AgrIndMar™
GLOBAL, LLC

Premier Erosion Control Solutions

Stabilization Systems for Landslips, Erosion Control, Drainage and Sea Defenses

The system provides an Engineered Solution which considers characteristics specific to each site.

Mats are pumped on site which allows for rapid deployment and easy transport of components.

There are several types of Mat designed for use in different applications.

Concentration of Technical Disciplines

An optimum solution requires the application of several disciplines.
Essential Components include:

Hydraulics: Open channel hydraulics deals primarily with conveyance in the context of flood control. Design manuals are geared toward steady uniform flow. Natural streams have irregular flows with constantly changing cross sections and roughness or resistance to flow. The same consideration applies to other disciplines.

Hydrology: Surface water accumulation and runoff rates.

Fluvial Morphology: The development & evolution of river systems.

Civil Engineering: Civil aspects, such as soil stability.

Sedimentology: Sediment transport capacity of water.

All of these sciences contribute to understanding the dynamics of the kinds of problems with which we deal.

Root Cause Design

- Define the problem before you try to design the solution.
- Analyze the contributing factors.
- Understand both the hydraulics and the morphology for the specific site. The most common mistake made when addressing erosion/ landslip problems is targeting remediation toward the damage that has been done rather than what caused that damage. Symptom rectification without addressing the cause is ineffective in the long term.

- Each Situation is Different.

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- Each Solution is Unique.
- The natural tendency is to **generalize** problems. However, few situations are exactly alike. Even when conditions appear to be similar, there are often subtle differences.
- Minor variations sometimes have significant impact on both the effectiveness and the longevity of a solution.

The Ercoform Mat used in this application was selected with an appropriate weight and designed with an anchoring system that took into account conditions specific to this site.

Culverts were included in the design to prevent pooling during low flow conditions. In addition, the system was easily modified to accommodate a 100 year event without an increase in the upstream water surface. elevation.

Grout Mats for Shore Protection: This beach approach is another example of the flexibility of this system. The pipeline was exposed or had shallow cover to 1000' from the shore. The design had to accommodate the effects of wave energy dissipation, both over the Mat and along the perimeter. It incorporates large cylindrical scour brakes which prevent the mat from being lifted or undermined.

When the forces of a particular location are clearly identified, high strength fabric forming techniques can be adapted to accommodate the requirements.

We use this system because it allows for easy variation of size, weight, configuration and reinforcement.

Eco-Flex mats are fabricated using a combination of solid and unfilled elements which allow vegetation growth.

Another example of the utility of fabric forms. This configuration, known as Eco-Flex, facilitates the return of natural vegetation.

Eco-Flex Mats are identical to Ercoform but include open cells to provide environmentally friendly protection against periodic high flow conditions.

Here Eco-Flex was used to balance the environmental requirements of the permitting agency with the need to protect the pipeline.

The pipelines are exposed in the foreground. A tremendous volume of water comes through these culverts. The primary concern at this site was the dissipation of energy.

A flexible revetment was used to protect the banks and a Mat was designed to withstand the impact of the vertical drop and the resulting hydraulic jump.

Here we were restricted by the profile of the pipeline. By having the flexibility to combine several different methods, we were able to protect the pipeline and not constrict the drainage flow.

This project required that we conform to the irregular shape of the natural bank and also provide bottom protection.

In critical installations, geo-grid material is placed between the field dirt lifts as a high tech method of soil reinforcement. Above each of the geo-grid lining, a 4 inch perforated drain pipe is installed which vents water presence and eliminates the build up of hydrostatic pressure.

Mats, when filled with grout, form cable reinforced articulating concrete block mattresses that resist erosive forces. This type of mat is normally pumped from the bottom first and then pumped up the ascending slope.

Shows a fully pumped Mat that has been blended with the surrounding environment in a functional manner.

Subsea Pipeline Stabilization. There are characteristics of many open water applications that lend themselves to the use of pre-cast mats. We have used them extensively in the right applications. Due to their inability to accommodate a compound radius, low unit weight, an inferior hydraulic shape and the propensity to under-scour we never use them in rivers or streams that are subject to bank full flow.