Design and Installation Manual for Quick4® Chambers in Minnesota

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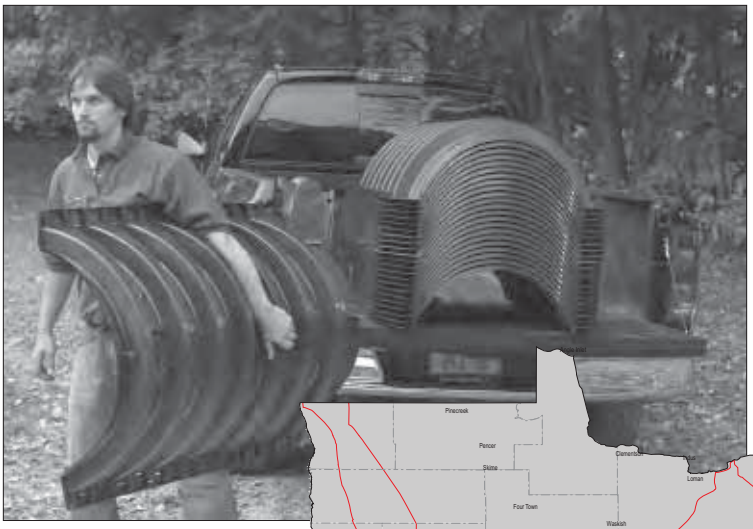

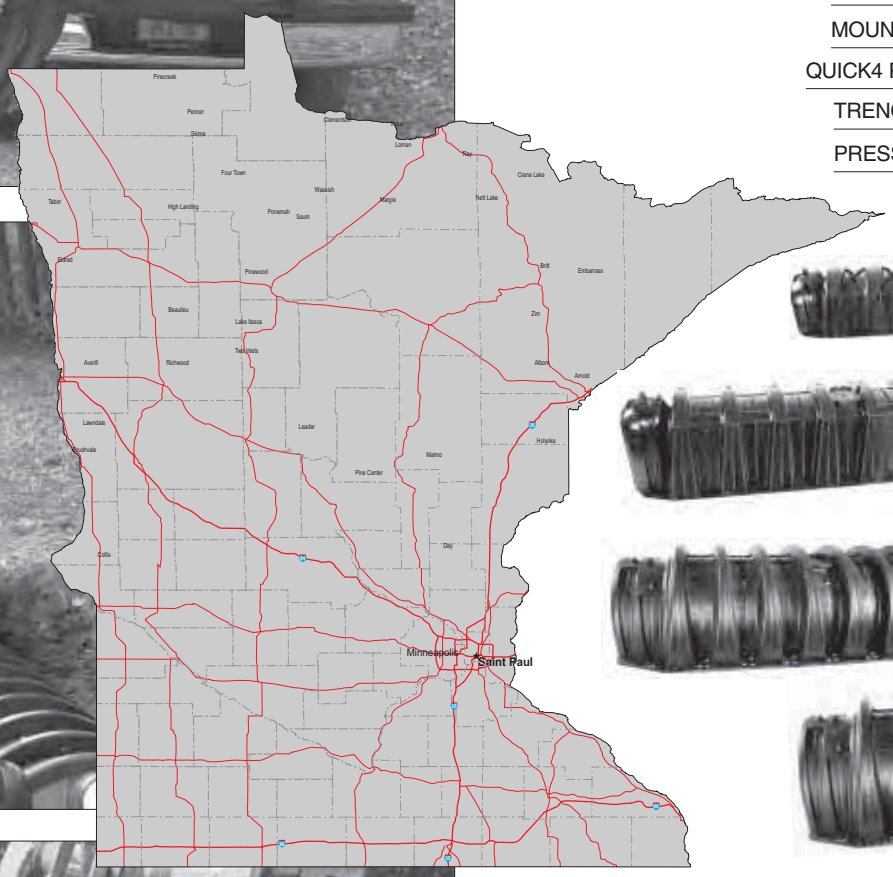

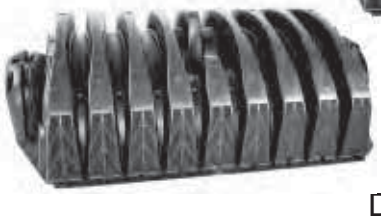

DECEMBER 2009

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The purpose of this manual is to provide minimum specifications for design and installation of Quick4® and Quick4 Plus chambers approved for use in Minnesota in conformance with the Minnesota Pollution Control Agency (MPCA), design standards for individual subsurface sewage treatment systems. Each revised version of this design and installation manual supersedes the previous version. Please contact us or visit our website for more information regarding the most recent version of this design and installation manual.

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

Quick4 Equalizer® 24 LP Chambers

The Quick4 Equalizer 24 LP chamber was designed for shallow placement applications and can be installed in an 18-inch-wide or 24-inch-wide trench. The Low Profile End Cap offers a simple overlap design for easy installation.

Quick4 Equalizer 24 Low Profile (LP)
Nominal Chamber Specifications

Size (W x L x H)	16" x 48" x 8"
Effective Length	48"
Invert Elevation	2", 6"

QUICK4 EQUALIZER 24
LOW PROFILE CHAMBER

LOW PROFILE
END CAP

Quick4 Equalizer 24 Chambers

The Quick4 Equalizer 24 chambers can be installed in an 18-inch-wide or 24-inch-wide trench. The chamber offers advanced contouring capability with its Contour Swivel Connection™. The MultiPort™ End Cap with its six molded-in high and low inlets allows for maximum piping flexibility.

Quick4 Equalizer 24
Nominal Chamber Specifications

Size (W x L x H)	16" x 48" x 12"
Effective Length	48"
Invert Elevation	6"

QUICK4 EQUALIZER 24
CHAMBER

MULTIPORT
END CAP

Quick4 Equalizer 36 Chambers

The patented Quick4 Equalizer 36 chamber can be installed in a 24-inch-wide trench. The chamber offers advanced contouring capability with its Contour Swivel Connection. The MultiPort End Cap with its six molded-in high and low inlets allows for maximum piping flexibility.

Quick4 Equalizer 36
Nominal Chamber Specifications

Size (W x L x H)	22" x 48" x 12"
Effective Length	48"
Invert Elevation	6"

QUICK4 EQUALIZER 36
CHAMBER

MULTIPORT
END CAP

Quick4 Plus™ Standard LP Chambers

The Quick4 Plus Standard Low Profile (LP) chamber can be installed in a 36-inch-wide trench. This chamber is 4 inches shorter than other standard model chambers allowing for shallower installation. The Quick4 Plus All-in-One and the Quick4 Plus Endcaps are available with this chamber, providing increased flexibility in system configurations.

Quick4 Plus Standard Low Profile (LP)
Nominal Chamber Specifications

Size (W x L x H)	34" x 48" x 8"
Effective Length	48"
Invert Elevation	0.6”, 3.3”, 7.3”, 9.0”

QUICK4 PLUS STANDARD LP CHAMBER

QUICK4 PLUS ENDCAP

Quick4 Plus Standard Chambers

The Quick4 Plus Standard chamber can be installed in a 36-inch-wide trench. This chamber offers superior strength through its center structural column. The Quick4 Plus All-in-One and the Quick4 Plus Endcaps are available with this chamber, providing increased flexibility in system configurations.

Quick4 Plus Standard
Nominal Chamber Specifications

Size (W x L x H)	34" x 48" x 12"
Effective Length	48"
Invert Elevation	0.6”, 3.3”, 7.3”, 9.0”

QUICK4 PLUS STANDARD CHAMBER

QUICK4 ALL-IN-ONE ENDCAP

Quick4 Standard Chambers

The Quick4 Standard chamber can be installed in a 36-inch-wide trench and offers advanced contouring capability with its Contour Swivel Connection. The MultiPort End Cap has eight molded-in high and low inlets allowing for maximum piping flexibility. There are a variety of system inletting options to choose from.

Quick4 Plus Standard
Nominal Chamber Specifications

Size (W x L x H)	34" x 48" x 12"
Effective Length	48"
Invert Elevation	8”

QUICK4 STANDARD CHAMBER

MULTIPORT END CAP

Quick4 High Capacity Chambers

The Quick4 High Capacity chamber can be installed in a 36-inch-wide trench. The MultiPort End Cap has eight molded-in high and low inlets to allow piping to enter or exit from multiple directions.

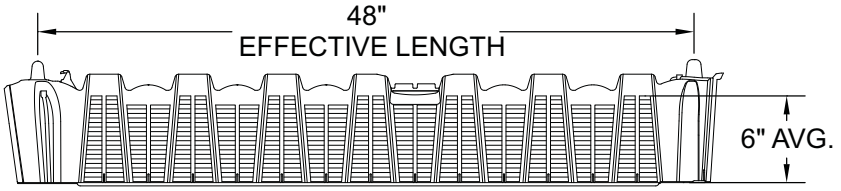
Quick4 Plus High Capacity
Nominal Chamber Specifications

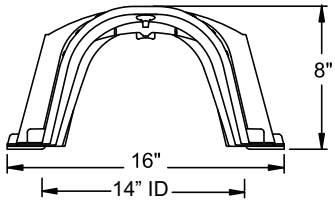
Size (W x L x H)	34" x 48" x 16"
Effective Length	48"
Invert Elevation	11.5”

QUICK4 HIGH CAPACITY CHAMBER

Quick4 Equalizer 24 Low Profile (LP) Chambers

SIDE AND END VIEWS
(not to scale)





LOW PROFILE END CAP
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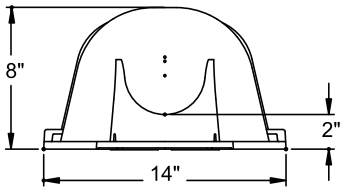
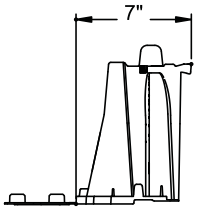


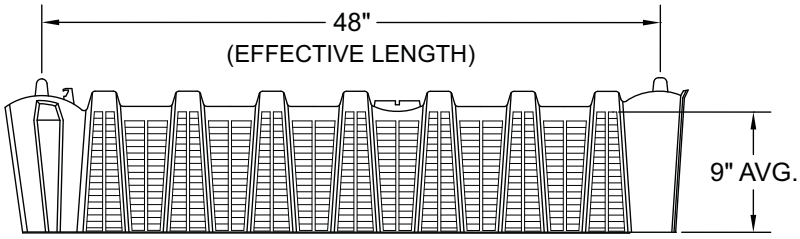
FRONT VIEW

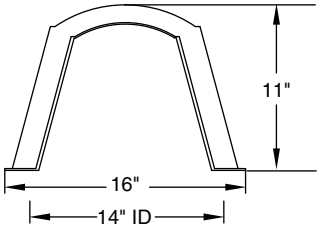


SIDE VIEW

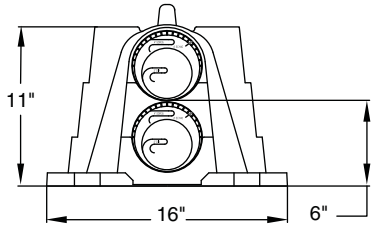
Quick4 Equalizer 24 Chambers

SIDE AND END VIEWS
(not to scale)

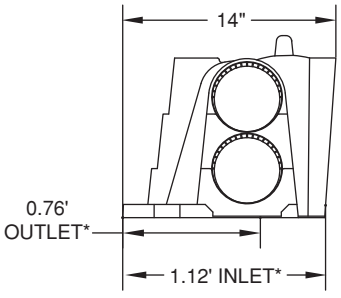




MULTIPORT END CAP
(Not to scale)



FRONT VIEW



SIDE VIEW

* Installed lengths

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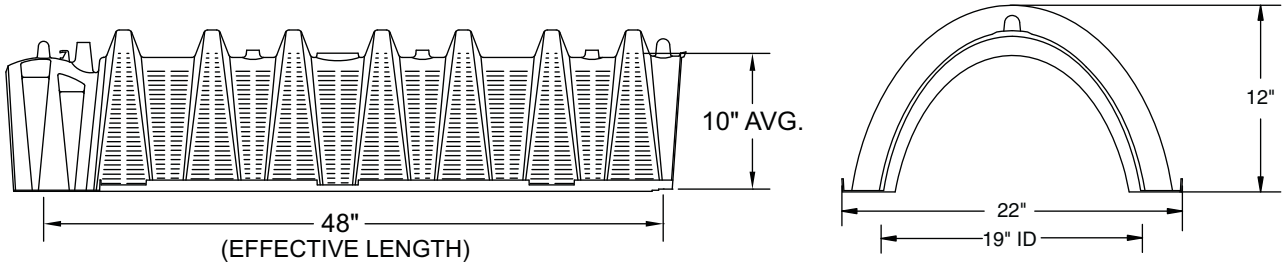
Quick4 Equalizer 36 Chambers

SIDE AND END VIEWS

(Not to scale)



MULTIPORT END CAP

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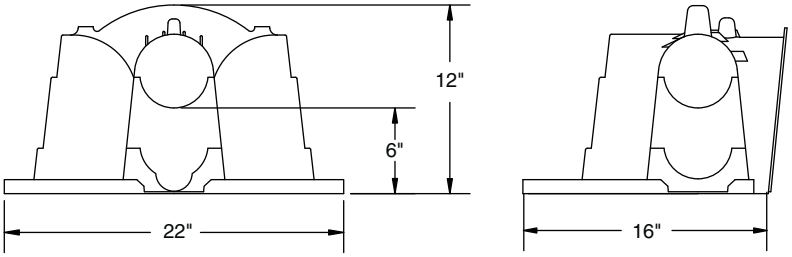
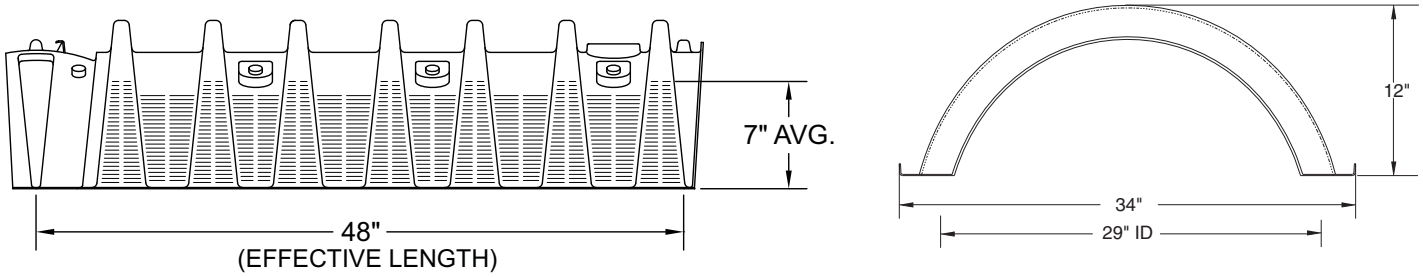


FRONT VIEW **SIDE VIEW**

Quick4 Standard Chambers

SIDE AND END VIEWS

(Not to scale)



MULTIPORT END CAP

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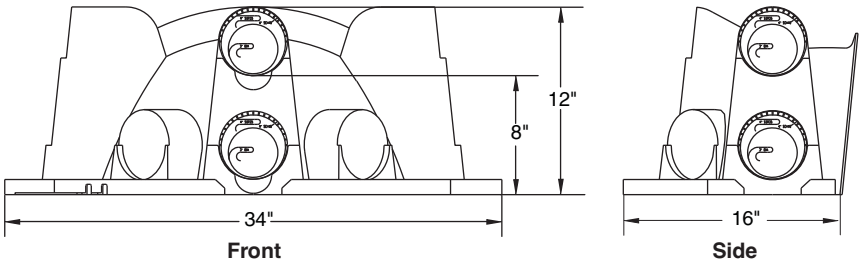
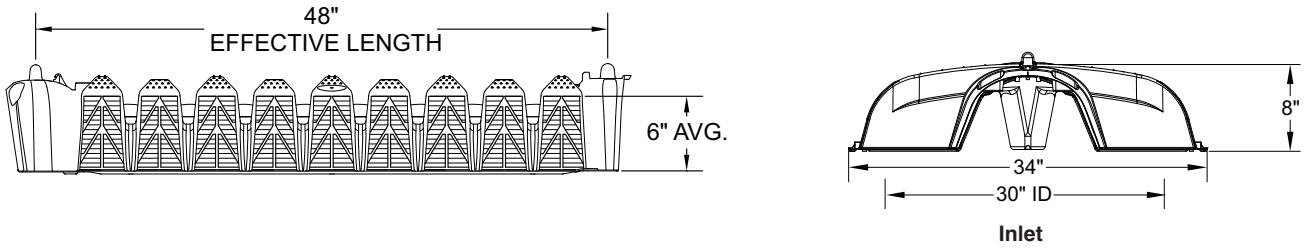


Front **Side**

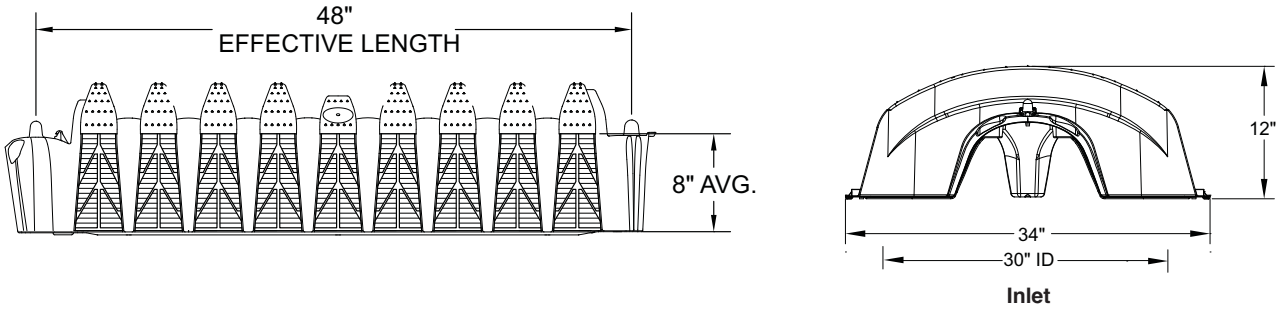
Quick4 Plus Standard Low Profile (LP) Chambers

SIDE AND END VIEWS
(Not to scale)



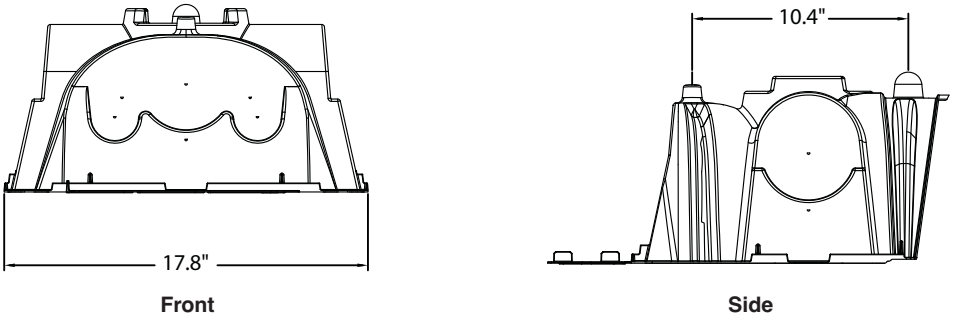
Quick4 Plus Standard Chambers

SIDE AND END VIEWS
(Not to scale)



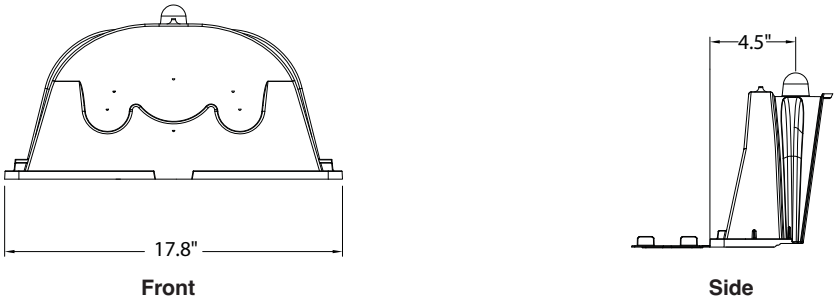
Quick4 Plus All-in-One End Cap

SIDE AND END VIEWS
(Not to scale)



Quick4 Plus End Cap

SIDE AND END VIEWS
(Not to scale)



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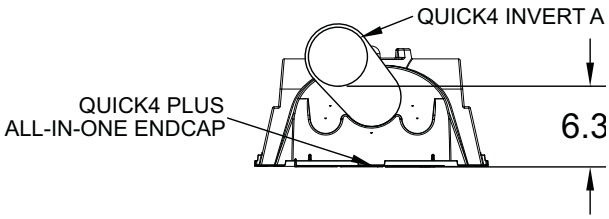
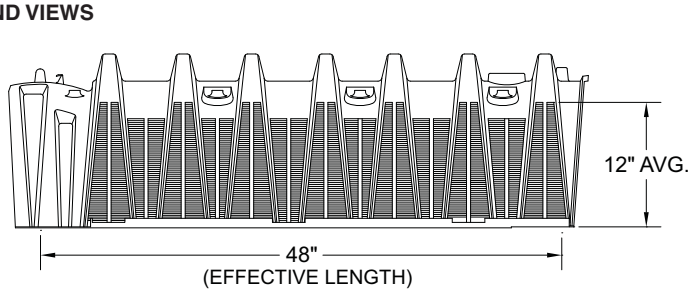
Quick4 Invert Adapter

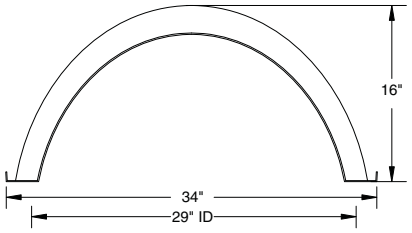
SIDE AND END VIEWS
(Not to scale)



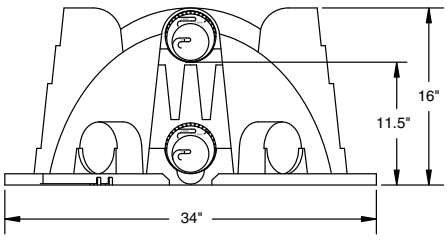
Quick4 High Capacity Chambers

SIDE AND END VIEWS
(Not to scale)

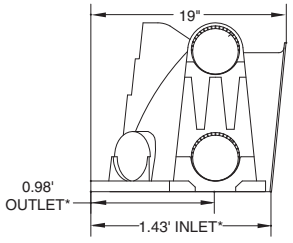




MULTIPORT END CAP
(Not to scale)



FRONT VIEW



SIDE VIEW

Chamber Ratings

For trench applications, the following shall be the basis for establishing equivalency for nominal chamber width to stone and pipe trench width.

- A 16-inch-wide chamber is equivalent to an 18-inch-wide stone and pipe trench
- A 22-inch-wide chamber is equivalent to an 24-inch-wide stone and pipe trench
- A 34-inch-wide chamber is equivalent to an 36-inch-wide stone and pipe trench

Note: The 34-inch-wide Quick4 High Capacity chamber is eligible for a bottom area reduction under Section 7080.2210, Subpart 3(B).

TABLE 1: TRENCH SIZING FOR CLASSIFICATION I DWELLINGS[1] AND EFFLUENT TREATMENT LEVEL C
QUICK4 STANDARD, QUICK4 PLUS STANDARD, AND QUICK4 PLUS STANDARD LOW PROFILE (LP) CHAMBERS
SIZING CREDIT PER CHAMBER = 12 SF OR 3 SF/LF

Soil Loading Rate (gpd/sf)[2]	Number of Bedrooms							
	2		3		4		5	
	Number of Chambers	Linear Feet	Number of Chambers	Linear Feet	Number of Chambers	Linear Feet	Number of Chambers	Linear Feet
1.20	21	84	32	128	42	168	52	208
0.78	32	128	48	192	65	260	81	324
0.60	42	168	63	252	84	336	105	420
0.50	50	200	75	300	100	400	125	500
0.45	56	224	84	336	112	448	139	556
0.24	105	420	157	628	209	836	261	1044

Notes:
1. Sizing for Classification II and III dwellings shall use design flows in Table IV of Section 7080.1850.
2. Soil loading rates and corresponding soil texture groups are based on Table IX and IXa of Section 7080.2150.
3. Rapidly permeable soil textures require conformance with Section 7080.2260, including, but not limited to pressure distribution of effluent.

TABLE 2: TRENCH SIZING FOR CLASSIFICATION I DWELLINGS[1] AND EFFLUENT TREATMENT LEVEL C
QUICK4 HIGH CAPACITY CHAMBER AT A 20% BOTTOM REDUCTION[2]
SIZING CREDIT PER CHAMBER = 15 SF OR 3.75 SF/LF

Soil Loading Rate (gpd/sf)[3]	Number of Bedrooms							
	2		3		4		5	
	Number of Chambers	Linear Feet	Number of Chambers	Linear Feet	Number of Chambers	Linear Feet	Number of Chambers	Linear Feet
1.20	19[5]	76	25	100	34	136	42	168
0.78	26	104	39	156	52	208	65	260
0.60	34	136	50	200	67	268	84	336
0.50	40	160	60	240	80	320	100	400
0.45	45	180	67	268	89	356	112	448
0.24	84	336	125	500	167	668	209	836

Notes:
1. Sizing for Classification II and III dwellings shall use design flows in Table IV of Section 7080.1850.
2. As allowed under Section 7080.2210, Subpart 3(B), a bottom area reduction of 20% has been included in the trench sizing calculation.
3. Soil loading rates and corresponding soil texture groups are based on Table IX and IXa of Section 7080.2150.
4. Rapidly permeable soil textures require conformance with Section 7080.2260, including, but not limited to pressure distribution of effluent.
5. Minimum trench length or number of chambers required by Infiltrator.
6. The drop between the drop box and end cap inlet invert must be equal to or greater than 0.5 inches.
7. The 20% bottom area reduction is only applicable to Infiltrator's High Capacity chamber models used in trenches.

TABLE 3: AT-GRADE SIZING

Infiltrator Chamber Model	Number of Chambers Spanning At-Grade Distribution Media Width	At-Grade Design Distribution Media Width (ft)
Quick4 Plus Standard Low Profile (LP)	1	3
	2	6
	3	9
	4	12
	5	15
Quick4 Standard	1	3
	2	6
	3	9
	4	12
	5	15
Quick4 Plus Standard	1	3
	2	6
	3	9
	4	12
	5	15

Notes:
1. At-grade shall be designed by bottom area only.
2. At-grade designs may be utilized when the upper 12 inches of the absorption area contains original soil with a loading rate of 0.45 gallons per day per square foot or greater, as provided in 7080.2150, Subpart 3(E).
3. At-grade systems may only be installed on slopes less than or equal to 25 percent.
4. For slopes greater than one percent, the design absorption area excludes the area upslope from the top distribution line.
5. The maximum allowable at-grade bed width is 15 feet.

TABLE 5: MOUND SIZING

Infiltrator Chamber Model	Number of Chambers Spanning Mound Distribution Media Width	Mound Design Distribution Media Width (ft)
Quick4 Plus Standard Low Profile (LP)	1	3
	2	6
	3	9
Quick4 Standard	1	3
	2	6
	3	9
Quick4 Plus Standard	1	3
	2	6
	3	9

Notes:
1. Mounds shall be sized by bottom area only.
2. The size of the mound shall be calculated by dividing the design flow by 1.2 gallons per day per square foot.
3. The maximum allowable width for mound distribution media beds is 9 feet.

TABLE 6: SEEPAGE BED SIZING

Infiltrator Chamber Model	Number of Chambers Spanning Width	Bed Design Width (ft)
Quick4 Plus Standard Low Profile (LP)	4	12
	8	24
Quick4 Standard	4	12
	8	24
Quick4 Plus Standard	4	12
	8	24
Quick4 High Capacity	4	12
	8	24

Notes:
1. When a seepage bed is specified with a design width less than or equal to 12 feet, gravity distribution may be utilized.
2. Seepage bed design greater than 12 feet and up to 25 feet in width require pressure distribution.

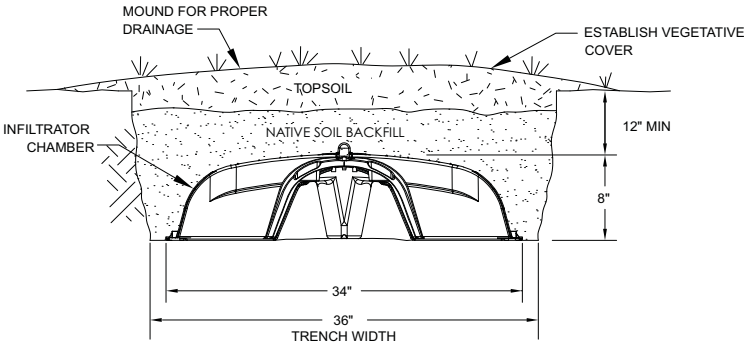
TABLE 7: ABSORPTION AREA FOR QUICK4 CHAMBER END CAPS

Infiltrator Chamber Model	End Cap Model	Area Credit
Quick4 Equalizer 24 Low Profile (LP)	MultiPort End Cap	0.87 sf/pair
Quick4 Equalizer 24	MultiPort End Cap	2.33 sf/pair
Quick4 Equalizer 36	MultiPort End Cap	3.25 sf/pair
Quick4 Plus Standard Low Profile (LP)	Quick4 Plus Endcap	0.56 sf/end cap
	Quick4 Plus All-in-One Endcap installed mid-line with chambers	1.29 sf/end cap
	Quick4 Plus All-in-One Endcap installed at end of chamber line	1.65 sf/end cap
Quick4 Standard	MultiPort End Cap	4.62 sf/pair
Quick4 Plus Standard	Quick4 Plus Endcap	0.56 sf/end cap
	Quick4 Plus All-in-One Endcap installed mid-line with chambers	1.29 sf/end cap
	Quick4 Plus All-in-One Endcap installed mid-line with chambers	1.65 sf/end cap
Quick4 High Capacity	MultiPort End Cap	6.02 sf/pair

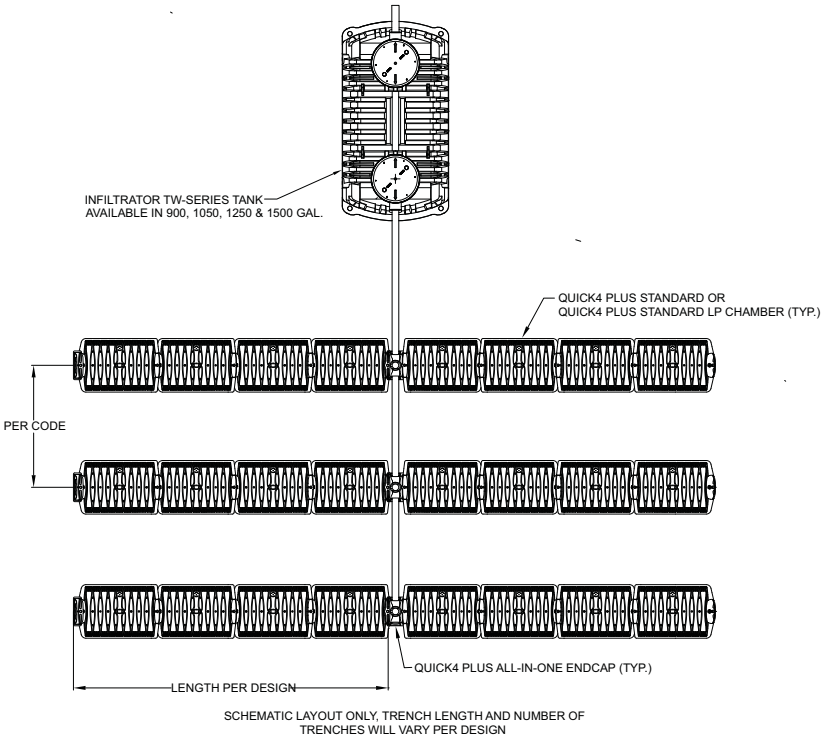
Notes:
1. End caps provide additional bottom absorption area.
2. End caps may be cumulatively included as part of the total design area for trench, seepage bed, mound, and at-grade system design when the design absorption area cannot be reasonably attained with additional chambers, and approved by the local permitting authority.

Trench Systems

CROSS SECTION
(not to scale)



PLAN VIEW
(not to scale)



PLAN VIEW
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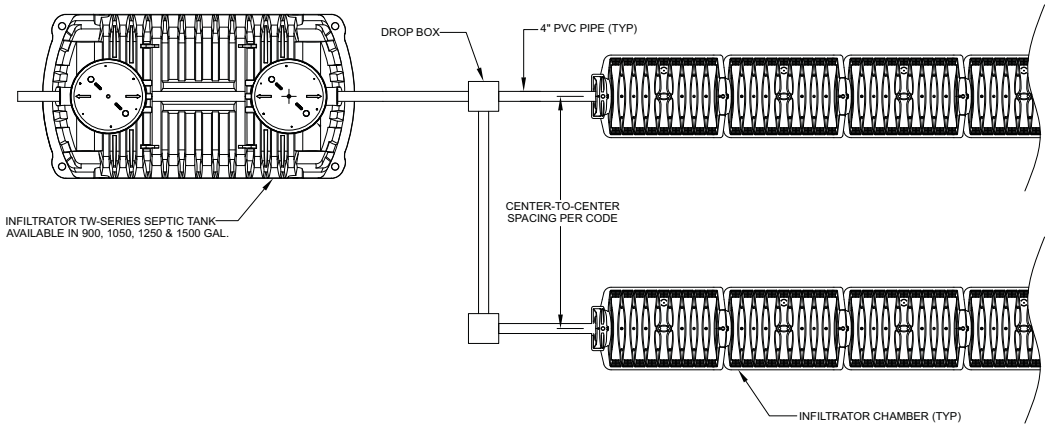

At-Grade Systems

CROSS SECTION: SLOPE ≤ 1%
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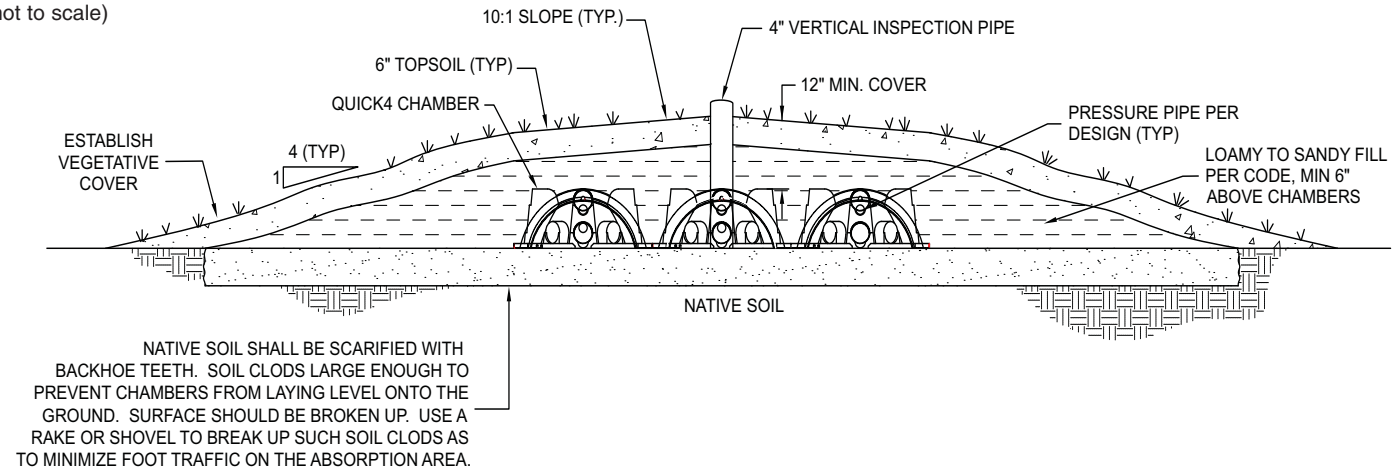

CROSS SECTION: SLOPE > 1%
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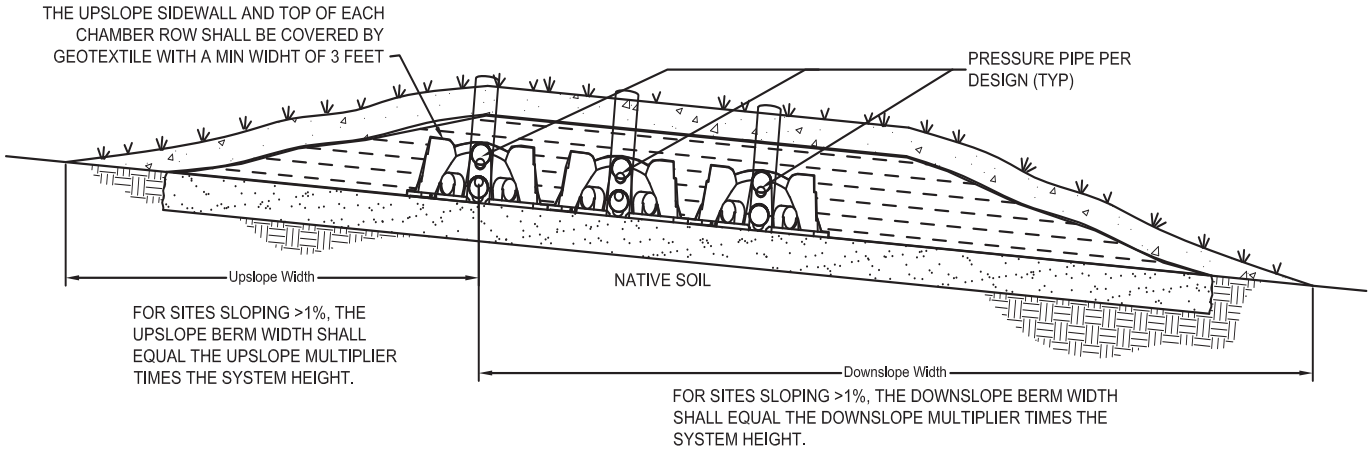
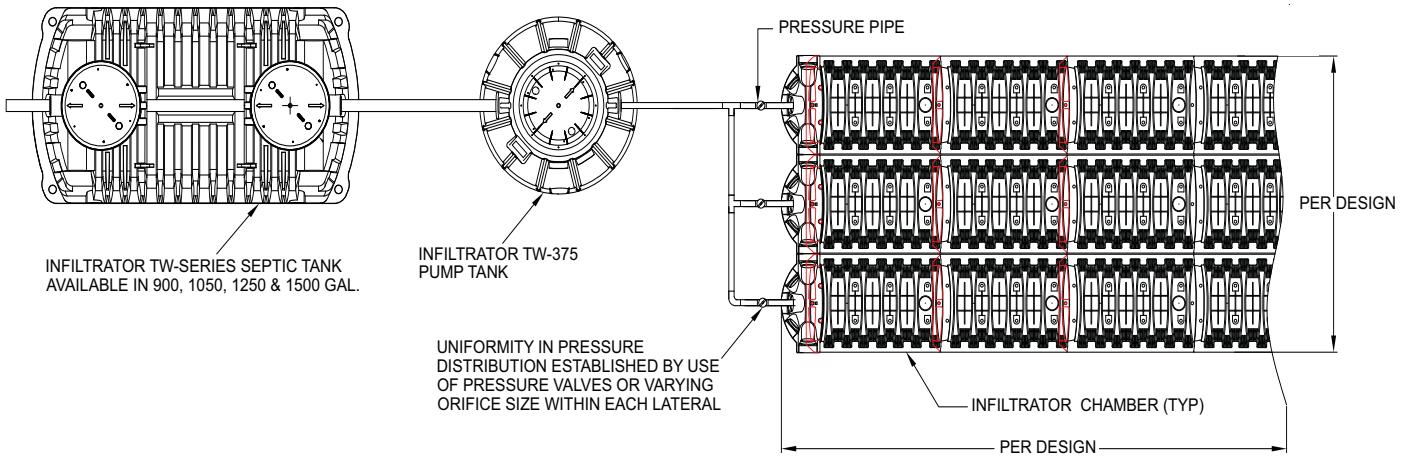


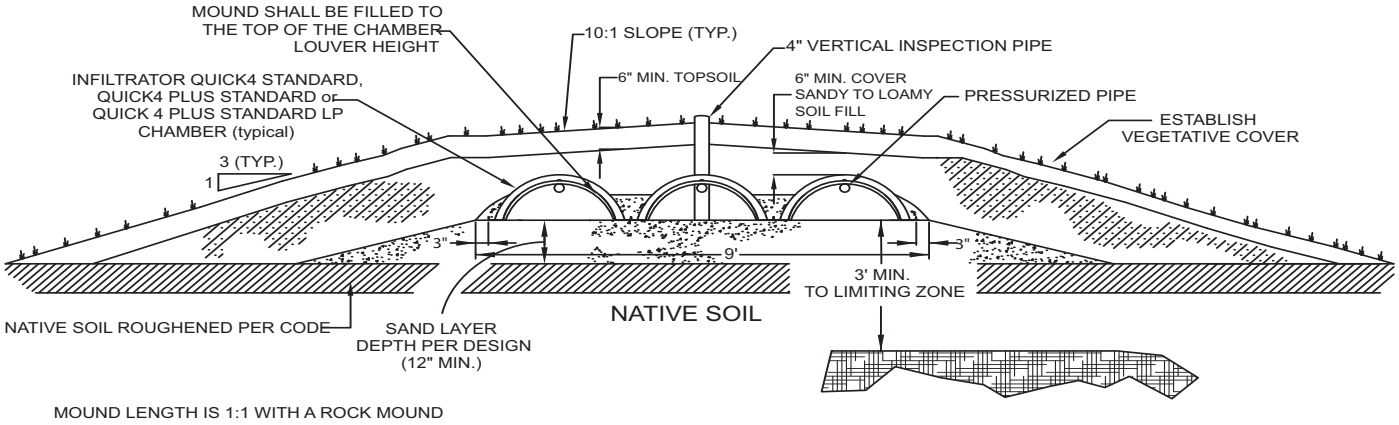
PLAN VIEW
(not to scale)



Notes:
1. Chamber At-grades on both level and sloping sites require pressure distribution pipes in each row of chambers.
2. The overall Contour Loading Rate for the system must be maintained.

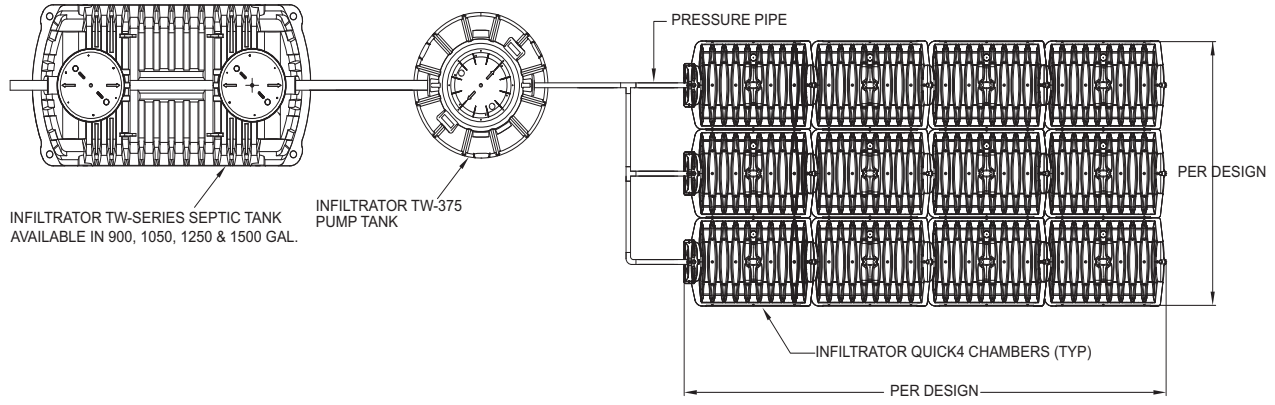
Mound Systems

CROSS SECTION
(not to scale)



MOUND LENGTH IS 1:1 WITH A ROCK MOUND

PLAN VIEW
(not to scale)



Seepage Bed Systems (Gravity)

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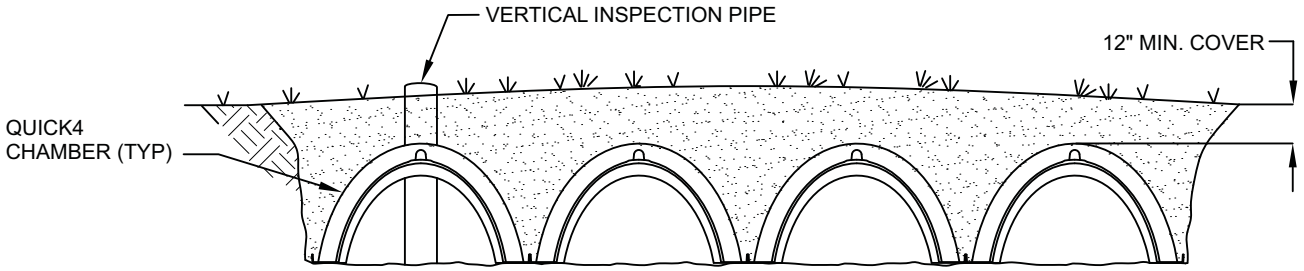

PLAN VIEW
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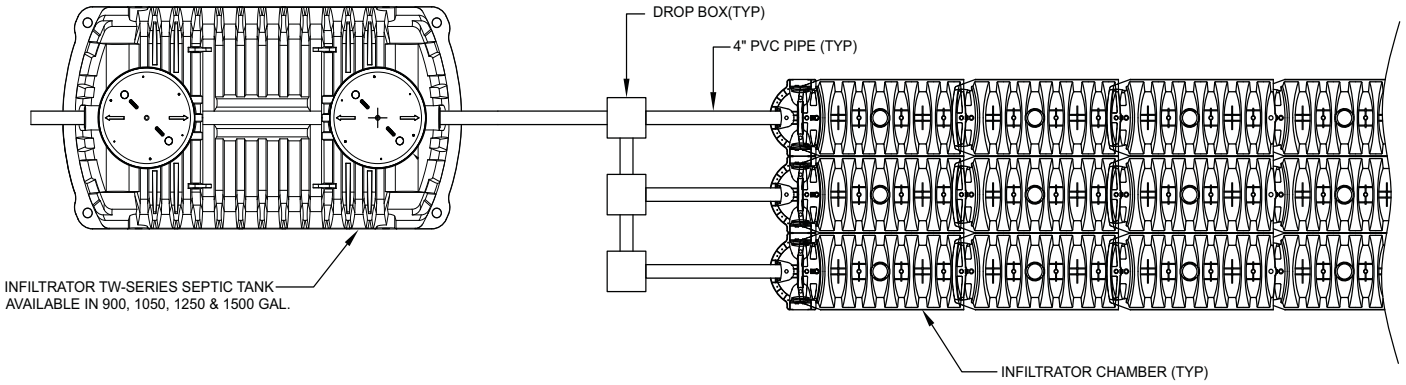

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Trench Systems

Before You Begin

Quick4 Chambers may only be installed according to State and/or local regulations. If unsure of the installation requirements for a particular site, contact the local unit of government.

All systems require a design, which includes a thorough site and soil evaluation of system sizing and the issuance of a local permit to construct the system. The system installer must schedule required regulatory inspections.

Materials and Equipment Needed

- ☐ Quick4 Chambers
- ☐ End Caps
- ☐ PVC Pipe and Couplings
- ☐ Backhoe
- ☐ Laser, Transit, or Level
- ☐ Shovel and Rake
- ☐ Tape Measure
- ☐ Utility Knife
- ☐ Hole Saw*
- ☐ 2-inch Drywall Screws*
- ☐ Screw Gun*
- ☐ Small Valve-Cover Box*
- ☐ 4-inch Cap for Inspection Port*

* 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.
- ☐ Only drive across the trenches when necessary. Never drive down the length of the trenches.
- ☐ To avoid additional soil compaction, do not 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 chamber lines. Set the elevations of the tank, pipe, and system 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 the trenches with proper center-to-center separation. Verify that the bottom of the system is level and that it is at least 3 feet above the limiting layer.

Note: Over excavate the trench width in areas where the chamber line will contour.

4. Rake the bottom and sides if smearing has occurred while excavating. Remove any large stones and other debris. Do not use the bucket teeth to rake the trench bottom. Minimize or avoid walking in the trench to prevent compaction, loss of soil structure, and the subsequent reduction in the soil's infiltrative capacity.

Note: Raking to eliminate smearing is not necessary in sandy soils. In fine textured soils (silts and clays), avoid walking in the trench to prevent compaction and loss of soil structure.

5. Verify that the bottom of the system is level using a level, transit, or laser.

Preparing the MultiPort End Cap

1. With a utility knife start the tear-out seal at the appropriate diameter for the inlet pipe. The seal allows for a tight fit for 3-inch, 4-inch SDR35, and 4-inch Schedule 40 pipe.

Start tear-out seal.

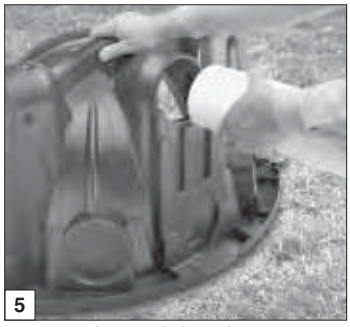
2. Pull the tab on the tear-out seal to create an opening on the end cap.

3. Snap off the molded splash plate located on the bottom front of the end cap.

4. Install splash plate into the appropriate slots below the inlet to prevent bottom erosion of the system.

Install splash plate.

5. Insert the inlet pipe into the end cap at the beginning of the chamber line. The pipe will go in several inches before reaching a stop. (Screws optional.)



Insert inlet pipe.

Preparing the Low Profile End Cap

1. With a hole saw, drill an opening appropriate for the pipe diameter being used (normally 3 to 4 inches) on the front of the end cap.

2. Snap off the molded splash plate located on the bottom front of the end cap.

3. Install splash plate into the appropriate slots below the inlet to prevent trench bottom erosion.

Installing the System

For installing the Quick4 Equalizer Low Profile (LP) Chamber, see Installing the System with Q4 EQ24 LP section.

1. Check the inlet pipe to be sure it is level or has the prescribed slope. It may be firmly supported on a solid base of unexcavated soil (not required).

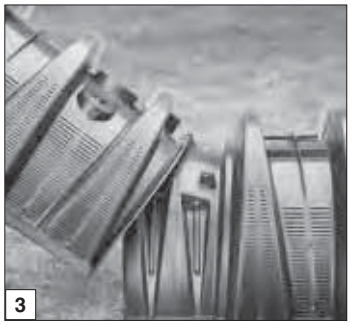
Note: If possible, avoid walking in the trench to minimize disturbance of the soil structure and loss of infiltrative capacity. Rake any areas where foot traffic has occured in the trench.

2. Place the inlet end of the first chamber over the back edge of the end cap so that the chamber overlaps the end cap when in place.


2
Place first chamber onto end cap.

3. Lift and place the end of the next chamber onto the previous chamber by holding it at a 45-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.

Note: When the chamber end is placed between the connector hook and locking pin at a 45-degree angle, the pin will be visible from the back side of the chamber.

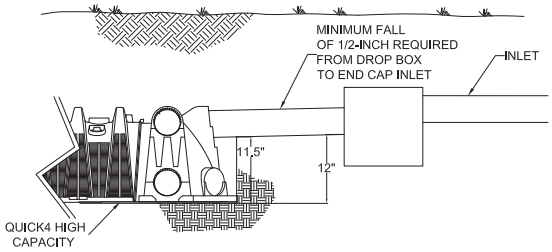

3
Connect the chambers.

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.

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

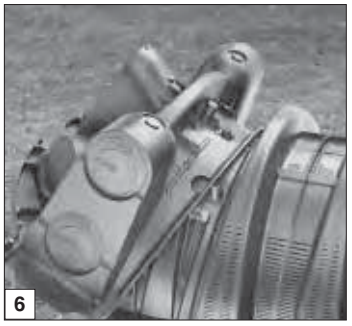
Note: The Quick4 Standard chamber and Quick4 High Capacity chamber allow 10º of swivel in either direction at each joint. The Quick4 Equalizer 36 and Quick4 Equalizer 24 allow for 15º of swivel.

Note: If installing the Quick4 High Capacity chamber with the 20% bottom area reduction allowed in the product registration, make sure to provide at least 0.5-inches of fall from the drop box outlet to the end cap inlet to allow full use of the 12-inch sidewall profile (see drawing).



5. Continue connecting the chambers until the chamber line is completed.

Note: As chambers are installed, verify they are level.


6
Attach end cap to chamber.

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

7. 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.

8. Pack down the fill by walking along the edges of the chambers.

9. Proceed to the next chamber line and begin with Step 1.

Installing the System with Q4 EQ24 LP

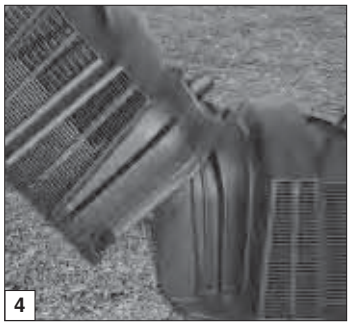
1. Place the first chamber in the trench.

2. Place the back edge of the end cap over the inlet end of the first chamber. Be sure to line up the locking pins on the top of both the chamber and end cap.

Optional: Fasten the end cap to the chamber with a screw at the top of the end cap.

3. Insert the inlet pipe 2.5 inches into the opening on the front of the end cap.

4. Lift and place the end of the next chamber onto the previous chamber by holding it at a 45-degree angle. Line up the chamber end between the connector hook and locking pin at the top of the first chamber. Lower the chamber to the ground to connect the chambers.


4
Connect chambers.

Note: When the chamber end is placed between the connector hook and locking pin at a 45-degree angle, the pin will be visible from the back side of the chamber.

Note: The connector hook serves as a guide to ensure proper connection and does not add structural integrity to the chamber joint. Broken hooks will not affect the structure or void the warranty.

5. For a trench layout, swivel the chamber on the pin to achieve the proper direction for the chamber line.

6. Continue connecting the chambers until the trench is completed.

Attaching the Q4 EQ24 LP End Caps

1. Lift the end cap at a 45-degree angle and align the connector hook on the top of the chamber with the raised slot on the top of the end cap. Lower the end cap to the ground and into place.

Note: Place a few shovels of soil around the end cap to secure it during backfill.

Attach end cap to last chamber.

Installing 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.

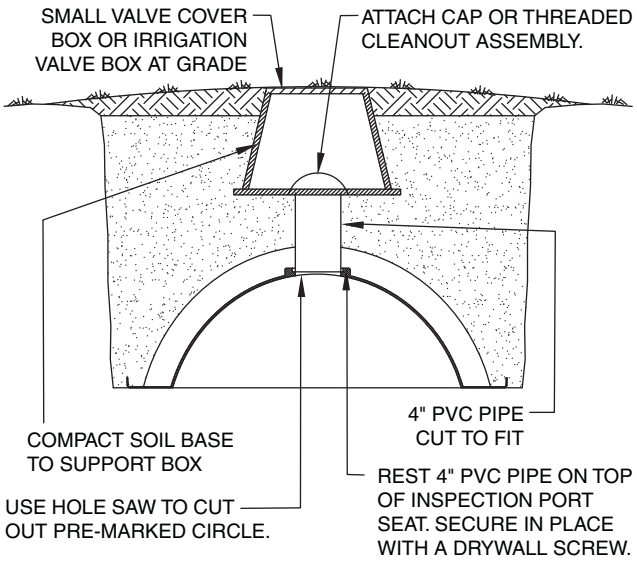
3. Use two screws to fasten the pipe to the sleeve around the inspection port.

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.

Fasten the pipe.

INSPECTION PORT DETAIL ***(Not to scale)***



Covering the System

Before backfilling, the system must be inspected by the local unit of government's SSTS Inspector as per local ordinance requirements. Create an as-built drawing at this time for future records.

1. Apply the backfill material along the sides of the chambers and walk the soil in.

Walk the soil in.

2. Continue backfilling the soil to the top of chambers.

Note: When backfilling a wide excavation or soil substitution system use a dozer, small box blade or a tracked Bobcat machine.

Backfill the soil.

Seepage Bed Systems

Before You Begin

This document provides septic installation instructions for Quick4 chambers in bed systems. These chambers may only be installed according to state and local regulations. If unsure of the installation requirements, contact the local unit of government.

All systems require a design, which includes a thorough site and soil evaluation, system sizing, and the issuance of a local permit to construct the system.

Materials and Equipment Needed

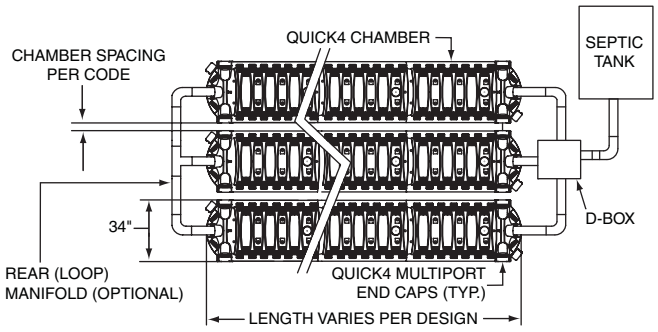
- ☐ Quick4 Chambers
- ☐ End Caps
- ☐ Backhoe/Bulldozer
- ☐ 4-inch PVC Pipe and Couplings
- ☐ Laser, Transit, or Level
- ☐ Shovel and Rake
- ☐ Tape Measure
- ☐ Utility Knife
- ☐ Hole Saw/Router Bit*
- ☐ D-Box*

* 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.
- ☐ Only drive across the bed when necessary. Never drive down the length of the bed system.
- ☐ Prior to compaction and during backfill, only use tracked vehicles. Always keep 6 inches of soil between tracks and chambers.

TYPICAL BED SYSTEM (plan view)



Excavating and Preparing the Site

Note: It is not recommended to install systems in wet conditions or in overly moist soils, as this causes machinery to smear the soil interface which can affect system performance.

1. Stake out the location of the bed and set the elevations of the tanks, pump chamber (if required), pre-treatment devices (if required), piping, and bed bottom. Install sedimentation and erosion control barriers as necessary.

2. Excavate and level the designated area. Be sure to excavate at least one extra foot around perimeter to allow for proper fit and ease installation.

3. If required, be sure to dig through any restrictive layer to the more suitable soils. Remove any debris from the bed walls. Prepare the chamber bed's sub grade soil as outlined in the designer's plans.

4. Rake the bottom and sides if smearing has occurred while excavating. Verify the bottom of the bed is level using a transit, laser or level. Minimize or avoid walking on the bottom of the bed to prevent compaction, loss of soil structure and the subsequent reduction in the soil's infiltrative capacity.

5. If pressure distribution is required, refer to the "Pressure Pipe Design Options" instructions provided in the Mound Systems section.

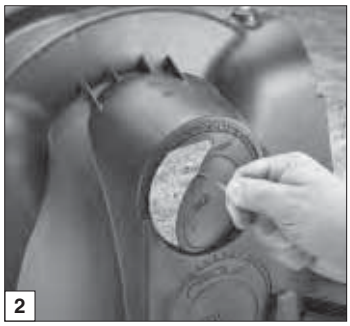
Preparing the End Caps

1. With a utility knife start the tear-out seal at the appropriate diameter for the inlet pipe. The seal allows for a tight fit for 3-inch, 4-inch SDR35 and 4-inch SCH40 pipe. A 2-inch line can be installed by using an appropriately sized hole saw to cut an opening in the end cap.

Start tear-out seal.

Note: Pipe size may vary according to state/county regulations or designer specifications.

2. Pull the tab on the tear-out seal to create an opening on the end cap.

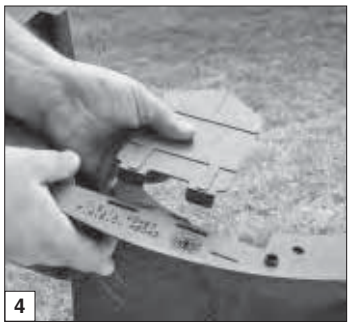


Pull tab on tear-out seal.

3. Snap off the molded splash plate located on the bottom front of the end cap.

4. Install splash plate into the appropriate slots below the inlet to prevent trench bottom erosion.

5. Construct a manifold to inlet each row of chambers. A d-box may be used if required by code or designer preference.



Install splash plate.

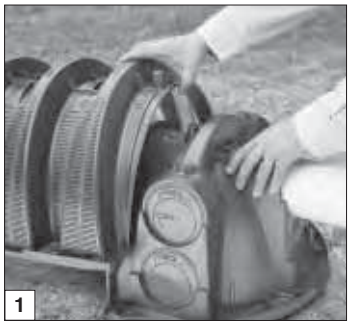
Note: It is sometimes easier to install the chamber bed before constructing the manifold. If installing the chambers first in a gravity fed system, it is critical to ensure there is proper fall from the tank to accommodate a manifold.

6. Once piping network is complete, insert pipe into the end cap at the beginning of each row of the bed.

7. Attach a closed end cap onto the outlet end of the chamber. Do not create an opening on the closed or outlet end cap.

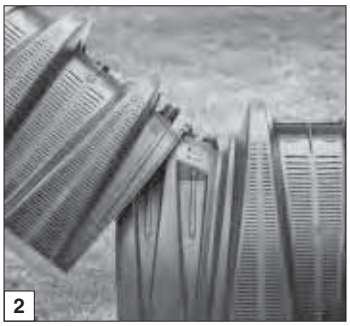
Installing the Bed System

1. Construct the chamber bed by joining chambers. Place the inlet end of the first chamber over the back edge of the end cap.


1

Place first chamber onto end cap.

2. Lift and place the end of the next chamber on to 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 to the ground to connect the chambers.


2

Connect the chambers.

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 ensure proper connection and does not add structural integrity to the chamber joint. Broken hooks will not affect the structure nor void the warranty.

3. Continue connecting the chambers until the first row is completed.

4. Check the first row of chambers to be sure that it is level.

5. Continue connecting chambers until the bed is complete. As the chambers are installed, verify that they are level, straight and maintain the required separation distance between each row of chambers.

Note: After installing chambers edge to edge or with up to 6" of spacing, it is important to properly backfill per current installation instructions so as to not compromise the integrity of the product.

6. The last chamber in the row requires an end cap. Lift the end cap at a 45-degree angle and insert the connector hook through the opening on the top of the end cap. Applying firm pressure, lower the end cap to the ground to snap it into place. Do not remove the tear out seal if ends are not to be connected. Repeat this step for each row in the bed.

Note: Looping the outlet end of the bed may be required or specified by design. Infiltrator Systems recommends creating a hole in the end cap at the specified invert height.

7. Insert the loop manifold through the end cap and determine that the manifold is level before backfilling.

8. Bed systems require at least one vertical inspection pipe. Refer to the "Installing Inspection Ports" instructions provided in the Trench Systems section.

9. To ensure structural stability, fill the sidewall area by pulling soil in from the sides of the bed with a shovel or by placing fill material with a backhoe or excavator bucket.

10. Continue to carefully anchor chambers by ladling fill material between the chamber rows making sure not to dislodge the units. Be sure the fill extends above the louvers a minimum of two inches.

Note: Only drive over the system with a tracked vehicle.

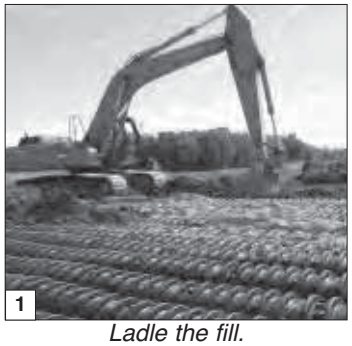
Note: Do not to drive over the chambers until a minimum of 12" of fill is placed above the chambers. For rows not accessible from the edge of the bed, wait until a majority of the chambers are covered with 6" of fill before stabilizing middle rows (for tracked vehicles only).

11. Pack down the fill by walking along the sidewalls of the chambers as this helps to give better structural support. In wet conditions, silty or clay soils, do not walk in the sidewalls.

Covering the System

Before backfilling, the system must be inspected by the local unit of governts SSTS inspector as per local ordinance requirements.

1. Backfill the chamber system by pushing or ladling the fill material onto the units with a backhoe or bulldozer. Be sure to avoid having large rocks in backfill.


1

Ladle the fill.

Note: For large bed systems that cannot be filled from the sides, use a light tracked vehicle making sure to maintain a minimum of cover of 6" between the chambers and tracks at all times.

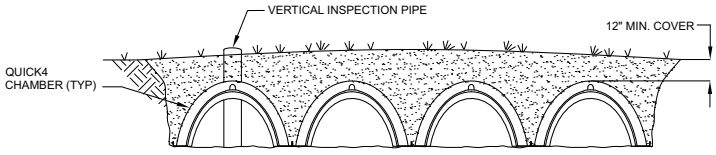
2. Do not drive wheeled vehicles across the system when applying cover material.

Note: Chambers can be installed with a minimum of 6 inches of cover using light tracked vehicles. A maximum of 4 feet of cover is allowed for bed systems.

3. Leave several inches of soil above the required amount for settling and to divert runoff water from the system.

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

TYPICAL STANDARD BED SYSTEM (front view)



Note: All Infiltrator chambers currently registered for use in Minnesota are allowed for use in bed systems.

At-Grade Systems

Before You Begin

Quick4 chambers can only be installed according to state or county regulations. Contact your local unit of government for specific requirements.

Materials and Equipment Needed

- ☐ Quick4 Chambers and End Caps
- ☐ Pressure Lateral Pipe and Fittings
- ☐ Sand and Specified Fill Material
- ☐ Plastic Pipe straps, all weather, 120 lb. tensile strength (nylon prohibited)
- ☐ Utility Knife or Hole Saw
- ☐ Backhoe/Bulldozer/Skid-Steer
- ☐ Glue
- ☐ Rake
- ☐ 2" Drywall Screws*
- ☐ Garden Hose*
- ☐ Chisel Plow*
- ☐ Paving Block*

* 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.
- ☐ Only drive across sand mound when necessary. 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

1. Review approved system design to determine the height of the seasonal high water table or other limiting factors.

2. Stake out the site for At-grade system placement.

3. Install sedimentation and erosion control measures.

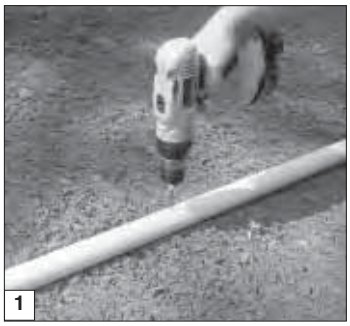
4. Cut trees flush to the ground, remove surface boulders that can be easily rolled off, and remove vegetation per code requirements.

5. The original At-Grade absorption area must be scarified by backhoe teeth, moldboard, or chisel plow.

Installing Chambers and End Caps

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, gravel or a paving block at the bottom of the trench to protect the infiltrative surface from erosion.

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


1

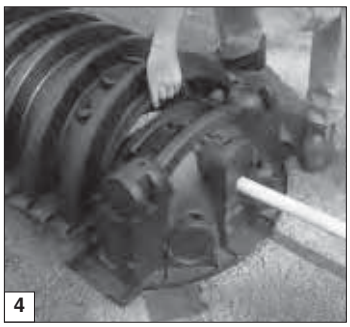
3. Each chamber row shall require a pressure distribution pipe.

4. Insert the pressure lateral pipe into the end cap's drilled opening and slide it into the manifold pipe. Glue the pressure lateral pipe to the manifold pipe.


2

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

6. 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.


4

7. 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. Make sure that the connected chambers are level with the absorption surface area.

8. Secure the lateral pipe to the top of the next chamber once in place. Follow the same method in Step 6.


6

9. Continue interlocking chambers and securing the pipe until the row is completed.

10. Before attaching the final end cap, remove the tongue of the connector hook on the last chamber with a pair of pliers.

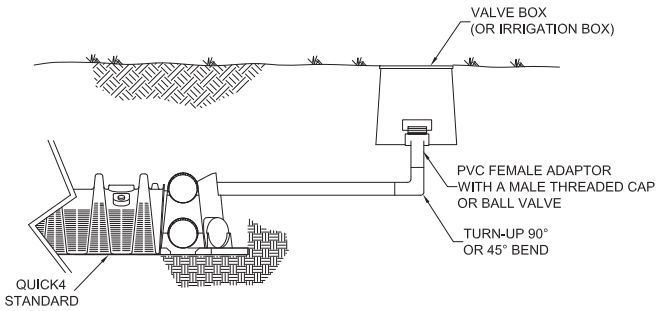
11. Insert the pressure lateral pipe through the hole in the final end cap and slide the end cap towards the last chamber. Lift the end cap over the modified connector hook and push straight down to secure it to the chamber.


11

Note: If cleanout extensions are required, use a hole saw to cut a hole in the end cap at the proper elevation so that the lateral pipe can extend. For clean-out access, a 90-degree long sweep or 45-degree bend elbow that extends to the soil's surface can be attached to the lateral pipe.

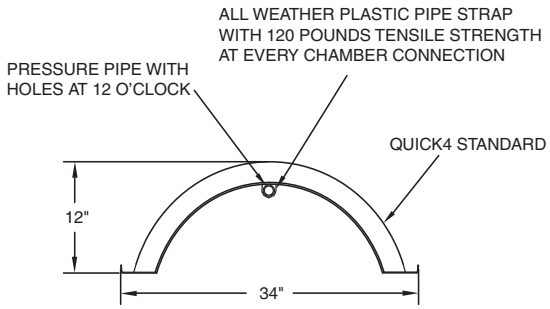
12. If installing multiple rows of chambers on a slope each row must be installed along the slope and covered with geotextile to prevent soil intrusion into the up slope sidewall.

ACCESS FOR DRAINFIELD MAINTENANCE AND FLUSHING



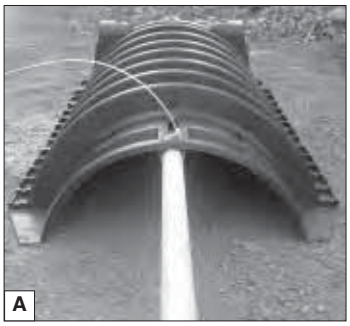
Pressure Pipe Design Options

METHOD A: TOP PLACEMENT



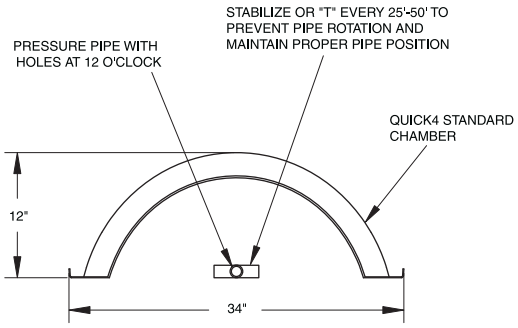
Advantages of Method A

- 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.


A

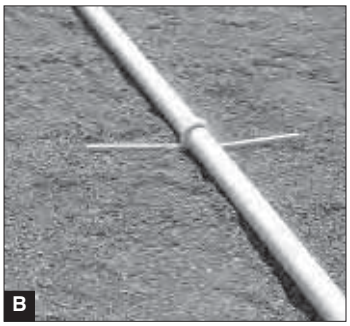
- If necessary, trim excess plastic pipe strap before connecting chambers.

METHOD B: BOTTOM PLACEMENT



Advantages of Method B

- Pipe resting on the mound distribution media bed allows easy installation and maintenance.
- Glue "T's" or PVC J-hooks to keep pipe level.
- System promotes efficient pressure checks.
- Pipe resting on the trench bottom allows easier inspection if monitoring ports are installed.


B

Covering the System

Before backfilling, the system must be inspected by the local unit of government's SSTS Inspector as per local ordinance requirements. System should be installed as per design.

1. For sites sloping greater than 1%, a geotextile fabric of at least 3-feet in width shall be placed over the upslope sidewall and chamber top to prevent intrusion of fill. A getextile fabric spanning the width of the dispersal area and covering each chamber row may be used.

2. Place a 2-foot high pile of berm material around the perimeter of the At-Grade and directly against the outer rows of chambers for stabilization.

3. Ladle clean sand 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.

4. Push the berm material between and over the chamber rows with a tracked vehicle from the upslope side. Keep a minimum 12-inches of densified cover over the system.

Note: NO wheeled machinery is allowed on chambers in At-Grades. Tracked vehicles may be used.

5. After the system is covered, the site shall be seeded or sodded per 7080.2150 Subp 3.J. to prevent erosion.

Note: If the system is for new home construction, it is important to place marking stakes along the boundary of the system. This will notify contractors of the site location so they will not cross it with equipment or vehicles.

INFILTRATOR® systems inc.

Mound Systems

Before You Begin

Quick4 chambers can only be installed according to state or county regulations. Contact your local unit of government for specific requirements.

All systems require a design, which includes a thorough site and soil evaluation of system sizing and the issuance of a local permit to construct the system. The system installer must schedule required regulatory inspections

Materials and Equipment Needed

- ☐ Quick4 Chambers and End Caps
- ☐ Pressure Lateral Pipe and Fittings
- ☐ Sand and Specified Fill Material
- ☐ Plastic Pipe straps, all weather, 120 lb. tensile strength (nylon prohibited)
- ☐ Utility Knife or Hole Saw
- ☐ Backhoe/Bulldozer/Skid-Steer
- ☐ Glue
- ☐ Rake
- ☐ 2" Drywall Screws*
- ☐ Garden Hose*
- ☐ Chisel Plow*
- ☐ Paving Block*

* 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.
- ☐ Only drive across sand mound when necessary. 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

1. Review approved system design to determine the height of the seasonal high water table or other limiting factors.

2. Calculate the number of sand lifts necessary. Lifts should measure 6 to 12 inches in height.

3. Confirm that the sand used to build the mound meets Minnesota design standards. Sand must meet requirements of Chapter 7080.2220, subpart.3. (C).

4. Stake out the site for mound placement.

5. Install sedimentation and erosion control measures.

6. Cut trees flush to the ground, remove surface boulders that can be easily rolled off, and remove vegetation per code requirements.

7. The original soil mound absorption area must be roughened by backhoe teeth, moldboard, or chisel plow. The soil must be roughened to a depth of eight inches.

Placing the Sand

1. After placement of six inches of clean sand, use a crawler or track-type tractor to evenly spread a one-foot lift of specified fill material over required area.

Note: Firming up the fill is critical to prevent settling and will not have a significant effect on permeability of clean, sandy fill.

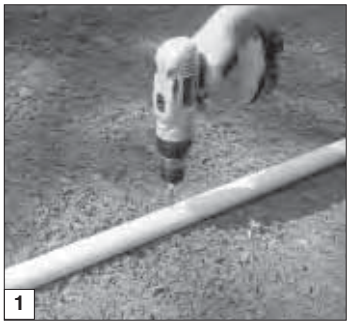

1

2. To firm up the fill, a crawler or track-type tractor 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.

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 ½ inch of the sand. Check bed elevation to be sure it is level and has the correct depth of clean sand in accordance with the approved system design.

Installing Chambers and End Caps


1

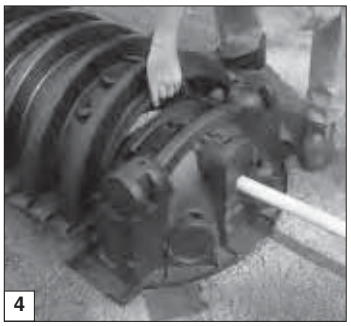
1. To allow pressure laterals to drain after each dose, drill a hole in the bottom of the pipe at the end of the pressure line. Place the snap-off splash plate, gravel or a paving block at the bottom of the trench to protect the infiltrative surface from erosion.


2

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 end cap'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 end cap, place the inlet end of the first chamber over the back edge of the end cap.


4

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.


5

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 end cap, remove the tongue of the connector hook on the last chamber with a pair of pliers.


9

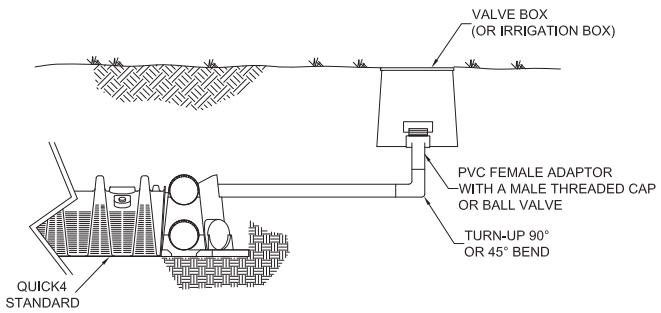
10. Insert the pressure lateral pipe through the hole in the final end cap and slide the end cap towards the last chamber. Lift the end cap over the modified connector hook and push straight down to secure it to the chamber.

Note: If cleanout extensions are required, use a hole saw to cut a hole in the end cap 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.


10

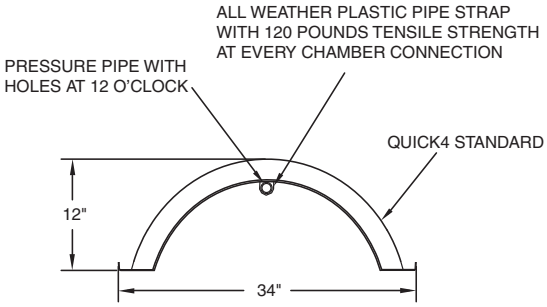
11. If installing multiple rows of chambers, follow Steps 1-9 to lay the next row of chambers parallel to the first. Keep a minimum separation distance between each row of chambers as required by regulation.

ACCESS FOR DRAINFIELD MAINTENANCE AND FLUSHING



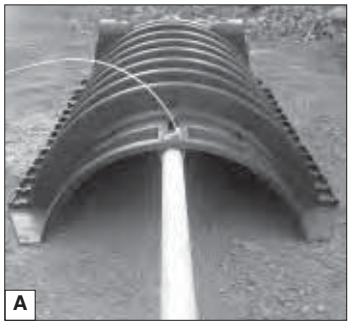
Pressure Pipe Design Options

METHOD A: TOP PLACEMENT

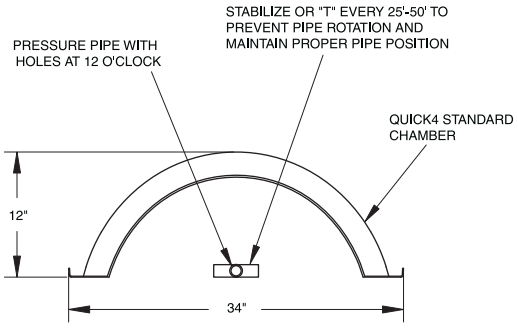


Advantages of Method A

- 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.

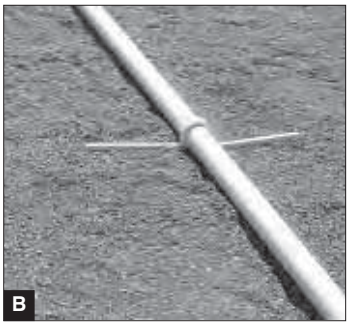


METHOD B: BOTTOM PLACEMENT



Advantages of Method B

- Pipe resting on the mound distribution media bed allows easy installation and maintenance.
- Glue "T's" or PVC J-hooks to keep pipe level.
- System promotes efficient pressure checks.
- Pipe resting on the trench bottom allows easier inspection if monitoring ports are installed.



Covering the System

Before backfilling, the system must be inspected by the local unit of government's SSTS Inspector as per local ordinance requirements. System should be installed as per design.

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 clean sand 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.

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 densified cover over the system.

Note: NO wheeled machinery is allowed on chambers in mounds. Tracked vehicles may be used.

4. After the system is covered, the site shall be seeded or sodded per 7080.2150 Subp 3.J. to prevent erosion.

Note: If the system is for new home construction, it is important to place marking stakes along the boundary of the system. This will notify contractors of the site location so they will not cross it with equipment or vehicles.

Trench Systems

Before You Begin

Quick4 Plus Chambers may only be installed according to State and/or local regulations. If unsure of the installation requirements for a particular site, contact the local unit of government.

All systems require a design, which includes a thorough site and soil evaluation of system sizing and the issuance of a local permit to construct the system. The system installer must schedule required regulatory inspections.

Materials and Equipment Needed

- ☐ Quick4 Plus Chambers
- ☐ Quick4 Plus Endcaps
- ☐ Quick4 Plus All-in-One Endcaps
- ☐ PVC Pipe and Couplings
- ☐ Backhoe
- ☐ Laser, Transit or Level
- ☐ Tape measure
- ☐ Shovel and Rake
- ☐ Utility Knife
- ☐ 1 1/4-inch Drywall Screws*
- ☐ Screw Gun*
- ☐ Small Valve-cover Box*
- ☐ 4-inch Cap Inspection Port

** 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.
☐ Only drive across the trenches when necessary. 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.

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 location of all trenches and lines. Set 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 36" wide trenches with proper center-to-center separation. Verify that trenches are level and are located at least 3 feet above the limiting layer.

Note: Over excavate the trench width in areas where you are planning to contour.

4. Rake the bottom and sides if smearing has occurred while excavating. Remove any large stones and other debris. Do not use the bucket teeth to rake the trench bottom. Minimize or avoid walking in the trench to prevent compaction, loss of soil structure, and the subsequent reduction in the soil's infiltrative capacity.

Note: Raking to eliminate smearing is not necessary in sandy soils. In fine textured soils (silts and clays), avoid walking in the trench to prevent compaction and loss of soil structure.

5. Verify that each trench is level using a level, transit, or laser.

Preparing the End Cap

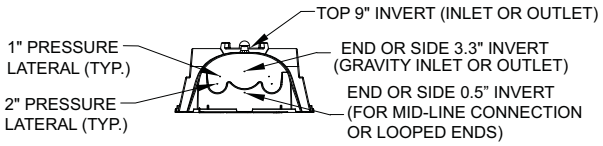
Note: Quick4 Plus and Quick4 Plus All-in-One Endcaps are avaliable for use with the Quick4 Plus chambers on either end of the trench, depending upon installer's preference and configuration requirements.

1. With a hole saw drill an opening appropriate for pipe diameter being used (normally 3 - 4 inches) on front or side of end cap using center point marking (see illustration below) as a guide.

2. Snap off the molded splash plate located on the bottom front of the end cap.

3. Install splash plate into the appropriate slots below the inlet to prevent trench bottom erosion.

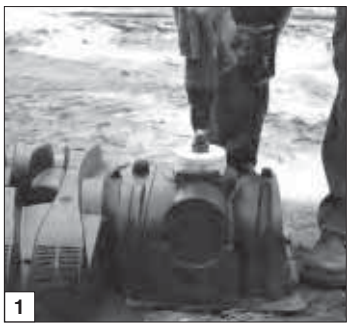
Drill end cap.



Installing the Quick4 Plus All-in-One Periscope

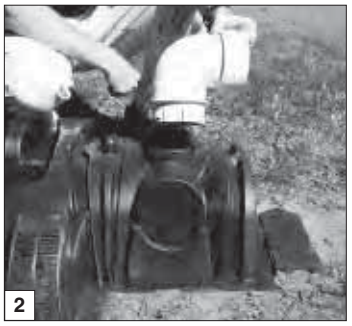
Note: Available for use with Quick4 Plus All-in-One Endcap only. Invert options based on system design.

1. With a hole saw drill the pre-marked area on top of the Quick4 Plus All-in-One Endcap.



Drill end cap.

2. Insert the Quick4 Plus All-in-One Periscope into the top of the Quick4 Plus All-in-One Endcap.



Insert periscope.

3. Insert a 4" Schedule 40 PVC pipe into the Quick4 Periscope.


3

Insert pipe.

4. Rotate the Quick4 Plus All-in-One Periscope to desired angle. The Quick4 Periscope rotates 360° horizontally when installed on the endcap.


4

Rotate periscope.

Installing the Quick4 Invert Adapter

Note: Available for use with Quick4 Plus All-in-One and the Quick4 Plus Endcaps. Invert options based on system design.

1. With a hole saw drill the pre-marked area on the front of either the Quick4 Plus Endcap or the Quick4 Plus All-in-One Endcap.

2. With a hole saw drill the pre-marked area on front of the Quick4 Invert Adaper.


2

Drill invert adapter.

3. Insert the Quick4 Invert Adapter into the front of the end cap.


3

Insert invert adapter.

4. Rotate invert adapter to desired angle.


4

Rotate to desired angle.

5. Screw Quick4 Invert Adapter into place at final position.


5

Screw into place.

6. Insert a 4" Schedule 40 PVC pipe into the front of the Quick4 Invert Adapter.


6

Insert pipe.

Installing the System

1. Check the header pipe to be sure it is level or has the prescribed slope.

2. Set the invert height as specified in the design from the bottom of the inlet.

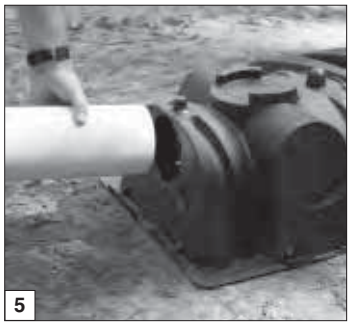
3. Place the first chamber in the trench.

4. Place the back edge of the end cap over the inlet end of the first chamber. Be sure to line up the locking pins on the top of both the chamber and end cap.


4

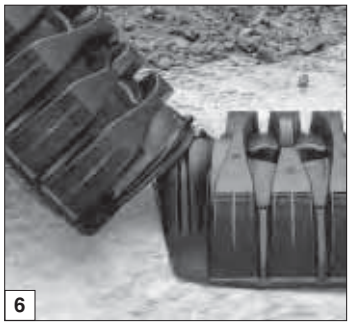
Place end cap inlet end.

5. Insert the inlet pipe 2.5 inches into the opening on the front of the end cap.



Insert inlet pipe.

6. Lift and place the end of the next chamber onto the previous chamber by holding it at a 45-degree angle. Line up the chamber end between the connector hook and locking pin at the top of the first chamber. Lower the chamber to the ground to connect the chambers.



Connect chambers.

Note: When the chamber end is placed between the connector hook and locking pin at a 45-degree angle, the pin will be visible from the back side of the chamber.

Note: The connector hook serves as a guide to ensure proper connection and does not add structural integrity to chamber joint. Broken hooks will not affect the structure or void the warranty.

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

Note: The chamber allows up to 10-degree swivel in either direction at each joint.

Note: If possible avoid walking in the trench to minimize disturbance of the soil structure and loss of infiltrative capacity. Rake any areas where foot traffic has occured in the trench.

8. Continue connecting chambers until the trench is completed.

Note: As chambers are installed, verify they are level.

9. The last chamber in the trench requires an end cap. Lift the end cap at a 45-degree angle and align the connector hook on the top of the chamber with the raised slot on the top of the end cap. Lower the end cap to the ground and into place.

Place end cap outlet end.

Note: Place a few shovels of soil around the end cap to secure it during backfill.

10. 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.

11. Pack down fill by walking along the edges of trench and chambers.

Note: In wet or clay soils, do not walk in the sidewalls.

12. Proceed to the next trench and begin with Step 1.

Installing Quick4 Plus All-in-One Endcap as a Mid-line Connection

Note: See mid-line piping options on the back of this document.

1. With a hole saw drill an opening appropriate for the pipe diameter being used (normally 3 to 4 inches) on the side or on top of the Quick4 Plus All-in-One Endcap.

Note: Piping configurations are determined by the preference of the installer or designer. Please review drawings below for the functional benefits of each option.

2. Snap off the molded splash plate located on the bottom front of the end cap.

3. Install splash plate into the appropriate slots below the inlet to prevent trench bottom erosion.

4. Place the back edge of the end cap over the inlet end of the first chamber. Be sure to line up the locking pins on the top of both the chamber and end cap.

All-in-One as mid-line connection.

Optional: Fasten the end cap to the chamber with a screw at the top of the end cap.

5. Insert the connection pipe 2.5 inches into the opening on the endcap.

6. Place the next chamber onto the endcap by holding it at a 45-degree angle. Line up the chamber end between the connector hook and locking pin at the top of the endcap. Lower the chamber to the ground to connect.

Repeat Steps 1 through 5 for additional trenches.

Installing Inspection Ports

Inspection ports may be installed on the chamber or the Quick4 Plus All-in-One Endcap. The Quick4 Plus Endcap does not allow inspection port construction.

Quick4 Plus All-in-One Inspection Port

1. With a hole saw drill the pre-marked area in the top of the Quick4 Plus All-in-One Endcap to create a 4-inch opening.

2. Set a cut piece of pipe of the appropriate length into the corresponding end cap's inspection port sleeve.

Note: The sleeve will accommodate up to a 4-inch Schedule 40 pipe.

All-in-One inspection port.

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 protuding pipe at the appropriate height.

5. A small valve cover box may be used if the inspection port is below the desired grade.

Chamber Inspection Port

1. With a hole saw drill the pre-marked area in the top of the chamber to create a 2.5-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 up to a 2.5-inch Schedule 40 pipe.

Chamber inspection port.

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 protuding pipe at the appropriate height.

5. A small valve cover box may be used if the inspection port is below the desired grade.

Covering the System

Before backfilling, the system must be inspected by the local unit of government's SSTS Inspector as per local ordinance requirements. Create an as-built drawing at this time for future records.

1. Backfill the trench by pushing fill material over the chambers with a backhoe. Keep a minimum of 12 inches of densified cover over the chambers before driving over the system.

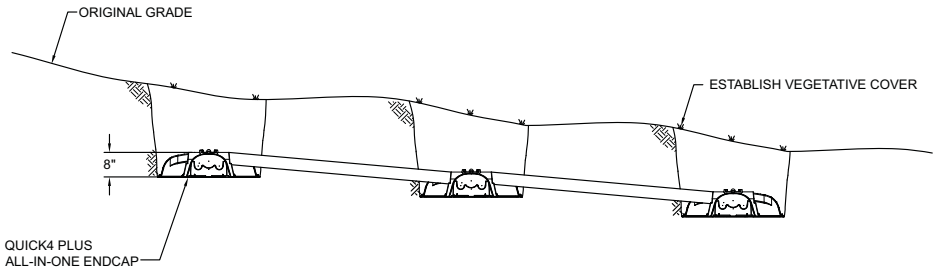
Note: Do not drive over the system while backfilling in sand.

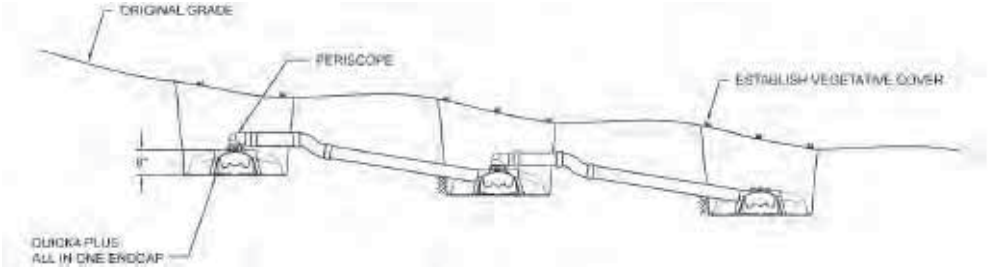
2. It is best to mound several inches of soil over the finished grade to allow for settling. This also ensures that runoff water is diverted away from the system.

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

EXAMPLE: QUICK4 PLUS ALL-IN-ONE ENDCAP AS A MID-LINE CONNECTION





Pressure Systems

Before You Begin

Quick4 Plus chambers can only be installed according to state and/or local regulations. Soil and site conditions must be approved prior to installation. Conduct a thorough site evaluation to determine proper sizing and siting of the system before installation.

Materials and Equipment Needed

- ☐ Quick4 Plus Chambers
- ☐ Quick4 Plus All-in-One or Q4 Plus Endcaps
- ☐ PVC Pipe and Couplings
- ☐ Backhoe
- ☐ Laser, Transit or Level
- ☐ Tape measure
- ☐ Shovel and Rake
- ☐ Utility Knife
- ☐ 1 1/4-inch Drywall Screws*
- ☐ Screw Gun*
- ☐ Small Valve-cover Box*
- ☐ 4-inch Cap Inspection Port

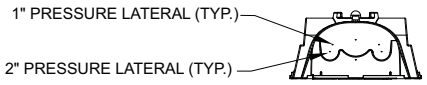
** Optional*

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.
☐ Only drive across the trenches when necessary. 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.

Installing Chambers and End Caps

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.



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 end cap's drilled opening and slide it into the manifold pipe. Glue the pressure lateral pipe to the manifold pipe.


2

Drill pressure pipe hole.

4. With the pressure lateral pipe through the end cap, place the back edge of the end cap over the inlet end of the first chamber. Be sure to line up the locking pins on the top of both the chamber and end cap.

Note: Health departments may require a wet-run pressure check to be done prior to chamber installation when the pipe is laying on the ground. Check with your local health department for the proper procedure.


4

Place end cap over inlet end.

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.


5

Secure pressure pipe.

6. Lift and place the next chamber onto the previous one at a 45-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 trench is completed.

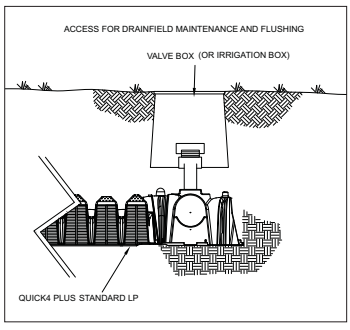
9. Before attaching the final end cap, it may be necessary to remove the tongue of the connector hook on the last chamber with a pair of pliers depending on your pipe diameter.

10. Insert the pressure lateral pipe through the hole in the final end cap and slide the end cap toward the last chamber. Lift the end cap over the modified connector hook and push straight down to secure it to the chamber.


10

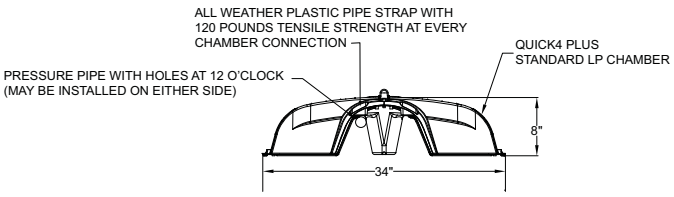
Lateral pipe through end cap.

Note: If cleanout extensions are required, use a hole saw to cut a hole in the top of the Quick4 Plus All-in-One Endcap so the pressure lateral pipe with an elbow can extend to the ground surface. For cleanout access, use the "Installing Optional Inspection Ports" section in the general installation instructions.



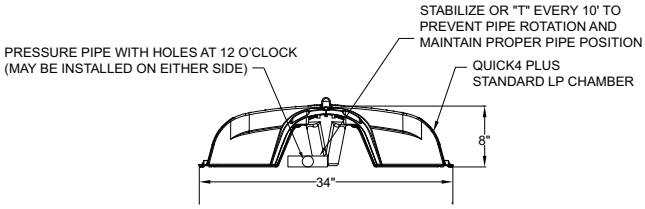
Advantages of Method A

- 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.



Advantage of Method B

- Pipe resting on the trench bottom allows easy installation and maintenance.
- Stabilizing “T’s” keep pipe level.
- System promotes efficient pressure checks.
- Pipe resting on the trench bottom allows easier inspections if monitoring ports are installed.



One Year Standard Warranty

(a) The structural integrity of each chamber, end plate, wedge and other accessory manufactured by Infiltrator (collectively referred to as “Units”), when installed and operated in a leachfield of an onsite septic 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 chamber system (chamber, end plate, wedge 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.

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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.

Minnesota Five Year Warranty

(a) Warranty. Infiltrator Systems Inc. warrants that each chamber, end plate, wedge and other accessories manufactured by Infiltrator (collectively, the "Units"), when installed and operated in a leachfield of an on-site septic system in accordance with the written instructions of Infiltrator Systems Inc. at the time of installation, and in accordance with the Minnesota Chamber Sizing Chart, are warranted for a period of five (5) years from 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. For this Warranty to apply, the Units must be installed in accordance with Infiltrator Systems Inc.'s written installation instructions ("Instructions") and with applicable state and local laws and regulations applicable to sewage disposal systems. In the event of a conflict or inconsistency between the Instructions and such laws and regulations, the Instructions shall take precedence over such laws and regulations, as permitted by Minnesota statute. The foregoing warranty is in lieu of all other warranties, expressed or implied, including but not limited to implied warranties of merchantability and fitness for a particular purpose.

(b) Conditions Which Void Warranty. Infiltrator Systems Inc. does not warrant any Units not manufactured by Infiltrator Systems Inc. or for Infiltrator Systems Inc.; defects caused by failure to provide a suitable installation environment for Units; failures to install the Units in accordance with Infiltrator Systems Inc.'s current written Instructions, damage resulting from improper sizing, excessive water usage, improper grease disposal, or other improper use of the septic systems; damage resulting from improper siting of the septic system; damage arising from failure to maintain the septic tank in accordance with the instructions of the tank manufacturer and Infiltrator Systems Inc.; damage caused by the Unit for purposes other than those for which it was designed; damage caused by abuse, misuse, or neglect by Buyer or any other party; damage to any Unit which has been subject to conditions, pressures, or stresses more severe than or exceeding those set forth in Infiltrator Systems Inc.'s written Instructions; damage caused by placement by Buyer or any other party of improper material into the Units; and damage from any other event not caused by Infiltrator Systems Inc. This Warranty shall also be void if Buyer fails to comply with Section C of this Warranty.

(c) Processing A Claim; Determination Of Warranty Coverage. Should a defect or failure of performance appear in the Warranty period, Buyer must notify Infiltrator Systems Inc. in writing of the defect or failure of performance within fifteen (15) days of discovery of the defect or failure of performance. Notice shall be in writing and sent by registered or certified mail to Infiltrator Systems Inc., 6 Business Park Road, P.O. Box 768, Old Saybrook, Connecticut 06475, attention Warranty Claims. The notice shall be accompanied by (i) a copy of the Infiltrator Warranty which is signed and dated by Buyer and Installer, as set forth below, (ii) a copy of the appropriate permit for the septic system, and (iii) documentation to Infiltrator Systems Inc.'s satisfaction that the septic tank has been maintained in accordance with the instructions of the tank manufacturer and of Infiltrator Systems Inc. Infiltrator Systems Inc. will investigate the Warranty claim and will use its best efforts to notify Buyer of its findings within thirty (30) days of receipt of the claim. At its option, Infiltrator Systems Inc. may perform tests to determine the cause of the failure. For claims which Infiltrator Systems Inc. determines are valid claims, Infiltrator Systems Inc. will pay the costs of redesign, if necessary, replacement Units, material, and labor costs for installing new Units, with the installation to be performed by a contractor selected by Infiltrator Systems Inc. This paragraph states Buyer's sole remedy for defective Units and performance failures, and Infiltrator Systems Inc. shall have no responsibility or liability for other items associated with the septic system.

(d) Original Installation Is Buyer's Responsibility. Buyer shall be solely responsible for ensuring that the original installation of the Units is completed in accordance with all applicable laws, codes, rules, and regulations.

(e) Limitation Of Liability. In no case shall Infiltrator Systems Inc. be liable for incidental, consequential, indirect, or special damages based upon breach of warranty, breach of contract, negligence, strict tort, or any other legal theory. Infiltrator Systems Inc. shall not be liable for any penalties or liquidated damages, including without limitation loss of production or profits, labor and materials (except as provided in Section C), overhead costs, claims of third parties, injury to property, or other losses or expenses incurred by Buyer.

(f) Sole Warranty; No Changes Authorized. The Warranty described above is the sole warranty offered by Infiltrator Systems Inc. Infiltrator Systems Inc. does not assume any other liability in connection with the sale of the Units. No representative of Infiltrator Systems Inc. is allowed to extend this Warranty or to change it in any manner whatsoever.

INFILTRATOR®
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