



**FABRIC-FORMED CONCRETE MATTRESSES FOR PERMANENT EROSION CONTROL AND SCOUR PROTECTION**



**LEADERS IN EROSION  
CONTROL AND SCOUR  
PROTECTION SINCE  
1990**

Synhetex is the manufacturer of HYDROTEX, a suite of sophisticated fabric-formed concrete mattresses designed to meet the most demanding erosion control and scour protection needs in modern construction.

Pictured: A HYDROTEX Uniform Section concrete mattress installed at the Cobb County Wastewater Treatment Plant in Georgia.





## WHAT IS FABRIC-FORMED CONCRETE?

Fabric-formed concrete is a personalized revetment system using two layers of fabric.

The geosynthetic fabric is laid out on the ground and pumped with fine aggregate concrete, creating a mattress for different shear stress environments. One important distinction of fabric-formed concrete is that it can be installed underwater.

## WHERE IS FABRIC-FORMED CONCRETE USED?

Fabric-formed concrete is used for a wide variety of needs, including erosion control, scour protection, geomembrane protection, wastewater containment, and more.

## WHY CHOOSE Hydrotex FABRIC-FORMED CONCRETE?

A product is only as good as the people behind it. From design to installation, our team of specialized engineers will be at your side. We will:

- Assist with design and hydraulic analysis
- Prescribe a customized solution for

your project

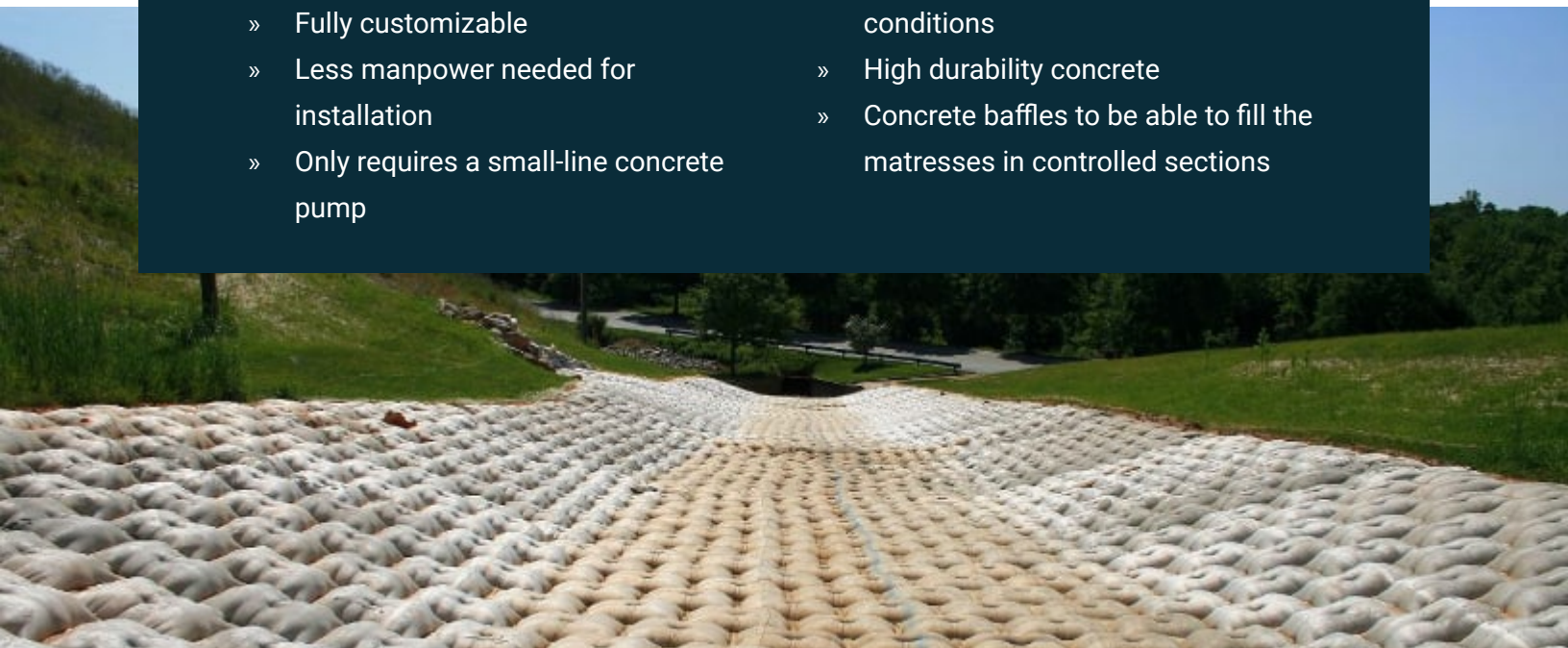
- Assist with cost analyses
- Recommend qualified, experienced contractors for your project
- Provide in-person technical assistance before, during, and after installation



		Rip Rap	Prefabricated Concrete Blocks	Gabions	Geocells
Easy to Install					
Low Shipping Costs					
No Heavy Equipment					
Easy Site Access					

## MORE REASONS TO CHOOSE Hydrotex :

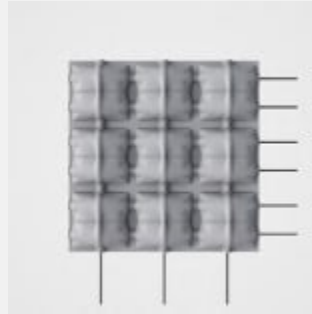
- » Delivered to the job site ready-to-fill
- » Requires no wood or steel formworks
- » Fully customizable
- » Less manpower needed for installation
- » Only requires a small-line concrete pump
- » Various product styles and thicknesses for various hydraulic conditions
- » High durability concrete
- » Concrete baffles to be able to fill the mattresses in controlled sections



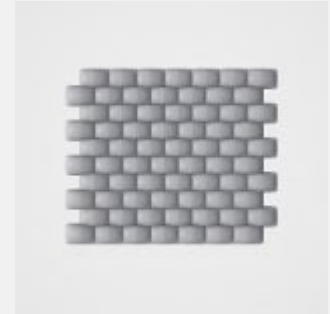
## 8 PRODUCT TYPES



**FILTER POINT**



**ARTICULATING BLOCK**



**UNIFORM SECTION**



**ENVIROMAT®**



**ENVIROMAT® FX**



**FILTER BAND**



**HYDROCAST®**



**GROUT BAGS**



## APPLICATIONS

- |  |   |
|--|---|
| » Abutment Protection                          | » Liner Protection                      |
| » Bridge Pier Scour Protection and Remediation | » Pipeline Cover Protection             |
| » Canal Lining                                 | » Prop and Thruster Scour Protection    |
| » Channel Lining                               | » Retention Pond                        |
| » Coal Ash [CCR] Liner Protection              | » Rubble Mound Structure Foundations    |
| » Cooling Channels and Ponds                   | » Scour Aprons                          |
| » Culvert / Outfall Protection                 | » Sediment Capping / Erosion Protection |
| » Detention Pond                               | » Sediment Remediation                  |
| » Ditch Lining                                 | » Shoreline Revetment                   |
| » Downchute Protection                         | » Spillway Protection                   |
| » Embankment Protection                        | » Tunnel Closures                       |

## INDUSTRIES

- |   |                                     |                                    |
|---|-------------------------------------|------------------------------------|
| » Bridges and Piers                             | » Marine and Coastal                | » Rivers and Canals                |
| » Industrial, Environmental,<br>and Containment | » Mining                            | » Roads, Highways, and<br>Airports |
| » Landfills                                     | » Municipal Water and<br>Wastewater | » Sediment Remediation             |
| » Locks and Dams                                | » Ports and Harbors                 |                                    |





## FILTER POINT



HYDROTEX Filter Point is a concrete mattress that consists of a double-layer woven fabric joined together by spaced, interwoven filter points to form a concrete lining with a deeply cobbled surface appearance. The filter points form water permeable drains and attachment points for the control of the concrete lining thickness.

### AVAILABLE THICKNESSES, IN (MM)

2.2 (55)	3 (75)	4 (100)	6 (200)	8 (200)	10 (250)	12 (300)
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### FEATURES

PERMEABLE - RIGID - CUSTOMIZABLE

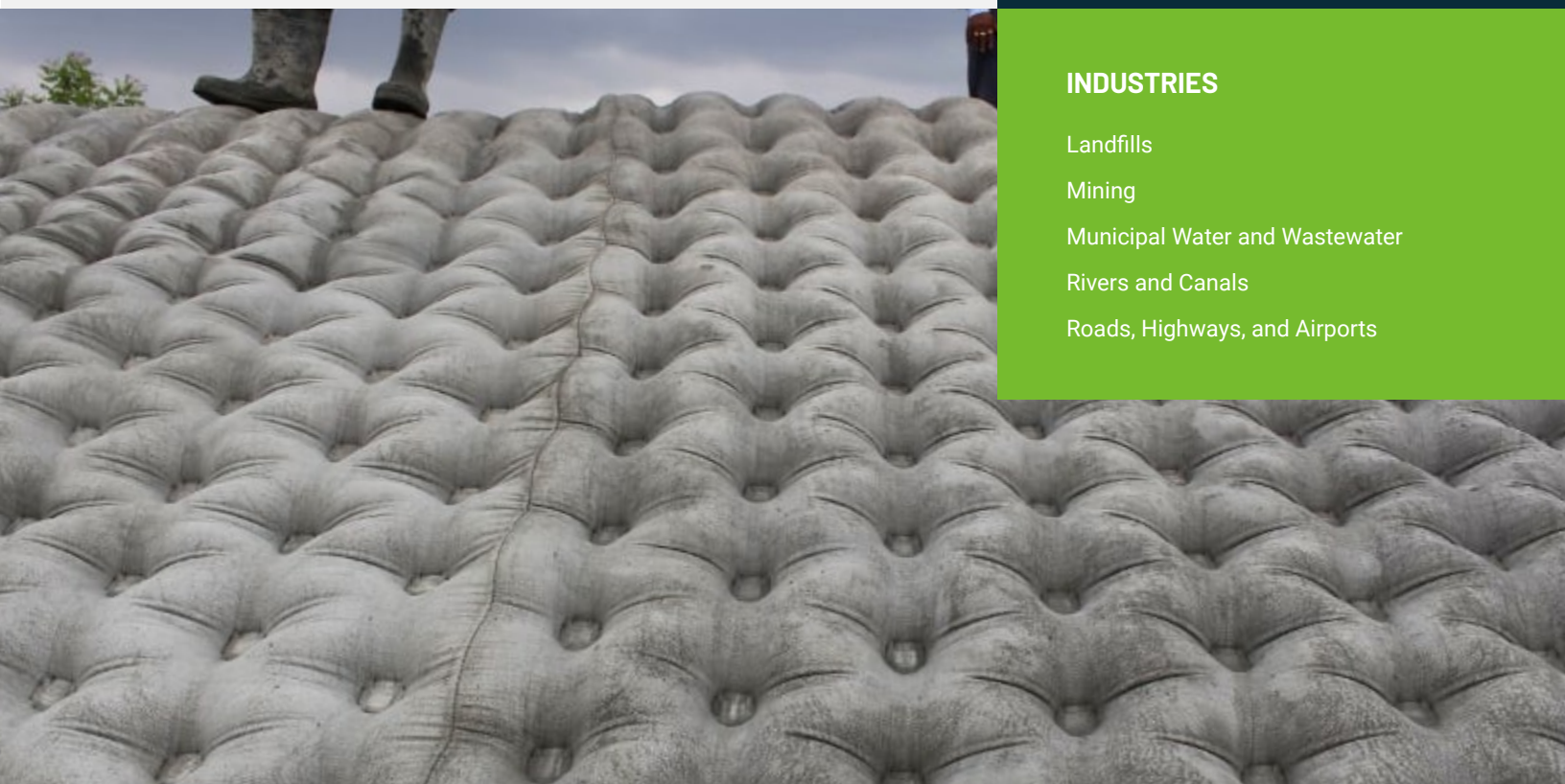


### APPLICATIONS

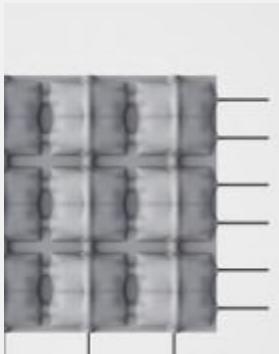
Canal Lining  
Channel Lining  
Culvert / Outfall Protection  
Ditch Lining  
Downchute Protection  
Embankment Protection  
Liner Protection  
Pipeline Protection

### INDUSTRIES

Landfills  
Mining  
Municipal Water and Wastewater  
Rivers and Canals  
Roads, Highways, and Airports



## ARTICULATING BLOCK



HYDROTEX Articulating Block is a concrete mattress that consists of a series of compartments (blocks) linked by an interwoven perimeter of fabric and internal revetment cables. Ducts interconnect the compartments, and high strength revetment cables are installed between and through the compartments and ducts. The cables remain embedded in the mattress to facilitate articulation along the lines of the interwoven fabric perimeters.

### AVAILABLE THICKNESSES, IN (MM)

3	4	6	8	10	12	14	16
(75)	(100)	(200)	(200)	(250)	(300)	(355)	(400)

### FEATURES

PERMEABLE - FLEXIBLE - CUSTOMIZABLE



### APPLICATIONS

- Bridge Abutment Protection
- Bridge Pier Scour Protection
- Canal Lining
- Channel Lining
- Embankment Protection
- Pipeline Cover
- Shoreline Revetment

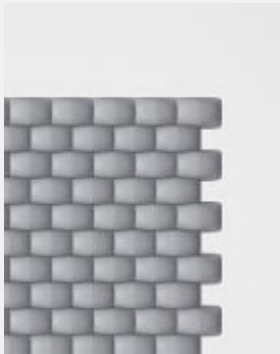
### INDUSTRIES

- Bridges and Piers
- Landfills
- Locks and Dams
- Marine and Coastal
- Ports and Harbors





## UNIFORM SECTION



HYDROTEX Uniform Section is a concrete mattress with a relatively uniform (constant) cross section thickness and a brick pattern surface. Uniform Section has a relatively low coefficient of hydraulic friction (Manning's  $n$  value) to maintain optimum water velocities. Due to its uniform cross-section, the impermeable aspect of concrete lends this product to use in applications where this feature is needed.

### AVAILABLE THICKNESSES, IN (MM)

2	3	4	6	8	10	12	14	16
(50)	(75)	(100)	(200)	(200)	(250)	(300)	(355)	(400)

### FEATURES

**IMPERMEABLE\* - FLEXIBLE - CUSTOMIZABLE**



### APPLICATIONS

Canal Lining  
Coal Ash [CCR] Liner Protection  
Cooling Channels and Ponds  
Culvert / Outfall Protection  
Embankment Protection  
Liner Protection  
Pipeline Protection

### INDUSTRIES

Environmental and Containment  
Municipal Water and Wastewater  
Ports and Harbors  
Rivers and Canals  
Sediment Remediation



## ENVIROMAT®



HYDROTEX Enviromat is a concrete mattress that consists of concrete-filled elements and unfilled areas that allow vegetation. Once the concrete sets, the unfilled interwoven areas (approximately 20% of the total area of the lining) can be opened, filled with topsoil, and seeded. The Enviromat products are many times used in conjunction with a turf reinforcement mat (TRM).

### AVAILABLE THICKNESSES, IN (MM)

2.5 (65)	4 (100)
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### FEATURES

ALLOWS VEGETATION - PERMEABLE - CUSTOMIZABLE



### APPLICATIONS

Canal Lining  
Channel Lining  
Collection Channels  
Embankment Protection

### INDUSTRIES

Mining  
Rivers and Canals  
Roads, Highways, and Airports





## ENVIROMAT® FX



Designed to be either cast-in-place or precast and then hoisted-in-place, Enviromat FX is a concrete mattress with unwoven filtration/vegetation perimeters around each block. Once the concrete sets, the unfilled fabric areas (nominally 30% of the total area of the lining) are used to establish vegetation as well as facilitate articulation, lifting, and placing.

### AVAILABLE THICKNESSES, IN (MM)

1  
(25)

### FEATURES

ALLOWS VEGETATION - PERMEABLE - CUSTOMIZABLE



### APPLICATIONS

Canal Lining  
Culvert / Outfall Protection  
Ditch Lining  
Embankment Protection

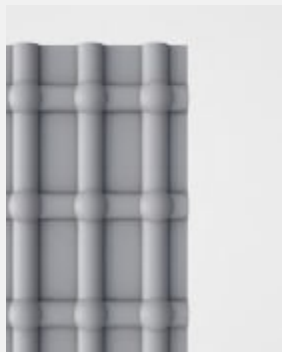
### INDUSTRIES

Landfills  
Marine and Coastal  
Mining  
Rivers and Canals  
Roads, Highways, and Airports





## FILTER BAND®



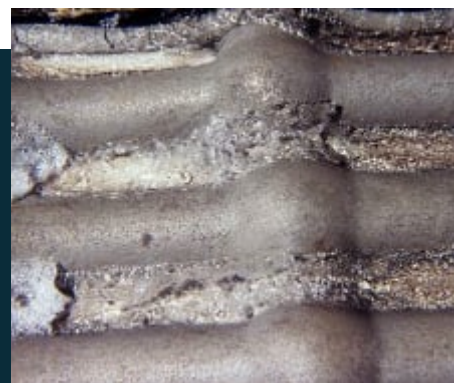
HYDROTEX Filter Band is a concrete mattress that consists of a double-layer woven fabric joined together by spaced, interwoven filter bands, creating permeable drains for water to filter through. With alternating concrete tubes, Filter Band has a deeply textured surface appearance and achieves greater reduction of flow velocity and wave run-up due to a higher Manning's  $n$  value.

### AVAILABLE THICKNESSES, IN (MM)

4  
(100)

### FEATURES

PERMEABLE - RIGID - CUSTOMIZABLE



### APPLICATIONS

Canal Lining  
Channel Lining  
Culvert / Outfall Protection  
Embankment Protection



### INDUSTRIES

Mining  
Rivers and Canals  
Roads, Highways, and Airports



## HYDROCAST® ARMOR UNITS



HYDROCAST Armor Units consist of woven fabric sewn together to form custom shapes such as cubes, rectangles, or geometries that incorporate curves. When filled with fine aggregate concrete, they form a fabric-formed 3-D concrete shape with custom dimensions and volume. Self-sealing filling valves, suitable for use with an injection pipe at the end of a pump hose, are installed at predetermined locations. Custom features — such as internal steel cables, straps, or cam-lock filling ports — may be added.

### AVAILABLE THICKNESSES, IN (MM)

Custom Manufactured

### FEATURES

100% CUSTOM



### APPLICATIONS

Pipe Plugs  
Scour Aprons  
Shoreline Revetment  
Tunnel Closures

### INDUSTRIES

Bridges and Piers  
Locks and Dams  
Marine and Coastal



## GROUT BAGS



HYDROTEX Grout Bags consist of specially woven, double-layer synthetic forms pumped with fine aggregate concrete to create a grout bag of personalized thickness, weight, and configuration. Additional items such as tie-down straps, cut-outs around obstructions, and reinforcing cables can be incorporated into a grout bag.

### AVAILABLE THICKNESSES, IN (MM)

Custom Manufactured

### FEATURES

100% CUSTOM

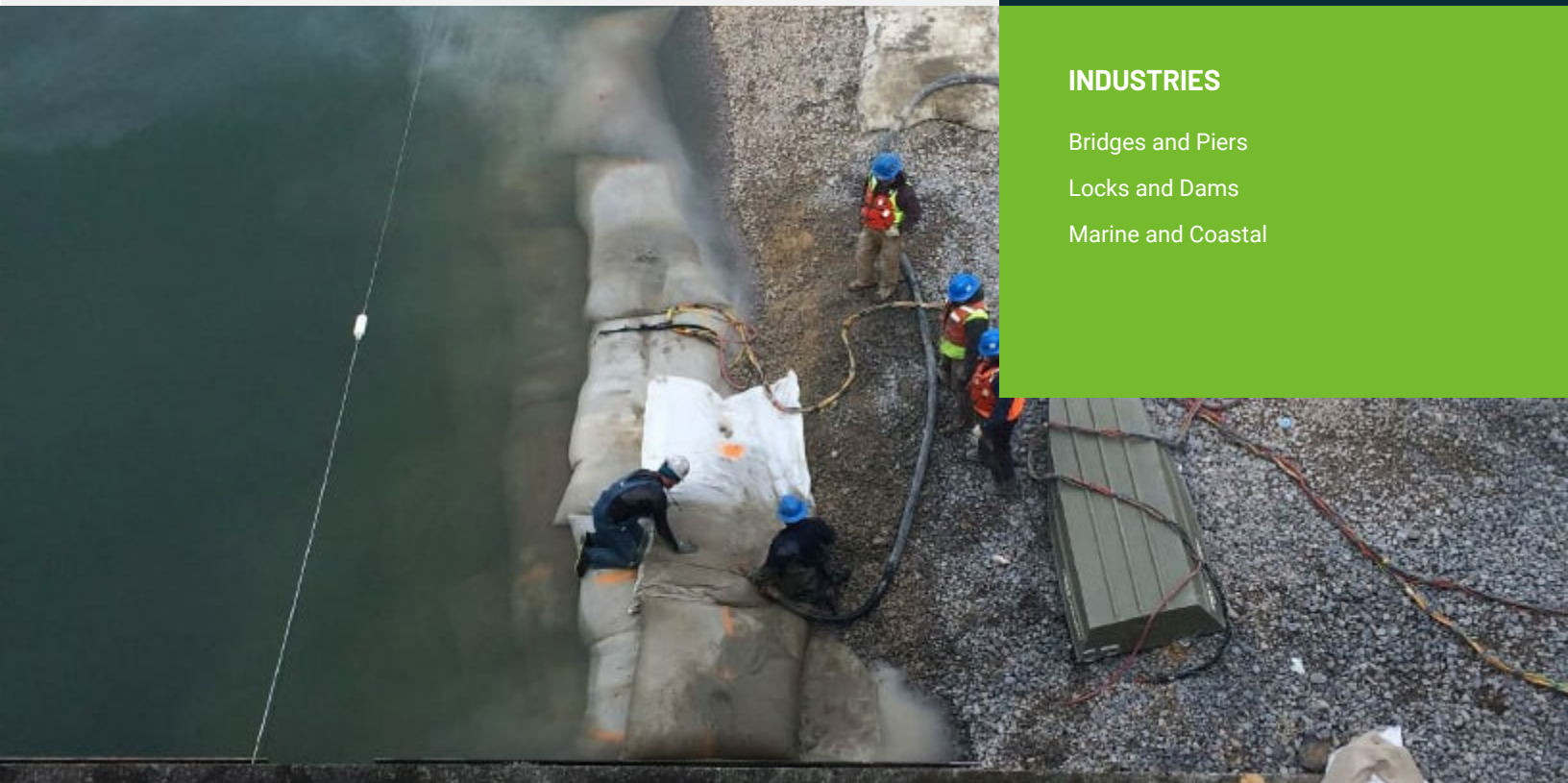


### APPLICATIONS

Bridge Pier Scour Protection and Remediation  
Channel Lining  
Culvert / Outfall Protection  
Embankment Protection  
Prop and Thruster Scour Protection  
Scour Aprons

### INDUSTRIES

Bridges and Piers  
Locks and Dams  
Marine and Coastal





## FILTER POINT

Size	Average Thickness		Mass Per Unit Area		Concrete Coverage		Filter Point Spacing	
	in	mm	lb/ft <sup>2</sup>	kg/m <sup>2</sup>	ft <sup>2</sup> /yd <sup>3</sup>	m <sup>2</sup> /m <sup>3</sup>	in	mm
FP220	2.2	55	25	120	136	16.6	5	125
FP300	3	75	34	165	100	12.1	6.5	165
FP400	4	100	45	220	75	9.1	8	200
FP600	6	150	68	330	50	6.1	10	255
FP800	8	200	90	440	38	4.6	12	305
FP1000	10	250	113	550	30	3.6	14	355
FP1200	12	300	135	660	25	3.0	16	405

## ARTICULATING BLOCK

Size	Average Thickness		Mass Per Unit Area		Concrete Coverage	
	in	mm	lb/ft <sup>2</sup>	kg/m <sup>2</sup>	ft <sup>2</sup> /yd <sup>3</sup>	m <sup>2</sup> /m <sup>3</sup>
AB300	3	75	34	165	100	12.1
AB400	4	100	45	220	75	9.1
AB600	6	150	68	330	50	6.1
AB800	8	200	90	440	38	4.6
AB1000	10	250	113	550	30	3.6
AB1200	12	300	135	660	25	3.0
AB1400	14	350	158	770	22	2.6
AB1600	16	400	180	880	19	2.4

## UNIFORM SECTION

Size	Average Thickness		Mass Per Unit Area		Concrete Coverage	
	in	mm	lb/ft <sup>2</sup>	kg/m <sup>2</sup>	ft <sup>2</sup> /yd <sup>3</sup>	m <sup>2</sup> /m <sup>3</sup>
US200	2	50	22	107	150	18.2
US300	3	75	34	165	100	12.1
US400	4	100	45	220	75	9.1
US600	6	150	68	330	50	6.1
US800	8	200	90	440	38	4.6
US1000	10	250	113	550	20	3.6
US1200	12	300	135	660	25	3.0
US1400	14	350	158	770	22	2.6
US1600	16	400	180	880	19	2.3



## FILTER BAND

Size	Average Thickness		Mass Per Unit Area		Concrete Coverage		Filter Band Spacing	
	in	mm	lb/ft <sup>2</sup>	kg/m <sup>2</sup>	ft <sup>2</sup> /yd <sup>3</sup>	m <sup>2</sup> /m <sup>3</sup>	in	mm
FB400	4	100	45	220	75	9.1	8	200

## ENVIROMAT

Size	Average Thickness		Mass Per Unit Area		Concrete Coverage		Open Vegetated Area
	in	mm	lb/ft <sup>2</sup>	kg/m <sup>2</sup>	ft <sup>2</sup> /yd <sup>3</sup>	m <sup>2</sup> /m <sup>3</sup>	%
EM250	2.5	65	28	138	120	14.6	20
EM400	4	100	45	220	75	9.1	20

## ENVIROMAT FX

Size	Average Thickness		Mass Per Unit Area		Concrete Coverage		Open Vegetated Area
	in	mm	lb/ft <sup>2</sup>	kg/m <sup>2</sup>	ft <sup>2</sup> /yd <sup>3</sup>	m <sup>2</sup> /m <sup>3</sup>	
FX100	1	25	11	53.7	290	35.2	30

## FINE AGGREGATE CONCRETE MIX DESIGN

Material	Mix Proportions		After Placement Mix Proportions	
	lb/yd <sup>3</sup>	kg/m <sup>3</sup>	lb/yd <sup>3</sup>	kg/m <sup>3</sup>
CEMENT	750 - 850	445 - 505	805 - 915	475 - 540
SAND	2120 - 2030	1255 - 1205	2290 - 2190	1355 - 1295
WATER	540 - 555	320 - 325	460 - 470	270 - 275
AIR	As Required		As Required	

Water reducers and other admixtures may be required.  
All dimensions and values in tables are nominal.



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