

SWPPP Cut Sheet:

Filtrex[®] Channel Protection

Channel Stabilization Technology

PURPOSE & DESCRIPTION

The Filtrex[®] Channel protection soft armoring system is designed to stabilize and prevent erosion of channel beds and banks used for storm water conveyance and concentrated flow situations. The Channel protection technology provides structural protection, erosion control, vegetation growth, and vegetation reinforcement in the same system. The Channel protection weight and anchoring system can withstand storm water velocities and hydraulic shear stresses similar to traditional soft armoring devices (turf reinforcement mats, rip rap, cellular confinement systems). The Vegetated Channel protection system is specifically designed to reinforce vegetation against intense hydraulic pressure. Once vegetation is established in the Channel protection, the following storm water management parameters are increased:

- structural stability of the channel and protection system,
- reduction of bed and bank erosion,
- protection from scour erosion,
- control of runoff velocity,
- dissipation of runoff energy,
- sediment, soluble pollutant, and pathogen removal efficiency

APPLICATION

Filtrex[®] Channel protection is used where storm water is conveyed/channeled and soil erosion and/or vegetation stability is an issue. Channel protection is used to establish & reinforce vegetation in areas of concentrated flow and intense hydraulic pressure that typically undermine vegetation growth. Applications

include:

- storm water diversion channels and ditches,
- storm water conveyance channels and ditches,
- channel/ditch bed and bank protection,
- outlet protection for storm drains, paved channels, and culverts.

INSTALLATION

1. Channel protection shall meet Filtrex[®] Channel protection Specifications and use Filtrex[®] GrowingMedia[™].
2. Contractor is required to be a Filtrex[®] Certified[™] Installer as determined by Filtrex[®] International, LLC (440-926-2607; www.filtrex.com). Certification shall be considered current if appropriate identification is shown during time of bid or at time of application (list found at www.filtrex.com). Look for Filtrex[®] Certified[™] Installer Seal.
3. Channel protection will be placed at locations indicated on plans as directed by the Engineer.
4. Channel protection must be installed and stabilized before flow is allowed from culverts and storm outlets.
5. Land surface shall be cleared of debris, including rocks, roots, large clods, and sticks prior to Channel protection installation.
6. Channel bed soil shall be compacted, graded, and made smooth prior to installation of Channel protection.
7. Upslope end of Channel protection shall be installed under culvert lip or outlet drain to ensure initial water contact is on top of Channel



- protection, not under/in front of the system.
8. Channel protection will be fabricated on-site or prefabricated and delivered to site for installation.
 9. Channel protection will be fabricated using a Filtrex[®] Channel protection Molding Cone[™], to ensure 3 in (75mm) high by 12 in (300mm) wide Channel protection construction is met.
 10. Channel protection shall be placed parallel to water flow, where socks are tightly abutted to prevent water seepage between and underneath the Channel protection.
 11. Channel protection shall be lightly compacted and abutting edges leveled to tighten seal between socks and encourage even water flow over Channel protection system.
 12. Channel protection shall not be installed on channel bed slopes greater than 10%.
 13. Channel protection shall not be installed on channel banks greater than 2:1, and banks 3:1 if mowing will be conducted to manage vegetation.
 14. Stakes shall be installed through the middle of the Channel protection on 10 ft (3m) centers, using 2 in (50mm) by 2 in (50mm) by 3 ft (1m) wooden stakes. Top of stakes should be cut off, leaving 3 in (75mm) above the top of the Channel protection; or
 15. L-shaped rebar may be installed through middle of Channel protection on 10 ft (3m) centers, where “L” shall be bent to hook over top of Channel protection & pounded to fit snug.
 16. Stakes shall also be placed at the ends of Channel protection to hold it in place.
 17. Staking depth for sand and silt loam soils shall be 12 in (300mm), and 8 in (200mm) for clay soils.
 18. Channel protection may be seeded at the time of application, seed selection will be determined by the Engineer.
 19. Seeded Channel protection should not be installed prior to seasons where growing vegetation is difficult.
 20. Seed shall be thoroughly mixed with the GrowingMedia[™] prior to construction or injected into GrowingMedia[™] at time of application.
 21. Optional biotechnical engineering with live stakes should be conducted after staking is complete.
 22. Seeded Channel protection shall be thoroughly watered after installation and allowed to settle for 1 week.

INSPECTION AND MAINTENANCE

Routine inspection should be conducted within 24 hrs of a runoff event for the first year after installation or until permanent vegetation has established. If

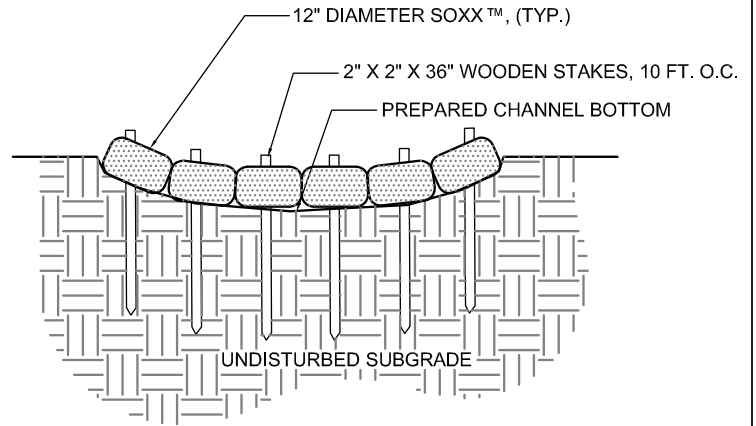
product dislodgement occurs, or vegetation does not establish, Channel protection should be repaired and/or reseeded. If bank or bed erosion occurs, the area should be repaired immediately. Vegetation practices should be inspected for noxious or invasive weeds.

1. The Contractor shall maintain the Channel protection in a functional condition at all times and it shall be routinely inspected.
2. Seeded Channel protection shall be maintained until a uniform 70% minimum cover of the applied area has been vegetated, or permanent vegetation has established.
3. Seeded Channel protection may need to be irrigated in hot and dry weather and seasons, or arid and semi-arid climates to ensure vegetation establishment.
4. Where a Channel protection fails or becomes dislodged, the Contractor will ensure the product is in good contact with the soil, repair, and use additional staking if necessary.
5. Where bank or bed erosion occurs, the Contractor will regrade the soil if necessary and repair or replace the Channel protection.
6. Where vegetation does not establish the Contractor will reseed, replant, or provide an approved and functioning alternative.
7. Channel protection shall be left on-site and become part of the permanent landscape, unless otherwise specified by the Engineer.
8. Regular mowing of grass vegetation on seeded Channel protection 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, and provide maximum sediment removal efficiency and sediment storage capacity in the vegetation.
9. Storm debris and trash deposited on Channel protection should be removed immediately.
10. Sediment shall be removed if it reaches 25% of the height of the vegetation (mowed) to prevent diversion of storm runoff and reduction of vegetation health and cover.

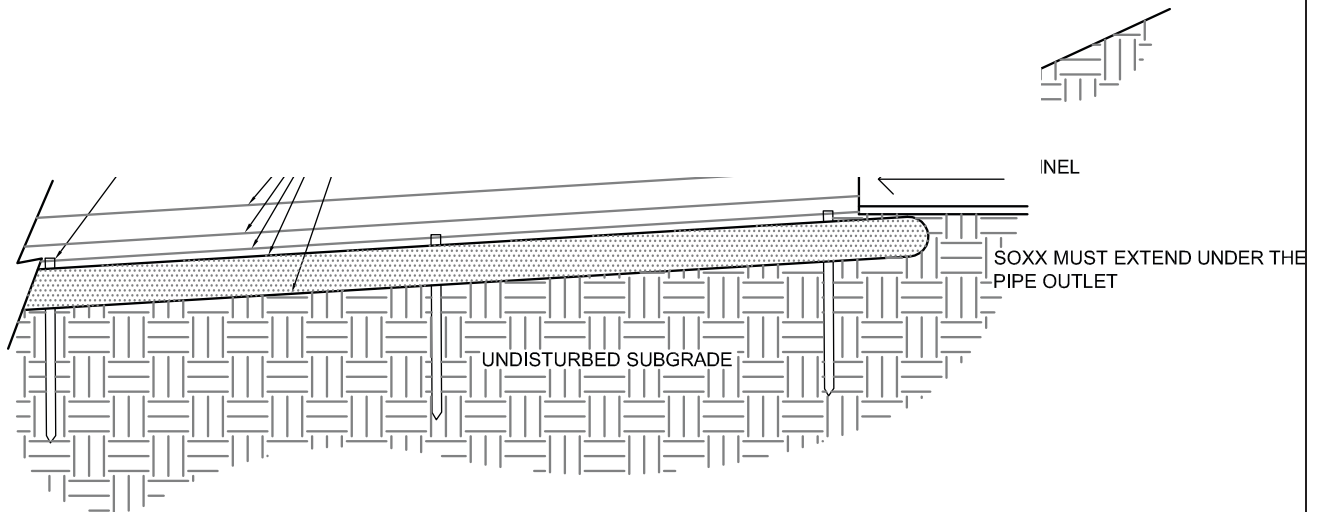


Figure 4.1. Engineering Design Drawings for Filtrex Channel Protection

1. Soxx[™] shall meet Filtrex Soxx[™] Specifications and use Filtrex GrowingMedia[™].
2. Contractor is required to be a Filtrex Certified[™] Installer.
3. Soxx[™] must be installed and stabilized before flow is allowed from culverts and storm outlets.
4. Land surface shall be cleared of debris, including rocks, roots, large clods, and sticks prior to Soxx[™] installation.
5. Channel bed shall be made smooth prior to installation of Soxx[™].
6. Soil bed may be compacted and graded prior to installation.
7. The upslope end of the Soxx[™] shall be installed under the lip of the culvert or outlet drain to ensure initial storm flow contact is on top of the Soxx[™], not under or in front of the system.
8. Soxx[™] shall be placed parallel to water flow, where socks are tightly abutted to prevent water seepage between and underneath the Soxx[™].
9. Once in place, Soxx[™] shall be lightly compacted and abutting edges leveled to tighten seal between socks and encourage even water flow over Soxx[™] system.
10. Stakes shall be installed through the middle of the Soxx[™] on 10 ft (3m) centers, using 2 in (50mm) by 2 in (50mm) by 3 ft (1m) wooden stakes. Top of stakes should be cut off, leaving 3 in (75mm) above the top of the Soxx[™].
11. Soxx[™] may be seeded at the time of application, seed selection will be determined by the Engineer.



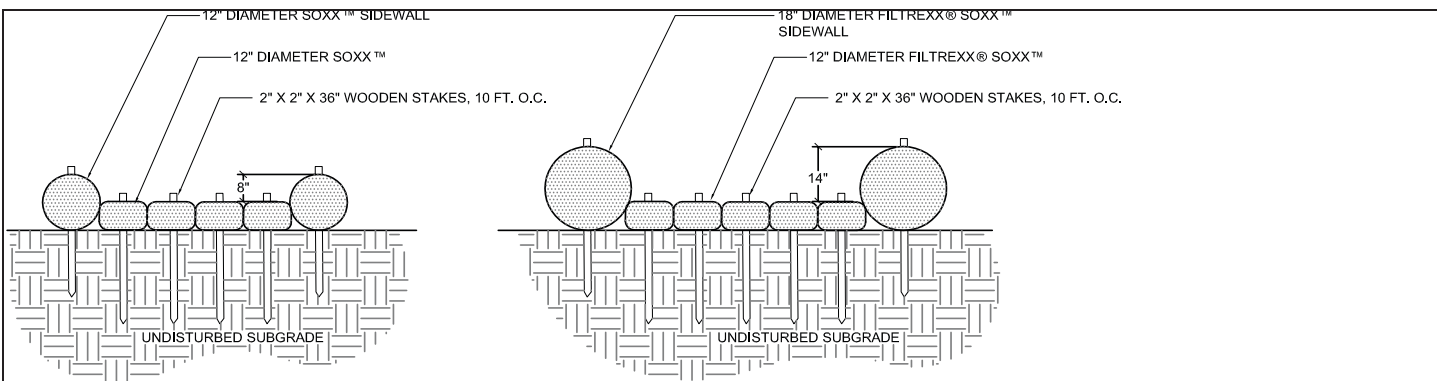
CHANNEL PROTECTION SECTION
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CHANNEL PROTECTION PROFILE
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FILTREXX[®] CHANNEL PROTECTION
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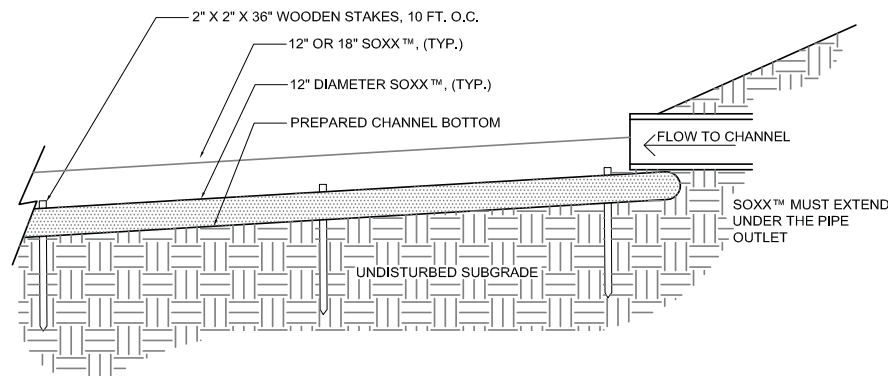




**CHANNEL PROTECTION
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1. Soxk™ shall meet Filtrex Soxk™ Specifications and use Filtrex GrowingMedia™.
2. Contractor is required to be a Filtrex Certified™ Installer.
3. Soxk™ must be installed and stabilized before flow is allowed from culverts and storm outlets.
4. Land surface shall be cleared of debris, including rocks, roots, large clods, and sticks prior to Soxk™ installation.
5. Channel bed shall be made smooth prior to installation of Soxk™.
6. Soil bed may be compacted and graded prior to installation.
7. The upslope end of the Soxk™ shall be installed under the lip of the culvert or outlet drain to ensure initial storm flow contact is on top of the Soxk™, not under or in front of the system.
8. Soxk™ shall be placed parallel to water flow, where socks are tightly abutted to prevent water seepage between and underneath the Soxk™.
9. Once in place, Soxk™ shall be lightly compacted and abutting edges leveled to tighten seal between socks and encourage even water flow over Soxk™ system.
10. Stakes shall be installed through the middle of the Soxk™ on 10 ft (3m) centers, using 2 in (50mm) by 2 in (50mm) by 3 ft (1m) wooden stakes. Top of stakes should be cut off, leaving 3 in (75mm) above the top of the Soxk™.
11. Soxk™ may be seeded at the time of application, seed selection will be determined by the Engineer.



CHANNEL PROTECTION PROFILE
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FILTREXX® CHANNEL PROTECTION - NEW CHANNEL

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Figure 4.2. Staking Details for Filtrexx® Channel Protection

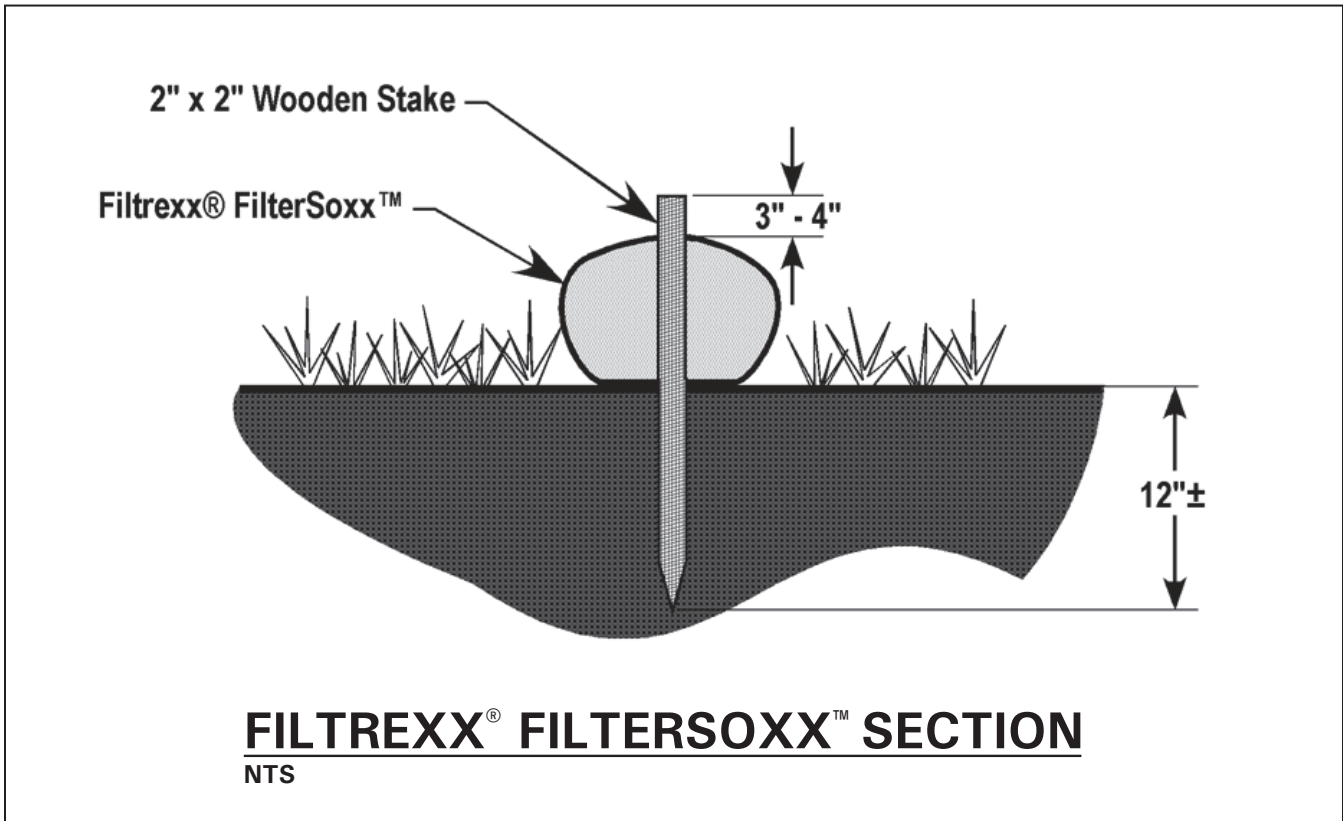


Table 4.2. Flow Dissipater Sizing for Storm Outlets.

Culvert Size	Apron width at pipe	Apron length for low flow	Apron length for high flow
8 in (200mm)	2-3 ft (0.6-1m)	3-5 ft (1-1.5m)	5-7 ft (1.5-2.1m)
12 in (300mm)	3-4 ft (1-1.2m)	4-6 ft (1.2-1.8m)	8-12 ft (2.4-3.6m)
18 in (450mm)	4-6 ft (1.2-1.8m)	6-8 ft (1.8-2.4m)	12-18 ft (3.6-5.5m)
24 in (600mm)	6-8 ft (1.8-2.4m)	8-12 ft (2.4-3.6m)	18-22 ft (5.5-6.7m)
30 in (750mm)	8-10 ft (2.4-3m)	12-14 ft (3.6-4.3m)	22-28 ft (6.7-8.5m)
36 in (900mm)	10-12 ft (3-3.6m)	14-16 ft (4.3-4.9m)	28-32 ft (8.5-9.8m)
42 in (1050mm)	12-14 ft (3.6-4.3m)	16-18 ft (4.9-5.5m)	32-38 ft (9.8-11.6m)
48 in (1200mm)	14-16 ft (4.3-4.9m)	18-25 ft (5.5-7.6m)	38-44 ft (11.6-13.4m)

(Source: Kentucky Erosion Prevention and Sediment Control Field Guide)

