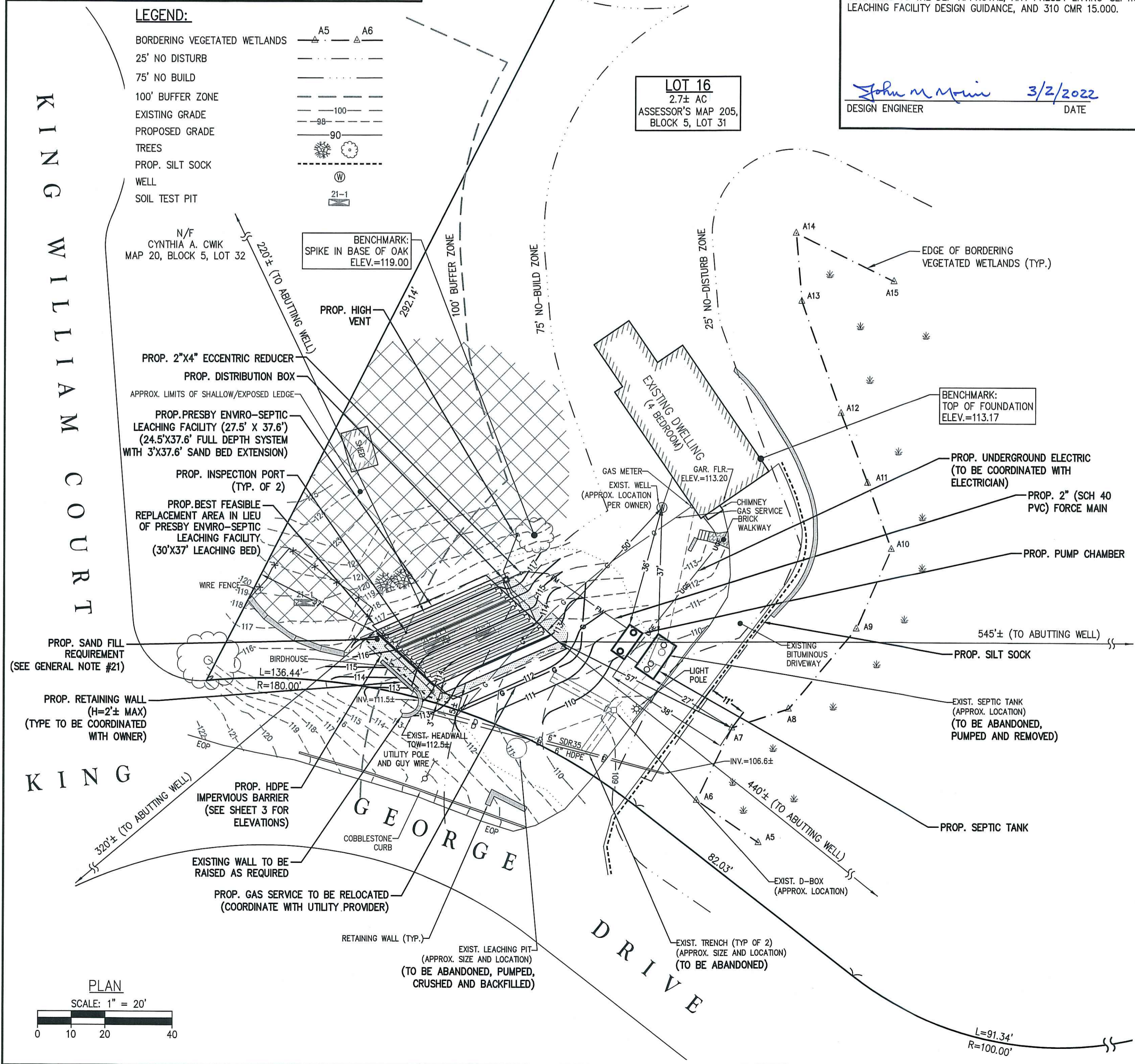


LEGEND:

- BORDERING VEGETATED WETLANDS
- 25' NO DISTURB
- 75' NO BUILD
- 100' BUFFER ZONE
- EXISTING GRADE
- PROPOSED GRADE
- TREES
- PROP. SILT SOCK
- WELL
- SOIL TEST PIT



SITE NOTES:

1. RECORD OWNER: GAIL A. LYNCH- TRUSTEE OF THE GAIL A. LYNCH TRUST, 10 KING GEORGE DRIVE, BOXFORD, MA 01921, BOOK 30300, PAGE 409
2. RECORD PLANS: PROPERTY LINE INFORMATION COMPILED FROM "PLAN OF KING'S FOREST SECTION ONE" PREPARED BY RAYMOND C. PRESSEY INC. DATED MARCH 26, 1960 RECORDED WITH THE ESSEX REGISTRY OF DEEDS, PLAN BOOK 94 PLAN 84.
3. WETLANDS: WETLANDS DELINEATED BY DEROSA ENVIRONMENTAL CONSULTING, INC. 167 MAIN STREET, ROWLEY, MA. (978-948-7717) ON AUGUST 4, 2021.
4. WATER SUPPLY: THERE IS NO KNOWN DRINKING WATER SUPPLY ZONE II'S AND NO KNOWN INTERIM WELLHEAD PROTECTION ZONES ON THE SUBJECT PARCEL BASED ON THE DEPARTMENT OF ENVIRONMENTAL PROTECTION MAPS.
5. FLOOD PLAIN: THE AREA OF WORK ON THE PROPERTY IS SITUATED IN A ZONE 'X' AS ILLUSTRATED ON THE MOST RECENT FLOOD INSURANCE RATE MAP PANEL 25009C-0253-F WITH EFFECTIVE DATE OF JULY 3, 2012.
6. DATUM: ELEVATIONS SHOWN HEREON ARE BASED ON AN ASSUMED VERTICAL DATUM.
7. EXISTING CONDITIONS: EXISTING CONDITIONS INFORMATION OBTAINED FROM A FIELD SURVEY PERFORMED BY THE MORIN-CAMERON GROUP, INC. IN SEPTEMBER 2021.

USE OF ALTERNATIVE TECHNOLOGY:

IN ACCORDANCE WITH DEP DOCUMENT "STANDARD CONDITIONS FOR ALTERNATIVE SOIL ABSORPTION SYSTEMS WITH GENERAL USE CERTIFICATION AND/OR APPROVED FOR REMEDIAL USE" REVISED MARCH 5, 2018 CONDITION II.18.(C), I CERTIFY TO THE BEST OF MY KNOWLEDGE THAT THE PROPOSED DESIGN CONFORMS TO THE DEP APPROVAL, ANY PRESBY ENVIRO-SEPTIC LEACHING FACILITY DESIGN GUIDANCE, AND 310 CMR 15.000.

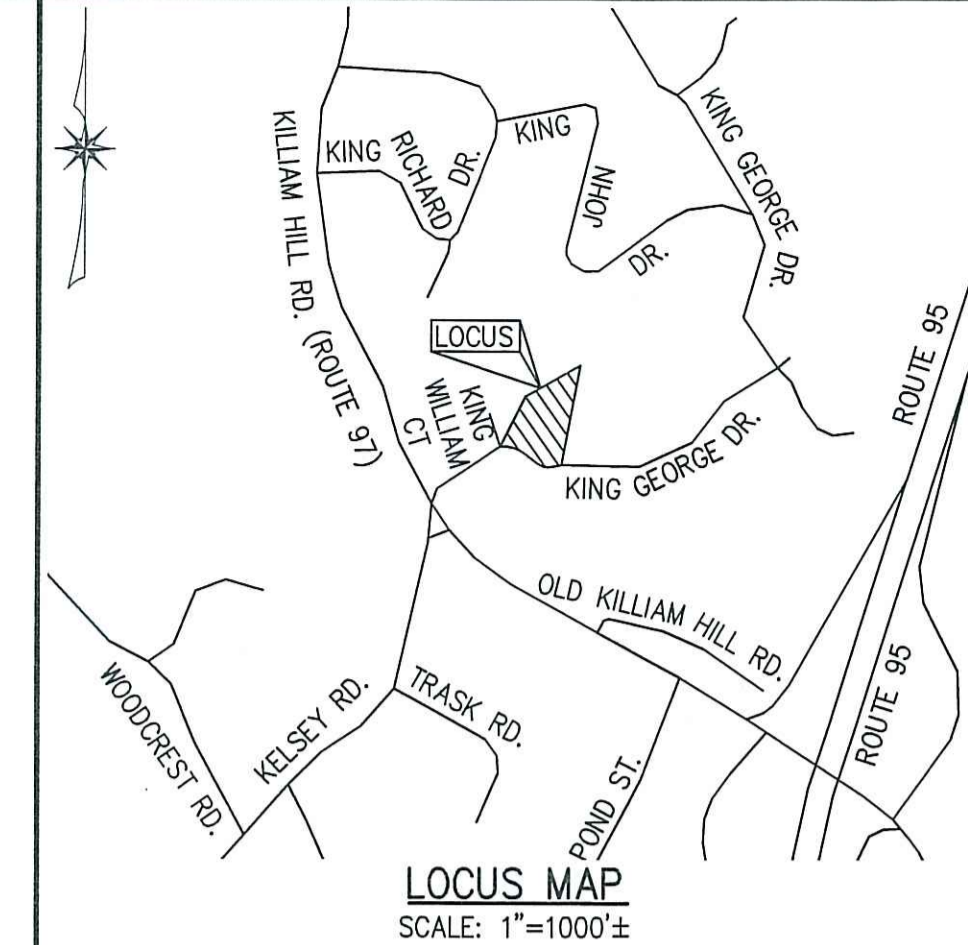
John Morin 3/2/2022
DESIGN ENGINEER DATE

LOCAL UPGRADE APPROVAL:

1. 310 CMR 15.405(1)(a): MINIMUM SETBACK FROM SOIL ABSORPTION SYSTEM TO PROPERTY LINE: REQUIRED: 10 FT PROVIDED: 3 FT (NOTE: PROPERTY LINE SURVEY PERFORMED BY REGISTERED LAND SURVEYOR)
2. 310 CMR 15.405(1)(f): MINIMUM SETBACK DISTANCES TO SURFACE OR SUBSURFACE DRAINS REQUIRED: 10 FT SETBACK FROM SOIL ABSORPTION SYSTEM TO OPEN SURFACE/SUBSURFACE DRAINS PROVIDED: 5 FT±
3. 310 CMR 15.405(1)(g): MINIMUM SETBACK DISTANCES TO PRIVATE WATER SUPPLY WELL REQUIRED: 100' (NO LESS THAN 50' ALLOWED) PROVIDED: 50 FT

LOCAL B.O.H. VARIANCE REQUESTS

	STATE (TITLE 5)	LOCAL (BOH)	REQUEST
MINIMUM SETBACK DISTANCE BETWEEN SUBSURFACE SANITARY DISPOSAL SYSTEM COMPONENT AND WETLAND RESOURCE AREA (BOXFORD BOARD OF HEALTH REGULATIONS, CHAPTER 201, SECTION 9(A))	25'	50'	27' (SEPTIC TANK) 38' (PUMP CHAMBER)
MINIMUM SETBACK DISTANCE BETWEEN LEACHING FACILITY AND WETLAND RESOURCE AREAS (BOXFORD BOARD OF HEALTH REGULATIONS, CHAPTER 201, SECTION 9(B))	50'	100'	57'



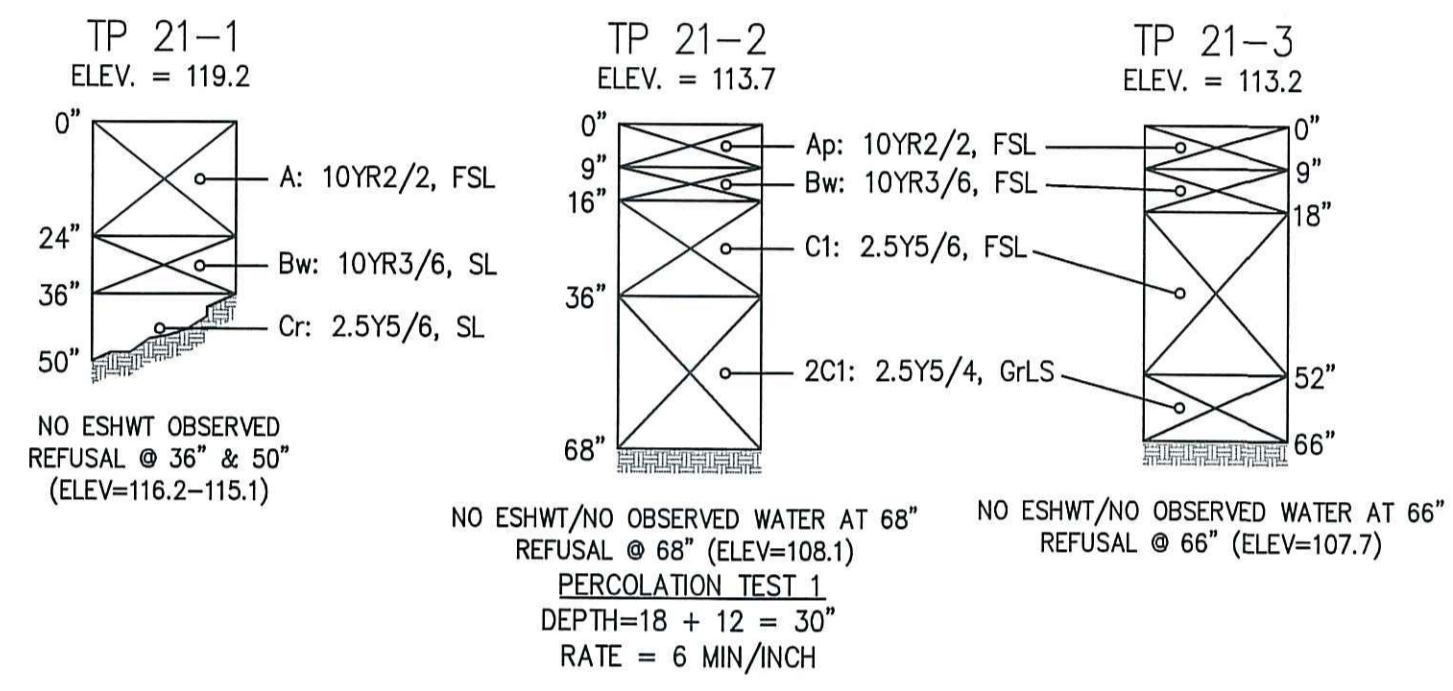
The Morin-Cameron GROUP, INC.
CIVIL ENGINEERS | ENVIRONMENTAL CONSULTANTS
LAND SURVEYORS | LAND USE PLANNERS
66 ELM STREET, DANVERS, MASSACHUSETTS 01923
P. 978-777-6866 W. WWW.MORINCAMERON.COM



SURVEY BY: MCG
DRAWN BY: WAS
CHECKED BY: WAS
APPROVED BY: JMM
SCALE: AS NOTED
DATE: MARCH 2, 2022

SOIL LOGS

DATE PERFORMED: 09/15/21
PERFORMED BY: WILL SCHKUTA, SE #14030
WITNESSED BY: KENDALL LONGO, BOXFORD BOARD OF HEALTH DIRECTOR



SEPTIC SYSTEM DESIGN DATA:

1. BUILDING TYPE: SINGLE FAMILY DWELLING
2. NO. OF BEDROOMS: 4 BEDROOM DESIGN FLOW
3. DESIGN FLOW(TITLE 5): 4 X 110 GPD/BEDROOM = 440 GPD
4. DESIGN PERCOLATION RATE: CLASS II SOIL, 6 MPI, LTAR = 0.60 GPD/SF
5. GARBAGE DISPOSAL: DESIGNED TO ACCOMMODATE GRINDER PER LOCAL BOH REGULATIONS (HOWEVER USE OF ONE IS NOT RECOMMENDED BY THE DESIGN ENGINEER).
6. SEPTIC TANK DESIGN REQUIREMENT: 2-COMPARTMENT TANK REQUIRED FOR GRINDER MIN. 200% DESIGN FLOW(TITLE 5) FOR FIRST COMPARTMENT = 2 X 440 GPD = 880 GAL MIN. 100% DESIGN FLOW(TITLE 5) FOR SECOND COMPARTMENT = 440 GAL MIN. TANK SIZE REQUIRED = 1,320 GAL. USE 1,500 GAL 2-COMPARTMENT (MONOLITHIC) SEPTIC TANK
7. SOIL ABSORPTION SYSTEM REQUIREMENTS:(SYSTEM SHALL BE DESIGNED TO ACCOMMODATE A GARBAGE GRINDER PER BOXFORD BOH REGULATIONS) (440 GPD X 1.5) / (0.60 GPD/SF) = 1,100 SF (REQUIRED) REDUCTION FOR PRESBY ENVIRO-SEPTIC: 0.6 X 1,100 SF = 660 SF
8. PER DEP GENERAL USE CERTIFICATION FOR PRESBY ENVIRO-SEPTIC LEACHING SYSTEM TABLES UTILIZED IN THE FOLLOWING SECTION ARE FROM THE PRESBY ENVIRO-SEPTIC QUICK REFERENCE GUIDE.
 - 8.1. DETERMINE LINEAR FEET OF PIPE FROM TABLE A: 4-BEDROOM, PERC RATE = 1-9 MPI, 280 LF X 1.5 = 420 LF REQUIRED
 - 8.2. DETERMINE PERCENTAGE OF SLOPE ON THE PROPOSED SYSTEM: 20%
 - 8.3. DETERMINE MINIMUM CENTER TO CENTER SPACING: FROM TABLE B: 20% SLOPE, PERC RATE = 1-10 MPI- 1.75' SPACING (MINIMUM)
 - 8.4. DETERMINE PIPE LINE LAYOUT: USE (12)35' LINES = 420 LF OF PRESBY PIPE TOTAL CTR. TO CTR. SPACING OF 1.75' FULL DEPTH BED AREA: 836 SF 3' SAND BED EXTENSION AREA: 112 SF OVERALL LEACHING BED = 948 SF
 - 8.5. CALCULATE MINIMUM SYSTEM SAND BED AREA: MINIMUM BED AREA = 660 SF AREA PROVIDED: 948 SF (OK)

CONVENTIONAL LEACHING FACILITY DESIGN DATA:

1. BUILDING TYPE: SINGLE FAMILY DWELLING
2. NO. OF BEDROOMS: 4 BEDROOM DESIGN FLOW
3. DESIGN FLOW(TITLE 5): 4 X 110 GPD/BEDROOM = 440 GPD
4. DESIGN PERCOLATION RATE: CLASS II SOIL, 6 MPI, LTAR = 0.60 GPD/SF
5. GARBAGE DISPOSAL: DESIGNED TO ACCOMMODATE GRINDER PER LOCAL BOH REGULATIONS (HOWEVER USE OF ONE IS NOT RECOMMENDED BY THE DESIGN ENGINEER).
6. LEACH AREA SIZE REQUIREMENT:(SYSTEM SHALL BE DESIGNED TO ACCOMMODATE A GARBAGE GRINDER PER BOXFORD BOH REGULATIONS) [(440 GPD) / (0.60 GPD/SF)] X 1.5 = 1,100 SF
7. LEACH BED CAPACITY: USE 30' X 37' = 1,110 SF X 0.60 GPD/SF = 666 GPD (OK)

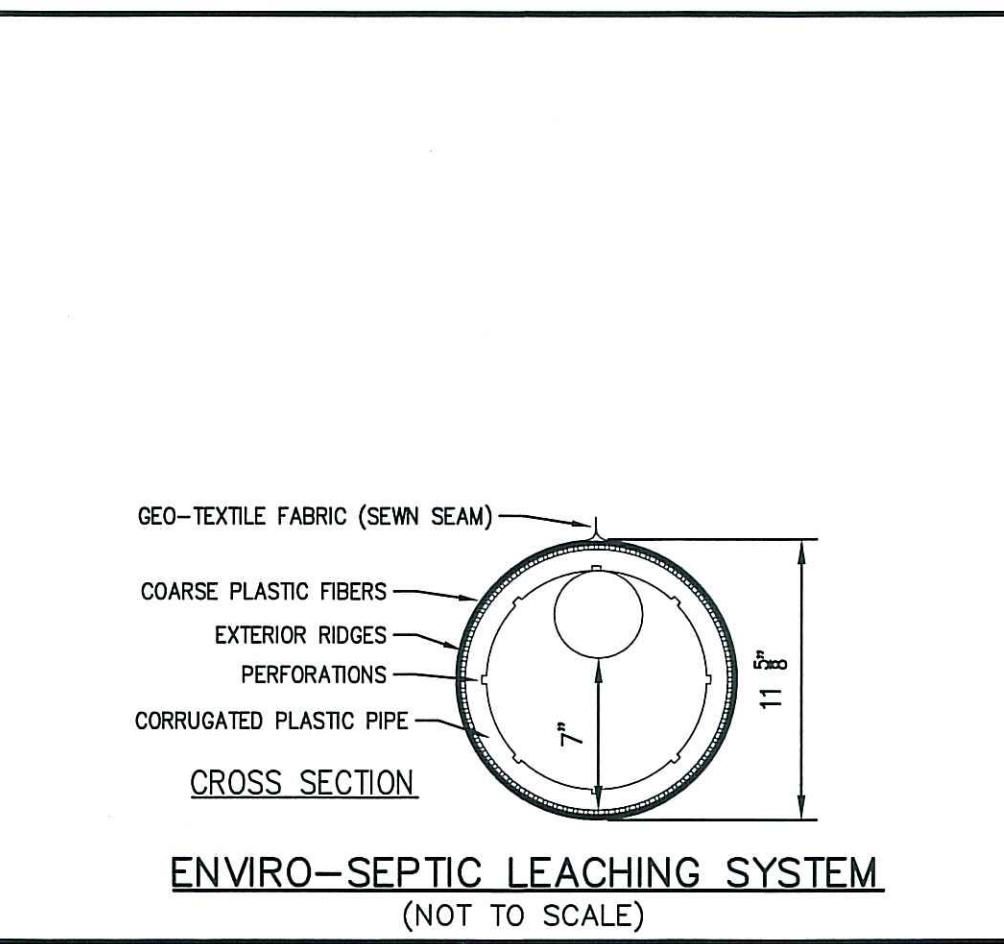
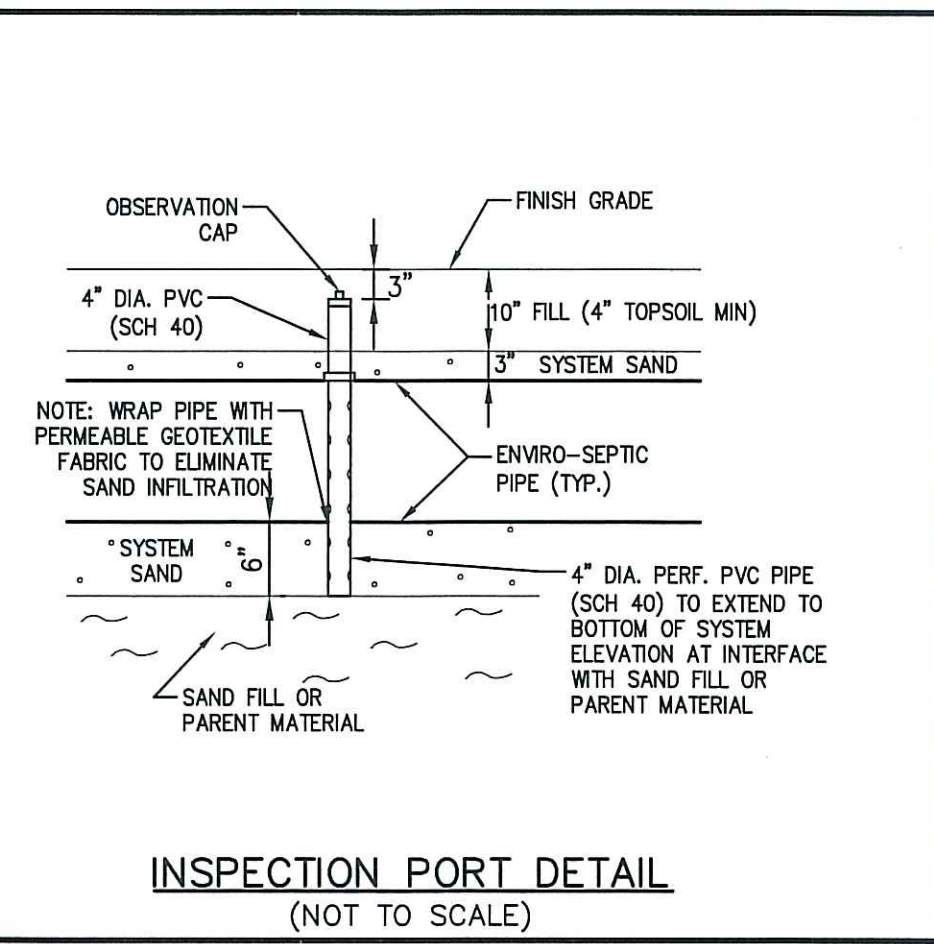
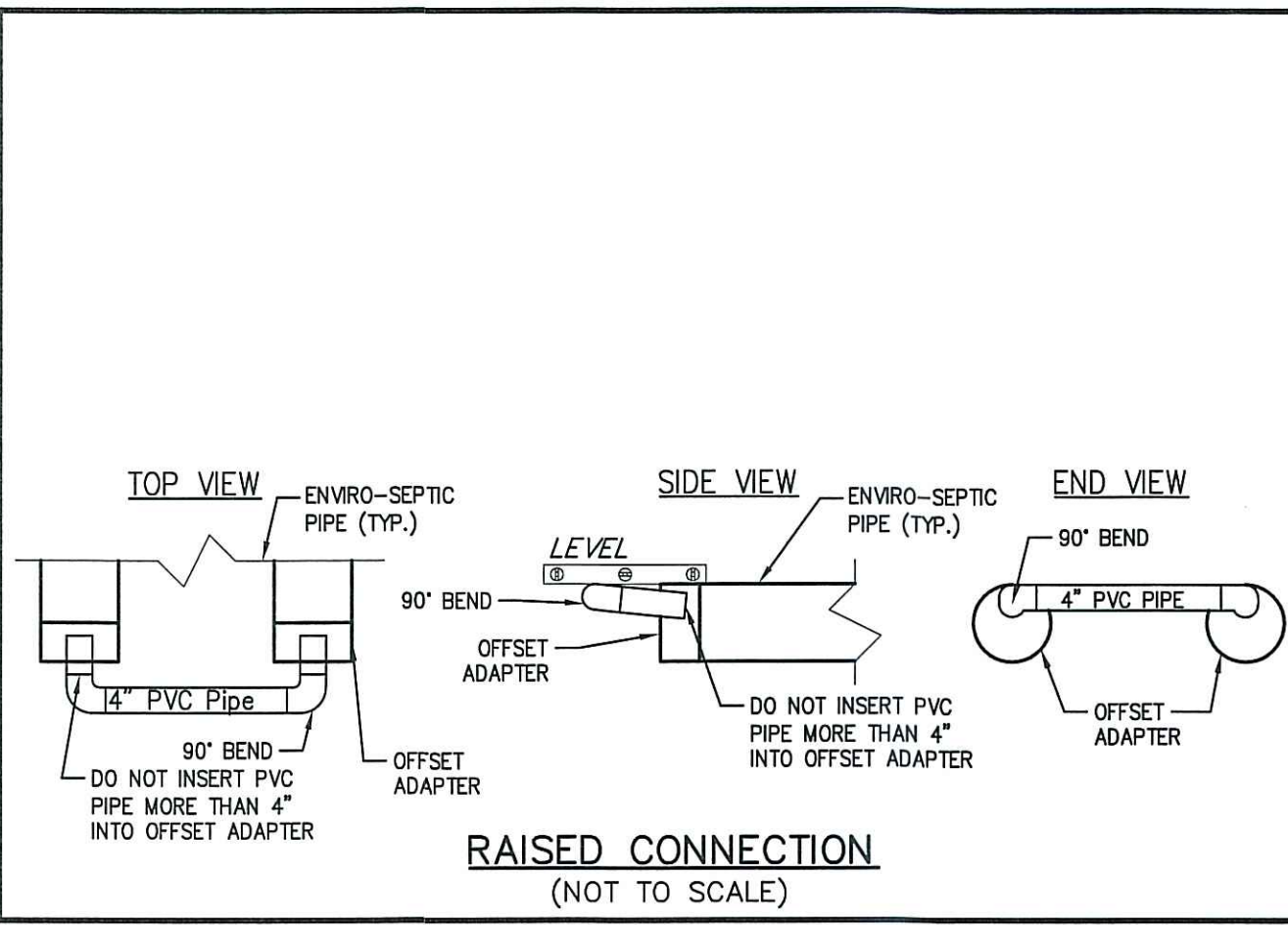
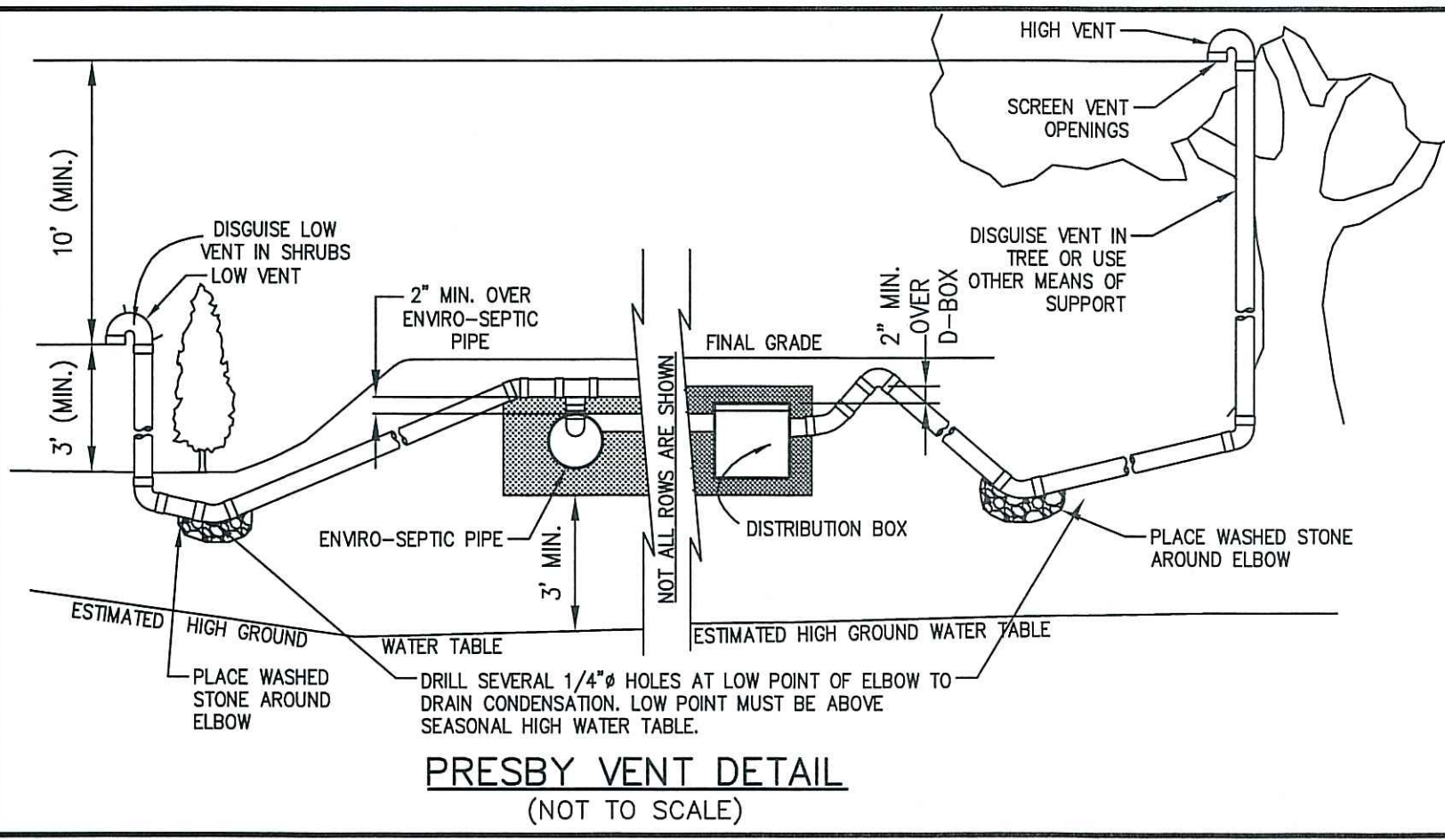
GENERAL NOTES:

1. EXISTING LEACH PIT SHALL BE ABANDONED AND PUMPED. THE PIT SHALL THEN BE CRUSHED AND BACKFILLED (OR REMOVED), OR THE PIT SHALL BE COMPLETELY FILLED WITH CLEAN SAND OR OTHER SUITABLE MATERIAL APPROVED IN WRITING BY THE APPROVING AUTHORITY.
2. THE CONTRACTOR SHALL INSPECT AND CONFIRM THE EXISTING WATER SOFTENER DISCHARGE LOCATION. IF TIED INTO THE EXISTING SANITARY SEWER PLUMBING, THE CONTRACTOR SHALL REMOVE THE CONNECTION AND DISCHARGE TO A LOCATION IN COMPLIANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.
3. CONTRACTOR SHALL VERIFY THAT ALL EXISTING PLUMBING, WITH THE EXCEPTION OF ANY FOUNDATION DRAINS OR WATER SOFTENERS, IS TIED INTO NEW SEPTIC SYSTEM.
4. THIS PLAN IS TO SHOW THE DESIGN OF THE SUBSURFACE SEWAGE DISPOSAL SYSTEM ONLY. THE SYSTEM IS DESIGNED FOR FLOWS ESTIMATED UNDER DESIGN CRITERIA.
5. SYSTEM IS DESIGNED ONLY TO ACCOMMODATE SANITARY SEWAGE ASSOCIATED WITH NORMAL DOMESTIC USAGE AND CONSISTING OF WATER-CARRIED PUTRESCIBLE WASTE.
6. THE LEACHING FACILITY IS DESIGNED FOR A GARBAGE GRINDER, HOWEVER USE OF ONE IS NOT RECOMMENDED BY THE DESIGN ENGINEER.
7. THE SYSTEM SHALL BE VENTED IN ACCORDANCE WITH THE PRESBY ENVIRO-SEPTIC DESIGN MANUAL.
8. THE PLAN SHOWS ONLY THOSE FEATURES THAT WERE VISUALLY APPARENT ON DATE OF THE TOPOGRAPHY.
9. THE INSTALLER OF THIS SYSTEM MUST BE LICENSED BY THE LOCAL BOARD OF HEALTH AND WITH PRESBY FOR INSTALLATION OF THE ENVIRO-SEPTIC LEACHING FACILITY.
10. DISPOSAL SYSTEM AREAS ARE TO BE RAKED (SCARIFIED) BEFORE INSTALLATION OF STONE. ALL STONES EXCEEDING 2 INCHES IN EXCAVATION ARE TO BE REMOVED FROM THE LEACHING AREA BED.
11. FINISHED SURFACE OF THE LEACHING AREA SHALL BE GRADED TO ASSURE WATER RUNOFF (2% MINIMUM SLOPE).
12. ALL DISTURBED AREAS TO BE LOAMED, SEEDED, AND MAINTAINED TO PREVENT EROSION.
13. THE SEPTIC TANK SHOULD BE PERIODICALLY INSPECTED AND MAINTAINED AND SHOULD BE PUMPED WHEN THE SLUDGE IN THE BOTTOM EXCEEDS 1/4 OF THE DEPTH.
14. ALTERNATE MANUFACTURES FOR CONCRETE STRUCTURES AND EQUIPMENT SHOWN ON THESE PLANS MAY BE USED UPON THE WRITTEN APPROVAL OF THE DESIGN ENGINEER. ALTERNATE MANUFACTURES WILL NOT BE USED IF THE USE OF THEIR EQUIPMENT REQUIRES DESIGN CHANGES.
15. NO CHANGES ARE TO BE MADE IN THE FIELD WITHOUT THE APPROVAL OF THE BOARD OF HEALTH OR ITS DESIGNER AND THE DESIGN ENGINEER.
16. ALL WORK IS TO COMPLY WITH THE COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION AGENCY STATE SANITARY CODE, TITLE 5 AND ANY LOCAL BOARD OF HEALTH SUPPLEMENTARY REGULATIONS.
17. THE LOCAL BOARD OF HEALTH AGENT WILL CONDUCT PERIODIC INSPECTIONS AS NEEDED.
18. THESE PLANS AND SPECIFICATIONS ARE INTENDED TO BE EXPLANATORY OF THE WORK TO BE DONE AND OF EACH OTHER, BUT SHOULD ANY OMISSION, ERRORS, OR DISCREPANCIES APPEAR, THEY SHALL BE SUBJECT TO CORRECTION AND INTERPRETATION BY THE DESIGN ENGINEER THEREBY DEFINING AND FULFILLING THE INTENT OF THE PLANS. THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES PRIOR TO INSTALLATION.
19. ALL SYSTEM COMPONENTS SHALL BE MARKED WITH MAGNETIC MARKING TAPE IN ACCORDANCE WITH 310 CMR 15.221(12).
20. ANY CONTAMINATED SOIL ENCOUNTERED/NEEDED TO BE REMOVED SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
21. FILL REQUIREMENT: TOPSOIL AND SUBSOIL FOR A DISTANCE OF 5 FEET BEYOND THE PROPOSED LEACHING FACILITY. ANY CONTAMINATED SOIL SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS. REPLACE WITH FILL AS SPECIFIED IN 310 CMR 15.000, "TITLE 5" SECTION 15.255 (3) OR ASTM C-33 SAND (SYSTEM SAND). FOR THE BOUNDARY OF THE SAND FILL REQUIREMENT, SEE PLAN VIEW, CROSS-HATCHED AREA ON SYSTEM PROFILE. A SIEVE ANALYSIS SHALL BE PERFORMED ON THE FILL MATERIAL TO BE USED. A COPY OF THE SIEVE ANALYSIS RESULTS SHALL BE SUBMITTED TO THE BOARD OF HEALTH.

NO.	REVISIONS	DESCRIPTION	DATE

SANITARY DISPOSAL SYSTEM REPAIR PLAN
IN
BOXFORD, MASSACHUSETTS
10 KING GEORGE DRIVE
PREPARED FOR:
MICHAEL & GAIL LYNCH

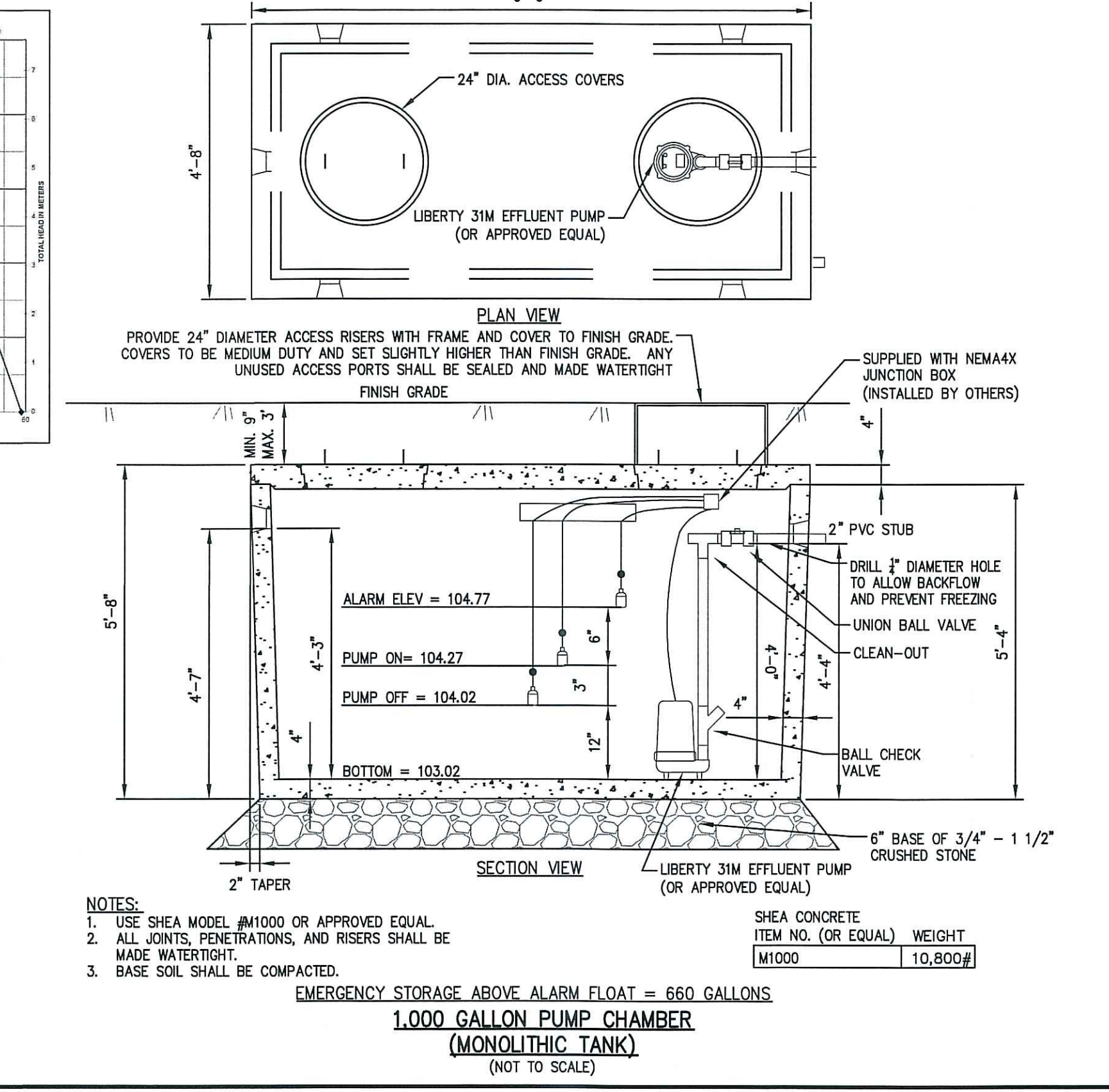
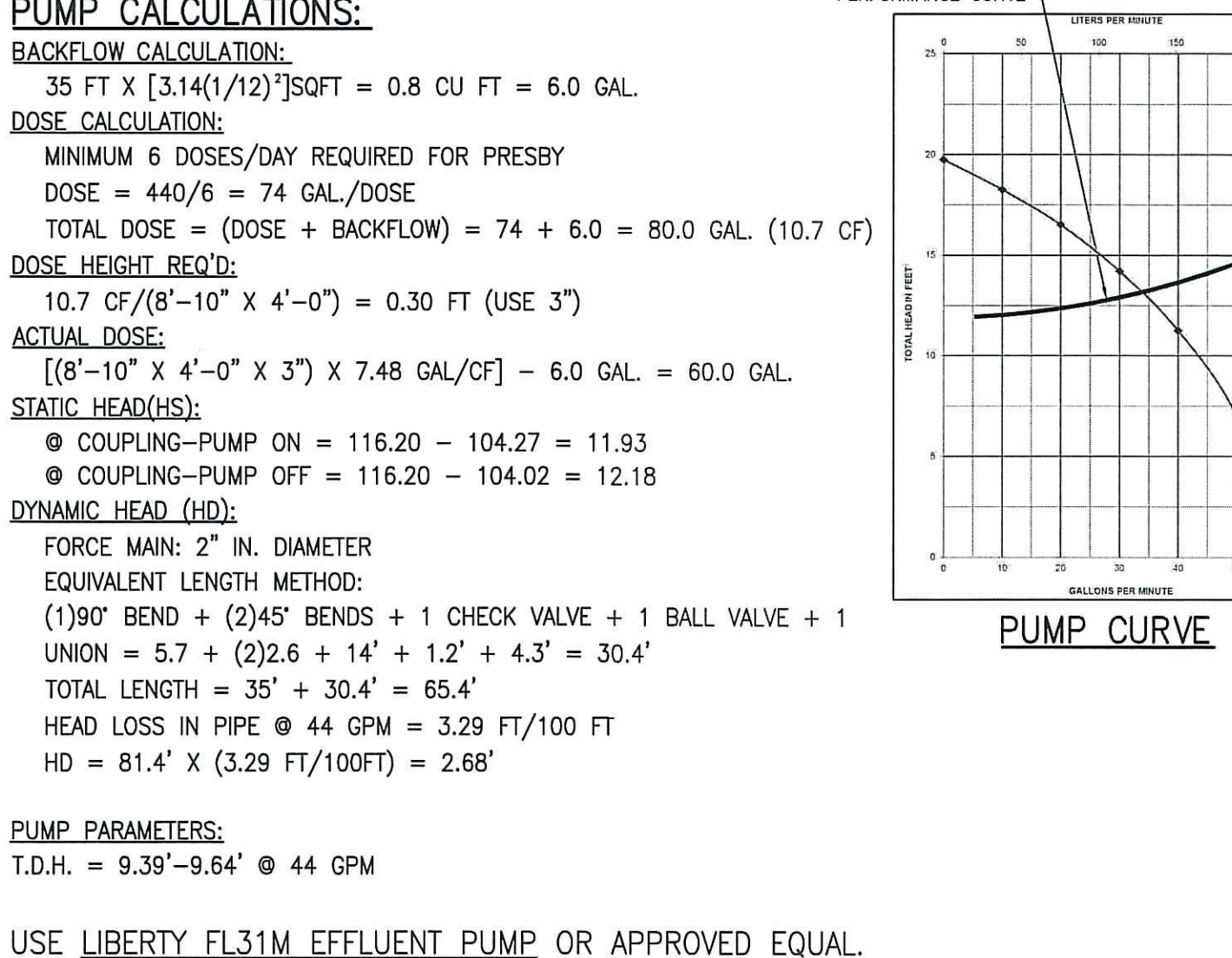
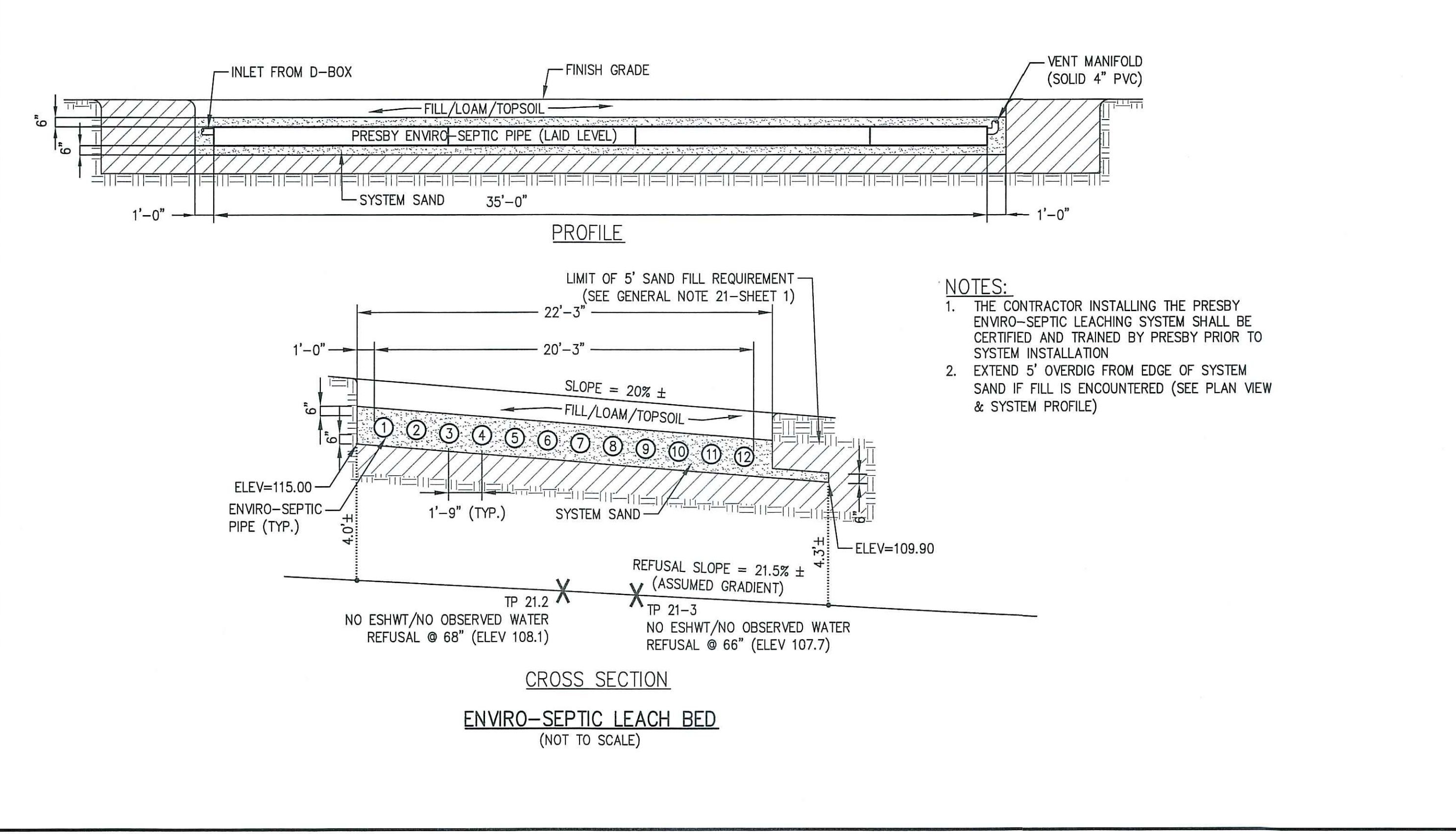
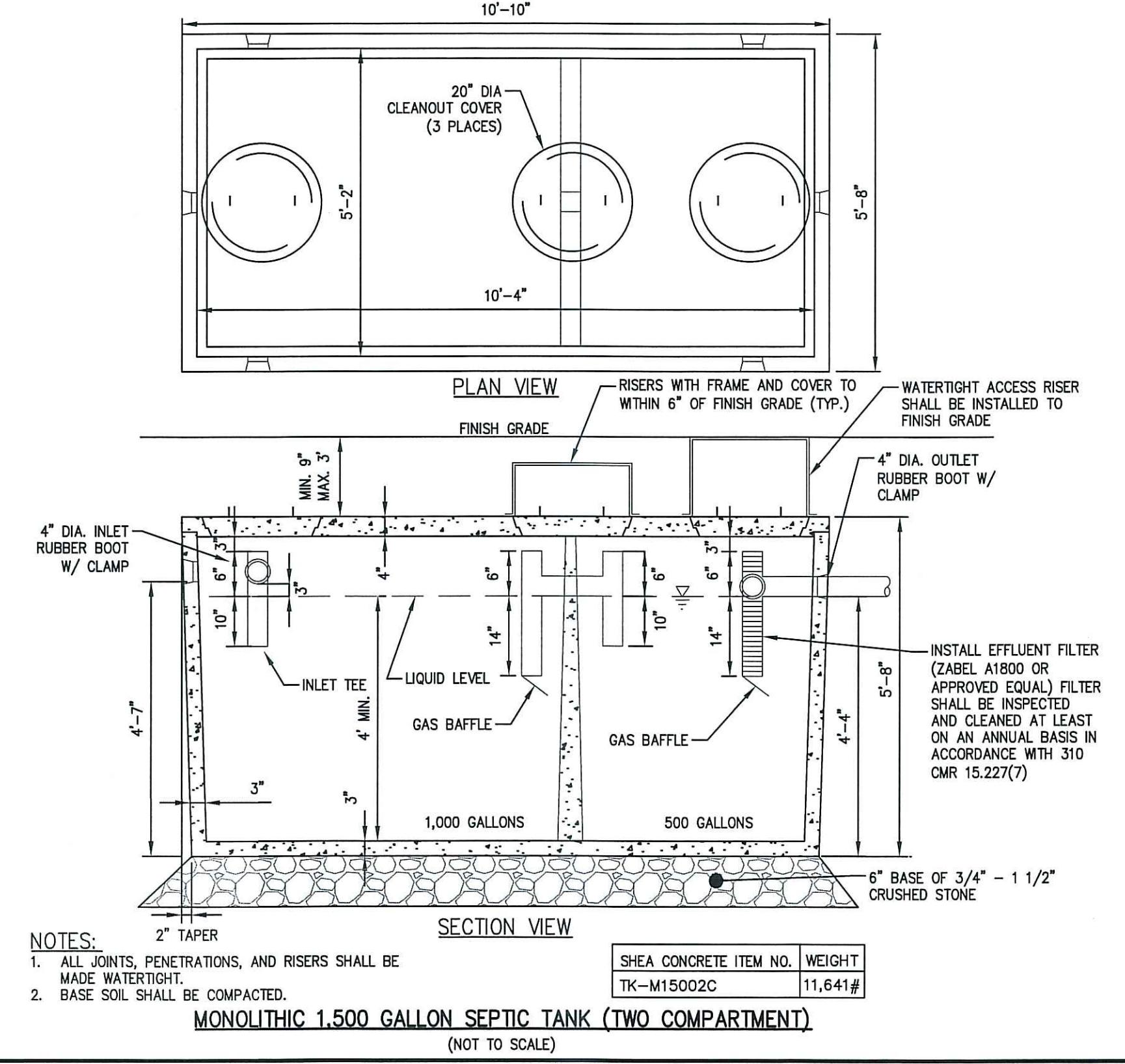
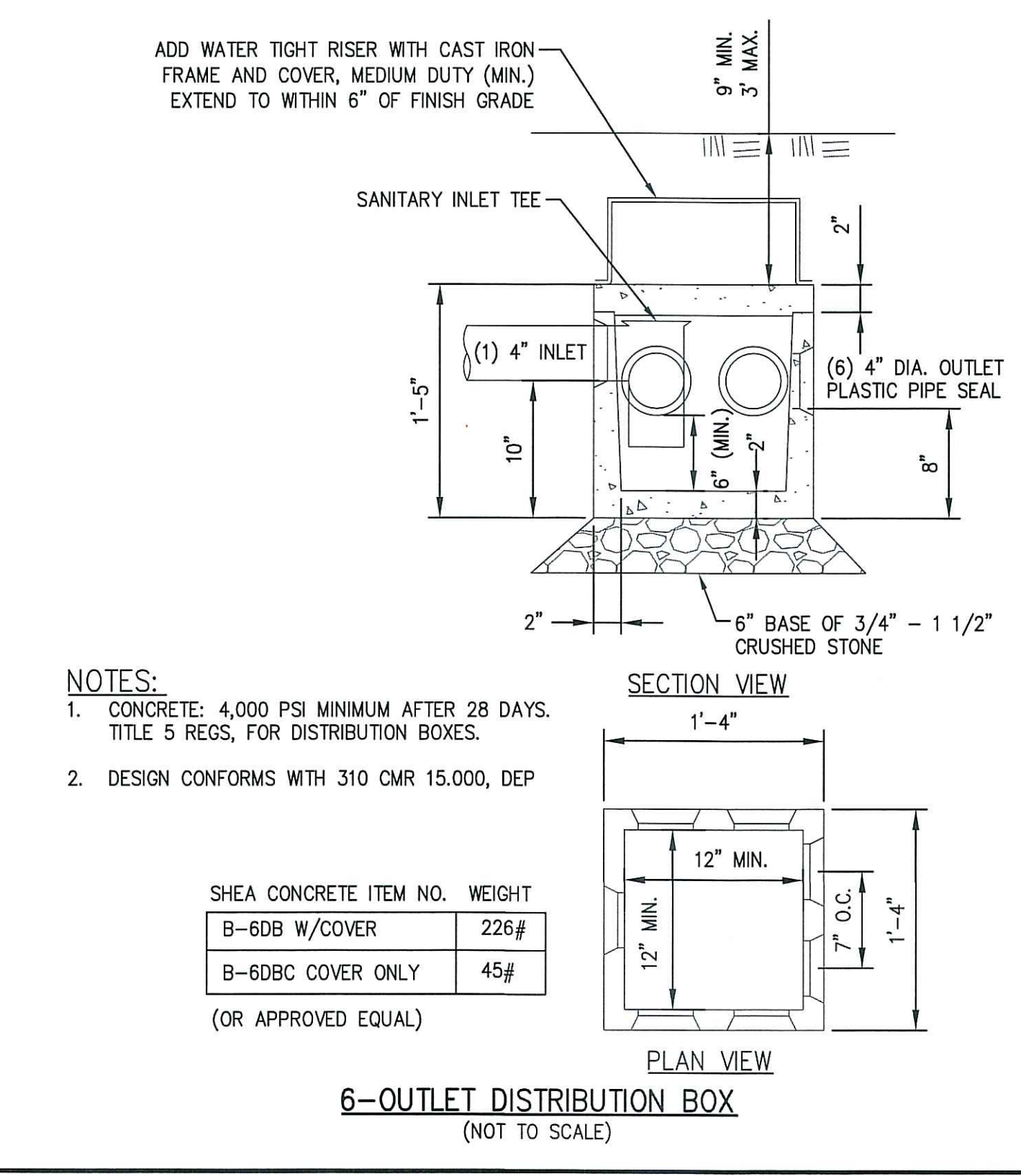
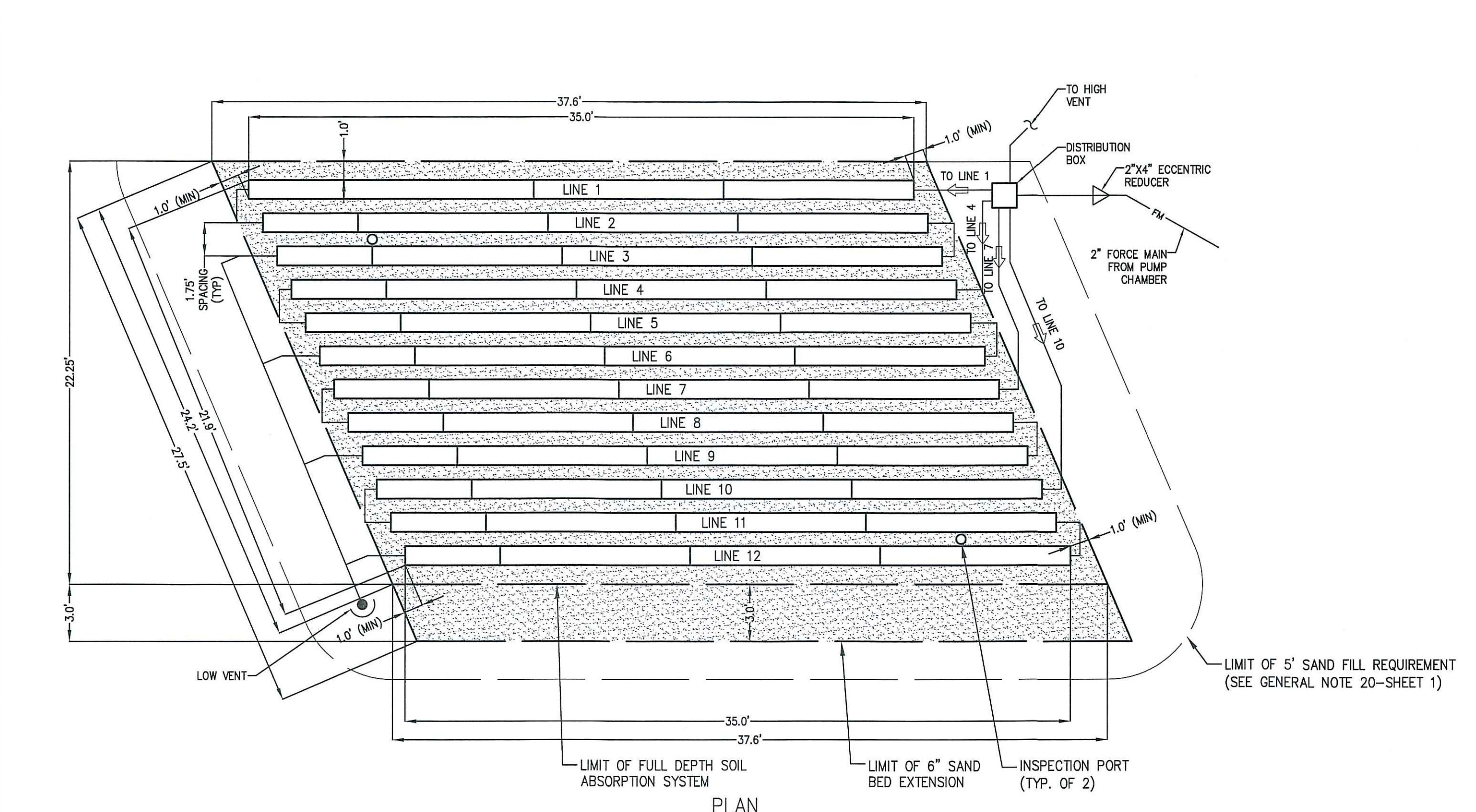
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S - 2845
SHEET NO.
1 OF 3



SAND REQUIREMENTS:

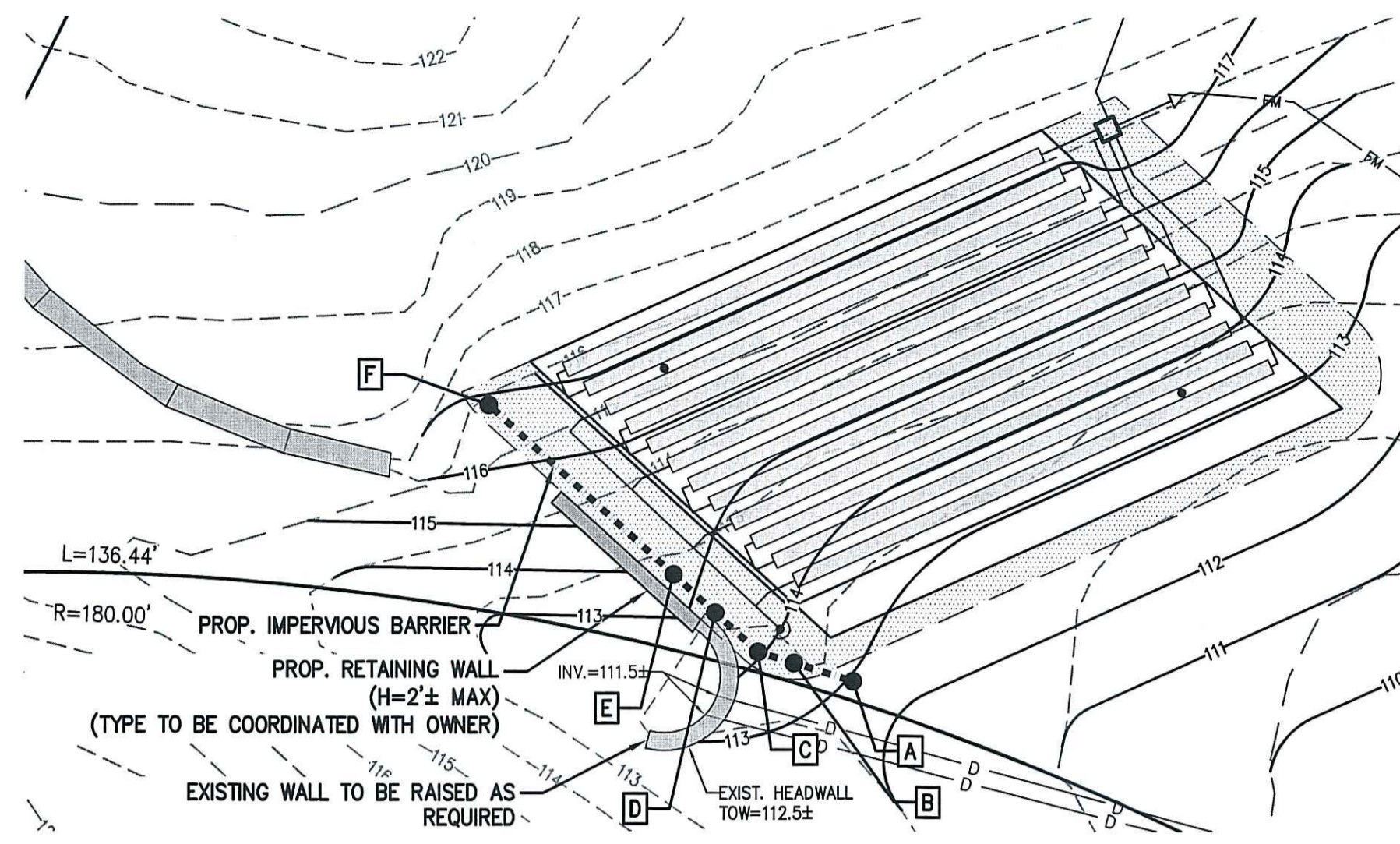
PRESBY ENVIRO-SEPTIC SYSTEM SAND:
 ALL CONFIGURATIONS OF ENVIRO-SEPTIC REQUIRE A MINIMUM OF 6" OF SYSTEM SAND SURROUNDING THE CIRCUMFERENCE OF THE PIPE.
PERCENTAGE RESTRICTIONS: 35% OR LESS OF THE TOTAL SAND MAY BE GRAVEL. 40%-90% OF THE TOTAL SAND IS TO BE COARSE AND VERY COARSE SAND.
GRAVEL QUALITY RESTRICTIONS: NO GRAVEL IS TO EXCEED 3/4" IN DIAMETER. NO GRAVEL IS TO BE SMALLER THAN 2MM (0.0787") IN DIAMETER. (IT MUST NOT PASS THROUGH A #10 SIEVE)
COARSE SAND QUALITY RESTRICTIONS: NO COARSE SAND SMALLER THAN 0.5MM (0.0196") IN DIAMETER. (IT MUST NOT PASS THROUGH A #35 SIEVE).
FINES QUALITY RESTRICTIONS: NO MORE THAN 3% OF THE TOTAL SAND MAY PASS THROUGH A #200 SIEVE.
ASTM STANDARD: C-33 (CONCRETE SAND) MEETS THE ABOVE REQUIREMENTS IS AN ACCEPTABLE ALTERNATE MATERIAL.

TITLE 5 SURROUNDING SAND:
 THE SURROUNDING "OVERDIG" SHALL BE EITHER SYSTEM SAND OR TITLE 5 FILL AS SPECIFIED IN 310 CMR 15.255(3).



REVISIONS

NO.	DESCRIPTION	DATE



IMPERVIOUS BARRIER ELEVATION SKETCH
SCALE: 1"=10'

IMPERVIOUS BARRIER ELEVATIONS

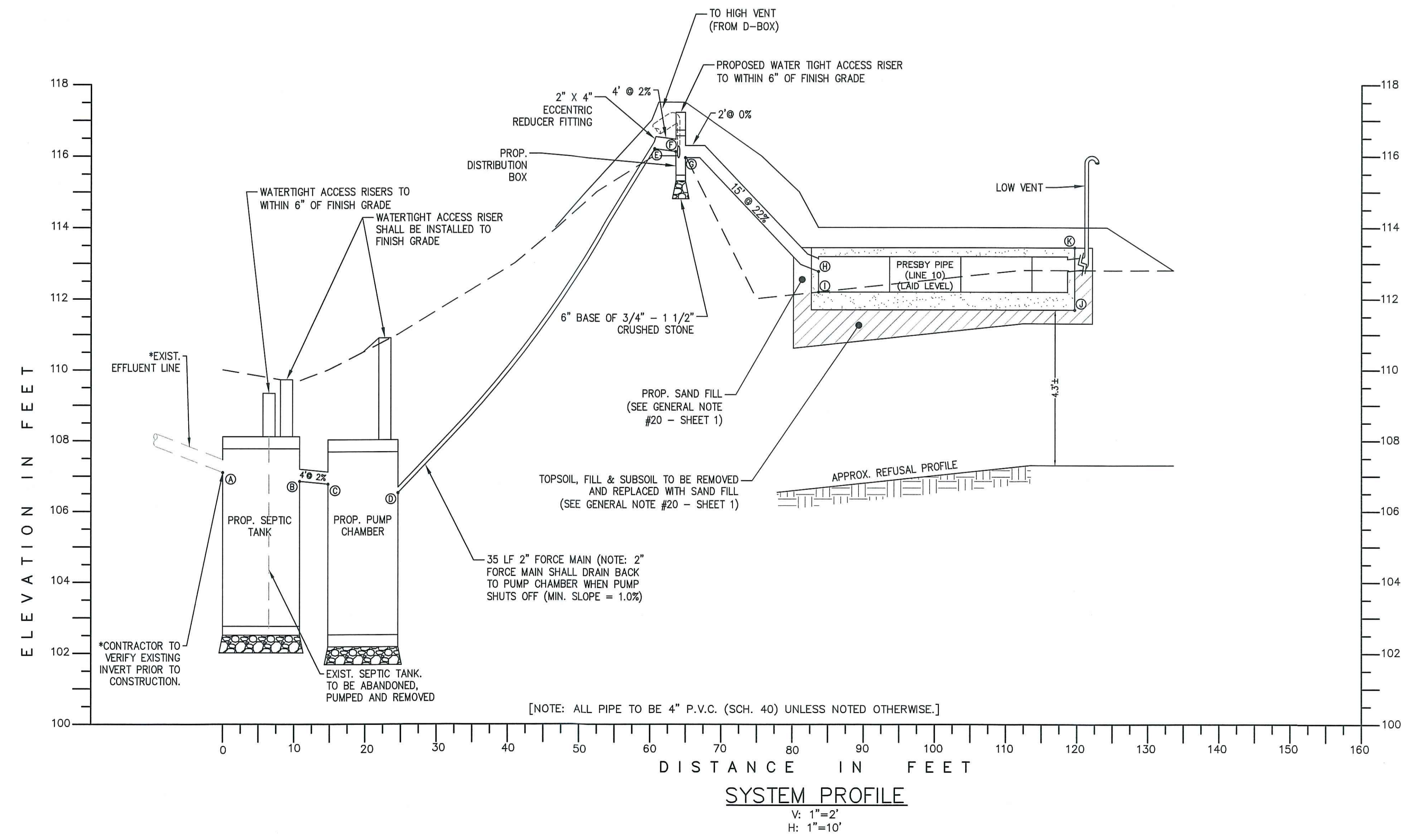
- A: TOP=112.3
BOTTOM=110.8
- B: TOP=113.0
BOTTOM=111.5
- C: TOP=113.3
BOTTOM=110.8
- D: TOP=114.0
BOTTOM=111.5
- E: TOP=114.7
BOTTOM=112.2
- F: TOP=114.7
BOTTOM=112.2

SCHEDULE OF INVERTS

- Ⓐ *SEPTIC TANK IN (MATCH EXIST) = 107.6±
- Ⓑ SEPTIC TANK OUT = 102.85 = 107.35
- Ⓒ PUMP CHAMBER IN = 107.27
- Ⓓ PUMP CHAMBER OUT = 107.02
- Ⓔ 2"X4" ECCENTRIC COUPLING = 116.20
- Ⓕ D-BOX IN = 116.12
- Ⓖ D-BOX OUT = 115.95

LINE	ESTIMATED REFUSAL	BOTTOM OF SAND ①	BOTTOM OF PIPE ②	INV PRESBY PIPE IN ③	TOP OF SAND ④	FINISH GRADE (MIN.)
1	110.68	114.70	115.20	115.78	116.42	117.3
2	110.30	114.35	114.85	115.43	116.07	117.0
3	109.93	114.00	114.50	115.08	115.72	116.6
4	109.55	113.65	114.15	114.73	115.37	116.3
5	109.17	113.30	113.80	114.38	115.02	115.9
6	108.80	112.95	113.45	114.03	114.67	115.6
7	108.42	112.60	113.10	113.68	114.32	115.2
8	108.04	112.25	112.75	113.33	113.97	114.9
9	107.67	111.90	112.40	112.98	113.62	114.5
10	107.29	111.55	112.05	112.63	113.27	114.2
11	106.92	111.20	111.70	112.28	112.92	113.8
12	106.54	110.85	111.35	111.93	112.57	113.5

*CONTRACTOR TO VERIFY INVERT PRIOR TO CONSTRUCTION. NOTIFY DESIGN ENGINEER AND BOARD OF HEALTH OF ANY DISCREPANCIES FROM DESIGN PLAN. PIPE SLOPE FROM EXISTING SEPTIC LINE TO NEW SEPTIC TANK = 2.0% MIN.



SURVEY BY: MCG
DRAFTED BY: WAS
CHECKED BY: WAS
APPROVED BY: JMM
SCALE: AS NOTED
DATE: MARCH 2, 2022

REVISIONS	
NO.	DESCRIPTION

SANITARY DISPOSAL SYSTEM REPAIR PLAN
IN
BOXFORD, MASSACHUSETTS
10 KING GEORGE DRIVE
PREPARED FOR:
MICHAEL & GAIL LYNCH

DRAWING NO. **S - 2845**
SHEET NO. **3 OF 3**