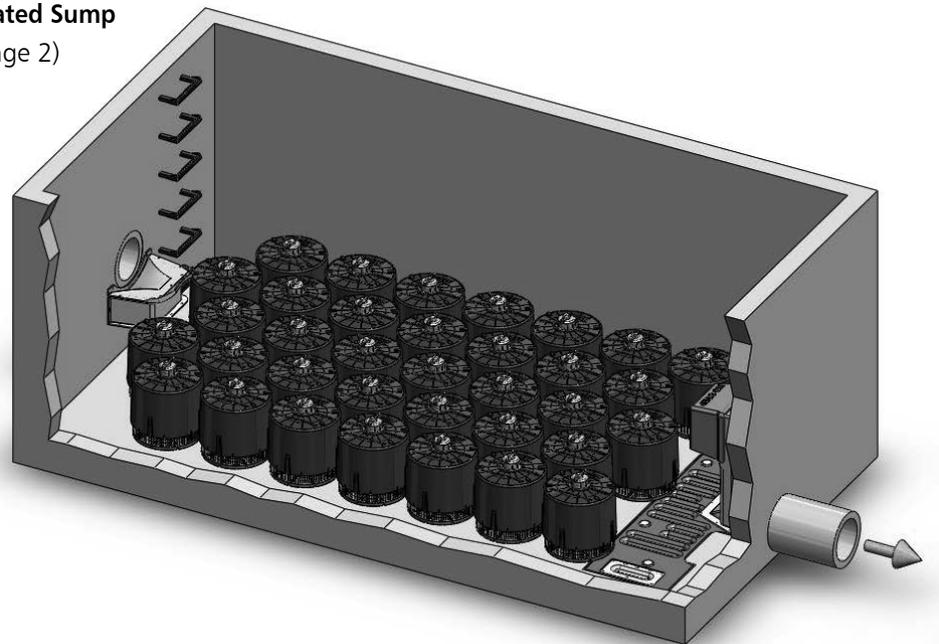
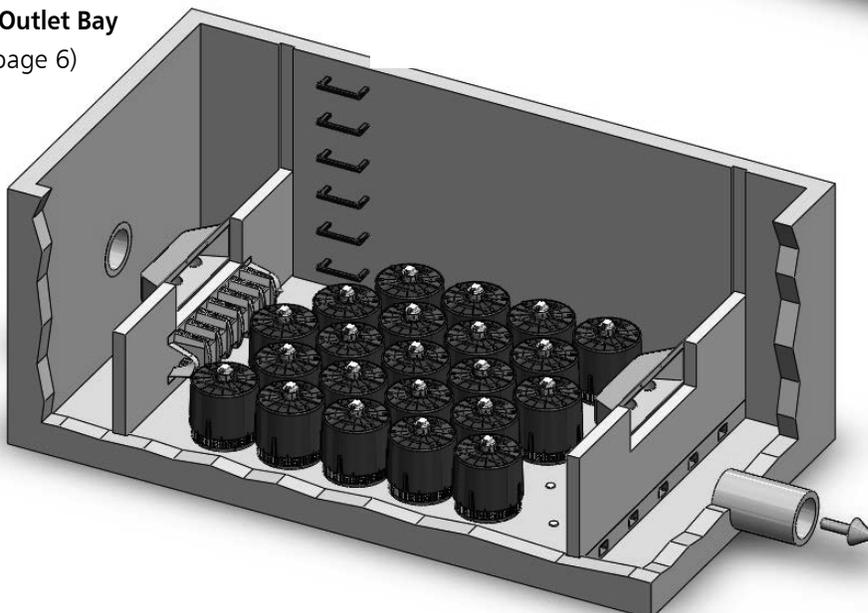

Vault Installation Guide

Integrated Sump
(see page 2)



Inlet/Outlet Bay
(see page 6)



Overview

These instructions provide installation guidelines for the vault configuration of the Stormwater Management StormFilter® with integrated sumps (page 2) and with inlet and outlet bays (page 6). Before starting installation, be sure you have all the components, tools, and supplies necessary to complete the work.

Safety Notice

Confined Space Entry

Secure all equipment and training to meet applicable local and OSHA regulations regarding confined space entry.

Unloading and Handling

Any unloading/handling suggestions or guidance is beyond our scope of work but can be obtained from the precaster. Contact CONTECH if contact information for the precaster is needed.

Personal Safety Equipment

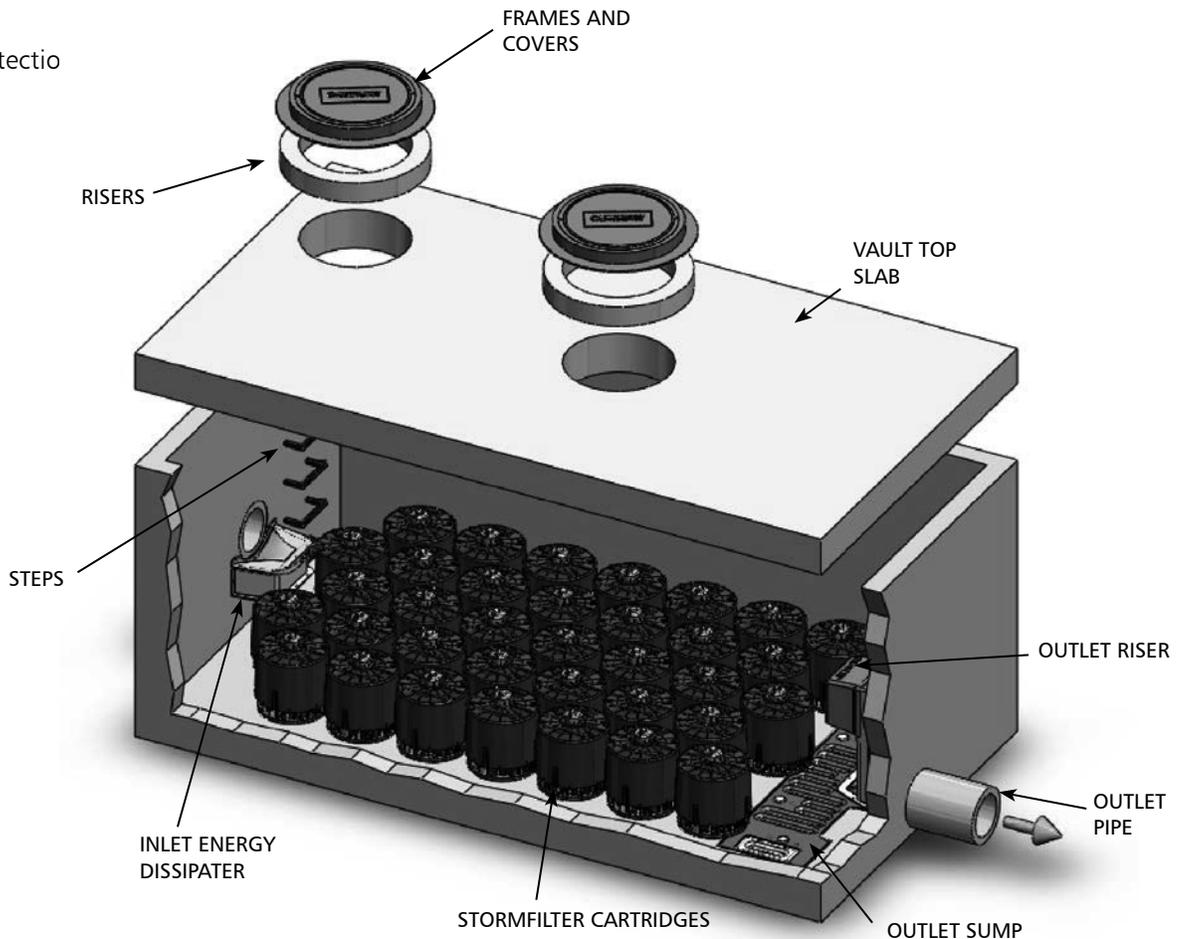
- Fall protection equipment
- Gloves
- Hard hat
- Eye protection
- Ear protection
- Respiratory protectio

Vault StormFilter with Integrated Sumps

Parts List – Vault (what to expect)

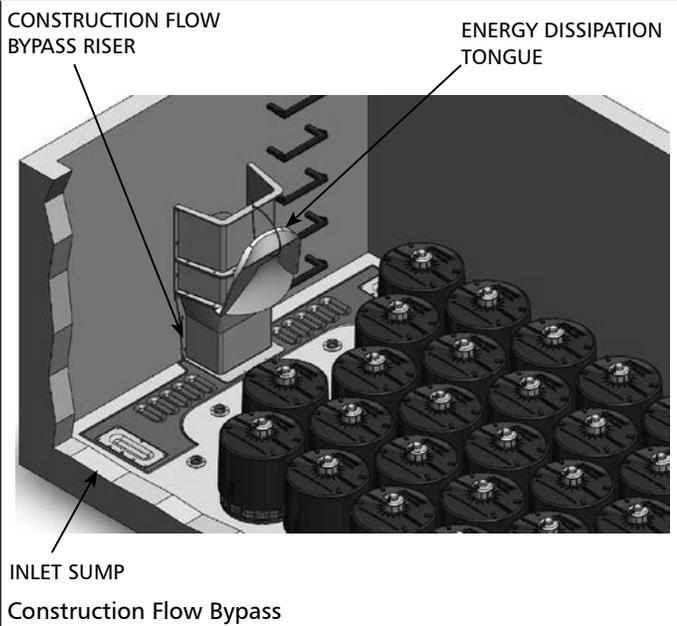
Typically, the Vault StormFilter will arrive on site with components pre-installed.

- Flow Kit: embedded in vault base
- Outlet Sump: embedded in vault base
- Outlet Riser: attached to wall and sump
- Inlet Energy Dissipater: attached to vault wall
- ¼ Turn Connectors: glued to flow kit
- Connector Plugs: all unused cartridge connections plugged
- StormFilter cartridges: count, size and media type per plans (pre-installed)
- Riser sections (if needed, per plans)
- Vault top slab or top section
- Risers to grade (per plans)
- Frames and Covers (per plans)
- Steps, attached to vault wall (on most systems)
- Access ladder: not installed (on some systems)
- Butyl mastic sealant



Optional Equipment: Construction Flow Bypass

- Inlet Sump: embedded in vault base
- Additional bypass lines integrated into flow kit and embedded in the vault base
- Construction Flow Bypass Riser: attached to inlet sump and vault wall
- Energy Dissipation Tongue: attached to CFB riser



prior to placement of crushed rock. Crushed rock base material shall be six-inch minimum layer of 3/4-inch minus rock. Unsuitable material below sub-grade shall be replaced per site engineer's recommendation.

Crane Selection

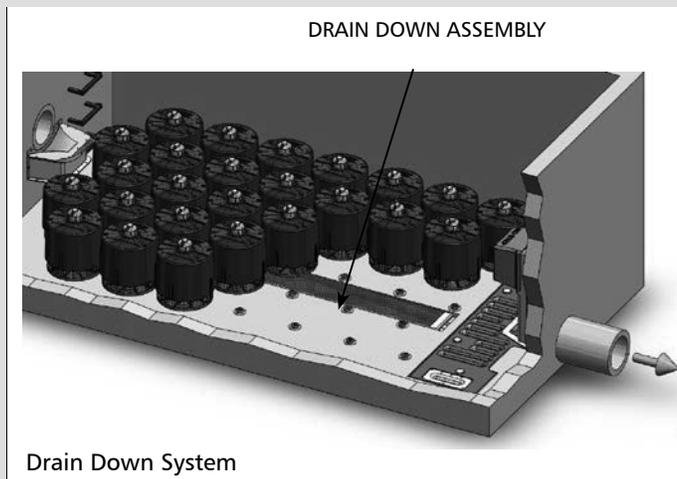
The contractor is responsible for selecting the appropriate equipment to unload and set the Vault StormFilter. CONTECH will provide the contractor with the weights of the precast pieces. A representative from the crane company should visit the jobsite and review pertinent information (shop drawings, weights, etc) prior to the selection of the crane. The crane representative and/or contractor should determine the distance from center of the crane's position to the center of the final position of the precast units. The weight and the distance from the center of the crane's position to the center of the final position of the precast units determine the crane size. Locate the crane as close to the installation as possible and follow all recommendations of the crane supplier. The staging area for the crane must be stabilized and crane supplier should be prepared to supply outrigger mats.

Setting the Vault StormFilter

Ensure the inlet(s) and outlet are oriented per the plans. Vault floor shall slope 1/4 inch maximum across the width and slope downstream 1 inch per 12 foot of length. Vault top finish grade shall be even with surrounding finish grade surface per the plans unless otherwise directed by the site engineer.

Optional Equipment: Drain-Down System

- Drain down assembly recessed in vault floor connected to flow kit



Assembling Internal Components

In most cases, internal components have been assembled inside the vault before shipment and will arrive on site pre-installed. The contractor should:

- Verify flow kit and outlet riser are installed securely and located per plans.
- Ensure all cartridges are attached to the 1/4-turn connectors (some may have been disconnected to provide access to lifting points)
- Ensure all unused cartridge connections are plugged
- Ensure the energy dissipater is attached below the inlet opening

Pipe Connections

Inlet pipe(s) shall be stubbed in and connected to the vault according to Engineer's requirements and specifications. Contractor to grout all inlet pipes flush with or protruding up to 2 inches into interior of vault per plan and specifications.

Outlet Pipe shall be stubbed in and connected to the vault according to Engineer's requirements and specifications. Contractor to grout all inlet pipes flush with

Contractor Supplied Material

Grout — Non-shrink grout to connect the inlet and outlet pipes to the Vault StormFilter

Base Preparation

Compact undisturbed sub-grade materials to 95% of maximum density at +/-2% of optimum moisture content

or protruding up to 2 inches into interior of vault per plan and specifications. This should be done externally, as the interior side will be covered by the outlet riser.

Ballast

When required, ballast shall be placed to the dimensions specified by the Engineer and noted on the plans. Ballast shall not encase the inlet and/or outlet piping and 12-inch of clearance should be provided between the ballast and the inlet/outlet pipes.

Protecting the Filter System from Construction Run-off

The Vault StormFilter was selected by the Engineer as a post-construction stormwater treatment Best Management Practice (BMP). It is the responsibility of the contractor to ensure appropriate erosion control measures and Construction BMPs are in place to protect the Vault StormFilter from sediment and other debris until construction is complete and the site is stabilized. Methods for protecting the cartridges include:

1. Remove cartridges from the vault and store appropriately. Cartridges shall be reinstalled when the system is placed on-line after construction is complete.
2. Leave cartridges in the vault and plug the outlet of an upstream flow splitter or bypass structure to prevent run-off from reaching the Vault StormFilter.
3. For systems with Construction Flow Bypass ONLY, make sure the inlet riser is installed.

The method ultimately selected shall be at the Contractor's discretion and the Contractor's risk.

Risers, Covers and Closing the System

The Vault StormFilter is delivered with the necessary risers and covers to bring the unit to grade. It is the contractor's responsibility to assemble the Vault StormFilter per the plans and as directed by the Engineer.

- Place a layer of 1/4 x 1 1/2 butyl mastic sealant between the vault base, riser sections and top.
- The top slab should be oriented per the drawing, with access openings positioned over steps (if provided).
- Place riser sections and riser rings, with steps oriented as shown on plans.
- Install the ladder (if provided) per plans.
- Install frames and covers per plans.

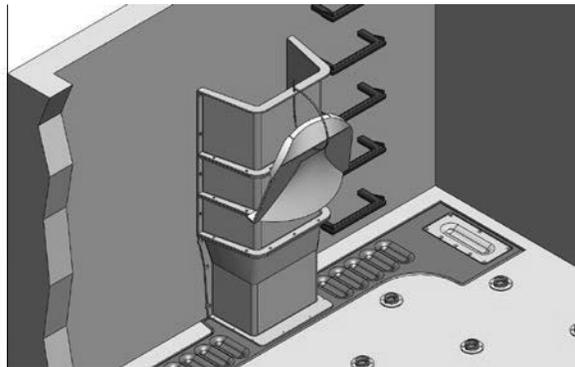
Backfill

Backfill material and placement method should be performed in accordance with the construction plans and as directed by the Engineer.

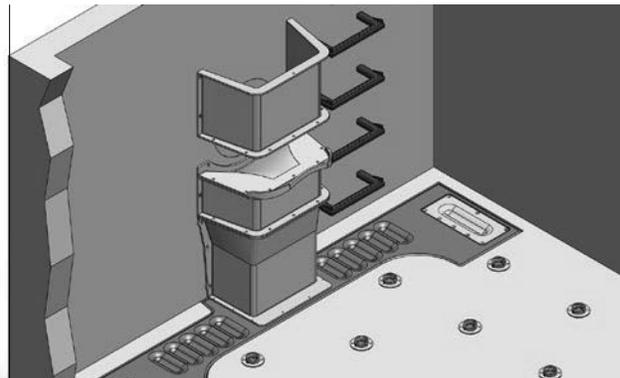
Activating the System

Once construction is complete, landscaping is in place, and the site has stabilized the contractor is responsible for activating the Vault StormFilter system. Depending on the method of protecting the Vault StormFilter from construction runoff, the contractor should:

1. Inspect the system to ensure maintenance is not required (see StormFilter Inspection and Maintenance Procedures).
2. If the cartridges were stored outside the vault during construction, install the cartridges and ensure all empty connectors are plugged.
3. Remove all upstream pipe plugs that were used to prevent runoff from reaching the StormFilter. (Standing water should be pumped out prior to entering any underground structure).
4. For systems with Construction Flow Bypass ONLY
 - A. Systems with 27" tall cartridges
 - i: Remove the 2nd section from the inlet riser (2nd from the top).
 - ii: Install the dissipater tongue by bolting it to the 3rd section of the dissipater tower.
 - iii: Use caulk to seal dissipater tongue to wall.



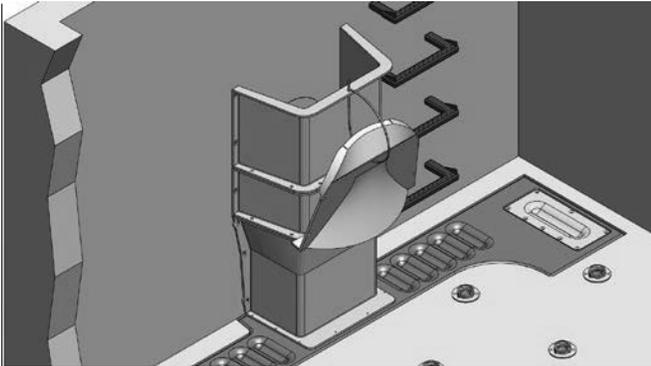
27" Delivered Setup: Bypasses Construction Runoff



27" On-Line Setup: Ready for Treatment

B. Systems with 18" tall cartridges

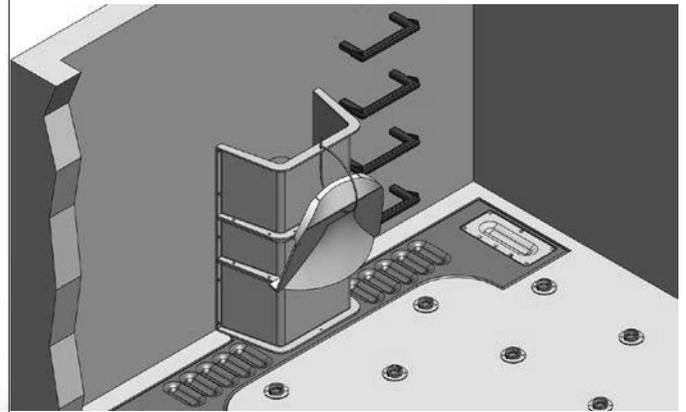
- i: Remove the middle section from the inlet riser.
- ii: Install the dissipater tongue by bolting it to the 3rd section of the dissipater tower.
- iii: Use caulk to seal dissipater tongue to wall.



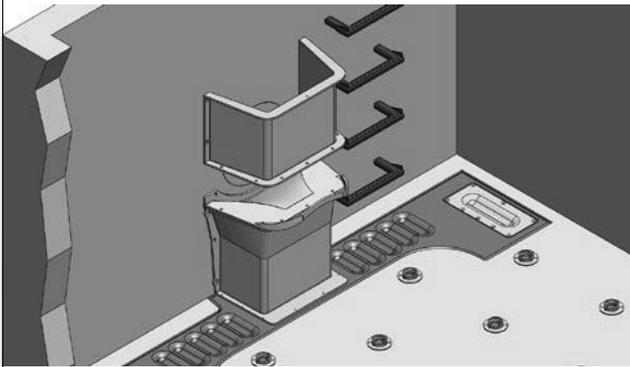
18" Delivered Setup: Bypasses Construction Runoff

C. Systems with low drop cartridges

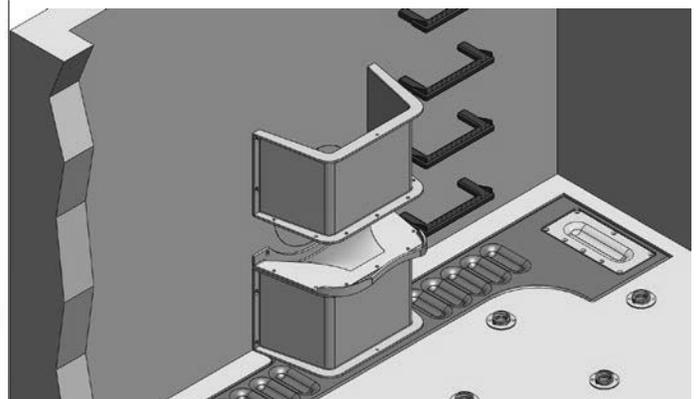
- i: Remove the middle section from the inlet riser.
- ii: Install the dissipater tongue by bolting it to the 3rd section of the dissipater tower.
- iii: Use caulk to seal dissipater tongue to wall.



Low Drop Delivered Setup: Bypasses Construction Runoff



18" On-Line Setup: Ready For Treatment



Low Drop On-Line Setup: Ready For Treatment

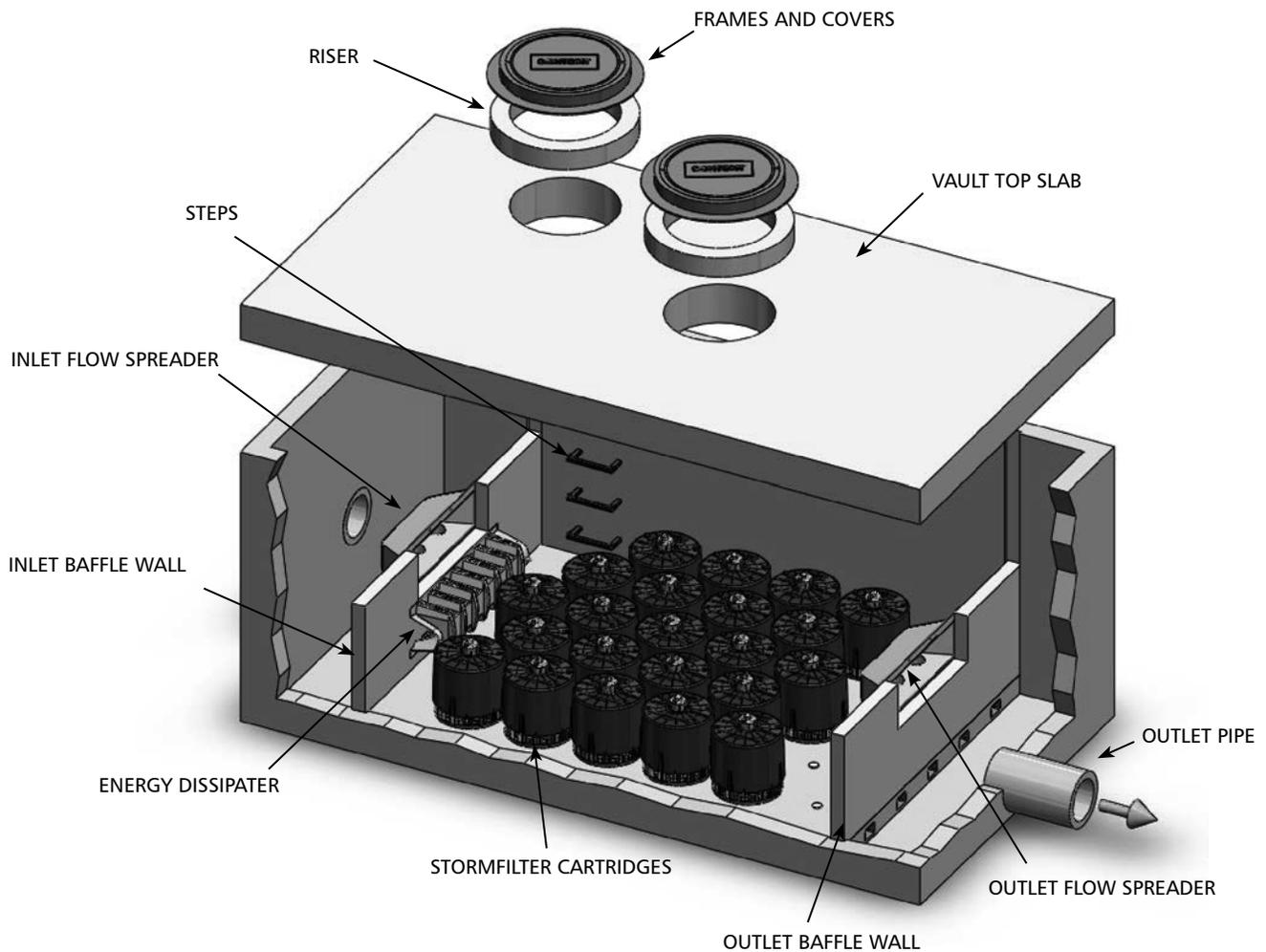
Vault StormFilter with Inlet and Outlet Bays

Parts List – Vault (what to expect)

Typically, the Vault StormFilter will arrive on site with components pre-installed.

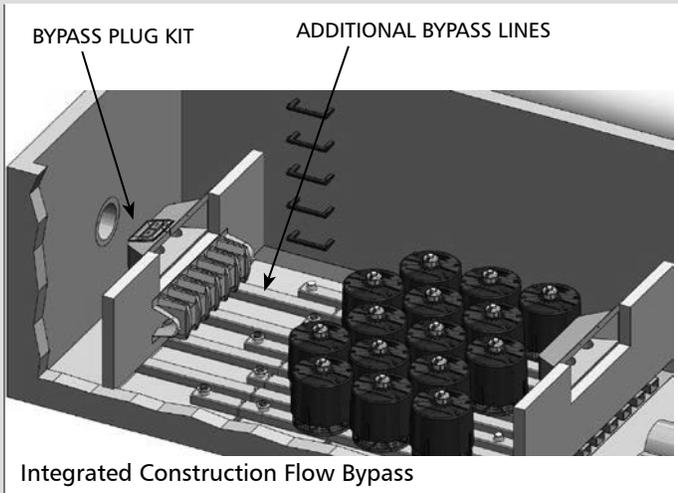
- Flow Kit: embedded in vault base
- Outlet Baffle Wall (placed in vault base in most cases)
- Outlet Flow Spreader (attached to outlet baffle wall)
- Inlet Baffle Wall (placed in vault base in most cases)
- Inlet Flow Spreader (attached to inlet baffle wall)
- Energy Dissipater (attached to inlet baffle wall)

- ¼ Turn Connectors: glued to flow kit
- Connector Plugs: all unused cartridge connections are plugged
- StormFilter Cartridges: count, size and media type per plans (pre-installed)
- Riser sections (if needed, per plans)
- Vault top slab or top section
- Risers to grade (per plans)
- Frame(s) and Cover(s) (per plans)
- Butyl mastic sealant
- Steps, attached to vault wall (on most systems)
- Access ladder, laid in vault (on some systems)



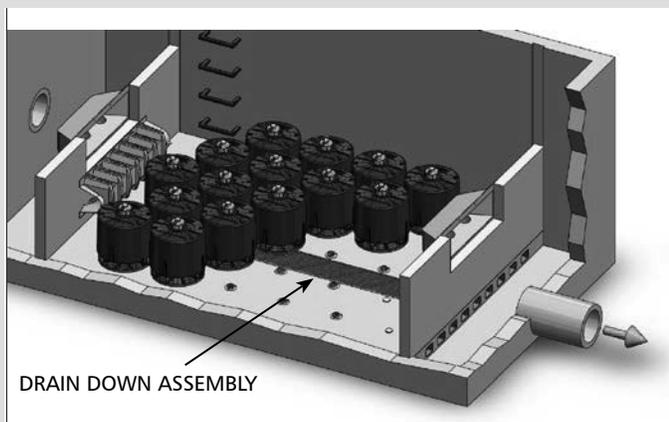
Optional Equipment: Construction Flow Bypass

- Additional bypass lines integrated into flow kit
- Bypass plug kit, attached to flow spreader



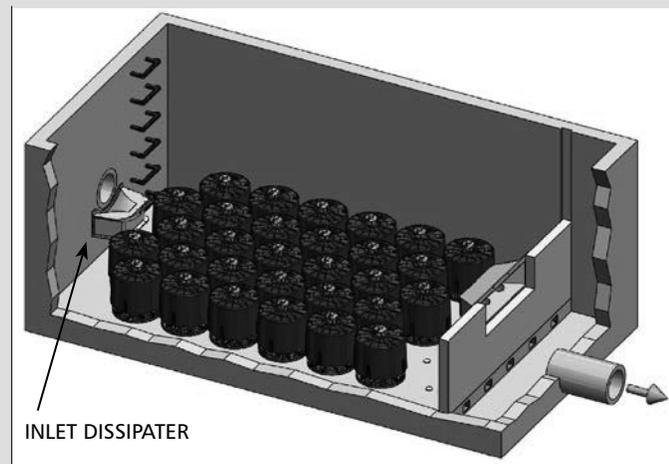
Optional Equipment: Drain Down System

- Drain down assembly recessed in vault floor



Optional Equipment: Outlet Bay Only

- Systems without an inlet bay will have an inlet energy dissipater



Contractor Supplied Material

- Grout — Non-shrink grout to connect the Inlet and outlet pipe to the Vault StormFilter
- Joint Sealant - SikaFlex 1a or equal

Base Preparation

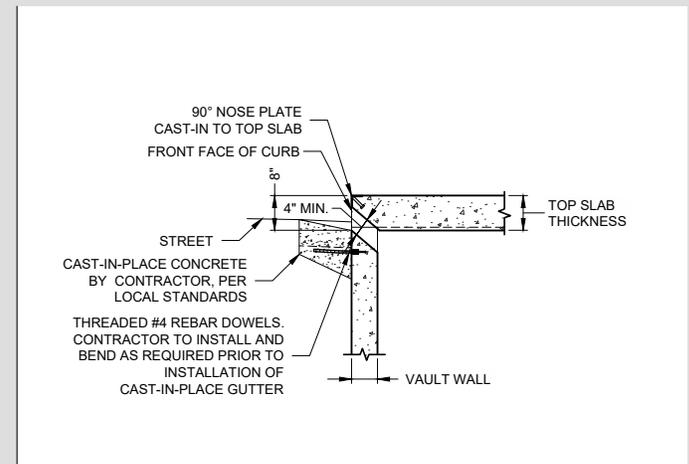
Compact undisturbed sub-grade materials to 95% of maximum density at +/-2% of optimum moisture content prior to placement of crushed rock. Crushed rock base material shall be six-inch minimum layer of 3/4-inch minus rock. Unsuitable material below sub-grade shall be replaced per site engineer's recommendation.

Crane Selection

The contractor is responsible for selecting the appropriate equipment to unload and set the Vault StormFilter. CONTECH will provide the contractor with the weights of the precast pieces. A representative from the crane company should visit the jobsite and review pertinent information (shop drawings, weights, etc) prior to the selection of the crane. The crane representative and/or contractor should determine the distance from center of the crane's position to the center of the final position of the precast units. The weight and the distance from the center of the crane's position to the center of the final position of the precast units determine the crane size. Locate the crane as close to the installation as possible and follow all recommendations of the crane supplier. The staging area for the crane must be stabilized and crane supplier should be prepared to supply outrigger mats.

Optional Equipment: Curb Inlet

- Threaded inserts set in exterior vault wall by precaster
- Threader rebar installed and bent as required by contractor



Setting the Vault StormFilter

Ensure the inlet(s) and outlet are oriented per the plans. Vault floor shall slope ¼ inch maximum across the width and slope downstream 1 inch per 12 foot of length. Vault top finish grade shall be even with surrounding finish grade surface per the plans unless otherwise directed by the site engineer.

Assembling Internal Components

In most cases, internal components have been assembled inside the vault before shipment and will arrive on site pre-installed. The contractor should ensure that:

- The outlet bay baffle wall is set in place and sealed to the interior vault walls and floor.
- The outlet flow spreader is attached to downstream Baffle Wall.
- The upstream bay baffle wall is set and sealed to the interior vault walls and floor.
- The inlet bay energy dissipater is attached to the upstream Baffle Wall.
- The inlet bay flow spreader is attached to upstream baffle wall
- All ¼-turn connectors are attached to cartridge connection ports.
- Connector plugs have been inserted in all unused cartridge connection ports.
- All StormFilter cartridges are attached to ¼-turn connectors.

Pipe Connections

Inlet pipe(s) shall be stubbed in and connected to the vault according to Engineer's requirements and specifications. Contractor to grout all inlet pipes flush with or protruding up to 2 inches into interior of vault per plan and specifications.

Outlet pipe shall be stubbed in and connected to the vault according to Engineer's requirements and specifications. Contractor to grout all inlet pipes flush with or protruding up to 2 inches into interior of vault per plan and specifications.

Ballast

When required, ballast shall be placed to the dimensions specified by the Engineer and noted on the plans. Ballast shall not encase the inlet and/or outlet piping and 12-inch of clearance should be provided between the ballast and the inlet/outlet pipes.

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1. Remove cartridges from the vault and store appropriately. Cartridges shall be reinstalled when the system is placed on-line after construction is complete.
2. Leave cartridges in the vault and plug the outlet of an upstream flow splitter or bypass structure to prevent run-off from reaching the Vault StormFilter.
3. **For systems with Construction Flow Bypass ONLY, make sure the bypass lines are not plugged**

The method ultimately selected shall be at the Contractor's discretion and the Contractor's risk.

Risers, Covers and Closing the System

The Vault StormFilter is delivered with the necessary risers and covers to bring the unit to grade. It is the contractor's responsibility to assemble the Vault StormFilter per the plans and as directed by the Engineer.

- Place a layer of ¼ x 1 ½ butyl mastic sealant between the vault base, riser sections and top.
- The top slab should be oriented per the drawing, with access openings positioned over steps (if provided).
- Place riser sections and riser rings, with steps oriented as shown on plans.
- Install the ladder (if provided) per plans.
- Install frames and covers per plans.

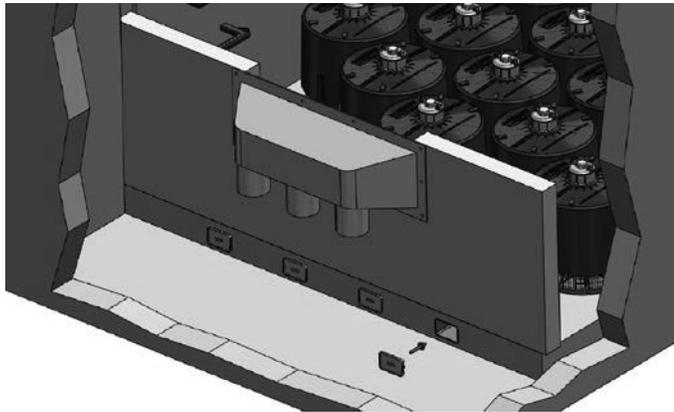
Backfill

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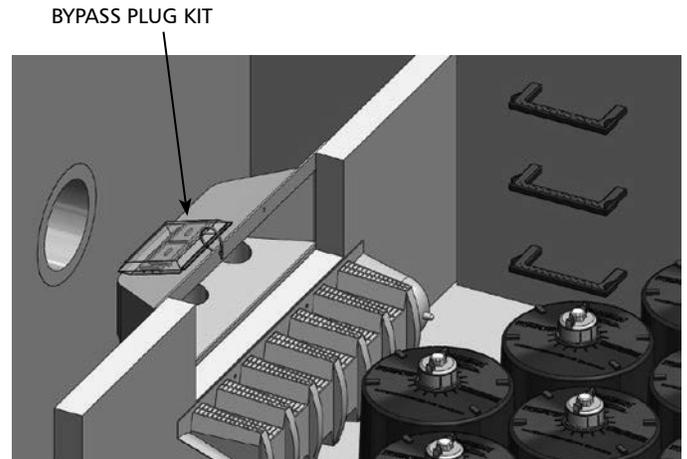
Activating the System

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2. If the cartridges were stored outside the vault during construction, install the cartridges and ensure all empty connectors are plugged.
3. Remove all upstream pipe plugs that were used to prevent runoff from reaching the StormFilter. (Standing water should be pumped out prior to entering any underground structure).
4. For systems with Construction Flow Bypass ONLY, insert bypass plugs in the Construction Flow Bypass pipes.



Online Setup: Ready For Treatment



Delivered Setup: Bypass Construction Runoff

SUPPORT

- Drawings and specifications are available at www.ContechES.com.
- Site-specific design support is available from our engineers.

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