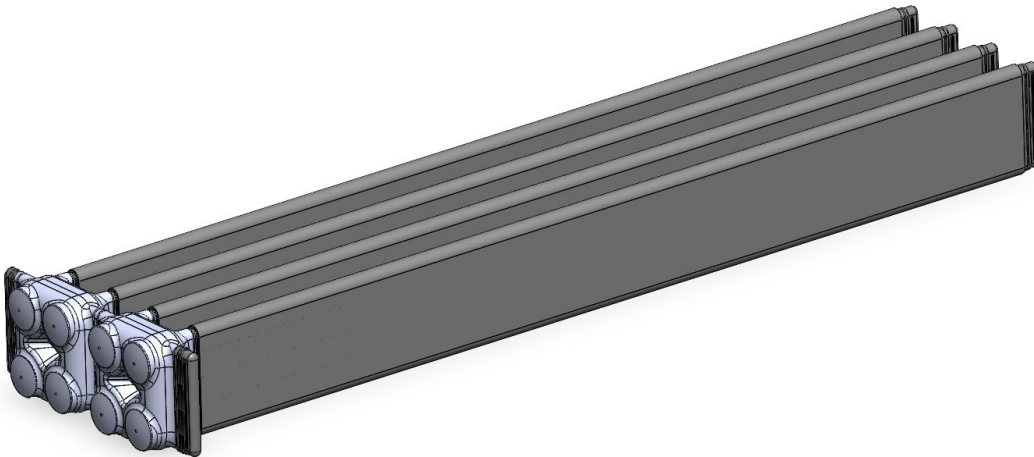




Hawaii

Infiltrator AeroFin™

DESIGN AND INSTALLATION MANUAL



The purpose of this manual is to provide the minimum specifications for design and installation of the Infiltrator AeroFin™ in Hawaii. All state and local, ordinances, requirements, and procedures must be followed. Each revised version of this manual supersedes the previous version.

The configurations presented in this document are common designs and are provided for illustrative purposes. They are not intended to restrict the use of other configurations, which may be utilized provided the design conforms to state and local regulations, as applicable.

For more detailed design and installation information, please contact Infiltrator Water Technologies at 1-800-221-4436.

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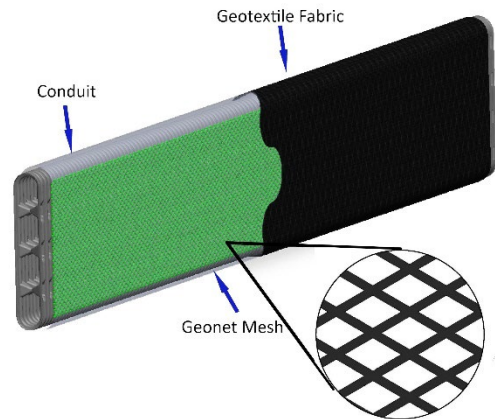
The Infiltrator AeroFin™

The Infiltrator AeroFin™ (AeroFin) is a proprietary system consisting of four components. The first three components are fabricated in modules called “fins” that are installed within the fourth component, a tightly specified sand called “system sand”. Effluent is dispersed, filtered, and treated by the components of the system through a combination of biological, physical, and chemical processes. The system operates as a media network to support colonized bacteria that treat organic waste.

After exiting the septic tank or treatment unit, effluent progresses through each component as follows:

- 12.75-inch-tall conduit;
- Geonet mesh (pictured in green for contrast);
- Geotextile fabric; and
- Minimum 6-inch (in.)- layer of system sand.

The AeroFin system produces 30-day average TSS and CBOD levels below 5 mg/L when tested in accordance with the NSF/ANSI 40 protocol.

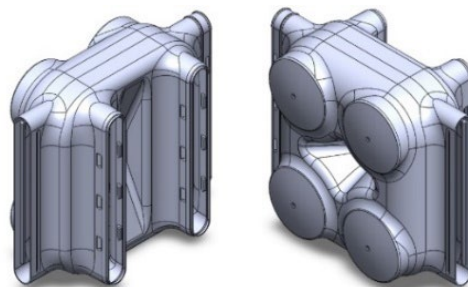


AeroFin Fin

The AeroFin fins are produced in 4- and 8-foot (ft.) segments for ease of transport and installation. Individual segments connect to one another using the built-in snap-lock feature to create fin lengths as required by the system design. This snap-lock feature also connects the fins to the AeroFin Manifold and the AeroFin Endcaps.

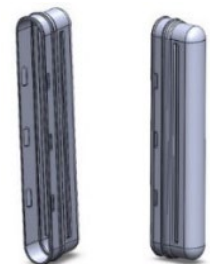
AeroFin Manifold

The AeroFin Manifold is installed at the head of the fin rows and provides equal distribution of effluent into the system from the bottom up. AeroFin Manifolds include a snap-lock feature which facilitates interconnecting individual manifolds in series as well as connecting the manifold to the fins. The AeroFin Manifold may also be installed at the distal end of individual fins when venting is specified or for serial distribution.



AeroFin Endcap

AeroFin Endcaps are installed at the distal end of parallel distribution systems or as a cap for the last fin row(s) in a serial distribution system. AeroFin Endcaps may also be installed on the AeroFin Manifold if connections are not required as well as at the end of a cut AeroFin fin unit.



System Sand

System sand is ASTM C-33 (concrete sand), natural or manufactured sand, with 3% or less passing the #200 sieve. Sand that meets HIDOT fine aggregate grading requirements per Table 703.01-2 may be used as system sand when 3% or less passes the #200 sieve.

The following minimum system sand dimensions are required for all AeroFin configurations:

- a minimum of 6 in. below the fin rows;
- a minimum of 6 in. between the fin rows; and
- a minimum of 6 in. outside (on each side and on each end) of the fin rows.
- No system sand is required over the system.

Upon exiting the system sand, the treated wastewater is absorbed into the native soils. Typical AeroFin layouts for level and sloped sites are portrayed in the system layouts section of this Infiltrator AeroFin Design and Installation Manual (Manual).

Environmental Standards and Technical Support

All AeroFin systems shall be designed and installed in compliance with the procedures and specifications detailed in this Manual and in the Hawaii AeroFin product approval. In the event of contradictions between this Manual and Chapter 11-62, Hawaii Administrative Rules (the Rules), Infiltrator should be contacted for technical assistance at (800) 221-4436.

Training and Certification Requirements

Designers and installers are required to attend a training/certification course on AeroFin presented by Infiltrator or its authorized representative. Infiltrator recommends that professionals involved in the review of AeroFin system designs and inspection of installed systems also become trained and certified.

Daily Design Flow

Daily design flow (DDF) is calculated in accordance with the Rules. The minimum DDF shall be one bedroom for any residential system and 300 gpd for any commercial system. Contact technical assistance for recommendations when design flow does not meet this requirement.

Effluent (Wastewater) Strength

The minimum total fin length required is based on use with residential strength effluent that has received primary treatment in a septic tank. When designing a system for use with higher strength wastewater, such as commercial systems, contact Infiltrator for technical assistance at (800) 221-4456.

Septic Tank

AeroFin is designed for use following a septic tank and/or an advanced treatment system. All septic tanks and/or advanced treatment systems shall meet and be sized according to the Rules.

Water Purification Systems

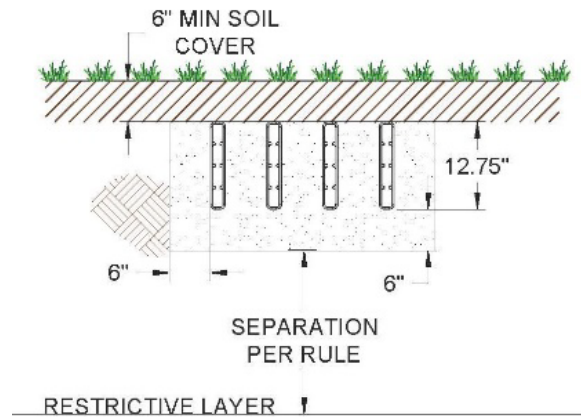
Water purification systems and water softeners should not discharge into AeroFin. This “backwash” does not require treatment and the additional flow may overload the system. The Rules may allow for alternative means of disposal. If there is no alternative means of disposing of this backwash other than

INTRODUCTION

in the AeroFin, then the system size shall be increased. Contact Infiltrator for technical assistance at (800) 221-4456.

Separation Distances (Horizontal and Vertical)

Horizontal separation distances are measured from the outer most edge of the system sand footprint area. Vertical separation distances are measured from 6 in. from the fins.



System Soil Cover Material

A minimum of 6 in. of suitable earth cover (topsoil or loam), with a texture similar to the soil at the site and capable of sustaining plant growth, must be placed above the installed system. The addition of filtration fabric on top of the AeroFin system is not required before placing cover material.

AeroFin System Definitions

In this document minimum system sand footprint area refers to the surface onto which the fin rows are placed and the 6 in. of system sand between and around the fins. Maintaining this minimum system sand footprint area is required to ensure adequate treatment. Minimum System Sand Bed Area (SSBA) refers to the minimum basal area required based upon the soil loading rate for a given DDF. Maintaining this SSBA is required to ensure long-term hydraulic performance. System sand extension (SSE) refers to the 6 in. system sand layer(s) added to the system sand footprint to make up the difference in area required between the minimum system sand footprint area and the minimum SSBA, see next page for illustrations. Not all systems will require SSE(s). Systems sloping greater than 10% require a minimum 2.5 ft. wide SSE on the downslope side of the bed including design SSEs.

AeroFin in Beds or Trenches

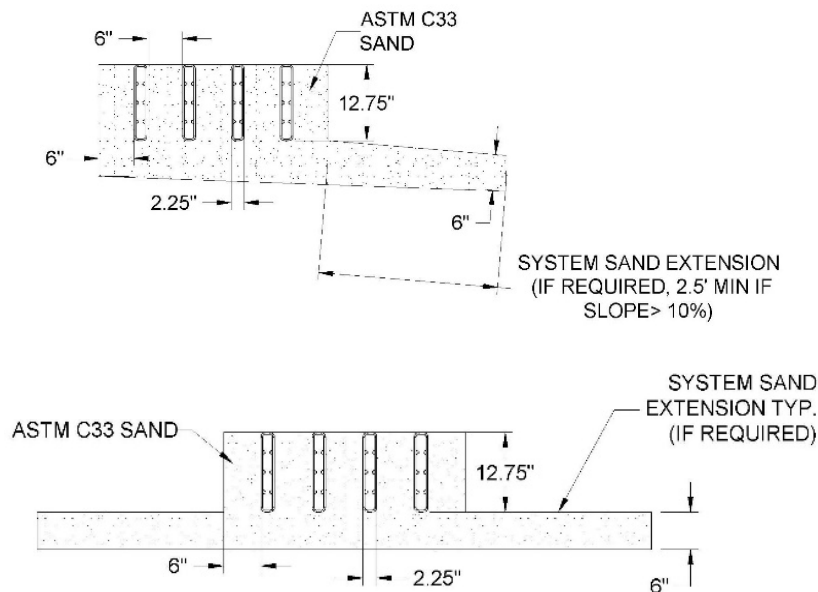
Throughout this manual the use of the term "bed" and "trench" are interchangeable. AeroFin may be designed and installed as a bed or trench using the soil application rates from Table 3. Bed bottoms may be slope with the existing terrain to minimize impact to a site. Bed bottoms may also be terraced at various widths to accommodate stepped system design. Multiple beds may be designed if site conditions do not allow for a single bed. A recommended design procedure, which shows equal spacing is provided in this Manual. However, modified spacing is allowed provided minimum and maximum criteria for bed length and width are met. Infiltrator technical support is available for consultation on unique site designs.

INTRODUCTION

System Sand Extensions (SSE)

AeroFin will treat the wastewater in a properly designed system sand footprint, based on the design flow to the system, without regard for the soils the system is placed in or upon. To ensure long-term hydraulic performance, it may be necessary to increase the system sand bed footprint beyond what is needed to accommodate the flow-based design treatment area. This additional area is made up with the use of system sand extension(s) (SSEs). SSEs are a minimum of 6 in. deep. In systems sloping more than 10%, a minimum 2.5 ft. wide SSE is required.

SSEs are placed entirely on the downslope side of the SSBA for sloping AeroFin systems and equally divided on each side of the SSBA for level AeroFin systems as shown below.



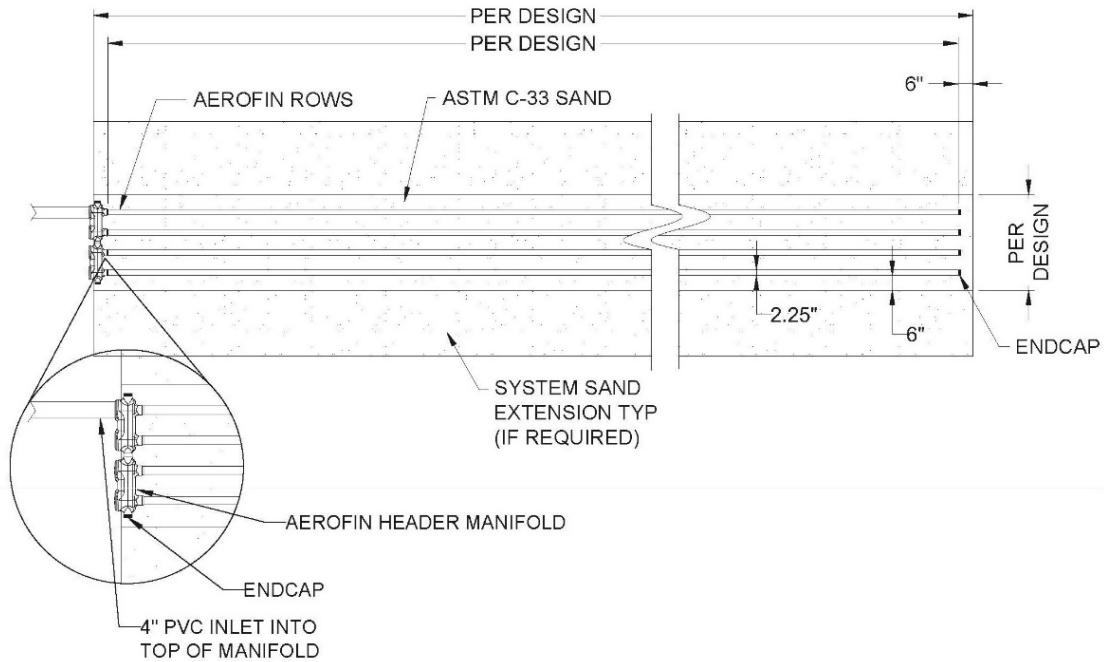
Row Requirements

- Minimum center-to-center spacing is 8.25 in. which accommodates the minimum 6 in. of system sand required between rows.
- For beds on level terrain (5% slope or less) the AeroFin rows shall be centered in the middle of the SSBA and any system sand extensions (SSEs) shall be divided evenly on both sides.
- For level beds on sloping terrain (greater than 5% site slope) all rows shall be grouped 6 in. from the up-slope edge of the SSBA with any SSE placed entirely on the downslope side.
- For sloping beds on sloping terrain: all rows shall be grouped 6 in. from the up-slope edge of the SSBA with any SSE placed entirely on the downslope side. If the slope of the system exceeds 10% a 2.5 ft minimum SSE is required.
- For sloping beds the elevations for each AeroFin row must be provided on the drawing.
- Each row shall be installed level to within +/- 1/2 in. (total of 1 in.) of the specified elevation and preferably should be parallel to the contour of the site.
- It is most convenient if fin-row lengths are designed in 4 or 8 ft. increments to accommodate the length of the product as manufactured. However, individual fin segments can be cut to any length from the narrow end of the segment.

INTRODUCTION

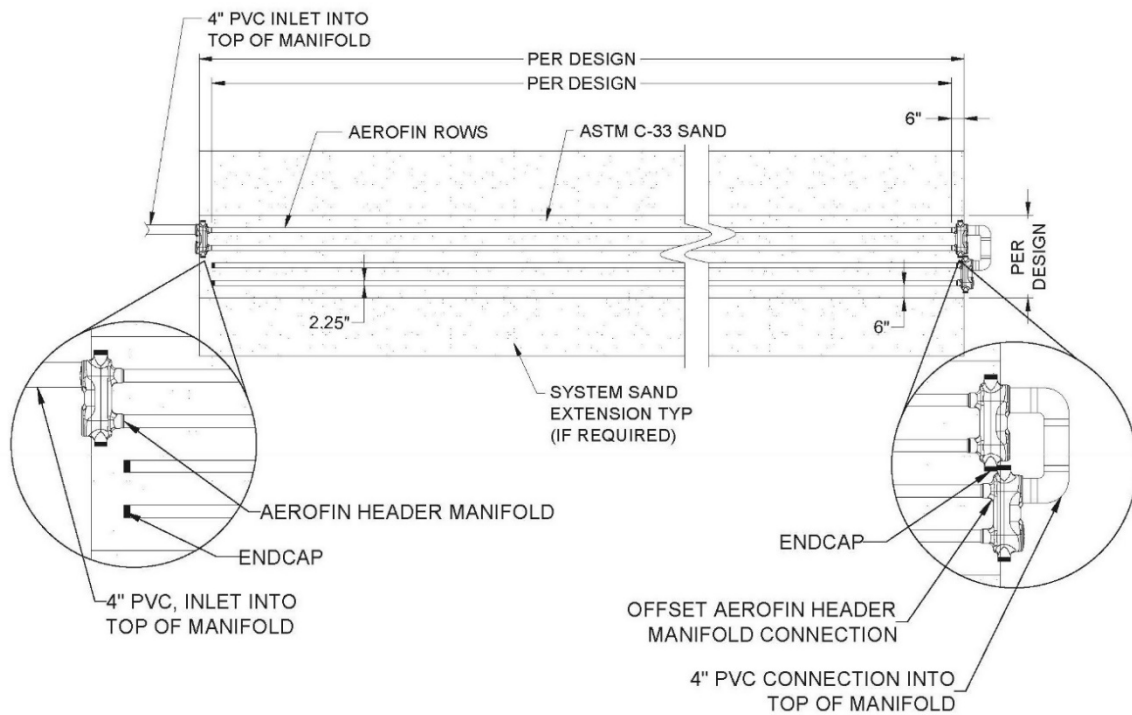
Parallel Distribution

AeroFin systems may be designed using parallel distribution by interconnecting AeroFin Manifolds as shown below.



Serial Distribution

AeroFin systems may be designed using serial distribution. To maintain 6 in. fin spacing, offset the manifold at the ends as shown below.

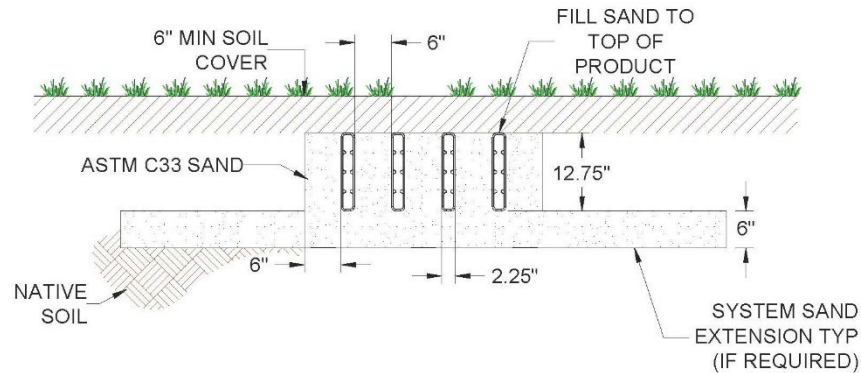


SYSTEM LAYOUTS

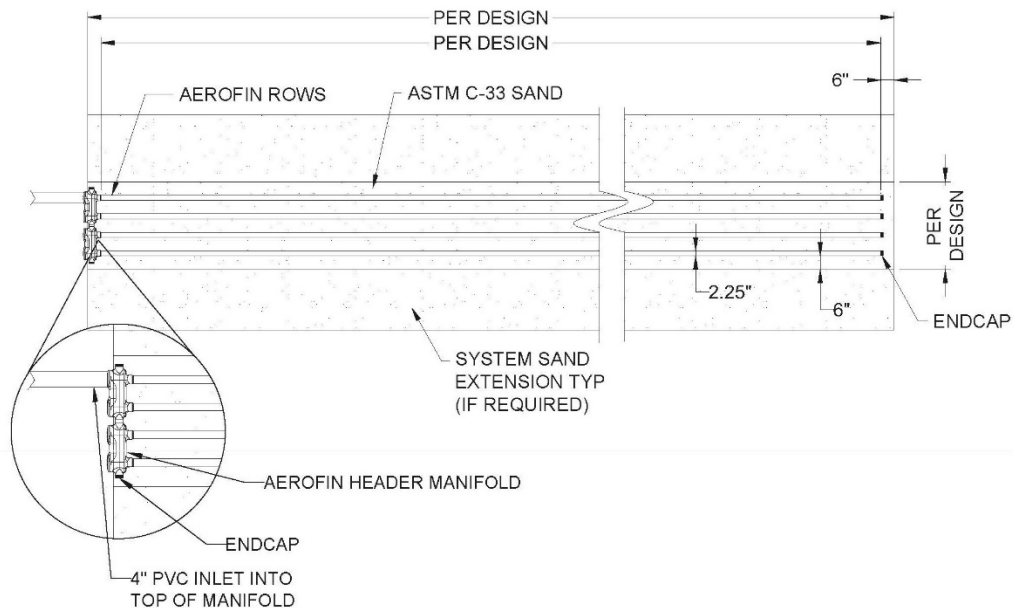
The system layouts presented in this section of the Manual are intended as general guidance. These designs are in no way intended to restrict design flexibility.

Level Subsurface Systems

Cross-Section View



Plan View

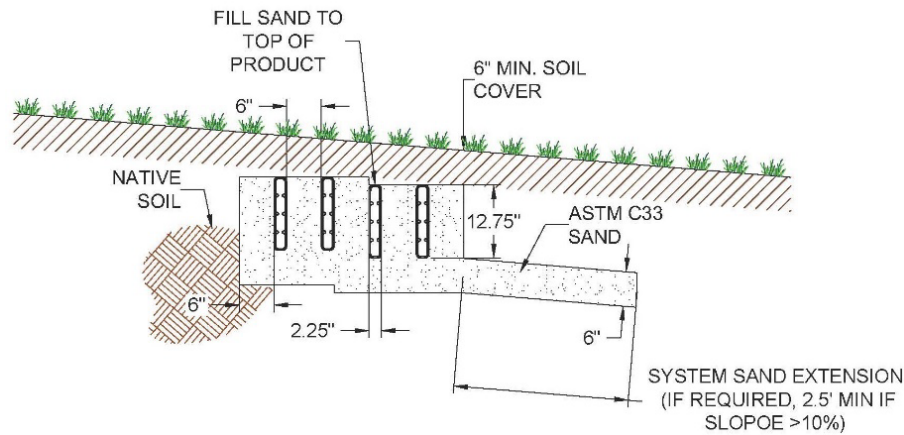


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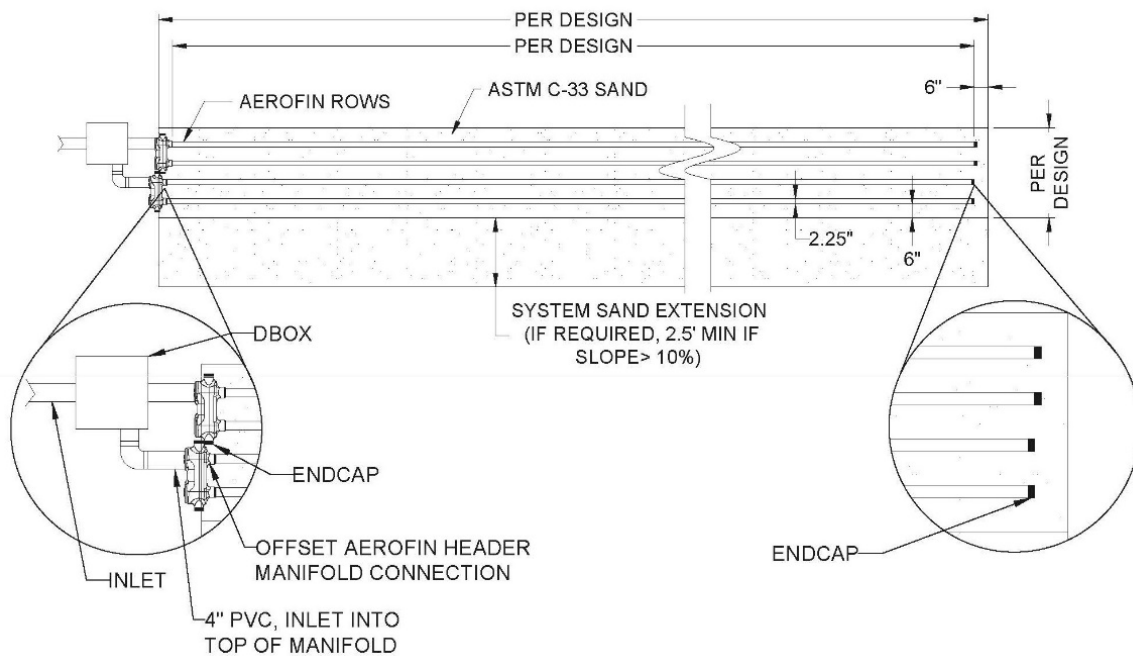
1. Number and length of fin rows shall be per the design.
2. Venting is not required but is optional at the discretion of the designer. Contact Infiltrator for technical assistance at (800) 221-4456.
3. Pumping to the manifold is not permitted. Systems that require pumping or dosing must pump to a D-box then use gravity flow into the manifold.
4. Parallel distribution is shown, but AeroFin may be installed with either serial or parallel distribution.

Sloped Subsurface Systems

Cross-Section View



Plan View

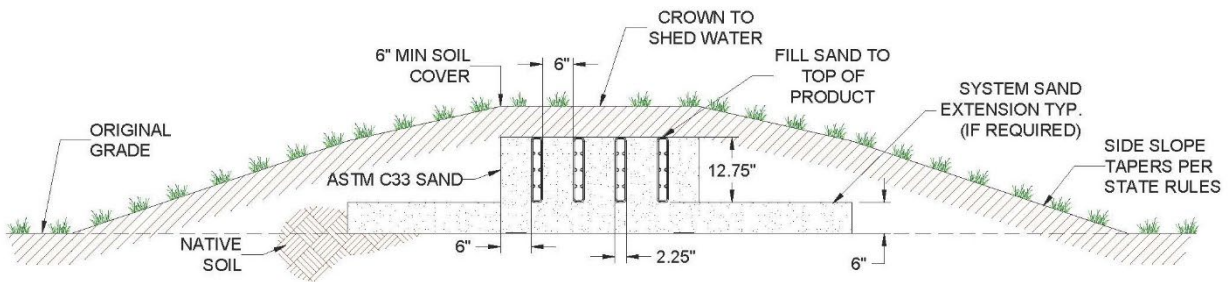


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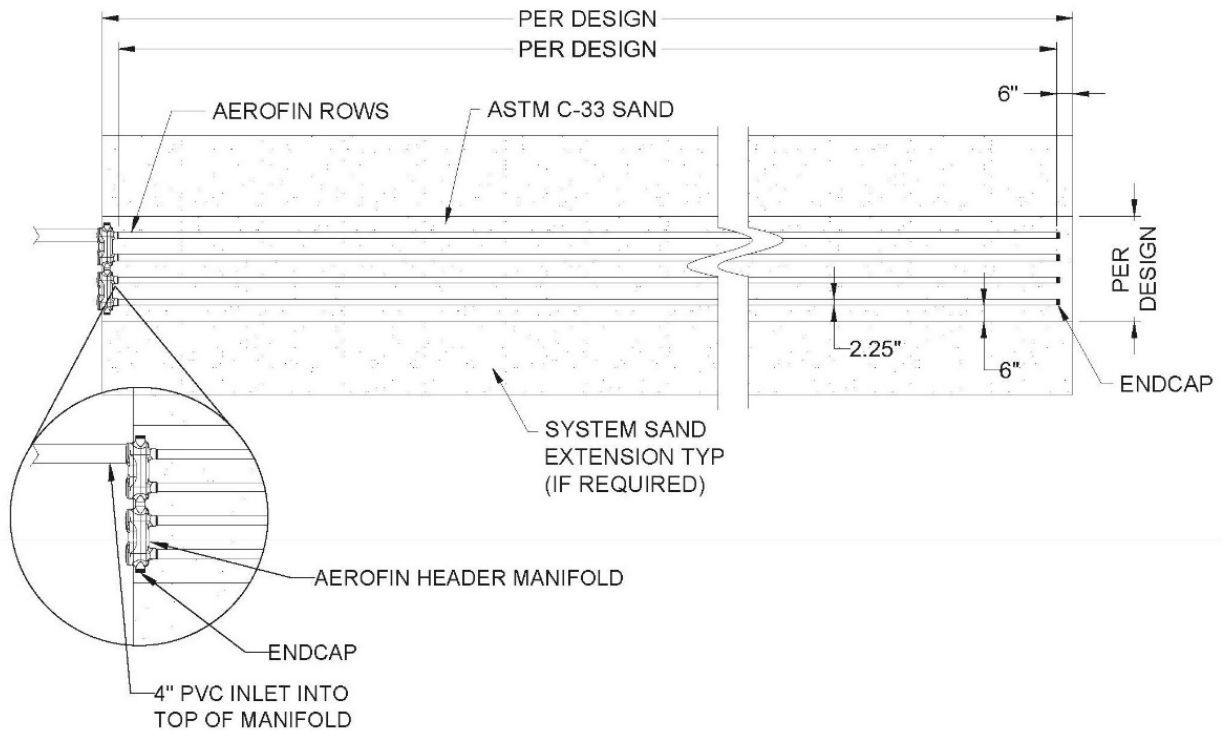
1. Number and length of fin rows shall be per the design.
2. Venting is not required but is optional at the discretion of the designer. Contact Infiltrator for technical assistance at (800) 221-4456.
3. Pumping to the manifold is not permitted. Systems that require pumping or dosing must pump to a D-box then use gravity flow into the manifold.
4. Parallel distribution is shown, but AeroFin may be installed with either serial or parallel distribution.
5. Sloping systems may be designed with all fin rows level or they may be stepped as shown using AeroFin sections comprised of fin rows in multiples of two.

Level Above-Grade Systems

Cross-Section View



Plan View

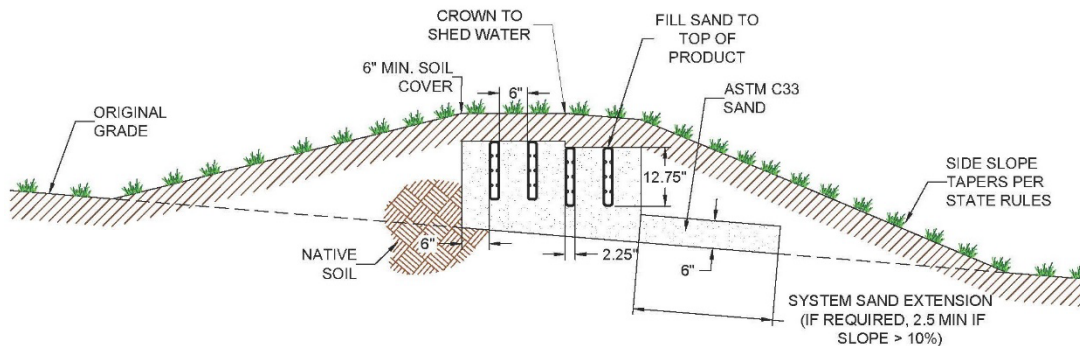


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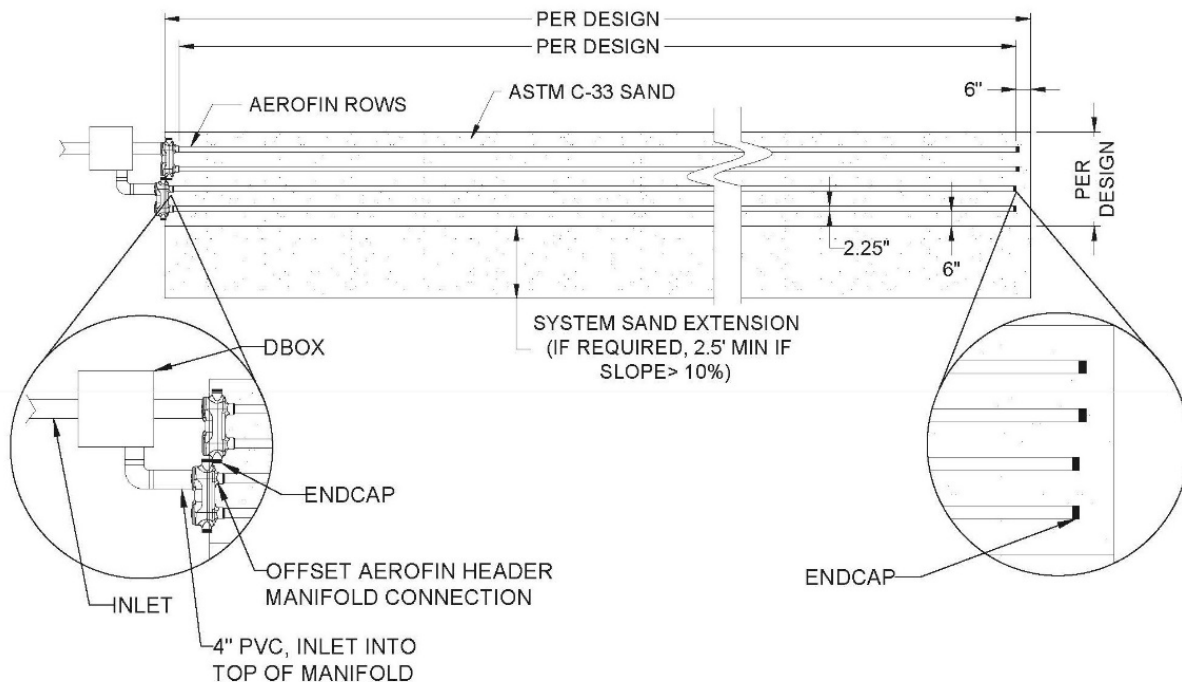
1. Number and length of fin rows shall be per the design.
2. Venting is not required but is optional at the discretion of the designer. Contact Infiltrator for technical assistance at (800) 221-4456.
3. Pumping to the manifold is not permitted. Systems that require pumping or dosing must pump to a D-box then use gravity flow into the manifold.
4. If the infiltrative surface of the AeroFin bed must be elevated to achieve minimum vertical separation requirements, the area between the original grade and the AeroFin system shall be comprised of sand meeting the system sand requirements outlined in page 3.

Sloped Above-Grade Systems

Cross-Section View



Plan View



NOTES:

1. Number and length of fin rows as per the design.
2. Sloping systems may be designed with fin rows level or they may be stepped as shown using AeroFin sections comprised of fin rows in multiples of two.
3. Venting is not required but is optional at the discretion of the designer. Contact Infiltrator for technical assistance at (800) 221-4456.
4. Pumping to the manifold is not permitted. Systems that require pumping or dosing must pump to a D-box then use gravity flow into the manifold.
5. If the infiltrative surface of the AeroFin bed must be elevated to achieve minimum vertical separation requirements, the area between the original grade and the AeroFin system shall be comprised of sand meeting the system sand requirements outlined in page 3.

The AeroFin system can be designed in five simple steps. The sizing tables and design procedure are provided below, followed by several design examples for typical system configurations.

Design Procedure

Step 1: Determine Daily Design Flow (DDF)

Determine the DDF in accordance with the Rule based on 200 gpd per bedroom for residential applications. For commercial applications, calculate DDF in accordance with Appendix D Table I of the Rule.

Step 2: Determine Minimum Length of Fin Required

Determine the minimum length of fin required from Table 1 based on the number of bedrooms. For commercial applications treating residential strength effluent, calculate the minimum length of fin required at 1.88 gal/ft. of fin ($DDF \div 1.88$). Round up to an even number. When designing a system for use with higher strength wastewater contact Infiltrator for technical assistance at (800) 221-4456.

Table 1. Minimum Length of Fin Required

Number of Bedrooms	Minimum Length of Fin (ft)
2	160
3	240
4	320
5	400
Each Additional	80

Step 3: Design the System Configuration

Determine the minimum system sand footprint area using the minimum length of fin required as determined from Step 2 and the number of fin rows into which the minimum length of fin required will be divided. Consider the following for system sand footprint area design:

- Determine the fin row length that best fits the site.
- Determine the number of fin rows required to meet the minimum length of fin from Step 2.
- Use Table 2 to determine minimum system sand bed width based on the number of fin rows needed. Systems sloping greater than 10% may require a bed width adjustment in Step 5 to accommodate the minimum SSE requirement of 2.5 ft.

Table 2: Minimum System Sand Bed Width

Number of Fin Rows	Minimum Width Per Number of Fin Rows											
	2	3	4	5	6	7	8	9	10	11	12	Each Additional
Minimum Width (ft)	1.88	2.57	3.25	3.94	4.63	5.32	6.00	6.69	7.38	8.07	8.75	0.69
Minimum Width (in)	22.5	30.8	39.0	47.2	55.5	63.8	72.0	80.2	88.5	96.8	105.0	8.3

Step 4: Determine the Minimum System Sand Bed Area (SSBA)

Using common practice and in accordance with the Rules, determine the soil percolation rate for the site. Given the soil percolation rate and the number of bedrooms in the design, determine the minimum required SSBA using Table 3. For commercial applications, calculate the minimum SSBA using the Commercial column in Table 3 below.

Table 3: Minimum System Sand Bed Area (SSBA)

Percolation Rate Minutes per Inch (mpi)	AeroFin Soil Loading Rate (SLR) (gpd/ft ²)	Number of Bedrooms (200 gpd per Bedroom)					Commercial Sizing per 100 gpd ⁽³⁾
		1	2	3	4	5	
Up to 10	2.25	89	178	267	356	445	44
11 – 15	1.79	112	223	335	447	559	56
16 – 20	1.60	125	250	375	500	625	63
21 – 30	1.47	136	272	408	544	680	68
31 – 40	1.30	154	308	462	615	769	77
41 – 50	1.12	179	357	536	714	893	89
51 – 60	1.00	200	400	600	800	1,000	100
61 – 65	0.90	222	444	667	889	1,111	111
66 – 70	0.84	238	476	714	952	1,190	119
71 – 75	0.78	256	513	769	1,026	1,282	128
76 – 80	0.72	278	556	833	1,111	1,389	139
81 – 85	0.67	299	597	896	1,194	1,493	149
86 – 90	0.62	323	645	968	1,290	1,613	161
91 – 95	0.57	351	702	1,053	1,404	1,754	175
96 – 100	0.53	377	755	1,132	1,509	1,887	189
101 – 105	0.49	408	816	1,224	1,633	2,041	204
106 – 110	0.46	435	870	1,304	1,739	2,174	217
111 – 115	0.43	465	930	1,395	1,860	2,326	233
116 – 120	0.39	513	1,026	1,538	2,051	2,564	256

1. An IWS is limited to no more than five (5) bedrooms for residential applications and no more than 1,000 gpd for commercial applications in accordance with Chapter 11-62 regulations.
2. Consult IWT for high strength effluent requirements.
3. Bed area is calculated as DDF ÷ SLR.

Step 5: Make area adjustments, as necessary.

The minimum areas determined in Steps 3 and 4 cannot be reduced. These areas must be maintained to ensure adequate area for placement of the AeroFin system and infiltration of treated effluent into the native soil.

Area adjustments may be necessary as follows:

- If the minimum SSBA determined using Table 3 (Step 4) is smaller than the area of the system sand footprint determined in Step 3, no area adjustments are necessary.
- If the minimum SSBA determined using Table 3 (Step 4) is larger than the area of the system sand footprint determined in Step 3, the system sand footprint must be increased by adding SSE(s).
- In either case, if the system slope is greater than 10%, the system will require a 2.5 ft. minimum SSE on the downslope side.

SYSTEM DESIGN

In most instances, the width of the system sand component is widened to increase the system sand footprint. When making adjustments to the width of the system sand footprint:

- In level system applications, additional width shall be evenly divided on each side of the AeroFin minimum basal area.
- In sloped system applications, additional width shall be entirely placed on the downslope side of the AeroFin minimum basal area.

NOTE: The length of the bed area may be altered, but only by extending the length of the fin rows. Fins are manufactured in lengths of 4 and 8 ft. segments but may be cut to any length.

Design Example

Single family residence; 3-bedrooms; percolation rate of 10 mpi.

Step 1: Determine Daily Design Flow (DDF)

Residential design is for a 3-bedroom home for a DDF of 3 bedrooms x 200 gpd/br = 600 gpd.

Step 2 Determine Minimum Length of Fin Required

For a 3-bedroom home, the minimum fin length required is 240 ft, per Table 1.

Number of Bedrooms	Minimum Length of Fin (ft)
2	160
3	240
4	320
5	400
Each Additional	80

Table 1. Minimum Length of Fin Required

Step 3: Design the System Sand Configuration

Considering the site, a row length of 60 ft. is selected to eliminate cutting. 60 ft.-long rows will require 4 rows of fins providing 240 total ft. of fin. This meets the 240 ft. minimum length requirement from Step 2. Referencing Table 2, the system sand bed width required for 4 fin rows is 3.25 ft. (39 in).

Number of Fin Rows	Minimum Width Per Number of Fin Rows											
	2	3	4	5	6	7	8	9	10	11	12	Each Additional
Minimum Width (ft)	1.88	2.57	3.25	3.94	4.63	5.32	6.00	6.69	7.38	8.07	8.75	0.69
Minimum Width (in)	22.5	30.8	39.0	47.2	55.5	63.8	72.0	80.2	88.5	96.8	105.0	8.3

Table 2: Minimum System Sand Bed Width

Step 4: Determine the Minimum System Sand Bed Area (SSBA)

Per Table 3, the minimum SSBA required for a 3-bedroom design on a site with a percolation rate of 10 mpi is 267 sq ft.

Percolation Rate Minutes per Inch (mpi)	AeroFin Soil Loading Rate (SLR) (gpd/ft ²)	Number of Bedrooms (200 gpd per Bedroom)					Commercial Sizing per 100 gpd ⁽³⁾
		1	2	3	4	5	
Up to 10	2.25	89	178	267	356	445	44
11 – 15	1.79	112	223	335	447	559	56
16 – 20	1.60	125	250	375	500	625	63
21 – 30	1.47	136	272	408	544	680	68

Table 3: Minimum System Sand Bed Area

SYSTEM DESIGN

Step 5: Make area adjustments, as necessary.

Option 1: Level System

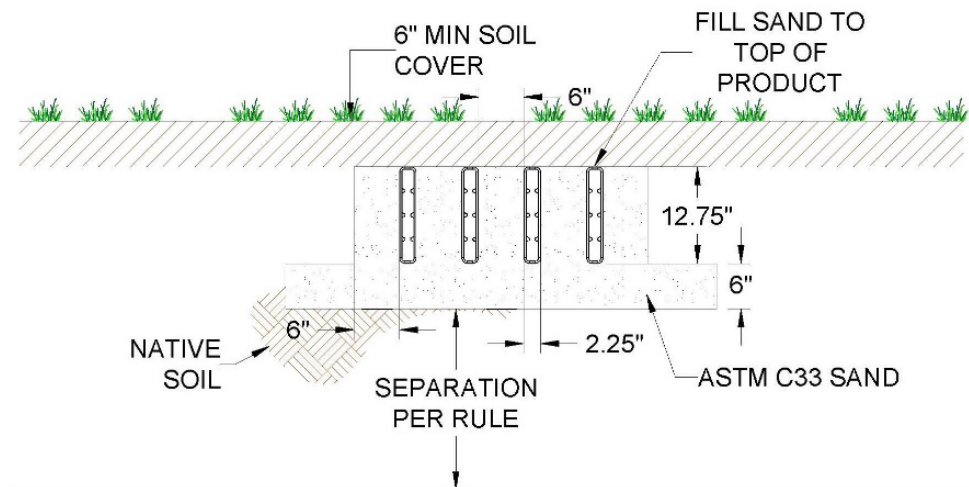
On a level system, the required SSEs are evenly divided on both sides of the system sand footprint.

From Step 3 the system sand configuration is 4 rows 60 ft. long and a bed dimension of 3.25 ft. wide by 61 ft. long, which results in a total system sand footprint of 198.25 ft².

- From Step 4 a 3-bedroom system requires a minimum SSBA of 267 ft². 267 ft² is greater than the 198.25 ft² system sand footprint. Therefore, an adjustment to the size of the system footprint is necessary by adding SSE(s).
 - Divide the minimum SSBA by the length of the system sand bed. $267\text{ft}^2 \div 61\text{ ft.} = 4.38\text{ ft.}$ The width of the 3.25 ft-wide system sand footprint must be increased to 4.38 ft. minimum.
 - Subtract the original system sand footprint width from the required system width to determine the required SSE. $4.38\text{ ft.} - 3.25\text{ ft.} = 1.13\text{ ft. SSE.}$
 - Divide the SSE width required by 2 to determine the width of the SSE to be added to each side of the system sand footprint. $1.13\text{ ft.} \div 2 = 0.57\text{ ft.}$ Round 0.57 ft. up to 0.75 ft. for ease of construction.

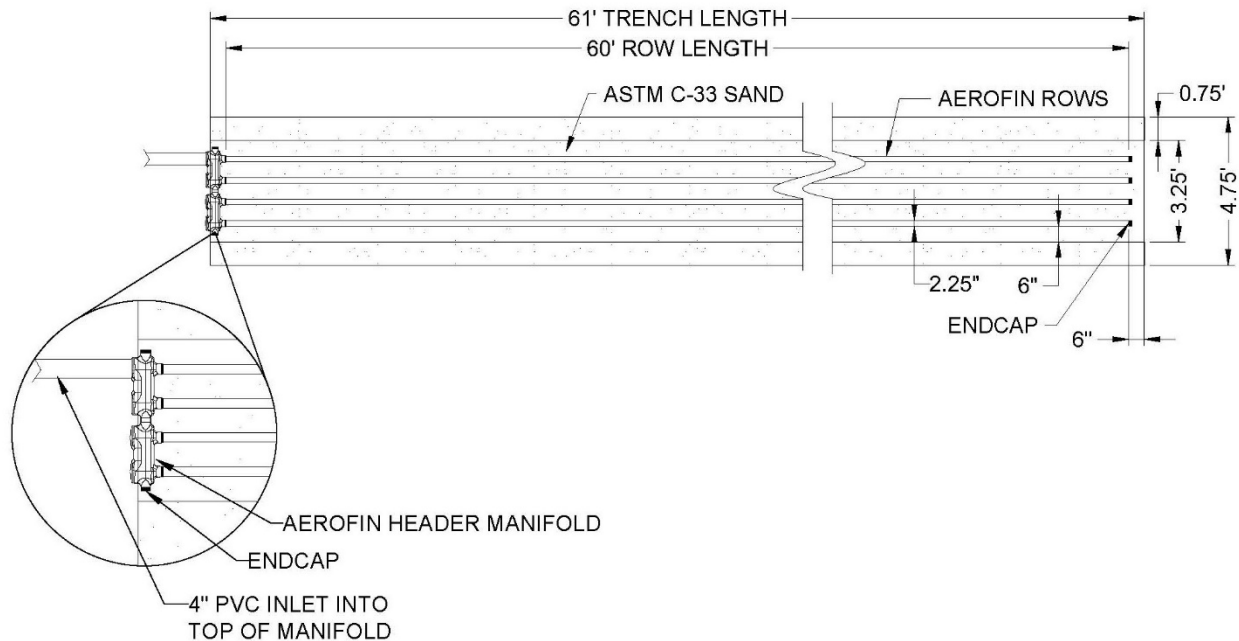
The system sand footprint must be widened by 1.5 ft. in total, by adding 0.75 ft. of system sand to each side of the system sand footprint, resulting in a total bed width of 4.75 ft. The final SSBA measurement is 4.75 ft. x 61 ft. = 289.75 ft², which exceeds the minimum 267 ft² SSBA requirement as calculated in Step 4.

Cross Section:



SYSTEM DESIGN

Plan View:



Option 2: Sloped System

On a sloped system, the entire SSE is placed on the downslope side of the system sand footprint. Systems that slope over 10% require a minimum SSE of 2.5 ft.

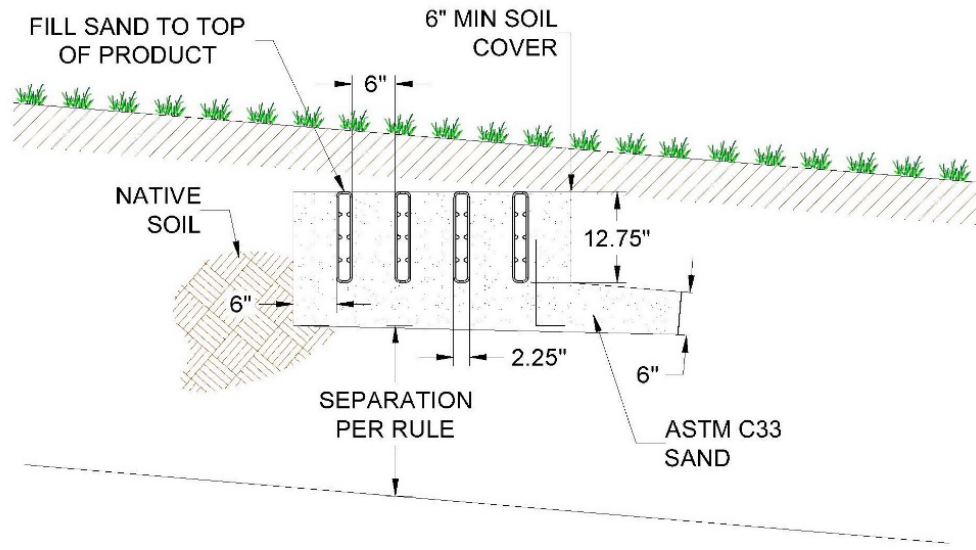
From Step 3 the system sand configuration is 4 rows 60 ft.-long and a bed dimension of 3.25 ft. wide by 61 ft. long, which results in a total system sand footprint of 198.25 ft².

- From Step 4 a 3-bedroom system requires a minimum SSBA of 267 ft² which exceeds the 198.25 ft² basal area provided by the system sand footprint. An adjustment to the size of the system footprint is necessary.
 - Divide the minimum SSBA by the length of the system sand bed. $267 \text{ ft}^2 \div 61 \text{ ft.} = 4.38 \text{ ft.}$ The width of the 3.25 ft. system sand footprint must be increased to 4.38 ft.
 - Subtract the original system sand footprint width from the required system width to determine required SSE width. $4.38 \text{ ft.} - 3.25 \text{ ft.} = 1.13 \text{ ft. SSE.}$ Round up to 1.25 ft. for ease of construction.

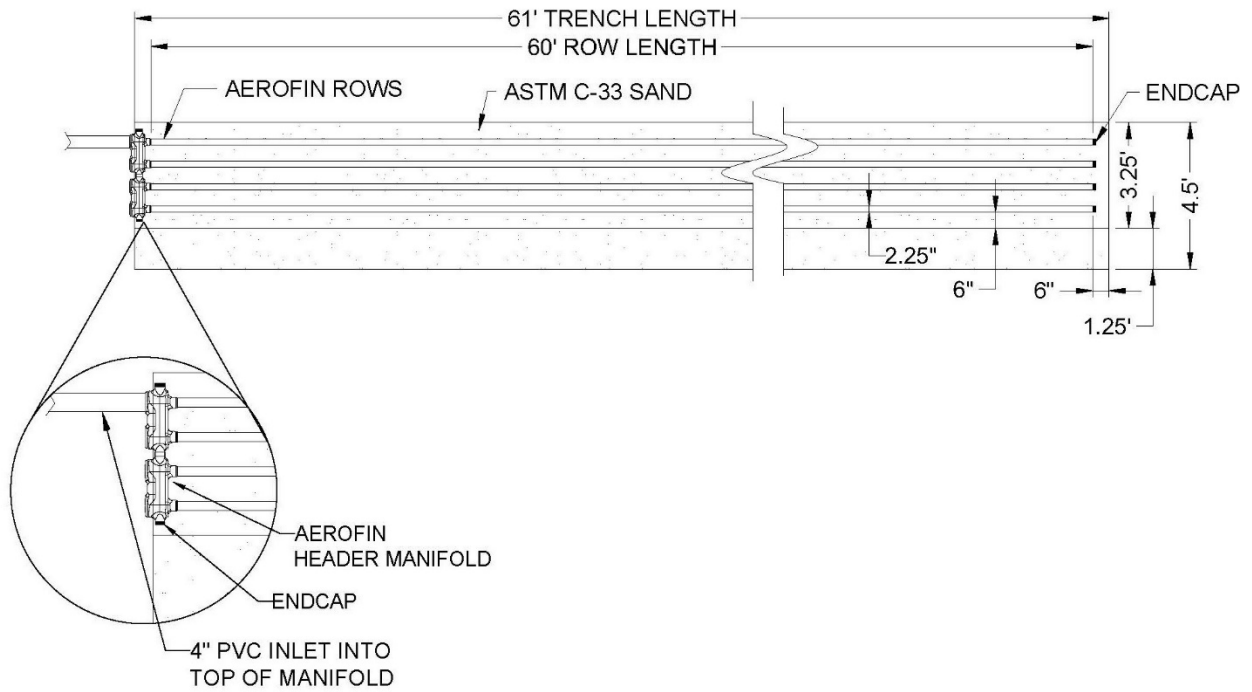
The system footprint must be widened by 1.25 ft. by adding 1.25 ft. of system sand to the downslope side of the system sand footprint, resulting in a total width of 4.5 ft. (3.25 ft. + 1.25 ft.). The final SSBA measurement is 4.5 ft. x 61 ft. = 274.5 ft² which exceeds the 267 ft² SSBA requirement as calculated in Step 4. This system design slopes less than 10% so the 1.25 ft. SSE is adequate.

SYSTEM DESIGN

Cross Section:



Plan View:



Before You Begin

These installation instructions are for AeroFin. AeroFin may only be installed according to applicable state and local health permitting authority requirements.

If unsure of the installation requirements for a site, contact your permitting authority. If unsure of the applicability of AeroFin for a given site, contact Infiltrator Water Technologies. The soil and site evaluation and the design of the onsite system must be reviewed, approved and a construction permit obtained from the local permitting authority before installation.

Materials and Equipment Needed

- | | |
|---|---|
| <input type="checkbox"/> AeroFin | <input type="checkbox"/> Excavation equipment |
| <input type="checkbox"/> AeroFin Manifold | <input type="checkbox"/> Laser, transit or level |
| <input type="checkbox"/> AeroFin Endcaps | <input type="checkbox"/> Shovel and rake |
| <input type="checkbox"/> System sand | <input type="checkbox"/> 4-in inspection port and cap |
| <input type="checkbox"/> AeroFin Row Spacer(s) | <input type="checkbox"/> Tape measure |
| <input type="checkbox"/> PVC pipe and couplings | |

Common practices shall apply to the installation of AeroFin. These include, but are not limited to:

- avoid soil compaction on the infiltrative surface area, including all areas downslope of a sloped system;
- use a tracked vehicle for material installation if possible;
- avoid installation during wet periods; and
- install the AeroFin components and system sand on the same day that the system footprint is excavated/exposed.

Handling Instructions

Compression of the AeroFin components during transport, storage, or construction shall be avoided.

Excavating and Preparing the Site

NOTE: Do not install the system during periods when the soil is sufficiently wet to exceed its plastic limit, as this causes construction machinery to smear the soil.

1. Stake out the locations of tank(s), pipes, and corners of the system to be tilled/excavated, per system design. Set the elevations as shown on the approved plan.
2. Install sedimentation and erosion control measures if required or needed.

NOTE: The installation of temporary drainage swales/berms (surface diversions) may be necessary to protect the site during rainfall events.

3. Excavate the system area or till the ground as per the design.
4. Rake the bottom and sides (when applicable) of the excavation if smearing has occurred during excavation. Remove large stones and protruding roots.

NOTE: Smearing does not occur in sandy soils, so raking is not necessary. In fine textured soils (silts and clays), avoid walking on the excavation bottom to prevent compaction and loss of soil structure.

5. Verify that the system area is at the proper elevation and slope from side-to-side and from end-to-end using a level, transit, or laser.

Installing AeroFin

1. Install the 6 in. deep system sand basal layer over the entire bed area as per the design. System sand should be leveled and stabilized prior to placement of the AeroFin system. Installer should retain records certifying that system sand meets ASTM C-33 requirements.
2. Assemble the AeroFin Manifold and place it in the proper location(s) on the system sand basal area.
3. Place AeroFin components on the surface of the system sand in the configuration shown on the system design. Using the snap-lock feature, snap the fins to the AeroFin Manifold, then connect fins end-to-end to create rows of the required length.
4. Fin rows shall be installed level to within +/- ½ in. (total 1 in. tolerance) of the specified elevation. A laser level or transit is recommended to ensure proper alignment.
5. Fin rows shall be:
 - installed parallel to the contours; and
 - separated by a minimum of 6 in. of system sand.



AeroFin Row Spacer

Infiltrator offers an installation aid for installing fin rows, ensuring the minimum 6 in. of system sand between fin rows is maintained throughout the system and fins do not move during installation. The AeroFin row spacer is reusable and available where AeroFin components are sold.

6. Once the fins are placed on the surface of the system sand and the distal end manifold system and/or end caps are connected to the fins per design, additional system sand shall be ladled between and to the top of each of the fin rows and lightly compacted by walking in the sand after placement for fin stabilization and support. System sand shall also be installed on each side and at each end of the backfilled fin rows, per the design.
7. Remove AeroFin row spacers and store for next system installation.

Covering the System

NOTE: Before backfilling, the system shall be inspected and approved by a representative of the local permitting authority, in compliance with state and local regulations and procedures.

1. Material placed around the system sand and above the fins may be additional system sand or material meeting state and local requirements. However, the final 6 in. placed above or adjacent to the fins shall be comprised of material that will sustain plant growth.
2. Backfill the system by pushing material over the AeroFin system. It is best to mound several extra inches of soil over the finish grade to allow for settling. This also ensures that runoff is diverted away from the system. Keep a minimum of 12 in. of consolidated cover over the fins before driving over the system with tracked equipment. Do not drive over the system while backfilling in sand.
3. After the system is covered, the site should be seeded or sodded to mitigate the potential for erosion.

NOTE: If the system is for new home construction, it is important to leave marking stakes along the boundary of the system. This will notify contractors of the system location so they will not cross it with equipment or vehicles. Vehicles and equipment should remain clear of the downslope side of the system.

OPERATION AND MAINTENANCE

An AeroFin system may be out of sight, but it definitely should not be out of mind. With proper standard maintenance and by being more aware of daily living habits, AeroFin users will greatly improve the life and health of the system. Here are some guidelines to help you protect your investment.

Inside the Home

1. Large volumes of water over a short period of time will flush untreated solids out of the septic tank into the leachfield.
 - Practice conservation every day.
 - Space out heavy water-using activities such as washing clothes and taking showers.
 - Repair leaky faucets and valves. Consider replacing old fixtures with new low-flow fixtures.
2. Remember that an onsite wastewater treatment system uses natural biological processes so only biodegradable waste should go in it.
 - No cigarette butts, tissues, sanitary napkins, disposable diapers, cat litter, coffee grounds, or cotton swabs, etc.
 - No paints, oils, chemical drain cleaners, thinners, solvents, poisons, or pesticides. These toxic chemicals not only kill helpful bacteria but may contaminate the groundwater.
 - No grease or cooking oils. Grease may harden in the septic tank's scum layer and accumulate until it blocks the inlet or outlet. Hot grease poured down the drain may run through the septic tank and then harden, clogging the system.
 - Minimize garbage disposal use. A garbage disposal typically doubles the rate of solids buildup in the septic tank. To avoid frequent pump outs, compost your food scraps or put it in the trash.
 - Be cautious with household chemicals. Disinfectants, ammonia, bathroom cleaners, bleach, etc. can kill the bacteria the system needs to operate properly. Allow the system to dilute and neutralize them a little at a time.

Outside the Home

1. Have your tank checked for sludge and scum accumulation by a licensed contractor every two to three years. If you have high water usage or a garbage disposal, the inspections should be more frequent.
2. Keep surface water away from the AeroFin installation area. Divert downspouts, roof drainage, driveway runoff, and sump pump discharge away from the system. Landscape the yard to channel rainwater away.
3. Encourage the right plants. Remove trees such as willows that like "wet feet". Their roots may penetrate and damage the dispersal area. Grow grass or native ground cover over the system to prevent soil erosion.
4. Avoid physical damage. Don't drive over the system or compact the soil with heavy equipment. Don't dig in or build anything on the system.

Trouble Shooting

In the event of a system malfunction, contact a licensed contractor. Indications the system may need service include persistent septic odor; unusually wet area atop and/or around the system; "ponding" of effluent on the surface; or "breakout" of effluent along the side of a slope.

Repair

OPERATION AND MAINTENANCE

The licensed contractor shall be contacted when there are indications of malfunction with AeroFin. When visiting the site, the licensed contractor shall do the following:

- Assess the present condition of the AeroFin system, and the surrounding area
- Research the history of use, including:
 - water volume use
 - contaminants
- Evaluate site for groundwater intrusion and surface water drainage patterns
- Inspect septic tank
- Inspect the fins
- Check the home for leaks

Upon completion of the site visit, the licensed contractor can contact the Infiltrator Water Technologies Technical Services Department for assistance if necessary.

WARRANTY

INFILTRATOR WATER TECHNOLOGIES STANDARD LIMITED WARRANTY

(a) The structural integrity of each unit, end cap and other accessory manufactured by Infiltrator (collectively referred to as “Units”), when installed and operated in an onsite wastewater system in accordance with Infiltrator’s installation instructions, is warranted to the original purchaser (“Holder”) against defective materials and workmanship for one year from the date upon which a septic permit is issued for the septic system containing the Units; provided, however, that if a septic permit is not required for the septic system by applicable law, the one (1) year warranty period will begin upon the date that installation of the septic system commences. In order to exercise its warranty rights, Holder must notify Infiltrator in writing at its corporate headquarters in Old Saybrook, Connecticut within fifteen (15) days of the alleged defect. Infiltrator will supply replacement Units for those Units determined by Infiltrator to be defective and covered by this Limited Warranty. Infiltrator’s liability specifically excludes the cost of removal and/or installation of the Units.

(b) THE LIMITED WARRANTY AND REMEDIES IN SUBPARAGRAPH (a) ARE EXCLUSIVE. THERE ARE NO OTHER WARRANTIES WITH RESPECT TO THE UNITS, INCLUDING NO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

(c) This Limited Warranty shall be void if any part of the AeroFin system (unit, end cap or other accessory) is manufactured by anyone other than Infiltrator. The Limited Warranty does not extend to incidental, consequential, special or indirect damages. Infiltrator shall not be liable for penalties or liquidated damages, including loss of production and profits, labor and materials, overhead costs, or other losses or expenses incurred by the Holder or any third party. Specifically excluded from Limited Warranty coverage are damage to the Units due to ordinary wear and tear, alteration, accident, misuse, abuse or neglect of the Units; the Units being subjected to vehicle traffic or other conditions which are not permitted by the installation instructions; failure to maintain the minimum ground covers set forth in the installation instructions; the placement of improper materials into the system containing the Units; failure of the Units or the septic system due to improper siting or improper sizing, excessive water usage, improper grease disposal, or improper operation; or any other event not caused by Infiltrator. This Limited Warranty shall be void if the Holder fails to comply with all of the terms set forth in this Limited Warranty.

Further, in no event shall Infiltrator be responsible for any loss or damage to the Holder, the Units, or any third party resulting from installation or shipment, or from any product liability claims of Holder or any third party. For this Limited Warranty to apply, the Units must be installed in accordance with all site conditions required by state and local codes; all other applicable laws; and Infiltrator’s installation instructions.

(d) No representative of Infiltrator has the authority to change this Limited Warranty in any manner whatsoever, or to extend this Limited Warranty. No warranty applies to any party other than the original Holder.

The above represents the standard Limited Warranty offered by Infiltrator. A limited number of states and counties have different warranty requirements. Any purchaser of Units should contact Infiltrator’s corporate headquarters in Old Saybrook, Connecticut, prior to such purchase, to obtain a copy of the applicable warranty, and should carefully read that warranty prior to the purchase of Units.



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