

**MAIN OFFICE:**  
 49 Herring Pond Road  
 Buzzards Bay, MA 02532  
 TEL: (508) 833-0070  
 FAX: (508) 833-2282



**NANTUCKET OFFICE:**  
 19 Old South Road  
 Nantucket, MA 02554  
 TEL: (508) 325-0044  
[www.brackeneng.com](http://www.brackeneng.com)

April 20, 2022

Bourne Board of Health  
 Terri Guarino, RS, CHO  
 24 Perry Avenue  
 Bourne, MA 02532

**RE: Septic Upgrade  
 4 Kennebec Avenue (Map 47.1, Parcel 45)**

Dear Members of the Board:

On behalf of the homeowner, The Brennan Family Trust c/o Christina Winterfeldt, Bracken Engineering, Inc. (BEI), is requesting the following variances to the Town of Bourne Board of Health Regulations and system approval pursuant to 310 CMR 15.403 through 15.405 State Environmental Code (Contents for Local Upgrade Approval). Due to the size and topography of the lot as well as the location of the abutting resource areas, the following relief/variances under local upgrade approval are requested in order to upgrade the existing system:

Septic Component	Setback Object	Required Setback Distance (ft)	Proposed Setback Distance (ft)	Relief Requested (ft)
S.A.S.	#531 Circuit Ave	10	6±	4±
S.A.S.	Circuit Ave Layout	10	5±	5±
S.A.S.	Kennebec Ave Layout	10	5±	5±
Septic Tank (MicroFAST)	#531 Circuit Ave	10	6±	4±
Septic Tank (MicroFAST)	#8 Kennebec Ave	10	6±	4±
Pump Chamber	#8 Kennebec Ave	10	6±	4±
Septic Tank (MicroFAST)	Crawlspace Wall	10	6±	4±
Pump Chamber	Crawlspace Wall	10	6±	4±
S.A.S.	Coastal Bank	50	0±	50±

In addition, a variance to local setback requirements is requested for a 150'± reduction in setback for a 0'± setback to a non-eroding coastal bank from a soil absorption system.



BEI is requesting that the Bourne Board of Health diverge from the goal of full compliance by allowing the relief/variances listed above. The design allows for the best feasible upgrade within the borders of the lot, and has the least effect on public health, safety, and the environment.

Enclosed are six (6) copies of the Variance Application, Existing and Proposed Nitrogen Loading Calculations, Subsurface Sewage Disposal Plan dated 2/15/22, **revised** 4/8/2022 and \$125.00 for the Public Hearing Fee.

Thank you for your time and consideration on this matter. We look forward to reviewing this project with the Board of Health at the next scheduled Public Hearing. Should you have any questions regarding this project or require any further information please contact the undersigned at either 508-833-0070 or [zac@brackeneng.com](mailto:zac@brackeneng.com) or [robert@brackeneng.com](mailto:robert@brackeneng.com).

Sincerely,

**BRACKEN ENGINEERING, INC.**

A handwritten signature in black ink, appearing to read 'Zachary L. Basinski', written in a cursive style.

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Zachary L. Basinski, P.E., C.F.M.  
Project Manager

A handwritten signature in black ink, appearing to read 'Robert E. Dewar', written in a cursive style.

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Robert E. Dewar, E.I.T  
Project Engineer



# Bourne Board of Health Application for Septic Variance Requests



In accordance with the established procedures of the Bourne Board of Health, this application for septic variances and waivers is relevant to requests for relief which have not been approved administratively and require approval at a public meeting. Please use the following application form for guidance on how to apply for variances and waivers which serve new construction, changes in use, or increases in flow to on-site sewage disposal systems with design flows of less than 10,000 gallons/ day.

### 1. Facility Name and Address:

Owner's Name	Brennan Family Trust c/o Christina Winterfeldt
Facility's Street Address	4 Kennebec Avenue (Map 47.1, Parcel 45), Pocasset
Owner's Telephone Number	Applicant - 508-479-7128
Owner's E-mail Address	Applicant - chriswin12@aol.com
Owner's Mailing Address	161 Worcester Road - Suite 501, Framingham, MA 01770

### 2. Applicant or Preparer's Name and Address (if different from above):

Preparer's Name	Zachary L. Basinski, PE, CFM
Company	Bracken Engineering, Inc.
Telephone Number	508-833-0070
E-mail Address	zac@brackeneng.com
Mailing Address	49 Herring Pond Road, Buzzards Bay
State/ Zip Code	MA / 02532

### 3. Type of Facility (check all that apply):

- Residential     Commercial     Institutional     School     Industrial

4. Describe Facility (i.e. single-family dwelling, 45 seat restaurant): \_\_\_\_\_  
 Single family dwelling  
 \_\_\_\_\_  
 \_\_\_\_\_

### 5. Type of System Proposed (check all that apply):

- Conventional Title 5     I/A System  
 Pumped System     Gravity System     Pressure Dosed     Other

6. Describe the proposed septic system components: 1,500 gal. septic tank w/MicroFast 0.5 unit,  
1,000 gallon pump chamber and Geo-Flow Drip soil absorption system.  
Remedial Use

7. Design Flow per 310 CMR 15.203 (in gallons/ day):

Design flow of proposed system: 110 GPD x 3 Bedrooms = 330 GPD

Total design flow of facility: 330 GPD

8. Enclose a letter of request for variances which makes reference to the specific provisions of Title 5 and the Board Bourne of Health Regulations for which a variance is sought. Please use this opportunity to demonstrate compliance with 310 CMR 15.410, and to justify the relevant facts and circumstances of the individual case. Note that with regard to variances for new construction, enforcement of the provision from which a variance is sought must be shown to deprive the applicant of substantially all beneficial use of the subject property in order to be manifestly unjust. Be sure to explain why full compliance with the applicable regulations is not feasible, and how a level of environmental protection that is at least equivalent to that provided under Title 5 and the Board of Health Regulations can be achieved without strict application of the regulations.

9. In order for this Application to be deemed complete, it must be accompanied by all of the following:


- Application Fees paid to the Town of Bourne.
- Letter of request (see samples)
- Six sets of complete plans and specifications. One with original stamp of design engineer.
- Nitrogen Loading Calculation Sheet(s)
- If abutter notification is required, one of each of the following must be submitted:
  - A copy of the certified list of abutters from the Assessor's Department
  - Sample letter for abutter notification postmarked 10 days prior to meeting date
  - Proof of certified mailing (receipts) meeting requirements of 310 CMR 15.405(2)
- Proposals for installation of Innovative/ Alternative systems must be accompanied by:
  - A copy of the Certification for Use including technology specific conditions
  - Draft disclosure notice for the I/A technology to be recorded in the deed
- Hydrogeologic data for all leaching facilities proposed within 100ft of a wetland/ watercourse
- Percentage of Increase Worksheet is required for waivers or increases in flow

10. Certification:

"I certify under penalty of law that this document and all attachments, to the best of my knowledge and belief, are true, accurate, and complete. I am aware that there may be significant consequences for submitting false information, including, but not limited to, penalties or fine and/or imprisonment for deliberate violations."

Facility Owner's Signature  Bracken Engineering, Inc Date 4/18/2022  
AGENT FOR OWNER

Print Name Christina Winterfeldt

Signature of Preparer  Bracken Engineering, Inc Date 4/18/2022

Print Name Zachary L. Basinski, PE, CFM of Bracken Engineering, Inc.

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For Office Use Only

Completed Application Received: \_\_\_\_\_

Reviewed By: \_\_\_\_\_

Hearing Date: \_\_\_\_\_

Permit #: \_\_\_\_\_

Circle all that apply:

Approved

Continued

Disapproved

Other

Notes: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

No. \_\_\_\_\_

FEE \$250.00

COMMONWEALTH OF MASSACHUSETTS

Board of Health, Bourne, MA.

APPLICATION FOR, DISPOSAL SYSTEM CONSTRUCTION PERMIT

Application for a Permit to Construct( ) Repair( ) Upgrade( ) Abandon( )  Complete System  Individual Components

Table with 2 columns: Applicant/Installer info and Owner/Address info. Includes fields for Location, Map/Parcel#, Lot#, Installer's Name, Address, Telephone#, Owner's Name, Address, Telephone#.

Type of Building Single-family dwelling Lot Size 3,235+/- sq. ft. Dwelling - No. of Bedrooms 3 Garbage grinder ( ) Other - Type of Building No. of persons Showers ( ), Cafeteria ( ) Design Flow (min. required) 110 gpd Calculated design flow 330 GPD Design flow provided 374 gpd Plan: Date February 15, 2022 Number of sheets 2 Revision Date April 8, 2022 Title Subsurface Sewage Disposal Plan in Bourne, MA Description of Soil(s) See Plan for full description Soil Evaluator Form No. T5 forms 11 & 12 Name of Soil Evaluator Robert E. Dewar, SE Date of Evaluation June 11, 2021

DESCRIPTION OF REPAIRS OR ALTERATIONS Installation of a 1,500 gallon MicroFast 0.5 unit, 1,000 gallon pump chamber and GeoFlow Irrigation disposal field.

The undersigned agrees to install the above described Individual Sewage Disposal System in accordance with the provisions of TITLE 5 and further agrees to not to place the system in operation until a Certificate of Compliance has been issued by the Board of Health.

Signed \_\_\_\_\_ Date \_\_\_\_\_

Inspections \_\_\_\_\_

No. \_\_\_\_\_

FEE \_\_\_\_\_

COMMONWEALTH OF MASSACHUSETTS

Board of Health, MA

CERTIFICATE OF COMPLIANCE

Description of Work:  Individual Component(s)  Complete System

The undersigned hereby certify that the Sewage Disposal System; Constructed ( ), Repaired ( ), Upgraded ( ), Abandoned ( )

by: \_\_\_\_\_ at \_\_\_\_\_

has been installed in accordance with the provisions of 310 CMR 15.00 (Title 5) and the approved design plans/as-built plans relating to application No. \_\_\_\_\_, dated \_\_\_\_\_ Approved Design Flow \_\_\_\_\_(gpd)

Installer \_\_\_\_\_

Designer: \_\_\_\_\_ Inspector: \_\_\_\_\_ Date: \_\_\_\_\_

The issuance of this permit shall not be construed as a guarantee that the system will function as designed.

No. \_\_\_\_\_

FEE \_\_\_\_\_

COMMONWEALTH OF MASSACHUSETTS

Board of Health, MA.

DISPOSAL SYSTEM CONSTRUCTION PERMIT

Permission is hereby granted to; Construct( ) Repair( ) Upgrade( ) Abandon( )an individual sewage disposal system at \_\_\_\_\_ as described in the application for Disposal System Construction Permit No. \_\_\_\_\_, dated \_\_\_\_\_

Provided: Construction shall be completed within three years of the date of this permit. All local conditions must be met.

# Town of Bourne

Conservation Commission

## Nitrogen Loading Calculation Sheet for Residential Housing

The following calculation sheet is based upon Technical Bulletin 91-001 issued by the Cape Cod Commission and deals with nitrate nitrogen (NO<sub>3</sub>-N) Use the information from your PLAN OF RECORD to provide the following:

### 4 Kennebec Avenue (Existing Conditions)

Number of Bedrooms (Title 5 Definition)	=	3	Bedrooms
Lot Size (in square feet of upland areas)	=	3,235	sq.ft. Upland
Impervious Surfaces;**roof area	=	1,148	sq.ft.
**Paved Area	=	-	sq.ft.
Natural Area = lot area minus all impervious surfaces	=	2,087	sq.ft.
Lawn Area in sq. ft.	=	2,087	sq.ft.

TITLE 5 FLOW = 110 GAL./ DAY PER BEDROOM

WASTEWATER FLOWS (NITROGEN LOAD & WATER LOAD)

Nitrogen from Title 5 design = 14,572 mg NO<sub>3</sub>-N / day / bedroom: or 7911 mg NO<sub>3</sub>-N / day/ bedroom with IA Treatment

Water from Title 5 design = 416.3 H<sub>2</sub>O / day / bedroom

1a) Number of bedrooms = 3 x 14572 = 43716.00 mg. NO<sub>3</sub>-N / day

1b) Number of bedrooms = 3 x 416 = 1248.00 L H<sub>2</sub>O / day

Actual Nitrogen load = 6071.5 mg NO<sub>3</sub>-N / day/ bedroom: 3296 mg NO<sub>3</sub>-N / day/ bedroom with IA Treatment

Actual Water load = 173.5 L H<sub>2</sub>O / day / bedroom

\*Note: This assumes 2.5 people / unit average occupancy within the Town

2a) Number of bedrooms = 3 x 6071.5 = 18214.50 mg. NO<sub>3</sub>-N / day

2b) Number of bedrooms = 3 x 173.5 = 520.50 L H<sub>2</sub>O / day

IMPERVIOUS SURFACES (NITROGEN LOAD & WATER LOAD)

NO<sub>3</sub>-N load number sq. ft. of roof surface X 0.19395 mg NO<sub>3</sub>-N / sq. ft.

H<sub>2</sub>O load number sq. ft. of roof surface X 0.2586 L / sq. ft.

3a) Roof surface = 1148 sq. ft. X 0.19395 = 222.65 mg NO<sub>3</sub>-N

3b) Roof surface = 1148 sq. ft. X 0.2586 = 296.87 L H<sub>2</sub>O / day

NO<sub>3</sub>-N load number sq. ft. of paved surface X 0.388 mg / sq. ft.

H<sub>2</sub>O load number sq. ft. of paved surface X 0.2586 L / sq. ft.

4a) NO<sub>3</sub>-N = 0 sq. ft. paved surface X 0.388 mg / sq. ft. 0.00 mg NO<sub>3</sub>-N

4b) H<sub>2</sub>O = 0 sq. ft. paved surface X 0.2586 L / sq. ft. 0.00 L H<sub>2</sub>O

LAWN NITROGEN LOADING = 0.933 mg / sq. ft. lawn surface

$$5) \text{ sq. ft. of lawn} = 2087 \times 0.933 = 1947.17 \text{ mg}$$

#### NATURAL AREA WATER LOADING

$$\text{Natural area} = \text{lot size} - \text{impervious surfaces} = 2087 \text{ sq. ft.}$$

$$6) \text{ Natural area} = 2087 \times \text{water recharge factor} = 283.41 \text{ L} \\ \text{(0.1358 L / sq. ft. for Bourne)}$$

### SUMMARY OF NITROGEN LOADING

#### Estimated Title 5 Nitrogen & Water Loading

7a) ADD the above NO<sub>3</sub>N load

1a	(+)	3a	(+)	4a	(+)	5	
43716		222.65		0.00		1947.17	45885.83 mg NO <sub>3</sub> -N / day

7b)

1b	(+)	3b	(+)	4b	(+)	6	
1248		296.87		0.00		283.41	1828.29 L H <sub>2</sub> O / day

7c) DIVIDE 7a by 7b = 25.1 ppm NO<sub>3</sub>-N\*\*\*\*\*

#### Actual Nitrogen & Water Loading

8a) ADD the above NO<sub>3</sub>N load:

2a	(+)	3a	(+)	4a	(+)	5	
18214.5		222.65		0.00		1947.17	<u>20384.33</u> mg NO <sub>3</sub> -N / day

8b) ADD the above water (H<sub>2</sub>O) load:

2b	(+)	3b	(+)	4b	(+)	6	
520.5		296.87		0.00		283.415	<u>1100.79</u> L H <sub>2</sub> O / day

8c) DIVIDE 8a by 8b = 18.5 ppm NO<sub>3</sub>-N\*\*\*\*\*

FINAL CALCULATION ADD 7c & 8c (ppm) = 43.6 divide by 2 = 21.8 ppm NO<sub>3</sub>-N

This is the actual nitrate nitrogen load for the project as designed. The target for coastal areas is 5 ppm nitrate nitrogen. Certain critical embayments may require a LOWER figure to prevent degradation.

\*\*\*\*\*If your nitrate nitrogen load exceeds the target limit **USE A SECOND CALCULATION SHEET TO SHOW ALTERNATIVES IN TRYING TO ACHIEVE THE 5 PPM NITRATE NITROGEN LEVEL**\*\*\*



# Town of Bourne

Conservation Commission

## Nitrogen Loading Calculation Sheet for Residential Housing

The following calculation sheet is based upon Technical Bulletin 91-001 issued by the Cape Cod Commission and deals with nitrate nitrogen (NO<sub>3</sub>-N) Use the information from your PLAN OF RECORD to provide the following:

### 4 Kennebec Avenue (Proposed Conditions)

Number of Bedrooms (Title 5 Definition) =					3 Bedrooms
Lot Size (in square feet of upland areas)	=			3,235	sq.ft.
Impervious Surfaces;**roof area=		983	sq.ft.	**Paved Area =	-
Natural Area = lot area minus all impervious surfaces	=			2,252	sq.ft.
Lawn Area in sq. ft.	=			1,977	sq.ft.
I/A System?	=			Yes	

TITLE 5 FLOW = 110 GAL./ DAY PER BEDROOM

WASTEWATER FLOWS (NITROGEN LOAD & WATER LOAD)

Nitrogen from Title 5 design = 14,572 mg NO<sub>3</sub>-N / day / bedroom

Water from Title 5 design = 416.3 H<sub>2</sub>O / day / bedroom

1a) Number of bedrooms = 3 x 14572 = 21858.00 mg. NO<sub>3</sub>-N / day

1b) Number of bedrooms = 3 x 416 = 1248.00 L H<sub>2</sub>O / day

Actual Nitrogen load = 6071.5 mg NO<sub>3</sub>-N / day/ bedroom: 3296 mg NO<sub>3</sub>-N / day/ bedroom with IA Treatment

Actual Water load = 173.5 L H<sub>2</sub>O / day / bedroom

\*Note: This assumes 2.5 people / unit average occupancy within the Town

2a) Number of bedrooms = 3 x 6071.5 = 9107.25 mg. NO<sub>3</sub>-N / day

2b) Number of bedrooms = 3 x 173.5 = 520.50 L H<sub>2</sub>O / day

IMPERVIOUS SURFACES (NITROGEN LOAD & WATER LOAD)

NO<sub>3</sub>-N load number sq. ft. of roof surface X 0.19395 mg NO<sub>3</sub>-N / sq. ft.

H<sub>2</sub>O load number sq. ft. of roof surface X 0.2586 L / sq. ft.

3a) Roof surface = 983 sq. ft. X 0.19395 = 190.65 mg NO<sub>3</sub>-N

3b) Roof surface = 983 sq. ft. X 0.2586 = 254.20 L H<sub>2</sub>O / day

NO<sub>3</sub>-N load number sq. ft. of paved surface X 0.388 mg / sq. ft.

H<sub>2</sub>O load number sq. ft. of paved surface X 0.2586 L / sq. ft.

4a) NO<sub>3</sub>-N = 0 sq. ft. paved surface X 0.388 mg / sq. ft. = 0.00 mg NO<sub>3</sub>-N

4b) H<sub>2</sub>O = 0 sq. ft. paved surface X 0.2586 L / sq. ft. = 0.00 L H<sub>2</sub>O

LAWN NITROGEN LOADING = 0.933 mg / sq. ft. lawn surface

$$5) \text{ sq. ft. of lawn} = 1977 \times 0.933 = 1844.54 \text{ mg}$$

NATURAL AREA WATER LOADING

$$\text{Natural area} = \text{lot size} - \text{impervious surfaces} = 2252 \text{ sq. ft.}$$

$$6) \text{ Natural area} = 2252 \times \text{water recharge factor} = 305.82 \text{ L} \\ (\text{0.1358 L / sq. ft. for Bourne})$$

### SUMMARY OF NITROGEN LOADING

#### Estimated Title 5 Nitrogen & Water Loading

7a) ADD the above NO<sub>3</sub>N load

1a	(+)	3a	(+)	4a	(+)	5	
21858		190.65		0.00		1844.54	23893.19 mg NO <sub>3</sub> -N / day

7b)

1b	(+)	3b	(+)	4b	(+)	6	
1248		254.20		0.00		305.82	1808.03 L H <sub>2</sub> O / day

7c) **DIVIDE 7a by 7b** = 13.2 ppm NO<sub>3</sub>-N\*\*\*\*\*

#### Actual Nitrogen & Water Loading

8a) ADD the above NO<sub>3</sub>N load:

2a	(+)	3a	(+)	4a	(+)	5	
9107.25		190.65		0.00		1844.54	<u>11142.44</u> mg NO <sub>3</sub> -N / day

8b) ADD the above water (H<sub>2</sub>O) load:

2b	(+)	3b	(+)	4b	(+)	6	
520.5		254.20		0.00		305.822	<u>1080.53</u> L H <sub>2</sub> O / day

8c) **DIVIDE 8a by 8b** = 10.3 ppm NO<sub>3</sub>-N\*\*\*\*\*

**FINAL CALCULATION ADD 7c & 8c (ppm)** = 23.5 divide by 2 = **11.8** ppm NO<sub>3</sub>-N

This is the actual nitrate nitrogen load for the project as designed. The target for coastal areas is 5 ppm nitrate nitrogen. Certain critical embayments may require a LOWER figure to prevent degradation.

\*\*\*\*\*If your nitrate nitrogen load exceeds the target limit **USE A SECOND CALCULATION SHEET TO SHOW ALTERNATIVES IN TRYING TO ACHIEVE THE 5 PPM NITRATE NITROGEN LEVEL**\*\*\*

**NOTICE OF ALTERNATIVE SEWAGE DISPOSAL SYSTEM**  
M.G.L. c. 21A, § 13 and 310 CMR 15.0287(10)

**ADDRESS OF PROPERTY SERVED BY ALTERNATIVE SYSTEM:**

**4 Kennebec Avenue, Bourne, MA**

**TITLE REFERENCE FOR PROPERTY SERVED BY ALTERNATIVE SYSTEM**

Deed recorded with the **Barnstable** Registry of Deeds in **Book 33346, Page 318**

**NAME(S) OF OWNER OF PROPERTY SERVED BY ALTERNATIVE SYSTEM:**

**Brennan Family Trust, Faith V. Easter, Trustee**

**OWNER(S) MAILING ADDRESS: 161 Worcester Road – Suite 501, Framingham, MA 01701**

WHEREAS, Section 15.280 of Title 5 of the State Environmental Code (“Approval of Alternative Systems”), provides for the Massachusetts Department of Environmental Protection (the “Department”) to approve or certify, as appropriate, all proposals to construct, upgrade or replace on-site sewage disposal systems using alternative systems;

WHEREAS, owners and/or operators of approved or certified alternative systems are subject to general conditions, as specified in Section 15.287 of Title 5 of the State Environmental Code, 310 CMR 15.287, and may be subject to special conditions, as specified in the Department’s approvals or certifications; such general and special conditions potentially including, without limitation, requirements relating to the use of trained operators, periodic inspections, maintenance, sampling, reporting and/or recordkeeping;

WHEREAS, the owners and/or operators this alternative system acknowledges and agrees to comply with the provisions of all of the Bourne Board of Health Alternative Septic System Regulations and any other conditions for the existence of the system;

WHEREAS, Section 15.287(10) of Title 5 of the State Environmental Code, 310 CMR 15.287(10), requires that “prior to obtaining a Certificate of Compliance for installation of a new or upgraded system, the system owner shall record in the chain of title for the property served by the alternative system in the Registry of Deeds and/or Land Registration Office, as applicable, a Notice disclosing both the existence of the alternative on-site system and the Department’s approval of the system. The system owner shall also provide evidence of such recording to the Bourne Board of Health; and

WHEREAS, the Property is served by an alternative sewage disposal system.

NOW, THEREFORE, Notice of an alternative sewage disposal system is hereby given for the above- referenced Property, as follows:

**1. Existence System #1.** An alternative system has been installed as a new or upgraded alternative sewage disposal system, on or adjacent to the Property, and serves the Property. The trade name and model number(s) of the alternative system are as follows:

<b>Trade name of technology:</b>	<i>MicroFAST</i> <sup>®</sup>
<b>Manufacturer Name:</b>	Bio-Microbics, Inc.
<b>Model number(s):</b>	MicroFAST 0.5 Unit

**2. Approval/Certification.** On 6/16/2006, modified 1/23/2008, revised 11/5/2012, the Department, pursuant to its authority under the section of Title 5 as specified below, approved or certified the technology used in the above referenced alternative system, under MassDEP Transmittal Number W072367.

- Approved for remedial use under 310 CMR 15.284

**3. Existence System #2.** An alternative system has been installed as a new or upgraded alternative sewage disposal system, on or adjacent to the Property, and serves the Property. The trade name and model number(s) of the alternative system are as follows:

**Trade name of technology:** Geoflow Subsurface Drip Wastewater Disposal System

**Manufacturer Name:** Geoflow, Inc.

**4. Approval/Certification.** On 11/08/2015 the Department, pursuant to its authority under the section of Title 5 as specified below, approved or certified the technology used in the above referenced alternative system, under MassDEP Transmittal Number W032585.

- Approved for remedial use under 310 CMR 15.284

A copy of the Department of Environmental Protection's Approval/Certification is available online at the Department's website:

<https://www.mass.gov/guides/approved-title-5-innovativealternative-technologies>

*\*\*This Notice of Alternative Sewage Disposal System must be submitted to the Bourne Board of Health\*\**

WITNESS the execution hereof under seal this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, made by the above-named Alternative System Owner(s).

\_\_\_\_\_  
[Alternative System Owner(s) Signature(s)]

Print Name(s): \_\_\_\_\_

COMMONWEALTH OF MASSACHUSETTS

\_\_\_\_\_, ss

On this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, before me, the undersigned notary public, personally appeared \_\_\_\_\_, proved to me through satisfactory evidence of identification, which were \_\_\_\_\_, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose.

\_\_\_\_\_  
(official signature and seal of notary)

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Approved and Accepted By:

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Terri A. Guarino, R.S., C.H.O.  
Health Agent  
Town of Bourne

DRAFT



Commonwealth of Massachusetts  
Executive Office of Energy & Environmental Affairs

## Department of Environmental Protection

One Winter Street Boston, MA 02108 • 617-292-5500

Charles D. Baker  
Governor

Karyn E. Polito  
Lieutenant Governor

Matthew A. Beaton  
Secretary

Martin Suuberg  
Commissioner

### **APPROVAL FOR REMEDIAL USE**

Pursuant to Title 5, 310 CMR 15.000

#### Name and Address of Applicant:

J & R Sales and Service  
44 Commercial Street  
Raynham, MA 02767

#### Trade name of technology and models:

Geoflow Subsurface Drip Wastewater Disposal System – Geoflow WASTEFLOW Classic WF16-4-24, WF16-4-12, WF – Special Order and Geoflow WASTEFLOW PC WFPC16-4-24, WFPC16-4-12, WFPC16-4-6, WFPC16-2-24, WFPC16-2-12, WFPC16-2-6 and WFPC-Special Order Subsurface Disposal System (hereinafter called the “System”). A schematic drawing of a typical System, Design Manual and inspection checklist are available from the manufacturer.

Transmittal Number: W032585  
Date of Issuance: June 22, 2011, revised March 20, 2015  
Modified November 8, 2018 (changed ownership)

#### **Authority for Issuance**

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental Protection hereby issues this Approval for Remedial Use to: J&R Sales and Service, 44 Commercial Street, Raynham, MA 02767 (hereinafter “the Company”), approving the System described herein for remedial use in the Commonwealth of Massachusetts. Sale and use of the System are conditioned on compliance by the Company and the System owner with the terms and conditions set forth below. Any noncompliance with the terms or conditions of this Approval constitutes a violation of 310 CMR 15.000.

/signed/

\_\_\_\_\_  
Marybeth Chubb, Section Chief  
Bureau of Water Resources  
Wastewater Management Program

November 8, 2018  
Date

## **I. Purpose**

1. The purpose of this Approval is to allow use of the System in Massachusetts to repair subsurface sewage disposal systems, on a Remedial Use basis.
2. With the necessary permits and approvals required by 310 CMR 15.000, this Approval for Remedial Use authorizes the use and installation of the System in Massachusetts.
3. The System may only be installed on facilities that meet the criteria of 310 CMR 15.284(2). The System is used to dispose of wastewater from an alternative system approved in accordance with 310 CMR 15.280 through 15.289 with effluent discharge concentrations that meet or exceed secondary treatment standards of 30 mg/L biochemical oxygen demand (BOD5) and 30 mg/L total suspended solids (TSS).
4. This Approval for Remedial Use authorizes the use of the System where the local approving authority finds that the System is for upgrade of a failed, failing or nonconforming system and the design flow for the facility is less than 10,000 gallons per day (GPD).

## **II. Design and Construction Standards Standards**

1. The System, a subsurface drip distribution technology, is equivalent to a pressure distribution system designed in accordance with the Department's Pressure Distribution Guidance. In the event of conflict between the terms and conditions of this System's technology approval and Title 5, this approval shall control.
2. The System is a pressure distributed subsurface wastewater drip dispersal (disposal) system that replaces a soil absorption system (SAS) designed in accordance with 310 CMR 15.000. The System is designed to distribute effluent from an innovative treatment system and discharge it at a minimum depth of 6 inches below finished grade; it includes a pump, control panel, a filter module/hydraulic unit and drip dispersal zone(s). The dispersal zone includes small diameter flexible polyethylene tubing turbulent flow emitters regularly spaced inside the line. The System can be designed with either Classic turbulent flow emitters or with pressure compensating emitters typically located at one or two foot spacing within the tubing. The tubing is extruded with an inner lining of an anti-microbial agent to prevent bacterial growth. Dispersal field dosing is timed and controlled electronically to provide pre-programmed volumes of effluent for discharge to each dispersal zone. The System includes a return line that allows periodic flushing of the dispersal tubing. All drip zone supply and return pipes that are maintained filled with effluent after a pump cycle shall be buried below the frost line or properly insulated. All drip tubing and shallow manifolds shall be designed to drain into the soil or back to the pump chamber upon completion of the pump cycle. Each zone shall have air release valves at the high points of manifolds and check valves on each return manifold in multi-zone systems. The system shall be equipped with a totalizing flow meter.
3. The System may be installed in the A, B or C soil horizon or in fill material meeting the specifications at 310 CMR 15.255(3) at a minimum depth of 6 inches below the finished grade.
4. All access ports and manhole covers shall be installed and maintained at grade to allow for maintenance of the System.

5. The control panel including alarms and controls shall be mounted in a location always accessible to the System operator.
6. The System may be installed in soils with a percolation rate of up to 90 minutes per inch (MPI). The System shall not be installed in Class IV soils as defined in 310 CMR 15.243.
7. Effluent loading rates shall be as specified in 310 CMR 15.242(1)(a) and (b) with the exception of Class IV soils.
8. The System shall be designed and constructed with drip tubing with a spacing of 24 inches unless obstructions are encountered or in cases where more than the required tubing is provided and equally distributed within the approved appropriately sized subsurface disposal area in which case a minimum separation of 12 inches is allowed. As much as possible the System shall be designed to provide equal distribution across the designated disposal area.
9. The System does not require a five foot over dig as indicated at 310 CMR 15.255(5).
10. The System includes the following:
  - a. Pumps capable of providing pressure of 10-45 psi throughout the dispersal zone(s). Each drip dispersal zone shall be dosed a minimum of six times per day, or as recommended by the Company. Duplex pumping shall be provided for facilities with design flows of 2000 gpd or greater. The pump chamber, combined with available storage in the pretreatment units, shall provide at least one-day storage as required by 310 CMR 15.231.
  - b. Timed dosing for the drip system with a timer controller capable of operating the system during peak flow events without high-level alarms.
  - c. A self cleaning filter capable of screening particles larger than 100 microns prior to discharge of the effluent to the drip tubing. Filter(s) backwash shall be conveyed back to the pump tank, a separate settling tank or to the septic tank.
  - d. Air vents in a zone shall be placed at a higher elevation than the drip tubing in that zone but below the ground surface. Air vents shall be accessible from finished grade and insulated to prevent freezing.
  - e. Drip tubing lines installed as level as possible on contour and a minimum of 6 inches below finished grade. Drip line spacing is typically 24 inches with drip tubing emitters spaced 24 inches on center. More than the minimum length of tubing may be utilized within a properly sized soil absorption system. When the drip lines spacing is greater than 24 inches by 24 inches, the size of the dispersal field shall be increased to provide equal distribution with adequate tubing separation. All drip line flushwater shall be conveyed back to the pump tank, a separate settling tank or to septic tank.
  - f. The effective effluent dispersal area is calculated using the total area of the drip tubing system including a one-foot addition on each side or two square feet per foot of drip tube when tubing is spaced two feet apart. No sidewall credit shall be given for this System.
  - g. The dispersal area shall not be installed under a paved surface, or in areas of routine traffic, parking or storage of heavy equipment. In addition no planting or soil excavation shall be done in or within 5 feet of the drip disposal area after its installation. The system



may be designed to allow for installation of drip tubing up to five feet from a building cellar wall.

- h. No change in existing surface slope over the dispersal field is required to comply with 310 CMR 15.240(10).
11. All System control units, valve boxes, drip dispersal lines, conveyance lines and other System appurtenances shall be designed and installed to prevent freezing per the Company's recommendations.
12. The System designer shall provide plans and specifications prepared in accordance with 310 CMR 15.220 for all proposed System installations to the approving authority with required standard details and installation instructions.
13. Drip tubing may be installed with a vibratory plow, a static plow, a narrow trencher (<6" width), by hand trenching, or by scarifying the surface and bedding the drip tubing in clean sand meeting the requirements for fill material in Title 5 at 310 CMR 15.255(3) with cover consisting of sand and topsoil meeting the 6 inch minimum depth requirement. Vegetative cover must be replaced for installations where it is removed or buried during installation.
14. Drip tubing shall not be installed when soils are frozen or saturated.
15. Prior to System start up, a clean water test of the System shall be performed in the presence of the Company's representative and the approving authority to check for leaks and to ascertain and verify system design flush and dose rates.
16. System unit malfunction and high water alarms shall each be connected to an independent power source from the operating pump(s) run from the main power source of the facility.
17. For Systems with a design flow of 2,000 gpd or greater, the System shall be equipped to provide a flow meter and automatic remote telemetric notification to the operation and maintenance (O&M) provider.
18. Installation of inspection ports is not required for this System.

### **III. Allowable Soil Absorption System Design**

1. Any reduction in System design sizing or setbacks shall be based on the MassDEP approved reduction allowed for the alternative treatment system that precedes the System or by variance or local upgrade approval in accordance with Title 5.

### **IV. General Conditions**

1. All provisions of 310 CMR 15.000 are applicable to the use of this System, the System owner and the Company, except those that specifically have been varied by the terms of this Approval.
2. Any required operation and maintenance, monitoring and testing shall be performed in accordance with a Department approved plan.

3. The facility served by the System and the System itself shall be open to inspection and sampling by the Department and the local approving authority at all reasonable times.
4. In accordance with applicable law, the Department and the local approving authority may require the System owner to cease operation of the system and/or to take any other action as it deems necessary to protect public health, safety, welfare and the environment.
5. The Department has not determined that the performance of the System will provide a level of protection to public health and safety and the environment that is at least equivalent to that of a sewer system. No System shall be installed, upgraded or expanded, if it is feasible to connect the facility to a sanitary sewer, unless as allowed by 310 CMR 15.004. When a sanitary sewer connection becomes feasible, the facility served by the System shall be connected to the sewer, within 60 days of such feasibility, and the System shall be abandoned in compliance with 310 CMR 15.354, unless a later time is allowed, in writing, by the approving authority.
6. Design, installation and operation shall be in strict conformance with the Company's DEP approved plans and specifications, 310 CMR 15.000 and this Approval.

**V. Conditions Applicable to the System Owner**

1. The System is approved for the treatment and disposal of sanitary sewage only. Any wastes that are non-sanitary sewage generated or used at the facility served by the System shall not be introduced into the System and shall be lawfully disposed.
2. Effluent discharge concentrations from the treatment unit that discharges to the System shall meet or exceed secondary treatment standards of 30 mg/l BOD5 and 30 mg/l TSS. The effluent pH shall not be less than 6.0 or more than 9.0 unless approved by the Department.
3. Any effluent discharge samples shall be taken at a flowing discharge point, i.e. distribution box, pump chamber or other Department approved location downstream of the treatment unit. The System designer, subject to written approval by the Department, shall determine sampling locations.
4. The System owner shall have the Company or its designee conduct a design review for any proposed non-residential System or any residential System with a design flow 2,000 GPD or greater to ensure that the proposed use of the System is consistent with the unit's capabilities.
5. Operation and Maintenance Agreement:
  - A. Throughout its life, the owner shall operate and maintain the System in accordance with the Company and designer's operation and maintenance requirements and this Approval. To ensure proper operation and maintenance (O&M), the owner shall enter into an O&M agreement. No O&M agreement shall be for less than one year.
  - B. No System shall be used until an O&M agreement is submitted to the approving authority which:
    - i. Provides for the contracting of a person or firm trained by the Company as provided in Section VI (5) and competent in providing services consistent with the System's

- specifications, with the operation and maintenance requirements specified by the Company and the designer, and with any specified by the Department;
- ii. Contains procedures for notification to the Department and the local board of health within five days of a System failure or alarm event and for corrective measures to be taken immediately;
  - iii. Provides the name of an operator, which must be a Massachusetts certified operator if one is required by 257 CMR 2.00, that will operate and monitor the System;
  - iv. For residential Systems installed with a reduced SAS the operator must inspect, field test and maintain the System at least every six months and anytime there is an alarm event. For residential Systems with standard sized SAS inspection and field testing shall be conducted once per year. For all other Systems the operator must inspect, field test and maintain the System at least every three months and anytime there is an alarm event. The System owner shall notify the Department and the local approving authority in writing within seven days of any cancellation, expiration or any other change in the terms and/or conditions of their O&M agreement.
6. Prior to transferring any or all interest in the property served by the System, or any portion of the property, including any possessory interest, the System owner shall provide written notice of all conditions contained in this Approval to the transferee(s). Any and all instruments of transfer and any leases or rental agreements shall include as an exhibit attached thereto and made a part thereof a copy of this Approval for the System.
  7. By January 31<sup>st</sup> of each year for the previous year, the System owner shall submit to the local approving authority all data collected in accordance with item 5, above, including all Department Title 5 IA O&M checklists and System technology checklists completed during the previous calendar year by the System operator for each inspection performed.
  8. After final inspection of the System by the Approving Authority but prior to the issuance of a Certificate of Compliance for the System, the System owner shall record and/or register in the appropriate Registry of Deeds and/or Land Registration Office, a Notice disclosing both the existence of the alternative septic system subject to this Approval on the property and the Department's approval of the System. If the property subject to the Notice is unregistered land, the Notice shall be marginally referenced on the owner's deed to the property. Within 30 days of recording and/or registering the Notice, the System owner shall submit the following to the Department and the local approving authority: (i) a certified Registry copy of the Notice bearing the book and page/instrument number and/or document number; and (ii) if the property is unregistered land, a Registry copy of the owner's deed to the property, bearing the marginal reference.

## **VI. Conditions Applicable to the Company**

1. The Company shall notify the Director of the Wastewater Management Program at least 30 days in advance of the proposed transfer of ownership of the technology for which this Approval issued. Said notification shall include the name and address of the proposed new owner and a written agreement between the existing and proposed new owner containing a specific date for transfer of ownership, responsibility, coverage and liability between them. All provisions of this Approval applicable to the Company shall be applicable to successors and assigns of the Company, unless the Department determines otherwise.

2. The Company shall develop and submit to the Department within 60 days of the effective date of this Approval: minimum installation requirements; an operating manual, including information on substances that should not be discharged to the System; and a recommended schedule for maintenance of the System essential to consistent successful performance of the installed Systems.
3. The Company shall make available, in print and electronic format, the referenced procedures and protocol in Sections V (5) and VI (3) to owners, operators, designers and installers of the System.
4. The Company shall institute and maintain a program of operator training and continuing education, as approved by the Department. The company shall update the list of qualified operators and make the list known to users of the technology.
5. The Company or its designee shall conduct a design review for any proposed non-residential System or any residential System with a design flow 2,000 GPD or greater to ensure that the proposed use of the System is consistent with the unit's capabilities.
6. The Company shall furnish the Department any information that the Department requests regarding the System within 21 days of the receipt of that request.
7. The Company shall include copies of this Approval and the procedures and protocol described in Sections V (5) and VI (3) for each System that is sold. Also, in any contract executed by the Company for distribution or re-sale of the System, the Company shall require the distributor or re-seller to provide each purchaser of the System with copies of this Approval and the procedures and protocol described in Sections V (5) and VI (3).
8. The Company shall comply with 310 CMR 15.000 and all the Department policies and guidance that apply and as they may be amended from time to time.

## **VII. Reporting**

1. All notices and documents required to be submitted to the Department by this Approval shall be submitted to:

Director  
Wastewater Management Program  
Department of Environmental Protection  
One Winter Street - 5th floor  
Boston, Massachusetts 02108

## **VIII. Rights of the Department**

1. The Department may suspend, modify or revoke this Approval for cause, including, but not limited to, non-compliance with the terms of this Approval, non-payment of the annual compliance assurance fee, for obtaining the Approval by misrepresentation or failure to disclose fully all relevant facts or any change in or discovery of conditions that would constitute grounds for discontinuance of the Approval, or as necessary for the protection of public health, safety, welfare or the environment, and as authorized by applicable law. The Department reserves its rights to take any enforcement action authorized by law with respect to this Approval and/or the System against the owner, or operator of the System and/or the Company.



# Department of Environmental Protection

One Winter Street Boston, MA 02108 • 617-292-5500

DEVAL L. PATRICK  
Governor

TIMOTHY P. MURRAY  
Lieutenant Governor

RICHARD K. SULLIVAN JR.  
Secretary

KENNETH L. KIMMELL  
Commissioner

## REVISION OF APPROVAL FOR REMEDIAL USE

Pursuant to Title 5, 310 CMR 15.00

Name and Address of Applicant:

Bio-Microbics, Inc.  
8450 Cole Parkway  
Shawnee, KS 66227

Trade name of technology and models: MicroFAST® Treatment System Models *MicroFAST® 0.5, 0.75, 0.9, 1.5, 3.0, 4.5 and 9.0*; HighStrengthFAST® Treatment System Models *HighStrength FAST® 1.0, 1.5, 3.0, 4.5 and 9.0* and NitriFAST® Treatment System Models *NitriFAST® 0.5, 0.75, 1.0, 1.5, 3.0, 4.5 and 9.0* (hereinafter called the "System"). Schematic Drawings illustrating each System, a design and installation manual, an owner's manual, an operation and maintenance manual, and an inspection checklist are part of this Approval.

Transmittal Number: W 072367  
Date of Issuance: June 16, 2006 (modified January 23, 2008)  
Revision date: November 05, 2012

### Authority for Issuance

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental, Protection hereby issues this Approval for Remedial Use to: Bio-Microbics, Inc., 8450 Cole Parkway, Shawnee, KS 66227, (hereinafter "the Company"), approving the System described herein for Remedial Use in the Commonwealth of Massachusetts. The sale, design, installation, and use of the System are conditioned on compliance by the Company, the Designer, the Installer, the Service Contractor, and the System Owner with the terms and conditions set forth below. Any noncompliance with the terms or conditions of this Approval constitutes a violation of 310 CMR 15.000.

David Ferris, Director  
Wastewater Management Program,  
Bureau of Resource Protection

November 05, 2012

Date

## **Technology Description**

The System is a Secondary Treatment Unit (STU). The Systems, MicroFAST® 0.5, 0.75, 0.9, 1.5, 3.0, 4.5 and 9.0, and HighStrengthFAST® 1.0, 1.5, 3.0, 4.5 and 9.0, and, NitriFAST® 0.5, 0.75, 0.9, 1.5, 3.0, 4.5 and 9.0 units are installed in a tank or tanks having a primary settling zone and an aerobic biological zone. Solids settle in the primary settling zone that is quiescent. In the aerobic zone, the sewage is continually agitated and aerated. Bacteria in the sewage attach to the surface of a submerged plastic media; they reproduce by consuming the organic material in the sewage.

## **Conditions of Approval**

The term “System” refers to the STU in combination with the other components of an on-site treatment and disposal system that may be required to serve a facility in accordance with 310 CMR 15.000.

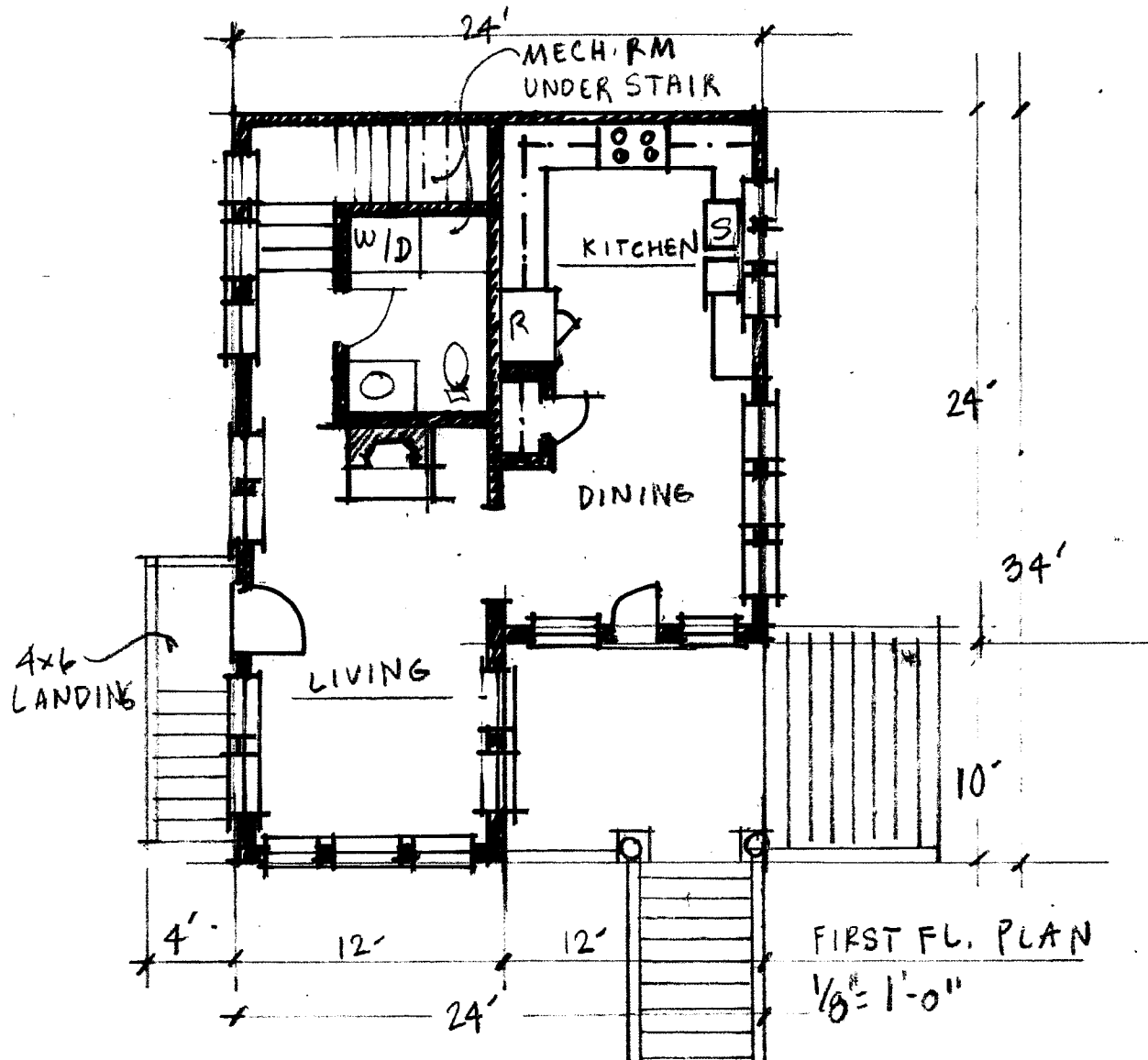
The term “Approval” refers to the technology-specific Special Conditions, the conditions applicable to all STU’s with Remedial Use Approval, the General Conditions of 310 CMR 15.287, and any Attachments.

For Secondary Treatment Units that have been issued Remedial Use Approval for the upgrade or replacement of an existing failed or nonconforming system., the Department authorizes reductions in the effective leaching area (310 CMR 15.242), the depth to groundwater (310 CMR 15.212), and/or the depth of naturally occurring pervious material (310 CMR 15.240(1)) subject to the conditions that apply to all Secondary Treatment Units Approved for Remedial Use and subject to the Special Conditions applicable to the Technology.

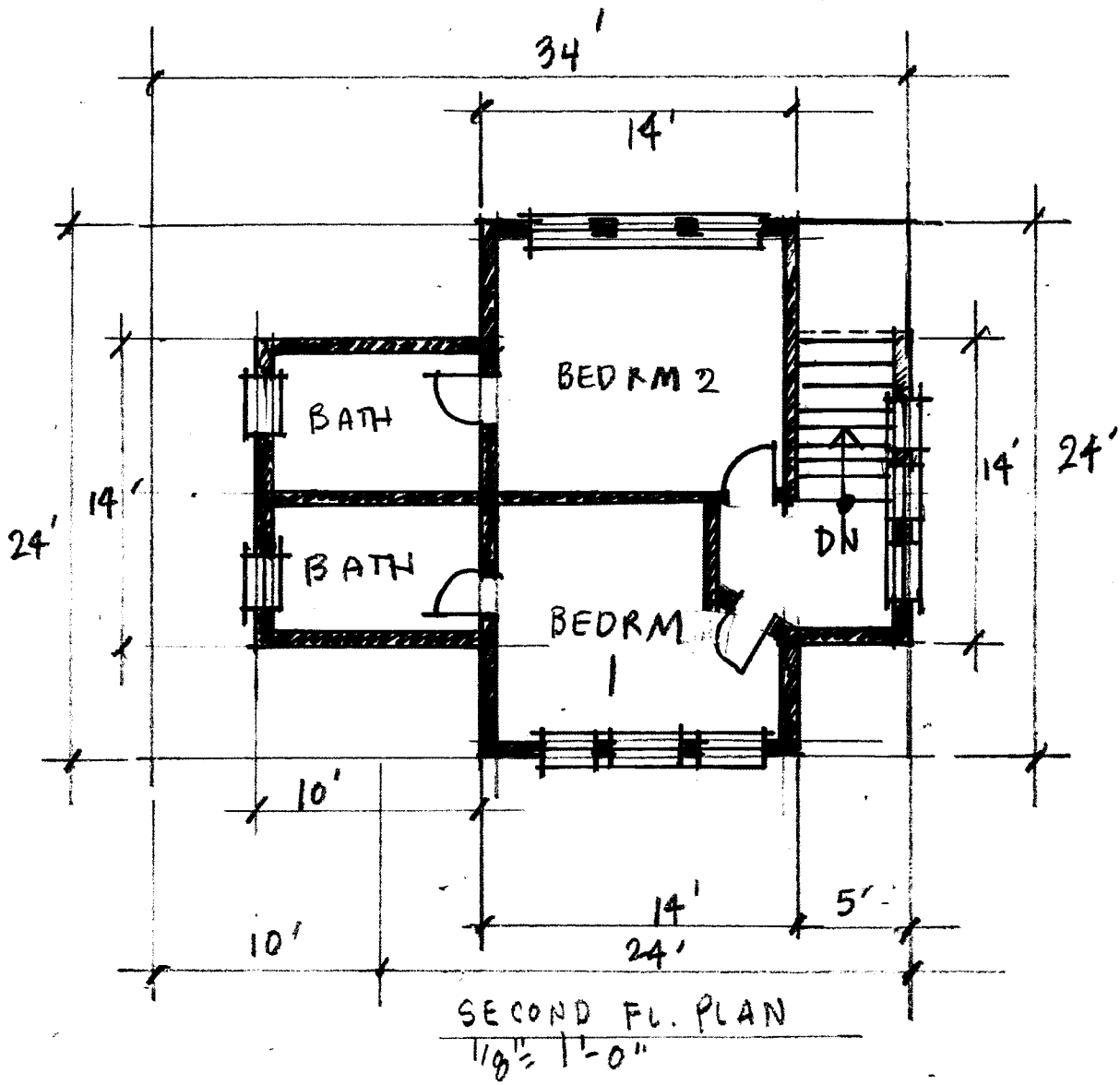
## **Special Conditions**

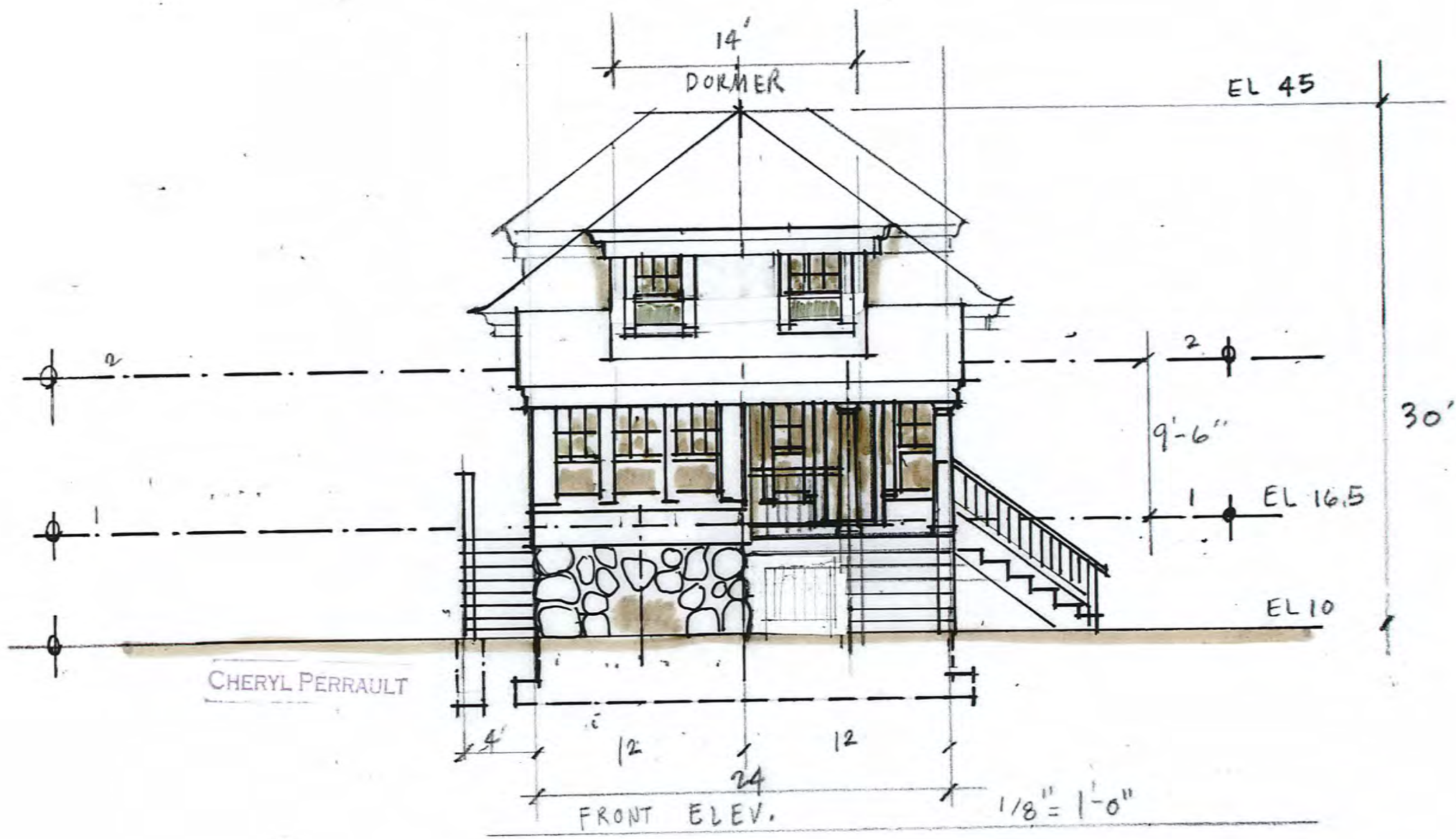
1. The System is Secondary Treatment Unit Approved for Remedial Use. In addition to the Special Conditions contained in this Approval, the System shall comply with all the “Standard Conditions for Secondary Treatment Units Approved for Remedial Use”, except where stated otherwise in these Special Conditions.
2. The System is approved for facilities where the local approving authority finds that:
  - a) there is no increase in the actual or proposed design flow;
  - b) the System is for the upgrade of a failed, failing or nonconforming system; and
  - c) a conventional system with a reserve area, designed in accordance with the standards of 310 CMR 15.100 through 15.255, cannot feasibly be built on-site.

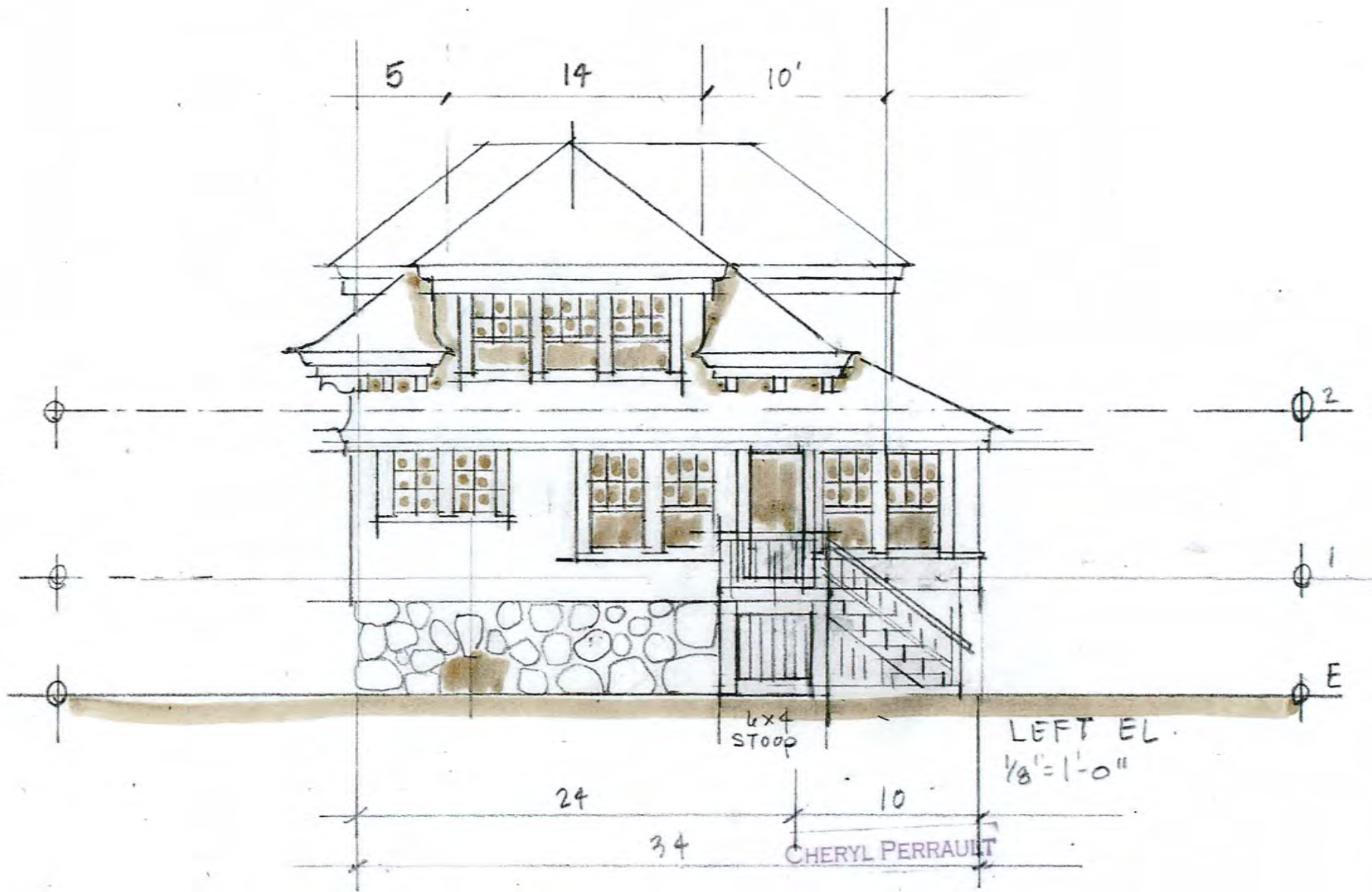
3. The MicroFAST® 0.5, 0.75 and 0.9, HighStrengthFAST® 1.0 and NitriFAST® 0.5, 0.75 and 0.9 are installed in the second compartment of a two-compartment tank with a total liquid capacity of at least 1,500 gallons constructed in accordance with 310 CMR 15.226.
4. The MicroFAST®, HighStrengthFAST® and NitriFAST® 1.5 are installed in the second compartment of a two compartment 3,000-gallon tank constructed in accordance with 310 CMR 15.226.
5. The MicroFAST®, HighStrengthFAST® and NitriFAST® 3.0, 4.5, and 9.0 units are installed in a separate tank constructed in accordance with 310 CMR 15.226. The units are located between a standard Title 5 septic tank, designed in accordance with 310 CMR 15.223 and 15.224, and the soil adsorption system (SAS).
6. Access shall be provided to all tanks in the primary settling and aerobic biological zones in accordance with 310 CMR 15.228 (2). The primary settling tank shall have at least three manholes with readily removable impermeable covers of durable material provided at grade. Two manholes, over the inlet and outlet of the primary settling tank, shall have a minimum opening of 20 inches. All access ports and manhole covers shall be installed and maintained at grade to allow for maintenance of the System.

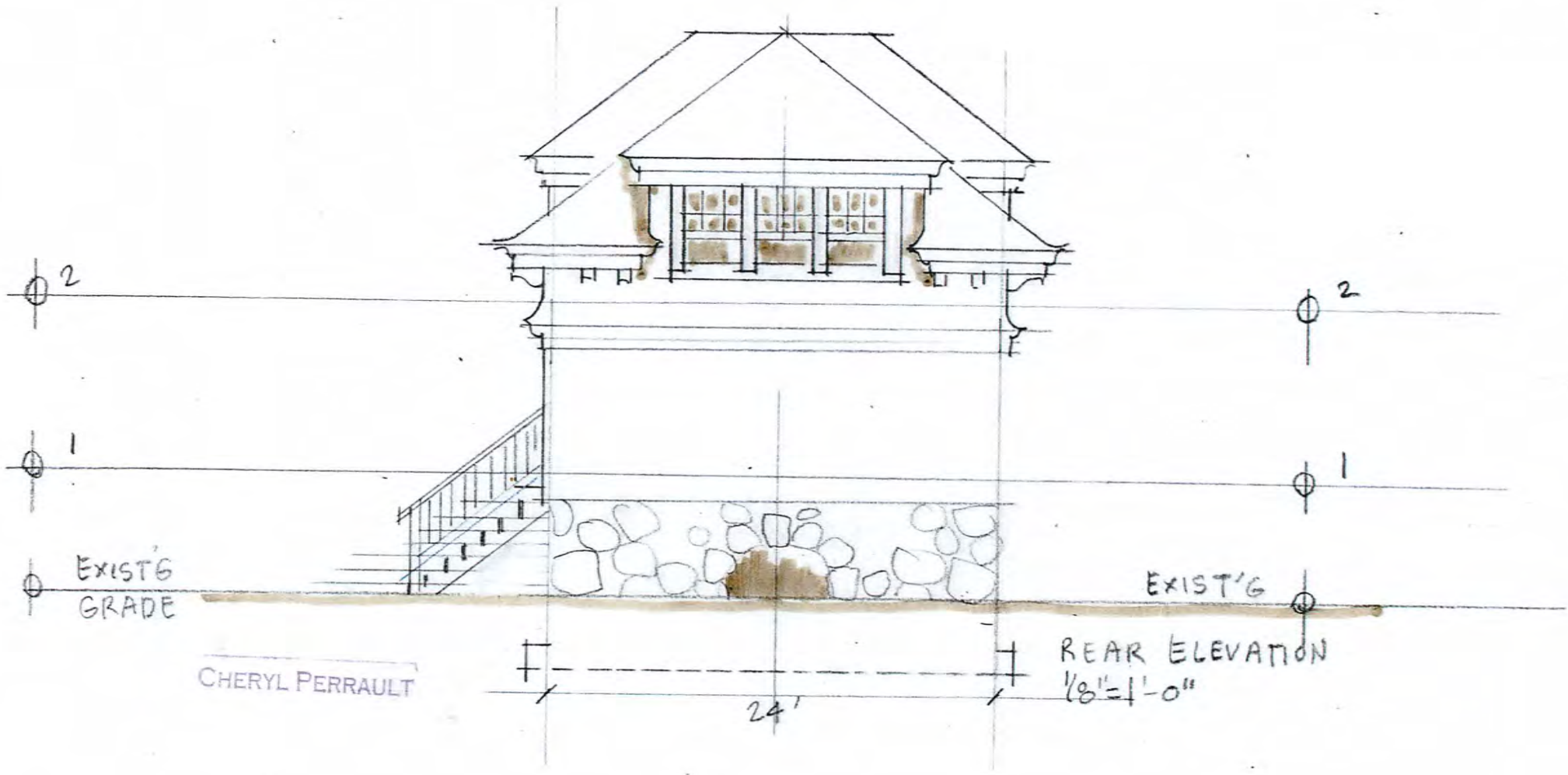












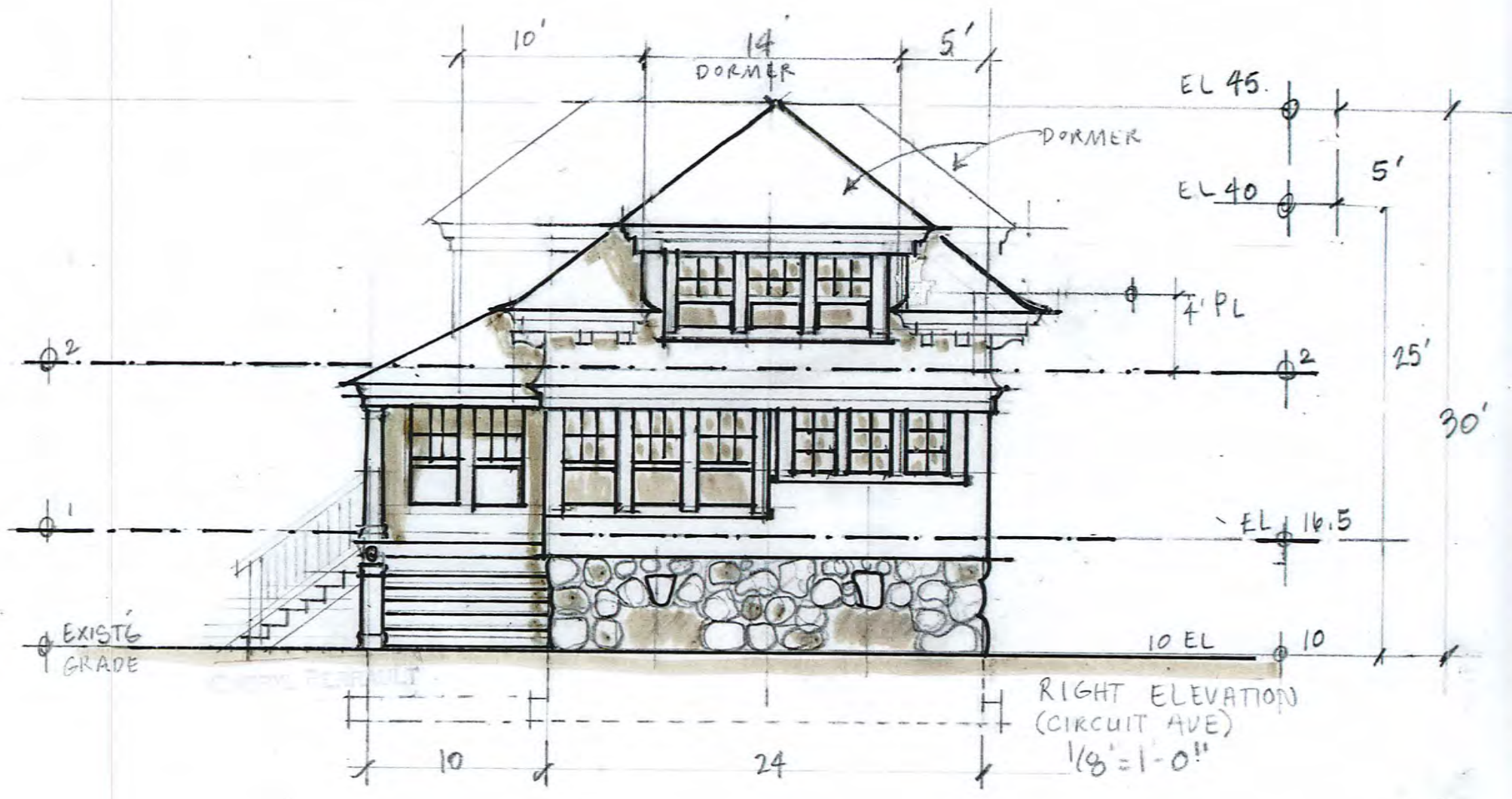
EXIST'G  
GRADE

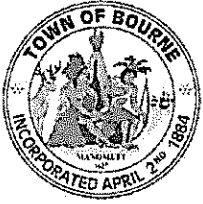
CHERYL PERRAULT

24'

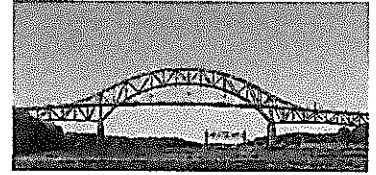
REAR ELEVATION  
1/8"=1'-0"

EXIST'G  
GRADE





**TOWN OF BOURNE**  
**Board of Assessors**  
24 Perry Avenue  
Buzzards Bay, MA 02532  
(508) 759-0600 Ext. 1510 ♦ Fax (508) 759-8026



Michael Leitzel, Chairperson  
Ellen Doyle Sullivan, Clerk  
Donna Barakauskas, Member

Rui Pereira, MAA  
Director of Assessing

March 31, 2022

Christina Winterfeldt  
c/o Bracken Engineering, Inc.  
49 Herring Pond Rd.  
Buzzards Bay, MA 02532

Re: Abutters List for Map 47.1 Parcel 45  
Property address: 4 Kennebec Ave.

As required by the Bourne Board of Health, pursuant with section 310 CMR 15.411(1), this is to certify that the attached list of names and addresses constitutes all of the parties in interest as shown on the most recent tax list of the Town of Bourne.

Abutting properties are: Map 47.1 Parcels 44 & 46.

Your payment of \$10.00 has been received by the Bourne Assessor's Office.

**Please be advised that this abutters list is only good for 30 days from the date on this letter. Expired abutters list can be recertified for an additional filing fee.**

See enclosed for abutters mailing addresses.

Board of Assessors

*Ellen Doyle Sullivan -*  
*Donna Barakauskas*  
*Michael Leitzel*

Extract: 1 Abutters List  
Database: LIVE  
Filter: Key IN 10188,10190  
Sort:

Report #24: Owner Listing Report  
Fiscal Year 2023

Bourne MA

Key	Parcel ID	Owner	Location	LC/CI	Bk-Pol(Cert) /Dt	Mailing Street	Mailing City	ST	Zip Cd/County
10188	47.1-44-0	LUETH DWIGHT & SALLY LUETH & CHARLES LUETH	8 KENNEBEC AVE	N 1010	28522/304 11/21/2014	39 EMERSON ROAD	WELLESLEY	MA	02481
10190	47.1-46-0	MCPHERSON CAROLINE & GREGG TRS OF MCPHERSON FAMILY TRUST	531 CIRCUIT AVE	N 1010	30965/79 12/15/2017	12207 LAWLER STREET	LOS ANGELES	CA	90066

Total Records 2

**MAIN OFFICE:**  
 49 Herring Pond Road  
 Buzzards Bay, MA 02532  
 TEL: (508) 833-0070  
 FAX: (508) 833-2282



**NANTUCKET OFFICE:**  
 19 Old South Road  
 Nantucket, MA 02554  
 TEL: (508) 325-0044  
[www.brackeneng.com](http://www.brackeneng.com)

April 20, 2022

**CERTIFIED MAIL**

RE : Notice of Public Hearing

Dear Abutter:

In accordance with the State Environmental Code, Title 5: 310 CMR 15.00, you are hereby notified that **The Brennan Family Trust c/o Christina Winterfeldt** has requested a hearing before the Bourne Board of Health for relief from the Bourne Board of Health Regulations for the installation of an upgraded Innovative/Alternative Septic System. The location of the property for which approval is sought is **4 Kennebec Avenue (Map 47.1, Parcel 45), Pocasset** where you are listed as an abutter. At said hearing the Board will discuss and possibly vote on:

- **CMR 15.401(1)(a) – reduction in the required setback to existing abutting property lines.**

Septic Component	Setback Object	Proposed Setback Distance (ft)	Relief Requested (ft)
S.A.S.	#531 Circuit Ave	6±	4±
S.A.S.	Circuit Ave Layout	5±	5±
S.A.S.	Kennebec Ave Layout	5±	5±
Septic Tank (MicroFAST)	#531 Circuit Ave	6±	4±
Septic Tank (MicroFAST)	#8 Kennebec Ave	6±	4±
Pump Chamber	#8 Kennebec Ave	6±	4±

- **CMR 15.401(1)(b) – reduction in the required setback to existing cellar wall, crawlspace or slab foundation for #4 Kennebec Avenue**

Septic Component	Setback Object	Proposed Setback Distance (ft)	Relief Requested (ft)
Septic Tank (MicroFAST)	Crawlspace Wall	6±	4±
Pump Chamber	Crawlspace Wall	6±	4±

- **CMR 15.401(1)(f) – a 50'± reduction in setback for a 0'± setback to a Coastal Bank.**
- **A variance to local setback requirements is requested for a 150'± reduction in setback for a 0'± setback to a non-eroding Coastal Bank from a Soil Absorption System.**

This hearing is tentatively scheduled for Wednesday, May 11, 2022 at **5:00 p.m.** in Conference Room #2 at the Bourne Veteran’s Memorial Community Building, 239 Main Street, Buzzards Bay. Information regarding



the hearing may be available for your review one week prior to the meeting by contacting the Bourne Health Department at 508-790-0600, Ext. 1513, Monday through Friday from 8:30 a.m. until 4:30 p.m.

Meeting agendas are posted on the Town of Bourne website, [www.townofbourne.com/health](http://www.townofbourne.com/health) no less than 48 hours in advance of the hearing. Please confirm the date, time, and location of the meeting with the Town, in case of any changes. Should you have any questions or concerns, please do not hesitate to contact the undersigned at [zac@brackeneng.com](mailto:zac@brackeneng.com) or the Bourne Health Department at 508-790-0600, Ext. 1513.

Sincerely,

**BRACKEN ENGINEERING INC.**



---

Zachary L. Basinski, PE, C.F.M  
Project Manager  
Agent for the Applicant

7020 1810 0000 2123 9662

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Caroline & Gregg McPherson, TRS  
McPherson Family Trust  
12207 Lawler Street  
Los Angeles, CA 90066  
4 Kennebec Ave., Bourne - BOH



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\_\_\_\_\_  
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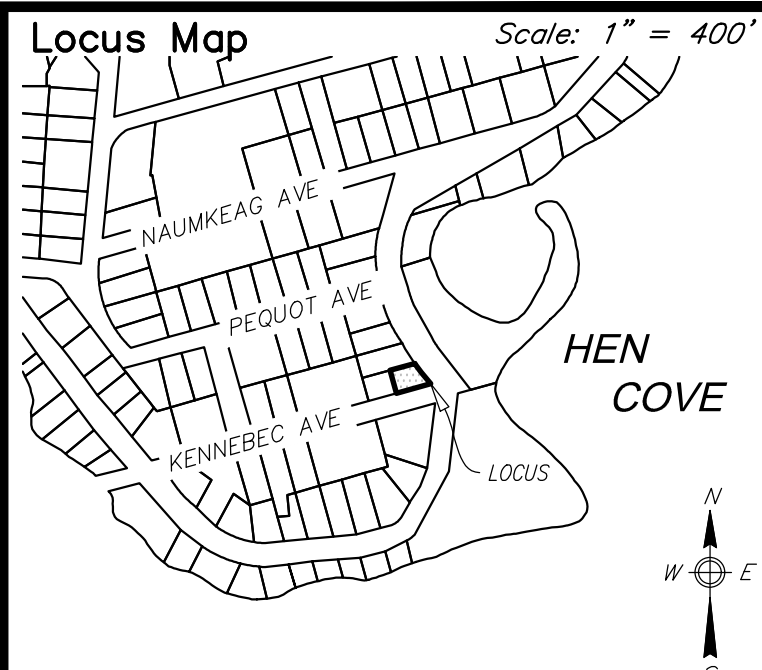
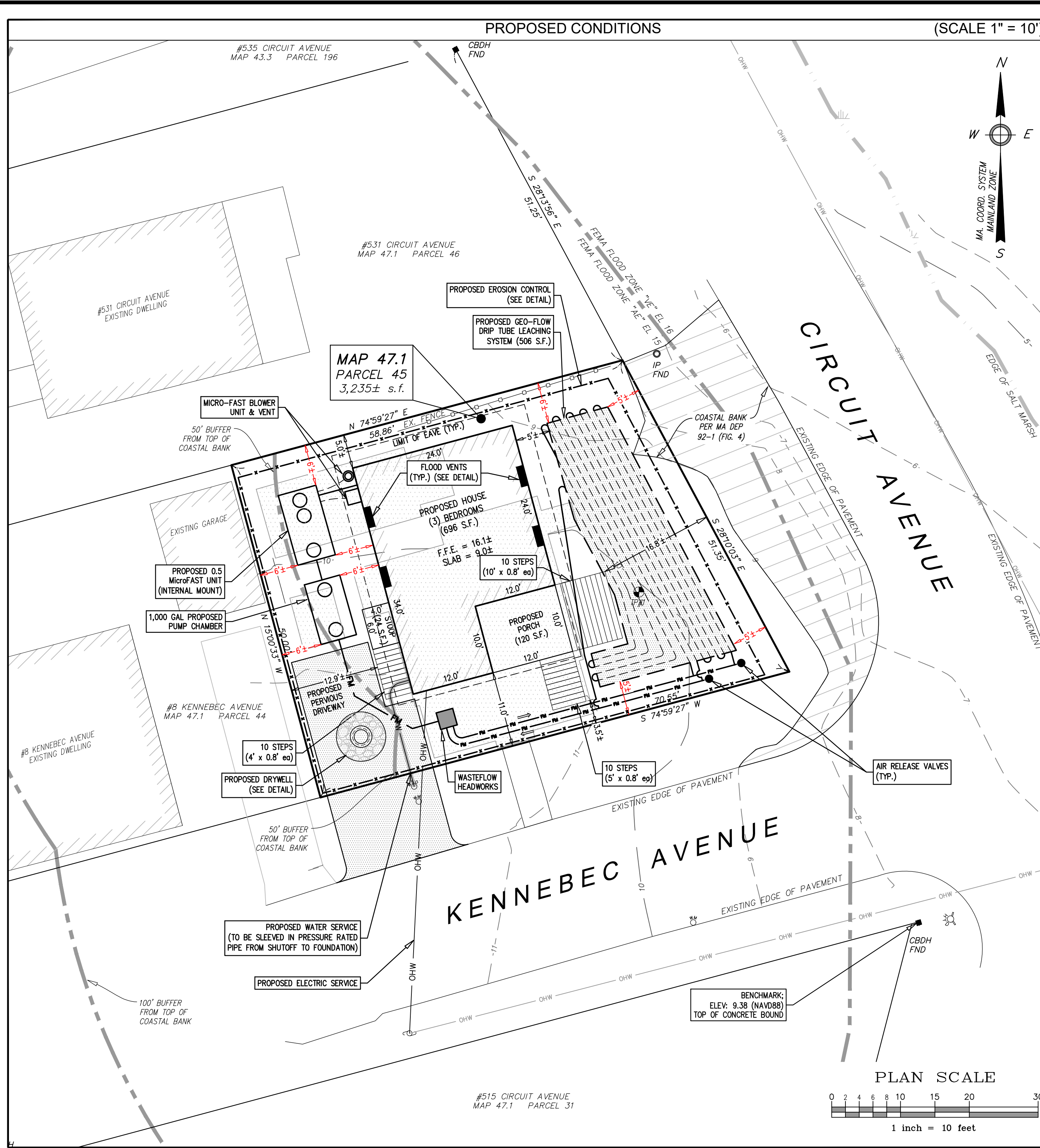
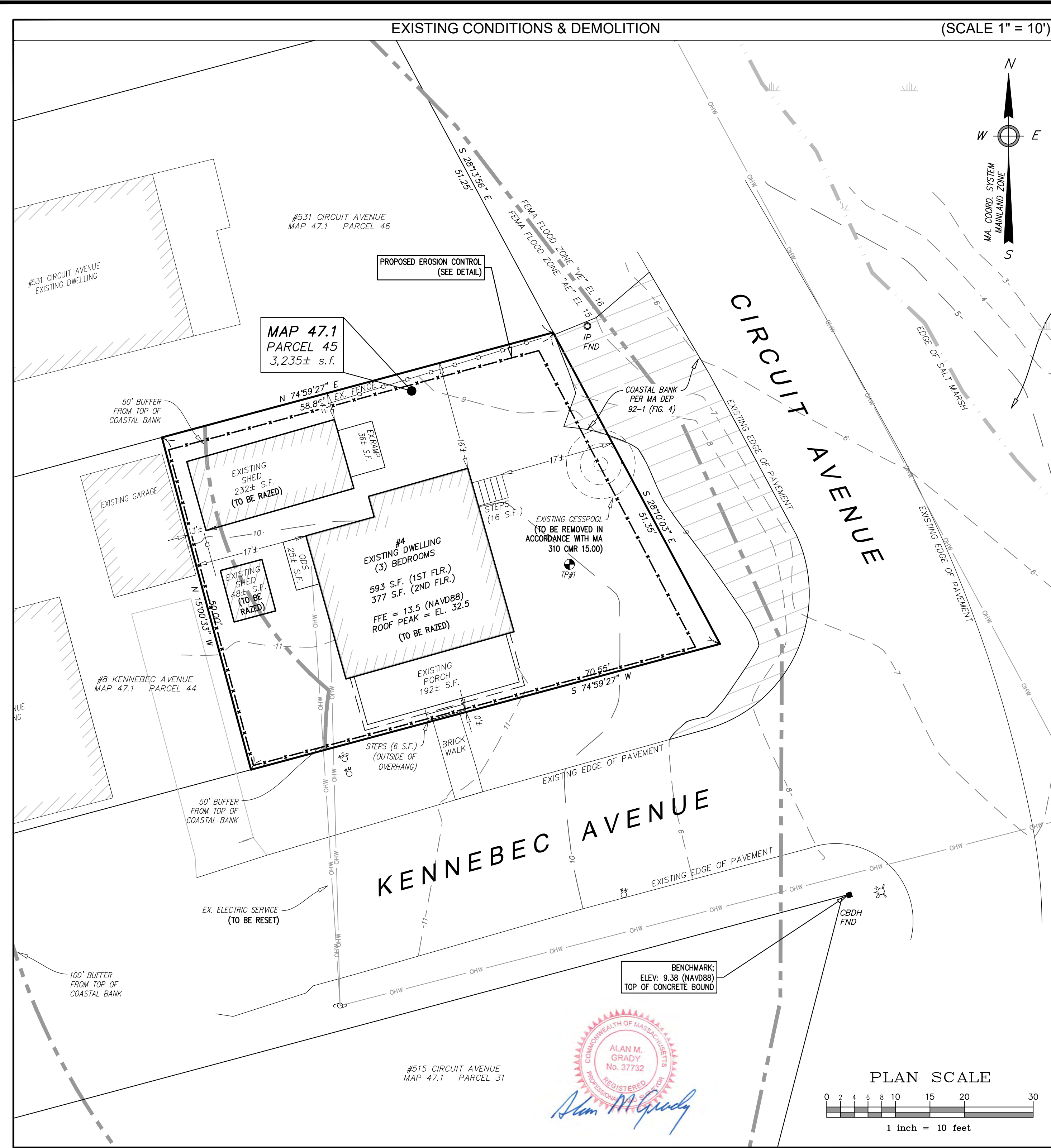
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Certified Fee: \$ 3.75  
Return Receipt Fee: \$ 3.05  
Total Postage & Fees: \$ 7.33

Postage  
\$ \_\_\_\_\_

Dwight Lueth, Sally Lueth &  
Charles Lueth  
39 Emerson Road  
Wellesley, MA 02481  
4 Kennebec Ave., Bourne - BOH



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for Instructions

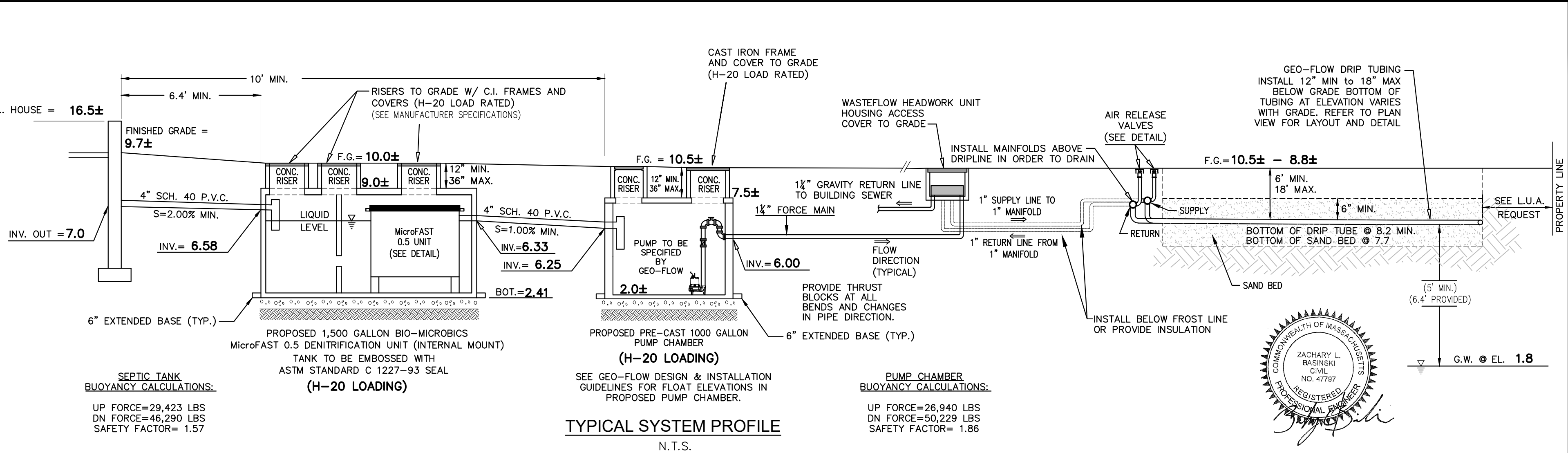


- ### Notes
- BENCHMARK: ELEVATION = 9.38 (NAVD88) TOP OF CONCRETE BOUND
  - ALL CONSTRUCTION METHODS AND MATERIALS TO CONFORM TO TITLE 5 AND THE TOWN OF BOURNE BOARD OF HEALTH REGULATIONS.
  - ALL SYSTEM COMPONENTS SHALL BE MARKED WITH MAGNETIC TAPE OR A COMPARABLE MEANS IN ORDER TO LOCATE THEM ONCE BURIED.
  - NO FIELD MODIFICATION TO THE SYSTEM SHALL BE MADE WITHOUT PRIOR WRITTEN APPROVAL OF THE DESIGN ENGINEER AND BOARD OF HEALTH.
  - ALL JOINTS AND COVERS TO BE WATERTIGHT.
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ANY EXISTING UTILITIES.
  - A CERTIFICATE OF COMPLIANCE MUST BE OBTAINED PRIOR TO BACKFILLING SYSTEM.
  - OWNER: FAITH V. EASTER, TRUSTEE  
BRENNAN FAMILY TRUST  
161 WORCESTER ROAD - SUITE 501  
FRAMINGHAM, MA 01701
  - APPLICANT: CHRISTINA WINTERFELDT  
4 OLD ORCHARD ROAD  
SHERBORN, MA 01770
  - DEED REFERENCE: Deed Bk: 33346 Pg: 318
  - PLAN REFERENCE: Plan Bk: 117 Pg: 1 (LOT 304)
  - THE DESIGN IS INTENDED TO MEET TITLE 5 AND OTHER APPLICABLE REQUIREMENTS. THIS PLAN DOES NOT GUARANTEE THAT THE SYSTEM WILL BE INSTALLED AS DESIGNED, NOR DOES THIS PLAN GUARANTEE THE OPERATION OF THE SYSTEM.
  - THIS SYSTEM IS NOT DESIGNED NOR INTENDED FOR USE WITH A GARBAGE GRINDER.
  - THE SYSTEM OWNER SHALL BE RESPONSIBLE TO PUMP THE SEPTIC TANK AT LEAST ONCE EVERY THREE YEARS.
  - LOCUS DOES NOT FALL WITHIN A ZONE II WELLHEAD PROTECTION AREA.
  - LOCUS DOES NOT FALL WITHIN AN NHESP ESTIMATED HABITAT OF RARE WILDLIFE AND PRIORITY HABITAT OF RARE SPECIES.
  - LOCUS DOES FALL WITHIN A SPECIAL FLOOD HAZARD ZONE "AE" (EL. 15) AS SHOWN ON FEMA FLOOD INSURANCE RATE MAP No. 25001C-0492-J, dated 7/14/2014. (B.F.E. = 15.0, D.F.E. = 16.0)
  - CONTRACTOR TO REFER TO ALL MANUFACTURER'S REQUIREMENTS AND SPECIFICATIONS FOR INSTALLATION OF THE MICROFAST UNIT AND GEO-FLOW DRIP-TUBE SYSTEM.
- \*\* SEE ADDITIONAL NOTES \*\*

PRE-EXISTING NON-CONFORMING (c)			
ZONE: R-40	REQUIRED	EXISTING	PROPOSED
LOT AREA:	40,000 s.f.	3,235± s.f.	3,235± s.f.
FRONT YARD:	20'	0.3'± (STEPS)	3.5'±
SIDE YARD (NORTH):	12'	4.0'± (SHED)	5.0'±
SIDE YARD (WEST):	12'	15.9'± (HOUSE)	2.7'± (SHED)
		16.5'± (HOUSE)	12.9'±
GROSS FLOOR AREA TO LOT AREA:	25% (809 s.f. max.)	38% (1,292± s.f.)	38.4% (1,242± s.f.)
LOT COVERAGE:	25% (809 s.f. max.)	35.5% (1,148± s.f.)	29.7% (982± s.f.)
BUILDING HEIGHT:	25'(max)	22.2'(b)	29.8'(c)(c)

Notes:  
 (a) SEE TABLE 2456 FOR NON-CONFORMING LOTS IN BOURNE ZONING BY LAWS.  
 (b) EX. BUILDING HEIGHT BASED ON AN AVG. EX. GRADE OF 10.3  
 (c) INCREASE ALLOWABLE BY FIVE FEET FOR ROOF ELEMENTS HAVING A SLOPE OF 4° OR MORE PER FOOT.

- REFER TO THE REQUIRED OPERATION & MAINTENANCE PLAN, TO BE SUPPLIED BY THE MANUFACTURE, FOR REQUIRED MAINTENANCE PROCEDURES.
  - THE CONTRACTOR SHALL BE PLACED AROUND HYDRAULIC UNIT AND PIPING, AS REQUIRED.
  - ALL TANKS, INCLUDING SEPTIC TANKS, WASTEFLOW HEADWORK UNIT, AND PUMP CHAMBERS SHALL BE EITHER:
    - WATERTIGHT THROUGH MANUFACTURE'S SPECIFICATION AND WARRANTY, OR
    - MADE WATERTIGHT BY THE MANUFACTURER, EQUIPMENT SUPPLIER OR INSTALLER USING ASPHALT OR SYNTHETIC POLYMER SEALER SPECIFIED BY THE CONCRETE OR SYNTHETIC MATERIAL MANUFACTURE, AS SPECIFIED IN 310 CMR 15.22(1).
  - TANKS TO BE TESTED FOR WATER TIGHTNESS.
  - THE CONTRACTOR SHALL BE CERTIFIED BY GEOFLOW.
  - MARK SYSTEM COMPONENTS WITH MAGNETIC TAPE.
  - ALL WORK WITHIN 10' OF BUILDING TO BE PERFORMED BY LICENSED PLUMBER.
  - SOIL CONDITIONS ENCOUNTERED DURING INSTALLATION MAY DICATE THE USE OF A SAND BED UNDER THE PROPOSED DRIP TUBING. IF UNFAVORABLE CONDITIONS ARE FOUND CONTACT THE DESIGN ENGINEER.
- NOTES**
- ALL SYSTEM COMPONENTS TO BE MARKED WITH MAGNETIC TAPE.
  - ALL SYSTEM COMPONENTS TO BE WITHIN 36" OF FINISHED GRADE UNLESS OTHERWISE NOTED.
  - ALL PLUMBING WITHIN 10 FEET OF THE FOUNDATION TO BE INSTALLED BY A LICENSED PLUMBER.



- ### ADDITIONAL NOTES
- THE RECORD PROPERTY OWNER IS TO FILE A NOTICE OF DEED RESTRICTION AT THE BARNSTABLE COUNTY REGISTRY OF DEEDS PRIOR TO THE INSTALLATION OF THE SYSTEM, INDICATING THE USE OF AN INNOVATIVE/ALTERNATIVE SEPTIC SYSTEM ON THE PROPERTY.
  - HOMEOWNER IS TO ESTABLISH AN OPERATION & MAINTENANCE PLAN WITH A COMPANY CERTIFIED SYSTEM OPERATOR FOR THE MICROFAST UNIT. ALL SYSTEM TESTING, MONITORING & REPORTING IS TO BE CONDUCTED IN ACCORDANCE TO THE MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP) REMEDIAL USE PERMITS.
  - ALARM PANEL TO BE PLACED ON EAST SIDE OF PROPOSED HOUSE. CONTRACTOR TO COORDINATE FINAL LOCATION WITH OWNER AND MANUFACTURER.
  - CONTRACTOR TO COORDINATE FINAL PLACEMENT OF THE MICROFAST BLOWER UNIT WITH OWNER, ENGINEER & MANUFACTURER. IF PLACED BELOW GRADE IN DRIVEWAY, BLOWER IS TO BE INSTALLED IN A CONCRETE H2O LOAD RATED VAULT AND VENTED.
  - SOIL CONDITIONS ENCOUNTERED DURING EXCAVATION MAY DIFFER FROM THE PREVIOUSLY OBSERVED CONDITIONS AT THE TEST PITS. ADDITIONAL REMOVAL AND REPLACEMENT OF SOIL MAY BE REQUIRED. IF UNDESIRABLE CONDITIONS ARE ENCOUNTERED, THE DESIGN ENGINEER SHALL BE CONSULTED.
  - NO STRUCTURES PROPOSED ON ANY SLOPE > 25%.
  - CONTRACTOR TO COORDINATE PLACEMENT OF ALL ALARM PANELS WITH THE HOMEOWNER & SYSTEM MANUFACTURER PRIOR TO INSTALLATION. ALARM PANELS MUST BE INSTALLED ABOVE THE BASE FLOOD ELEVATION (SEL. 15.4).
  - CONTRACTOR TO COORDINATE PLACEMENT OF ALL VENTS AND THE BLOWER UNIT WITH THE MANUFACTURER AND HOMEOWNER PRIOR TO INSTALLATION.
  - NO STRUCTURES OR VEHICULAR TRAFFIC SHALL BE ALLOWED OVER THE PROPOSED GEO-FLOW DRIP SOIL ABSORPTION SYSTEM.
  - CONTRACTOR SHALL RETAIN THE SERVICES OF A MA LICENSED SURVEYOR FOR THE PURPOSES OF CONSTRUCTION STAKEOUT FOR THE DURATION OF THE PROJECT.

Prepared By:

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### SUBSURFACE SEWAGE DISPOSAL PLAN IN BOURNE, MASSACHUSETTS

Prepared For:

## BRENNAN FAMILY TRUST

#4 KENNEBEC AVENUE  
MAP 47.1 PARCEL 45

No.	Date	Revision Description	By
1	04/08/22	REVISED FOR B.O.H. & Z.B.A. SUBMISSION	RED

Date: FEBRUARY 15, 2022 Drawn: RED/BEI Checked: ZLB/AMG Sheet: 1 of 2

**LOCAL UPGRADE APPROVALS REQUESTED**

- 15.405(1)(c) - A REDUCTION IN THE REQUIRED SETBACK TO EXISTING ABUTTING PROPERTY LINES:  

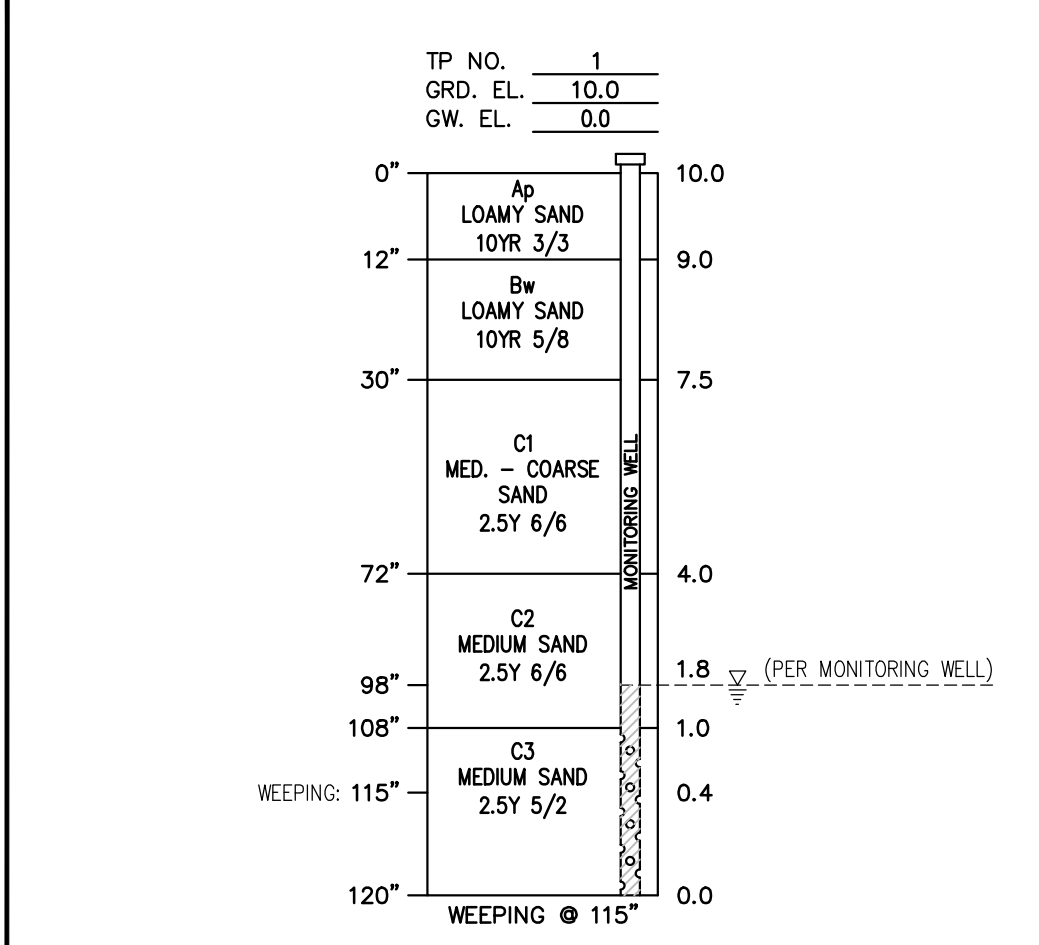
PROPERTY ADDRESS	VARIANCE REQUESTED	PROPOSED SETBACK
#531 CIRCUIT AVENUE	4'±	6'± (MicroFAST TANK)
#531 CIRCUIT AVENUE	4'±	6'± (SOIL ABSORPTION SYSTEM)
CIRCUIT AVENUE LAYOUT	5'±	5'± (SOIL ABSORPTION SYSTEM)
KENNEBEC AVENUE LAYOUT	5'±	5'± (SOIL ABSORPTION SYSTEM)
#8 KENNEBEC AVENUE	4'±	6'± (MicroFAST TANK)
#8 KENNEBEC AVENUE	4'±	6'± (PUMP CHAMBER)
- 15.405(1)(b) - A REDUCTION IN THE REQUIRED SETBACK TO EXISTING CELLAR WALL, CRAWLSPACE, OR SLAB FOUNDATION:  

PROPERTY ADDRESS	VARIANCE REQUESTED	PROPOSED SETBACK
#4 KENNEBEC AVENUE	4'±	6'± (MicroFAST TANK)
#4 KENNEBEC AVENUE	4'±	6'± (PUMP CHAMBER)
- A VARIANCE TO LOCAL SETBACK REQUIREMENTS IS REQUESTED FOR A 150'± REDUCTION IN SETBACK FOR A 0'± SETBACK TO A NON-ERODING COASTAL BANK FROM A SOIL ABSORPTION SYSTEM.
- 15.405(1)(f) - A 50'± REDUCTION IN SETBACK FOR A SETBACK OF 0'± TO A COASTAL BANK.

**FLOOD ZONE NOTES**

- ALL UTILITIES TO BE PLACED NO LOWER THAN ELEVATION 16.1.
- ALL STRUCTURAL COMPONENTS PLACED BELOW EL. 16.1 TO BE CONSTRUCTED OF WATERPROOF MATERIALS.
- BOTTOM OF FLOOD ZONES TO BE PLACED WITHIN 1'-FT OF TOP OF SLAB ELEVATION OR EXTERIOR GRADE - WHICHEVER IS HIGHER.
- CEILING HEIGHT OF CRAWLSPACE AREA TO BE < 6'-6".
- INSTALL A MINIMUM OF 1 SMART VENT PER 200 S.F. OF FOUNDATION. FOUNDATION TO BE MEASURED TO THE EXTERIOR OF THE WALLS. VENTS TO BE PLACED ON A MINIMUM OF TWO WALLS.

**SOIL LOG**

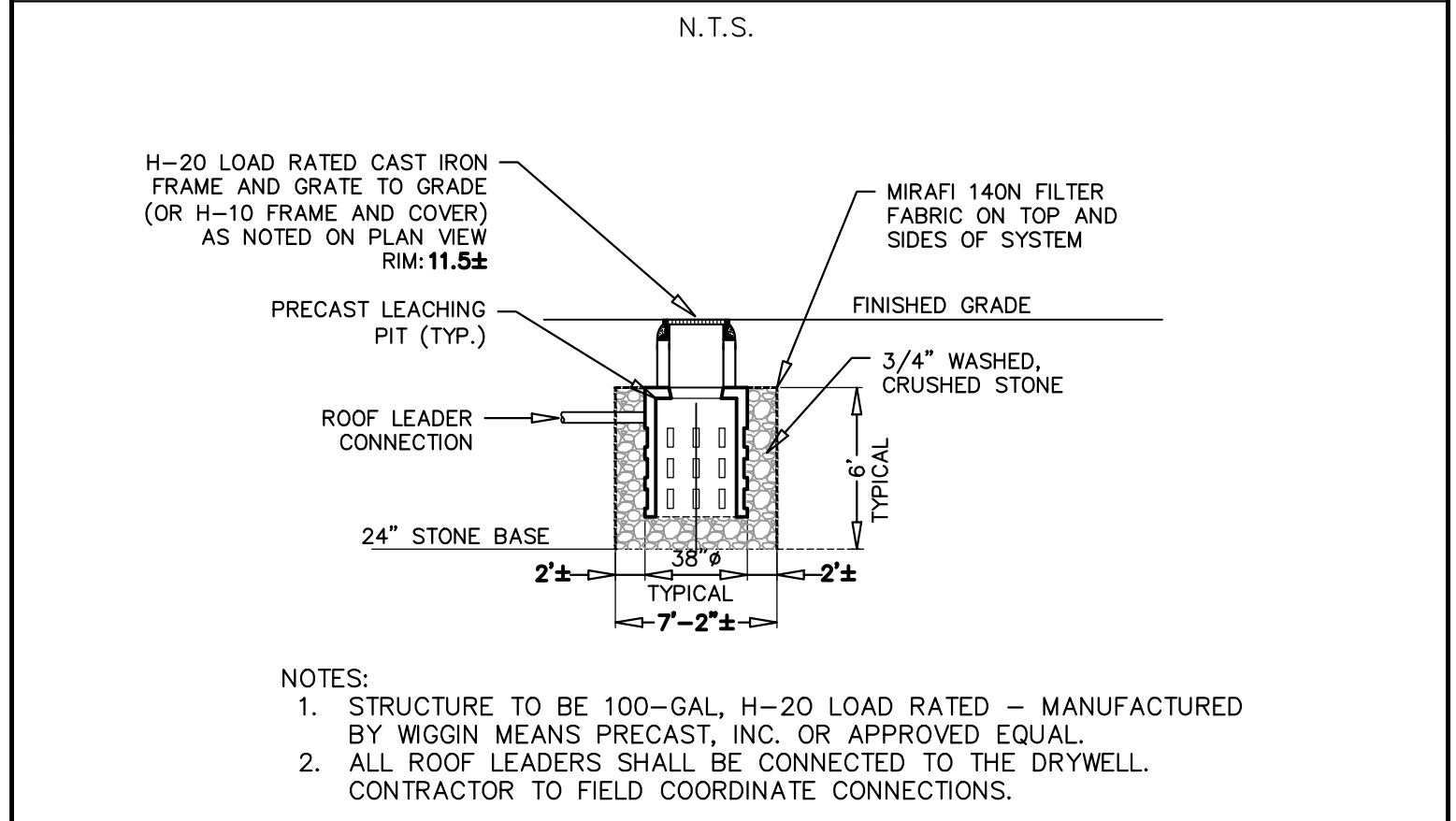


DATE PERFORMED: JUNE 11, 2021  
 SOIL EVALUATOR: ROBERT E. DEWAR, E.L.T. (SE #14230)  
 WITNESSED BY: KAITLYN SHEA - ASST. AGENT  
 PERC. RATE: < 2 MINUTES/INCH  
 SOIL CLASS: CLASS 1  
 MAX. GROUND WATER ELEV.: 1.8  
 METHOD OF DETERMINATION: MONITORING WELL  
 (SEE SOIL REPORT FOR MORE DETAILED DESCRIPTION)

**EXCAVATION NOTE**

THIS SYSTEM REQUIRES THE EXCAVATION OF ALL UNSUITABLE/SPOILED SOIL WITHIN 5' OF THE SOIL ABSORPTION SYSTEM. SOIL SHALL BE EXCAVATED TO THE EXTENTS OF EXISTING SPOILED SOIL. ENGINEER TO CONFIRM SOIL DEPTH PRIOR TO INSTALLATION. THE EXCAVATION SHALL BE INSPECTED BY THE DESIGN ENGINEER PRIOR TO BACKFILLING. SOIL IS TO BE REPLACED WITH SAND CONFORMING TO 310 CMR SECTION 15.255. CONSTRUCTION IN FILL. CONTRACTOR IS RESPONSIBLE TO PROVIDE ENGINEER WITH SAND SAMPLE FOR SIEVE ANALYSIS.

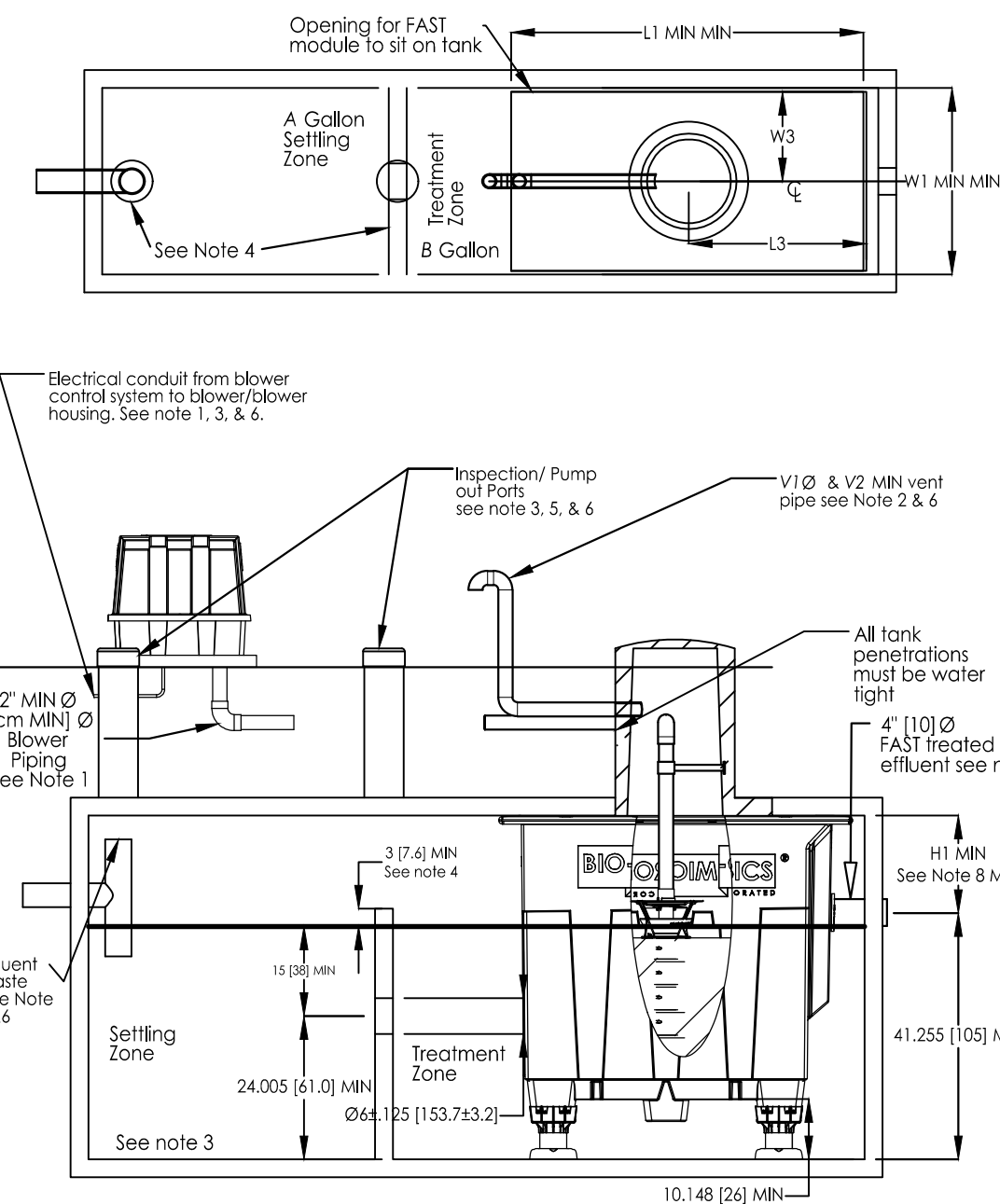
**100 GALLON DRY WELL DETAIL**



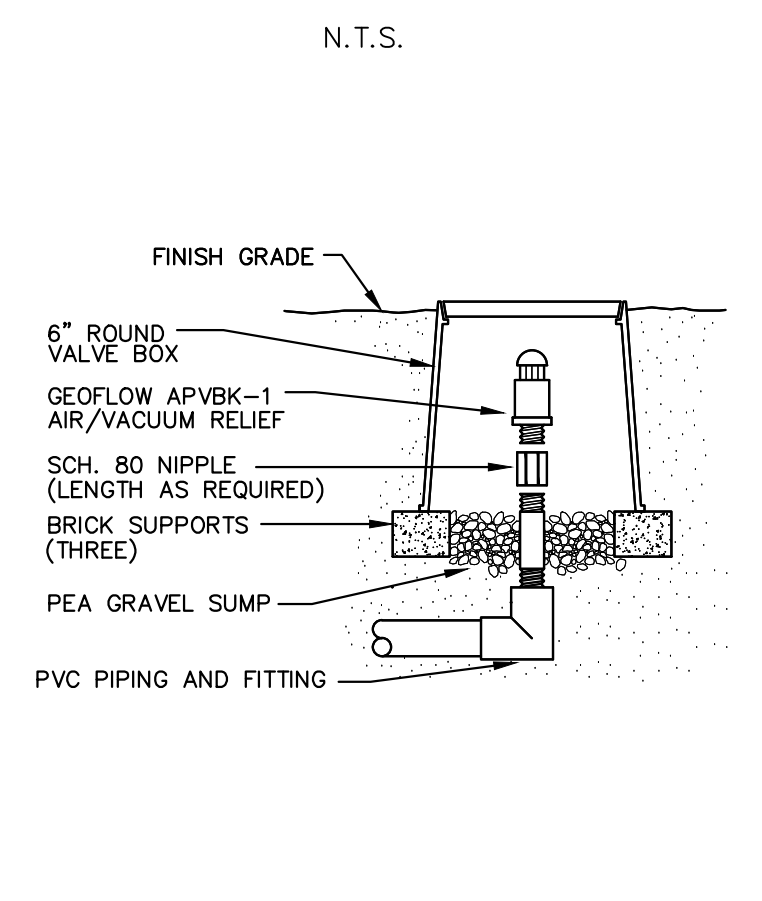
**MicroFAST 0.5 FAST UNIT (INTERNAL MOUNT)**



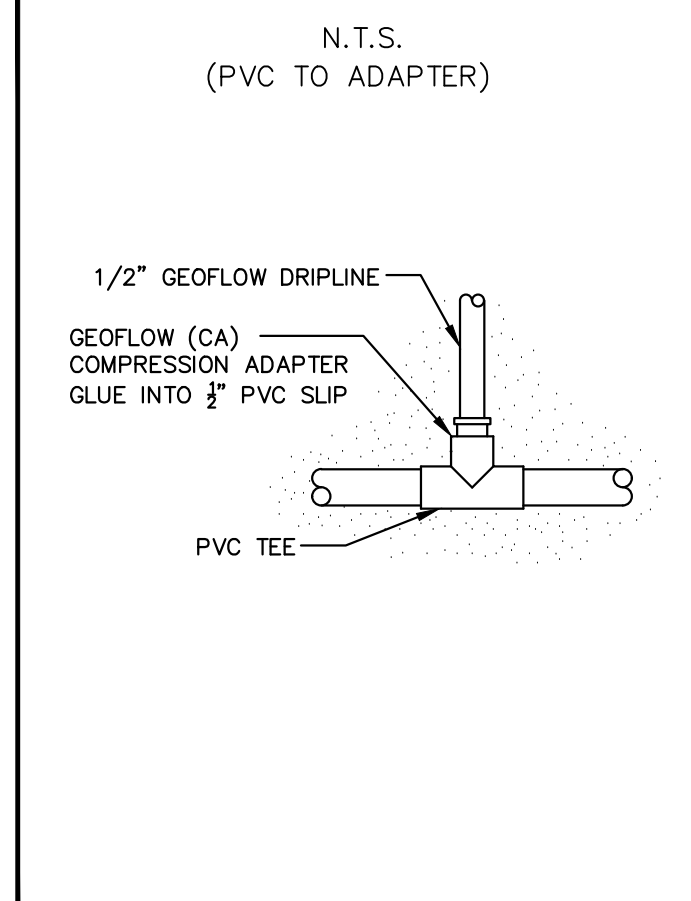
- MicroFAST Notes:**
- Blower piping to FAST® may not exceed 100FT [30.5m] total length and use a maximum of 4 elbows. For distances greater than 100FT [30.5m] - consult factory. Blower must be located above flood/standing water levels on a concrete base 24" x 18" x 2" (61x46.7x5cm) minimum.
  - Vent to be located above finish grade or higher to avoid infiltration. Cap with vent grate w/at least 7.1 sq in. (45.8 sq. cm) open surface area. Secure with stainless steel screws or run vent to desired location and cover opening with vent grate w/at least 7.1 sq in. (45.8 sq. cm) of open surface area. Secure with stainless steel screws. Vent piping must not allow excess moisture build up or back pressure.
  - All appliances to FAST® (e.g. tank pump outs, etc.) must conform to all country, state, province, and local plumbing and electrical codes. The blower control system is provided by Bio-Microbics, Inc.
  - Either the influent pipe tee shall be fitted with a pipe cap or the baffle separating the two zones shall be extended to the top of the tank. If choosing to use the pipe cap, then the baffle shall be at least 3"[8cm] higher than the water level as shown on the drawing.
  - All inspection, viewing and pump out ports must be secured to prevent accidental or unauthorized access.
  - Tank anchors, piping, conduit, blower housing, pop and vents are provided by others.
  - All piping and ancillary equipment installed after FAST® must not impede or restrict free flow of effluent.
  - No more than 4 FT [1.2 m] of fill may be placed over unit lid. Unit may stand inside tank MicroFAST® 0.5 with feet. Refer to installation manual for more details.



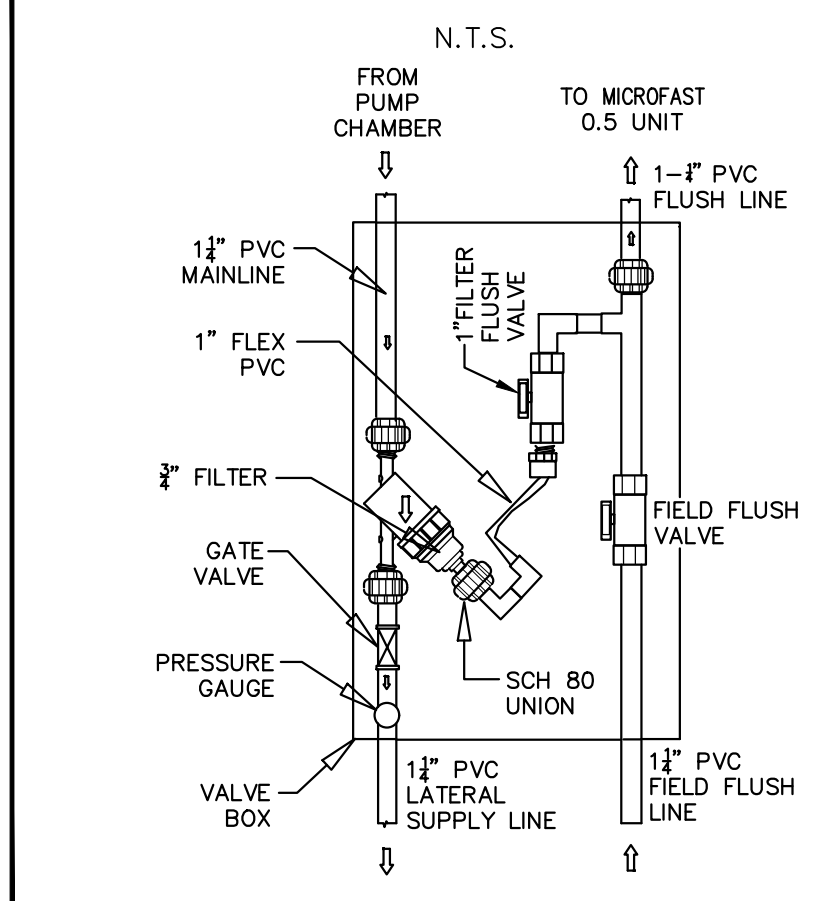
**1" AIR/VACUUM RELIEF DETAIL**



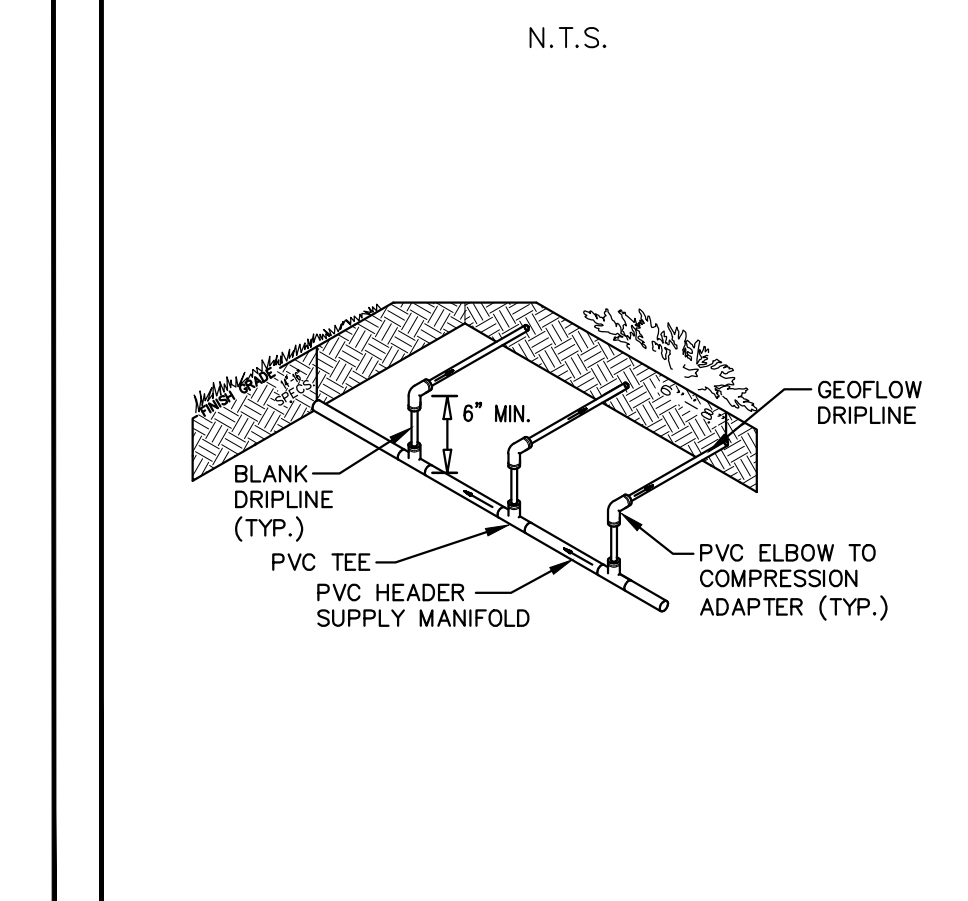
**MANIFOLD CONNECTION DETAIL**



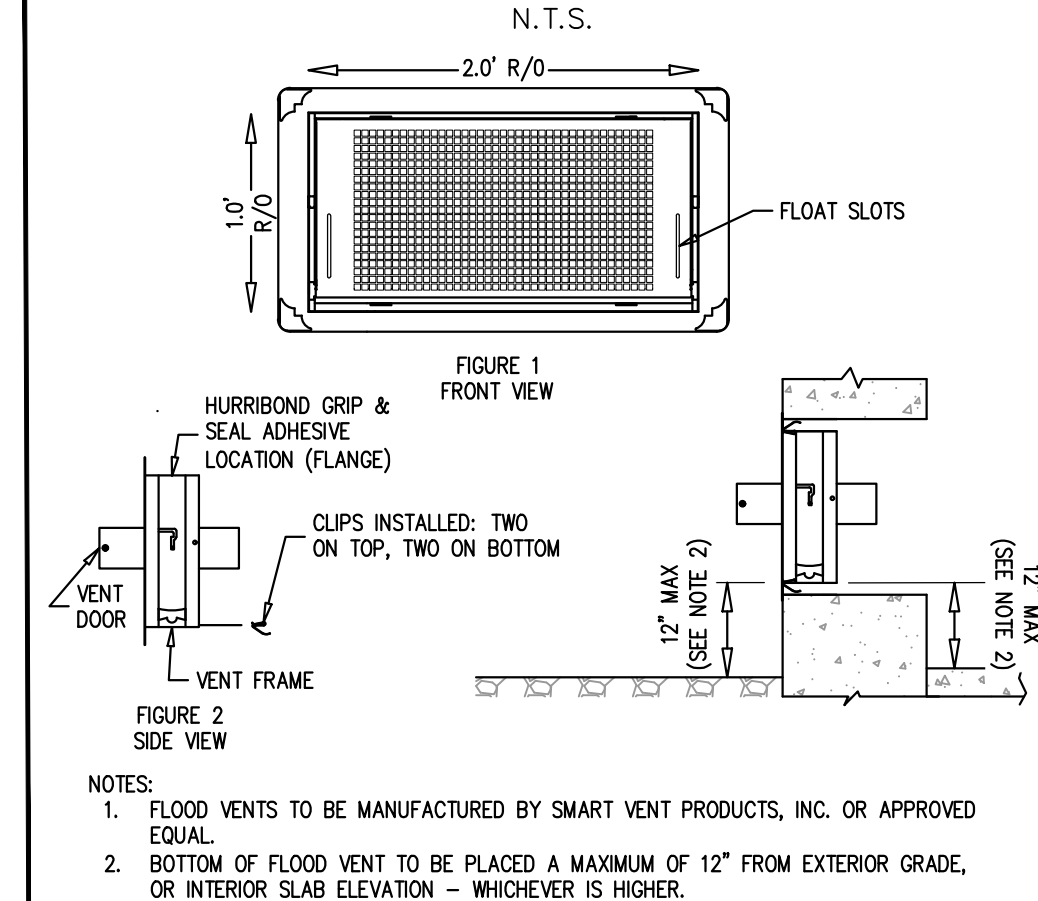
**WASTEFLOW HEADWORK DETAIL**



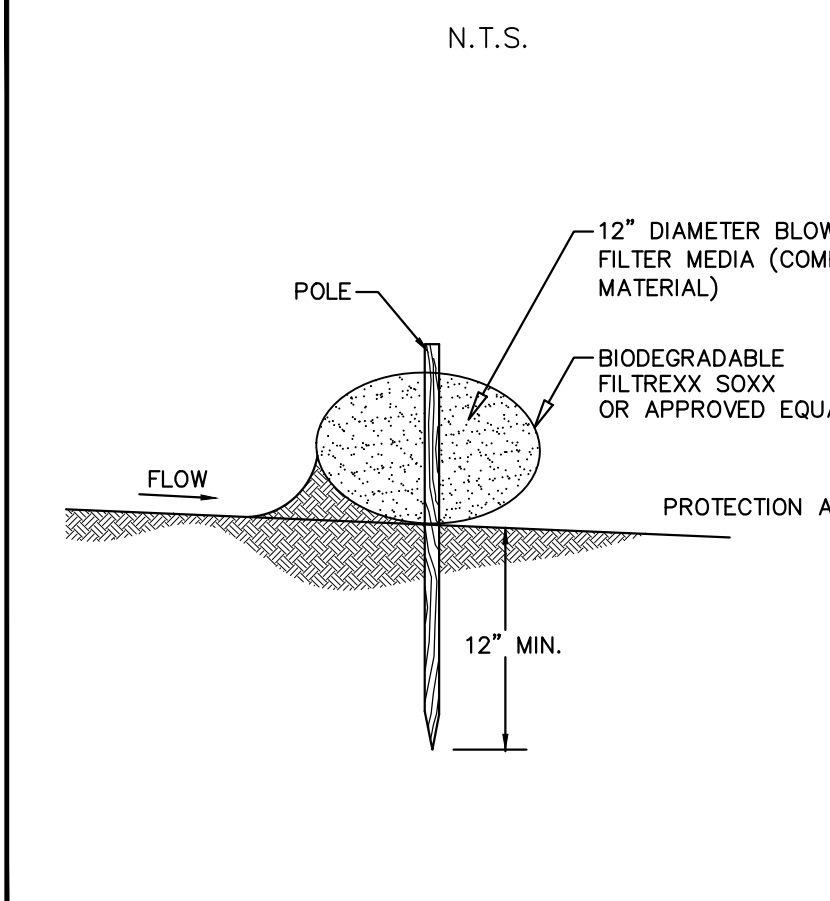
**END FEED / FLUSH MANIFOLD DETAIL**



**SMARTVENT DUAL FUNCTION FLOOD VENT DETAIL**



**FILTREXX SOXX BARRIER DETAIL**



**DESIGN CALCULATIONS**

SOIL TEXTURAL CLASS: CLASS 1  
 DESIGN PERC. RATE: < 2 MINUTES/INCH  
 NO. OF BEDROOMS: 3 BEDROOMS  
 DESIGN FLOW REQUIRED: 330 GPD  
 SEPTIC TANK REQUIRED: 1,500 GALLONS  
 SEPTIC TANK PROVIDED: 1,500 GAL. W/ MICROFAST 0.5  
 PUMP CHAMBER PROVIDED: 1,000 GALLON PRECAST TANK

LEACHING SYSTEM:  
 GEO-FLOW IRRIGATION DISPOSAL FIELD  
 SAND BED TO BE 506 S.F. WITH  
 463 LF OF GEO-FLOW DRIP TUBING

EFFECTIVE LEACHING: (BASED ON GENERAL USE APPROVAL)  
 LOADING RATE = 0.74 GPD/S.F.  
 (330 GPD)(0.74 GPD/SF) = 446 S.F. REQUIRED BED  
 (446 S.F.)(1" S.F./L.F. DRIP TUBING (1" SPACING)) = 446 L.F. REQUIRED

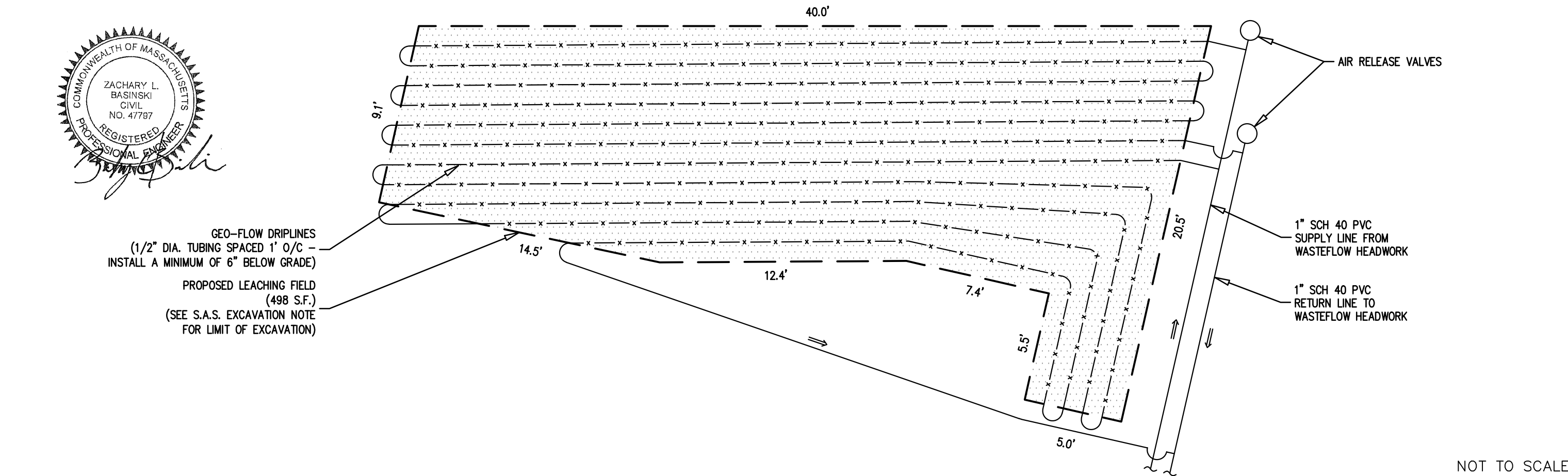
(506 S.F. PROVIDED)(0.74 GPD/SF) = 374 GPD > 330 GPD

PUMP CHAMBER CALCULATIONS  
 DOSING AND DRAIN BACK REQUIREMENTS  
 PER GEO-FLOW SPECIFICATIONS.  
 CONTRACTOR TO COORDINATE WITH  
 MANUFACTURER'S REPRESENTATIVE.

**GENERAL CONSTRUCTION NOTES "GEOFLOW" DRIP DISPERSAL SYSTEMS**

- THE SYSTEM SHALL NOT BE INSTALLED IN WET OR FROZEN SOILS.
- DO NOT PARK, DRIVE LARGE EQUIPMENT, OR STORE MATERIALS ON THE DISPERSAL AREA. NO ACTIVITY SHOULD OCCUR ON DISPERSAL AREA OTHER THAN THE MINIMUM REQUIRED TO INSTALL THE SYSTEM.
- ALL INSTALLATION AND CONSTRUCTION TECHNIQUES SHALL CONFORM TO STATE AND LOCAL CODES PERTAINING TO ON-SITE SEWAGE SYSTEMS AND THE PERMIT FOR THE SITE.
- THE INSTALLATION SHALL BE IN ACCORDANCE WITH SPECIFICATIONS AND PROCEDURES AS SUPPLIED BY THE MANUFACTURER OF THE EQUIPMENT.
- THE CONTRACTOR SHALL BE CERTIFIED TO INSTALL THIS TYPE OF SYSTEM AND SHOULD HOLD A PRE-CONSTRUCTION MEETING WITH THE INDIVIDUALS RESPONSIBLE FOR THE SITE DESIGN AND INSPECTIONS. THE MEETING SHOULD BE HELD PRIOR TO THE BEGINNING OF THE SITE WORK TO ENSURE PROTECTION OF THE SITE CONDITIONS AND TO ENSURE THAT THE SYSTEM IS INSTALLED ACCORDING TO DESIGN.
- IF SITE CONDITIONS ARE DETERMINED TO REQUIRE THE INSTALLATION OF THE SYSTEM TO DEVIATE FROM THE DESIGN PLANS, ALL WORK SHALL STOP IMMEDIATELY AND THE DESIGNER AND HEALTH AGENT SHALL BE NOTIFIED. ANY ON GOING WORK SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- DRIP TUBING MAY BE INSTALLED WITH A VIBRATORY PLOW, A STATIC PLOW, A NARROW TRENCHER (<6" WIDTH), BY HAND TRENCHING, OR BY SCARIFYING THE SURFACE AND BEDDING THE DRIP TUBING IN CLEAN SAND MEETING THE REQUIREMENTS FOR FILL MATERIAL IN TITLE V AT 310 CMR 15.255(3) WITH COVER CONSISTING OF SAND AND TOPSOIL MEETING THE 6" TO 12" DEPTH REQUIREMENT THE DESIGNER MAY INDICATE FOR THE TUBING TO BE INSTALLED UP TO 24" BELOW GRADE. ALL DRIP TUBING IS TO BE INSTALLED PARALLEL WITH THE CONTOUR. VEGETATIVE COVER MUST BE REPLACED FOR INSTALLATIONS WHERE IT IS REMOVED OR BURIED DURING INSTALLATION.
- ALL CUTTING OF RIGID PVC PIPE, FLEXIBLE PVC AND DRIP TUBING OF SIZE 1 1/2" OR SMALLER SHALL BE ACCOMPLISHED WITH PIPE CUTTERS APPROVED BY MANUFACTURER. NO SAWING OF PVC, FLEXIBLE PVC OR DRIP TUBING OF SIZE 1 1/2" OR SMALLER. ALL RIGID PVC PIPE, FLEXIBLE PVC AND DRIP TUBING IN THE WORK AREA SHALL HAVE THE ENDS COVERED WITH DUCT TAPE IS ALLOWED. TAPE AFTER CUTTING TO PREVENT CONSTRUCTION DEBRIS FROM ENTERING THE PIPE. PRIOR TO GLUING, ALL JOINTS SHALL BE INSPECTED. ALL PVC PIPE AND FITTINGS IN THE FIELD SHALL BE SCH 40. ALL GLUED JOINTS SHALL BE CLEANED AND CLEARED OF ANY DEBRIS. PRIMED WITH PVC PRIMER PRIOR TO BEING GLUED. ALL FORCE MAINS SHALL BE TESTED FOR LEAKS PRIOR TO BEING BACKFILLED BY PRESSURIZING THE SYSTEM AND OBSERVING FOR LEAKAGE.
- AIR RELIEF VALVES SHALL BE PLACED AT A HIGHER ELEVATION THAN THE DRIP TUBING IN THAT ZONE BUT BELOW THE GROUND SURFACE. AIR VENTS SHALL BE ACCESSIBLE FROM FINISHED GRADE AND INSULATED TO PREVENT FREEZING.
- THE SUPPLY LINES, DRIP TUBING MANIFOLDS, AND HEADERS SHALL BE SLOPED TO ALLOW EFFLUENT TO DRAIN BACK TO THE EFFLUENT PUMP (DOSING) CHAMBER BY GRAVITY TO PREVENT FREEZING OR INSTALLED AT A DEPTH OF LEAST FOUR FEET. THE DRIP TUBING SHALL BE DESIGNED TO DRAIN INTO THE SOIL UPON COMPLETION OF THE PUMP CYCLE.
- THE INSTALLER SHALL MAINTAIN ON-SITE, AT ALL TIMES DURING CONSTRUCTION, A COPY OF THE APPROVED PLANS, THE OWNER'S MANUAL, THE O&M MANUAL, AND A COPY OF THE APPROVAL.

**TYPICAL DISPOSAL SYSTEM SCHEMATIC**



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**SUBSURFACE SEWAGE DISPOSAL PLAN IN BOURNE, MASSACHUSETTS**  
 Prepared For:  
**BRENNAN FAMILY TRUST**  
 #4 KENNEBEC AVENUE MAP 47.1 PARCEL 45

No.	Date	Revision Description	By
1	04/08/22	REVISED FOR B.O.H. & Z.B.A. SUBMISSION	RED

Date: FEBRUARY 15, 2022 Drawn: RED/BEI Checked: ZLB/AMG Sheet: 2 of 2