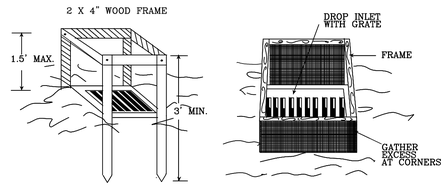
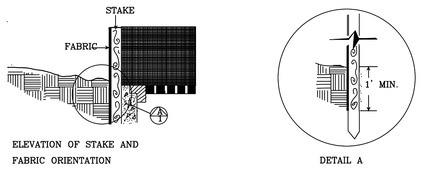
SILT FENCE DROP INLET PROTECTION



PERSPECTIVE VIEWS



ELEVATION OF STAKE AND FABRIC ORIENTATION

DETAIL A

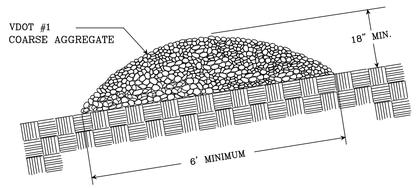
SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPE NO GREATER THAN 5%) WHERE THE INLET SHEET OR OVERLAND FLOWS (NOT EXCEEDING 1 C.F.S.) ARE TYPICAL. THE METHOD SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS, SUCH AS IN STREET OR HIGHWAY MEDIANS.

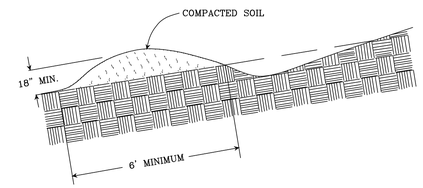
STORM DRAIN INLET PROTECTION (IP)

(STD. & SPEC. 3.07-1)

TEMPORARY RIGHT-OF-WAY DIVERSIONS



TYPICAL GRAVEL STRUCTURE



TYPICAL EARTHEN STRUCTURE

TEMPORARY RIGHT-OF-WAY DIVERSION DIKE (RWD)

(STD. & SPEC. 3.11)

TEMPORARY SEEDING MIXTURE:

THE SEEDING INFORMATION PROVIDED BELOW IS FOR GENERAL COMPLIANCE WITH EROSION & SEDIMENT CONTROL REQUIREMENTS. REFER TO PROJECT SPECIFICATIONS FOR ADDITIONAL TECHNICAL REQUIREMENTS.

FERTILIZER: SHALL MEET REQUIREMENTS OF FEDERAL SPECIFICATION O F 241. PROVIDE FERTILIZER THAT IS COMPLETE, INORGANIC, UNIFORM IN COMPOSITION, AND SUITABLE FOR APPLICATION WITH APPROVED EQUIPMENT. PROPORTIONS OF FERTILIZER NUTRIENTS SHALL BE THE FOLLOWING:

10 LBS. OF ACTUAL NITROGEN
10 LBS. OF ACTUAL PHOSPHATE
10 LBS. OF ACTUAL POTASH

TEMPORARY SEED MIXTURE: SHALL HAVE THE FOLLOWING CHARACTERISTICS:

SEEDING DATE	SPECIES	PERCENTAGES (MINIMUM)			SEEDING RATE LBS. PER ACRE
		WGT.	PURITY	GERM.	
02/15-03/30	OATS	100	98	85	96
05/01-08/31	MILLET	100	98	80	40
09/01-11/15	RYE	100	96	85	140

LIME: SHALL BE GROUND AGRICULTURAL GRADE LIMESTONE CONTAINING NOT LESS THAN 85 PERCENT CALCIUM AND MAGNESIUM CARBONATES. FINENESS SHALL BE SUCH THAT 100 PERCENT WILL PASS A NO. 20 SIEVE, AND NOT LESS THAN 50 PERCENT WILL PASS A NO. 100 SIEVE. BURNT LIME OR HYDRATED LIME MAY BE SUBSTITUTED IN EQUIVALENT CARBONATES, IF REQUESTED.

MULCH: TYPE I MULCH SHALL BE CURLEX BLANKET EROSION CONTROL FABRIC BLANKET. THE FABRIC SHALL BE MANUFACTURED OF MATERIALS WHICH DEGRADE IN 6 TO 8 MONTHS UNDER OUTDOOR EXPOSURE. TYPE II MULCH COMPOSED OF THRESHED STRAW OF CEREAL GRAIN, PINE NEEDLES, OR WOOD FIBER SHALL BE FREE OF OBJECTIONABLE WEED SEEDS OR OTHER HARMFUL MATERIAL.

BINDER: SYNTHETIC MULCH BINDER FOR USE WITH TYPE II MULCH: CURASOL, DCA 70, PETROSET, OR TERRA TACK.

TEMPORARY SEEDING MIXTURE (TS)

(STD. & SPEC. 3.31)

PERMANENT SEEDING MIXTURE:

THE SEEDING INFORMATION PROVIDED BELOW IS FOR GENERAL COMPLIANCE WITH EROSION & SEDIMENT CONTROL REQUIREMENTS. REFER TO PROJECT SPECIFICATIONS FOR ADDITIONAL TECHNICAL REQUIREMENTS.

LIME: AS REQUIRED BY SOIL TEST. AGRICULTURAL LIMESTONE CONTAINING MINIMUM OF 85 PERCENT CARBONATES. MINIMUM GRADATION: 100 PERCENT PASSING A 10 MESH SIEVE; 98 PERCENT A 20 MESH SIEVE; 55 PERCENT A 60 MESH SIEVE; AND 40 PERCENT A 10 MESH SIEVE.

FERTILIZER: SHALL BE GRANULAR, OR PELLETED; COMPLETE COMMERCIAL TYPE WITH 50 PERCENT OF THE NITROGEN IN SLOWLY AVAILABLE FORM. ALL FERTILIZER SHALL BE A COMMERCIAL BALANCED FORMULA WITH AT BEST 25 PERCENT ORGANIC MATERIAL, AND SHALL CONFORM TO APPLICABLE STATE FERTILIZER LAWS. IT SHALL BE UNIFORM IN COMPOSITION, IN GRANULAR FORM DRY AND FREE-FLOWING. FOR ALL GRASS AND LAWN AREAS IT SHALL HAVE A MINIMUM GUARANTEED ANALYSIS OF 15 PERCENT NITROGEN, 30 PERCENT PHOSPHORUS, AND 15 PERCENT POTASH.

SEED: ALL PERMANENT GRASS SEED SHALL BE MANUFACTURED BY A SEED COMPANY THAT CAN GUARANTEE ALL SEED SHALL BE FREE OF NOXIOUS WEED SEEDS, CLEANED GRADE A RECENT CROP SEED. SEED COMPANY SHALL PROVIDE GUARANTEED GERMINATION OF 80 PERCENT.

SEED MIXTURE SHALL CONSIST OF (PROPORTIONED BY WEIGHT):

KENTUCKY BLUEGRASS (MIX OF 3 VARIETIES) 25%

TURF TYPE TALL FESCUE (REBEL 3D, TITAN 2, SHENANDOAH, FINELAWN 88, ANTHEM) 75%

APPLICATION: SEEDING SHALL BE APPLIED BETWEEN MARCH 1 AND MAY 15, OR AUGUST 16 AND OCTOBER 31. CAST SEEDS AT 4 POUNDS PER THOUSAND SQUARE FEET.

MULCH: SHALL BE CLEAN WHEAT OR BARLEY STRAW, FREE FROM NOXIOUS WEED SEED AND OTHER HARMFUL MATERIAL. COMMERCIAL PRODUCTS MAY BE USED WITH APPROVAL.

BINDER: SHALL BE FIBER MULCH BASED TACK BINDER SUCH AS "ENVIRO-BLEND" BY CONWED OR EQUAL. APPLY AT 25 LBS. PER THOUSAND SQUARE FEET ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

NOTE: REFER TO CHAPTER 5.11 OF THE "CITY OF ROANOKE RIGHT OF WAY EXCAVATION AND RESTORATION STANDARDS" FOR TOPSOIL AND SEEDING REQUIREMENTS WITHIN THE RIGHT OF WAY.

PERMANENT SEEDING MIXTURE (PS)

(STD. & SPEC. 3.32)

STATEMENT OF COMPLIANCE WITH VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS - 9VAC25-840-40 - MINIMUM STANDARDS:

THE LAND-DISTURBING ACTIVITIES OF THIS PROJECT MUST COMPLY WITH PARTS OF THE 19 "MINIMUM STANDARDS" (MS) SPECIFIED IN SECTION 4VAC50-30-40 OF THE REGULATIONS (VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS) THAT ARE APPLICABLE TO THE PROJECT. THIS SECTION PROVIDES A RECITATION OF THE FULL TEXT OF THE 19 MINIMUM STANDARDS AND FOLLOWS WITH A "METHOD OF COMPLIANCE" WITH EACH MINIMUM STANDARD. THESE EROSION AND SEDIMENT CONTROL PLANS WERE PREPARED IN A MANNER TO ENSURE COMPLIANCE WITH THE MINIMUM STANDARDS.

THE CONTRACTOR AND THE CERTIFIED RESPONSIBLE LAND DISTURBER (RLD) SHALL PERFORM THE WORK OF THE PROJECT IN THE MANNER STATED AND IN A MANNER AND SEQUENCE SUCH THAT THE INTENT AND REQUIREMENTS OF THE MINIMUM STANDARDS ARE MET. IF PROVIDED, REFER TO THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR ADDITIONAL INFORMATION.

MS-1: Permanent or temporary soil stabilization shall be applied to denuded areas within seven (7) days after final grade is reached on any portion of the site. Temporary soil stabilization shall be applied within seven (7) days to denuded areas that may not be at final grade but will remain dormant for longer than fourteen (14) days. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year.

METHOD OF COMPLIANCE: PERMANENT SEEDING (PS) AND TEMPORARY SEEDING (TS) MEASURES ARE SHOWN AND SPECIFIED ON THE EROSION AND SEDIMENT CONTROL PLANS AND DETAILS. CONTRACTOR SHALL REFER TO SHEET C2.1 THRU C2.3 FOR THE "SEQUENCE OF WORK" AND OTHER REQUIREMENTS, AND SHEET C2.4 FOR DETAILS AND SPECIFICATIONS FOR SEEDING REQUIREMENTS.

MS-2: During construction of the project, soil stock piles and borrow areas shall be stabilized or protected with sediment trapping measures. The applicant is responsible for the temporary protection and permanent stabilization of all soil stockpiles on site as well as borrow areas and soil intentionally transported from the project site.

METHOD OF COMPLIANCE: IT IS NOT ANTICIPATED THAT EXTENSIVE TOPSOIL, EXCESS EXCAVATION MATERIAL, AND/OR UN-SUITABLE MATERIAL WILL BE GENERATED FROM THE WORK OF THE PROJECT. DEMOLISHED/REMOVED CONCRETE CURB & GUTTER, SIDEWALK, AND DRIVEWAY APRONS WILL BE REMOVED FROM THE PROJECT SITE UPON REMOVAL. IF REQUIRED, ANY STOCKPILE WILL BE PROTECTED WITH APPROPRIATE PERIMETER CONTROL MEASURES SUCH AS SILT FENCE OR SEDIMENT BARRIER/SOCK AS REQUIRED. IF TOPSOIL, EXCESS EXCAVATION, OR UN-SUITABLE MATERIAL IS REMOVED FROM THE SITE, IT SHALL BE DISPOSED OF IN A LEGAL MANNER AND AT A SITE THAT IS DULY PERMITTED FOR LAND DISTURBANCE ACTIVITIES.

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 is uniform, mature enough to survive and will inhibit erosion.

METHOD OF COMPLIANCE: PERMANENT SEEDING (PS) ALONG WITH TOPSOILING (TO) AND OTHER LANDSCAPING FEATURES ARE SHOWN AND SPECIFIED ON THE PLANS. REFER TO SHEET C2.4 FOR SPECIFICATIONS AND DETAILS, AND LANDSCAPE PLANS (C6.1 - 6.3). ALL DISTURBED AREA ARE TO BE STABILIZED WITH EITHER: NEW CONCRETE CURB/CURB & GUTTER, NEW CONCRETE SIDEWALK, NEW DRIVEWAY APRONS, NEW LANDSCAPING/PLANTER BEDS (MULCHED), OR SEEDED/SODDED.

MS-4: Sediment basins and sediment traps, perimeter dikes, sediment barriers and other measures intended to trap sediment shall be constructed as a first step in any land-disturbing activity and shall be made functional before upslope land disturbance takes place.

METHOD OF COMPLIANCE: THE PLAN UTILIZES RIGHT-OF-WAY DIVERSIONS (RWD) IN STRATEGIC LOCATIONS TO INTERCEPT AND FILTER POTENTIAL SEDIMENT LADEN RUN-OFF BEFORE IT EXITS THE PROJECT AREA. REFER TO PLAN SHEETS C2.1 THRU 2.3 FOR LOCATION.

MS-5: Stabilization measures shall be applied to earthen structures such as dams, dikes and diversions immediately after installation.

METHOD OF COMPLIANCE: NOT APPLICABLE.

MS-6: Sediment traps and sediment basins shall be designed and constructed based upon the total drainage area to be served by the trap or basin.

a. The minimum storage capacity of a sediment trap shall be 134 cubic yards per acre of drainage area and the trap shall only control drainage areas less than three acres.

b. Surface runoff from disturbed areas that is comprised of flow from drainage areas greater than or equal to three acres shall be controlled by a sediment basin. The minimum storage capacity of a sediment basin shall be 134 cubic yards per acre of drainage area. The outfall system shall, at a minimum, maintain the structural integrity of the basin during a 25-year storm of 24-hour duration. Runoff coefficients used in runoff calculations shall correspond to a bare earth condition or those conditions expected to exist while the sediment basin is utilized.

METHOD OF COMPLIANCE: NOT APPLICABLE.

MS-7: Cut and fill slopes shall be designed and constructed in a manner that will minimize erosion. Slopes that are found to be eroding excessively within one year of permanent stabilization shall be provided with additional slope stabilizing measures until the problem is corrected.

METHOD OF COMPLIANCE: 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.

METHOD OF COMPLIANCE: NOT APPLICABLE.

MS-9: Whenever water seeps from a slope face, adequate drainage or other protection shall be provided.

METHOD OF COMPLIANCE: 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.

METHOD OF COMPLIANCE: INLET PROTECTION (IP) MEASURES ARE SPECIFIED AND SHOWN ON THE PLANS. THE GENERAL WORK SEQUENCE SPECIFIES THE TIMING FOR INSTALLATION OF THESE MEASURES.

MS-11: Before newly constructed stormwater conveyance channels or pipes are made operational, adequate outlet protection and any required temporary or permanent channel lining shall be installed in both the conveyance channel and receiving channel.

METHOD OF COMPLIANCE: NOT APPLICABLE. THE NEW STORMWATER CONVEYANCE SYSTEM(S) DISCHARGES DIRECTLY IN TO THE EXISTING STORM DRAINAGE PIPING SYSTEM. NO NEW OUTLET PROTECTION MEASURES ARE REQUIRED.

MS-12: When work in a live watercourse is performed, precautions shall be taken to minimize encroachment, control sediment transport 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.

METHOD OF COMPLIANCE: NOT APPLICABLE. NO WORK IS PROPOSED IN A LIVE WATERCOURSE.

MS-13: When a live watercourse must be crossed by construction vehicles more than twice in any six-month period, a temporary vehicular stream crossing constructed of nonerodible material shall be provided.

METHOD OF COMPLIANCE: NOT APPLICABLE. WORK DOES NOT INVOLVE THE CROSSING OF A LIVE WATERCOURSE.

MS-14: All applicable federal, state and local requirements pertaining to working in or crossing live watercourses shall be met.

METHOD OF COMPLIANCE: NOT APPLICABLE. WORK DOES NOT INVOLVE WORKING IN OR CROSSING OF A LIVE WATERCOURSE.

MS-15: The bed and banks of a watercourse shall be stabilized immediately after work in the watercourse is completed.

METHOD OF COMPLIANCE: NOT APPLICABLE. WORK DOES NOT INVOLVE WORKING IN OR CROSSING OF A LIVE WATERCOURSE.

MS-16: Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria:

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 through an approved sediment trapping device, or both, and discharged in a manner that does not adversely affect flowing streams or off-site property.

d. Material used for backfilling trenches shall be properly compacted in order to minimize erosion and promote stabilization.

e. Restabilization shall be accomplished in accordance with this chapter.

f. Applicable safety requirements shall be complied with.

METHOD OF COMPLIANCE: SPECIFIC REQUIREMENTS TO ADDRESS THIS MINIMUM STANDARD ARE INCORPORATED INTO AND IDENTIFIED IN THE SEQUENCE OF WORK.

MS-17: Where construction vehicle access routes intersect paved or public roads, provisions shall be made to minimize the transport of sediment by vehicular tracking onto the paved surface. Where sediment is transported onto a paved or public road surface, the road surface shall be cleaned thoroughly at the end of each day. Sediment shall be removed from the roads 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. This provision shall apply to individual development lots as well as to larger land-disturbing activities.

METHOD OF COMPLIANCE: GIVEN THE LINEAR NATURE OF THE PROJECT, IT IS ASSUMED THAT ALL CONSTRUCTION VEHICLES WILL ENTER AND EXIT THE WORK AREA FROM EXISTING PAVEMENT, AND THAT EQUIPMENT WILL OPERATE WHILE POSITIONED ON ADJOINING PAVED AREAS.

MS-18: All temporary erosion and sediment control measures shall be removed within 30 days after final site stabilization or after the temporary measures are no longer needed, unless otherwise authorized by the VESCP authority. Trapped sediment and the disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.

METHOD OF COMPLIANCE: REFER TO THE WORK SEQUENCE ON THE E&SC PLAN SHEETS AND THE GENERAL NOTES FOR STATED REQUIREMENTS REGARDING THE PROVISIONS OF REMOVAL OF E&SC MEASURES.

MS-19: Properties and waterways downstream from development sites shall be protected from sediment deposition, erosion and damage due to increases in volume, velocity and peak flow rate of stormwater runoff for the stated frequency storm of 24-hour duration in accordance with the following standards and criteria. Stream restoration and relocation projects that incorporate natural channel design concepts are not man-made channels and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels:

a. Concentrated stormwater runoff leaving a development site shall be discharged directly into an adequate natural or man-made receiving channel, pipe or storm sewer system. For those sites where runoff is discharged into a pipe or pipe system, downstream stability analyses at the outfall of the pipe or pipe system shall be performed.

b. Adequacy of all channels and pipes shall be verified in the following manner:
(1) The applicant shall demonstrate that the total drainage area to the point of analysis within the channel is one hundred times greater than the contributing drainage area of the project in question; or
(2) (a) Natural channels shall be analyzed by the use of a two-year storm to verify that stormwater will not overtop channel banks nor cause erosion of channel bed or banks.
(b) All previously constructed man-made channels shall be analyzed by the use of a ten-year storm to verify that stormwater will not overtop its banks and by the use of a two-year storm to demonstrate that stormwater will not cause erosion of channel bed or banks; and
(c) Pipes and storm sewer systems shall be analyzed by the use of a ten-year storm to verify that stormwater will be contained within the pipe or system.

c. If existing natural receiving channels or previously constructed man-made channels or pipes are not adequate, the applicant shall:
(1) Improve the channels to a condition where a ten-year storm will not overtop the banks and a two-year storm will not cause erosion to the channel, the bed, or the banks; or
(2) Improve the pipe or pipe system to a condition where the ten-year storm is contained within the appurtenances;
(3) Develop a site design that will not cause the pre-development peak runoff rate from a two-year storm to increase when runoff outfalls into a natural channel or will not cause the pre-development peak runoff rate from a ten-year storm to increase when runoff outfalls into a man-made channel; or
(4) Provide a combination of channel improvement, stormwater detention or other measures which is satisfactory to the VESCP authority to prevent downstream erosion.

d. The applicant shall provide evidence of permission to make the improvements.

e. All hydrologic analyses shall be based on the existing watershed characteristics and the ultimate development condition of the subject project.

f. If the applicant chooses an option that includes stormwater detention, he shall obtain approval from the VESCP of a plan for maintenance of the detention facilities. The plan shall set forth the maintenance requirements of the facility and the person responsible for performing the maintenance.

g. Outfall from a detention facility shall be discharged to a receiving channel, and energy dissipators shall be placed at the outfall of all detention facilities as necessary to provide a stabilized transition from the facility to the receiving channel.

h. All on-site channels must be verified to be adequate.

i. Increased volumes of sheet flows that may cause erosion or sedimentation on adjacent property shall be diverted to a stable outlet, adequate channel, pipe or pipe system, or to a detention facility.

j. In applying these stormwater management criteria, individual lots or parcels in a residential, commercial or industrial development shall not be considered to be separate development projects. Instead, the development, as a whole, shall be considered to be a single development project. Hydrologic parameters that reflect the ultimate development condition shall be used in all engineering calculations.

k. All measures used to protect properties and waterways shall be employed in a manner which minimizes impacts on the physical, chemical and biological integrity of rivers, streams and other waters of the state.

l. Any plan approved prior to July 1, 2014, that provides for stormwater management that addresses any flow rate capacity and velocity requirements for natural or man-made channels shall satisfy the flow rate capacity and velocity requirements for natural or man-made channels if the practices are designed to (i) detain the water quality volume and to release it over 48 hours; (ii) detain and release over a 24-hour period the expected rainfall resulting from the one year, 24-hour storm; and (iii) reduce the allowable peak flow rate resulting from the 1.5, 2, and 10-year, 24-hour storms to a level that is less than or equal to the peak flow rate from the site assuming it was in a good forested condition, achieved through multiplication of the forested peak flow rate by a reduction factor that is equal to the runoff volume from the site when it was in a good forested condition divided by the runoff volume from the site in its proposed condition, and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels as defined in any regulations promulgated pursuant to § 62.1-44.15:54 or 62.1-44.15:65 of the Act.

m. For plans approved on and after July 1, 2014, the flow rate capacity and velocity requirements of §62.1-44.15:52 A of the Act and this subsection shall be satisfied by compliance with water quantity requirements in the Stormwater Management Act (§62.1-44.15:24 et seq. of the Code of Virginia) and attendant regulations, unless such land-disturbing activities are in accordance with 9VAC25-870-48 of the Virginia Stormwater Management Program (VSMP) Regulations.

n. Compliance with the water quantity minimum standards set out in 9VAC25-870-66 of the Virginia Stormwater Management Program (VSMP) Regulations shall be deemed to satisfy the requirements of subdivision 19 of this subsection.

METHOD OF COMPLIANCE: THE STORMWATER RUN-OFF FROM THE PROJECT SITE IS COLLECTED BY A NEW ON-SITE STORM DRAINAGE SYSTEM THAT CONVEYS RUN-OFF TO THE EXISTING STORM DRAINAGE SYSTEM ADJACENT TO THE PROJECT SITE. OTHER PROVISIONS ARE NOT APPLICABLE.

END OF STATEMENT OF COMPLIANCE WITH VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS - 9VAC25-840-40 - MINIMUM STANDARDS

COMMONWEALTH OF VIRGINIA
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3/2/21
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MELROSE AVE. STREETSCAPE IMPROVEMENTS - 22ND TO 24TH ST.

EROSION AND SEDIMENT CONTROL DETAILS AND MS-19 REQUIREMENTS

ROANOKE, VIRGINIA

Vertical Scale: N/A
Horizontal Scale: 1"=20'
Commission Number: 4049
Sheet No.: C2.4