

Tied Concrete Block Mats vs. Armorform[®] VegeMat

Are you looking to prevent and control erosion along drainage ditches, upper channel slopes, outfalls, embankments, or any number of other surfaces that can be ravaged by runoff, current scour, or wave action? If so, you may find yourself weighing the relative merits of one product—Tied Concrete Block Mats—against our Armorform[®] fabric formworks.

Specifically, our VegeMat Concrete Linings provide many advantages over Tied Concrete Block Mats, saving you time, money, and hassle while delivering top notch performance over the long term. Below, we will run down the basics of our VegeMat solution—and detail just how well it stacks up against the competition!

TIED CONCRETE BLOCK MAT

Tied Concrete Block Mats (TCBMs) consist of precast concrete components cast within a geogrid to protect ditches, channels, boat ramps and launches, banks, bridge abutments, and other surfaces vulnerable to hydraulic erosion and velocities. After being shipped in rolls of precast concrete mats to the installation site, they are typically rolled out and/or slid into place with excavators and skid steers atop some sort of preinstalled underlayment. Tied Concrete Block Mats are often designed in applications requiring vegetation, which has aesthetic as well as ecological benefits.

ARMORFORM[®] VEGEMAT CONCRETE FABRIC FORMWORK

Our VegeMat is among our most recent innovative fabric formwork. As compared with the precast concrete used in Tied Concrete Block Mats, our VegeMat solution consists of geotextile fabric forms laid out at the site with hand labor. Large equipment is not necessary to place and position the panels. Once placed, the VegeMat panels are pumped with high-strength fine aggregate concrete. The ability to lay out an unfilled fabric formwork to exactly match the contours and dimensions of a channel, ditch, embankment, or other structure allows for complete customization and ease of installation. This installation method eliminates the waste at the end of the competition's standard roll lengths.



The VegeMat concrete lining incorporates geotextile fabric areas that remain unfilled upon the completion of the concrete pumping, allowing for an *open cell void ratio of as much as 35%*. After the concrete has cured, these unfilled fabric segments allow for vegetation to establish through them. The openings can either be a pre-seeded bed, or directly planted with willow stakes or other plantings, or primed with topsoil and then seeded – within a single growing season, the VegeMat concrete linings will typically have a comprehensive vegetative cover.



Fabric Formed Hard Armoring

Such plant life provides an aesthetically appealing, natural finish by obscuring the fabric formwork, softening the contours, and evoking naturally vegetated slopes, banks, and channel bed slopes. In addition, the open cell configuration reduces the impervious cover and slows the pace of runoff and sheet flow while dissipating its potentially destructive energy. Plants also naturally filter and decontaminate soil and water, and, of course, offer a slew of other ecological services, including wildlife habitat and photosynthesis.

BENEFITS OVER TRADITIONAL PRECAST TIED CONCRETE BLOCK MATS

- With limited number of precast concrete block plants, Tied Concrete Block Mats are typically conveyed across long distances and require substantial numbers of flatbed trucks, resulting in high freight cost. A single truck can ship as much as 200,000 sq. ft. of VegeMat fabric formwork. In contrast, this same quantity of precast TCBMs would require as many as forty-two (42) flatbed trucks. Not only does this drive-up overall cost, but it also requires a large storage area on-site and the need for staging and shuttling across the worksite. These logistical issues can add critical time to the completion of a project.
- Ease of installation is where our VegeMat fabric formwork really shines. As opposed to precast TCBMs, VegeMat fabric formworks do not require large equipment to place. Using a small line pump, VegeMat fabric formwork can be filled from as far as 1,500 feet away from the placed panel. This again reduces staging, shuttling, and expedites installation. Another convenience, working in confined access areas is made possible due to eliminating unnecessary equipment and delivery of the precast TCBMs directly to the location. Unrolling the precast concrete TCBMs requires more machinery and labor than installing the VegeMat fabric formwork, which can be easily positioned and maneuvered ahead of pumping with fine aggregate concrete.
- Because our fabric formworks are placed before being pumped with concrete, they can tightly conform to the subgrade. This means intimate contact and fit, as opposed to a precast TCBM that, without precise grading, is notorious for bridging and uneven block heights. Without intimate contact with the ground, TCBMs will allow flow to undermine and lift the mats. Armorform® Vegemat hugs the subgrade closely, flexing as it is pumped to conform precisely with the subgrade.
- Armorform® Vegemat fabric formworks can also be manufactured exactly to width and length requirements of the job. Precast TCBMs come in preset lengths and widths forcing the installer to field fit and modify the mats. Each individual precast TCBM must either overlap the adjacent mat or be tied to it using straps. A leading authority on revetment design, K.W. Pilarczyk, has pointed to a significant weak point when it comes to precast block systems: namely, the connection between adjacent mats. VegeMat fabric formworks are prefabricated panels that when joined in the field and pumped, form a seamless mat. This leads to greater long-term performance.

The ability to exactly customize for your site's specific physical and design requirements is a major attribute of the Armorform® fabric-formed concrete solutions. Again, the reduced shipping cost and ease of installation, without the same need for large work crews and heavy machinery, are also highly attractive to budget and time-conscious managers and owners.

ARMORFORM[®]

Fabric Formed Hard Armoring



Besides protecting against erosion in a variety of ditch, channel, and embankment settings, VegeMat Fabric Formed Concrete Linings offer the opportunity to revegetate and provide durable, low-maintenance protection long into the future.

Our Armorform[®] engineers also provide consultation and field questions about the installation process and equipment needs for the contractors installing the formworks, as well as on-site support. This ensures smooth and efficient installation and optimum extended performance.

If you have questions about whether VegeMat Concrete Linings (or another Armorform[®] fabric formwork solution) are ready for your site and project needs, do not hesitate to contact the Armorform[®] team! We would be more than happy to supply additional information and advice on how these fabric-formed concrete products could work for a particular infrastructure or specific environment.