AquascapePRO™
Professional Grade Products

PRO-Fit™ System

Signature Series™ BIOFALLS® Filter

Installation Instructions & Owner's Manual

- **Step-by-Step Installation Instructions for the Signature Series™ BIOFALLS® Filter**

Aquascape™

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Professional Grade Products

PRO-Fit™ System

Signature Series™ BIOFALLS® Filter

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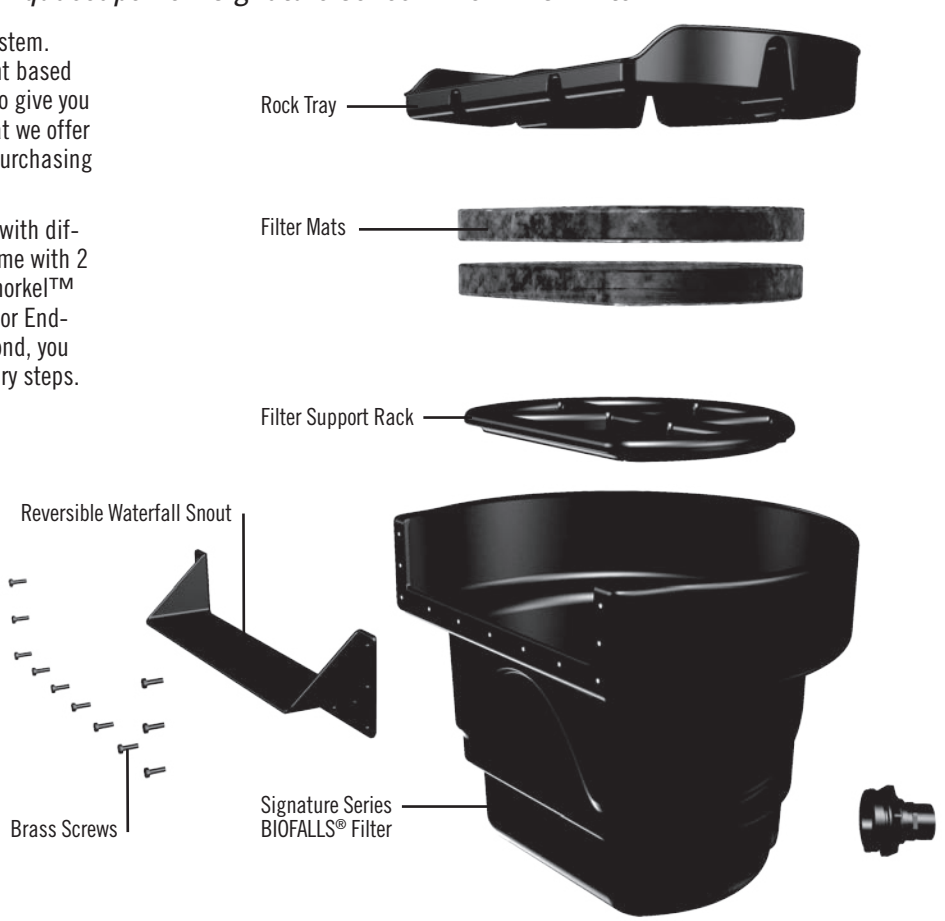
Congratulations on the purchase of the AquascapePro™ Signature Series™ BIOFALLS® Filter.

Thank you for choosing an Aquascape PRO-Fit™ System. Because we understand that your needs are different based on your preference, application or design, we want to give you the flexibility of using the different product lines that we offer within the same project without losing the ease of purchasing a kit.

Since the PRO-Fit™ System is designed to be used with different product lines, each PRO-Fit™ System will come with 2 sets of instructions: one for the skimmer (or MicroSnorkel™ and MicroCentipede™) and one for the BIOFALLS® (or Endless Cascades™). During the construction of the pond, you may have to refer to one or the other for the necessary steps.



STEP 1

Hook up and level BIOFALLS® Filter

Installing the Bulkhead

- Install the two bulkheads into the back of the Signature Series™ BIOFALLS® filter. The filter has two openings on the back allowing several plumbing options.
  1. For single pump applications attach one pump plumbing line into one bulkhead and utilize the plug in the other. Use the angle of the bulkheads to your advantage by using the bulkhead that works best with the direction and sweep of the plumbing coming from the pump.
  2. For double pump applications, attach each pump plumbing line into a bulkhead.
- Optional Drain Kit – The Signature Series™ BIOFALLS® filter is available with an optional drain kit. The drain kit is attached to the second bulkhead on single pump applications. The drain kit allows the ability to conduct water changes and makes annual cleaning of the filter easier. (See Installing the Drain Kit section on this page 4)
- Install the bulkhead fitting in the hole provided in the back of the BIOFALLS® filter. The rubber washer should be located on the inside of the BIOFALLS® filter. Tighten the nut on the outside until the rubber washer begins to bulge. This should only be approximately one turn past hand tight. Be careful not to over tighten the nut, which could possibly crack the bulkhead. Please note that the bulkhead fitting is reverse threaded. So, in other words, turn the nut counterclockwise to tighten! **(See figs. 1 & 2)**
- Install the PVC slip fitting into the desired bulkhead to receive the pump plumbing. The PVC plug fitting provided can be installed in the 2nd bulkhead fitting if it is not going to be utilized. Use some of the silicone sealant or teflon tape (not included) to coat the threads of the fittings, in order to help provide a watertight seal.
- Now it's time to position the BIOFALLS® filter in the desired location. The BIOFALLS® filter should be set at or slightly below the grade of the yard. Simply remove a section of sod or a few inches of soil in order to create a firm foundation for the BIOFALLS® filter to sit.

Design tip - Keep the waterfall to the scale of the yard! The goal should be to create the perception that Mother Nature herself has installed the waterfall. Avoid creating a "volcanic look" by trying to raise the BIOFALLS® filter in a flat backyard.

- Be sure to compact the area beneath the BIOFALLS® filter box using a hand tamper or some other heavy flat object that can be pounded onto the soil. This will help prevent any future settling.
- Use a 2' bubble level in order to make sure your BIOFALLS® filter is properly set into position. Your BIOFALLS® filter should be level from side-to-side and tilt forward @1/4 of a bubble on a 2' level. This will make sure the water comes over the front of the BIOFALLS® filter and covers the entire spillway. **(See fig. 3)**

Attaching Flexible PVC Pipe

- The filter is now ready for the flexible PVC to be glued into place using PVC cement specified for use with flexible piping.
- Prime the inside of the PVC fitting and the outside of the pipe where the flexible PVC cement will be applied.
- After priming, apply the cement to the fitting and the PVC pipe and fit the two pieces together.
- Hold the pipe into the fitting **(See Fig. 4)** for at least 60 seconds to allow the glue to slightly set.
- Wait 10 - 15 minutes to let the glue completely set before you begin to bury the filter.
- Before you start to backfill around the filter, install the support racks. Otherwise, you may not be able to get it in place. Refer to Signature Series™ parts diagram on page 2.
- We also recommend having someone stand inside the filter to keep it in place and level while it's being backfilled.
- The excavated soil from the pond can be backfilled around the sides and back of the BIOFALLS® filter, creating a berm. Tamp the soil while backfilling in order to reduce settling. Any additional soil can be spread around the far side of the pond in order to create a planting bed for perennials and annuals.
- Double check to make sure the BIOFALLS® filter is still level after installing the plumbing.

Fig. 1 Attach bulkhead fitting.

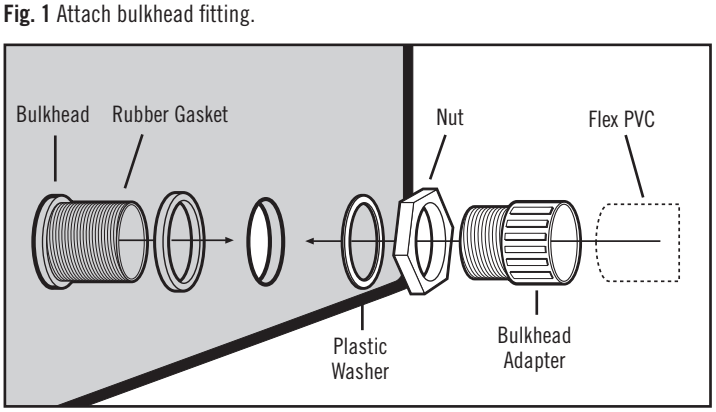


Fig. 2 Bulkhead assembly.

Fig. 3 Level the BIOFALLS® filter side to side as well as front to back.

Fig. 4 Finished bulkhead assembly.

Installing the Drain Kit: (Optional)

- Prime and glue a stub of flexible PVC Pipe into the fitting on one of the bulkheads **(1)**.
- Prime and glue the ball valve onto the other end of the PVC Flex Pipe **(2 & 3)**.
- Prime and glue the desired length of flexible PVC Pipe into the other side of the ball valve and run the pipe to the desired location to discharge the water when performing water changes or flushing out the BIOFALLS® filter while cleaning **(4)**.
- Prime and glue all of the gray valve fittings and 24" of pipe onto the top of the valve **(5)**.
  Note: *The pipe can be cut down to the desired length once all of the soil is built up around the filter.*

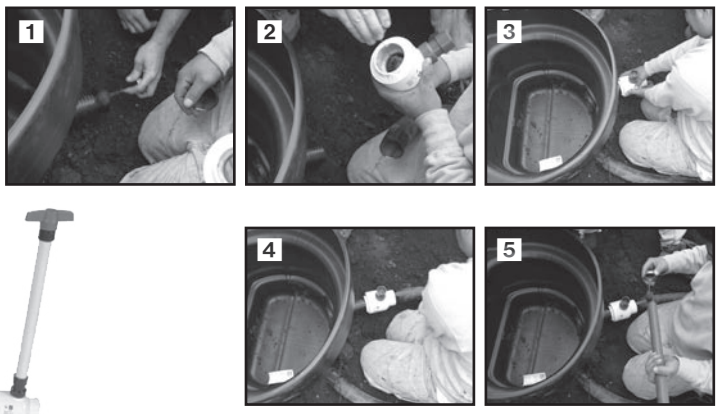


Fig. 5 Drain Kit Assembled.

STEP 2

Build the Waterfalls and Stream

Before building the waterfall, you will need to do a little preparation work. Please read the section about Stream Construction on page 6 if you plan to create a stream. We also recommend that contractors refer to *The Pond Builders Bible* and the *Waterfalls & Stream Construction* video prior to designing and installing.

There are two options when attaching the lip for the Signature Series™ BIOFALLS® filter:

1. The reversible waterfall snout can be attached facing outward. This method is recommended for first time installers providing a solid ledge cantilevering off the front of the BIOFALLS® filter to build the waterfall spillway **(See fig. 6).**
2. The reversible waterfall snout can also be attached facing inward. This method allows more creativity when constructing the waterfalls, allowing the designer a flat unobstructed BIOFALLS® filter face for placing large boulders on the left and right side of the unit **(See fig. 7)**.

Installing the BIOFALLS® filter Waterfall Snout:

- Prior to installing the waterfall snout make sure the face of the BIOFALLS® filter and liner is clean and free of dust and debris. Use a damp towel to clean both surfaces. **(See fig. 8)**
- Hold the liner up against the face of the BIOFALLS® filter, covering the U-shape spillway opening. Be sure to leave slack at the base of the filter to avoid stretching the liner when rocks are stacked to build the waterfalls.

Fig. 6 The reversible waterfall snout attached facing outward.

Fig. 7 The reversible waterfall snout attached facing inward.

NOTE: *Ignore this step if you are installing the waterfall snout outward and proceed to the next step.*

- For inward installation you will need to cut two vertical slits into the liner along the left and right side of the opening. The flap of liner can simply fall into the inside of the BIOFALLS® filter when attaching the waterfall snout. **(See fig. 9)**
- Temporarily install the waterfall snout and liner to the BIOFALLS® filter loosely with the two top corner screws and one center screw below the waterfall snout. Using an awl or nail, poke the first hole through the waterfall snout and liner penetrating into the corresponding threaded insert on the BIOFALLS® filter. Remove the awl or nail while holding the waterfall snout and liner in place, and begin threading one of the screws into the filter. **(See fig. 10)** Repeat this process for the screw on the opposite side. When installing the waterfall snout inward we recommend installing a third temporary screw at the center–most screw hole along the bottom. **(See fig. 11)**
- Now remove the waterfall snout, trying to keep the screws still penetrating through the liner.

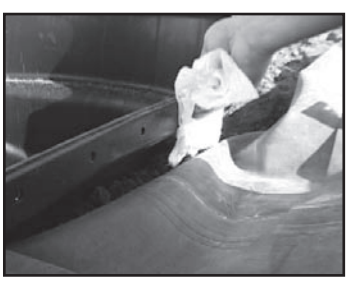


Fig. 8 Use a damp towel to clean surfaces.

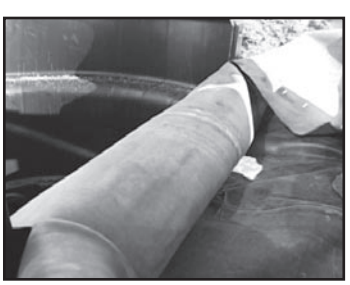


Fig. 9 For inward installation you will need to cut two vertical slits into the liner along the left and right side of the opening.

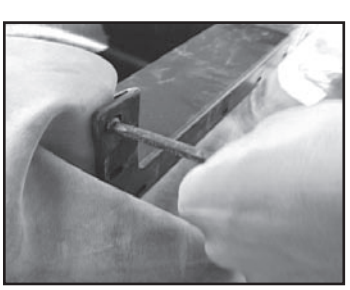


Fig. 10 Begin threading one of the screws into the filter.

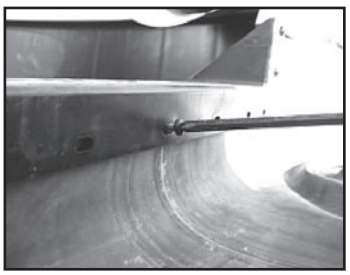


Fig. 11 When installing the waterfall snout inward we recommend installing a third temporary screw at the center.

Fig. 12 Apply a thick bead of fish-safe silicone sealant around the BIOFALLS® filter opening.

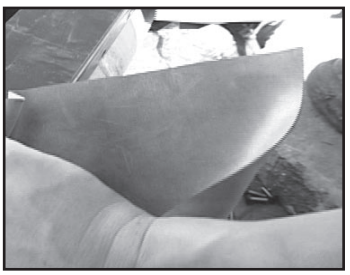


Fig. 13 Reattach the BIOFALLS® filter waterfall snout using the pre installed screws as your guide.

These screws will serve as your guide when reinstalling the waterfall snout.

- Apply a thick bead of fish-safe silicone sealant around the BIOFALLS® filter opening. The bead should follow the path of the threaded inserts (connect the dots). **(See fig. 12)**
- Reattach the BIOFALLS® filter waterfall snout using the pre installed screws as your guide. We recommend threading the lower center one first when installing the waterfall snout in the inward direction. **(See fig. 13)**
- With all temporary screws secured back into position, you may now punch the remaining screw holes with the awl or nail and thread in the remaining screws.
- Outward waterfall snout position will require the liner to be trimmed back at this point.
- Let dry for at least 1-hour before introducing water!

Filter Media*

The filter mats provided with the Signature Series™ BIOFALLS® filter are high surface area (HSA) mats containing 50% more surface area than normal filter mats allowing a greater substrate for beneficial bacteria to colonize and help clean the water. The mats are simply set on top of the filter support rack. Media bags are provided for additional filtration substrate such as lava rock or a commercial media of your choice such as BioBalls™ (not included). Add the appropriate amount of media so the bags are able to be spread out over the surface of the filter mat.

Note: *Overfilling media bags will prevent them from spreading out over the filter mats and will cause interference with the rock rack.*

Rock Tray

- The Signature Series™ BIOFALLS® filter comes with an upper support rack that also serves as an easy way to help disguise the filter into the landscape using small boulders, aquatic plants, and gravel. Arrange the stones, gravel, and plants in the rack in such a way as to hide the back and top of the filter.
- The rack sits in the upper portion of the BIOFALLS® filter. The filter mats can be removed for annual cleaning through the wider opening at the front of the rack.

Creating the Waterfall

- Place two larger boulders on either side of the waterfall you are creating in order to "frame" the waterfalls. The water will be running between the two larger boulders you've set in place. **(See fig. 14)**
- You can now begin to stack the rocks between the two larger boulders. These are the rocks that the water will be running over, so take your time and be creative. Start with the larger rocks on the bottom and work your way up to the smaller ones on top.
- Small stones and gravel can be used to fill the gaps between the larger waterfalls stones. **(See fig. 15)**
- The BIOFALLS® filter is designed with a plastic lip for the water to cascade off. You can use the BIOFALLS® filter plastic waterfall stone or even piece(s) of thin (no more than 3/4" thick) natural slate **(See figs. 16 & 17)**. This stone can be attached to the BIOFALLS® filter using black waterfall foam. The black waterfall foam will come in handy when filling other gaps between the stones that water is flowing over. The foam keeps the water flowing over the top of the waterfall stones. Without the black waterfall foam, you may lose some of the impact of your waterfall as water travels beneath the rocks.
- Place smaller rocks on the rock ledge inside the BIOFALLS® filter to help hide it in the landscape. The rock tray inside the BIOFALLS® filter will help disguise the rest of the unit into the landscape. **(See fig. 14)**

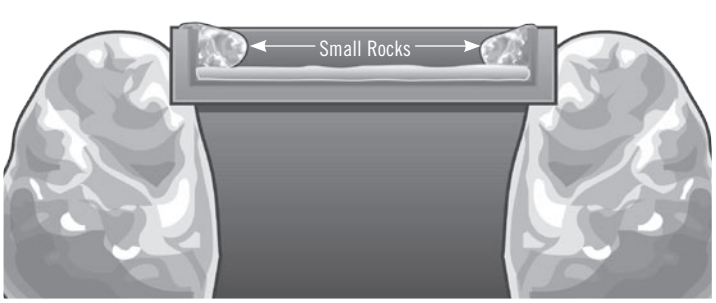


Fig. 14 Place smaller rocks on the rock ledge in the BIOFALLS® filter.

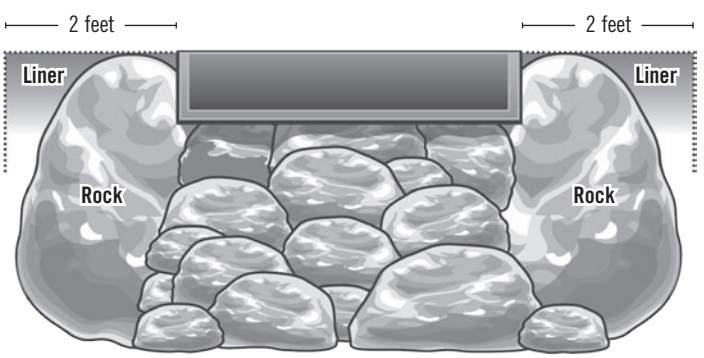


Fig. 15 Place two larger boulders on either side of the waterfalls you are creating in order to "frame" the waterfalls.

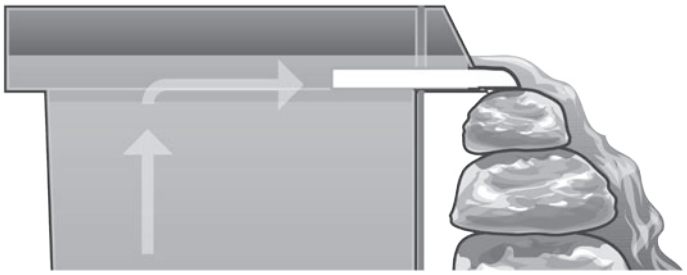


Fig. 16 If using a natural rock for your waterfall weir, make sure that it is fairly thin (no more than 3/4").

Fig. 17 If a thick rock along with a larger flow pump is used, the water flow may be so great that it will flow over the sides of the BIOFALLS® filter.

Waterfall Lights (optional)

- After the boulders are in position, set your waterfall accent lights. The lights can be placed beneath the waterfall shining upwards.
- See lighting system instructions for placement, positioning and installation of waterfall lights.

Building the Stream

- Placing the BIOFALLS® filter away from the edge of the pond is always a good idea. This allows the creation of a meandering stream to add a touch of nature to your water garden.
- We typically place the BIOFALLS® filter 6 - 10 feet from the edge of the pond. Twisting and turning the stream makes it look more natural, and will require a minimum 10' x 15' piece of liner. **(See fig. 18)**

Excavation of the Stream

- Lay out the stream from the BIOFALLS® filter to the pond. The typical width of a stream should be between 2 - 4 feet wide ***(Note:*** *the wider the stream, the less movement of water you will have).* Vary the width of the stream throughout to mimic what would occur in nature. **(See fig. 19)**
- Excavate the stream to a depth of 6 inches to 1 foot. Vary the depth in the corners and in smaller pools along the run of the stream to allow water to pool in those areas.
- If your stream is being built on a slope, you will need to create a few waterfalls in it. To hold the water back when the pump is shut off, you need to build a check dam at each waterfall. **(See fig. 20)**
- To make the stream look much more natural, you should place some larger boulders into it. To make this work properly, excavate the area where the rock will be placed a few inches deeper. This will allow the rock to sit into the bottom of the stream, not just on the streambed.
- Once you have the stream excavated, you can place the liner into it.

Installation of Liner and Rocks

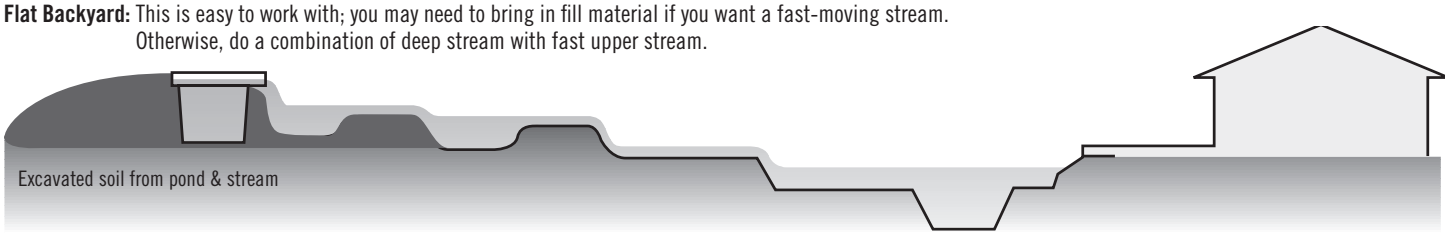
- Connect the liner to the BIOFALLS® filter as described above.
- Where the liner overlaps the pond, you will not need to seam the liners together as long as you have a 6-inch waterfall or higher. Simply overlap the stream liner over the top of the pond liner.
- Place rocks of varying sizes around the perimeter of the stream. During excavation of the stream, you dug a few areas where larger rocks will go. Put some of the Black Waterfall Foam into these divots and place the rocks on top. The foam will allow the water to be diverted around and over the rocks instead of underneath them.

Deep Streams

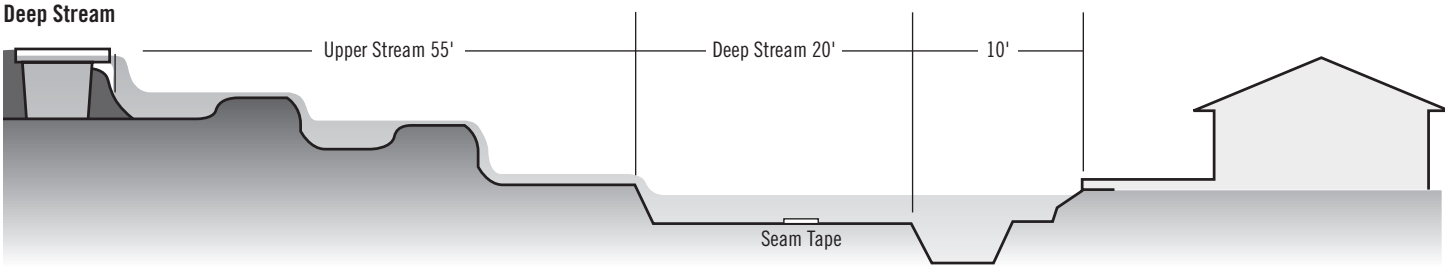
- A deep stream is simply an extension of the pond itself. By adding a deep stream to a pond, you allow the fish from the pond to swim to other areas that would otherwise not be possible. One important construction technique you will need to master, is a double-seam.

Fig. 18

Flat Backyard: This is easy to work with; you may need to bring in fill material if you want a fast-moving stream. Otherwise, do a combination of deep stream with fast upper stream.



Deep Stream



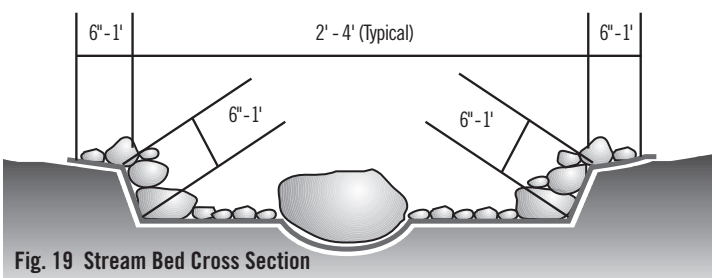


Fig. 19 Stream Bed Cross Section

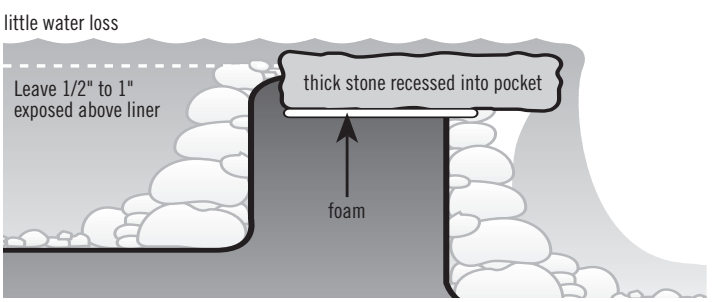


Fig. 20 (c) If your only option is a thick waterfall stone, use the above method.

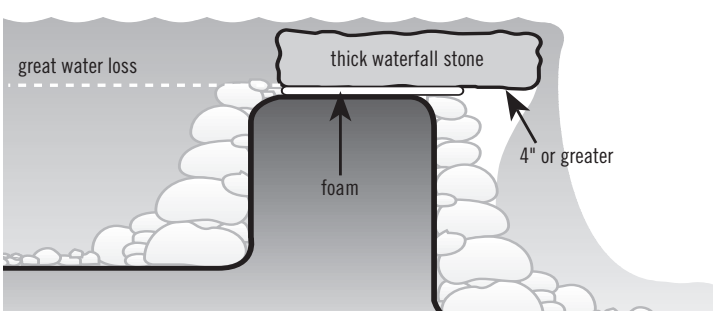


Fig. 20 (a) An often overlooked part of stream construction is the thickness of your waterfall stone. Water will eventually seep through the foam joints if the pumps are off for prolonged periods of time. The water will slowly seep around the thick stone, resulting in water loss equal to the thickness of the stone.

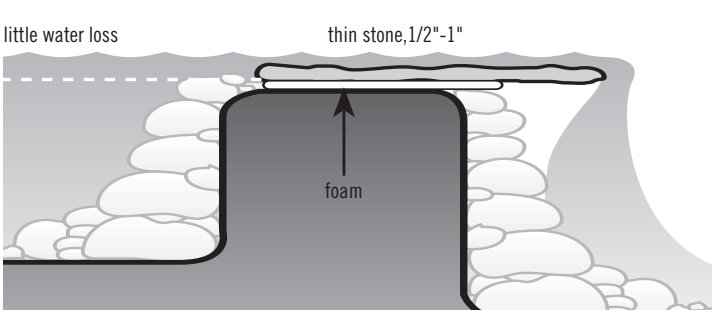


Fig. 20 (b) By using a thin stone, the situation can be easily remedied.

STEP 3

Bring in the Topsoil

- Add topsoil to the berm and surrounding area in order to provide a good substrate for future landscape plantings.
- The entire area may be mulched and any plant material installed if necessary.

STEP 4

Build the Retaining Wall

- Finish off the berm where the BIOFALLS® filter is buried by building a small retaining wall out of boulders. This step may or may not be needed, depending on the size of the berm and the transition into the existing landscape.

STEP 5

Plug in and Tweak the Waterfall

- As soon as the Pond/Pondless® Waterfall feature is filled and all of the black waterfall foam is dry (if used on project), you may plug the pump in and test the waterfall.
- You can "tweak" the waterfall by placing smaller stones and gravel on the waterfall cascades. This will change the appearance and sound of the water. Have fun playing with the water coming over the falls until you achieve the desired effect.

STEP 6

Trim the Liner

With everything running, go around the perimeter of the pond with a pair of scissors and trim off any excess liner **(See fig. 21)**, always leaving several inches above the water level as a precaution. The remaining liner edges can be covered with gravel. **(See fig. 22)**

Note: *Do not trim the liner until the waterfall is running and the pond is filled to the desired level. Prematurely trimming the liner may cause leaks!*


Fig. 21

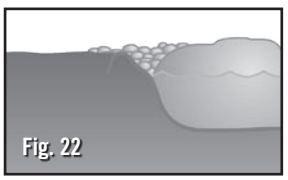


Fig. 22

STEP 7

Mulch the Berm

- The entire area surrounding the pond can now be mulched and any surrounding plants added.

STEP 8

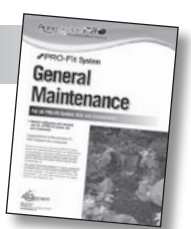
Clean Up

- You're at the final stages of the project! All that is needed now is to clean up the mess you've made around the yard.

STEP 9

Owner's Manual and Bacteria

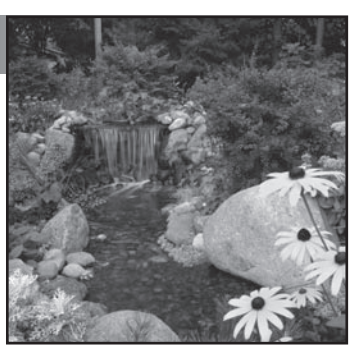
- Refer to the owners manual for care and maintenance of your new water feature.
- The pond kits include water treatments designed to reduce maintenance and keep the water crystal clear. Contact your installer or supplier for more information on the complete water treatment line available from Aquascape.



STEP 10

ENJOY!

No further explanation needed for this step!



General Maintenance for the Signature Series BIOFALLS® Filter

The Signature Series™ BIOFALLS® filter is the starting point of your waterfall. The filter mats and filter media provide a "home" for the beneficial bacteria to live that help clean the pond and provide crystal clear water. The Signature Series™ BIOFALLS® filter is designed to require once a year cleaning when used in combination with a Signature Series™ Skimmer or Pondless® Waterfall Vault prefilter. These filters ensure that large debris is filtered from the water before it reaches the Signature Series™ BIOFALLS® filter. The Signature Series™ BIOFALLS® Filter also has an optional drain kit which allows for easier water changes and annual cleaning of the filter.

DO NOT clean the filter mats or filter media bag in the Signature Series™ BIOFALLS® filter more than once a year. Cleaning them, especially with chlorinated tap water, more than once a year will reduce or kill the beneficial bacteria growing on these filters. Replace old filter mats after several years, when they begin to tear or fall apart.

The filter mats can be removed for annual cleaning through the wider opening at the front of the rack.

Note: The Signature Series™ BIOFALLS® filter that comes with the Pondless® Waterfall system does not include filter mats or media bags. There is no need for these items since there is no pond.

For more information on care and maintenance, please refer to the Owner's Manual included with this filter or Aquascape's *Pond Building for Hobbyists* book. Also visit www.aquascapeinc.com