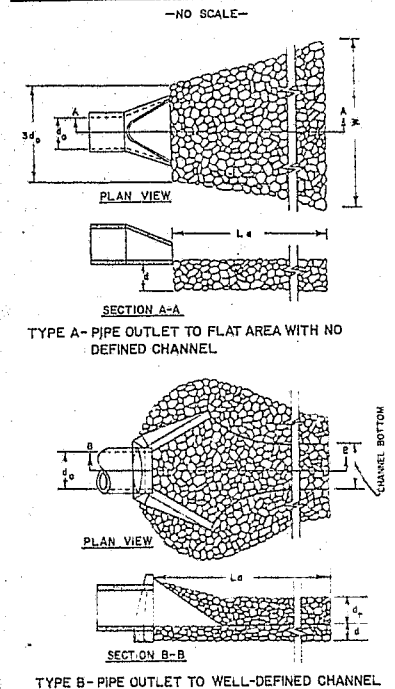


**CULVERT OUTLET PROTECTION**



NOTES: (1) 2 1/2 times the maximum stone diameter but not less than 6 inches.

(2) 4 x 4" stone maximum fullwater opening of channel both (whichever is less).

(3) Length of riprap apron.

(4) If stone dia > 6", provide geotextile underliner or #4 (min.) #57 washed stone bedding material.

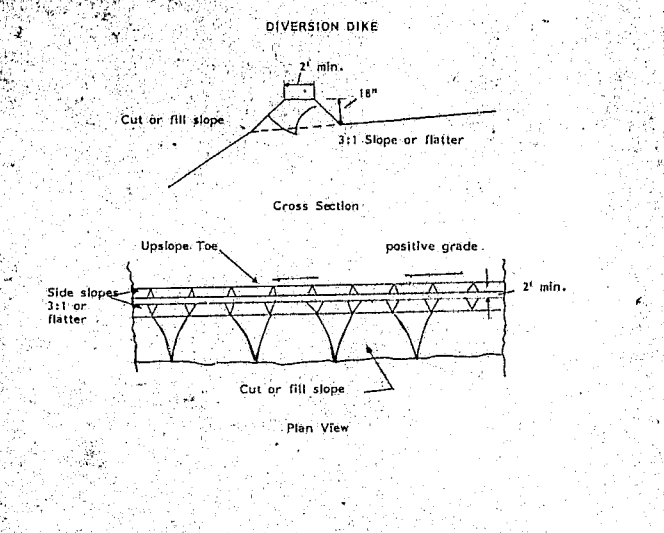
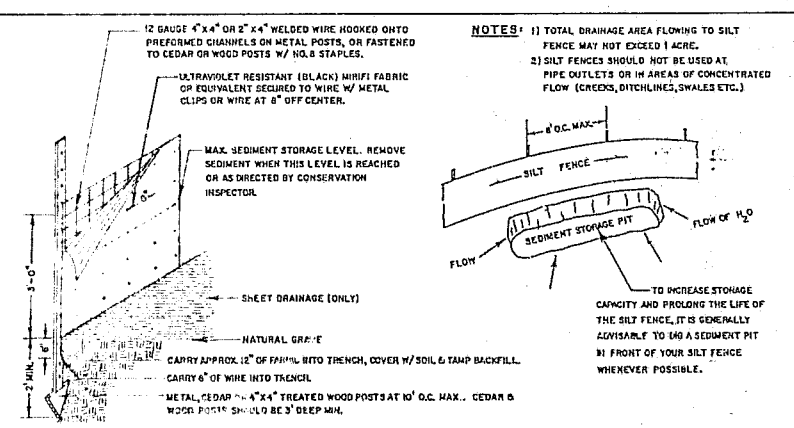
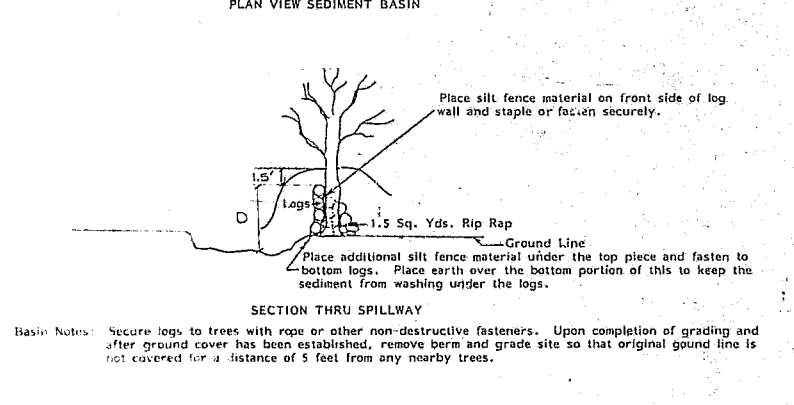
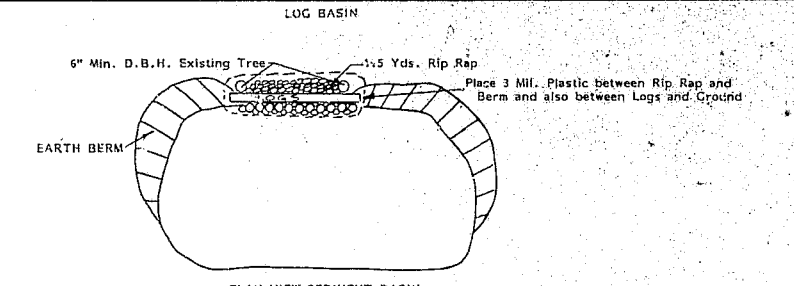
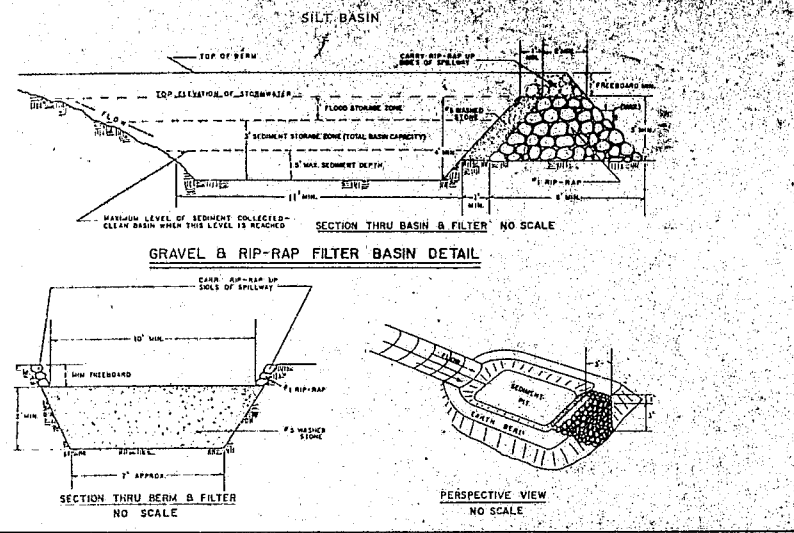
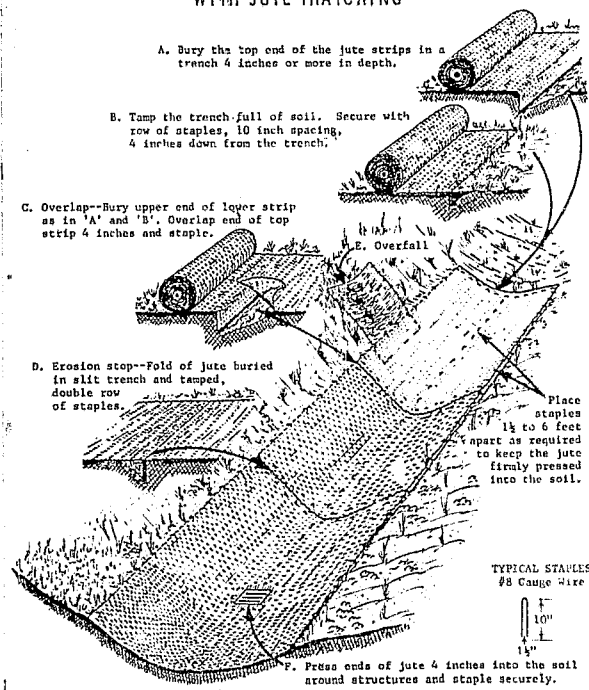
\* SEE ROADWAY PLANS FOR DIMENSIONS

STONE SIZE FOR RIP RAP AT ENERGY DISSIPATORS

For all stone at outlet end of pipes the minimum diameter shall be inches.  $D_{50}$  will be inches, therefore the maximum stone diameter shall be inches. The depth of stone to be placed in the apron of the dissipator shall be 1.5 times the maximum stone diameter (1.5 x inches) which is feet. Stone to be used is Class B stone for erosion control as per N.C.D.O.T. specs Section 402, Article 2 Page 614.

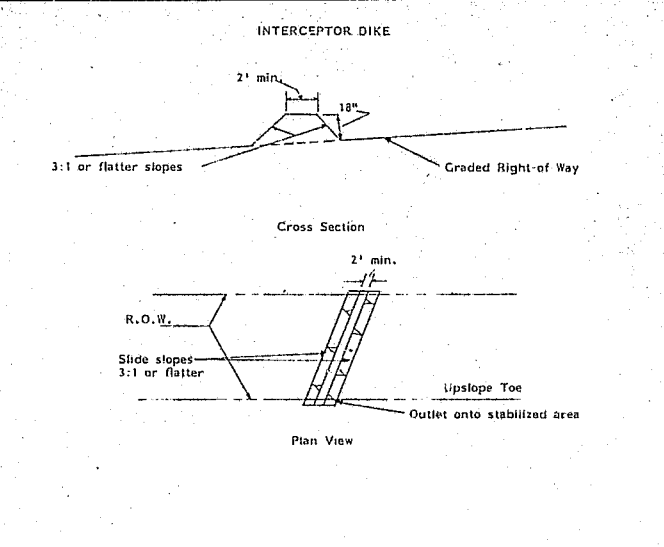
\* SEE ROADWAY PLANS FOR SIZES AND QUANTITIES

**DETAIL FOR STABILIZING CHANNELS WITH JUTE THATCHING**



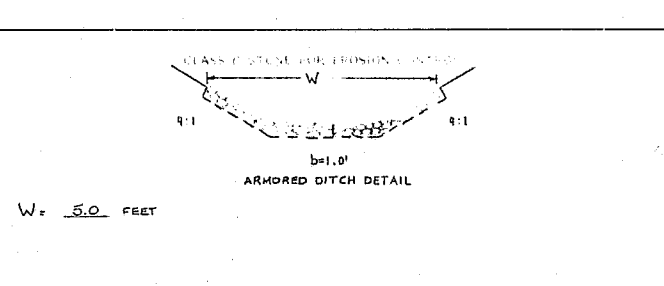
GENERAL NOTES

- All drawings NOT TO SCALE.
- All dikes must be machine compacted.
- All diversion dikes must have positive grade draining to a stabilized outlet.
- Diverted runoff will outlet onto a stabilized undisturbed area, a prepared level spreader, or into a grade stabilization structure, or a sediment basin.
- Periodic inspection and required maintenance must be provided.



GENERAL NOTES

- All drawings NOT TO SCALE.
- All dikes must be machine compacted.
- Top width may be wider and side slopes may be flatter, if desired.
- Field location should be adjusted as needed to provide a stabilized safe outlet.
- Diverted runoff shall outlet onto an undisturbed stabilized area, a prepared level spreader, or into a grade stabilization structure, or into a sediment basin.
- Periodic inspection and required maintenance must be provided.



- CONSTRUCTION SEQUENCE**
- Obtain Grading Permit.
  - Install any required temporary erosion control measures.
  - Call for an on-site inspection by TOWN OF CARY INSPECTORS DEPARTMENT or N.C. RES. and obtain a certificate of compliance.
  - Clear and grub areas to be in construction.
  - Grade areas as required for road construction.
  - After completion of grading, or if any denuded areas to be left over thirty (30) days without being worked on, seed according to seeding chart and the following procedure.
  - Call for a final inspection and obtain approval by TOWN OF CARY INSPECTORS DEPARTMENT or N.C. RES. before removal of temporary erosion control measures.
  - Seed out resulting bare areas.
  - Final inspection when site is 100% stable and obtain certificate of completion.

- SEEDBED PREPARATION**
- Chisel compacted areas and spread topsoil 3 inches deep over adverse soil conditions, if available.
  - Rip the entire area to 6 inches depth.
  - Remove all loose rock, roots, and other obstructions, leaving surface reasonably smooth and uniform.
  - Apply agricultural lime, fertilizer, and superphosphate uniformly and mix with soil (see below).
  - Continue tillage until a well pulverized, firm reasonably uniform seedbed is 6 to 8 inches deep.
  - Seed on a freshly prepared seedbed and cover seed lightly with seeding equipment or cultipack after seeding.
  - Mulch immediately after seeding and anchor mulch.
  - Inspect all seeded areas and make necessary repairs or reseedings within the planting season, if possible. If stand should be ever get damaged, reestablish the following original time, fertilizer and seeding rates.
  - Consult Conservation Inspector on maintenance treatment and fertilization after permanent cover is established.
- \*Apply: Agricultural Limestone - 90 lbs./1000 square feet.  
Fertilizer - 20 lbs./1000 square feet of 10-10-10  
Superphosphate - 12-18 lbs./1000 square feet  
Mulch - 75-100 lbs./1000 square feet.  
Anchor - Tack with asphalt emulsion, 300-400 gallons/acre.  
Agricultural Limestone - 135 lbs./1000 square feet in clay soils.

**SEEDING SCHEDULE**

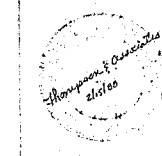
Shoulders, Side Ditches, Slopes (Max 3:1)	Planting Date	Species	Rate (lbs./acre)
Slopes (3:1 to 2:1)	Aug 15-Nov 1	Tall Fescue	300 lbs./acre
	Nov 1-Mar 1	Tall Fescue	300 lbs./acre
	Mar 1-Apr 15	Abruzzi Rye	15 lbs./acre
	Apr 15-June 30	Tall Fescue	300 lbs./acre
	June 1-Sept 1	Hulled Common Bermudagrass	25 lbs./acre
	Sept 1-Aug 15	Tall Fescue and Browntop Millet	120 lbs./acre
	Aug 15-Nov 1	Browntop Millet	35 lbs./acre
	Nov 1-Mar 1	Sorghum-Sudan Hybrids	30 lbs./acre
	Mar 1-June 1	Sericea Lespedeza (scarified)	50 lbs./acre
	Mar 1-Apr 15	Add Tall Fescue	120 lbs./acre
Mar 1-June 30	OR Add Weeping Lovegrass	10 lbs./acre	
Mar 1-June 30	OR Add Hulled Common Bermudagrass	25 lbs./acre	
June 1-Sept 1	Add Tall Fescue and Browntop Millet	120 lbs./acre	
Sept 1-Mar 1	Add Sorghum-Sudan Hybrids	35 lbs./acre	
Sept 1-Mar 1	Add Sericea Lespedeza (unhulled-unscentified)	70 lbs./acre	
Nov 1-Mar 1	Add Tall Fescue	120 lbs./acre	
Nov 1-Mar 1	Add Abruzzi Rye	75 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 inches in height before mowing, otherwise fescue may be shaded out.

**DETAIL SHEET FOR EROSION CONTROL DEVICES**

NO SCALE



REVISIONS

NO.	DATE	DESCRIPTION
1	5-5-87	ISSUED FOR PERMITS

FOR: CAMPBELL WOOD SUBDIVISION Ph.III

OWNER: VIRGINIA B CHARLES HARRISON AND RODNEY CAMPBELL

CHECKED BY: ENG NEERS

THOMPSON - ASSOCIATES, PA  
1215 JONES-FRANKLIN ROAD  
RALEIGH, N.C. 27606  
(919) 851-1709

DATE: 1-21-88

SHEET 6