

GFRC BIORETENTION: Planter System Assembly and Installation



WARNING!!! Failure to follow these instructions as provided may result in substantial injury to personnel, and/or damage to the planter.

PARTS/HARDWARE LIST	<i>Included</i>	NEEDED FOR INSTALLATION	<i>Not included</i>
GFRC Bioretention Planter Segment		Drain Rock	
Perforated Drain Pipe		Filter Fabric	
Overflow Pipe and Fittings	(one per group)	Filter Medium (soil/planting)	
Pipe Coupler	(one per modular segment)	Bubble or Laser Level	
Discharge Coupling	(one per group)	PVC Cement and Primer	
Pass-thru Coupling	(one per modular segment)	SikaFlex 1A Sealant	
(*pipe may require field cut to fit)			

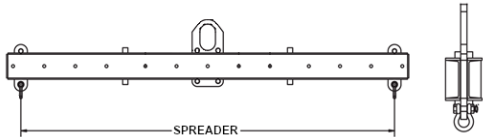
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STEP 1 – Unload

A forklift with a capacity 25% greater than weight of heaviest component (see shipping manifest or quotation for weight) equipped with fork extensions is required to off-load and place the planter. If receiving the units on a flatbed truck, a forklift with extended forks may be required for unloading. If delivery is by common carrier, you will need either a loading dock, pallet jack with extended forks, forklift with extended forks, or manpower (assume 1 man per 100 pounds of weight). Please coordinate with carrier.

If a crane is required for placement, contact Tournesol Siteworks for discussion on rigging and packaging. Make sure chokers do not put compressive load on cast parts by being too short. A spreader with outriggers allowing direct vertical lift on all pick points is desirable.



DO NOT remove any item from the pallet(s), crate(s), or boxes that comes with the planter until the time of installation unless there is evidence of damage to the packaging materials.

It is recommended to place the complete pallet close to the planter installation site. Cover with a disposable tarp if inclement weather is expected.

NOTE: Planters must be installed on a firm, flat, level surface.

STEP 2 – Placement of the planter(s) (to be done at time of installation)

Cut the tie down straps that secure the planter to the pallet. Remove all items located within the pallet and planter and place nearby.

Locate the lifting points embedded into the inside corners of the planter. You will need a chain or heavy-duty strap. Attach your strap or chain to the end of the forks and hook it to the lifting loops embedded on the inside of the planter. Slowly lift it off the pallet. Make sure there are two people, one at each end of the planter, to balance it, avoiding damage to the planter. The embedded loops are used only to lift the planter from the pallet to the ground. The maximum height capacity of the lifting loops is 6” high.



Never roll, pivot, or drag units. Never pick up unit with forks in direct contact with the bottom of the planter. It must be on a pallet or have weight distributed from forks across entire surface with beams. Never lay planters on their sides.

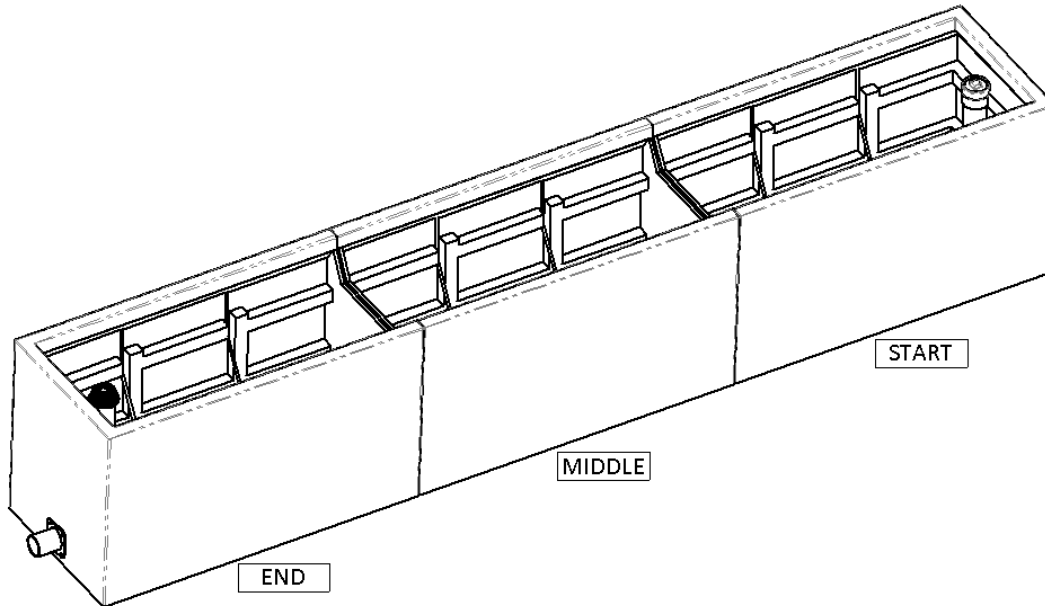
Place the planter in the appropriate location and orientation. Verify overall level and use shims to achieve level, where necessary.

If your bioretention is a modular system, identify the planters and their relative location for the site (e.g. ‘start’, ‘middle’, ‘end’ units). Refer to this modular assembly instruction section in this document for detailed instructions on assembly.

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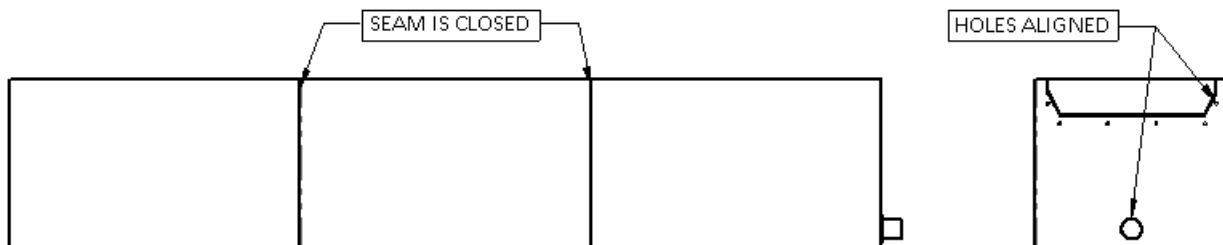


Modular Assembly

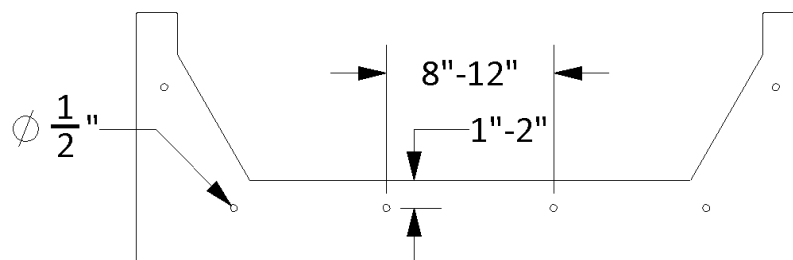


Reference layout drawings for location and quantity of planters. Place the first planter and ensure it is leveled to your specifications. It's important that the planter is fully supported and will not shift once loaded.

Place the rest of the planters in your layout, making sure the outside edges are flush, the seams are closed, and that the flow through holes are aligned. Ensure they are all fully supported underneath to avoid movement later when loaded.

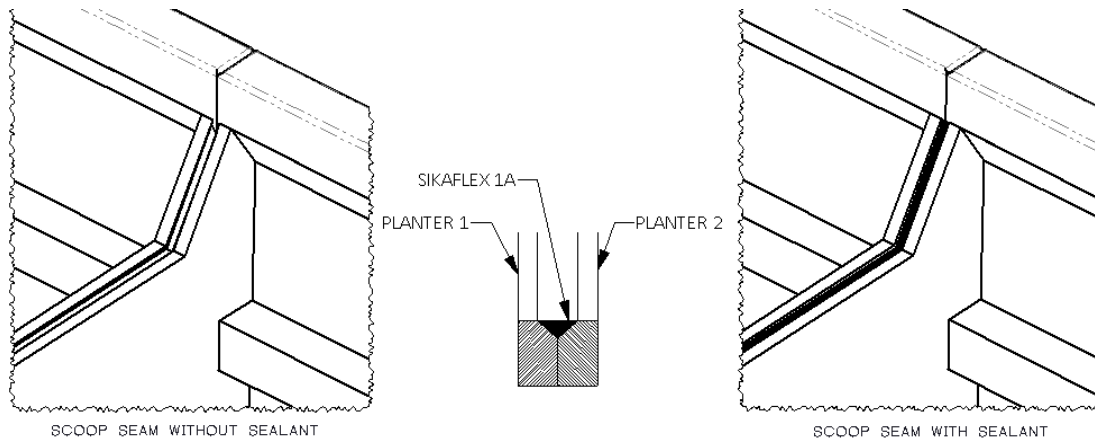


With the planter modules aligned, temporarily clamp together. Drill $\frac{1}{2}$ " diameter holes through both walls along the scoop out. Holes should be between 1-2 inches away from the edge of the scoop edge and spaced every 8-12 inches. The first and last holes should be as high up the wall as possible. Seal each bolt, on both sides, with SikaFlex 1A or other waterproof sealant before tightening. Remove clamps.



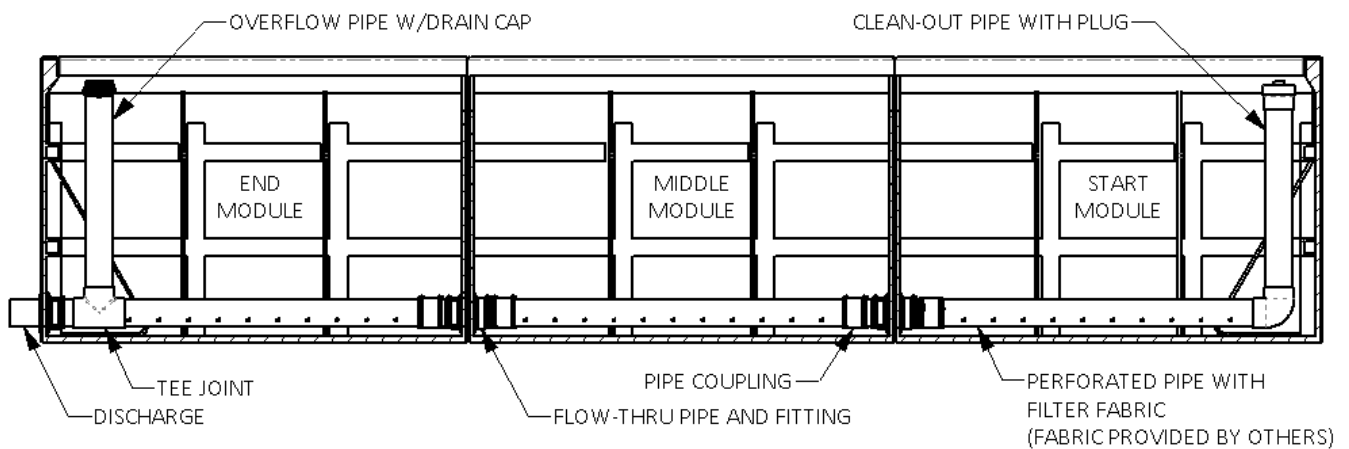
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Seal the top edge of the scooped wall with SikaFlex 1A. Lay bead down into the groove created between the two planters and use a putty knife to push the sealant down into the seam.

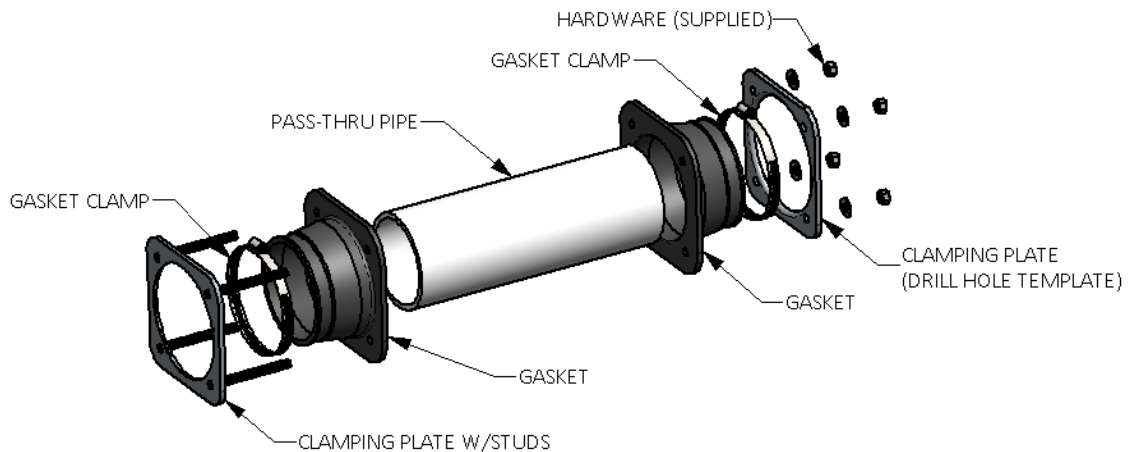


STEP 3 – Plumbing Assembly

With the planters in place, and all scoop seams sealed, the pass-thru fitting can be installed.

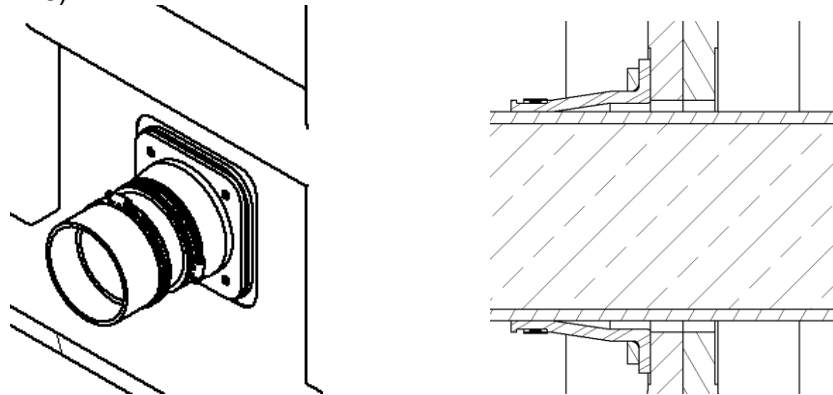


Module-to-Module Flow Through Assembly



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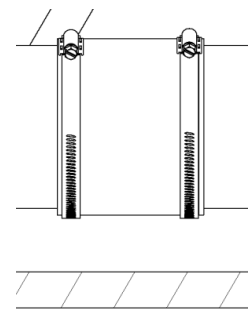
Install first half of flow through assembly. The first half has a clamping plate (plate without threads as shown above). Use plate to mark hole locations; holes will be drilled after plumbing fit is verified (see Final Assembly, pg. 7-8).



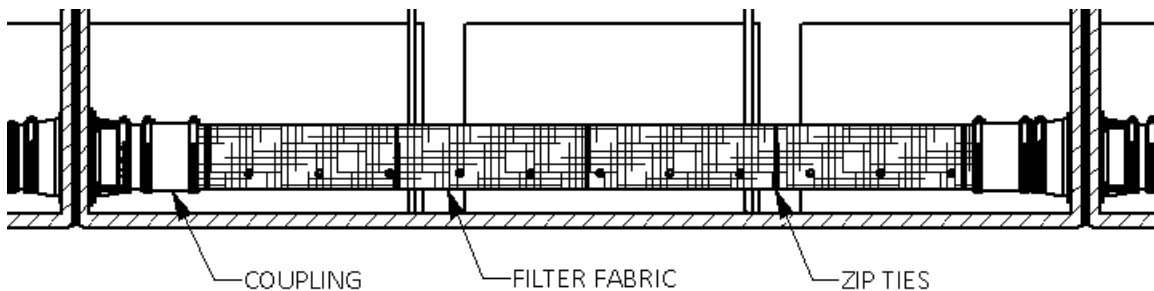
Dry Fitting

With the planters in place, and all seams sealed, the plumbing can be dry fit assembled.

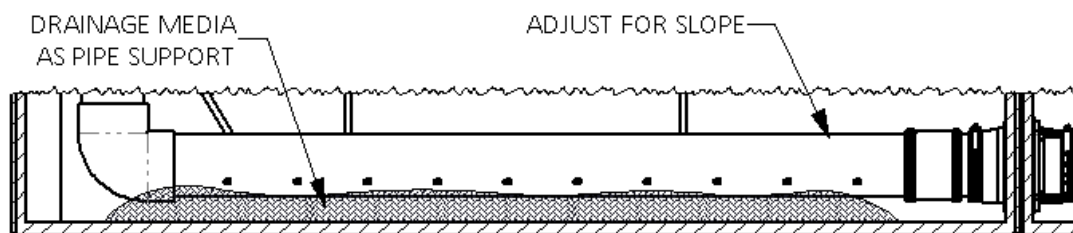
Slip coupling over pipe ends. If the coupling does not fit, unscrew to loosen clamps. When dry fitting is done (see step 3.2.4 pg. 9) hand tighten screws on clamps to seal. NO glue/sealant is required.



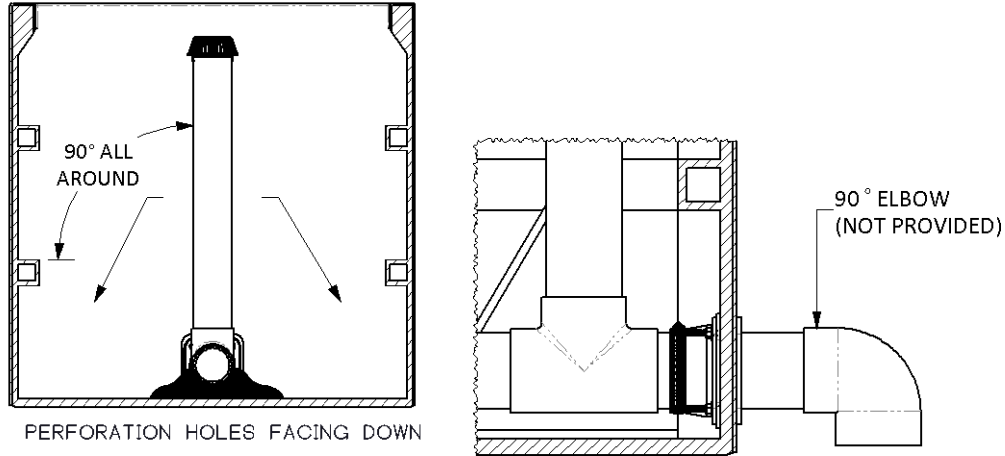
Install pipes and connect to flow through assembly(ies) with coupling(s). Wrap the drain pipe with filter fabric only if specified. Secure the filter fabric with zip ties at intervals along the pipe length. The fabric should cover all of the holes in the perforated pipe.



Use drainage media to support the plumbing while making sure proper slope is accounted for (refer to your site plans). Aim to have flow-through pipes centered into the hole in planter. Even spacing makes sealing around the pipe easier and more consistent.

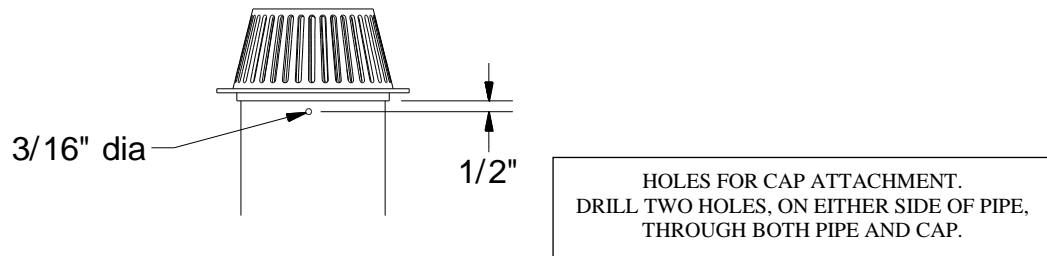


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Install the discharge assembly. This can vary greatly from one project to another. Refer to your site plans to confirm discharge arrangement. Shown above is one of three typical set-ups (end elbow).

Trim down the height of overflow pipe as needed to ensure proper ponding depth (refer to site plans). If your plumbing is still dry fit, it is easiest to trim the overflow pipe from the bottom and reinsert it into the T-joint. If you need to remove the cap and trim from the top, follow these dimensions to re-drill the holes for the screws.



Ensure the plumbing system is supported and the flow-through pipes are aligned into the center of the flow-through holes as best as possible. Even spacing makes sealing around the pipe easier and more consistent.

Final Assembly



This is a permanent installation. Double check the alignment and fit prior to applying sealants and PVC glue.

With plumbing fit verified, glue the PVC components together. Use standard PVC glue (provided by others) and follow manufacturer's instructions.

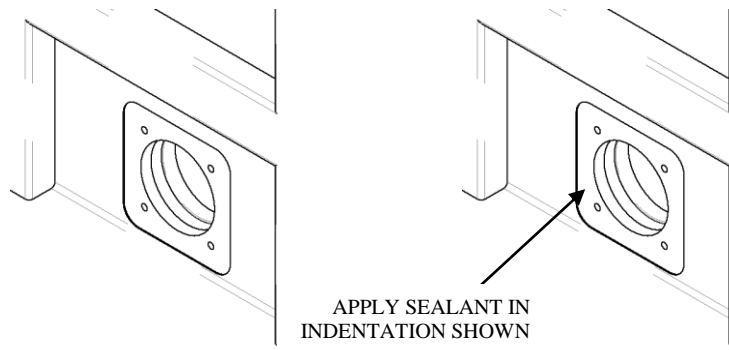
After all plumbing components have been glued together it is time to seal the flow-through assembly (see page 7) into the walls of the planters.

Drill through planter walls at hole locations marked during dry fit (pg. 5) with a 7/16" masonry drill bit. You will be going through 2 planter walls for connections between planters and 1 wall for wall discharges. Keep drill bit parallel to horizontal and side walls to ensure threaded rods on mating plate align.

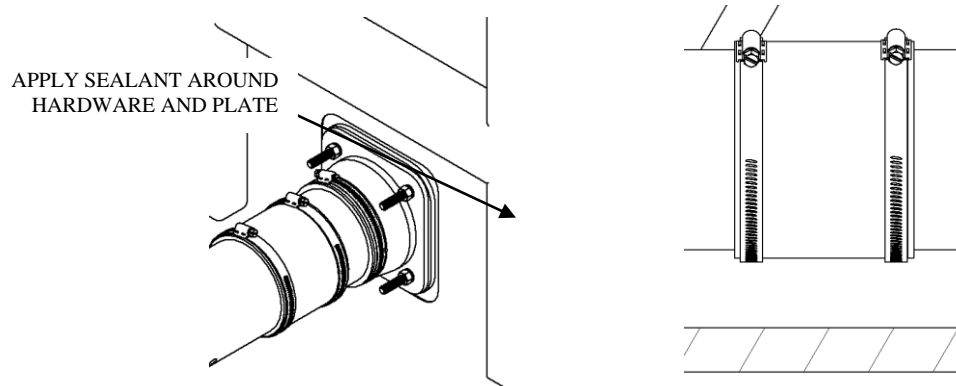
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Apply Sikaflex 1A liberally along the perimeter of the flow-through hole in each planter being connected.



Install the flow through assembly. Threaded rods will go through both planters. Tighten (hand tight is sufficient) nuts onto threaded rods, alternating between opposing corners to ensure even pressure. Apply Sikaflex 1A to base of seal and hardware.



Attached glued plumbing pieces to the flow assembly using the couplings provided. Hand tighten screws on clamps to create seal. NO glue/sealant is required.

STEP 4 – Planting

With the plumbing in place, the planter can be filled with filtering medium. Refer to your project's requirements for the type and depth of material to be used. Care should be taken not to damage the plumbing fixtures.

Install any plants per landscape plans along with ground covering to the level of the overflow cap. Do not cover up cap with planting material.

Verify that the system is working properly by pouring small amounts of water into the overflow cap and checking to ensure it is exiting the discharge fitting. If required by your project, it may be necessary to add water to the planter itself to verify proper discharge. Consult your project engineer or landscape architect for requirements.