SOLMAX

INSTALLATION GUIDELINE

PROPEX Pyramattress

Contents

1. INTRODUCTION

Thank you for purchasing **PROPEX**® Pyramattress® by Solmax. This document provides installation and maintenance guidelines for **PROPEX** Pyramattress used as an Engineered Mattress System for erosion control and protection of channels, slopes, and spillways. **PROPEX** Pyramattress provides an environmentally friendly solution for erosion control in areas requiring energy dissipation, constant flow of water, or generally high hydraulic stresses, and consists of the following components:

• **PROPEX** Pyramat® 75 – High Performance Turf Reinforcement Mat (HPTRM)

• Fiber-composite internal bracing

• UV stabilized synthetic stakes

• **MIRAFI**® nonwoven geotextiles

PROPEX Pyramattress is an Engineered Mattress System with a unique design for each specific project. While Solmax has made every effort to ensure general validity, this information should not be used for a specific application without independent professional examination and verification of its suitability, applicability, and accuracy. The information provided herein is for general information only, and is intended to present installation guidance. Project specific contract documents take precedence when details are different than what is represented in this document. Depending upon the critical nature of the structure to be armored, work restrictions may be in place such as limiting work based on growing seasons, weather patterns, etc. Work should be performed under the provisions set forth for the specific project. Solmax Engineering Services is available for support during installation to consult for solving constructability issues encountered in specific applications. Please feel free to contact our technical support at smatch@solmax.com or 706-693-2226.

2. BEFORE INSTALLATION

• **Coordinate with a Solmax representative:** A pre-construction meeting is suggested with the construction team and a representative from Solmax. This meeting should be scheduled by the contractor with at least a two-week notice.

• **Gather the tools needed:** Tools that you will need to install **PROPEX** Pyramattress include a pair of industrial shears to cut **PROPEX** Pyramat 75, tape measure, hammer, equipment for soil compaction, and equipment for vegetation establishment.

• **Determine how to establish vegetation:** The method of vegetation establishment should be determined prior to the start of installation. Different vegetation establishment methods may require different installation timing and schedules.

3. SITE PREPARATION

It is recommended during all stages of site preparation that disturbed soils remain unprotected for not more than a single day. Depending on project size this may require progressive site preparation during installation.

• Excavate the area to be protected to 12 in (30 cm) deep below finished grade as needed using an excavator with smooth bucket to reduce disturbance at the defined subgrade elevation.

• Deleterious material (overly wet soil, uncontrolled loose fill, construction debris, organics, etc.) encountered during this excavation shall be over-excavated, removed, and replaced with compacted granular fill or approved backfill soil. Compact the subgrade as specified by the engineer.

4. PROPEX PYRAMATTRESS LAYDOWN

Figure 1: Geotextile placement in excavation

Step 1: After completion of excavation, install the nonwoven geotextile liner across the bottom and up the sides of the excavated area. Pins or stakes may be needed to temporarily secure the nonwoven geotextile to the excavated area (Figure 1).

Figure 2: PROPEX Landlok HPTRM placement in bottom of excavation

Step 2: Beginning at the downstream end of the protected area, begin placement of **PROPEX** Pyramat 75 High Performance Turf Reinforcement Mat (HPTRM), ensuring enough extra material along edges of installation to cover the side of the excavated area and the top overlap. This amount may vary by project, but would be around 18 in (450 mm) of material for a 12 in (300 mm) deep excavation (Figure 2).

Step 3: Continue with the placement of additional **PROPEX** Pyramat 75 HPTRM as needed to cover the excavated area, overlapping proceeding layers a minimum of 2 ft (0.6 m) and allowing for enough extra material along the overlap to construct the transition baffle. This amount may vary by project, but would be around 18 in (450 mm) for a 12 in (300 mm) deep excavation.

Step 4: Secure the HPTRM overlap along the bottom layer with synthetic stakes on 2 ft (0.6 m) spacing.

Step 5: Once the bottom layer of HPTRM has been placed, internal baffles are to be constructed with the **PROPEX** Pyramat 75 HPTRM material facing downstream along each overlap. Additional HPTRM baffles are to be constructed and placed facing downstream to maintain a maximum baffle spacing of 8 ft (2.4 m).

Figure 3: Overview of weaving braces in baffles

Step 6: The internal bracing components (bars) come inserted into the baffle fabric and are shipped ready to be assembled further. To construct an internal baffle, fold the fabric and stand-up the face, then connect the bars using a bar slot at the overlap line. While holding the face near vertical, connect those two bars with the third bar, aligned transverse to the other two using the bar slots. These braces are installed at a maximum spacing of 2 ft (0.6 m) along the baffle.
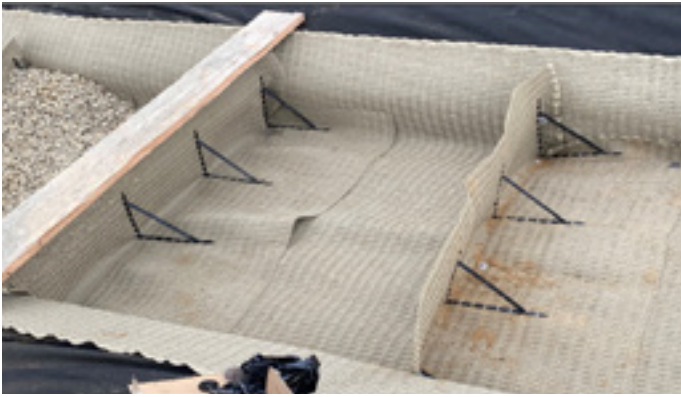
Figure 4: Alignment and placement of baffles in bottom of excavation

Figure 5: Overview of filling Mattress System

Figure 6: Overview of overlap and synthetic stake spacing

Step 7: To construct additional internal baffles, cut a 3.5 ft (1.1 m) wide strip of the and follow the process shown in Step 7. Once constructed and placed, all additional baffles should be secured to the lower HPTRM layer with synthetic stakes on 2 ft (0.6 m) spacing. Any excess material on the sides of the internal baffles can be folded toward the upstream direction of the channel and pinned to the side of the excavated area through the HPTRM (Figure 4).

Step 8: Once bottom layer of HPTRM and internal baffles are placed, begin infilling the Engineered Mattress System with approved material. Fill should be placed on both sides of baffle first. Care should be taken when placing fill around the braces and on each side of the internal baffles, so as to fill on both sides concurrently and avoid damaging the internal baffles.

Step 9: Fill should be placed to bring the total infill height up to 12 in (30 cm). If needed, the upper 2-3 in (50-75 mm) of the Engineered Mattress System can be separated with the nonwoven geotextile liner and filled with topsoil to aid in vegetation establishment (Figure 5).
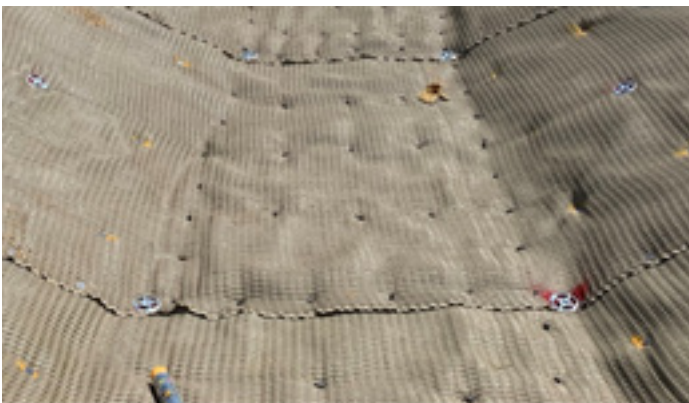
Step 10: Fold the remaining 6 in (150 mm) portion of the HPTRM at each internal baffle over the backfill zone in the upstream direction.

Step 11: With the bottom layer of HPTRM and internal baffles installed and the infill placed, align the upper HPTRM layer and secure with synthetic stakes on each overlap and internal baffle connection on 1 ft (0.3 m) spacing and across the body of the installation on 2 ft (0.6 m) spacing. (Figure 6).

5. VEHICLE TRAFFIC AND VEGETATION ESTABLISHMENT

1. Exercise extreme caution when driving or operating equipment across the HPTRM, as sudden turns or braking may deform or damage the HPTRM, or pull the internal baffles out of proper alignment.

2. Rubber-tired or rubber-tracked vehicles shall be used, and sharp turns avoided. No heavy and/or metal-tracked equipment or sharp turns shall be permitted on the installed HPTRM. Foot traffic and construction equipment shall be avoided over the HPTRM if loose or wet soil conditions exist.

3. Establish permanent vegetation, where feasible, to assist in the long-term performance of the Engineered Mattress System and the control of erosion. Vegetation can be established with **PROPEX** Pyramattress by seeding, hydraulic seed application (hydroseeding), and sodding. Seed application rate, seed type, sod type, and irrigation rate should follow the landscape designer's recommendations based on local or site specific knowledge and time of year. For best results, consider having a site specific soil test performed to help determine what soil amendments, such as lime and fertilizer, need to be incorporated into the soil to promote healthy vegetation.

About Solmax

Solmax is a world leader in sustainable construction solutions, for civil and environmental infrastructure. Its pioneering products separate, contain, filter, drain and reinforce essential applications in a more sustainable way – making the world a better place. The company was founded in 1981, and has grown through the acquisition of GSE, TenCate Geosynthetics and Propex. It is now the largest geosynthetics company in the world, empowered by more than 2,000 talented people. Solmax is headquartered in the province of Quebec, Canada, with subsidiaries and operations across the globe.

Uncompromised quality

Our products are manufactured to strict international quality standards. All our products are tested and verified at our dedicated and comprehensive laboratories which maintain numerous accreditations. We offer our partners a wide scope of testing according to published standards to ensure products delivered to sites meet specified quality requirements.

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