TITLE SYMBOL NO. TITLE SYMBOL STORMWATER MANAGEMENT GENERAL NOTES EROSION-SILTATION CONTROL COST ESTIMATE COST ESTIMATE SAFETY FENCE ROCK CHECK DAMS DESIGN OF DETENTION BASINS SHALL CONFORM TO THE REQUIREMENTS TEMPORARY GRAVEL ALL COSTS GIVEN ARE COMPLETE IN PLACE OF THE COUNTY OF ROANDKE DRAINAGE STANDARDS (REF. SECTIONS ALL COSTS GIVEN ARE COMPLETE IN PLACE LEVEL SPREADER CONSTRUCTION ENTRANCE 503.02, 503.03, AND 505.02). THE DESIGN OF THE FACILITY AND VARIABLE *--DESCRIPTION PREPARATION OF AS-BUILT PLANS SHALL BE BY A CERTIFIED CONSTRUCTION ROAD - VARIABLE * UNIT QUANTITY TOTAL COS VEGETATIVE STREAMBANK UNIT COST PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE COMMONWEALTH DESCRIPTION - ORIGINAL GROUND QUANTITY STABILIZATION STABILIZATION STRUCTURAL STREAMBANK LEARING & GRUBBING LS CONSTRUCTION STRAW BALE BARRIER ĒΑ STABILIZATION VARIABLE * NTRANCE ACCESS TO THE FACILITY MUST BE PROVIDED IN ACCURDANCE WITH THE 67 CU. YD./ACRE TEMPORARY VEHICULAR COUNTY OF ROANOKE DESIGN AND CONSTRUCTION STANDARDS FOR EXCAVATION 3.05 SILT FENCE ILT FENCE DETENTION PONDS, LATEST EDITION. 2400 STREAM CROSSING FILTER COOTH ORIGINAL GROUND (EXCAVATED) EMBANKMENT CY ULVERT BRUSH BARRIER (2000) UTILITY STREAM CROSSING 3. IF THE FACILITY IS OVER FOUR (4) FEET DEEP, TAKES OVER TWO (2) CDARSE AGGREGATE ** INLET PROTECTION HOURS TO DRAIN, OR THE INTERIOR SLOPE EXCEEDS 3 (H): 1 (V), CROSS-SECTION STORM DRAIN FENCING PERMANENT FENCING MAY BE REQUIRED, ADDITIONALLY, IF THE EMPORARY DEWATERING STRUCTURE FACILITY IS IN A CONGESTED AREA OR WILL IN ANY WAY POSE A INLET PROTECTION IVERSION DIKE HAZARD TO THE GENERAL PUBLIC, FENCING MAY BE REQUIRED. * SEE PLATE 3:13-1 STRUCTURES FENCING SHALL BE A MINIMUM OF SIX (6) FEET HIGH, A MINIMUM OF EMPURARY CULVERT INLET PROTECTION(CI TURBIDITY CURTAIN STANDARD NINE GAUGE LINK FENCE, AND MUST HAVE DNE DR MORE ILL DIVERSION CLASS I RIP-RAP LOCKING DOUBLE GATES (MINIMUM TEN FEET WIDE) FOR ACCESS. ACCESS ROAD ength(fit) = TEMPORARY DIVERSION DIKE (DD SUBSURFACE DRAIN COARSE AGGREGATE ** EDIMENT TRAP EΑ x Dramage Area (ac.) , DETENTION PONDS SHALL BE BONDED IN ACCORDANCE WITH THE ROANDKE AS-BUILTS COUNTY BONDING POLICY FOR SUBDIVISION AND SITE DEVELOPMENT. DIVERSION DIKE TEMPORARY FILL DIVERSION(FI SURFACE ROUGHENING ----(SR)------HECK DAM EA A SEPARATE BOND FOR THE DETENTION FACILITY WILL BE REQUIRED AND ADMINISTERED APART FROM THE SUBDIVISION DEVELOPMENT BOND. TEMPORARY RIGHT-OF-WAY SUB-TOTAL REFERENCE ESTIMATE - THIS SHEET, TOPSOILING TU -ERMANENT SEEDING 1000/s.f. DIVERSION 10% CONTINGENCY 5. REFERENCE THE COUNTY OF ROANOKE DESIGN AND CONSTRUCTION DIVERSION TEMPORARY SEEDING (TS) NUTLET PROTECTION EΑ THE RESERVE OF THE PERSON NAMED IN COLUMN 1 STANDARDS FOR DETENTION PONDS, LATEST EDITION, FOR ACCEPTANCE AND MAINTENANCE OF THE FACILITY. CERTIFIED AS-BUILTS ARE TOTAL PROJECT COST TEMPORARY SEDIMENT TRAF FILTER CLUTH -REQUIRED AND MUST INCLUDE: PERMANENT SEEDING - (PS) ----SEDIMENT BASIN EA A. DIMENSIONS OF THE FACILITY -EXCAVATED AREA-TEMPORARY SEDIMENT BASIN (SB SODDING ** CDARSE AGGREGATE SHALL (20) LASS I RIP RAP B. VOLUME @ MAXIMUM DEPTH BE VDUT #3,#357 0F#5 BERMUDA GRASS AND TEMPORARY SLOPE DRAIN C. ELEVATIONS OF STRUCTURES, SPILLWAYS, AND TOP ZOYSIAURASS ESTABLISHMEN (M) MATERIALS VERIFICATION INCLUDING RESULTS OF DENSITY TESTS (ST) SEDIMENT TRAF PAVED FLUME CONDUCTED BY AN INDEPENDENT SOIL TESTING LABORATORY MULCHING -----(HU)------UB-TUTAL AN TONES E. LOCATION AND ELEVATION OF BENCHMARK, STORMWATER CONVEYANCE SUIL STABILIZATION 10% CONTINGENCY SEDIMENT BASIN SCHEMATIC CHANNE LANKETS AND MATTING TREES, SHRUBS, VINES ELEVATIONS 6. ONE FOOT MINIMUM FREEBOARD REQUIRED FOR THE 100 YR WATER OUTLET PROTECTION 3.18 VE) OTAL PROJECT COST AND GROUND COVERS FOR AREAS LESS THAN 3.0 ACRES. FOR AREAS TREE PRESERVATION LARGER THAN 3.0 ACRES A SEDIMENT BASIN RIPRAP ----(TP)------AND PROTECTION IS REQUIRED. SEE DETAIL THIS SHEET, DUST CONTROL DC) -----CONSTRUCTION NOTES 2 ACRES OR LESS OF DRAINAGE AREA 2-10 ACRES OF DRAINAGE AREA TEMPORARY SEDIMENT TRAP DATA - COMPACTED SOIL DESIGN HIGH WATER - CREST OF EMERGENCY 1, SITE PREPARATION SHALL BE IN ACCORDANCE WITH THE COUNTY OF STORAGE (C.Y.) ENERAL EROSION AND SEDIMENT CONTROL NOTES (25-YR. STORM ELEV.) ROANOKE DESIGN AND CONSTRUCTION STANDARDS FOR DETENTION PONDS, (ACRES LATEST EDITION FILTER CLUTH -FILTER CLOTH -67 C.Y./AC. ---(OPTIONAL) (DOWNSTREAM VIEW) (OPTIONAL) (DOWNSTREAM VIEW) 'DRY' STURAGE ALL SOIL EROSION & SEDIMENT CONTROL MEASURES SHALL BE ACCOMPLISHED 2. SLOPES STEEPER THAN 3 TO 1 (HORIZONTAL TO VERTICAL) SHALL BE RISER CREST IN STRICT ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS CONTAINED VDUT #1 -BENCHED OR STEPPED PRIOR TO PLACING FILL ON THEM. 67 C.Y./AC. IN THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION, COARSE AGGREGATE COARSE AGGREGATE "VET" STORAGE - DEWATERING DEVICE ` THE APPROVING AUTHORITY MAY ADD TO, DELETE, RELOCATE, CHANGE, OR 3. ON-SITE FILL MATERIAL OR BORROW FILL MATERIAL MAY BE UTILIZED. OTHERWISE MODIFY CERTAIN ERUSION AND SEDIMENT CONTROL MEASURES WHERE SEDIMENT CLEANDUT POINT -FIELD CONDITIONS ARE ENCOUNTERED THAT WARRANT SUCH MODIFICATIONS. FILL MATERIAL SUILS, IN GENERAL! ("WET" STORAGE REDUCED TO 34 C.Y./ACRE) ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES AS SHOWN ON THE PLAN SHALL BE CUMPACTABLE SHALL BE PLACED IN ADVANCE OF THE WORK BEING PERFORMED, AS FAR AS (CD) ROCK CHECK DAM SHALL BE WITHIN AN ACCEPTABLE RANGE OF MOISTURE CONTENT TEMPORARY DIVERSION DIKE WHICH IS READILY CONTROLLED DESIGN ELEVATIONS WITH SHALL NOT BE HIGHLY SUSCEPTIBLE TO VOLUME CHANGE IN NO CASE DURING CONSTRUCTION SHALL WATER RUNDER BE DIVERTED OR EMERGENCY SPILLWAY (SHRINKAGE OR SWELL) OR SETTLEMENT ALLOWED TO FLOW TO LOCATIONS WHERE ADEQUATE PROTECTION HAS NOT BEEN PROVIDED TEMPORARY FILL DIVERSION 4. FILL MATERIALS CONTAINING ROCKS LARGER THAN SIX (6) INCHES IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LEAVE THE SITE ADEQUATELY (15.2 CM) SHALL NOT BE USED. THE UPPERMOST TWO (2) FEET (61 PROTECTED AGAINST ERUSION, SEDIMENTATION, OR ANY DAMAGE TO ANY ADJACENT CM) SHALL NOT HAVE ANY ROCK LARGER THAN TWO (2) INCHES (5.1 PROPERTY AT THE END OF EACH DAY'S WORK. CM> IN DIAMETER, TEMPORARY RIGHT-OF-WAY FOR THE EROSION CONTROL KEY SYMBOLS SHOWN ON THE PLANS, REFER TO THE VIRGINIA UNIFORM CODING SYSTEM FOR EROSION AND SEDIMENT CONTROL PRACTICES 5. THE APPROVED FILL SHALL BE PLACED IN EIGHT (8) INCH (20 CM) CONTAINED IN THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST LODSE LIFTS. EACH LIFT SHALL BE SPREAD IN UNIFORM LAYERS. EDITION THESE SYMBOLS AND KEYS ARE TO BE UTILIZED ON ALL EROSION CONTROL FILL SOIL SHALL BE UTILIZED DNLY WITHIN A MOISTURE RANGE OF PLANS SUBMITTED TO REANDKE COUNTY GRAVEL FILTER -, DIVERSION +/- 5% OF THE OPTIMUM MOISTURE CONTENT. COMPACTION OF THE FILL SHALL BE PERFORMED WITH APPROVED EQUIPMENT. COMPACTION - RUNDFF WATER DESIGN HIGH WATER DESIGN HIGH WATER (25-YR. STORM ELEV.) MIN. 2.0' MIN. 3.0' OF THE LAYERS SHALL BE CONTINUOUS AND UNIFORM, FILTERED WATER MIN, 1.0' 6. EMBANKMENT MATERIAL IN FILL AREAS SHALL BE PLACED IN LIFTS NOT 67 C.Y./AC. EXCEEDING EIGHT (8) INCHES AND SHALL BE COMPACTED TO A MINIMUM "DRY" STORAGE 95% DENSITY IN ACCORDANCE WITH SECTION 303 OF THE VIRGINIA SPECIFIC APPLICATION - RISER CREST DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS. 67 C.Y./AC. ~~ Filter Fabric -This method of inlet protection is applicable it curb inlets where ponding in front of 'WET' STORAGE - DEWATERING DEVICE the structure is not likely to cause Extend Flabric and 7. FIELD DENSITY TESTS ARE TO BE CONDUCTED BY AN INDEPENDENT inconvenience or damage to adjacent Wire Into Trench-SEDIMENT CLEANOUT POINT -SOILS TESTING LABORATORY UNDER THE DIRECTION OF A QUALIFIED structures and unprotected areas GEDTECHNICAL ENGINEER. THE RESULTS OF THESE TESTS SHALL BE * Gravel shall be VDOT #3, #357 or 5 SUBMITTED TO THE COUNTY OF ROANDKE WITH AS-BUILT PLANS AS A coarse aggregate. CONCRETE GUTTER-CONDITION OF ACCEPTANCE OF THE FACILITY BY THE COUNTY, FIELD PERMANENT SEEDING MIXTURE DENSITY TESTS, AS DIRECTED BY THE ENGINEER SHALL BE PERFORMED DESIGN ELEVATIONS WITHOUT PERIODICALLY TO DETERMINE THE DEGREE OF COMPACTION, ANY AREAS (IP) GRAVEL CURB INLET SEDIMENT FILTER EMERGENCY SPILLWAY FAILING TO MEET THE ABOVE REQUIREMENTS SHALL BE REWORKED CROSS-SECTION AND/OR RECOMPACTED UNTIL THE REQUIRED DEGREE OF COMPACTION IS (RISER PASSES 25-YR, EVENT) TYPE B (SLOPES 31 OR STEEPER) 15 DCTOBER TO 1 FEBRUARY 15 MARCH TO 1 MAY :Aggregate: K-31 FESCUE @ 5 LB / 1000 SF 8. ANTI-SEEP COLLARS SHALL BE INSTALLED IN ACCORDANCE WITH THE * 10' IF WIRE IS CROWN VETCH @ 1/2 LB / 1000 SF PERENNIAL RYEGRASS @ 1/2 LB / 1000 SF BURZY WINTER RYE @ 1/2 LB / 1000 SF USED. CONSTRUCT A WASHBOARD OR REQUIREMENTS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL -Filter Cloth RED TOP @ 1/8 LB / 1000 SF HANDBOOK, LATEST EDITION. 6' IF WIRE IS WASH RACK IF REQUIRED. FEBRUARY TO 1 JUNE Ref Table 3.02-A of K-31 FESCUE @ 5 LB / 1000 SF 15 AUGUST TO 1 DCTOBER. Virginia ESC Handbook ANNUAL RYE @ 1/2 LB / 1000 SF CROWN VETCH @ 1/2 LB / 1000 SF 9. ALL DISTURBED AREAS SHALL BE COVERED WITH FOUR (4) INCHES OF for requirements: PERENNIAL RYEGRASS @ 1/2 LB / 1000 SF TOPSOIL AND SEEDED. JUNE TO 1 SEPTEMBER RED TOP @ 1/8 LB / 1000 SF K-31 FESCUE @ 5 LB / 1000 SF GERMAN MILLET @ 1/2 LB / 1000 SF (SF) CONSTRUCTION OF A SILT FENCE 10. THE MINIMUM SLOPE OF THE BASIN FLOOR SHALL BE ONE (1) PERCENT * MUST EXTEND FULL WIDTH OF INGRESS SEPTEMBER TO 15 OCTOBER GRADED TO DRAIN TO THE PRINCIPAL SPILLWAY, & EGRESS OPERATION. K-31 FESCUE @ 5 LB / 1000 SF ANNUAL RYE @ 1/2 LB / 1000 SF SEDIMENT-LADEN RUNOFF REQUIRED _MIN. 1'~MAX. 2' GRAVEL (12'MIN, DEPTH) 12' MIN. LIME 140 LB / 1000 SF PULVERIZED AGRICULTURAL LIMESTONE WITH SEDIMENT-FERTILIZER 5-20-10 @ 25 LB / 1000 SF 38-0-0 @ 7 LB / 1000 SF IF REQUIRED, SHALL BE USED OVER ALL SEEDED AREAS AND SHALL BE SPECIFIC APPLICATION APPLIED IN ACCURDANCE WITH SECTION 1,75 OF THE VIRGINIA EROSIDN AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION This method of inlet protection is applicable -FILTER CLOTH SOIL CONDITIONING where heavy flows are expected and where - SEDIMENT INCORPORATION OF LIME AND FERTILIZER, SELECTION OF CERTIFIED an overflow capability and ease of maintenance SEED, MULCHING, MAINTENANCE OF NEW SEEDLINGS, AND RESEEDING are desirable. SHALL BE IN ACCORDANCE WITH SPECIFICATIONS CONTAINED WITHIN - LARGER PARTICLES Section A-A THE VIRGINIA SUIL ERUSION AND SEDIMENT CONTROL HANDBOOK, - MAX, SLOPE 2:1 - Reinforced Concrete Section A-A LATEST EDITION. ADDITIONAL SEEDING TO BE PERFORMED AS REQUIRED Pipe Dutlet To Flat Area With No Defined Channel <u>Pipe Dutlet To</u> Well-Defined Channel BY THE INSPECTOR. STORM WATER WITH ~ SEED APPLICATION APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, LARGER PARTICLES (OP) OUTLET PROTECTION CULTIPACKER SEEDER, OR HYDROSEEDER ON A FIRM, FRIABLE, SEEDBED. This method of inlet protection is applicable where heavy concentrated flows are expected, MAXIMUM SEEDING DEPTH SHALL BE 1/4 INCH. but not where ponding around the structure might cause excessive inconvenience or damage DRAIN INLET to adjacent structures and unprotected areas. 1. Apron lining may be rip-rap, WASH RACK DETAIL (IF REQUIRED) grouted rip-rap, or concrete. 2. La is the length of the rip-* Gravel shall be VDOT #3, #357 or #5 coarse aggregate. TOTAL DISTURBED AREA = 2.34 AC. = 102,000 SQ. FT. rap apron as calculated using TEMPORARY GRAVEL plates 1.36d and 1.36e. CONSTRUCTION ENTRANCE 3. d = 1.5 times the maximum (IP) GRAVEL AND WIRE MESH DROP INLET SEDIMENT FILTER stone diameter, but not less EXCAVATED DROP INLET SEDIMENT TRAP DATE: 11/02/93

DEPARTMENT ENGINEERING AND INSPECTIONS

- Company		CONTRACTOR CONTRACTOR OF THE PARTY OF THE PA
1	ENGR. & INSPEC.	04-10-93
2	ENGR. & INSPEC.	08-05-93
3	ENGR. & INSPEC.	10-27-93
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NO.	REVISIONS	DATE

COUNTY OF ROANOKE SCALE: NO SCALE DRAWING BY: CLN, AF DESIGNED BY: G:\CAD\DETAILS\EROSION\EROSION) APPROVED BY: GWS,III

EROSION & SEDIMENT CONTROL STORMWATER MANAGEMENT DETAILS

UNIT COST

3.00

50.00

75.00

10.00

49

TOTAL COST

7,200.00

50.00

784.00

75..00

50.00

8,159.0

\$ * 815.90

\$ 8,974.9