

## EROSION AND SEDIMENT CONTROL NARRATIVE

## PROJECT DESCRIPTION

THE PROJECT CONSISTS OF THE CONSTRUCTION OF A 15,200 SQUARE FOOT, ONE STORY, OFFICE BUILDING, ASSOCIATED PAVED PARKING AREAS AND REQUIRED UTILITY SYSTEM. APPROXIMATELY 2.5 ACRES WILL BE DISTURBED DURING CONSTRUCTION.

## EXISTING SITE CONDITIONS

TOPOGRAPHY OF THE SITE RANGE FROM APPROXIMATELY THREE PERCENT TO NEARLY FIFTY PERCENT WITH THE STEEPER SLOPES LOCATED ALONG THE SOUTHERLY BOUNDARY. THE SITE IS DEVOID OF ANY SIGNIFICANT STANDS OF TREES BUT IS COVERED WITH NATIVE GRASSES AND GENERALLY DRAINS IN SOUTHERLY DIRECTION.

## ADJACENT AREAS

THE SITE IS BOUNDED ON THE NORTH AND EAST BY VALLEYPARK DRIVE AND VALLEYPONTE PARKWAY RESPECTIVELY. PROPERTY TO THE WEST AND SOUTH HAVE BEEN DEVELOPED FOR COMMERCIAL AND/OR LIGHT INDUSTRIAL USAGE.

## OFF-SITE AREAS

THE LOCATION OF ALL OFFSITE FILL OR BORROW AREAS ASSOCIATED WITH THIS CONSTRUCTION PROJECT WILL BE PROVIDED TO ROANOKE COUNTY COMMUNITY DEVELOPMENT. AN EROSION AND SEDIMENT CONTROL PLAN OR MEASURES MAY BE REQUIRED FOR THESE AREAS.

## SOILS

THE SOILS INFORMATION IS BASED ON AN OBSERVATION OF SHEET 7 OF THE SOIL SURVEY OF ROANOKE COUNTY AND THE CITIES OF ROANOKE AND SALEM, VIRGINIA, ISSUED IN 1997, AND HAS NOT BEEN FIELD VERIFIED. THE ON-SITE SOILS, AS INDICATED ON SHEET 7, IS AS FOLLOWS:

## TUMBLING LOAM, 7 TO 12 PERCENT SLOPES.

SURFACE LAYER	0.2 INCHES, VERY DARK GRAYISH BROWN LOAM
SUBSURFACE LAYER	2-11 INCHES, BROWNISH YELLOW LOAM
SUBSOIL	11-15 INCHES, STRONG BROWN GRAVELLY CLAY LOAM THAT HAS BROWNISH YELLOW MOTTLES
	15-28 INCHES, YELLOWISH RED GRAVELLY CLAY LOAM THAT HAS RED MOTTLES
	28-49 INCHES, YELLOWISH RED VERY GRAVELLY CLAY LOAM THAT HAS RED MOTTLES
	49-62 INCHES, MOTTLED STRONG BROWN, RED, DARK RED, AND WHITE CLAY LOAM
PERMEABILITY	MODERATE
SURFACE RUNOFF	MEDIUM
EROSION POTENTIAL	HIGH
SHRINK SWELL POTENTIAL	LOW

## CRITICAL AREAS

CONSTRUCTION IN THE STEEP SLOPE AREA ALONG THE SOUTHERLY BOUNDARY OF THE SITE WILL CREATE THE POTENTIAL FOR EROSION. SPECIAL CARE MUST BE TAKEN TO ESTABLISH PERMANENT STABILIZATION ON DISTURBED AREAS.

## EROSION AND SEDIMENT CONTROL MEASURES

METHODS USED TO CONTROL EROSION AND SEDIMENTATION ON THE SITE WILL INCLUDE, BUT NOT NECESSARILY LIMITED TO, THE FOLLOWING MEASURES:

1. **TEMPORARY STONE CONSTRUCTION ENTRANCE (3.02)** - TO REDUCE THE AMOUNT OF MUD TRANSPORTED ONTO PAVED PUBLIC ROAD BY EITHER MOTOR VEHICLES OR RUNOFF, A STABILIZED STONE PAD WITH A FILTER FABRIC UNDERLINED WILL BE INSTALLED AT THE POINT OF VEHICULAR INGRESS AND EGRESS TO THE SITE.
2. **CONSTRUCTION ROAD STABILIZATION (3.30)** - TO REDUCE THE EROSION AND SUBSEQUENT REGRADING OF PARKING AREAS BETWEEN THE TIME OF INITIAL GRADING AND FINAL STABILIZATION, THESE AREAS WILL BE TEMPORARILY STABILIZED WITH STONE IMMEDIATELY AFTER GRADING.
3. **SILT FENCE (3.05)** - TO INTERCEPT AND DETAIN SMALL AMOUNTS OF SEDIMENT FROM DISTURBED AREAS DURING CONSTRUCTION OPERATIONS AND TO PREVENT SEDIMENT FROM ENTERING THE STORM DRAIN SYSTEM PRIOR TO PERMANENT STABILIZATION. STORM DRAIN INLET PROTECTION, EITHER IN THE FORM OF A SEDIMENT FILTER OR AN EXCAVATED IMPOUNDING AREA, WILL BE INSTALLED AROUND A STORM DRAIN DROP INLET OR CURB INLET.
4. **STORM DRAIN INLET PROTECTION (3.02)** - TO PREVENT SEDIMENT FROM ENTERING THE STORM DRAIN SYSTEM PRIOR TO PERMANENT STABILIZATION. STORM DRAIN INLET PROTECTION, EITHER IN THE FORM OF A SEDIMENT FILTER OR AN EXCAVATED IMPOUNDING AREA, WILL BE INSTALLED AROUND A STORM DRAIN DROP INLET OR CURB INLET.
5. **TEMPORARY DIVERSION DIKE (3.09)** - TO DIVERT SEDIMENT-LOADED RUNOFF FROM A DISTURBED AREA TO A SEDIMENT-TRAPPING FACILITY, A TEMPORARY RIDGE OF COMPACTED SOIL WILL BE CONSTRUCTED AT THE BASE OF A SLOPING DISTURBED AREA.
6. **TEMPORARY SEDIMENT TRAP (3.13)** - TO DETAIN SEDIMENT-LOADED 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.
7. **ROCK CHECK DAM (3.20)** - TO TRAP SEDIMENT FROM ADJACENT DISTURBED AREAS BY THE PONDING OF STORMWATER RUNOFF, SMALL TEMPORARY STONE DAMS WILL BE CONSTRUCTED ACROSS A DRAINAGE DITCH.
8. **SURFACE ROUGHENING (3.28)** - SHALL BE APPLIED TO STEEP SLOPES TO AID IN THE ESTABLISHMENT OF VEGETATIVE COVER WITH SEED AND TO REDUCE RUNOFF VELOCITY, INCREASE INFILTRATION, AND REDUCE EROSION.
9. **TEMPORARY SEEDING (3.31)** - TO REDUCE EROSION AND SEDIMENTATION BY STABILIZING DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR A PERIOD OF MORE THAN 30 DAYS AND TO REDUCE DAMAGE FROM SEDIMENT AND RUNOFF TO DOWNSTREAM OFF-SITE AREAS, TEMPORARY VEGETATIVE COVER WILL BE ESTABLISHED ON DISTRIBUTED AREA BY SEEDING WITH APPROPRIATE RAPID-GROWING ANNUAL PLANTS.
10. **PERMANENT SEEDING (3.32)** - TO PERMANENTLY STABILIZED DISTURBED AREAS IN A MANNER THAT IS ECONOMICAL, ADAPTABLE TO SITE CONDITIONS AND GROWS SELECTION OF THE MOST APPROPRIATE VEGETATION TO REDUCE EROSION AND DECREASE SEDIMENT YIELD FROM DISTURBED AREAS, PERMANENT VEGETATIVE COVER WILL BE ESTABLISHED ON DISTURBED AREAS BY PLANTING SEED.
11. **MULCHING (3.35)** - TO FOSTER GROWTH OF VEGETATION BY INCREASING AVAILABLE MOISTURE AND PROVIDING INSULATING AGAINST EXTERNAL HEAT AND COLD AND TO PREVENT EROSION BY PROTECTING THE SOIL SURFACE FROM RAINFALL IMPACT AND REDUCING THE VELOCITY OF OVERLAND FLOW, PLANT RESIDUES OR OTHER SUITABLE MATERIALS WILL BE APPLIED TO THE SOIL SURFACE.

## PERMANENT STABILIZATION

ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED IN ACCORDANCE WITH THE SPECIFICATIONS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN FOR THIS PROJECT.

## MANAGEMENT STRATEGIES

THE RESPONSIBLE LAND DISTURBER SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES. THESE MEASURES NOT ONLY INCLUDE THOSE SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN, BUT ALSO THOSE THAT MAY BE REQUIRED BY THOSE GOVERNMENTAL ENTITIES HAVING JURISDICTIONAL AUTHORITY OVER LAND DISTURBING ACTIVITIES. THE FOLLOWING IS A LISTING OF GENERAL MANAGEMENT CONSIDERATIONS TO BE IMPLEMENTED BY THE RESPONSIBLE LAND DISTURBER.

1. CONSTRUCTION SHALL BE SEQUENCED SO THAT GRADING OPERATIONS CAN BEGIN AND END AS QUICKLY AS POSSIBLE.
2. SEDIMENT TRAPPING MEASURES WILL BE INSTALLED AS FIRST STEP IN GRADING AND WILL BE SEEDED AND MULCHED IMMEDIATELY FOLLOWING INSTALLATION.
3. TEMPORARY AND/OR PERMANENT SEEDING OR OTHER STABILIZATION WILL FOLLOW IMMEDIATELY AFTER GRADING.
4. AREAS WHICH ARE NOT TO BE DISTURBED WILL BE CLEARLY MARKED.
5. THE RESPONSIBLE LAND DISTURBER SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL PRACTICES.
6. AFTER ACHIEVING ADEQUATE STABILIZATION, THE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES WILL BE REMOVED AND THE AFFECTED AREAS PERMANENTLY SEED.

## MAINTENANCE

ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE CHECKED DAILY AND AFTER EACH SIGNIFICANT RAINFALL. A LOG OF DATES AND INSPECTIONS SHALL BE KEPT, INSPECTIONS SHALL BE COMPLETED AND REPORTED TO ROANOKE COUNTY ACCORDING TO THEIR STANDARDS. ANY DEFICIENCIES THAT ARE FOUND SHALL BE CORRECTED IMMEDIATELY. IN PARTICULAR:

1. THE CONSTRUCTION ENTRANCE AND ROCK CHECK DAM WILL BE CHECKED REGULARLY FOR SEDIMENT BUILDUP. IF STONE IS CLOGGED BY SEDIMENT, IT WILL BE REMOVED AND CLEANED, OR REPLACED.
2. THE SILT FENCE WILL BE CHECKED REGULARLY FOR UNDERMINING OR DETRIORATION OF THE FABRIC. SEDIMENT SHALL BE REMOVED WHEN THE SEDIMENT BUILDUP REACHES THE MIDWAY POINT OF THE SILT FENCE.
3. TEMPORARY AND/OR PERMANENT SEEDING OR OTHER STABILIZATION WILL FOLLOW IMMEDIATELY AFTER GRADING. IF DEFICIENCIES IN THE DIVERSIONS ARE FOUND, THEY SHALL BE REPAIRED AND STABILIZED IMMEDIATELY.
4. THE SEDIMENT TRAPS WILL BE CHECKED REGULARLY FOR SEDIMENT BUILDUP. CLEAN OUT AS NECESSARY TO MAINTAIN DESIGN VOLUMES.
5. INLET PROTECTION WILL BE CHECKED REGULARLY FOR SEDIMENT BUILDUP WHICH WILL PREVENT DRAINAGE. IF STONE IS CLOGGED BY SEDIMENT, IT WILL BE REMOVED AND CLEANED OR REPLACED.
6. ALL SEEDED AREAS WILL BE CHECKED REGULARLY TO ENSURE THAT A GOOD STAND OF GRASS IS MAINTAINED. AREAS SHALL BE FERTILIZED AND RESEED AS REQUIRED TO ACHIEVE A GOOD STAND OF GRASS.

## STORMWATER RUNOFF CONSIDERATIONS

THE PROPOSED DEVELOPMENT WILL INCREASE PEAK RUNOFF RATES. HOWEVER, AN EXISTING STORMWATER MANAGEMENT FACILITY WAS DESIGNED AND CONSTRUCTED WITH THE SITE DEVELOPMENT OF THE ADJACENT NATIONAL FOREST SERVICE PROJECT TO RELEASE THE RUNOFF FROM THIS SITE IN ACCORDANCE WITH ROANOKE COUNTY STANDARDS.

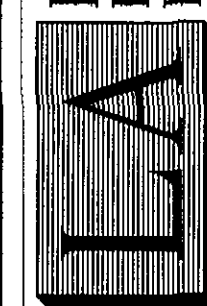
## CALCULATIONS

DETAILED CALCULATIONS FOR THE PROPOSED EROSION AND SEDIMENT CONTROL MEASURES, WHEN APPLICABLE, ARE INCLUDED IN THE DRAINAGE CALCULATIONS FOR THIS PROJECT AND HAVE BEEN SUBMITTED UNDER SEPARATE COVER.

## CONSTRUCTION SEQUENCE

1. THE CONTRACTOR'S CERTIFIED RESPONSIBLE LAND DISTURBER (RLD) SHALL BE NAMED AND A COPY OF HIS RLD CERTIFICATE SHALL BE PROVIDED TO THE ROANOKE COUNTY DEPARTMENT OF COMMUNITY DEVELOPMENT AT LEAST TWO (2) DAYS PRIOR TO THE PRECONSTRUCTION MEETING. RLD SHALL ALSO ATTEND THE PRECONSTRUCTION MEETING.
2. CONTRACTOR SHALL APPLY FOR DCR LAND DISTURBANCE PERMIT AT LEAST TWO (2) DAYS PRIOR TO LAND DISTURBANCE AND PROVIDE ROANOKE COUNTY DEPARTMENT OF COMMUNITY DEVELOPMENT A COPY OF SAID PERMIT WITHIN FIVE (5) DAYS OF ISSUANCE.
3. THE LOCATION OF ALL OFFSITE FILL OR BORROW AREAS ASSOCIATED WITH THIS CONSTRUCTION PROJECT WILL BE PROVIDED TO ROANOKE COUNTY COMMUNITY DEVELOPMENT. AN EROSION AND SEDIMENT CONTROL PLAN OR MEASURES MAY BE REQUIRED FOR THESE AREAS.
4. INSTALL THE CONSTRUCTION ENTRANCE AND SILT FENCE AS THE FIRST STEP IN THE CONSTRUCTION PROCESS.
5. INSTALL THE SEDIMENT TRAP AND THE RESPECTIVE DIVERSION DIKES AS SOON AS GRADING OPERATIONS BEGIN IN THE AFFECTED AREAS. THE CONSTRUCTION PROCESS SHOULD BE SEQUENCED AS MUCH AS POSSIBLE SO THAT EACH AREA IS SEEDING AND STABILIZED PRIOR TO BEGINNING GRADING OPERATIONS IN ANOTHER AREA.
6. INSTALL CONSTRUCTION ROAD STABILIZATION AS SOON AS THE PARKING AREA IS AT SUBGRADE.
7. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES, I.E. SEDIMENT TRAPS, DIVERSION CHANNELS, FILL DIVERSIONS, DIVERSION DIKES, ETC., SHALL BE REMOVED AFTER THOSE AFFECTED AREAS HAVE BEEN BROUGHT TO FINAL GRADE AND AFTER PERMANENT VEGETATION HAS BEEN ESTABLISHED.

LUMSDEN ASSOCIATES, P.C.  
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PROFESSIONAL ENGINEER

EROSION AND  
SEDIMENT  
CONTROL PLAN

ROANOKE CUSTOMER SERVICE  
CENTER - VIRGINIA DEPARTMENT  
OF MOTOR VEHICLES

PREPARED FOR  
TIMBERBROOK PROPERTIES III, LLC  
CATAMBA MAGISTERIAL DISTRICT  
ROANOKE COUNTY, VIRGINIA

REVISIONS	DATE	DESCRIPTION
NO.	1	1
2	2	2
3	3	3
4	4	4
5	5	5

DATE: December 12, 2007  
SCALE: 1" = 30'  
COMMISSION NO: 2007-170  
SHEET 9 OF 11