2.1

filtrexx®
SUSTAINABLE TECHNOLOGIES

## SECTION 2: POST-CONSTRUCTION

# Filtrexx® Compost Storm Water Blanket (CSWB) (GrowingMedia™)

### PURPOSE & DESCRIPTION

Filtrexx® Compsot Storm Water Blanket (CSWB™) is a **storm water runoff reduction** and **permanent vegetation establishment** practice used on post-construction soil surfaces. CSWB are intended for application and use where:

- land disturbing activities have ceased,
- permanent vegetation is required,
- reduction of pollutant loading in storm runoff is required,
- runoff volume reduction from contributing watershed is necessary,
- reduction in the size of storm water collection or bio-retention ponds, and rain gardens is necessary.

CSWB are designed to act like a sponge for rain water and non-concentrated storm runoff. By holding large volumes of water at and across the land surface, CSWB increase the infiltration and evapotransporation of water from rainfall and storm runoff. These processes aid the cycling of water by recharging ground water and atmospheric water vapor. By increasing the land surface roughness, CSWB slow the rate of sheet runoff, allowing it to more readily infiltrate the soil surface. CSWB are also specifically designed to allow for permanent and sustained vegetation growth.

Site Application

### APPLICATION

CSWB are surface applied at a depth of 2 in (50mm). CSWB are used where reduction of storm water runoff and/or permanent vegetation is required or will improve the design and function of the landscape. CSWB are generally applied after land disturbing activities have ceased and where sheet runoff may exist under storm conditions. CSWB should NOT be used in areas of concentrated storm water flow. CSWB should not be used on slopes greater than 2:1 without the use of additional stabilizers or support practices (See Section 1.8 of Filtrexx Design Manual). Filtrexx Slope Interruption (See Section 1.5 of Filtrexx Design Manual) may be seeded and used with CSWB to slow runoff velocity and the potential for soil erosion.

### ADVANTAGES AND DISADVANTAGES

**Advantages**

- CSWB can be used for reduction of storm water runoff and permanent vegetation establishment.
- CSWB can be easily designed and incorporated as part of a treatment train approach in storm water management and pollution prevention.
- CSWB are easily applied and can establish vegetation in difficult areas.
- CSWB have a high water holding capacity, therefore can absorb high volumes of rainfall and storm water sheet flows.
- CSWB can absorb rainfall and runoff water, thereby increasing infiltration and reducing runoff, erosion, and transport of pollutants.
- Holding water at soil-vegetation complex can increase ground water recharge, evapotransporation, and plant available water.
- Reduction of storm runoff volume and transport of pollutants reduces pollutant loading to receiving surface waters and wetlands.
- CSWB can slow runoff velocity, thereby increasing infiltration and reducing the erosive energy of runoff and the potential for soil erosion and transport of pollutants.
- Humus colloids and organic matter in CSWBs provide good physical structure for seed and

establishing seedlings.
- Humus colloids and organic matter in storm water blankets provide increased water holding capacity to aid in seed germination and the potential for reduced irrigation.
- CSWB act like a mulch which has been shown to reduce invasive weed establishment and cover.
- CSWB are a good option for arid and semiarid regions where germination, moisture management, and irrigation can be difficult.
- CSWB provide organic nutrients that are slow release for optimum uptake efficiency to establishing vegetation.
- CSWB provide organic nutrients that are less prone to transport in storm runoff and pollution of receiving surface waters, relative to mineral nutrients supplied by fertilizers.
- CSWB provide organic nutrients which have been correlated to lower growth of invasive weeds, relative to mineral nutrient fertilizers.
- CSWB have the ability to bind and adsorb phosphorus, metals, and hydrocarbons that may be in storm water runoff, thereby reducing their ability to migrate to and pollute receiving surface waters.
- Microorganisms in CSWB have the ability to degrade organic pollutants and cycle captured nutrients in storm water runoff.
- CSWB are manufactured from bio-based organic materials that can be incorporated into a permanent landscape design.
- CSWB may improve existing soil structure, soil aggregation, water permeability, aeration, and biological diversity for post-construction soils, thereby increasing the likelihood that vegetation will be sustainable.
- CSWB may increase soil carbon and organic matter which can increase water holding capacity and infiltration, and reduce runoff and erosion, which can be beneficial to storm water reduction and water quality well into the future.
- CSWB may assist in qualification for LEED® Green Building Rating and Certification credits under LEED Building Design & Construction (BD+C), New Construction v4. Awarded credits may be possible from the categories of Sustainable Sites, Water Efficiency, Materials & Resources, and Innovation. *Note: LEED is an independent program offered through the U.S. Green Building Council. LEED credits are determined on a per project basis by an independent auditing committee. Filtrexx neither guarantees nor assures LEED credits from the use of its products. LEED is a trademark of the U.S. Green Building Council.*

| ADVANTAGES | | | |
|---|---|---|---|
| | LOW | MED | HIGH |
| **Installation Difficulty** | ✓ | | |
| **Storm Water Volume Reduction** | | | ✓ |
| **Storm Water Runoff Rate Reduction** | | ✓ | |
| **Pollutant Load Reduction** | | | ✓ |
| **Permanent Vegetation Establishment** | | | ✓ |
| **Soil Erosion Control** | | | ✓ |

**Disadvantages**
- If CSWB do not use Filtrexx® GrowingMedia™ or follow Filtrexx International specifications performance may be greatly diminished.
- If not installed correctly, maintained or used for a purpose or intention that does not meet specifications, performance may be diminished
- CSWB should never be used in areas of concentrated storm runoff flow, including channels and drainage ditches.
- CSWB should not be used without additional support practices on slopes greater than 2:1.
- CSWB may need to be reapplied if severe runoff occurs prior to vegetation establishment or where vegetation fails.

### GROWINGMEDIA™ CHARACTERISTICS

Filtrexx® CSWB use only Filtrexx® GrowingMedia™ which is a composted material that is specifically designed to increase water holding capacity, reduce runoff volume, reduce pollutant loading to receiving waters, slow runoff velocity, increase infiltration, increase surface evapotransporation, and provide rapid establishment and permanent sustainability of vegetation. GrowingMedia can be third party tested to meet minimum performance criteria defined by Filtrexx International. Performance parameters include: percent cover of vegetation, water holding capacity, pH, organic matter, nutrient and metals content, soluble salts, moisture content,

biological stability, maturity bioassay, percent inert material, bulk density and particle size distribution. It should be noted that particle size distribution of GrowingMedia™ is one of the key components to the effective performance and design capacity of CSWB; therefore, Filtrexx International has conducted extensive research and development and review of state and federal specifications to create high performance and reliable CSWB. For information on the physical, chemical, and biological properties of Filtrexx® GrowingMedia™ refer to Specifications in Section 5.2

## PERFORMANCE

QA/QC material testing of GrowingMedia to ensure that specifications are met, is conducted by the Soil Control Lab, Inc. Performance testing and research of CSWB has been extensive in the last 5 years and is currently on-going. Filtrexx International will continue to conduct and support testing and research programs to better inform and assist design professionals in storm water management and storm water pollution prevention plan development. As new information becomes available it will be incorporated into our specifications and performance and design criteria; meaning this manual is a dynamic one and shall continually be updated. Filtrexx International relies on completed and published research or test results from reputable laboratories to generate the performance and design information provided herein. Filtrexx International gives preference to research published in peer-reviewed scientific journals, and secondarily to third party research conducted by universities and federal agencies. For a summary of performance testing, research results, and design criteria considerations see Table 1.1. Supporting summaries of technical reports and research papers have been included in the Appendices. *Note: the Contractor is responsible for establishing a working storm water management system and may, with approval of the Engineer, work outside the minimum requirements as needed. Where the CSWB deteriorates or fails, it shall be repaired or replaced with an effective alternative.*

## DESIGN CRITERIA

CSWB are a storm water runoff reduction and permanent vegetation establishment practice to be used on around post-construction soil surfaces.

**Planning Considerations:**

CSWB should be used as one treatment in a designed treatment train approach to site storm water management and pollution prevention. Runoff control and runoff diversion practices may be designed to help prevent seed washing and erosion prior to vegetation establishment and to protect seedlings prior to maturity. Pre-application meetings should be conducted to educate site personnel about the devices/practices used and acceptable traffic patterns that avoid running over CSWB with vehicles and heavy equipment. Vehicular traffic and heavy equipment may reduce the effectiveness of CSWB and contribute to soil compaction, which may increase runoff and erosion and reduce vegetation establishment.

Successful planning for any permanent vegetation establishment project should consider climate, prevailing weather, temperature, sun exposure, available moisture/irrigation requirements, topography, soil type, soil pH, soil amendments, nutrient requirements, drought tolerance, site preparation/coordination with construction phases, time to vegetation establishment/coordination with construction phases, protection from erosion and sedimentation, and seed mix/plant selection. Perennial grasses are typically specified and if possible native grasses should be utilized (Fifield, 2001).

Local Landscape Architects, NRCS, or university/cooperative extension should be consulted and used as resources for seed and plant material selection in your region. Many state storm water design manuals have specifications for seed and plant selection and application rates.

**Preparation and Application:**

Where possible, slopes should be vertically tracked to increase soil roughness. This will increase the CSWB's contact with the soil, reduce runoff velocity, and increase vegetation establishment success. Reducing runoff velocity can reduce seed wash prior to and during germination and reduce stress on young plants during the establishment phase. CSWB

shall be applied to and cover 100% of the exposed soil area where storm runoff reduction or vegetation is required. CSWB shall be applied at a depth of 2 in (50mm) or a rate of 270 cubic yards/ac (513 cubic m/ha). Thicker CSWB may further reduce runoff volume during large storm events; however, this should be at the discretion of the Engineer. See Installation guidelines in the following section for further details on application specifications of CSWB. Field application depths up to 6 in (150mm), or a rate of 810 cubic yards/ac (249 cubic m/ha), have been used successfully to reduce stormwater volume and pollutant loads, however this has not been tested in a controlled environment. The Filtrexx® Rain Garden/Bioretention System (Section 2.7) Specification should be consulted for deeper media applications, where stormwater containment will be utilized, or where containment and infiltration is the primary objective.

**Establishing & Sustaining Vegetation:**
Although CSWB increase water holding capacity and may reduce evaporation, irrigation should be utilized to ensure successful vegetation establishment. Runoff diversion devices may be utilized to prevent storm runoff from washing seed prior to germination and establishment and reduce erosion prior to permanent stabilization.

CSWB can supply humus, organic matter, beneficial microbes, and slow release organic nutrients that can contribute to better soil quality and plant health. In arid and semi-arid regions, or hot and dry weather, regular irrigation may be required.

**Runoff Conditions:**
CSWB should not be used in areas where concentrated flow exists or where runoff velocities will damage or undermine vegetation. For most grasses a maximum velocity of 4 ft/sec (1.2 m/sec) or a maximum hydraulic shear stress of 2 lbs/ft$^2$ (10 kg/m$^2$) is recommended (Maryland Storm Water Design Manual, 2000).

**High Wind Conditions:**
In regions or seasons prone to high velocity wind conditions (such as arid regions, mountainous regions, and regions with distinct hurricane seasons) it is recommended that LockDown™ Netting is installed on top of the CSWB to prevent wind erosion and movement of the CSWB. For more information on LockDown™ Netting see Section 5.4.

**Mulch Function:**
CSWB cover 100% of the soil surface, and therefore provide the beneficial affects characteristic to mulches, including: reduced raindrop impact and splash erosion, reduced runoff energy and sheet erosion, buffered soil temperature for plants, decreased moisture evaporation, increased moisture holding capacity at the soil surface, reduced runoff volume and velocity, and increased infiltration. Decreasing runoff volume can decrease pollutant transport and loading to receiving waters. Increasing water holding capacity at the soil surface can increase infiltration, which can help to recharge ground water, and increase available water to plants.

**Soil Amendment Function:**
CSWB also amend the soil which can provide the following functional benefits: increased soil structure, increased soil aggregates, increased soil aeration, increased infiltration and percolation, increased moisture holding capacity, increased activity of beneficial microbes, increased availability of nutrients, increased cation exchange capacity, decreased runoff volume and velocity, decreased erosion, and increased plant health and long-term sustainability.

**Organic vs. Fertilizer Nutrients:**
Although most specification and design manuals include fertilizer recommendations or requirements for permanent vegetation establishment, mineral nutrients from fertilizers may not be preferable where vegetation sustainability and water quality are a concern. CSWB provide organic nutrients, which: are slow release, provide plant micronutrients, and are less likely to be transported in storm runoff to receiving waters – which can reduce pollution and eutrophication of waterways (Faucette et al, 2005).

**Weed Establishment:**
The effects of mulching are known to suppress weed establishment. In addition, invasive weed growth has been more closely associated with mineral fertilizers than organic fertility practices (Faucette et al, 2004).

**Runoff Volume Reduction**
CSWB are designed to absorb water. For every 1% of organic matter, the CSWB will hold approximately 5,500 gal (21 cubic m) of water per acre inch (103 cubic m) (Breedlove, 2006). CSWB are typically 25% organic matter by wet weight and 50% organic matter by dry weight. Alternatively, CSWB typically hold approximately 1.6 oz (45 g) of water per 3.6 oz (100 g) of CSWB (dry weight); 1 gal (0.004 cubic m) of water per 20 lbs (9 kg) of CSWB (dry wt) or per 30 lbs (14 kg) of CSWB (wet wt). This equates to approximately 40 gal (0.15 cubic m) of water per cubic yard (0.76 cubic m) of CSWB and 5,400 gal (722 cubic ft, 20 cubic m) of water per acre inch (0.01 ha meter, 103 cubic m) of CSWB, and 10,800 gal (1444 cubic ft, 41 cubic m) of water for a 2 in (50mm) CSWB; An acre inch (0.01 ha meter) of CSWB requires approximately 135 cubic yards (103 cubic meters) of material.

## INSTALLATION

1. CSWB used for storm runoff reduction and permanent vegetation establishment shall meet Filtrexx® Compost Storm Water Blanket Specifications and use Filtrexx® GrowingMedia™.
2. Contractor is required to be a Filtrexx® Certified℠ Installer as determined by Filtrexx International (877-542-7699). Certification shall be considered current if appropriate identification is shown during time of bid or at time of application. Look for the Filtrexx® Certified ℠ Installer Seal.
3. CSWB will be placed at locations indicated on plans as directed by the Engineer.
4. Land or soil surface shall be roughened prior to application of CSWB.
5. CSWB shall be applied to 100% of the land surface area where storm water reduction and permanent vegetation is required. No native soil shall be visible in or through the CSWB.
6. CSWB shall be applied at a minimum depth of 2 in (50mm) or at a rate of 270 cubic yards/ac (513 cubic m/ha).
7. Seed shall be thoroughly mixed with the GrowingMedia™ prior to application or surface applied to GrowingMedia™ at time of application.
8. CSWB shall not be installed in areas of concentrated storm runoff flow, including channels and ditches.
9. CSWB shall be installed at least 10 ft (3m) over and beyond the shoulder of a slope and/or into existing vegetation to ensure runoff does not undercut the blanket.
10. CSWB installed on slopes: greater than or equal to 4:1 shall be tracked; greater than 2:1 shall be tracked and use other support practices (See Section 1.8 of Filtrexx Design Manual).

## INSPECTION

Routine inspection should be conducted within 24 hrs of a runoff event or as designated by the regulating authority. If rilling occurs or vegetation does not establish, the area of application should be reapplied with a CSWB. If failure continues, the use of runoff diversion devices, slope interruption devices, erosion control support practices, soil stabilizers, turf reinforcement mats, or hard armoring practices should be considered. CSWB should be inspected until permanent vegetation is established. Permanent vegetation practices should always be inspected for noxious or invasive weeds.

## MAINTENANCE

1. The Contractor shall maintain the stormwater blanket in a functional condition and it shall be routinely inspected until vegetation is established.
2. CSWB shall be maintained until a minimum of 70% uniform cover of the applied area has been vegetated or as required by the juris-dictional agency.
3. CSWB may require regular irrigation during hot and dry weather, or arid and semi-arid climates to ensure permanent vegetation establishment.
4. Where a CSWB fails, rilling occurs, or vegetation does not establish the Contractor will repair or provide an approved and functioning alternative.
5. If gullies form in CSWB, the area shall be re-graded prior to reinstallation of CSWB or approved alternative.
6. If a CSWB is damaged by stormwater runoff, installation of slope interruption devices across the slope, or runoff diversion devices above the CSWB may be required.
7. No additional fertilizer or lime is required for vegetation establishment and maintenance.

## METHOD OF MEASUREMENT

Bid items shall show measurement as 'Filtrexx® Compost Storm Water Blanekt (CSWB), per square ft, per square yd, per square meter, per hectare, or per acre installed.

Engineer shall notify Filtrexx of location, description, and details of project prior to the bidding process so that Filtrexx can provide design aid and technical support.

## ADDITIONAL INFORMATION

For other references on this topic, including additional research reports and trade magazine and press coverage, visit the Filtrexx website at www.filtrexx.com

Filtrexx International, Technical Support
61 N Clev-Mass Rd, Ste E, Akron, OH 44333
877-542-7699 | 234-466-0810 (fax)
www.filtrexx.com | info@filtrexx.com
Call for complete list of international installers.



## REFERENCES CITED & ADDITIONAL RESOURCES

American Association of State Highway Transportation Officials. 2003. Standard Specification for Transportation Materials and Methods of Sampling and Testing, Designation M10-03, Compost for Erosion/Sediment Control. Washington, DC.

Demars, K., R. Long, and J. Ives. 2000. Use of Wood Waste Materials for Erosion Control. New England Transportation Consortium & Federal Highway Administration – NETCR 20. Conducted by University of Connecticut Department of Civil and Environmental Engineering.

Demars, K.R., and R.P. Long. 1998. Field Evaluation of Source Separated Compost and Coneg Model Procurement Specifications for Connecticut DOT Projects. University of Connecticut and Connecticut Department of Transportation. December, 1998. JHR 98-264.

ECTC. 2004. Erosion Control Technology Council Standard Specification for Rolled Erosion Control Products. Rev. 4904. www.ectc.org

Faucette, L.B., and A. Vick. 2006. LEED Green Building Credits using Filtrexx® Organic BMPs. Filtrexx® Tech Link #3301

Faucette, L.B. A. Vick, and K. Kerchner. 2006. Filtrexx®, Compost, Low Impact Development (LID), and Design Considerations for Storm Water Management. Filtrexx® Tech Link #3306

Faucette, B. 2006. How Important is Particle Size in Specifications for Compost Erosion Control Blankets. Filtrexx® Tech Link #3310

Faucette, B. 2006. C Factors for Compost and Rolled Erosion Control Blankets. Filtrexx® Tech Link #3303

Faucette, B., K. Kerchner, and A. Vick. 2006. Determining Runoff Curve Numbers for Compost Erosion Control Blankets. Filtrexx® Tech Link #3305

Faucette, L.B., J. Governo, C.F. Jordan, B.G. Lockaby, and H.F. Carino. 2006. Storm water quality, C factors, and particle size specifications for compost and mulch blankets relative to straw blankets with PAM used for erosion control. Under Peer Review. Filtrexx® Library #706.

Faucette L.B., C.F. Jordan, L.M. Risse, M. Cabrera, D.C. Coleman, and L.T. West. 2006. Vegetation and soil quality effects from hydroseed and compost blankets used for erosion control in construction activities. Journal of Soil and Water Conservation, to be published Nov/Dec 2006. Filtrexx® Library #705

Faucette, L.B., N. Strazar, and A. Marks. 2006. Filtrexx® Polymer and Flocculent Guide. Filtrexx® Library #601

Faucette, L.B., C.F. Jordan, L.M. Risse, M. Cabrera, D.C. Coleman, and L.T. West. 2005. Evaluation of storm water from compost and conventional erosion control practices in construction activities. Journal of Soil and Water Conservation. 60:6:288-297.

Faucette, L.B., C.F. Jordan, L.M. Risse, M. Cabrera, D.C. Coleman, and L.T. West. 2004. Evaluation of Environmental Benefits and Impacts of Compost and Industry Standard Erosion and Sediment Control Measures used in Construction Activities. Doctoral Dissertation, Institute of Ecology, University of Georgia, Athens, GA. Filtrexx® Library #112.

Faucette, L.B., M. Risse, M.A. Nearing, J. Gaskin, and L. West. 2004. Runoff, erosion, and nutrient losses from compost and mulch blankets under simulated rainfall. Journal of Soil and Water Conservation. 59:4: 154-160.

Fifield, J. 2001. Designing for Effective Sediment and Erosion Control on Construction Sites. Forester Press, Santa Barbara, CA.

GA Soil and Water Conservation Commission, 2000. Georgia Erosion and Sediment Control Manual, 2000, 5th Ed..

Glanville, T., R. Persyn, T. Richard, J. Laflen, and P. Dixon. 2004. Environmental effects of applying composted organics to new highway embankments, Part II. Water quality. Transactions of the American Society of Agricultural Engineers.47:2: 471-478.

Glanville, T., R. Persyn, and T. Richard. 2001. Impacts of compost application on highway construction sites in Iowa. ASAE Meeting Paper, Paper No. 01-012076

Hallock, B., A. Power, S. Rein, M. Curto, and M. Scharff. 2006. Analysis of compost treatments to establish shrubs and improve water quality. 2006 International Erosion Control Conference Proceedings, Long Beach, CA.

Kirchhoff, C.J., J. Malina, and M. Barrett. 2003. Characteristics of Composts: Moisture holding and water quality improvement. University of Texas: Austin, Federal Highway Administration, and Texas Department of Transportation. TX DOT – 04/0-4403-2.

KY TC, 2006. Kentucky Erosion Prevention and Sediment Control Field Guide. Kentucky Transportation Cabinet.

Marks, A., R. Tyler, and B. Faucette. 2005. The Filtrexx® Library. Digital publication of support tools for the erosion control industry. www.filtrexxlibrary.com.

Marks, A., and R. Tyler. 2003. Filtrexx® International Company Website. Specifications, CAD drawings, case histories. www.filtrexx.com.

Maryland Storm Water Design Manual Vol I and II. 2000. Appendix D.12. Critical erosive velocity for grasses and soil. Maryland Department of Environment and the Center for Watershed Protection.

Mukhtar, S., M. McFarland, C. Gerngross, and F. Mazac. 2004. Efficacy of Using Dairy Manure Compost as Erosion Control and Revegetation Material. 2004 American Society of Agricultural Engineers/Canadian Society of Agricultural Engineers Annual International Meeting, Ontario, CA. Paper # 44079.

Persyn, R. T. Glanville, T. Richard, J. Laflen, and P. Dixon. 2004. Environmental effects to applying composted organics to new highway embankments, Part 1: Interrill runoff and erosion. Transactions of the American Society of Agricultural Engineers. 47:2: 463-469.

Tyler, R.W., and A. Marks. 2004. Erosion Control Toolbox CD Kit. A Guide to Filtrexx® Products, Educational Supplement, and Project Videos. 3 CD set for Specifications and Design Considerations for Filtrexx® Products.

Tyler, R.W., J. Hoeck, and J. Giles. 2004. Keys to understanding how to use compost and organic matter. IECA Annual Meeting Presentations published as IECA Digital Education Library, Copyright 2004 Blue Sky Broadcast.

Tyler, R.W. 2004. International PCT Patent Publication #: WO 2004/002834 A2. Containment Systems, Methods and Devices for Controlling Erosion.

Tyler, R.W., and A. Marks. 2003. Filtrexx® Product Installation Guide. Grafton, Ohio.

Tyler, R.W., and A. Marks. 2003. A Guide to Filtrexx® Products. Product Descriptions and Specifications for Filtrexx® Products.

Tyler, R.W. 2001. Filtrexx® Product Manual. Specifications and Design Considerations for Filtrexx® Products, Grafton, OH.

Tyler, R.W. 1996. Winning the Organics Game – The Compost Marketers Handbook. ASHS Press, ISBN # 0-9615027-2-x..

US EPA NPDES Phase II. 2006. Compost Blankets: Construction Site Storm Water Runoff Control. National Menu of Best Management Practices for Construction Sites. http://cfpub.epa.gov/npdes/stromwater/menuofbmps/con_site.cfm.

Woods End Research Lab, Inc. 2003. Stormwater monitoring, Collection and Analysis of Test Plot Runoff: Kents Hill School Project 319. Maine Department of Transportation.

## TABLES & FIGURES:

**Table 1.1.** Compost Storm Water Blanket Performance[1] and Design Specifications.

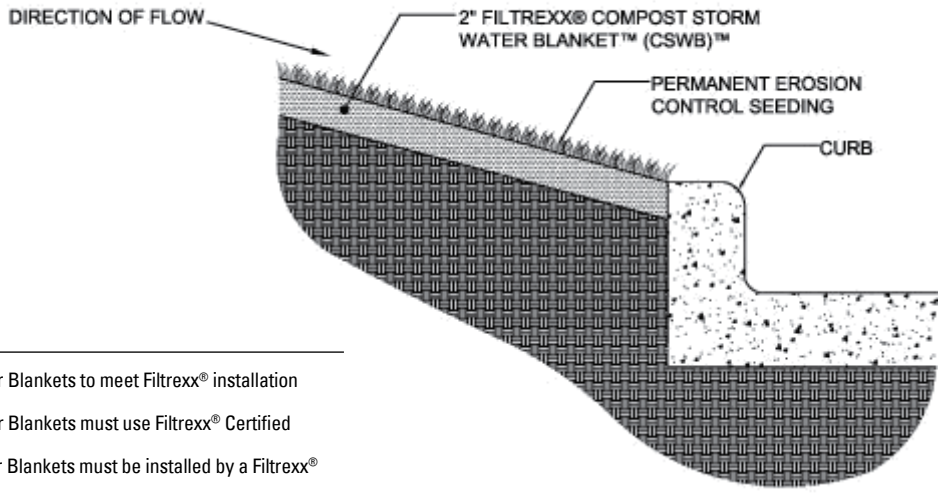
| Rainfall Total/Duration<br>Design & Performance | 4.4 in(112mm)<br>/2.4 hr | 1.8 in(45mm)<br>/35 min | 3.2 in(80mm)<br>/1 hr | 4.0 in(100mm)<br>/1 hr | 8.0 in(200mm)<br>/2 hr |
|---|---|---|---|---|---|
| Depth of Application | 3.0 in<br>(75mm) | 2.0 in<br>(50mm) | 1.5 in<br>(35mm) | 1.5 in<br>(35mm) | 2.0 in<br>(50mm) |
| Slope | 2:1 | 3:1 | 10:1 | 10:1 | 3:1 |
| Soil Texture | Silty sand | Clay | Sandy clay loam | Sandy clay loam | Loamy sand |
| Hydrologic Soil Class | | | B | B | |
| Runoff Volume Reduction (Vr) | 76%[2] | 35% | 49%[3] | 60% | 90[4] |
| Peak Runoff Flow Rate Reduction (Q) | ND | ND | 36% | 34-51% | 79% |
| Hydrologic Abstraction (Initial) Reduction (Ia) | ND | ND | 68% | 72% | 94%[4] |
| Runoff Curve Number (CN) | ND | ND | 49 | 42 | ND |
| Runoff Coefficient (C) | ND | ND | 0.28 - 0.32 | 0.21 | ND |
| Unit Hydrograph vs. bare sandy clay loam | | | | See Figure 1.2 | |
| Water Holding Capacity[5] | 2,166 ft3/ac<br>(153 m3/ha) | 1,444 ft3/ac<br>(102 m3/ha) | 1,083 ft3/ac<br>(77 m3/ha) | 1,083 ft3/ac<br>(77 m3/ha) | 1,444 ft3/ac<br>(102 m3/ha) |
| Total N Load Reduction | ND | 88% | 58%[6] | 92%[7] | 99% |
| Nitrate-N Load Reduction | ND | 45% | 88%[6] | ND | ND |
| Total P Load Reduction | ND | 87% | 83%[6] | ND | 99% |
| Bio-available P Load Reduction | ND | 87% | 83%[6] | 97%[7] | 99% |
| Soil Loss Reduction | 98% | 99.2% | 99% | 93.5% | 96.1%[8] |
| Test/Research Facility | University of Connecticut | Texas A&M | University of Georgia | University of Georgia | Iowa State University |
| Reference/Publication | New England Transportation Consortium & Federal Highway Administration – NETCR 20 | ASAE International Meeting | Journal of Soil and Water Conservation | USDA SBIR | Transactions of ASAE |
| Authors | Demars et al, 2000 | Mukhtar et al, 2004 | Faucette et al, 2005 | Faucette et al 2006 | Persyn et al 2004; Glanville et al 2004; Glanville et al 2001. |

ND: no data reported
[1]Blankets in studies that met Filtrexx Specifications.
[2]Averaged over 10 runoff events.
[3]Cumulative over 3 runoff events.
[4]Calculated from mean rainfall intensity/duration and runoff rate values
[5]Based on database provided by independent lab, Soil Control Lab, Inc.
[6]Relative to vegetation establishment by hydroseed
[7]Relative to vegetation establishment that followed GDOT specifications.
[8]Determined from interrill erosion rate.

**Figure 1.1.** Engineer Design Details for Compost Storm Water Blanket.

# FILTREXX® STORM WATER BLANKET

**NTS**




CSWB™ Section View

**NOTES:**

1. Compost Storm Water Blankets to meet Filtrexx® installation specifications.
2. Compost Storm Water Blankets must use Filtrexx® Certified GrowingMedia™.
3. Compost Storm Water Blankets must be installed by a Filtrexx® Certified℠ Installer.
4. Compost Storm Water Blankets shall be applied to 100% of bare soil or area specified where stormwater reduction and permanent vegetation is required.
5. Compost Storm Water Blankets shall be installed at least 10 feet over the slope shoulder or into existing vegetation.
6. Compost Storm Water Blankets will be placed at locations indicated on plans as directed by the Engineer.
7. Land or soil surface shall be roughened prior to application of Compost Storm Water Blanket.
8. Compost Storm Water Blankets shall be applied at a minimum depth of 2 in. or at a rate of 270 cubic yards/ac.
9. Seeds shall be throughly mixed with the Filtrexx® GrowingMedia™ prior to application or surface applied to Filtrexx® GrowingMedia™ at the time of application.
10. Compost Storm Water Blankets shall not be installed in areas of concentrated storm runoff flow, including channels and ditches.
11. Compost Storm Water Blankets installed on slopes greater than 4:1 shall be tracked; installation on slopes greater than 2:1 shall be tracked and use other support practices, such as Filtrexx® Lockdown™ Netting or Filtrexx® Tackifying agent.

**Figure 1.2.** Unit Hydrograph of a Compost Storm Water Blanket Relative to a Bare Study Clay Loam for a 4in/hr 1 hr Storm Event.