

SOIL EROSION CONTROL NARRATIVE

PROJECT DESCRIPTION:

THE PURPOSE OF THIS PROJECT IS TO PROVIDE CLEARING AND GRADING OPERATIONS FOR THE CONSTRUCTION OF A PUBLIC ROAD TOTALING APPROXIMATELY 819 LF OF ROAD (20,470 SF OF PAVEMENT). THE AMOUNT OF LAND DISTURBANCE IS ESTIMATED AT (6.61 ACRES) WHICH IS A PORTION OF THE 7.16 ACRE TRACT, LOCATED WEST OF BARRENS ROAD. THE IMPERVIOUS IMPROVEMENTS WILL BE COLLECTED BY CURB INLETS AND GRATE INLETS AND PIPED TO A STORMWATER MANAGEMENT POND. ULTIMATE RUNOFF WILL BE DETAINED AND DISCHARGED AT ROANOKE COUNTY ALLOWABLE RELEASE RATES THROUGH A 24" PIPE. ULTIMATE DEVELOPMENT INCLUDES RUNOFF FROM 30 HOUSES AND UPSTREAM AREAS. INSTALLATION OF PUBLIC WATERLINES AND PUBLIC SANITARY SEWER LINES ARE ALSO INCLUDED WITH THIS PROJECT. THE EROSION & SEDIMENT CONTROL MEASURES SHOWN HERE ARE DESIGNED IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VA ESCH). EXISTING SITE "C" FACTOR = 0.36 WITH 0.08 AC OF IMPERVIOUS, PROPOSED SITE "C" FACTOR = 0.54 WITH 2.41 AC OF IMPERVIOUS.

EXISTING SITE CONDITIONS:

THE DEVELOPMENT AREA (7.16 ACRES) FLOWS TO THE WEST AND WILL BE DIRECTED TO THE SEDIMENT BASIN/STORMWATER MANAGEMENT POND. ALL DEVELOPED AREA IS CURRENTLY COVERED WITH GRASS, MINOR BRUSH, AND TREES. THE AREA IS FARMLAND, USED FOR PASTURE. EXISTING TOPOGRAPHY IS DESCRIBED AS MODERATE TERRAIN WITH SLOPES RANGING FROM 2% TO 15%. RUNOFF TO THE WEST DRAINS TOWARD AN EXISTING DRAINAGE DITCH ADJACENT TO THE DEVELOPMENT ON THE LANDS TO THE WEST. THE 6TH ORDER HYDROLOGIC GROUP IS RU12, AT 6456 NORTH BARRENS ROAD, (LATITUDE N 37.35368°, LONGITUDE W 79.97492°). RUNOFF DRAINS TO A TRIBUTARY TOWARD TINKER CREEK/CARVIN CREEK/GLADE CREEK AND IS IDENTIFIED AS VAW-LO5R_ZZZ01A00. THE STREAM HAS NOT BEEN ASSESSED AND FALLS IN CATEGORY 3A.

ADJACENT PROPERTY:

THE DEVELOPMENT IS SURROUNDED BY MOSTLY DEVELOPED SINGLE FAMILY HOMES. ACCESS TO THE SITE SHALL BE FROM BARRENS ROAD, WITH ONE CONSTRUCTION ENTRANCES ADJACENT PROPERTIES ARE NOT AFFECTED BY DEVELOPMENT.

OFF-SITE AREAS:

THIS PROJECT DOES NOT ANTICIPATE OFF-SITE WASTE AREAS FOR TOPSOIL STOCKPILES, OR TEMPORARY STOCKPILES. SHOULD THE PROJECT REQUIRE OFF-SITE WASTE AREAS OR BORROW AREAS, THE LOCATION OF THESE AREAS NEED TO BE SUBMITTED TO THE LOCAL GOVERNING AUTHORITY AND OTHER LOCAL GOVERNING AUTHORITIES WHERE WASTE/BORROW OCCURS. EROSION CONTROL PLANS OR MEASURES MAY BE REQUIRED FOR THESE OFF-SITE LOCATIONS, BASED ON CODE LIMITATIONS ON DISTURBED AREAS REQUIRING EROSION & SEDIMENT CONTROL PLANS.

SOILS:

49B---TUMBLING LOAM, 2 TO 7 PERCENT SLOPES

MAP UNIT SETTING

• MEAN ANNUAL PRECIPITATION: 30 TO 45 INCHES; MEAN ANNUAL AIR TEMPERATURE: 50 TO 57 DEGREES F; FROST-FREE PERIOD: 171 TO 207 DAYS

MAP UNIT COMPOSITION

• TUMBLING AND SIMILAR SOILS: 80 PERCENT

DESCRIPTION OF TUMBLING

SETTING

- LANDFORM: FANS; LANDFORM POSITION (TWO-DIMENSIONAL): FOOTSLOPE
- LANDFORM POSITION (THREE-DIMENSIONAL): BASE SLOPE, HEAD SLOPE
- DOWN-SLOPE SHAPE: CONCAVE; ACROSS-SLOPE SHAPE: LINEAR
- PARENT MATERIAL: COLLUVIUM DERIVED FROM SANDSTONE AND SHALE AND/OR QUARTZITE

PROPERTIES AND QUALITIES

- SLOPE: 2 TO 7 PERCENT; DEPTH TO RESTRICTIVE FEATURE: MORE THAN 80 INCHES
- DRAINAGE CLASS: WELL DRAINED; CAPACITY OF THE MOST LIMITING LAYER TO TRANSMIT WATER (KSAT): MODERATELY HIGH TO HIGH (0.57 TO 1.98 IN/HR); DEPTH TO WATER TABLE: MORE THAN 80 INCHES
- FREQUENCY OF FLOODING: NONE; FREQUENCY OF PONDING: NONE
- AVAILABLE WATER CAPACITY: MODERATE (ABOUT 7.5 INCHES)

INTERPRETIVE GROUPS

- FARMLAND CLASSIFICATION: ALL AREAS ARE PRIME FARMLAND; LAND CAPABILITY (NONIRRIGATED): 2E
- HYDROLOGIC SOIL GROUP: B
- EROSION FACTOR IS MODERATE (0.32 ON A SCALE OF 0.02 TO 0.69)

TYPICAL PROFILE

- 0 TO 11 INCHES: LOAM; 11 TO 62 INCHES: GRAVELLY CLAY

49C---TUMBLING LOAM, 7 TO 15 PERCENT SLOPES

MAP UNIT SETTING

• MEAN ANNUAL PRECIPITATION: 30 TO 45 INCHES; MEAN ANNUAL AIR TEMPERATURE: 50 TO 57 DEGREES F; FROST-FREE PERIOD: 171 TO 207 DAYS

MAP UNIT COMPOSITION

• TUMBLING AND SIMILAR SOILS: 80 PERCENT

DESCRIPTION OF TUMBLING

SETTING

- LANDFORM: FANS; LANDFORM POSITION (TWO-DIMENSIONAL): FOOTSLOPE
- LANDFORM POSITION (THREE-DIMENSIONAL): BASE SLOPE, HEAD SLOPE
- DOWN-SLOPE SHAPE: CONCAVE; ACROSS-SLOPE SHAPE: LINEAR
- PARENT MATERIAL: COLLUVIUM DERIVED FROM SANDSTONE AND SHALE AND/OR QUARTZITE

PROPERTIES AND QUALITIES

- SLOPE: 7 TO 15 PERCENT; DEPTH TO RESTRICTIVE FEATURE: MORE THAN 80 INCHES
- DRAINAGE CLASS: WELL DRAINED; CAPACITY OF THE MOST LIMITING LAYER TO TRANSMIT WATER (KSAT): MODERATELY HIGH TO HIGH (0.57 TO 1.98 IN/HR)
- DEPTH TO WATER TABLE: MORE THAN 80 INCHES
- FREQUENCY OF FLOODING: NONE; FREQUENCY OF PONDING: NONE
- AVAILABLE WATER CAPACITY: MODERATE (ABOUT 7.5 INCHES)

INTERPRETIVE GROUPS

- FARMLAND CLASSIFICATION: FARMLAND OF STATEWIDE IMPORTANCE; LAND CAPABILITY (NONIRRIGATED): 3E; HYDROLOGIC SOIL GROUP: B
- EROSION FACTOR IS MODERATE (0.32 ON A SCALE OF 0.02 TO 0.69)

TYPICAL PROFILE

- 0 TO 11 INCHES: LOAM; 11 TO 62 INCHES: GRAVELLY CLAY

CRITICAL AREAS:

THE CONTRACTOR SHALL INSTALL ALL INITIAL EROSION AND SEDIMENT CONTROL MEASURES TO CONTROL SEDIMENT LADEN RUNOFF FROM ENTERING ADJACENT PROPERTIES AND/OR STREAMS AND SWALES. SPECIAL CARE SHALL BE PROVIDED TO KEEP SEDIMENT OUT OF UNNAMED TRIBUTARY TO SOUTH OF SITE. THE CONTRACTOR SHALL INSTALL CONSTRUCTION ENTRANCE(S) AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL MAINTAIN THE CONSTRUCTION ENTRANCE TO THE MINIMUM REQUIRED STANDARDS. THE CONTRACTOR SHALL KEEP EQUIPMENT ON SITE TO REMOVE ANY DIRT OR MUD FROM PAVED AREAS. THE CONTRACTOR SHALL INSTALL SILT FENCE AS SHOWN ON THE PLANS TO CAPTURE SEDIMENT LADEN RUNOFF AND FILTER RUNOFF PRIOR TO ENTERING DOWNSTREAM AREAS AND ADJACENT PROPERTIES. ALL SILT FENCE SHALL BE INSTALLED AND CHECKED REGULARLY. THE DIVERSION DIKES SHALL BE PLACED AS SHOWN TO KEEP UPSTREAM, UNDISTURBED DRAINAGE AREAS FROM ENTERING DISTURBED AREAS. THE CONTRACTOR SHALL INSTALL STABILIZATION MEASURES TO EARTHEN EMBANKMENT STRUCTURES SUCH AS DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION. THE CONTRACTOR SHALL INSTALL SEDIMENT TRAP AS SHOWN TO CAPTURE SEDIMENT LADEN RUNOFF PRIOR TO ENTERING INTO THE DRAINAGE WATERCOURSES. SEDIMENT TRAP DESCRIPTIONS AND SIZES ARE SHOWN NEAR EACH TRAP.

UPON CONSTRUCTION OF SELECT DRAINAGE ITEMS, THE CONTRACTOR SHALL INSTALL INLET PROTECTION IMMEDIATELY UPON INSTALLATION OF PROPOSED STRUCTURES. THE CONTRACTOR SHALL INSTALL BLANKET MATTING/SOIL BLANKETS/HYDROMULCH IN AREAS SHOWN ON THE PLANS ALONG PROPOSED DITCHES AND ON ALL GRADED AREAS OF EXCAVATED AREAS WITH SLOPE 2:1 OR FILL AREAS WITH SLOPE 3:1 OR GREATER. THE CONTRACTOR SHALL PROVIDE TEMPORARY AND PERMANENT SEEDING WITHIN SEVEN (7) DAYS OF OBTAINING FINAL GRADES. ANY AREA TO REMAIN DORMANT FOR MORE THAN 30 DAYS SHALL BE COVERED WITH TEMPORARY SEEDING. THE CONTRACTOR SHALL HAVE EQUIPMENT ON-SITE TO KEEP SEDIMENT OFF OF EXISTING PAVED AREAS. RIPRAP SHALL BE INSTALLED AS SHOWN ON THE PLANS.

IN ANY AREAS WHERE SEDIMENT LADEN WATER IS BEING PUMPED FROM A LOCATION, THE PUMPED RUNOFF SHALL BE FILTERED THROUGH A "FILTER BAG" BEFORE BEING RELEASED DOWNSTREAM.

EROSION & SEDIMENT CONTROL MEASURES:

UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE "VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK", THIRD EDITION. ADDITIONAL REFERENCE IS DIRECTED TO THE SUBMITTAL PACKAGE FOR THE PROJECT DESCRIBING EACH EROSION & SEDIMENT CONTROL MEASURE, AND WHETHER THAT MEASURE IS ANTICIPATED WITH THIS PROJECT.

1. REGARDLESS OF FUTURE DEVELOPMENT PLANS, THE CONTRACTOR SHALL IMMEDIATELY INSTALL EROSION AND SEDIMENT CONTROL DEVICES AS SHOWN ON THE PLANS. THIS WORK SHALL BE COORDINATED IN ORDER OF THE WORK WHICH IS TO FOLLOW: CONTROL AT CENTERS OF FLOW, AND OTHER POINTS OF CONCENTRATION SHOWN SHALL BE CONSTRUCTED IN PLACE FIRST.

2. AFTER THE INSTALLED CONTROL DEVICES ARE FOUND TO BE FUNCTIONAL, THE CONTRACTOR SHALL IMMEDIATELY PROCEED WITH DEMOLITION, CLEARING, AND PRELIMINARY GRADING OPERATIONS. ALL EXPOSED DENUDED AREAS SHALL BE SEEDD WITHIN SEVEN (7) DAYS AFTER FINAL GRADING, AND SHALL BE ACCOMPLISHED IN STRICT ACCORDANCE WITH THE "VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK", THIRD EDITION.

3. IN GENERAL, ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL IN PARTICULAR:

- A. MEASURES SHALL BE MAINTAINED TO PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHT-OF-WAYS.
- B. ALL SILT FENCE BARRIERS AND INLET PROTECTIONS SHALL BE CHECKED REGULARLY FOR UNDERMINING AND SEDIMENT BUILDUP.
- C. ALL SEEDD AREAS WILL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHALL BE FERTILIZED AND RESEEDD AS NEEDED.

4. FOLLOWING THE COMPLETION OF DEVELOPMENT AND STABILIZATION OF ALL AREAS AND AFTER IT HAS BEEN DETERMINED THAT EROSION OR SEDIMENTATION IS NO LONGER OCCURRING ON THE SITE OR AT ITS BOUNDARIES AND THAT DRAINAGE FLOWS ARE FUNCTIONING ACCORDING TO DESIGN, THE CONTRACTOR MAY THEN BEGIN TO REMOVE THE TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES. THIS WORK SHALL BE DONE IN A CAREFUL, NEAT, ORGANIZED MANNER.

STORMWATER CONSIDERATIONS:

THE 1-YEAR/24-HOUR STORM EVENT IS RELEASED OVER A 24-HOUR RATE FOR CHANNEL EROSION CONTROL. THE POST DEVELOPED 10-YEAR STORM IS RELEASED AT A RATE BELOW THE PRE-DEVELOPED 2-YEAR STORM. THE POST DEVELOPED 25-YEAR STORM IS RELEASED AT A RATE BELOW THE PRE-DEVELOPED 10-YEAR STORM. STORMWATER QUALITY IS ADDRESSED UTILIZING "EXTENDED DETENTION" TO RELEASE 2XWQVOL OVER A 30-HOUR RATE TO ALLOW POLLUTANTS TO SETTLE. A SEDIMENT FOREBAY HAS BEEN INCORPORATED INTO THE DESIGN TO CONTROL THE LOCATION OF THE POLLUTANTS. THE SITE IS EVALUATED FROM A TECHNICAL CRITERIA BASIS AS OUTLINED IN CRITERIA IIC. THE ENTIRE PROPOSED DEVELOPMENT IS TREATED IN ADDITION TO PORTIONS OF THE EXISTING UPSTREAM IMPERVIOUS AREA.

MAINTENANCE

ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE CHECKED DAILY AND AFTER ALL SIGNIFICANT RAINFALL IN PARTICULAR:

1. SILT FENCE AND INLET PROTECTION SHALL BE CHECKED REGULARLY TO ENSURE THAT THE FABRIC HAS NOT BEEN UNDERMINED OR HAS DETERIORATED. SEDIMENT SHALL BE REMOVED WHEN LEVEL OF BUILDUP REACHES HALFWAY UP THE BARRIER.

2. AREAS WHICH HAVE RECEIVED SEEDING SHALL BE CHECKED REGULARLY TO ENSURE THAT A GOOD STAND OF GRASS IS MAINTAINED. AREAS SHALL BE FERTILIZED AND RESEEDD AS REQUIRED.

SPECIFIC REQUIREMENTS RELATED TO INSPECTION AND MAINTENANCE OF EACH EROSION CONTROL MEASURE ARE DISCUSSED IN THE VESCH STANDARDS AND SPECIFICATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF ALL EROSION CONTROL MEASURES TO THE SATISFACTION OF LOCAL REVIEWING AUTHORITIES, AS WELL AS THE INSTALLATION OF ADDITIONAL MEASURES AS NEEDED TO ENSURE THAT SEDIMENT LADEN RUNOFF DOES NOT LEAVE THE SITE.

GENERAL EROSION & SEDIMENT CONTROL NOTES

1. ALL SOIL EROSION & SEDIMENT CONTROL MEASURES AS SHOWN ON THE PLAN SHALL BE ACCOMPLISHED IN STRICT ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS CONTAINED IN THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.

2. THE APPROVING AUTHORITY MAY ADD TO, DELETE, RELOCATE, CHANGE, OR OTHERWISE MODIFY CERTAIN EROSION AND SEDIMENT CONTROL MEASURES WHERE FIELD CONDITIONS ARE ENCOUNTERED THAT WARRANT SUCH MODIFICATIONS.

3. ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES AS SHOWN ON THE PLAN SHALL BE PLACED IN ADVANCE OF THE WORK BEING PERFORMED, AS FAR AS PRACTICAL.

4. IN NO CASE DURING CONSTRUCTION SHALL WATER RUNOFF BE DIVERTED OR ALLOWED TO FLOW TO LOCATIONS WHERE ADEQUATE PROTECTION HAS NOT BEEN PROVIDED.

5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LEAVE THE SITE ADEQUATELY PROTECTED AGAINST EROSION, SEDIMENTATION, OR ANY DAMAGE TO ANY ADJACENT PROPERTY AT THE END OF EACH DAY'S WORK.

6. FOR THE EROSION CONTROL KEY SYMBOLS SHOWN ON THE PLANS, REFER TO THE VIRGINIA UNIFORM CODING SYSTEM FOR EROSION AND SEDIMENT CONTROL PRACTICES CONTAINED IN THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.

7. REFERENCE IS DIRECTED TO "EROSION & SEDIMENT CONTROL PLAN" FOR SITE DEPICTING EROSION AND SEDIMENT CONTROL MEASURES.

GENERAL COMMENTS:

1. THE JOB SUPERINTENDENT SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL PRACTICES.

2. THE APPROVING AUTHORITY RESERVES THE RIGHT TO ADD TO, DELETE, OR OTHERWISE CHANGE EROSION CONTROL DEVICES AS MAY BE DEEMED NECESSARY BY WRITTEN NOTIFICATION TO THE CONTRACTOR.

3. NO WORK SHALL PROCEED ON THE SITE UNTIL THE PROPER AUTHORIZATION OR PERMIT HAS BEEN OBTAINED FROM THE APPROVING AUTHORITY.

4. THE ENGINEER, PARKER DESIGN GROUP, ASSUMES NO RESPONSIBILITY FOR ANY WORK BEING PERFORMED.

RESPONSIBLE LAND DISTURBER CERTIFICATION:

THE GRADING CONTRACTOR FOR THIS PROJECT SHALL NAME ONE PARTY RESPONSIBLE FOR ALL LAND DISTURBANCE ACTIVITIES AND EROSION CONTROL MEASURES. THE PARTY NAMED SHALL HOLD A "RESPONSIBLE LAND DISTURBER CERTIFICATE" UNDER THE GENERAL ASSEMBLY REVISIONS TO THE VIRGINIA EROSION & SEDIMENT CONTROL LAW AS REVISED JULY 1, 2001. THE PARTY NAMED WILL BE IN CHARGE OF AND RESPONSIBLE FOR CARRYING OUT ALL EROSION CONTROL MEASURES. THE PARTY SHALL AFFIX SIGNED AND PRINTED NAME TO ONE COPY OF THIS EROSION CONTROL SHEET AND SUBMIT TO THE COUNTY OF ROANOKE. NO "LAND DISTURBING ACTIVITY" CAN OCCUR UNTIL THIS NAME HAS BEEN PROVIDED TO THE GOVERNING AGENCY. A COPY OF THE RESPONSIBLE LAND DISTURBED CERTIFICATE SHALL BE PROVIDED TO THE LOCAL GOVERNING AGENCY.

PRINTED NAME

RESPONSIBLE LAND DISTURBER CERTIFICATE NUMBER

EROSION & SEDIMENT CONTROL MINIMUM STANDARDS

MS-1 PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN (7) DAYS AFTER OBTAINING FINAL GRADE ON ANY PORTION OF THE SITE. TEMPORARY STABILIZATION SHALL BE APPLIED WITHIN SEVEN (7) DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT REMAIN DORMANT FOR LONGER THAN 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO ALL AREAS THAT ARE TO BE DORMANT FOR MORE THAN ONE YEAR. DENOTED IN THE NARRATIVE AS WELL AS VEGETATIVE PRACTICES AND PERMANENT STABILIZATION.

MS-2 DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES 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 THAT ARE INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE. STOCKPILE IS DISPLAYED ON THE PLAN, DENOTED AS AN INITIAL MEASURE AND NOTED TO BE RELOCATED DURING CONSTRUCTION.

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. ADEQUATE SYMBOLS, DETAILS, AND NOTES ARE PROVIDED ON THE PLAN FOR DIRECTION.

MS-4 SEDIMENT BASINS AND TRAPS, PERMEABLE 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. SILT FENCE AND DIVERSION DIKE ARE SHOWN ON THE PLAN AS INITIAL MEASURES. USE OF EXISTING DEPRESSED AREAS ARE DENOTED ON THE PLANS. DISTURBANCE IS LIMITED UNTIL THE STORM SYSTEM CAN BE INSTALLED.

MS-5 STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION. THE DIVERSION DIKE DETAIL SHOWS PERMANENT STABILIZATION IMMEDIATELY UPON 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 BASINS. SEDIMENT TRAP AND BASIN HAVE BEEN DESIGNED BASED ON TOTAL DRAINAGE AND SHOWN ON THE PLAN AND DETAILS.

N/A 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.

N/A 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.

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

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. NOTED ON THE PLANS WITH EACH PHASE OF IMPLEMENTATION.

MS-11 BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPE 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. ADEQUATE OUTLET PROTECTION IS DENOTED ON THE PLAN AND ADDRESSED IN EACH PHASE.

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. DISTURBANCE WITHIN THE WATERCOURSE IS LIMITED. SILT FENCE IS PROVIDED ALONG THE BASE OF EACH SLOPE BEING GRADED TO CAPTURE SEDIMENT PRIOR TO ENTERING THE 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. THE LIVE WATERCOURSE IS NOT CROSSED. MS-14 ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET. NOTED. THE DISTURBANCE IS LIMITED. THE WORK IS NOT WITHIN ANY "WATERS OF THE US".

MS-15 THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED. NOTED. THE USE OF BLANKET MATTING IS SHOWN ON THE PLANS.

MS-16 UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA. APPLICABLE FOR STORM PIPE INSTALLATION. CONTRACTOR SHALL FOLLOW MS-16.

- A. NO MORE THAN 500 LINEAR FEET OF TRENCH SHALL BE OPEN 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.

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 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. THE ADEQUATE MEASURE IS SHOWN ON THE PLANS, ADDRESSED IN THE NARRATIVE, AND IDENTIFIED AS AN INITIAL MEASURE.

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 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. NOTED AS PART OF NARRATIVE.

MS-19 PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES SHALL BE PROTECTED FROM SEDIMENT DEPOSITIONS, 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. A. ACCUMULATED 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 ANALYSIS AT THE OUTFALL OF THE PIPE OR PIPE SYSTEM SHALL BE PERFORMED. PIPED DISCHARGE FROM POND HAS BEEN REDUCED TO LESS THAN EXISTING FLOWS.

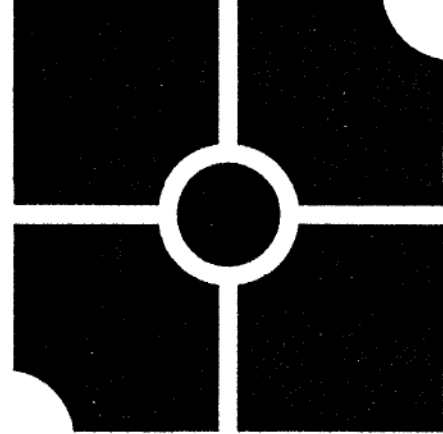
- B. ADEQUACY OF ALL CHANNELS AND PIPES SHALL BE VERIFIED IN THE FOLLOWING MANNER:
 - 1) THE ADJACENT CHANNEL SHALL DEMONSTRATE THAT THE TOTAL DRAINAGE AREA TO THE POINT OF ANALYSIS WITHIN THE CHANNEL IS ONE HUNDRED TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE PROJECT IN QUESTION; OR
 - 2) 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; AND
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 SEWERS 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 CHANNEL 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
 - 2) IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE TEN-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES; OR
 - 3) DEVELOP A SITE DESIGN THAT WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RATE RUNOFF FROM TWO-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A NATURAL CHANNEL OR WILL CAUSE THE PRE-DEVELOPMENT PEAK RATE RUNOFF 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 PLAN-APPROVING AUTHORITY TO PREVENT DOWNSTREAM EROSION.
- D. THE APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS. NOTED AND SIGNED ON THE COVER OF THIS PLAN.
- E. ALL HYDROLOGIC ANALYSIS SHALL BE BASED ON THE EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT OF THE SUBJECT PROPERTY. HYDROLOGIC ANALYSIS HAS BEEN BASED UPON ULTIMATE DEVELOPMENT.
- F. IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION HE SHALL OBTAIN APPROVAL FROM THE LOCALITY 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. MAINTENANCE PLAN PROVIDED FOR THE DETENTION FACILITIES. HOMEOWNER'S ASSOCIATION TO BE RESPONSIBLE

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. THE OUTFALL HAS BEEN DESIGNED WITH ADEQUATE OUTLET PROTECTION. H. ALL ON-SITE CHANNELS MUST BE VERIFIED TO BE ADEQUATE. CALCULATIONS PROVIDED SHOW THAT PROPOSED CHANNELS ARE ADEQUATE TO TRANSPORT THE 10-YEAR STORM WITH 0.5' OF FREEBOARD.

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. FOR THIS DEVELOPMENT, ALL INCREASES IN RUNOFF IS DIRECTED TO THE BMP THAT DETAINS AND CONTROLS THE 25-YEAR STORM EVENT. J. IN APPLYING THESE STORMWATER RUNOFF CRITERIA, INDIVIDUAL LOTS OR PARCELS IN RESIDENTIAL, COMMERCIAL, OR INDUSTRIAL DEVELOPMENT SHALL NOT BE CONSIDERED TO BE SEPARATE DEVELOPMENT PROJECTS. INSTEAD THE DEVELOPMENT AS A WHOLE, SHALL BE CONSIDERED A SINGLE DEVELOPMENT PROJECT. HYDROLOGIC PARAMETERS THAT REFLECT THE ULTIMATE DEVELOPMENT CONDITION SHALL BE USED IN ALL ENGINEERING CALCULATIONS.

K. 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.

PLAN REVISION #1 10/15/2014
- ADD PHASES



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BUCKLAND SOUTH
SUBDIVISION

Hollins Magisterial District
Roanoke County, Virginia

APPROVED

REVISIONS:

Revision	Per	Review	Comments
	PJB	June 13, 2014	
		Planning Plan	
		October 15, 2014	

DESIGNED BY: DFG/PJB

DRAWN BY: DGF

CHECKED BY: SLR

SCALE: N/A

DATE: 11 April 2014

SHEET TITLE:

EROSION CONTROL
NARRATIVE AND
DETAILS

C09
09 OF 20
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