I. PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO PROVIDE DRAINAGE IMPROVEMENTS ON OHIO STREET, NW AND OLD MOUNTAIN ROAD, NW. THE TOTAL DISTURBED AREA IS 4895 SF (0.11 AC.)

THE STORM DRAIN SYSTEM IS CONVEYING DRAINAGE THAT CURRENTLY PONDS IN THE STREET AT 4470 OHIO STREET AND EVENTUALLY DRAINS OUT ACROSS PRIVATE PROPERTIES IN A SOUTHEAST DIRECTION TOWARDS OLD MOUNTAIN ROAD. THERE IS ANOTHER PROBLEM AREA OF PONDING ALONGSIDE THE STREET AT 4470 OLD MOUNTAIN ROAD. THERE ARE EXISTING STORM INLETS AND PIPE AT THE INTERSECTION OF OLD MOUNTAIN ROAD AND BRADFORD STREET WHICH WILL BE REPLACED AS PART OF THIS PROJECT. THE NEW STORM SYSTEM IS TIED INTO AN EXISTING CHANNEL THAT IS LINED IN GABION BASKETS AND HAS A FLAT CONCRETE BOTTOM.

THE STORM SYSTEM IS DESIGNED TO CONTAIN THE 10 YEAR STORM EVENT. THE RATIONAL PEAK DISCHARGE METHOD WAS UTILIZED TO DETERMINE DISCHARGE RATES. ALL GRAVEL AREAS AND DRIVEWAYS ARE ASSUMED TO BE IMPERVIOUS SURFACES IN THE CALCULATIONS. THE MAJORITY OF THE 4508 OLD MOUNTAIN ROAD, COMMUNITY ADVENT CHURCH PROPERTY HAS RUNOFF BEING HANDLED BY STORM SYSTEM AND POND OUTSIDE OF THE DRAINAGE AREA OF THIS NEW SYSTEM AND IS NOT INCLUDED IN THE CALCULATIONS.

II. EXISTING SITE CONDITIONS

THE EXISTING SITE IS ASPHALT ROADWAYS AND GRAVEL/GRASS AREAS. THE SITE GENERALLY DRAINS TO THE EAST TOWARDS A DRY BRANCH.

III. ADJACENT PROPERTIES

THE PROJECT AREA IS LOCATED IN PUBLIC RIGHT OF WAY AND A PUBLIC DRAINAGE EASEMENT SURROUNDED BY MULTIPLE PRIVATE PROPERTY OWNERS.

IV. OFF-SITE AREAS

UNSUITABLE MATERIAL WILL BE HAULED FROM THE SITE AND DISPOSED OF AT A LAND DISTURBANCE PERMITTED SITE.

V. SOILS

ACCORDING TO THE USDA NRCS WEB SOIL SURVEY, THE PROJECT SITE LIES ON:

6.1% 18B, FREDERICK SILT LOAM, 2 TO 7% SLOPES, HYDROLOGIC SOIL GROUP B, AND IS WELL DRAINED. THE COMPOSITION IS AS FOLLOWS:
- 80% FREDERICK AND SIMILAR SOILS:
- SURFACE LAYER (0 TO 12 INCHES) SILT LOAM
- SUBSOIL (12 TO 72 INCHES) CLAY

82.6% 18C, FREDERICK SILT LOAM, 7 TO 15% SLOPES, HYDROLOGIC SOIL GROUP B, AND IS WELL DRAINED. THE COMPOSITION IS AS FOLLOWS:
- 80% FREDERICK AND SIMILAR SOILS:
- SURFACE LAYER (0 TO 12 INCHES) SILT LOAM
- SUBSOIL (12 TO 72 INCHES) CLAY

11.3% 48B, TIMBERVILLE SILT LOAM, 2 TO 7% SLOPES, HYDROLOGIC SOIL GROUP B, OCCASIONALLY FLOODED, AND IS WELL DRAINED. THE COMPOSITION IS AS FOLLOWS:
- 80% TIMBERVILLE AND SIMILAR SOILS:
- SURFACE LAYER (0 TO 11 INCHES) SILT LOAM
- SUBSOIL (11 TO 27 INCHES) SILTY CLAY LOAM
- SUBSOIL (27 TO 47 INCHES) CLAY
- SUBSOIL (47 TO 62 INCHES) GRAVELLY SILTY CLAY LOAM

VI. CRITICAL AREAS

THE PROJECT AREA IS CONSIDERED CRITICAL DUE TO THE VICINITY TO AND CONNECTION TO A DRY CREEK. SOME AREAS OF THE PROJECT ARE STEEP SLOPED, SO OPEN TRENCH WILL BE KEPT AT A MINIMUM.

VII. EROSION AND SEDIMENT CONTROL MEASURES

ALL VEGETATIVE EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED BY THE CONTRACTOR IN ACCORDANCE WITH THE LATEST EDITION OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK.

A. STRUCTURAL PRACTICES
1. SILT FENCE (SF).
2. INLET PROTECTION (IP).
3. CONSTRUCTION ENTRANCE (CE).

B. VEGETATIVE PRACTICES
1. PERMANENT SEEDING (PS) (SPECIFICATION THIS SHEET) WILL BE PROVIDED ON ALL DISTURBED AREAS ALREADY CONTAINING GRASS.
2. MULCHING (MU), VESCH SPEC 3.35 WILL BE USED IN CONJUNCTION WITH PERMANENT SEEDING.

C. MANAGEMENT STRATEGIES

1. CONSTRUCTION WILL BE PLANNED SO THAT TRENCHING AND EXCAVATING OPERATIONS CAN BEGIN AND END AS SOON AS POSSIBLE.

2. SOIL STOCKPILES SHALL NOT BE ALLOWED.

3. PREVIOUSLY GRASSED AREAS SHALL BE SEEDED AND STRAW MULCHED IMMEDIATELY AFTER STORM STRUCTURE INSTALLATION.

4. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.

D. MAINTENANCE
1. DAMAGE TO EROSION CONTROL MEASURES CAUSED BY CONSTRUCTION TRAFFIC OR OTHER ACTIVITY SHALL BE REPAIRED BEFORE THE END OF EACH WORKING DAY.
2. MAINTAIN ALL SEEDED AREAS UNTIL A UNIFORM STAND IS ACCEPTED. AREAS WHICH FAIL TO ESTABLISH VEGETATIVE COVER ADEQUATE TO PREVENT RILL EROSION WILL BE RESEEDED AND MULCHED AS SOON AS SUCH AREAS ARE IDENTIFIED.
3. PROVIDE EQUIPMENT WASHING AS NEEDED TO PREVENT THE TRANSPORT OF SOIL ONTO EXISTING PAVED ROADWAYS. ANY SEDIMENT ON THE PAVEMENT SHALL BE REMOVED IMMEDIATELY.
4. SILT FENCE BARRIERS WILL BE CHECKED DAILY FOR UNDERMINING OR DETERIORATION OF THE FABRIC. SEDIMENT SHALL BE REMOVED WHEN THE LEVEL REACHES HALF WAY TO THE TOP OF THE BARRIER.
5. INLET PROTECTION MEASURES SHALL BE CHECKED DAILY FOR SEDIMENT CLOGGING AND CLEANED/REPLACED AS NECESSARY.
6. THE CONSTRUCTION ENTRANCE SHALL BE REPLACED IF IT BECOMES COVERED IN SEDIMENT TO THE POINT OF NO LONGER EFFECTIVELY REMOVING SEDIMENT FROM VEHICLES.

VIII. MINIMUM STANDARDS (MS):

ALL APPLICABLE VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS AND MINIMUM STANDARDS SHALL BE ADHERED TO DURING ALL PHASES OF CONSTRUCTION. THESE INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:

MS-1: STABILIZATION OF DENUDED AREAS:
PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO BARE AREAS WITHIN 7 DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE UNLESS OTHERWISE SHOWN. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN 7 DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE, BUT REMAIN DORMANT OR UNDISTURBED FOR LONGER THAN 14 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANENT FOR MORE THAN ONE YEAR.

RESPONSE: DISTURBED AREAS WILL BE SEEDED AND MULCHED IF THEY ARE NOT IN GRAVEL/PAVED AREAS.

MS-2: STABILIZATION OF SOIL STOCKPILES
DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL STOCKPILES ON THE SITE AS WELL AS SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.

RESPONSE: SOIL STOCK PILES SHALL NOT BE ALLOWED.

MS-3: PERMANENT VEGETATIVE COVER
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, IN THE OPTION OF THE LOCAL AUTHORITY (CITY OF ROANOKE), IS UNIFORM AND MATURE ENOUGH TO SURVIVE.

RESPONSE: DISTURBED AREAS WILL BE SEEDED IF THEY ARE NOT IN GRAVEL/PAVED AREAS.

MS-4: TIMING AND STABILIZATION OF SILT TRAPPING MEASURES
SEDIMENT TRAPS, STORM DRAIN INLET PROTECTION, SILT FENCING AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND DISTURBING ACTIVITY. THE STRUCTURES SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.

RESPONSE: SILT FENCE AT THE PIPE OUTLET ADJACENT TO THE DRY BRANCH SHALL BE INSTALLED PRIOR TO ANY EXCAVATION OR OTHER WORK UPSTREAM.

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

RESPONSE: NOT APPLICABLE

MS-6: SEDIMENT BASINS:
A SEDIMENT BASIN SHALL CONTROL SURFACE RUNOFF FROM DISTURBED AREAS THAT ARE COMPRISED OF FLOW FROM DRAINAGE AREAS GREATER THAN OR EQUAL TO 3 ACRES. THE SEDIMENT BASIN SHALL BE DESIGNED AND CONSTRUCTED TO ACCOMMODATE THE ANTICIPATED SEDIMENT LOADING FOR THE LAND DISTURBING ACTIVITY. THE OUTFALL DEVICE OR SYSTEM DEVICE SHALL TAKE INTO ACCOUNT THE TOTAL DRAINAGE AREA FLOWING THROUGH THE DISTURBED AREA TO BE SERVED BY THE BASIN.

RESPONSE: NOT APPLICABLE.

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

RESPONSE: NOT APPLICABLE. NO NEW CUT AND FILL SLOPES ARE IN PROJECT.

MS-8 CONCENTRATED RUNOFF DOWN CUT OR FILL SLOPES:
CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.

RESPONSE: NOT APPLICABLE. NO NEW CUT AND FILL SLOPES ARE IN PROJECT.

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

RESPONSE: NOT APPLICABLE.

MS-10 STORM SEWER INLET PROTECTION:
ALL STORM SEWER INLETS SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.

RESPONSE: BLOCK AND GRAVEL INLET PROTECTION IS PROVIDED AT ALL INLETS WITH NEW SEEDED AREAS ADJACENT TO THE INLETS. SOME INLETS ARE TO BE SURROUNDED BY GRAVEL AND NO DISTURBED SOIL, SO NO INLET PROTECTION IS PROVIDED AT THOSE INLETS.

MS-11 STABILIZATION OF OUTLETS:
BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS 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.

RESPONSE: THE NEW STORM SYSTEM IS TIED INTO A CONCRETE BASE, GABION BASKET WALLED CHANNEL SO NO OUTLET PROTECTION IS PROVIDED.

MS-12 WORK IN LIVE WATERCOURSES:
PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCROACHMENT AND SEDIMENT TRANSPORT WHEN WORKING IN LIVE WATERCOURSES. THE WORK AREA SHALL BE STABILIZED TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NONERODIBLE COVER MATERIALS.

RESPONSE: THERE ARE NO LIVE WATERCOURSES IN PROJECT AREA.

MS-13 CROSSING A LIVE WATERCOURSE:
WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ONE MONTH PERIOD, A TEMPORARY STREAM CROSSING CONSTRUCTED OF NONERODIBLE MATERIALS SHALL BE PROVIDED.

RESPONSE: NOT APPLICABLE

MS-14 APPLICABLE REGULATIONS:
ALL APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS PERTAINING TO WORKING IN OR CROSSING A LIVE WATERCOURSE SHALL BE MET.

RESPONSE: NOT APPLICABLE

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

RESPONSE: NOT APPLICABLE.

MS-16 UNDERGROUND UTILITIES
UNDERGROUND UTILITIES 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 OPEN AT ONE TIME.
B: EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES
C: EFFLUENT FOR 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 OFFSITE PROPERTY.
D: RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS.
E: APPLICABLE SAFETY REGULATIONS SHALL BE COMPILED WITH AT ALL TIMES

RESPONSE: THIS PROJECT SHALL HAVE STRICTER REQUIREMENTS OF NO MORE THAN 100 LINEAR FEET OF TRENCH BEING OPEN AT ONE TIME TO LIMIT EXPOSED DISTURBED AREAS, PARTICULARLY WITHIN THE STEEPER AREAS.

MS-17 CONSTRUCTION ACCESS ROUTES:
WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ON TO PAVED SURFACES.

RESPONSE: A CONSTRUCTION ENTRANCE IS PROVIDED AT THE UPSTREAM SIDE OF THE LARGE GRASSED PARCEL ON OLD MOUNTAIN ROAD. THE ENTRANCE WILL REMAIN UNTIL STORM CONSTRUCTION TAKES PLACE AT THE ENTRANCE LOCATION.

MS-18 TEMPORARY E&S CONTROL MEASURE REMOVAL:
ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE LOCAL AUTHORITY (CITY OF ROANOKE).

RESPONSE: SILT FENCE SHALL BE REMOVED UPON STABILIZATION OF SURROUNDING AND UPSTREAM AREAS.

MS-19 ADEQUACY OF RECEIVING CHANNELS
PROPERTIES AND WATERWAYS DOWNSTREAM FROM THE DEVELOPMENT SITE SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION, AND DAMAGE DUE TO INCREASES IN VOLUME, VELOCITY, AND PEAK FLOW RATES OF STORM WATER RUNOFF FOR STATED FREQUENCY STORM OF 24-HOUR DURATION IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND CRITERIA:

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; AND

b. ALL PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM 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 CHANNEL TO A CONDITION WHERE A TEN-YEAR STORM WILL NOT OVERTOP THE BANKS AND A TWO-YEAR 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 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 PLAN-APPROVING 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 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.
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.
H. ALL ON-SITE CHANNELS MUST BE VERIFIED TO BE ADEQUATE.
I. INCREASED VOLUMES OF SHEET FLOWS THAT MAY CAUSED 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 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.

RESPONSE: THIS PROJECT INVOLVES THE CONSTRUCTION OF UNDERGROUND STORM PIPES WHICH WILL NOT INCREASE THE RUNOFF OF THE PROJECT AREA. THE LAND DISTURBING ACTIVITIES ARE LINEAR IN NATURE. THERE IS NO CHANCE OF EROSION WITHIN THE IMPROVED CHANNEL BEING CONNECTED TO. THE CONSTRUCTION OF THIS LINEAR DEVELOPMENT PROJECT WILL BE EXEMPTED FROM STORMWATER MANAGEMENT REQUIREMENTS FOR THE FOLLOWING REASON:
LESS THAN 5000 SF OF DISTURBED AREA FOR THE ENTIRE PROJECT (PIPE, STRUCTURES, OUTSIDE OF PAVEMENT. (LOCAL REGULATION)

IX. STORMWATER MANAGEMENT:

THERE ARE NO PROPOSED STORM WATER MANAGEMENT FACILITIES.

X. SOIL STOCKPILES AND BORROW AREAS:

NO STOCK PILES ARE ALLOWED IN PROJECT AND NO BORROW AREAS ARE REQUIRED.

XI. SEQUENCE OF CONSTRUCTION

1. INSTALL SILT FENCE DOWNSTREAM OF NEW STORM STRUCTURES AND INSTALL CONSTRUCTION ENTRANCE AS SHOWN ON PLANS.
2. CONSTRUCT STORM STRUCTURES STARTING FROM DOWNSTREAM END.
3. IMMEDIATELY BACKFILL TRENCH / EXCAVATION AREA.
4. IN GRASSY AREAS, PROVIDE PERMANENT SEEDING, MULCH, AND STABILIZE ALL DISTURBED AREAS.
5. IN GRAVEL AREAS, RESTORE GRAVEL IMMEDIATELY AFTER BACKFILLING TRENCH.
6. REMOVE CONSTRUCTION ENTRANCE AND STABILIZE WITH TOPSOIL, SEED, AND STRAW ONCE WORK DOWNSTREAM OF OLD MOUNTAIN ROAD IS COMPLETE.
7. INSTALL INLET PROTECTION AS SHOWN ON PLANS.
8. PERMANENT VEGETATION MUST BE PROTECTED THROUGHOUT PROJECT.
9. REMOVE SILT FENCE, INLET PROTECTION ONCE VEGETATION IS ESTABLISHED.
10. CLOSE OUT PROJECT.

XII. PROPERTY OWNER

CITY OF ROANOKE, VA
215 CHURCH AVENUE, SW
ROANOKE, VA 24011

TEMPORARY SEEDING MIXTURE (TS)

DESCRIPTION	% BY WEIGHT
TEMPORARY SEEDING	
ANNUAL RYE GRASS	100
RATE: 2 POUNDS PER 1000 SQUARE FEET	
ROWING DATES: FEBRUARY 16 TO APRIL 30	
ANNUAL RYE GRASS / WINTER RYE MIX	
ANNUAL RYE	50
WINTER RYE	50
RATE: 2 POUNDS PER 1000 SQUARE FEET	
SOWING DATES: SEPTEMBER 1 TO FEBRUARY 15	
GERMAN MILLET	
RATE: 1 POUND PER 1000 SQUARE FEET	
SOWING DATES: MAY 1 TO AUGUST 31	

PERMANENT SEEDING MIXTURE (PS)

TYPE A

15 OCTOBER TO 1 FEBRUARY
K-31 FESCUE @ 5 LB / 1000 SF
BORZY WINTER RYE @ 1/2 LB / 1000 SF

1 FEBRUARY TO 1 JUNE
K-31 FESCUE @ 5 LB / 1000 SF
ANNUAL RYE @ 1/2 LB / 1000 SF

1 JUNE TO 1 SEPTEMBER
K-31 FESCUE @ 5 LB / 1000 SF
GERMAN MILLET @ 1/2 LB / 1000 SF

1 SEPTEMBER TO 15 OCTOBER
K-31 FESCUE @ 5 LB / 1000 SF
ANNUAL RYE @ 1/2 LB / 1000 SF

TYPE B (SLOPES 3:1 OR STEEPER)

15 MARCH TO 1 MAY
CROWN VETCH @ 1/2 LB / 1000 SF
PERENNIAL RYEGRASS @ 1/2 LB / 1000 SF
RED TOP @ 1/8 LB / 1000 SF

15 AUGUST TO 1 OCTOBER
CROWN VETCH @ 1/2 LB / 1000 SF
PERENNIAL RYEGRASS @ 1/2 LB / 1000 SF
RED TOP @ 1/8 LB / 1000 SF

LIME: 140 LB / 1000 SF PULVERIZED AGRICULTURAL LIMESTONE

FERTILIZER: 5-20-10 @ 25 LB / 1000 SF
38-0-0 @ 7 LB / 1000 SF

MULCH: IF REQUIRED, SHALL BE USED OVER ALL SEEDED 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. ADDITIONAL SEEDING TO BE PERFORMED AS REQUIRED BY THE INSPECTOR.

SEED APPLICATION: APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CULTIPACKER SEEDER, OR HYDROSEEDER ON A FIRM, FRIABLE, SEEDBED. MAXIMUM SEEDING DEPTH SHALL BE 1/4 INCH.

ROANOKE
OFFICE OF THE
CITY ENGINEER
215 CHURCH AVENUE, S.W.
ROOM 350
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WWW.ROANOKEVA.GOV

DESIGNED: ARG
DRAWN: ARG
CHECKED: PMC

COMMONWEALTH OF VIRGINIA
RICHARD C. WHITE
Lic. No.20021
4-24-14
PROFESSIONAL ENGINEER

REV.	DATE:	DESCRIPTION

DATE: 08/21/2013
SCALE: NO SCALE

OHIO ST NE DRAINAGE IMPROVEMENTS
PROJECT
CITY OF ROANOKE, VIRGINIA

SHEET 2 OF 8
PLAN NO. 2

LMW COMM.# 4161