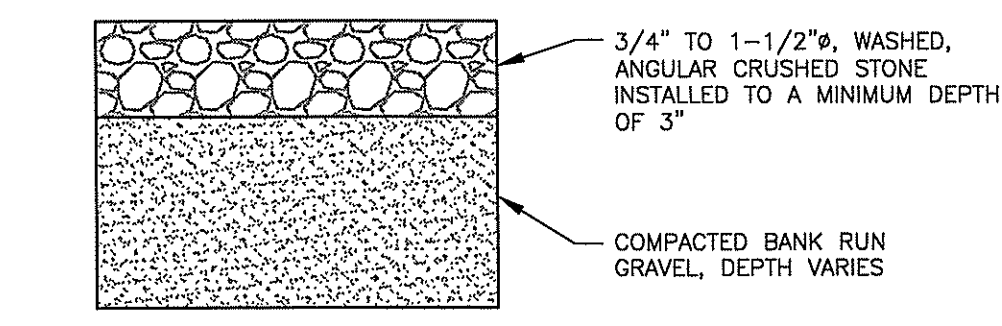
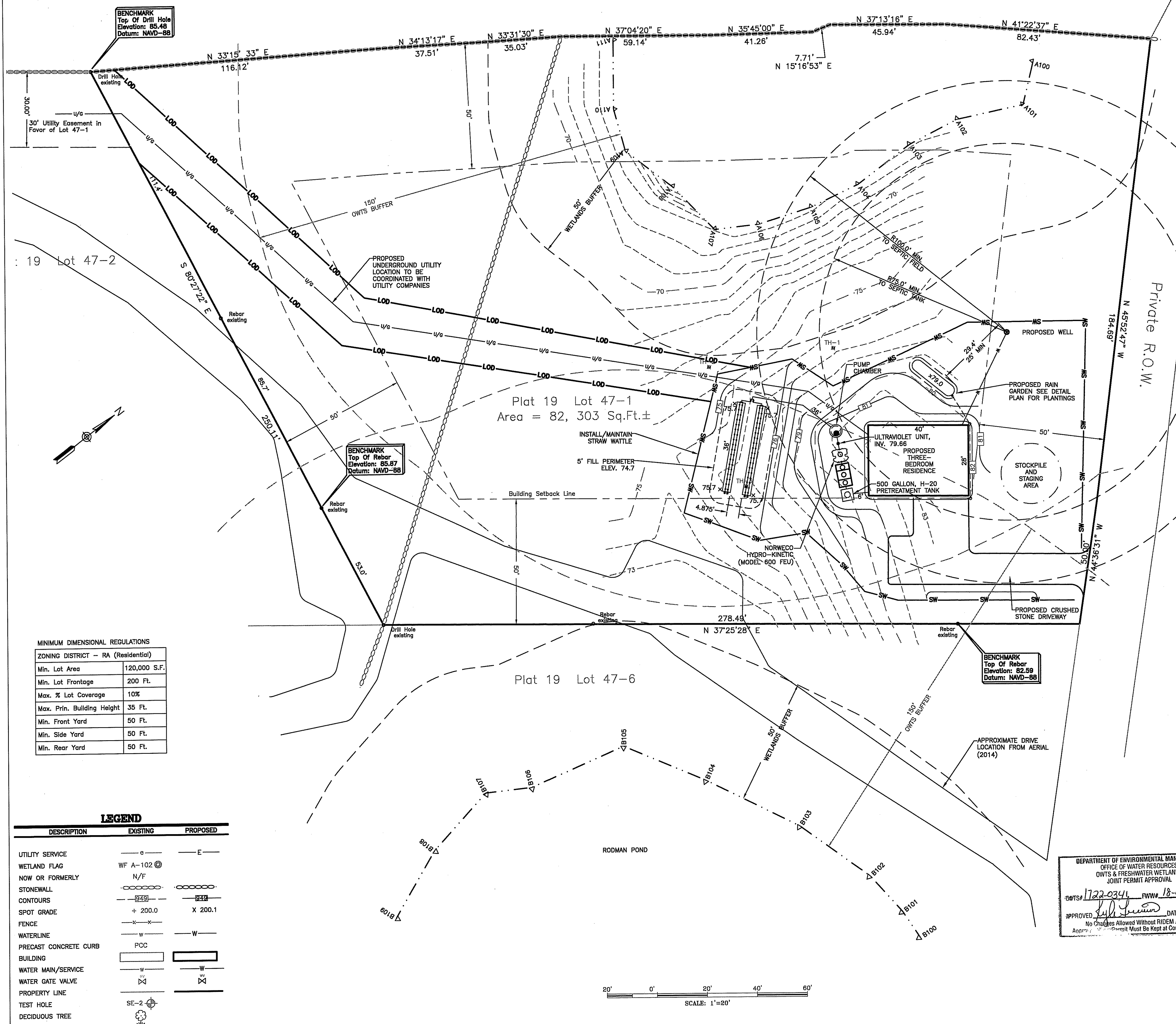
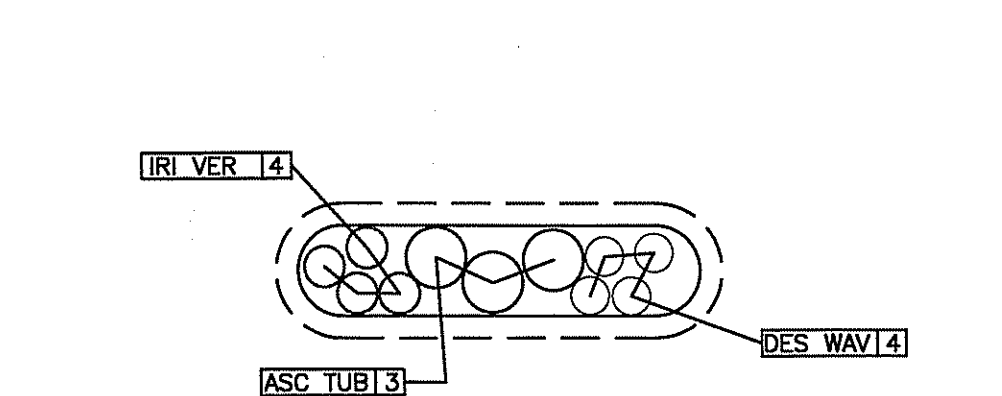


Plat 19 Lot 48



- NOTES:**
1. THE GRADE OF THE FINISHED DRIVEWAY SHALL NOT BE HIGHER THAN THE ADJACENT GROUND ELEVATION.
 2. CRUSHED STONE SHALL BE REPLACED OR RE-GRADED AS NECESSARY TO MAINTAIN A MINIMUM 3 INCH DEPTH OF STONE AND A LEVEL SURFACE.
 3. STRUCTURAL STRENGTH OF THE DRIVE TO SUPPORT VEHICLES SHALL BE VERIFIED BY OTHERS.

CRUSHED STONE DRIVEWAY
NTS CA-RD-027



RAIN GARDEN PLANTING SCHEDULE			
RAIN GARDEN	QTY	BOTANICAL NAME/COMMON NAME	CONT
ASC TUB	3	Asclepias Tuberosa/Butterfly Milkweed	1 Gal
DES WAVE	4	Deschampsia Flexuosa/Wavy Hair Grass	1 Gal
IRI VER	4	Iris Versicolor/Blue Flag	1 Gal

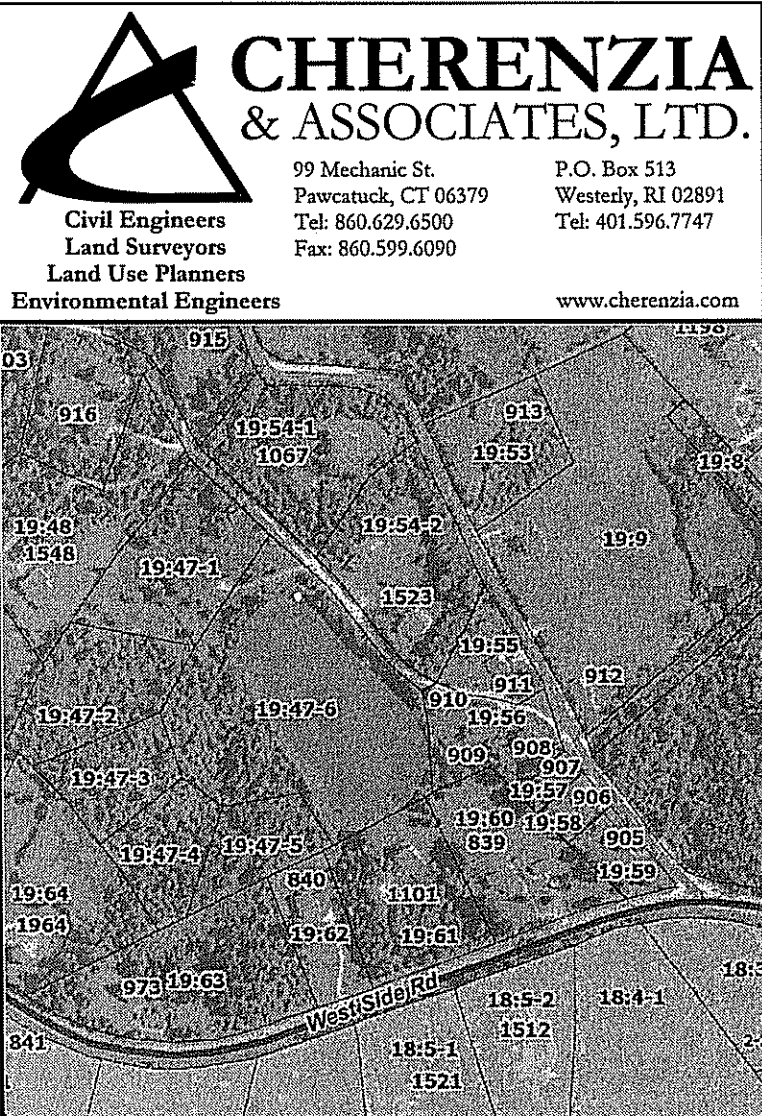
- RAIN GARDEN NOTES:**
1. RAIN GARDENS WERE SIZED BASED ON THE FOLLOWING HOUSE ROOF AREA = 1,120 SF
 2. WATER QUALITY VOLUME IS BASED ON THE FIRST ONE INCH OF RAIN. 1.120 X 0.083 = 82.96 CU FT REQUIRED
 3. RAIN GARDEN TOTAL VOLUME PROVIDED IS 142 SF (83.3 CF / 8\"/>

- RAIN GARDEN CONSTRUCTION:**
1. A CRUSHED STONE ENTRANCE SHOULD BE INSTALLED AT THE INFLOW TO PREVENT CHANNELING.
 2. A BERM TO DETAIN STORMWATER SHOULD BE CONSTRUCTED ALONG THE DOWNHILL SIDE OF THE RAIN GARDEN, PERPENDICULAR TO THE SLOPE OF THE LAWN.
 3. BE SURE THAT THE SOIL WITHIN THE RAIN GARDEN AREA DOES NOT BECOME COMPACTED BY CONSTRUCTION ACTIVITIES (I.E. HEAVY MACHINERY). IF SOIL BECOMES SEVERELY COMPACTED IT MAY NEED TO BE TILLED AND AMENDED TO MAINTAIN PROPER DRAINAGE.

- RAIN GARDEN TREATMENT:**
1. THE BOTTOM OF A RAIN GARDEN SHOULD BE LEVEL TO ENCOURAGE THE EVEN DISTRIBUTION OF STORMWATER AND INCREASE INFILTRATION CAPACITY.
 2. RAIN GARDENS SHOULD BE 4 TO 8 INCHES IN DEPTH WITH A 2 - 4 INCH AMENDED SOIL LAYER AND A 2 - 3 INCH LAYER OF NON-DRIED AGED SHREDDED HARDWOOD MULCH.
 3. THE AMENDED SOIL LAYER OF A RAIN GARDEN SHOULD BE 50/50 MIXTURE OF THE EXCAVATED NATIVE SOILS AND MATURE ORGANIC COMPOST.

- RAIN GARDEN MAINTENANCE NOTES:**
1. RAIN GARDENS SHALL BE INSPECTED FOLLOWING AT LEAST THE FIRST TWO PRECIPITATION EVENTS OF AT LEAST 1.0 INCH TO ENSURE THE SYSTEM IS FUNCTIONING PROPERLY. THEREAFTER, THE RAIN GARDEN SHALL BE MONITORED AND MAINTAINED TO ASSURE PROPER FUNCTIONING, PLANT GROWTH AND SURVIVAL. PLANTS SHALL BE REPLACED ON AN AS-NEEDED BASIS DURING THE GROWING SEASON.
 2. SLT/SEDIMENT SHALL BE REMOVED FROM THE RAIN GARDEN WHEN THE ACCUMULATION EXCEEDS ONE INCH OR WHEN WATER PONDS ON THE SURFACE OF THE RAIN GARDEN FOR MORE THAN 48 HOURS. THE TOP FEW INCHES OF MATERIAL SHALL BE REMOVED AND SHALL BE REPLACED WITH FRESH SOIL MIXTURE AND MULCH.
 3. PRUNING OR REPLACEMENT OF WOODY VEGETATION SHALL OCCUR WHEN DEAD OR DYING VEGETATION IS OBSERVED.
 4. SOIL EROSION GULLIES SHALL BE REPAIRED WHEN THEY OCCUR.
 5. FERTILIZER OR PESTICIDES SHALL NOT BE APPLIED TO PLANTS WITHIN RAIN GARDENS.
 6. PERENNIAL PLANTS AND GRASS COVERS SHALL BE REPLACED AS NECESSARY TO MAINTAIN AN ADEQUATE VEGETATED GROUND COVER. ANNUAL PLANTS MAY ALSO BE USED TO MAINTAIN GROUND COVER.

- BOUNDARY AND EXISTING TOPOGRAPHIC NOTES:**
1. IS BASED ON A PLAN ENTITLED "LIMITED CONTENT BOUNDARY & DATA ACCUMULATION PLAN" FOR DAVID ETZEL, ASSESSOR PLAT 19, LOT 47-1 OFF COAST GUARD ROAD, BLOCK ISLAND NEW SHOREHAM, RHODE ISLAND JUNE 28, 2017 SCALE 1\"/>



LOCATION MAP

PLAN REVISIONS

REV. NO.	DATE	DESCRIPTION	DWN BY	CHK BY
1	5/21/18	REVISED SOIL AND EROSION	JF	SFC
2	10/5/18	OWTS AND WETLAND COMMENTS	RMA	SFC

SCALE: 1"=20'
CA JOB # 216096
NOVEMBER 20, 2017

DRAWN BY: JF
CHECK BY: SFC

ISSUED FOR PERMITTING

OWTS PLAN
OFF COAST GUARD ROAD
PLAT 19, LOT 47-1
NEW SHOREHAM, RHODE ISLAND

PREPARED FOR
DAVID ETZEL

SERGIO F. CHERENZIA
No. 9238
REGISTERED PROFESSIONAL ENGINEER (CIVIL)

C-1

SHEET 1 OF 2
CHERENZIA & ASSOCIATES, LTD.

MINIMUM DIMENSIONAL REGULATIONS

ZONING DISTRICT - RA (Residential)	
Min. Lot Area	120,000 S.F.
Min. Lot Frontage	200 Ft.
Max. % Lot Coverage	10%
Max. Prin. Building Height	35 Ft.
Min. Front Yard	50 Ft.
Min. Side Yard	50 Ft.
Min. Rear Yard	50 Ft.

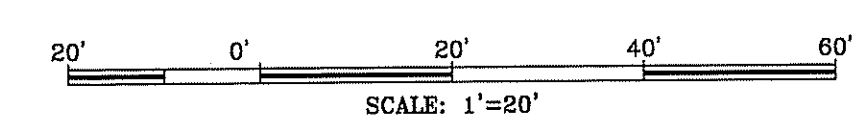
LEGEND

DESCRIPTION	EXISTING	PROPOSED
UTILITY SERVICE	—○—	—E—
WETLAND FLAG	WF A-102	⊙
NOW OR FORMERLY	N/F	○
STONEWALL	—○—	—○—
CONTOURS	—87.9—	—83.9—
SPOT GRADE	+ 200.0	X 200.1
FENCE	—x—	—x—
WATERLINE	—w—	—w—
PRECAST CONCRETE CURB	—PCC	—PCC
BUILDING	—	—
WATER MAIN/SERVICE	—w—	—w—
WATER GATE VALVE	—X	—X
PROPERTY LINE	—	—
TEST HOLE	SE-2	—
DECIDUOUS TREE	—	—
CONIFEROUS TREE	—	—

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
OWTS & FRESHWATER WETLANDS
JOINT PERMIT APPROVAL

1722-0341 RWMA 18-018
APPROVED: [Signature] DATE 10/16/18
No Changes Allowed Without RIDEM Approval
Address: [Signature] Permit Must Be Kept at Construction Site

OCT 10 2018
Office of Water Resources



GENERAL NOTES:
 1. THERE ARE NO SUBSURFACE DRAINS, FOUNDATION DRAINS, OR STORM DRAINS EXISTING OR PROPOSED WITHIN 25' UP GRADIENT OR 50' DOWN GRADIENT OF THE PROPOSED OWTS.
 2. CLEAR ALL BRUSH AND TREES WITHIN 10' OF OWTS.
 3. NO PARKING OVER SYSTEM, UNLESS H20 WHEEL LOAD IS SPECIFIED.
 4. ALL SEPTIC TANK FILTERS SHALL BE CLEANED ON A YEARLY BASIS.
 5. THE SEPTIC TANK SHALL BE PUMPED OF CONTENTS WHEN THE SLUDGE DEPTH BECOMES GREATER THAN 1/4 THE LIQUID DEPTH. THE TIME BETWEEN PUMPING WILL VARY, BUT IT IS SUGGESTED THAT THE TANK BE PUMPED OF CONTENTS AND INSPECTED AT LEAST EVERY TWO YEARS AND MORE FREQUENTLY WHEN EXTENDED PERIODS OF HIGH FLOW RATES ARE EXPERIENCED.
 6. CONSTRUCTION SUPERVISION OF THE INSTALLATION OF THIS SEPTIC SYSTEM BY THE SYSTEM DESIGNER IS REQUIRED. CHERENZIA AND ASSOCIATES, LTD. MUST BE CONTACTED 48 HOURS PRIOR TO THE START OF CONSTRUCTION TO ASSURE COMPLIANCE WITH RIDEM OWTS REGULATIONS.

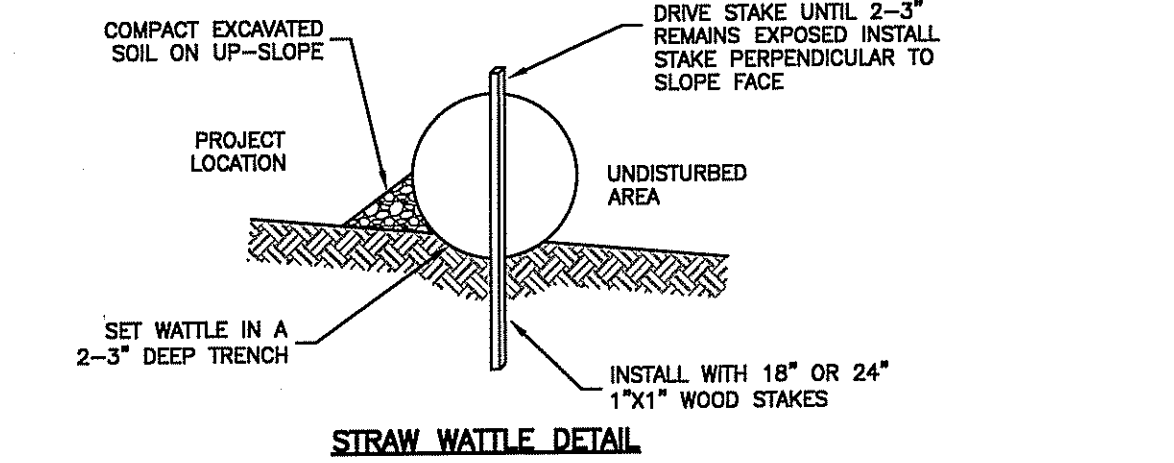
OWTS PLAN REQUIREMENTS:
 1. WELL OR DRAINS, EXISTING AND PROPOSED WITHIN 200' OF OWTS OR ALTERNATE AREA ARE SHOWN ON PLAN.
 2. PUBLIC WELLS, EXISTING AND PROPOSED WITHIN 500' OF OWTS OR ALTERNATE AREA ARE SHOWN ON PLAN.
 3. OWTS WITHIN 100' OF ANY PROPOSED WELL ARE SHOWN ON PLAN.
 4. A BENCHMARK SHALL BE SET WITHIN 100' OF PROPOSED OWTS.
 5. EFFLUENT PIPE SHALL BE CONSTRUCTED OF PVC PIPE SDR 35 MINIMUM OR EQUIVALENT. EFFLUENT PIPE THAT WILL BE SUBJECT TO VEHICULAR TRAFFIC SHALL BE CONSTRUCTED OF SCHEDULE 40 PVC OR EQUIVALENT.
 6. MINIMUM ELEVATION OF 74.7 TO BE MAINTAINED AT LEAST 5' BEYOND SYSTEM.
 7. SEPTIC TANK TO HAVE OUTLET TEE AND PROVIDE MANHOLE ACCESS AT GRADE.

SOIL EROSION & SEDIMENT CONTROL NOTES:
 UNNECESSARY CLEARING OF ANY VEGETATION OR GROUND COVER WILL BE AVOIDED. ANY DISTURBED AREA LEFT UNVEGETATED FOR MORE THAN FIVE DAYS WILL BE COVERED WITH A HAY OR STRAW MULCH TO MINIMIZE EROSION MATERIAL. FOLLOWING FINAL GRADING, ALL DISTURBED AREAS WILL BE COVERED WITH 4" LOAM AND SEEDS AS DESCRIBED BELOW. IF ANY SEEDS ARE DISTURBED OR DAMAGED, RESEEDING WILL OCCUR AS SOON AS POSSIBLE.

SEED MIXTURE

SEED MIXTURE	% BY WT.	LIBS./AC.
RED FESCUE	75	100
COLONIAL BENTGRASS-EXETER	5	
PERENNIAL RYEGRASS	5	
BIRDSFOOT TREFOIL-EMPIRE	15	

IF FINAL GRADING OCCURS AFTER OCTOBER 15, DISTURBED AREAS WILL BE SEEDDED WITH WINTER RYE-GRASS AND MULCHED WITH HAY OR STRAW AT A RATE OF 1.5-2 TONS PER ACRE. ANY PROPOSED VEGETATION WHICH HAS NOT SURVIVED ONE GROWING SEASON WILL BE REPLACED. UNSUITABLE MATERIAL WILL BE REMOVED FROM THE SITE AND DEPOSITED IN A SUITABLE LOCATION.



NOTES:
 1. BEGIN AT THE LOCATION WHERE THE WATTLE IS TO BE INSTALLED BY EXCAVATING A 2-3" DEEP X 8" WIDE TRENCH ALONG THE CONTOUR OF THE SLOPE. EXCAVATED SOIL SHOULD BE PLACED UP-SLOPE FROM THE ANCHOR TRENCH.
 2. PLACE THE WATTLE IN THE TRENCH SO THAT IT CONTOURS TO THE SOIL SURFACE. COMPACT THE SOIL FROM THE EXCAVATED TRENCH AGAINST THE WATTLE ON THE UP HILL SIDE. ADJACENT WATTLES SHOULD TIGHTLY ABUT.
 3. SECURE THE WATTLE WITH 18-24" STAKES EVERY 4-5' WITH A STAKE ON EACH END. STAKES SHOULD BE DRIVEN THROUGH THE MIDDLE OF THE WATTLES LEAVING AT LEAST 2-3" OF STAKE EXTENDING ABOVE. THE WATTLE STAKES SHOULD BE DRIVEN PERPENDICULAR TO SLOPE FACE.

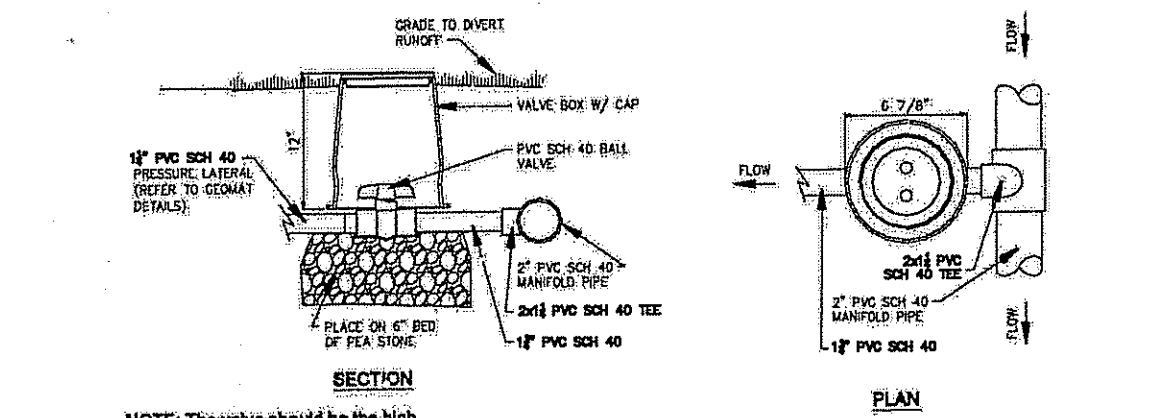
DESIGN CALCULATIONS:
 115 GALLONS PER BEDROOM DESIGN FLOW X 3 BEDROOMS = 345 GPD
 LOADING RATE: 1.5 GAL./S.F./DAY, SOIL CATEGORY 6 FOR A CATEGORY II SYSTEM
 345 GALLONS PER DAY/1.5 GAL. PER S.F. PER DAY = 230 S.F. REQUIRED
 NO PLANS FOR GARBAGE DISPOSAL OR LARGE TUBE IN PROPOSED DEVELOPMENT

GEOMAT 3900=3.25 SF/LF
 230 SF/ 3.25 SF/LF = 70.8 LF
 2 ROWS OF 36 LF X 3.25 SF/LF = 234 SF PROVIDED

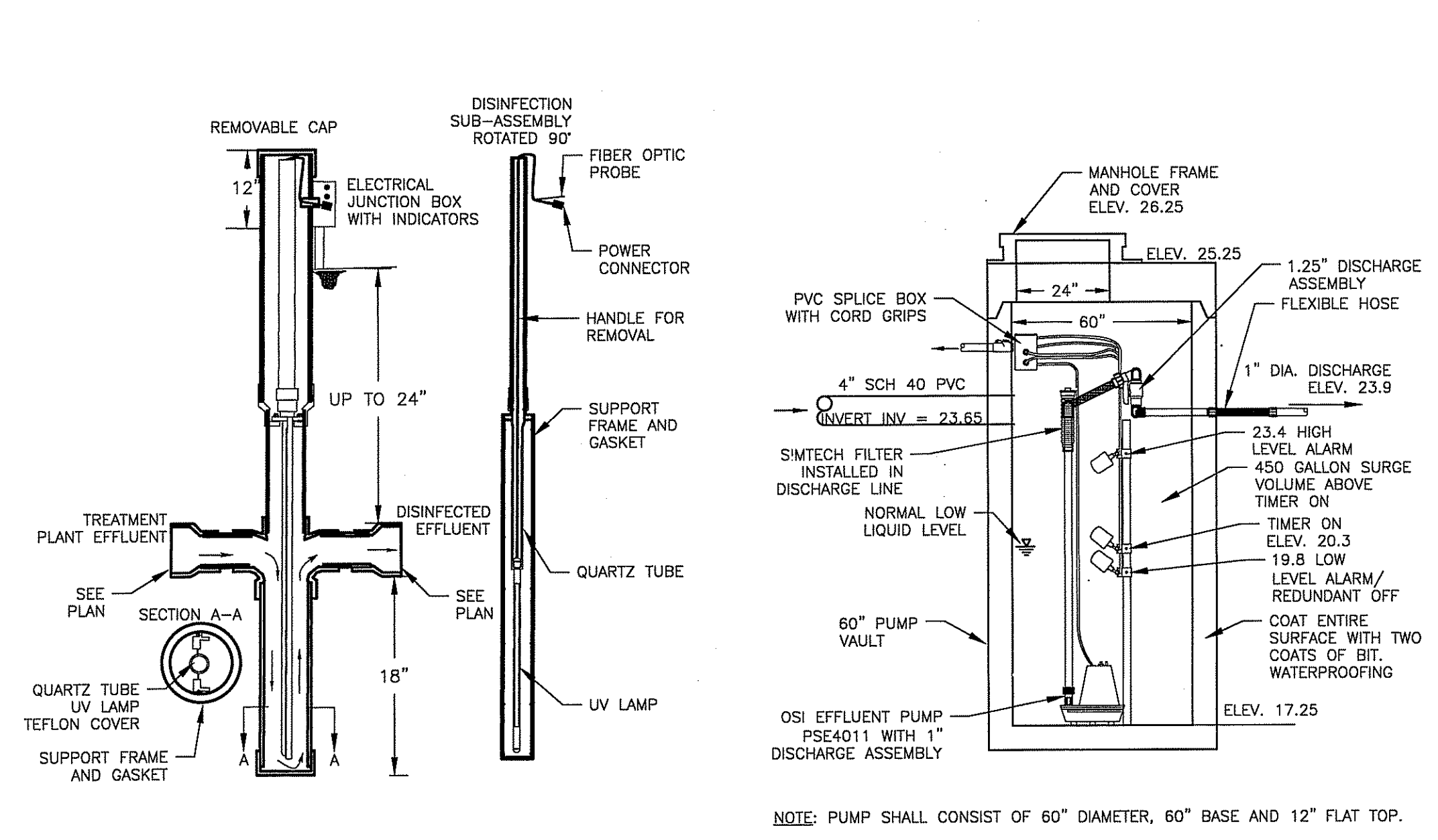
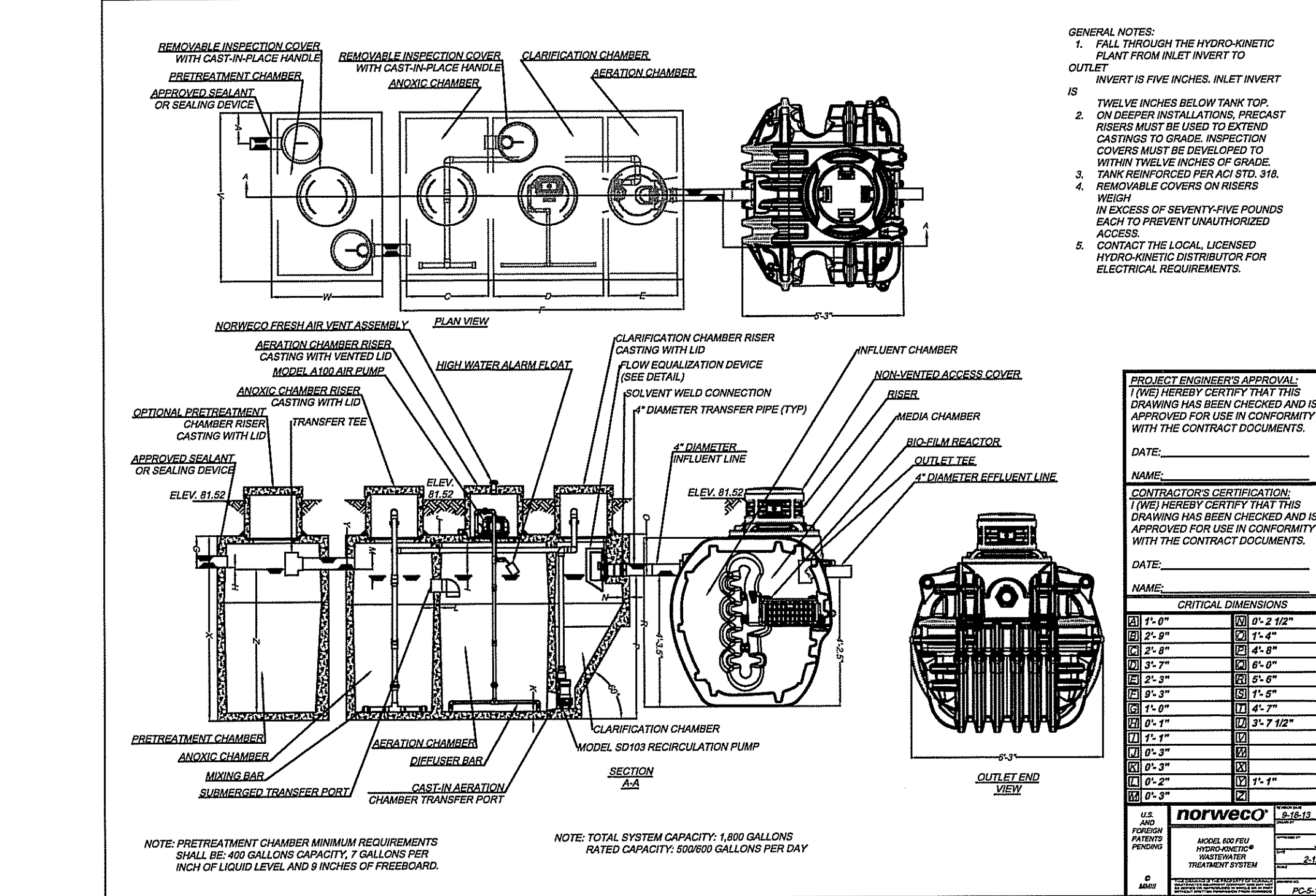
PUMP CALCULATIONS:
 1. DESIGN FLOW FROM PUMP CHAMBER TO GEOMAT IS 14.38 GALLONS EACH DOSE (345 GAL/24 HOURS) = 14.38 GAL/DOSE.
 2. 5" DIAMETER PUMP CHAMBER = 19.63 SQ. FT. X 1 FT. = 19.63 CU. FT. X 7.48 GAL./CU. FT. = 147.00 GAL/FT IN PUMP CHAMBER. PUMP CHAMBER TO BE TINED DOSE TO GEOMAT AT THE RATE OF 35.3 GPM. PUMP IS ON FOR 0.41 MINUTES AND OFF FOR 59.59 MINUTES.
 3. 14.38 GAL/72 ORIFICES = 0.20 GAL PER ORIFICE.
 4. ALL PUMPS SHALL BE EQUIPPED WITH A HIGH WATER LEVEL VISIBLE AND AUDIBLE ALARM POWERED BY A CIRCUIT SEPARATE FROM THE PUMP POWER. THE ALARM SHALL BE LOCATED IN A NORMALLY OCCUPIED AREA OF THE FACILITY.
 5. DISCHARGE ASSEMBLY DRAWN TO SHOW KEY COMPONENTS - ALL PIPING AND FITTINGS SHALL BE INSTALLED TO ENSURE DRAIN - BACK INTO THE PUMP BASIN TO AVOID FREEZING OF SHALLOW BURY DISCHARGE PIPING (WHERE APPLICABLE).

SOIL NOTES:
 APPLICATION #1722-0341
 AUGUST 14, 2017
 TEST HOLE #1 (ELEV. 76.67) TEST HOLE #2 (ELEV. 73.47) TEST HOLE #3 (ELEV. 76.66)
 DEPTH TO GWT = 36" DEPTH TO GWT = 42" DEPTH TO GWT = 48"
 GROUNDWATER ELEV. = 73.67 GROUNDWATER ELEV. = 69.97 GROUNDWATER ELEV. = 72.66
 NO LEDGE ENCOUNTERED NO LEDGE ENCOUNTERED NO LEDGE ENCOUNTERED

INVERT ELEVATIONS
 HOUSE INVERT = 80.12
 PRETREATMENT CHAMBER (IN) = 80.02
 PRETREATMENT CHAMBER (OUT) = 79.97
 HYDRO-KINETIC CHAMBER (IN) = 79.87
 HYDRO-KINETIC SYSTEM (OUT) = 79.82
 MEDIA CHAMBER (IN) = 79.80
 MEDIA CHAMBER (OUT) = 79.72

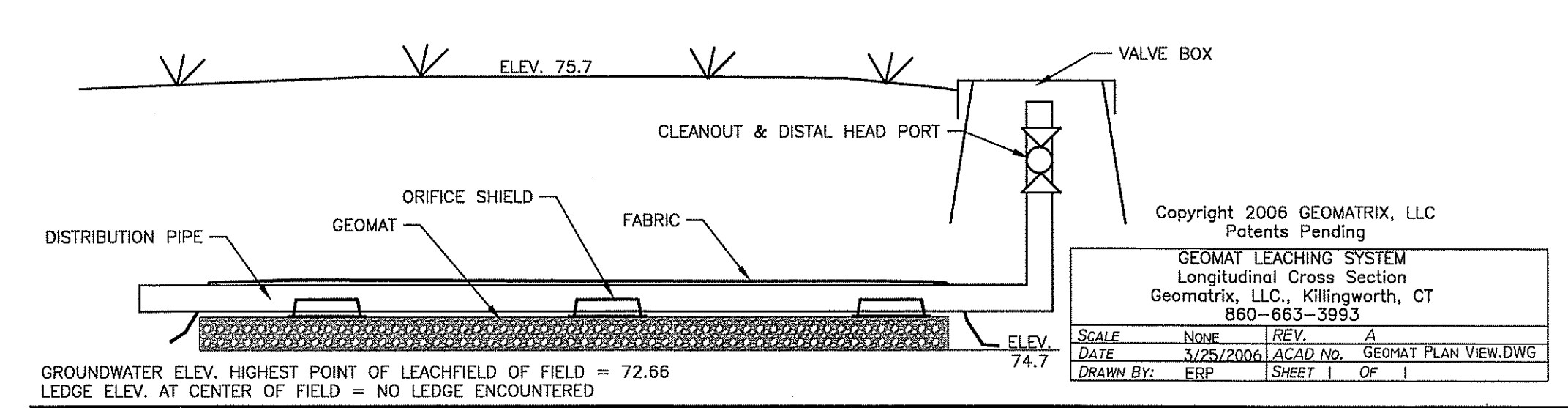


FLOW EQUALIZATION VALVE
 NTS CA-0-020

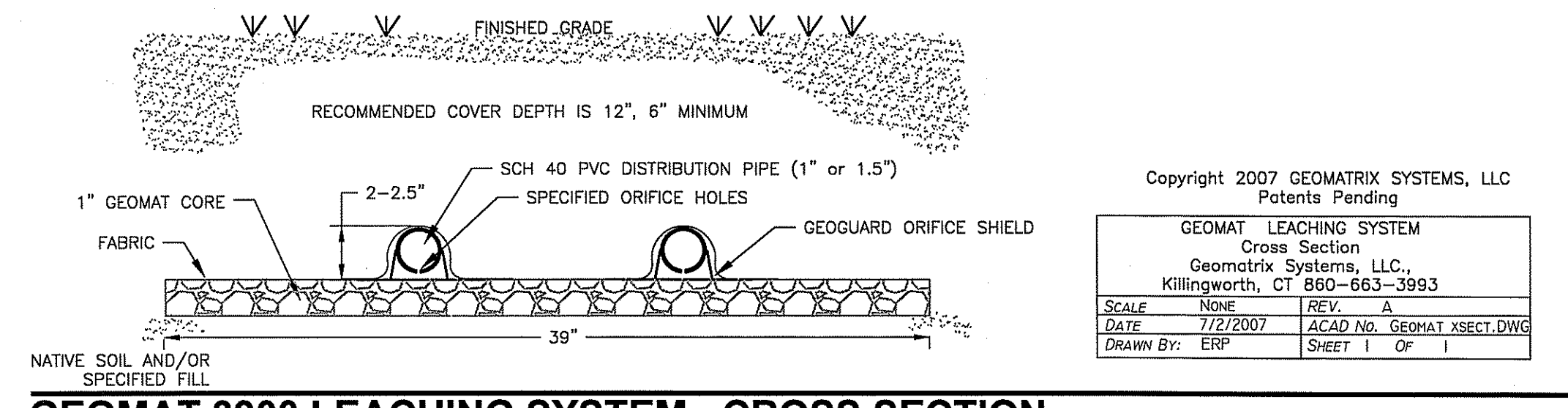


ULTRAVIOLET DISINFECTION UNIT REV CA-0-002
 NTS

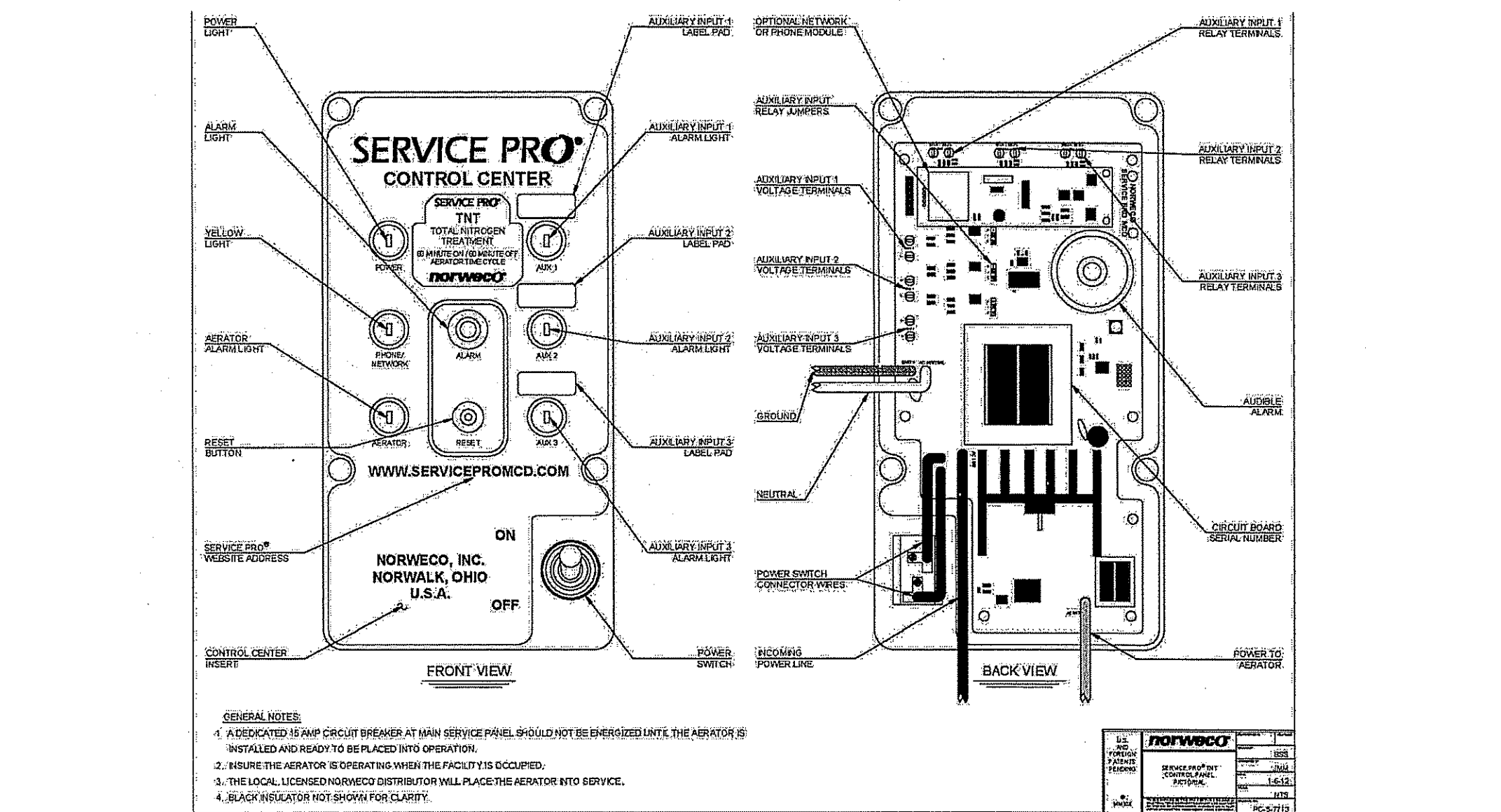
TH	Horizon	Depth	Horizon Boundaries	Soil Colors	Soil Description	Texture	Structure	Consistence	Soil Category
Ap	0-8	a	s	10YR 3/3	fsl	1 sbk f	fr	4	
Bw1	8-15	c	s	2.5Y 5/4	fsl	1 sbk f	fr	4	
Bw2	8-36	a	s	10YR 5/4	fsl	1 sbk f	fr	4	
Bw3	36-52	a	s	7.5YR 4/6, 2.5Y 5/2	c-m-p	fsl	1 sbk f	fr	
2C	52-96			2.5Y 4/3, 7.5YR 5/6	c-m-p	sl	0-m	fr	
TH 2	Horizon	Depth	Horizon Boundaries	Soil Colors	Soil Description	Texture	Structure	Consistence	Soil Category
A	0-6	a	s	10YR 3/3	fsl	1 sbk f	fr	4	
Bw1	6-21	c	s	10YR 4/6	fsl	1 sbk f	fr	4	
Bw2	21-42	a	s	2.5Y 3/3	sl	1 sbk f	fr	5	
Cg	42-54	a	s	10YR 5/2, 7.5YR 5/6	m-c-p	lfs	0-m	fr	
2C	54-108			10YR 5/4, 7.5YR 5/6	c-m-d	s	0-sg	loose	
TH 3	Horizon	Depth	Horizon Boundaries	Soil Colors	Soil Description	Texture	Structure	Consistence	Soil Category
A	0-7	a	s	10YR 3/3	fsl	1 sbk f	fr	4	
Bw1	7-20	c	w	2.5Y 5/6	fsl	1 sbk f	fr	4	
Bw2	20-28	a	s	2.5Y 5/3, 7.5YR 5/6	c-m-p	fsl	1 sbk f	fr	
C	32-48	a	s	10YR 5/3, 7.5YR 5/6	m-c-d	lfs	0-m	fr	
2C	48-108			10YR 5/4	s	0-sg	loose	1	



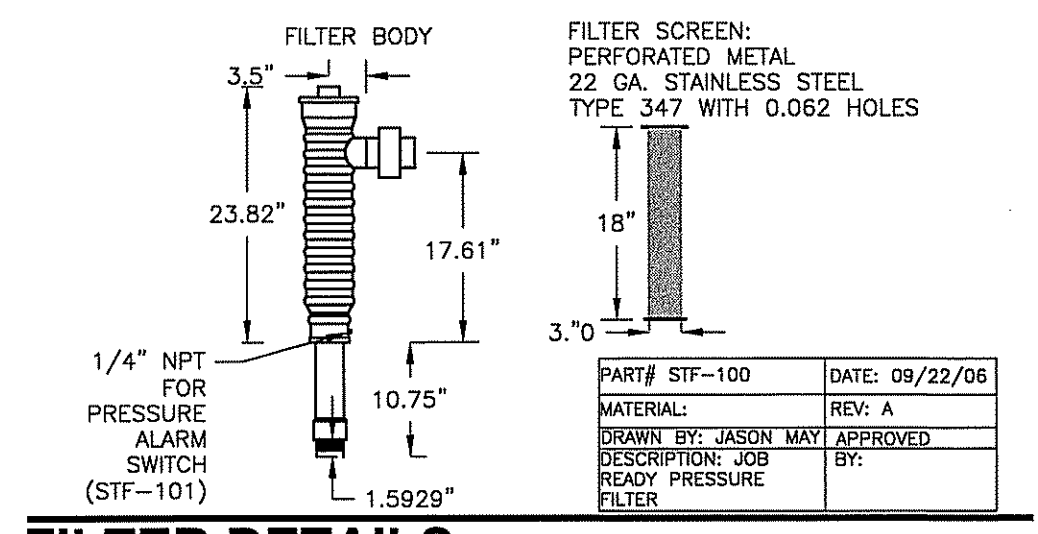
GEOMAT LEACHING SYSTEM - LONGITUDINAL CROSS SECTION
 NTS CA-0-014



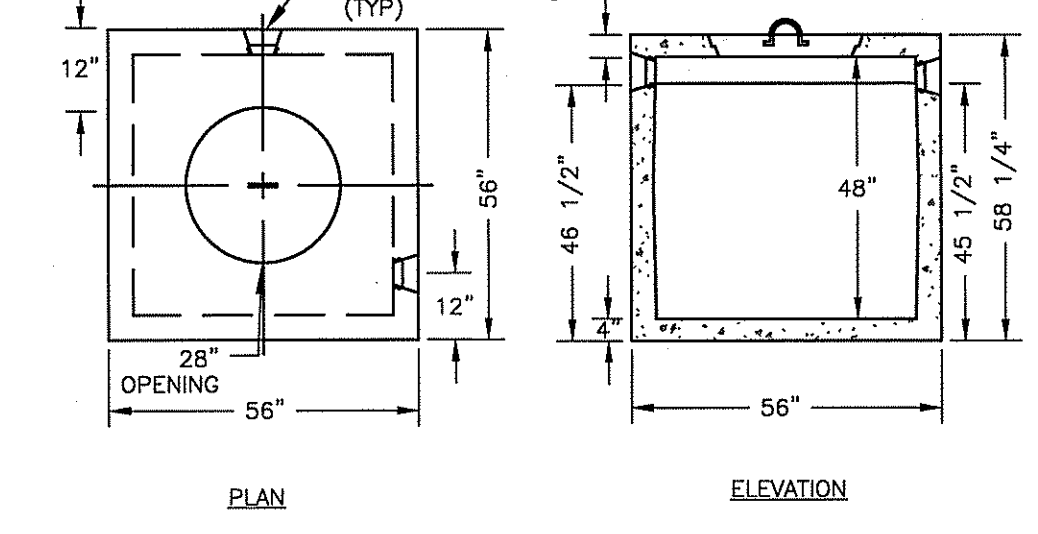
GEOMAT 3900 LEACHING SYSTEM - CROSS SECTION
 NTS CA-0-016



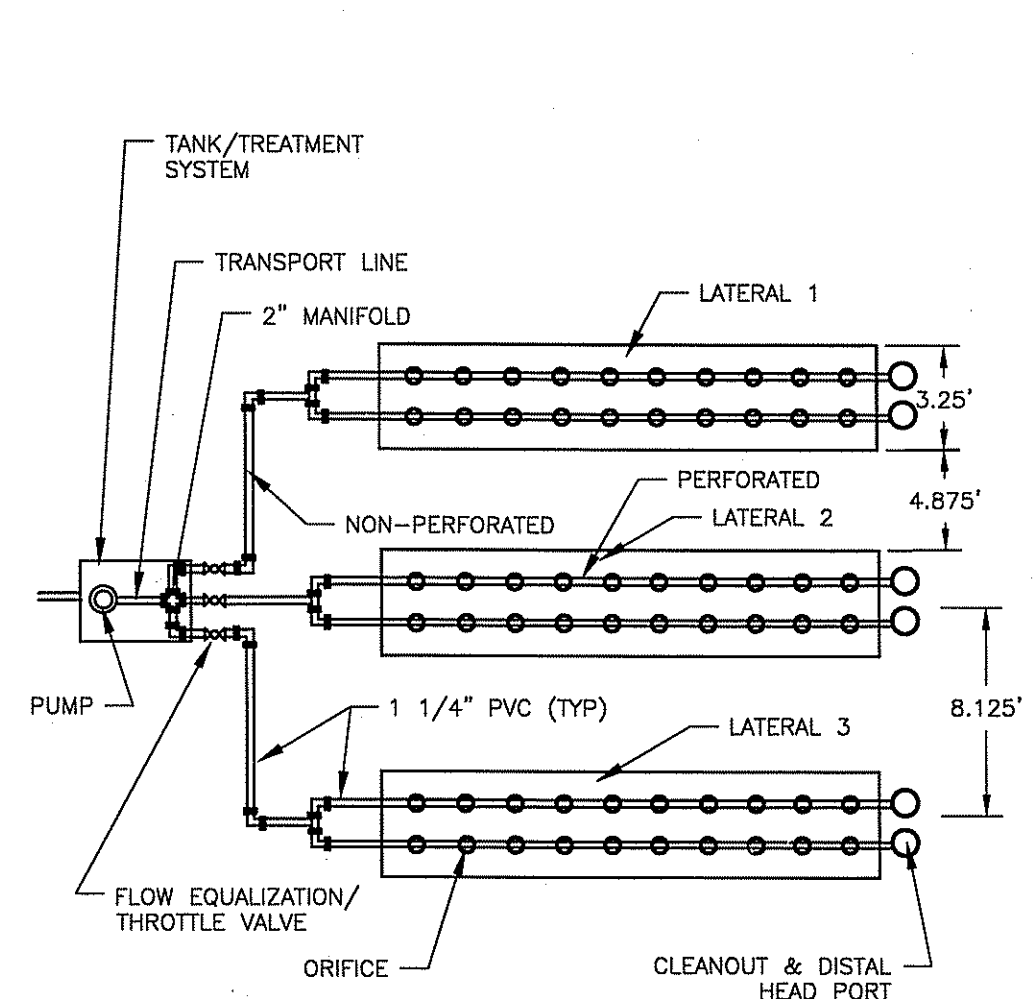
SERVICE PRO TNT CONTROL PANEL
 NTS CA-0-018



FILTER DETAILS
 NTS CA-0-009



500 GALLON PRETREATMENT TANK
 NTS CA-0-022



GEOMAT 3900 LEACHING SYSTEM
 NTS CA-0-016

PLAN REVISIONS

REV. NO.	DATE	DESCRIPTION	DWN BY	CHK BY
1	5/21/18	REVISED SOIL AND EROSION	JF	SFC
2	10/5/18	OWTS AND WETLAND COMMENTS	RMA	SFC

SCALE: AS NOTED
 CA JOB # 216096
 AUGUST 17, 2018

ISSUED FOR PERMITTING

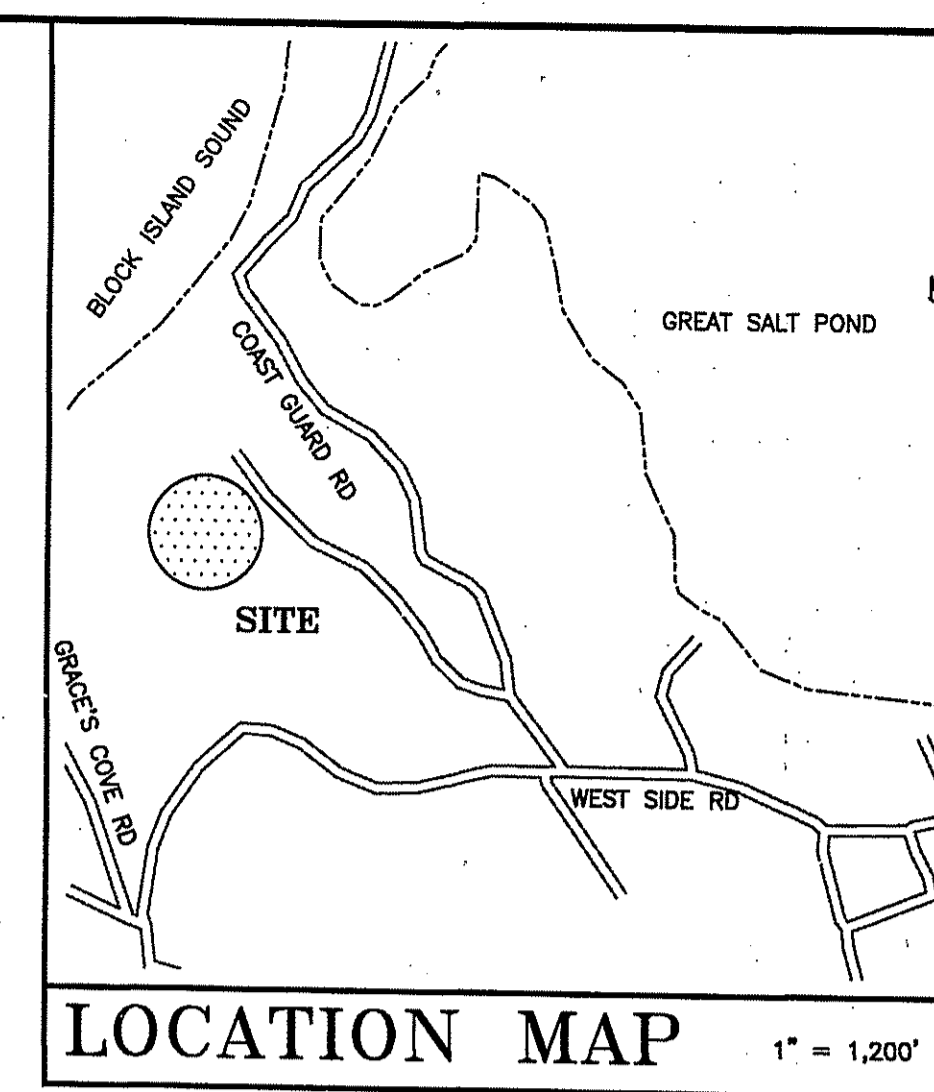
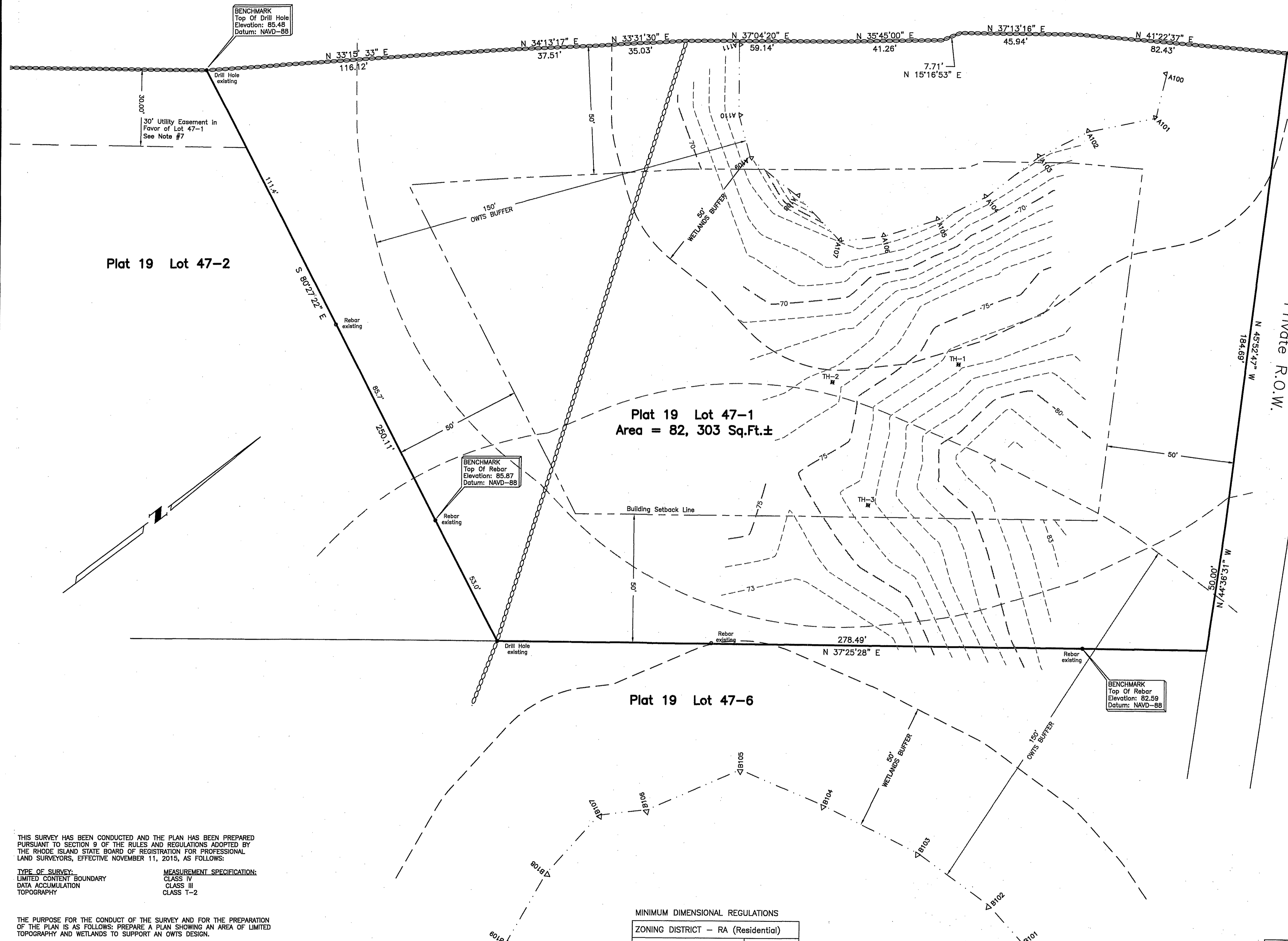
OWTS DETAIL SHEET

OWTS PLAN
 OFF COAST GUARD ROAD
 PLAT 19, LOT 47-1
 NEW SHOREHAM, RHODE ISLAND

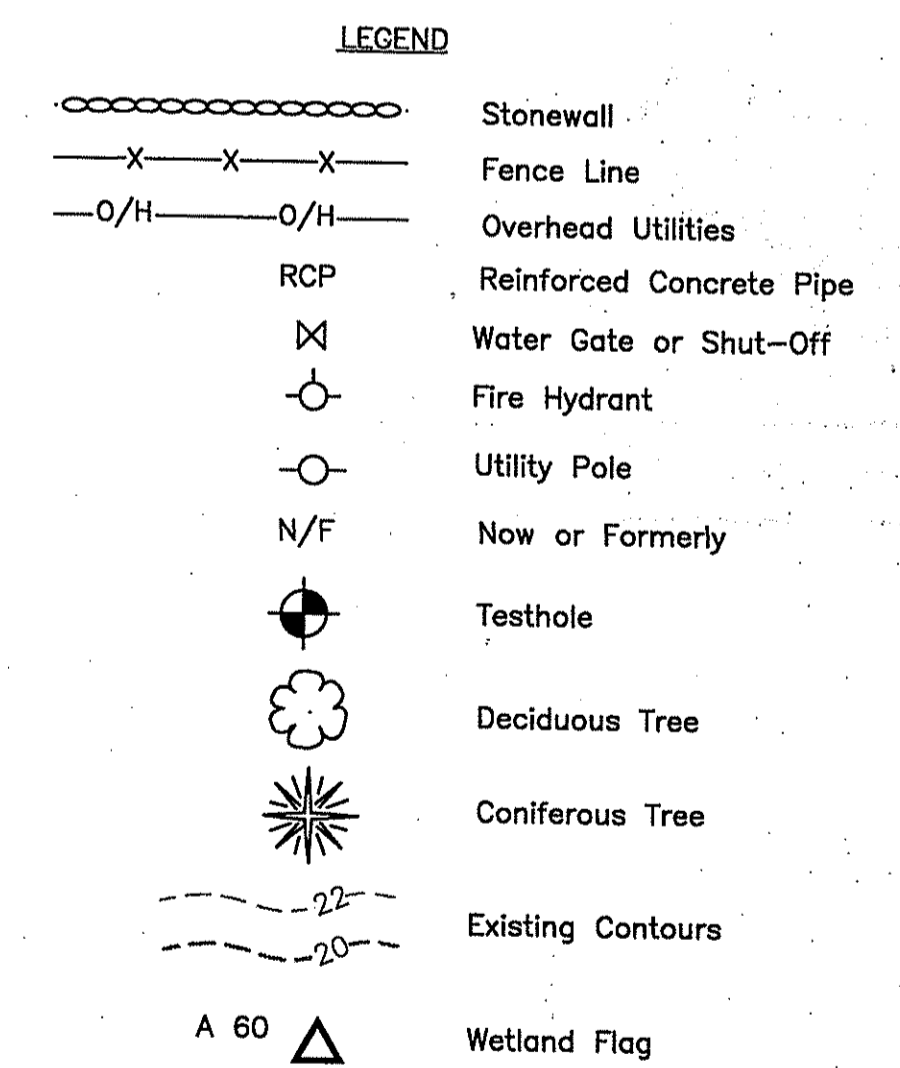
PREPARED FOR
 DAVID ETZEL

SERGIO F. CHERENZIA
 No. 9238
 REGISTERED PROFESSIONAL ENGINEER (CIVIL)
 C-2
 SHEET 2 OF 2
 CHERENZIA & ASSOCIATES, LTD.

Plat 19 Lot 48



- Survey Notes:
- Reference is made to a subdivision plan titled: Cluster Subdivision Plan For Rodman Pond Association Owned By Conrad Kronholm Assessor Plat 19, Lot 47 West Side Road, Block Island Town of New Shoreham May 1985 Scale: 1" = 40' Revised: Oct. 11, 1988 Cherenzia & Assoc., Ltd. Westerly, R.I.
 - Bearings and north arrow orientation are referenced to the Rhode Island State Plane Grid - NAD-83 based upon a GPS observation taken March 2017.
 - The locus parcels lies within an RA Zoning District and is subject to the restrictions thereof.
 - Contours shown are referenced to the NAVD-88 vertical datum as determined by a GPS observation taken March 2017.
 - The edge of the freshwater wetlands was delineated with flagging set by Ecotones, Inc. on June 9, 2017 and field located by Cherenzia & Associates, Ltd. on June 20, 2017.
 - Utility Easement is based on a document provided by the client. No recording information could be found on document or in town Land Records.



THIS SURVEY HAS BEEN CONDUCTED AND THE PLAN HAS BEEN PREPARED PURSUANT TO SECTION 9 OF THE RULES AND REGULATIONS ADOPTED BY THE RHODE ISLAND STATE BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS, EFFECTIVE NOVEMBER 11, 2015, AS FOLLOWS:

TYPE OF SURVEY: LIMITED CONTENT BOUNDARY DATA ACCUMULATION TOPOGRAPHY

MEASUREMENT SPECIFICATION: CLASS IV CLASS III CLASS T-2

THE PURPOSE FOR THE CONDUCT OF THE SURVEY AND FOR THE PREPARATION OF THE PLAN IS AS FOLLOWS: PREPARE A PLAN SHOWING AN AREA OF LIMITED TOPOGRAPHY AND WETLANDS TO SUPPORT AN OWTS DESIGN.

By: *Mark A. Castellanos*
 PLS Signature
 Mark A. Castellanos PLS #2511
 Printed PLS Name & License No.
 LS.000A133-COA
 COA No.



MINIMUM DIMENSIONAL REGULATIONS

ZONING DISTRICT - RA (Residential)	
Min. Lot Area	120,000 S.F.
Min. Lot Frontage	200 Ft.
Max. % Lot Coverage	10%
Max. Prin. Building Height	35 Ft.
Min. Front Yard	50 Ft.
Min. Side Yard	50 Ft.
Min. Rear Yard	50 Ft.

PLAN REVISIONS

DATE	DESCRIPTION	DWN BY	CHK BY
10-5-18	Added utility easement	MAC	MAC

STREET INDEX
OFF COAST GUARD ROAD

CHERENZIA & ASSOCIATES, LTD.
 Civil Engineers
 Land Surveyors
 Land Use Planners
 Environmental Engineers
 99 Mechanic St.
 Pawtucket, RI 02861
 Tel: 860.629.6500
 Fax: 860.599.6090
 P.O. Box 513
 Westerly, RI 02891
 Tel: 401.596.7747
 www.cherenzia.com

LIMITED CONTENT BOUNDARY & DATA ACCUMULATION PLAN
 PREPARED FOR
DAVID ETZEL
 OFF COAST GUARD ROAD
 PLAT 19 LOT 47-1
 NEW SHOREHAM, RHODE ISLAND
 SCALE: 1" = 20'
 DRAWN BY: TWS
 CHECK BY: NDL
 JUNE 26, 2017
 SHEET: 1 OF 1
 JOB NO.: 216096