EROSION SEDIMENT CONTROL MINIMUM STANDARDS		
MS #	MINIMUM STANDARDS	MEASURE APPLIED FOR EACH MINIMUM STANDARD
MS #1	PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN (7) DAYS AFTER FINAL GRADE HAS BEEN REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN (7) DAYS TO DENUDED AREAS THAT MAY BE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN THIRTY (30) DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE (1) YEAR.	PERMANENT AND TEMPORARY SEEDING HAS BEEN SPECIFIED FOR ALL DENUDED AREAS ALONG WITH APPLICABLE MULCH, LIME AND FERTILIZATION.
MS #2	DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE.	THERE ARE NO SOIL STOCKPILES PROPOSED. IF SOIL IS TO BE STORED ON SITE, IT SHALL HAVE SILT FENCE INSTALLED AROUND THE DOWN HILL SIDE OF THE PILE TO INSURE PROTECTION FROM SEDIMENT LADEN RUN-OFF FROM LEAVING THE SITE.
MS #3	A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT, IN THE OPINION OF THE LOCAL PROGRAM ADMINISTRATOR OR AGENT, IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.	PERMANENT AND TEMPORARY SEEDING HAS BEEN SPECIFIED FOR ALL DENUDED AREAS ALONG WITH APPLICABLE MULCH, LIME AND FERTILIZATION.
MS #4	SEDIMENT TRAPS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE IMPLEMENTED AS A FIRST STEP IN ANY LAND DISTURBING ACTIVITY AND SHALL BE MAINTAINED UNTIL FURTHER LAND DISTURBANCES CEASE.	NOT APPLICABLE
MS #5	STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES, AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.	NOT APPLICABLE
MS #7	CUT AND FILL SLOPES SHALL BE CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE (1) YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL STABILIZATION MEASURES UNTIL THE PROBLEM IS CORRECTED.	NOT APPLICABLE
MS #8	CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.	NOT APPLICABLE
MS #9	WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.	NOT APPLICABLE
MS #10	ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.	NOT APPLICABLE
MS #11	BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT LINING WORK SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.	NOT APPLICABLE
MS #12	WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE USED TO MINIMIZE DISTURBANCE. SPECIAL SEDIMENT CONTROL, STABILIZATION AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NONERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NONERODIBLE COVER MATERIALS.	NOT APPLICABLE
MS #13	WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN THREE IN ANY SIX-MONTH PERIOD, A TEMPORARY STREAM CROSSING CONSTRUCTED OF NONERODIBLE MATERIAL SHALL BE PROVIDED.	NOT APPLICABLE
MS #14	ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.	NOT APPLICABLE
MS #15	THE BED AND BANKS OF ANY WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.	NOT APPLICABLE
MS #16	UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND SPECIFICATIONS (UNLESS ALTERNATE CRITERIA APPROVED BY STATE WATER CONTROL BOARD): A. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME. B. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES. C. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THRU AN APPROVED SEDIMENT TRAPPING DEVICE, OR BASIN, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY. D. RESTABILIZATION SHALL BE ACCOMPLISHED IN WITH THESE REGULATIONS. E. APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.	NOT APPLICABLE
MS #17	WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICLES TRACKING ONTO THE PAVED SURFACE. WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED ROADWAY, THE ROADWAY SHALL BE CLEANED THOROUGHLY AT THE END OF THE DAY. SEDIMENT SHALL BE REMOVED FROM THE ROAD BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER.	A CONSTRUCTION ENTRANCE HAS BEEN SPECIFIED.
MS #18	ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN THIRTY (30) DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE LOCAL PROGRAM ADMINISTRATOR. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.	REMOVAL OF TEMPORARY EROSION CONTROL MEASURES ARE SPECIFIED IN THE DETAILS SHOWN ON WHEN THE CITY DEEMS THE SITE FULLY STABILIZED.
MS #19	PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITE SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION & DAMAGE DUE TO INCREASES IN VOLUME, VELOCITY & PEAK FLOW RATE OF STORMWATER RUNOFF FOR THE STATED FREQUENCY STORM OF 24 HOUR DURATION.	THERE IS NO INCREASE IN STORMWATER VOLUME OR VELOCITY DUE TO THE PROPOSED WORK. THE PROPOSED EROSION CONTROL MEASURES WILL ELIMINATE ANY POTENTIAL OF DOWNSTREAM EROSION OR DAMAGE.

ACS DESIGN EROSION & SEDIMENT CONTROL MINIMUM STANDARDS

Refer to and comply with the Standards & Specifications of the Virginia Erosion & Sediment Control Handbook. This information is based on and modeled after it and is provided as a quick reference.

EROSION & SEDIMENT CONTROL NARRATIVE

PROJECT DESCRIPTION
The purpose of this plan is to facilitate the construction of a commercial building having 8 units. This project includes sidewalks, retaining wall, curb and gutter, utilities.
Total disturbed area = 0.096 acres.

EXISTING SITE CONDITIONS
The majority of the parcel is covered by grass, and is surrounded by sidewalk along the northern propety line and sidewalk and curb and gutter along the western property lines. Grass cover becomes sparse towards the middle of the parcel with a small portion exposed bare earth.

ADJACENT AREAS
The existing parcel is bordered by Woodrow Avenue along the northern property line, 9th Street along the western property line, a developed commercial parcel to the south and a public alley to the east.

SOILS
See Soil Map on this sheet. Soil description provided by the "Soil Survey of Roanoke County, and the Cities of Roanoke and Salem,Virginia".

CRITICAL AREAS
The terrain slopes across this undeveloped parcel uniformly at 8.58% towards the eastern property line. The terrain gets steeper adjacent to the eastern property line, however this area will remain undisturbed except for plantings which will improve erosion control at this particular area. Therefore, there are no critical crsoion areas on this parcel.

PERMANENT STABILIZATION
Permanent stabilization will be accomplished by hardscaping (pavment and building), establishment of turf, and establishment of tree and shrub landscaping.

CALCULATIONS
Calculations are provided in the "Design Notes" document.

EROSION AND SEDIMENT CONTROL MEASURES
1. Temporary Construction Entrance: (Section 3.02) One temporary construction entrance will be installed. The entrances shall be composed of graded 3" stone to a minimum depth of 6". The entrances shall also run for a minimum distance of not less than 70' back from the existing edge of pavement.

2. Silt Fence: (Section 3.05) Temporary silt fence and associated silt fence breaks shall be installed as indicated on the site plan.

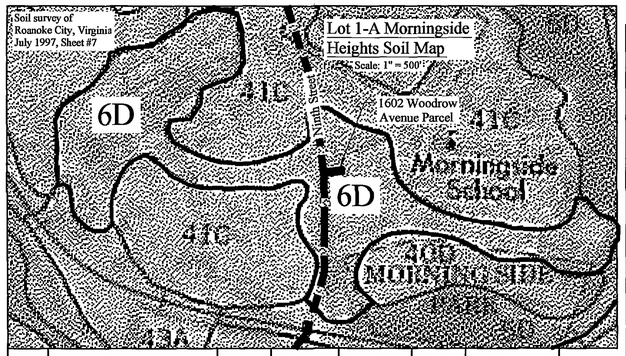
3. Storm Drain Inlet Protection: (Sections 3.07) A sediment filter or an excavated impounding area around a storm drain drop inlet, curb inlet, or lower end of an outlet pipe.

4. Topsoiling: (Section 3.30) Topsoil will be stripped to a depth of 6 inches and stockpiled at the location shown on the site plan. Topsoil will be distributed and placed in all areas to receive permanent seeding or tree and shrub planting immediately before seeding begins.

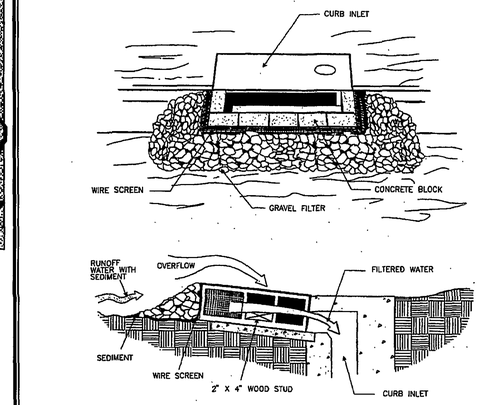
5. Temporary Seeding: (Section 3.31) Temporary seeding will be placed on all disturbed areas that will not be brought to final grade within one year or less. Temporary seeding will aid in the reduction of dust and sediment. Temporary seeding will be annual ryegrass (50 lbs./ac), Feb 16 - April 30, German millet (60 lbs./ac), May 1 - Aug. 31.

6. Permanent Seeding: (Section 3.32) All areas disturbed by construction shall be stabilized with permanent seeding immediately following finish grading. Erosion control blankets will be installed over fill slopes which have been brought to final grade and have been seeded to protect the slopes from rill and gully erosion and to allow seed to germinate properly. Mulch (straw or fiber) will be used on relatively flat areas. In all seeding operations, seed, fertilizer and lime will be applied prior to mulching.

7. Mulching: (Section 3.35) Mulch shall be used over all seeded areas and shall be applied in accordance with standard and specification 3.35 of the Virginia Erosion and Sediment Control Handbook, latest edition.



Unit	Soil Name	Slope	Erodibility	Permeability	Depth	Texture
6D	Chiswell-Litz Urban Land Complex	15-35%	High	Moderate	20" to 40"	Channery Silt Loam



SPECIAL APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLETS WHERE AN OVERFLOW CAPABILITY IS NECESSARY TO PREVENT EXCESSIVE PONDING IN FRONT OF THE STRUCTURE.

* GRAVEL SHALL BE VDOT #3, #357 OR #5 COARSE AGGREGATE

ACS DESIGN IP - BLOCK & GRAVEL CURB INLET SEDIMENT FILTER

2203 PETERS CREEK ROAD, NW - ROANOKE, VIRGINIA 24017 - Phone 540.562 2345 - Fax 540.562.2344
13399 BOOKER T. WASHINGTON HWY. - HARDY, VIRGINIA 24101 - Phone 540.719.2345 - Fax 540.719.2344
ENGINEERING - SURVEYING - LANDSCAPE ARCHITECTURE - CONSTRUCTION MANAGEMENT

KEY	NAME	SYMBOL	VESCH No.
BM	Soil Stabilization Blankets and Matting		3.36
CE	Temporary Gravel Construction Entrance		3.02
CIP	Culvert Inlet Protection		3.08
CRS	Construction Road Stabilization		3.03
DD	Temporary Diversion Dike		3.09
ES-1	Silt Fence Break		
IP	Storm Drain Inlet Protection		3.07
MU	Mulching		3.35
OP	Outlet Protection		3.18
PS	Permanent Seeding		3.32
SAF	Construction Safety Fencing		3.01
SF	Silt Fence		3.05
SR	Surface Roughening		3.29
ST	Temporary Sediment Trap		3.13
TP	Tree Preservation & Protection		3.38
TS	Temporary Seeding		3.31

NOTE: The E&S Plan is schematic. E&S measures are represented on the Plan with symbols that might or might not approximate their actual size. Refer to the details, other drawing notes, and the VESCH for complete information.

GENERAL EROSION AND SEDIMENT CONTROL NOTES

ES-1: Unless otherwise indicated, all vegetative and structural erosion and sediment control practices will be constructed and maintained according to minimum standards and specifications of the Virginia Erosion and Sediment Control Handbook, latest edition and Virginia Regulations 4VAC50-30, Erosion and Sediment Control Regulations.
ES-2: The plan approving authority must be notified one week prior to the 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 shall be maintained on the site at all times.
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 approving authority.
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 land disturbing activities and during site development until final stabilization is achieved.
ES-8: During dewatering operations, 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.

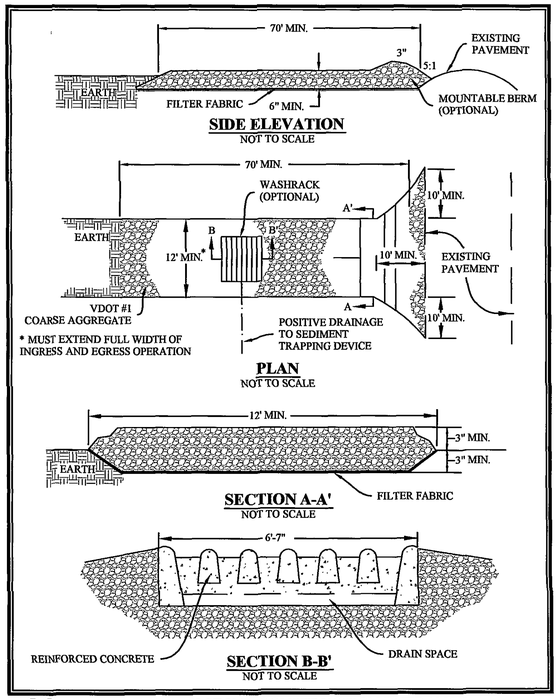
ACS DESIGN EROSION CONTROL LEGEND AND GENERAL NOTES

Refer to and comply with the Standards & Specifications of the Virginia Erosion & Sediment Control Handbook. This information is based on and modeled after it and is provided as a quick reference.

EROSION AND SEDIMENT CONTROL COST ESTIMATE						
VESCH No.						
3.01	SAF	Safety Fence	EA			$0
3.02	CE	Temporary Gravel Construction Entrance	EA	$1,500.00	1	$1,500
3.03	CRS	Construction Road Stabilization	SY			$0
3.04	STB	Straw Bale Barrier	LF			$0
3.05	SF	Silt Fence	LF	$4.00	56	$224
	SFB	Silt Fence Break	EA			$0
3.06	BB	Brush Barrier	LF			$0
3.07	IP	Inlet Protection	EA	$300.00	1	$300
3.08	CIP	Culvert Inlet Protection	EA			$0
3.09	DD	Temporary Diversion Dike	LF			$0
3.10	FD	Temporary Fill Diversion	LF			$0
3.11	RWD	Temporary Right-of-way Diversion	LF			$0
3.12	PD	Diversion	LF			$0
3.13	ST	Temporary Sediment Trap				$0
		1 Acre Drainage Area	EA			$0
		2 Acre Drainage Area	EA			$0
		3 Acre Drainage Area	EA			
3.14	SB	Temporary Sediment Basin				$0
		3 Acre Drainage Area	EA			$0
		6 Acre Drainage Area	EA			$0
3.15	TSD	Temporary Slope Drain	LF			$0
3.16	PF	Paved Flume	LF			$0
3.17	SCC	Stormwater Conveyance Channel	LF			$0
3.18	OP	Outlet Protection	EA			$0
3.19	RR	Riprap	SY			$0
3.20	CD	Rock Check Dams	EA			$0
3.21	LS	Level Spreader				
3.22	VSS	Vegetative Streambank Stabilization				
3.23	SSS	Structural Streambank Stabilization				
3.24	SC	Temporary Vehicular Stream Crossing				
3.25	USC	Utility Stream Crossing				
3.26	DS	Dewatering Structure				
3.27	TC	Turbidity Curtain				
3.28	SD	Subsurface Drain				
3.29	SR	Surface Roughening	LS			$0
3.30	TO	Topsoiling				
3.31	TS	Temporary Seeding	1000 SF	$100.00	2.00	$200
3.32	PS	Permanent Seeding	1000 SF	$100.00	2.00	$200
3.33	SO	Sodding				
3.34	BF/ZE	Bermudagrass/Zoysiagrass Establishment				
3.35	MU	Mulching	1000 SF	$100.00	2.00	$200
3.36	B/M	Soil Stabilization Blankets & Matting	SF			$0
3.37	VEG	Trees, Shrubs, Vines and Groundcovers				
3.38	TP	Tree Preservation & Protection				
3.39	DC	Dust Control				
		SUBTOTAL				$2,624
		10% CONTINGENCY				$262
		TOTAL				$2,886.40

ACS DESIGN EROSION & SEDIMENT CONTROL COST ESTIMATE

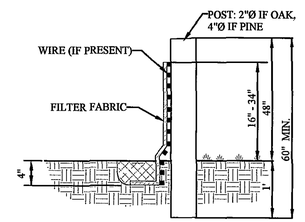
Refer to and comply with the Standards & Specifications of the Virginia Erosion & Sediment Control Handbook. This information is based on and modeled after it and is provided as a quick reference.



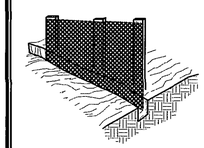
ACS DESIGN CE - TEMPORARY STONE CONSTRUCTION ENTRANCE

Refer to and comply with Standard & Specification 3.02 of the Virginia Erosion & Sediment Control Handbook. This information is based on and modeled after it and is provided as a quick reference.

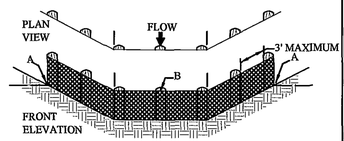
INSTALLATION SEQUENCE:
1. Set posts and excavate 4x4 trench upslope along the line of the posts.
2. Staple wire fencing to the posts (where needed).
3. Staple the filter fabric to the posts (or attach to wire fence where present) and extend the fabric into the trench.
4. Backfill and compact the excavated soil.



CROSS-SECTION
NOT TO SCALE



PERSPECTIVE VIEW
NOT TO SCALE



DRAINAGEWAY INSTALLATION
POINTS 'A' SHOULD BE HIGHER THAN POINT 'B'
NOT TO SCALE

NOTES
1. Synthetic filter fabric shall be a pervious sheet of propylene, nylon, polyester or ethylene yarn and shall be certified by the manufacturer or supplier as conforming to the requirements noted in VESCH Table 3.05-B
2. The filter fabric shall be purchased in a continuous roll cut to the length of the barrier to avoid the use of joints. When joints are unavoidable, filter cloth shall be spliced together only at a support post, with a minimum 6-inch overlap, and securely sealed.
3. A trench shall be excavated approximately 4-inches wide and 4-inches deep on the upslope side of the proposed location of the measure.
4. When wire support is used, standard-strength filter cloth may be used. Wire fence reinforcement for silt fence using standard-strength filter cloth shall be a minimum of 14 gauge and shall have a minimum mesh spacing of 6 inches. Posts for this type of installation shall be placed a maximum of 10 feet apart.
5. When wire support is not used, extra-strength filter cloth must be used. Posts for this type of installation shall be placed a maximum of 6 feet apart.
6. Inspect all silt fencing each week and after every significant runoff producing event, and repair the fence as needed.

ACS DESIGN SF - SILT FENCE BARRIER

Refer to and comply with Standard & Specification 3.05 of the Virginia Erosion & Sediment Control Handbook. This information is based on and modeled after it and is provided as a quick reference.

COMMONWEALTH OF VIRGINIA
SCOTT F. EASTER
Lic. No. 031618
9/18/08
PROFESSIONAL ENGINEER

ACS DESIGN
ENGINEERING - SURVEYING
LANDSCAPE ARCHITECTURE
CONSTRUCTION MANAGEMENT

2203 PETERS CREEK ROAD
ROANOKE, VIRGINIA 24017
P 540.562.2345 F 562.2344
INFO@ ACSDESIGNLLC.COM
WWW . ACSDESIGNLLC.COM

ZAQS MORNINGSIDE PLAZA
1602 9TH STREET, SE
ROANOKE, VIRGINIA

DRAWN BY:	CLK
DESIGNED BY:	CLK
CHECKED BY:	SFE
DATE:	13 MAY 2008
JOB NUMBER:	06028

REVISIONS:

No. 1	18 AUGUST 2008 PER ROANOKE CITY COMMENTS
No. 2	
No. 3	
No. 4	

SHEET NO.:
C1.5

EROSION CONTROL NOTES AND DETAILS