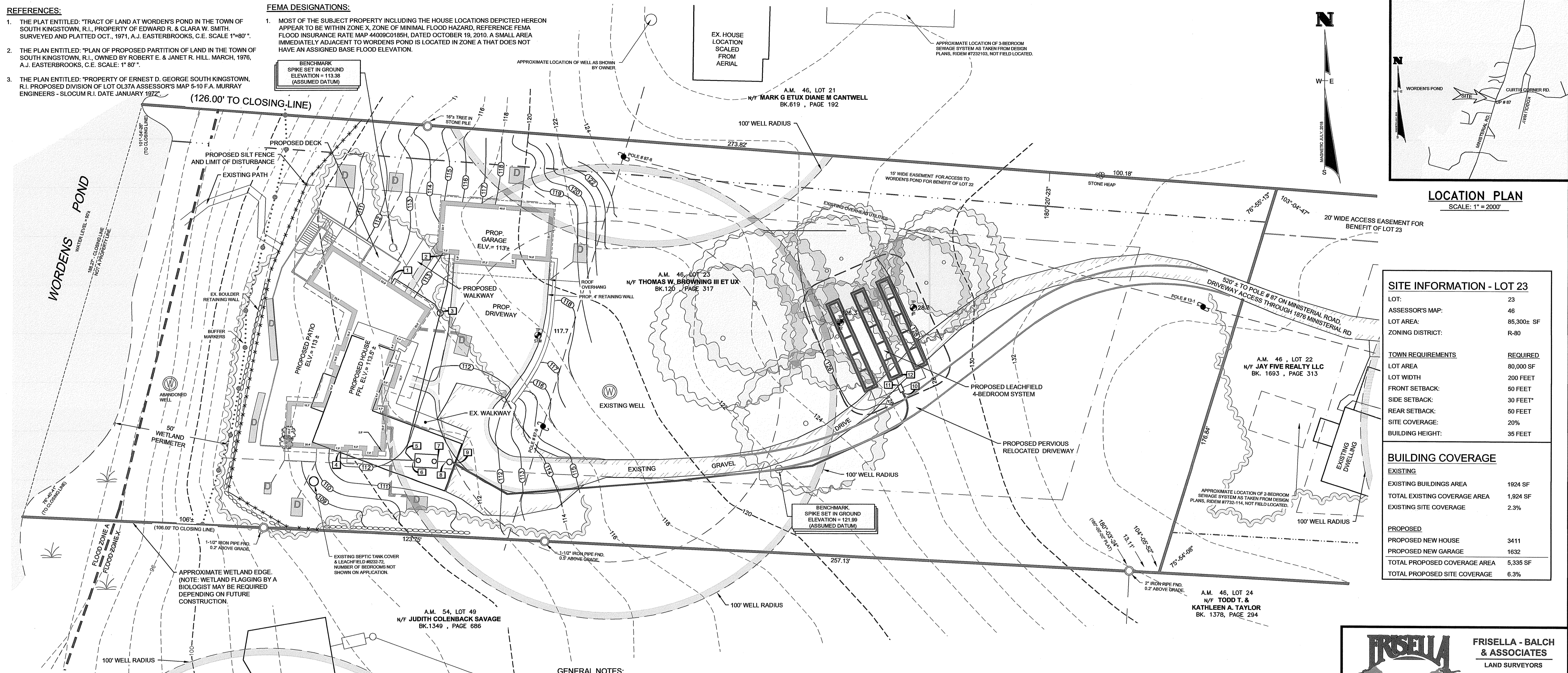


- REFERENCES:**
1. THE PLAT ENTITLED: "TRACT OF LAND AT WORDEN'S POND IN THE TOWN OF SOUTH KINGSTOWN, R.I., PROPERTY OF EDWARD R. & CLARA W. SMITH. SURVEYED AND PLATTED OCT., 1971, A.J. EASTERBROOKS, C.E. SCALE 1"=80'".
  2. THE PLAN ENTITLED: "PLAN OF PROPOSED PARTITION OF LAND IN THE TOWN OF SOUTH KINGSTOWN, R.I., OWNED BY ROBERT E. & JANET R. HILL. MARCH, 1976, A.J. EASTERBROOKS, C.E. SCALE: 1"=80'".
  3. THE PLAN ENTITLED: "PROPERTY OF ERNEST D. GEORGE SOUTH KINGSTOWN, R.I. PROPOSED DIVISION OF LOT 0L37A ASSESSOR'S MAP 5-10 F.A. MURRAY ENGINEERS - SLOCUM R.I. DATE JANUARY 1972"

- FEMA DESIGNATIONS:**
1. MOST OF THE SUBJECT PROPERTY INCLUDING THE HOUSE LOCATIONS DEPICTED HEREON APPEAR TO BE WITHIN ZONE X, ZONE OF MINIMAL FLOOD HAZARD, REFERENCE FEMA FLOOD INSURANCE RATE MAP 44090C0185H, DATED OCTOBER 19, 2010. A SMALL AREA IMMEDIATELY ADJACENT TO WORDEN'S POND IS LOCATED IN ZONE A THAT DOES NOT HAVE AN ASSIGNED BASE FLOOD ELEVATION.



**LOCATION PLAN**  
SCALE: 1" = 2000'

**SITE INFORMATION - LOT 23**

LOT:	23
ASSESSOR'S MAP:	46
LOT AREA:	85,300± SF
ZONING DISTRICT:	R-80
<b>TOWN REQUIREMENTS</b>	<b>REQUIRED</b>
LOT AREA	80,000 SF
LOT WIDTH	200 FEET
FRONT SETBACK:	50 FEET
SIDE SETBACK:	30 FEET*
REAR SETBACK:	50 FEET
SITE COVERAGE:	20%
BUILDING HEIGHT:	35 FEET

**BUILDING COVERAGE**

<b>EXISTING</b>	
EXISTING BUILDINGS AREA	1924 SF
TOTAL EXISTING COVERAGE AREA	1,924 SF
EXISTING SITE COVERAGE	2.3%
<b>PROPOSED</b>	
PROPOSED NEW HOUSE	3411
PROPOSED NEW GARAGE	1632
TOTAL PROPOSED COVERAGE AREA	5,335 SF
TOTAL PROPOSED SITE COVERAGE	6.3%

**PROPOSED DESIGN DATA:**

4 BEDROOM DWELLING  
115 GAL/BR/DAY x 4 BEDROOMS = 460 GAL/DAY  
460 GAL/DAY @ 0.52 GAL/SF/DAY (SOIL CAT. 5) = 885 SF REQUIRED

15 FLOW DIFFUSERS, 6 END UNITS, 9 INTERIOR  
6 END UNITS x 78 SF/UNIT + 9 INTERIOR UNITS x 64 SF/UNIT = 1044 SF PROPOSED

**Pump and Dosing Sizing:**

**Dose Volume in Distribution Pipe**  
Req'd = 60% to 75% of Distribution Pipe in Trenches.

0.0873 SF x 120 L.F. = 4.19 C.F.  
OR  
10.48 C.F. x 60% = 6.29 C.F.  
OR  
10.48 C.F. x 75% = 7.86 C.F.

**Total Dose Volume:**

Assume 7.01 CF = 52.44 Gallons

**Drawdown in Pump Basin:**  
2.5" Dia. Basin = 4.91 CF per Vertical Ft.  
7.01 CF Dose Vol / 4.91 CF / Vert. Ft. = 1.43' of Drawdown.

**System Elevation:**

Water Table Elev.	117.80'
Bottom of Stone above SHWT	+3.00'
Min. Bottom of Stone El.	120.80'
Designed Bottom of Stone El.	123.50'
Design Concrete Chamber Lateral El.	125.50'

**LEGEND**

—	PROPERTY LINE	⊙	TEST PIT
⊙	UTILITY POLE	□	BOUND
x97.5	SPOT GRADE	○	IRON PIN
- - -102 - -	EXISTING CONTOUR	⌋	TREE/BRUSH LINE
— W —	WATER LINE	—	FENCE LINE
— V —	WATER VALVE	—	SILT FENCE

**SCHEDULE OF INVERTS**

LOCATION OF INVERT	INVERT
1 NORTH BUILDING SEWER	110.47
2 GARAGE BUILDING SEWER	110.45
3 NORTH+GARAGE SEWER/ SCO	110.19
4 SOUTH BUILDING SEWER	109.86
5 NORTH/GARAGE+ SOUTH SEWER	109.51
6 SEPTIC TANK IN	109.50
7 SEPTIC TANK OUT	109.25
8 PUMP IN	109.21
9 PUMP OUT	108.43
10 D-BOX IN	125.84
11 D-BOX OUT	125.67
12 FLOWDIFFUSOR INLET	125.50

**GENERAL NOTES:**

1. THIS SITE IS NOT LOCATED WITHIN A NATURAL HERITAGE AREA ACCORDING TO RIDEM ENVIRONMENTAL RESOURCE MAP.
2. THIS SITE IS NOT LOCATED WITHIN A CRITICAL RESOURCE AREA ACCORDING TO RIDEM ENVIRONMENTAL RESOURCE MAP.
3. THIS SITE IS NOT LOCATED IN A HISTORIC OVERLAY DISTRICT ACCORDING TO THE SOUTH KINGSTOWN GIS MAP.
4. THIS SITE IS NOT LOCATED IN A GROUNDWATER PROTECTION OVERLAY DISTRICT ACCORDING TO THE SOUTH KINGSTOWN GIS MAP.
5. PATIO, WINDOW WELLS AND STAIRS SHALL HAVE RAILINGS COMPLIANT WITH STATE AND LOCAL BUILDING CODES

**UTILITIES:**

1. THE LOCATION OF EXISTING UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY AND HAVE BEEN SHOWN USING THE BEST AVAILABLE DATA.
2. THE CONTRACTOR SHALL CONTACT "DIG-SAFE" AND/OR OTHER APPROPRIATE UTILITY COMPANIES TO ASCERTAIN THE EXACT LOCATION OF THE RESPECTIVE UTILITY PRIOR TO CONSTRUCTION.
3. UTILITIES INCLUDE BUT ARE NOT LIMITED TO GAS, ELECTRIC, WATER, TELEPHONE CABLE TV, ETC.
4. ALL CONSTRUCTION ACTIVITIES MUST ADHERE TO OSHA AND NATIONAL GRID REQUIREMENT

**STREET INDEX:**

This plan, if recorded in the land evidence records of the local municipality shall be indexed under the following streets:

- Ministerial Road

**CERTIFICATION:**

This survey has been conducted on February 14 and July 22, 2019 and the plan has been prepared pursuant to 435-RICR-00-00-1.9 OF THE RULES AND REGULATIONS ADOPTED BY THE RHODE ISLAND STATE BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS on November 25, 2015, as follows:

Type of Boundary Survey: Limited Content Boundary Survey  
Measurement Specification: III

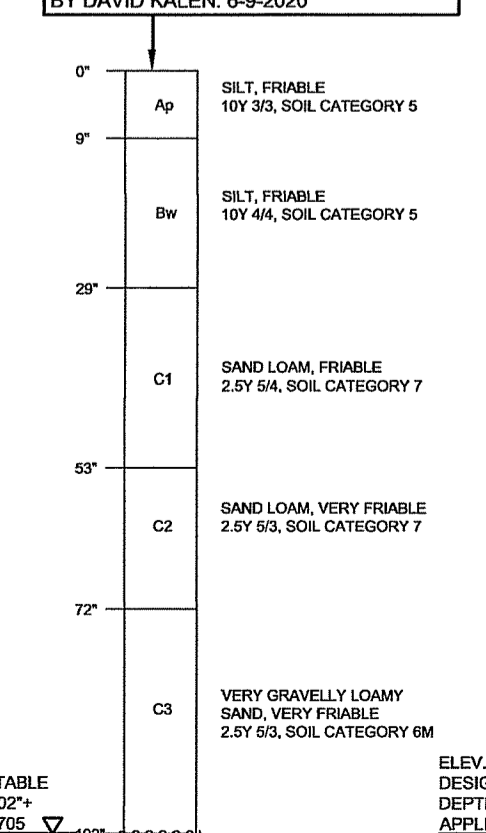
Other Type of Survey: Data Accumulation Survey (By Onsite Instrument Survey)

Contours shown are partially from onsite survey and partially from the Northeast LIDAR project

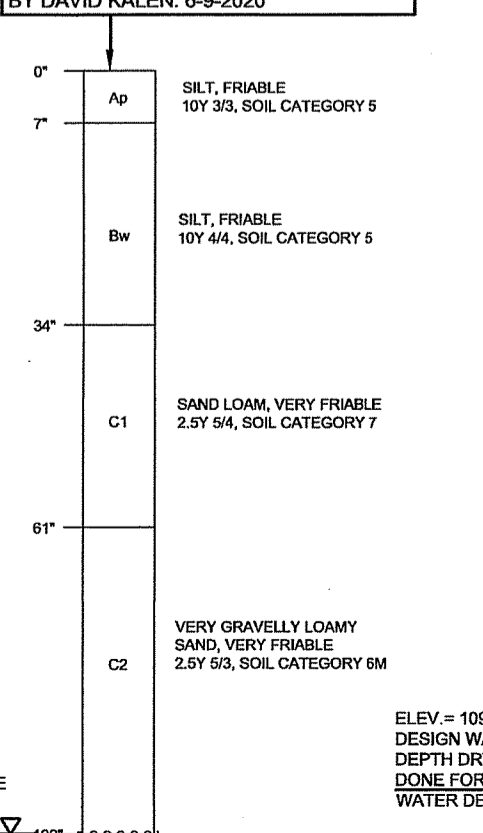
The purpose for the conduct of the survey and the preparation of the plan is as follows: This plan is intended for the design and permitting of an Onsite Wastewater Treatment System for the subject parcel shown hereon.

BY: *Jeffrey K. Balch* DATE: 9/25/2020  
JEFFREY K. BALCH, R.I. PROFESSIONAL LAND SURVEYOR #1839  
CERTIFICATE OF AUTHORIZATION #A535.

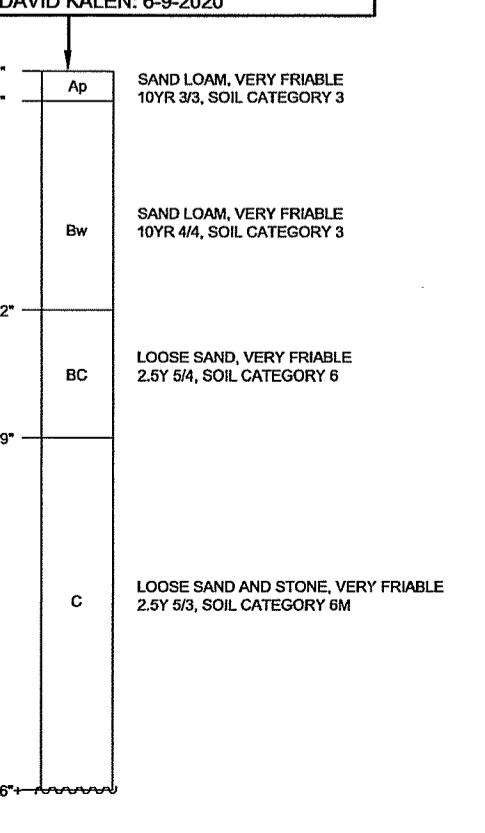
**SOIL STRATA "1"**



**SOIL STRATA "2"**



**SOIL STRATA "STW"**



**FRISELLA - BALCH & ASSOCIATES**  
LAND SURVEYORS  
33 NORTH RD. SUITE C-201  
PEACE DALE, RI  
PHONE (401) 783-5949  
FAX (401) 783-5997  
www.friseλλα.com

NO.	DATE	DESCRIPTION	BY
1	8-19-20	SCO ADDED AS PER RIDEM COMMENTS	IB

**Site Plan**  
**Proposed OWTS**

LOCATED ON:  
LOTS 22 & 23 OF ASSESSORS MAP 46

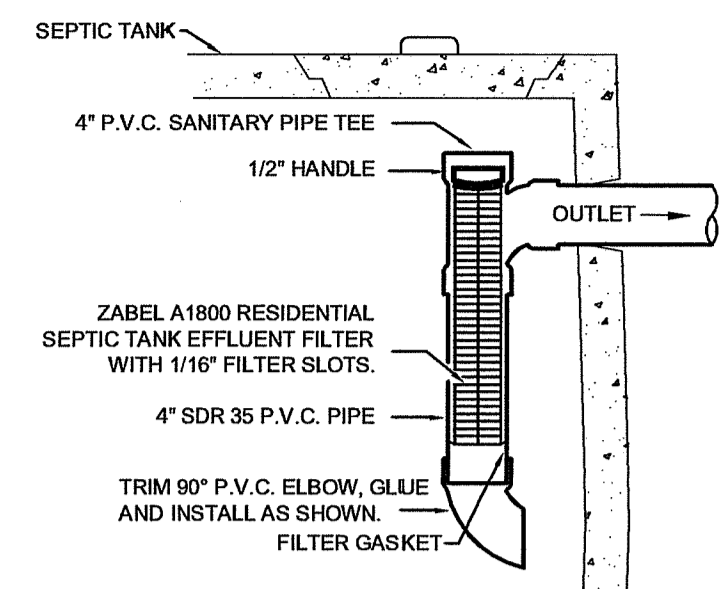
PREPARED FOR:  
**Jonathan N. Savage**

ADDRESS:  
1872 Ministerial Rd.  
IN THE TOWN OF South Kingstown, RI

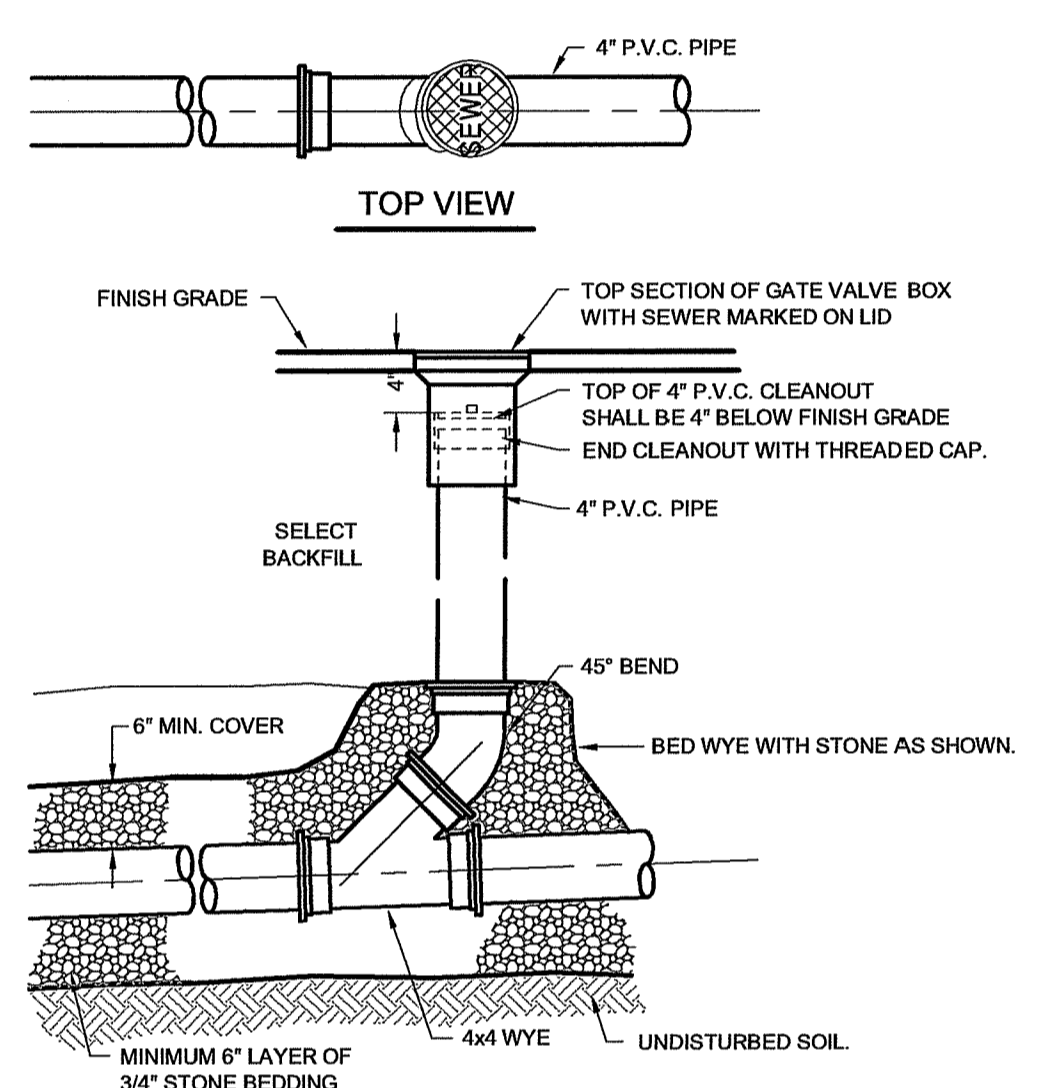
August 1, 2020  
DESIGNED BY:  
JEFFREY K. BALCH, P.L.S.

SCALE: 1" = 20'  
DRAWN BY: IVB  
CHECKED BY: JKB  
DRAWING NO.:  
SHEET 1 OF 3

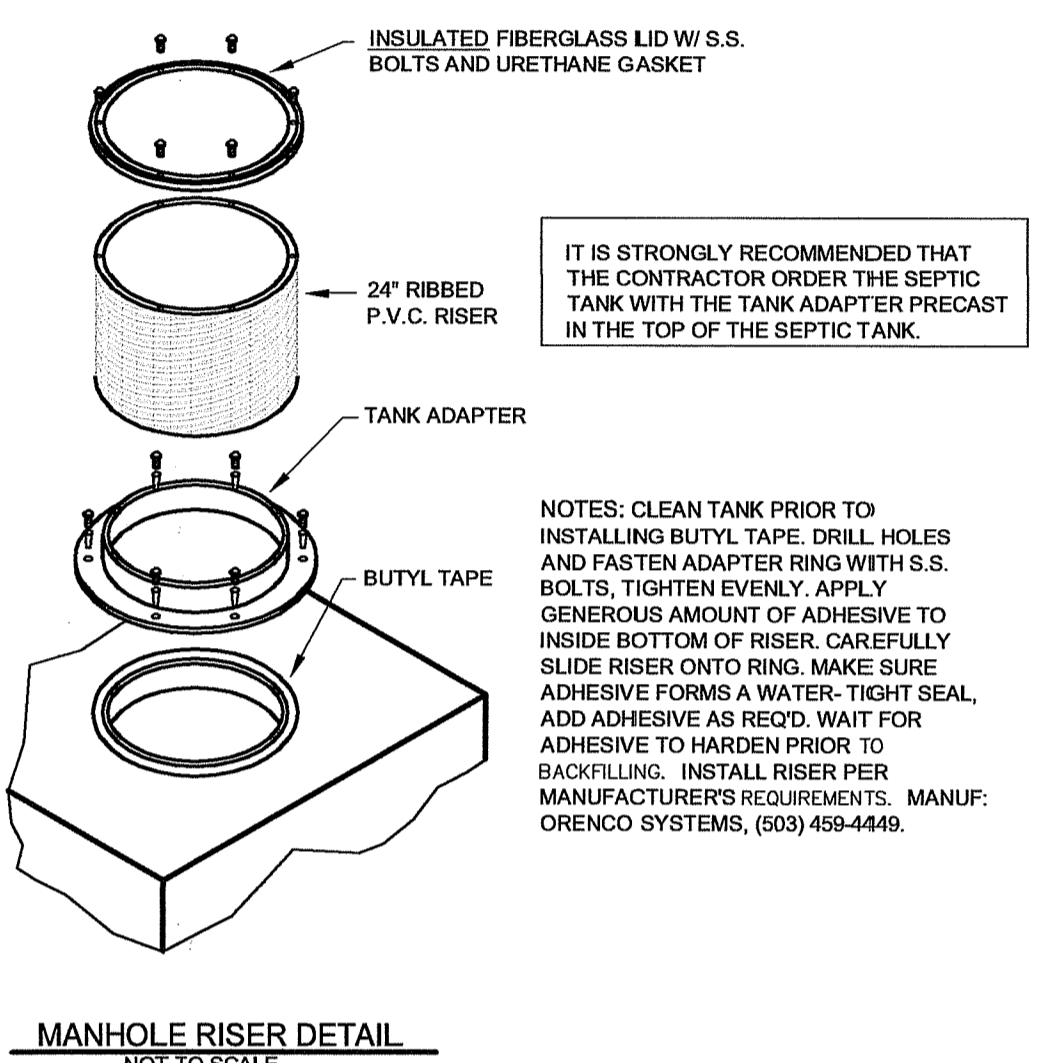
JEFFREY K. BALCH  
No. 1839  
PROFESSIONAL LAND SURVEYOR



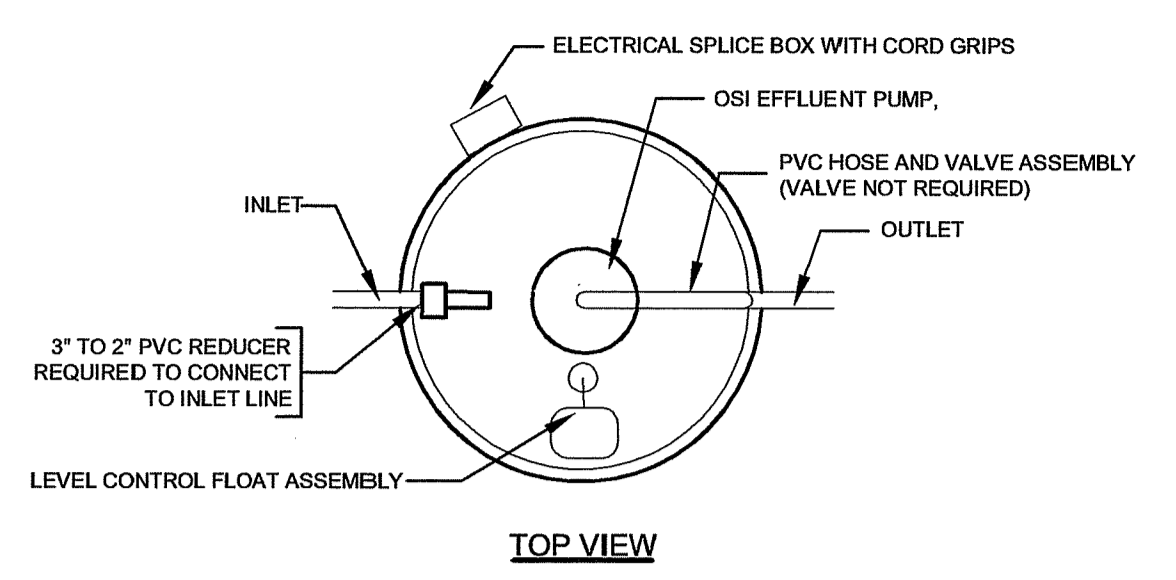
**SEPTIC TANK FILTER**  
CROSS SECTION  
NO SCALE



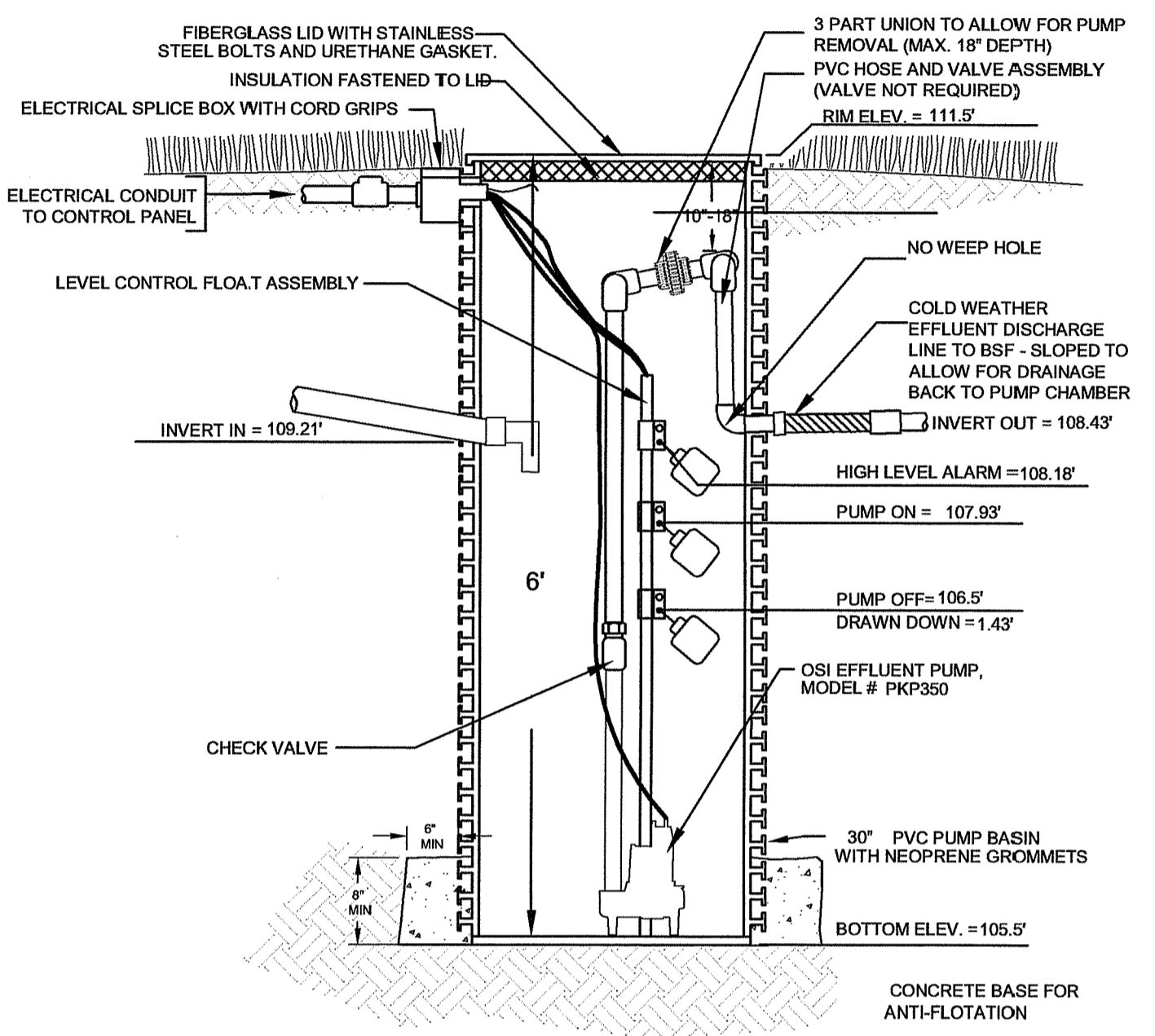
**4" GRAVITY SEWER LINE CLEANOUT**  
SCALE: NONE



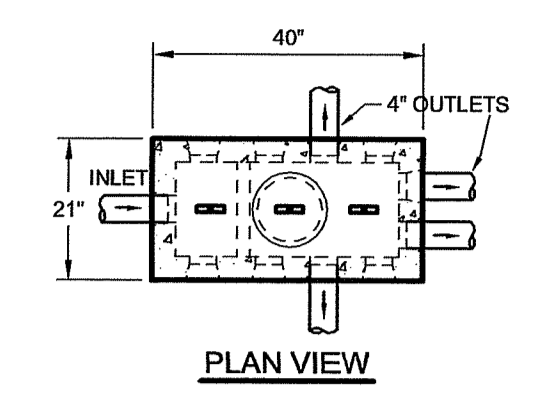
**MANHOLE RISER DETAIL**  
NOT TO SCALE



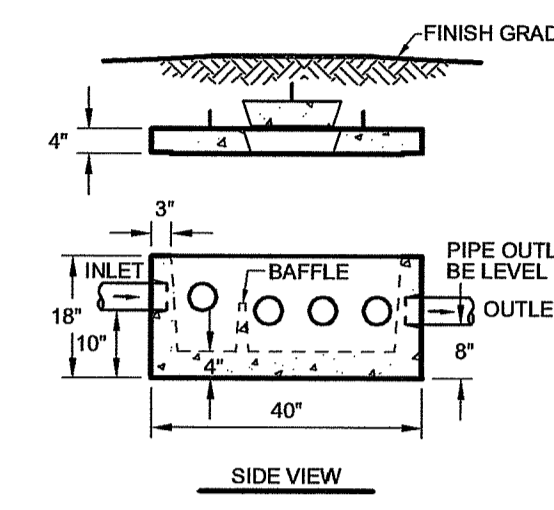
**TOP VIEW**



**EXTERNAL PUMP BASIN DETAIL**  
NO SCALE



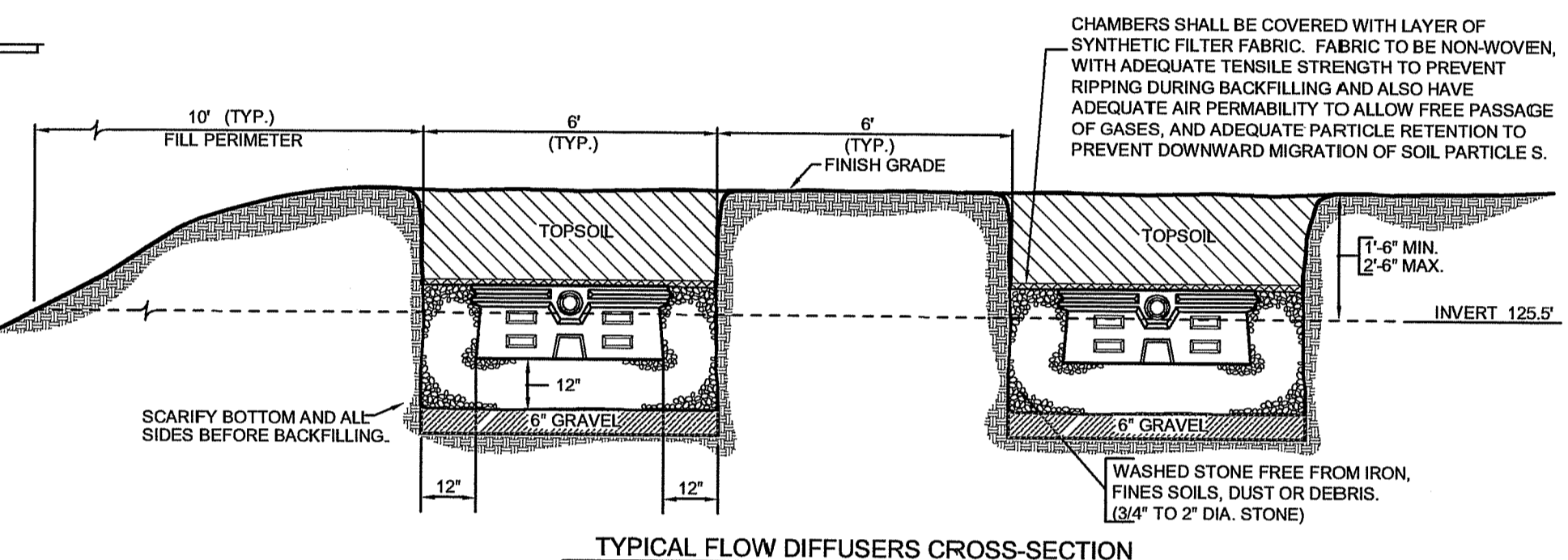
**PLAN VIEW**



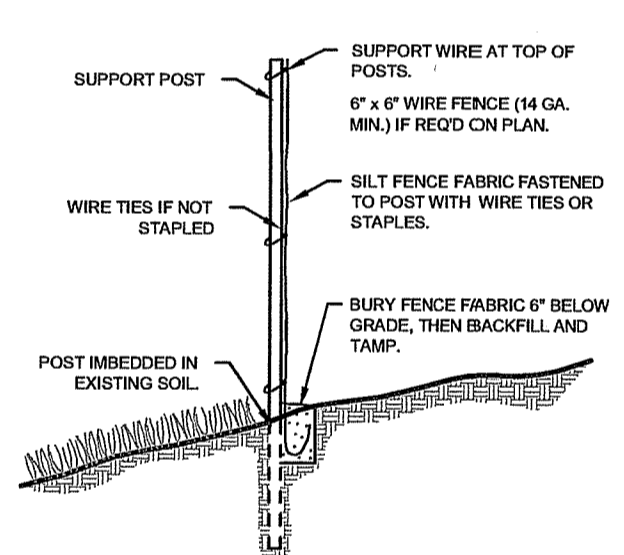
**SIDE VIEW**

**DESIGN NOTES:**  
• THREE INLETS, EIGHT OUTLETS  
• INLETS AND OUTLETS HAVE STATE APPROVED SEALS THAT ACCEPT 4" S-40, 4" SDR-35, 3" AND 2" PIPE  
• TYPE II CEMENT ASTM C150-81  
• CONCRETE STRENGTH 5000 PSI, MIN. 28 DAYS  
• MEETS H-20 WHEEL LOAD

**DISTRIBUTION BOX**  
NO SCALE  
SEE MAIN PLAN AND NOTES FOR NUMBER OF OUTLETS.  
D BOX SPECIFICATION TAKEN FROM JOLLY PRECAST, INC. DANIELSON, CONNECTICUT - 1 800/774-6066 OR APPROVED EQUAL.



**TYPICAL FLOW DIFFUSERS CROSS-SECTION**  
NO SCALE  
SEE MAIN PLAN FOR LOCATION AND NUMBER OF FLOWDIFFUSORS AND TRENCH LINES.



**SILT FENCE DETAIL**  
NOT TO SCALE

- SCHEDULE OF INSPECTIONS:**
- 3-BUSINESS DAYS NOTICE SHALL BE GIVEN TO FRISELLA-BALCH & ASSOCIATES PRIOR TO THE START OF CONSTRUCTION.
  - ALL INSPECTIONS SHALL REQUIRE AT LEAST 1 BUSINESS DAYS NOTICE TO FRISELLA-BALCH & ASSOCIATES
  - THE FOLLOWING INSPECTIONS ARE REQUIRED BY FRISELLA-BALCH & ASSOCIATES:
    - PRE-CONSTRUCTION MEETING WITH FRISELLA-BALCH & ASSOCIATES AT THIS MEETING THE START OF CONSTRUCTION WILL BE CALLED IN TO RIDEEM.
    - PRIOR TO COVERING ANY COMPONENT OR PIPING.
    - FINAL GRADING AND 10' FILL PERIMETERS.
    - CHECKING OF PUMP(S), CONTROL PANEL AND FLOAT ELEVATIONS (WHERE APPROPRIATE), SUPPLIER OF ORENCO PRODUCTS TO PERFORM THE START-UP IN THE PRESENCE OF A FRISELLA-BALCH & ASSOCIATES REPRESENTATIVE.

- CONFINED SPACE SIGNS:**  
PERMANENT DURABLE CORROSION RESISTANT SIGNS INDICATING "CONFINED SPACE - ENTRY BY PERMIT ONLY" SHALL BE PLACED AT EACH TANK AND PUMP CHAMBER SIDEWALL OF RISER. SIGNS SHALL MEET O.S.H.A. REQUIREMENTS FOR SIZE, MARKINGS AND LOCATION.
- CONTRACTOR SHALL PROVIDE THE FOLLOWING TO FRISELLA-BALCH & ASSOCIATES:**
- PRODUCT SPECIFICATION SHEETS FOR PRODUCTS USED IF DIFFERENT THAN SPECIFIED ON THE PLANS. CONTRACTOR SHALL OBTAIN PRIOR APPROVAL FROM FRISELLA-BALCH FOR ANY ITEM THAT IS DIFFERENT THAN SHOWN ON APPROVED DESIGN PLANS. THIS WOULD INCLUDE DIFFERENT MANUFACTURERS THAN SPECIFIED BY FRISELLA-BALCH & ASSOCIATES.
  - COPY OF DELIVERY SLIPS FOR ALL MATERIALS DELIVERED TO SITE.

- MAINTENANCE:**  
ALL COMPONENTS OF THE SYSTEM SHALL BE INSPECTED AFTER THE FIRST 4-6 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 ONSITE WASTEWATER TREATMENT SYSTEM SHALL HAVE A PERMANENT ROUTINE MAINTENANCE AGREEMENT THAT SHALL BE RECORDED IN THE LAND EVIDENCE RECORDS OF THE TOWN.
- NOTES:**
- THE STONE USED IN THE LEACHFIELD SHALL CONSIST OF CLEAN, WASHED STONE RANGING FROM THREE QUARTER (¾) INCH TO NOT MORE THAN TWO (2) INCHES IN SIZE AND FREE OF FINES, SOILS, STONE DUST OR DEBRIS.
  - THE STONE SHALL BE COVERED WITH A LAYER OF NON-WOVEN SYNTHETIC FILTER FABRIC THAT SHALL HAVE ADEQUATE TENSILE STRENGTH TO PREVENT RIPPING DURING INSTALLATION AND BACKFILLING, ADEQUATE AIR PERMEABILITY TO ALLOW FREE PASSAGE OF GASES, AND ADEQUATE PARTICLE RETENTION TO PREVENT DOWNWARD MIGRATION OF SOIL PARTICLES.
  - THE GRAVEL BASE MATERIAL AND, WHERE APPLICABLE, THE GRAVEL BETWEEN THE TRENCHES SHALL CONSIST OF CLEAN SAND AND GRAVEL FREE OF ORGANIC MATTER AND FOREIGN SUBSTANCES.
  - THE GRAVEL SHALL NOT CONTAIN ANY MATERIAL LARGER THAN THREE (3) INCHES AND UP TO TEN PERCENT (10%) MAY BE SIZED BETWEEN THREE-QUARTERS (¾) AND THREE (3) INCHES

- BOUYANCY:**  
WATER TABLE BELOW SYSTEM, NO BOUYANCY OCCURRING. BOUYANCY CALCULATIONS NOT REQUIRED

- EROSION AND SEDIMENTATION CONTROL NOTES:**  
TEMPORARY AND/OR PERMANENT EROSION CONTROL DEVICES SUCH AS BALED HAY, SILT FENCING, ETC. SHALL BE INSTALLED PRIOR TO ANY CLEARING OR EXCAVATION. HAY BALES OR SILT FENCING SHALL BE PLACED IMMEDIATELY DOWN SLOPE AND ADJOINING AREAS OF SOIL DISTURBANCE AND STOCKPILES. INSTALLATION OF ALL EROSION CONTROL DEVICES SHALL BE CONDUCTED IN ACCORDANCE TO DETAIL SPECIFICATIONS.

- CLEARING OF EXISTING VEGETATION SHALL BE DONE IN A CONTROLLED MANNER SO AS TO AVOID EXTENSIVE AREAS OF DEFOLIATED TERRAIN SUBJECT TO EROSION. AREAS SO DISTURBED SHALL BE BROUGHT TO FINAL GRADES AND STABILIZED AS SOON AS POSSIBLE.

- DURING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING DRAINAGE AND RUNOFF FLOW DURING STORMS AND PERIODS OF RAINFALL.

- ALL EROSION CONTROL DEVICES SHALL BE INSPECTED AND MAINTAINED ON A REGULAR BASIS DURING CONSTRUCTION, ESPECIALLY AFTER EACH RAINFALL.

- DUE TO CHANGING CHARACTERISTICS OF THE SITE CAUSED BY AND DURING CONSTRUCTION ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED AS SITE CONDITIONS WARRANT.

- IF CONSTRUCTION IS SUSPENDED, ALL DISTURBED AREAS SHALL BE SEEDED AND ALL NECESSARY EROSION CONTROL DEVICES SHALL BE IN PLACE AND IN GOOD WORKING ORDER. IF SEEDING IS NOT POSSIBLE THEN EROSION CONTROL MATS SHALL BE PLACED OVER ALL DISTURBED SOIL.

- EROSION CONTROL BLANKETS (MATS) SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. EROSION CONTROL BLANKETS (MATS) SHALL BE MANUFACTURED BY NORTH AMERICAN GREEN OR APPROVED EQUIVALENT AND INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

- ALL EROSION CONTROL METHODS, MATERIALS AND MAINTENANCE SHALL BE DONE IN ACCORDANCE WITH THE "RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK".

- ALL AREAS WHICH ARE DISTURBED DURING CONSTRUCTION ARE TO BE BROUGHT TO FINISHED GRADE WITH AT LEAST 6" MINIMUM DEPTH OF GOOD QUALITY LOAM AND ALL SOIL AMENDMENTS DEEMED NECESSARY. THE AREA SHALL BE SEEDED WITH A QUICK GERMINATING GRASS SEED SUCH AS UR1 #2 OR APPROVED EQUIVALENT.

- THE CONTRACTOR SHALL PROVIDE FOR ALL SEEDING AREAS TO BE WATERED AND IN GOOD CONDITION UNTIL A GOOD HEALTHY AND UNIFORM GROWTH IS ESTABLISHED OVER THE ENTIRE AREA.

**FRISELLA - BALCH & ASSOCIATES**  
LAND SURVEYORS  
33 NORTH RD, SUITE C-201  
PEACE DALE, RI  
PHONE (401) 783-5949  
FAX (401) 783-5997  
www.friseffa.com

1	8-19-20	ADDED SCO DETAIL							
NO.	DATE	DESCRIPTION							

DRAWING TITLE: **Detail Sheet**  
**Proposed OWTS**

LOCATED ON: **LOTS 22 & 23 OF ASSESSORS MAP 46**

PREPARED FOR: **Jonathan N. Savage**

ADDRESS: **1872 Ministerial Rd. IN THE TOWN OF South Kingstown, RI**

August 1, 2020  
DESIGNED BY: **JEFFREY K. BALCH, P.L.S.**

SCALE: **1" = 20'**

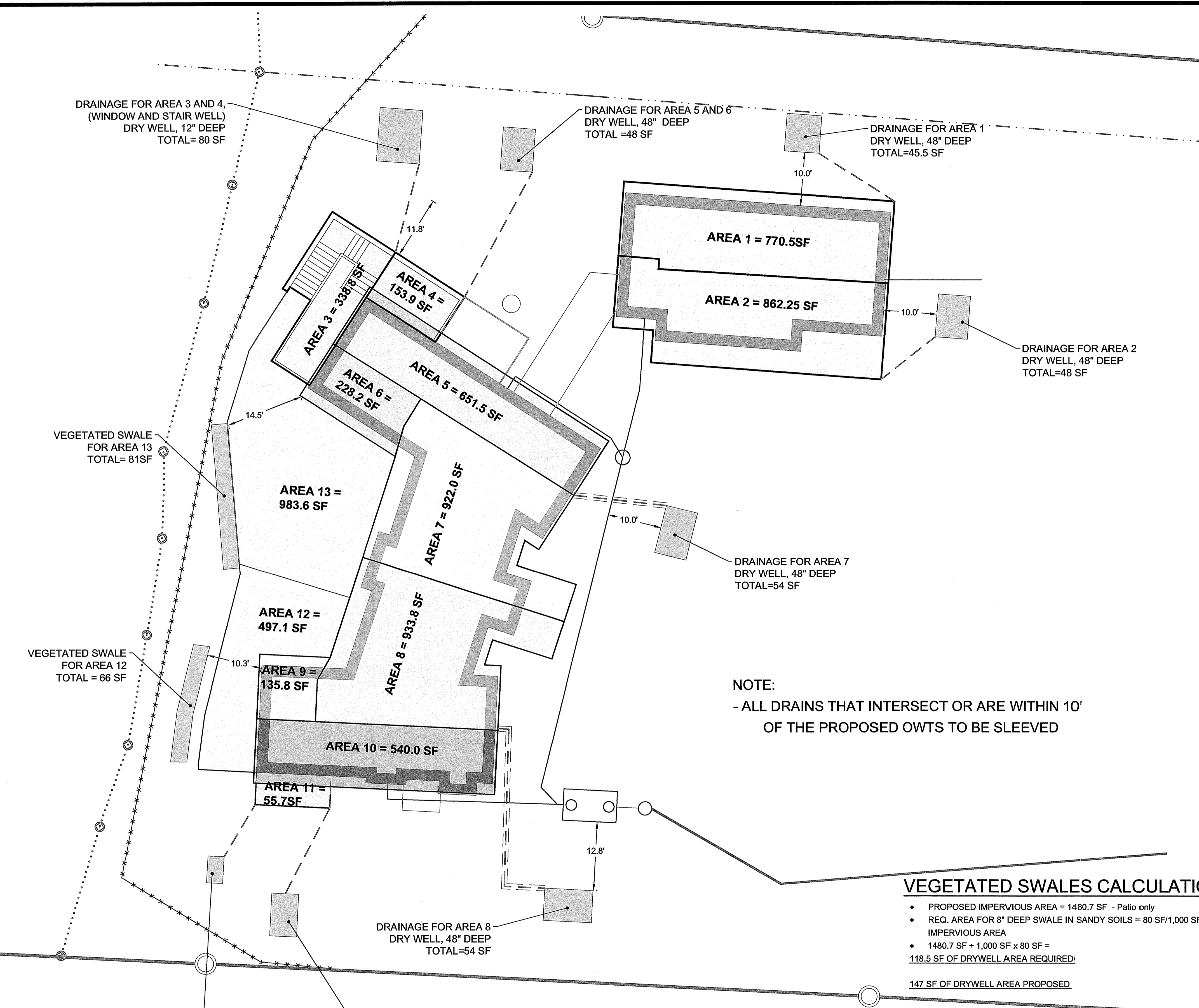
DRAWN BY: **JKB** CHECKED BY: **JKB**

DRAWING NO. **SHEET 2 OF 3**

**JEFFREY K. BALCH**  
Professional Land Surveyor  
No. 1839

H:\Landed Projects\Savage, Jon\Ministerial Rd. Survey\Savage, Jon & Savage, 8/17/2020 10:40:41 AM

© JEFFREY K. BALCH 2020



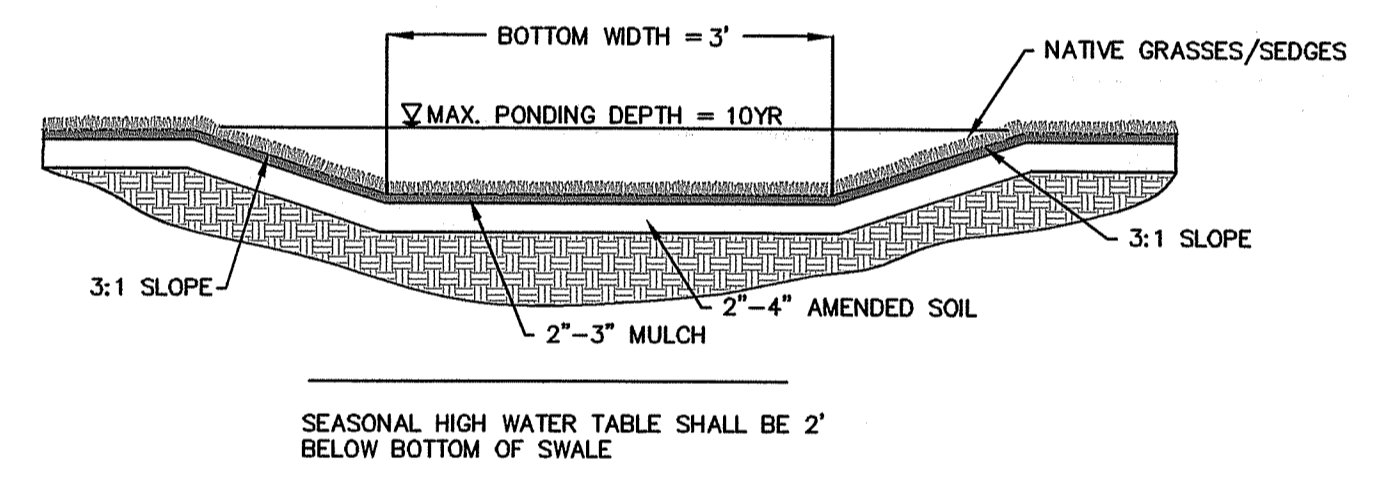
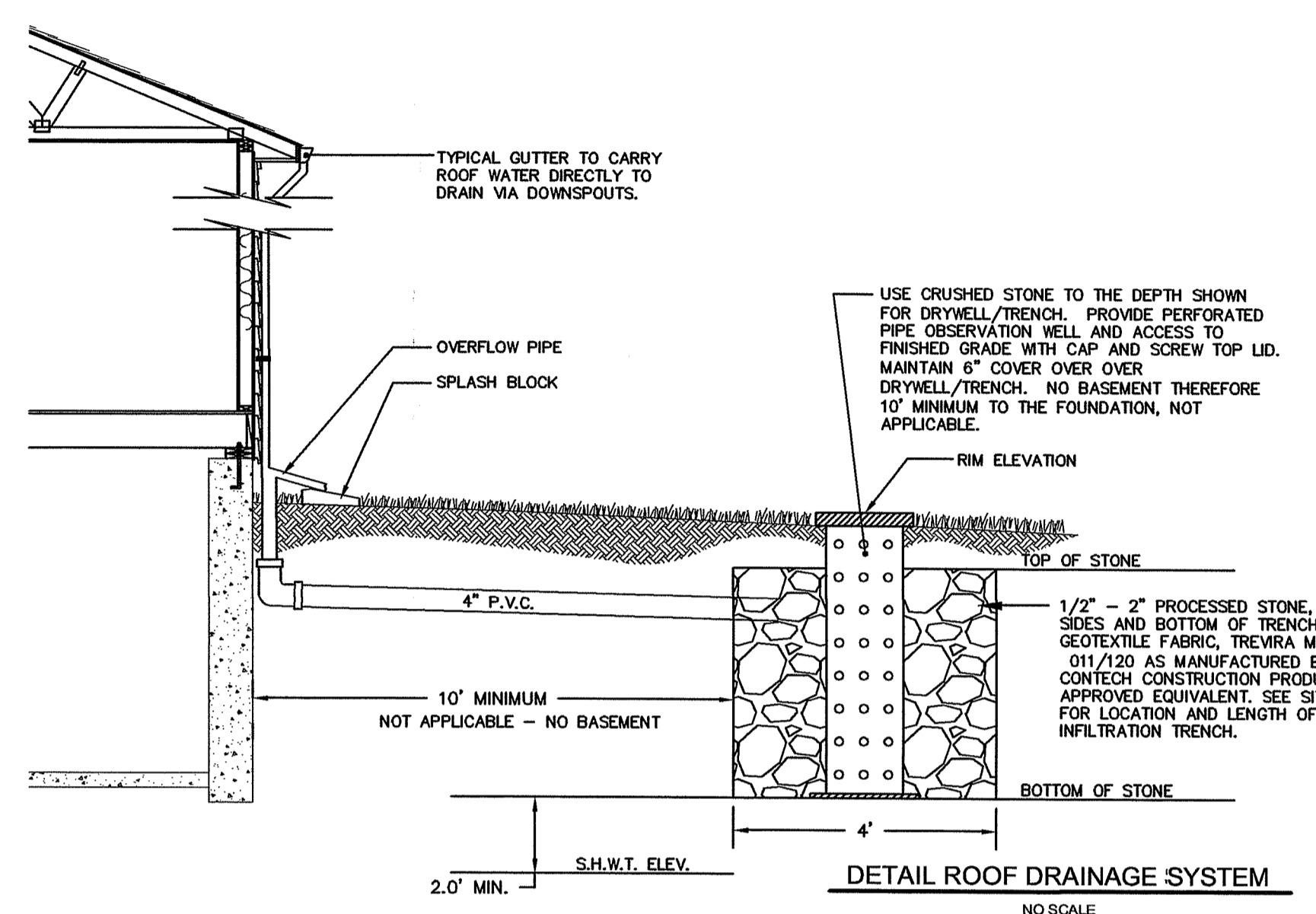
**NOTE:**  
 - ALL DRAINS THAT INTERSECT OR ARE WITHIN 10' OF THE PROPOSED OWTS TO BE SLEEVED

**VEGETATED SWALES CALCULATION:**

- PROPOSED IMPERVIOUS AREA = 1480.7 SF - Patio only
- REQ. AREA FOR 8" DEEP SWALE IN SANDY SOILS = 80 SF/1,000 SF OF IMPERVIOUS AREA
- 1480.7 SF ÷ 1,000 SF x 80 SF = 118.5 SF OF DRYWELL AREA REQUIRED
- 147 SF OF DRYWELL AREA PROPOSED

**DRY WELL CALCULATION:**

- PROPOSED IMPERVIOUS AREA = 5592.4 SF - Roofs only
- REQ. AREA FOR 48" DEEP DRYWELL = 54 SF/1,000 SF OF IMPERVIOUS AREA
- 5592.4 SF ÷ 1,000 SF x 54 SF = 302 SF OF DRYWELL AREA REQUIRED
- 325.5 SF OF DRYWELL AREA PROPOSED



DRY WELL SIZING (48" DEEP)			
AREA #	SIZE	PROP	REQ'D
1	770.5'	45.5 sf	41.6 sf
2	862.3'	48.0 sf	46.6 sf
3*	338.8'	80.0 sf	78.8 sf
4*	153.9'		
5	651.5'	48.0 sf	47.5 sf
6	228.2'		
7	922.0'	54.0 sf	49.8 sf
8	933.8'	54.0 sf	50.4 sf
9	135.8'		
10	540.0'	40.0 sf	36.5 sf
11**	55.7'	15.0 sf	13.3 sf
<b>TOTAL</b>	<b>5592.5 sf</b>	<b>384.5sf</b>	<b>364.5 sf</b>

\* 12" DEEP; \*\* 6" DEEP

**FRISELLA - BALCH & ASSOCIATES**  
 LAND SURVEYORS  
 33 NORTH RD. SUITE C-201  
 PEACE DALE, RI  
 PHONE (401) 783-5949  
 FAX (401) 783-5997  
 www.friseffa.com

NO.	DATE	DESCRIPTION	BY

DRAWING TITLED:  
**Site Plan**  
**Proposed Drainage**

LOCATED ON:  
 LOTS 22 & 23 OF ASSESSORS MAP 46

PREPARED FOR:  
**Jonathan N. Savage**  
 Environmental Management  
 Office of Water Resources

ADDRESS:  
 1872 Ministerial Rd.  
 IN THE TOWN OF South Kingstown, RI

August 1, 2020  
 DESIGNED BY:  
 JEFFREY K. BALCH, P.L.S.

SCALE: 1" = 10'

DRAWN BY: IVB  
 CHECKED BY: JKB

DRAWING NO.:  
 SHEET 1 OF 3

JEFFREY K. BALCH  
 9/17/20  
 No. 1839  
 PROFESSIONAL  
 LAND SURVEYOR