EROSION CONTROL NARRATIVE

PROJECT DESCRIPTION
THIS LINEAR DEVELOPMENT PROJECT IS LOCATED WITHIN THE CITY OF ROANOKE AND CONSISTS OF THE INSTALLATION OF NEW INLETS, STORM DRAIN PIPES, AND A NEW DITCH TO BE LOCATED IN THE AREA OF DEYERLE ROAD SW. THE PROPOSED PROJECT SHALL DISTURB A TOTAL OF 0.53 ACRES OUTSIDE THE EXISTING IMPERVIOUS LIMITS THAT WILL REMAIN.

EXISTING SITE CONDITIONS
THE SITE IS LOCATED ALONG DEYERLE ROAD SW LOCATED BETWEEN GRANDIN ROAD SW AND BARNHILL LANE SW. THE MAJORITY OF THE PROJECT AREA WILL BE LOCATED WITHIN THE DEYERLE ROAD SW RIGHT-OF-WAY OR ON PROPERTIES ADJOINING TO THE EXISTING RIGHT-OF-WAY. IN GENERAL, DRAINAGE FROM THIS AREA EXITS THE SITE ON THE SOUTHERN AND SOUTHWESTERN BOUNDARIES TOWARDS MUD LICK CREEK.

ADJACENT AREAS
ADJOINING AREAS ARE ZONED ENTIRELY RESIDENTIAL SINGLE FAMILY (R-12). GRANDIN ROAD SW IS LOCATED TO THE SOUTH OF THE PROJECT BOUNDARY WHILE BARNHILL LANE SW IS LOCATED TO THE WEST OF THE BOUNDARY. MUD LICK CREEK IS LOCATED TO THE SOUTH OF THE PROJECT AND WILL EVENTUALLY BE THE WATERCOURSE OF ENTIRY FOR ALL RUNOFF PASSING THROUGH THIS SITE.

OFFSITE AREAS
NO OFFSITE FILL OR BORROW AREAS ARE COVERED BY THIS PLAN. ANY SUCH AREA WILL REQUIRE SEPARATE EROSION CONTROL PLAN.

SOILS:
SOILS INFORMATION IS BASED ON AN INSPECTION OF THE USDA SOIL SURVEY OF THE CITY OF ROANOKE AND HAS NOT BEEN FIELD VERIFIED. A SOILS MAP IS ATTACHED WHICH SHOWS THE LOCATION OF VARIOUS SOILS WITHIN THE CONSTRUCTION AREA. THE FOLLOWING SYMBOLS CORRESPOND WITH SOIL TYPES ON THE MAP.

SYMBOL	SOIL TYPE
6C	CHISWELL-LITZ URBAN LAND COMPLEX, 2 – 15% SLOPES

CHISWELL SOIL PROPERTIES:
COMPOSITION: 0 TO 2 INCHES, CHANNERY SILT LOAM; 2 TO 12 INCHES, VERY CHANNERY SILT LOAM; 12 TO 22 INCHES, BEDROCK.
PERMEABILITY: WELL DRAINED
AVAILABLE WATER CAPACITY: VERY LOW
DEPTH TO BEDROCK: 10 TO 20 INCHES
DEPTH TO WATER TABLE: MORE THAN 80 INCHES
HYDROLOGIC SOIL GROUP: D

LITZ SOIL PROPERTIES:
COMPOSITION: 0 TO 5 INCHES, CHANNERY SILT LOAM; 5 TO 24 INCHES, VERY CHANNERY SILT LOAM; 24 TO 34 INCHES, BEDROCK.
PERMEABILITY: WELL DRAINED
AVAILABLE WATER CAPACITY: LOW
DEPTH TO BEDROCK: 20 TO 40 INCHES
DEPTH TO WATER TABLE: MORE THAN 80 INCHES
HYDROLOGIC SOIL GROUP: C

CRITICAL AREAS
THE CONTRACTOR SHALL TAKE SPECIAL CARE TO ENSURE THAT SEDIMENT IS NOT ALLOWED TO FLOW INTO EITHER THE NEW STORM DRAIN OR THE EXISTING DOWNSTREAM RECEIVING CHANNEL. ENSURE THAT ALL ESC MEASURES ARE STABILIZED AND FUNCTIONING TO MINIMIZE THE POTENTIAL FOR ANY SEDIMENT LEAVING THE SITE.

MINIMUM STANDARDS
REFER TO DEQ MINIMUM STANDARDS.

EROSION AND SEDIMENT CONTROL MEASURES
SILT FENCE (3.05) – SILT FENCE WILL BE INSTALLED AT THE LOWER ENDS OF THE PROJECT SITE TO INTERCEPT SEDIMENT LADEN RUN-OFF PRIOR TO EXITING THE SITE.

INLET PROTECTION (3.07) – INLET PROTECTION WILL BE INSTALLED AT EACH STORM DRAIN INLET TO MINIMIZE THE AMOUNT OF SEDIMENT LADEN RUNOFF FROM ENTERING THE STORM DRAIN SYSTEM.

CULVERT INLET PROTECTION (3.08) – A SEDIMENT FILTER SHALL BE PROVIDED AT THE INLET TO STORM SEWER CULVERTS TO PREVENT SEDIMENT FROM ENTERING, ACCUMULATING AND BEING TRANSFERRED BY A CULVERT.

OUTLET PROTECTION (3.18) – TO PREVENT SCOUR AT STORMWATER OUTLETS, TO PROTECT OUTLET STRUCTURES, AND MINIMIZE DOWNSTREAM EROSION BY REDUCING VELOCITY AND ENERGY OF CONCENTRATED OUTFLOW.

ROCK CHECK DAM (3.20) – ROCK CHECK DAM PROVIDES A STONE DAM TO REDUCE VELOCITY WITHIN A DRAINAGE DITCH.

TEMPORARY SEEDING (3.31) – TEMPORARY SEEDING SHALL BE APPLIED TO TEMPORARY DIVERSION DIKES, TOPSOIL STOCKPILES, AND ALL AREAS TO BE ROUGH GRADED, BUT NOT FINISHED GRADED DURING THE INITIAL PHASE OF CONSTRUCTION. TEMPORARY SEEDING SHALL BE FAST GERMINATING, TEMPORARY VEGETATION AND INSTALLED IMMEDIATELY FOLLOWING GRADING, OR INSTALLATION IF A TEMPORARY MEASURE. SEE ALSO MINIMUM STANDARDS.

PERMANENT SEEDING (3.32) – PERMANENT SEEDING SHALL BE INSTALLED ON ALL DISTURBED AREAS OF THE SITE NOT OTHERWISE STABILIZED.

MULCHING (3.35) – ALL DISTURBED AREAS SHALL BE MULCHED AFTER SEEDING. STRAW MULCH SHALL BE APPLIED AT A RATE OF TWO TONS PER ACRE AND ANCHORED WITH 750 LBS PER ACRE OF FIBER MULCH OVER THE SEEDED AREA.

PERMANENT STABILIZATION:
ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE STABILIZED WITH PERMANENT SEEDING WITHIN 7 DAYS OF REACHING FINAL GRADES. SEEDING SHALL BE DONE IN ACCORDANCE WITH DEQ SPECIFICATION 3.32 (PERMANENT SEEDING), OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION AND WITH THE DETAILS SHOWN ON THIS PLAN. MULCH (STRAW OR FIBER) SHALL BE USED ON ALL SEEDED AREAS. IN ALL SEEDING OPERATIONS, SEED, FERTILIZER, AND LIME SHALL BE APPLIED PRIOR TO MULCHING.

MAINTENANCE:
ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED BI-WEEKLY AND AFTER EVERY RUNOFF PRODUCING RAINFALL. A LOG OF DATES AND INSPECTIONS SHALL BE KEPT. ANY DEFICIENCIES THAT ARE FOUND SHALL BE CORRECTED IMMEDIATELY. ACCUMULATED SEDIMENT AT TRAPPING MEASURES SHALL BE ROUTINELY REMOVED.

EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL AFTER ALL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED AND THEN TEMPORARY MEASURES PROPERLY REMOVED. REMOVAL OF ESC MEASURES MUST BE APPROVED BY CITY OF ROANOKE BEFORE REMOVED.

STORMWATER MANAGEMENT CONSIDERATION:
THIS LINEAR DEVELOPMENT PROJECT IS EXEMPT FROM THE CITY'S STORMWATER MANAGEMENT ORDINANCE SINCE THE AMOUNT OF TOTAL DISTURBANCE IS LESS THAN 1.0 ACRE.

CONTRACTOR SHALL PAY PARTICULAR ATTENTION TO THE FOLLOWING MINIMUM STANDARDS:

1. Permanent or temporary soil stabilization shall be applied to denuded areas within seven days after final grade is reached on any portion of the site. Temporary soil stabilization shall be applied within seven days to denuded areas that may not be at final grade but will remain dormant for longer than 14 days. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year. **APPLY SEEDING MIXTURES IN ACCORDANCE WITH SPECIFICATIONS 3.31 AND 3.32 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH) TO ALL AREAS THAT DO NOT HAVE A NON-ERODABLE SURFACE AS SHOWN ON THE PLAN.**
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. **NO ONSITE STOCKPILE IS CURRENTLY PLANNED FOR THIS PROJECT.**
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. **SEE MINIMUM STANDARD 1.**
4. Sediment basins and 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. **INSTALL EROSION CONTROL MEASURES AS OUTLINED IN THE CONSTRUCTION SEQUENCE.**
5. Stabilization measures shall be applied to earthen structures such as dams, dikes and diversions immediately after installation. **INSTALL EARTHEN STRUCTURES AS SHOWN ON THIS PLAN.**
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.

   NO SEDIMENT TRAPS OR BASINS ARE PROPOSED WITH THIS PLAN.
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. **RESEED ANY AREAS THAT DO NOT HAVE AN ESTABLISHMENT OF A GOOD STAND OF GRASS AFTER INITIAL APPLICATION OF PERMANENT SEEDING. ADDITIONAL SLOPE STABILIZATION MEASURES ARE TO BE CONSIDERED AS CONDITIONS DICTATE.**
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. **NO CONCENTRATED RUNOFF SHALL FLOW DOWN CUT OR FILL SLOPES AND SHALL BE DIVERTED AS NECESSARY.**
9. Whenever water seeps from a slope face, adequate drainage or other protection shall be provided. **THE CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY UPON THE DISCOVERY OF ANY WATER SEEPS.**
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. **INLET PROTECTION SHALL BE INSTALLED AS STORM DRAIN SYSTEM IS CONSTRUCTED AS SHOWN.**
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. **OUTLET PROTECTION WILL BE INSTALLED AT THE NEW OUTLET AT THE UPPER PORTION OF THE DITCH UPON THE COMPLETION OF OUTLET CONSTRUCTION.**
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. **NO WORK WITHIN LIVE WATERCOURSES IS PROPOSED FOR THIS PROJECT.**
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. **NO WORK WITHIN LIVE WATERCOURSES IS PROPOSED FOR THIS PROJECT.**
14. All applicable federal, state and local regulations pertaining to working in or crossing live watercourses shall be met. **NO WORK WITHIN LIVE WATERCOURSES IS PROPOSED FOR THIS PROJECT.**
15. The bed and banks of a watercourse shall be stabilized immediately after work in the watercourse is completed. **NO WORK WITHIN LIVE WATERCOURSES IS PROPOSED FOR THIS PROJECT.**
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 these regulations.
   f. Applicable safety regulations shall be complied with.

   UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE STANDARDS ABOVE.
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. **ADEQUATE MEANS SHALL BE PROVIDED FOR THE CLEANING OF MUD AND SEDIMENT FROM CONSTRUCTION VEHICLES PRIOR TO ENTERING PUBLIC STREETS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ANY MUD AND SEDIMENT TRANSPORTED FROM THIS SITE ONTO THE PUBLIC STREETS.**
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 local program 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. **EROSION & SEDIMENT CONTROL MEASURES SHALL NOT BE REMOVED WITHOUT ROANOKE CITY PERMISSION AND SHALL BE IN ACCORDANCE WITH ABOVE REQUIREMENTS.**

MINIMUM STANDARDS CONTINUED:

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 channel bed or 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 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 dissipator 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 runoff 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 and man-made channels if the practices are designed to
      (i) detain the water quality volumes and release it over 48 hours;
      (ii) detain and release over 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 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) Permit Regulations.
   n. Compliance with the water quantity minimum standards set out in 9VAC25-870-66 of the Virginia Stormwater Management Program (VSMP) Permit Regulations shall be deemed to satisfy the requirements of Minimum Standard 19.

   SINCE THE PROJECT DOES NOT PROPOSE ANY NEW IMPERVIOUS SURFACES AND INCLUDES THE REMOVAL OF IMPERVIOUS AREA, THE PEAK FLOW CONDITIONS SHOULD NOT INCREASE. BECAUSE OF THIS, MS-19 IS SATISFIED BY COMPLIANCE WITH MS-19 SECTION c(3). FOR ADDITIONAL DETAILS, SEE THE ASSOCIATED DRAINAGE AND STORMWATER MANAGEMENT CALCULATIONS FOR THIS PROJECT.

GENERAL EROSION AND SEDIMENT CONTROL NOTES, ROANOKE CITY, VIRGINIA

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 AND VIRGINIA REGULATIONS VR 625-02-00 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 AND NARRATIVE, AS WELL AS A COPY OF THE LAND DISTURBING PERMIT, SHALL BE MAINTAINED ON THE SITE AT ALL TIMES. THE EROSION AND SEDIMENT CONTROL ADMINISTRATOR WILL DELIVER THESE MATERIALS AT THE ONSITE PRECONSTRUCTION CONFERENCE.

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 THE LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.

ES-8: DURING DEWATERING OPERATION, 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.

CONSTRUCTION SEQUENCE

1. CONTRACTOR'S CERTIFIED RESPONSIBLE LAND DISTURBER SHALL BE NAMED AND A COPY OF HIS RLD CERTIFICATE PROVIDED TO THE CITY OF ROANOKE AT LEAST TWO DAYS PRIOR TO THE PRE-CONSTRUCTION MEETING. RLD SHALL ALSO ATTEND PRE-CON MEETING.
2. THE CONSTRUCTION PROCESS SHOULD BE SEQUENCED AS MUCH AS POSSIBLE SO THAT EACH AREA IS SEEDED AND STABILIZED PRIOR TO BEGINNING GRADING OPERATIONS IN ANOTHER AREA.
3. THE PORTION OF DEYERLE ROAD SW THAT WILL REMAIN WILL BE USED AS THE CONSTRUCTION ENTRANCE FOR THIS SITE.
4. SILT FENCE SHALL BE INSTALLED PRIOR TO BEGINNING ANY LAND DISTURBANCE IN ANY AREAS REQUIRING THE USE OF SILT FENCE.
5. BEGIN STORM DRAIN CONSTRUCTION STARTING DOWNSTREAM AT THE PROPOSED INLET STRUCTURE "D" (RELEASE INTO EXISTING STORM PIPE) AND WORK UPSTREAM. PROVIDE INSTALLATION OF OUTLET PROTECTION AT OUTLET "A" AND FLEXAMAT INSTALLATION AT CULVERT "F" AS CONSTRUCTION ALLOWS.
6. PROVIDE INLET PROTECTION FOR EACH INLET ONCE INSTALLED ALONG WITH CULVERT INLET PROTECTION AT CULVERT "F". PROVIDE TEMPORARY CHECK DAMS AS SHOWN ALONG THE DEYERLE DITCH FROM OUTLET "A" TO CULVERT "F".
7. PERFORM SHOULDER IMPROVEMENT ALONG GRANDIN ROAD SW UPON THE COMPLETION OF CONSTRUCTION OF INLET "D".
8. PERFORM ROADWAY IMPROVEMENTS ALONG DEYERLE ROAD SW, AND MILL AND OVERLAY OF BARNHILL LANE SW AS STORM DRAIN CONSTRUCTION ALLOWS.
9. INSTALL TIMBER GUARDRAIL AS DRAINAGE AND ROADWAY IMPROVEMENTS ALLOW ALONG DEYERLE ROAD SW RIGHT-OF-WAY.
10. APPLY SOIL CONDITIONING, PERMANENT SEEDING MIXTURE, AND MULCH AS NEEDED SO THAT SITE IS STABILIZED WITH ESTABLISHED PERMANENT VEGETATION OR NON-ERODABLE IMPROVEMENTS.
11. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES (INCLUDING CHECK DAMS) MAY BE REMOVED AFTER THOSE AFFECTED AREAS HAVE BEEN BROUGHT TO FINAL GRADE AND PERMANENTLY STABILIZED. REMOVAL OF ESC MEASURES MUST BE APPROVED BY CITY OF ROANOKE STAFF.

PS **TABLE 3.32-C**
(Revised June 2003)
PERMANENT SEEDING SPECIFICATIONS FOR APPALACHIAN/MOUNTAIN AREA

LAND USE	SPECIES	APPLICATION RATES
	SEED[1]	
Minimum Care Lawn (Commercial or Residential)	Tall Fescue[1] Perennial Ryegrass[2] Kentucky Bluegrass[1]	90-100% 0-10% 0-10% TOTAL: 200-250 lbs
High-Maintenance Lawn	Minimum of three (3) up to five (5) varieties of Kentucky Bluegrass from approved list for use in Virginia[1]	TOTAL: 125 lbs
General Slope (3:1 or less)	Tall Fescue[1] Red Top Grass or Creeping Red Fescue Seasonal Nurse Crop[3]	128 lbs. 2 lbs. 20 lbs. TOTAL: 150 lbs.
Low-Maintenance Slope (Steeper than 3:1)	Tall Fescue[1] Red Top Grass or Creeping Red Fescue Seasonal Nurse Crop[3] Crownvetch[4]	158 lbs. 2 lbs. 20 lbs 20 lbs. TOTAL: 150 lbs.

1 - When selecting varieties of turfgrass, use the Virginia Crop Improvement Association (VCIA) recommended turfgrass variety list. Quality seed will bear a label indicating that they are approved by VCIA. A current turfgrass variety list is available at the local County Extension office or through VCIA at 804-746-4884 or at http://auduin.oses.vt.edu/html/TurfExt/publications/publications2.html
2 - Perennial Ryegrass will germinate faster and at lower soil temperatures than Tall Fescues, thereby providing cover and erosion resistance for seedbed.
3 - Use seasonal nurse crop in accordance with seeding dates as stated below:
March, April - May 15th ..... Annual Rye
May 16th - August 15th ..... Foxtail Millet
August 16th - September, October ..... Annual Rye
November - February ..... Winter Rye
4 - All legume seed must be properly inoculated. If Flatpea is used, increase to 30 lbs/acre. If Weeping Lovegrass is used, include in any slope or low maintenance mixture during warmer seeding periods, increase to 50 -40 lbs/acre.

FERTILIZER & LIME
- Apply 10-20-10 **fertilizer** at a rate of **500** lbs. / acre (or 12 lbs. / 1,000 sq. ft.)
- Apply **Pulverized Agricultural Limestone** at a rate of 2 tons/acre (or 90 lbs. / 1,000 sq. ft.)

NOTE:
- A soil test is necessary to determine the actual amount of lime required to adjust the soil pH of site.
- Incorporate the lime and fertilizer into the top 4 – 6 inches of the soil by disking or by other means.
- When applying Slowly Available Nitrogen, use rates available in Erosion & Sediment Control Technical Bulletin #4, 2003 Nutrient Management for Development Sites at http://www.dcr.state.va.us/sw/es&s.htm#pubs

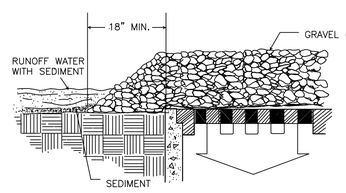
TS **TABLE 3.31-B**
(Revised June 2003)
TEMPORARY SEEDING SPECIFICATIONS
QUICK REFERENCE FOR ALL REGIONS

APPLICATION DATES	SPECIES	APPLICATION RATES
	SEED	
Sept. 1 - Feb. 15	50/50 Mix of Annual Ryegrass (lolium multi-florum) & Cereal (Winter) Rye (Secale cereale)	50 -100 (lbs/acre)
Feb. 16 - Apr. 30	Annual Ryegrass (lolium multi-florum)	60 - 100 (lbs/acre)
May 1 - Aug. 31	German Millet	50 (lbs/acre)

FERTILIZER & LIME
- Apply 10-10-10 **fertilizer** at a rate of 450 lbs. / acre (or 10 lbs. / 1,000 sq. ft.)
- Apply **Pulverized Agricultural Limestone** at a rate of 2 tons/acre (or 90 lbs. / 1,000 sq. ft.)

NOTE:
1 - A soil test is necessary to determine the actual amount of lime required to adjust the soil pH of site.
2 - Incorporate the lime and fertilizer into the top 4 – 6 inches of the soil by disking or by other means.
3 - When applying Slowly Available Nitrogen, use rates available in Erosion & Sediment Control Technical Bulletin #4, 2003 Nutrient Management for Development Sites at http://www.dcr.state.va.us/sw/es&s.htm#pubs

IP **GRAVEL AND WIRE MESH DROP INLET SEDIMENT FILTER**

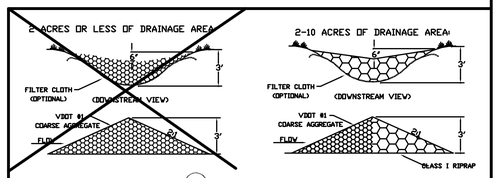


SPECIFIC APPLICATION

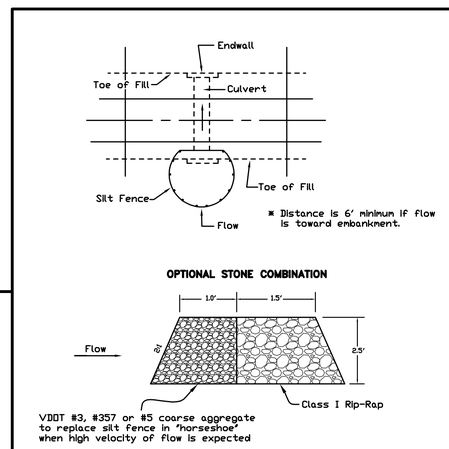
THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE HEAVY CONCENTRATED FLOWS ARE EXPECTED BUT NOT WHERE PONDING AROUND THE STRUCTURE MIGHT CAUSE EXCESSIVE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS.

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

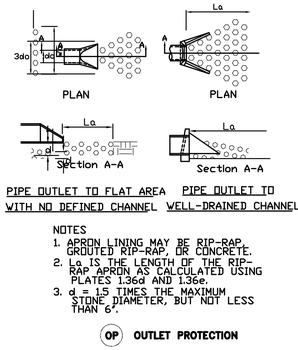
NO.	TITLE	KEY	SYMBOL
3.05	SILT FENCE	SF	
3.07	STORM DRAIN INLET PROTECTION	IP	
3.08	CULVERT INLET PROTECTION	CIP	
3.18	OUTLET PROTECTION	OP	
3.20	ROCK CHECK DAM	CD	
3.31	TEMPORARY SEEDING	TS	
3.32	PERMANENT SEEDING	PS	
3.35	MULCHING	MU	



CD **ROCK CHECK DAM**

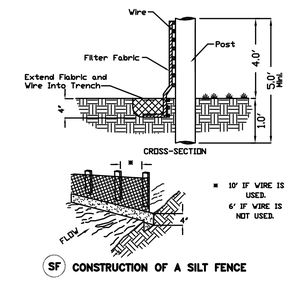


CIP **SILT FENCE CULVERT INLET PROTECTION**



NOTES
1. APRON LINING MAY BE RIP-RAP, GROUTED RIP-RAP, OR CONCRETE.
2. La IS THE LENGTH OF THE RIP-RAP APRON AS CALCULATED USING PLATES 1.36d AND 1.36e.
3. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER, BUT NOT LESS THAN 6".

OP **OUTLET PROTECTION**



SF **CONSTRUCTION OF A SILT FENCE**

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FOR REVIEW ONLY

EROSION & SEDIMENT CONTROL NOTES & DETAILS

STORMWATER DRAINAGE IMPROVEMENTS FOR DEYERLE ROAD, S.W. PREPARED FOR THE CITY OF ROANOKE, VIRGINIA

REVISIONS

NO.	DATE	DESCRIPTION
1		
2		
3		
4		
5		

DATE: June 12, 2019
SCALE: NONE
COMMISSION NO: 19-007
SHEET 7 OF 9