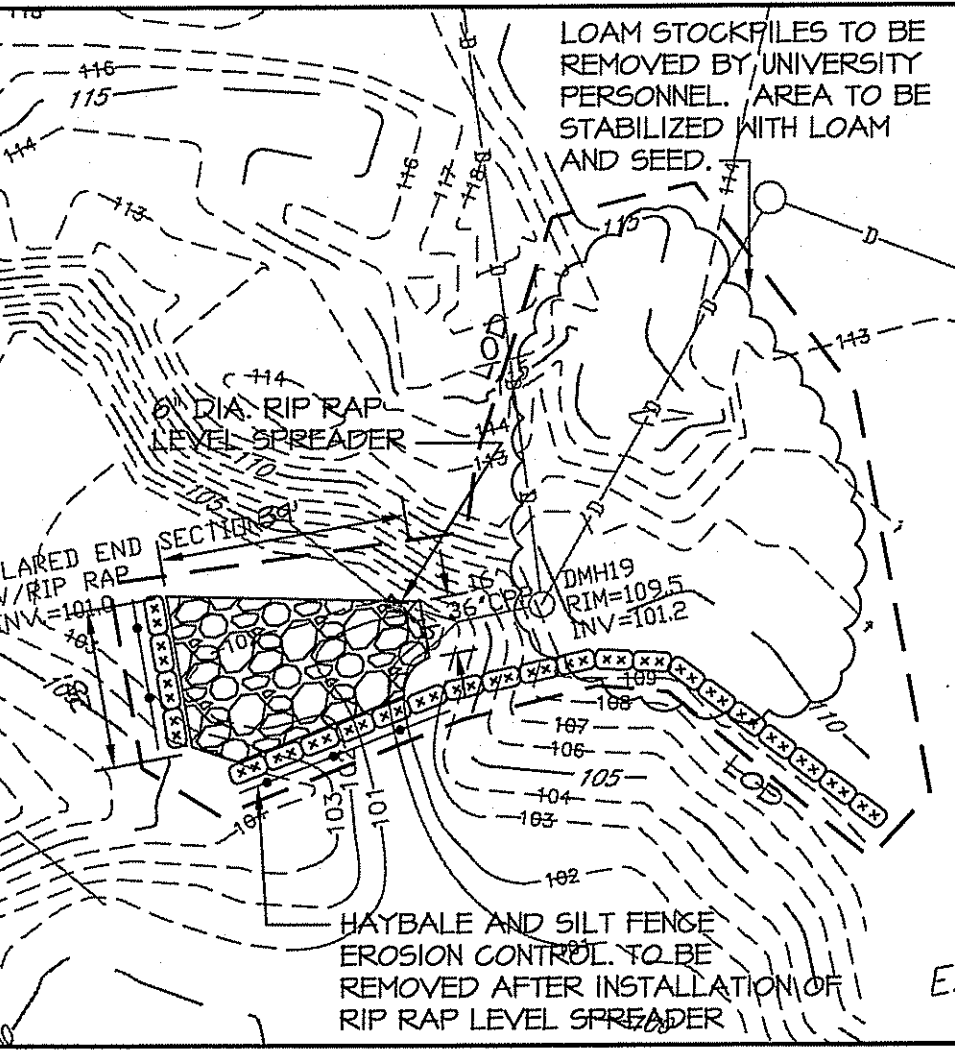
**INSTALLATION INSTRUCTIONS-STORMTECH SUBSURFACE CHAMBER SYSTEM:**

1. EXCAVATE AND LEVEL THE DESIGNATED AREA. EXCAVATE AT LEAST ONE EXTRA FOOT AROUND THE PERIMETER TO ALLOW FOR PROPER FIT AND ADEQUATE COMPACTION.
2. EXCAVATION MUST BE FREE OF STANDING WATER. DEWATERING MEASURES MUST BE TAKEN IF REQUIRED. POSITIVE DRAINAGE OF THE EXCAVATION MUST BE MAINTAINED.
3. SCARIFY THE SUBGRADE AND AVOID COMPACTION OF THE SUBGRADE BY NOT ALLOWING EQUIPMENT IN THE EXCAVATION UNTIL THE WASHED, CRUSHED, ANGULAR STONE FOUNDATION IS PLACED.
4. PLACE SPECIFIED NON-WOVEN FILTER FABRIC, OVER THE PROPOSED SUBGRADE SOILS. THE FILTER FABRIC MUST OVERLAP AT LEAST 2 FEET WHERE FABRIC EDGES MEET.
5. PLACE NON-WOVEN FILTER FABRIC AROUND THE PERIMETER OF THE EXCAVATED BED AS SHOWN ON THE DETAILS.
6. INSTALL PERFORATED PIPE OUTLET UNDERDRAIN.
7. PLACE ACCEPTABLE WASHED, CRUSHED, ANGULAR STONE FOUNDATION MATERIAL OVER THE ENTIRE BOTTOM SURFACE OF THE BED.

8. COMPACT THE STONE USING A VIBRATORY ROLLER WITH ITS FULL DYNAMIC FORCE APPLIED TO ACHIEVE A FLAT SURFACE.
9. WASHED CRUSHED STONE MEETING THE SPECIFICATIONS MAY BE PLACED OVER THE CHAMBERS WITH AN EXCAVATOR, PUSHED WITH A DOZER OR WALKED IN WITH A STONE CONVEYOR BOOM. CONSTRUCTION VEHICLE LOADS MUST NOT EXCEED THE REQUIREMENTS OF THE MANUFACTURER. IF A DOZER IS USED TO INSTALL STONE, ALL STONE MUST BE PUSHED IN A DIRECTION PARALLEL WITH THE ROWS OF CHAMBERS. FULL DUMP TRUCKS MUST NOT DRIVE OVER OR DUMP STONE OVER STORMTECH CHAMBERS UNLESS THERE IS A MINIMUM OF 3 FEET OF COVER OVER THE CHAMBERS.
10. ANCHOR CHAMBERS BY CAREFULLY LADLING ANGULAR STONE DIRECTLY OVER THE CENTERLINE OF THE CHAMBERS. EVENLY DISTRIBUTE STONE TO MINIMIZE CHAMBER MOVEMENT WHILE MAINTAINING ROW SEPARATION DISTANCES.
11. PLACE THE REQUIRED ANGULAR STONE OVER THE ENTIRE BED AREA AS DESCRIBED IN PREVIOUS SECTIONS.
12. COVER THE ENTIRE INSTALLATION AREA WITH THE SPECIFIED NON-WOVEN FILTER FABRIC. TAKE THE FABRIC FROM THE PERIMETER AND LAY IT OVER THE TOP OF THE STONE. THE FILTER FABRIC MUST OVERLAP AT LEAST 2 FEET WHERE THE EDGES OF THE FABRIC MEET.
13. BACKFILL OVER THE TOP OF THE FILTER FABRIC IN LIFTS THAT DO NOT EXCEED 6 INCHES.
14. COMPACT EACH LIFT OF BACKFILL AS SPECIFIED. USE A WALK BEHIND OR VIBRATORY ROLLER NOT TO EXCEED A MAXIMUM GROSS VEHICLE WEIGHT OF 12,000 POUNDS AND A MAXIMUM DYNAMIC FORCE OF 20,000 POUNDS.
15. CONTINUE TO BACKFILL OVER THE CHAMBER BED IN 6 INCH MAXIMUM LIFTS UNTIL THE SPECIFIED GRADE IS ACHIEVED.
16. THE SITE PREPARATION AND INSTALLATION OF THE PROPOSED SPECIALIZED STORMWATER DRAINAGE STRUCTURES SHOWN FOR THIS DEVELOPMENT (THE STORMTECH SUBSURFACE CHAMBER SYSTEM AND THE VORTEXIS SYSTEM) SHALL BE CONDUCTED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS, AND SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS INCLUDED IN THE LATEST EDITIONS OF THE STORMTECH STORMWATER MANAGEMENT INSTALLATION INSTRUCTIONS MANUAL AND THE CONTECH STORMWATER SOLUTIONS VORTEXIS SYSTEM TECHNICAL DESIGN MANUAL, RESPECTIVELY.



- NOTE:**
1. RIPRAP SHALL BE MACHINE PLACED IN ACCORDANCE WITH THE LAYOUT SHOWN.
  2. CONTRACTOR SHALL MINIMIZE AREA DISTURBED AND STABILIZE ALL DISTURBED AREAS WITH LOAM AND SEED.

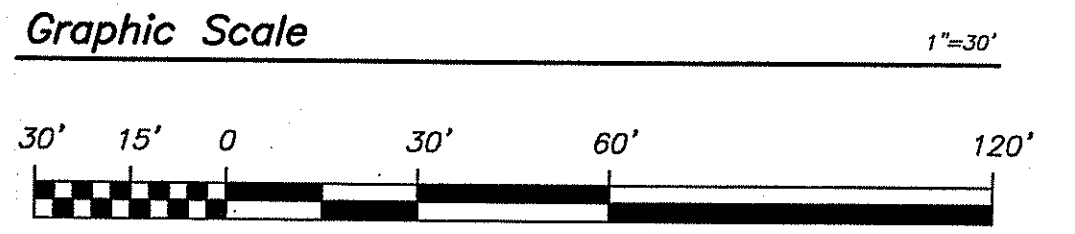


**DRAINAGE INVERT TABLE**

LABEL	RIM	INVERT IN	INVERT IN	INVERT OUT
CB-1	110.10	107.55	N/A	107.55
CB-2	110.90	N/A	N/A	107.95
CB-3	110.60	107.40	N/A	107.40
CB-4	110.65	108.00	N/A	108.00
CB-5	111.30	108.40	N/A	108.40
CB-6	110.30	107.30	N/A	107.30
CB-7	110.75	107.55	N/A	107.55
CB-8	110.85	107.45	N/A	107.45
DMH-1	112.50	107.00	107.00	107.00
DMH-2	112.10	107.05	107.05	107.05
DMH-3	111.00	107.15	N/A	107.15 N
DMH-4	110.60	107.20	107.20	107.20
DMH-5	112.50	107.00	N/A	107.00
DMH-6	113.50	105.96 EX	106.00	105.96 EX
DMH-7	112.50	107.00	N/A	107.00
YD-1	111.60	N/A	N/A	104.20
YD-2	111.40	108.10	N/A	108.10
YD-3	111.50	108.20	N/A	108.20
SMTS	111.00	107.10	N/A	107.10

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- NOTE:**
1. UNDERGROUND INFILTRATION / DETENTION SYSTEM INSTALLATION:
    - A. LOCATE NATURAL SOIL BELOW EXISTING INFILTRATION SYSTEM
    - B. REMOVE ALL MATERIAL ABOVE NATURAL SOIL
    - C. CONTACT ENGINEER FOR INSPECTION. DO NOT PROCEED WITHOUT DIRECTION FROM ENGINEER.
    - D. SCARIFY NATURAL SOIL
    - E. PLACE CRUSHED STONE. AVOID COMPACTION OF SUBGRADE. DO NOT ALLOW MACHINERY TO ENTER EXCAVATION.
    - F. CONSTRUCT SYSTEM
  2. PLACE FILTER FABRIC BELOW ALL EXISTING AND PROPOSED GATCH BASIN GRATES UNTIL SITE IS STABILIZED.
  3. SLOPES SHOWN ARE IN FEET/FEET UNLESS NOTED OTHERWISE.



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 UNIVERSITY OF RHODE ISLAND  
 KINGSTON, RHODE ISLAND

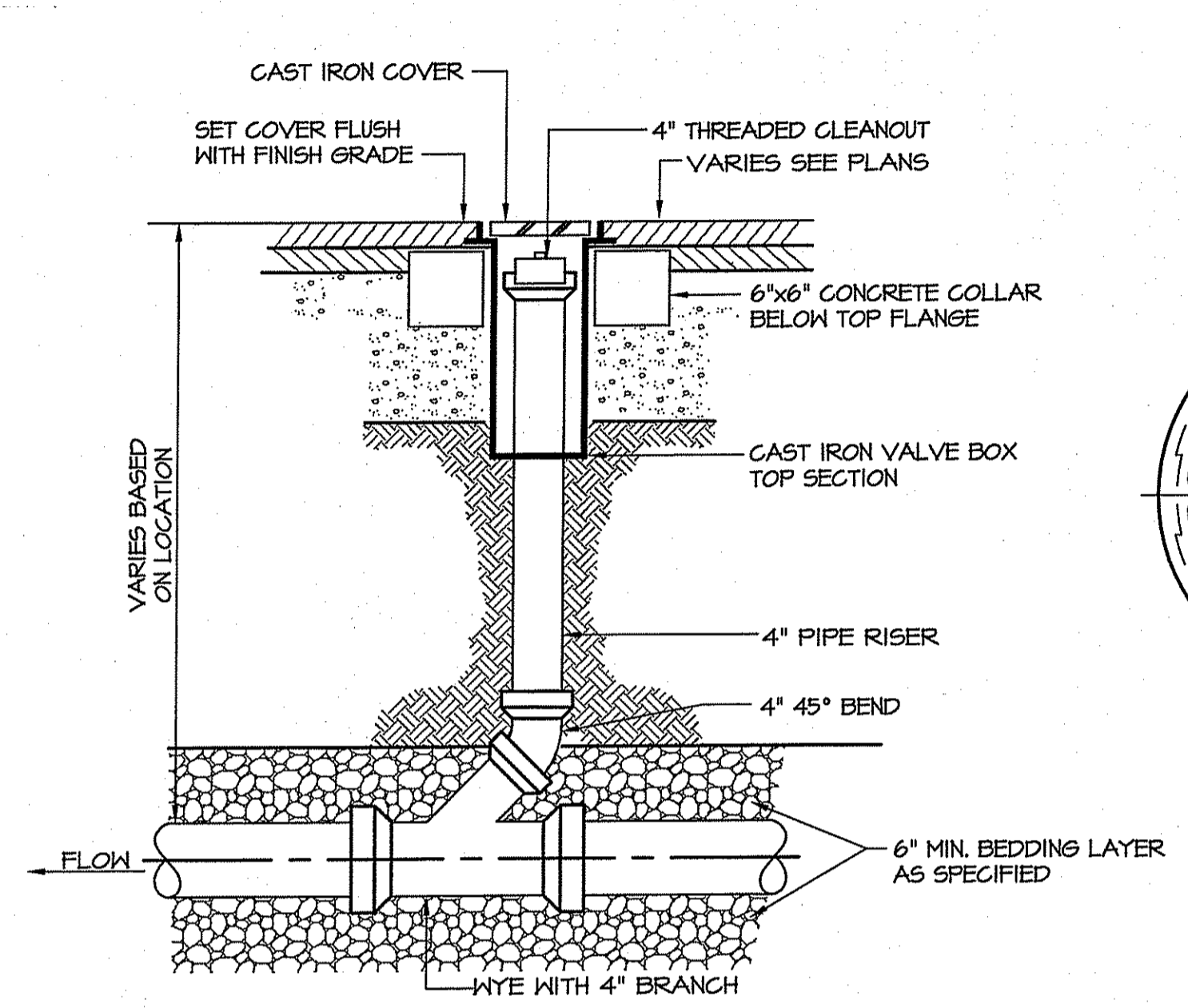
SCOTT D. LINDGREN  
 No. 8036  
 REGISTERED PROFESSIONAL ENGINEER  
 CIVIL  
 12/3/07

**REVISIONS:**

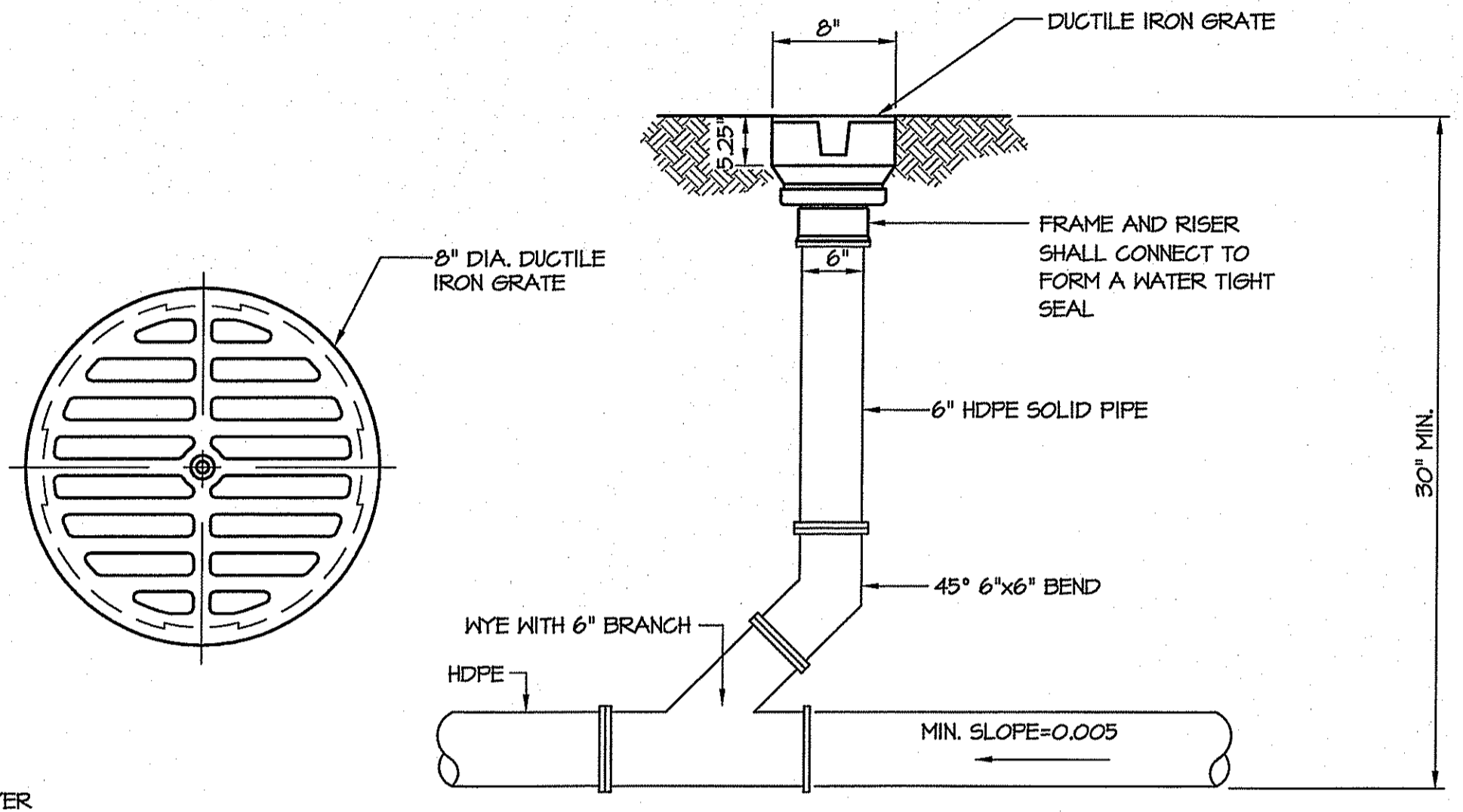
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2	12-03-07	RIDEM COMMENTS

PROJECT NO.: 06237.00  
 DATE: MAY 2007  
 SCALE: 1"=30'  
 DESIGNED BY: DLP  
 CHECKED BY: SDL  
 DRAWN BY: AKD  
 APPROVED BY: SDL  
 DRAWING TITLE:  
 DRAINAGE & UTILITY PLAN

DRAWING NO.:  
**C5**  
 SHEET NO. 6 OF 9

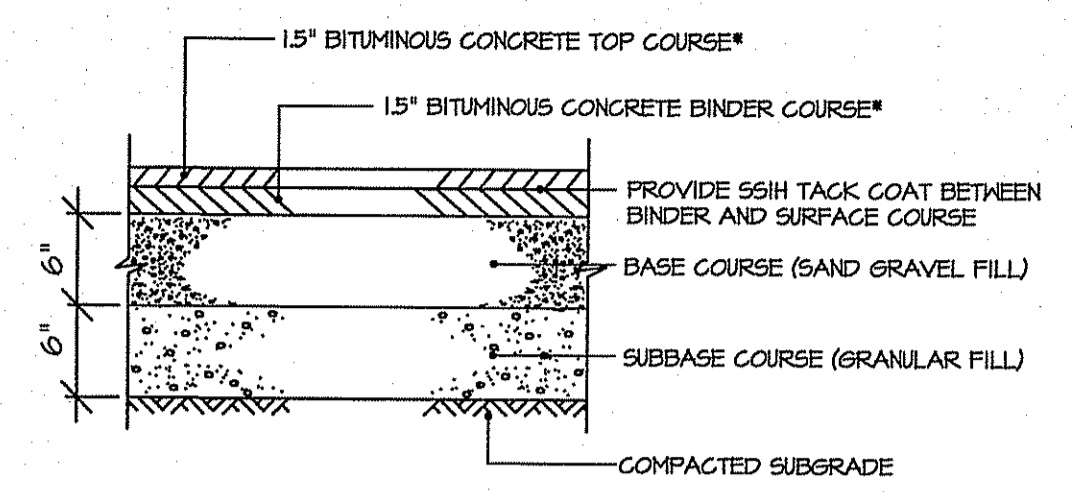


**CLEANOUT DETAIL**  
 NOT TO SCALE

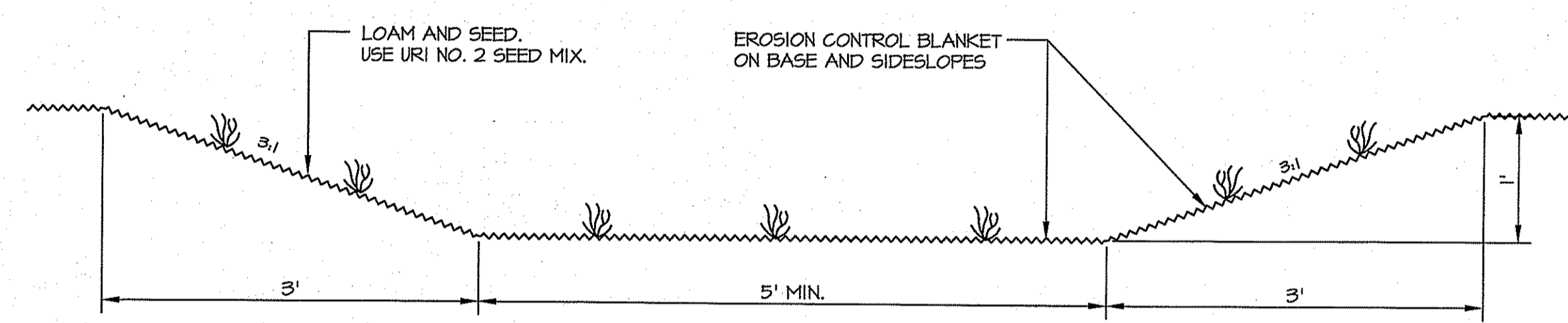


**YARD DRAIN DETAIL**  
 NOT TO SCALE

- NOTES:  
 1. MATERIALS SHALL CONFORM TO ASTM A 536 GRADE TO-50-05  
 2. CASTING SHALL BE FURNISHED WITH A BLACK PAINT

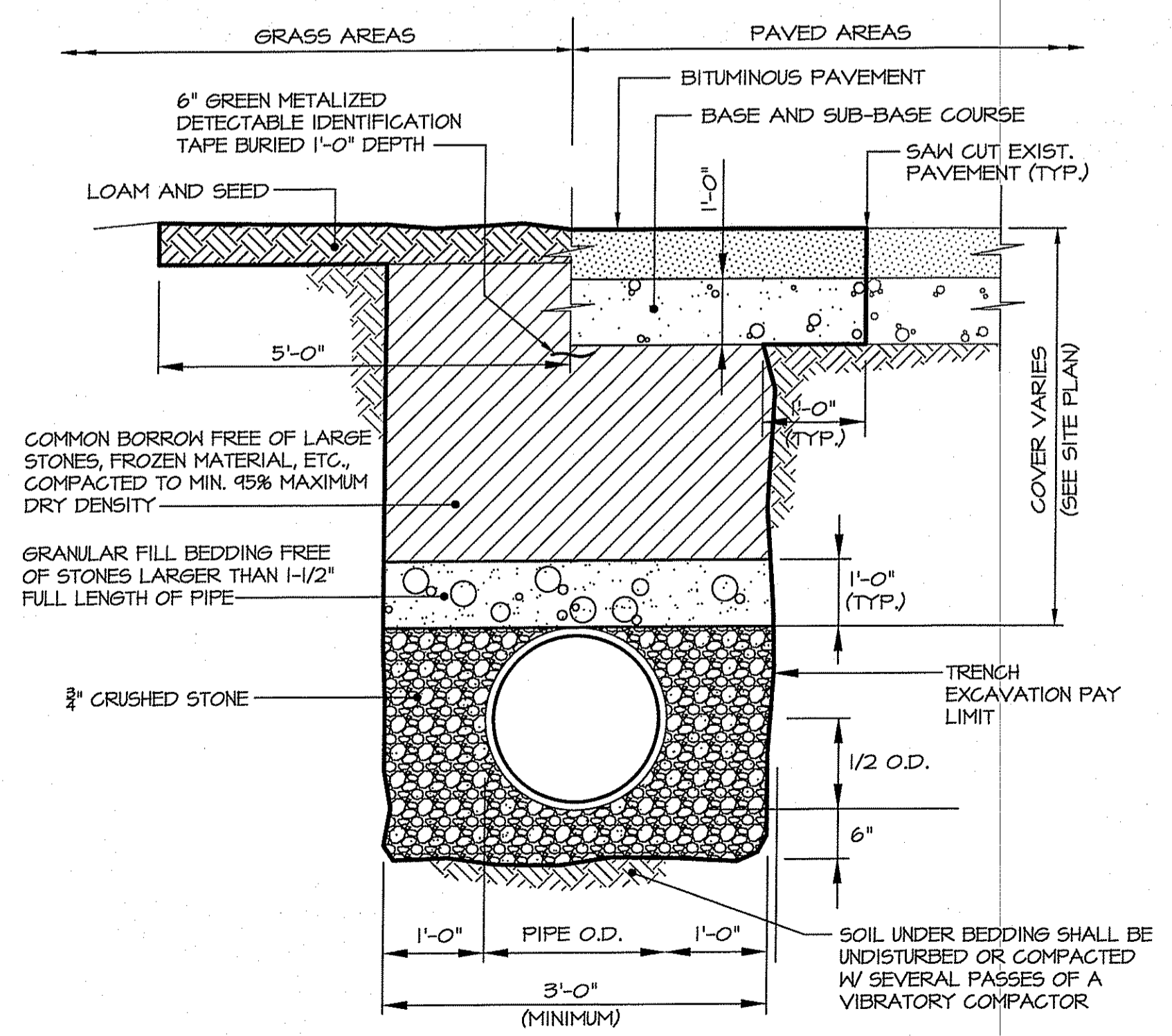


**TYPICAL PAVEMENT DETAIL**  
 NOT TO SCALE

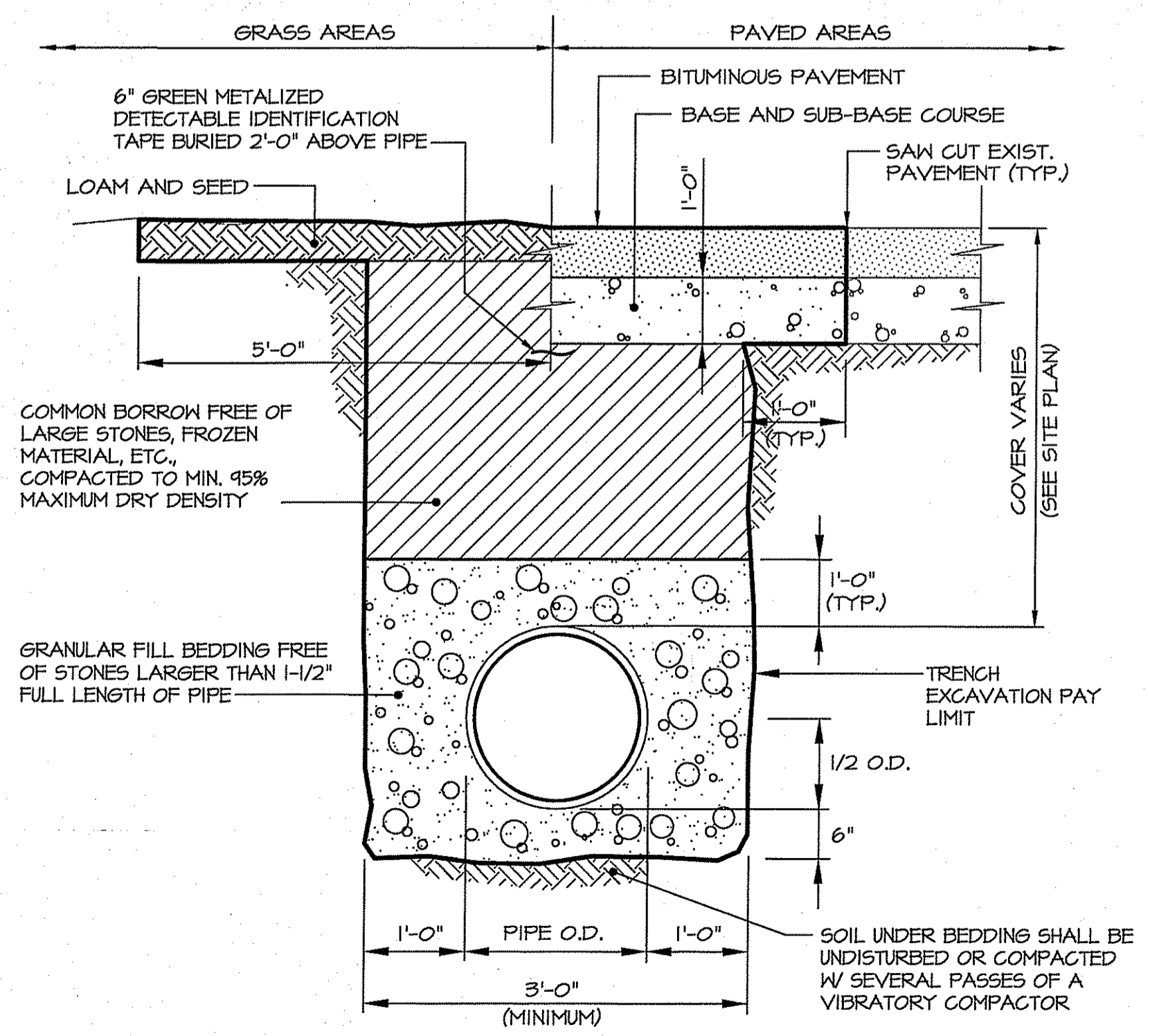


**TYPICAL GRASS DRAINAGE SWALE SECTION**  
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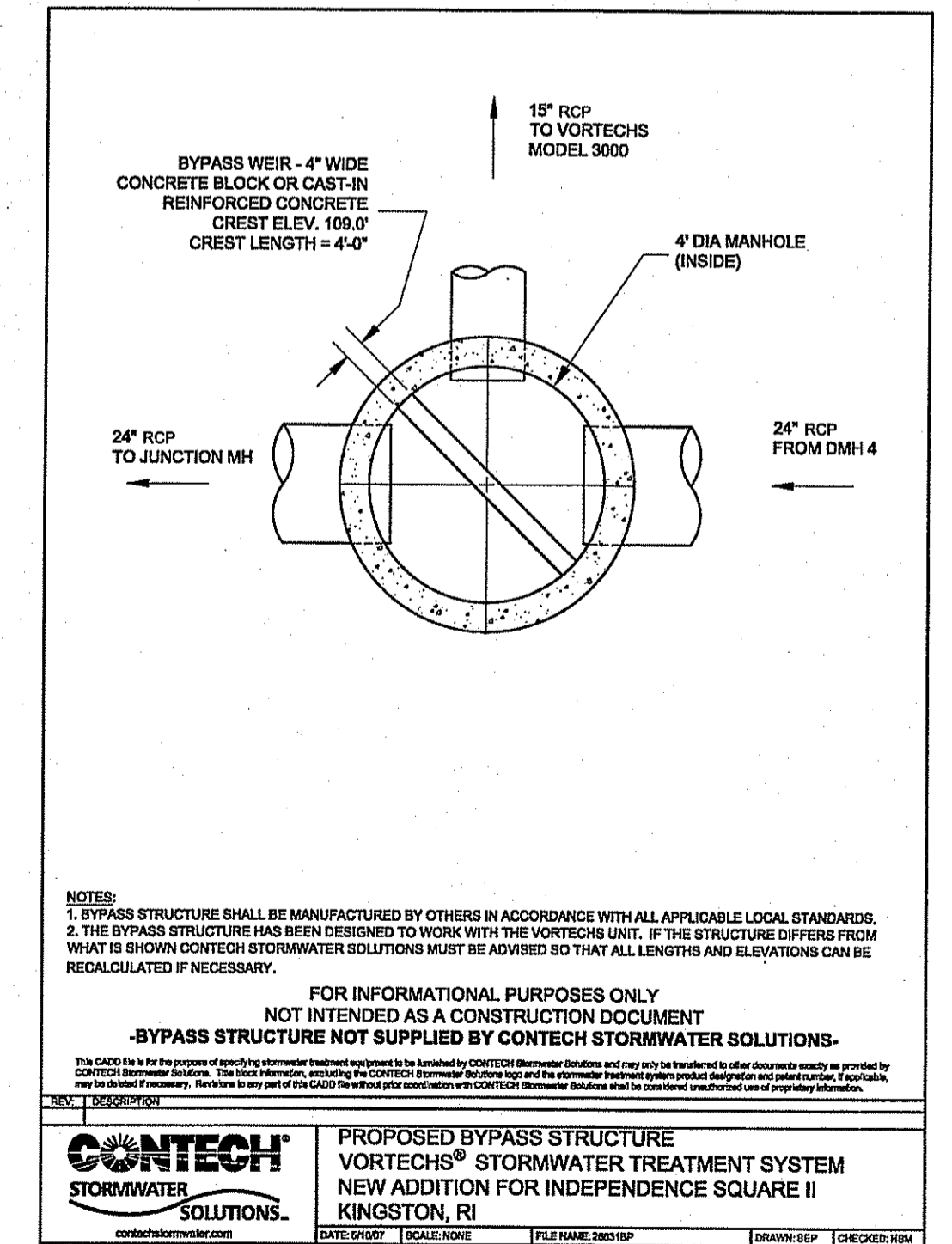
- NOTE:  
 1. MINIMUM LONGITUDINAL SLOPE IS 0.010 FT/FT  
 2. DIMENSIONS VARY THROUGHOUT SWALE



**TYPICAL WATER MAIN TRENCH SECTION**  
 NOT TO SCALE

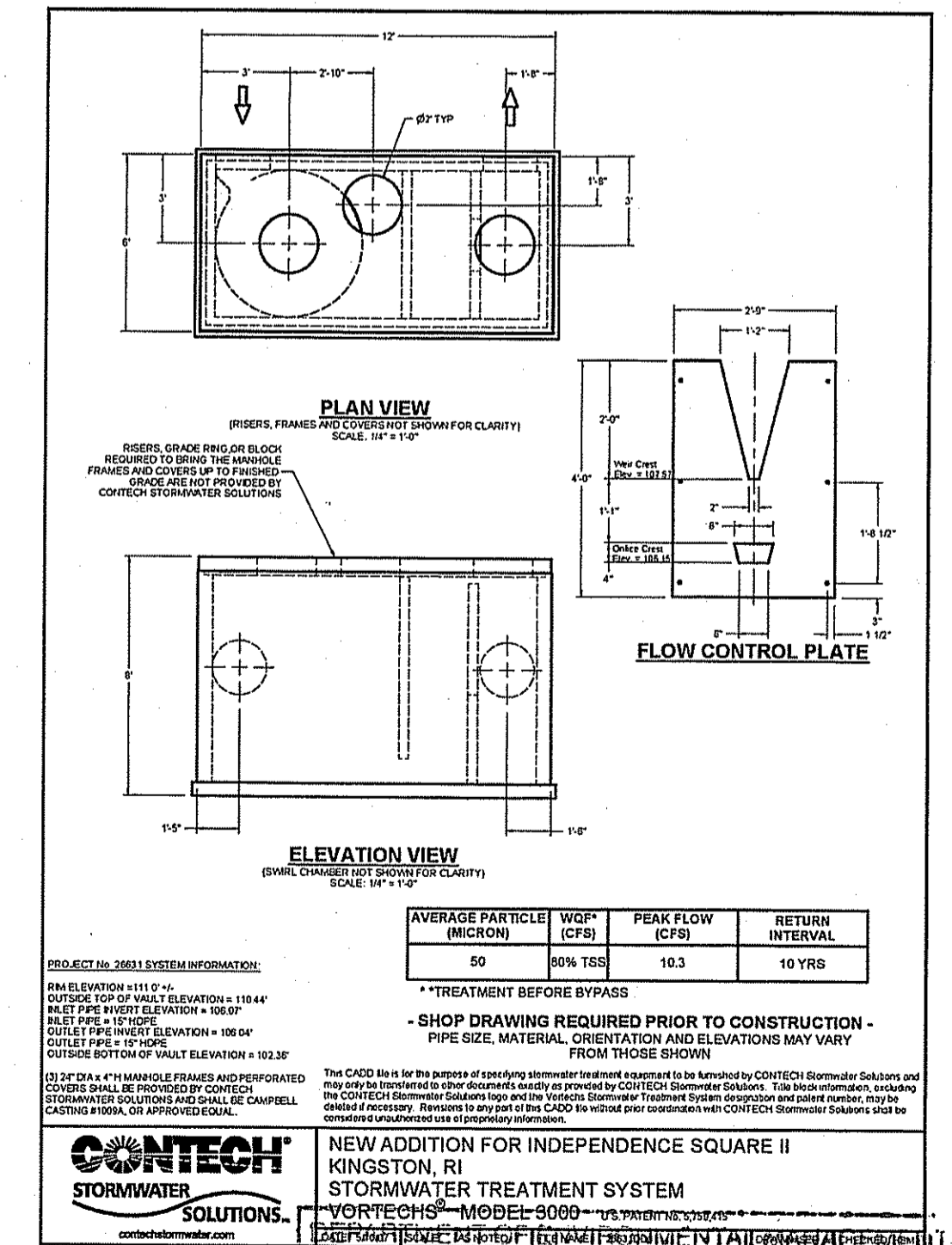


**TYPICAL DRAIN/SEWER TRENCH DETAIL**  
 NOT TO SCALE



NOTES:  
 1. BYPASS STRUCTURE SHALL BE MANUFACTURED BY OTHERS IN ACCORDANCE WITH ALL APPLICABLE LOCAL STANDARDS.  
 2. THE BYPASS STRUCTURE HAS BEEN DESIGNED TO WORK WITH THE VORTECH'S UNIT. IF THE STRUCTURE DIFFERS FROM WHAT IS SHOWN CONTECH STORMWATER SOLUTIONS MUST BE ADVISED SO THAT ALL LENGTHS AND ELEVATIONS CAN BE RECALCULATED IF NECESSARY.  
 FOR INFORMATIONAL PURPOSES ONLY  
 NOT INTENDED AS A CONSTRUCTION DOCUMENT  
 -BYPASS STRUCTURE NOT SUPPLIED BY CONTECH STORMWATER SOLUTIONS-

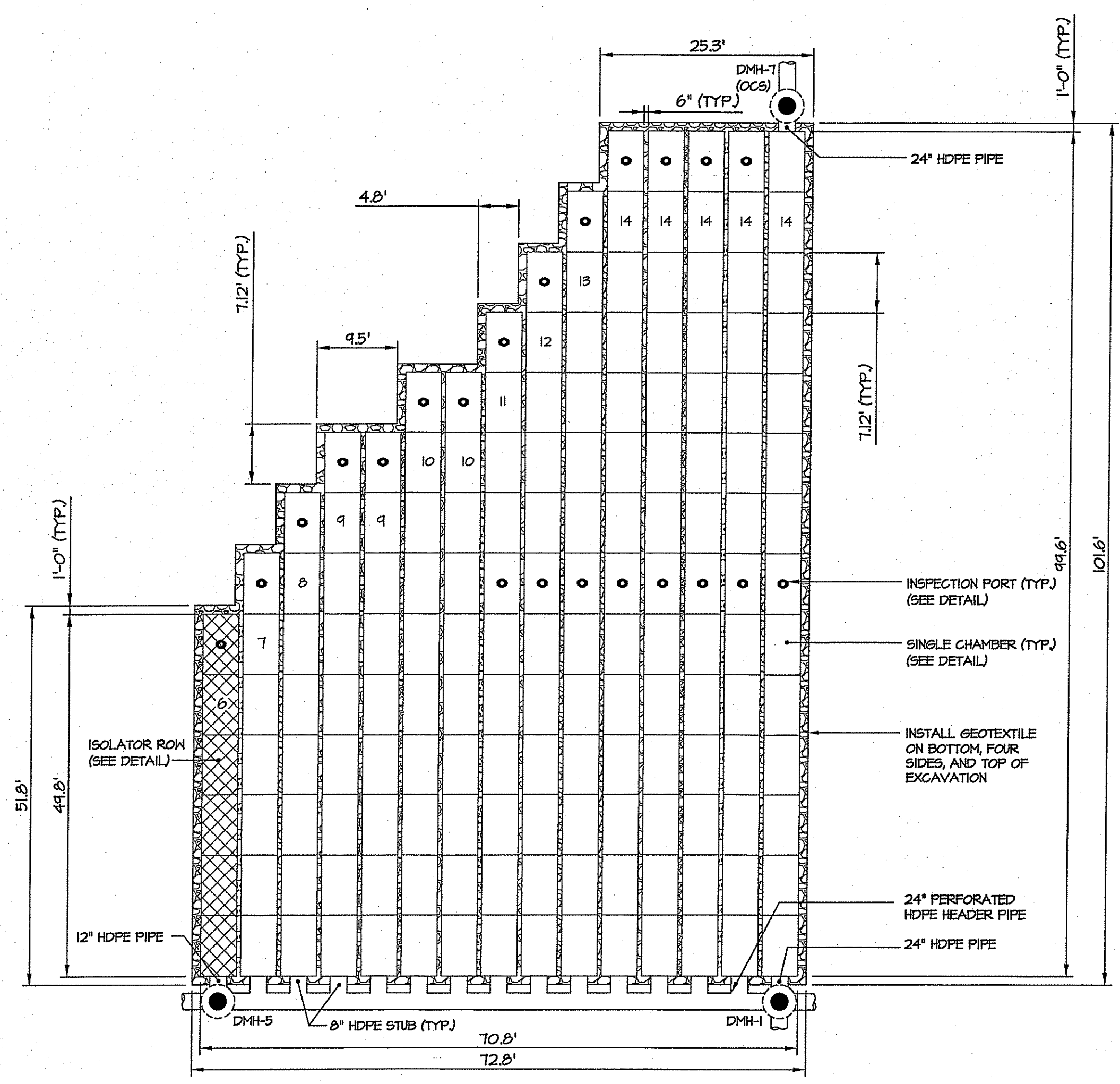
PROPOSED BYPASS STRUCTURE  
 VORTECH'S STORMWATER TREATMENT SYSTEM  
 NEW ADDITION FOR INDEPENDENCE SQUARE II  
 KINGSTON, RI



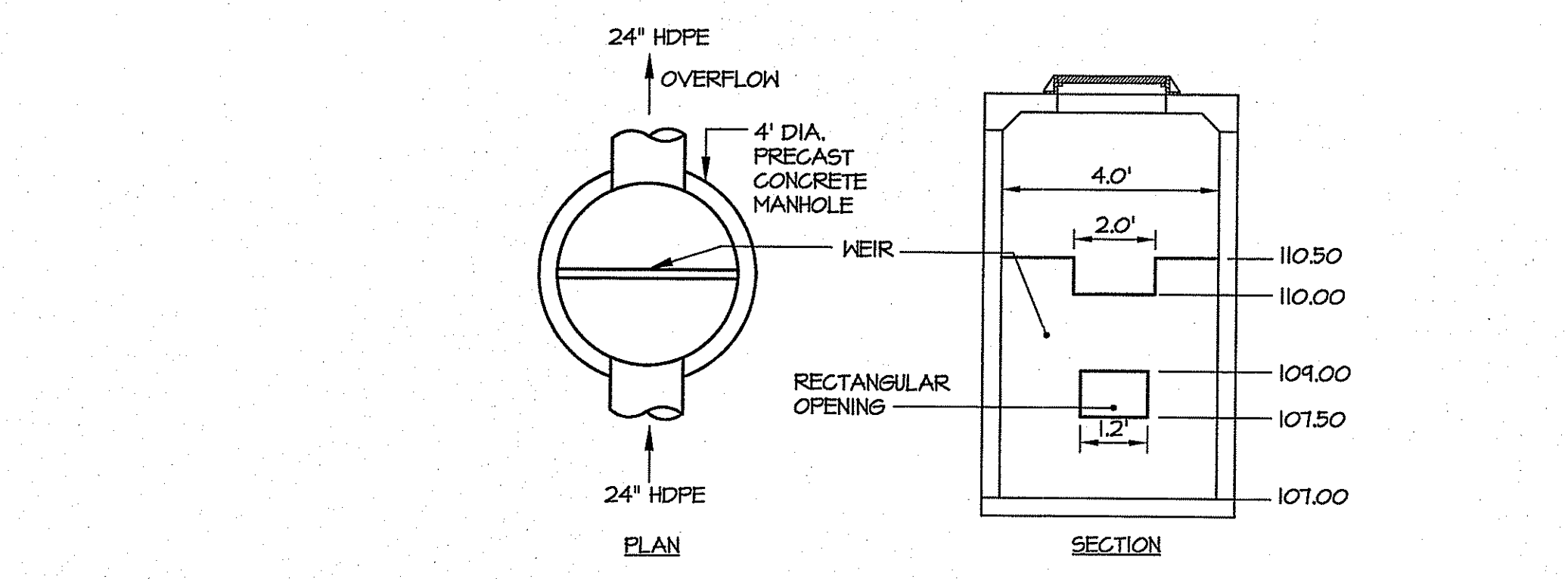
AVERAGE PARTICLE SIZE (MICRONS)	WVF (CFB)	PEAK FLOW (CFB)	RETURN INTERVAL
50	50% TSS	10.3	10 YRS

CONTECH STORMWATER SOLUTIONS  
 NEW ADDITION FOR INDEPENDENCE SQUARE II  
 STORMWATER TREATMENT SYSTEM  
 VORTECH'S MODEL: 5080  
 OFFICE OF WATER RESOURCES  
 FRESHWATER WETLANDS PROGRAM  
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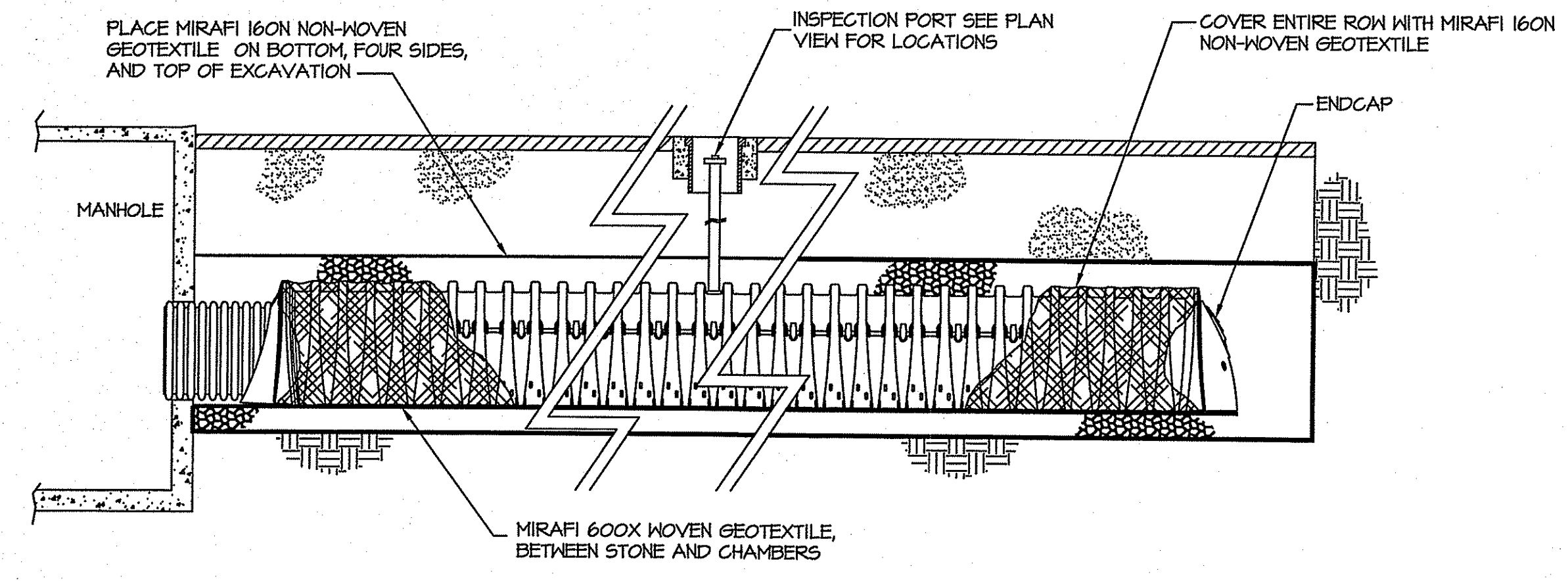
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DATE:	MAY 2007
SCALE:	N.T.S.
DESIGNED BY:	DLP
CHECKED BY:	SDL
DRAWN BY:	AKD
APPROVED BY:	SDL
DRAWING TITLE:	



**UNDERGROUND INFILTRATION SYSTEM PLAN VIEW**  
 NOT TO SCALE

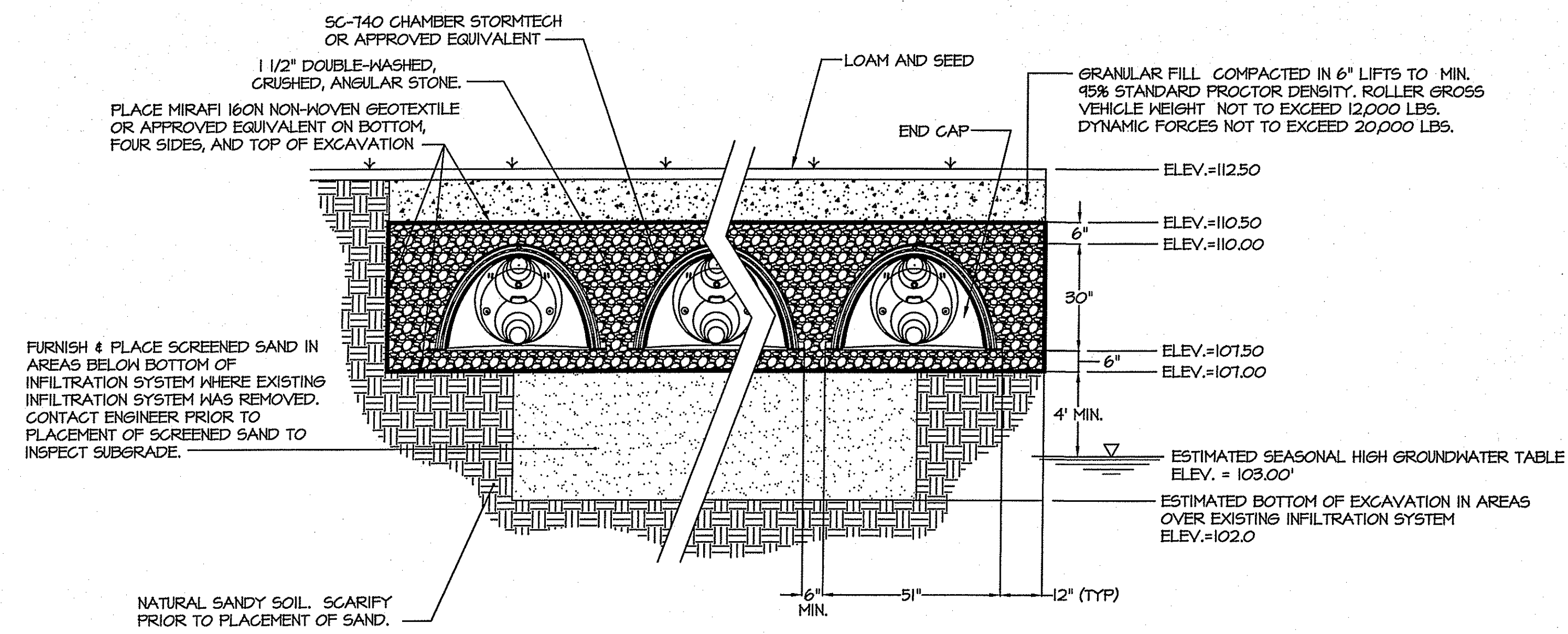


**OUTLET CONTROL STRUCTURE DETAIL**  
 NOT TO SCALE



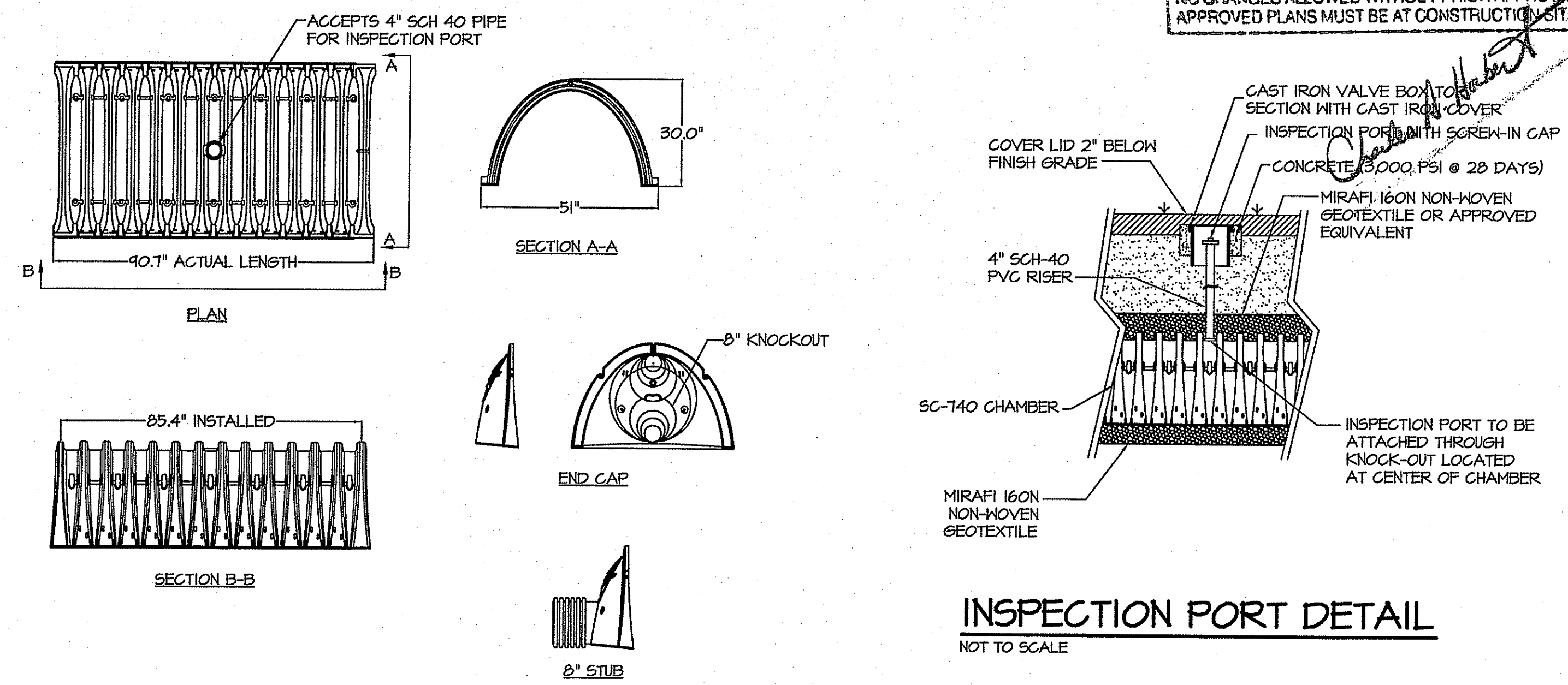
NOTES:  
 1. ISOLATOR ROW CONSTRUCTION IS THE SAME AS OTHER ROWS WITH THE EXCEPTION OF THE WOVEN AND NON-WOVEN GEOTEXTILES BEING PLACED AROUND AND BENEATH THE ROW RESPECTIVELY. SEE TYPICAL SECTION DETAIL.

**ISOLATOR ROW DETAIL**  
 NOT TO SCALE



NOTES:  
 1. CONTRACTOR SHALL TAKE PRECAUTION NOT TO COMPACT SUBGRADE.  
 2. CONTRACTOR SHALL NOT PLACE OR OPERATE MACHINERY ON SUBGRADE.  
 3. ONCE CONTRACTOR HAS SUBGRADE EXPOSED, THE ENGINEER SHALL BE CONTACTED FOR INSPECTION.  
 4. CONSTRUCTION OF THE SYSTEM SHALL NOT COMMENCE UNTIL ENGINEER INSPECTS SUBGRADE AND CRUSHED STONE AND GRANTS PERMISSION TO PROCEED.  
 5. BACKFILL AREAS OVER EXISTING INFILTRATION SYSTEM WITH SCREENED SAND TO ESTABLISH THE SYSTEM SUBGRADE FOLLOWING SUBGRADE INSPECTION.

**UNDERGROUND INFILTRATION SYSTEM TYPICAL SECTION**  
 NOT TO SCALE



**INSPECTION PORT DETAIL**  
 NOT TO SCALE

**INFILTRATION SYSTEM SINGLE CHAMBER DETAIL**  
 NOT TO SCALE

