

### PURPOSE & DESCRIPTION

The Filtrex® **Filtration System** is a temporary or **permanent water or storm water filtration system used to remove sediment and/or soluble pollutants** from water or storm water. This land based system uses organic FilterMedia™, GrowingMedia™, and vegetation to remove pollutants from water and storm water before being discharged into collection ponds, constructed wetlands, infiltration basins, fields, or receiving waters. This filtration system combines the benefits of organic matter, humus, vegetation, and proprietary flocculants to clean point and non-point water sources. Filtrex flocculants can be used with customizable and easily maintained Filtrex GroSoxx® Baffles to create a custom design to target specific pollutants in contaminated water and storm water flows.

### APPLICATION

The filtration system can be used for temporary applications during land disturbing/construction activities or for permanent applications where vegetation can be established to create a permanent organic vegetative filter that is designed into the landscape. Typical applications include:

- Pretreatment for temporary sediment detention ponds,
- Post-treatment for temporary sediment detention pond discharge or emergency storm overflow,
- Pretreatment for permanent storm water collection ponds,
- Sediment and soluble pollutant control of storm runoff,
- Sediment and soluble pollution filtration from contaminated effluent.

### INSTALLATION

1. Filtrex® Filtration systems shall meet Filtrex GroSoxx Mesh Material and Filtrex Certified GrowingMedia and FilterMedia specifications.
2. Call Filtrex at 877-542-7699 or visit [www.filtrex.com](http://www.filtrex.com) for a current list of installers and distributors of Filtrex products.
3. Filtration systems will be placed at locations indicated on plans as directed by the Engineer.
4. Filtration systems shall be placed perpendicular to water flow in a manner that allows water or storm water to flow, percolate, and/or gravitate through the system.
5. Filtration systems must be installed and stabilized before water flow is allowed to enter the filtration system.
6. Land surface shall be cleared of debris, including rocks, roots, large clods, and sticks prior to filtration system installation.
7. Land surface may be lightly compacted and graded prior to installation.
8. Filtration systems shall be placed on slopes between 1 and 5%.
9. Filtration systems will be fabricated on-site.
10. On-site fabrication of filtration systems will ensure a continuous length GroSoxx system. Upon completing one section of GroSoxx filling (approximately 100-200 ft [30-60m]), the next section shall be 'sleeved' over the completed section by a minimum of 1 ft (300mm). A stake shall be placed in the overlap section, securing the two sections.
11. A minimum 18 in (450mm) diameter GroSoxx will be used to construct the perimeter enclosure of the filtration system.
12. The perimeter GroSoxx shall be injected with seeded GrowingMedia at the time of installation.
13. GroSoxx Baffles injected with seeded FilterMedia shall be installed so that the end where water flow initiates contact shall

abut the perimeter wall, while the opposite end shall be left open to direct and allow flow passage.

14. Alternatively, GroSoxx Baffles may be installed across the entire width of the flow path to force water flow through the Baffle instead of around.
15. GroSoxx Baffles or weirs shall be installed perpendicular to flow across the entire width of the flow area at or near filtration system entrance and at the exit.
16. GroSoxx Baffles may also be injected with Filtrex additives (along with FilterMedia) to target specific pollutants at time of installation. See a list of additives in Section 4.
17. Runoff Diversion injected with seed and GrowingMedia shall be placed along perimeter walls and at perimeter wall/GroSoxx Baffle intersects to direct flow and to reinforce walls and baffles.
18. Once in place, GroSoxx shall be lightly compacted to prevent water undercutting of GroSoxx.
19. Stakes shall be installed through the middle of the GroSoxx on a minimum of 10 ft (3m) centers, using 2 in (50mm) by 2 in (50mm) by 3 ft (1m) wooden stakes.
20. Stakes shall also be placed at the ends of GroSoxx to hold them in place.
21. Minimum staking depth for sand and silt loam soils shall be 12 in (300mm), and 8 in (200mm) for clay soils.
22. Once all GroSoxx are in place a turf reinforcement mat (TRM), rolled erosion control blanket (RECB), or LockDown Netting may be placed on the soil surface.
23. TRMs and RECBs should follow manufacturers' installation and stapling procedures.
24. LockDown Netting shall be anchored to the soil using 6-8 in (150-200mm) sod staples to be driven along the entire perimeter of the net and netting area.
25. Staples for LockDown Netting shall be spaced no more than 24 in (600mm) apart on all sides.
26. Where more than one roll of LockDown Netting is required for area width or area length, netting edges shall be overlapped by a minimum of 6 in (150mm).
27. LockDown Netting shall be installed from top to bottom (never across) on the slope.
28. LockDown Netting shall be installed under the entire area of the fill blanket.
29. Fill blanket shall use GrowingMedia applied to 100% of the TRM, RECB or LockDown Netting fill blanket area.
30. Fill blankets shall be 2 to 4 in (50-100mm) deep.
31. Fill blankets may be seeded at the time of application; seed selection will be determined by the Engineer.
32. Seeded filtration systems should not be installed prior to seasons where growing vegetation is difficult.
33. Seed shall be thoroughly mixed with the GrowingMedia prior to construction or injected into GrowingMedia at time of application.
34. After fill blanket has been applied another RECB or LockDown Netting may be installed on top of the fill blanket to prevent GrowingMedia transport and wash.
35. Installation procedures for RECBs and LockDown Netting used on top of the GrowingMedia fill blanket shall be the same as the installation underneath the fill blanket.
36. Optional biotechnical engineering with live stakes, tubers, seedlings, or plugs should be conducted after staking of GroSoxx is complete.
37. Live stakes should be from a live hardwood species and cuttings

should be 1 to 3 ft (300-900mm) long.

38. Live stakes should be spaced 3 to 5 ft (1-1.5m) apart, and planted vertically with one end planted through the GroSoxx and at least 2 in (50mm) into GrowingMedia.
39. Seeded and/or live staked Filtration systems shall be thoroughly watered after installation and allowed to settle for 1 week.
40. Drip tape may be installed within the GroSoxx during construction to provide irrigation for establishing vegetation.
41. If drip irrigation system is installed a reliable water source should be located and secured.
42. If drip irrigation system is installed and municipal water or a pump will be utilized, a pressure reducer may be required to manage flow and prevent drip tape from bursting.

#### INSPECTION & MAINTENANCE

Routine inspection should be conducted within 24 hours of a runoff or flow event for the first year after installation, until permanent vegetation has established, or as designated by the regulating authority. If product dislodgement occurs, or vegetation does not establish, GroSoxx and GrowingMedia fill blanket should be repaired, reseeded, or restaked. If GrowingMedia has washed or gullies have established in the cells, GrowingMedia should be raked or additional GrowingMedia should be applied. Vegetation practices should always be inspected for noxious or invasive weeds. If sediment accumulation is 50% of the height of the GroSoxx Baffle, sediment removal is recommended. If sediment accumulation is 25% of the height of the vegetation, sediment removal is recommended. Storm debris and trash should be removed immediately.

1. The Contractor shall maintain the filtration system in a functional condition at all times and it shall be routinely inspected.
2. If the filtration system has been damaged, it shall be repaired, or replaced if beyond repair.
3. The Contractor shall remove sediment at the base of the upslope side of the GroSoxx Baffle when accumulation has reached 1/2 of the effective height of the GroSoxx, or as directed by the Engineer.
4. If a filtration system becomes clogged with debris or solids, they shall be maintained so as to assure proper hydraulic flow through. Overflow or undercutting of contaminated water is not acceptable.
5. If Soxx baffle becomes clogged with sediment or hydraulic flow is significantly reduced it may be replaced with a new GroSoxx Baffle.
6. If minor undercutting occurs, the areas may be plugged with sand or additional FilterMedia. If undercutting continues, leveling or minor grading of ground surface may be required to increase surface contact with GroSoxx.
7. Filtration systems shall be maintained until disturbed area above the device has been permanently stabilized and construction activity has ceased.
8. Filtration systems shall be maintained until contaminated water has fully percolated through the device.
9. The FilterMedia, GrowingMedia, sediment, and filtrate may be dispersed on site once solids separation is complete and if there are no concerns with soil and water contamination, or as determined by the Engineer.
10. If a filtration system is to be vegetated, the Contractor shall maintain the vegetation in the filtration system in a functional condition at all times and it shall be routinely inspected.
11. Vegetated filtration systems shall be maintained until a uniform

minimum cover of 70% of the applied area has been vegetated, permanent vegetation has established, or as required by the jurisdictional agency.

12. Vegetated filtration systems may need to be irrigated in hot and dry weather and seasons, or arid and semi-arid climates to ensure vegetation establishment.
13. Where filtration system vegetation does not establish, it fails, or rilling occurs, the Contractor will repair, reseed, or provide an approved and functioning alternative.
14. No additional fertilizer or lime is required for vegetation establishment and maintenance.
15. Regular mowing of filtration system vegetation to a minimum height of 4 in (100mm) and a maximum height of 10 in (250mm) will deter invasive weeds, allow sunlight to kill captured pathogens.
16. Sediment shall be removed once it reaches 25% of the height of the vegetation (mowed) to prevent diversion of storm runoff and reduction of vegetation health and cover.

#### ADDITIONAL INFORMATION

For other references on this topic, including additional research reports and trade magazine and press coverage, visit the Filtrexx website at [filtrexx.com](http://filtrexx.com)

Filtrexx International, Technical Support  
877-542-7699 | [www.filtrexx.com](http://www.filtrexx.com) | [info@filtrexx.com](mailto:info@filtrexx.com)  
Call for complete list of international installers and distributors.

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Figure 6.1. Engineering Design Drawing for Filtrexx Filtration System - Option 1

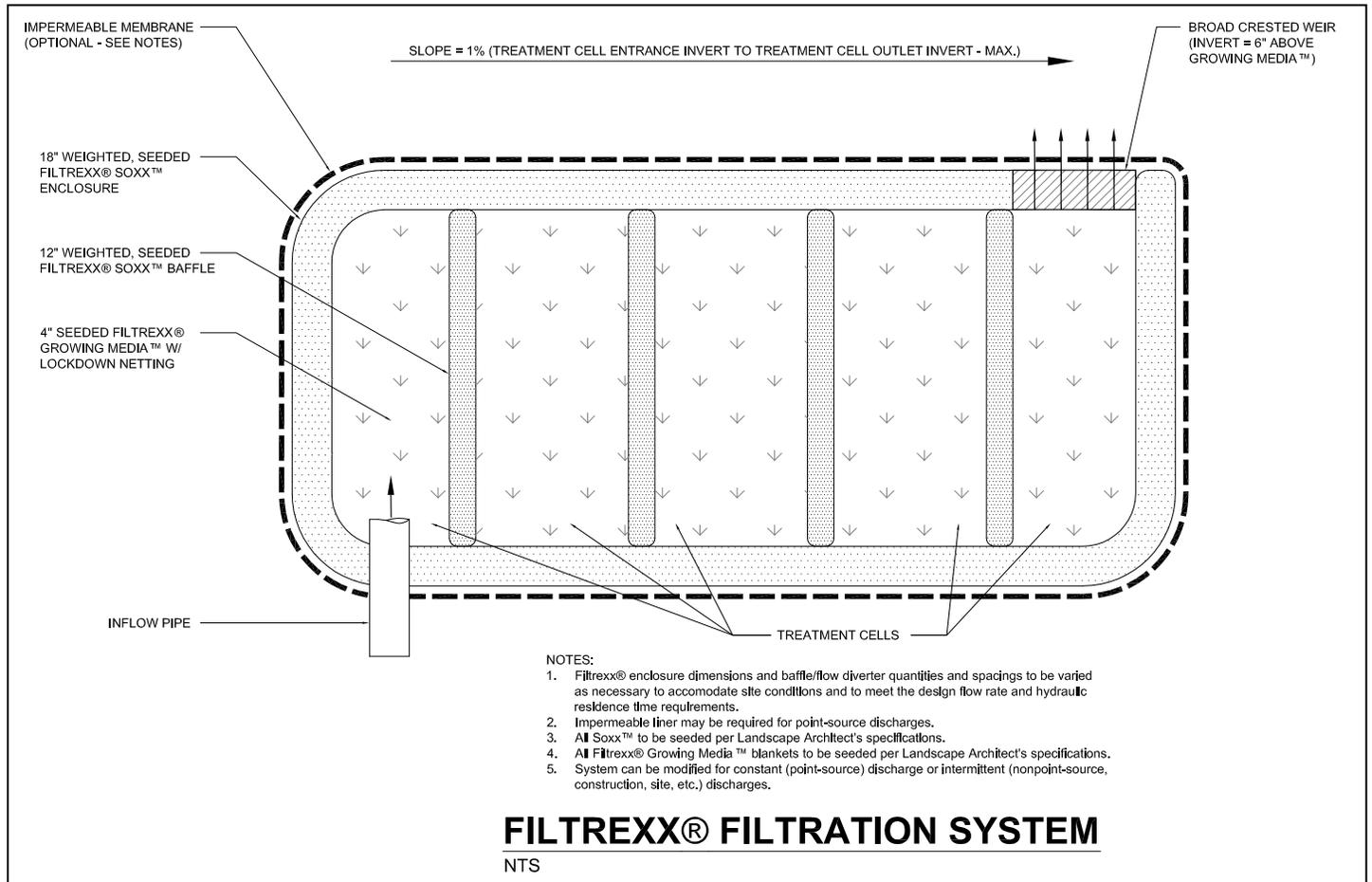


Figure 6.2. Engineering Design Drawings for Filtrrex Filtration System - Sinuous Option

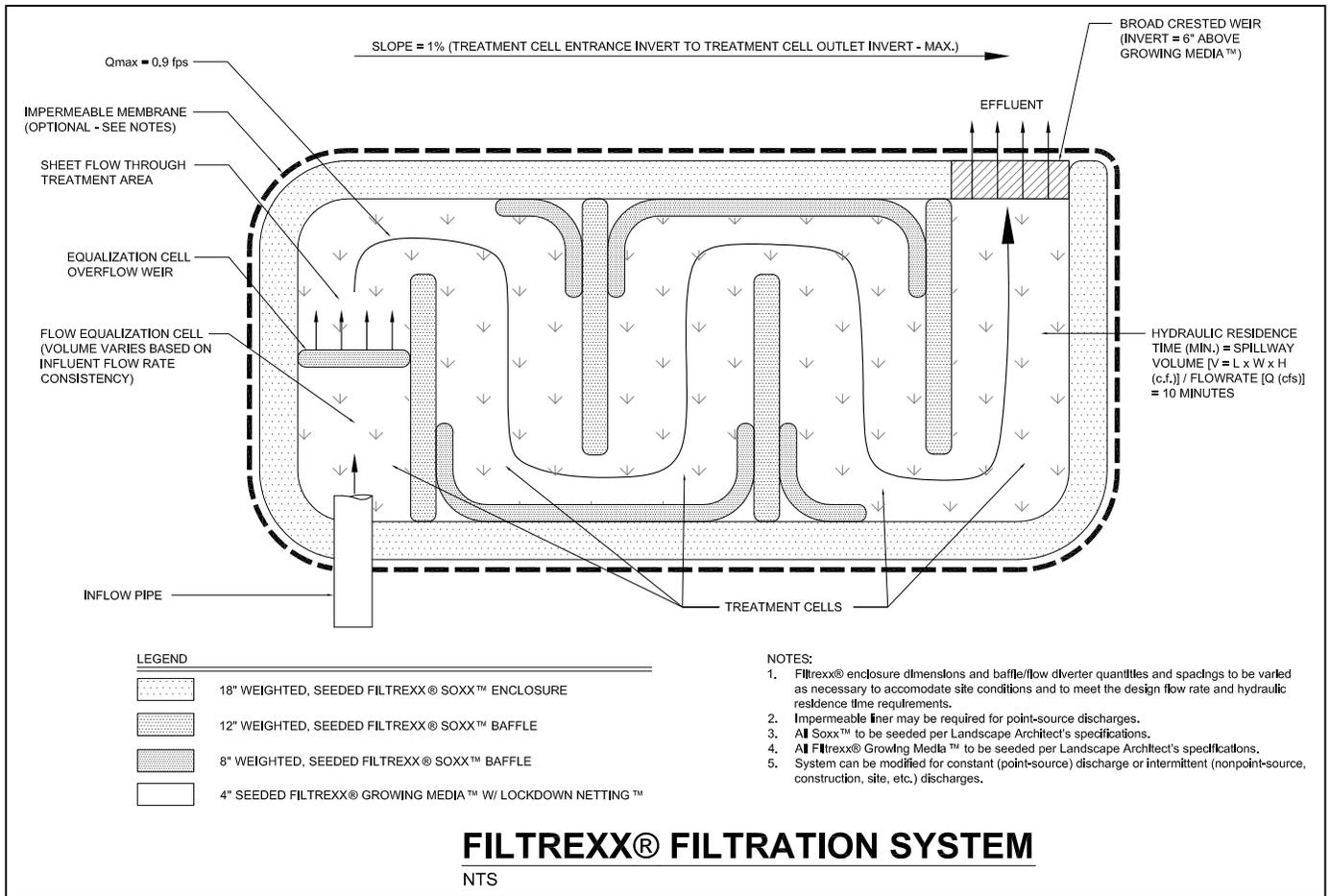


Figure 6.3. Staking Details for Filtrrex Filtration System

