

CONTRACTOR SHALL PAY PARTICULAR ATTENTION TO THE FOLLOWING MINIMUM STANDARDS.

- 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. **ONCE GRADING IS COMPLETED, APPLY PERMANENT SEEDING TO AREAS NOT REQUIRING STRUCTURES, PAYMENT, HARDSCAPE OR OTHER LANDSCAPING MATERIALS.**
- 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. **ONCE SOIL STOCKPILES SHALL HAVE SILT FENCE ALONG THE DOWNWIND PERIMETER. A PERMANENT SEED MIX TO BE APPLIED OVER SOIL STOCKPILES IF THEY ARE TO REMAIN AS-IS FOR LONGER THAN 14 DAYS.**
- 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.**
- 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 SILT FENCE, DIVERSION DIKES, AND SEDIMENT TRAPS AS SHOWN ON THIS PLAN.**
- Stabilization measures shall be applied to earthen structures such as dams, dikes and diversions immediately after installation. **APPLY PERMANENT SEEDING TO TEMPORARY DIVERSION DIKE AND ANY OTHER EARTHER STRUCTURES IMMEDIATELY FOLLOWING CONSTRUCTION.**
- Sediment traps and sediment basins shall be designed and constructed based upon the total drainage area to be served by the trap or basin.
 - 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.
 - 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. **INSTALL SEDIMENT TRAPS AS SHOWN ON THIS PLAN.**
- 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. **AREAS TO BE SEEDING PERMANENTLY SHALL BE INSPECTED PERIODICALLY. DENIED 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.**
- 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. NO SLOPE DRAINAGE ARE PROPOSED WITH THIS PLAN.**
- Whenever water seeps from a slope face, adequate drainage or other protection shall be provided. **NOT APPLICABLE. SEEPAGE THROUGH SLOPES IS NOT ANTICIPATED TO BE ENCOUNTERED ON THIS PROJECT. SHOULD SEEPAGE OCCUR, ADEQUATE DRAINAGE SHALL BE ESTABLISHED TO CONVEY WATER TO A CONTROLLED POINT OF DISCHARGE AND PROTECT THE SLOPE.**
- 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. **PLACE INLET PROTECTION ON ALL NEWLY INSTALLED INLETS, AND TO EXISTING INLETS FEEDING EXISTING OR NEW DRAINAGE SYSTEMS.**
- 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. **INSTALL OUTLET PROTECTION AS SHOWN ON THIS PLAN AT END OF STORM DRAINAGE PIPE NETWORK.**
- 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. If possible, the construction shall be completed in the construction of causeways and cofferdams. Earthen fill may be used for these structures if eroded by nonerosion cover materials. **NOT APPLICABLE. NO LIVE WATERCOURSE IS ADJACENT TO THIS PROJECT AND NO WORK IS ANTICIPATED IN ANY LIVE WATERCOURSE RELATED TO THIS PROJECT.**
- 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. **NOT APPLICABLE. NO LIVE WATERCOURSE IS ADJACENT TO THIS PROJECT AND NO WORK IS ANTICIPATED IN ANY LIVE WATERCOURSE RELATED TO THIS PROJECT.**
- All applicable federal, state and local chapters pertaining to working in or crossing live watercourses shall be met. **NOT APPLICABLE. NO LIVE WATERCOURSE IS ADJACENT TO THIS PROJECT AND NO WORK IS ANTICIPATED IN ANY LIVE WATERCOURSE RELATED TO THIS PROJECT.**
- The bed and banks of a watercourse shall be stabilized immediately after work in the watercourse is completed. **NOT APPLICABLE. NO LIVE WATERCOURSE IS ADJACENT TO THIS PROJECT AND NO WORK IS ANTICIPATED IN ANY LIVE WATERCOURSE RELATED TO THIS PROJECT.**
- Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria:
 - No more than 500 linear feet of trench may be opened at one time.
 - Excavated material shall be placed on the uphill side of trenches.
 - 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.
 - Material used for backfilling trenches shall be properly compacted in order to minimize erosion and promote stabilization.
 - Reinstatement shall be accomplished in accordance with this chapter.
 - Applicable safety chapters shall be complied with.**INSTALL UNDERGROUND UTILITIES AS SHOWN ON THIS PLAN, AND IN ACCORDANCE WITH THESE REQUIREMENTS.**
- 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. **FOLLOW ABOVE REQUIREMENTS FOR ACCESS TO THE SITE UTILIZING THE CONSTRUCTION ENTRANCES AS SHOWN ON THIS PLAN.**
- 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 area resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation. **REMOVE TEMPORARY MEASURES IN ACCORDANCE WITH ABOVE REQUIREMENTS, AND WITH THE PRIOR APPROVAL OF BOTETOURT COUNTY.**
- 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. Stormwater 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:
 - 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.
 - Adequacy of all channels and pipes shall be verified in the following manner:
 - 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
 - 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; and
 - 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
 - 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.
 - If existing natural receiving channels or previously constructed man-made channels or pipes are not adequate, the applicant shall:
 - 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 bed or banks; or
 - Improve the pipe or pipe system to a condition where the ten-year storm is contained within the appurtenances; or
 - 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
 - Provide a combination of channel improvement, stormwater detention or other measures which is satisfactory to the VESCP authority to prevent downstream erosion.
 - The applicant shall provide evidence of permission to make the improvements.
 - All hydrologic analyses shall be based on the existing watershed characteristics and the ultimate development of the subject project.
 - 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.
 - Outfall from a detention facility shall be discharged to a receiving channel, and energy dissipaters shall be placed at the outfall of all detention facilities as necessary to provide a stabilized transition from the facility to the receiving channel.
 - All on-site channels must be verified to be adequate.
 - 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.
 - 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.
 - 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.
 - 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:
 - detain the water quality volumes and release it over 48 hours;
 - detain and release over 24-hour period the expected rainfall resulting from the one year, 24-hour storm and;
 - 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 101-562 or 101-570 of the Act.
 - For plans approved on and after July 1, 2014, the flow rate capacity and velocity requirements of 101-561 A of the Act and this subsection shall be satisfied by compliance with water quality requirements in the Stormwater Management Act (101-6032 et seq. of the Code of Virginia) and attendant regulations, unless such land-disturbing activities are in accordance with 4VAC50-60-48 or Virginia Stormwater Management Program (VSMMP) Permit Regulations.
 - Compliance with the water quality minimum standards set out in 4VAC50-60-66 of the Virginia Stormwater Management Program (VSMMP) Permit Regulations shall be deemed to satisfy the requirements of Minimum Standard 19.

THIS PROJECT IS IN COMPLIANCE WITH THE REQUIREMENTS OF 9VACS-970-66 FOR THE RELEASE OF INCREASES IN STORMWATER RUNOFF TO AN ADEQUATE CHANNEL. REFER TO STORMWATER MANAGEMENT CALCULATIONS FOUND IN THE "PROJECT CALCULATIONS" WORKBOOK ASSOCIATED WITH THIS PROJECT.

EROSION CONTROL NARRATIVE

PROJECT DESCRIPTION:

THE PROJECT AREA IS LOCATED ALONG LEE HIGHWAY IN BOTETOURT COUNTY, VA, AND CONSISTS OF SITE GRADING AND CONSTRUCTION OF A LARGE EQUIPMENT SERVICE CENTER WITH ASSOCIATED PARKING LOT AND UTILITY CONSTRUCTION. DISTURBED AREA IS APPROXIMATELY 9.3 ACRES.

EXISTING SITE CONDITIONS:

THE SITE IS CURRENTLY AN OPEN, UNDEVELOPED PARCEL ALONG LEE HIGHWAY. IN GENERAL, THE SITE SLOPES FROM NORTH TO SOUTH AT 5-10% SLOPES. THE EXISTING SITE INCLUDES AN OUTLET POINT FOR A CULVERT THAT GOES UNDERNEATH OF LEE HIGHWAY. THAT FLOW IS DIRECTED ALONG THE BOUNDARY OF THE SITE TO A NEARBY DITCH LOCATED ON THE ADJACENT PROPERTY AT 872 LEE HIGHWAY.

ADJACENT AREAS:

THE PARCEL IS BOUNDED BY LEE HIGHWAY TO THE NORTH, RESIDENTIAL AREAS TO THE SOUTH AND EAST, AND LAWRENCE COMPANIES TO THE WEST.

OFFSITE AREAS:

NO OFFSITE AREAS ARE CURRENTLY ASSOCIATED WITH THIS PLAN. ALL MATERIAL THAT IS REMOVED FROM OR DELIVERED TO THIS SITE IN ASSOCIATION WITH THIS PROJECT SHALL BE FROM A PERMITTED CUT OR FILL SITE.

SOILS:

SOILS INFORMATION IS BASED ON AN INSPECTION OF THE USDA WEB SOIL SURVEY. THE ONSITE SOILS IDENTIFIED IN THE USDA SOIL RESOURCE REPORT INCLUDE LAIDG FINE SANDY LOAM (MAP UNIT: 33C), LAIDG COBBLY FINE SANDY LOAM (MAP UNIT: 34B), LINDSIDE SILT LOAM (MAP UNIT: 38A), MOONAM LOAM (MAP UNIT: 40B), AND TUMBLING LOAM (MAP UNIT: 55C).

THE LAIDG FINE SANDY LOAM SOIL (33C), HYDROLOGIC SOIL GROUP B, POSSESSES THE FOLLOWING CHARACTERISTICS AND PROPERTIES:
DEPTH OF THE RESTRICTIVE FEATURE: 30 TO 50 INCHES TO FRAGIPAN
DRAINAGE CLASS: WELL DRAINED
PERMEABILITY: MODERATELY HIGH

TYPICAL PROFILE: 0 TO 7 INCHES - FINE SANDY LOAM; 7 TO 32 INCHES - CLAY LOAM; 32 TO 65 INCHES - COBBLY CLAY LOAM

THE LAIDG COBBLY FINE SANDY LOAM SOIL (34B), HYDROLOGIC SOIL GROUP B, POSSESSES THE FOLLOWING CHARACTERISTICS AND PROPERTIES:
DEPTH OF THE RESTRICTIVE FEATURE: 30 TO 50 INCHES TO FRAGIPAN
DRAINAGE CLASS: MODERATELY WELL DRAINED
PERMEABILITY: MODERATELY HIGH

TYPICAL PROFILE: 0 TO 7 INCHES - COBBLY FINE SANDY LOAM; 7 TO 32 INCHES - CLAY LOAM; 32 TO 65 INCHES - COBBLY CLAY LOAM

THE LINDSIDE SILT LOAM SOIL (38A), HYDROLOGIC SOIL GROUP C, POSSESSES THE FOLLOWING CHARACTERISTICS AND PROPERTIES:
DEPTH OF THE RESTRICTIVE FEATURE: MORE THAN 80 INCHES
DRAINAGE CLASS: MODERATELY WELL DRAINED
PERMEABILITY: MODERATELY HIGH TO HIGH

TYPICAL PROFILE: 0 TO 5 INCHES - SILT LOAM; 5 TO 33 INCHES - SILT LOAM; 33 TO 65 INCHES - SILT LOAM

THE MOONAM LOAM SOIL (40B), HYDROLOGIC SOIL GROUP C, POSSESSES THE FOLLOWING CHARACTERISTICS AND PROPERTIES:
DEPTH OF THE RESTRICTIVE FEATURE: ABOUT 18 TO 38 INCHES
DRAINAGE CLASS: MODERATELY WELL DRAINED
PERMEABILITY: MODERATELY LOW TO MODERATELY HIGH

TYPICAL PROFILE: 0 TO 9 INCHES - LOAM; 9 TO 21 INCHES - LOAM; 21 TO 41 INCHES - LOAM; 41 TO 64 INCHES - COBBLY CLAY LOAM

THE TUMBLING LOAM SOIL (55C), HYDROLOGIC SOIL GROUP B, POSSESSES THE FOLLOWING CHARACTERISTICS AND PROPERTIES:
DEPTH OF THE RESTRICTIVE FEATURE: MORE THAN 80 INCHES
DRAINAGE CLASS: WELL DRAINED
PERMEABILITY: MODERATELY HIGH TO HIGH

TYPICAL PROFILE: 0 TO 4 INCHES - LOAM; 4 TO 8 INCHES - LOAM; 8 TO 61 INCHES - GRAVELLY CLAY

CRITICAL AREAS:

THE CONTRACTOR SHALL TAKE SPECIAL CARE TO MINIMIZE THE POTENTIAL FOR ANY SEDIMENT LEAVING THE SITE ONTO ADJACENT ROADS AND PROPERTIES. THE EXISTING DRAINAGE DITCHES AND CHANNEL WITHIN THE SITE SHALL BE PROTECTED PRIOR TO AND DURING ALL EARTHWORK. NEW DITCHES SHALL BE STABILIZED AS RAPIDLY AS POSSIBLE, AND SHALL BE MONITORED REGULARLY AND PROTECTED THROUGHOUT THE CONSTRUCTION PROCESS. PERIMETER CONTROL MEASURES SHALL BE INSPECTED REGULARLY.

MINIMUM STANDARDS:

REFER TO DER MINIMUM STANDARDS.

EROSION AND SEDIMENT CONTROL MEASURES:

CONSTRUCTION ENTRANCE (3.02) - A STONE CONSTRUCTION ENTRANCE WILL BE INSTALLED TO MINIMIZE THE AMOUNT OF MUD TRANSPORTED INTO EXISTING ROADS.

CONSTRUCTION ROAD STABILIZATION (3.03) - TO REDUCE THE EROSION AND SUBSEQUENT REGRADING OF PERMANENT DRIVE AREAS BETWEEN THE TIME OF INITIAL GRADING AND FINAL STABILIZATION, THESE ROADS WILL BE TEMPORARILY STABILIZED WITH STONE IMMEDIATELY AFTER GRADING.

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) & (3.08) - INLET PROTECTION WILL BE INSTALLED AT EACH STORM DRAIN INLET TO MINIMIZE THE AMOUNT OF SEDIMENT LADEN RUNOFF FROM ENTERING THE STORM DRAIN SYSTEM.

TEMPORARY DIVERSION DIKE (3.09) - A TEMPORARY RIDGE OF COMPACTED SOIL WILL BE CONSTRUCTED TO DIVERT UPSLOPE RUNOFF AWAY FROM A DISTURBED AREA, AND/OR TO DIVERT SEDIMENT LADEN RUNOFF FROM A DISTURBED AREA TO A SEDIMENT TRAPPING MEASURE.

TEMPORARY RIGHT-OF-WAY DIVERSION (3.11) - A TEMPORARY RIDGE OF COMPACTED GRAVEL WILL BE CONSTRUCTED TO DIVERT UPSLOPE RUNOFF AWAY FROM A DISTURBED AREA, AND/OR TO DIVERT SEDIMENT LADEN RUNOFF FROM A DISTURBED AREA TO A SEDIMENT TRAPPING MEASURE.

TEMPORARY SEDIMENT TRAP (3.13) - TO DETAIN SEDIMENT-LADEN RUNOFF FROM DISTURBED AREAS LONG ENOUGH TO ALLOW THE MAJORITY OF THE SEDIMENT TO SETTLE OUT, TEMPORARY PONDING AREAS, OR SEDIMENT TRAPS, WILL BE CREATED BY CONSTRUCTING AN EARTHEN EMBANKMENT WITH A STONE OUTLET.

STORMWATER CONVEYANCE CHANNEL (3.17) - A PERMANENT CHANNEL OF CALCULATED SIZE AND SHAPE WITH AN APPROPRIATE LINING USED TO SAFELY CONVEY STORMWATER RUNOFF.

OUTLET PROTECTION (3.18) - TO PREVENT SCOUR AT STORMWATER OUTLETS, TO PROTECT THE OUTLET STRUCTURE, AND TO MINIMIZE THE POTENTIAL FOR DOWNSTREAM EROSION BY REDUCING THE VELOCITY AND ENERGY OF CONCENTRATED FLOWS.

ROCK CHECK DAM (3.20) - A SMALL TEMPORARY STONE DAM WILL BE CONSTRUCTED ACROSS A SWALE OR DITCH TO REDUCE VELOCITY OF CONCENTRATED STORMWATER AND TO TRAP SEDIMENT FROM THE DITCH AND ADJACENT AREAS.

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 (3.36) - 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.

SOIL STABILIZATION & MATTING (3.38) - SLOPES 3:1 OR GREATER SHALL HAVE A PROTECTIVE COVERING OR MAT INSTALLED TO MINIMIZE EROSION AND AID IN ESTABLISHMENT OF PERMANENT VEGETATIVE STABILIZATION.

PERMANENT STABILIZATION:

AREAS NOT COVERED BY DRIVEWAYS, WALKS OR OTHER PERMANENT HARD SURFACE SHALL BE STABILIZED WITH PERMANENT SEEDING. THE CONTRACTOR SHALL ENSURE THAT A STRONG STAND OF GRASS IS ESTABLISHED BEFORE THE REMOVAL OF EROSION CONTROL MEASURES.

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. THE CONTRACTOR AND RLD SHALL PAY PARTICULAR ATTENTION TO THE FOLLOWING:

ALL DITCHES, SWALES, AND NATURAL WATERCOURSES DOWNSTREAM OF THIS PROJECT SHALL BE FIELD INSPECTED DURING AND AFTER CONSTRUCTION BY THE RLD TO ENSURE COMPLIANCE WITH DCR'S MS-19. IF EROSION OR SCOUR IS OCCURRING THE DEVELOPER SHALL BE RESPONSIBLE FOR ALL CORRECTIVE MEASURES.

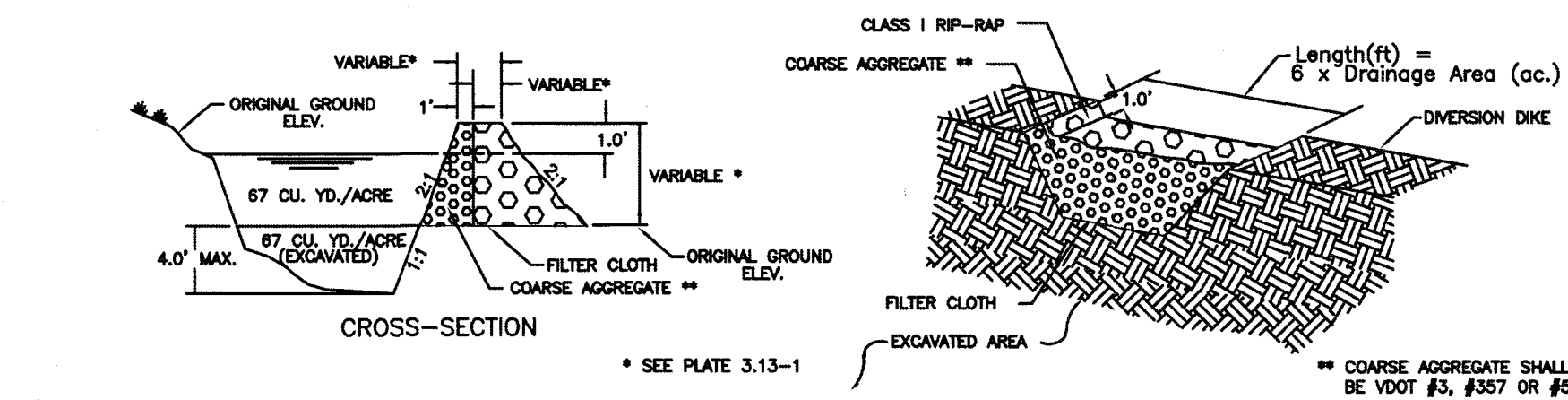
EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL AFTER ALL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED AND THEN TEMPORARY MEASURES PROPERLY REMOVED.

ALL SEEDING AREAS WILL BE CHECKED REGULARLY TO ENSURE THAT A GOOD STAND OF GRASS IS MAINTAINED. AREAS SHALL BE FERTILIZED AND RESEEDED AS REQUIRED TO ACHIEVE A GOOD STAND OF GRASS.

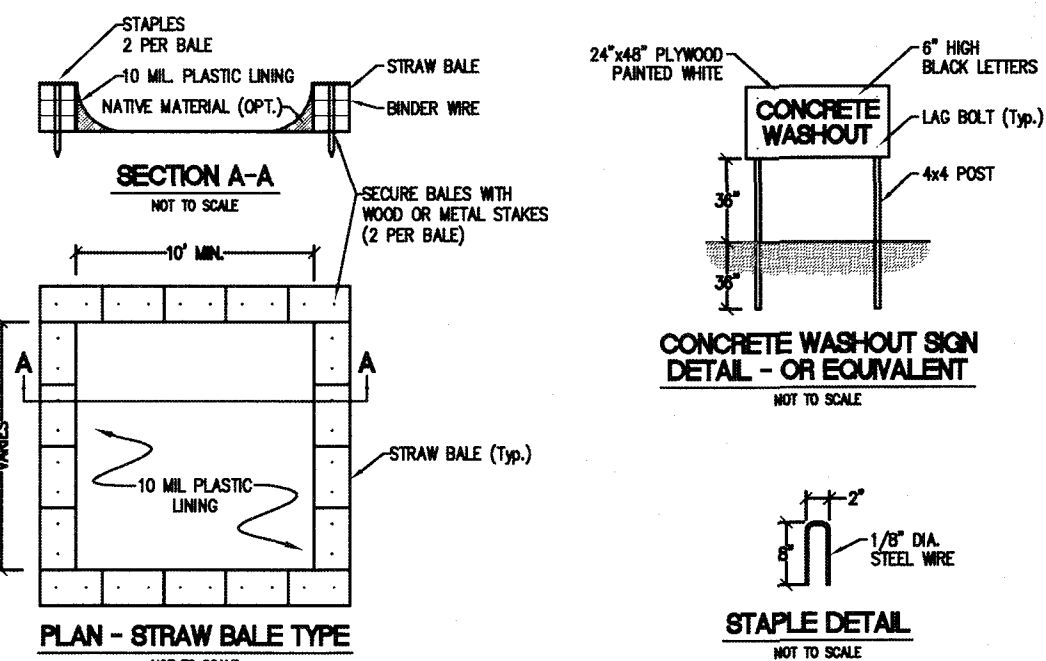
THE CONSTRUCTION ENTRANCE SHALL BE CHECKED REGULARLY TO ENSURE THAT MUD IS NOT TRANSPORTED ONTO THE ADJACENT ROADS. THE STONE SHALL BE REMOVED, CLEANED, OR REPLACED AS REQUIRED FOR THE CONSTRUCTION ENTRANCE TO FUNCTION PROPERLY.

STORMWATER MANAGEMENT CONSIDERATION:

WATER QUALITY COMPLIANCE IS SATISFIED BY THE PURCHASE OF OFFSITE NUTRIENT CREDITS. THE INCREASE IN STORMWATER RUNOFF RESULTING FROM NEW IMPERVIOUS SURFACES IS PERMITTED IN ACCORDANCE WITH 9VACS-070-66 OF THE STORMWATER MANAGEMENT REGULATIONS. REFER TO THE "STORMWATER MANAGEMENT WATER QUANTITY" SECTION OF THE "PROJECT CALCULATIONS" WORKBOOK ASSOCIATED WITH THIS PROJECT.



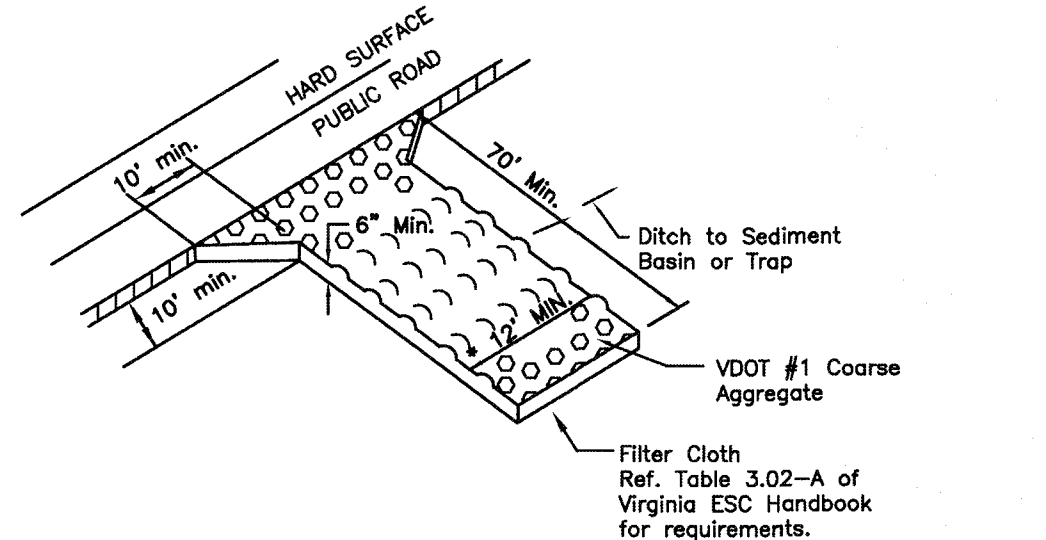
ST SEDIMENT TRAP



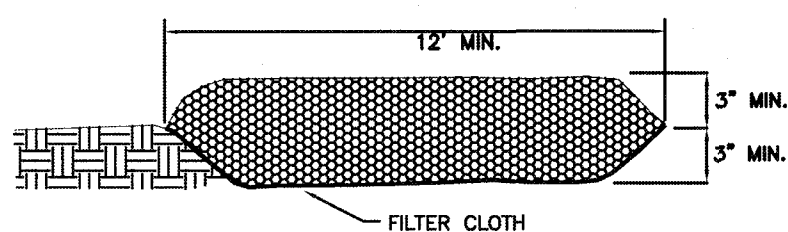
CONCRETE WASHOUT NOTES:

- TEMPORARY CONCRETE WASHOUT ACTUAL LAYOUT TO BE DETERMINED IN THE FIELD.
- TEMPORARY WASHOUT FACILITIES SHOULD BE LOCATED A MINIMUM OF 50' FROM STORM DRAIN INLETS, OPEN DRAINAGE CHANNELS AND WATERCOURSES.
- A CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
- MATERIALS AND PROCEDURES USED TO CONSTRUCT ADHESIVE-GRATE TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE ADEQUATE FOR THE ANTICIPATED VOLUME OF USE FOR THE PROJECT.
- PLASTIC LINING MATERIAL SHALL BE A MINIMUM 10 MIL POLYETHYLENE SHEETING, FREE OF TEARS, HOLES OR OTHER DEFECTS THAT WOULD COMPROMISE THE INTEGRITY OF THE LINING.
- CONCRETE WASTE MATERIAL HAS HARDENED, THE CONCRETE SHALL BE BROKEN UP, REMOVED AND DISPOSED OFF SITE IN ACCORDANCE WITH ALL DISPOSAL REGULATIONS.
- MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE REMOVED FROM THE SITE AND DISPOSED OF OR RECYCLED IN ACCORDANCE WITH ALL DISPOSAL REGULATIONS.
- HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE BACKFILLED, REPAIRED AND STABILIZED TO PREVENT EROSION.

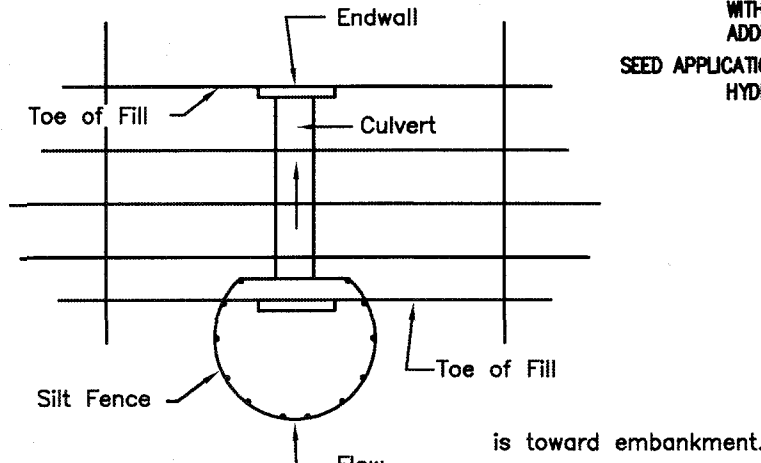
CONCRETE WASHOUT



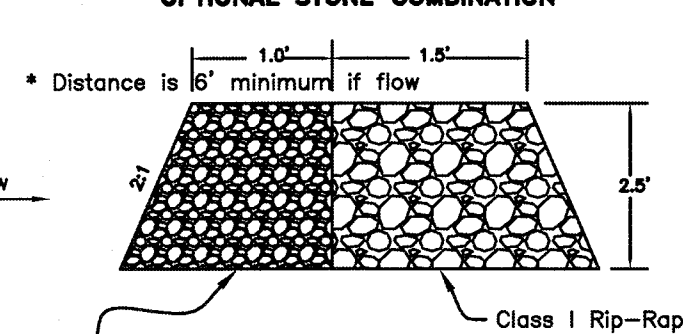
* MUST EXTEND FULL WIDTH OF INGRESS & EGRESS OPERATION.



TEMPORARY GRAVEL CONSTRUCTION ENTRANCE



OPTIONAL STONE COMBINATION



VDOT #3, #357 or #5 coarse aggregate to replace silt fence in "horseshoe" when high velocity of flow is expected

SILT FENCE CULVERT INLET PROTECTION

NO.	TITLE	KEY	SYMBOL
3.02	TEMPORARY GRAVEL CONSTRUCTION ENTRANCE	CE	
3.03	CONSTRUCTION ROAD STABILIZATION	CRS	
3.05	SILT FENCE	SF	
3.07	INLET PROTECTION	IP	
3.08	CULVERT INLET PROTECTION	CIP	
3.09	TEMPORARY DIVERSION DIKE	DD	
3.10	TEMPORARY FILL DIVERSION	FD	
3.11	TEMPORARY RIGHT-OF-WAY DIVERSION	RWD	
3.13	TEMPORARY SEDIMENT TRAP	ST	
3.17	STORMWATER CONVEYANCE CHANNEL	SCC	
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	
3.36	SOIL STABILIZATION BLANKETS AND MATTING	SM	

TEMPORARY STABILIZATION

TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT (DISTURBED) FOR LONGER THAN 14 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.

TEMPORARY SEEDING MIXTURE

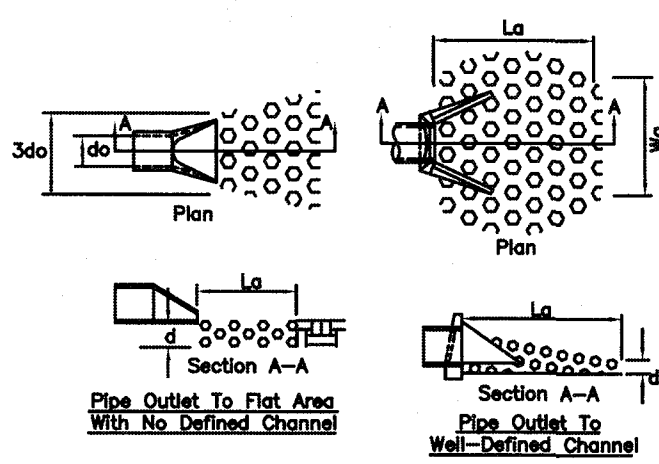
PLANTING DATES	SPECIES	RATE (LBS./ACRE)
SEPT. 1 - FEB. 15	50/50 MIX OF ANNUAL RYEGRASS (LOLIUM MULTI-FLORUM) & CEREAL (WINTER) RYE (SECALE CEREALE)	50 - 100
FEB. 16 - APR. 30	ANNUAL RYEGRASS (LOLIUM MULTI-FLORUM)	60 - 100
MAY. 1 - AUG. 31	GERMAN MILLET (SETARIA ITALICA)	50
LIME:	90 LB / 1000 SF FULVURIZED AGRICULTURAL LIMESTONE	
FERTILIZER:	10-10-10 @ 10 LB / 1000 SF	

PERMANENT STABILIZATION

ALL AREAS DISTURBED BY CONSTRUCTION WILL BE STABILIZED WITH PERMANENT SEEDING WITHIN 7 DAYS OR IMMEDIATELY FOLLOWING FINISH GRADING. SEEDING WILL BE DONE ACCORDING TO STANDARD AND SPECIFICATION 3.32 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK. PERMANENTLY SEEDER AREAS SHALL BE PROTECTED DURING ESTABLISHMENT WITH STRAW MULCH.

PERMANENT SEEDING MIXTURE

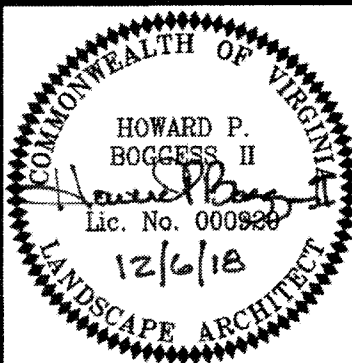
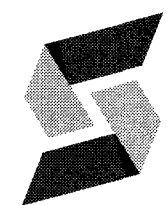
SEEDING AREA:	SEEDING RATE:
GENERAL TURF	
(Optional) PERENNIAL RYEGRASS	200 lbs/Ac
K-31 FESCUE	20 lbs/Ac
GENERAL SLOPE (3:1 or less)	
K-31 FESCUE	128 lbs/Ac
RED TOP GRASS	2 lbs/Ac
SEASONAL NURSE CROP	20 lbs/Ac
STEEP SLOPE (Greater than 3:1)	
K-31 FESCUE	108 lbs/Ac
RED TOP GRASS	2 lbs/Ac
SEASONAL NURSE CROP	20 lbs/Ac
CROWNVEITCH	20 lbs/Ac
SEASONAL NURSE CROP SCHEDULE:	
March, April - May 15th	ANNUAL RYE
May 16th - August 15th	FOXTAIL MILLET
August 16th - September, October	ANNUAL RYE
November - February	WINTER RYE
LIME:	90 LB / 1000 SF FULVURIZED AGRICULTURAL LIMESTONE
FERTILIZER:	10-20-10 @ 12 LB / 1000 SF
MULCH:	IF REQUIRED, SHALL BE USED OVER ALL SEEDER AREAS AND SHALL BE APPLIED IN ACCORDANCE WITH SECTION 1.75 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 SEEDLINGS, AND RESEEDING SHALL BE IN ACCORDANCE WITH SPECIFICATIONS CONTAINED WITHIN THE VIRGINIA SOIL EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.
SEED APPLICATION:	APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CULTIPACKER SEEDER, OR HYDROSEEDER ON A FIRM, FRABLE, SEEDBED. MAXIMUM SEEDING DEPTH SHALL BE 1/4 INCH.



OUTLET PROTECTION

NOTES
1. Apron lining may be rip-rap, grouted rip-rap, or
2. La is the length of the rip-rap apron as calculated using
3. d = 1.5 times the maximum stone diameter, but not less than 6".

Lumsden Associates, P.C.
ENGINEERS | SURVEYORS | PLANNERS



SITE DEVELOPMENT PLAN FOR
LAWRENCE TRANSPORTATION
PREPARED FOR
LARE INC
VALLEY MAGISTERIAL DISTRICT
BOTETOURT COUNTY, VIRGINIA

REVISIONS	DESCRIPTION	DATE	BY	CHKD	APP'D
1					
2					
3					
4					
5					
DATE: December 6, 2018					
SCALE: NONE					
COMMISSION NO: 18-125					
SHEET 8 OF 10					