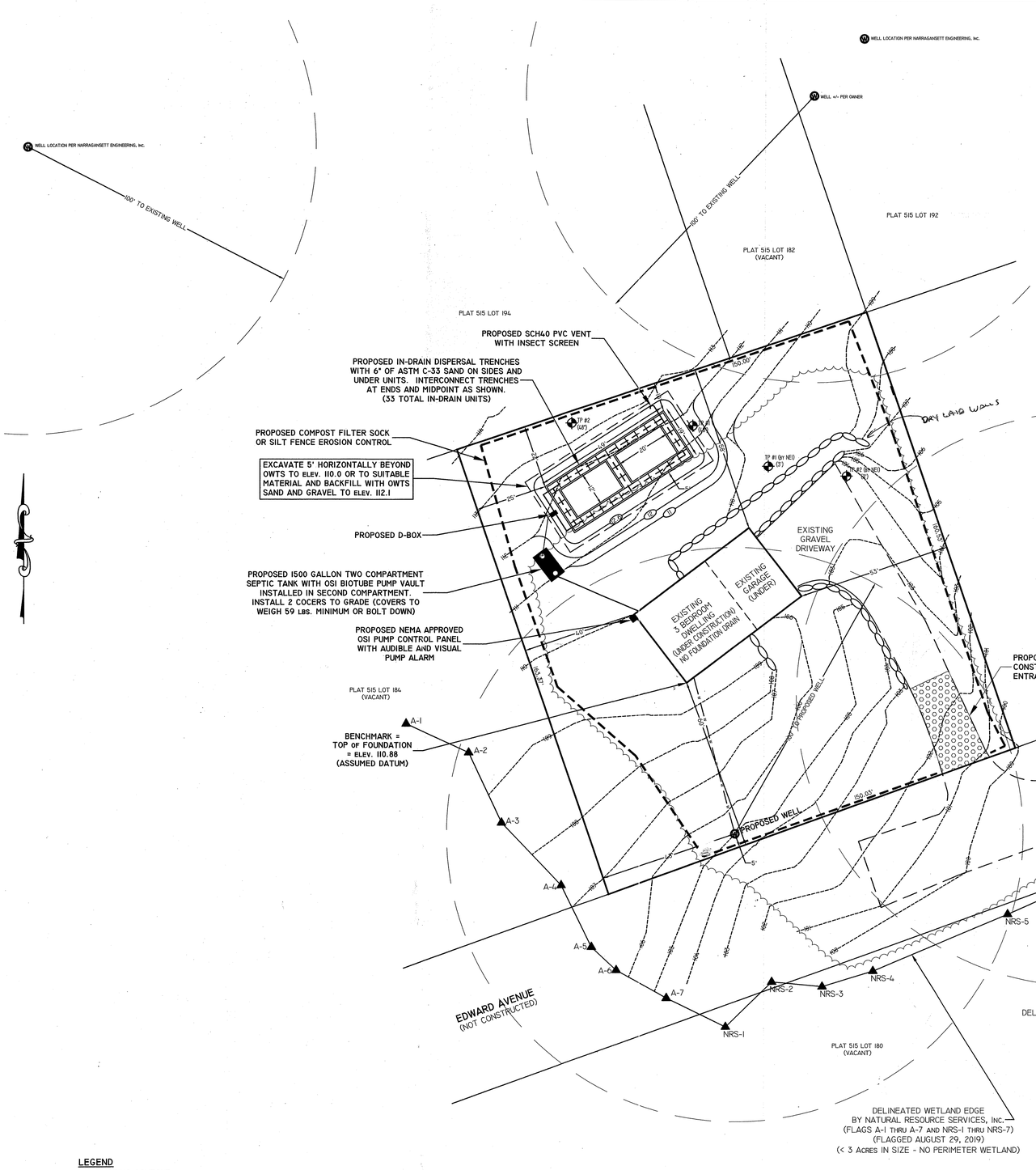
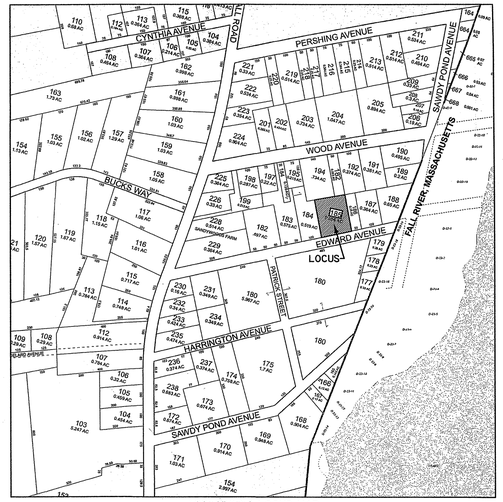
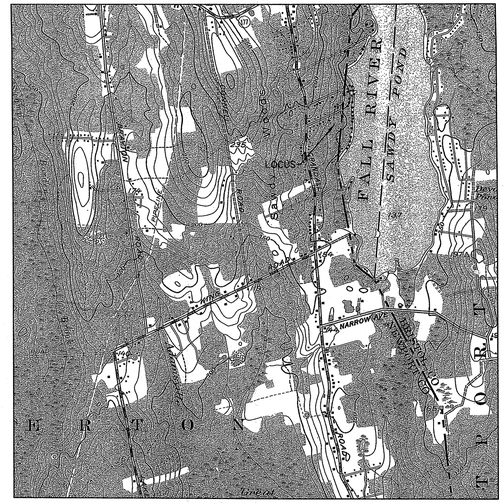




ASSESSOR'S LOCUS MAP
NOT TO SCALE



USGS LOCUS MAP
1" = 2080'±

LEGEND

- EXISTING CONTOUR
- DELINEATED WETALND EDGE (SEE NOTE)
- EXISTING WELL (UNLESS NOTED OTHERWISE)
- EXISTING DRY LAID STONE RETAINING WALL
- EDGE OF GRAVEL DRIVEWAY
- PROPOSED CONTOUR
- PROPOSED COMPOST FILTER SOCK OR SILT FENCE EROSION CONTROL = LIMIT OF DISTURBANCE

WILLIAM F. SMITH
No. #5084
REGISTERED PROFESSIONAL ENGINEER

REVISIONS:

PROPOSED OWTS NEW CONSTRUCTION PLAN

PREPARED FOR

AWASHONKS REALTY

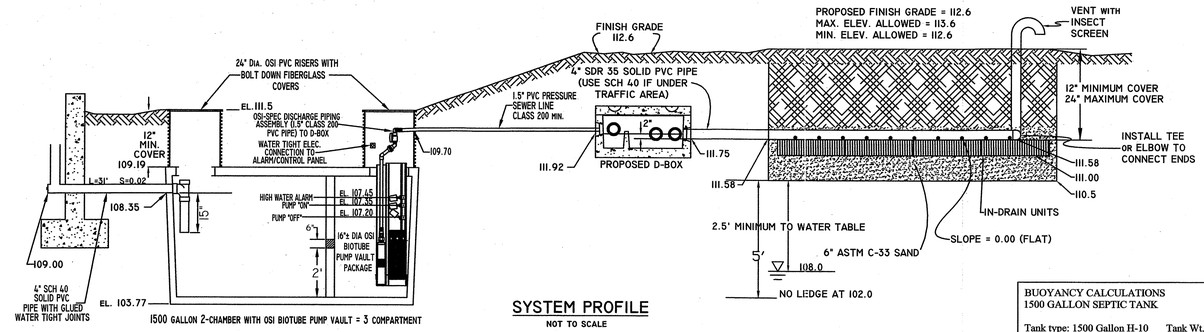
ASSESSOR'S PLAT 515 LOT 185
EDWARD AVENUE
TIVERTON, RHODE ISLAND

SCALE: 1" = 20'
DATE: NOVEMBER 12, 2019

Civil Engineering Concepts, Inc.
34A MAIN STREET
LITTLE COMPTON, RI 02837
PH: (401) 592-0177
FAX: (401) 592-0178
P.O. BOX 5323
NEW BEDFORD, MA. 02742
(508) 990-4900
EMAIL: wsmithcec@aol.com

JOB#: 19-007

RIDEM COPY



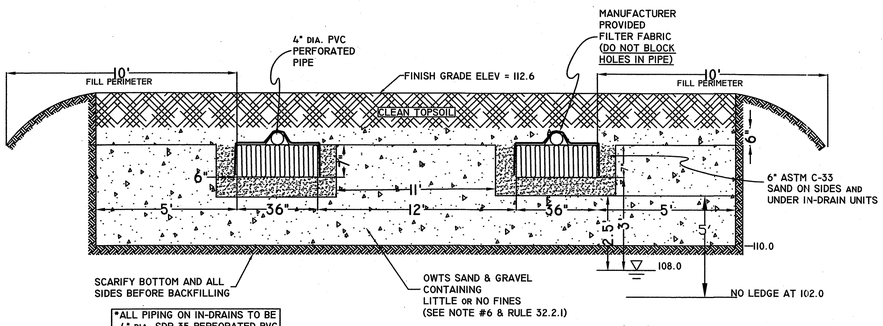
SYSTEM PROFILE

NOT TO SCALE

BUOYANCY CALCULATIONS
1500 GALLON SEPTIC TANK

Tank type: 1500 Gallon H-10 Tank Wt.: 12,400 lbs.
Weight of Earth Cover (ASSUME min. of 1' of soil on tank): 5,358 lbs.
Upward lift (neglecting soil friction):
10.5' (length) x 5.67' (width) x 3.73' (max. submerged depth) x 62.4 lbs/c.f. = 13,857 lbs.

Safety factor:
(12,400 + 5,358) / 13,857 = 1.2



*ALL PIPING ON IN-DRAINS TO BE 4" DIA. SDR 35 PERFORATED PVC
*INTERCONNECT TRENCHES EVERY 25' MAXIMUM

TYPICAL IN-DRAIN SECTION

NOT TO SCALE

SEE SITE PLAN FOR LOCATION, AND NUMBER OF TRENCH LINES

IN-DRAIN UNIT SPECIFICATIONS				
TYPE	LENGTH	WIDTH	HEIGHT	WEIGHT
B	4'	3'	7"	22 LBS.

BASIS OF SANITARY DESIGN
NUMBER OF BEDROOMS: 3
GARBAGE GRINDER: NOT ALLOWED
WATER SOFTENER: NOT ALLOWED
JACUZZI/HOT TUB: NOT ALLOWED
ESTIMATED SEWAGE FLOW: 345 GALLONS PER DAY
SIZE OF SEPTIC TANK: 1500 GALLONS WITH BIOTUBE PUMP VAULT
DESIGN PERCOLATION RATE: SOIL CAT. 9 (0.40 GAL/SF/DAY)
LEACHING AREA PROVIDED: 2 IN-DRAIN LEACHING TRENCHES AT 49' LONG
4' WIDE WITH 6" ASTM C-33 SAND ON SIDES & UNDER UNITS
= 924 SF (33 UNITS TOTAL) (863 SF REQUIRED)
SYSTEM CAPACITY: 924 SF x 0.40 GALLONS/SF/DAY
= 369 GALLONS PER DAY

FINISHED FIRST FLOOR..... 111.8
TOP OF FOUNDATION..... 110.88
FINISHED GARAGE FLOOR..... 103.0
INVERT AT DWELLING..... 109.00
INVERT INTO SEPTIC TANK..... 108.35
INVERT OUT OF SEPTIC TANK..... 109.70 thru RISER
HIGH WATER ALARM..... 107.45
PUMP "ON"..... 107.35
PUMP "OFF"..... 107.20
SEPTIC TANK TOP..... 109.19
SEPTIC TANK FLOOR..... 104.10
INVERT INTO D-BOX..... 111.92
INVERT OUT OF D-BOX..... 111.75
INVERT AT BEGINNING OF TRENCH.. 111.58
INVERT AT END OF TRENCH..... 111.58
BOTTOM OF IN-DRAIN..... 111.00
BOTTOM OF COARSE SAND..... 110.5
BOTTOM OF OWTS SAND & GRAVEL.. 110.0
ELEVATION OF WATER TABLE..... 108.0
EXISTING AVERAGE GRADE AT OWTS.. 112.0

***NOTE: ELEVATIONS ARE BASED ON CONVENTIONAL DWELLING. NOTIFY DESIGNER OF ANY DISCREPANCIES PRIOR TO ANY WORK. DESIGN DOES NOT PERMIT TOILETS IN BASEMENT AREA.

ALL EXISTING AND PROPOSED WELLS WITHIN 200' OF PROPOSED OWTS ARE SHOWN.

NO EXISTING OR PROPOSED PUBLIC WELLS WERE OBSERVED WITHIN 500' OF PROPOSED OWTS.

NO EXISTING OR PROPOSED SEPTIC SYSTEMS WITHIN 100' OF PROPOSED WELL.

MAINTAIN ELEVATION 111.6 WITHIN 10' OF PROPOSED OWTS.

NO UPGRADIENT DRAINS ALLOWED WITHIN 25' OF PROPOSED OWTS.
NO DOWNGRADIENT DRAINS ALLOWED WITHIN 50' OF PROPOSED OWTS.

BRING SEPTIC TANK COVERS TO GRADE. COVER TO BE 20" MIN. (INSIDE DIA.) AND CAPABLE OF WITHSTANDING H-20 LOADING. COVERS TO WEIGH 59 LBS. MINIMUM OR BOLT DOWN.

ALL OWTS PIPE TO BE 4" DIAMETER, PVC SDR 35 (MIN) PERFORATED OR SOLID AS REQUIRED.

PRESSURE SEWER TO BE 1.5" CLASS 200 MINIMUM WITH CONCRETE THRUST BLOCKS AT ALL CHANGES IN DIRECTION

BUILDING SEWER TO BE 4" SCH 40 PVC WITH GLUED, WATERTIGHT JOINTS.

NOTES:

1.) ALL CONSTRUCTION SHALL CONFORM TO THE STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS DEPARTMENT OF ENVIRONMENTAL MANAGEMENT- RULES AND REGULATIONS ESTABLISHING MINIMUM STANDARDS RELATING TO LOCATION, DESIGN, CONSTRUCTION AND MAINTENANCE OF ONSITE WASTEWATER TREATMENT SYSTEMS MOST RECENTLY AMENDED.

2.) ALL WORK SHALL BE DONE IN A WORKMANLIKE MANNER WITH LINES LAID AS STRAIGHT AS POSSIBLE AND JOINTS MADE WATERTIGHT. ALL WORK TO BE DONE BY AN INSTALLER LICENSED IN THE STATE OF RHODE ISLAND.

3.) SEPTIC TANK TO BE JOLLEY PRECAST 1500 GALLON TWO COMPARTMENT SEPTIC TANK. TWO SEPTIC TANK COVERS TO BE BROUGHT TO FINISH GRADE. OUTLET FILTER REQUIRED.

4.) DISTRIBUTION BOX TO BE BCP 5 OUTLET D-BOX OR APPROVED EQUALS. ALL DISTRIBUTION LINES FROM BOX ONE FOOT INTO START OF TRENCH TO BE MINIMUM SOLID SDR-35. A DROP OF 2" IS REQUIRED FROM THE D-BOX TO THE START OF THE TRENCHES. BAFFLES OR INLET TEE REQUIRED IN D-BOX.

5.) LEACHING AREA EXCAVATION SHALL BE LEVEL AND SCARIFIED. CARE SHALL BE TAKEN TO AVOID COMPACTION OF THE LEACHING AREA. EXCAVATION SHALL BE STRIPPED OF ALL BRUSH, TREES, TOPSOIL, SUBSOIL AND OTHER UNDESIRABLE MATERIAL.

6.) OWTS SAND AND GRAVEL TO BE FREE OF ORGANIC MATTER AND FOREIGN SUBSTANCES *AND SHALL NOT CONTAIN MATERIAL LARGER THAN 3" AND UP TO 10% MAY BE SIZED BETWEEN 3/4" AND 3" REFERENCE IS MADE TO STATE OF RHODE ISLAND RULES ESTABLISHING MINIMUM STANDARDS RELATING TO LOCATION, DESIGN, CONSTRUCTION, AND MAINTENANCE OF ONSITE WASTEWATER TREATMENT SYSTEMS RULE 32.12.1*

7.) ALL BACKFILL MATERIAL PLACED OVER THE SEPTIC SYSTEM SHALL BE FREE OF LARGE STONES, RUBBISH, OR OTHER DELETERIOUS MATERIALS, HEAVY EQUIPMENT SHALL NOT BE ALLOWED TO RUN OVER THE LEACHING AREA.

8.) THE SYSTEM IS NOT DESIGNED TO ACCOMMODATE A GARBAGE GRINDER, WATER SOFTENER, OR JACUZZI.

9.) FOR PROPER OPERATION, THE SEPTIC TANK SHALL BE INSPECTED ANNUALLY AND PUMPED AT NO GREATER THAN 2 YEAR INTERVALS. OUTLET FILTER TO BE INSPECTED AND CLEANED SEMI-ANNUALLY.

10.) NO PARKING IS PERMITTED IN THE VICINITY OF THE OWTS.

11.) DIG SAFE NOTIFICATION IS REQUIRED PRIOR TO ANY EXCAVATION.

12.) CONTRACTOR TO INSTALL 12" MINIMUM COVER OVER OWTS. CONTRACTOR IS TO INSURE 6" LOAM AND SEED OVER ALL DISTURBED AREAS UNLESS OTHER ARRANGEMENTS HAVE BEEN MADE FOR FINISH LANDSCAPING.

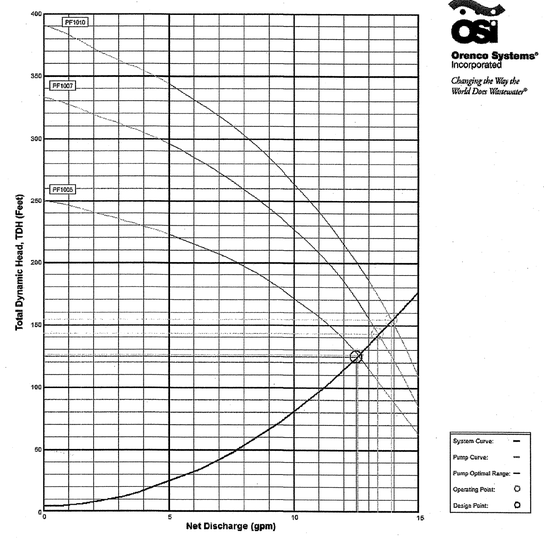
13.) PROPERTY LINES AS DEPICTED ON THIS PLAN ARE BASEWD ON A BOUNDARY SURVEY.

14.) CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ALL SAFETY AND BUILDING CODES ARE FOLLOWED.

15.) DESIGNER TO BE NOTIFIED 72 HOURS (3 WORKING DAYS) PRIOR TO THE START OF OWTS CONSTRUCTION. CONTRACTOR IS TO INSURE THAT DESIGNER IS NOTIFIED 2 WORKING DAYS IN ADVANCE OF REQUIRED INSPECTIONS SO PROPER NOTIFICATION TO RIDEM CAN BE MADE.
FAILURE TO PROVIDE ADVANCE NOTICE WILL RESULT IN DELAYS TO THE CONTRACTOR. WORK SHALL NOT CONTINUE UNTIL VARIOUS STAGE IS APPROVED.

Pump Selection for a Non-Pressurized System - Single Family Residence Project
M. DeMello, Lot 185, Edward Street, Tiverton / in-drain pump system 11-26-19

Parameters		
Discharge Assembly Size	1.0FC	inches
Transport Length	15	feet
Transport Pipe Class	40	
Transport Line Size	1.50	inches
Distributing Valve Model	None	
Max Elevation Lift	4.8	feet
Design Flow Rate	12.5	gpm
Flow Meter	None	inches
"Add-on" Friction Losses	2	feet
Calculations		
Transport Velocity	1.9	fps
Frictional Head Losses		
Loss through Discharge	117.2	feet
Loss in Transport	0.2	feet
Loss through Valve	0.0	feet
Loss through Flowmeter	0.0	feet
"Add-on" Friction Losses	2.0	feet
Pipe Volumes		
Vol of Transport Line	1.6	gals
Minimum Pump Requirements		
Design Flow Rate	12.5	gpm
Total Dynamic Head	124.1	feet



Orence Systems® Incorporated
Changing the Way the World Does Wastewater®

SEWAGE PUMP CHAMBER NOTES:

1.) THE SEWAGE PUMP IS TO BE OSI PFI005, SUBMERSIBLE PUMP INSTALLED IN OSI BIOTUBE PUMP VAULT WITHIN THE SECOND SEPTIC TANK COMPARTMENT. INSTALLATION TO FOLLOW ALL MANUFACTURER REQUIREMENTS.

2.) A SIGN SHALL BE INSTALLED IN THE VICINITY OF THE MANHOLE COVER WARNING OF THE POTENTIAL ACCUMULATION OF HAZARDOUS SEWER GAS AND THE NEED FOR ADEQUATE VENTING AND AIR MONITORING PRIOR TO WORKING ON THE SEWAGE PUMP ASSEMBLY.

3.) ALL MATERIALS AND CONSTRUCTION SHALL MEET THE MANUFACTURERS REQUIREMENTS AND APPLICABLE BUILDING, PLUMBING, ELECTRICAL, AND SAFETY CODES. A MANUFACTURERS MAINTENANCE SCHEDULE SHALL BE ACQUIRED AND FOLLOWED.

4.) THE USE OF A BACKUP ELECTRICAL GENERATOR IS STRONGLY RECOMMENDED.

5.) FOR ADDITIONAL INFORMATION - SEE ADDITIONAL DETAILS CONTAINED WITHIN THIS PLAN AND WITHIN MANUFACTURERS PUBLISHED LITERATURE. THE INFORMATION CONTAINED WITHIN THIS PLAN IS INTENDED TO PROVIDE SCHEMATIC REQUIREMENTS ONLY. ACTUAL SHOP DRAWINGS ARE TO BE COORDINATED WITH THE MANUFACTURER. ALL ACCESSORIES SUCH AS AUDIO AND VISUAL ALARMS, FLOAT SWITCHES, LIFT OUT RAIL SYSTEM, ETC. ARE TO BE READILY ADAPTABLE TO FIT THE PROPOSED SYSTEM PER THE PUMP MANUFACTURER. ODD COMPONENTS REQUIRING EXTENSIVE MODIFICATION TO THE SYSTEM WILL NOT BE PERMITTED.

6.) THE PUMP SHALL HAVE OVERLOAD PROTECTION TO PREVENT DAMAGE TO THE PUMP.

7.) ALL STAGES OF THE PUMP SHALL BE INSPECTED BY THE DESIGN ENGINEER. IT IS THE RESPONSIBILITY OF THE INSTALLER TO PROVIDE ADEQUATE NOTICE OF INSPECTION SCHEDULING TO THE DESIGNER.

8.) THE SEWER LINE BETWEEN THE PUMP CHAMBER AND THE DISTRIBUTION BOX IS TO BE 1.5" DIAMETER PRESSURE PIPE. MAINTAIN POSITIVE DRAIN BACK TO PUMP CHAMBER.

9.) A VENT WITH INSECT SCREEN IS REQUIRED AS SHOWN ON THE PLAN.

10.) NO DRIVING OR PARKING OVER ANY COMPONENT OF THE SYSTEM IS PERMITTED.

11.) A NEMA APPROVED OSI PUMP CONTROL/ELECTRICAL BOX WITH AUDIO ALARM AND VISUAL ALARM (TO NOTIFY OF HIGH WATER LEVELS IN THE PUMP CHAMBER) IS TO BE INSTALLED. THIS ASSEMBLY SHALL BE LOCATED AS SHOWN.

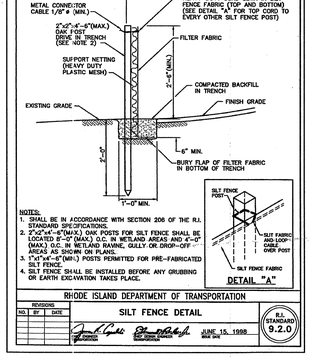
12.) INSTALL A THREADED DISCONNECT ON PUMP DISCHARGE LINE FOR PUMP SERVICING.

13.) A CHECK VALVE SHALL BE INSTALLED ON THE PUMP DISCHARGE LINE FOR PUMP PROTECTION. A WEEP HOLE SHALL BE DRILLED AFTER THE CHECK VALVE TO ALLOW BACKFLOW FROM DISCHARGE LINE INTO THE PUMP CHAMBER TO PREVENT LINE FREEZING.

14.) INSTALLER SHALL INSTALL A LIFT SERVICE TO ALLOW PUMP REMOVAL TO WITHIN AN ARMS LENGTH OF THE PUMP CHAMBER COVER.

COMPOST FILTER SOCK SPECIFICATION:

COMPOST FILTER SOCK SHALL COMPLY WITH SECTION 206.01.4, 206.02.04 AND 206.03.4 OF THE RIDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AMENDED 2013, WITH ALL REVISIONS, AS FOLLOWS:
COMPOST FILTER SOCK MATERIAL AND COMPOST MATERIAL SHALL BE IN ACCORDANCE WITH AASHTO DESIGNATION:MP 9-06 (2007 OR LATEST EDITION). COMPOST SHALL ALSO MEET ALL APPLICABLE FEDERAL AND STATE REGULATIONS. FOR COMPOST FILTER SOCKS 18 INCHES OR LESS IN DIAMETER, WOODEN STAKES SHALL BE 1 INCH BY 1 INCH, AT 10 FOOT INTERVALS ON-CENTER, AND OF A LENGTH THAT SHALL PROJECT INTO THE SOIL 1 FOOT LEAVING 3 INCHES TO 4 INCHES PROTRUDING ABOVE THE FILTER SOCK.

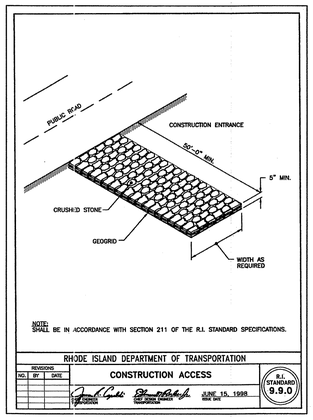


NOTE:
1. SHALL BE IN ACCORDANCE WITH SECTION 206 OF THE R.I. STANDARD SPECIFICATIONS.
2. 2"x2"x4'-6"(MAX.) OAK POSTS FOR SILT FENCE SHALL BE LOCATED 8'-0" (MAX.) O.C. IN WETLAND AREAS AND 4'-0" (MAX.) O.C. IN WETLAND RAVINE, GULLY OR DROP-OFF AREAS AS SHOWN ON PLANS.
3. 1"x1"x4'-6"(MIN.) POSTS PERMITTED FOR PRE-FABRICATED SILT FENCE.
4. SILT FENCE SHALL BE INSTALLED BEFORE ANY GRUBBING OR EARTH EXCAVATION TAKES PLACE.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

REVISIONS		
NO.	BY	DATE

SILT FENCE DETAIL — R.I. STANDARD 9.2.0 — JUNE 15, 1998



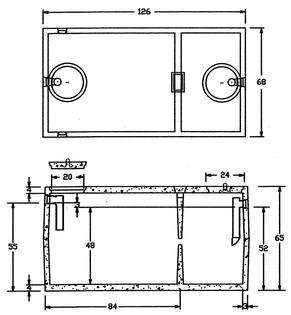
NOTE:
SHALL BE IN ACCORDANCE WITH SECTION 211 OF THE R.I. STANDARD SPECIFICATIONS.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

REVISIONS		
NO.	BY	DATE

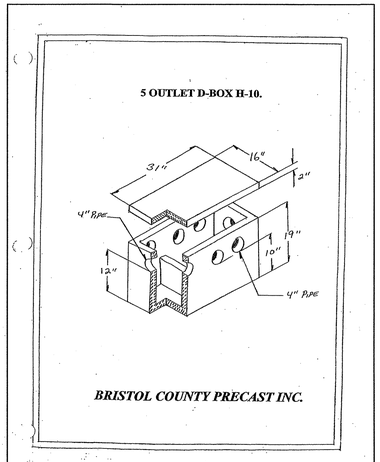
CONSTRUCTION ACCESS — R.I. STANDARD 9.9.0 — JUNE 15, 1998

1500 GALLON
TWO COMPARTMENT
SEPTIC TANK



DESIGN NOTES
1) ALL JOINTS SEALED WITH BUTYL RUBBER SEALANT.
2) ALL INLETS AND OUTLETS WAVE STATE-APPROVED SEALS.
3) AVAILABLE WITH 8" TOP
4) MEETS ASTM C 1227-97A
5) CONCRETE STRENGTH 5000 PSI MIN. 28 DAYS

JOLLEY PRECAST, INC.
860-774-9066



BRISTOL COUNTY PRECAST INC.

PUMP DESIGN CALCULATIONS

PUMP OFF LEVEL 107.20
INVERT INTO D-BOX 111.92

LENGTH OF 1.5" PRESSURE PIPE = 15 FT

SYSTEM TYPE:
33 IN-DRAINS

AREA OF PUMP CHAMBER:
1500 GALLON SEPTIC TANK w/ BIOTUBE P.V. 52.9 CU FT/ VERT FT

DOSING VOLUME:
1.6 GALLONS/UNIT = 7.06 CU FT = 0.13 VERT FT IN PUMP CHAMBER
2.0 GALLONS/UNIT = 8.82 CU FT = 0.17 VERT FT IN PUMP CHAMBER
OWTS DOSING VOLUME = 0.15 FT = 7.94 CU FT

CHECK POTENTIAL FOR SHORT CYCLING IF CHECK VALVE FAILS:
15 LF OF 1.5" PIPE = 0.18 CU FT MUST BE LESS THAN DOSING VALUE (7.94
1.5" dia. PIPE CHARGING = 0.003 FT
THERFORE USE PUMP ON/OFF DIFFERENTIAL: 0.15 FT
PUMP ON ELEVATION = 107.35

FLOW (TAKEN FROM SYSTEM CURVE):

12.5 GPM = 1.67 CUFT/MIN

RUN TIME/ CYCLE
7.9 CU FT / 1.67 CUFT/MIN 4.8 MIN OR 285.1 SECONDS

DEPARTMENT OF ENVIRONMENTAL M... IN
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS
REVIEWED SITE PLAN APPLICATION NO. 20-0062
DATED APR 6 2020
SEE LETTER OF SAME DATE.

WILLIAM F. SMITH
No. #5084
REGISTERED PROFESSIONAL ENGINEER

REVISIONS:

PROPOSED OWTS NEW CONSTRUCTION PLAN
PREPARED FOR
AWASHONKS REALTY
ASSESSOR'S PLAT 515 LOT 185
EDWARD AVENUE
TIVERTON, RHODE ISLAND

SCALE: AS NOTED DATE: NOVEMBER 12, 2019

Civil Engineering Concepts, Inc.
344 MAIN STREET
LITTLE COMPTON, RI 02837
PH: (401) 592-0177
FAX: (401) 592-0178
P.O. BOX 5323
NEW BEDFORD, MA. 02742
(508) 990-4900
EMAIL: wsmithcec@aol.com

SHEET 2 OF 2 JOB#: 19-007