


WESTERN VIRGINIA WATER AUTHORITY

PROJECT NOTES:

CITY OF ROANOKE CONSTRUCTION NOTES:

- RIGHT-OF-WAY EXCAVATION PERMIT – PRIOR TO THE COMMENCEMENT OF ANY DIGGING, ALTERATION, OR CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY (STREETS, ALLEYS, PUBLIC EASEMENTS), A RIGHT-OF-WAY EXCAVATION PERMIT SHALL BE APPLIED FOR AND OBTAINED BY THE CONTRACTOR FROM THE CITY OF ROANOKE.
- LAND DISTURBANCE PERMIT – AN APPROVED EROSION AND SEDIMENT CONTROL PLAN FOR ANY BORROW/FILL SITES ASSOCIATED WITH THE PROJECT MUST BE SUBMITTED PRIOR TO THE ISSUANCE OF A LAND DISTURBANCE PERMIT.
- PLANS AND PERMITS – A COPY OF THE PLANS AS APPROVED BY THE CITY (SIGNED BY THE PROPER CITY OFFICIALS) AND ALL PERMITS ISSUED BY THE CITY SHALL BE AVAILABLE AT THE CONSTRUCTION SITE AT ALL TIMES OF ONGOING CONSTRUCTION.
- LOCATION OF UTILITIES – THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.
- CONSTRUCTION ENTRANCE – THE CONTRACTOR SHALL INSTALL AN ADEQUATE CONSTRUCTION ENTRANCE FOR ALL CONSTRUCTION RELATED EGRESS FROM THE SITE. SIZE AND COMPOSITION OF CONSTRUCTION ENTRANCE SHALL BE AS SHOWN ON THE PLANS.
- STREETS TO REMAIN CLEAN – IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT THE PUBLIC STREET ADJACENT TO THE CONSTRUCTION ENTRANCE REMAINS FREE OF MUD, DIRT, DUST, AND/OR ANY TYPE OF CONSTRUCTION MATERIALS OR LITTER AT ALL TIMES.
- BARRICADES/DITCHES – THE CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF ALL EXCAVATED DITCHES AND SHALL FURNISH AND ENSURE THAT ALL BARRICADES PROPER AND NECESSARY FOR THE SAFETY OF THE PUBLIC ARE IN PLACE.
- SEWER AND PAVEMENT REPLACEMENT – CONSTRUCTION OF SANITARY SEWERS AND THE REPLACEMENT OF PAVEMENT SHALL BE IN ACCORDANCE WITH APPROVED STANDARDS AND SPECIFICATIONS OF THE CITY OF ROANOKE AND THE WESTERN VIRGINIA WATER AUTHORITY.
- APPROVED PLANS/CONSTRUCTION CHANGES – ANY CHANGE OR VARIATION FROM CONSTRUCTION DESIGN AS SHOWN ON THE OFFICIALLY APPROVED PLANS SHALL BE APPROVED BY THE EROSION AND SEDIMENT CONTROL AGENT PRIOR TO SAID CHANGES OR VARIATION IN CONSTRUCTION BEING MADE.
- FINAL ACCEPTANCE/CITY – THE OWNER OR DEVELOPER SHALL FURNISH THE CITY OF ROANOKE'S PLANNING BUILDING AND DEVELOPMENT DEPARTMENT WITH A FINAL CORRECT SET OF AS-BUILT PLANS PRIOR TO FINAL ACCEPTANCE BY THE CITY.

EROSION CONTROL LEGEND:

- (SF) —X— SILT FENCE
- (IP)  INLET PROTECTION
- (PS) PERMANENT SEEDING
- (MU) MULCHING
- (TO) TOPSOILING

SEEDING SCHEDULE:

PERMANENT SEEDING MIXTURE SHALL CONSIST OF THE FOLLOWING:

KENTUCKY 31 OR TURF-TYPE TALL FESCUE	180 lbs/acre
IMPROVED PERENNIAL RYEGRASS	10 lbs/acre
KENTUCKY BLUEGRASS	10 lbs/acre
	200 lbs/acre

LIME AND FERTILIZER SHALL BE APPLIED TO ALL SEEDED AREAS AS PER THE FOLLOWING APPLICATION RATES:

LIME: 2 TONS/ACRE PULVERIZED AGRICULTURAL GRADE LIMESTONE (90lbs/1000 sqft)
FERTILIZER: 1000 lbs/acre 10-20-10 OR EQUIVALENT NUTRIENTS (23lbs/1000 sqft)

EROSION CONTROL NOTES:

- ES-1: UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION, AND VIRGINIA REGULATIONS 4VAC50-30 EROSION AND SEDIMENT CONTROL REGULATIONS.
- ES-2: ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.
- ES-3: A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
- ES-4: PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY.
- ES-5: THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.
- ES-6: ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.
- ES-7: DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.
- ES-8: THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.
- ES-9: CONTRACTOR SHALL CONTACT CITY OF ROANOKE PRIOR TO START OF WORK TO SCHEDULE A PRE-CONSTRUCTION CONFERENCE AND AGAIN 48 HOURS PRIOR TO COMMENCING WORK.
- ES-10: CONTRACTOR SHALL INSTALL ADEQUATE EROSION CONTROL MEASURES DURING CONSTRUCTION TO PREVENT SILT-LADEN RUNOFF FROM LEAVING THE SITE. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF ALL EROSION CONTROL MEASURES. ALL STREETS SHALL BE KEPT FREE FROM SILT, SEDIMENT, AND DEBRIS DURING CONSTRUCTION.
- ES-11: TREES IDENTIFIED ON THE PLANS ARE APPROXIMATE AND SHOULD NOT BE USED AS EXACT REFERENCES.
- ES-12: GENERALLY, TREES SHOWN ON THIS PLAN ARE INTENDED TO REMAIN UNDISTURBED AS PART OF THIS PROJECT.
- ES-13: PERMANENT OR TEMPORARY SOIL STABILIZATION MUST BE APPLIED TO DENUDED AREAS WITHIN 7 DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE NOT OTHERWISE PERMANENTLY STABILIZED. SOIL STABILIZATION MUST ALSO BE APPLIED WITHIN 7 DAYS TO DENUDED AREAS WHICH MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR MORE THAN 30 DAYS. SEE EROSION CONTROL NARRATIVE AND SPECIFICATIONS FOR ADDITIONAL EROSION CONTROL REQUIREMENTS AND SPECIFICATIONS.
- ES-14: IN LOCATIONS WHERE UNDERGROUND UTILITIES ARE TO BE INSTALLED IN FORESTED AREAS, THE CONTRACTOR SHALL VERIFY ANY TREES TO BE REMOVED WITH THE OWNER.
- ES-15: IN WETLAND AREAS, THE CONTRACTOR SHALL COMPLY WITH REGULATIONS SET FORTH BY ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT NUMBER 12 – UTILITY LINE ACTIVITIES. SPECIFICALLY THE CONTRACTOR SHALL COMPLY WITH THE FOLLOWING: A. ANY EXPOSED STREAM BANKS SHALL BE STABILIZED IMMEDIATELY UPON COMPLETION OF THE UTILITY LINE CROSSING OF EACH WATERBODY. B. ACCESS ROADS USED SOLELY FOR CONSTRUCTION OF THE UTILITY SHALL BE REMOVED UPON COMPLETION OF THE WORK AND THE AREA RESTORED TO PRECONSTRUCTION GRADE, ELEVATIONS AND WETLAND CONDITIONS. C. APPROPRIATE SOIL EROSION AND SEDIMENT CONTROLS SHALL BE USED AND MAINTAINED IN EFFECTIVE OPERATING CONDITION DURING CONSTRUCTION AND ALL EXPOSED SOIL AND OTHER FILLS, AS WELL AS ANY WORK BELOW THE ORDINARY HIGH WATER MARK OR HIGH TIDE LINE, SHALL BE PERMANENTLY STABILIZED AT THE EARLIEST PRACTICABLE DATE. D. CULVERTS PLACED IN STREAMS SHALL BE INSTALLED TO MAINTAIN LOW FLOW CONDITIONS. E. HEAVY EQUIPMENT WORKING IN WETLANDS SHALL BE PLACED ON MATS OR OTHER MEASURES SHALL BE TAKEN TO MINIMIZE SOIL DISTURBANCE. F. ANY TEMPORARY FILLS SHALL BE REMOVED IN THEIR ENTIRETY AND THE AFFECTED AREAS RETURNED TO THEIR PREEXISTING ELEVATION.
- ES-16: ALL UNPAVED AND UNGRAVELLED AREAS DISTURBED BY CONSTRUCTION SHALL BE SEEDED.
- ES-17: IF AT ANY POINT DURING THE PROJECT SILT-LADEN RUNOFF MIGRATES TOWARD THE EXISTING STREAMS THE CONTRACTOR SHALL INSTALL SILT FENCE BETWEEN THE WATER LINE WORK AREA AND THE EXISTING STREAMS. EXCAVATED MATERIAL FROM THE TRENCH SHALL BE PLACED ON THE UPHILL SIDE OF THE TRENCH.
- ES-18: CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING CONSTRUCTION MATERIAL STAGING AREAS LOCATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR PRODUCING AND GAINING APPROVAL OF AN EROSION AND SEDIMENT CONTROL PLAN FOR THE STAGING AREAS FROM ROANOKE CITY.
- ES-19: 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.
- ES-20: CONTRACTOR TO REMOVE ALL SEDIMENT DEPOSITS FROM THE EXISTING STORM DRAINAGE SYSTEMS, DITCHES, CULVERTS, AND CONVEYANCE CHANNELS AFTER EACH STORM EVENT AND AT THE COMPLETION OF THE PROJECT.

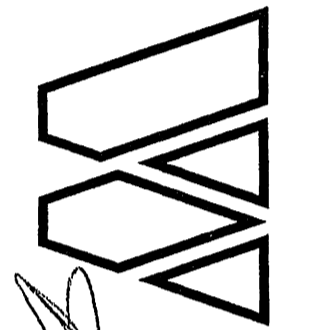
EROSION CONTROL MINIMUM STANDARDS:

- 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 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.
RESPONSE: DISTURBED AREAS WILL BE SEEDED AS PER THE E&S PLAN
- 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 AND SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.
RESPONSE: NOT APPLICABLE TO THIS PROJECT
- 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.
RESPONSE: DISTURBED AREAS WILL BE SEEDED AS PER THE E&S PLAN.
- 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.
RESPONSE: EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED AS THE FIRST STEP OF THE CONSTRUCTION PROCESS AS NOTED IN THE CONSTRUCTION SEQUENCE.
- STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES, AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.
RESPONSE: NOT APPLICABLE TO THIS PROJECT
- 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. THOSE CONDITIONS EXPECTED TO EXIST WHILE THE SEDIMENT BASIN IS UTILIZED.
RESPONSE: NOT APPLICABLE TO THIS PROJECT
- 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.
RESPONSE: NOT APPLICABLE TO THIS PROJECT. NO CUT OR FILL SLOPES ARE PROPOSED AS A PART OF THIS PROJECT.
- 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 TO THIS PROJECT. NO CUT OR FILL SLOPES ARE PROPOSED AS A PART OF THIS PROJECT.
- WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.
RESPONSE: UNDERSTOOD
- 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.
RESPONSE: THE EXISTING STORM SEWER INLETS LOCATED ON THIS PROJECT WILL BE PROTECTED BY UTILIZING THE DETAILS FOUND IN SPECIFICATION 3.07 OF THE VEGH. MULTIPLE DETAILS ARE INCLUDED IN THE PLAN BECAUSE MULTIPLE INLET STYLES EXISTING ON SITE.
- 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.
RESPONSE: NOT APPLICABLE TO THIS PROJECT
- 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.
RESPONSE: UNDERSTOOD
- 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.
RESPONSE: NOT APPLICABLE TO THIS PROJECT

EROSION CONTROL MINIMUM STANDARDS (CONT):

- ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.
RESPONSE: UNDERSTOOD
 - THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.
RESPONSE: NOT APPLICABLE 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.
 - RESTALLIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS.
 - APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.
RESPONSE: UNDERSTOOD
 - 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.
RESPONSE: UNDERSTOOD
 - 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.
RESPONSE: UNDERSTOOD
- *SEE NEXT SHEET (SHEET 1C) FOR MINIMUM STANDARD 19***

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**SHENANDOAH AVENUE
WATER LINE REPLACEMENT PROJECT
ESC NOTES & MINIMUM STANDARDS**

Designed By:	LTB
Drawn By:	CBD/LTB
Checked By:	TFB
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Revised:	23 AUG 2012 08 OCT 2012
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