

# Design and Installation Manual for Infiltrator Quick4 Standard and Quick5 Standard Chambers Pennsylvania

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The purpose of this product manual is to provide specific design and installation information pertinent for the use of PADEP approved Infiltrator products in Pennsylvania. **For more detailed design information, please contact Infiltrator Water Technologies at (800) 221-4436.**

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# PRODUCTS

## Quick4 Standard Chambers

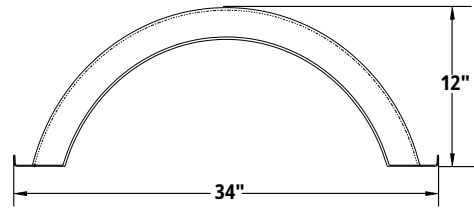
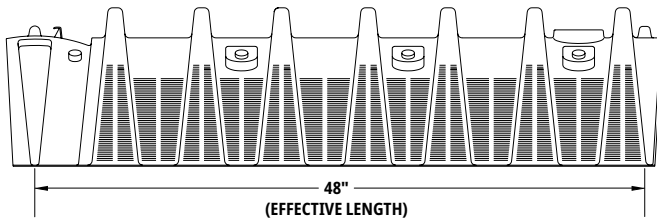
The Quick4 Standard chambers can be installed in a 36-inch wide trench. The Contour Swivel Connection allows the chamber to swivel 10 degrees, right or left. Infiltrator chambers can be used in installations of pressurized sand mounds, beds, and trench systems. There is a variety of system inletting options to choose from.

### Quick4 Standard nominal chamber specifications

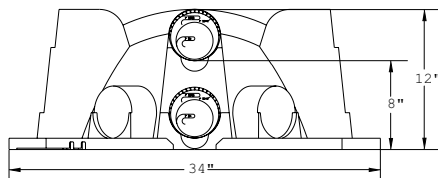
Size	34"W x 53"L x 12"H
Effective Length	48"
Chamber Rating	4.72 sf/lf or 18.88 ft <sup>2</sup>
Endcap Length	2.21 lf*
Endcap Rating	10.43 sf/pair

\*Effective length for installed pair of endcaps

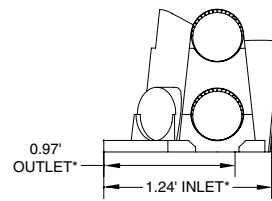
### TYPICAL SIDE AND END VIEWS (NOT TO SCALE)



### MULTIPORT ENDCAP (NOT TO SCALE)



FRONT VIEW



SIDE VIEW

\*INSTALLED LENGTHS.

### Quick4 Standard Chamber



### Quick4 Standard MultiPort Endcap



## Quick5 Standard Chambers

The Quick5 Standard chambers can be installed in a 36-inch wide trench. The Contour Swivel Connection allows the chamber to swivel 10 degrees, right or left. Infiltrator chambers can be used in installations of pressurized sand mounds, beds, and trench systems. There is a variety of system inletting options to choose from.

### Quick5 Standard nominal chamber specifications

Size	34"W x 65"L x 12"H
Effective Length	60"
Chamber Rating	4.72 sf/lf or 23.61 sf
Endcap Length	2.21 lf*
Endcap Rating	10.43 sf/pair

\*Effective length for installed pair of endcaps

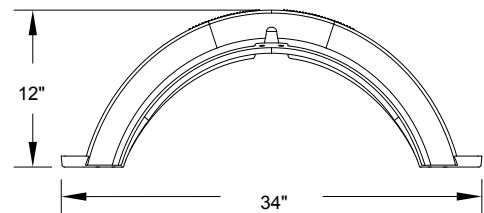
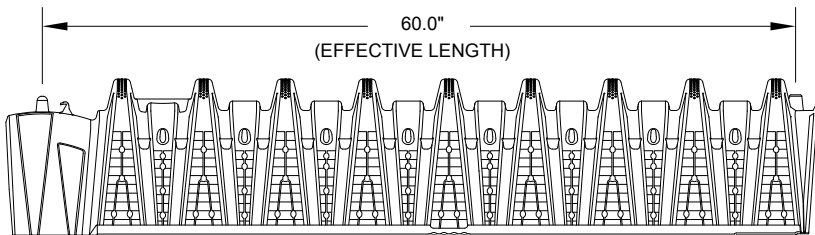
**Quick5 Standard Chamber**



**Quick5 Standard MultiPort Endcap**



### TYPICAL SIDE AND END VIEWS (NOT TO SCALE)



# ELEVATED SAND MOUNDS

## System Sizing for Quick4 Standard Chambers in Elevated Sand Mounds

TABLE 1: QUICK4 STANDARD CHAMBERS IN ELEVATED SAND MOUNDS

Percolation Rate <sup>1</sup>	Number of Bedrooms				
	3	4	5	6	Each Additional
	Minimum Number of Chambers Required <sup>2,3</sup>				
3-5	32	40	48	56	8
6-15	32	40	48	56	8
20	32	40	48	56	8
25	32	40	48	56	8
30	32	40	48	56	8
35	35	44	52	61	9
40	38	47	56	66	10
45	41	51	61	71	11
50	43	53	64	75	11
55	45	56	68	79	12
60	48	59	71	83	12
65	50	62	74	87	13
70	52	65	77	90	13
75	54	67	81	94	14
80	56	70	84	98	14
85	58	73	87	101	15
90	60	75	90	105	15
95	62	77	93	108	16
100	64	80	96	111	16
105	66	82	98	115	17
110	67	84	101	118	17
115	69	86	104	121	18
120	71	89	106	124	18
130	78	97	117	136	20
140	81	101	122	142	21
150	85	106	127	148	22
160	92	115	138	160	23
170	95	119	142	166	24
180	98	123	147	172	25

**NOTES:**

<sup>1</sup> For average percolation rates that fall between the numbers listed, please refer to Table A of Title 25 Pa. Code § 73.16.

<sup>2</sup> Minimum Number of Chambers Required: Square Feet Required ÷ Chamber Rating (18.88 SF/Chamber) = Number of Chambers. When calculating the required number of chambers, always round up to the nearest full chamber.

<sup>3</sup> The number of chambers in the table does not include combined Multiport inlet and outlet Endcaps that provide an additional sizing benefit to the system. Each row of chambers requires two end caps. A sizing factor of 10.43 SF per pair may be applied to account for the Multiport End Caps. The minimum number of chambers listed above may be reduced by accounting for the number of Multiport Endcaps installed.

# ELEVATED SAND MOUNDS

## System Sizing for Quick5 Standard Chambers in Elevated Sand Mounds

TABLE 2: QUICK5 STANDARD CHAMBERS IN ELEVATED SAND MOUNDS

Percolation Rate <sup>1</sup>	Number of Bedrooms				
	3	4	5	6	Each Additional
	Minimum Number of Chambers Required <sup>2,3</sup>				
3-5	26	32	39	45	7
6-15	26	32	39	45	7
20	26	32	39	45	7
25	26	32	39	45	7
30	26	32	39	45	7
35	28	35	42	49	7
40	30	38	45	53	8
45	33	41	49	57	9
50	34	43	51	60	9
55	36	45	54	63	9
60	38	48	57	66	10
65	40	50	59	69	10
70	41	52	62	72	11
75	43	54	65	75	11
80	45	56	67	78	12
85	47	58	70	81	12
90	48	60	72	84	12
95	50	62	74	87	13
100	51	64	76	89	13
105	53	66	79	92	14
110	54	67	81	94	14
115	55	69	83	97	14
120	57	71	85	99	15
130	62	78	93	109	16
140	65	81	97	113	17
150	67	84	101	118	17
160	74	92	110	128	19
170	76	95	114	133	19
180	79	98	118	137	20

**NOTES:**

<sup>1</sup> For average percolation rates that fall between the numbers listed, please refer to Table A of Title 25 Pa. Code § 73.16.

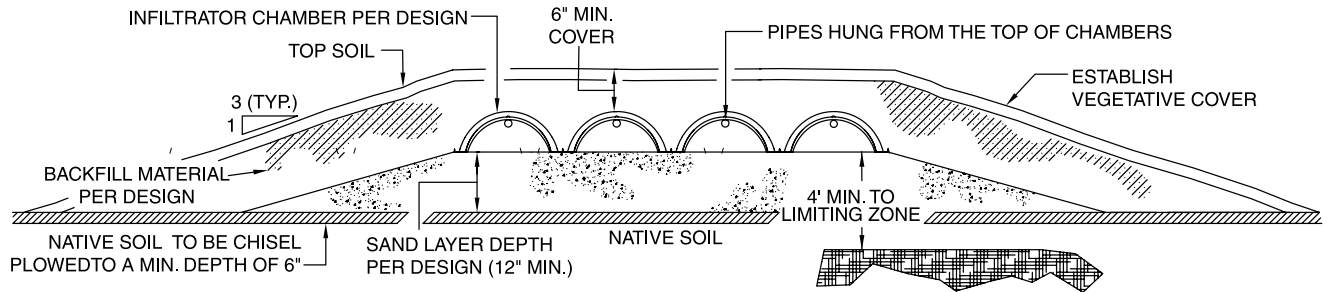
<sup>2</sup> Minimum Number of Chambers Required: Square Feet Required ÷ Chamber Rating (23.61 SF/Chamber) = Number of Chambers. When calculating the required number of chambers, always round up to the nearest full chamber.

<sup>3</sup> The number of chambers in the table does not include combined Multiport inlet and outlet Endcaps that provide an additional sizing benefit to the system. Each row of chambers requires two end caps. A sizing factor of 10.43 SF per pair may be applied to account for the Multiport End Caps. The minimum number of chambers listed above may be reduced by accounting for the number of Multiport Endcaps installed.

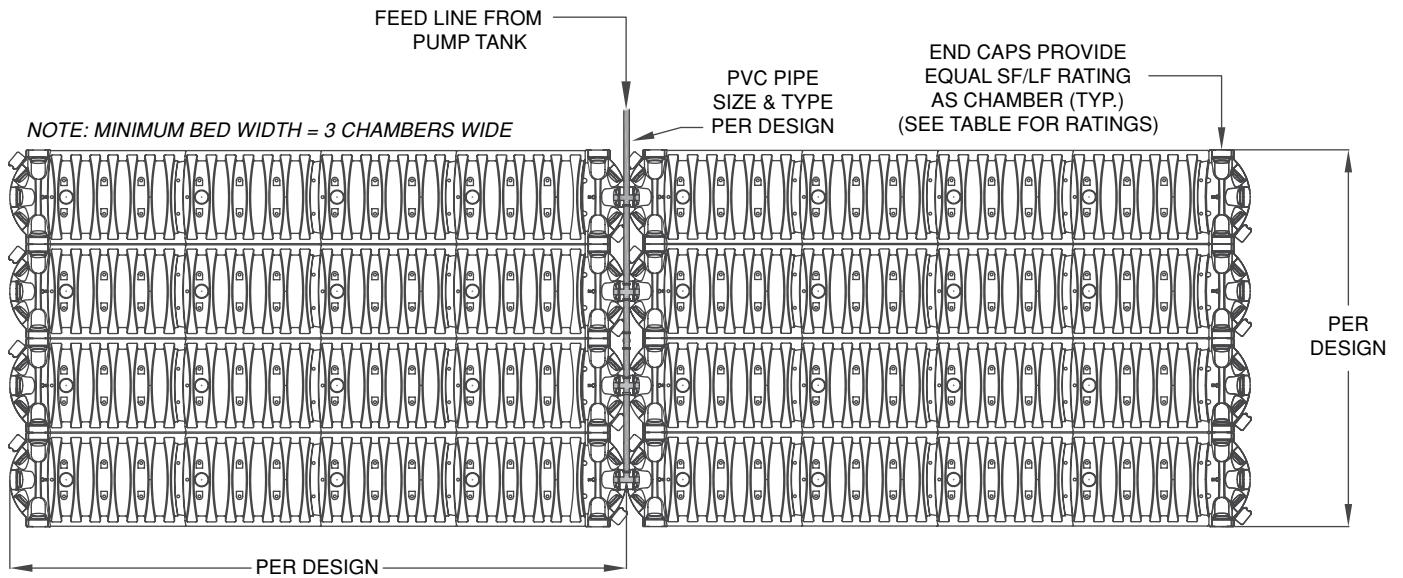
# ELEVATED SAND MOUNDS

## Distribution Lines in Each Row of Chambers Configurations

### ELEVATED SAND MOUND, CROSS SECTION (NOT TO SCALE)



### CENTER FED FROM PRESSURE HEADER MANIFOLD, PLAN VIEW (NOT TO SCALE)



**NOTES:**

- Pipes must be hung from top of chambers (see detail).
- On slopes greater than 8% the absorption area must have a minimum length to width ratio of 4 to 1.
- Infiltrator chambers are not required to conform to orifice spacing standard established by 73.44 (c) (8).
- Minimum bed width is 3 chambers or 8.5 feet.
- Asymmetrical mound configurations are permissible (see System Sizing Example). The maximum allowable length difference between chamber rows on either side of the feed line from the pump tank is 6 feet.

## Installation Instructions for Quick4 Standard and Quick5 Standard Pressurized Sand Mound Systems

### Before You Begin

These installation instructions are for Quick4 Standard chambers and Quick5 Standard chambers in Pennsylvania. These chambers may only be installed according to state regulations and guidance.

#### Materials and Equipment Needed

- Quick4 chambers
- Utility Knife or Hole Saw
- Multiport Endcaps
- Backhoe/Bulldozer/Skid-Steer
- Pressure Lateral Pipe
- Glue
- Specified Sand and Clean Soil Fill
- Rake
- Plastic Pipe Straps, all Weather, 120 lb. Tensile Strength (nylon prohibited)
- Garden hose\*
- Chisel plow\*
- Paving blocks\* \*Optional

#### These guidelines for construction machinery must be followed during installation.

- Avoid direct contact with chambers when using construction equipment. Chambers require a 12-inch minimum of compacted cover to support a wheel load rating of 16,000 lbs/axle or equivalent to an H-10 AASHTO load rating.
- Never drive wheeled machinery over chambers.
- Avoid stones larger than 3 inches in diameter in backfill. Remove stones this size or larger that are in contact with chambers.

### Preparing the Site

**NOTE:** As is the case with conventional systems, do not install the systems in wet conditions or in overly moist soils, as this causes machinery to smear the soil.

1. Calculate the number of sand lifts necessary. Lifts should measure 6 to 12 inches in height.
2. Confirm that the sand used to build the mound meets Pennsylvania Code. Sand should meet requirements of Chapter 73, Section 73.55 (c).
3. Install sedimentation and erosion control measures.
4. Cut trees flush to the ground, remove surface boulders that can be easily rolled off, and remove vegetation.
5. Rough or plow the area parallel with the contour of the land. Do this by using a multiple share plow, chisel plow or a similar implement attached to lightweight equipment. Rotary tilling is prohibited.



1.

### Placing the Sand

1. Use a dozer or backhoe to evenly spread a one-foot lift of specified sand over required area.

**NOTE:** Compaction is critical to prevent settling and will not have a significant effect on permeability of specified sand.

2. To obtain the necessary compaction, a tracked vehicle or wheeled backhoe can be driven over the entire bed. After first tracks are made across the bed, move across the bed at increments equal to the width of the wheels/tracks. A vibratory plate compactor may also be used for compaction. Optimal moisture content to aid compaction is approximately 10%. Add water as necessary to obtain appropriate moisture content.

3. Place consecutive lifts following Steps 1 and 2 until design elevation is achieved (desired elevation is the infiltrative surface). Lifts should not exceed a 12-inch height.

4. Lightly drag a landscape rake over the final infiltrative surface to scarify the top 1/2 inch of the sand. Check bed elevation to be sure it is level.

### Installing Chambers and Endcaps

1. To allow pressure laterals to drain after each dose, drill a hole in the bottom of the pipe at the end of the pressure line. Place the snap-off splash plate or a paving block at the bottom of the trench to protect the infiltrative surface from erosion.



1. Drill hole.

2. With a hole saw, drill out the appropriate diameter hole to accommodate the pressure lateral pipe.

3. Insert the pressure lateral pipe into the endcap's drilled opening and slide it into the manifold pipe. Glue the pressure lateral pipe to the manifold pipe.

4. With the pressure lateral pipe through the endcap, place the inlet end of the first chamber over the back edge of the endcap.



2. Drill hole with hole saw.



4. Place inlet end.

# ELEVATED SAND MOUNDS

5. Secure the pressure lateral pipe to the top of the first chamber with a plastic pipe strap at the outlet end of the unit. Slide the strap up through a slot in the chamber top, down through the other slot, and cinch the two ends around the pipe.
6. Lift and place the next chamber onto the previous one at a 90-degree angle. Line up the chamber end between the connector hook and locking pin at the top of the first chamber. Lower it to the ground to engage the interlocks.
7. Secure the lateral pipe to the top of the next chamber once in place. Follow the same method in Step 5.
8. Continue interlocking chambers and securing the pipe until the row is completed.
9. Before attaching the final endcap, remove the tongue of the connector hook on the last chamber with a pair of pliers.
10. Insert the pressure lateral pipe through the hole in the final endcap and slide the endcap towards the last chamber. Lift the endcap over the modified connector hook and push straight down to secure it to the chamber.



5. Secure the pressure lateral pipe.



9. Remove tongue of connector hook.



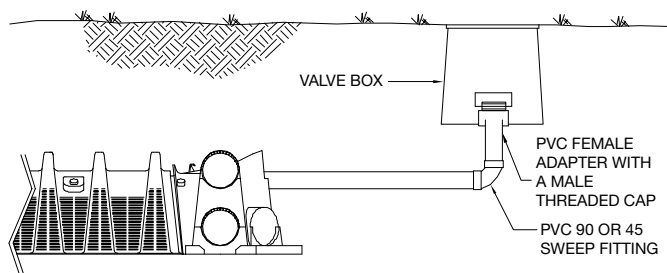
10. Attached endcap.

**NOTE:** If cleanout extensions are required, use a hole saw to cut a hole in the endcap at the proper elevation so that the lateral pipe can extend. For clean-out access, a 90-degree elbow that extends to the soil's surface can be attached to the lateral pipe.

11. If installing multiple rows of chambers, follow Steps 1-9 to lay the next row of chambers parallel to the first. Keep a minimum separation distance between each row of chambers as required by regulation.

## ACCESS FOR DRAINFIELD MAINTENANCE AND FLUSHING (Optional)

(Optional)

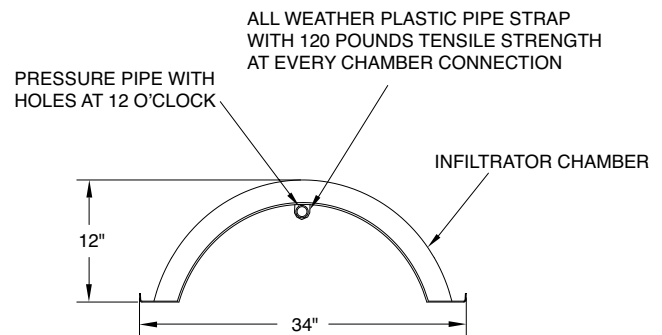
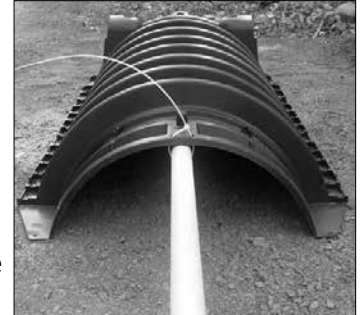


## Pressure Pipe Design

### TOP PLACEMENT

The pressure pipe may be installed at the top of the chamber for all allowable pressure applications. Advantages:

- Pipe and orifice placed closer to the chamber dome offer improved distribution
- Pipe positioned at the top of the chamber places it well above effluent
- Plastic pipe hanger easily secures pipe in place
- If necessary, trim excess plastic pipe strap before connecting chambers



## Covering the System

Before backfilling, the system must be inspected by an SEO as required by state code. The system should be installed exactly as designed.

1. Place a 2-foot-high pile of berm material around the perimeter of the sand mound and directly against the outer rows of chambers for stabilization.
2. Ladle soil between the chamber rows to the top sidewall louver to prevent chamber movement before final backfill. Firm the soil between the chamber rows by walking it in. This important step assures correct structural support of the system.
3. Push the berm material between and over the chamber rows with a tracked vehicle from the upslope side. Keep a minimum 12 inches of cover over the system. Any compaction of backfill shall be with the tracks of the equipment used for material placement.

**NOTE:** No wheeled machinery is allowed on chambers in mounds. Tracked vehicles may be used.

4. After the system is covered, the site should be seeded or sodded to prevent erosion.

**NOTE:** It is important to place marking stakes along the boundary of the system. This will notify contractors of the chamber system location so they will not traverse it with

The following example is based on the Pennsylvania DEP's minimum requirements in Table A of Section 73.16 for sizing the absorption area. System Design Example for an Elevated Sand Mound

## SYSTEM DESIGN EXAMPLES FOR AN ELEVATED SAND MOUND (ESM)

NOTE: This example is for illustration purposes only.

Given the following information for both examples below:

House size: 3 bedrooms  
 Daily flow rate: 400 gal/day  
 Percolation rate: 6-15 min/inch  
 Square Feet of Aggregate Area Per Gallon Per Day: 1.50

### 1) Quick4 Chamber System Calculations

**STEP 1: DETERMINE REQUIRED SQUARE FOOTAGE:**

$$400 \text{ gal/day} \times 1.50 \text{ sq ft/gal/day} = 600 \text{ sf required}$$

**STEP 2: DETERMINE TOTAL NUMBER OF QUICK4 CHAMBERS REQUIRED:**

$$600 \text{ sf} \div 18.88 \text{ sf/chamber (Quick4 chamber rating)} = 32 \text{ chambers}$$

#### System layout (with endcap credit)

Install the system in a bed layout using a center-fed manifold

The following example shows how to reduce the number of chambers required by taking advantage of the MultiPort Endcap credit.

**STEP 3: ADJUST FOR MULTIPORT ENDCAP BOTTOM AREA CREDIT**

Assume 6 laterals of chambers in this design

Divide 32 chambers required by 6 laterals = 5.33 chambers/row

6 laterals x 2 MultiPort endcaps per lateral = 12 endcaps (6 pairs)

6 pairs x 10.43 sf per pair (endcap credit) = 62.58 sf provided

62.58 sf ÷ 18.88 sf per chamber = 3.31 chambers replaced

(NOTE: You must round-down)

Total number of chambers required = 32 - 3 = 29 Quick4 Standard chambers

**STEP 4: DETERMINE FINAL LAYOUT OF SYSTEM**

5 laterals of 5 chambers

1 lateral of 4 chambers

5 laterals of 5 chambers with MultiPort endcaps:

Each lateral = 20 lf + 4.42 lf = 24.42 lf

1 lateral of 4 chambers = 16 lf + 4.42 lf = 20.42 lf

Overall Length: 24.42 ft x 2 = 48.84 lf

Min. Width: 3 rows x 2.83 ft = 8.49 lf

**STEP 5: CALCULATE TOTAL SQUARE FOOTAGE PROVIDED**

Total square footage provided by chambers: 29 x 18.88 = 547.52

Total square footage provided by end caps: 62.58

547.52 + 62.58 = 610.1 sf

### 2) Quick5 Chamber System Calculations

**STEP 1: DETERMINE REQUIRED SQUARE FOOTAGE:**

$$400 \text{ gal/day} \times 1.50 \text{ sq ft/gal/day} = 600 \text{ sf required}$$

**STEP 2: DETERMINE TOTAL NUMBER OF QUICK5 CHAMBERS REQUIRED:**

$$600 \text{ sf} \div 23.61 \text{ sf/chamber (Quick5 chamber rating)} = 26 \text{ chambers}$$

#### System layout (with endcap credit)

Install the system in a bed layout using a center-fed manifold (see plan view below).

The following example shows how to reduce the number of chambers required by taking advantage of the MultiPort Endcap credit.

**STEP 3: ADJUST FOR MULTIPORT ENDCAP BOTTOM AREA CREDIT**

Assume 6 laterals of chambers in this design

Divide 26 chambers required by 6 laterals = 4.33 chambers/row

6 laterals x 2 MultiPort endcaps per lateral = 12 endcaps (6 pairs)

6 pairs x 10.43 sf per pair (endcap credit) = 62.58 sf provided

62.58 sf ÷ 23.61 sf per chamber = 2.65 chambers replaced

(NOTE: You must round-down)

Total number of chambers required = 26 - 2 = 24 Quick5 Standard chambers

**STEP 4: DETERMINE FINAL LAYOUT OF SYSTEM**

6 laterals of 4 chambers

6 laterals of 4 chambers with MultiPort endcaps:

Each lateral = 20 lf + 4.42 lf = 24.42 lf

Overall Length: 24.42 lf x 2 = 48.84 lf

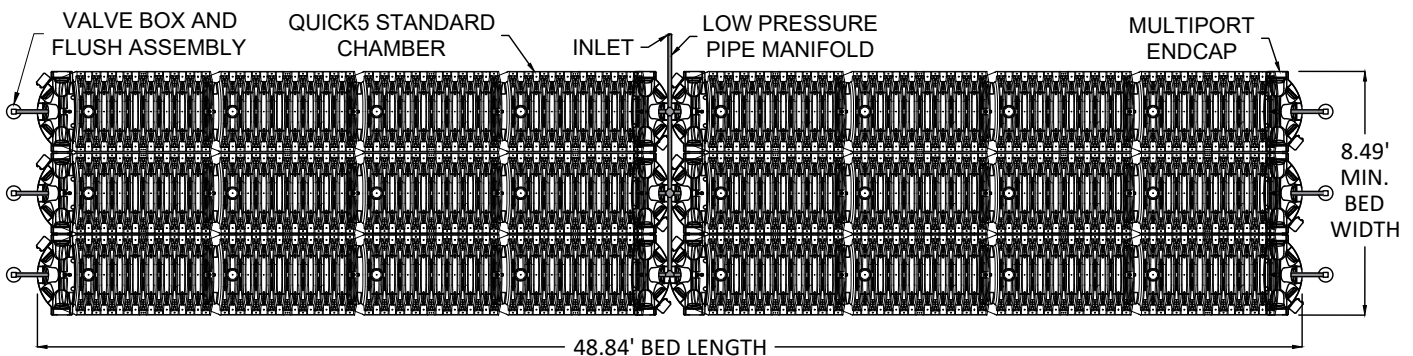
Min. Width: 3 rows x 2.83 ft = 8.49 lf

**STEP 5: CALCULATE TOTAL SQUARE FOOTAGE PROVIDED**

Total square footage provided by chambers: 24 x 23.61 = 566.64

Total square footage provided by end caps: 62.58

566.64 + 62.58 = 629.22 sf



# TRENCH AND BED SYSTEMS

## System Sizing for Quick4 Standard Chambers in Trenches and Beds

**TABLE 3: QUICK4 STANDARD CHAMBERS IN TRENCHES AND BEDS**

Percolation Rate <sup>1</sup> min/inch	Quick4 Standard Chamber				
	3	4	5	6	Each Additional
	Minimum Number of Chambers Required <sup>2,3</sup>				
6-15	26	32	38	45	7
20	30	37	45	52	8
25	34	43	51	59	9
30	38	48	57	67	10
35	42	52	62	72	11
40	45	56	67	78	12
45	48	60	72	84	12
50	51	64	76	89	13
55	54	67	81	94	14
60	57	71	85	99	15
65	59	74	89	103	15
70	62	77	92	108	16
75	64	80	96	112	16
80	67	83	100	116	17
85	69	86	103	120	18
90	71	89	107	125	18

**NOTES:**

<sup>1</sup> For average percolation rates that fall between the numbers listed, please refer to Table A of Title 25 Pa. Code § 73.16.

<sup>2</sup> Minimum Number of Chambers Required: Square Feet Required ÷ Chamber Rating (18.88 SF/Chamber) = Number of Chambers. When calculating the required number of chambers, always round up to the nearest full chamber.

<sup>3</sup> The number of chambers in the table does not include combined Multiport inlet and outlet Endcaps that provide an additional sizing benefit to the system. Each row of chambers requires two end caps. A sizing factor of 10.43 SF per pair may be applied to account for the Multiport End Caps. The minimum number of chambers listed above may be reduced by accounting for the number of Multiport Endcaps installed.

**System Sizing for Quick5 Standard Chambers in Trenches and Beds**

**TABLE 4: QUICK5 STANDARD CHAMBERS IN TRENCHES AND BEDS**

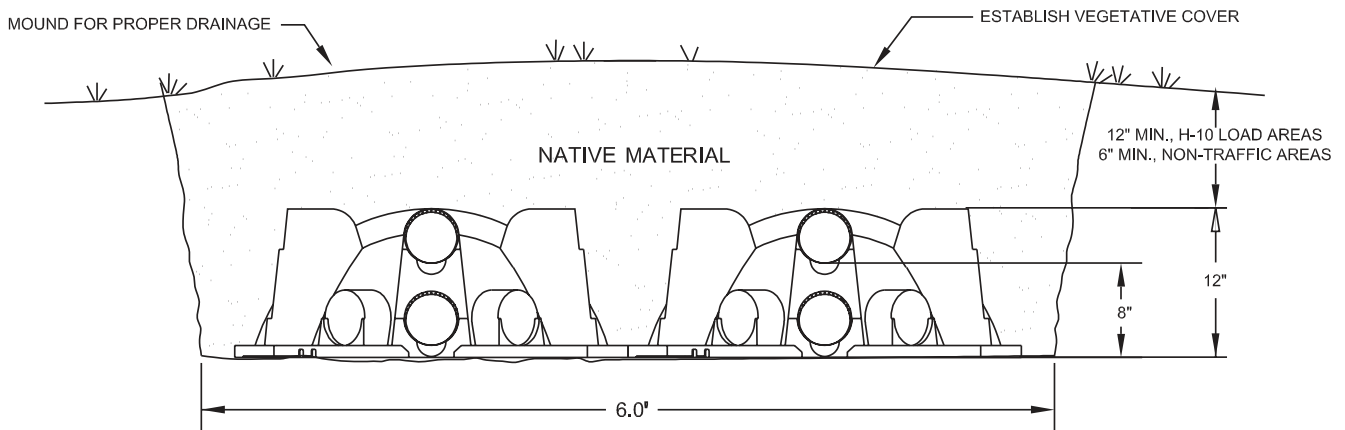
Percolation Rate <sup>1</sup> min/inch	Quick5 Standard Chamber				
	3	4	5	6	Each Additional
	Minimum Number of Chambers Required <sup>2,3</sup>				
6-15	21	26	31	36	6
20	24	30	36	42	6
25	27	34	41	48	7
30	31	38	46	54	8
35	33	42	50	58	9
40	36	45	54	62	9
45	38	48	57	67	10
50	41	51	61	71	11
55	43	54	65	75	11
60	46	57	68	79	12
65	48	59	71	83	12
70	49	62	74	86	13
75	51	64	77	90	13
80	53	67	80	93	14
85	55	69	83	96	14
90	57	71	86	100	15

- NOTES:**
- <sup>1</sup> For average percolation rates that fall between the numbers listed, please refer to Table A of Title 25 Pa. Code §73.16
  - <sup>2</sup> Minimum Number of Chambers Required: Square Feet Required ÷ Chamber Rating (23.61 SF/Chamber) = Number of Chambers. When calculating the required number of chambers, always round up to the nearest full chamber.
  - <sup>3</sup> The number of chambers in the table does not include combined Multiport inlet and outlet Endcaps that provide an additional sizing benefit to the system. Each row of chambers requires two end caps. A sizing factor of 10.43 SF per pair may be applied to account for the Multiport End Caps. The minimum number of chambers listed above may be reduced by accounting for the number of Multiport Endcaps installed.

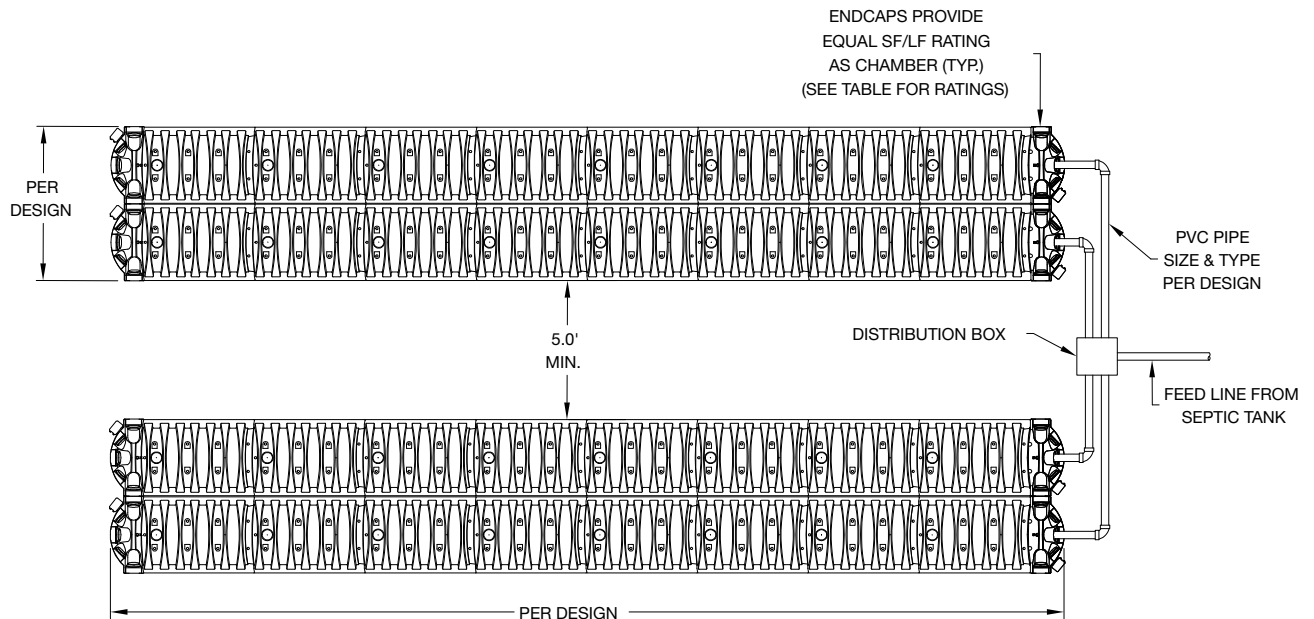
# TRENCH AND BED SYSTEMS

## Quick4 Standard or Quick5 Standard Side-by-Side Trench Configurations

### TYPICAL CROSS SECTION (NOT TO SCALE)

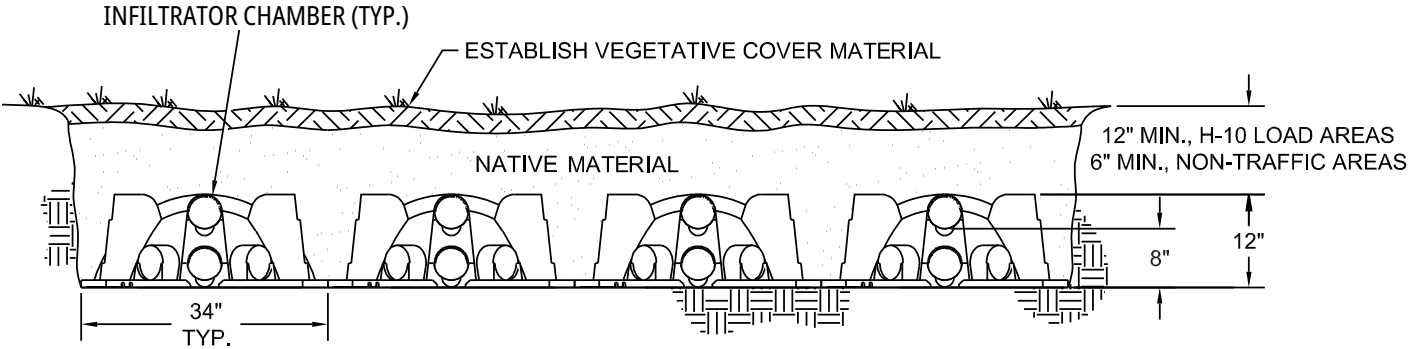


### TYPICAL PLAN VIEW (NOT TO SCALE)



Quick4 Standard or Quick5 Standard  
Bed Configuration

TYPICAL CROSS SECTION  
(NOT TO SCALE)



# TRENCH AND BED SYSTEMS

## Installation Instructions for Quick4 Standard and Quick5 Standard Trench and Bed Systems

### Before You Begin

These installation instructions are for Quick4 Standard and Quick5 Standard chambers in Pennsylvania. These chambers may only be installed according to state regulations and guidance.

#### Materials and Equipment Needed

- Infiltrator Chambers
- Multiport Endcaps
- Pressure Lateral Pipe
- Sand and Specified Fill Material
- Backhoe
- Laser, transit or level
- Shovel and rake
- Tape measure
- Utility knife or screwdriver
- Hole saw\*
- 2" drywall screws\*
- Small valve cover box\*

\*Optional

#### These guidelines for construction machinery must be followed during installation.

- Avoid direct contact with chambers when using construction equipment. Chambers require a 12-inch minimum of compacted cover to support a wheel load rating of 16,000 lbs/axle or equivalent to an H-10 AASHTO load rating.
- Never drive down the length of the trenches.
- To avoid additional soil compaction, never drive vehicles over the completed system.

### Excavating and Preparing the Site

**NOTE:** As is the case with conventional systems, do not install the systems in wet conditions or in overly moist soils, as this causes machinery to smear the soil.

1. Stake out the location of all trenches and lines. Set the elevations of the tank, pipe, and trench bottom.
2. Install sedimentation and erosion control measures. Temporary drainage swales/berms may be installed to protect the site during rainfall events.
3. Excavate and level trenches with proper center-to-center separation in accordance with permit design. Verify that the trenches are level or have the prescribed slope and width.
4. Rake the bottom and sides if smearing has occurred while excavating. Remove any large stones and other debris.

### Preparing the Endcap

1. Identify the proper inlet location on the endcap and the outer diameter of the inlet pipe. Based on the pipe diameter select a properly sized hole saw to create the inlet opening.

**NOTE:** that a 3.5-inch hole saw is required for a tight fit with 3-inch SCH40 pipe, a 4.25 inch hole saw is required for a tight fit with 4-inch SDR35 pipe, and a 4.5-inch hole saw is required for a tight fit with 4-inch SCH40 pipe.

2. Using a cordless drill with the selected hole saw align the pilot drill on the hole saw with the drill point on the endcap inlet. Drill the hole taking caution to secure the endcap from moving during the drilling procedure.



1. Identify the proper inlet location on the endcap.



2. Drill the hole on the endcap.

3. Snap off molded splash plate located on bottom front of endcap.
4. Install splash plate into the appropriate slots below the inlet to prevent system bottom erosion.
5. Insert the inlet pipe into the endcap at the beginning of the system. Extend the pipe into the endcap roughly 3 inches before reaching the stop. (Screws optional.)



4. Install splash plate.



5. Insert inlet pipe.

### Installing the System

1. Check the header pipe to be sure it is level or has the prescribed slope.
2. Set the invert to appropriate height from the bottom of the trench.
3. Place the inlet end of the first chamber over the back edge of the endcap.
4. Lift and place the end of the next chamber onto the the previous chamber by holding it at a 90-degree angle. Line up the chamber end between the connector hook and locking pin at the top of the first chamber. Lower it to the ground to connect the chambers.



3. Place first chamber onto endcap.

**NOTE:** When the chamber end is placed between the connector hook and locking pin at a 90-degree angle, the pin will be visible from the back side of the chamber.

**NOTE:** The connector hook serves as a guide to insure proper connection and does not add structural integrity to the chamber joint. Broken hooks will not affect the structure nor void the warranty.

5. Swivel the chamber on the pin to the proper direction for the trench layout.

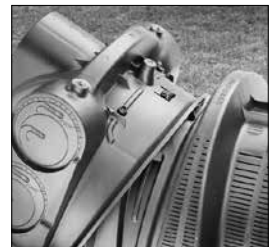
**Note:** The Quick4 chamber allow for 10 degrees of swivel in either direction at each joint.

6. Where the system design requires straight runs, use the StraightLock™ tabs to ensure straight connections. To activate the tabs, pop the tabs up with your thumb to lock into place.

7. Continue connecting chambers until trench is completed.

**Note:** As chambers are installed, verify they are level or have the prescribed slope.

8. The last chamber in the trench requires an endcap. Lift the endcap at a 45-degree angle and insert the connector hook through the opening on the top of the endcap. Applying firm pressure, lower the endcap to the ground to snap it into place. Do not remove the tear-out seal.



8. Attach endcap to chamber.

9. To ensure structural stability, fill the sidewall area by pulling soil from the sides of the trench with a shovel. Start at the joints where the chambers connect. Continue backfilling the entire sidewall area, making sure the fill covers the louvers.
10. Pack down the fill by walking along the edges of the trench and chambers. This is an important step in assuring structural support.
11. Proceed to the next trench and begin with Step 1.

# TRENCH AND BED SYSTEMS AND SYSTEM SIZING WORKSHEET

## Installing Optional Inspection Ports

1. With a hole saw drill the pre-marked area in the top of the chamber to create a 4-inch opening.
2. Set a cut piece of pipe of the appropriate length into the corresponding chamber's inspection port sleeve.  
**NOTE: The sleeve will accommodate a 4-inch Schedule 40 pipe.**
3. Use two screws to fasten the pipe to the sleeve around the inspection port.
4. Attach a threaded cap or cleanout assembly onto the protruding pipe at the appropriate height.
5. A small valve cover box may be used if inspection port is below the desired grade.

## Covering the System

Before backfilling, the system must be inspected by an SEO as required by state code. The system must be installed exactly as designed.

1. Backfill the trench by pushing fill material over the chambers with a backhoe. Keep a minimum of 12 inches of cover over the chambers. Any compaction of backfill shall be with the tracks of the equipment used for material placement.  
**NOTE: No wheeled machinery is allowed on chambers in mounds. Tracked vehicles may be used.**
2. It is best to mound several inches of soil over the finish grade to allow for settling. This ensures that runoff water is diverted away from the system.
3. After the system is covered, the site must be seeded or sodded to prevent erosion.  
**NOTE: It is important to place marking stakes along the boundary of the system. This will notify contractors of the chamber system location so they will not traverse it with equipment or vehicles.**

Below are KEY POINTS that can help you better understand the correct installation of a chamber system by Infiltrator Systems, Inc.

## Sand Mound Construction

- Cut trees close to the ground and remove all vegetation and boulders.
- Rough or plow the area parallel with the contour of the land by using a multiple share plow, chisel plow, or a similar implement. Rotary tilling is prohibited.
- Add the appropriate amount of sand in 12-inch lifts. With a backhoe or dozer, run a single pass over each lift to compact the sand material. Move across the bed at increments equal to the width of the tracks or tires.
- Grade the infiltrative surface to level.
- Lightly drag a landscape rake over the final infiltrative surface to level and scarify the top 1 1/2" of the sand. You are now ready to proceed with the chamber installation.

## Installing the Chambers in Pressurized Systems

- First excavate or build the appropriate sized bed, trenches, or mound.
- Build the manifold for the system laterals in accordance with permitted design.
- Lay the manifold out so that each lateral will be lined up correctly with the endcaps.
- Cut the appropriate-sized hole in the endcaps at the correct elevation.
- Insert the lateral through the hole in the endcap and slide it tight against the manifold.
- Connect and glue all of the laterals to the manifold and cut them to the exact length. Drill the holes in the laterals at the designed dimensions and distances if not already present.
- Attach Infiltrator chambers to the endcaps in each row. Hang the pipe with an appropriate pipe strap at the outlet end of each chamber. Attach the next chamber and continue to hang the lateral from each chamber. The holes should be placed at the 12 o'clock position so that the effluent sprays straight up into the inside of the chamber.
- If a drain back/weep hole is required, place an anti-scouring device under each hole.
- Once each row is the correct length, add a cap to the end of the lateral. If a cleanout is required, drill a hole in the outlet endcap and extend the lateral out through the endcap and up to the ground surface using a 90-degree or 45-degree elbow. A valve box can be installed for access during maintenance.

## Backfilling and Final Grade

- First support the chamber sidewall by adding soil between the chamber rows to the top of the louvers. Pack the soil down by "walking it in." This is a crucial step that assures correct structural support for the chambers.
- Using tracked machinery, push the cover material over the chamber rows lengthwise or across the system from the upslope side. A 12" minimum cover is required over the system to support an AASHTO H-10 load (16,000-pound axle load). No wheeled vehicles are permitted on top of the Infiltrator sand mound. Backhoes and excavator arms may be used to cover the system as well.
- Once the system is covered, the site should be seeded or sodded to prevent erosion.

# WARRANTY

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## Limited Five-Year Warranty for Pennsylvania

(a) Infiltrator Water Technologies (the "Company") warrants that the Infiltrator units, when installed and operated in a leachfield of an on-lot system in accordance with the manufacturer's instructions and the Pennsylvania Department of Environmental Protection's approved on-lot system sizing criteria for chambers and pursuant to all necessary building permits, are warranted for a period of five (5) years from the date of installation (i) to be free from defective materials and workmanship; and (ii) to perform in accordance with the state and local leachfield performance requirements in effect on the date of installation. This warranty extends only to the property owner. For purposes of this warranty, the Infiltrator Chamber System must be installed in accordance with all site conditions required by state and local codes for the installation of drain rock and pipe systems and sized according to the Department of Environmental Protection's approved on-lot system sizing criteria for chambers.

(b) System failures determined to be due to improper siting, excessive water usage, improper grease disposal, or improper operation are not part of this warranty.

Upon notification of a system failure, Infiltrator Water Technologies may, at its option, perform or have performed certain tests to determine the cause of failure. A registered soil scientist or professional engineer may be used to evaluate the soil conditions and compare those conditions with any original evaluation which may appear on the permit.

In order to exercise these warranty rights, the property owner must notify the Company in writing at its corporate headquarters within 15 days of the alleged defect. The notice shall be accompanied by (i) a copy of the warranty which is signed and dated by the installer and the property owner as set forth below; (ii) a copy of the appropriate permit for the septic system; and (iii) proof to the Company's satisfaction that the septic tank has been maintained in accordance with the Company's operating instructions. In the event of a breach of warranty due to a failure of the leachfield, the Company will provide and install Infiltrator units as necessary to extend the size of the leachfield. Infiltrator Water Technologies will not be responsible for pumps and any other necessary mechanical devices needed to extend the leachfield. In the event of any other breach of warranty, the Company will provide replacement Infiltrator units.

(c) THE WARRANTY IN SUBPARAGRAPH (a) AND THE REMEDIES IN SUBPARAGRAPH (b) ARE EXCLUSIVE. THERE ARE NO OTHER WARRANTIES. ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE SHALL NOT EXTEND BEYOND THE PERIOD IN SUBPARAGRAPH (a). THE WARRANTY DOES NOT EXTEND TO INCIDENTAL, CONSEQUENTIAL, SPECIAL, OR INDIRECT DAMAGES. THE COMPANY SHALL NOT BE LIABLE FOR PENALTIES OR LIQUIDATED DAMAGES, LOSS OF PRODUCTION AND PROFITS, LABOR AND MATERIALS, OVERHEAD COSTS, OR OTHER LOSS OR EXPENSE. SPECIFICALLY EXCLUDED ARE DAMAGE DUE TO ORDINARY WEAR AND TEAR, ALTERATION, ACCIDENT, MISUSE, ABUSE, OR NEGLIGENCE; THE UNITS BEING SUBJECTED TO STRESSES OR VEHICLE TRAFFIC GREATER THAN THOSE PRESCRIBED IN THE INSTALLATION INSTRUCTIONS OR OPERATION INSTRUCTIONS; FAILURE TO MAINTAIN THE MINIMUM GROUND COVERS SET FORTH IN THE OPERATION INSTRUCTIONS; THE PLACEMENT OF IMPROPER MATERIALS INTO THE SYSTEM; OR ANY OTHER EVENT NOT CAUSED BY THE COMPANY. THIS WARRANTY SHALL BE VOID IF THE PROPERTY OWNER FAILS TO COMPLY WITH ALL OF THE TERMS SET FORTH IN SUBPARAGRAPH (b).

FURTHERMORE, IN NO EVENT SHALL THE COMPANY BE RESPONSIBLE FOR ANY LOSS OR DAMAGE TO THE PROPERTY OWNER, THE UNITS, OR ANY THIRD PARTY RESULTING FROM THE INSTALLATION OR SHIPMENT OF THE UNITS, OR FROM ANY PRODUCT LIABILITY CLAIMS OF THE ORIGINAL PROPERTY OWNER OR ANY THIRD PARTY. THE COMPANY SHALL NOT BE RESPONSIBLE FOR ENSURING THAT INSTALLATION OF THE SYSTEM IS COMPLETED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES, RULES, AND REGULATIONS.

(d) No representative of the Company has the authority to change this warranty in any manner whatsoever, or to extend this warranty. No warranty applies to any party other than to the property owner.

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**Contact Infiltrator's Technical Services Department  
for assistance at 1-800-221-4436 or [info@infiltratorwater.com](mailto:info@infiltratorwater.com)**