SECTION 113 — EARTHWALL

113.01 Scope of work. This Section describes the use of compost filter socks to create a BioSock EarthWall™. The compost filter socks shall be installed as indicated on the project drawings, or as directed by the Project Engineer.

113.02 Materials.

(A) Compost Filtration Media. Compost quality is an important consideration when designing a compost filter sock. Use of sanitized, mature compost will ensure that the compost filter sock performs as designed and has no identifiable feedstock constituents or offensive odors. The compost used in filter socks should meet all local, state, and Federal quality requirements. Biosolids compost must meet the Standards for Class A biosolids outlined in 40 Code of Federal Regulations (CFR) Part 503. Compost used for filtration media should follow the guidelines contained in **Table 1**, as inserted below:

TABLE 1

Parameters [a,1,4]	Units of Measure[a]	Vegetated Filter Sock[a]	Unvegetated Filter Sock[b]
pH[2]	pH units	5.0 — 8.5	6 — 8
Soluble salt concentration[2] (electrical conductivity)	dS/m (mmhos/cm)	Maximum 5	Not applicable
Moisture content	%, wet weight basis	30 — 60	30 — 60
Organic matter content	%, dry weight basis	25 — 65	25 — 65
Particle size	% passing a selected mesh size, dry weight basis	3 in.=100% 1 in.=90-100% 0.75 in.=70-100% 0.25 in.=30-75% Max length=6 in. Avoid compost with less than 30% fine particle to achieve optimum reduction of total suspended solids No more than 60% passing 0.25 in. sieve in high rainfall/flow rate situations	2 in.=100% 0.375 in=10-30%
Stability[3] (Carbon Dioxide Rate)	mg CO_2-C per gram of organic matter per day	<8	(same as vegetated)
Physical contaminants (manmade inerts)	%, dry weight basis	<1	<1

Sources: [a]Alexander, 2003; [b]Personal communication, B. Faucette, R. Tyler, N. Goldstein, R. Alexander, 2005
Notes: [1] Recommended test methodologies are provided in [Test Methods for the Evaluation of Composting and Compost]. [2] Each plant species requires a specific pH range and has a salinity tolerance rating. [3] Stability/maturity rating is an area of compost science that is still evolving, and other test methods should be considered. Compost quality decisions should be based on more than one stability/maturity test. [4] Landscape architects and project engineers may modify the above compost specification ranges based on specific field conditions and plant requirements.

(B) **Compost Filter Sock.** Compost filter sock shall utilize an outer layer of filtration mesh, and an inner layer of containment netting. All layers shall collectively enclose the compost filtration media. Compost filter sock shall be installed as 9" nominal diameter as indicated on the project drawings, or as specified by the Project Engineer. Compost filter socks shall be BioSock™ as manufactured by EnviroTech BioSolutions, or approved equal.

(C) **Earth Anchors.** Earth anchors shall be made of aluminum and shall have an aircraft grade galvanized wire rope tendon. Holding capacity in normal soils for the earth anchor assembly shall be 600 lbs., and ultimate capacity for each assembly shall be 1,160 lbs. Earth anchors shall be SockAnchor™ as manufactured by EnviroTech BioSolutions, or approved equal.

(D) **Seeds.** If seeds are used to create a vegetated compost filter sock, seeds shall meet the requirements determined by the Project Engineer.

(E) **Live Cuttings.** If live cuttings are used to create a vegetated compost filter sock, live cuttings shall meet the requirements determined by the Project Engineer.

113.03 Construction

(A) **Applicability.** The use of compost filter socks to create a BioSock EarthWall™ is applicable to areas which are prone to erosion due rainfall or periodic water flows. Compost filter socks shall only be used to create a BioSock EarthWall™on slopes which are geotechnically stable, and shall not be used on slopes which are considered unstable.

(B) **Installation Requirements.** Installation personnel are required to satisfactorily complete training by the compost filter sock manufacturer prior to the installation of compost filter socks on the project site. Installation personnel shall follow all manufacturer instructions and guidelines. All installation personnel shall provide evidence of required training upon request of the Project Engineer.

(C) **Placement.** Compost filter socks shall be installed onsite using a commercial pneumatic bark blower. Alternatively, compost filter socks can be pre-fabricated offsite in pre-determined lengths and then installed onsite. Compost filter socks shall be placed in the areas shown on the project drawings or as directed by the Project Engineer. Compost filter socks shall only be used to create a BioSock EarthWall™ on slopes which are geotechnically stable, and shall not be used on slopes which are considered unstable.

(D) **Overlap.** Where multiple sections of compost filter socks are required to form a continuous run, the sections shall be installed according to the attached **Detailed Specifications** for **BioSock EarthWall™** and shall have a minimum overlap of 2 feet.

(E) Anchor Method. The Compost Filter Socks shall be anchored using earth anchors which meet the minimum requirements set forth in Section 113.02(C). Earth anchors shall be installed to a minimum depth required to attain effective anchoring and shall be pre-tensioned to ensure maximum earth anchor effectiveness. Earth anchors shall be spaced at a minimum distance of 5 feet, and shall be spaced closer as required to achieve effective sock anchoring. Earth anchors shall be installed per the **Detailed Specifications** for **Anchoring Method D.**

113.04 Inspection. Inspect compost filter socks when rain is forecast, following rainfall events, and daily during prolonged rainfall. Repair, modify, or supplement compost filter sock installations as needed or as required by the engineer.

113.05 Maintenance. Maintain compost filter socks as required to achieve effective slope protection. Damaged or slumping socks shall be immediately repaired or replaced. Supplemental earth anchor installations should be installed as required to ensure effective sock anchoring. Ensure proper watering techniques are used to promote healthy vegetative establishment and apply appropriate fertilizer as required.

113.06 Method of Measurement. Compost filter sock shall be measured by the "linear foot" installed in the areas shown on the project drawings or as directed by the Project Engineer.

113.07 Basis of Payment. Accepted compost filter sock installations, measured as provided in Section 113.06, will be paid for at the contract unit bid price listed for each size of *"Compost Filter Sock for BioSock EarthWall™"*. The bid price shall include all costs associated with the proper installation and maintenance of the compost filter sock, which includes but is not limited to; furnishing the compost filter sock, furnishing the compost filtration media, furnishing the required anchors, and furnishing all required supervision, labor, equipment and incidentals required to install and maintain the BioSock EarthWall™.

END OF SECTION 113