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Infiltrator™

Installation Guideline

Contents

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1. INTRODUCTION

The Infiltrator System is a direct replacement for stone and pipe, stormwater and sewer soakaways. Chambers promote effluent infiltration in the soil with 100% efficiency. The greater infiltrative capacity means that the cambers require less space to build than the conventional system.

No stone or geotextile is typically required and no pipe is required with non-pressure dosed systems. Because installations are faster with chambers, you save on heavy equipment operation and eliminate the need for heavy trucks used to transport stone.

2. INSTALLATION REQUIREMENTS

The Infiltrator System may be only installed according to the local regulations. If you are unsure about the installations requirements for a particular site, contact the local authority.

Materials and Equipment needed

- Quick4 Chamber
- MultiPort End Caps
- PVC pipe and Couplings
- Backhoe
- Level
- Shovel and Rake
- Tape Measure
- Utility Knife
- Hole Saw
- 50mm Dry wall Screws
- Screw Gun
- Small Valve Cover Box
- 110mm Cap for Inspection Port

These guidelines for construction machinery must be followed during installation:

- Avoid direct contact with chambers when using construction equipment. Chambers require a minimum of 300 mm compacted cover to support a wheel load rating of 450 kg/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, never drive heavy vehicles over the completed system.

Like a conventional system the soil and site conditions must be approved prior to installation. Conduct a thorough site evaluation to determine the proper sizing and sitting of the system before installation

3. MATERIALS

- Chemical-resistant and UV-stable
- Powerful arch design supports axle loads of 70 kN, with 300 mm of compacted cover, equivalent to an AASHTO H-10 load rating
- Chambers can be installed with 150 mm of cover to support axle loads of 17 kn
- All products carry a limited warranty and are certified to the International Association of Plumbing and Mechanical Officials (IAPMO) structural testing protocol
- Infiltrator Systems has a comprehensive quality control program at their company-owned ISO 9001:2000 certified manufacturing
- The Quick4 High Capacity Chamber can be installed in a 0.9 m wide trench. The Contour Swivel Connection™ allows the chamber to swivel 10 degrees, left or right.
- The MultiPort End Cap with its eight moulded-in high and low inlets allow piping to enter or exit the system from multiple directions and eliminate pipe fittings.

	Quick4® High Capacity Chamber	**Quick4® High Capacity MultiPort™ End Cap**
Size (W x L x H)	0.86 m x 1.35 m x 0.41 m	0.85 m x 0.48 m x 0.41 m
Effective Length	1.22 m	
Capacity	235 ℓ	
Additional Length per Trench		0.71 m
Invert Height		0.29 m

4. ADVANTAGES OF THE INFILTRATOR™ SYSYTEM

- The **Infiltrator™ Quick4™** High Capacity Chamber System provides over twice as much volume storage capacity than a stone drain, as stone decreases the effluent storage capacity by up to 70 %.
- A large storage capacity is helpful when dealing with shock loadings (egg, leaky fixtures, school break periods or periods of heavy rains).
- Entire bottom of chamber is open for unobstructed infiltration into soil.
- Angled sidewall louvers prevent backfill intrusion while permitting unobstructed lateral leaching.
- Dust-free nominal aggregate is expensive resulting in the use of unwashed stone, which can lead to clogging from dust and fines.

- Aggregate will "mask" or "shadow" (block) 50 to 75 % of the potential infiltrative surface of the soil surface area that could otherwise contribute to bio mat formation and treatment.

- The mass of aggregate leads to compaction of underlying soil in the trench.

- The delivery of aggregate may result in compaction of the soil around the sides of the drain, thus reducing its percolation.

- **Infiltrator™** Chambers eliminate use of contaminated aggregate such as builders' rubble, wet concrete or mortar waste, empty cement bags, litter, etc, during construction.

- **Infiltrator ™**is supplied with an access port, which allows for:

    - Post construction inspection access;

    - Future access for cleaning out any sludge accumulation in the chamber.

- **Infiltrator ™**is pre-manufactured, thus guaranteeing installation compliance.

- **Infiltrator™** is lightweight and economical to transport and store, due to maximised volume storage capacity.

- **Infiltrator™** is quick, simple and easy to install, with minimal damage to landscaping.

- Easily expanded and even relocated if necessary.

5. CONSTRUCTION SEQUENCE

5.1 Excavating and Preparing the Site

Note: As is the case with conventional systems, do not install 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/berm may be installed to protect the site during rainfall events.
3. Excavate and level 1 m wide trenches with proper centre-to-centre separation. Verify that the trenches are level or have the prescribed slope.

   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.

   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.

5.2 Preparing the 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 a 110 mm pipe.
2. Pull the tab on the tear-out seal to create an opening on the End Cap.
3. Snap off the moulded splash plate located on the bottom front of the End Cap.
4. Install splash plate into appropriate slots below the inlet to prevent trench bottom erosion.
5. Insert inlet pipe into the End Cap at beginning of the trench. The pipe will go in several centimetres before reaching a stop (screws optional).

To start tear-out seal

Remove tab

5.3 Installing the System

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

2 Set the pipe invert height at 292 mm from the bottom of the trench for the **Quick4® High Capacity Chamber**

3 Place inlet end of first chamber over the back edge of cap.

4 Lift and place end of the next chamber onto previous chamber by holding it at a 90º 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 chambers.

Place first chamber onto End Cap

Note: When the chamber end is placed between the connector hood and locking pin at a 90º 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 join. Broken hooks will not affect the structure nor void the warranty.

Connect the chambers

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


Swivel the chambers

Note: Quick4® Chambers allow for 10º swivel in either direction at each joint.

6 Where the system design requires straight runs, use the **Straight Lock™** Tabs to ensure straight connections. To activate the tabs, pop them up with your thumb and lock into place.

7 Continue connecting the chambers until the trench is complete.

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

8 The last chamber in the trench requires an End Cap. Lift the End Cap at a 45º 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 and snap into place. Do not remove the tear-out seal.


Attach End Cap 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, ensuring 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 ensuring structural support

11 Proceed to the next trench and begin with Step 1

5.4 Installing Optional Inspection Ports

1. With a hole-saw drill the pre-marked area in the top of the chamber to create a 110 mm 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 110 mm 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 the inspection port is below the desired grade.

5.5 Covering the System

1. With a hole-saw drill the pre-marked area in the top of the chamber to create a 110 mm 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 110 mm 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 the inspection port is below the desired grade.