HUESKER FILTERMAT™ AND BLAZEMAT™ GEOCOMPOSITE

FOR CONTAMINATED SEDIMENT FILTERING, CONTAINMENT AND CAPPING

FilterMat™ is a **custom-designed** geocomposite for filtering / containment / capping purposes of contaminated sites and can be employed in a multitude of geo-environmental applications.

FilterMat™ incorporates one or more layers of activated carbon between engineered nonwoven fabrics that are designed to provide filtration and puncture protection, resulting in an effective geocomposite for sediment capping / containment applications.

FilterMat™ is engineered to remove chemical contaminants in water columns and for capping contaminated sediments in rivers and lakes. Installation of **FilterMat™** in capping applications is completed with placement of a cover layer of sand, stone or rock.
In situations where a warning to future construction operations is desired, **BlazeMat™** is a version of our activated carbon composite which is produced with a bright orange pre-filter nonwoven that acts as an identification layer to protect against disruption of capped sediments.
These composites can be applied in both land and water capping applications using existing industry-standard equipment.

FilterMat™ is a geocomposite consisting of at least three layers – a nonwoven top and bottom layer surrounding one or more activated carbon layers.
This structure creates a three-step-containment.

- The bottom nonwoven layer acts as a puncture protection and pre-filter keeping contaminated particles and gravel in place but allowing contaminated water to leach / pass thru.
- the activated carbon absorbs dissolved contaminants passing thru the nonwoven structure remediating the leachate.
- The top nonwoven layer protects the product against puncturing caused by covering material.

The various layers are 100% mechanically bonded to each other forming a monolithic structure,
Comtrac® high strength woven geotextile can be added for greatly improved strength characteristics as required,

Both **FilterMat™** and **BlazeMat™** are manufactured in roll widths of up to 7.6metres to minimse installation costs / time.

Typical applications:

- Sediment capping and containment curtains.

Cross section of a typical **FilterMat™** installation with a sand layer placed above the **FilterMat™**

HUESKER GERMANY (GEOTECHNICAL DEPARTMENT) OFFER A COMPREHENSIVE AND PROMPT IN HOUSE DESIGN SERVICE
FOR MORE DETAILS CONTACT GEOTECH SYSTEMS LTD

CLARK ISLAND ENVIRONMENTAL SEDIMENT REMEDIATION PROJECT REINFORCED FILTERMAT™ GEOCOMPOSITE

HUESKER REPORT

Allied-Signal produced sulfuric acid at Clark Island, Salaberry-De-Valley, Canada in the St. Lawrence River for 40 years for use in the manufacturing of munitions. As part of the production of sulfuric acid, pyrite ores, "fool's gold," were crushed and heated, separating the iron and sulfur, with the sulfur being used to produce the sulfuric acid. The untreated industrial effluent was discharged directly into the St. Lawrence River which led to the contamination of the river sediments. Contamination included mainly pyrite cinders which are associated with various heavy metals such as iron (Fe), selenium (Se), zinc (Zn), lead (Pb), copper (Cu), arsenic (As), Chromium (Cr), and Mercury (Hg).

The site is located near a small residential community that takes its drinking water from the St. Lawrence River, which is also used for recreational purposes. Although contamination levels are below the regulatory agency's action levels for dermal contact, incidental ingestion, drinking water and fish consumption, it has been shown that the contaminated sediments pose significant risk to the benthic organisms. Plants, animals, and bacteria of any size that live in the sediment as well as the fish that feed on the benthic organisms were at risk therefore, the contaminated sediments had to be remediated.

Various remediation options were evaluated including soil dredging but in the end in-situ capping was the preferred method due to the technical and economical advantages. Soft soils within the contaminated area posed stability problems such as bearing capacity and slippage failures. The final solution called for HUESKER's reinforced **FilterMat™** geocomposites which provided two main functions:

- **FilterMat™** tensile reinforcement prevents the capping structure from slipping during the anticipated design life.
- **FilterMat™** allows water to pass through the composite during the consolidation of the sediments while retaining the contaminated sediment particles.

CLARK ISLAND ENVIRONMENTAL SEDIMENT REMEDIATION PROJECT REINFORCED FILTERMAT™ GEOCOMPOSITE

HUESKER REPORT

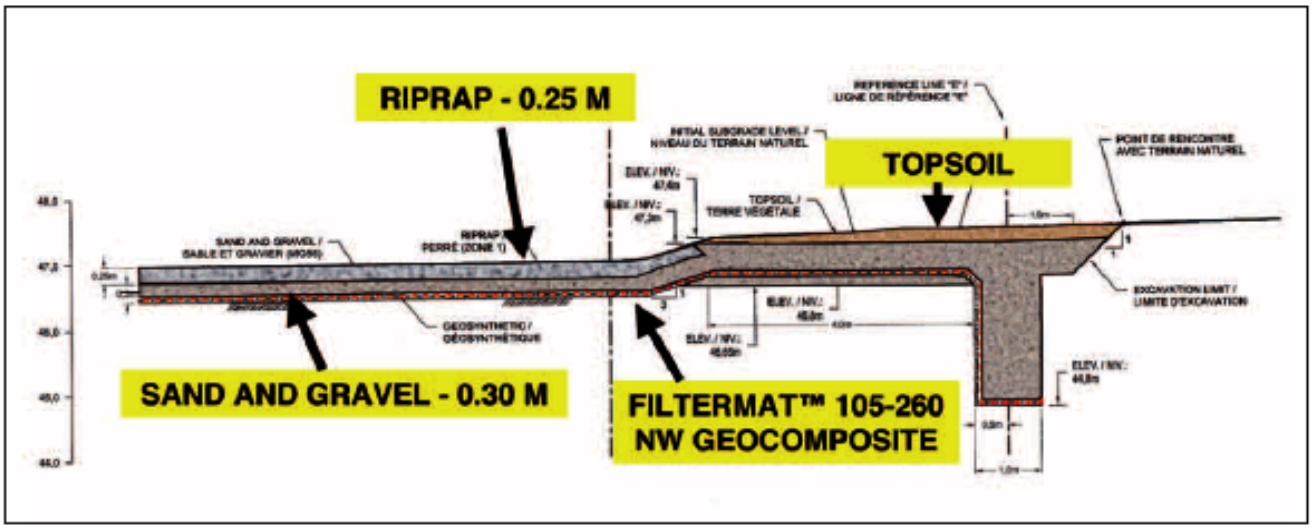
The project site was divided into two zones due to their stability issues. Zone 1 was comprised of FilterMat 105-260 NW and Zone 2 was comprised of **FilterMat™** 110-260 NW along with a second layer of **Fortrac®** 85 which was installed perpendicular to the **FilterMat™**. **FilterMat™** 105-260 NW and **FilterMat™** 110-260 NW are composites comprised of a high strength woven polyester geotextile mechanically bonded to a custom-made polyester nonwoven with varying diener fibers specifically designed to provide containment of the pyrite cinder contaminates. Roll widths of 10.4 meters with varying custom lengths were produced for both FilterMat types in order to expedite the installation process.

The installation method employed for this capping material consisted of anchoring one end of the material in a shoreline anchor trench and deploying the roll with the assistance of a winch located on a barge positioned in the river. Divers were used to ensure proper roll alignment to maintain a consistent one meter wide overlap.

FilterMat™ Advantages:

FilterMat™ provides both tensile strength and containment properties within one composite material and offers wide widths to expedite deployment. The nonwoven component also provides an increased interface friction surface and provides additional dimensional stability to the high strength woven geotextile. With superior tensile strength and filtering capabilities **FilterMat™** delivered a successful sediment capping system for the demanding project requirements.

Location:	Salaberry-De-Valleyfield, Canada
Client:	Joint Venture – Loiselle-Hebert
Consultant:	Tecsult Inc.
Year of Construction:	2005
Products:	**FilterMat™** 105-260 NW, **FilterMat™** 110-260 NW, **Fortrac®** 85



Typical cross-section at shoreline.

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