The site is steep sloped forest, grass, and moderate brush. The entire site drains to existing storm drain structures in the Electric Road right-of-way. This development will not after the existing drainage pattern except where necessary for implementation of erosion and existent control measures.

Adjacent Areas:
Electric Road borders the site to the north. Areas to the South are residential and areas to the west are commercial.

No offsite barrow and/or fill sites are expected to be associated with this project. If offsite borrow and/or fill areas are to be utilized the contractor is responsible for notifying Roanoke County Community Development. Roanoke County may require a separate plan for offsite borrow and/or fill operations.

A solls map is provided with this plan set which shows the location of various solls within the construction area. The following symbols correspond with soil types on the map.

Udorthants-Urban land complex Chisust-Litz complex, 25-50% slopes

The following properties correspond with soil types.
Symbol Erosion Potential Permeability Toeting required Teeting required
Overall High Overall Moderate

ypical sequence, depth and composition layers in the solls are as follows

Generally previously graded or developed urban area. Testing is required to make a soll classification determination.

Typical sequence, depth, and composition of the Chievell soil is as follows: Surface Layer:

0 - 2 Inches, dark brown channery slit loam

2 - 12 Inches, reddish brown very channery allt loam 12 inches, mottled recidish brown, brown and brownish yellow soft shale

Typical sequence, depth, and composition of the Litz soil is as follows:

0 - 5 Inches, dark brown channery silt loam 5 - 16 Inches, brown very channery silt loam and strong brown silty clay

16 - 24 Inches, strong brown very channery allt laom

it is critical that the erosion and sediment control measures be maintained to ensure stabilization of steep slope areas. Mulching should be used on all steep slope areas.

All erasion and sediment control practices and procedures shall be in accordance with the latest edition of the Virginia Erosion and Sediment Control Handbook.

See DEQ's minimum standards listed on the Roanake County ESC Detail Sheet

Eraeion and Sediment Control Measures: Standard and Specification 3.02 — Construction Entrance (CE) A temporary construction entrance shall be installed where the construction access road leaves existing pavement. During wet weather conditions, drivers of construction validies will be required to wash their wheels before entering the

vehicle shall be manually cleaned prior to leaving the site, if necessary. Standard and Specification 3.05 — Sit Fence (SF) Sit Fence shall be installed at the lower edge of disturbed areas as shown on the plan. Two types of sitt fence are shown on the plans in accordance with VDOT standards. The taller fence is specified as elit fence, "SF". A shorter fence is specified as filter barrier, "FB".

street. When construction vehicles must enter disturbed areas, the tires of the

Standard and Specification 3.18 - Outlet Protection (OP) Outlet Protection shall be installed as shown on the plan.

SPECIFIC APPLICATION

Standard and Specification 3.20 - Rock Check Dam (CD)
Rock Check Dams shall be installed as shown on the plan to minimize sediment laden runoff from exiting the site.

Standard and Specification 3.29 — Surface Roughening (SR)
All disturbed slopes steeper than 3:1 shall receive surface roughening as shown

Standard and Specification 3.30 — Topsolling
Topsoll shall be stripped from areas to be graded and stockpiled for future use.
Topsoll stackpiles shall be protected by silt fence installed along the downhill ides around the stockpile. Topacil shall be uniformly spread over disturbed areas prior to permanent seeding Standard and Specification 3.31 — Temporary Seeding (TS)
The temporary diversion dikes, topsoil stockpiles and all areas to be rough graded, but not finish graded during the initial phase of construction, shall be seeded with fast germinating, temporary vegetation immediately following grading, or installation if a temporary measure. See also Minimum Standards.

NO.

FILTER CLOTH -

(DPTIONAL)

CHARSE AGGREGAT

(DOWNSTREAM VIEW)

SPECIFIC APPLICATION

M Gravel shall be VDDT 43, 4357 or 5 coarse aggregats.

This method of inlet protection is applicable at curb inlets where ponding in front: of the structure is not likely to cause inconvenience or damage to adjacent structures and unprotected areas.

SEDIMENT-LADEN RUNDFF

SPECIFIC APPLICATION

an overflow capability and ease of maintenance

This method of inlet protection is applicable where heavy flows are expected and where

LARGER PARTICLES REMOVED

TILE

TEMPORARY GRAVEL

CONSTRUCTION ENTRANCE

SAFETY FENCE

Standard and Specification 3.32 — Permanent Seeding (PS)
Permanent Seeding shall be installed on all disturbed areas of the site not otherwise stabilized.

Standard and Specification 3.35 - Mulching (MU)

All disturbed areas shall be mulched after seeding. Straw mulch shall be applied at a rate of two tons per acre and anchored with 750 lbs per acre of fiber mulch over the ecoded area.

All erceion and sediment control measures shall be inspected bi-weekly and after every runoff producing rainfalt. A log of dates and inspections shall be kept.

Any deficiencies that are found shall be corrected immediately. Accumulated rediment at trapping measures shall be routinely removed.

All ditches, sweles, and natural watercourses desinstream of this project shell be field inspected during and after construction by the RLD to ensure compliance with DCR's MS-19. If erosion or occur is occurring the developer shall be responsible for all corrective measures.

Erosion and sediment control measures shall be maintained until after all disturbed areas have been permanently stabilized and then temporary measures

Storm Water Management Consideration:
This plan is for the entrance road only. There will be no significant increase in runoff created with this project, therefore no storm water management facilities are proposed with this plan.

## CONSTRUCTION SECUENCE

- Contractor's Certified Responsible Land Disturber shall be named at and attend the pre-construction meeting and provide a copy of his RLD Certificate thereat.
- Contractor shall apply for DEQ Land Disturbance Permit at least two (2) days prior to land disturbance and provide Roanake County Department of Community Development copy of said permit within five (5) days of issuance.

Install Construction Entrance as the first step in the construction process

- Areas to be cut and filled are to be cleared and graded in phases. This phasing will be done to minimize the length of time areas are subject to erceion. All perimeter erceion and sediment control measures shall be installed prior to beginning grading operations in the affected areas.
- Install inlet protection and outlet protection along with starm drain
- 6. Temporary erosion and sediment control measures shall be removed after those affected group have been brought to final grade and permanently stabilized with improvements or established vegetation.

General Erasion and Sediment Control Hotes. Roanake County, Vinginia

ES-1: UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS VR 625-02-00 EROSION AND SEDIMENT CONTROL REGULATIONS.

ES-2: The plan approving authority must be notified one week prior to the ensite PRECONSTRUCTION conference, one week prior to the commencement of land disturbing activity, and one week prior to the final inspection.

ES-3: ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.

ES-4: A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN AND MARRATIVE, AS WELL AS A COPY OF THE LAND DISTURBING PERMIT, SHALL BE MAINTAINED ON THE SITE AT ALL TIMES. THE EROSION AND SEDIMENT CONTROL

ES-5: PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN

ES-6: THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY

ES-7: ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING THE LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.

ES-8: DURING DEWATERING OPERATION, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.

ES-9: THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY. AN INSPECTION REPORT MUST BE FILED WITH THE ROAMONE COUNTY EROSION AND SEDIMENT CONTROL. ADMINISTRATOR ONCE EVERY TWO HEEKS, BEGINNING WITH COMMENCEMENT OF THE LAND DISTURBING ACTIVITY, AND WITHIN 48 HOURS OF ANY RUNOFF-PRODUCING RAINFALL EVENT. FAILURE TO SUBMIT A REPORT WILL BE GROUNDS FOR NAMEDIATE REVOCATION OF THE LAND DISTURBING PERMIT. REPORTS MUST BE POSTMARKED WITHIN 24 HOURS OF THE DEADLINE. A STANDARD INSPECTION REPORT FORM WILL BE SUPPLIED, WHICH SHOULD BE COPIED AS NECESSARY. THIS PROVISION IN NO WAY WAIVES THE RIGHT OF ROANCKE COUNTY PERSONNEL TO CONDUCT SITE INSPECTIONS, NOR DOES IT DENY THE RIGHT OF THE PERMITTEE (S) TO ACCOMPANY THE INSPECTOR (S).

--- Endwall

---- Culvert

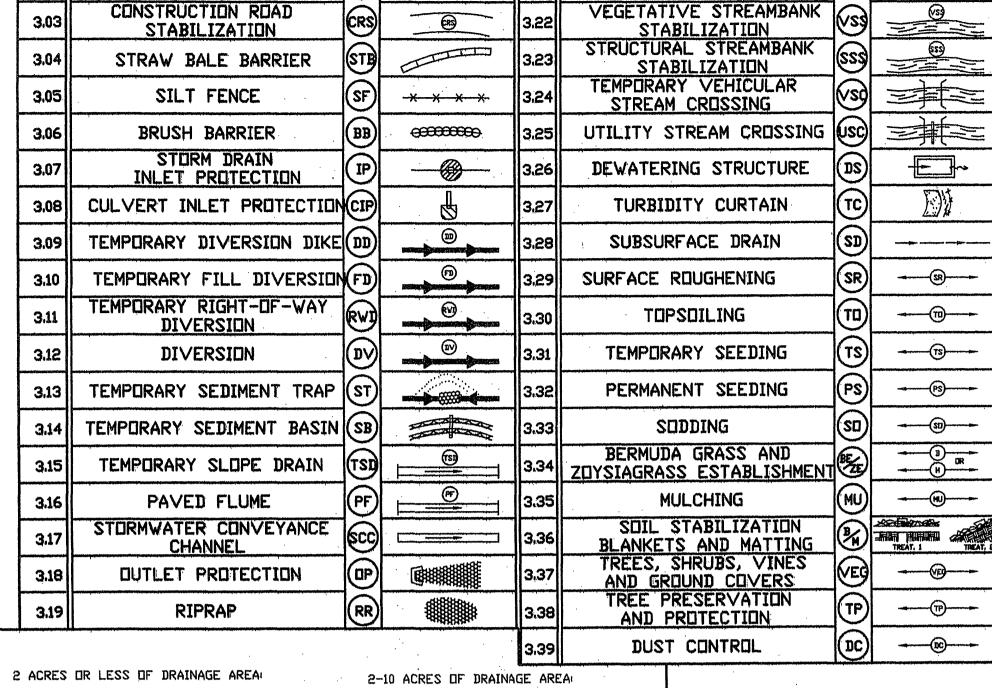
\_ \_\_\_\_\_\_.

Toe of FILL-

\_\_\_\_\_\_

-Top of Fill

# Distance is 6' minimum if flow is toward embankment



FILTER CLOTH -

COARSE AGGREGATE

(OPTIONAL)

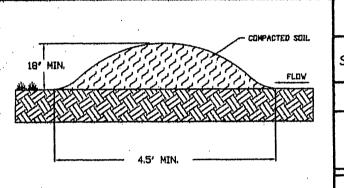
(CD) ROCK CHECK DAM

(IP) GRAVEL CURB INLET SEDIMENT FILTER

(DOWNSTREAM VIEW)

\_ FILTERED WATER

SYMBOL.



SYMBOL

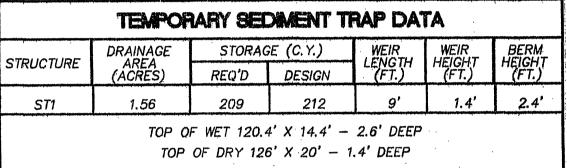
TITLE

ROCK CHECK DAMS

LEVEL SPREADER

TEMPORARY DIVERSION DIKE

TEMPORARY FILL DIVERSION TEMPORARY RIGHT-OF-WAY



(ST) SEDIMENT TRAP

FOR AREAS LESS THAN 3.0 ACRES. FOR AREAS

LARGER THAN 3.0 ACRES A SEDIMENT BASIN

IS REQUIRED. SEE DETAIL THIS SHEET.

VARIABLE \*--

CROSS-SECTION

-ORIGINAL GROUND

67 CU, YD./ACRE

67 CU, YD./ACRE

\* SEE PLATE 3.13-1

COARSE AGGREGATE \*\*

FILTER CLUTH -

EXCAVATED AREA

· VARIABLE \*

- COARSE AGGREGATE \*\*

ARIABLE :

-FILTER CLOTH-DRIGINAL GROUN

Length(ft) = 6 x Drainage Area (ac.)

\*\* CHARSE AGGREGATE SHALL

Basin or Trap

-Filter Cloth

Aggregate

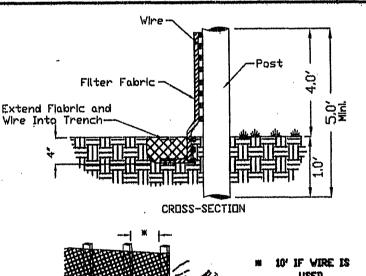
Ref. Table 3,02-A of

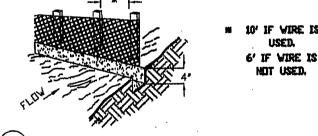
The state of the s

RE VDOT #3, #357 OR #5

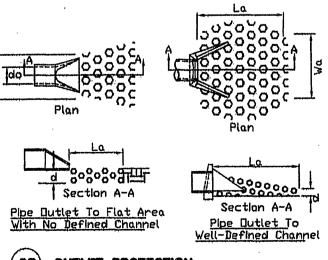
95 ST2 TOP OF WET 81' X 22' - 1' DEEP TOP OF DRY 85' X 26' - 1' DEEP 203 1.75' 203

ST3 MINIMUM DIMENSIONS LISTED BELOW, TOP OF WET 53' X 27' - 2.25' DEEP TOP OF DRY 60' X 34' - 1.75' DEEP FOR ADDITIONAL INFORMATION ON TEMPORARY SWM/SEDIMENT TRAPS ST1 & ST3 SEE PROFILES ON SHEET 8 OF 12 AND CALCULATIONS INCLUDED WITH THIS SUBMISSION





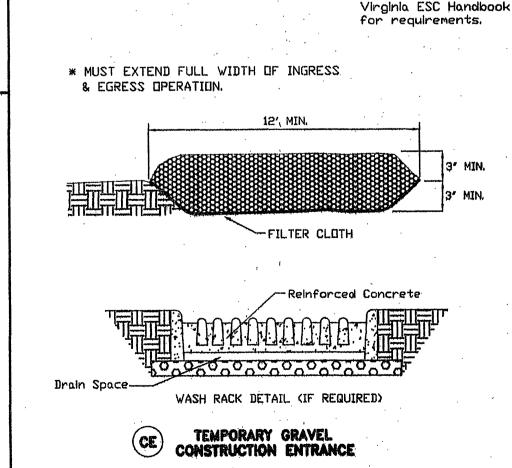
SF) CONSTRUCTION OF A SILT FENCE



OP OUTLET PROTECTION 1. Apron lining may be rip-rap, grouted rip-rap, or concrete. 2. La is the length of the riprap apron as calculated using plates 1.36d and 1.36e. 3. d = 1.5 times the maximum

stone diameter, but not less than 6".

ominate in the community of the communit



CONSTRUCT A WASHBOARD OR

WASH RACK IF REQUIRED.

**EROSION-SILTATION CONTROL** COST ESTIMATE

ALL COSTS GIVEN ARE COMPLETE IN PLACE

UNIT	QUANTITY	UNIT COST TOTAL COST			
EA	1	\$	1,050,00	\$	1,050.00
LF	785	\$	3.00	\$	2,355.00
EA	8	\$	150.00	\$	1,200.00
LF	160	\$	1,50	\$	240.00
EA	3	\$	1,500.00	\$	4,500.00
EA	1	\$	75.00	\$	75.00
ACRE	3.0	\$	1,200.00	\$	3,600.00
ACRE	3.0	\$	1,200.00	\$	3,600.00
EA	2	\$	150.00	\$	300.00
LF	1,270	\$	3.00	\$	3,810.00
			,	\$	20,730.00
				\$	2,075.00
TOTAL PROJECT COST				\$	22,805.00
	EA  LF  EA  LF  EA  ACRE  ACRE  EA	EA 1  LF 785  EA 8  LF 160  EA 3  EA 1  ACRE 3.0  ACRE 3.0  EA 2	EA 1 \$  LF 785 \$  EA 8 \$  LF 160 \$  EA 3 \$  EA 1 \$  ACRE 3.0 \$  ACRE 3.0 \$  EA 2 \$	EA 1 \$ 1,050.00  LF 785 \$ 3.00  EA 8 \$ 150.00  LF 160 \$ 1.50  EA 3 \$ 1,500.00  EA 1 \$ 75.00  ACRE 3.0 \$ 1,200.00  ACRE 3.0 \$ 1,200.00  EA 2 \$ 150.00	EA       1       \$ 1,050.00       \$         LF       785       \$ 3.00       \$         EA       8       \$ 150.00       \$         LF       160       \$ 1,50       \$         EA       3       \$ 1,500.00       \$         EA       1       \$ 75.00       \$         ACRE       3.0       \$ 1,200.00       \$         EA       2       \$ 150.00       \$         LF       1,270       \$ 3.00       \$         \$       \$ 3.00       \$       \$

GENERAL EROSION AND SEDIMENT CONTROL NOTE:

1, ALL SUIL ERUSION & SEDIMENT CONTROL MEASURES SHALL BE ACCOMPLISHED IN STRICT ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS CONTAINED IN THE VIRGINIA ERUSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION, 2. THE APPROVING AUTHORITY MAY ADD TO, DELETE, RELOCATE, CHANGE, OR OTHERWISE MODIFY CERTAIN EROSION AND SEDIMENT CONTROL MEASURES WHERE FIELD CONDITIONS ARE ENCOUNTERED THAT WARRANT SUCH MODIFICATIONS.

3. ALL SUIL ERUSION AND SEDIMENT CONTROL MEASURES AS SHOWN ON THE PLAN SHALL BE PLACED IN ADVANCE OF THE WORK BEING PERFORMED, AS FAR AS PRACTICAL.

4. IN NO CASE DURING CONSTRUCTION SHALL WATER RUNOFF BE DIVERTED OR ALLOWED TO FLOW TO LOCATIONS WHERE ADEQUATE PROTECTION HAS NOT BEEN

5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LEAVE THE SITE ADEQUATELY PROTECTED AGAINST EROSION, SEDIMENTATION, OR ANY DAMAGE TO ANY ADJACENT PROPERTY AT THE END OF EACH DAY'S WORK.

6. FOR THE EROSION CONTROL KEY SYMBOLS SHOWN ON THE PLANS, REFER TO THE VIRGINIA UNIFORM CODING SYSTEM FOR EROSION AND SEDIMENT CONTROL PRACTICES CONTAINED IN THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION, THESE SYMBOLS AND KEYS ARE TO BE UTILIZED ON ALL EROSION CONTROL PLANS SUBMITTED TO ROANCKE COUNTY.

TEMPORARY SEEDING MIXTURE

PLANTING DATES (LBS./ACRE) SEPT. 1 — FEB. 15

50/50 MIX OF ANNUAL RYEGRASS (LOLIUM MULTI-FLORUM) CEREAL (WINTER) RYE (SECALE CEREALE)

ANNUAL RYEGRASS (LOLIUM MULTI-FLORUM) FEB. 16 - APR. 30

GERMAN MILLET (SETARIA ITALICA) TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.

PERMANENT SEEDING MIXTURE

TYPE A 15 DCTOBER TO 1 FEBRUARY K-31 FESCUE Q 5 LB / 1000 SF BORZY WINTER RYE Q 1/2 LB / 1000

MAY. 1 - AUG. 31

TYPE B (SLOPES 3:1 OR STEEPER) 15 MARCH TO 1 MAY CROWN VETCH & 1/2 LB / 1000 SF PERENNIAL RYEGRASS # 1/2 LB / 1000 SF RED TUP @ 1/8 LB / 1000 SF 15 AUGUST TO 1 DCTOBER CROWN VETCH @ 1/2 LB / 1000 SF PERENNIAL RYEGRASS @ 1/2 LB / 1000 SF RED TOP @ 1/8 LB / 1000 SF

60 - 100

FEBRUARY TO 1 JUNE K-31 FESCUE @ 5 LB / 1000 SF ANNUAL RYE @ 1/2 LB: / 1000 SF JUNE TO 1 SEPTEMBER K-31 FESCUE Q 5 LB / 1000 SF GERMAN MILLET @ 1/2 LB / 1000 SF

1 SEPTEMBER TO 15 DCTOBER K-31 FESCHE @ 5 LB / 1000 SF ANNUAL RYE @ 1/8 LB: / 1000 SF

140 LB / 1000 SF PULYERIZED AGRICULTURAL LIMESTONE FERTILIZER 5-20-10 & 25 LB / 1000 SF 38-0-0 & 7 LB / 1000 SF

SHALL BE USED DIVER ALL SEEDED AREAS AND SHALL BE APPLIED IN ACCORDANCE WITH SECTION 1.75 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.

INCORPORATION OF LINE AND FERTILIZER, SELECTION OF CERTIFIED SEED, MULCHING, MAINTENANCE OF NEV SEEDLINGS, AND RESEEDING SHALL BE IN ACCORDANCE WITH SPECIFICATIONS CONTAINED WITHIN THE VIRGINIA SUIL EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION. ADDITIONAL SEEDING TO BE PERFORMED AS REQUIRED BY THE INSPECTOR,

SEED APPLICATION: APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CULTIPACKER SEEDER, OR HYDROSEEDER ON A FIRM, FRIABLE, SEEDBED, MAXIMUM SEEDING DEPTH SHALL BE 1/4 INCH.

TOTAL DISTURBED AREA = 3.6 AC.

DEPARTMENT ENGINEERING AND INSPECTIONS

This method of inlet protection is applicable where heavy concentrated flows are expected, but not where ponding

around the structure might cause excessive inconvenience or damage to adjacent structures and unprotected areas.

GRAVEL AND WIRE MESH DROP INLET SEDIMENT FILTER

\* Gravel shall be VDOT #3, #357 or #5 coarse aggregate.

NO.	REVISIONS	DATE	
6			
5			
4			
3	ENGR. & INSPEC.	10-27-93	
2	ENGR. & INSPEC.	08-05-93	
1	ENGR. & INSPEC.	04-10-93	

CIP SILT FENCE CULVERT INLET

**PROTECTION** 

COUNTY ROANOKE

EXCAVATED DROP INLET SEDIMENT TRAP

.MIN. 1'-MAX. 2

DATE: 11/02/93 SCALE: NO SCALE DRAWING BY: CLN.AF DESIGNED BY: G:\CAD\DETAILS\EROSION\EROSION APPROVED BY: GWS,III

**EROSION & SEDIMENT CONTROL** STORMWATER MANAGEMENT DETAILS 12