STANDARD SPECIFICATION FOR HYDRAULIC EROSION CONTROL PRODUCTS (HECPs)

v. 2.4

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PART 1 GENERAL

1.01 SUMMARY

A. This section specifies a Hydraulic Erosion Control Product (HECP). A HECP is a manufactured, temporary, degradable, pre-packaged fibrous material that is mixed with water and hydraulically applied as a slurry designed to reduce soil erosion and assist in the establishment and growth of vegetation. The HECP will achieve maximum performance after a sufficient curing period, which will vary based upon site specific conditions. The HECP forms a protective layer which controls erosion and allows for enhanced seed germination and accelerated plant growth.

1.02 SUBMITTALS

A. Product Data: Submit manufacturer's product data and installation instructions.

B. Certifications: Submit a letter from manufacturer certifying that the HECP meets or exceeds all performance properties and packaging requirements found in this specification.

PACKAGING, DELIVERY, STORAGE, AND HANDLING

A. Deliver materials and products in ultra violet (UV) and weather resistant factory labeled packages. Store and handle in strict compliance with manufacturer's instructions and recommendations. Protect product from damage due to climatic conditions and construction operations.

PART 2 PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

The HECP to be used shall meet the performance standards of Type_____as specified in ***Table 1***.

Hydraulic Erosion Control							
			Typical Application	Typical Maximum Slope	Maximum Uninterrupted	Maximum	Minimum
Type [2]	Term	Functional	Rates	Gradient	Slope Length	C Factor[4, 5]	Vegetation
		Longevity[3]	Lb/acre (kg/ha)	(H:V)	(ft)	(3:1 test)	Establishment[6]
1	Ultra Short Term	1 month	1500—2500 (1700—2800)	≤ 5:1	20	0.3	150 %
2	Short Term	2 month	2000—3000 (2250—3400)	≤ 4:1	25	0.2	150 %
3	Moderate Term	3 month	2000—3500 (2250—3900)	≤ 3:1	50	0.1	200 %
4	Extended Term	6 month	2500—4000 (2800—4500)	≤ 2:1	75	0.05	300 %
5	Long Term	12 month	3000—4500 (3400—5100)	≤ 2:1	100	0.02	300 %

[1] This table is for general guidelines only. Refer to manufacturer for application rates, instructions, gradients, maximum continuous slope lengths and other site specific recommendations.

[2] These categories are independent of rolled erosion control products (RECPs) categories, despite the identical names.

[3] A manufacturer's estimated time period, based upon field observations, that a materials can be anticipated to provide erosion control as influenced by it composition and site-specific conditions.

[4] "C" Factor calculated as ratio of soil loss from HECP protected slope (tested at specified or greater gradient, h:v) to ratio of soil loss from unprotected (control) plot based on large-scale testing.

[5] Acceptable large-scale test methods may include ASTM D 6459, or other independent testing deemed acceptable by the engineer.

[6] Minimum vegetation establishment is calculated as outlined in ASTM D 7322 being a percentage by dividing the plant mass per area of the protected plot by the plant mass per area of the control plot.

PART 3 EXECUTION

3.01 SUBSTRATE AND SEEDBED PREPARATION

Examine substrates and conditions where HECP will be applied. Apply HECP to geotechnically stable slopes that have been designed and constructed to divert runoff away from the face of the slope. Repair any pre-existing rills or gullies and roughen slope if possible by track-walking or using some other imprinting device. If necessary to reduce slope length in accordance with ***Table 1***, install Sediment Retention Fiber Rolls (SRFRs) or other slope interruption devices perpendicular to the water flow. Do not proceed with installation until satisfactory conditions are established.

3.02 APPLICATION

Strictly comply with manufacturer's application instructions, machinery requirements and other recommendations. For optimum pumping and application performance use approved hydraulic seeding/mulching machines with an appropriate nozzle tip. Apply HECP from opposing directions to achieve best soil coverage reducing the "shadow effect."

Fill the tank of the hydraulic machine approximately 1/3 full with water. Continue to add water slowly while adding HECP at a steady rate. Utilize the HECP manufacturer's recommended water-to-HECP ratio. Confirm loading rates with equipment manufacturer. All HECP and supplemental materials should be loaded into the tank before it is approximately ¾ full. Finish filling the tank with water to the desired level. Uniform slurries may require agitation or mixing for a minimum of 10 minutes after all of the water and HECP are in the tank.

Mix and apply HECP over the prepared substrate. Best performance is achieved when HECP is applied to unsaturated soils or substrates and allowed to undergo an appropriate curing period.

Use an appropriate nozzle tip to ensure uniform soil surface coverage. Hose applications may be required for certain sites and locations. Application rates of HECP shall follow minimum rates found in ***Table 1***, and meet manufacturer's specific guidelines for proper performance.

HECP is not intended to be applied in channels, swales or other areas where concentrated flows are anticipated, unless installed in conjunction with Rolled Erosion Control Products (RECPs).

After application, thoroughly flush the tank, pumps and hoses to remove all HECP material. Wash all material from the exterior of the machine and remove any slurry spills. Once dry, HECP will be more difficult to remove from equipment.

3.03 PROTECTION

Areas treated with HECP shall be protected from foot and vehicle traffic, grazing and other disturbances. Any damaged area shall be repaired utilizing the exact blend and application procedure as specified above.

4.01 PAYMENT

HECP will be paid for by the unit area treated. The price shall include; full compensation furnishing all labor, materials, tools, equipment, and incidentals, for doing all HECP work, complete in place, as shown on the plans, and as specified in these Standard Specifications and as directed by the Engineer.

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The Erosion Control Technology Council (ECTC) is committed to promoting cost-effective erosion and sediment control through leadership, standardization and education. ECTC assists agencies, engineers, designers, contractors and other entities in the proper application, installation and specification of erosion control technologies while establishing guidelines for product quality, testing and performance.