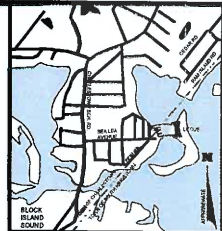


LEGEND

- PROPERTY LINE
- UTILITY POLE
- PROPOSED CONTOUR
- EXISTING CONTOUR
- SALT FENCE/LIMIT OF DISTURBANCE
- EXISTING WATER LINE
- EXISTING TEST HOLE WITH PVC
- WELL
- EXISTING EDGE OF BRUSH
- MAG NAIL SET



CERTIFICATION

This survey has been conducted and the plan has been prepared to substantially conform to Section 9 of the Rules and Regulations adopted by the Rhode Island State Board of Registration for Professional Land Surveyors on November 25, 2016, as follows:
 Type of Survey: Not a Boundary Survey
 Measurement Specification: Not a Boundary Survey
 Other Type of Survey: Data Accumulation Survey III
 Vertical Control Standard: V-3
 Topographic Standard: T-2

The purpose for the conduct of the survey and for the preparation of the plan is as follows:
 This plan is intended for the design and permitting for the development of the lot.

Unsigned

By: _____ Date: _____
 Jeffrey K. Balch, RI Professional Land Surveyor #1839
 Certificate of Authorization #A335.

NOTE: THIS PLAN IS MARKED UNSIGNED. THE RI BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS PROHIBITS DIGITAL SIGNATURES. THEREFORE, A SIGNED PDF IS NOT A VALID SURVEY PLAN. ONLY A PLAN WITH AN ORIGINAL SIGNATURE IS CONSIDERED A LEGAL SURVEY PLAN. REDUCED COPIES OF PLANS ARE ALSO NOT CONSIDERED LEGAL SURVEY PLANS.

- OWTS COMPONENTS:**
- 1-1500 GALLON ACCUMULATION SEPTIC TANK (REGROUNDING TANK)
 - 1-ADVANTAGE AX-20 INCH 30 UNIT PACKAGE
 - 1-PUMP CHAMBER, 47 GPM, 1/2 HP, 115V, 1-PHASE, 1-20" PIPES, 1-2" DIA.
 - 1-EFFLUENT PUMP - ORPICO PUMP MODEL PEF 15 (OR APPROVED EQUIVALENT)
 - 1-CONTROL PANEL - SEE SEPARATE LISTING BELOW FOR CONTROL PANEL SPECIFICATIONS
 - 1-SALCOUR 35 WASTE WATER ULTRAFILTER DISINFECTION UNIT (SEE PUMP CHAMBER DETAIL)
 - 1-COMPOSTING TOILET (SEE PROPOSED OWTS NOTE ON SHEET 1)
- ALL GRABBY SEWER PIPES SHALL BE 4" DIA. 30' TO 35' PVC UNLESS NOTED OTHERWISE. GRAVITY SEWER LINES UNDER DRIVEWAYS AND PARKING AREAS SHALL BE SCHEDULE 40 PVC.

- STRUCTURE:**
 A PROPOSED 2-BEDROOM DWELLING WITH FULL FOUNDATION.
- GENERAL:**
1. THE CONTRACTOR IS REQUIRED TO MAINTAIN THE CONSTRUCTION AREA IN A SAFE MANNER AND ALL CONSTRUCTION ACTIVITY ON THE SITE IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.
 2. EROSION SHALL BE INSTALLED AS PER THE CURRENT RULES AND REGULATIONS ESTABLISHING MINIMUM STANDARDS RELATING TO LOCATION, DESIGN, CONSTRUCTION AND MAINTENANCE OF INDIVIDUAL, SEWAGE DISPOSAL SYSTEMS.
 3. CLEARING INCLUDING THE REMOVAL OF TREES AND OR GROUNDS TO BE REMOVED SHALL BE DONE BY THE CONTRACTOR.
 4. NO VEHICULAR TRAFFIC IS PERMITTED OVER THE PROPOSED LEACH FIELD.
 5. NO DRAINS INCLUDING FOUNDATION DRAINS, SHALL BE WITHIN 10' OF THE PROPOSED LEACH FIELD.
 6. UNLINED, SHOWN THERE AND NOT SHOWN SHALL BE WITHIN 20' OF THE PROPOSED LEACH FIELD.
 7. THIS SITE IS LOCATED IN A CRITICAL RESPONSE AREA (C.R.A. 100).
 8. THERE IS A SPOKEHOLE WITHIN 20' OF THE PROPOSED S.D.S.C.
 9. THE LOT IS SITUATED WITHIN A CRITICAL RESPONSE ZONE AS HAVING A MASS FLOOD INSURANCE RATE MAP APPROVED FEBRUARY 2018.
 10. THERE ARE NO ROOM ELEVATIONS BETWEEN THE SOIL SURFACE AND THE GROUNDWATER.
 11. ACCORDING TO THE REGIONAL ENVIRONMENTAL RECORDS MAP, THE SITE IS LOCATED WITHIN A NON-COMMUNITY WETLAND PROTECTION AREA.
 12. EXISTING EPIBOLITE SOIL TYPE IS A4 - MEDIUM SANDY LOAM, 6 TO 10 PERCENT SILT.
 13. THE AREA OF GREEN HILL POND AT THE SITE IS A CLASS 5A WATER BODY. THE WATER QUALITY IS SUITABLE FOR HARVESTING SHELLFISH.

WATER SUPPLY:
 THERE ARE EXISTING AND PROPOSED WELLS WITHIN 100 FEET OF THE PROPOSED LEACH FIELD. UNLESS SHOWN, THERE ARE NO KNOWN EXISTING OR PROPOSED PUBLIC WELLS WITHIN 500' OF THE PROPOSED LEACH FIELD. OTHER THAN SHOWN, THERE ARE NO EXISTING OR PROPOSED SEWAGE DISPOSAL SYSTEMS WITHIN 100' OF THE PROPOSED WELL.

UTILITIES:
 THE LOCATION OF EXISTING UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY AND HAVE BEEN SHOWN USING THE BEST AVAILABLE DATA. THE CONTRACTOR SHALL CONTACT THE UTILITY COMPANIES TO ASCERTAIN THE EXACT LOCATION OF THE RESPECTIVE UTILITIES PRIOR TO CONSTRUCTION. UTILITIES INCLUDE BUT ARE NOT LIMITED TO: GAS, ELECTRIC, WATER, TELEPHONE, CABLE TV, ETC.

LEDGE OR BOLLIDER REMOVAL:
 LEDGE OR BOLLIDER EXCAVATION IS NOT ANTICIPATED FOR THIS SITE. HOWEVER, THE CONTRACTOR SHALL PROVIDE A LIMIT PRICE COST FOR LEDGE AND/OR BOLLIDER REMOVAL. QUOTE THIS IN BID BASED ON PRECISE QUANTITIES. LEDGE AND/OR BOLLIDER REMOVAL SHALL BE INCLUDED IN BID PRICE. QUOTE THIS IN BID BASED ON PRECISE QUANTITIES. LEDGE AND/OR BOLLIDER REMOVAL SHALL BE INCLUDED IN BID PRICE. QUOTE THIS IN BID BASED ON PRECISE QUANTITIES. LEDGE AND/OR BOLLIDER REMOVAL SHALL BE INCLUDED IN BID PRICE. QUOTE THIS IN BID BASED ON PRECISE QUANTITIES.

- SCHEDULE OF INSPECTIONS:**
1. BUSINESS DAYS NOTICE SHALL BE GIVEN TO C.J. DOYLE, P.E. PRIOR TO CONSTRUCTION.
 2. ALL INSPECTIONS SHALL REQUIRE AT LEAST 1 BUSINESS DAYS NOTICE TO C.J. DOYLE, P.E.
- THE FOLLOWING INSPECTIONS ARE REQUIRED BY C.J. DOYLE, P.E.:
1. PRECONSTRUCTION MEETING WITH C.J. DOYLE, P.E.
 2. BOTTOM OF EXCAVATION FOR LEACH FIELD.
 3. PRIOR TO COVERING THE WATER TABLE FROM THE WELL OR THE MUNICIPAL WATER SERVICE.
 4. PRIOR TO COVERING THE WATER TABLE FROM THE WELL OR THE MUNICIPAL WATER SERVICE.
 5. FINAL GRADING AND 5' FILL PERIMETER.
 6. CHECKING OF PUMPS, CONTROL PANEL AND FLOUT ELEVATIONS (WHEN APPROPRIATE).

CONTRACTOR SHALL PROVIDE THE FOLLOWING TO C.J. DOYLE, P.E.:

1. PRODUCT SPECIFICATION SHEETS FOR PRODUCTS USED IF DIFFERENT THAN SPECIFIED ON THE PLANS. CONTRACTOR SHALL OBTAIN PRIOR APPROVAL FROM C.J. DOYLE, P.E. FOR ANY ITEM THAT IS DIFFERENT THAN SHOWN.
2. COPY OF A DIV 5 ANALYSIS FOR SHUTTLECRAFT SAND 18 TS MEDIA WITH ALL REQUIREMENTS AS SHOWN ON DRAWING IF THE MOST RECENTLY PUBLISHED I.D.M. OUTLINES FOR THE DESIGN AND USE OF BOTTOMLESS SAND FILTERS.

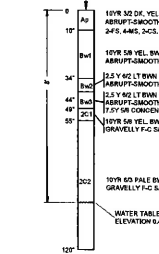
PROPOSED OWTS:

1. THE PROPOSED OWTS AS SHOWN SHALL INCORPORATE A HEAT ABSORBING COMPOSTING TOILET. THEIR SHALL BE A MECHANICAL VENTILATION SYSTEM TO CONTROL THE HUMIDITY IN THE COMPOSTING AND PROVIDE POSITIVE VENTING OF COOKS TO THE OUTSIDE ATMOSPHERE AT ALL TIMES. A HEATING UNIT SHALL BE PROVIDED TO MAINTAIN TEMPERATURE FOR COMPOSTING. ALL EXHAUST AIR FROM HEAT ABSORBING COMPOSTING TOILETS SHALL BE DISPOSED OF BY BURNAL OR OTHER MEANS APPROVED BY THE DISTRICT.
2. TO HANDLE THE GRAY WATER A CATEGORY 1 APPROVED TREATMENT OWTS IS PROPOSED ADVANTAGE AX-20 FOLLOWING A ROTARY SAND FILTER LEACH FIELD. THE SURFACEWATER SEWAGE DISPOSAL FACILITY (SSDF) WAS DESIGNED ON 80% OF THE TOTAL DAILY DESIGN FLOW.

BOTTOMLESS SAND FILTER DESIGN:

LEVEL	SOIL CATEGORY	3
LOADING RATE:	4.50	GAL/SF/DAY
STRUCTURE:	2	BEDROOM RESIDENCE
DESIGN FLOW:	150	GAL/DAY/BEDROOM + 80% FOR COMPOST TOILET
TOTAL DAILY FLOW:		
300	GAL/DAY	= 66.87 * .80 = 53.4 SF (REQUIRED)
4.50	GAL/SF/DAY	
FILTER PROVIDED:		
68	SF.	

SOIL STRATA "A"
 GROUND ELEVATION = 8.62'



SOIL STRATA "B"
 GROUND ELEVATION = 8.26'

SOIL STRATA IS THE SAME AS TYP. A.
 WATER TABLE VERIFIED 61200 ELEVATION 6.46' APPROX. 9995-5344.

SCHEDULE OF INVERTS

INVERT NO.	LOCATION OF INVERT	INVERT ELEV.
(1)	BUILDING SEWER	4.74
(2)	SEPTIC TANK - IN	4.24
(3)	RSV - OUT	5.25
(4)	PUMP CHAMBER - IN	5.08
(5)	PUMP CHAMBER - OUT	5.08
(6)	PEASTONES SAND	7.21
(7)	BSF MANHOLE	6.10
(8)	TOP OF BSF	6.58

CALCULATION OF WATER TABLE ELEVATIONS:

GRADE AT TEST PIT "A"	= 8.46
GROUND WATER DEPTH	= .96"
WATER TABLE ELEVATION	= 0.46
GRADE AT TEST PIT "B"	= 8.29
GROUND WATER DEPTH	= .90"
WATER TABLE ELEVATION	= 0.78
AVERAGE GRADE IN THE AREA OF THE PROPOSED LOT	= 6.21
GROUND WATER DEPTH	= .90"
DESIGN WATER TABLE LEVEL	= 0.71



NOTICE TO CONTRACTOR'S OR BIDDER'S

THIS IS A CLASSIFIED DESIGN. A.D.S.A. HAS EMPLOYED THE DESIGN ENGINEER TO OBSERVE ALL STAGES OF CONSTRUCTION. IF A MAINTENANCE CONTRACTOR CONTACTS C.J. DOYLE, P.E. AT LEAST THREE BUSINESS DAYS PRIOR TO THE START OF CONSTRUCTION TO OBTAIN A CURRENT LIST OF INSPECTIONS AND MATERIAL REQUIREMENTS.

- LIST OF PLAN EDITS:**
1. Benchmark datum converted to NAVD83. All invert elevations, contours adjusted by -0.325 ft.
 2. FEMA reference updated to most current FEMA.
 3. Added additional benchmark, update to page 10.
 4. Change of design engineer.
- Other than the above noted, no significant edits have been made to the plans. Site visit made in July 2018, to confirm the site conditions for subject property and existing lots have not been specifically modified.

GRAPHICAL SCALE: 1" = 20'

FRISELLA-BALCH & ASSOCIATES
 LAND SURVEYING
 33 NORTH ROAD, SUITE G-201,
 PEACE DALE, RI
 PHONE (401) 785-5443
 FAX (401) 789-9997
 www.fba-ri.com

NO.	DATE	DESCRIPTION	BY
2	10-15-2021	AS PER CBM COMMENTS	IB
1	7-19-2018	TOWN VARIANCE	CAC

PLAN OF A PROPOSED ONSITE WASTEWATER TREATMENT SYSTEM

LOT 387 OF ASSESSORS MAP 9

DESIGNED BY: BRUCE GARDNER & OTHERS

SEA LEA AVENUE

IN THE TOWN OF CHARLESTOWN, RI

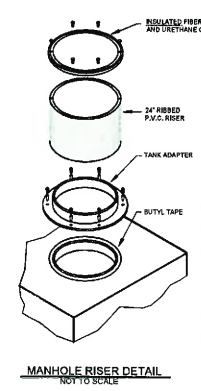
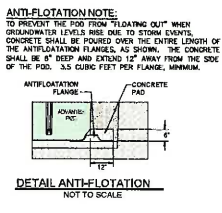
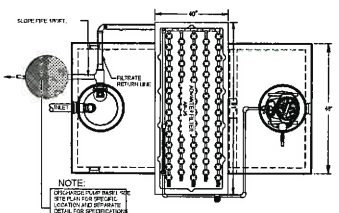
DATE: JULY 28, 2018
 SCALE: 1" = 20'
 DRAWN BY: C.J. DOYLE
 CHECKED BY: C.J. DOYLE

DESIGNED BY: SHEET 1 OF 2

JEFFREY K. BALCH
 PROFESSIONAL LAND SURVEYOR

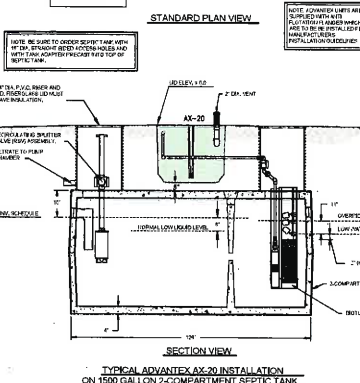
CAROLYN J. DOYLE
 REGISTERED PROFESSIONAL ENGINEER

FOR SURVEYS ONLY FOR ENGINEERING

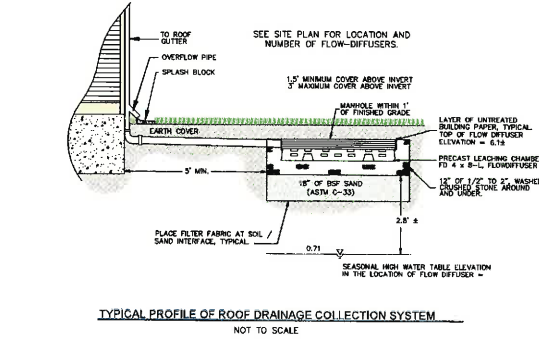
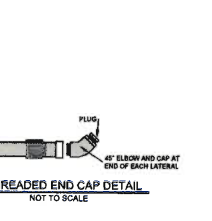
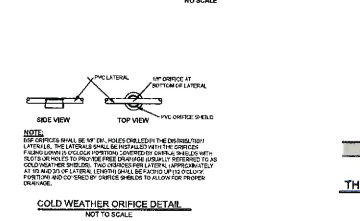


IT IS STRONGLY RECOMMENDED THAT THE CONTRACTOR ORDER THE SEPTIC TANK WITH THE TANK ADAPTER PRECAST AT THE TOP OF THE SEPTIC TANK.

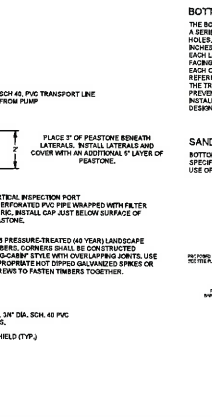
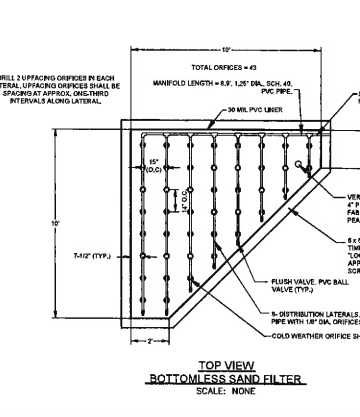
NOTES:
 CLEAN TANK PRIOR TO INSTALLING BUTYL TAPE.
 DRILL HOLES AND FASTEN ADAPTER RING WITH S.S. BOLTS. TIGHTEN EVENLY.
 APPLY GENEROUS AMOUNT OF ADHESIVE TO RISER BOTTOM OF RISER.
 CAREFULLY SLIDE RISER ONTO RING.
 MAKE SURE ADHESIVE FORMS WATER-TIGHT SEAL. ADD ADHESIVE AS REQ'D.
 WAIT FOR ADHESIVE TO HARDEN PRIOR TO BACKFILLING.
 INSTALL RISER PER MANUFACTURER'S REQUIREMENTS.
 MANUF: ORENCO SYSTEMS, (800) 426-4448.



NOTE: BE SURE TO ORDER RISER KIT WITH 1/2" DIA. BRASS STEEL FLOW INLET AND 1/2" DIA. BRASS STEEL FLOW OUTLET FROM TOP OF SEPTIC TANK.



SEE SITE PLAN FOR LOCATION AND NUMBER OF FLOW-DIFFUSERS.
 1" MINIMUM COVER ABOVE INVERT MAXIMUM COVER ABOVE INVERT
 MANHOLE WITHIN 1' OF FINISHED GRADE
 LAYER OF UNTREATED BUILDING PAPER, TYPICAL TOP OF FLOW DIFFUSER ELEVATION = 61.8
 PRECAST LEAKING CHAMBER FD 4 x 8 - 1/2"
 1" OF 1/2" TO 5" WASHED SAND (ASTM C-33)
 2.8' E
 0.71'
 SEASONAL HIGH WATER TABLE ELEVATION IN THE LOCATION OF FLOW DIFFUSER =



BOTTOMLESS SAND FILTER:
 THE BOTTOMLESS SAND FILTER SHALL BE COMPRISED OF 8 LATERALS (SEE DETAILS). A SERIES OF 1/4" DIAMETER ORIFICES SHALL BE DRILLED WITH A NEW SHARP 1/4" DRILL BIT TO MAKE CLEAN HOLES, FREE OF BURRS, DEBRIS OR OBSTRUCTIONS IN THE DISTRIBUTION LATERALS AND SPACES EVERY 14 INCHES.
 EACH LATERAL SHALL BE INSTALLED WITH ALL ORIFICES POINTING DOWN IN A CLOCK POSITION, EXCEPT FOR 2 UP FACING ORIFICES (2 O'CLOCK POSITION, SPACED AT 180 AND 270 LENGTH).
 EACH ORIFICE SHALL HAVE QUARTZ SAND OR WETTED BRUSH HOLES TO PROVIDE FREE DRAINING ADMITALLY REFERRED TO AS COLD WEATHER ORIFICE SHIELDS SEE DETAILS.
 THE TRANSPORT LINE SHALL BE SLOPED (WITH NO SAND OR LEAKS) TO PROVIDE FRESH AIRWAYS OF THE EFFLUENT TO PREVENT FRESH AIR WITHIN THE LINE.
 INSTALLATION OF THE BOTTOMLESS SAND FILTER SHALL FOLLOW THE LATEST PRE-DESIGNING GUIDELINES FOR THE DESIGN AND USE OF BOTTOMLESS SAND FILTERS.

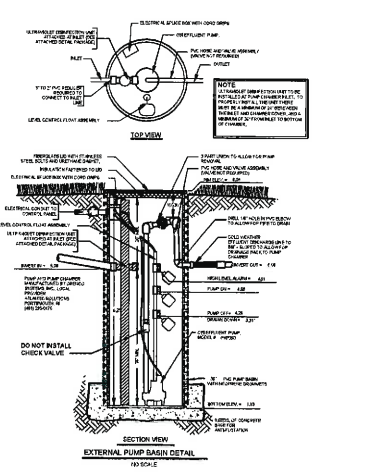
SAND FILTER MEDIA
 BOTTOMLESS SAND FILTER MEDIA SHALL BE ASTM C-33 SAND WITH ALL REQUIREMENTS AS SPECIFIED ON FIGURE 9 OF THE MOST RECENTLY PUBLISHED R.L.D.E.A. GUIDELINES FOR THE DESIGN AND USE OF BOTTOMLESS SAND FILTERS.



WATER-TIGHTNESS:
 CONTRACTOR SHALL TEST THE SEPTIC TANKS FOR WATER TIGHTNESS IN THE PRESENCE OF C.A. DOYLE, P.E. PRIOR TO BACK FILLING THE EXCAVATION. THE INSTRUMENT INCLUDES FILLING THE TANK FULL OF WATER AND LEAK TESTING FOR 24 HOURS. SIDE OF TANK MUST BE EXPOSED, ON DRAINAGE VALVULE TESTING, ON A CERTIFICATION OF WATER TIGHTNESS BY MANUFACTURER IS ACCEPTABLE. WHEN VISUAL TESTER AS PER ASTM 1225A3. ALL INLETS AND OUTLETS SHALL HAVE PRESS SHALL PRECASTED.

ADVANTEX UNITS:
 THE ADVANTEX RISER SHALL BE A MODEL 800 MADE BY ORENCO SYSTEMS, INC. THE RISERS SHALL BE ORDERED WITH C-1 REGULATION ATTACHED TO THE BOTTOM OF THE RISER. THE ADVANTEX UNIT PACKAGE COMES WITH THE PVC RISER SCREWS, SIMPLEX BUTYLE PUMP VALVE, PVC PUMP RISER, PUMP RISER ASSEMBLY, ORENCO PUMP UNITS, VERICAM AND CONTROL PANEL, RECYCLATING SPLITTER VALVE, ASSEMBLY AND ADVANTEX ADAPTER.

INSTALLATION SHALL FOLLOW THE LATEST INSTALLATION GUIDE FOR ADVANTEX TREATMENT SYSTEMS PROVIDED BY ORENCO SYSTEMS, INC. TEL: 1-800-848-8488.



EXTERNAL PUMP CHAMBER:
 THE PUMP CHAMBER SHALL HOUSE AN EFFLUENT PUMP MANUFACTURED BY ORENCO SYSTEMS, INC. MODEL PFP 350 (OR APPROVED EQUIVALENT) AND SHALL BE INSTALLED ACCORDING TO THE PROVIDED AND TO MANUFACTURER'S SPECIFICATIONS. SEE TYPICAL PUMP CHAMBER DETAIL.

CONTROL PANEL:
 THE CONTROL PANEL SHALL BE MANUFACTURED BY ORENCO SYSTEMS, INC. MODEL VERICAM AND THE PROGRAMMABLE TIMER FOR THE RECYCLATING TANK PUMP SHALL BE SET TO THE DEFAULT SETTINGS AS SUPPLIED BY THE MANUFACTURER.

THE EXTERNAL PUMP CHAMBER SHALL BE DEMAND DROSED AND HAVE THE CONTACT SET AS SHOWN IN THE PUMP CHAMBER DETAIL. THE HIGH AND/OR LOW LEVEL ALARMS SHALL BE IN THE CONTROL PANEL.

MAINTENANCE:
 ALL COMPONENTS OF THE SYSTEM SHALL BE INSPECTED AFTER THE FIRST MONTH OF OPERATION AFTER SIX MONTHS OF OPERATION AND AFTER ONE YEAR OF OPERATION. THE SYSTEM SHALL BE INSPECTED YEARLY THEREAFTER UNLESS ORIGINAL INSPECTIONS DETERMINE MORE FREQUENT INSPECTIONS ARE REQUIRED. THE OWNER SHOULD BE AWARE THAT THIS MINIMUM SERVICE AGREEMENT SYSTEM SHALL HAVE A PERMANENT FORTHWITH MAINTENANCE AGREEMENT THAT SHALL BE RECORDING IN THE LAND RECORDS OF THE TOWN.

ELECTRICAL:
 ALL COMPONENTS REQUIRED FOR PUMPS, ALARMS ETC. SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE CODES AND REGULATIONS. CONDITIONS ENTERING THE PUMP CHAMBERS SHALL BE PROPERLY INSTALLED TO PREVENT SEWAGE GASES FROM LEAVING THE BASIN.

NOTICE TO CONTRACTOR'S OR BIDDERS
 THIS IS A CLASS III DESIGN. R.L.D.E. REQUIRES THE DESIGN ENGINEER TO OBSERVE ALL STAGES OF CONSTRUCTION. IT IS MANDATORY THAT THE CONTRACTOR CONTACT C.A. DOYLE, P.E. AT LEAST THREE BUSINESS DAYS PRIOR TO THE START OF CONSTRUCTION TO OBTAIN A CURRENT LIST OF INSPECTORS AND MATERIAL REQUIREMENTS.

FRISELLA-BALCH & ASSOCIATES LAND SURVEYING		CJ DOYLE, P.E. CIVIL ENGINEERING	
33 NORTH ROAD, SUITE C-201, PO BOX 1141, HOPE VALLEY, MI		OFFICE LOCATION 1121 MAIN STREET, HOPE VALLEY, MI	
PHONE (481) 785-9440 FAX (481) 785-9887 www.fba.com		PHONE (481) 484-6633 cdoyle@comcast.net	

NO.	DATE	DESCRIPTION	BY

DETAILS FOR A PROPOSED ONSITE WASTEWATER TREATMENT SYSTEM

PROJECT NO: **LOT 387 OF ASSESSORS MAP 9**

DESIGNED BY: **BRUCE GARDNER & OTHERS**

ADDRESS: **SEA LEA AVENUE**

IN THE TOWN OF **CHARLESTOWN, RI**

DATE: **AUGUST 3, 2016**

SCALE: **AS SHOWN**

DRAWN BY: **CJ DOYLE**

CHECKED BY: **CJD**

DRAWING NO.: **SHEET 2 OF 2**

 JEFFREY K. BALCH PROFESSIONAL LAND SURVEYOR	 CAROLYN J. DOYLE REGISTERED PROFESSIONAL ENGINEER
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FOR SURVEYS ONLY FOR ENGINEERING