

GENERAL SITE NOTES:

1. TOPOGRAPHIC INFORMATION FROM FIELD RUN TOPOGRAPHY BY ENGINEERING CONCEPTS IN AUGUST, 2016.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS.
3. THE CONTRACTOR SHALL BEAR SOLE RESPONSIBILITY FOR THE CHARACTER AND ACTUAL LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES, STRUCTURES, OTHER FACILITIES, AND OBSTRUCTIONS WITHIN THE PROJECT AREA. THE CONTRACTOR SHALL, AT NO ADDITIONAL COST TO THE OWNER, CONTACT THE OWNERS/OPERATORS OF ALL UTILITIES AND ARRANGE FOR THE VERIFICATION AND MARKING OF UTILITY LOCATIONS BY SAID OWNERS/OPERATORS. THE CONTRACTOR SHALL ASSIST THE UTILITY OWNERS/OPERATORS BY EVERY MEANS POSSIBLE TO DETERMINE THE LOCATION OF UTILITIES. THE CONTRACTOR SHALL BEAR SOLE RESPONSIBILITY FOR ALL DISTURBANCE OF ANY DAMAGE TO UTILITIES RESULTING FROM THE CONTRACTOR'S FAILURE TO ARRANGE FOR THE LOCATION OF UTILITIES BY THE OWNERS/OPERATORS OF THE UTILITIES. CONTACT MISS UTILITY (800) 552-7001.
4. SITE CONDITIONS MAY NECESSITATE SLIGHT DEVIATIONS IN ALIGNMENT, GRADE, AND/OR LOCATION OF NEW FACILITIES FROM THE PLAN ALIGNMENT, GRADE, AND/OR LOCATION. THE CONTRACTOR SHALL CONSTRUCT THE NEW FACILITIES TO SUCH DEVIATIONS AS DIRECTED BY THE ENGINEER WITHOUT ADDITIONAL COST OR FINE TO THE OWNER. SHOULD PLAN DEVIATIONS BE REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO UNDER TAKING ANY REVISION.
5. ALL CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE CURRENT BOCA AND/OR STATE AND LOCAL BUILDING CODES AS WELL AS THE CONSTRUCTION STANDARDS AND SPECIFICATIONS OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION AND ALL APPLICABLE STATE AND FEDERAL OSHA REGULATIONS.
6. THE CONTRACTOR SHALL MAINTAIN THE CONSTRUCTION AREA IN A SAFE AND ACCEPTABLE MANNER AND SHALL BE RESPONSIBLE FOR REMEDIATING ANY DAMAGES RESULTING FROM HIS FAILURE TO DO SO.
7. THE CONTRACTOR SHALL MAINTAIN LIMITS OF CONSTRUCTION WITHIN THE PROPERTY BOUNDARIES OR EASEMENTS AS INDICATED.
8. AN APPROVED SET OF PLANS SHALL BE KEPT ON THE SITE AT ALL TIMES.
9. ALL CONSTRUCTION DEBRIS SHALL BE CONTAINERIZED IN CONFORMANCE WITH THE VIRGINIA LITTER CONTROL ACT AND DISPOSED OF IN A MANNER AND LOCATION ACCEPTABLE TO THE GOVERNING JURISDICTION. AT LEAST ONE TRASH RECEPTACLE SHALL BE ONSITE DURING CONSTRUCTION.
10. TEMPORARY TOILETS SHALL BE PROVIDED ONSITE AT A RATIO OF ONE TOILET PER 30 WORKERS DURING THE CONSTRUCTION PERIOD.
11. GRADE STAKES SHALL BE SET FOR CURB & GUTTER, WATER LINES, SANITARY SEWER AND STORM SEWER.
12. THE CONTRACTOR SHALL MAINTAIN A CLEAR FLOW PATH TO AND THROUGH ALL SURFACE WATER AND STORM WATER DRAINAGE FACILITIES AT ALL TIMES.
13. THE CONTRACTOR SHALL GRADE, SEED, AND/OR SOD, AND MULCH THE ENTIRE AREA(S) DISTURBED BY CONSTRUCTION ACTIVITIES.
14. CONSTRUCTION AND START-UP OF ALL WORK SHALL NOT INTERFERE WITH THE OPERATION OF WATER AND SEWERAGE FACILITIES. THE CONTRACTOR SHALL COORDINATE AND SCHEDULE ALL WORK WITH THE OWNERS AS REQUIRED.
15. MINIMUM COVER ON ALL PIPE SHALL BE 3.0 FEET, UNLESS OTHERWISE SPECIFICALLY INDICATED ON THESE DRAWINGS. ALL PIPE SHALL BE INSTALLED WITH COATED TRACER WIRE TO FACILITATE FUTURE LOCATION OF PIPE AFTER CONSTRUCTION IS COMPLETED.
16. WHERE IT IS NECESSARY TO DEFLECT PIPE EITHER HORIZONTALLY OR VERTICALLY, PIPE JOINT DEFLECTION OR BARREL BEND RADIUS SHALL NOT EXCEED 75% OF THE MANUFACTURER'S RECOMMENDED DEFLECTION ANGLE OR BEND RADII.
17. ALL PIPING SHALL BE PROPERLY SUPPORTED. ALL PIPING WHICH WILL BE PRESSURIZED DURING OPERATION SHALL BE PROPERLY RESTRAINED.
18. ALL HDPE PIPE SHALL CONFORM TO THE CURRENT VDOT SPECIFICATIONS AND BE BEDDED IN ACCORDANCE WITH THE CURRENT VDOT STANDARDS.
19. CONSTRUCTION TRAFFIC SHALL USE THE CONSTRUCTION ENTRANCE.

GRADING NOTES:

1. PRIOR TO BEGINNING EARTHWORK OPERATIONS, THE OWNER SHALL EMPLOY A QUALIFIED, PROFESSIONAL GEOTECHNICAL ENGINEER LICENSED IN THE STATE OF VIRGINIA AS A RESULT OF ONSITE TESTING, THE GEOTECHNICAL ENGINEER SHALL MAKE RECOMMENDATIONS REGARDING THE ONSITE PLACEMENT OF FILL MATERIAL AND PROPER COMPACTION METHODS. NO WARRANTIES ARE MADE BY THE OWNER OR ENGINEER FOR ANY SUBSURFACE CONDITIONS ON THE PROPERTY.
2. FILL SHALL BE PLACED ONLY ON FIRM SUBGRADES APPROVED BY THE GEOTECHNICAL ENGINEER. SUBGRADES SHALL BE SCARIFIED TO A DEPTH OF 4 INCHES PRIOR TO FILL PLACEMENT TO ASSURE BONDING BETWEEN THE TWO SOILS. ALL FILL AREAS SHALL BE COMPACTED TO A DRY DENSITY OF AT LEAST 95% DRY DENSITY (ASTM D698), UNLESS NOTED OTHERWISE. THE COMPACTION SHALL BE ACCOMPLISHED BY PLACING FILL IN 6 TO 8 INCH LIFTS AND MECHANICALLY COMPACTING EACH LIFT TO THE REQUIRED DENSITY. THE GEOTECHNICAL ENGINEER SHALL PERFORM FIELD DENSITY TEST ON EACH LIFT OR AS NECESSARY TO ASCERTAIN THAT ADEQUATE COMPACTION HAS BEEN ACHIEVED. CALIFORNIA BEARING RATIO TESTS SHALL BE PERFORMED IN MATERIAL PROPOSED FOR USE BENEATH PAVEMENT WHETHER CUT OR FILL. THE UPPER 2 FEET OF MATERIAL BELOW STRUCTURES SHALL BE COMPACTED TO 98% DRY DENSITY (ASTM D698).
3. CLEAR SITE WITHIN LIMITS OF GRADING WORK. DO NOT DISTURB AREAS OUTSIDE OF GRADING LIMITS OR PROPERTY BOUNDARY.
4. REMOVE TREES, SHRUBS, GRASS AND OTHER VEGETATION, IMPROVEMENTS OR OBSTRUCTIONS AS REQUIRED TO PERMIT INSTALLATION OF NEW CONSTRUCTION. ALL UNSUITABLE MATERIAL SHALL BE DISPOSED OF IN A MANNER AND LOCATION ACCEPTABLE TO THE GOVERNING AUTHORITY. REMOVE TREES AND OTHER VEGETATION, INCLUDING STUMPS AND ROOTS, COMPLETELY IN AREAS REQUIRED FOR SUBSEQUENT SEEDING. CUT OFF TREES AND STUMPS IN AREAS TO RECEIVE FILL MORE THAN THREE FEET IN DEPTH TO WITHIN EIGHT INCHES OF THE ORIGINAL GROUND SURFACE.
5. BARRICADE OPEN EXCAVATIONS OCCURRING AS PART OF THIS WORK AND OPERATE WARNING LIGHTS AS RECOMMENDED BY AUTHORITIES HAVING JURISDICTION.
6. EXCAVATION FOR STRUCTURES:  
A. CONFORM TO ELEVATIONS AND DIMENSIONS SHOWN WITHIN A TOLERANCE OF PLUS OR MINUS 0.10 FOOT.  
B. PROVIDE TRUE AND STRAIGHT FOOTING EXCAVATIONS WITH UNIFORM LEVEL BOTTOMS OF THE WIDTH INDICATED TO ENSURE PROPER PLACEMENT AND COVER OF ALL REINFORCEMENT.  
C. REMOVE ALL LOOSE MATERIALS FROM THE EXCAVATION PRIOR TO PLACEMENT OF CONCRETE.  
D. PROVIDE A MINIMUM OF 2'-0" FROM THE FINISHED GRADE TO TOP OF ALL EXTERIOR WALL FOOTINGS.  
E. FOOTINGS WHICH SUPPORT CONCRETE MASONRY UNITS MAY BE STEPPED PROVIDED THE VERTICAL STEP DOES NOT EXCEED ONE HALF OF THE HORIZONTAL DISTANCE BETWEEN STEPS AND HORIZONTAL DISTANCE BETWEEN STEPS IS NOT LESS THAN TWO FEET.  
F. IF ROCK IS ENCOUNTERED IN A FOOTING EXCAVATION, UNDERCUT IT A MINIMUM OF 12" BELOW THE BOTTOM OF THE FOOTINGS AND FILL THE RESULTING OVER-EXCAVATION WITH CONTROLLED FILL.
7. CUT SURFACE UNDER PAVEMENTS TO COMPLY WITH CROSS SECTIONS, ELEVATIONS, AND GRADES AS INDICATED.
8. EXCAVATE TRENCHES TO UNIFORM WIDTH CONFORMING TO VDOT STANDARD PB-1 FOR STORM DRAINAGE PIPING AND UB-1 FOR SANITARY SEWER AND WATER. BACKFILL TRENCHES WITH CONTROLLED FILL.
9. PREVENT SURFACE WATER AND SUBSURFACE OR GROUND WATER FROM FLOWING INTO EXCAVATIONS AND FROM FLOODING PROJECT SITE AND SURROUNDING AREA. DO NOT ALLOW WATER TO ACCUMULATE IN EXCAVATIONS. REMOVE WATER TO PREVENT SOFTENING OF FOUNDATION BOTTOMS, UNDERCUTTING FOOTINGS, AND SOIL CHANGES DETRIMENTAL TO STABILITY OF SUBGRADES AND FOUNDATIONS. CONVEY WATER REMOVED FROM EXCAVATIONS AND RAIN WATER TO COLLECTING OR RUNOFF AREAS. ESTABLISH AND MAINTAIN TEMPORARY DRAINAGE DITCHES AND OTHER DIVERSIONS OUTSIDE EXCAVATION LIMITS FOR EACH STRUCTURE. DO NOT USE TRENCH EXCAVATIONS AS TEMPORARY DITCHES.

10. PROTECT EXCAVATED BOTTOMS OF ALL FOOTINGS AND TRENCHES AGAINST FREEZING WHEN ATMOSPHERIC TEMPERATURE IS LESS THAN 35 F (1 C).
11. BACKFILLING:  
A. COMPACT THE BACKFILL AROUND THE OUTSIDE OF BUILDING TO A MINIMUM OF 95% OF MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D 698 STANDARD PROCTOR. DO NOT ALLOW HEAVY COMPACTION EQUIPMENT SUCH AS ROLLERS, ETC., CLOSER TO ANY FOOTING THAN THE HORIZONTAL DISTANCE SUBTENDED BY A 45 ANGLE WITH THE TOP EDGE OF THE FOOTINGS AND THE SURFACE OF THE GROUND.  
B. BACKFILL BEHIND WALLS AFTER PERMANENT CONSTRUCTION WHICH BRACES THE WALL IS IN PLACE OR TEMPORARY BRACING OF THE WALL IS PROPERLY INSTALLED, AND AFTER ACCEPTANCE OF CONSTRUCTION BELOW FINISH GRADE INCLUDING DAMP-PROOFING, REMOVAL OF CONCRETE FORMWORK, AND REMOVAL OF TRASH AND DEBRIS.
12. UNIFORMLY GRADE AREAS WITHIN LIMITS OF GRADING INCLUDING ADJACENT TRANSITION AREAS. SMOOTH FINISHED SURFACES WITHIN SPECIFIED TOLERANCES, COMPACT WITH UNIFORM LEVELS OR SLOPES BETWEEN POINTS WHERE ELEVATIONS ARE SHOWN, OR BETWEEN SUCH POINTS AND EXISTING GRADES. GRADE AREAS ADJACENT TO BUILDING LINES TO DRAIN AWAY FROM STRUCTURES TO PREVENT PONDING.
13. FINISH LAWN AREAS TO WITHIN ONE INCH ABOVE OR BELOW REQUIRED SUBGRADE ELEVATIONS. SHAPE SURFACE UNDER WALKS AND PAVEMENTS TO LINE, GRADE, AND CROSS SECTION, WITH NOT MORE THAN 1/2" ABOVE OR BELOW REQUIRED SUBGRADE ELEVATION.
14. GRADE SURFACE UNDER BUILDING SLABS SMOOTH AND EVEN, FREE OF VOIDS. PROVIDE FINAL GRADES WITHIN 1/2" OF THOSE INDICATED WHEN TESTED WITH A 10' STRAIGHT EDGE.
15. PROTECT GRADED AREAS FROM TRAFFIC AND EROSION. REPAIR AREAS WHICH HAVE SETTLED, ERODED, OR BECOME DAMAGED DUE TO CONSTRUCTION ACTIVITIES AT NO ADDITIONAL COST TO OWNER.
16. UNDER FOUNDATIONS, SIDEWALKS, AND PAVEMENTS COMPACT EACH LAYER TO 95% MAXIMUM DRY DENSITY ASTM D 698 (STANDARD PROCTOR). FOR FURTHER SUPPORT COMPACT 2 FEET BELOW STRUCTURES TO 98% MAXIMUM DRY DENSITY ASTM D 698 (STANDARD PROCTOR).
17. UNDER LAWN OR UNPAVED AREAS, COMPACT SUBGRADE AND EACH LAYER TO 90% MAXIMUM DRY DENSITY ASTM D 698 (STANDARD PROCTOR).
18. ALL SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE CAPPED AND PIPED TO THE NEAREST STORM SEWER SYSTEM OR NATURAL WATERCOURSE. THE PIPE SHALL BE A MINIMUM OF 6" DIAMETER AND CONFORM TO V.D.O.T. STANDARD SB-1.

GENERAL UTILITY NOTES:

1. VERIFY LOCATION, SIZE, AND ELEVATION FOR ALL UTILITIES IN AREAS OF CONSTRUCTION PRIOR TO STARTING WORK. CONTACT ENGINEER IMMEDIATELY IF LOCATION, SIZE, OR ELEVATION IS DIFFERENT FROM THAT SHOWN ON PLAN. IF THERE APPEARS TO BE A CONFLICT, OR UPON DISCOVERY OF ANY UTILITY NOT SHOWN ON PLAN.
2. PROVIDE CONSTRUCTION METHODS AND MATERIALS IN ACCORDANCE WITH THE COMMONWEALTH OF VIRGINIA SEWAGE AND WATERWORKS REGULATIONS AND WESTERN VIRGINIA REGIONAL DESIGN AND CONSTRUCTION STANDARDS.
3. A MINIMUM OF THREE (3.0) FEET OF COVER IS REQUIRED OVER PROPOSED WATER AND SEWER LINES.
4. ALL EXISTING UTILITIES MAY NOT BE SHOWN IN EXACT LOCATION. THE CONTRACTOR SHALL COMPLY WITH THE STATE WATERWORKS REGULATIONS, SECTION 12.05.03, WHERE LINES CROSS.
5. ALL LINES SHALL BE STAKED PRIOR TO CONSTRUCTION.
6. REFER TO DETAIL SHEETS FOR BEDDING DETAILS. AFTER THE PIPE HAS BEEN PLACED IN THE TRENCH, THE TRENCH SHALL BE BACKFILLED WITH SELECT MATERIAL AND THOROUGHLY COMPACTED PER SPECIFICATIONS.
7. ALL WATER MAINS SHALL BE PROPERLY RESTRAINED WITH MECHANICALLY RESTRAINED JOINTS OR APPROVED ALTERNATIVE.
8. ALL PUBLIC WATER MAINS SHALL BE TESTED IN ACCORDANCE WITH WESTERN VIRGINIA REGIONAL DESIGN AND CONSTRUCTION STANDARDS. COORDINATE INSPECTIONS FOR TESTING WITH THE WYWA (MARK SINK 540.537.3460).
9. ALL WATER PIPE TO BE DUCTILE IRON PIPE, PRESSURE CLASS 350, MINIMUM IN ACCORDANCE WITH AWWA C151.
10. PROPOSED STORM DRAINS TO BE FLUSHED PRIOR TO REMOVING SEDIMENT TRAPPING MEASURES.
11. ALL PLASTIC WATERLINE AND FORCEMAIN PIPE THAT IS INSTALLED IN A TRENCH WITH SHOTROCK SHALL BE BEDDED WITH #10 SAND OR #68 STONE.

SANITARY SEWER NOTES

1. PIPE & FITTINGS: ALL SANITARY SEWER PIPE AND FITTINGS SHALL BE POLYVINYL CHLORIDE (PVC), SDR 35, AND SHALL CONFORM WITH ASTM D-3034.
2. INSTALLATION: THE SANITARY SEWER PIPE SHALL BE INSTALLED IN ACCORDANCE WITH THE PIPE MANUFACTURER'S RECOMMENDATIONS AND THESE SPECIFICATIONS. THE PIPE SHALL BE LAID IN TRUE STRAIGHT LINES WITH THE BELL ENDS UPSTREAM AND WITH THE INVERT OF THE PIPE BEING THE TRUE ELEVATION AND GRADE OF THE SYSTEM. THE PIPE SHALL BE VISUALLY INSPECTED FOR DEFECTS BEFORE LOWERING THE PIPE IN THE TRENCH. FIELD CUTTING OF THE PIPE SHALL BE DONE SO IN A NEAT AND WORKMANLIKE MANNER, SO AS TO LEAVE A SMOOTH END AT RIGHT ANGLES TO THE AXIS OF THE PIPE.
3. TRENCH EXCAVATION: TRENCHES SHALL BE EXCAVATED IN STRAIGHT LINES AND SHALL BE OF SUFFICIENT WIDTH TO PERMIT THE PROPER INSTALLATION OF BRACING, SHORING OR SHEETING. TRENCH WIDTH SHALL NOT EXCEED MANUFACTURER'S RECOMMENDATION. THE BOTTOM OF THE PIPE TRENCH SHALL BE EXCAVATED TO A MINIMUM COVER DEPTH OF FOUR (4) INCHES BELOW THE BOTTOM OF THE PIPE, TO PROVIDE FOR THE COMPACTED BEDDING MATERIAL.
4. BEDDING: BEDDING MATERIAL SHALL BE COARSE AGGREGATE SIZE NUMBER 57 AND SHALL CONFORM WITH VDOT SECTION 203 AND/OR ASTM C33. BEDDING MATERIAL SHALL BE PLACED AND COMPACTED IN FOUR (4) INCHES BELOW THE PIPE AND AS A MINIMUM UP TO 6" ABOVE THE TOP OF THE BELLS OF ALL PIPES. CARE SHALL BE TAKEN TO ENSURE THE BEDDING MATERIAL FULLY SUPPORTS THE SIDE AND BOTTOM OF THE PIPE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. BACKFILL: BACKFILL MATERIAL SHALL BE EITHER APPROVED EXCAVATED MATERIAL OR APPROVED SUITABLE MATERIAL FROM OTHER SOURCES THAT IS FREE OF ORGANIC MATERIAL, LOAM, DEBRIS, OR MINIMUM TWO (2) FEET ABOVE THE TOP OF PIPE SHALL BE FREE OF STONES LARGER THAN ONE (1) INCH AND SHALL BE PLACED IN SIX (6) INCH LAYERS AND COMPACTED WITH HAND TAMPERS. BACKFILL FROM THIS POINT TO TOP OF TRENCH SHALL BE FREE OF STONES LARGER THAN FOUR (4) INCHES AND SHALL BE PLACED IN LAYERS NOT TO EXCEED EIGHT (8) INCHES AND COMPACTED WITH MECHANICAL TAMPERS. BACKFILL BELOW UNPAVED AREAS SHALL BE COMPACTED TO 90%. BACKFILL BELOW PAVED AREAS SHALL BE COMPACTED TO 95%. BACKFILL COMPACTION TESTING SHALL BE IN ACCORDANCE WITH ASTM D-698.
6. TESTING OF SANITARY SEWER: TESTING FOR WATER TIGHTNESS SHALL BE MADE UTILIZING A LOW PRESSURE AIR TEST. THE TESTING EQUIPMENT, PROCEDURE AND RESULTS WILL ALL BE SUBJECT TO THE APPROVAL OF THE COUNTY ENGINEER. THE AIR TEST SHALL BE IN ACCORDANCE WITH ASTM F1417-92, CURRENT REVISION. THE CONTRACTOR SHALL DEFLECTION TEST THE ENTIRE LENGTH OF PIPE BY MEANS OF A GO-NO-GO MANDREL TO ASSURE THAT A 5.0% DEFLECTION HAS NOT BEEN EXCEEDED. MANDREL SHALL BE SIZED AT 5% LESS THAN ASTM DIMENSION FOR THE SEWER.

MANHOLE TESTING: MANHOLES SHALL BE TESTED AFTER ASSEMBLY AND PRIOR TO BACKFILLING IN ACCORDANCE WITH ASTM C1244. STUB-OUTS, MANHOLE BOOTS AND PIPE PLUGS SHALL BE SECURED TO PREVENT MOVEMENT WHILE THE VACUUM IS DRAWN. INSTALLATION AND OPERATION OF VACUUM EQUIPMENT AND INDICATING DEVICES SHALL BE IN ACCORDANCE WITH EQUIPMENT SPECIFICATIONS FOR WHICH PERFORMANCE INFORMATION HAS BEEN PROVIDED BY THE MANUFACTURER AND ACCEPTED BY THE ENGINEER. A MEASURED VACUUM OF TEN INCHES OF MERCURY SHALL BE ESTABLISHED IN THE MANHOLE. THE TIME FOR THE VACUUM DROP TO NINE INCHES OF MERCURY SHALL BE RECORDED. ACCEPTANCE STANDARDS FOR LEAKAGE SHALL BE ESTABLISHED FROM THE ELAPSED TIME. FOR A NEGATIVE PRESSURE CHANGE FROM TEN INCHES TO NINE INCHES OF MERCURY, THE MAXIMUM ALLOWABLE RATE FOR A FOUR-FOOT DIAMETER MANHOLE SHALL BE IN ACCORDANCE WITH THE FOLLOWING: 4" DIA. MANHOLE DEPTH 10' OR LESS = 60 SECONDS PER CHANGE OF ONE INCH OF MERCURY. 4" DIA. MANHOLE DEPTH GREATER THAN 10' BUT LESS THAN 15' = 75 SECONDS PER CHANGE OF ONE INCH OF MERCURY. 4" DIA. MANHOLE GREATER THAN 15' BUT LESS THAN 25' = 90 SECONDS PER CHANGE OF ONE INCH OF MERCURY. FOR MANHOLES FIVE FEET IN DIAMETER, ADD AN ADDITIONAL 15 SECONDS AND FOR MANHOLES SIX FEET IN DIAMETER, ADD AN ADDITIONAL 30 SECONDS TO THE TIME REQUIREMENTS FOR FOUR FOOT DIAMETER MANHOLES. IF THE MANHOLE FAILS THE TEST, NECESSARY REPAIRS SHALL BE MADE AND THE VACUUM TEST SHALL BE REPEATED UNTIL THE MANHOLE PASSES THE TEST. IF THE MANHOLE JOINT MASTIC IS COMPLETELY PULLED OUT DURING THE VACUUM TEST, THE MANHOLE SHALL BE DISASSEMBLED AND THE MASTIC REPLACED. THE ENGINEER SHALL OBSERVE THE MANHOLE TESTING. APPROPRIATE DOCUMENTATION SHALL BE INCLUDED IN THE FINAL DOCUMENTATION. MANHOLE TOLERANCES SHALL BE PLUS OR MINUS 0.1 FEET HORIZONTAL AND VERTICAL.

7. A MINIMUM COVER OF THREE (3.0) FEET IS REQUIRED OVER PROPOSED LINES UNLESS OTHERWISE INDICATED.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND UNCOVERING ALL MANHOLES AFTER PAVING. MANHOLE TOPS SHALL BE ADJUSTED TO GRADE IF NECESSARY.
9. ALL SANITARY SEWER CONNECTIONS TO EXISTING LINES SHALL BE COORDINATED WITH AND PERFORMED BY THE WESTERN VIRGINIA WATER AUTHORITY.
10. ALL WATER AND SANITARY SEWER FACILITIES ARE TO BE INSTALLED ACCORDING TO THE WESTERN VIRGINIA WATER AUTHORITY DESIGN AND CONSTRUCTION STANDARDS.
11. SUBSTANTIAL COMPLETION WILL NOT BE GIVEN UNTIL FOG APPLICATION, PRETREATMENT APPLICATION, AND SIGNIFICANT DISCHARGER APPLICATION HAVE BEEN REVIEWED AND PRACTICES PUT IN PLACE FOR REQUIREMENTS SET FORTH.

WATER NOTES

1. ALL WATER CONNECTIONS TO EXISTING LINES SHALL BE COORDINATED WITH AND PERFORMED BY THE WESTERN VIRGINIA WATER AUTHORITY.
2. ALL WATER AND SANITARY SEWER FACILITIES ARE TO BE INSTALLED ACCORDING TO THE WESTERN VIRGINIA WATER AUTHORITY DESIGN AND CONSTRUCTION STANDARDS.
3. THE WATER SERVICE FOR THIS PROJECT WILL REQUIRE A CONCRETE VAULT. PLEASE CONTACT CLEAR FLOW AT 540.942.3300 TO ORDER THE VAULT. THE APPLICANT IS RESPONSIBLE FOR PAYMENT, DELIVERY AND COORDINATION OF THE VAULT, AND INSTALLATION OF THE WATER SERVICE.

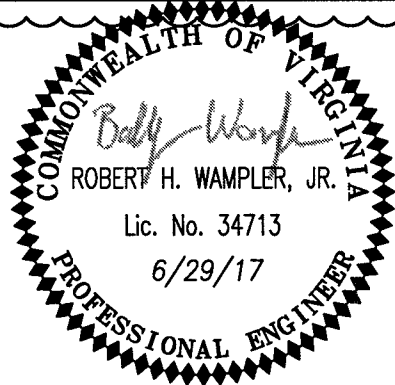
BOTETOURT COUNTY EROSION AND SEDIMENT CONTROL NOTES

- 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 VR 625-02-00 EROSION AND SEDIMENT CONTROL REGULATIONS.
- ES-2: THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE ONSITE PRECONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.
- ES-3: ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.
- ES-4: A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN & NARRATIVE, AS WELL AS A COPY OF THE LAND DISTURBING PERMIT, SHALL BE MAINTAINED ON THE SITE AT ALL TIMES. THE EROSION AND SEDIMENT CONTROL ADMINISTRATOR WILL DELIVER THESE MATERIALS AT THE ONSITE PRECONSTRUCTION CONFERENCE.
- ES-5: 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-6: 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-7: ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING THE LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.
- ES-8: DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.
- ES-9: 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. AN INSPECTION REPORT MUST BE FILED WITH THE BOTETOURT COUNTY EROSION & SEDIMENT CONTROL ADMINISTRATOR ONCE EVERY TWO WEEKS, BEGINNING WITH COMMENCEMENT OF THE LAND DISTURBING ACTIVITY, AND WITHIN 48 HOURS OF ANY RUNOFF-PRODUCING RAINFALL EVENT. FAILURE TO SUBMIT A REPORT WILL BE GROUNDS FOR IMMEDIATE REVOCATION OF THE LAND DISTURBING PERMIT. REPORTS MUST BE POSTMARKED WITHIN 24 HOURS OF THE DEADLINE. A STANDARD INSPECTION REPORT FORM WILL BE SUPPLIED, WHICH SHOULD BE COPIED AS NECESSARY. THIS PROVISION IN NO WAY WAIVES THE RIGHT OF BOTETOURT COUNTY PERSONNEL TO CONDUCT SITE INSPECTIONS, NOR DOES IT DENY THE RIGHT OF THE PERMITEE(S) TO ACCOMPANY THE INSPECTOR(S).

WESTERN VIRGINIA WATER AUTHORITY NOTES

1. ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO THE LATEST WYWA DESIGN AND CONSTRUCTION STANDARDS
2. THE CONTRACTOR OR DEVELOPER IS REQUIRED TO NOTIFY THE WESTERN VIRGINIA WATER AUTHORITY IN WRITING AT LEAST THREE (3) DAYS PRIOR TO ANY CONSTRUCTION. PLEASE CONTACT MARK SINK AT (540) 537-3460.
3. ALL WORK SHALL BE SUBJECT TO INSPECTION BY THE WESTERN VIRGINIA WATER AUTHORITY.
4. FIELD CORRECTIONS SHALL BE APPROVED BY THE WESTERN VIRGINIA WATER AUTHORITY PRIOR TO SUCH CONSTRUCTION.
5. THE CONTRACTOR SHALL MAINTAIN A MINIMUM OF 18" CLEARANCE VERTICALLY AND 2' MINIMUM HORIZONTALLY FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE AT ALL WATER, SANITARY SEWER CROSSINGS OF ANY OTHER UTILITIES. WHERE THIS CANNOT BE ACHIEVED ADDITIONAL MEASURES IN ACCORDANCE WITH WYWA STANDARDS SHALL BE ENFORCED.
6. IT IS THE CONTRACTOR'S RESPONSIBILITY TO HAVE ALL EXISTING UTILITIES LOCATED AND POTHOLED TO VERIFY LOCATIONS. THIS PLAN REVIEW DOES NOT REMOVE THE CONTRACTOR'S RESPONSIBILITY TO RELOCATE ANY EXISTING CONFLICTS FOUND DURING CONSTRUCTION.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR EXCAVATION AND SHORING PER OSHA REGULATIONS.

WWVA AVAILABILITY LETTER #17-165



No.	Revision	By	Appd.	Date	Drawn
1	REVIEW COMMENTS	ECI	RHW	6/29/17	ECI
					ECI
					RHW
					RHW

CS-1 GENERAL WATER AND SEWER SPECIFICATIONS  
1.1 QUALITY ASSURANCE

- A. QUALIFICATIONS OF MANUFACTURERS. - PRODUCTS USED IN THIS WORK SHALL BE PRODUCED BY MANUFACTURERS REGULARLY ENGAGED IN THE MANUFACTURE OF SIMILAR ITEMS AND WITH A HISTORY OF QUALITY PRODUCTION ACCEPTABLE TO THE PARTICIPATING UTILITY.
- B. QUALIFICATIONS OF INSTALLERS. - USE EXPERIENCED WORKERS TO ENSURE PROPER INSTALLATION OF THE PRODUCTS SPECIFIED HEREIN. IN THE ACCEPTANCE OR REJECTION OF INSTALLED WORK, NO ALLOWANCE SHALL BE MADE FOR THE LACK OF EXPERIENCE ON THE PART OF THE WORKERS.
- C. MAIN LINE CONSTRUCTION CAN ONLY BE PERFORMED BY CLASS A CONTRACTORS LICENSED BY THE COMMONWEALTH OF VIRGINIA.
- D. A PRECONSTRUCTION CONFERENCE SHALL BE HELD ON ALL WATER AND SEWER PROJECTS BY THE AT LEAST TWO DAYS PRIOR TO ANY CONSTRUCTION WORK BEING PERFORMED. THE CONTRACTOR SHALL HAVE A REPRESENTATIVE OF APPROPRIATE AUTHORITY AT THIS MEETING. PRIOR TO THE START OF CONSTRUCTION, CONTRACTOR MUST HAVE AN APPROVED SET OF CONSTRUCTION DOCUMENTS ON- SITE.

1.2 LINES AND GRADES

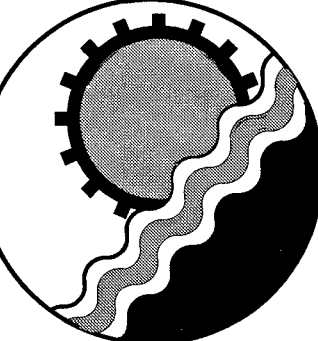
- A. PIPES SHALL BE LAID TRUE TO THE LINES AND GRADES SHOWN ON THE DRAWINGS EXCEPT AS AUTHORIZED BY THE PARTICIPATING UTILITY. THE GRADE SHOWN ON THE PROFILE IS THE INVERT TO WHICH THE WORK MUST CONFORM. WORK NOT CONFORMING TO THE GRADE SHALL BE CORRECTED BY THE CONTRACTOR AT HIS OWN EXPENSE IN A MANNER ACCEPTABLE TO THE PARTICIPATING UTILITY.
- B.
- C. LOCATIONS OF WATER AND SEWER LINES
1. THE LOCATIONS OF THE PROPOSED LINES ARE SHOWN ON THE DRAWINGS.
2. THE PARTICIPATING UTILITY RESERVES THE RIGHT TO MAKE CHANGES IN LINES AND GRADES OF PIPE LINES, AND IN LOCATIONS OF PIPES AND/OR APPURTENANCES WHEN SUCH CHANGES MAY BE NECESSARY OR ADVANTAGEOUS.
3. ANY DEVIATION IN LOCATION OR LINE GRADE OF SEWER, OR THE LOCATION OR ELEVATION OF A WATER LINE, STRUCTURE OR APPURTENANCE AS SHOWN ON THE CONTRACT DRAWINGS, WILL REQUIRE A REVISION OF THE DRAWINGS CLEARLY SHOWING THE PROPOSED DEVIATION, AND SHALL BE SUBMITTED TO THE PARTICIPATING UTILITY FOR REVIEW AND APPROVAL BEFORE ANY CHANGES ARE CONSTRUCTED. DESIGN ENGINEER OF RECORD MUST CONCUR IN ANY REVISION OF DRAWINGS. MINOR FIELD CHANGES MAY BE MADE WITH APPROVAL OF THE PARTICIPATING UTILITY'S CONSTRUCTION INSPECTOR.

1.3 SUBMITTALS

- A. GENERAL. - ALL SUBMITTALS SHALL BE MADE IN ACCORDANCE WITH SECTION 6.17 (SHOP DRAWINGS AND SAMPLES) OF THE STANDARD GENERAL CONDITIONS OF THE ENGINEERS JOINT CONTRACT DOCUMENT COMMITTEE (EJCDC), 2002 EDITION. CONTRACTOR SHALL FURNISH ENGINEERING DATA COVERING DESIGN AND INSTALLATION. SUBMITTAL SHALL BE MADE IN A TIMELY MANNER SO THAT THE PROJECT SCHEDULE CAN BE MET.
- B. SHOP DRAWINGS. - AS A MINIMUM, THE FOLLOWING SHOP DRAWING INFORMATION SHALL BE SUBMITTED TO THE PARTICIPATING UTILITY FOR REVIEW AND APPROVAL:
1. COMPLETE BILL OF MATERIALS TO BE PROVIDED FOR THE WORK DESCRIBED UNDER THIS SECTION.
2. MANUFACTURER'S CATALOG CUT SHEETS FOR ALL MATERIALS TO BE PROVIDED UNDER THIS SECTION.

1.2 RESPONSIBILITY FOR MATERIALS

- A. MATERIAL FURNISHED BY CONTRACTOR. - THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MATERIAL FURNISHED BY HIM, AND SHALL REPLACE AT HIS OWN EXPENSE ALL SUCH MATERIAL FOUND DEFECTIVE IN MANUFACTURE OR DAMAGED IN HANDLING AFTER DELIVERY BY THE MANUFACTURER. THIS SHALL INCLUDE THE FURNISHING OF ALL MATERIALS AND LABOR REQUIRED FOR THE REPLACEMENT OF INSTALLED MATERIAL DISCOVERED DEFECTIVE PRIOR TO THE FINAL ACCEPTANCE OF THE WORK.
- B. MATERIAL FURNISHED BY PARTICIPATING UTILITY. - THE CONTRACTOR'S RESPONSIBILITY FOR MATERIAL FURNISHED BY THE PARTICIPATING UTILITY SHALL BEGIN AT THE POINT OF DELIVERY TO CONTRACTOR. MATERIALS ALREADY ON THE SITE SHALL BECOME THE CONTRACTOR'S RESPONSIBILITY ON THE DATE OF THE AWARD OF THE CONTRACT. THE CONTRACTOR SHALL EXAMINE ALL MATERIAL FURNISHED BY THE PARTICIPATING UTILITY AT THE TIME AND PLACE OF DELIVERY TO HIM AND SHALL REJECT ALL DEFECTIVE MATERIAL. ANY MATERIAL FURNISHED BY THE PARTICIPATING UTILITY AND INSTALLED BY THE CONTRACTOR WITHOUT DISCOVERY OF SUCH DEFECTS WILL, IF FOUND DEFECTIVE PRIOR TO FINAL ACCEPTANCE OF THE WORK, BE REPLACED WITH SOUND MATERIAL BY THE PARTICIPATING UTILITY. THE CONTRACTOR, HOWEVER, SHALL, AT HIS OWN EXPENSE, FURNISH ALL SUPPLIES, LABOR AND FACILITIES NECESSARY TO REMOVE SAID DEFECTIVE MATERIAL AND INSTALL THE SOUND MATERIAL IN A MANNER SATISFACTORY TO THE PARTICIPATING UTILITY.



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NOTES & DETAILS  
ELDOR IGNITION MANUFACTURING

THE BOTETOURT CENTER AT GREENFIELD  
BOTETOURT COUNTY, VIRGINIA

SCALE: NONE

DATE: June 29, 2017

PROJECT: 16070

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