BUFFER ZONES

Definition

Buffer zone means the strip of land adjacent to a lake or natural water course (stream, river, swamp, canal, estuary, etc.).

Purpose

Buffer zones are used to reduce the impact of upland pollution by,

- filtering surface runoff and groundwater,
- filter dust from surrounding land-disturbing activities,
- taking up nutrients through vegetative roots, and
- provide leaves and woody debris used for food and shelter by aquatic organisms.

Conditions Where Practice Applies

Protective buffers should be used for,

- perennial streams,
- intermittent streams,
- lakes, and ponds, natural or impounded, and
- any river, brook, swamp, sound, bay, creek run, branch, canal, waterway or estuary which could be damaged by sedimentation.

Plan designers and others involved in land-disturbing activites should check with local, state, and federal agencies about the assigned surface water classification for a water-body or stream on or adjacent to a property where land-disturbing activity is planned to take place, especially for Division of Water Quality (DWQ) classified trout waters (*Tr*). To determine a North Carolina water-body and stream classification visit http://h2o.enr.state.nc.us/bims/Reports/reportsWB.html.

Planning Considerations

As stated in the *Sedimentation Pollution Control Act of 1973 (As Amended through 2005)* § 113A-57(1) "No land-disturbing activity during periods of construction or improvement to land shall be permitted in proximity to a lake or natural watercourse unless a buffer zone is provided along the margin of the watercourse of sufficient width to confine visible siltation within the twenty-five percent (25%) of the buffer zone nearest the land-disturbing activity. Waters that have been classified as trout waters by the Environmental Management Commission shall have an undisturbed buffer zone 25 feet wide or of sufficient width to confine visible siltation within the twenty-five percent (25%) of the buffer zone nearest the land-disturbing activity, whichever is greater. Provided, however, that the Sedimentation Control Commission may approve plans which include land-disturbing activity along trout waters when the duration of said disturbance would be temporary and the extent of said disturbance would be minimal. This subdivision shall not apply to a land-disturbing activity in connection with the construction of facilities to be located on, over, or under a lake or natural watercourse." Rule 15A NCAC 04B .0112 requires that "Land-disturbing activity in connection with construction in, on, over, or under a lake or natural watercourse shall minimize the extent and duration of disruption of the stream channel."

Width is a very important consideration in the overall effectiveness of buffers. The appropriate buffer width can vary depending on site conditions, soils, topography, hydrology, adjacent land use, and benefits one is trying to gain by installing a buffer. Guidance is provided for determining the width of undisturbed vegetation zones with percent slope considerations.

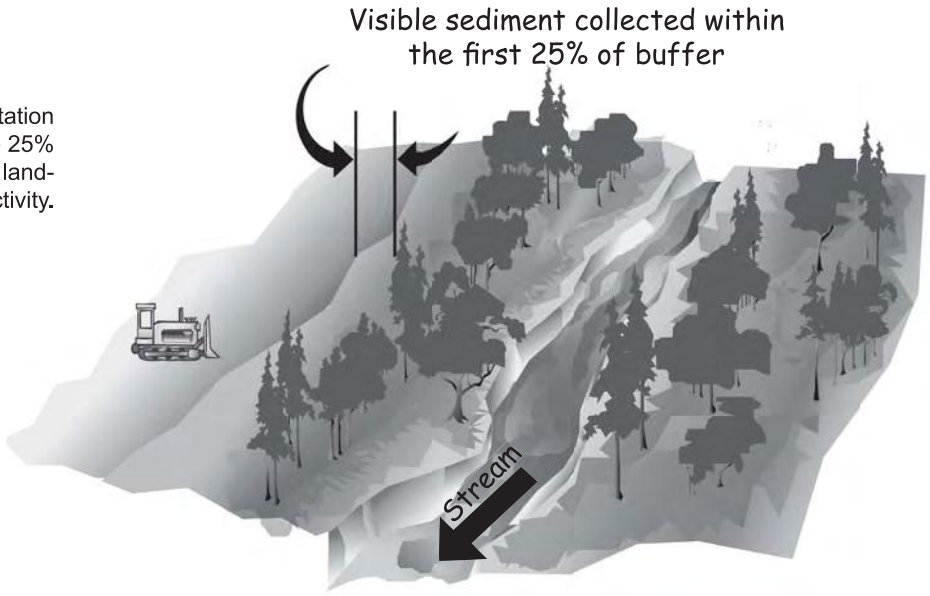


Figure 6.74a Visible siltation should be kept within the 25% buffer zone nearest the land-disturbing activity.

Guidance for Determining Width of Undisturbed Vegetation Zones

Zones of undisturbed vegetation may be used to ensure compliance with the statutory requirement of G.S. 113A-57(1) that "all visible siltation be retained within the 25% of the buffer zone closest to the land disturbing activity" even in the event of failure of other erosion and sedimentation control measures and practices. The use of such zones of undisturbed vegetation is also a reasonable method for ensuring "protection of public and private property from damage caused by land disturbing activities," as required by Commission Rule 15A NCAC 04B .0105. The information given below provides guidance for determining the appropriate width of such zones of undisturbed vegetation for use during all phases of site development; good engineering judgment must provide for exceptions.

Buffer zones indicated on Erosion and Sedimentation Control Plans should include, immediately adjacent to the stream bank, a minimum zone of undisturbed vegetation of a width dependent upon the average slope of the land perpendicular to the stream. The following guidance indicates suggested zone widths:

Guidance for Determining Width of Undisturbed Vegetation Zones (continued)

Slope (%)	Width of Zone of Undisturbed Vegetation
0-1	15 feet
1-3	20 feet
3-5	25 feet
>5	25 feet + (% of slope - 5) [Ex. 6% slope = 26 ft Zone of Undisturbed Vegetation (25 ft + 1 ft), and 50 % slope = 70 ft Zone of Undisturbed Vegetation (25 ft + 45 ft)]

Zones of undisturbed vegetation are to be used in conjunction with, not in place of, other measures and practices located outside of the zones of undisturbed vegetation so that the performance objectives of the statute are realized.

The slope % is that slope, perpendicular to the stream, naturally occurring within the buffer zone. The average slope should be calculated for every 100 foot segment of stream frontage for the land disturbing activity described in the Erosion and Sedimentation Control Plan. This average should be used to determine the appropriate width of the zone of undisturbed vegetation across any given 100 foot segment (i.e., the appropriate width of the zone of undisturbed vegetation may vary with each 100 foot segment depending upon the topography of the site).

Once the appropriate width has been determined for a given segment, the zone of undisturbed vegetation should be measured from the edge of the water to the nearest edge of the disturbed area as specified in Commission Rule 15A NCAC 04B .0125(a). Other practices and measures for erosion and sedimentation control may be located in the 25% of the buffer zone nearest the land disturbing activity; such practices and measures should not be located within the zone of undisturbed vegetation.

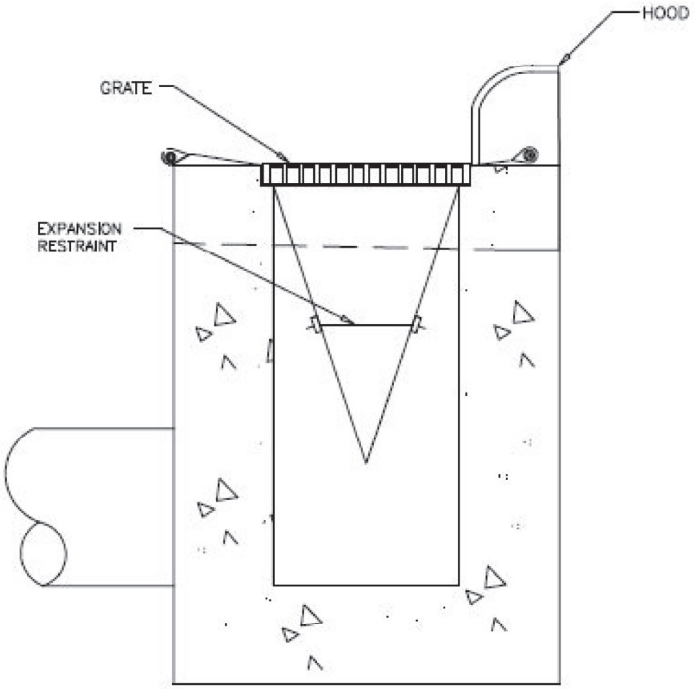
NOTE: Certain projects may be subject to riparian buffers under the statutes and rules regulating development activities in specified river basins or coastal areas. Use of the above-stated guidance may not satisfy the requirements of these applicable laws. The wider of 1) the riparian buffer, if applicable, or 2) the zone of undisturbed vegetation, allowing for exceptions based on good engineering judgment, should be applied on a site specific basis.

References

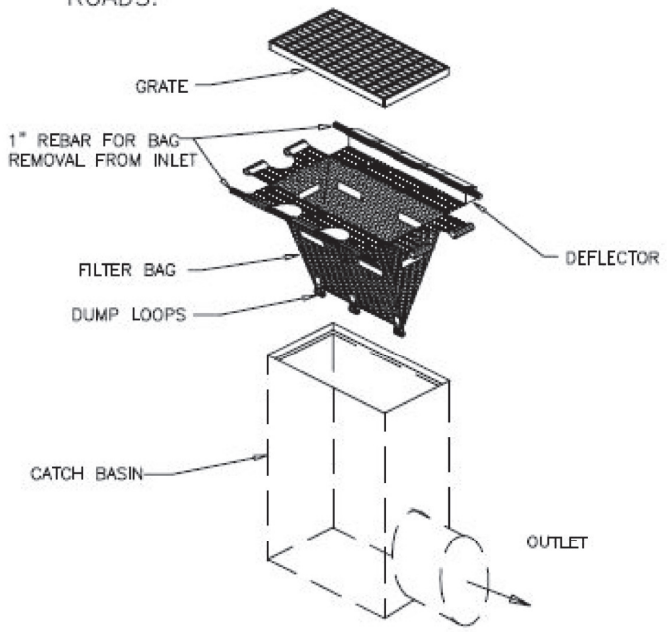
Best Management Practices for Construction and Maintenance Activities, North Carolina Department of Transportation. August, 2003. Appendix D.

NOTES

1. INLET MAINTENANCE SHALL BE DOCUMENTED IN PROJECT LOG BOOK.
2. FILTER TYPES SHALL BE APPROVED BY THE INSPECTOR PRIOR TO INSTALLATION.
3. FILTER BAGS MAY BE REMOVED WHEN SITE IS STABILIZED AT THE DIRECTION OF THE ENGINEER.
4. FILTER BAGS SHALL BE REMOVED PRIOR TO STREET ACCEPTANCE.
5. FILTER BAGS SHALL BE CLEANED OR REPLACED ON A REGULAR BASIS (NOT BE MORE THAN HALF FULL AT ANY TIME).
6. FILTER BAGS SHALL NOT BE ALLOWED IN EXISTING TOWN OR NCDOT ROADS.



SECTION



INSTALLATION

NOT TO SCALE

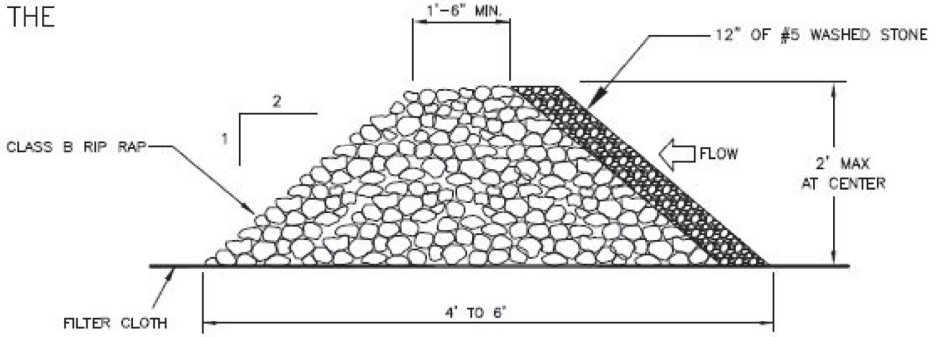
BUNCOMBE COUNTY SOIL EROSION & SEDIMENTATION CONTROL DIVISION

CATCH BASIN PROTECTION DETAIL

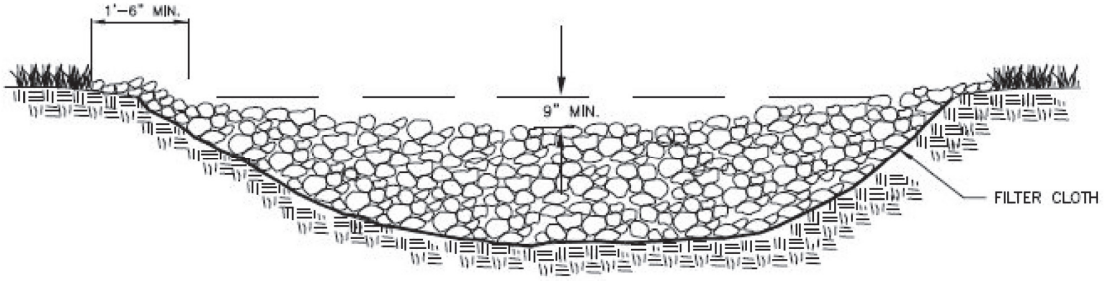
GENERAL NOTES:

1. CHECK DAMS MAY BE USED IN SLOPING DITCHES OR CHANNELS TO SLOW VELOCITY OR TO CREATE SEDIMENT TRAPS.
2. ENSURE THAT MAXIMUM SPACING BETWEEN DAMS PLACES THE TOE OF THE UPSTREAM DAM AT THE SAME ELEVATION AS THE DOWNSTREAM DAM (SEE DIAGRAM BELOW).

A AND B ARE AT EQUAL ELEVATIONS



CROSS-SECTION



PLAN

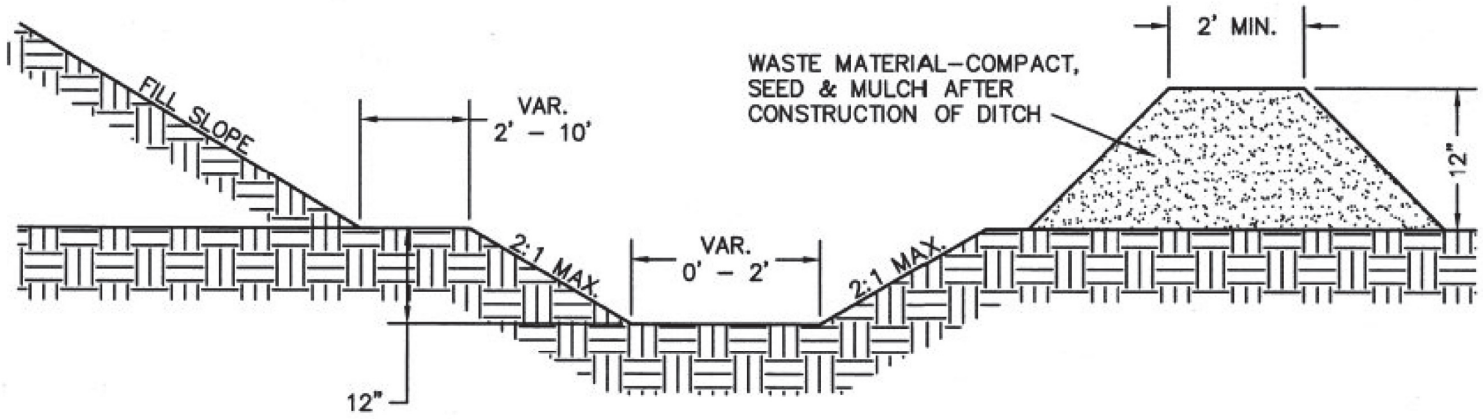
NOT TO SCALE

BUNCOMBE COUNTY SOIL EROSION & SEDIMENTATION CONTROL DIVISION

TEMPORARY CHECK DAM DETAIL

NOTES:

1. TEMPORARY DIVERSION DITCH TO BE USED TO INTERCEPT FLOW AND/OR DIVERT TO A SEDIMENT CONTROL MEASURE OR BMP.
2. SILT SHALL BE REMOVED WHEN DITCH IS ONE-HALF FULL.
3. DITCH SHALL BE RECONSTRUCTED WHEN DAMAGED BY EQUIPMENT OR COVERED BY FILL.
4. STABILIZE DIVERSION DITCH BERM WITH TEMPORARY SEEDING, MULCH WITH TAC, AND/OR EROSION CONTROL NETTING.



CROSS SECTIONAL VIEW

NOT TO SCALE

BUNCOMBE COUNTY SOIL EROSION & SEDIMENTATION CONTROL DIVISION

TEMPORARY DIVERSION DITCH DETAIL

Date:

Page:

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes

Site Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10 feet or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
· Temporary grass seed covered with straw or other mulches and tackifiers. · Hydroseeding · Rolled erosion control products with or without temporary grass seed · Appropriately applied straw or other mulch · Plastic sheeting	· Permanent grass seed covered with straw or other mulches and tackifiers · Geotextile fabrics such as permanent soil reinforcement matting · Hydroseeding · Shrubs or other permanent plantings covered with mulch · Uniform and evenly distributed ground cover sufficient to restrain erosion · Structural methods such as concrete, asphalt or retaining walls · Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

1. Select flocculants that are appropriate for the soils being exposed during construction, selecting from the *NC DWR List of Approved PAMS/Flocculants*.
2. Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
3. Apply flocculants at the concentrations specified in the *NC DWR List of Approved PAMS/Flocculants* and in accordance with the manufacturer's instructions.
4. Provide ponding area for containment of treated Stormwater before discharging offsite.
5. Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

1. Maintain vehicles and equipment to prevent discharge of fluids.
2. Provide drip pans under any stored equipment.
3. Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
4. Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
5. Remove leaking vehicles and construction equipment from service until the problem has been corrected.
6. Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

1. Never bury or burn waste. Place litter and debris in approved waste containers.
2. Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
3. Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
4. Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
5. Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
6. Anchor all lightweight items in waste containers during times of high winds.
7. Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
8. Dispose waste off-site at an approved disposal facility.
9. On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled, sized and placed appropriately for the needs of site.
5. Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

1. Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
2. Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
3. Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

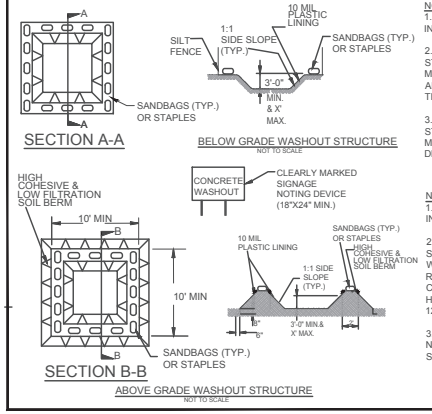
EARTHEN STOCKPILE MANAGEMENT

1. Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
2. Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
3. Provide stable stone access point when feasible.
4. Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.

HAZARDOUS AND TOXIC WASTE

1. Create designated hazardous waste collection areas on-site.
2. Place hazardous waste containers under cover or in secondary containment.
3. Do not store hazardous chemicals, drums or bagged materials directly on the ground.

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY.
3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.
3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

CONCRETE WASHOUTS

1. Do not discharge concrete or cement slurry from the site.
2. Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
3. Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
4. Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
5. Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
6. Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
7. Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
8. Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
9. Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
10. At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

1. Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
2. Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
3. Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
4. Do not stockpile these materials onsite.

NORTH CAROLINA Environmental Quality

EFFECTIVE DATE: 11/12/2020

NCG-01 GROUND COVER & MATERIALS HANDLING

Date:

Page:

PART II, SECTION G, ITEM (4)

DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

(a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items,

(b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit,

(c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems,

(d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,

(e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and

(f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

PART III

SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend on holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those unattended days (this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "Zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours.	1. Identification of the measures inspected 2. Date and Time of the inspection 3. Name of the person performing the inspection 4. Indication of whether the measures were operating properly 5. Description of maintenance needs for the measure 6. Description, Evidence, and date of corrective actions taken
(3) Stormwater discharge outfalls(SDOs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours.	1. Identification of the discharge outfalls inspected 2. Date and Time of the inspection 3. Name of the person performing the inspection 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration 5. Indication of visible sediment leaving the site 6. Description, Evidence, and date corrective actions taken
(4) Perimeter of Site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours.	If visible Sedimentation is found outside site limits, then record of the following shall be made: 1) Actions taken to clean up or stabilize sediment that has left the site limits 2) Description, Evidence and date of corrective actions taken 3) An explanation as to the actions taken to control future releases
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours.	If the stream or wetland has increased visible sedimentation or has visible increased turbidity from the construction activity, then a record of the following shall be made: 1) Description, Evidence and date of corrective actions taken 2)Records of required reports to the appropriate Division Regional Office per Part III, Section C, Item(2)(a) of this permit
(6) Ground Stabilization Measures	After each phase of grading.	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

PART III

SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Document Requirements
(a) Each E&SC measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC plan.	Initial and date each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC plan.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC measures.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation to be Kept on Site

In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

(a) This General Permit as well as the Certificate of Coverage, after it is received.

(b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III

SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

(a) Visible sediment deposition in a stream or wetland.

(b) Oil spills if:

- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).

(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.

(d) Anticipated bypasses and unanticipated bypasses.

(e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.

Occurrence	Reporting Timeframe (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	• Within 24 hours, an oral or electronic notification. • Within 7 Calendar Days, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related caused, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per item 1(b)-(c) above	• Within 24 Hours, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	• *A report at least ten days before the date of the bypass, if possible.* The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	• Within 24 Hours, an oral or electronic notification • Within 7 calendar days, a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment [40 CFR 122.41(l)(7)]	• Within 24 Hours, an oral or electronic notification • Within 7 calendar days, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6). • Division staff may waive the requirement for a written report on a case-by-case basis.

Date:

Page:

NON-INVASIVE PERMANENT SEEDING RECOMMENDATIONS FOR SUMMER

SEEDING MIXTURE

Species	Rate
Indian Woodoats	1.5-2.5 lbs/acre*
Virginia Wild Rye	4-6 lbs/acre*

*Depending upon mix with other species. See table 6.11.d from Chapter 6 of the NC Erosion and Sediment Control Planning and Design Manual.

Seeding Dates

Mountains - July 15- Aug 15
Piedmont - Aug 15 - Oct 15

Maintenance:

Indian Woodoats and Virginia Wild Rye are both sun and shade tolerant.

NON-INVASIVE PERMANENT SEEDING RECOMMENDATIONS FOR FALL

SEEDING MIXTURE

Species	Rate
Hard Fescue	15 lbs/acre
Switchgrass	2.5-3.5 lbs/acre*
Indian Grass	5-7 lbs/acre*
Big Bluestem	5-7 lbs/acre*
Indian Woodoats	1.5-2.5 lbs/acre*
Virginia Wild Rye	4-6 lbs/acre*

*Depending upon mix with other species. See table 6.11.d from Chapter 6 of the NC Erosion and Sediment Control Planning and Design Manual.

Seeding Dates

Mountains - Hard Fescue- Aug 1 - June 1
Mountains- Switchgrass, Indian Grass, Big Bluestem- Dec 1 - April 15
Piedmont and Coastal- Switchgrass, Indian Grass, Big Bluestem- Dec 1 - April 1
Coastal- Indian Woodoats and Virginia Wild Rye- Sept 1 - Nov 1

Maintenance:

Hard Fescue is not recommended for slopes > 5%. Prefers shade.

NON-INVASIVE PERMANENT SEEDING RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING

SEEDING MIXTURE

Species	Rate
Centipede	5 lbs/acre
Indian Woodoats	1.5-2.5 lbs/acre*
Virginia Wild Rye	4-6 lbs/acre*

*Depending upon mix with other species. See table 6.11.d from Chapter 6 of the NC Erosion and Sediment Control Planning and Design Manual.

Seeding Dates

Coastal or Eastern Piedmont for Centipede- Sept. 1 - May 1
Coastal and Piedmont for Indian Woodoats and Virginia Wild Rye- Feb 15 - April 1
Mountains for Indian Woodoats and Virginia Wild Rye- March 1 - May 15

Maintenance:

Significant maintenance may be required to obtain desired cover once centipede is planted. Acceptable for sodding.

SEED BED PREPARATION:

LIMING- Apply lime according to soil test recommendations. If the pH (acidity) of the soil is not known, an application of ground agricultural limestone at the rate of 1 to 1 $\frac{1}{2}$ tons/acre on coarse-textured soils and 2-3 tons/acre on fine-textured soils is usually sufficient. Apply limestone uniformly and incorporate into the top 4-6 inches of soil. Soils with a pH of 6 or higher need not be limed.

FERTILIZER- Base application rates on soil tests. When these are not possible, apply a 10-10-10 grade fertilizer at 700-1,000 lb/acre. Both fertilizer and lime should be incorporated into the top 4-6 inches of soil. If a hydraulic seeder is used, do not mix seed and fertilizer more than 30 minutes before application.

SURFACE ROUGHENING- If recent tillage operations have resulted in a loose surface additional roughening may not be required, except to break up large clods. If rainfall causes the surface to become sealed or crusted, loosen it just prior to seeding by raking, harrowing, or other suitable methods for fine grading. The finished grade shall be a smooth even soil surface with a loosen uniformly fine texture. All ridges and depressions shall be removed and filled to provide the approved surface drainage. Planting is to be done immediately after finished grades are obtained and seedbed preparation is completed.

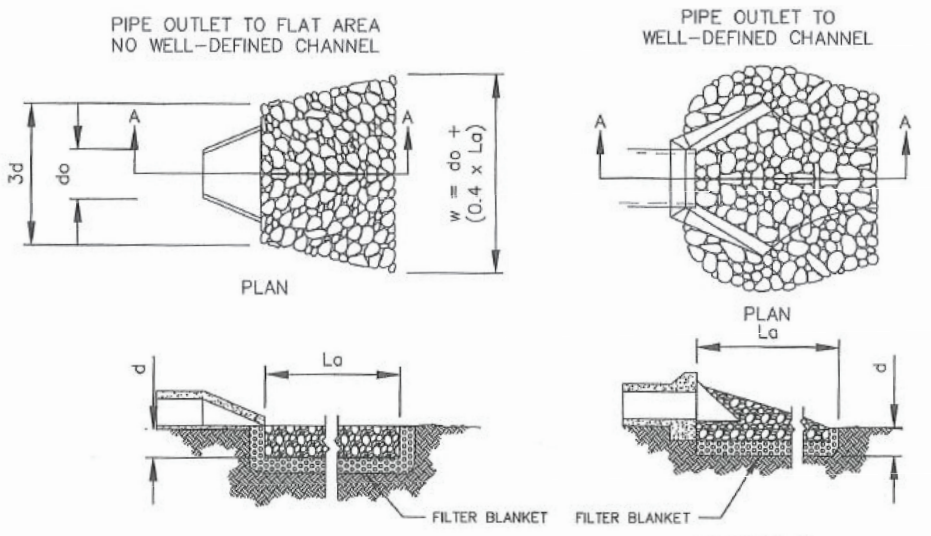
NOTES:

1. Permanent seeding, sodding or other means of stabilization are required when all construction work is completed according to the NPDES timeframe's table.
2. A North Carolina Department of Agriculture soils test (or equal) is highly recommended to be obtained for all areas to be seeded, sprigged, sodded or planted.
3. Use a seeding mix that will produce fast growing nurse crops and includes non-invasive species that will eventually provide a permanent groundcover. Soil blankets may be used in lieu of nurse crops. Mat, tack or crimp mulch, as needed to stabilize seeded areas until root establishment. Mulch must be applied uniformly over the soil with a cover density of at least 80%.
4. Ground cover shall be maintained until permanent vegetation is established and stable against accelerated erosion.

NORTH CAROLINA *Environmental Quality*

EFFECTIVE DATE: 11/12/2020

PERMANENT SEEDING RECOMMENDATIONS



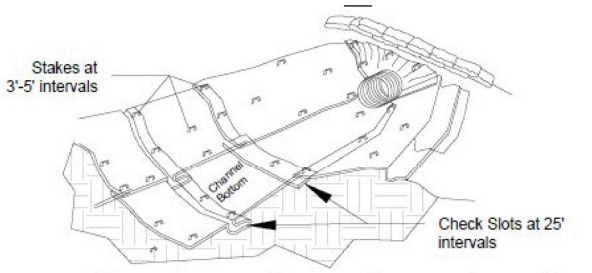
NOTES:

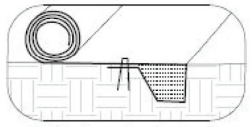
1. La IS THE LENGTH OF THE RIP RAP APRON.
2. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6" (MINIMUM IS 24" DEEP IF STONE IS CLASS II)
3. IN A WELL-DEFINED CHANNEL, EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK, WHICHEVER IS LESS.
4. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIP RAP AND SOIL FOUNDATION.
5. COMPACT ANY REQUIRED FILL TO DENSITY OF SURROUNDING UNDISTURBED MATERIAL.
6. RIP RAP MAY BE FIELDSTONE OR ROUGH QUARRY STONE AND SHALL BE HARD. ANGULAR AND WELL-GRADED.
7. CONSTRUCT APRON AT ZERO GRADE. TOP OF RIP RAP SHALL BE LEVEL WITH THE RECEIVING CHANNEL OR SLIGHTLY LOWER.
8. ALIGN APRON WITH RECEIVING CHANNEL OR STREAM. ASSURE APRON IS STRAIGHT THROUGHOUT ITS LENGTH.
9. END WIDTH OF APRON TO BE EQUAL TO WIDTH OF RECEIVING CHANNEL.

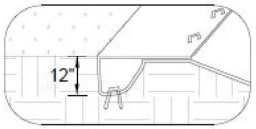
NOT TO SCALE

BUNCOMBE COUNTY SOIL EROSION & SEDIMENTATION CONTROL DIVISION

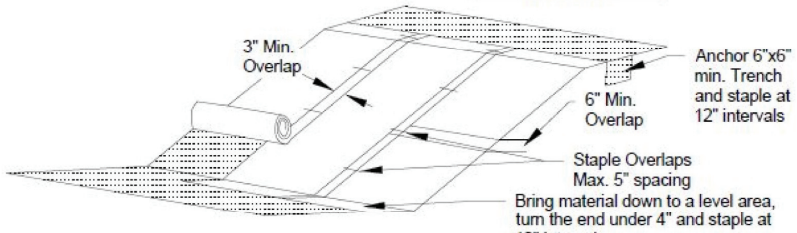
RIP RAP APRON DETAIL

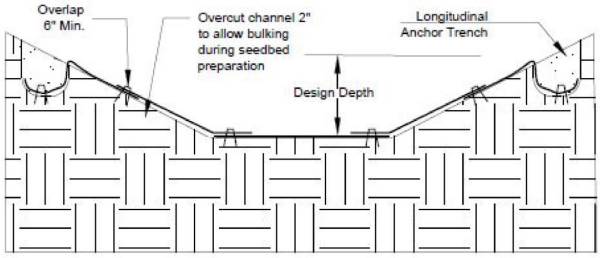


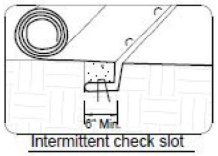

Initial channel anchor trench



Terminal slope and channel anchor trench

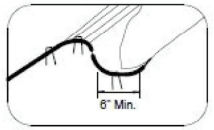




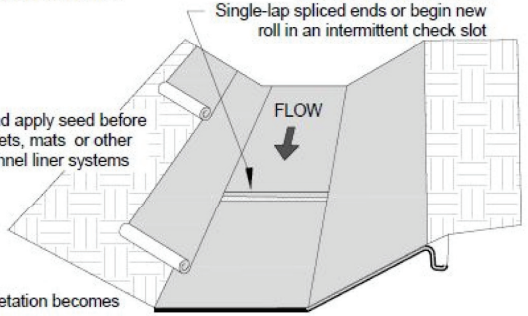


Intermittent check slot

Typical installation
with erosion control
blankets or turf
reinforcement mats



Longitudinal anchor trench



NOTES:

1. Lime, fertilize and seed before installation. Planting of shrubs, trees, etc. should occur after installation.
2. Slope surface shall be smooth before placement for proper soil contact.
3. Design velocities exceeding 2 feet/second require temporary blankets, mats or similar liners to protect seed and soil until vegetation becomes established.
4. Terminal anchor trenches are required at RECP ends and intermittent check slots must be constructed across channels at 25 foot intervals.
5. Terminal anchor trenches should be a minimum of 12 inches in depth and 6 inches in width. Intermittent check slots should be 6 inches deep and 6 inches wide.
6. For installation on a slope, place RECP 2-3 feet over the top of the slope and into an excavated end trench measuring approximately 12 inches deep by 6 inches wide. Pin the RECP at 1 foot intervals along the bottom of the trench, backfill and compact. Unroll the RECP down the slope maintaining direct contact between the soil and RECP. Pin using staples or pins in a 3 feet center-to-center pattern.
7. 11 gauge, at least 6 inch by 1 inch staples or 12 inch minimum length wooden stakes are recommended for anchoring.
8. Grass-lined channels with design velocities exceeding 6 feet/second should include turf reinforcement mats
9. Check slots to be constructed per manufacturers specifications.
10. Staking or stapling layout per manufacturers specification.
11. If there is a berm at the top of slope, anchor upslope of the berm.
12. Do not stretch blankets/matting tight, allow the rolls to conform to any irregularities.
13. For slopes less than 3H:1V, rolls may be placed in horizontal strips.

MAINTENANCE:

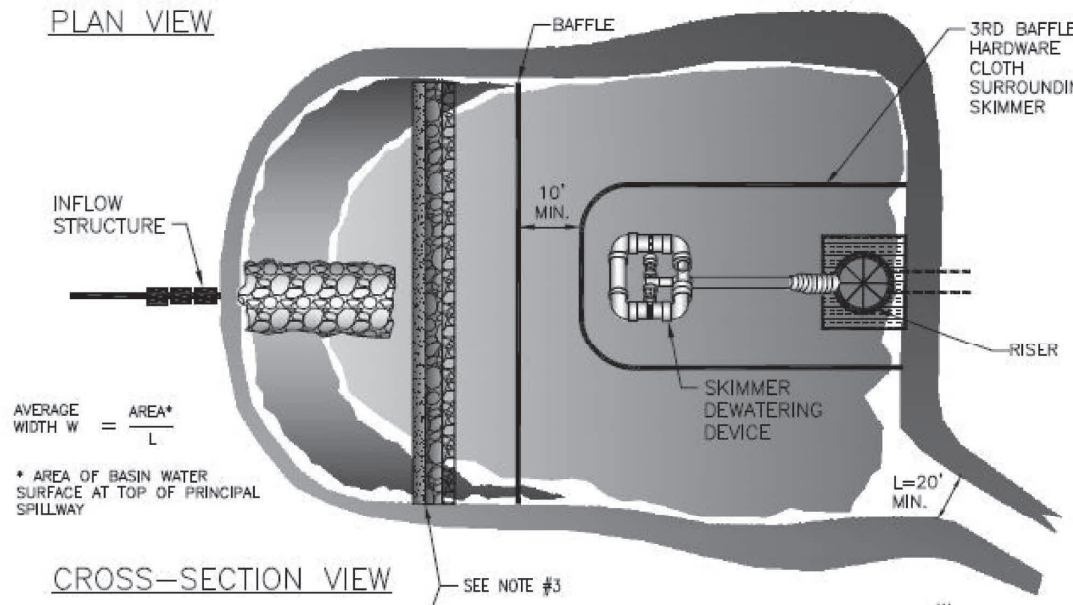
1. Inspect Rolled Erosion Control Products at least weekly and after each rain of 1 inch or greater; repair immediately.
2. Good contact with the ground must be maintained, and erosion must not occur beneath the RECP.
3. Any areas of the RECP that are damaged or not in close contact with the ground shall be repaired and stapled.
4. If erosion occurs due to poorly controlled drainage, the problem shall be fixed and the eroded area protected.
5. Monitor and repair the RECP as necessary until ground cover is established.

NOT TO SCALE

BUNCOMBE COUNTY SOIL EROSION & SEDIMENTATION CONTROL DIVISION

ROLLED EROSION CONTROL PRODUCT DETAIL

SEDIMENT BASIN DESIGN CRITERIA	
DRAINAGE AREA (ACRES)	>10 AC. <100 AC.
MIN. LENGTH TO WIDTH RATIO	2:1
MAX. LENGTH TO WIDTH RATIO	6:1
MIN. VOLUME REQUIRED	1800 (CU. FT. PER AC. DISTURBED)
SURFACE AREA REQUIRED	435 (SQ. FT. PER CFS



NOTES:

1. REFER TO NCESCPDM SECTION #6.61 FOR ADDITIONAL DESIGN SPECIFICATIONS REGARDING SEDIMENT BASINS.
2. REFER TO DETAIL FOR BAFFLE SPACING AND INSTALLATION
3. FIRST BAFFLE IS TO BE CONSTRUCTED OF RIP–RAP AND #5 WASHED STONE, WITH A MIN. HEIGHT OF 3' AND MIN. TOPWIDTH OF 2'.
4. FLASHBOARD RISER IS NOT PERMITTED.

NOT TO SCALE

DATA BLOCK

BASIN NO.	DRAINAGE AREA (ACRES)	DENUDED AREA (ACRES)	Q25	BASIN VOLUME		BASIN SURFACE AREA		CLEANOUT DEPTH H/2 (FT.)	H (FEET)	L (FEET)	T (FEET)	W (FEET)	Z (FEET)	SKIMMER PIPE DIAMETER	SKIMMER ORIFICE DIAMETER
				REQUIRED (C.F.)	PROVIDED (C.F.)	REQUIRED (C.F.)	PROVIDED (C.F.)								

NOT TO SCALE

BUNCOMBE COUNTY SOIL EROSION & SEDIMENTATION CONTROL DIVISION

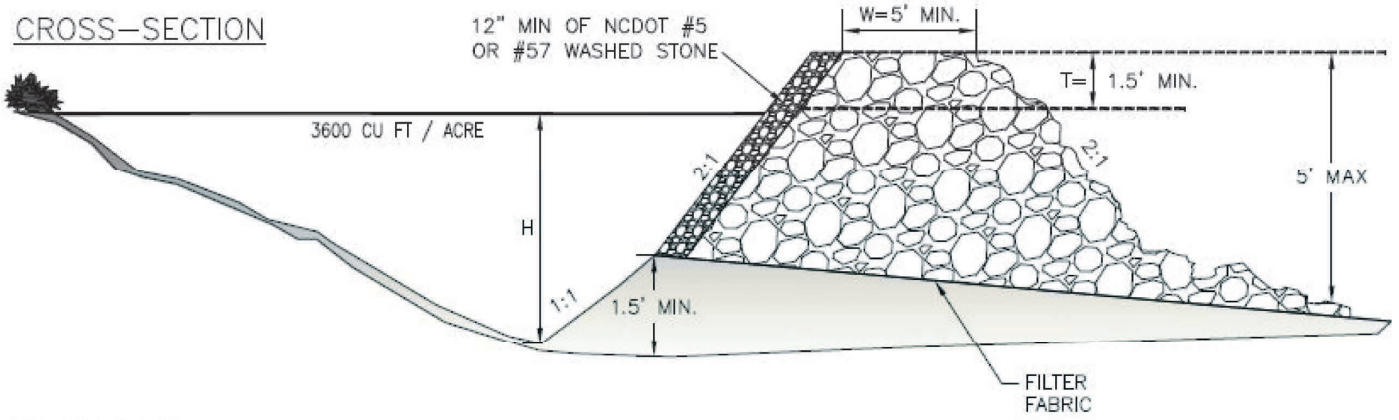
SEDIMENT BASIN WITH RISER DETAIL

TEMPORARY SEDIMENT TRAP DESIGN CRITERIA	
DRAINAGE AREA (ACRES)	< 5 AC.
MIN. LENGTH TO WIDTH RATIO	2:1
MIN. VOLUME REQUIRED	3600 (CU. FT. PER AC. DISTURBED)
SURFACE AREA REQUIRED	435 (SQ. FT. PER CFS

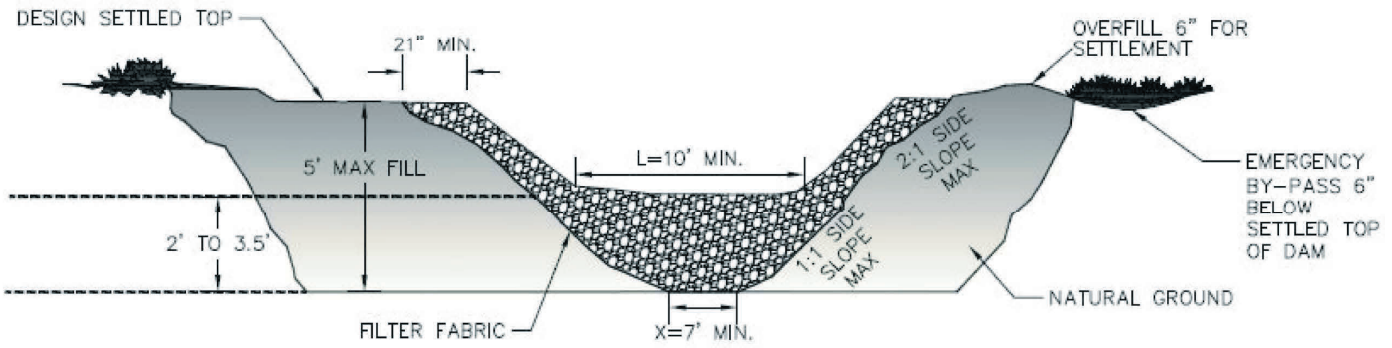
NOTE:

1. PLEASE REFER TO NCESCPDM SECTION #6.60 FOR ADDITIONAL DESIGN SPECIFICATIONS REGARDING TEMPORARY SEDIMENT TRAPS.
2. REFER TO DETAIL FOR BAFFLE SPACING AND INSTALLATION

CROSS–SECTION



PLAN VIEW



NOT TO SCALE

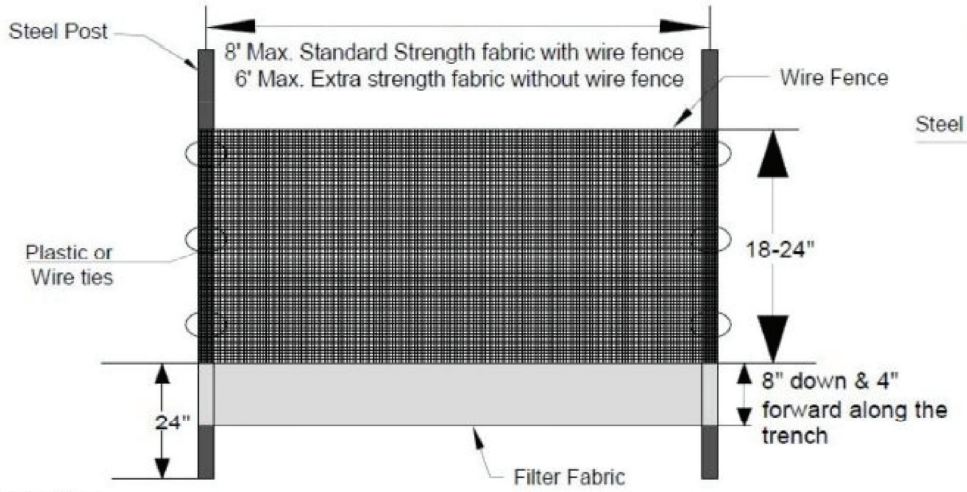
DATA BLOCK

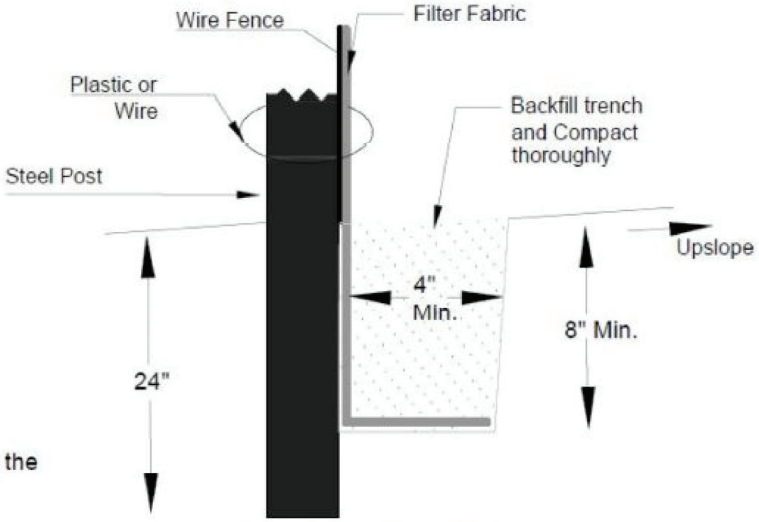
TRAP NO.	DRAINAGE AREA (ACRES)	DENUDED AREA (ACRES)	Q25	TRAP VOLUME		TRAP SURFACE AREA		CLEANOUT DEPTH H/2 (FT.)	H (FEET)	L (FEET)	T (FEET)	W (FEET)	X (FEET)
				REQUIRED (C.F.)	PROVIDED (C.F.)	REQUIRED (C.F.)	PROVIDED (C.F.)						

NOT TO SCALE

BUNCOMBE COUNTY SOIL EROSION & SEDIMENTATION CONTROL DIVISION

SEDIMENT TRAP DETAIL





CROSS SECTION VIEW

Construction:

1. Construct the sediment barrier of standard strength or extra strength synthetic filter fabrics.
2. Ensure that the height of the sediment fence does not exceed 24 inches above the ground. (Higher fences may impound volumes of water sufficient to cause failure of the structure)
3. Construct the filter fabric from a continuous roll cut to the length of the barrier to avoid joints. When joints are necessary, securely fasten the filter cloth only at a support post with 4 feet minimum overlap to the next post.
4. Support standard strength filter fabric by wire mesh fastened securely to the upslope side of the posts. Extend the wire mesh support to the bottom of the trench. Fasten the wire reinforcement, then fabric on the upslope side of the fence post. Wire or plastic zip ties should have a minimum 50 pound tensile strength.
5. When a wire mesh support fence is used, space posts a maximum of 8 feet apart. Supports should be driven securely into the ground a minimum of 24 inches.
6. Extra strength filter fabric with 6 foot post spacing does not require a wire mesh support fence. Securely fasten the filter fabric directly to posts. Wire or plastic zip ties should have a minimum of 50 pound tensile strength.
7. Excavate the trench approximately 4 inches wide and 8 inches deep along the proposed line of the posts and upslope from the barrier.
8. Place 12 inches of fabric along the bottom and side of the trench.
9. Backfill the trench with soil placed over the filter fabric and compact. Thorough compaction of the backfill is critical to silt fence performance.
10. Do not attach filter fabric to existing trees.

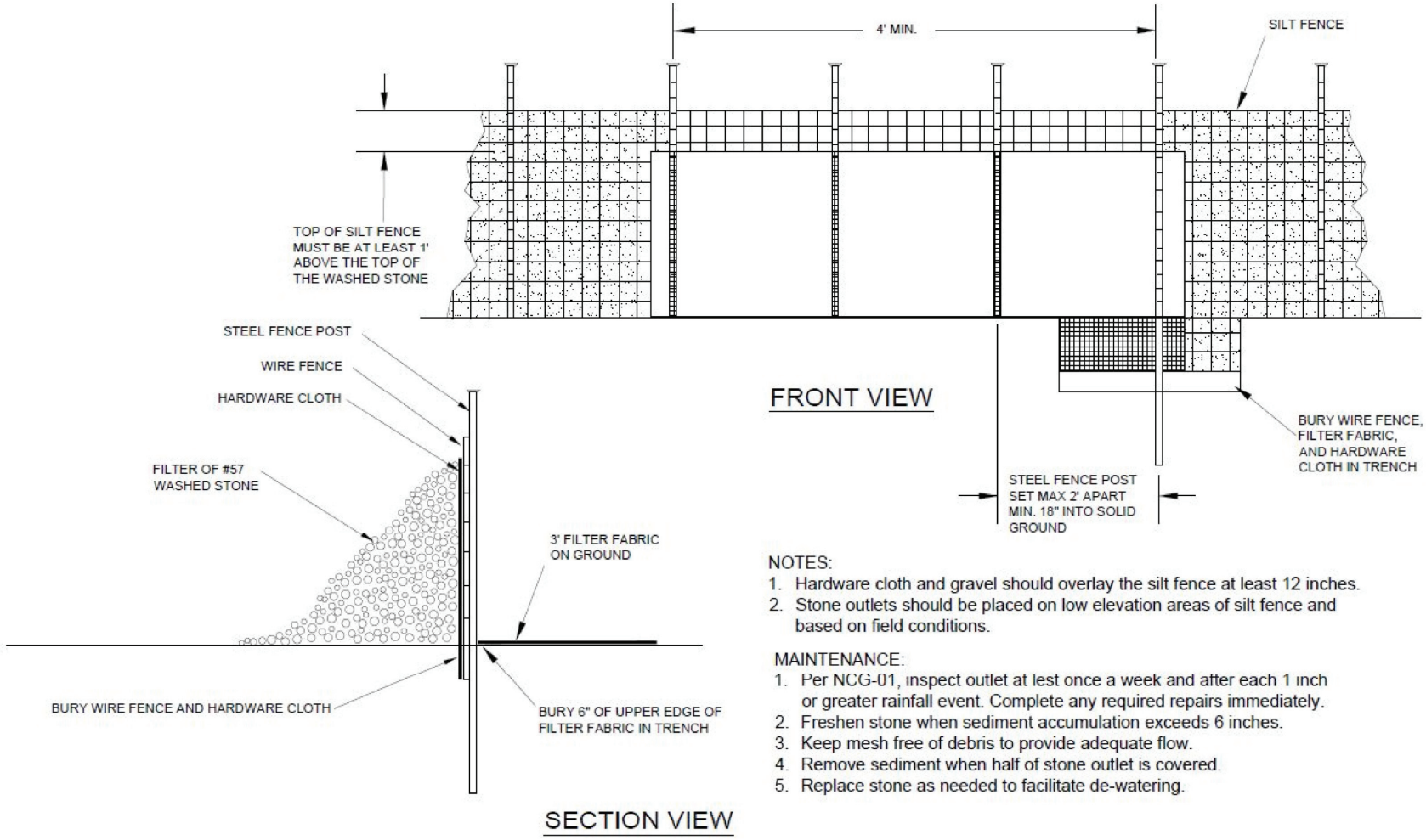
Maintenance:

1. Inspect sediment fences at least once a week and after each 1 inch or greater rainfall. Make any required repairs immediately.
2. Should the fabric of a sediment fence collapse, tear, decompose, or become ineffective, replace it promptly.
3. Remove sediment deposits as necessary to provide adequate storage volume for the next rain and reduce pressure on the fence. Take care to avoid undermining the fence during cleanouts.
4. Remove all fencing materials and unstable sediment deposits and bring the area to grade and stabilize it after the contributing drainage area has been properly stabilized.

NOT TO SCALE

BUNCOMBE COUNTY SOIL EROSION & SEDIMENTATION CONTROL DIVISION

STANDARD SILT FENCE DETAIL



NOTES:

1. Hardware cloth and gravel should overlay the silt fence at least 12 inches.
2. Stone outlets should be placed on low elevation areas of silt fence and based on field conditions.

MAINTENANCE:

1. Per NCG-01, inspect outlet at lest once a week and after each 1 inch or greater rainfall event. Complete any required repairs immediately.
2. Freshen stone when sediment accumulation exceeds 6 inches.
3. Keep mesh free of debris to provide adequate flow.
4. Remove sediment when half of stone outlet is covered.
5. Replace stone as needed to facilitate de-watering.

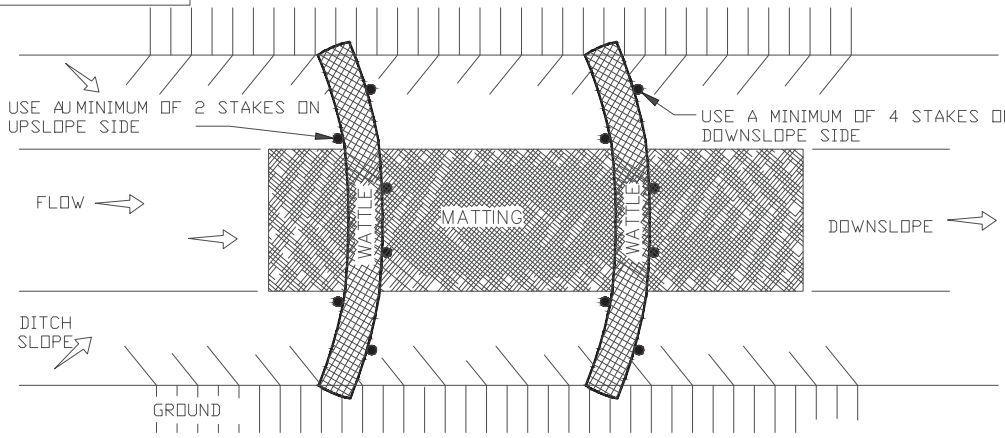
NOT TO SCALE

BUNCOMBE COUNTY SOIL EROSION & SEDIMENTATION CONTROL DIVISION

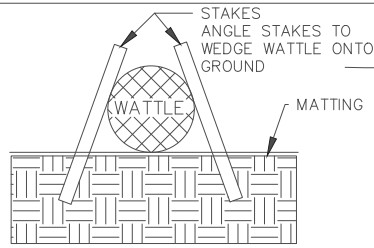
STANDARD SILT FENCE OUTLET DETAIL

Date:

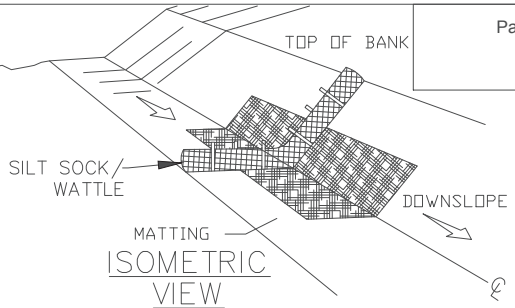
Page:



PLAN VIEW

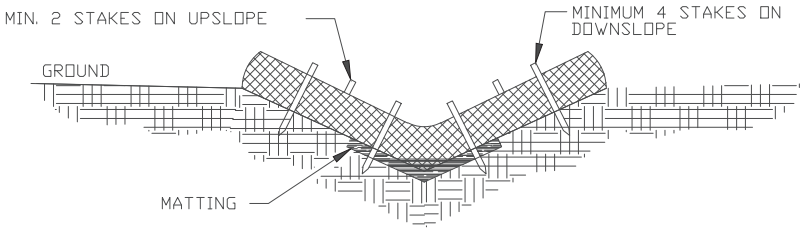


STAKE INSTALLATION CROSS-SECTION

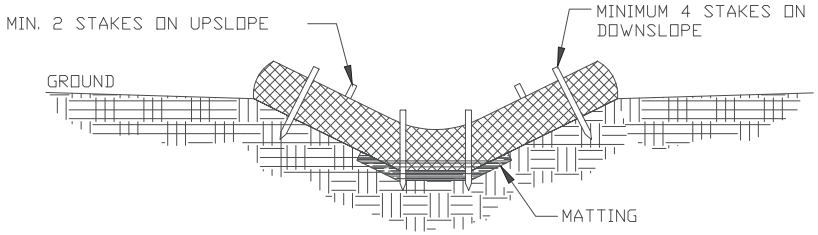


ISOMETRIC VIEW

Ditch Spacing For 12 Inch Silt Sock/Wattle	
Channel Slope (%)	Space Between Silt Socks/ Wattles (Feet)
1	100
2	50
3	33
4	25
5	20



V-DITCH SECTION VIEW



TRAPEZOIDAL DITCH SECTION VIEW

NOTES:

1. Other materials providing equivalent protection against erosive velocities may be substituted for use in silt socks or wattles.
2. Use a minimum 12 inch diameter silt sock/wattle.
3. Fill silt sock/wattle netting uniformly to the desired length such that logs do not deform.
4. Use 24 inch long wooden stakes with a 2 inch x 2 inch nominal cross section.
5. Install silt sock/wattle(s) to a height on slope so flow will not wash around silt sock/wattle and scour slopes, or as directed.
6. Install a minimum of two upslope stakes and four downslope stakes at an angle to wedge silt sock/wattle to ground at bottom ditch.
7. The use of Polyacrylamide (PAM) is recommended. Apply 2-3 ounces of anionic PAM on top of sock/wattle. Apply 1-2 ounces to matting on either side of sock/wattle. Reapply after each 1.0 inch rainfall.

MAINTENANCE:

1. Inspect silt sock/wattle(s) weekly and after each rain of 1 inch or greater. Remove accumulated sediment and any debris.
2. Silt sock/Wattle(s) must be replaced if clogged or torn.
3. If ponding becomes excessive, the silt sock/wattle may need to be replaced with a larger diameter or a different measure.
4. Reinstall if damaged or dislodged.
5. Silt socks/Wattles shall be inspected until land disturbance is compete and the area above the measure is permanently stabilized.

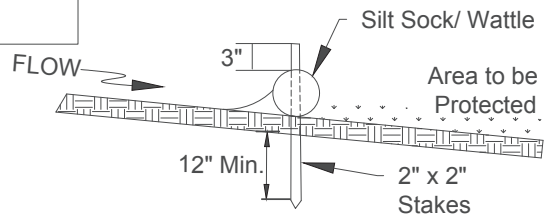
NORTH CAROLINA Environmental Quality

EFFECTIVE DATE: 11/12/2020

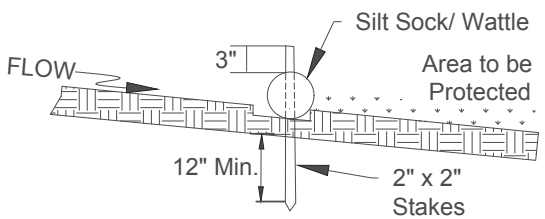
SILT SOCK / WATTLE FOR CHECK DAMS

Date:

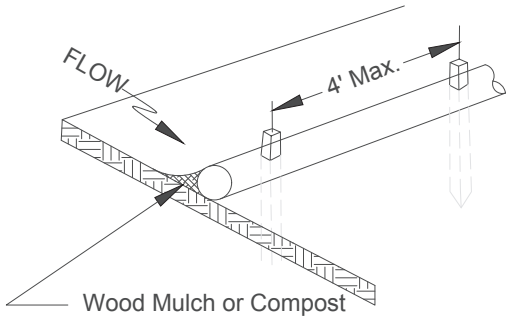
Page:



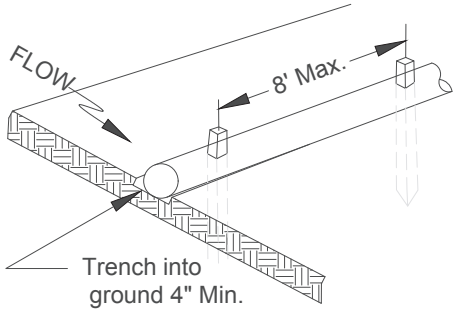
SECTION



SECTION



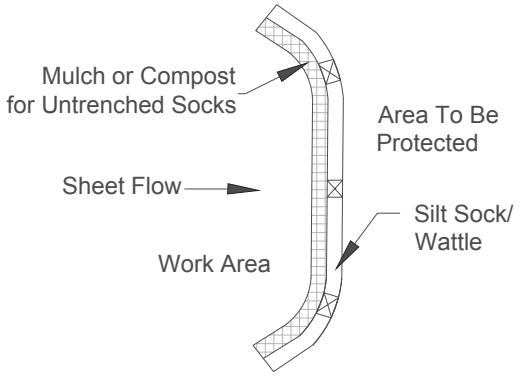
UNTRENCHED INSTALLATION



ENTRENCHED INSTALLATION*

*THIS APPLICATION MAY NOT BE USED WITH COMPOST SOCKS SMALLER THAN 12".

ISOMETRIC VIEW



COMPOST SOCK INITIAL FLOW RATES					
Compost Sock Design Diameter	8 Inch (200 nm)	12 Inch (300 nm)	18 Inch (450 nm)	24 Inch (600 nm)	32 Inch (750 nm)
Maximum Slope Length (<2%)	600 Feet (183 m)	750 Feet (229 m)	1,000 Feet (305 m)	1,300 Feet (396 m)	1,650 Feet (500 m)
Hydraulic Flow Through Rate	7.5 gpm/ft (94 l/m/m)	11.3 gpm/ft (141 l/m/m)	15.0 gpm/ft (188 l/m/m)	22.5 gpm/ft (281 l/m/m)	30.0 gpm/ft (374 l/m/m)

NOTE:

1. Other materials providing equivalent protection against erosive velocities may be substituted for use in silt socks or wattles.
2. Fill silt sock/wattle netting uniformly with compost to the desired length such that logs do not deform.
3. Silt sock/Wattle(s) should be installed parallel to and a minimum of 10 feet beyond the toe of a graded slope. Silt Sock/Wattle(s) located below flat areas should be located at the edge of the land disturbance. The ends of the silt sock/wattle(s) should be turned slightly upslope to prevent runoff from going around the end of the silt sock/wattle(s).
4. Oak or other durable hardwood stakes with a 2 inch x 2 inch cross section should be driven vertically plumb, through the center of the silt sock/wattle. Stakes should be placed at a maximum interval of 4 feet or a maximum interval of 8 feet if the silt sock/wattle is placed in a 4 inch trench.
5. In the event staking is not possible (ie. when socks/wattles are used on pavement) heavy concrete blocks shall be used behind the silt sock/wattle to hold it in place during runoff events.

MAINTENANCE:

1. Inspect silt sock/wattle at least weekly and after each 1 inch or greater rainfall. Remove accumulated sediment and any debris as needed to allow for adequate flow.
2. Silt sock/Wattle must be replaced if clogged or torn.
3. If ponding becomes excessive, the silt sock/wattle may need to be replaced with a larger diameter or a different measure.
4. Reinstall if damaged or dislodged.
5. Silt socks/wattles shall be inspected until land disturbance is compete and the area above the measure has been permanently stabilized.

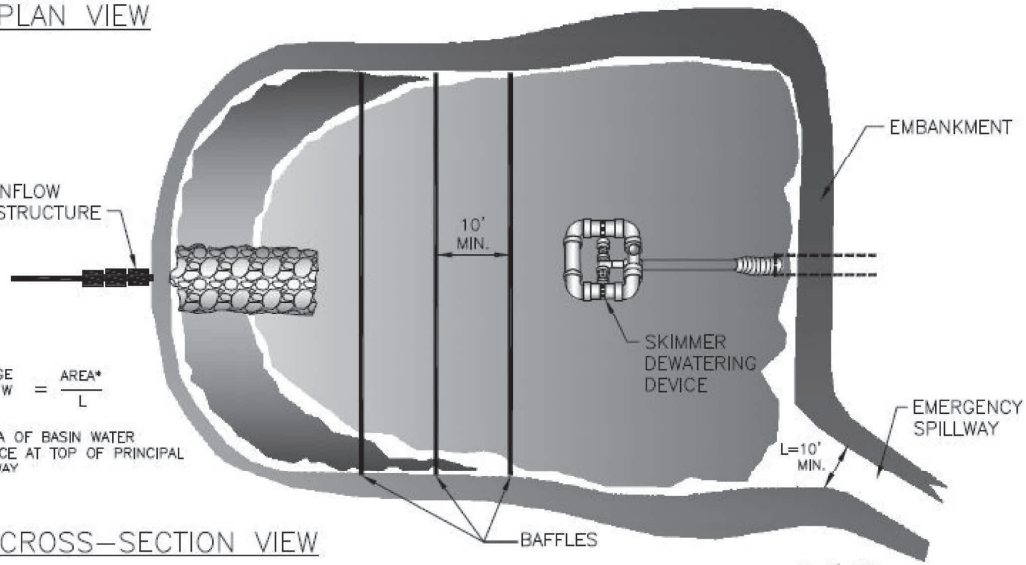
NORTH CAROLINA Environmental Quality

EFFECTIVE DATE: 11/12/2020

SILT SOCK FOR PERIMETER AND INLET PROTECTION

SKIMMER SEDIMENT BASIN DESIGN CRITERIA	
DRAINAGE AREA (ACRES)	< 10 AC.
MIN. LENGTH TO WIDTH RATIO	2:1
MAX. LENGTH TO WIDTH RATIO	6:1
MIN. VOLUME REQUIRED	1800 (CU. FT. PER AC. DISTURBED)
SURFACE AREA REQUIRED	325 (SQ. FT. PER CFS

PLAN VIEW



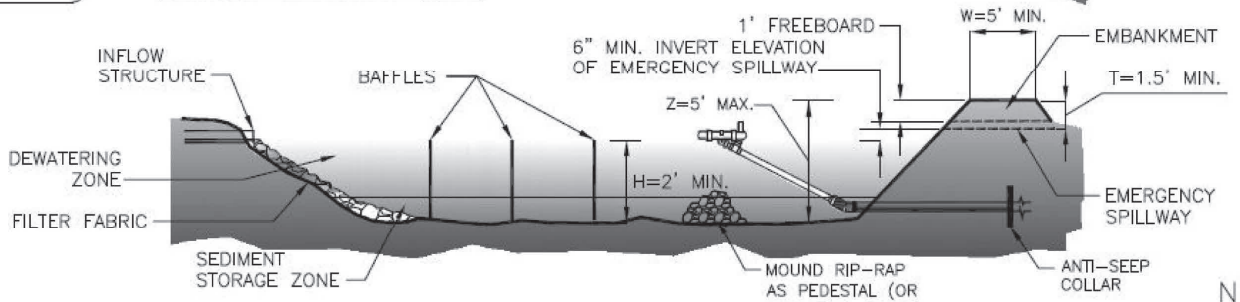
AVERAGE WIDTH W = AREA* / L

* AREA OF BASIN WATER SURFACE AT TOP OF PRINCIPAL SPILLWAY

NOTES:

1. REFER TO NCESCPDM SECTION #6.64 FOR ADDITIONAL DESIGN SPECIFICATIONS REGARDING SKIMMER SEDIMENT BASINS.
2. **REFER TO DETAIL FOR BAFFLE SPACING AND INSTALLATION**

CROSS–SECTION VIEW



NOT TO SCALE

DATA BLOCK

BASIN NO.	DRAINAGE AREA (ACRES)	DENUDED AREA (ACRES)	Q25	BASIN VOLUME		BASIN SURFACE AREA		CLEANOUT DEPTH H/2 (FT.)	H (FEET)	L (FEET)	T (FEET)	W (FEET)	Z (FEET)	SKIMMER PIPE DIAMETER	SKIMMER ORIFICE DIAMETER
				REQUIRED (C.F.)	PROVIDED (C.F.)	REQUIRED (C.F.)	PROVIDED (C.F.)								

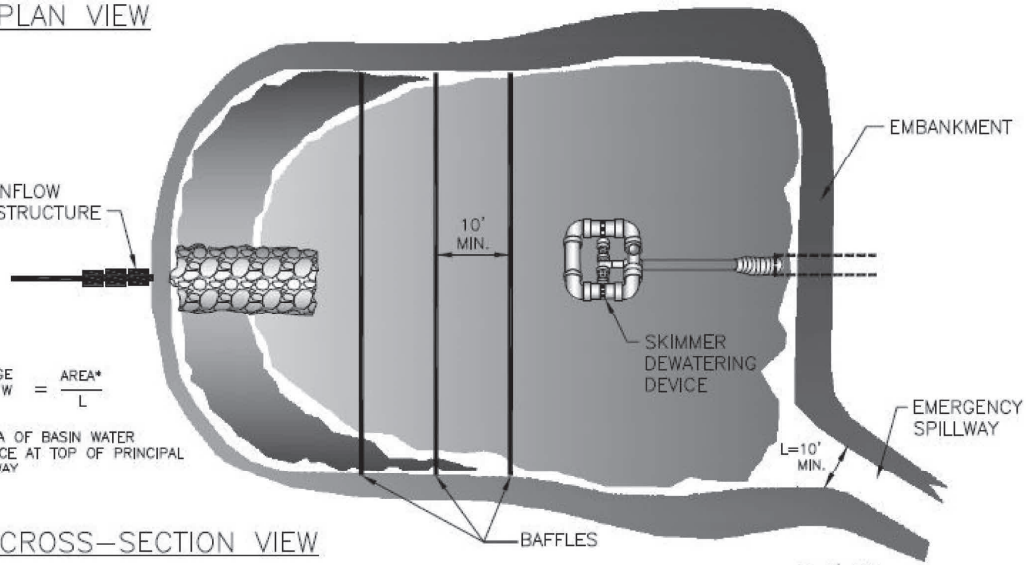
NOT TO SCALE

BUNCOMBE COUNTY SOIL EROSION & SEDIMENTATION CONTROL DIVISION

SKIMMER BASIN DETAIL

SKIMMER SEDIMENT BASIN DESIGN CRITERIA	
DRAINAGE AREA (ACRES)	< 10 AC.
MIN. LENGTH TO WIDTH RATIO	2:1
MAX. LENGTH TO WIDTH RATIO	6:1
MIN. VOLUME REQUIRED	1800 (CU. FT. PER AC. DISTURBED)
SURFACE AREA REQUIRED	325 (SQ. FT. PER CFS

PLAN VIEW



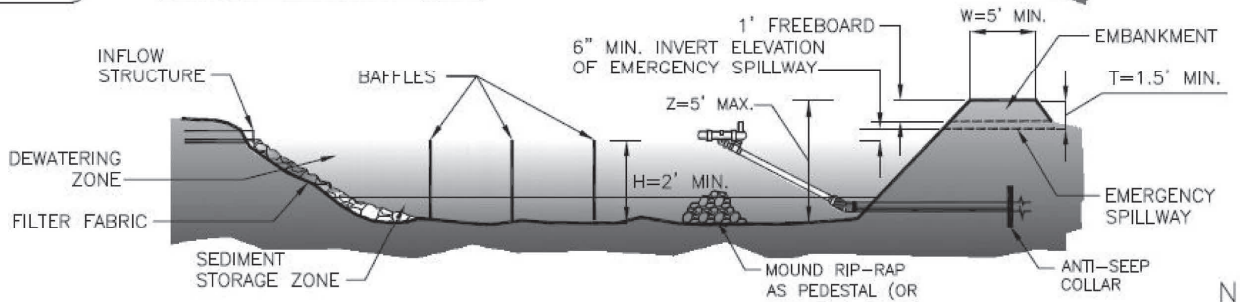
AVERAGE WIDTH W = AREA* / L

* AREA OF BASIN WATER SURFACE AT TOP OF PRINCIPAL SPILLWAY

NOTES:

1. REFER TO NCESCPDM SECTION #6.64 FOR ADDITIONAL DESIGN SPECIFICATIONS REGARDING SKIMMER SEDIMENT BASINS.
2. REFER TO DETAIL FOR BAFFLE SPACING AND INSTALLATION

CROSS–SECTION VIEW



NOT TO SCALE

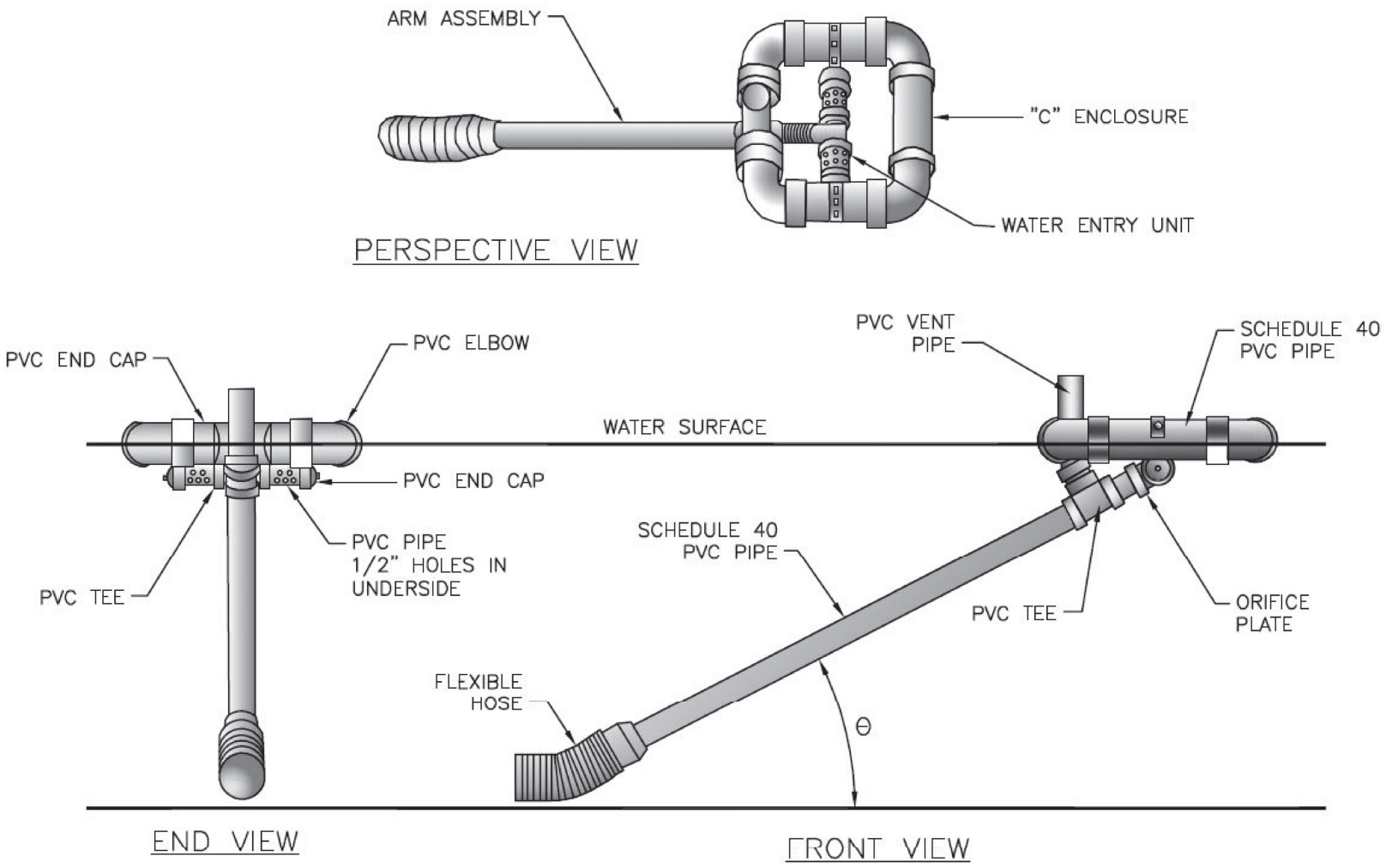
DATA BLOCK

BASIN NO.	DRAINAGE AREA (ACRES)	DENUDED AREA (ACRES)	Q25	BASIN VOLUME		BASIN SURFACE AREA		CLEANOUT DEPTH H/2 (FT.)	H (FEET)	L (FEET)	T (FEET)	W (FEET)	Z (FEET)	SKIMMER PIPE DIAMETER	SKIMMER ORIFICE DIAMETER
				REQUIRED (C.F.)	PROVIDED (C.F.)	REQUIRED (C.F.)	PROVIDED (C.F.)								

NOT TO SCALE

BUNCOMBE COUNTY SOIL EROSION & SEDIMENTATION CONTROL DIVISION

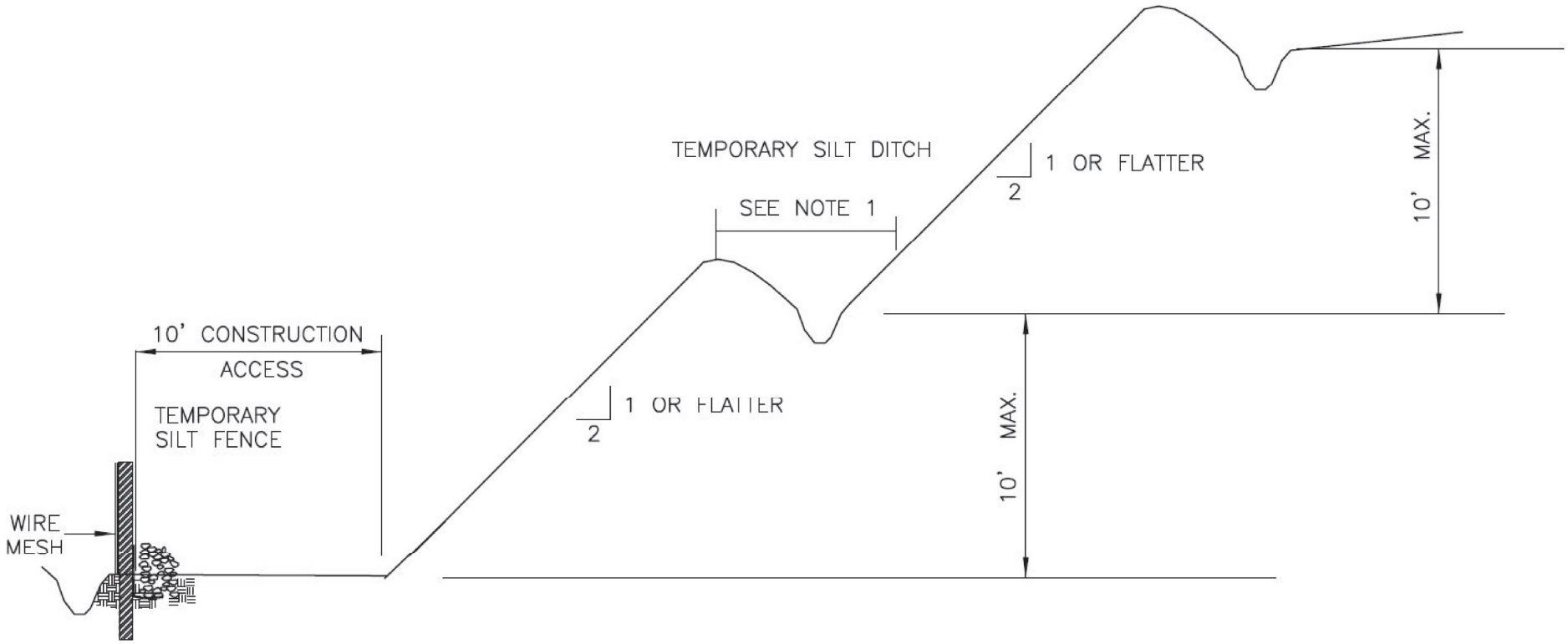
SKIMMER BASIN DETAIL



NOT TO SCALE

BUNCOMBE COUNTY SOIL EROSION & SEDIMENTATION CONTROL DIVISION

SKIMMER DETAIL



NOTES:

1. DIVERSION DITCH SHOULD FLOW INTO SEDIMENT BASIN, ROCK CHECK DAM, OR SLOPE DRAIN.
2. REFER TO NCESCPDM TABLE 6.02A FOR SPACING OF SLOPE BREAKS.

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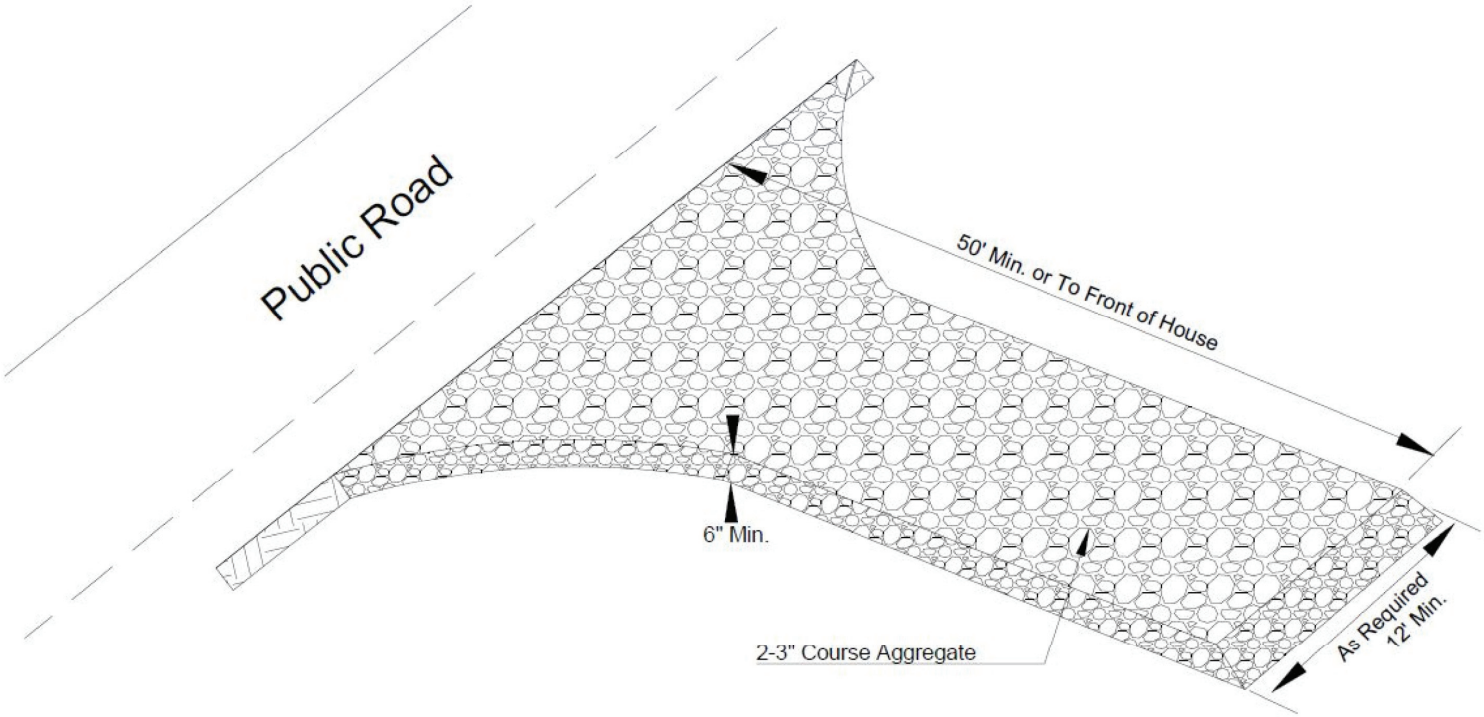
BUNCOMBE COUNTY SOIL EROSION & SEDIMENTATION CONTROL DIVISION

SLOPE STABILITY DETAIL



Construction:

1. Clear the entrance and exit area of all vegetation, roots, and other objectionable material and properly grade it.
2. Place the gravel to the specific grade and dimensions shown on the plans, and smooth it.
3. Provide drainage to carry water to a sediment trap or other suitable outlet.
4. Use geotextile fabrics in order to improve stability of the foundation in locations subject to seepage or high water table.

Maintenance:

1. Per NCG-01 inspect at least once a week and after each 1 inch or greater rainfall; make any required repairs immediately.
2. Maintain the gravel pad in a condition to prevent mud or sediment from leaving the construction site. This may require periodic topdressing with 2 inch stone.
3. Immediately remove all objectionable materials spilled, washed or tracked onto public roadways.

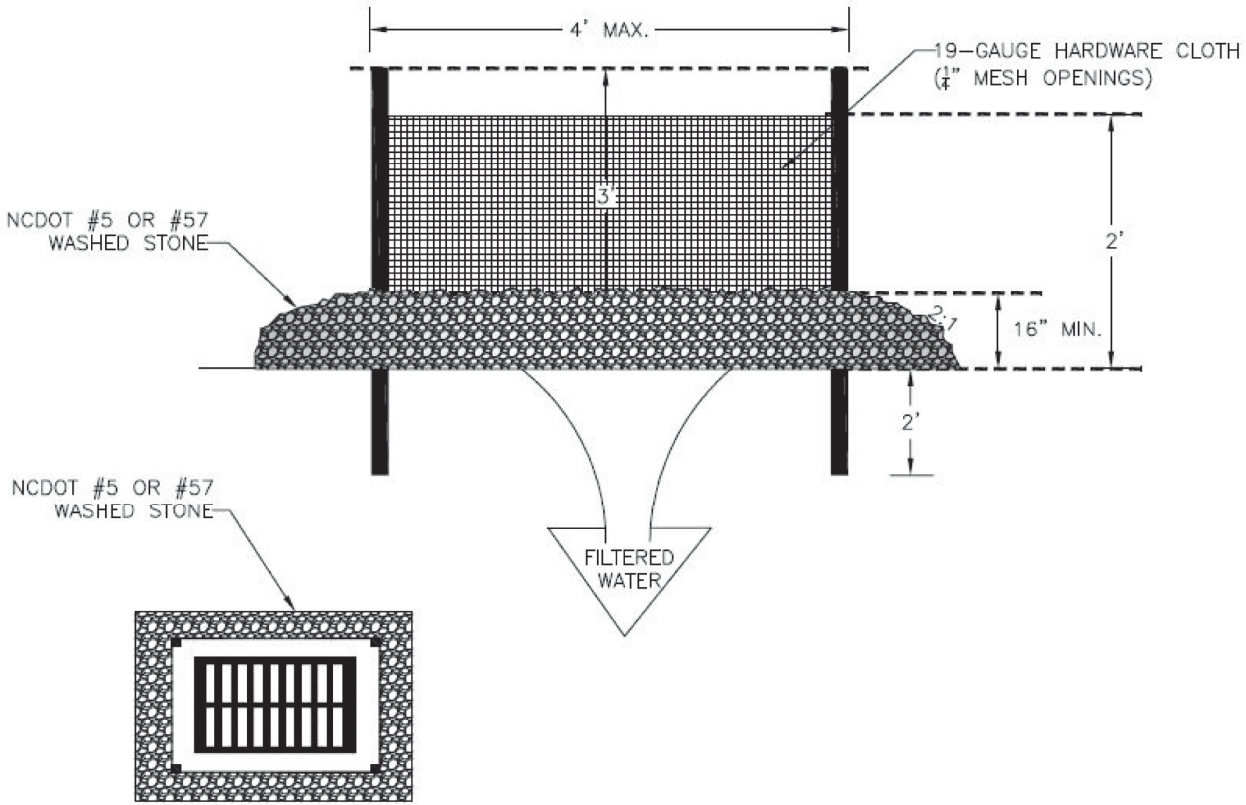
NOT TO SCALE

BUNCOMBE COUNTY SOIL EROSION & SEDIMENTATION CONTROL DIVISION

STONE CONSTRUCTION ENTRANCE DETAIL

GENERAL NOTES:

1. UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING THE INLET.
2. DRIVE 5–FOOT STEEL POSTS 2 FEET INTO THE GROUND SURROUNDING THE INLET. SPACE POSTS EVENLY AROUND THE PERIMETER OF THE INLET, A MAXIMUM OF 4 FEET APART.
3. SURROUND THE POSTS WITH WIRE MESH HARDWARE CLOTH. SECURE THE WIRE MESH TO THE STEEL POSTS AT THE TOP, MIDDLE, AND BOTTOM. PLACING A 2–FOOT FLAP OF THE WIRE MESH UNDER THE GRAVEL FOR ANCHORING IS RECOMMENDED.
4. PLACE CLEAN GRAVEL (NC DOT #5 OR #57 STONE) ON A 2:1 SLOPE WITH A HEIGHT OF 16 INCHES AROUND THE WIRE, AND SMOOTH TO AN EVEN GRADE.
5. ONCE THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE ACCUMULATED SEDIMENT, AND ESTABLISH FINAL GRADING ELEVATIONS.
6. COMPACT THE AREA PROPERLY AND STABILIZED IT WITH GROUNDCOVER.



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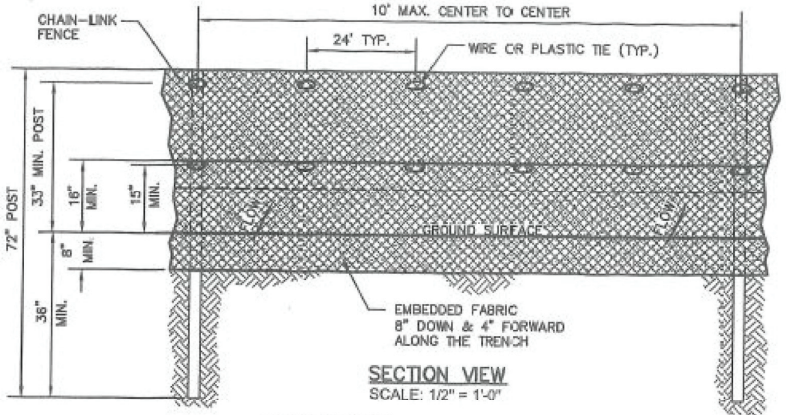
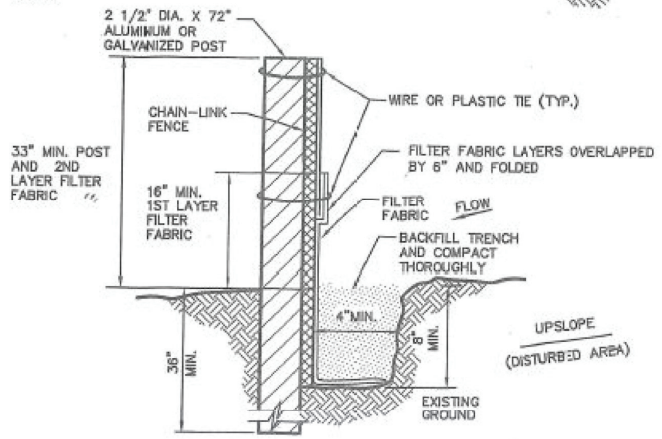
BUNCOMBE COUNTY SOIL EROSION & SEDIMENTATION CONTROL DIVISION

STONE INLET PROTECTION DETAIL



SECTION VIEW
SCALE: 1/2" = 1'-0"



DETAIL VIEW
NOT TO SCALE

CONSTRUCTION SPECIFICATIONS:

1. CHAIN-LINK FENCE SHALL BE 42 INCHES IN HEIGHT AND USE 42 INCH FABRIC AND 6 FOOT LENGTH POSTS.
2. POLES DO NOT NEED TO BE SET IN CONCRETE.
3. CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIES OR STAPLES.
4. FILTER CLOTH SHALL BE FASTENED SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24" HORIZONTALLY AT THE TOP AND MIDDLE (VERTICAL) SECTIONS.
5. FILTER CLOTH SHALL BE EMBEDDED A MINIMUM OF 8 INCHES INTO THE GROUND.
6. WHEN TWO HORIZONTAL SECTIONS OF FILTER FABRIC ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6" AND FOLDED.
7. FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND DAILY DURING PROLONGED RAINFALL. REPAIRS SHALL BE MADE AS NECESSARY.
8. FABRIC SHALL BE REPLACED PROMPTLY IF FOUND TO BE IN DISREPAIR.
9. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT AND WHEN DEPOSITS REACH APPROXIMATELY 1/3 HEIGHT OF BARRIER.

NOT TO SCALE

BUNCOMBE COUNTY SOIL EROSION & SEDIMENTATION CONTROL DIVISION

SUPER SILT FENCE DETAIL

Date:

Page:

TEMPORARY SEEDING RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING

Seeding Mixture

Species	Rate (lb/acre)
Rye (grain)	120
Annual lespedeza (Kobe in Piedmont and Coastal Plain, Korean in Mountains)	50

Omit annual lespedeza when duration of temporary cover is not to extend beyond June.

Seeding Dates

Mountains—Above 2500 feet: Feb. 15 - May 15
Below 2500 feet: Feb. 1- May 1

Piedmont—Jan. 1 - May 1

Coastal Plain—Dec. 1 - Apr. 15

Mulch

Apply 4,000 lb/acre straw. Anchor straw by tacking with asphalt, netting, or a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulch anchoring tool.

Maintenance

Refertilize if growth is not fully adequate. Reseed, refertilize and mulch immediately following erosion or other damage.

TEMPORARY SEEDING RECOMMENDATIONS FOR SUMMER

Seeding Mixture

Species	Rate (lb/acre)
German millet	40

In the Piedmont and Mountains, a small-stemmed Sudangrass may be substituted at a rate of 50 lb/acre.

Seeding Dates

Mountains—May 15 - Aug. 15

Piedmont—May 1 - Aug. 15

Coastal Plain—Apr. 15 - Aug. 15

Mulch

Apply 4,000 lb/acre straw. Anchor straw by tacking with asphalt, netting, or a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulch anchoring tool.

Maintenance

Refertilize if growth is not fully adequate. Reseed, refertilize and mulch immediately following erosion or other damage.

TEMPORARY SEEDING RECOMMENDATIONS FOR FALL

Seeding Mixture

Species	Rate (lb/acre)
Rye (grain)	120

Seeding Dates

Mountains—Aug. 15 - Dec. 15

Coastal Plain and Piedmont—Aug. 15 - Dec. 31

Mulch

Apply 4,000 lb/acre straw. Anchor straw by tacking with asphalt, netting, or a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulch anchoring tool.

Maintenance

Repair and refertilize damaged areas immediately. Topdress with 50 lb/acre of nitrogen in March. If it is necessary to extend temporary cover beyond June 15, overseed with 50 lb/acre Kobe (Piedmont and Coastal Plain) or Korean (Mountains) lespedeza in late February or early March.

SEED BED PREPARATION:

LIMING- Apply lime according to soil test recommendations. If the pH (acidity) of the soil is not known, an application of ground agricultural limestone at the rate of 1 to 1 $\frac{1}{2}$ tons/acre on coarse-textured soils and 2-3 tons/acre on fine-textured soils is usually sufficient. Apply limestone uniformly and incorporate into the top 4-6 inches of soil. Soils with a pH of 6 or higher need not be limed.

FERTILIZER- Base application rates on soil tests. When these are not possible, apply a 10-10-10 grade fertilizer at 700-1,000 lb/acre. Both fertilizer and lime should be incorporated into the top 4-6 inches of soil. If a hydraulic seeder is used, do not mix seed and fertilizer more than 30 minutes before application.

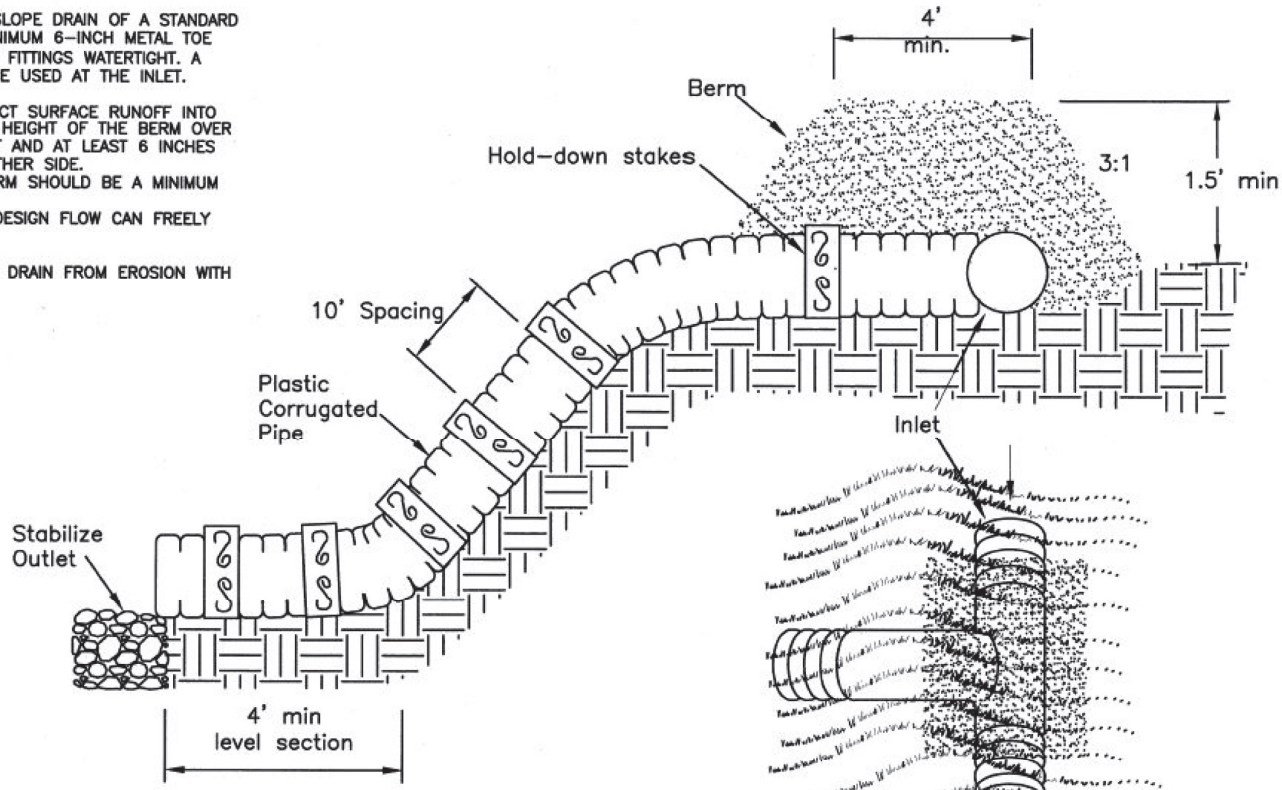
SURFACE ROUGHENING- If recent tillage operations have resulted in a loose surface additional roughening may not be required, except to break up large clods. If rainfall causes the surface to become sealed or crusted, loosen it just prior to seeding by raking, harrowing, or other suitable methods for fine grading. The finished grade shall be a smooth even soil surface with a loosen uniformly fine texture. All ridges and depressions shall be removed and filled to provide the approved surface drainage. Planting is to be done immediately after finished grades are obtained and seedbed preparation is completed.

NOTES:

1. CONSTRUCT THE ENTRANCE TO THE SLOPE DRAIN OF A STANDARD FLARED–END SECTION OF PIPE WITH A MINIMUM 6–INCH METAL TOE PLATE (CROSS–SECTION VIEW). MAKE ALL FITTINGS WATERTIGHT. A STANDARD T–SECTION FITTING MAY ALSO BE USED AT THE INLET.

2. USE AN EARTHEN DIVERSION TO DIRECT SURFACE RUNOFF INTO THE TEMPORARY SLOPE DRAIN. MAKE THE HEIGHT OF THE BERM OVER THE DRAIN CONDUIT A MINIMUM OF 1.5 FT AND AT LEAST 6 INCHES HIGHER THAN THE ADJOINING BERM ON EITHER SIDE.
THE LOWEST POINT OF THE DIVERSION BERM SHOULD BE A MINIMUM OF 1 FT
ABOVE THE TOP OF THE DRAIN SO THAT DESIGN FLOW CAN FREELY ENTER THE PIPE.

3. PROTECT THE OUTLET OF THE SLOPE DRAIN FROM EROSION WITH RIPRAP DISSIPATOR.



Cross–Section View

Plan View
Standard T–section

NOT TO SCALE

BUNCOMBE COUNTY SOIL EROSION & SEDIMENTATION CONTROL DIVISION

TEMPORARY SLOPE DRAIN DETAIL