



IECS ENVIRONMENTAL INC.

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Specifications

A. DESCRIPTION

Cable Concrete[®] is an articulated concrete block revetment system, developed by International Erosion Control Systems, to control various types of erosion due to water, wind, or vehicular traffic. This system is made up of 2.44m x 4.88m long (8'x16') mats placed side by side and clamped together to provide one homogeneous erosion protection system. Smaller mats are available as required. The mats consist of concrete blocks interlocked by integrally woven stainless steel cables, which are poured within each block. Geotextile fabric is attached to the base of each concrete mat. The blocks typically have 292.10mm (11.5") square top faces and 393.70mm (15.5") square bottoms. Variations between the mat systems are the block heights and weights.

SYSTEM	Minimum BLOCK WEIGHT		Minimum BLOCK HEIGHT		Open Area %
	<i>kg/sm</i>	<i>lbs/sf</i>	<i>mm</i>	<i>inches</i>	
CC 35	180.65-195.30	37-40	114.3-127.0	4 1/2-5	20
CC 45	229.47-253.88	47-52	139.7-152.4	5 1/2-6	20
CC 70	351.53-380.83	72-78	215.9-228.6	8 1/2-9	20

B. CONCRETE

The concrete shall meet the requirements of CSA A23.1/A23.2 for materials, testing, and methods of construction. The concrete mix Exposed Class F-2 25 MPA .55 w/c with a minimum of 5-8% air entrainment throughout at 28 days.

C. CABLES

The cables shall be made of type 302/304 stainless steel aircraft cable, 1x19 construction. Cables shall be integral (poured into) to the concrete block and shall traverse through each block in both longitudinal and lateral directions, providing a flexible interlocked system.

STAINLESS STEEL CABLE				
System	Lengthwise mm inches		Widthwise mm inches	
CC35	4	5/32"	4	5/32"
CC45	4	5/32"	4	5/32"
CC70	4.8	3/16"	4.8	3/16"

D. GEOTEXTILE

The standard geotextile material used is a needle punched non-woven fabric which is attached to the underside of the mats. An overlap shall be incorporated on three sides. The overlap provides area for the adjoining mats to be placed upon and prevent undermining of the erosion control system.

It should be noted that when different geotextile weights are used and or when additional overlap area is added to the mat, additional cost adjustments shall be made.

E. CLAMPS

Sufficient malleable or stainless steel cable clamps may be used to connect adjoining Cable Concrete[®] mats. The standard placement of clamps shall be placed on 1.22m (4') centres connecting adjoining mats together. Clamps are recommended in applications exceeding 3.05m (10') per second.

When placing clamps under existing water, the manufacture will specify a clamp for the condition.

F. ANCHORING

Cable Concrete[®] mats are designed to take certain velocities in certain slope and bedding situations. This information is founded on engineered flume testing. The data shows maximum limits of the mat system, based on unanchored mats.

Anchoring Cable Concrete[®] mats offer additional safety to the erosion protection system. If a situation arises where velocities may exceed maximum limits of a system, or if slopes of 1.5:1 or greater are encountered, then anchoring becomes an item to be specified by the governing project engineer.

G. INSTALLATION

Installation equipment shall have a lifting capacity, capable of completely lifting the concrete mat and the lifting bar during unloading, stockpiling and installing etc.

Prepared areas shall be graded to a smooth plane finish. Any roots, debris and stones must be removed and regraded. Specified geotextile to be placed according to manufacturing recommendations. There shall not be any dragging, tearing or damaging of the geotextile. The mats shall be laid on the geotextile in such a manner to produce a smooth plane surface. Intimate contact with the subsurface is critical to the systems performance in the field.

The gap between each mat shall not be greater than 2", preferably 1" or it must be closed using a cement mixture.

It is recommended that after the installation of the mat system, that it be covered with desired backfill. If vegetation is required, the mat system shall be backfilled and seeded. This will allow moisture to traverse back and forth from sub grade to vegetation. Vegetation will lend support and an even grade for maintenance vehicles (mowers) to traverse over it. Any surface application should not be placed prior to the inspection of the systems clamping and anchoring.

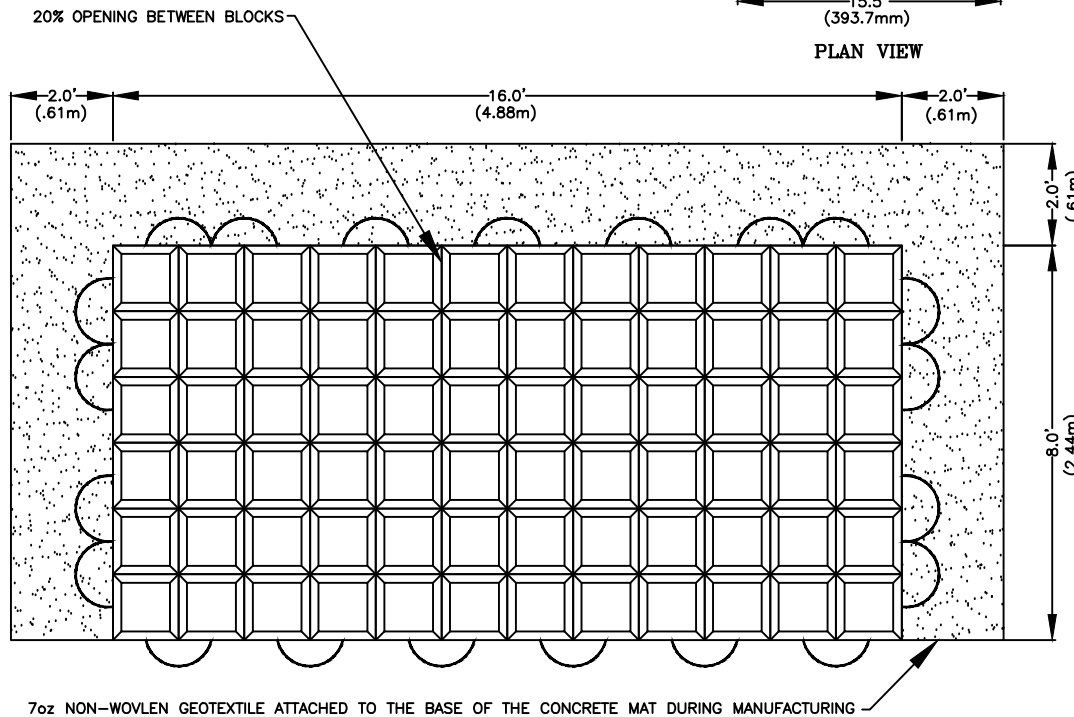
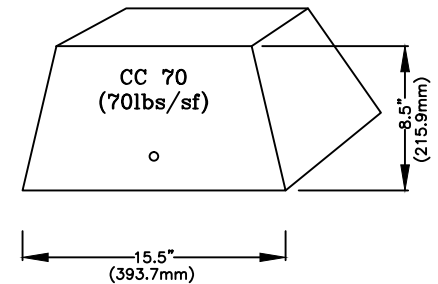
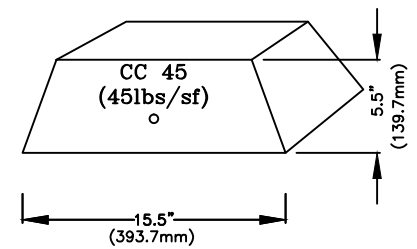
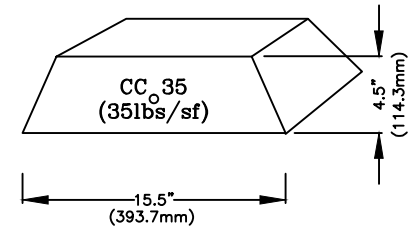
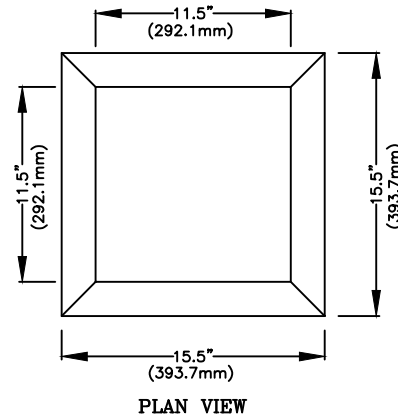
H. PAYMENT

Payment shall be by the square metre and shall include Cable Concrete[®] mats and manufacturer's recommended geotextile.

Stainless Steel cable clamps, anchors, lifting bar rental and delivery are separate cost items.

Upgrades or additional items shall be considered additional costs.

CABLE CONCRETE® TYPICAL UNIT DEPTHS



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CABLE CONCRETE® TYPICAL UNIT DEPTHS

DRAWN BY:

D. J

CHECKED

BY:

L.A

SCALE: N.T.S

DATE: 10/21/13

SHEET 1 OF 1