

5.4 FLW Geogrid

PURPOSE & DESCRIPTION

Filtrexx FLW Geogrid is used with Filtrexx Bank Stabilization, GreenLoxx[®] Non-MSE LivingWall[™]/Severe Slope Stabilization, and GreenLoxx[®] MSE Vegetated Retaining Wall and are specifically designed to increase the structural stability of the system. FLW Geogrid is composed of polyester and is biaxial/bidirectional in construction. FLW Geogrid has a 2-inch square opening to allow for planting without cutting the grid.

FLW Geogrid is considered a structural reinforcement practice and Filtrexx International may be contacted for recommendations and consultation. Specific requirements for geogrid materials are often project and application specific, and in such case shall be determined by the Engineer. Alternative geogrid brands may be substituted on specific projects only if equivalent strength, design capacity, and minimum 2"x2" opening are met (see Table 5.1).

FLW Geogrid is not to be used as a standalone practice or application for Filtrexx management practice installations.

FUNCTION

FLW Geogrid is typically specified for two primary functions – soil stabilization and anchoring. With GreenLoxx Non-MSE/severe slope stabilization or bank stabilization, GLW Geogrid is intended as a reinforcement and/or anchoring method only. The installation and overall strength of the FLW Geogrid system results in a uniform tieback system of the GroSoxx[®] in these applications. FLW Geogrid does not restrict vegetation establishment and growth.

FLW Geogrid utilized in GreenLoxx MSE Vegetated Retaining Wall applications function as a soil stabilizer. For this application, the FLW geogrid provides a positive friction connection between the soil and the wall system, resulting in a Mechanically Stabilized Earth system (MSE) functional in load bearing situations.

INSTALLATION

1. FLW Geogrid for use in Filtrexx applications shall be installed by a Filtrexx[®] CertifiedSM Installer.
2. FLW Geogrid for use in any Filtrexx application shall be installed prior to each course of GroSoxx.
3. The connection of FLW Geogrid to the GroSoxx shall be made by completely wrapping the fascia of the GroSoxx and extending the FLW Geogrid back over stable ground at a predetermined length and distance based on project specifications.
4. Anchoring method to the slope shall utilize an earth anchor of cable tendon with a zinc aluminum anchor head, and a zinc alloy anchor; Gripple brand preferred, or equivalent. If this method is not warranted due to specific project conditions, other staking methods include ½ in (13mm) rebar, 2 in (50mm) x 2 in (50mm) x 36 in (900mm) hardwood stakes, or equivalent.

INSPECTION & MAINTENANCE

If FLW Geogrid system is damaged, is moved, or becomes disconnected from the soil or GroSoxx it shall be repaired, replaced, and/or refastened or restaked to the soil and the GroSoxx. After construction of structure, FLW Geogrid shall not be cut during installation of plant material.

METHOD OF MEASUREMENT

Bid items shall show measurement as FLW Geogrid 10, 20, 35, or 55, for bank stabilization, GreenLoxx, severe slope stabilization, or vegetated retaining wall system per square ft, per square yd, per square m, per linear ft or per linear m installed.

FIELD APPLICATION PHOTO REFERENCES



FLW Geogrid Installation

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

Filtrexx International, Technical Support

877-542-7699 | www.filtrexx.com | info@filtrexx.com

Call for complete list of international installers and distributors.

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Table 4.1. Filtrexx FLW Geogrid Details.

FLW Geogrids are composed of high molecular weight, high tenacity multifilament polyester yarns that are bidirectional and woven into a stable network placed under tension. The high strength polyester yarns are coated with a PVC material. FLW Geogrids are inert to biological degradation and are resistant to naturally encountered chemicals, alkalis and acids. FLW Geogrids are typically used for soil reinforcement applications such as retaining walls, steepened slopes, embankments, sub-grade stabilization, embankments over soft soils and waste containment applications.

FLW 20 Tensile Properties	Test Method	MARV Values (lbs/ft) MD/CMD
Ultimate Strength Machine Direction	ASTM D 6637	2,075
Creep Limited Strength Machine Direction	ASTM D 5262	1,313
T_{al} = Long Term Design Strength Machine Direction	NCMA 97	1,085
Aperture Size - 2.00 x 2.00 (inches)	Measured	N/A

RF Creep - 1.58 RF Durability - 1.10 RF Installation Damage (Soil Type 3) - 1.10

FLW 35 Tensile Properties	Test Method	MARV Values (lbs/ft) MD/CMD
Ultimate Strength	ASTM D 6637	3,600
Creep Limited Strength	ASTM D 5262	2,278
T_{al} = Long Term Design Strength	NCMA 97	1,918
Aperture Size - 2.00 x 2.00 (inches)	Measured	N/A

RF Creep - 1.58 RF Durability - 1.10 RF Installation Damage (Soil Type 3) - 1.08

FLW 55 Tensile Properties	Test Method	MARV Values (lbs/ft) MD/CMD
Ultimate Strength	ASTM D 6637	5,000
Creep Limited Strength	ASTM D 5262	3,165
Tensile Strength @ 5% Strain	ASTM D 6637	1,500
T_{al} = Long Term Design Strength	NCMA 97	2,740
Aperture Size - 2.00 x 2.00 (inches)	Measured	N/A

RF Creep - 1.58 RF Durability - 1.10 RF Installation Damage (Soil Type 3) - 1.05