

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				\$

The diagram illustrates a cross-section of a dry storage facility. At the top, a line indicates the 'DESIGN HIGH WATER (25-YR STORM ELEV.)'. Below this, a 'MIN. 10' clearance is shown between the water level and the top of the structure. The structure itself has a 'MIN. 30' height. Inside the structure, there are two storage areas: '67 C.Y./AC. "DRY" STORAGE' at the top and '67 C.Y./AC. "WET" STORAGE' at the bottom. A 'RISER CREST' is located between these two storage areas. Below the wet storage, a 'DEWATERING DEVICE' is shown. At the very bottom, a 'SEDIMENT CLEANOUT POINT' is indicated. The entire structure is shown within a trapezoidal embankment.

A cross-sectional diagram of a gravel trench system. At the top left, an arrow points to the surface layer labeled "RUNOFF WATER WITH SEDIMENT". Below this is a layer of "GRAVEL 1/2\" INK DEPTH". Underneath the gravel is a "WIRE MESH" screen. Below the mesh is a layer of "SEDIMENT". At the bottom, an arrow points to the "FILTERED WATER" exiting the trench. The trench is shown as a rectangular structure with a sloped bottom.

1. DESIGN OF DETENTION BASINS SHALL CONFORM TO THE REQUIREMENTS OF THE COUNTY OF ROCKWODE DRAINAGE STANDARDS (REF: SECTIONS 201, 202, 203 AND 205) & 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 ROCKWODE DESIGN AND CONSTRUCTION STANDARDS FOR DETENTION PONDS, LATEST EDITION.
3. IF THE FACILITY IS OVER FOUR (4) FEET DEEP, TAKES OVER TWO (2) HOURS TO DRAIN, OR THE INTERIOR SLOPE EXCEEDS 3:1 (V), PERMANENTLY BONDED, REINFORCED, ADDITIONAL FENCING IF THE FACILITY IS IN A CONGESTED 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 NIP GAUGE LINK FENCE, AND MUST HAVE ONE OR MORE LOCKING DOUBLE GATES (MINIMUM TEN FEET WIDE) FOR ACCESS.
4. DETENTION PONDS SHALL BE BONDED IN ACCORDANCE WITH THE ROCKWODE COUNTY BONDING POLICY FOR SUBDIVISION AND SITE DEVELOPMENT. PERMANENTLY BONDED FENCING FOR THE DETENTION FACILITY WILL BE REQUIRED AND ADMINISTERED APART FROM THE SUBDIVISION DEVELOPMENT BOND, REFERENCE ESTIMATE - THIS SHEET.
5. REFERENCE THE COUNTY OF ROCKWODE DESIGN AND CONSTRUCTION STANDARDS FOR DETENTION PONDS, LATEST EDITION, FOR ACCEPTANCE AND MAINTENANCE OF THE FACILITY. CERTIFIED AS-BUILTS ARE REQUIRED AND MUST INCLUDE:
 - A. DIMENSIONS OF THE FACILITY
 - B. VOLUME & MAXIMUM DEPTH
 - C. ELEVATIONS OF STRUCTURES, SPILLWAYS, AND TOP
 - D. MATERIALS VERIFICATION INCLUDING RESULTS OF DENSITY TESTS CONDUCTED BY AN INDEPENDENT SOIL TESTING LABORATORY
 - E. LOCATION AND ELEVATION OF BENCHMARK

1. SITE PREPARATION SHALL BE IN ACCORDANCE WITH THE COUNTY OF ROCKINGE DESIGN AND CONSTRUCTION STANDARDS FOR DETENTION POND'S LATEST EDITION
2. SLOPES STEEPER THAN 3 TO 1 (HORIZONTAL TO VERTICAL) SHALL BE BENCHED OR STEPPED PRIOR TO PLACING FILL ON THEM.
3. ON-SITE FILL MATERIAL OR BORROW FILL MATERIAL MAY BE UTILIZED. FILL SHALL BE:
 - A. SHALL BE COMPACTABLE.
 - B. SHALL BE WITHIN AN ACCEPTABLE RANGE OF MOISTURE CONTENT WHICH IS READILY CONTROLLED
 - C. SHALL BE RELIABLY SUSCEPTIBLE TO VOLUME CHANGE (SHRINKAGE OR SWELL) OR SETTLEMENT
4. FILL MATERIALS CONTAINING ROCKS LARGER THAN SIX (6) INCHES (15.2 CM) SHALL NOT BE USED. THE UPPERMOST TWO (2) FEET OF SHOULDER SHALL NOT HAVE ANY ROCK LARGER THAN TWO (2) INCHES (5.1 CM) IN DIAMETER.
5. THE APPROVED FILL SHALL BE PLACED IN EIGHT (8) INCH (20 CM) LOOSE LIFTS. EACH LIFT SHALL BE SPREAD IN UNIFORM LAYERS. FILL SOIL SHALL BE UTILIZED ONLY WITHIN A MOISTURE RANGE OF +/- SIX (6) PERCENT OF THE OPTIMUM MOISTURE CONTENT. COMPACTION OF THE FILL SHALL BE PERFORMED WITH APPROVED EQUIPMENT. COMPACTION OF THE LAYERS SHALL BE CONTINUOUS AND UNIFORM.
6. EMBANKMENT MATERIAL IN FILL AREAS SHALL BE PLACED IN LIFTS NOT EXCEEDING EIGHT (8) INCHES AND SHALL BE COMPACTED TO A MINIMUM COMPACTION WITH ACCORDANCE WITH SECTION 303 OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS.
7. FIELD DENSITY TESTS ARE TO BE CONDUCTED BY AN INDEPENDENT SOILS TESTING LABORATORY UNDER THE DIRECTION OF A QUALIFIED GEOTECHNICAL ENGINEER. THE RESULTS OF THESE TESTS SHALL BE SUBMITTED TO THE COUNTY OF ROCKINGE WITH AS-BUILT PLANS AS A CONDITION OF ACCEPTANCE OF THE FACILITY BY THE COUNTY. FIELD DENSITY TESTS, AS DIRECTED BY THE ENGINEER SHALL BE PERFORMED CONTINUOUSLY THROUGHOUT THE CONSTRUCTION OF THE AREAS. AREAS FAILING TO MEET THE ABOVE REQUIREMENTS SHALL BE REWORKED AND/OR RECOMPACTED UNTIL THE REQUIRED DEGREE OF COMPACTION IS ACHIEVED.
8. ANTI-SLOPE COLLARS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.
9. ALL DISTURBED AREAS SHALL BE COVERED WITH FOUR (4) INCHES OF TOPSOIL AND SECEDED.
10. THE MINIMUM SLOPE OF THE BASIN FLOOR SHALL BE ONE (1) PERCENT GRADED TO DRAIN TO THE PRINCIPAL SPILLWAY.

This method of inlet protection is applicable where heavy flows are expected and where an overflow capability and ease of maintenance are desirable.

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

NO.	TITLE	KEY	SYMBOL	NO.	TITLE	KEY	SYMBOL
3.01	SAFETY FENCE	(SAF)		3.20	ROCK CHECK DAMS	(CD)	
3.02	TEMPORARY GRAVEL CONSTRUCTION ENTRANCE	(CE)		3.21	LEVEL SPREADER	(LS)	
3.03	CONSTRUCTION ROAD STABILIZATION	(CRS)		3.22	VEGETATIVE STREAMBANK STABILIZATION	(VSS)	
3.04	STRAW BALE BARRIER	(STB)		3.23	STRUCTURAL STREAMBANK STABILIZATION	(SSS)	
3.05	SILT FENCE	(SF)		3.24	TEMPORARY VEHICULAR STREAM CROSSING	(VSC)	
3.06	BRUSH BARRIER	(BB)		3.25	UTILITY STREAM CROSSING	(USC)	
3.07	STORM DRAIN INLET PROTECTION	(IP)		3.26	DEWATERING STRUCTURE	(DS)	
3.08	CULVERT INLET PROTECTION	(CIP)		3.27	TURBIDITY CURTAIN	(TC)	
3.09	TEMPORARY DIVERSION DIKE	(DD)		3.28	SUBSURFACE DRAIN	(SD)	
3.10	TEMPORARY FILL DIVERSION	(FD)		3.29	SURFACE ROUGHENING	(SR)	
3.11	TEMPORARY RIGHT-OF-WAY DIVERSION	(RWI)		3.30	TOPSOILING	(TO)	
3.12	DIVERSION	(DV)		3.31	TEMPORARY SEEDING	(TS)	
3.13	TEMPORARY SEDIMENT TRAP	(ST)		3.32	PERMANENT SEEDING	(PS)	
3.14	TEMPORARY SEDIMENT BASIN	(SB)		3.33	SODDING	(SD)	
3.15	TEMPORARY SLOPE DRAIN	(TSD)		3.34	BERMUDA GRASS AND ZOYSIAURASS ESTABLISHMENT	(ZG)	
3.16	PAVED FLUME	(PF)		3.35	MULCHING	(MU)	
3.17	STORMWATER CONVEYANCE CHANNEL	(SCC)		3.36	SOIL STABILIZATION BLANKETS AND MATTING	(SB)	
3.18	OUTLET PROTECTION	(OP)		3.37	TREES, SHRUBS, VINES AND GROUND COVERS	(VEG)	
3.19	RIPRAP	(RR)		3.38	TREE PRESERVATION AND PROTECTION	(TP)	
				3.39	DUST CONTROL	(DC)	

SEE PLATE 3.13-1

CLASS 1 RIP-RAP

COARSE AGGREGATE **

Length(ft) = $\frac{6}{5} \times \text{Drainage Area (ac.)}$

1.5'

DIVERSION DIKE

FILTER CLOTH

EXCAVATED AREA

** COARSE AGGREGATE SHALL BE VDOT #3, #57 OF MS

(ST) SEDIMENT TRAP

[illegible]

ALL COSTS GIVEN ARE COMPLETE IN PLACE				
DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
CONSTRUCTION ENTRANCE	EA			\$
SILT FENCE	LF			
INLET PROTECTION	EA			
TEMPORARY DIVERSION DIKE	LF			
TEMPORARY FILL DIVERSION	LF			
SEDIMENT TRAP	EA			
CHECK DAM	EA			
PERMANENT SEEDING				
OUTLET PROTECTION	EA			
SEDIMENT BASIN	EA			
SUB-TOTAL				
10% CONTINGENCY				\$
TOTAL PROJECT COST				\$

1. ALL SOIL EROSION & SEDIMENT CONTROL MEASURES SHALL BE ACCOMPLISHED IN STRICT ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS CONTAINED IN THE VIRGINIA EROSION 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 THE CONDITIONS ARE SUCH THAT SUCH CHANGES ARE NECESSARY.
3. ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES AS SHOWN ON THE PLAN SHALL BE PLACED IN ADVANCE OF THE WORKS BEING PERFORMED, AS FAR AS PRACTICAL.
4. IN NO CASE DURING CONSTRUCTION SHALL WATER RUNOFF BE DIRECTED OR ALLOWED TO FLOW TO LOCATIONS WHERE ADEQUATE PROTECTION HAS NOT BEEN PROVIDED.
5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LEAVE THE SITE ADEQUATELY PROTECTED AGAINST EROSION, SEDIMENTATION, OR ANY DAMAGE TO ANY ADJACENT PROPERTY OF THE STATE OF VIRGINIA.
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. SYMBOLS NOT SHOWN ON THE PLANS ARE TO BE UTILIZED ON ALL EROSION CONTROL PLANS SUBMITTED TO RANDOLPH COUNTY.

TYPE A	TYPE B (SLOPES 30 OR STEEPER)
15 OCTOBER TO 1 FEBRUARY K-31 FESCUE 8 S LB / 1000 SF BORZY WINTER RYE 8 1/2 LB / 1000 SF	15 MARCH TO 1 MAY CRUDAL VETCH 1 1/2 LB / 1000 SF PERENNIAL RYEGRASS 1 1/2 LB / 1000 SF RED TOP 1 1/2 LB / 1000 SF
1 FEBRUARY TO 1 JUNE K-31 FESCUE 8 S LB / 1000 SF ANNUAL RYE 8 1/2 LB / 1000 SF	15 AUGUST TO 1 OCTOBER CRUDAL VETCH 1 1/2 LB / 1000 SF PERENNIAL RYEGRASS 1 1/2 LB / 1000 SF RED TOP 1 1/2 LB / 1000 SF
1 JUNE TO 1 SEPTEMBER K-31 FESCUE 8 S LB / 1000 SF GERMAN MILLET 1 1/2 LB / 1000 SF	
1 SEPTEMBER TO 15 OCTOBER K-31 FESCUE 8 S LB / 1000 SF ANNUAL RYE 1 1/2 LB / 1000 SF	
LINE#	140 LB / 1000 SF PULVERIZED AGRICULTURAL LIMESTONE
FERTILIZER:	5-20-10 8 25 LB / 1000 SF 38-0-0 8 7 LB / 1000 SF
MULCH+	IF REQUIRED, SHALL BE USED OVER ALL SEEDED AREAS AND SHALL BE APPLIED IN ACCORDANCE WITH SECTION 1.75 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.
SOIL CONDITIONING	INCORPORATION OF LINE AND FERTILIZER, SELECTION OF CERTIFIED SEED, MAINTAINING MAINTENANCE OF NEW SEEDLINGS, AND RESEEDING SHALL BE IN ACCORDANCE WITH SPECIFICATIONS CONTAINED WITHIN THE VIRGINIA SOIL 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, OR SPREADER SEEDER OR HYDROSEEDER ON A FIRM, FRAGILE, SEEDBED. MAXIMUM SEEDING DEPTH SHALL BE 1/4 INCH.
TOTAL DISTURBED AREA =	AC. = SQ. FT.

COUNTY OF ROANOKE

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

SHEET
OF

WT- 05/4