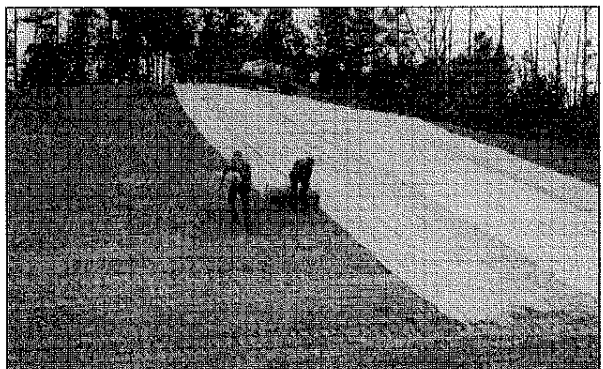


## Erosion Control Matting and Blankets

MB



### DEFINITION

A protective covering (blanket) or soil stabilization mat used to establish permanent vegetation on steep slopes, channels, or shorelines.

### PURPOSE

- To provide a microclimate which protects young vegetation and promotes its establishment.
- To reinforce the turf to resist forces of erosion during storm events.

### CONDITIONS

Matting and blankets can be applied on steep slopes where erosion hazard is high and planting is likely to be too slow in providing adequate protective cover. **Concentrated flow areas, all slopes steeper than 2.5:1 and with a height of ten feet or greater, and cuts and fills within stream buffers, shall be stabilized with the appropriate erosion control matting or blankets.** Maintenance of final vegetative cover must be considered when choosing blankets versus matting.

On streambanks or tidal shorelines where moving water is present, matting can prevent new plantings from being washed away.

### PLANNING CONSIDERATIONS

Care must be taken to choose the type of blanket or matting which is most appropriate for the specific needs of a project. Two general types of blankets and mats are discussed within this specification. Due to

the abundance of erosion control matting and blanket products available, all of the advantages, disadvantages, and specifications of all manufactured products will not be discussed in this manual. Manufacturer's instructions and recommendations, as well as a site visit by designer and plan reviewer is highly recommended to determine a product's appropriateness.

#### Temporary Erosion Control Blankets

This includes **temporary** "combination" blankets (rolled erosion control blankets-RECB) consisting of a plastic netting which covers and is intertwined with a natural organic or manmade mulch; or, a jute mesh which is typically homogeneous in design and can act alone as a soil stabilization blanket.

Temporary blankets as a minimum shall be used to stabilize concentrated flow areas with a velocity less than 5 ft/sec and slopes 2.5:1 or steeper with a height of 10 feet or greater. Because temporary blankets will deteriorate in a short period of time, they provide no enduring reduction in erosion protection.

Benefits of using erosion control blankets include the following:

1. Protection of the seed and soil from raindrop impact and subsequent displacement.
2. Thermal consistency and moisture retention for seedbed area.
3. Stronger and faster germination of grasses and legumes.
4. Planting off excess stormwater runoff.
5. Prevention of sloughing of topsoil added to steeper slopes.

#### Permanent Erosion Control Matting

Consists of a **permanent** non-degradable, three-dimensional plastic structure which can be filled with soil prior to planting. These mats are also known as **permanent soil reinforcing mats** (turf reinforcement matting). Roots penetrate and become entangled in the matrix, forming a continuous anchorage for surface growth and promoting enhanced energy dissipation. Matting shall be used when a vegetative lining is desired in stormwater conveyance channels where the velocity is between five and ten feet per second.

Benefits of using erosion control matting include the following:

1. All benefits gained from using erosion control blankets.

2. Causes soil to drop out of stormwater and fill matrix with fine soils which become the growth medium for the development of roots.
3. Acts with the vegetative root system to form an erosion resistant cover which resists hydraulic lift and shear forces when embedded in the soil within stormwater channels.

#### Materials

All blanket and matting materials shall be on the Georgia Department of Transportation Qualified Products List (QPL # 62 for blankets, QPL # 49 for matting).

All blankets shall be nontoxic to vegetation and to the germination of seed and shall not be injurious to the unprotected skin of humans. At a minimum, the plastic netting shall be intertwined with the mulching material/fiber to maximize strength and provide for ease of handling.

#### Temporary Blankets

Machine produced **temporary** combination blankets shall have a consistent thickness with the organic material evenly distributed over the entire blanket area. All combination blankets shall have a minimum width of 48 inches. Machine produced combination blankets include the following:

a. **Straw blankets** are combination blankets that consist of weed-free straw from agricultural crops formed into a blanket. Blankets with a top side of photodegradable plastic mesh with a maximum mesh size of 5/16 x 5/16 inch and sewn to the straw with biodegradable thread is appropriate for slopes. The blanket shall have a minimum thickness of 3/8 inch and minimum dry weight of 0.5 pounds per square yard.

b. **Excelsior blankets** are combination blankets that consist of curled wood excelsior (80% of fibers are six inches or longer) formed into a blanket. The blanket shall have clear markings indicating the top side of the blanket and be smolder resistant. Blankets shall have photodegradable plastic mesh having a maximum mesh size of 1 1/2 x 3 inches. The blanket shall have a minimum thickness of 1/4 of an inch and a minimum dry weight of 0.8 pounds per square yard. Slopes require excelsior matting with the top side of the blanket covered in the plastic mesh, and for waterways, both sides of the blanket require plastic mesh.

c. **Coconut fiber blankets** are combination blankets that consist of 100% coconut fiber formed into a blanket. The minimum thickness of the blanket shall

be 1/4 of an inch with a minimum dry weight of 0.5 pounds per square yard. Blankets shall have photodegradable plastic mesh, with a maximum mesh size of 5/8 x 5/8 inch and sewn to the fiber with a breakdown resistant synthetic yarn. Plastic mesh is required on both sides of the blanket if used in waterways. A maximum of two inches is allowable for the stitch pattern and row spacing.

d. **Wood fiber blankets** are combination blankets that consist of reprocessed wood fibers that do not possess or contain any growth or germination inhibiting factors. The blanket shall have a photodegradable plastic mesh, with a maximum mesh size of 5/8 x 3/4 inch, securely bonded to the top of the mat. The blanket shall have a minimum dry weight of 0.35 pounds per square yard. A maximum of two inches is allowable for the stitch pattern and row spacing. This practice shall be applied only to slopes.

e. **Jute Mesh** can be applied to slopes. Jute mesh with a 48 inch width shall show between 78 and 80 warpings and a one yard length shall show between 39 to 43 weftings. The woven mesh shall be at least 45 inches wide. Yarn shall have a unit weight of at least 0.9 pounds per square yard, but not more than 1.5 pounds per square yard.

#### Permanent Matting

Permanent matting shall consist of a lofty web of mechanically or melt bonded polymer nettings, monofilaments or fibers which are entangled to form a strong and dimensionally stable matrix. Polymer welding, thermal or polymer fusion, or the placement of fibers between two high strength, biaxially oriented nets bound securely together by parallel lock stitching with polyolefin, nylon or polyester threads are all appropriate bonding methods. Mats shall maintain their shape before, during, and after installation, under dry or water saturated conditions. Mats must be stabilized against ultraviolet degradation and shall be inert to chemicals normally encountered in a natural soil environment.

The mat shall conform to the following physical properties:

Property	Minimum Value
Thickness	0.5 inch
Weight	0.6 PSY
Roll Width	38 inches
Tensile Strength	
Length (50% elongation)	15 lbs./in.
Length (ultimate)	20 lbs./in.

Width (50% elongation) 5 lbs./in.  
Width (ultimate) 10 lbs./in.

Ultraviolet Stability 80%  
(ASTM D 1682 - 6" strip)  
(1000hrs. in an Atlas ARC Weatherometer, ASTM G 23, Type D in accordance with ASTM D 822)

#### Site Preparation

After the site has been shaped and graded to the approved design, prepare a friable seedbed relatively free from clods and rocks more than one inch in diameter, and any foreign material that will prevent contact of the soil stabilization mat with the soil surface. Surface must be smooth to ensure proper contact of blankets or matting to the soil surface. If necessary, redirect any runoff from the ditch or slope during installation.

#### Staples

The following are considered appropriate stapling and staking materials.

#### Temporary Blankets

This includes straw, excelsior, coconut fiber, and wood fiber blankets. Staples shall be used to anchor temporary blankets. U-shaped wire (11 gauge or greater) staples with legs at least 6 inches in length and a crown of one inch or appropriate biodegradable staples can be used. Staples shall be of sufficient thickness for soil penetration without undue distortion.

#### Permanent Matting

Sound wood stakes, 1 x 3 inches stock sawn in a triangular shape, shall be used. Depending on the compaction of the soil, select stakes with a length from 12 to 18 inches. U-shaped staples shall be 11 gauge steel or greater, with legs at a minimum of 8 inches length with a 2 inch crown.

#### Planting

Lime, fertilizer, and seed shall be applied in accordance with seeding or other type of planting plan completed prior to installation of temporary combination blankets or jute mesh. For permanent mats, the area must be brought to final grade, plowed, limed, and fertilized. After the permanent mat has been installed and backfilled, the entire area shall be grassed. Refer to specification Ds3 - **Disturbed Area Stabilization (With Permanent Vegetation).**

GaSWCC (Amended - 2000)

6-65

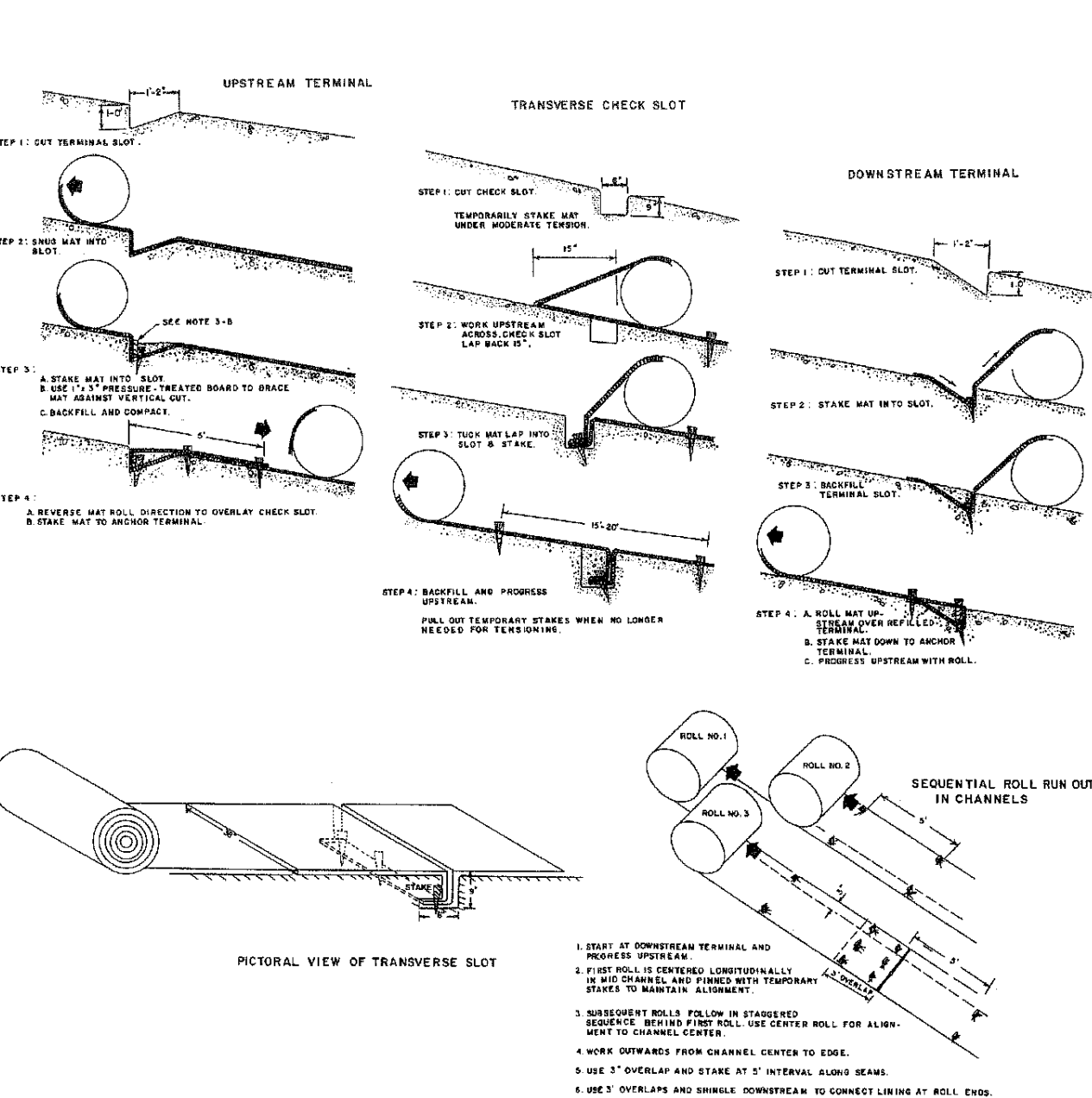


Figure 6-7.1 - Typical installation guidelines for matting and blankets

GaSWCC (Amended - 2000)

6-66

## MATting AND BLANKET

NTS

### EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST STAND ALONE CONSTRUCTION PROJECTS

Project Name: PANDA EXPRESS		Address: 3276 LAWRENCEVILLE-SUNANEE RD.	
City/County: SUNANEE, GA		Date on Plans: 2/1/2017	
Plan Included		TO BE SHOWN ON ES&PC PLAN	
Page #	Y/N		
C06.7	Y		
C06.0	Y		
	N/A		
C01.0	Y		
C06.0	Y		
C06.0	Y		
C06.0	Y		
C06.0	Y		
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C01.0	Y		
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C01.0	Y		
C01.0	Y		
C01.0	Y		
C01.0	Y		
C01.0	Y		
C06.1	Y		
	N/A		

1 The applicable Erosion, Sedimentation and Pollution Control Plan Checklist established by the Commission as of January 1 of the year in which the land-disturbing activity was permitted.  
(The completed Checklist must be submitted with the ES&PC Plan or the Plan will not be reviewed)

2 Level II certification number issued by the Commission, signature and seal of the certified design professional. (Signature, seal and Level II number must be on each sheet pertaining to ES&PC plan or the Plan will not be reviewed)

3 Limits of disturbance shall be no greater than 50 acres at any one time without prior written authorization from the EPD District Office. If EPD approves the request to disturb 50 acres or more at any one time, the plan must include at least 4 of the BMPs listed in Appendix 1 of this checklist.  
(A copy of the written approval by EPD must be attached to the plan for the plan to be reviewed.)

4 The name and phone number of the 24-hour local contact responsible for erosion, sedimentation and pollution controls.

5 Provide the name, address and phone number of primary permittee.

6 Note total and disturbed acreage of the project or phase under construction.

7 Provide the GPS location of the construction exit for the site. Give the Latitude and Longitude in decimal degrees.

8 Initial date of the Plan and the dates of any revisions made to the Plan including the entity who requested the revisions.

9 Description of the nature of construction activity.

10 Provide vicinity map showing site's relation to surrounding areas. Include designation of specific phase, if necessary.

11 Identify the project receiving waters and describe all sensitive adjacent areas including streams, lakes, residential areas, wetlands, marshlands, etc. which may be affected.

12 Design professional's certification statement and signature that the site was visited prior to development of the ES&PC Plan as stated on page 15 of the permit.

13 Design professional's certification statement and signature that the permittee's ES&PC Plan provides for an appropriate and comprehensive system of BMPs and sampling to meet permit requirements as stated on page 15 of the permit.

14 Clearly note the statement that "The design professional who prepared the ES&PC Plan is to inspect the installation of the initial sediment storage requirements and perimeter control BMPs within 7 days after installation."

15 Clearly note the statement that "Non-exempt activities shall not be conducted within the 25 or 50-foot undisturbed stream buffers as measured from the point of wrested vegetation or within 25-feet of the coastal marshland buffer as measured from the Jurisdictional Determination Line without first acquiring the necessary variances and permits."

16 Provide a description of any buffer encroachments and indicate whether a buffer variance is required.

C06.1	Y	17 Clearly note the statement that "Amendments/revisions to the ES&PC Plan which have a significant effect on BMPs with a hydraulic component must be certified by the design professional."
C06.1	Y	18 Clearly note the statement that "Waste materials shall not be discharged to waters of the State, except as authorized by a section 404 permit."
C06.1	Y	19 Clearly note statement that "The escape of sediment from the site shall be prevented by the installation of erosion and sediment control measures and practices prior to land disturbing activities."
C06.1	Y	20 Clearly note statement that "Erosion control measures will be maintained at all times. If full implementation of the approved plan does not provide for effective erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source."
C06.1	Y	21 Clearly note the statement "Any disturbed area left exposed for a period greater than 14 days shall be stabilized with mulch or temporary seeding."
	N/A	22 Any construction activity which discharges storm water into an Impaired Stream Segment, or within 1 linear mile upstream of and within the same watershed as, any portion of an Impaired Stream Segment must comply with Part III, C of the Permit. Include the completed Appendix 1 listing all the BMPs that will be used for those areas of the site which discharge to the Impaired Stream Segment."
	N/A	23 If a TMDL Implementation Plan for sediment has been finalized for the Impaired Stream Segment (identified in item 22 above) at least six months prior to submittal of NOI, the ES&PC Plan must address any site-specific conditions or requirements included in the TMDL Implementation Plan."
C06.0	Y	24 BMPs for concrete washdown of tools, concrete mixer chutes, hoppers and the rear of the vehicles. Washout of the drum at the construction site is prohibited."
C06.0	Y	25 Provide BMPs for the remediation of all petroleum spills and leaks.
C06.1	Y	26 Description of the measures that will be installed during the construction process to control pollutants in storm water that will occur after construction operations have been completed."
C06.1	Y	27 Description of the practices that will be used to reduce the pollutants in storm water discharges."
C06.0	Y	28 Description and chart or timeline of the intended sequence of major activities which disturb soils for the major portions of the site (i.e., initial perimeter and sediment storage BMPs, clearing and grubbing activities, excavation activities, utility activities, temporary and final stabilization).
C06.0	Y	29 Provide complete requirements of inspections and record keeping by the primary permittee."
C06.0	Y	30 Provide complete requirements of sampling frequency and reporting of sampling results."
C06.0	Y	31 Provide complete details for retention of records as per Part IV, F of the permit."
C06.0	Y	32 Description of analytical methods to be used to collect and analyze the samples from each location."
C06.7	Y	33 Appendix B rationale for NTU values at all outfall sampling points where applicable."
		34 Delineate all sampling locations, perennial and intermittent streams and other water bodies into which storm water is discharged."
C06.1	Y	35 A description of appropriate controls and measures that will be implemented at the construction site including: (1) initial sediment storage requirements and perimeter control BMPs, (2) intermediate grading and drainage BMPs, and (3) final BMPs. For construction sites where there will be no mass grading and the initial perimeter control BMPs, intermediate grading and drainage BMPs, and final BMPs are the same, the plan may combine all of the BMPs into a single phase."
C06.1	Y	36 Graphic scale and North arrow."
C06.2	Y	37 Existing and proposed contour lines with contour lines drawn at an interval in accordance with the following:

Map Scale	Ground Slope	Contour Intervals, ft.
1 inch = 100ft or larger scale	Flat 0 - 2% Rolling 2 - 8% Steep 8%+	0.5 or 1 1 or 2 2.5 or 10

38 Use of alternative BMPs whose performance has been documented to be equivalent to or superior to conventional BMPs as certified by a Design Professional (unless disapproved by EPD or the Georgia Soil and Water Conservation Commission). Please refer to the Alternative BMP Documentation found at [www.gaswcc.org](http://www.gaswcc.org).

39 Use of alternative BMP for application to the Equivalent BMP List. Please refer to Appendix A-2 of the Manual for Erosion & Sediment Control in Georgia 2016 Edition."

40 Delineation of the applicable 25-foot or 50-foot undisturbed buffers adjacent to state waters and any additional buffers required by the Local Issuing Authority. Clearly note and delineate all areas of impact.

41 Delineation of on-site wetlands and all state waters located on and within 200 feet of the project site.

42 Delineation and acreage of contributing drainage basins on the project site.

43 Provide hydrology study and maps of drainage basins for both the pre- and post-developed conditions."

44 An estimate of the runoff coefficient or peak discharge flow of the site prior to and after construction activities are completed.

45 Storm-drain pipe and weir velocities with appropriate outlet protection to accommodate discharges without erosion. Identify/Delineate all storm water discharge points.

46 Soil series for the project site and their delineation.

47 The limits of disturbance for each phase of construction.

48 Provide a minimum of 67 cubic yards of sediment storage per acre drained using a temporary sediment basin, retrofitted detention pond, and/or excavated inlet sediment traps for each common drainage location. Sediment storage volume must be in place prior to and during all land disturbance activities until final stabilization of the site has been achieved. A written justification explaining the decision to use equivalent controls when a sediment basin is not attainable must be included in the plan for each common drainage location in which a sediment basin is not provided. A written justification as to why 67 cubic yards of storage is not attainable must also be given. Worksheets from the Manual included for structural BMPs and all calculations used by the storage design professional to obtain the required sediment when using equivalent controls. When discharging from sediment basins and impoundments, permittees are required to utilize outlet structures that withdraw water from the surface, unless infeasible. If outlet structures that withdraw water from the surface are not feasible, a written justification explaining this decision must be included in the plan.

49 Location of Best Management Practices that are consistent with and no less stringent than the Manual for Erosion and Sediment Control in Georgia. Use uniform coding symbols from the Manual, Chapter 6, with legend.

50 Provide detailed drawings for all structural practices. Specifications must, at a minimum, meet the guidelines set forth in the Manual for Erosion and Sediment Control in Georgia.

51 Provide vegetative plan, noting all temporary and permanent vegetative practices. Include species, planting dates and seeding, fertilizer, lime and mulching rates. Vegetative plan shall be site specific for appropriate time of the year that seeding will take place and for the appropriate geographic region of Georgia.

"If using this checklist for a project that is less than 1 acre and not part of a common development but within 200 ft of a perennial stream the " checklist items would be N/A. Effective January 1, 2017

State of Georgia  
Department of Natural Resources  
Environmental Protection Division

Page 95 of 95  
Permit No. GAR100001

### APPENDIX B

#### Nephelometric Turbidity Unit (NTU) TABLES

		Trout Streams Surface Water Drainage Area, square miles							
		0-4.99	5-9.99	10-24.99	25-49.99	50-99.99	100-249.99	250-499.99	500+
Site Size, acres	1.00-10	25	50	75	150	300	500	500	500
	10.01-25	25	25	50	75	150	200	500	500
	25.01-50	25	25	25	50	75	100	300	500
	50.01-100	20	25	25	35	59	75	150	300
	100.01+	20	20	25	25	25	50	60	100
		Waters Supporting Warm Water Fisheries Surface Water Drainage Area, square miles							
		0-4.99	5-9.99	10-24.99	25-49.99	50-99.99	100-249.99	250-499.99	500+
Site Size, acres	1.00-10	75	150	200	400	750	750	750	750
	10.01-25	50	100	100	200	300	500	750	750
	25.01-50	50	50	100	100	200	300	750	750
	50.01-100	50	50	50	100	100	150	300	600
	100.01+	50	50	50	50	50	100	200	100

To use these tables, select the site (acres) of the construction site. Then, select the surface water drainage area (square miles). The NTU matrix value arrived at from the above tables is the one to use in Part III.D.4.

Example 1: For a site size of 12.5 acres and a "trout stream" drainage area of 37.5 square miles, the NTU value to use in Part III.D.4. is 75 NTU.

Example 2: For a site size of 51.7 acres and "waters supporting warm water fisheries" drainage area of 72 square miles, the NTU value to use in Part III.D.4. is 100 NTU.

GaSWCC GEORGIA SOIL AND WATER  
CONSERVATION COMMISSION

BRET FORD  
Level II Certified Design Professional

CERTIFICATION NUMBER 9830  
ISSUED: 02/01/2016 EXPIRES: 02/01/2016



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CLIENT:  
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1683 WALNUT GROVE AVE  
ROSEMEAD, CA 91770  
PHONE: (626) 372-8119

#### REVISION HISTORY

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PROJ # 162051  
DWG NAME 162051 C06.DWG  
ISSUE DATE 02/22/2017  
PROJ TGR: BF

#### ESPC DETAILS IV

C06.7

SHEET NUMBER

## EROSION CONTROL CHECKLIST

NTS

CL

ISSUE FOR PERMITTING/BID