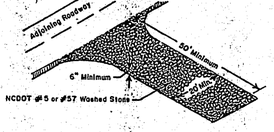
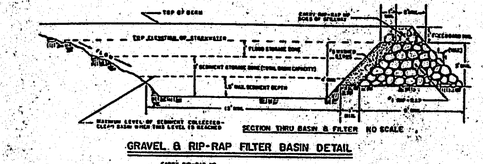
TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

a. NCDOT #5 or #57 WASHED STONE SHALL BE USED. PAD TO BE 50' L. x 20' W. x 6" D. AT A MINIMUM.
b. TURNING RADIUS SUFFICIENT TO ACCOMODATE LARGE TRUCKS IS TO BE PROVIDED.
c. ENTRANCE(S) SHOULD BE LOCATED TO PROVIDE FOR MAXIMUM UTILITY BY ALL CONSTRUCTION VEHICLES.
d. MUST BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR DIRECT FLOW OF MUD ONTO STREETS. PERIODIC TOPDRESSING WITH STONE WILL BE NECESSARY, KEEP SOME HANDY.
e. ANY MATERIAL WHICH STILL MAKES IT ONTO THE ROAD MUST BE CLEANED UP IMMEDIATELY.

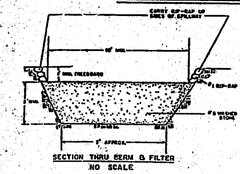


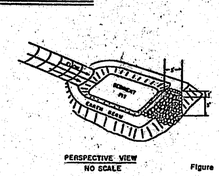
NOTES: APPLICABLE AT ALL POINTS OF INGRESS & EGRESS UNTIL SITE IS STABILIZED. FREQUENT CHECKS OF THE DEVICE AND TIMELY MAINTENANCE MUST BE PROVIDED.

SOURCE: Va. SWCC, MODIFIED & REDRAFTED BY WCCDS-Eng. Div., Used by Permission.

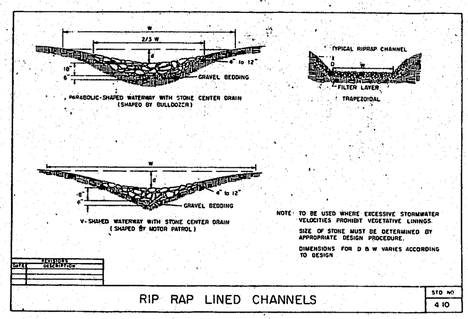


GRAVEL & RIP-RAP FILTER BASIN DETAIL





Figure



RIP RAP LINED CHANNELS

STD NO 4.10

5. BLOCK AND GRAVEL CURB INLET SEDIMENT FILTER

a. TWO CONCRETE BLOCKS SHALL BE PLACED ON THEIR SIDES ABUTTING THE CURB AT EITHER SIDE OF THE INLET OPENING. A 2"x 4" STUD SHALL BE CUT AND PLACED THROUGH THE OUTER HOLES OF THE SPACER BLOCKS TO BRACE THE FRONT BLOCKS. FRONT BLOCKS ARE PLACED ON THEIR SIDES ACROSS THE INLET AND ABUTTING THE SPACER BLOCKS.
b. HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2" OPENINGS SHALL BE PLACED OVER THE OUTSIDE VERTICAL FACE (WEEPING) OF THE BLOCKS TO PREVENT FILTER STONE FROM BEING WASHED THROUGH THE HOLES IN THE BLOCK.
c. NCDOT #5 WASHED STONE SHALL BE PILED AGAINST THE WIRE TO THE TOP OF THE BLOCK.
d. CHECK DEVICE AFTER EACH RAIN. REPLACE WASHED STONE IF IT CLOGS WITH SEDIMENT.

NOTES: Applicable at curb inlets where an overflow capability is necessary to prevent excessive ponding in front of the inlet.

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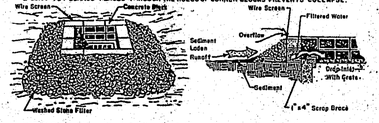
3. BLOCK AND GRAVEL DROP INLET SEDIMENT FILTER

a. PLACE CONCRETE BLOCKS LENGTHWISE ON THEIR SIDES IN A SNUGLE ROW AROUND THE PERIMETER OF THE INLET, WITH THE ENDS OF ADJACENT BLOCKS ABUTTING. THE HEIGHT CAN BE VARIED, DEPENDING ON DESIGN NEEDS, BY STACKING COMBINATIONS OF 4", 8", AND 12" WIDE BLOCKS. THE MIN. HEIGHT SHALL BE 12", MAX. HEIGHT 24".
b. WIRE MESH OR HARDWARE CLOTH W/ 1/2" OPENINGS SHALL BE PLACED OVER THE OUTSIDE VERTICAL FACE (WEEPING) OF THE BLOCKS, TO PREVENT STONE FROM BEING WASHED THROUGH THE HOLES IN THE BLOCKS.
c. STONE SHALL BE PILED AGAINST THE WIRE TO THE TOP OF THE BLOCK. NCDOT #5 WASHED STONE.
d. CHECK DEVICE AFTER EACH RAIN. REPLACE WASHED STONE IF IT CLOGS WITH SEDIMENT.
e. SCRAP 1"x 4" BOARDS PLACED THROUGH THE HOLES OF CORNER BLOCKS PREVENTS CULVERT.



NOTES: Can handle heavy flows. Overflow capability prevents excessive ponding around the structure.

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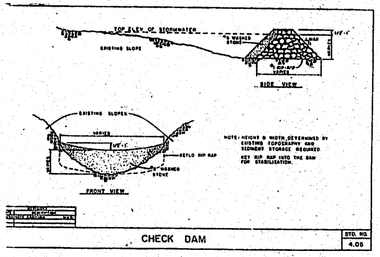
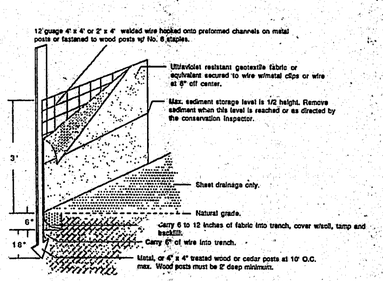
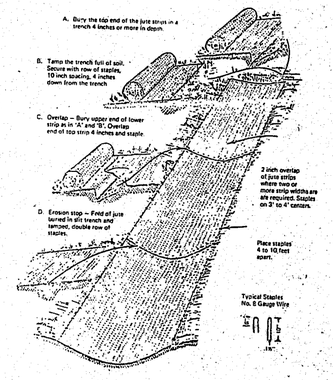


CHECK DAM

STD. NO 4.00



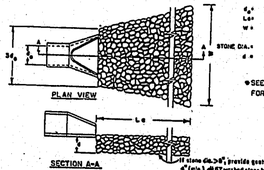


TEMPORARY DIVERSION BERM/DITCH

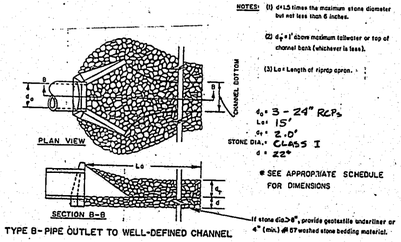
a. MACHINE COMPACTION OF ALL FILL IS REQUIRED. DIVERSIONS SUFFICIENT TO DIRECT ALL SEDIMENT-LADEN STORMWATER INTO A SEDIMENT CONTROL DEVICE MUST BE INSTALLED PRIOR TO CLEARING & GRUBBING OF THE AREA (OR IN CONJUNCTION WITH THIS OPERATION IF SEDIMENT CONTROLS & DIVERSIONS ARE INSTALLED AS EACH CRITICAL POINT IS REACHED).
b. DIVERSIONS SHOULD BE LOCATED TO MINIMIZE DAMAGES BY CONSTRUCTION OPERATIONS.
c. DIVERSIONS SHOULD BE SEEDED & MULCHED IF THEY ARE TO REMAIN IN PLACE OVER 30 DAYS.
d. CHECK DEVICE AFTER EACH RAIN, BUT ONCE A WEEK REGARDLESS. REPAIR AS NECESSARY.

NOTES: POSITIVE GRADE MUST BE PROVIDED TO ASSURE DRAINAGE. IF SLOPE EXCEEDS 2%, SEED & MULCH DIVERSION. TRY NOT TO EXCEED 5% (HIGH VELOCITIES RESULT). MAXIMUM D.A. = 5 ACRES WITHOUT SUPPORTING CALCS. DIVERSIONS AT THE TOP OF SLOPES MUST OUTFLOW INTO AN APPROVED SLOPE DRAIN. BERM/DITCH IS MOST COMMONLY USED.

SOURCE: WCCDS Eng. Div. 3-10-88



TYPE A- PIPE OUTLET TO FLAT AREA WITH NO DEFINED CHANNEL



TYPE B- PIPE OUTLET TO WELL-DEFINED CHANNEL

CULVERT OUTLET PROTECTION

Seedbed Preparation

1.) Chisel compacted areas and spread topsoil 3 inches deep over adverse soil conditions, if available.
2.) Rip the entire area to 6 inches depth.
3.) Remove all loose rock, roots, and other obstructions leaving surface reasonably smooth and uniform.
4.) Apply agricultural lime, fertilizer, and superphosphate uniformly and mix with soil (see below*).
5.) Continue tillage until a well-pulverized, firm, reasonably uniform seedbed is prepared 4 to 6 inches deep.
6.) Seed on a freshly prepared seedbed and cover seed lightly with seeding equipment or cultipack after seeding.
7.) Mulch immediately after seeding and anchor mulch.
8.) Inspect all seeded areas and make necessary repairs or reseedings within the planting season, if possible. If stand should be over 60% damaged, reestablish following original lime, fertilizer and seeding re'es.
9.) Consult Conservation Inspector on maintenance treatment and fertilization after permanent cover is established.

* Apply: Agricultural Limestone - 2 tons/acre (3 tons/acre in clay soils)
Fertilizer - 1,000 lbs./acre - 10-10-10
Superphosphate - 300 lbs./acre - 20% analysis
Mulch - 2 tons/acre - small grain straw
Anchor - Asphalt Emulsion @ 300 gals./acre

SEEDING SCHEDULE
(REVISED: 1-1-86)

Shoulders, Side Ditches, Slopes (Max. 3:1)

DATE	Type	Planting Rate
Aug 15-Nov 1	Tall Fescue	300 lbs./acre
Nov 1-Mar 1	Tall Fescue & Abruzzi Rye	300 lbs./acre 25 lbs./acre
Mar 1-Apr 15	Tall Fescue	300 lbs./acre
Apr 15-Jun 30	Hulled Common Bermudagrass	25 lbs./acre
Jul 1 -Aug 15	Tall Fescue and ***Browntop Millet ***or Sorghum-Sudan Hybrids	120 lbs./acre 35 lbs./acre 30 lbs./acre

Slopes (3:1 to 2:1)

Mar 1-June 1	Sericea Lespedeza (scarified) &	50 lbs./acre
(Mar 1-Apr 15)	Add Tall Fescue	120 lbs./acre
(Mar 1-Jun 30)	Or Add Weeping Lovegrass	10 lbs./acre
(Mar 1-Jun 30)	Or Add Hulled Common Bermudagrass	25 lbs./acre
Jun 1-Sep 1	***Tall Fescue and ***Browntop Millet ***or Sorghum-Sudan Hybrids	120 lbs./acre 35 lbs./acre 30 lbs./acre
Sep 1-Mar 1	Sericea Lespedeza (unhulled-unscarified) and Tall Fescue	70 lbs./acre 120 lbs./acre
(Nov 1-Mar 1)	Add Abruzzi Rye	25 lbs./acre

Consult Conservation Engineer or Soil Conservation Service for additional information concerning other alternatives for vegetation of denuded areas. The above vegetation rates are those which do well under local conditions; other seeding rate combinations are possible.

***Temporary - Reseed according to optimum season for desired permanent vegetation. Do not allow temporary cover to grow over 12" in height before mowing, otherwise fescue may be shaded out.

CONSTRUCTION SEQUENCE

1. Obtain grading permit.
2. Install gravel construction pad, temporary diversions, silt fence, sediment basins or other measures as shown on the approved plan. Clear only as necessary to install these devices.
3. Call 461-4936 for onsite inspection by Environmental Inspector to obtain a Certificate of Compliance.
4. Begin clearing and grubbing. Maintain devices as needed. Rough grade site.
5. Install storm sewer, if shown, and protect inlets with silt fence, sediment traps or other approved measures as shown on the plan. Begin construction, building, etc.
6. Stabilize site as areas are brought up to finish grade with vegetation, paving, ditch linings, etc.
7. When construction is complete and all areas are stabilized completely, call for inspection by Environmental Inspector.
8. If site is approved, remove temporary diversions, silt fence, sediment basins, etc., and seed out or stabilize any resulting bare areas. All remaining permanent erosion control devices, such as velocity dissipators, should be installed.
9. When vegetation has become established, call for a final site inspection by Environmental Inspector. Obtain a Certificate of Completion.

STANDARD AND SPECIFICATION FOR PERMANENT SEEDINGS ON GRADED DEVELOPMENT AREAS

Definition

Seeding perennial grasses and legumes on critical areas for permanent cover.

Purpose

To stabilize the soil; reduce damage from sediment and runoff to downstream areas, and improve an area for safety and beauty.

Where Applicable

On any sediment-producing, eroding or severely eroding areas (where vegetation is difficult to establish with normal planting methods) such as, construction area, cut or fill slopes, borrow areas and other areas denuded of vegetation where perennial vegetation is needed for long term protection.

Specifications Guide

A. Site Preparation
1. Install needed surface water control measures.
2. Grade and slope as feasible to use planned equipment for seeding, mulching and maintenance. Slopes steeper than 2:1 are difficult to establish vegetation on and maintain with conventional equipment.
3. Chisel compacted areas and spread available topsoil 3" deep over adverse soil conditions as a final operation in grading. Where conventional seeding equipment is to be used, rip the entire area.
4. A minimum of grading and shaping is required when hydraulic seeding equipment is to be used.
5. Remove all loose rock, roots and other obstructions from the surface that will interfere with establishment and maintenance of vegetation. Leave surface reasonably smooth and uniform for final seedbed preparation.
6. Perform all cultural operations of land preparation and seeding on the general contour.

B. Lime, Fertilizer and Seedbed Preparation
1. When soil material is reasonably uniform, apply lime and fertilizer according to soil test report. In the absence of a soil test apply lime as follows:

	Tons / Ac.	Lbs. / 1000 Sq. Ft.
Clay and Clay loams	3	135
Sandy loams, loams, silt loams	2	90
Loamy sands, sands	1	50

Agricultural lime used shall be within the specifications of the North Carolina Department of Agriculture.

2. Rates and analysis of fertilizer if soil test not available:
   a. Grasses alone - 600 to 1,000 pounds per acre (10-23 pounds / 1,000 sq. ft.) of a 1-1-1 ratio such as 10-10-10.
   b. Legumes alone or grass and legume mixture - 500 to 1,000 pounds per acre (10-23 pounds / 1,000 sq. ft.) of a 1-2-2 ratio such as 5-10-10.
3. Phosphorous is essential for developing vigorous seeding root systems. If soil test is not available, apply 500 to 800 pounds (12-18 pounds / 1,000 sq. ft.) per acre of 20% or 2 superphosphate or equivalent in addition to fertilizer listed above or use an analysis to supply the additional phosphorous.
4. When hydraulic seeding equipment is used, no seedbed preparation is required. Cut slopes and compacted areas may require scarification.
   a. The fertilizer, seed and wood cellulose fiber mulch will be mixed with water and applied in a slurry. Spread the mixture uniformly over the area.
   b. The lime will be mixed with water and applied on top of the mulch or the lime may be combined with the top dressing when grass is 2 to 4 inches tall.
5. When conventional equipment is used, the lime and fertilizer will be applied uniformly and mixed with the soil during seedbed preparation.
   a. On field conditions or slopes that are 3:1 or flatter, prepare a seedbed 4 inches deep, excluding rock.
   b. Continue tillage until a well pulverized, firm, reasonably uniform seedbed is prepared.

C. Seeding
Select species from attached table, considering plant adaptation to desired use, site to be vegetated, seeding dates and maintenance requirements or utilize the attached seeding schedule as approved for this area by the Wake County Soil Conservation District. Seed used shall be labeled to show they are within the requirements of the North Carolina Department of Agriculture as to purity, germination, and presence of restricted or prohibited weeds. Erosion control plans or seeding contracts should list species or mixtures to be used, planting dates, seed germination and purity that are acceptable.
1. Conventional seed - Seed on a freshly prepared, firm seedbed. Use equipment that will apply seed uniformly such as cultipacker seeder, drill, or cyclone seeder. Cover seed lightly with seeding equipment or cultipack after seeding.
2. Hydraulic seeding - Mix the fertilizer, Seed and wood cellulose fiber mulch with water and apply the slurry uniformly over the area being treated. The slurry must be applied within one hour after mixing the seed with fertilizer.
3. Use inoculant prepared specifically for any legume being seeded. Twice the recommended rate will be used when seeded dry with conventional equipment and four times the recommended rate when seeded with hydraulic equipment.
4. Mulching - Mulch all permanent seedings on critical areas immediately after seeding unless sufficient mulch is present from previous temporary vegetation grown. Mulch is essential to protect seedings and area from erosion until plant cover is established. Refer to MULCHING specifications for kinds, amounts and anchoring methods.
5. Irrigation - Supplementary irrigation will speed up the establishment of plant cover during most seasons and may prevent failure of seedings not made at optimum planting date or seedings on adverse site conditions. Where irrigation is used, water must be applied at a rate that will not cause soil movement.

D. Treatment after seeding and maintenance is the most important controllable factor in retaining an effective vegetative cover. The kind of grass or grass-legume, soil, weather and the level of management one desires to give a seeding determine the fertilization needed after the first year.
1. Repairs - Inspect all seeded areas and make necessary repairs or reseedings within the planting season, if possible. If stand should be over 60% damaged, reestablish following original lime, fertilizer and seeding recommendations.
2. Control weed growth during establishment mechanically and/or with herbicides. When chemicals are used, follow current North Carolina Agricultural Experiment Station's weed control recommendations and adhere strictly to instructions on the label.

CEDAR FORK DISTRICT PARK
MORRISVILLE NORTH CAROLINA

SUNGATE DESIGN GROUP
ENGINEERING LANDSCAPE ARCHITECTURE ENVIRONMENTAL
915-A JONES FRANKLIN ROAD 919-859-9925 RALEIGH, NC 27606

FOR CONSTRUCTION

THIS SHEET FOR SEEDING SPECIFICATIONS ONLY. SEE SHEET 1 OF 2 FOR DETAILS AND CONSTRUCTION SEQUENCE.