

- VESCH MINIMUM STANDARDS**
- MS-1 TEMPORARY AND PERMANENT STABILIZATION PRACTICES INDICATED ON PLANS, SEED SPECIFICATIONS AND LIMITS OF GRADING ARE SHOWN
 - MS-2 STOCKPILE STABILIZATION - PERMANENT/TEMPORARY STABILIZATION SHOWN.
 - MS-3 PERMANENT STABILIZATION - INDICATED FOR ALL AREAS NOT OTHERWISE STABILIZED.
 - MS-4 INSTALLATION OF E&S MEASURES-REQ'D PRIOR TO CONSTRUCTION.
 - MS-5 EARTHEN TRENCHES STABILIZATION-N/A
 - MS-6 SEDIMENT CONTROL-N/A
 - MS-7 SLOPE EROSION MINIMIZATION-N/A
 - MS-8 CHANNELIZATION OF CONCENTRATED FLOW DOWN SLOPES-N/A
 - MS-9 SLOPE SEEPAGE PROTECTION-N/A
 - MS-10 INLET PROTECTION-SHOWN AT ALL INLETS ON THE SITE.
 - MS-11 OUTLET PROTECTION-N/A
 - MS-12 LIVE WATERCOURSE IMPACTS-N/A
 - MS-13 TEMPORARY VEHICULAR STREAM CROSSINGS-N/A
 - MS-14 OTHER REGULATIONS REGARDING LIVE WATERCOURSES-N/A
 - MS-15 STABILIZATION OF BED AND BANKS OF DISTURBED WATERCOURSES-N/A
 - MS-16 UTILITY INSTALLATIONS-REQUIREMENTS ARE NOTED ON THE PLANS.
 - MS-17 CONSTRUCTION ENTRANCE MAINTENANCE-NOTED ON THE PLANS AND IN NARRATIVE.
 - MS-18 REMOVAL OF TEMPORARY MEASURES-NOTED ON THE PLANS.
 - MS-19 STORMWATER MANAGEMENT-NO STORM WATER FACILITIES ARE PROPOSED.

- EROSION CONTROL KEY SYMBOLS**
- 3.02 TEMPORARY GRAVEL CONSTRUCTION ENTRANCE (CE)
 - 3.05 SILT FENCE (SF)
 - 3.07 STORM DRAIN INLET PROTECTION (IP)
 - 3.31 TEMPORARY SEEDING (TS)
 - 3.32 PERMANENT SEEDING (PS)
 - 3.39 DUST CONTROL (DC)

(DC) DUST CONTROL

COMMON ADHESIVES FOR DUST CONTROL

ADHESIVE	WATER DILUTION	NOZZLE TYPE	APP. RATE
ANIONIC ASPHALT EMULSION	7:1	COARSE SPRAY	1,200 GAL/AC
LATEX EMULSION	12.5:1	FINE SPRAY	235 GAL/AC
RESIN IN WATER	4:1	FINE SPRAY	300 GAL/AC
ACRYLIC EMULSION (NON-TRAFFIC)	7:1	COARSE SPRAY	450 GAL/AC
ACRYLIC EMULSION (TRAFFIC)	3.5:1	COARSE SPRAY	350 GAL/AC

- (TS) TEMPORARY SEEDING**
- DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR A PERIOD OF MORE THAN 30 DAYS SHALL BE STABILIZED WITH TEMPORARY SEEDING MEASURES AS SHOWN HEREON, AND AS FURTHER DETAILED AS "STANDARD AND SPECIFICATION 3.31 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK", LATEST EDITION. IN ADDITION TO AREAS OF GENERAL GRADING THAT WILL NOT BE FINE-GRADED FOR GREATER THAN 30 DAYS, THE FOLLOWING SPECIFIC E&S MEASURES SHALL BE STABILIZED WITH TEMPORARY SEEDING IMMEDIATELY UPON COMPLETION OF CONSTRUCTION OF THE TEMPORARY MEASURE:
- SOIL STOCKPILES
 - DIKES, DAMS, AND SIDES OF SEDIMENT BASINS
 - TEMPORARY ROADWAY EMBANKMENTS
- PRIOR TO SEEDING, INSTALL NECESSARY EROSION CONTROL PRACTICES SUCH AS DIKES, WATERWAYS, AND BASINS. PROVIDE PLANTS AS SPECIFIED HEREIN, OR ENGINEER-APPROVED EQUAL.
- SEEDBED PREPARATION: LIME SHALL BE APPLIED IF DISTURBED AREAS WILL REMAIN DORMANT BETWEEN 30 DAYS AND 120 DAYS. IF REQUIRED, LIME SHALL BE APPLIED AS SHOWN, BASED ON SOIL ACIDITY.
- | pH | APPLICATION OF AGRICULTURAL LIMESTONE |
|------------|---------------------------------------|
| BELOW 4.2 | 5 TONS PER ACRE |
| 4.2 TO 5.2 | 2 TONS PER ACRE |
| 5.2 TO 6.0 | 1 TON PER ACRE |
| ABOVE 6.0 | LIME NOT REQUIRED |
- FERTILIZER SHALL BE APPLIED AS 800 LBS/ACRE OF 10-20-10 OR EQUIVALENT NUTRIENTS. LIME (AS APPLICABLE) AND FERTILIZER SHALL BE INCORPORATED INTO THE TOP 2 TO 4 INCHES OF SOIL, IF POSSIBLE.
- SURFACE ROUGHENING SHALL BE REQUIRED WHERE AREAS TO BE SEEDING HAVE BEEN COMPACTED, CRUSTED, OR HARDENED BY CONSTRUCTION TRAFFIC. AS REQUIRED, SEEDBEDS SHALL BE ROUGHENED IN ACCORDANCE WITH STANDARD AND SPECIFICATION 3.29 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK. (TRACKING WITH BULLDOZER CLEATS SHALL BE USED IN SANDY SOILS)
- SEEDING: SEED SHALL BE EVENLY APPLIED WITH THE SAME MEANS SPECIFIED HEREIN FOR PERMANENT SEEDING. SMALL GRAINS SHALL BE PLANTED NO MORE THAN ONE INCH DEEP. GRASSES AND LEGUMES SHALL BE PLANTED WITH NO LESS THAN 1/4" OF SOIL COVER.
- MULCHING: SEEDINGS MADE IN FALL FOR WINTER COVER AND DURING HOT AND DRY SUMMER MONTHS SHALL BE MULCHED ACCORDING TO STANDARD AND SPECIFICATION 3.35 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, EXCEPT THAT FIBER MULCH MAY NOT BE USED. STRAW MULCH SHALL BE USED DURING THESE PERIODS.
- TEMPORARY SEEDINGS MADE UNDER FAVORABLE SOIL AND SITE CONDITIONS DURING OPTIMUM SPRING AND FALL SEEDING DATES MAY NOT REQUIRE MULCH.
- RE-SEEDING: AREAS WHICH FAIL TO ESTABLISH VEGETATIVE COVER ADEQUATE TO PREVENT RILL EROSION SHALL BE RE-SEEDING AS SOON AS SUCH AREAS ARE IDENTIFIED.
- ACCEPTABLE TEMPORARY SEEDING PLANT MATERIALS BY RANGE OF PLANTING DATES:
- | DATE | SEEDING MATERIAL |
|----------------|---|
| 09/01 TO 02/15 | ANNUAL RYEGRASS @ 50 LB / ACRE
WINTER RYE @ 50 LB / ACRE |
| 02/16 TO 04/30 | ANNUAL RYEGRASS @ 100 LB / ACRE |
| 05/01 TO 08/31 | GERMAN MILLET @ 50 LB / ACRE |

RESPONSIBLE LAND DISTURBER CERTIFICATION

THIS PROJECT IS CURRENTLY OUT TO BID. THE SUCCESSFUL BIDDER SHALL NAME ONE PERSON RESPONSIBLE FOR ALL LAND DISTURBANCE ACTIVITIES AND EROSION CONTROL MEASURES. THE PERSON NAMED SHALL HOLD A VALID "RESPONSIBLE LAND DISTURBER CERTIFICATE" UNDER THE GENERAL ASSEMBLY REVISIONS TO THE VIRGINIA EROSION & SEDIMENT CONTROL LAW AS REVISED JULY 01, 2001. THE PERSON NAMED WILL BE IN CHARGE OF AND RESPONSIBLE FOR CARRYING OUT ALL EROSION CONTROL MEASURES. THE PERSON NAMED SHALL AFFIX SIGNED AND PRINTED NAME TO ONE COPY OF THIS SHEET AND SUBMIT TO THE ROANOKE COUNTY DEPARTMENT OF COMMUNITY DEVELOPMENT. THE APPROVING AUTHORITIES WILL NOT ISSUE A LAND DISTURBING PERMIT UNTIL THIS NAME HAS BEEN PROVIDED TO SAID DEPARTMENT.

PRINTED NAME: _____ COMPANY NAME: _____

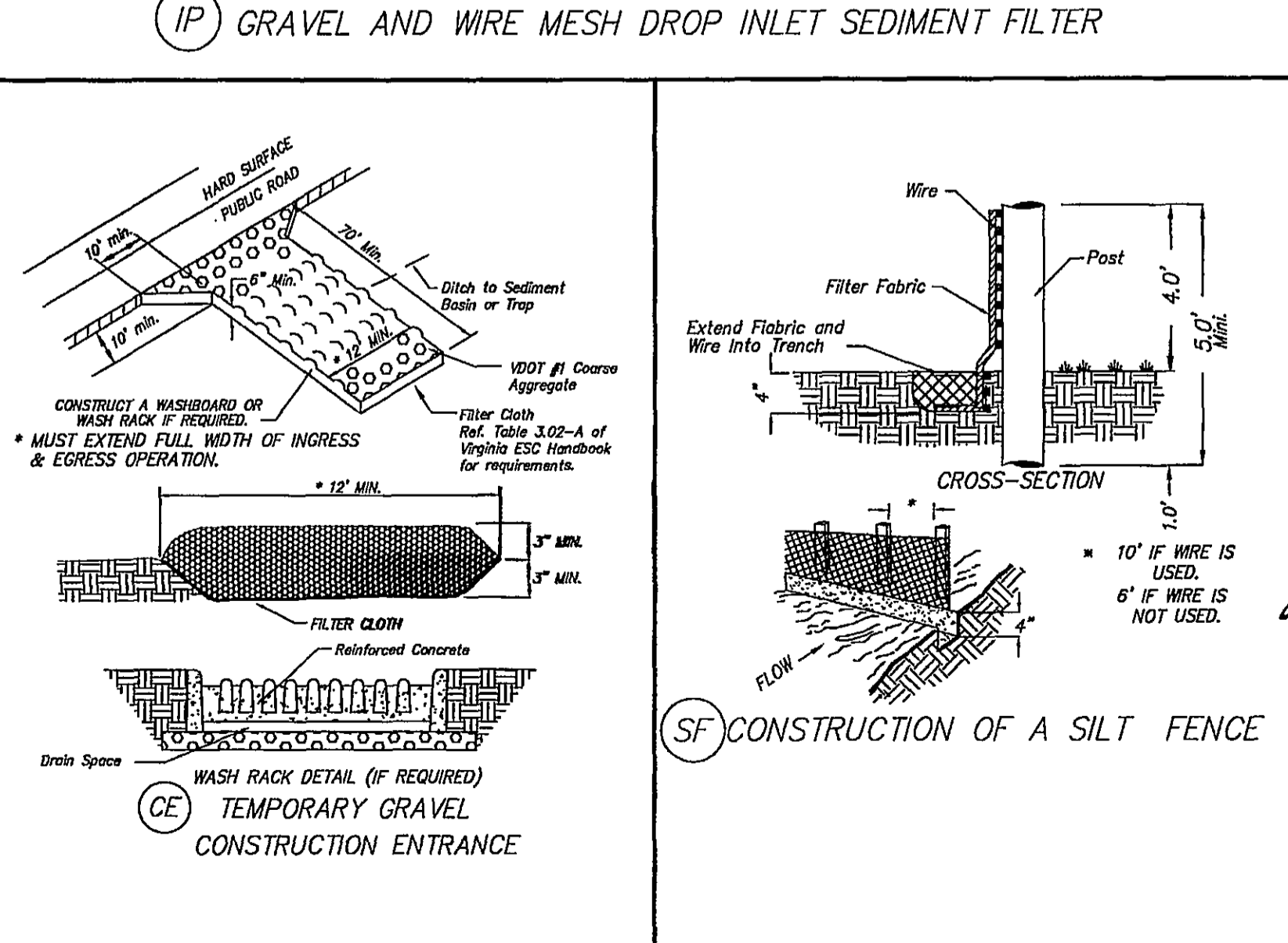
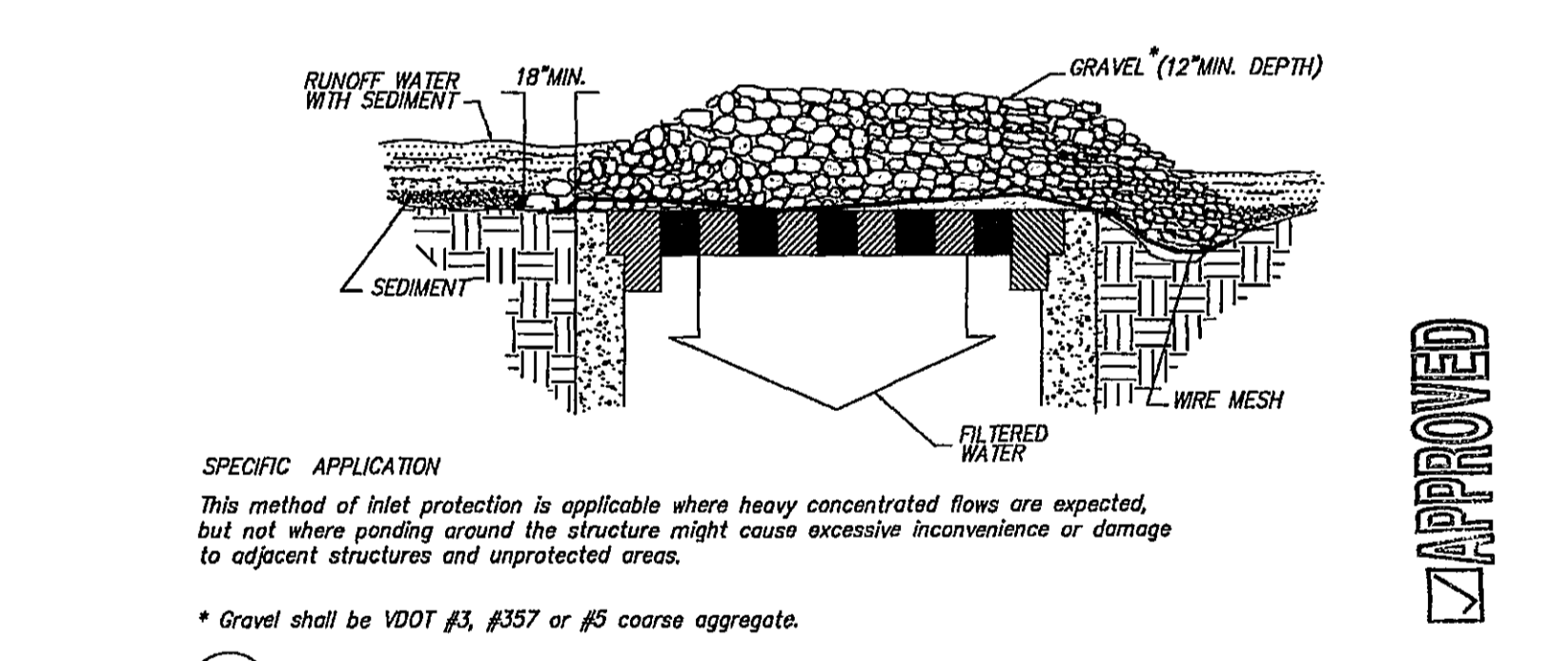
SIGNATURE: _____ CONTACT ADDRESS: _____

RESPONSIBLE LAND DISTURBER CERT. NUMBER: _____

EXPIRATION DATE: _____ TELEPHONE: _____

- GENERAL EROSION AND SEDIMENT CONTROL NOTES**
- 1) ALL SOIL EROSION & SEDIMENT CONTROL MEASURES SHALL BE ACCOMPLISHED IN STRICT ACCORDANCE WITH THE STANDARDS & SPECIFICATIONS CONTAINED IN THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, THIRD EDITION. REFER TO THE MANUAL FOR DETAILS NOT CONTAINED IN THESE PLANS.
 - 2) THE APPROVING AUTHORITY MAY ADD TO, DELETE, RELOCATE, CHANGE OR OTHERWISE MODIFY CERTAIN EROSION & SEDIMENT CONTROL MEASURES WHERE FIELD CONDITIONS ARE ENCOUNTERED THAT WARRANT SUCH MODIFICATIONS.
 - 3) ALL SOIL EROSION & 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 PROVIDED.
 - 5) IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO LEAVE THE SITE ADEQUATELY PROTECTED AGAINST EROSION, SEDIMENTATION, OR ANY DAMAGE TO ANY ADJACENT PROPERTY AT THE END OF EACH DAYS 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, THIRD EDITION.
 - 7) REFERENCE THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, THIRD EDITION, FOR TEMPORARY SEEDING REQUIREMENTS.
 - 8) NO MORE THAN 500 FEET OF UTILITY TRENCH MAY BE OPEN AT ANY TIME. ALL EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF THE TRENCH.
 - 9) THE METHOD OF SEDIMENT REMOVAL FROM TRENCH DEWATERING OPERATIONS SHALL BE APPROVED THE BY THE APPROVING AUTHORITIES PRIOR TO BEGINNING SAID OPERATIONS.
 - 10) TEMPORARY EROSION CONTROL MEASURES, NO LONGER NEEDED, SHALL BE REMOVED WITHIN 30 DAYS.
 - 11) THE LOCATION OF ALL OFF-SITE BORROW/FILL AREAS ASSOCIATED WITH THE CONSTRUCTION OF THIS PROJECT WILL BE PROVIDED TO THE APPROVING AUTHORITIES. AN EROSION CONTROL PLAN OR MEASURES MAY BE REQUIRED FOR THIS AREA.

- (PS) PERMANENT SEEDING MIXTURE**
- DISTURBED AREAS SHALL BE PERMANENTLY SEEDING WITHIN SEVEN (7) DAYS OF ACHIEVING FINAL GRADE, OR ON DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE WITHIN ONE YEAR.
- | TYPE A | TYPE B (SLOPES 3:1 OR STEEPER) |
|--|--|
| 03/15 TO 05/15 OR 08/16 TO 10/31:
ANNUAL RYEGRASS @ 20 LB / ACRE
RED TOP @ 2 LB / ACRE
KY 31 FESCUE @ 150 LB / ACRE | 03/15 TO 05/15 OR 08/16 TO 10/31:
CROWN VETCH @ 20 LB / ACRE
ANNUAL RYEGRASS @ 20 LB / ACRE
RED TOP @ 2 LB / ACRE
KY 31 FESCUE @ 108 LB / ACRE |
| 05/16 TO 08/15:
FOXTAIL MILLET @ 20 LB / ACRE
RED TOP @ 20 LB / ACRE
KY 31 FESCUE @ 150 LB / ACRE | 05/16 TO 08/15:
CROWN VETCH @ 20 LB / ACRE
FOXTAIL MILLET @ 20 LB / ACRE
RED TOP @ 20 LB / ACRE
KY 31 FESCUE @ 108 LB / ACRE |
| 11/01 TO 02/28:
WINTER RYE @ 20 LB / ACRE
RED TOP @ 20 LB / ACRE
KY 31 FESCUE @ 150 LB / ACRE | 11/01 TO 02/28:
CROWN VETCH @ 20 LB / ACRE
WINTER RYE @ 20 LB / ACRE
RED TOP @ 20 LB / ACRE
KY 31 FESCUE @ 108 LB / ACRE |
- LIME: 4,000 LB / ACRE PULVERIZED AGRICULTURAL LIMESTONE
FERTILIZER: 10-20-10 @ 1,000 LB / ACRE
MULCH: SHALL BE USED OVER ALL SEEDING AREAS AND SHALL BE APPLIED IN STRICT ACCORDANCE WITH STANDARD AND SPECIFICATION 3.35 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.
- SOIL CONDITIONING: INCORPORATION OF LIME AND FERTILIZER, SELECTION OF CERTIFIED SEED, MULCHING, MAINTENANCE OF NEW SEEDINGS, 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 CITY ENGINEER.
- SEED APPLICATION: APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CULTIVATOR SEEDER, OR HYDROSEEDER ON A FIRM, FRABLE, SEEDBED. MAXIMUM SEEDING DEPTH SHALL BE 1/4 INCH.



EROSION-SILTATION CONTROL COST ESTIMATE
(FOR SOIL EROSION CONTROL BONDING PURPOSES ONLY)

ALL COSTS GIVEN ARE COMPLETE IN PLACE

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
CONSTRUCTION ENTRANCE	EA	1	\$ 1,500.00	\$ 1,500.00
SILT FENCE	LF	420	\$ 4.50	\$ 1,890.00
INLET PROTECTION	EA.	7	\$ 150.00	\$ 1,050.00
PERMANENT SEEDING	ACRE	0.21	\$ 2,400.00	\$ 504.00
TEMPORARY SEEDING	ACRE	0.21	\$ 1,800.00	\$ 378.00
SUB-TOTAL				\$ 5,322.00
25% CONTINGENCY				\$ 1,331.00
TOTAL ESTIMATED PROJECT COST				\$ 6,653.00

CONSTRUCTION ENTRANCE NOTE

CONSTRUCTION ENTRANCE SHALL UTILIZE THE EXISTING GRAVEL ENTRANCE FROM 16TH STREET AS THE CONSTRUCTION ENTRANCE FOR THIS PROJECT. ENTRANCE SHALL BE IN ACCORDANCE W/ VESCH STD. 3.02

SOIL EROSION CONTROL NARRATIVE

PROJECT DESCRIPTION: THE PURPOSE OF THIS PROJECT IS TO PERFORM GRADING OPERATIONS ASSOCIATED WITH THE CONSTRUCTION OF A NEW 5,000 SQ. FT. BUILDING WHICH WILL HOUSE TWO HEAVY-LIFT CRANES USED IN THE MANUFACTURE OF SPECIALIZED CONCRETE PRODUCTS.

EXISTING SITE CONDITIONS: THE SITE IS PRESENTLY OCCUPIED BY SEVERAL BUILDINGS AND MANUFACTURING EQUIPMENT. THE MAJORITY OF THE SITE IS A GRAVEL LOT USED FOR MATERIAL STORAGE AND LAY DOWN AREA. THE SITE IS MODERATELY SLOPED TOWARD 16TH STREET.

ADJACENT PROPERTY: THE SITE IS BOUNDED ON THREE SIDES (NORTH, WEST & SOUTH) BY PUBLIC RIGHT OF WAY. PROPERTY TO THE EAST IS ZONED I-2.

CRITICAL AREAS: DUE TO THE EXISTING GROUND COVER CONDITIONS, THE LIMITED AMOUNT OF DISTURBED AREA AND THE LOCATION OF THE PROPOSED CONSTRUCTION ON THE SITE THE OPPORTUNITY FOR SEDIMENT LADEN RUNOFF REACHING PUBLIC RIGHT-OF-WAY IS VERY LIMITED. THE PROPOSED CONSTRUCTION ENTRANCE, WHICH WILL BE ACROSS AN EXISTING GRAVEL ENTRANCE, IS THE PRIMARY AREA OF CONCERN.

OFF-SITE AREAS: NO OFF-SITE BORROW OR FILL AREAS ARE ANTICIPATED FOR THIS SITE.

SOILS: SOILS IN THIS AREA ARE IDENTIFIED BY THE "SOIL SURVEY OF ROANOKE COUNTY AND THE CITIES OF ROANOKE AND SALEM, VIRGINIA AS 'URBAN LAND'.

EROSION AND SEDIMENT CONTROL MEASURES: UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES INDICATED HEREON SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE "VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK", THIRD EDITION.

1. PRIOR TO ANY WORK BEING PERFORMED ON THE PROPOSED PROJECT, A TEMPORARY CONSTRUCTION ENTRANCE SHALL BE PROVIDED TO THE SITE. THE ENTRANCE SHALL BE THE EXISTING GRAVEL ENTRANCE. THE ENTRANCE SHALL BE CONTINUALLY MAINTAINED, INSPECTED, REPAIRED, OR OTHERWISE BE KEPT IN GOOD FUNCTIONAL CONDITION THROUGHOUT THE EXTENT OF THE WORK ON SITE IN ACCORDANCE W/ VESCH STD. 3.02.
2. REGARDLESS OF FUTURE DEVELOPMENT PLANS, THE CONTRACTOR SHALL IMMEDIATELY INSTALL EROSION AND SEDIMENT CONTROL DEVICES AS SHOWN ON THE PLANS.
3. AFTER THE CONTROL DEVICES ARE FOUND TO BE FUNCTIONAL, THE CONTRACTOR SHALL IMMEDIATELY PROCEED WITH GRUBBING AND FILL PLACEMENT. DENuded AREAS INDICATED ON THESE PLANS TO RECEIVE PERMANENT SEEDING SHALL BE SEEDING WITHIN SEVEN (7) DAYS AFTER FINAL GRADING, AND SHALL BE IN STRICT ACCORDANCE WITH THE "VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK", THIRD EDITION.

OTHER APPLICABLE MEASURES:

- SILT FENCE: USED DOWNGRADE OF DISTURBED AREA(S).
- INLET PROTECTION: USED AT INLETS DOWNGRADE FROM DISTURBED AREA(S).
- DUST CONTROL: USED ON AREAS OF THE SITE PRONE TO DUST GENERATION.
- PERMANENT/TEMPORARY SEEDING: USED ON ALL DISTURBED AREAS OF THE SITE.

MAINTENANCE: ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL.

STORM WATER RUNOFF: DETAILED CALCULATIONS ARE PROVIDED FOR SITE RUNOFF.

GENERAL COMMENTS:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES.
2. NO WORK SHALL PROCEED ON SITE UNTIL THE PROPER AUTHORIZATION OR PERMIT HAS BEEN OBTAINED FROM ROANOKE COUNTY.

DISTURBED AREA: TOTAL DISTURBED AREA = 0.48 AC.

EROSION & SEDIMENT CONTROL PLAN AND DETAILS FOR CONCRETE SPECIALTIES, INC.

SITUATE 16TH STREET AND UNDERHILL AVENUE
VINTON MAGISTERIAL DISTRICT
ROANOKE COUNTY, VIRGINIA

CWA CALDWELL WHITE ASSOCIATES
ENGINEERS / SURVEYORS / PLANNERS
4208 MELROSE AVENUE, N.W.
P.O. BOX 8260
ROANOKE, VIRGINIA 24017
(540) 586-3400
FAX: (540) 366-8702

Professional Engineer Seal: FRANK B. CALDWELL, III, LIC. NO. 9184, 27 Jan 09

Design: JWK
Drawn: JWK
Checked: FBC
Date: SEPT. 18, 2008
Rev: JAN. 27, 2009
Scale: 1" = 30'
Tax Parcel: 70.11-1-20.21.1.22
W.O. No.: 08-0074