

# EROSION & SEDIMENT NARRATIVE

**PROJECT DESCRIPTION:**  
THIS PROPERTY IS LOCATED ON AN UNDEVELOPED PARCEL THAT IS PREDOMINANTLY FORESTED. THE PROPERTY IS LOCATED ON THE NORTH SIDE OF OLD VALLEY PIKE APPROXIMATELY 150 FT WEST OF THE INTERSECTION OF FOUNDERS WAY IN THE TOWN OF STRASBURG, VIRGINIA. THE PURPOSE OF THIS PROJECT IS TO CONSTRUCT AN ORILEY AUTO PARTS WITH ASSOCIATED PARKING AND SITE IMPROVEMENTS ON THE UNDEVELOPED SITE. THE TOTAL DISTURBED AREA WILL BE APPROXIMATELY 1.44 ACRES ANTICIPATED TO BE APPROXIMATELY 1.44 ACRES. UPON COMPLETION THERE WILL BE APPROXIMATELY 0.98 ACRES OF IMPERVIOUS AREA WITHIN THE DISTURBED AREA.

**EXISTING OFF-SITE CONVEYANCE:**  
THE EXISTING 1.68 ACRE SITE IS CURRENTLY AN UNDEVELOPED SITE THAT IS PREDOMINANTLY FORESTED. THE ON-SITE SLOPES VARY FROM 1% TO 50% WITH THE STEEPER SLOPES BEING ALONG THE NORTHERN PROPERTY EDGE. THERE ARE TWO GENERAL POINTS OF INTEREST (POI) ON THIS SITE. THE WATER DRAINING TO POI #1 CONSISTS OF 1.25 ACRES OF DISTURBED AREA. THE WATER DRAINING TO POI #2 CONSISTS OF 0.15 ACRES OF DISTURBED AREA.

**ADJACENT AREAS:**  
THE PROPERTY IS BORDERED TO THE SOUTH BY OLD VALLEY PIKE, TO THE EAST BY OFFICE BUILDING, TO THE NORTH BY WOODED AREA AND SINGLE FAMILY RESIDENTIAL HOMES, AND TO THE WEST BY AN UNDEVELOPED FORESTED SITE ZONED COMMERCIAL.

**NO OFF-SITE AREAS REQUIRED FOR EXPORT OF MATERIALS ARE ANTICIPATED WITH THIS PROJECT.** IF EXCAVATED MATERIAL IS GENERATED, IT SHALL BE DISPOSED AT AN APPROVED FACILITY. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THE HAUL ROUTE WITH THE JURISDICTIONAL INSPECTOR. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE ALL OFF-SITE HAULBORROW AREAS ARE PROPERLY PERMITTED.

**SOILS:**  
PER NRCS WEB SOIL SURVEY INFORMATION, 65% OF THE SITE IS CLASSIFIED AS SLOPE TYPE 9C, CARBO-ENCLAV COMPLEX, AND 4% TYPE 49. PTIS AND SLOPES THESE SOIL TYPES ARE POORLY DRAINED AND HAVE A HYDROLOGIC SOIL CLASSIFICATION OF D.

**CRITICAL AREAS:**  
NO CRITICAL AREAS SUCH AS CHANNELS, OR UNDERGROUND SPRINGS HAVE BEEN IDENTIFIED WITHIN THE PROPOSED LIMITS OF DISTURBANCE. THERE ARE EXISTING STORMWATER CHANNELS ON THE PROPERTY. THESE CRITICAL AREAS WILL REMAIN UNDISTURBED BEYOND THE LIMITS OF THE PROPOSED DISTURBANCE. THE CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN THE APPROPRIATE SAFETY MEASURES AND EROSION CONTROLS DURING THE CONSTRUCTION ACTIVITIES.

**EROSION AND SEDIMENT CONTROL MEASURES:**  
UNLESS OTHERWISE NOTED ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED, ACCORDING TO THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCOP), THE MINIMUM STANDARDS OF THE VESCOP SHALL BE ADHERED TO UNLESS OTHERWISE WAIVED OR APPROVED BY THE PLAN APPROVING AUTHORITY.

**PERMANENT STABILIZATION:**  
PERMANENT STABILIZATION SHALL BE PROVIDED ONCE ALL CONSTRUCTION ACTIVITIES ARE COMPLETE. THE SPECIFICATIONS AND DETAILS FOR THE PERMANENT STABILIZATION SHALL BE PROVIDED IN THE PERMANENT STABILIZATION PLAN. THE PERMANENT STABILIZATION SHALL BE PROVIDED IN ACCORDANCE WITH THE VESCOP AND THE SPECIFICATIONS OF THE PERMANENT STABILIZATION PLAN.

**SOIL STABILIZATION BLANKETS & MATTING:**  
SOIL STABILIZATION BLANKETS & MATTING SHALL BE INSTALLED PERIODICALLY FOLLOWING INSTALLATION, PARTICULARLY AFTER DISTURBED AREAS ARE EXPOSED. THE BLANKETS SHALL BE REPLACED OR REAPPLIED AS SOON AS SUCH AREAS ARE IDENTIFIED.

**ROCK CHECK DAMS:**  
ROCK CHECK DAMS SHALL BE CONSTRUCTED ACROSS A SMALL OR DRAINAGE DITCH TO REDUCE THE VELOCITY OF CONCENTRATED STORMWATER FLOW AND PREVENT EROSION.

**TEMPORARY SEEDING:**  
TEMPORARY SEEDING SHALL BE PROVIDED TO DENIED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED. THE SEEDING SHALL BE PROVIDED TO DENIED AREAS THAT MAY NOT BE MAINTAINED AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 14 DAYS.

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# EROSION AND SEDIMENT CONTROL MINIMUM STANDARDS (MS-19)

**MS-1: PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENIED AREAS WITHIN SEVEN (7) DAYS AFTER FINAL GRADE IS REACHED OR LONGER THAN 14 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE (1) YEAR.**

**R-1: TEMPORARY SOIL STABILIZATION WILL BE APPLIED TO NEWLY GRADED AND DENIED AREAS THAT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN 7 DAYS. PERMANENT STABILIZATION WILL BE APPLIED WITHIN 14 DAYS TO DENIED AREAS WHERE CONSTRUCTION ACTIVITY HAS PERMANENTLY STOPPED FOR LONGER THAN 14 DAYS.**

**MS-2: DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICABLE RESPONSIBILITY 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.**

**R-2: ALL STOCKPILES WILL BE STABILIZED AND PROTECTED WITH SEDIMENT TRAPPING MEASURES.**

**MS-3: A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENIED 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.**

**R-3: PERMANENT VEGETATION WILL BE PROVIDED FOR ALL DENIED AREAS.**

**MS-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.**

**R-4: SILT FENCE, A SEDIMENT TRAP, AND DIVERSION DIKES ARE REQUIRED TO BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE COMMENCES.**

**MS-5: STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES, AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.**

**R-5: STABILIZATION MEASURES SHALL BE APPLIED TO PROPOSED DIVERSION DIKES IMMEDIATELY AFTER INSTALLATION.**

**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. THE 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 (3) ACRES.**

**R-6: ADEQUATE SIZING CALCULATIONS FOR THE PROPOSED TEMPORARY SEDIMENT TRAP CAN BE FOUND ON SHEET C3.3.**

**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 (1) YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL EROSION STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED.**

**R-7: CUT AND FILL SLOPES WILL BE CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. ANY SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE (1) YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL EROSION STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED.**

**MS-8: CONCENTRATED RUNOFF SHALL NOT FLOW DOWN SLOPE OR INTO A PERMANENT CHANNEL, FLUME OR SLOPE-DRAIN STRUCTURE.**

**R-8: CONCENTRATED RUN-OFF IS NOT EXPECTED DURING CONSTRUCTION. ANY CONCENTRATED RUN-OFF ENCOUNTERED DURING CONSTRUCTION WILL BE CONTAINED WITHIN AN ADEQUATE CHANNEL, FLUME OR SLOPE DRAIN.**

**MS-9: WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.**

**R-9: CONTAMINATED SEEPAGE AND ADEQUATE MEASURES ARE PROVIDED TO PREVENT THIS CONDITION FROM ARISING.**

**MS-10: STORMWATER SYSTEMS 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.**

**R-10: STORMWATER SYSTEMS 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.**

**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.**

**R-11: STORMWATER CONVEYANCE CHANNELS WILL HAVE ADEQUATE LININGS AND OUTFALL TO PREVENT EROSION.**

**MS-12: WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE EROSION. CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS, EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NON-ERODIBLE COVER MATERIALS.**

**R-12: NOT APPLICABLE. THE PROPOSED WORK DOES NOT CROSS A LIVE WATERCOURSE.**

**MS-13: WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX (6) MONTH PERIOD, A TEMPORARY VEHICULAR STREAM CROSSING CONSTRUCTED OF NON-ERODIBLE MATERIALS SHALL BE PROVIDED.**

**R-13: NOT APPLICABLE. THE PROPOSED WORK DOES NOT CROSS A LIVE WATERCOURSE.**

**MS-14: ALL APPLICABLE FEDERAL, STATE, AND LOCAL REQUIREMENTS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.**

**R-14: NOT APPLICABLE. THE PROPOSED WORK DOES NOT CROSS A LIVE WATERCOURSE.**

**MS-15: THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.**

**R-15: NOT APPLICABLE. THE PROPOSED WORK DOES NOT CROSS 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 SHALL 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 INTO A TIME-SCHEDULED RECEIVING AREA THAT WILL 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. RE-STABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THIS CHAPTER.**

**F. APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.**

**R-16: INSTALLATION OF PROPOSED UNDERGROUND UTILITY LINES SHALL FOLLOW THE ABOVE STANDARDS.**

**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 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.**

**R-17: A PROPOSED CONSTRUCTION ENTRANCE / EXIT HAS BEEN PLACED TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ON THE PAVED SURFACE. ALL MATERIAL OR DEBRIS TRACKED ONTO A PUBLIC OR PRIVATE ROAD SURFACE WILL BE REMOVED THOROUGHLY AT THE END OF EACH DAY BY THE CONTRACTOR. SEDIMENT SHALL BE REMOVED FROM ROADS BY SHOVELING OR SWEEPING AND BE TRANSPORTED TO A SEDIMENT CONTROLLED DISPOSAL AREA.**

**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 VESCOP AUTHORITY. UNLESS OTHERWISE AUTHORIZED BY THE VESCOP AUTHORITY, PROTECTION SHALL BE MAINTAINED THROUGHOUT THE REMOVAL OF TEMPORARY MEASURES TO PREVENT FURTHER EROSION AND SEDIMENTATION.**

**R-18: TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES WILL BE REMOVED UPON APPROVAL BY THE COUNTY INSPECTOR AND ANY AREA DISTURBED BY THE REMOVAL WILL BE IMMEDIATELY STABILIZED.**

**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. THE FOLLOWING FREQUENCY STORM OF 24-HOUR DURATION IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND CRITERIA, STREAM RESTORATION PROJECTS THAT INCORPORATE NATURAL CHANNEL DESIGN CONCEPTS ARE NOT MAN-MADE CHANNELS. THEY WILL MAINTAIN THE STRUCTURAL INTEGRITY OF THE BASIN DURING A TWENTY-FIVE YEAR STORM OF 24-HOUR DURATION. RUNOFF COEFFICIENTS USED FOR RUNOFF CALCULATIONS SHALL CORRESPOND TO A BARE EARTH CONDITION OR THOSE CONDITIONS EXPECTED TO EXIST WITH THE SEDIMENT BASIN IS UTILIZED.**

**A. CONCENTRATED STORMWATER RUNOFF LEAVING A DEVELOPMENT SITE SHALL BE DISCHARGED DIRECTLY INTO AN ADEQUATE NATURAL OR MAN-MADE CHANNEL, FLUME OR PIPE OR STORM SEWER SYSTEM. FOR SITE SITES WHERE RUNOFF IS DISCHARGED INTO A PIPE OR PIPE SYSTEM DOWNSTREAM, STABILIZATION SHALL BE PROVIDED AT THE PIPE OR PIPE SYSTEM AS NEAR AS PRACTICABLE.**

**B. THE APPLICANT SHALL DEMONSTRATE THAT THE CHANNEL IS ONE HUNDRED TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE PROJECT IN QUESTION, OR**

**(A) NATURAL CHANNELS SHALL BE ANALYZED BY THE USE OF A TWO (2) YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP CHANNEL BED OR BANKS, AND**

**(B) ALL PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS SHALL BE ANALYZED BY THE USE OF A TEN (10) YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP ITS BANKS BY THE USE OF A TWO (2) 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 (10) YEAR STORM TO VERIFY THAT STORMWATER WILL BE CONTAINED WITHIN THE PIPE OR SYSTEM.**

**D. IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL:**

**(1) IMPROVE THE CHANNEL TO A CONDITION WHERE A TEN (10) YEAR STORM WILL NOT OVERTOP THE BANKS AND A TWO (2) YEAR STORM WILL NOT CAUSE EROSION TO THE CHANNEL BED OR BANKS, OR**

**(2) IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE TEN (10) YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES; OR**

**(3) DEVELOP A SITE DESIGN THAT WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TWO (2) YEAR STORM TO INCREASE WHEN RUNOFF FROM A TEN (10) 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 PLAN APPROVING AUTHORITY TO PREVENT DOWNSTREAM EROSION.**

**E. THE APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS.**

**F. ALL HYDROLOGIC ANALYSES SHALL BE BASED ON THE EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT CONDITION OF THE SUBJECT PROJECT.**

**G. IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION HE SHALL OBTAIN APPROVAL FROM THE VESCOP 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.**

**H. 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.**

**I. ALL ON-SITE CHANNELS MUST BE VERIFIED TO BE ADEQUATE. INCREASED VOLUMES OF SHEET FLOODS 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 THE PHYSICAL, CHEMICAL AND BIOLOGICAL INTEGRITY OF RIVERS, STREAMS AND OTHER WATERS OF THE STATE.**

**R-19: SEE STORMWATER MANAGEMENT NARRATIVE ON SHEET C3.5**

# EROSION CONTROL NOTES DURING WINTER CONSTRUCTION

1. WINTER CONSTRUCTION PERIOD: NOVEMBER 1 THROUGH APRIL 15.

2. WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.

3. EXPOSED AREA SHOULD BE LIMITED TO THAT WHICH CAN BE MULCHED IN ONE DAY PRIOR TO ANY SNOW EVENT.

4. CONTINUATION OF EARTHWORK OPERATION ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED SUCH THAT NO LARGER AREA OF THE SITE IS WITHOUT EROSION CONTROL PROTECTION AS LISTED IN ITEM 2 ABOVE.

5. AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW OR STRAW AT A RATE OF 100 LB PER 1000 SQUARE FEET (WITH OR WITHOUT SEEDING) OR DORMANT SEEDED, MULCHED AND ADEQUATELY ANCHORED BY AN APPROVED ANCHORING TECHNIQUE.

6. BETWEEN THE DATES OF OCTOBER 15 AND APRIL 15TIL LOAM OR SEED WILL NOT BE REQUIRED. DURING PERIODS OF ABOVE FREEZING TEMPERATURES THE SLOPES SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1ST AND IF THE EXPOSED AREA HAS BEEN LOANED FINAL GRADED AND IS SMOOTH, THEN THE AREA MAY BE DORMANT SEEDING AT A RATE OF 200 - 300% HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED. IF CONSTRUCTION CONTINUES DURING FREEZING WEATHER, ALL EXPOSED AREAS SHALL BE CONTINUOUSLY GRADED BEFORE FREEZING AND THE SURFACE TEMPORARILY PROTECTED FROM EROSION BY THE APPLICATION OF MULCH. SLOPES SHALL NOT BE LEFT UNEXPOSED OVER THE WINTER OR ANY OTHER EXTENDED TIME OF WORK SUSPENSION UNLESS STABILIZED IN ABOVE MANNER. UNTIL SUCH TIME AS WEATHER CONDITIONS ALLOW DITCHES TO BE FINISHED WITH THE PERMANENT SURFACE TREATMENT, EROSION SHALL BE CONTROLLED BY THE INSTALLATION OF BALES OF STRAW OR STONE CHECK DAMS IN ACCORDANCE WITH THE STANDARD DETAILS.

7. MULCHING REQUIREMENTS:

1. BETWEEN THE DATES OF NOVEMBER 1ST AND APRIL 15TH ALL MULCH SHALL BE ANCHORED BY EITHER PEG LINE, MULCH NETTING OR WOOD CELLULOSE FIBER.

2. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPE EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 8%.

3. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 15% AFTER OCTOBER 15TH. THE APPLICABLE FOR ALL SLOPES GREATER THAN 8%.

4. AFTER NOVEMBER 1ST THE CONTRACTOR SHALL PROMPTLY DOOR SEEDING MULCH AND ANCHORING ON ALL BARE EARTH AT THE END OF EACH WORKING DAY.

5. DURING THE WINTER CONSTRUCTION PERIOD ALL SLOPES SHALL BE COVERED WITH MULCH AND PROTECTED FROM EROSION BY THE APPLICATION OF MULCH. SLOPES SHALL NOT BE LEFT UNEXPOSED OVER THE WINTER OR ANY OTHER EXTENDED TIME OF WORK SUSPENSION UNLESS STABILIZED IN ABOVE MANNER. UNTIL SUCH TIME AS WEATHER CONDITIONS ALLOW DITCHES TO BE FINISHED WITH THE PERMANENT SURFACE TREATMENT, EROSION SHALL BE CONTROLLED BY THE INSTALLATION OF BALES OF STRAW OR STONE CHECK DAMS IN ACCORDANCE WITH THE STANDARD DETAILS.

6. EXISTING CATCH BASIN STRUCTURES SHALL BE PROTECTED UNTIL SUCH TIME AS THEY ARE REMOVED.

7. MULCH ANCHORING:

1. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE SITE IS STABILIZED. STABILIZATION MEASURES SHALL NOT BE REMOVED UNTIL AFTER APPROVAL FROM THE LOCAL ESC AUTHORITY (SHENANDOOH COUNTY).

2. WETLANDS WILL BE PROTECTED BY STRAW BALES AND/OR SILT FENCE INSTALLED AT THE EDGE OF THE WETLAND OR THE BOUNDARY OF WETLAND DISTURBANCE.

3. ALL AREAS WITHIN 100 FEET OF A FLAGGED WETLAND OR STREAM SHALL HAVE AN EXPOSURE WINDOW OF NOT MORE THAN 7 DAYS.

4. ALL AREAS WITHIN 100 FEET OF A FLAGGED WETLAND OR STREAM SHALL FOLLOW APPROPRIATE EROSION CONTROL MEASURES PRIOR TO EACH STORM IF NOT BEING ACTIVELY WORKED.

5. A HYDRO APPLICATION OF WOOD, OR PAPER FIBER MAY BE APPLIED FOLLOWING SEEDING. A SUITABLE BINDER SUCH AS CURASOL OR RMB PLUS SHALL BE USED ON STRAW MULCH FOR WINTER CONTROL.

6. MULCH ANCHORING:

1. MULCH NETTING WITH PEG AND TWINE (1 SQ. YD/1000); MULCH NETTING (AS PER MANUFACTURER); WOOD CELLULOSE FIBER (750 LB/ACRE); CHEMICAL TACK (AS PER MANUFACTURER'S SPECIFICATIONS); USE OF A SERRATED STRAIGHT DISK. WETTING FOR SMALL AREAS AND ROAD DITCHES MAY BE PERMITTED.

2. MODERATE TO HIGH VELOCITY AREAS OR STEEP SLOPES GREATER THAN 3:1

3. GREATER THAN 3:1 (REFER TO GEOTECHNICAL REPORT FOR FINAL DESIGN REQUIREMENT)

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