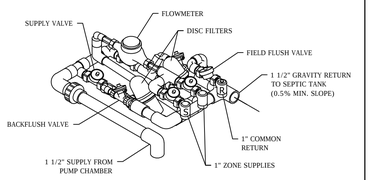
GENERAL CONSTRUCTION NOTES:

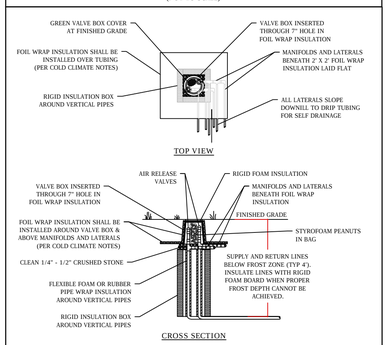
1. The system shall not be installed in wet or frozen soils.
2. Do not park, drive large equipment, or store materials on the dispersal area. No activity should occur on the dispersal area other than the minimum required to install the system.
3. All installation and construction techniques shall conform to the state and local codes pertaining to on-site wastewater systems and the permit for the site.
4. 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 inspector shall be notified. Any ongoing work shall be the sole responsibility of the contractor.
5. Drip tubing may be installed with a vibratory plow, a static plow, a narrow trencher (< 6" wide), by hand trenching, or by scarifying the surface and bedding the drip tubing in clean sand meeting the requirements for fill material in the state code. For sand fill systems, cover consisting of 2" of the same sand and then topsoil meeting the approved depth requirement shall be provided.
6. All drip tubing is to be installed parallel to the contour.
7. Air release valves shall be placed below the ground surface in an insulated valve box but at an elevation above the highest drip line in that particular zone.
8. Vegetative cover must be replaced for installations where it is removed or buried during installation.
9. All cutting of rigid pvc pipe, flexible pvc, and drip tubing of size 2" or smaller shall be accomplished with pipe cutters. No sawing is allowed.
10. All rigid PVC pipe, flexible PVC pipe and drip tubing shall have the ends covered with duct tape after cutting to prevent construction debris from entering the pipe.
11. Prior to gluing, all joints shall be inspected for and cleared of any debris. All joints shall be cleaned and primed with pvc primer prior to being glued.
12. All PVC pipe and fittings shall be sch 40.
13. Wherever possible, all force mains shall be tested for leaks prior to being back-filled by pressurizing the system and observing for leakage.
14. The hydraulic unit shall be placed on top of the septic/treatment tank, pump chamber, or on a bed of 4" - 6" thick 3/4" gravel in a location within 30' of the pump.
15. If standing water is a problem in the vicinity of the hydraulic unit, a screened drain to daylight is required.
16. Electrician to provide separate circuits for the pump and controls/alarm, or as required by state and local codes.
17. All conduit entering the control panel shall be sealed at both ends to prevent condensation or gases inside the panel.

COLD CLIMATE NOTES:

1. All attempts should be made to place the hydraulic unit in a location with an open southern exposure for warming purposes.
2. All pipes entering and leaving the hydraulic unit shall elbow vertically down 90 degrees to a depth below the frost line prior to extending away from the unit horizontally.
3. The supply and return lines shall be installed below the frost line. When this is not possible, rigid foam insulation (min 1" thick) shall be placed over those pipes that are above the frost line.
4. The vertical sections of pipe that travel through the frost zone and connect the supply and return lines to the manifolds shall be insulated wh 40 pvc pipe. Insulation shall consist of foam pipe wrap insulation and 1" rigid foam insulation strips made into a box. (see insulation detail)
5. Foil wrap insulation shall be placed over the supply/return manifolds and loop connectors so that at least 1' of insulation extends each direction beyond the fittings. (see insulation detail)
6. Air release valve enclosures shall be insulated with bagged Styrofoam peanuts, foil wrap insulation, and rigid foam insulation inside the lid. (see insulation detail)
7. All loops connecting drip runs shall be slightly elevated (minimum 1" - 2") so that they drain into the drip tubing after the pump shuts off. It is the contractor's responsibility to ensure that these loops stay elevated during and after the loops are backfilled.
8. Dense vegetative cover is to be established over the supply trench, return trench, manifolds, and drip tubing prior to the first exposure to freezing temperatures. If vegetation cannot be established then the entire drip dispersal field is to be covered with a thick layer (minimum 6") of mulch, straw/hay, or frost blanket until such turf cover is established.
9. Vegetation height over the drip dispersal area should be a minimum of 4" - 6" throughout the winter months.

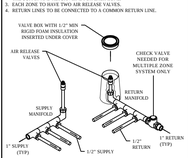


PERC-RITE HYDRAULIC UNIT (15 GPM)
(NOT TO SCALE)



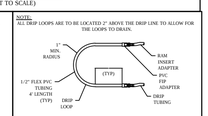
INSULATION DETAIL
(NOT TO SCALE)

NOTES:
1. ALL RIGID AND FLEXIBLE PVC ARE TO BE LOCATED ABOVE THE DRIP LINE TO ALLOW THE PIPES TO DRAIN.
2. THE AIR RELEASE VALVES SHALL BE PLACED AT THE HIGHEST POINT ON EACH ZONE TO ALLOW AIR TO ESCAPE THE LINES.
3. EACH ZONE TO HAVE TWO AIR RELEASE VALVES.
4. RETURN LINES TO BE CONNECTED TO A COMMON RETURN LINE.

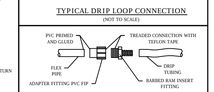


TYPICAL MANIFOLD CONNECTION
(NOT TO SCALE)

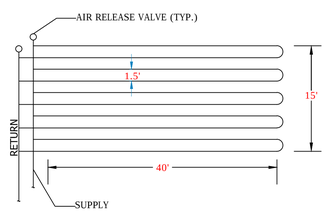
NOTE:
ALL DRIP LOOPS ARE TO BE LOCATED 2" ABOVE THE DRIP LINE TO ALLOW FOR THE LOOPS TO DRAIN.



TYPICAL DRIP LOOP CONNECTION
(NOT TO SCALE)

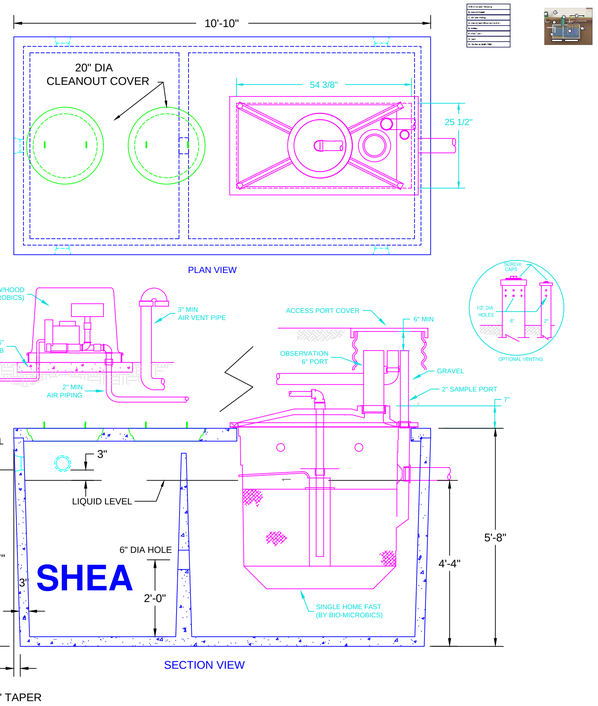


CONNECTING DRIP TUBING TO FLEXIBLE PVC PIPE



SIDE FEED Z152 ZONE DETAIL
(NOT TO SCALE)

*FOR DRIP DISPERSAL FIELDS WITH NO DISCERNIBLE SLOPE



ITEM NO 1500MCF5I 11,900#

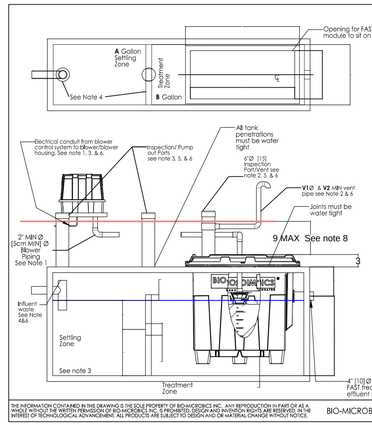
NOTES:

1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. DESIGN CONFORMS WITH 310 CMR 15.00, DEP TITLE 5 REGS, FOR ALTERNATIVE SEPTIC SYSTEMS.
3. ALL REINFORCEMENT PER ASTM C1227-93.
4. CAPACITY: 500 GPD (MICROFAST .9 (900GPD) AVAILABLE).
5. TONGUE & GROOVE JOINT SEALED WITH BUTYLE RESIN.
6. BLOWER MUST BE WITHIN 100FT OF FAST UNIT. LOCATED ABOVE GRADE HIGHER THAN FAST UNIT.

1500 GALLON
MICRO FAST 0.5
W/REMOTE BLOWER

B3.2

Xref C:\Documents and Settings\Mike\My Documents\DWGs\BORDER.dwg



NOTES
1. Blower piping to FAST® may not exceed 100 FT [30.5m] total length and use 4 elbows maximum. For distances greater than 100 FT [30.5m] - consult factory. Blower must be located above flood/standing water levels on a concrete base.
2. Vent to be located above finish grade or higher to avoid infiltration. Cap with vent grate with at least **V2** sq in. of open surface area. Secure with stainless steel screws (see sheet 3 of 3 FAST Details.)
   or
   Run vent to desired location and cover opening with vent grate with at least **V2** sq in. of open surface area. Secure with stainless steel screws. Vent piping must not allow excess moisture build up or back pressure.
3. All appurtenances 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.
4. 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: drill a 1/4" [0.6cm] vent hole in the cap and the baffle shall be at least 3"[8] higher than the water level as shown on the drawing.
5. All inspection, viewing and pump out ports must be secured to prevent accidental or unauthorized access
6. Tank, anchors, piping, conduit, blower housing pad and vents are provided by others.
7. All piping and ancillary equipment installed after FAST® must not impede or restrict free flow of effluent.
8. No more than 4 ft [1.2 m] of fill may be placed over unit lid. Refer to installation manual for more details.
9. See sheet 3 of 4 for required dimensions.

DO NOT SCALE
UNLESS NOTED DIMENSIONS ARE IN INCHES [CENTIMETERS] TOLERANCES ± 0.02 IN/IN [± 0.05 CM/CM]

BIO-MICROBICS INCORPORATED
MA 0.5-1.5 FAST Units

WEIGHT	lb	SIZE	DRAWING NUMBER	SHEET
NAME DATE		A	FAST® with lid	1 OF 4
DRAWN CTC 2/18/2016				
CHECKED PT 4/18/2011			REVISED 4/19/2011 REV PA04D	

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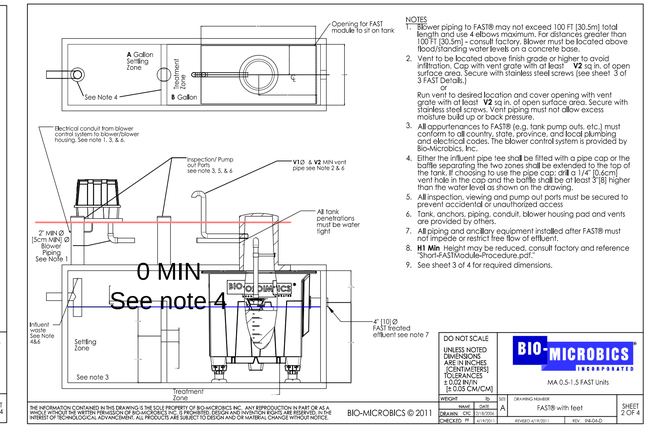
BIO-MICROBICS © 2011

INSTALLATION OF THE 0.5 MicroFAST UNIT
THE INSTALLER IS REQUIRED TO REVIEW THE FAST INSTALLATION MANUAL BEFORE CONSTRUCTION. THE MANUAL CAN BE DOWNLOADED FROM THIS ADDRESS:

http://www.biomicrobics.com/products/fast-wastewater-treatment-systems/microfast/



NOTES
1. Blower piping to FAST® may not exceed 100 FT [30.5m] total length and use 4 elbows maximum. For distances greater than 100 FT [30.5m] - consult factory. Blower must be located above flood/standing water levels on a concrete base.
2. Vent to be located above finish grade or higher to avoid infiltration. Cap with vent grate with at least **V2** sq in. of open surface area. Secure with stainless steel screws (see sheet 3 of 3 FAST Details.)
   or
   Run vent to desired location and cover opening with vent grate with at least **V2** sq in. of open surface area. Secure with stainless steel screws. Vent piping must not allow excess moisture build up or back pressure.
3. All appurtenances 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.
4. 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: drill a 1/4" [0.6cm] vent hole in the cap and the baffle shall be at least 3"[8] higher than the water level as shown on the drawing.
5. All inspection, viewing and pump out ports must be secured to prevent accidental or unauthorized access
6. Tank, anchors, piping, conduit, blower housing pad and vents are provided by others.
7. All piping and ancillary equipment installed after FAST® must not impede or restrict free flow of effluent.
8. **H1 Min**. Height may be reduced, consult factory and reference "Short-FASTModule-Procedure.pdf."
9. See sheet 3 of 4 for required dimensions.

DO NOT SCALE
UNLESS NOTED DIMENSIONS ARE IN INCHES [CENTIMETERS] TOLERANCES ± 0.02 IN/IN [± 0.05 CM/CM]

BIO-MICROBICS INCORPORATED
MA 0.5-1.5 FAST Units

WEIGHT	lb	SIZE	DRAWING NUMBER	SHEET
NAME DATE		A	FAST® with feet	2 OF 4
DRAWN CTC 2/18/2016				
CHECKED PT 4/18/2011			REVISED 4/19/2011 REV PA04D	

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Unit Size	A MIN	B MIN	V1 MIN	V2 MIN	L1	L2	L3	W1 MIN	W2	W3	H1 MIN
0.5	500	1000	3"	7.1 in sq	59.5"	54"	29.75"	31.25"	25"	15.125"	16.375"
0.75	500	1000	3"	7.1 in sq	60"	54"	31.5"	44.25"	37"	21.5	16.375"
0.9	500	1000	3"	7.1 in sq	59"	54"	31.25"	54.5"	49"	26.625	16.375"
1.0	500	1000	4"	9 in sq	59"	54"	31.25"	54.5"	49"	26.625	16.375"
1.5	750	2000	4"	9 in sq	83.5"	75.75"	42.875"	55.75"	49"	27.625	16.25"

A MIN	Settling Zone (MIN Liquid Capacity)
B MIN	FAST ® Chamber (MIN Liquid Capacity)
V1 MIN	Vent Diameter (MIN)
V2 MIN	Vent grate open area (MIN).
L1	FAST® Length and MIN Tank Length
L2	Length of tank opening for hanging FAST®
L3	FAST® Length from edge of liner to center of airline.
W1 MIN	FAST® MIN Tank Width.
W2	Width of tank opening for hanging FAST®.
W3	FAST® Width from edge of liner to center of airline.
H1 MIN	Clearance from center of outlet to inside top of tank (for feet install only)

DO NOT SCALE
UNLESS NOTED DIMENSIONS ARE IN INCHES [CENTIMETERS] TOLERANCES ± 0.02 IN/IN [± 0.05 CM/CM]

BIO-MICROBICS INCORPORATED
MA 0.5-1.5 FAST Units

WEIGHT	lb	SIZE	DRAWING NUMBER	SHEET
NAME DATE		A	Chart	3 OF 4
DRAWN CTC 2/18/2016				
CHECKED PT 4/18/2011			REVISED 4/19/2011 REV PA04D	

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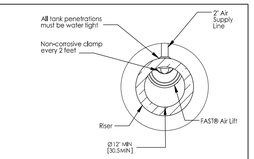
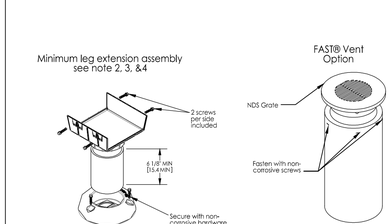
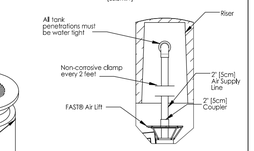
Notes
1. Secure leg extension to the FAST® unit by placing two screws on each side of the leg extension (4 screws per foot are included).
2. Cut 4" schd. 40 PVC pipe (not included) to obtain the desired height. Minimum pipe length of 6 1/8" [15.56cm]. For heights greater then 18" [45.7cm] use schd. 80 PVC pipe (not included). Consult factory for extending leg beyond 36"[9cm].
3. Anchor the leg extensions to the tank with non-corrosive hardware (not included) at the provided mounting points .
4. The air supply line into the FAST® unit must be secured to prevent vibration induced damage. The air supply line should be secured with a non-corrosive clamp every 2' MIN.
5. Tank, anchors, piping conduit, blower housing pad, and tank vents are provided by others.







Alternate Air Supply Option

DO NOT SCALE
UNLESS NOTED DIMENSIONS ARE IN INCHES [CENTIMETERS] TOLERANCES ± 0.02 IN/IN [± 0.05 CM/CM]

BIO-MICROBICS INCORPORATED
MA 0.5-1.5 FAST Units

WEIGHT	lb	SIZE	DRAWING NUMBER	SHEET
NAME DATE		A	FAST® Details	4 OF 4
DRAWN CTC 2/18/2016				
CHECKED PT 4/18/2011			REVISED 4/19/2011 REV PA04D	

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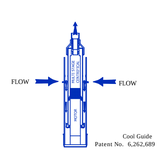
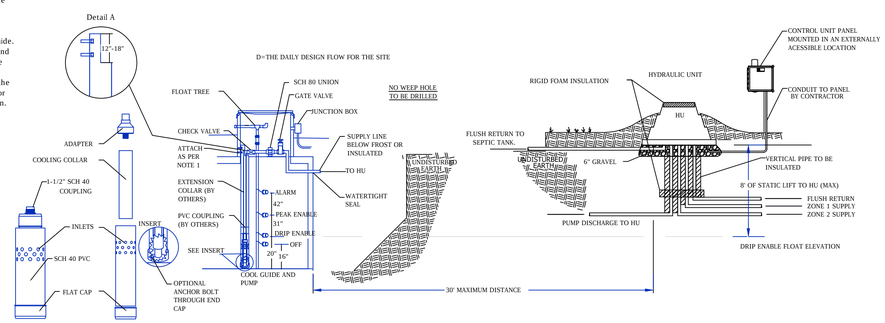
INSTALLATION INSTRUCTIONS:

1. Measure the distance from the bottom of the tank to 6" down from the top of the riser. Cut the extension pipe (by others) to the length necessary to reach this height. Cut half of the pipe down 12" to 18" away from the top of the pipe for a pump discharge pipe and attach to riser. (see detail A)
2. Glue the extension coupling (by others) to the extension pipe and to the cool guide.
3. For reuse of existing concrete pump chambers: glue on the cool guide flat cap and place the cool guide firmly in the bottom of the tank. Attach the extension to the riser with the anchors as shown.
4. For use in new concrete pump chambers: anchor the flat cap to the bottom of the tank in the proper location to hold the cool guide and extension. The cap may or may not be glued to the device. Attach the extension with the anchors as shown.
5. Place the pipe dope on the cool guide adapter threads and thread them into the pump discharge.
6. Attach cooling collar to adapter with set screw provided.
7. Glue pipe into flow collar and with pump attached, lower into the guide tube.
8. Attach to discharge pipe, valves, and connect electrical and specified.



PERC-RITE HYDRAULIC UNIT (15 GPM)
(NOT TO SCALE)



TYPICAL PUMP TANK & HYDRAULIC UNIT DETAIL
(NOT TO SCALE)

APPLICANT

GEORGE PROCTER
36 MOHEGAN ROAD
ACTON, MA 01720

PROPOSED SEWAGE DISPOSAL SYSTEM

36 MOHEGAN ROAD
ACTON, MA

PAGE 2 OF 2

COMMONWEALTH OF MASSACHUSETTS
WENDY DIOTALEVI
No. 942
REGISTERED SANITARIAN

D.C. & Daughters
3 Kellett Drive
Milford, MA 01757
(508) 478-0242

DESIGNED BY: WD
DRAFTED BY: WD
CHECKED BY: CC

SCALE: 1" = 20'

DESIGN DATE: 3/30/16
REVISION DATE: 4/6/16 BOH
REVISION DATE: 4/11/16
PERC-RITE DRIP IRRIGATION
REVISION DATE: 4/14/16
MicroFAST 0.5