

Bourne Board of Health
Application for Septic
Variance Requests

Bourne Health Department
24 Perry Avenue
Buzzards Bay, MA 02532

AUG 25 2022

RECEIVED



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

Messias C. Vasconcelos & Ana M. Alves

Facility's Street Address

"Lot 1" at 819 Head of the Bay Road

Owner's Telephone Number

Owner's contractor David Rebello cell: 508-523-9367

Owner's E-mail Address

David Rebello email: reb-enterpri-inc@charter.net

Owner's Mailing Address

Owner: 218 Maynard Street, Attleboro, MA 02703

^{\$125.00}
PAID
8/25/22

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

Preparer's Name

Christopher Gilbert

Company

Farland Corp. Inc.

Telephone Number

508-717-3479

E-mail Address

cgilbert@farlandcorp.com

Mailing Address

21 Ventura Drive

State/ Zip Code

Dartmouth, MA 02747

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

☒ Residential ☐ Commercial ☐ Institutional ☐ School ☐ Industrial

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

Proposed 4-bedroom single family dwelling.

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

☐ Pumped System ☒ Gravity System ☐ Pressure Dosed ☐ Other

☐ Conventional Title 5

☐ I/A System

6. Describe the proposed septic system components: 1,500 gallon 2 compartment "Fast Ready" septic tank, with Microfast 0.50 Fast Unit, 2 trenches of 6 Recharger 180HD chambers each, spaced 12' on center.

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

500 GPD

Design flow of proposed system:

440 GPD

Total design flow of facility:

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

N/A ☐ Hydrogeologic data for all leaching facilities proposed within 100ft of a wetland/ watercourse

N/A ☐ 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

Messias Vasconcelos

Date

8/17/22

Print Name

MESSIAS VASCONCELOS

Signature of Preparer

Christopher K. Gilbert

Date

8/17/22

Print Name

Christopher K. Gilbert

For Office Use Only

Completed Application Received: 8/25/2022

Reviewed By: tg

Hearing Date: 9/14/2022

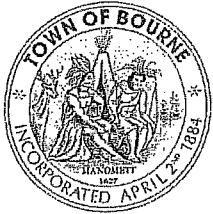
Permit #: _____

Circle all that apply: Approved Continued Disapproved Other

Notes: No changes from 2018 approval

Will need septic permit app + final architectural plans

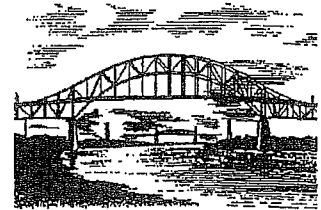
B-22-216



Terri A. Guarino
Health Agent

TOWN OF BOURNE BOARD OF HEALTH

24 Perry Avenue
Buzzards Bay, MA 02532
www.townofbourne.com/health
Phone (508) 759-0600 ext. 1513
Fax (508) 759-0679



September 28, 2018

Mr. Christopher Gilbert
Farland Corp., Inc.
401 County Street
New Bedford, MA 02740

Dear Mr. Gilbert:

At the duly posted public meeting on September 26, 2018, the Bourne Board of Health unanimously voted to approve a variance from the Board of Health 150' Setback Regulations for the proposed alternative septic system at 819 Head of the Bay Rd, Lot 1, Bourne, MA (map 14, parcel 51), owned by the 819 Bourne Realty Trust. As illustrated on the Site Plan dated March 20, 2018 and revised on September 19, 2018 by Farland Corp. Inc., the proposed septic system requires a 40 foot variance from the required 150 foot setback distance from the soil absorption system to the top of the coastal bank.

The Board felt as if this variance was in order where the proposed sewage disposal system will be comprised of a BioMicrobics MicroFAST 0.5 de-nitrification unit which will offer a substantial degree of environmental protection as it is approved by MassDEP for nitrogen reduction and the actual nitrogen load for the project as designed is less than 3.5 ppm. This variance is valid for two years from the date of approval and contingent upon an Innovative/ Alternative (I/A) Septic System Disclosure Notice recorded in the deed of the property, and confirmation that the architectural plans meet the Board of Health definition of a four-bedroom, single-family dwelling. It is understood that the owner(s) have familiarized themselves with the Bourne Board of Health I/A Septic System Regulations and specific testing requirements for the I/A technology as a condition of this approval.

The Board of Health requires receipt of a copy of the recorded disclosure notice and an Operation and Maintenance Agreement prior to issuance of a disposal works construction permit. It is also imperative that, should the property be subdivided into two lots, the existing nonconforming sewage disposal system for the structure in existence on Lot 1 shall be located and removed from Lot 2 prior to any transfers in title or changes in ownership. Please be advised that future modifications to the dwelling and/or sanitary sewage facility may require another hearing before the Bourne Board of Health. Should you have any questions, please do not hesitate to contact the Board of Health office at 508-759-0600 ext. 1513. Thank you.

Sincerely,

Terri Guarino, R.S.
Health Agent

C.C. Brent Warren, Trustee



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August 17, 2022

Bourne Board of Health
24 Perry Avenue
Buzzards Bay, MA 02740

**RE: Variance Request for Proposed Septic System
(Lot 1) 819 Head of the Bay Road – Bourne, MA**

Dear Members:

In accordance with the State Environmental Code, Title 5: 310 CMR 15.410, please accept this letter of request to be heard before the Board of Health at their next meeting to discuss relief from Board of Health Regulations for the installation of a new septic system at (Lot 1) 819 Head of the Bay Road, Bourne, MA. We respectfully request consideration of the following variances to accommodate our project:

- Reduction in the setback of the soil absorption system from a coastal bank from 150' to about 110'.

Enclosed is the completed variance application and design plans. We have notified all abutters as required and attached proof of mailing. Thank you in advance for your consideration of this request.

Very truly yours,

FARLAND CORP., INC.

Christopher K. Gilbert

Christopher K. Gilbert, EIT
Project Manager

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 ($\text{NO}_3\text{-N}$). Use the information from your PLAN OF RECORD to provide the following:

Number of bedrooms (Title 5 definition)	=	4	bedrooms
Lot size (in square feet)	=	123,840	sq. ft.
Impervious surfaces; **Roof area = 2,524 sq. ft. **Paved area	=	0	sq. ft.
Natural Area = lot area minus all impervious surfaces	=	121,316	sq. ft.
Lawn area in sq. ft.	=	10,587	sq. ft.

TITLE 5 FLOW = 110 GAL. / DAY PER BEDROOM
WASTEWATER FLOWS (NITROGEN LOAD & WATER LOAD)

Nitrogen from Title 5 design = 14,572 mg $\text{NO}_3\text{-N}$ / day / bedroom

Water from Title 5 design = 416.3 L H_2O / day / bedroom

1a) Number of bedrooms = 4 X 14,572 = 58,288 mg. $\text{NO}_3\text{-N}$ / day

1b) Number of bedrooms = 4 X 416 = 1,664 L H_2O / day

Actual Nitrogen load = 6071.5 mg $\text{NO}_3\text{-N}$ / day / bedroom

Actual Water load = 173.5 L H_2O / day / bedroom

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

2a) Number of bedrooms = 4 X 6071.5 = 24,286 mg. $\text{NO}_3\text{-N}$ / day

2b) Number of bedrooms = 4 X 173.5 = 694 L H_2O / day

IMPERVIOUS SURFACES (NITROGEN LOAD & WATER LOAD)

$\text{NO}_3\text{-N}$ load number sq. ft. of roof surface X 0.19395 mg $\text{NO}_3\text{-N}$ / sq. ft.

H_2O load number sq. ft. of roof surface X 0.2586 L / sq. ft.

3a) Roof surface = 1773 sq. ft. X 0.19395 = 343.9 mg $\text{NO}_3\text{-N}$

3b) Roof surface = 1773 sq. ft. X 0.2586 = 458.5 L H_2O

$\text{NO}_3\text{-N}$ load number sq. ft. of paved surface X 0.388 mg / sq. ft.

H_2O load number sq. ft. of paved surface X 0.2586 L / sq. ft.

4a) $\text{NO}_3\text{-N}$ = 0 sq. ft. paved surface X 0.388 mg / sq. ft. = 0 mg $\text{NO}_3\text{-N}$

4b) H_2O = 0 sq. ft. paved surface X 0.2586 L / sq. ft. = 0 L H_2O

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

5) sq. ft. of lawn = 10,587 X 0.933 = 9,877.7 mg

NATURAL AREA WATER LOADING

Natural area = lot size - impervious surface = 121,316 sq.ft.

6) Natural area = 121,316 X water recharge factor = 16,474.7 L
(0.1358 L / sq. ft. for Bourne)¹

SUMMARY OF NITROGEN LOADING

Estimated Title 5 Nitrogen & Water Loading

7a) ADD the above NO₃N load:

1a	+	3a	+	4a	+	5	
58,288	+	343.9	+	0	+	9,877.7	= 68,509.6 mg NO ₃ -N / day

7b) ADD the above water (H₂O) load:

1b	+	3b	+	4b	+	6	
1,664	+	458.5	+	0	+	16,474.7	= 16,059.2 L H ₂ O / day

7c) DIVIDE 7a by 7b = 4.27 ppm NO₃-N*****

Actual Nitrogen & Water Loading

8a) ADD the above NO₃N load:

2a	+	3a	+	4a	+	5	
24,286	+	343.9	+	0	+	9,877.7	= 34,507.6 mg NO ₃ -N / day

8b) ADD the above water (H₂O) load:

2b	+	3b	+	4b	+	6	
694	+	458.5	+	0	+	16,474.7	= 17,627.2 L H ₂ O / day

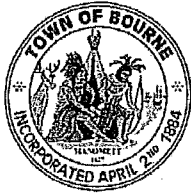
8c) DIVIDE 8a by 8b = 1.96 ppm NO₃-N*****

FINAL CALCULATION ADD 7c & 8c (ppm) = 6.23 divide by 2 = 3.12 ppm NO₃-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*******

¹ Water recharge factors for data line 6: @21' / yr. use 0.1358 in Bourne and Falmouth; @ 19" / yr. use 0.1228 for Mashpee & Sandwich; @ 18" / yr. 0.1164 for Barnstable, Dennis & Yarmouth; @ 17" / yr. use 0.1101 for Brewster & Harwich; @ 16" / yr. use 0.1031 for Chatham, Eastham, Orleans, Provincetown, Truro & Wellfleet.



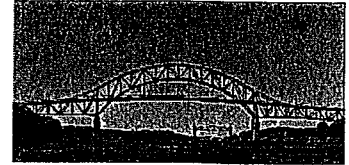
TOWN OF BOURNE

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

August 12, 2022

Christopher Gilbert – Farland Corp. Inc.
21 Ventura Drive
Dartmouth, MA 02747

Re: Abutters List for Map 14 Parcel 51
Property address: 819 Head of the Bay Road

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 14 Parcels 31, 32, 70, 71, 80 and Hideaway Village Condo Association..

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 2428, 2429, 15517, 2740, 2741, 2750
 Sort:

Report #24: Owner Listing Report

Fiscal Year 2023

Bourne MA

Key	Parcel ID	Owner	Location	LCU/L	BLK-Pct(Cert)/Dt	Mailing Street	Mailing City	ST	Zip Cd/County
2428	14.0-31-0	TOWN OF BOURNE	0 PINE RIDGE RD	N 9300	27835/264 11/21/2013	24 PERRY AVE	BUZZARDS BAY	MA	02532
2429	14.0-32-0	HERBST-THERMANN ANNETTE ETUX JEFFREY M HERBST	854 HEAD OF THE BAY RD	N 0160	22371/148 9/28/2007	854 HEAD OF THE BAY RD	BUZZARDS BAY	MA	02532
15517	14.0-48-0	HIDEAWAY VILLAGE ASSN	9-S BOG VIEW DR	N 1020	38707/191 9/20/1983	c/o GREAT NORTH PROP MGMT 3 HOLLAND WAY	EXETER	NH	03833
2740	14.0-70-0	BALLINGER EDWARD P & SALLY A BALLINGER	800 HEAD OF THE BAY RD	N 1010	10187/29 5/6/1996	800 HEAD OF THE BAY RD	BUZZARDS BAY	MA	02532-2188
2741	14.0-71-0	GIARD DOUGLAS M & JOAN E GIARD	2 MORNING MIST LN	N 1010	10752/246 5/18/1997	2 MORNING MIST LN	BUZZARDS BAY	MA	02532-2189
2750	14.0-80-0	PIECHOTA REGINALD J JR	1 MORNING MIST LN	N 1010	10407/832 9/27/1996	1 MORNING MIST LANE	BUZZARDS BAY	MA	02532-2100

Total Records 6



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August 16, 2022

Town of Bourne
24 Perry Avenue
Buzzards Bay, MA 02532

RE: Notice of Public Hearing

Dear Town of Bourne:

In accordance with the State Environmental Code, Title 5: 310 CMR 15.411, you are hereby notified that 819 Bourne Realty Trust has requested a hearing before the Bourne Board of Health for relief from Bourne Board of Health Regulations for the installation of a septic system. The location of the property for this proposal is (Lot 1) 819 Head of the Bay Road, Bourne, MA where you are listed as an abutter. At said hearing the Board will discuss and possibly vote on:

- Reduction in the setback of the soil absorption system from a coastal bank from 150' to about 110'.

This hearing is tentatively scheduled for September 14th, 2022. Information regarding the hearing may be available for your review one week prior to the meeting at the Bourne Health Department, 24 Perry Avenue, Buzzards Bay, Monday through Friday from 8:30am until 4:30pm.

Meeting agendas are posted on the Town of Bourne website, 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 me or the Bourne Health Department at 508-759-0600 ext. 1513.

Very truly yours,

FARLAND CORP., INC.

Christopher K. Gilbert
Christopher K. Gilbert, EIT
Project Manager

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<input type="checkbox"/> Adult Signature Required	\$
<input type="checkbox"/> Adult Signature Restricted Delivery	\$

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AUG 25 2022
NORTH DARTMOUTH 02747

Douglas & Joan Giard
2 Morning Must Lane
Buzzards Bay, MA 02532

For instructions

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NORTH DARTMOUTH 02747

Jeffrey & Annette Herbst
854 Head of the Bay Road
Buzzards Bay, MA 02532

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NORTH DARTMOUTH 02747

Hideaway Village Association
C/O Great North Property Management
3 Holland Way
Exeter, NH 03833

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AUG 25 2022
NORTH DARTMOUTH 02747

Edward & Sally Ballinger
800 Head of the Bay Road
Buzzards Bay, MA 02532

For instructions

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AUG 25 2022
NORTH DARTMOUTH 02747

Reginald Piechota
1 Morning Mist Lane
Buzzards Bay, MA 02532

For instructions

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AUG 25 2022
NORTH DARTMOUTH 02747

Reginald Piechota
1 Morning Mist Lane
Buzzards Bay, MA 02532

For instructions

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:

819 Head of the Bay Road ("Lot 1") - Bourne, MA 02532

TITLE REFERENCE FOR PROPERTY SERVED BY ALTERNATIVE SYSTEM *[check and complete each that applies]:*

- ☒ Deed recorded with the Barnstable Registry of Deeds in Book 34718, Page 172
☐ Certificate of Title No. _____ issued by the Land Registration Office of the _____
Registry District
☐ Source of title other than by deed _____

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

Messias C. Vasconcelos & Ana M. Alves

OWNER(S) MAILING ADDRESS:

218 Maynard Street, Attleboro, MA 02703

[If Alternative System Owner(s) is other than Property Owner(s), complete the following:]

Alternative System Owner Name: _____

Alternative System Owner Address: _____

Alternative System Owner Telephone Number: _____ E-mail Address: _____

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. 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:

FAST Systems

Manufacturer Name:

Bio-Microbics, Inc.

Model number(s):

MicroFAST 0.5

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

<https://www.mass.gov/guides/title-5-innovativealternative-technology-approval-letters>

2. Approval/Certification. On _____ [date], 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 _____ [Transmittal Number].

[Check one of the following, as applicable:]

- ☐ Approved for remedial use under 310 CMR 15.284
- ☐ Approved for piloting under 310 CMR 15.285
- ☐ Provisionally approved under 310 CMR 15.286
- ☐ Certified for general use under 310 CMR 15.288

****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 _____ (**name of document signer**), 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)

[Complete the following Property Owners Consent if Alternative System Owner is other than the Property Owner:]

CONSENTED TO:

[Property Owner(s)]

Print Name(s):

COMMONWEALTH OF MASSACHUSETTS

_____, ss

On this ____ day of _____, 20__, before me, the undersigned notary public, personally appeared _____ (**name of document signer**), 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)

Approved and Accepted By:

Agent of the Board of Health
Health Department
Town of Bourne

Attachment: Bourne Board of Health Variance Approval Notice



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

CERTIFICATION FOR GENERAL USE

Pursuant to Title 5, 310 CMR 15.000

Name and Address of Applicant:

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

Trade name of technology and models:

FAST Treatment Systems with Nitrogen Reduction including models *MicroFAST® 0.5, 0.75, 0.9, 1.5, 3.0, 4.5, 9.0*, *HighStrengthFAST® 1.0, 1.5, 3.0, 4.5, 9.0* and *NitriFAST® 0.5, 0.75, 1.0, 1.5, 3.0, 4.5, 9.0* (all hereinafter the "System") for facilities with design flows less than 2,000 gallons per day (GPD). Schematic drawings illustrating the models and an Inspection Checklist are part of this Certification.

Transmittal Number: X232831

Date of Issuance: December 29, 2010, revised March 20, 2015

Authority for Issuance:

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental Protection (hereinafter "the Department") hereby issues this General Use Approval to: Bio-Microbics, Inc., 8450 Cole Parkway, Shawnee, KS 66227 (hereinafter "the Company"), approving the above referenced FAST technology (hereinafter "the Technology" or "System") for use in the Commonwealth of Massachusetts subject to the conditions herein. Sale and use of the Technology are subject to compliance by the Company, the Designer, the System Installer, the Operator, and the System Owner with the terms and conditions herein. Any noncompliance with the terms or conditions of this Certification constitutes a violation of 310 CMR 15.000.

David Ferris, Director
Wastewater Management Program
Bureau of Water Resources

March 20, 2015

Date

I. Purpose

This information is available in alternate format. Call Michelle Waters-Ekanem, Diversity Director, at 617-292-5751. TTY# MassRelay Service 1-800-439-2370
MassDEP Website: www.mass.gov/dep

Printed on Recycled Paper

1. Subject to the conditions of this Approval and any other local requirements, the purpose of this Approval is to allow the use of the System in Massachusetts on a General Use basis. With the necessary permits and approvals required by 310 CMR 15.000, this Certification authorizes the installation and use of the System in Massachusetts.
2. The System may be installed for residential facilities with design flow less than 2,000 GPD where a system in compliance with 310 CMR 15.000 exists on-site or could be built and for which a site evaluation in compliance with 310 CMR 15.000 has been approved by the local approving authority; or by the Department if Department approval is required by 310 CMR 15.000. This Approval allows for the use of the System as an equivalent alternative technology in accordance with 310 CMR 15.202 on facilities for nitrogen reduction in a Department designated nitrogen sensitive or limited area as defined in 310 CMR 15.214 and 15.215.

Non-residential facilities are not allowed under this approval. Non-residential facilities include properties with businesses and/or commercial establishments.

3. The technology shall meet or exceed the following effluent discharge requirements:
 - Effluent Total Nitrogen (TN) concentration of 19 mg/L (for 660 gallons per day per acre -gpda- loading) or 25 mg/L (for 550 gpda loading).
 - Effluent pH range shall be 6.0 to 9.0.
 - The System is approved for use at facilities with a maximum design flow less than 2,000 GPD.
4. The System Owner or the designated System Operator (or 'Operator') has responsibility for oversight and sampling of the System if the property served was allowed to increase the discharge rate per acre above 440 gpda in an area subject to Nitrogen Loading Limitations.

The System Owner will be required to repair, replace, modify or take any other action as required by the Department or the local approving authority, if the Department or the local approving authority determines that the System is not capable of meeting the required reduction in nitrogen in the effluent.

The Company is responsible for the approved technology as described below.

II. General Description of the Technology and Design Standards

1. The tank containing the FAST® insert is installed between the building sewer and the soil absorption system (SAS). The SAS shall be designed and constructed in accordance with 310 CMR 15.100 - 15.279 and subject to the provisions of this Certification.
2. Technology Description - The FAST® system is an aerobic wastewater treatment system that utilizes a completely submerged fixed film process to treat organics and nitrify, and a passive recycle system for denitrification. Each model contains submerged media specific to the application. Microorganisms grow on the media and remove soluble contaminants from the wastewater, utilizing them as a source of energy for growth and production of new microorganisms. The FAST® system insert consists of a liner around the media and an airlift to provide aeration and mixing within the confines of the liner. The area outside the liner in the septic tank remains anoxic for denitrification and a passive recirculation system

moves the aerated wastewater to the outside of the liner to obtain denitrification. The aeration and circulation inside the liner are provided by a blower that pumps air into a draft tube that extends down the center of the media. Treated effluent passes out of the aerobic zone of the treatment plant through a pipe connected directly to a baffled quiescent area in the liner. Final effluent is discharged to a soil absorption system. Specific model considerations are as follows:

- 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.
 - The MicroFAST®, HighStrengthFAST® and NitriFAST® 1.5 are installed in the second compartment of a two compartment 3000-gallon tank constructed in accordance with 310 CMR 15.226.
 - The MicroFAST®, HighStrengthFAST® and NitriFAST® 3.0 is installed in a separate tank constructed in accordance with 310 CMR 15.226 and 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). In this larger system, an additional recycle pump may be needed to send nitrified effluent back to the septic tank for added denitrification. Consult the Company for proper layout.
 - The NitriFAST® models can also be used for additional nitrification in series after the MicroFAST® models or HighStrengthFAST® models. In this configuration the tanks used for the NitriFAST® shall be constructed in accordance with 310 CMR 15.226 and meet the minimum dimensions and volumes required by the Company.
 - Flow equalization may also be employed prior to the FAST® system depending on the type of facility. Consult Company for proper layout.
3. All access ports and manhole covers shall be readily removable, of durable material and installed and maintained at grade to allow for maintenance of the System. No structures shall be located directly upon or above the access locations which could interfere with performance, access, inspection, pumping, or repair. Sufficient access for infrequent maintenance of the System treatment media and all other treatment works shall be evaluated, and addressed in the System design if necessary, by the designer. System control panel(s) including alarms shall be mounted in a location accessible to the operator of the System.
4. Wastewater Loading and Effluent Concentration Design Standards
- For new residential construction in an area subject to the Nitrogen Loading Limitations of 310 CMR 15.214, and the facility does not meet with the Nitrogen Loading Limitations pursuant to the aggregation provisions of 310 CMR 15.216, an increase in calculated nitrogen loading per acre is allowed for facilities with design flow less than 2000 gpd with limitations as follows:
- The design flow shall not exceed 660 gallons per day per acre (gpda) and the total nitrogen (TN) concentration in the effluent shall not exceed 19 milligrams per liter (mg/L); or

- The design flow shall not exceed 550 gallons per day per acre (gpda) and the total nitrogen (TN) concentration in the effluent shall not exceed 25 milligrams per liter (mg/L).
- TN is measured as the total of TKN (Total Kjeldhal Nitrogen), NO₃-N (Nitrate nitrogen) and NO₂-N (Nitrite nitrogen).

III. General Conditions

1. The provisions of 310 CMR 15.000 is applicable to the use and operation of this System, the System owner and the Company, except those that specifically have been varied by the terms of this Certification.
2. Any required operation and maintenance, monitoring and testing shall be performed in accordance with a Department approved plan. Any required sample analysis shall be conducted by an independent U.S. EPA or DEP approved testing laboratory, or a DEP approved independent university laboratory, unless otherwise provided in the Department's written approval. It shall be a violation of this Certification to falsify any data collected pursuant to an approved testing plan, to omit any required data or to fail to submit any report required by such 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 or 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 sanitary sewer system. Accordingly, no System shall be upgraded or expanded, if it is feasible to connect the facility to a sanitary sewer, unless as allowed by 310 CMR 15.004.
6. Design, installation, and use of the System shall be in strict conformance with the Company's DEP approved plans and specifications and 310 CMR 15.000, subject to this Certification.

IV. Conditions Applicable to the System Owner

1. The System owner shall at all times have the System properly operated and maintained by a Company approved Operator in accordance with this Certification, the designer's operation and maintenance requirements and the Company's approved procedures.
2. The System is certified only in connection with the discharge of sanitary wastewater from facilities with a design flow of less than 2000 gpd. Any non-sanitary wastewater generated and/or used at the facility served by the System shall not be introduced into the System and shall be lawfully disposed of.

3. The System Owner shall provide access to the site for the System Operator to perform inspections, maintenance, repairs, responding to alarm events, field testing, and sampling as may be required by the Approval.

Operation and Monitoring Requirements

4. System effluent total nitrogen (TN) concentrations shall not exceed 19 or 25 mg/L and effluent pH shall not be less than 6.0 or more than 9.0. Field test observations of dissolved oxygen (DO) shall equal or exceed 2 mg/L and for Turbidity shall be equal or less than 40 NTU.
5. All samples shall be taken at a flowing discharge point, i.e. distribution box, pipe entering a pump chamber or other Department approved location from the treatment unit.
6. Inspection, operation and maintenance (O&M), sampling, and field testing of the System required by the Approval shall be performed by a Company approved Operator who has been certified at a minimum of Grade Level 4 (four) by the Board of Registration of Operators of Wastewater Treatment Facilities, in accordance with Massachusetts regulations 257 CMR 2.00, and is an approved Title 5 System Inspector in accordance with 310 CMR 15.340.
7. Prior to commencement of construction of the System, the System Owner shall provide to the local approving authority a copy of a signed O&M Agreement that meets the requirements of paragraph IV (8).
8. The System Owner shall maintain, at all times, an O&M Agreement with a qualified System Operator approved by the Company. The Agreement shall be at least for one year and include the following provisions:
 - a) The name of a System Operator who is an approved System Inspector in accordance with 310 CMR 15.340 and who meets any additional qualification requirements specified in the Approval;
 - b) The System Operator must inspect the Alternative System as required by paragraph IV (9) and (12);
 - c) The System Operator shall be responsible for submitting the monitoring results to the System Owner in accordance with paragraph IV (13) and to the local approving authority in accordance with paragraph IV (14); and
 - d) In the case of a System failure, an equipment failure, alarm event, components not functioning as designed, or violations of the Approval, procedures and responsibilities of the System Operator and System Owner shall be clearly defined for corrective measures to be taken immediately. The System Operator shall agree to provide written notification within five days, describing corrective measures taken, to the System Owner and the local board of health.
9. The System Owner shall comply with the following monitoring requirements if the System is subject to a TN concentration limit in accordance with paragraph II (4):

- a) Year-round installations shall be inspected and have effluent sampled for at least the TN parameter quarterly for the first year, then a minimum of twice/year thereafter, at least 5 months apart and with at least one sample taken between December 1 and March 1 of each year. Field testing shall be completed per paragraph IV (11) below, and as determined necessary by the System Operator. See DEP Field Testing Protocol at <http://www.mass.gov/dep/water/laws/policies.htm#t5pols>. Wastewater flow shall be recorded at each inspection, see 'Flow Metering' paragraph IV (10).
- b) Seasonal installations shall be inspected and have effluent sampled for at least the TN parameter a minimum of twice/year. At least one sample must be taken 30 to 60 days after each seasonal occupancy begins. A second sample must be taken no less than 2 months after the first sample. Field testing shall be completed per paragraph IV (11) below, and as determined necessary by the System Operator. Wastewater flow shall be recorded at each inspection, see 'Flow Metering' paragraph IV (10).
- c) Systems in operation prior to issuance of this Approval, which have received approval of sampling reduction from the Department may continue with that System monitoring frequency.

Properties occupied at least 6 months per year are considered year-round properties. Properties occupied less than 6 months per year are considered seasonal properties.

TN is measured as the total of TKN (Total Kjeldhal Nitrogen), NO₃-N (Nitrate nitrogen) and NO₂-N (Nitrite nitrogen).

- 10. Flow Metering: Reporting of residential System water use is not required, however it is recommended the Operator record water meter readings if available at all inspections, or otherwise estimate System flow, to assist in addressing possible operational problems or issues. Flow measurement when recorded shall be based on:
 - a) actual metering data of wastewater flow to the System or actual water meter data of flow to fixtures that discharge to the wastewater system; or
 - b) actual water meter data for the total facility with either actual meter data or estimated flows for non-wastewater usage subtracted from the total facility water usage. If estimating the wastewater portion of metered water usage, the System Operator shall provide a best estimate of wastewater discharged to the System with the method of estimating, such as pump run times, occupancy rates, adjustment due to seasonal outdoor watering use, etc.; or
 - c) for Systems installed under a prior Approval that did not include a wastewater flow data reporting requirement, if no flow meters are available, the System Operator shall provide a best estimate of wastewater discharged to the System with the method of estimating, such as pump run times, occupancy rate, etc.
- 11. Field Testing: Temperature, turbidity, pH and DO shall be measured and recorded in the field whenever the effluent is sampled for TN. See applicable sections of the Department's Field Testing Protocol at <http://www.mass.gov/dep/water/laws/policies.htm#t5pols>.

12. At a minimum, the System Operator shall inspect the System:
 - a) quarterly for the first year then two times per year thereafter;
 - b) in accordance with the approved O&M manual, the Designer's operation and maintenance requirements, and the requirements of the local approving authority; and
 - c) any time there is an alarm event, equipment failure, or system failure.

Recordkeeping and Reporting

13. Within 60 days of any site visit, the System Operator shall submit an O&M report and inspection checklist to the System Owner and the Company. It is recommended the System Owner and Company maintain copies of these items for possible Department audit. The O&M report shall include, at a minimum:
 - a) for a System failing, any corrective actions taken;
 - b) wastewater analyses, wastewater flow data, field testing results and inspection checklists;
 - c) any violations of the Approval;
 - d) any determinations that the System or its components are not functioning as designed or in accordance with the Company specifications; and
 - e) any other corrective actions taken or recommended.
14. By February 15th of each year the System Owner or the System Operator if designated by the owner, shall submit to the local approving authority all monitoring results with all O&M reports and inspection checklists completed by the System Operator during the previous 12 months.
15. Upon determining that the System has failed, as defined in 310 CMR 15.303, the System Operator shall notify the System Owner immediately.
16. Upon determining that the System has failed, as defined in 310 CMR 15.303, the System Owner and the System Operator shall be responsible for the notification of the local approving authority within 24 hours of such determination.
17. The System Owner shall notify the Approving Authority and the Company in writing within seven days of any cancellation, expiration or any other change in the terms and/or conditions of the O&M Agreement required by Paragraph IV (8).
18. Violations of the TN concentration in the System effluent shall not constitute a failure of the System for the purposes of 24-hour notification or 5-day written reporting as required in Paragraphs IV (16) and (8).
19. The System owner shall provide a copy of this Approval, prior to the signing of a purchase and sale agreement for the facility served by the System or any portion thereof, to the proposed new owner.

20. The System owner shall furnish the Department any information that the Department requests regarding the System, within 21 days of the date of receipt of that request.
21. Prior to issuance of a Certificate of Compliance of the System, and after recording and/or registering the Notice required by 310 CMR15.287(10), the System Owner shall provide to the Local Approving Authority a copy of: (i) a certified Registry copy of the Notice bearing the book and page/or document number; and (ii) if the property is unregistered land, a Registry copy of the System Owner's deed to the property, bearing a marginal reference on the System Owner's deed to the property. The Notice to be recorded shall be in the form of the Notice provided by the Department.
22. Prior to signing any agreement to transfer 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 the 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 of thereof a copy of the Approval for the System. The System Owner shall send a copy of such written notification(s) to the Local Approving Authority within 10 days of giving such notice to the transferee(s).

V. 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 Certification is 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 Certification applicable to the Company shall be applicable to successors and assigns of the Company, unless the Department determines otherwise.
2. The Company shall develop maintain and update as necessary the following: minimum installation requirements; an operating manual, including information on substances that should not be discharged to the System; a maintenance checklist; and a recommended schedule for maintenance of the System consistent with the Department's requirements essential to consistent successful performance of the installed Systems.
3. The Company shall institute and maintain a program of operator training and continuing education. The Company shall maintain and annually update, and make available the list of qualified operators by February 15th and make the list known to local approving authorities, the Department and to users of the technology.
4. The Company shall furnish the Department any information that the Department requests regarding the System, within 21 days of the date of receipt of that request.
5. The Company shall include copies of this Certification and the procedures described in Section V (3) with each System that is sold. 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 Certification and the procedures described in Section V (3).

6. A copy of the wastewater analyses, wastewater flow data, field testing results, and System Operator O&M reports and inspection checklists from each installed System shall be maintained by the Company or its designee for possible Department audit.
7. If the Company wishes to continue this Certification after its expiration date, the Company shall apply for and obtain a renewal of this Certification. The Company shall submit a renewal application at least 180 days before the expiration date of this Certification, unless written permission for a later date has been granted in writing by the Department. This Certification shall continue in force until the Department has acted on the renewal application.

VI. Conditions Applicable to the System Designer

1. Upon submission of an application for a DSCP, the Designer shall provide to the local approving authority:
 - a) a certification, signed by the owner of record for the property to be served by the System, stating that the property owner:
 - i) has been provided a copy of the Approval, the Owner's Manual, and the Operation and Maintenance Manual, if applicable, and the Owner agrees to comply with all terms and conditions;
 - ii) has been informed of all the owner's costs associated with the operation including, when applicable: power consumption, maintenance, sampling, recordkeeping, reporting, and equipment replacement;
 - iii) understands the requirement for a service contract;
 - iv) agrees to fulfill his responsibilities to provide a Deed Notice as required by 310 CMR 15.287(10) and the Approval;
 - v) agrees to fulfill his responsibilities to provide written notification of the Approval to any new owner, as required by 310 CMR 15.287(5);
 - vi) if the design does not provide for the use of garbage grinders, the restriction is understood and accepted;
 - vii) if the design is for an upgrade of failed or nonconforming system, the System Owner has been provided a copy of the evaluation of the existing system;
 - viii) whether or not covered by a warranty, the System Owner understands the requirement to repair, replace, modify or take any other action as required by the Department or the local approving authority, if the Department or the local approving authority determines that the Alternative System is not capable of meeting the performance standards; and
 - b) a certification, signed by the Designer that the design conforms to the Approval with Conditions and 310 CMR 15.000.

VII. Reporting

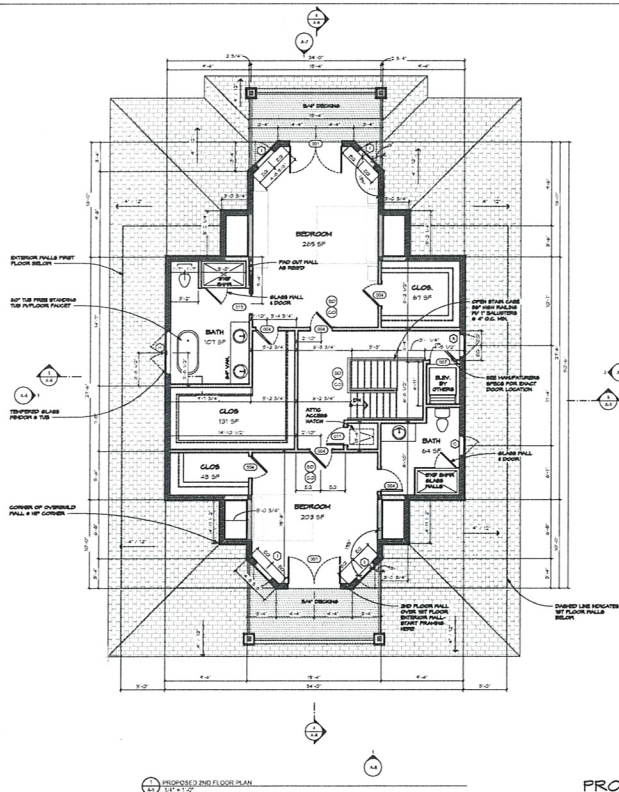
1. All notices and documents required to be submitted to the Department by this Certification shall be submitted to:

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 Certification for cause, including, but not limited to, non-compliance with the terms of this Certification, non-payment of the annual compliance assurance fee, for obtaining the Certification 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 Certification, 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 Certification and/or the System against the owner or operator of the System and/or the Company.

Transmittal: X232831 (formerly W101238)



PROPOSED SECOND FLOOR PLAN
1/4\"/>

PROPOSED SECOND FLOOR PLAN

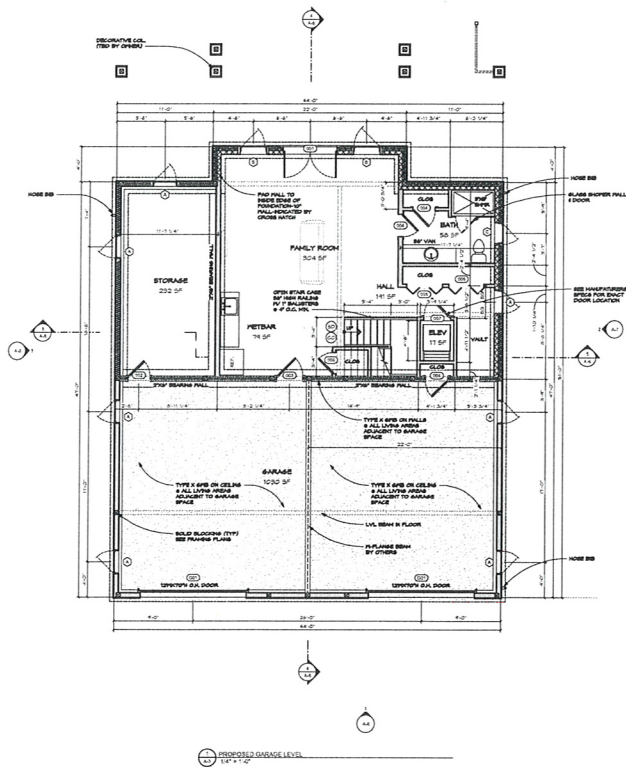
DATE: MARCH 10, 2022
SCALE: 1/4\"/>

PROJECT: 20AIA-22


PROPOSED HOME DESIGN
ALYES RESIDENCE
AJA GROUP, INC.
16 MASON AVENUE, SUITE 5 NORTH ATTLEBORO, MA 01760

(781) 335-2500

A-5



GARAGE FLOOR PLAN

	DATE: MARCH 30, 2022 SCALE: 1/4" = 1'-0" DRAWN: R.M.D.
 AIA	
PROPOSED HOME DESIGN	
ALVES RESIDENCE AIA GROUP, INC. 18 MASON AVENUE, SUITE 5 NORTH ATTLEBORO, MA 02760 (781) 935-2500	A-3