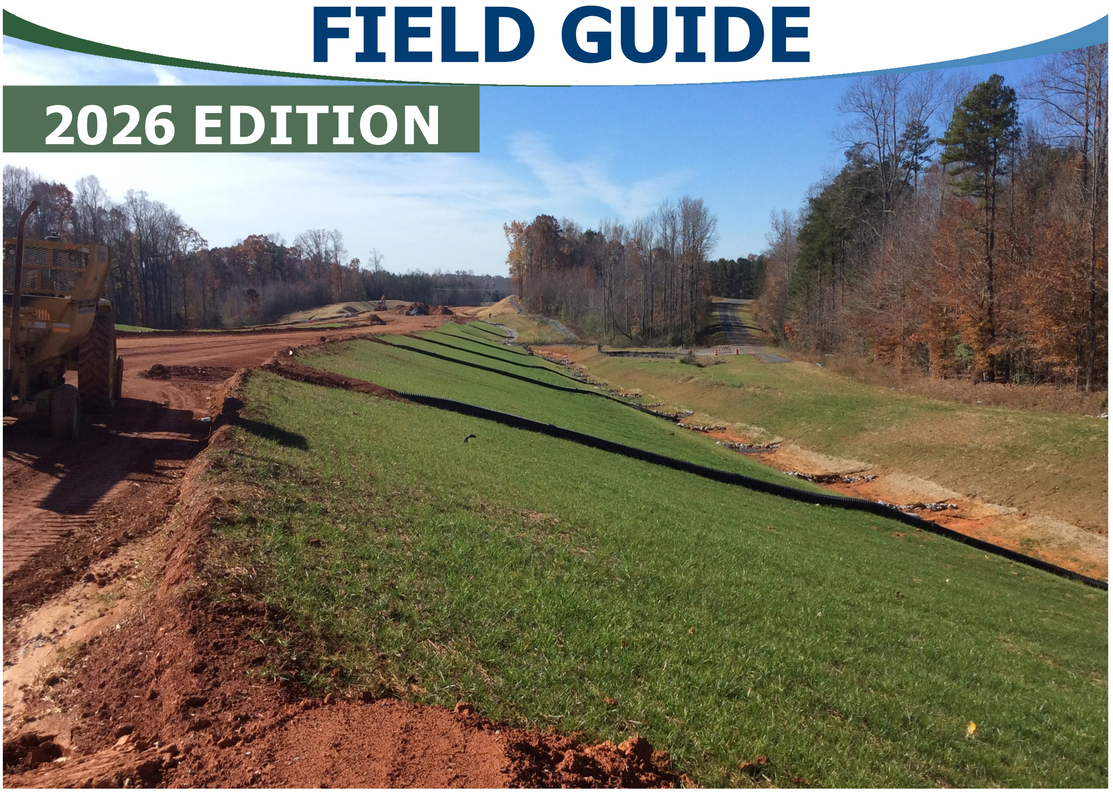
North Carolina
Department of Transportation

EROSION & SEDIMENT CONTROL

FIELD GUIDE

2026 EDITION















VEGETATION ESTABLISHMENT

WATER QUALITY PROTECTION

SOIL STABILIZATION

CONSTRUCTION BEST PRACTICES

ROADSIDE ENVIRONMENTAL UNIT
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

This Field Guide belongs to

_____

(Name)

The Field Guide may also be accessed at the following weblink:

https://connect.ncdot.gov/resources/roadside/FieldOperationsDocuments/EC%20Field%20Guide.pdf

Erosion Control Compliance Procedures

Use the following guidelines when installing and maintaining BMPs identified in the E&SC plans:

- Do not place E&SC devices in live jurisdictional flow or jurisdictional waters without prior approval from the appropriate regulatory agencies.
- Coordinate any deviations from the approved E&SC plans with the Department before implementing the change.
- Ensure temporary erosion control measures are coordinated with permanent erosion control measures and with all other project activities to maintain economical, effective, and continuous erosion control, to prevent siltation of water bodies and adjacent properties.
- Do not remove E&SC devices until disturbed areas are permanently stabilized and removal has been approved by the Department.
- Report all sediment discharges within 24 hours of discovery.

Sedimentation and Pollution Control Act of 1973

The **N.C. Sedimentation Pollution Control Act of 1973 (SPCA)** established minimum standards for all land-disturbing activities in North Carolina. In summary, the core minimum standards include:

- Following an approved erosion and sedimentation control (E&SC) plan
- Prompt stabilization of disturbed areas
- Maintaining angle of graded slopes that can sustain vegetation
- Establishing and maintaining vegetative buffers along watercourses
- Have an approved plan for land disturbance exceeding 1 acre

NPDES NCG01 Permitting

Regulated construction activities in N.C. must comply with the requirements of the **NCG010000 Construction General Permit to Discharge Stormwater** (NCG01) under the National Pollution Discharge Elimination System (NPDES) Permit. NCG01 requires:

- An approved plan that meets 7 and 14 day ground stabilization requirement
- Proper management of construction materials
- Management of concrete washout
- As-built E&SC plans
- Record keeping, monitoring, and inspections at least once per 7 calendar days and within 24 hours after any storm event equal to or greater than 1 inch of rainfall during a 24-hour period
- Permanent vegetation establishment with an 80% density

Stabilization Timeframes

Site Area Description	Stabilization	Timeframe Exceptions
Perimeter dikes, swales, ditches and perimeter slopes	7 days	None
High Quality Water (HQW) Zones	7 days	None
Slopes steeper than 3:1	7 days	If slopes are 10 feet or less in length and are not steeper than 2:1, 14 days are allowed.
Slopes 3:1 or flatter	14 days	▪ 7 days for slopes greater than 50 feet in length and with slopes steeper than 4:1. ▪ 7 days for perimeter dikes, swales, ditches, perimeter slopes, and HQW Zones. ▪ 10 days for the Falls Lake Watershed.
All other areas with slopes flatter than 4:1	14 days	▪ 7 days perimeter dikes, swales, ditches, perimeter slopes, and HQW Zones.

Reporting Thresholds

Notify the Roadside Environmental Unit within 24 hours of discovery of any of the occurrences below:

- Visible deposition in a stream or wetland or beyond the project limits
- Oil spills if they are 25 gallons or more, less than 25 gallons but cannot be cleaned up within 24 hours, that cause a sheen on surface waters, or are within 100 feet of surface waters
- Release of hazardous substances
- Anticipated bypasses and unanticipated bypasses
- Noncompliance with the conditions of the NCG01 permit that may endanger health or the environment

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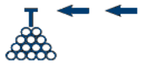
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Seeding and Mulching

Immediately seed and mulch any area brought to final grade in accordance with Section 1660 of the Standard Specifications using the following guidelines:

- Scarify or loosen the soil to a depth of at least 5 inches, except within 2 feet of the edge of pavement, where the soil should be loosened to 2–3 inches. Break clods and remove rocks and debris to improve seed to soil contact and allow for effective mowing.
- Apply limestone, fertilizer, and seed within 24 hours of completing seedbed preparation.
- Distribute limestone and fertilizer uniformly over the prepared seedbed at the rates specified in the contract special provisions, or determine rates using soil samples when possible. Harrow, rake, or otherwise thoroughly mix amendments into the seedbed. Limestone may be applied during seedbed preparation if it is immediately incorporated into the soil.
- Apply seed uniformly at the application rate specified in the contract special provisions. Immediately harrow, drag, rake, or otherwise cover the seed with a layer of soil. When using a hydraulic seeder, do not allow seed to remain in the tank water for more than 30 minutes. Compact the seedbed immediately after covering the seed using a cultipacker or other approved method.
- Install matting in areas as directed. Apply mulch at a rate of 2 tons per acre using grain straw or other approved material. Use emulsified asphalt as mulch tack at a rate of 0.10 gallons per square yard (approximately 484 gallons per acre), or apply hydromulch products (cellulose, wood fiber, or wood-fiber blends) hydraulically at a rate of 1000 lbs (dry weight) per acre.

Rolled Erosion Control Product Installation (RECP)

Install RECPs (matting) on areas where vegetation may be difficult to establish in accordance with Section 1631 of the Standard Specifications using the following guidelines:

- Areas of Use:
  - Coir Fiber Matting for stream banks and flood plains.
  - Temporary Erosion Control Matting (excelsior or straw) on most slopes and ditches.
  - Permanent Soil Reinforcement Matting (PSRM) or Turf Reinforcement Matting (TRM) on ditches with steep grades (4% to 5%).
- Provide a Type 3 material certification in accordance with Article 106-3 of the Standard Specifications, documenting that the matting meets all material requirements.
- Provide a smooth soil surface free of stones, clods or debris before installation.
- Placement Requirements:
  - Install matting immediately after seeding for all products except PSRMs.
  - For PSRMs, apply all soil amendments and one-half of the seed before placing the matting.
  - For non-biodegradable fibers, apply ¾–1 inch of loose, friable topsoil over the PSRM to fill voids, then apply the remaining seed and work it into the surface.
  - For all other PSRMs, apply ¾–1 inch of loose, friable topsoil over the matting and gently work it to create a suitable seedbed. Apply the remaining seed and lightly work it into the topsoil surface.
- Anchor the matting properly:
  - Bury the up-channel or top-of-slope end of each matting section in a trench at least 6 inches deep and 6 inches wide. Staple per Standard Drawing 1631.01, backfill, and tamp firmly.
  - Construct staple checks 4 inches on center every 30 feet longitudinally.
  - Overlap adjacent matting widths by at least 4 inches.
- Staple Pattern:
  - Place staples along outer ends and junctions approximately 10 inches apart.
  - Place staples along outer edges and down the center of each strip 3 feet apart.
  - Staple all lapped edges 10 inches apart.
- Orientation:
  - When using excelsior or straw matting, place the product with the netting on the top side.

Flocculant Use

Flocculants are used to manage turbidity. Use the following guidelines when utilizing flocculants on a project:

- Locations for using flocculants are noted on the E&SC plans.
- Select flocculants based on soils on-site by performing a jar test with project soils and at turbidity problem areas.
- Flocculant used should be listed on the NC-DEQ DWR website as an approved product for use in N.C. and should be in powder form, anionic or neutrally charged.
- Apply flocculant at up-gradient E&SC devices and never at the last device before storm-water leaves the project.

Application rates

- Wattle Check:
  - Apply flocculant over the lower center portion of the wattle check where the water will flow at a rate of 2 ounces per wattle check.
  - Apply 1 ounce of flocculant on each side of the wattle check and re-apply after rainfall events that are equal to or exceed 0.5 inches.
- Temporary Rock Silt Check Type-A with Excelsior Matting and Flocculant:
  - Initially, uniformly spread 4 ounces of flocculant to the face of the excelsior and also after each rainfall event that equals or exceeds 0.5 inches.
- Stilling Basin:
  - Use liquid or solid flocculant to reduce turbidity.
  - Introduce liquid flocculant to the turbid water on the suction side of the pump while dewatering into the stilling basin.
  - For a solid flocculant, discharge turbid water over the solid block to disperse into the stilling basin.



Temporary Silt Fence

1605.01

Is a permeable geotextile that breaks up sheet flow, decreases runoff velocity and allows suspended sediment particles to settle to prevent off-site sedimentation.

Use at the toe of a fill section where sediment runoff can be contained and stored within project limits.

Construct metal posts to be 5 ft. in height (3 ft. above ground) with a maximum spacing of 8 ft. apart with wire or 6 ft. apart without wire. Bury geotextile a minimum of 8 in. deep and 4 in. along the base of the trench. An 18 in. overlap is required when splicing.

Inspect silt fence on a regular basis and after each significant rainfall. At a minimum, remove silt accumulations when silt depth reaches 50% of the height of the geotextile. Do not undermine the fence during cleanout. Be sure the bottom of the geotextile remains keyed in properly. Repair and replace damaged silt fence as needed.



Special Sediment Control Fence

1606.01

Is a hardware cloth device with sediment control stone at the base of the hardware cloth. It reduces water flow velocity allowing sediment to settle.

Use at the toe of fill sections or other areas where silt fence will not function adequately to control sediment. Use in environmentally sensitive areas and in areas of inadequate right-of-way in place of silt ditch. Use in silt fence as a silt break where silt fence could become inundated with flow and concentrated flow exceeds the limits of the silt fence.

Construct using a 4 ft. wire mesh (24 ga., 1/4 in.) folded 2 ft. vertical and 2 ft. along the ground surface with sediment control stone on top to a minimum depth of 1 ft. Posts to be 5 ft. in height (buried 2 ft. deep min.) and spaced 3 ft. apart. Include a 1 ft. overlap when connecting to silt fence.

Inspect device on a regular basis and after each significant rainfall. At a minimum, remove silt accumulations when silt depth reaches 50% of the height of the stone. Replace or clean the sediment control stone as needed.



Temporary Silt Ditch
1630.03

Is a small ditch or channel that intercepts water flow from slopes and directs the runoff into silt basins, rock sediment dams and/or other sediment control measures.

Use at the toe of a fill slope where vertical fill height exceeds 3 ft. or adjacent to streams to divert water flow into a controlled outlet point.

Construct the ditch to be 1 ft. minimum depth with side slopes no greater than 1.5:1 and stabilize as directed.

Inspect on a regular basis and after each significant rainfall. Remove sediment when it accumulates to 50% of the design depth. Repair immediately if damaged or covered by fill.



Silt Fence Wattle Break

1636.02

Is a sediment control measure within long segments of silt fence to intercept runoff, to serve as a drainage break, and to provide additional sediment storage in low areas.

Use at the toe of a fill slope in silt fence, low areas, areas of concentrated flow, wetland areas, and near flowing water which will allow tides and surges to cross silt fence.

Install a minimum 12 in. diameter coir fiber or excelsior wattle, 8 ft. in length. Include a 1 ft. overlap when connecting to silt fence. Place the wattle in a 1-2 in. deep trench and install staples approximately every 1 ft. on both sides and at each end to secure wattle to the soil. Drive stakes into the ground a min. of 10 in. with no more than 2 in. pro-jecting from the top of the wattle.

Inspect on a regular basis and after each significant rainfall. Remove sediment, straw and other debris from wattle.



Temporary Diversion

1630.05

Is an excavated channel with a berm on its lower side that directs runoff into a basin, through a sediment dam or through rock silt checks.

Use to divert runoff inside footprint of project to perimeter sediment basins. Install across unprotected slopes and long grades as a break to reduce slope length and reduce the size of drainage areas.

Construct the diversion to be 1 ft. minimum depth with side slopes no greater than 1.5:1. The base of the berm should be a minimum of 2 ft. Place and compact excavated material on the downslope side of the ditch. Stabilize as directed.

Inspect on a regular basis and after each significant rainfall. Remove sediment from channel when diversion is 50% of the design depth. Repair immediatley if berm is damaged or breached.



Temporary Slope Drain with Earthen Berm

1622.01

Is a berm with a flexible pipe that carries concentrated runoff from the top to the bottom of a fill slope without causing erosion. The earthen berm channels runoff into the slope drain inlet while Class B stone at the outlet dissipates the energy.

Use above cut or fill slopes where runoff flowing over the slope would cause erosion if left unchecked. Install in Div.'s 1,2,3 and 6 on fill slopes 5 ft. or higher and steeper than 4:1 and in all other Div.'s on fill slopes 8 ft. or higher and steeper than 4:1.

Construct with berm of adequate height to prevent over-topping and direct flow to slope drain inlet. Install a minimum 12 in. diameter flexible pipe, installing stakes alongside on a 10 ft. maximum spacing. Use standard T-section for multi-direction flow and elbows at inlets for single-direction flow. Use standard cover over pipe inlet. Extend slope drains after each 2-ft. increase in height.

Inspect on a regular basis and after each significant rainfall. Remove sediment from channel when diversion is 50% of the design depth. Check pipe for leaking joints and improper connections.



Riser Basin

1630.01

Is an earthen embankment and excavated area with coir fiber baffles used to settle and capture sediment. A non-perforated riser pipe is used in conjunction with a skimmer for controlled dewatering. An overflow spillway controls runoff that might exceed riser capacity.

Use in large drainage areas where other erosion and sediment control devices will not be adequate due to volume of runoff.

Construct to a sediment storage volume of at least 1800 cubic ft. per acre of disturbed area. The drainage area should not exceed 100 acres. Install a minimum of 3 coir fiber baffles in the riser basin. Stabilize embankment, interior slopes, and surrounding area as directed.

Inspect on a regular basis and after each significant rainfall. Check riser for seepage around pipe and inspect basin for erosion. Remove debris from riser and trash rack. Remove sediment when basin volume reaches 50% of total storage volume.



Clean Water Diversion

Is a conveyance system that is used to intercept up-gradient runoff on a project site, transport it around the construction site and discharge it in a manner minimizing environmental impacts.

Use for isolating construction activities near waterbodies such as streambank stabilization, culvert and bridge installations. Install outside of cut and fill areas and in areas parallel to the right-of-way.

Construct to ensure that no construction stormwater runoff enters into the clean water diversion. Install during clearing and grubbing and final grade phases limiting the grade to prevent erosive velocities. Consider temporary piping in conjunction with clean water diversions to convey offsite drainage through work areas.

Inspect on a regular basis and after each significant rainfall. Make repairs immediately. Dispose of silt accumulations. Confirm geotextile is keyed in properly and that the fabric has not been undermined.



Silt Basin Type B
1630.02

Is a basin constructed to settle out and collect sediment flowing through a drainage way.

Use in a drainage ditch with temporary rock silt checks to slow water velocity, adjacent to a drainage inlet with stone inlet protection, and at drainage outlets in conjunction with coir fiber baffles and stone devices.

Construct basin width variable to the size of the drainageway so that the basin's length is at least twice its width, and its depth is a minimum of 2 ft. Storage capacity is 3600 cubic ft. per disturbed acre when installed with stone devices at drainage outlets. Use baffles as required. Stabilize areas adjacent to the basin as directed.

Inspect on a regular basis and after each significant rainfall. Remove sediment from basin when approximately 50% full. Repair or replace coir fiber baffles as needed.



Temporary Rock Silt Check Type A

1633.01

Is a small dam with a weir outlet that uses a naturally-formed storage area to reduce water velocity and trap sediment.

Use at the outlet of temporary diversions, temporary silt ditches, channels and temporary slope drains where runoff is exiting the site. Can be used in Environmentally Sensitive Areas where excavation is not permitted.

Construct of Class B stone lined with sediment control stone. Install a weir at the center of the dam that is approximately $^{2}/_{3}$ of the channel width. The sediment storage capacity is limited by the height of the weir section and the cross section of the ditch.

Inspect on a regular basis and after each significant rainfall. Remove sediment from behind the device when approximately 50% of the height of the weir. Replace or clean sediment stone when water no longer drains. Reshape weir when damaged.



Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant

1633.03

Is a small dam with a weir outlet, excelsior matting and flocculant to reduce water velocity to trap sediment and introduce flocculant into runoff.

Use in temporary and permanent ditches to reduce runoff velocity and incorporate flocculant. Install in up-gradient areas to incorporate flocculant into runoff where sediment storage cannot be achieved.

Construct of Class B stone lined with sediment control stone. Install a weir at the center of the dam that is approximately 2/3 of the channel width. Place excelsior and flocculant on up-gradient side of the device. For flocculant use see page 4.

Inspect on a regular basis and after each significant rainfall. Remove sediment from behind the device when approximately 50% of the height of the weir. Replace or clean sediment stone when water no longer drains. Reshape weir when damaged.



Temporary Rock Silt Check Type B

1633.02

Is a small dam with a centered weir that reduces erosion in the ditch by restricting runoff velocity.

Use during construction in a channel, roadside ditch, temporary silt ditch or temporary diversion where the grade is 2.5% or greater. Often used in conjunction with a silt basin Type B.

Construct of Class B stone and spaced such that the base of the upstream dam is at the same elevation as the top of the downstream dam.

Inspect on a regular basis and after each significant rainfall. Remove silt when it accumulates. Remove debris when needed. Rebuild and reshape device and weir when damaged. Low point of weir should be in the center of the device to limit erosion around the ends and direct flow to center of conveyance.



Temporary Rock Sediment Dam Type A

1634.01

Is a large dam structure that traps sediment at drainage turnouts just prior to the point where runoff leaves the project site.

Use along the perimeter of a construction site, at drainage turnouts serving large areas or at natural drainage turnouts that allow a ponding or retention area to form where the dam is constructed until a surface dewatering device can be installed for drainage areas larger than 1 acre.

Construct with Class I riprap lined with sediment control stone on the upstream side (min. 2:1 side slope upstream, 3:1 min. downstream). Install a minimum of 3 baffles on the upstream side and construct the weir section $^{2}/_{3}$ the width of the channel flow width with a minimum width of 4 ft. Size storage area for 3,600 cubic feet per acre of disturbance.

Inspect on a regular basis and after each significant rainfall. Remove sediment when device is 50% full. Replace sediment control stone when the device no longer drains. Rebuild and reshape device and weir when damaged.



Temporary Rock Sediment Dam Type B

1634.02

Is a small dam with a weir outlet and built-in sediment basin.

Use at the outlet of a temporary diversion, temporary silt ditch, channel, temporary slope drain, at a drainage pipe outlet or other runoff conveyance to trap sediment before runoff leaves the project site until a surface dewatering device can be installed for drainage areas larger than 1 acre.

Construct of Class B stone lined with sediment control stone. Basin volume should be 3,600 cubic ft. per disturbed acre. The basin L:W ratio should be at least 2:1 but not exceed 6:1. Use a minimum 4 ft. weir width. Install a minimum of 3 baffles.

Inspect on a regular basis and after each significant rainfall. At a minimum, remove sediment when 50% full. Replace sediment control stone when the dam is clogged and runoff will not pass through it. Maintain the weir section when damaged by equipment or storms.



Rock Pipe Inlet Sediment Trap Type A

1635.01

Is a horsehoe-shaped device which prevents sediment from entering a pipe structure.

Use at a pipe inlets no larger than 36 in. in diameter receiving flow from one or more directions and at least 30 ft. from a vehicular travel lane.

Construct of Class B stone lined with sediment control stone. Surround the structure with a sediment storage area built to 3600 cubic ft. per disturbed acre. The dam should be a minimum of 18 in. high and a minimum of 1 ft. below the top of the fill over the pipe. The drainage area should not exceed 5 acres.

Inspect on a regular basis and after each significant rainfall. Remove sediment when accumulations reach 50% of the height of the sediment control stone. Replace sediment control stone as needed between rainfall events. Rebuild and repair device when damaged.



Rock Pipe Inlet Sediment Trap Type B

1635.02

Is a horsehoe-shaped device which prevents sediment from entering a pipe structure.

Use at a pipe inlet no greater than 24 in. in diameter receiving flow from one or more directions and in areas where a Rock Pipe Inlet Sediment Trap Type A would be unsafe due to adjacent traffic.

Construct of Class A stone lined with sediment control stone. Surround the structure with a sediment storage trap volume of 3600 cubic ft. per acre of disturbed area. The stone dam should be a minimum of 18 in. high and a minimum of 1 ft. below the top of the fill over the pipe. Some of the required storage volume may be provided by up-gradient or down-gradient controls.

Inspect on a regular basis and after each significant rainfall. Remove sediment when accumulations reach 50% of the height of the sediment control stone. Replace sediment control stone as needed between rainfall events. Rebuild and repair device when damaged.



Skimmer Basin with Baffles

1630.07

Is a basin with a trapezoidal spillway lined with geotextile and equipped with a floating skimmer for dewatering from the top of the water column.

Use at the outlet of drainage areas that discharge in sensitive watersheds and in areas where surface dewatering devices are required.

Construct basin with a skimmer at the outlet, a trapezoidal primary spillway lined with geotextile, and a minimum of 3 coir fiber baffles. Storage capacity is 1800 cubic ft. per disturbed acre. The basin length-to-width ratio should be at least 2:1 but not exceed 6:1.

Inspect on a regular basis and after each significant rainfall. Remove sediment when accumulations reach 50% of the height of the first baffle. Check skimmer to ensure it's not clogged. Replace matting and baffles as needed and repair eroded and damaged areas.



Tiered Skimmer Basin with Baffles

1630.08

Is a series of basins with trapezoidal spillways lined with geotextile that dewater into one another through floating skimmers resulting improved basin settling efficiency.

Use at the outlet of drainage areas one acre or greater where the elevation difference between the inlet and outlet will be too large for just one basin. Also used in areas that discharge into sensitive watersheds.

Construct device with basins in a series with skimmers to dewater each basin, a trapezodal primary spillway lined with geotextile, and a minimum of 3 coir fiber baffles. Storage capacity is 1800 cubic ft. per disturbed acre. The basin length-to-width ratio should be at least 2:1 but not exceed 6:1.

Inspect on a regular basis and after each significant rainfall. Remove sediment when accumulations reach 50% of the height of the first baffle. Check skimmers to ensure they are not clogged. Replace matting and baffles as needed and repair eroded and damaged areas.



Earthen Dam with Skimmer

1630.09

An earthen dam lined with geotextile fabric with a skimmer and baffles placed in ditches to remove silt and provide surface dewatering.

Use in roadway ditches that typically have large cross-sectons such as base ditches and where grade and site conditions will allow for the safe impoundment of runoff.

Construct of unclassified earthen material with a maximum dam height of 5 ft. Place low permeability geotextile at the bottom and across the entire width of the earthen dam. Place a barrel pipe a minimum of 1 ft. from the bottom of the ditch and install the skimmer. Place 3 coir fiber baffles in the ditch beginning 15 ft. upgrade from the spillway, each with a 15 ft. spacing.

Inspect on a regular basis and after each significant rainfall. Remove sediment when device is 50% full. Check geotextile-lined spillway and coir fiber mat at the basin outlet for damage. Inspect baffles for erosion damage and sediment accumulation and repair as needed.

Basin Weir Construction

Install primary spillway weirs in skimmer basins using the following criteria:

- Install the primary spillway weir exactly as detailed in the E&SC plans, which are designed specifically for each basin.
- Construct the spillway weir width specified on the plans with a trapezoidal cross-section having 2:1 or flatter side slopes, and a minimum depth of 1 ft.
- Cover the spillway with Low-Permeability Geotextile, rolling the fabric in the direction of flow. Bury all edges at least 5 in. deep and tamp firmly. Use a single continuous piece when possible; otherwise, overlap sections by at least 18 in.
- Place the barrel pipe a minimum of 1 ft. above the basin bottom.
- Install the skimmer per manufacturer instructions, and apply a 6-in. band of sealant around the interior face of the outlet barrel pipe.
- Use the skimmer orifice diameter specified in the plans.
- Construct a Class B stone pad measuring (4 ft. × 4 ft. × 12 in. high) directly beneath the skimmer device.
- Install coir fiber matting at the skimmer barrel discharge point, using matting with a minimum length of 9 ft. and minimum width of 6 ft.



Infiltration Basin
(Detail Drawing)

Is a sediment retention basin with a series of coir fiber baffles.

Use at toe of fill slopes in areas where soil conditions will allow most of the water in the basin to be infiltrated.

Construct the basin and place an earth berm around the perimeter of the basin to a minimum height of 1 ft. and a maximum height of 3 ft. Install the spillway and line with low permeability geotextile. Install a minimum of 3 baffles.

Inspect on a regular basis and after each significant rainfall. Clean when any sediment accumulations appear on basin floor. Check geotextile-lined spillway and coir fiber mat at the basin outlet for damage. Inspect baffles for erosion damage and sediment accumulation.



Coir Fiber Baffle

1640.01

Is a coir fiber baffle used to diffuse flow within a basin or sediment trap, which allows the settling of sediment before being discharged off-site.

Use in all skimmer basins, silt basins at drainage outlets, and sediment dams.

Construct of coir fiber mat attached to steel posts to be 5-ft. in height (3 ft. above ground) with a maximum spacing of 4 ft. in the storage area. Use coir fiber mat with a minimum width of 6.5 ft. Attach to the top of the posts with minimum 9 gauge wire and secure the bottom of the mat with 6 in. staples using a maximum 12 in. spacing. Install 3 baffles in the erosion control device at a spacing of $^{1}/_{4}$ the basin length. If basin length is less than 20 ft., install only 2 baffles at a spacing of $^{1}/_{3}$ the basin length.

Inspect on a regular basis and after each significant rainfall. Ensure ends of mat are anchored into the ground or side slopes with staples. Add additional posts if baffles are sagging. Replace coir fiber when deteriorated, damaged, or as needed.



Stilling Basin
1630.04

Is a rectangular shaped basin formed by a soil berm with a permeable stone drain at the outlet.

Use at a construction site where there is a diverted stream or whenever sediment-laden water must be settled before being returned to a natural stream. Never pump sediment-laden water directly into a stream.

Construct basin based on volumes provided on the E&SC plans with the length 2 times the width of the basin. Stilling basin size is variable and dependent on specific site requirements. Install 3 coir fiber baffles dividing the length into quarters. Approval is needed for size and location of stilling basin and outfall.

Inspect on a regular basis and after each significant rainfall. At a minimum, clean out basin when approximately 50% full. Stabilize earth embankment. Inspect baffles each day for erosion damage. Replace stone for permeable outlet as needed.



Rock Inlet Sediment Trap Type A

1632.01

Is a doughnut-shaped stone dam at a drop inlet with sediment storage area serving a large drainage area.

Use at a drop inlet that receives high water flow or velocity from one or multiple directions and at least 30 ft. from a vehicular lane.

Construct of Class B stone lined with sediment control stone offset from the box 1 ft.-6 in. The dam must be a minimum 2 ft. high. Construct the top elevation a minimum of 12 in. below the shoulder or any diversion point. Install in conjunction with a Silt Basin Type B if the drainage area exceeds 1 acre.

Inspect on a regular basis and after each significant rainfall. Remove sediment when accumulations reach 50% of the height of the sediment control stone. Replace or clean sediment control stone as needed to allow water to drain. Rebuild device when damaged.



Rock Inlet Sediment Trap Type B

1632.02

Is a doughnut-shaped stone dam at a drop inlet with sediment storage area serving a moderately sized drainage area.

Use at a drop inlet where flow is too high for a Rock Inlet Sediment Trap-Type C and in areas where a Rock Inlet Sediment Trap-Type A would be unsafe due to adjacent traffic.

Construct of Class A stone lined with sediment control stone offset from the box 1 ft.-6 in. The dam must be a minimum 1 ft.-6 in. high. Construct the top elevation a minimum of 12 in. below the shoulder or any diversion point.

Inspect on a regular basis after each significant rainfall. Remove sediment when accumulations reach 50% of the height of the sediment control stone. Replace or clean sediment control stone as needed to allow water to drain. Rebuild device when damaged.



Rock Inlet Sediment Trap Type C

1632.03

Is a wire-mesh hardware cloth, drop inlet protective structure with a small doughnut-shaped stone installation at the base of the wire.

Use to surround a catch basin in a curb and gutter section or a drop inlet receiving light to moderate flow from one or multiple directions.

Construct using a 4 ft. wire mesh (24 ga., 1/4 in.) folded 2 ft. vertical and 2 ft. along the ground surface with sediment control stone on top to a minimum depth of 1 ft. Wire mesh shall have a 2 ft. minimum height. Steel posts to be 5 ft. in height, (3 ft. above ground) spaced 4 ft. maximum apart, offset 1 ft-6 in. from box.

Inspect on a regular basis and after each significant rainfall. Remove sediment when accumulations reach 50% the height of the sediment control stone. Replace or clean sediment control stone as needed to allow water to drain. Rebuild device when damaged.



Gravel Construction Entrance

1607.01

Is a stone pad which provides an area for construction vehicles to deposit mud and sediment where vehicles enter and leave a construction site.

Use at all areas of ingress and egress from the work area to clean vehicle tires.

Construct using Class A stone or other coarse aggregate approved by the Engineer to a depth of 8 in. Minimum dimensions are 50 ft. long by 12 ft. wide with a sufficient radius to accommodate large trucks. Place geotextile for drainage beneath stone.

Inspect on a regular basis. Replenish stone when necessary to ensure gravel entrance functions properly. Rebuild device when damaged and remove any material tracked onto the roadway immediately.



Special Stilling Basin

1630.06

Is a water permeable geotextile bag that traps sand, silt, and fines as sediment laden water is pumped from a construction site.

Use as a portable stilling basin at sites with limited right-of-way or where topography restricts the installation of a conventional stilling basin.

Construct using a minimum size of 10 ft. x 15 ft. bag with a maximum 8 in. spout for receiving pump discharge. Place on a rock pad lined with geotextile for drainage and 8 in. of sediment control stone. May also place on pallets to aid with removal if approved.

Inspect inlet on a regular basis for damage or blockage. Replace and dispose of device when it is 25% full of sediment or when it is impractical for the bag to filter out sediment at a reasonable flow rate. Monitor discharge and cease pumping if turbidity issues in excess of water quality standards are noted. Additonal devices may be needed.



Temporary Stream Crossing
1645.01

Is a temporary structure that allows construction equipment to cross a small stream without harming the area or eroding the banks.

Use at the stream or wetland where construction equipment must cross.

Construct by placing geotextile for drainage on natural ground on streambanks and in streambed. Lay a properly sized temporary pipe in the stream. Backfill with Class B rip rap to a minimum height of 12 in. above the top of pipe. Place #5 or #57 stone to a minimum depth of 6 in. on top of Class B rip rap. Construct the approaches to the stream crossing at a 10:1 grade.

Inspect geotextile, stone, and pipe(s) after each significant rainfall. Replace geotextile and replenish stone if contaminated with sediment. Repair dislodged or damaged Class B rip rap or sediment control stone. Replace damaged pipe immediately.



Wattle Check

1636.01

Is a tubular device consisting of excelsior or coir (coconut) fibers encased in a synthetic or biodegradable netting.

Use in temporary and permanent ditches, and at inlets and outlets.

Construct using a minimum size diameter wattle of 12 in. Install wattles using 2 ft. stakes and 6 in. staples on top of a 9 ft. section of matting. Wattles can be used with or without flocculant. For flocculant use see page 4.

Inspect on a regular basis and after each significant rainfall. Keep clean to allow runoff to flow through the natural fibers and contact flocculant. Replace wattles when they are too saturated with debris, sediment, etc. and no longer functional. Ensure wattles are anchored properly to the ground to prevent scouring and washouts during storm events.



Wattle Barrier

1636.03

Is a tubular device consisting of excelsior or coir (coconut) fibers encased in a synthetic or biodegradable netting.

Use just below the toe of bridge approach fills or on slopes to intercept runoff, in locations where silt fence cannot be installed, in wetland areas, and as a break along large slopes in order to reduce runoff velocity.

Construct using a minimum size diameter wattle of 18 in. Install wattles in a 2 to 3 in. trench. Use a maximum spacing of 25 ft. for breaks along large slopes, measured along the slope. Install a minimum of 2 upslope stakes and 4 downslope stakes. Use stakes with 2 in. by 2 in. nominal cross section.

Inspect on a regular basis and after each significant rainfall. Keep clean to allow water to flow through the up-gradient side of wattle. Replace wattles when they are too saturated with debris, sediment, etc. and no longer functional. Ensure wattles are anchored properly to the ground to prevent scouring and washouts during storm events.

North Carolina

Department of Transportation

Roadside Environmental Unit