

SECTION 1400 - CONSTRUCTION PERIOD POLLUTION PREVENTION

PART 1 - GENERAL

1.01 SCOPE: This section covers construction phase erosion control and pollution prevention. Topics included are permit requirements, material for and installation of best management practices, and best management practices for pollution prevention and spill response.

1.02 RELATED WORK: Refer to the following sections for related work:

Temporary construction fence	Section 1200-Incidental Construction
Grading	Section 2000-Earthwork
Seed mixes and seed placement	Section 7000-Seeding, Sodding and Mulching

1.03 REFERENCE STANDARDS: In this section, the following abbreviations stand for the indicated documents:

- A. ECTC shall mean the Standard Specification for Rolled Erosion Control Products published by the Erosion Control Technology Council.

1.04 PERSONNEL QUALIFICATIONS: The job site superintendent and the person responsible for directing installation and maintenance of erosion control measures shall have completed within the previous 24 months a minimum of 7 hours (or 14 hours lifetime) of training in construction site erosion and sediment control.

1.05 LOCAL PERMIT: For sites greater than one acre in size, Owner will obtain a land disturbance permit from the UG prior to grading operations. Contractor shall comply with all the provisions of the permit.

1.06 STATE PERMITS: For sites greater than one acre in size, Owner will apply for NPDES erosion and sediment control permit from KDHE prior to grading operations. Contractor shall comply with all the provisions of the permit.

PART 2 - PRODUCTS

2.01 ROLLED EROSION CONTROL PRODUCTS: Blankets, netting and mats shall comply with ECTC requirements for the product type as indicated below:

- A. Netting shall be ECTC type 2.A, mulch control net with 12 month longevity.
- B. Blankets or Erosion Control Blankets shall be ECTC type 2.C or type 2.D, single-net or double net erosion control blanket with 12 month longevity.
- C. TRM or Turf Reinforcement Mat: unless a stronger mat is specified in the special conditions or project drawings TRM shall be ECTC type 5.A, permanent turf reinforcing mat with 6.0

lb/sf maximum shear stress.

2.02 STRAW FOR MULCH: Cereal straw from stalks of oats, rye, wheat or barley, free of prohibited and noxious weed seeds.

2.03 COMPOST: Compost for erosion control applications shall be a mixed of finely divided aged, compost and larger chopped or shredded woody material.

A. The compost fraction shall meet the following composition criteria:

<u>Parameter</u>	<u>Criteria</u>
Odor	Earthy, not sour or boozy
Color	Dark brown or black
Organic matter, % dry weight	40 - 70
Moisture content, % wet weight, organic fraction only	30 - 60
Manmade inerts, % dry weight	<1
Passing 1/2-inch sieve, %	90 - 100

B. The chopped wood fraction shall meet the following composition criteria:

<u>Parameter</u>	<u>Criteria</u>
Organic matter, % dry weight	90 - 100
Manmade inerts, % dry weight	<1
Passing 3-inch sieve, %	90 - 100
Passing 1-inch sieve, %	0 - 10

C. Mixture by use:

	<u>Blanket or Berm, vegetated</u>	<u>Application Blanket or Berm, unvegetated</u>	<u>Sock</u>
Ratio of compost to chopped wood	3:1	1:1	Limits per blower manufacturer.

2.04 COMPOST SOCK: Tubes for compost sock shall be produced from a 5 mil continuous HDPE filament, woven into tubular netting, with 3/8 inch openings. Unless otherwise required by the special conditions or project drawings a 12-inch diameter tube shall be used. Stakes shall be 2x2 hardwood.

2.05 SILT FENCE: Except for areas inaccessible to slicing machines, fabric shall be provided separate from post.

A. Fabric: Fabric for silt fence shall comply with AASHTO M 288. Regardless of actual support conditions, fabric shall meet the requirements given for the “unsupported temporary silt fence, 4 foot maximum post spacing”

B. Posts: Posts shall be either 2x2 hardwood or rolled-shape steel post weighing 1.33 lbs/ft minimum.

2.06 GRAVEL FOR FILTERS: Gravel for gravel berms, gravel bags, inlet filters, filters at sediment basin riser, facing of sediment trap rock outlets, and facing of rock check dams shall be clean gravel, maximum dimension of 1-1/4 inches and 5% maximum by weight less than 3/8 inches.

2.07 GRAVEL BAGS: Bags shall be woven synthetic or natural burlap fabric with a minimum weight of 4 ounces per square yard and Mullen burst strength greater than 300 psi, ASTM D3786. Bags shall be loosely filled. Bag may be of any size suitable for hand placement.

2.08 STONE: Stone for erosion control shall be crushed limestone, shall have no durability requirement and shall be graded as follows:

<u>Sieve Size</u>	<u>% passing by weight</u>	
	<u>Construction Entry</u>	<u>Check Dams & Sediment Trap</u>
1 inch	0 - 2	0 - 2
4 inch	45 - 70	35 - 55
9 inch	100	--
12 inch	--	100

2.09 RECYCLED CONCRETE: Recycled concrete meeting the gradations for gravel or stone, may be used in place of gravel or stone specified in this section.

2.10 TEMPORARY SLOPE DRAIN: Slope drain shall be rigid or flexible tubing. Manufactured elbow shall be used for sharp change in grade. Unless otherwise identified in the special conditions or project drawings a 6-inch diameter is the minimum size.

2.11 SPRAY APPLIED MULCH: Mulches suitable for application by Hydroseeding. Spray applied mulches shall include a temporary dye to provide indication of coverage.

A. Hydraulic mulch: A product specifically manufactured to be hydraulically-applied that consists of defibrated paper, wood and/or natural fibers that may or may not contain tackifiers used to facilitate vegetation establishment on mild slopes and designed to be functional for up to 3 months.

B. Bonded Fiber Matrix: A product specifically manufactured to be hydraulically-applied that consists of organic defibrated fibers and cross-linked insoluble hydro-colloidal tackifiers to provide erosion control and facilitate vegetation establishment on steep slopes and designed to be functional for a minimum of 6 months.

PART 3 – EXECUTION

3.01 PLANNING AND SCHEDULING: Comply with the sequence of the erosion control plan. If no sequence is included in plans comply with the following sequence:

- A. Implement pre-construction plan: All structural BMPs shown on the pre-construction, including access controls and downstream perimeter treatment BMPs, must be in place before general clearing operations. Permissible clearing to place structural BMPs is minimum required for the installation. Coordinate placement of structural BMPs with local weather forecast so that limited clearing and placement may be completed within a forecast dry period.
- B. Implement steep slope protection (slopes steeper than 15%): During grading operations, place steep slope protection shown on the interim stabilization drawing as soon as practicable.
- C. Implement interim stabilization: The ground cover and other structural BMPs shown on the interim stabilization drawing must be placed within 14 days of substantial completion of grading operations. Substantial completion of grading will be evidenced by cessation of grading operations or by commencement of construction of curb, pavement, building foundations or utilities other than sanitary or storm sewer. Install site improvements: Construct the utilities, roads, buildings and other site improvements depicted on the construction plans.
- D. Implement final stabilization: Coordinate removal of construction phase BMPs necessary to place final stabilization with local weather forecast so that removal and placement may be completed within a forecast dry period. Downhill perimeter controls not be removed until final stabilization is placed and vegetative cover is established over the remainder of the site.
- E. Establishment and final construction: Once the remainder of the site is stabilized and vegetative cover is established, construct permanent water quality BMPs and remove the downhill perimeter sediment controls.

3.02 INSPECTION, MAINTENANCE AND SEDIMENT REMOVAL: Inspect all BMPs weekly or after each rain in excess of ½ inch. Note deficiencies on log and correct promptly. Remove accumulated silt at levels called for on the standard details or project drawings. Dispose of silt in a location where it will not be re-suspended by precipitation, typically by incorporating into an equal volume of soil and spreading near the crown of a mild slope.

3.03 PLAN ADJUSTMENTS: Whenever failure of a BMP occurs, evaluate the causes and, propose additions and adjustments to the erosion control plan to prevent future failures. Implement approved changes.

3.04 MULCHES: Mulches are non-vegetative covers applied on vegetated areas to resist erosion and retain soil moisture during germination and establishment of the vegetative cover.

A. Coverage rates shall be:

<u>Mulch type:</u>	<u>Best use:</u>	<u>Coverage:</u>
Erosion Control Blanket	Steep slope, all-year	100% area coverage, 6 inch overlap
Compost Cover, seeded	Steep slope, growing season	¾ inch to 1-½ inch

Compost Cover, non-seeded	Steep slope, winter	>2 inches
Crimped Straw, seeded	Mild and moderate slopes, growing season	>1.5 Tons/acre (70lbs/1000)
Crimped Straw with netting, non-seeded	Mild and moderate slopes, winter	>3.0 Tons/acre (140lbs/1000)
Hydraulic Mulch	Mild and moderate slopes, growing season	1,500 lb/acre
Bonded Fiber Matrix	Steep slope, growing season	3,000 lb/acre

- B. Installation: Erosion control blanket shall be staked to manufacturer’s recommendation. Compost and seeded crimped straw applied during the growing seasons do not need netting in the original installation. If washout or blowing occurs, reinstall with netting. Winter applied crimped straw requires netting.
- C. Coordinate with seed placement: Apply seed under straw mulch and blankets, but over or mixed with compost mulch.
- D. Spray applied mulches shall be applied in two passes with different angles of application to eliminate shadowing. Seed may be drilled prior to application of the spray applied mulch or may be mixed with the mixture for the first pass. When mixed with the spray application, seed shall be added after water and mulch.

3.05 GROUND PREPARATION FOR SEEDING NON-LAWN AREAS: Ground shall be loosened to a 4-inch depth prior to application of seed and mulch. Do not back drag with bucket; this increases runoff and erosion. Leave rough, or level with rake or chain drag. Unless otherwise required in the special conditions or project drawings, no fertilizer is required.

3.06 SEED PLACEMENT: See related work Part 1.

3.07 INSTALLATION DETAILS: Other BMPs shall be placed as shown on the standard details and project drawings.

3.08 DEWATERING: Discharges from dewatering trenches and other excavations shall be treated before release by passing through a sediment control BMP.

3.09 POLLUTION PREVENTION:

- A. Do not dispose of excess products or solid waste in sanitary or storm sewers nor bury on site. Inert waste (stone, brick, or broken concrete) may be buried at locations indicated on drawings or approved by Engineer.
- B. On-site disposal of fuels, oils, lubricants, solvents, or other hazardous materials is not permitted under any circumstances.
- C. Maintain equipment in good order. Provide for proper containment, collection and disposal of materials in instances requiring on-site maintenance of equipment.

- D. Perform fueling, repair, and servicing of equipment a minimum of 50 feet from streams.
- E. Provide toilet facilities to control sanitary waste.
- F. Store on site only the quantity of materials and products necessary to complete the work.
- G. Store products in original containers. If original containers are not resealable, transfer containers shall be labeled clearly. Original material safety data sheets (MSDS) shall be maintained on site.

3.10 SPILL RESPONSE:

- A. Stop source of spill if safe to do so.
- B. Contain runoff from spill if safe to do so.
- C. Follow all MSDS recommendations relating to containment, cleanup, and requirements of protective clothing.
- D. Contact HAZMAT at 911 if assistance is needed in stopping or containing spill.
- E. Report all significant spills to KDHE.
- F. Dispose of contaminated materials as directed by KDHE. Temporary permit for transporting hazardous materials shall be obtained from KDHE.

3.11 DUST CONTROL: Contractor shall take effective measures to prevent blowing dust:

- A. Appropriate moisture content shall be maintained in all exposed soils by application of water or, in areas to be subsequently paved, by application of asphalt emulsion.
- A. When dust produced by operations such as sand blasting, concrete grinding, and sawing of concrete or masonry would create a public nuisance, they shall be performed under a water spray, or an alternate construction method shall be used.

STANDARD DETAILS RELATED TO THE WORK OF THIS SECTION:

- UG 1400-A CONSTRUCTION VEHICLE ENTRY
- UG 1400-B STEEP SLOPE PROTECTION
- UG 1400-C DIVERSION DIKE
- UG 1400-D COMPOST BERM AND COMPOST SOCK
- UG 1400-E SILT FENCE INSTALLATION
- UG 1400-F SLOPE DRAIN
- UG 1400-G MINIMUM EROSION CONTROL FOR SINGLE FAMILY RESIDENTIAL LOT
- UG 1400-H ROPE BARRIER
- UG 1400-I SEDIMENT BASIN OUTLET – SHEET 1 OF 2
- UG 1400-J SEDIMENT BASIN OUTLET – SHEET 2 OF 2

END OF SECTION 1400