

Thank you for purchasing SCOURLOK™ by Propex Operating Company, LLC (Propex). This document provides installation and maintenance guidelines for SCOURLOK used as a vegetated shoreline defense system. SCOURLOK provides a durable, geotechnically stable structure that provides immediate erosion protection and long-term vegetative cover. SCOURLOK is constructed of rigid cells armored with PYRAMAT® 75 High Performance Turf Reinforcement Mat (HPTRM) and internally lined with GEOTEX® nonwoven geotextile. PYRAMAT is fastened to the rigid cells to provide a flexible exterior, control erosion, and improve system durability and forms pockets that can be filled with mulch or other media to promote and sustain vegetation. The durable geotextile lining allows the rigid cell to be filled with earth, sand, gravel, crushed rock and other granular material.

SCOURLOK is an engineered solution with a unique design for each specific project. While Propex 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. Propex Engineering Services is available for support during installation to consult for solving constructability issues encountered in specific applications. Please feel free to contact our Engineering Services team at GeoEngineering@propexglobal.com.

BEFORE INSTALLATION BEGINS

- *Coordinate with a Propex Representative:* A pre-construction meeting is suggested with the construction team and a representative from Propex. 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 SCOURLOK include a pair of industrial shears to cut PYRAMAT 75 and nonwoven geotextile, tape measure, pneumatic hog ring gun, percussion hammer (sized appropriately for the anchors), setting tool to set and load-lock the anchor, wire/bolt cutters to cut the cable tendon of the anchor, equipment for soil compaction, and equipment for vegetation establishment. If anchors will be load tested during construction, additional testing equipment may be necessary. Consult the “Anchor Load Test Manual” from Propex for further guidance. Available for purchase from Propex are drive steel, JackJaw® Setting Tools, wire cutters, and a gas powered anchor driver.
- *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.

INSTALLATION OF SCOURLOK

PREPARE THE SITE

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.

1. Excavate a shallow, level trench at least 3 ft (0.9 m) wide and 6 to 9 in (15 to 23 cm) deep below finished grade using an excavator with smooth bucket to reduce disturbance at the defined subgrade elevation.
2. The cut-slope excavation width shall not exceed the lines and grades shown on the Plans, and care shall be taken to avoid encroachment near bordering properties.
3. 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. If specified by the engineer, a perforated drainage pipe shall be installed at the back of the trench and connected to a prescribed outlet for draining groundwater.

5. Granular soil is defined as:
- A. Classified as GM, GW, SM, SW, GW-GM, SW-SM referencing the Unified Soil Classification System (USCS).
 - B. Contains maximum particle size of 1-1/2 in (3.8 cm) and less than 12 percent fines passing No. 200 sieve (0.074 mm).
 - C. Inert earth material with less than 3 percent organics or other deleterious substances (wood, metal, plastic, waste, etc.).
- OR
- D. Meets the untreated base grading requirements for 1-1/2 in (3.8 cm) maximum nominal size crushed aggregate per typical state construction standards.
6. For clay subgrade soils, line the trench with GEOTEX® 801 nonwoven geotextile. Place a 4 in (10 cm) thick loose lift of granular soil on top of the filter fabric and compact it to at least 90 percent of the specified modified Procter dry density per ASTM D 1557. Smooth the surface of the compacted soil to provide a level pad needed for the first unit.



SCOURLOK LAYDOWN

1. Install the Vegetated Shoreline Defense System at elevation and alignment indicated.
2. Starting with the lowest portion of the alignment, lower the first unit onto the foundation layer and expand into place. At each terminus of this lowest section of the alignment, curve the turn the unit into the slope so the ends of this run can be buried.



3. Gradual curves can be created due to the system flexibility. Curving is done during setup and all curved units must be set out and joined before filling. Each of the 15 ft (4.6 m) long units can be curved a maximum of 12 in (30 cm) from the tangent line set by the previous unit. Tighter concave or convex curves can be achieved as shown below.
4. Concave curves are formed by removing a single rear facing panels and creating a triangular unit.
 - A. Begin the process by removing the spirals on each side of the panel and cut along the geotextile inside the unit, just under the row of staples.
 - B. Remove the rigid cell panel and reapply the spirals at each corner to secure the internal panels.
 - C. Overlap the corner spirals and insert the joining pins in order to complete the triangular cell.
 - D. Zip-tie the excess geotextile liner to the rigid cell panel to keep it out of the way during filling.
5. Convex curves are formed by removing a single front facing panel and creating a triangular unit.
 - A. Begin the process by cutting the exterior HPTRM down the middle of the cell to expose the rigid cell panel and geotextile lining.
 - B. Remove the spirals on each side of the panel and cut along the geotextile inside the unit, just under the row of staples.
 - C. Remove the rigid cell panel and reapply the spirals at each corner to secure the internal panels.
 - D. Overlap the corner spirals and insert the joining pins in order to complete the triangular cell.
 - E. Zip-tie the excess geotextile liner to the rigid cell panel to keep it out of the way during filling.
 - F. Shingle the exterior HPTRM in the direction of flow and trim excess material in order to maintain a 6 in (15 cm) overlap.

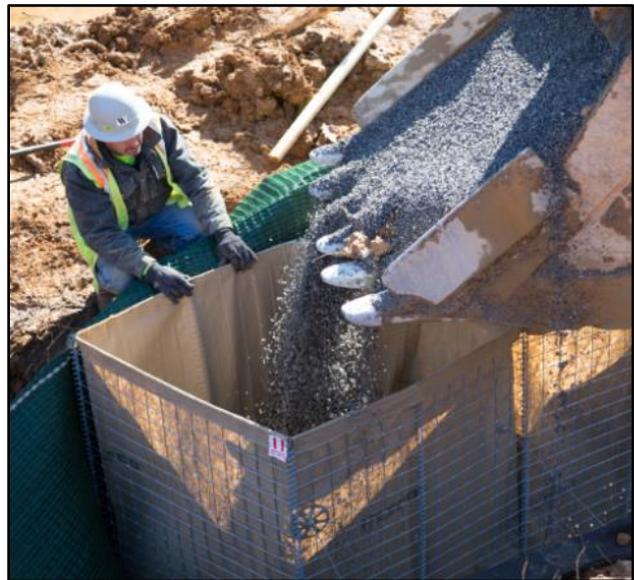
- G. Using stainless steel hog rings, secure the overlap to the rigid cell, leaving a minimum of 3 in (7.5 cm) beyond the hog rings.
6. If required, Engineered Earth Anchors can be utilized with the system to provide additional resistance to lateral movement.
- A. With the unit set in place and expanded, prior to infilling of the cells mark the location of anchors on the slope behind the units.
 - B. Anchor locations should align with the intermediate dividing walls of the unit. Do not place anchors in alignment with rear facing panels.
 - C. Drive anchor horizontally into rear excavation at the marked locations. Remove anchor drive rod and set anchor. Remove anchor top plate and locking mechanism from anchor cable.
 - D. With units aligned per the design, cut a hole in the geotextile liner near the intermediate dividing wall to allow the anchor cable to be routed from the rear of the unit to the inside of the unit.
 - E. Connect the anchor cable to the unit by reconnecting the anchor top plate and locking mechanism to the anchor cable on the inside of the unit.



7. Place a 6 in (15 cm) thick fill material approved by the Engineer within the units. Check and adjust the units to ensure a level placement. If joining the units together in series, do not fill the end cell more than 6 in (15 cm) prior to joining units.



8. Install remaining fill in lifts no more than 2 ft (0.6 m). Fill the units and backfill behind the units simultaneously so as to balance the earth pressures. When normal water levels are present, face units should be filled with granular, self-consolidating material. Compact infill and backfill to the specified modified Proctor dry density per the Engineer's recommendation, but never less than 87% of the maximum dry density per ASTM 1557.





9. For vegetation establishment on the face of the units, fill the pocket between the HPTRM and the cell with seed and growth media. This can consist of 50% topsoil, 50% hardwood mulch, and seed. Place a minimum of 1 in (2 cm) of topsoil/mulch/seed mix on the top of the filled unit.
10. Pull the remaining portion of the HPTRM tightly across the top of the filled unit. Fasten the HPTRM top cover to the back of the unit walls as well as the intermediate walls with stainless steel hog rings. Turn down excess HPTRM along the back side of the unit prior to placing fill behind unit.





11. Units can be joined by connecting the spirals from one unit to another.

- A. Align the units, overlapping the spirals and insert the joining pin to permanently attached to each other.
- B. When joining facing units, the HPTRM is to be spliced together. Shingle the exterior HPTRM in the direction of flow and trim excess material in order to maintain a 6 in (15 cm) overlap. Using stainless steel hog rings, secure the overlap to the rigid cell, leaving a minimum of 3 in (7.5 cm) beyond the hog rings.



12. Repeat Steps 1 through 11 for each subsequent unit. Incorporate a setback with unit to provide the desired overall slope angle.

Vegetation Establishment

Vegetation can be established with SCOURLOK by seeding within the pocket or hydraulic seed application (hydroseeding) post construction. 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.

1. Apply growth medium and seed directly into the SCOURLOK pocket. Select and apply soil amendments and fertilizer as needed. A site specific soil test should be performed to help determine what soil amendments, such as lime and fertilizer, need to be incorporated into the soil to promote healthy vegetation. Do not apply excessive water to the slope which may result in excessive pore water pressure that may de-stabilize the structure.
2. If desired, additional seeding can be achieved post-construction by hydroseeding the completed SCOURLOK.
3. Irrigate as necessary to establish and maintain vegetation. Frequent, light irrigation may be needed if natural rain events have not occurred within two weeks of seeding.

