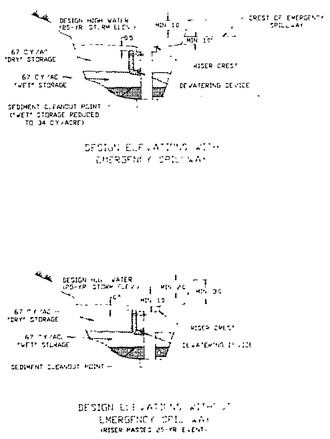
STORMWATER MANAGEMENT COST ESTIMATE

ALL COSTS GIVEN ARE COMPLETE IN PLACE

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
CLEARING & GRUBBING	LS		$	$
EXCAVATION	CY			
EMBANKMENT	CY			
FENCING	LF			
STRUCTURES				
ACCESS ROAD				
AS-BUILTS				
SUB-TOTAL				$
10% CONTINGENCY				$
TOTAL PROJECT COST				$

SEDIMENT BASIN SCHEMATIC ELEVATIONS



GENERAL NOTES

1. DESIGN OF DETENTION BASINS SHALL CONFORM TO THE REQUIREMENTS OF THE COUNTY OF ROANOKE GRADING STANDARDS (REF. SECTIONS 503.11, 503.13 AND 503.20). THE DESIGN OF THE FACILITY AND PREPARATION OF AS-BUILT PLANS SHALL BE BY A CERTIFIED PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE COMMONWEALTH OF VIRGINIA.
2. ACCESS TO THE FACILITY MUST BE PROVIDED IN ACCORDANCE WITH THE COUNTY OF ROANOKE DESIGN AND CONSTRUCTION STANDARDS FOR DETENTION PONDS (LATEST EDITION).
3. IF THE FACILITY IS OVER 1.5 (1.5) FEET DEEP, HAS A OVER 100 (100) YEAR DRAINAGE AREA OR THE INTERIOR SLOPES EXCEED 3 (HORIZ.):1 (VERT.) PERMANENT FENCING MAY BE REQUIRED. ADDITIONALLY IF THE FACILITY IS IN A DESIGNATED AREA OR WILL IN ANY WAY POSE A HAZARD TO THE GENERAL PUBLIC, FENCING MAY BE REQUIRED. FENCING SHALL BE A MINIMUM OF SIX (6) FEET HIGH A MINIMUM OF STANDARD NINE GAUGE (9GA) FENCE, AND MUST HAVE ONE (1) MORE LOCKING DOUBLE GATES (MINIMUM 10 FEET WIDE) FOR ACCESS.
4. DETENTION POLES SHALL BE BONDED IN ACCORDANCE WITH THE ROANOKE COUNTY BONDING POLICY FOR SUBDIVISION AND SITE DEVELOPMENT. A SEPARATE BOND FOR THE DETENTION FACILITY WILL BE REQUIRED AND ADMINISTERED APART FROM THE SUBDIVISION DEVELOPMENT BOND. REFERENCE ESTIMATE - THIS SHEET.
5. REFERENCE THE COUNTY OF ROANOKE DESIGN AND CONSTRUCTION STANDARDS FOR DETENTION PONDS (LATEST EDITION) FOR ACCEPTANCE AND MAINTENANCE OF THE FACILITY. REFER TO AS-BUILT PLANS REQUIRED AND MUST INCLUDE:
   A. DIMENSIONS OF THE FACILITY
   B. VOLUME @ MAXIMUM DEPTH
   C. ELEVATIONS OF STRUCTURES, SPILLWAYS AND DAMS
   D. MATERIALS CERTIFICATION (SOIL DENSITY TESTS CONDUCTED BY AN INDEPENDENT SOIL TESTING LABORATORY)
   E. LOCATION AND ELEVATION OF BENCHMARK
6. THE FACILITY MINIMUM FREEBOARD REQUIRED FOR THE 100-YR WATER SURFACE ELEVATION.

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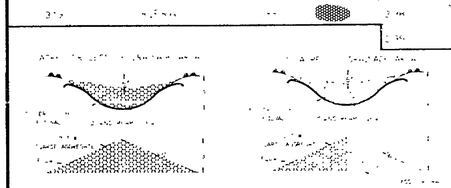
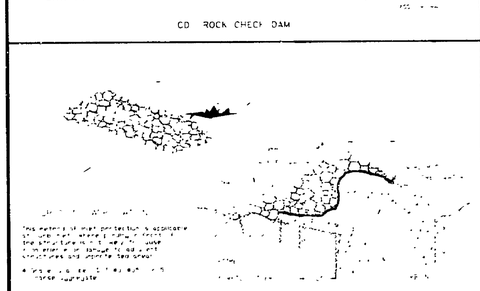
1000. [illegible]

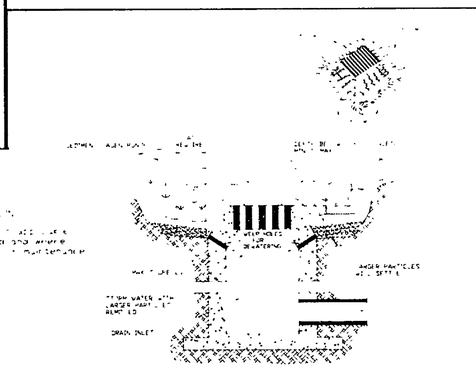
NO.	TITLE	KEY	SYMBOL	NO.	TITLE	KEY	SYMBOL
301	SAFETY FENCE	(SF)		320	ROCK CHECK DAMS	(CD)	
302	TEMPORARY [illegible]	(TE)		321	[illegible] SPREADER	(SP)	
303	DIVERSION DIKE	(DD)		322	VEGETATIVE STREAMBANK STABILIZATION	(VSS)	
304	CONCRETE WASH SLAB STABILIZATION	(CWS)		323	STRUCTURAL STREAMBANK STABILIZATION	(SSS)	
305	STRAW BALE BARRIER	(SB)		324	TEMPORARY VEHICULAR STREAM CROSSING	(VSC)	
306	SILT FENCE	(SF)		325	UTILITY STREAM CROSSING	(USC)	
307	BRUSH BARRIER	(BB)		326	DEWATERING STRUCTURE	(DS)	
308	STORM DRAIN INLET PROTECTION	(SI)		327	TURBIDITY CURTAIN	(TC)	
309	CULVERT INLET PROTECTION	(CIP)		328	SUBSURFACE DRAIN	(SD)	
309	TEMPORARY DIVERSION DIKE	(TD)		329	SURFACE ROUGHENING	(SR)	
310	TEMPORARY FILL DIVERSION	(F)		330	[illegible]	(TP)	
311	TEMPORARY RIGHT-OF-WAY DIVERSION	(RWD)		331	TEMPORARY SEEDING	(TS)	
312	DIVERSION	(DV)		332	DEWATERING BASIN	(DB)	
313	TEMPORARY SEDIMENT TRAP	(ST)		333	[illegible]	(SP)	
314	TEMPORARY SEDIMENT BASIN	(SB)		334	PERMANENT SEEDING	(PS)	
315	TEMPORARY SURFACE DRAIN	(TSD)		335	[illegible]	(SP)	
316	[illegible]	(SP)		336	[illegible]	(SP)	
317	[illegible]	(CE)		337	[illegible]	(SP)	
318	[illegible]			338	[illegible]	(SP)	
319	[illegible]			339	[illegible]	(SP)	



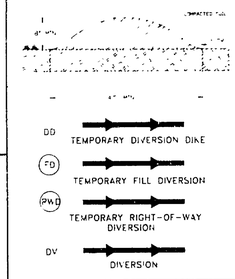
CD ROCK CHECK DAM

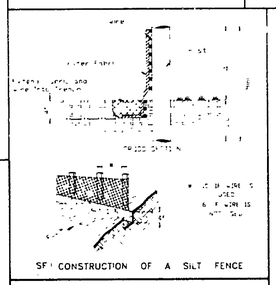


IP GRAVEL CURB INLET SEDIMENT FILTER

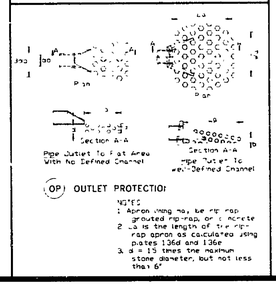


IP EXCAVATED DROP INLET SEDIMENT TRAP



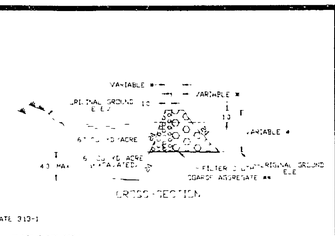


SF CONSTRUCTION OF A SILT FENCE

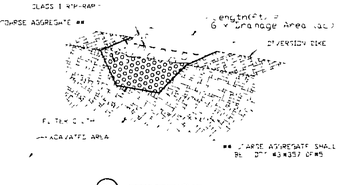


OP OUTLET PROTECTION

NOTES
1. Apron lining may be rip rap, grouted rip rap, or concrete.
2. L is the length of the rip rap apron as calculated using plates 136d and 136e.
3. d = 1.5 times the maximum stone diameter, but not less than 6".



* SEE PLATE 310-1



ST SEDIMENT TRAP

NOTES
1. [illegible]
2. [illegible]

TEMPORARY SEDIMENT TRAP DATA

STORM TYPE	DRAINAGE AREA (ACRES)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

1. WHEN WORK IN THE LIVE WATERCOURSE IS PERFORMED, PRECAUTIONARY MEASURES SHALL BE TAKEN TO MINIMIZE ELEVATED TURBIDITY LEVELS, SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA. THE GREATEST EFFORT IS DESIRED DURING BOULDER, COBBLE OR GRAVEL MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF COFFERDAMS AND PERFORMING EMPTIED FILL. IT IS RECOMMENDED THAT STRUCTURES BE ARMORED BY SOME SUITABLE OTHER MATERIAL.

   WHEN A LIVE WATER CHANNEL MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX-MONTH PERIOD, A TEMPORARY STREAM CROSSING CONSTRUCTED OF NONERODIBLE MATERIAL SHALL BE PROVIDED.
2. ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS PERTAINING TO WORKING IN THE DESIGNATED LIVE WATERWAYS SHALL BE MET.

   THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.
3. UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE UTILITY LINE STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:
   a. No more than 100 linear feet of trench may be opened at any time.
   b. Excavated material shall be placed on the uphill side of trenches.
   c. Effluent from dewatering operations shall be filtered or passed through an approved sediment trapping device or both and discharged in a manner that does not adversely affect flowing streams or offsite property.
   d. Disturbed areas shall be stabilized in accordance with these regulations.
   e. Applicable permit regulations shall be complied with.

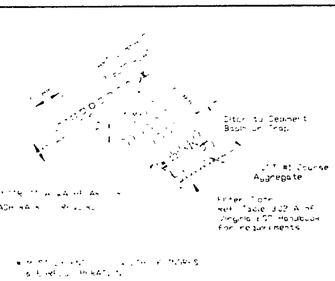
GENERAL EROSION AND SEDIMENT CONTROL NOTES

1. ALL EROSION & SEDIMENT CONTROL MEASURES SHALL BE ACCOMPLISHED AS PRESCRIBED IN THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (LATEST EDITION).

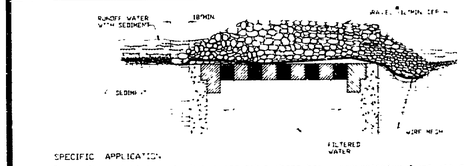
   THE APPROVING AUTHORITY MAY REQUIRE ADDITIONAL EROSION CONTROL MEASURES WHENEVER IT DETERMINES THAT SIGNIFICANT EROSION AND SEDIMENTATION IS OCCURRING AS A RESULT OF THE LAND DISTURBING ACTIVITY.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE PRIOR TO OR AS THE FIRST PHASE OF GRADING.
3. [illegible]
4. [illegible]
5. [illegible]
6. [illegible]

(PS) PERMANENT SEEDING MIXTURE

[illegible]



CE TEMPORARY GRAVEL CONSTRUCTION ENTRANCE



SPECIFIC APPLICATION:
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 shall be VDOT #3, #357 or #5 coarse aggregate

IP GRAVEL AND WIRE MESH DROP INLET SEDIMENT FILTER

DEPARTMENT OF ENGINEERING AND INSPECTIONS

NO.	REVISIONS	DATE
1	ENGR & INSPEC	[illegible]
2	ENGR & INSPEC	[illegible]-93
3	ENGR [illegible]	10-27-93
4		
5		
6		

COUNTY OF ROANOKE

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

EROSION & SEDIMENT CONTROL
STORMWATER MANAGEMENT DETAILS

WT-0367