



South Carolina  
Department of Transportation

May 13, 2011

**INSTRUCTIONAL BULLETIN NO. 2011-1**

**SUBJECT:** Section 810 - Seeding  
**EFFECTIVE DATE:** July 2011 Highway Letting  
**SUPERSEDES:** Instructional Bulletin 2009-1 "Seeding"  
**RE:** SC-M-810-2 (Latest Edition)

Supercedes 2009-1 Seeding

The Supplemental Technical Specification SC-M-810 (11/08) has been updated and replaced with SC-M-810-2 (latest edition). This instructional bulletin is intended to aid designers who prepare plans for SCDOT projects. The designer should follow the guidelines listed herein in order to produce plan items and quantities in compliance with SC-M-810-2 (latest edition).

**Seeding:**

In addition to "**Permanent Cover**" and "**Temporary Cover**" a new seeding application referred to as "**Permanent Grassing for Small Projects**" has been defined.

Small Projects are defined as projects which do not require coverage under the NPDES Construction General Permit SCR 100000. In addition projects consisting of improving shoulders with a width of less than six feet due to backfill from resurfacing or upgrading deficient shoulders are also exempt from NPDES requirements and are classified as Small Projects. Permanent Grassing for Small Projects seed selection is to be done in accordance with Section 1.2 of SC-M-810-2 (latest edition).

**Mulch:**

Mulch is required for all temporary and permanent cover applications. See Table 4: Mulch included in SC-M-810-2 (latest edition) and listed below.

Table 4: Mulch

Mulch <sup>1</sup>	Applicable Slopes <sup>2</sup>	Minimum Application Rate (lbs/acre -dry) <sup>3</sup>	Min Slope Height (ft)
Straw or Hay with Tackifier	≤ 4:1	2,000	N/A
HECP Type 1 - Tracer under RECP	Per RECP	1000	N/A
HECP Type 1	≤ 4:1	2,000	N/A
HECP Type 2	4:1 < S ≤ 3:1	2,500	N/A
HECP Type 3	3:1 < S ≤ 2:1	3,000	N/A
HECP Type 4	2:1 < S ≤ 1:1	3,500	N/A
	> 1:1	4,000 (temp cover only) <sup>4</sup>	
Compost Mulch	≤ 2:1	200 CY/acre	N/A



When site constraints exceed the acceptable application for mulch, use Rolled Erosion Control Products (RECPs); Erosion Control Blankets (ECB) or Turf Reinforcement Matting (TRM)			
Temporary ECB or Type 1 TRM	≤ 2:1	N/A	5
Type 2 TRM	≤ 1.5:1	N/A	5
Type 3 TRM	≤ 1:1	N/A	5

- 1 A higher level of mulch may be applied than that specified on the Plans, Specifications, and other terms of the Contract. In this situation, the higher level mulch is to be applied at the specified mulch rate for the actual slope conditions of the site in accordance with the mulch tables. Payment will be made for the mulch specified not the higher level mulch.
- 2 The maximum allowable continuous slope length for all mulch and ECB applications is 50 feet. Slope interruption devices or TRMs are required for continuous slope length longer than 50 feet.
- 3 Strictly comply with the manufacturer's mixing recommendations and installation instructions for the actual slope steepness and the actual continuous slope length of the application.
- 4 HECP Type 4 may be used for permanent cover applications on slopes 1:1 or greater at a minimum rate of 4,500 pounds per acre as directed by the RCE only when proper TRM installation is not practicable due to site constraints

Depending on the steepness and length of slopes, select appropriate mulches. Table 4 lists the least performance mulch (least expensive) at the top. The performance of the mulch increases (along with the associated cost) as you read down the table.

The four different mulch categories have been renamed and issued new bid item numbers in accordance to the chart below.

PREVIOUS MULCH NAME/ BID ITEM #	NEW MULCH NAME/ BID ITEM#
Hydraulic Mulch (HM) / #8101115	Hydraulic Erosion Control Product (HECP) Type 1 / #8151201
Stabilized Mulch Matrix (SMM) / #8101120	Hydraulic Erosion Control Product (HECP) Type 2 / #8151202
Bonded Fiber Matrix (BFM) / #8151011	Hydraulic Erosion Control Product (HECP) Type 3 / #8151203
Fiber Reinforced Matrix (FRM) / #8151021	Hydraulic Erosion Control Product (HECP) Type 4 / #8151204

Hydraulic mulch that is utilized during hydroseeding under a Rolled Erosion Control Product (RECP) has been assigned its own bid item number: **“Hydraulic Erosion Control Product (HECP) Type 1 as a Tracer under RECP” Bid Item #8151209.**

It is recommended that the bid quantity in acres for all Hydraulic Erosion Control Products be equal to twice the calculated acreage to be mulched. This will allow for re-mulching areas due to adverse weather conditions, re-disturbance of soil, etc.

The designer can weigh the options of using multiple types of mulches or combining items when there is just a small amount of one type of mulch and a much larger amount of a higher performance mulch. For example, if the quantities computed using the table were:

Straw or hay mulch with tackifier	2.346 acres
HECP Type 3	0.398 acres
HECP Type 4	5.443 acres

The designer could choose to combine two of the three options as follows:

Straw or hay mulch with tackifier	2.346 acres
HECP Type 4	5.841 acres

This would simplify the construction operation in that the contractor would only supply two types of mulch products, and the impact of the cost is minimal due to the small quantity of the Type 3 mulch. Note that the Type 4 mulch is the highest performance mulch. When choosing to combine mulch quantities, always choose the higher performance mulch to replace the lower performance mulch.

It is acceptable to not combine any of the mulches and use all three mulches.

**Slope Interrupters:**

Use Inlet Structure Filters Type F – Non-Weighted tubes for slope interrupters when the slope length requires it. Refer to SC-M-810-2 section 1.2.5.6 or latest edition and SC-M-815-8 section 1.3.7.2.2 or latest edition.

**Biological Growth Stimulant:**

“**Liquid Fertilizer**” has been replaced with “**Biological Growth Stimulant**”. This is a specific type of root growth stimulant that contains Humic Acid. The specifications for this product are in section 1.2.4.2 of the referenced specification SC-M-810-2 (latest edition). Payment for this item is to be included in the cost of Permanent Cover, Permanent Grassing for Small Projects, or Temporary Cover.

**Agricultural Granular Lime:**

Estimate the quantity of agricultural granular lime using the rate of 2,000 lbs/acre of permanent cover.

**Agricultural Granular Fertilizer:**

Unless a specific blend of granular fertilizer is selected on the Design Field Review (DFR) or from experience, assume a 10-10-10 mix to calculate the estimated bid quantities for the three components of granular fertilizer. Calculate the quantity by assuming an application rate of 1,000 lbs/acre for fertilizer.

For example, if a project has a quantity of 3,500 acres of permanent cover and the RCE recommends a 15-5-25 mix of fertilizer, calculate the estimated quantity as follows:

- FERTILIZER (NITROGEN) = 0.15% X 1,000 lbs/acres X 3,500 acres = 525 lbs
- FERTILIZER (PHOSPORIC ACID) = 0.05% X 1,000 lbs/acres X 3,500 acres = 175 lbs
- FERTILIZER (POTASH) = 0.25% X 1,000 lbs/acres X 3,500 acres = 875 lbs

Remember the first number represents nitrogen, the second number represents phosphoric acid, and the third number represents potash (N – Ph. Acid – Pot.). The numbers are percentages, so you need to divide them by 100 before inserting into the formulas.

**Compost:**

Compost can be used in locations where there is little or no topsoil or where a soil analysis shows that the seedbed is excessively nutrient deficient.

This information is generally unknown during the project development phase. Request input from the RCE during the DFR to determine if this bid item is needed and estimate the quantity based on past experience. The item is measured in cubic yards, so you will need to estimate the surface area and use a depth of 2 inches.

**Watering:**

Estimate watering to establish permanent cover. Calculate a quantity using the ratio of 27,150 gallons per acre-inch of water. Select the quantity of Watering from the following table based on the quantity of Permanent Cover.


Quantity of Permanent Cover	Estimated Quantity of Water
less than ½ acre	None
½ acre to 5 acres	54,300 gallons
greater than 5 acres to 20 acres	135,750 gallons
greater than 20 acres	271,500 gallons

**Mowing:**

Include the item of mowing when permanent or temporary cover is specified. Use a quantity equal to twice the sum of the permanent and temporary cover.

**Pay Items:**

Bid Item Number	Description	Units
8100100	Permanent Cover	ACRE
8100101	Permanent Grassing for Small Projects	ACRE
8100200	Temporary Cover	ACRE
8101100	Select Material	CY
8101105	Compost	CY
8101110	Straw or Hay Mulch with Tackifier	ACRE
8104005	Fertilizer (Nitrogen)	LBS
8104010	Fertilizer (Phosphoric Acid)	LBS
8104015	Fertilizer (Potash)	LBS
8105005	Agricultural Granular Lime	LBS
8109050	Selective Watering	GAL
8109901	Mowing	ACRE
8151101	Turf Reinforcement Matting (TRM) Type 1	MSY
8151102	Turf Reinforcement Matting (TRM) Type 2	MSY
8151103	Turf Reinforcement Matting (TRM) Type 3	MSY
8151110	Temporary Erosion Control Blanket (ECB)	MSY
8151201	Hydraulic Erosion Control Product (HECP) Type 1	ACRE
8151209	Hydraulic Erosion Control Product (HECP) Type 1 as Tracer under RECP	ACRE
8151202	Hydraulic Erosion Control Product (HECP) Type 2	ACRE
8151203	Hydraulic Erosion Control Product (HECP) Type 3	ACRE
8151204	Hydraulic Erosion Control Product (HECP) Type 4	ACRE
8152006	Inlet Structure Filter Type F - Non-Weighted (Slope Interruption Devices)	LF

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