

GENERAL SITE NOTES:

1. THIS SITE DOES NOT LIE WITHIN A F.E.M.A. DESIGNATED FLOOD ZONE.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS.
3. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION TO ELIMINATE THE POSSIBILITY OF ANY DISTURBANCE OR DAMAGE TO PUBLIC OR PRIVATELY OWNED UTILITIES, STRUCTURES, OTHER FACILITIES OR OBSTRUCTION RESULTING FROM HIS ACTIVITIES. TO THIS END, CONTRACTOR SHALL, AT NO ADDITIONAL COST TO THE OWNER, TAKE ALL MEASURES NECESSARY TO PROVIDE, AND SHALL BE SOLELY RESPONSIBLE FOR, TEMPORARY SUPPORT AND SHORING, ADEQUATE PROTECTION, AND MAINTENANCE OF CONTINUOUS OPERATION OF ALL UNDER AND ABOVE GROUND UTILITY SERVICES. THE CONTRACTOR SHALL CALL MISS UTILITY AT 1-800-852-7001 48 HOURS PRIOR TO DIGGING. ALL UTILITY TIE-INS ARE TO BE COORDINATED WITH THE APPROPRIATE PUBLIC OR PRIVATE UTILITY AUTHORITY BEFORE COMMENCING WORK ON EXISTING UTILITIES. THE CONTRACTOR SHALL SUPPLY ALL UTILITY COMPANIES WITH APPROVED PLAN COPIES FOR COORDINATION OF EXTENSION AND TIE-IN EFFORTS.
4. SITE CONDITIONS MAY NECESSITATE SLIGHT DEVIATIONS IN ALIGNMENT, GRADE, AND/OR LOCATION OF NEW FACILITIES FROM THE PLAN ALIGNMENT. 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.
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 ON-SITE DURING CONSTRUCTION.
10. TEMPORARY TOILETS SHALL BE PROVIDED ON-SITE AT A RATIO OF ONE TOILET PER 30 WORKERS DURING THE CONSTRUCTION PERIOD.
12. GRADE STAKES SHALL BE SET FOR ROADWAY, CURB & GUTTER, CULVERTS, AND STORM SEWER.

EROSION - SEDIMENT CONTROL NOTES

1. THE EROSION CONTROL NARRATIVE BY ENGINEERING CONCEPTS, INC. SHALL BE ADHERED TO AS A PART OF THE CONTRACT. ALL EROSION CONTROL DEVICES SHALL BE INSTALLED PER THE NARRATIVE AND PLAN.
2. UNLESS OTHERWISE INDICATED ALL VEGETATIVE AND STRUCTURAL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VA. EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.
3. THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.
4. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED AS THE FIRST STEP IN GRADING.
5. A COPY OF THE APPROVED EROSION CONTROL PLANS SHALL BE KEPT ON SITE AT ALL TIMES.
6. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE CITY OF ROANOKE INSPECTOR.
7. ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL DEVICES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND UNTIL FINAL STABILIZATION IS ACHIEVED.
8. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DISTURBED AREAS WITHIN SEVEN DAYS OF REACHING FINAL GRADES. TEMPORARY, DENUDED AREAS THAT ARE TO BE EXPOSED LONGER THAN THIRTY DAYS SHALL BE SEEDED WITH TEMPORARY VEGETATION.
9. DURING CONSTRUCTION, SOIL STOCKPILES SHALL BE STABILIZED AND PROTECTED WITH SEDIMENT TRAPPING MEASURES AND STABILIZED WITH TEMPORARY VEGETATION IF UNUSED FOR 30 DAYS OR LONGER.
10. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH MAJOR RAINFALL EVENT. ANY REPAIRS NECESSARY SHALL BE MADE IMMEDIATELY TO ENSURE THE PROTECTION OF OFFSITE PROPERTIES.
11. THE CONTRACTOR IS REQUIRED TO REMOVE ALL SILT FROM STREAMS AND DRAINAGE WAYS PRIOR TO BOND RELEASE.
12. TEMPORARY AND PERMANENT SEEDING SHALL ADHERE TO THE SPECIFICATIONS SHOWN HEREON.
13. REFER TO THE MINIMUM STANDARD REFERENCES FOLLOWING FOR STATE SPECIFIC REFERENCES TO EROSION SEDIMENT CONTROL REQUIREMENTS.
14. MINIMUM STANDARD # 3: PERMANENT STABILIZATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT IS UNIFORM, MATURE ENOUGH TO SURVIVE, AND WILL INHIBIT EROSION. AREAS THAT DO NOT BECOME ESTABLISHED WILL REQUIRE ADDITIONAL STABILIZATION MEASURES.
15. MINIMUM STANDARD # 7 & 8: CUT AND FILL SLOPES MUST BE CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT BEGIN TO ERODE EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION MUST BE PROVIDED WITH ADDITIONAL STABILIZATION UNTIL THE PROBLEM IS CORRECTED.
16. MINIMUM STANDARD # 11: BEFORE NEWLY CONSTRUCTED STORM WATER CONVEYANCE CHANNELS ARE MADE OPERATIONAL, OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT LINING MUST BE INSTALLED IN BOTH DRAINAGE AND RECEIVING CHANNELS. ALL CHANNELS AND OUTLETS MUST BE CHECKED FOR ADEQUACY AND EROSION CONTROL MEASURES.
17. MINIMUM STANDARD #16: UNDERGROUND UTILITY LINES 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 OPENED 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. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH E&S REGULATIONS.
  - E. APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.
18. MINIMUM STANDARD # 17: ANY SEDIMENT WHICH IS TRACKED ONTO PUBLIC ROADS MUST BE REMOVED FROM THE ROAD DAILY, BY EITHER SHOVELING OR SWEEPING, AND TRANSPORTED TO AN APPROVED DISPOSAL AREA.
19. MINIMUM STANDARD # 18: TRAPPED SEDIMENT AND DISTURBED AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY PRACTICES MUST BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.
20. MINIMUM STANDARD # 19: PROPERTIES AND WATERWAYS FROM THE DEVELOPMENT SITE SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, 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 PRACTICES AND CRITERIA SET FORTH IN THE VIRGINIA EROSION AND SEDIMENT CONTROL MANUAL.
21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL LAND DISTURBING PERMITS.

**DUMPSTER ENCLOSURE AND GATE CONSTRUCTION:**  
USE LEGEND SERIES PVC FENCE BY MASTER HALCO, 6'0"HT. PRIVACY MODEL OR APPROVED EQUAL.  
ACCESS GATE AT FRONT OF ENCLOSURE SHALL BE 1x6 BOARDS (PT) ON WOOD FRAME (PT). NAIL BOARDS ON OUTSIDE OF FRAME WITH 3x4 SPACERS BETWEEN BOARDS. USE HASP LATCH AT NON-HINGED END.  
PROVIDE 2" DIA. STEEL ROD IN STEEL GUIDES AT BOTTOM OF MOVING END SET ON A 4" DIA. x 1" WIDE SOLID RUBBER WHEEL. PROVIDE GALVANIZED SPRING AT BOTTOM OF STEEL ROD, BETWEEN BOTTOM GUIDE AND WHEEL TO ACCOMMODATE A MAXIMUM OF 8" VERTICAL TRAVEL. CROSS PAVED AREA. SPRING TENSION MUST SUPPORT END OF FENCE WEIGHT AND COMPRESS TO ALLOW HORIZONTAL SWING OF GATE.

STORM SEWER SPECIFICATIONS:

1. ALL STORM SEWER PIPE AND FITTINGS SHALL BE AS CLASSIFIED ON THE DRAWINGS.
2. THE STORM SEWER PIPE SHALL BE INSTALLED IN ACCORDANCE WITH THE PIPE MANUFACTURER'S RECOMMENDATIONS AND THESE SPECIFICATIONS. THE PIPE SHALL BE LAID IN A TRUE, STRAIGHT LINE 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 INTO THE TRENCH. FIELD CUTTING OF THE PIPE SHALL BE DONE IN A NEAT MANNER, SO AS TO LEAVE A SMOOTH END AT RIGHT ANGLES TO THE AXIS OF THE PIPE.
3. 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 OVER DEPTH OF 4 INCHES BELOW THE BOTTOM OF THE PIPE, TO PROVIDE FOR THE COMPACTED BEDDING MATERIAL.
4. BACKFILL MATERIAL SHALL BE EITHER APPROVED EXCAVATED MATERIAL OR APPROVED SUITABLE MATERIAL FROM OTHER SOURCES THAT IS FREE OF ORGANIC MATTER OR OTHER OBJECTIONABLE MATERIAL. BACKFILL FROM PIPE BEDDING TO MINIMUM ONE FOOT ABOVE THE TOP OF THE PIPE SHALL BE FREE OF STONES LARGER THAN 2 INCHES AND SHALL BE PLACED IN 6 INCH LAYERS AND COMPACTED WITH HAND TAMPERS. BACKFILL FROM THIS POINT TO THE TOP OF THE TRENCH SHALL BE FREE OF STONES LARGER THAN 4 INCHES AND SHALL BE PLACED IN LAYERS NOT TO EXCEED 8 INCHES AND COMPACTED WITH MECHANICAL TAMPERS.

GRADING NOTES:

1. THE GRADING CONTRACTOR SHALL OBTAIN ALL NECESSARY LAND DISTURBING PERMITS FROM THE CITY OF ROANOKE PRIOR TO COMMENCING GRADING OPERATIONS.
2. PRIOR TO BEGINNING EARTHWORK OPERATIONS, THE OWNER SHALL EMPLOY A QUALIFIED, PROFESSIONAL GEOTECHNICAL ENGINEER LICENSED IN THE COMMONWEALTH OF VIRGINIA, AS A RESULT OF ON-SITE TESTING, THE GEOTECHNICAL ENGINEER SHALL MAKE RECOMMENDATIONS REGARDING THE ON-SITE PLACEMENT OF FILL MATERIAL AND PROPER COMPACTING METHODS. NO WARRANTY SHALL BE MADE BY THE OWNER OR ENGINEER FOR ANY SUBSURFACE CONDITIONS ON THE PROPERTY. CONTRACTOR SHALL COORDINATE ALL REQUIRED TESTING WITH OWNER.
3. FILL SHALL BE PLACED ONLY ON FIRM SUBGRADES APPROVED BY THE SOILS ENGINEER. SUBGRADES SHALL BE EXCAVED TO A DEPTH OF 4 INCHES PRIOR TO FILL PLACEMENT TO ASSURE BONDING BETWEEN THE TWO SOILS. ALL EMBANKMENT FILL SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM DRY DENSITY (ASTM D698). THE COMPACTON SHALL BE ACCOMPLISHED BY PLACING FILL IN 6 TO 8 INCH LIFTS AND MECHANICALLY COMPACTING EACH LIFT TO THE REQUIRED DENSITY. THE SOILS ENGINEER SHALL PERFORM FIELD DENSITY TEST ON EACH LIFT OR AS NECESSARY TO ASCERTAIN THAT ADEQUATE COMPACTON HAS BEEN ACHIEVED. CALIFORNIA BEARING RATIO TESTS SHALL BE PERFORMED IN MATERIAL PROPOSED FOR USE BENEATH PAVEMENT WHETHER CUT OR FILL.
4. CLEAR SITE WITHIN LIMITS OF GRADING WORK. DO NOT DISTURB AREAS OUTSIDE OF GRADING LIMITS.
5. REMOVE TREES, SHRUBS, GRASS AND OTHER VEGETATION, IMPROVEMENTS OR OBSTRUCTIONS AS REQUIRED TO PERMIT INSTALLATION OF NEW CONSTRUCTION. ALL REMOVED 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. REMOVE TREES AND STUMPS IN AREAS TO RECEIVE FILL.
6. BARRICADE OPEN EXCAVATIONS OCCURRING AS PART OF THIS WORK AND OPERATE WARNING LIGHTS AS RECOMMENDED BY AUTHORITIES HAVING JURISDICTION.
7. EXCAVATION FOR STRUCTURES:
  - A. CONFORM TO ELEVATIONS AND DIMENSIONS SHOWN WITHIN A TOLERANCE OF PLUS OR MINUS 0.1 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.
8. CUT SURFACE UNDER PAVEMENTS TO COMPLY WITH CROSS SECTIONS, ELEVATIONS, AND GRADES AS INDICATED. SET SUBGRADES UNDER PAVING BASE TO CORRESPOND TO SURFACE ELEVATION OF ADJOINING SURFACES RECEIVING ASPHALT OVERLAY.
9. 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.

SANITARY SEWER NOTES & SPECIFICATIONS

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 BALL 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 OVER 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 THE PRINGLINE OF THE PIPE. 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 ONE (1) FOOT ABOVE THE TOP OF PIPE SHALL BE FREE OF STONES LARGER THAN TWO (2) INCHES 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.

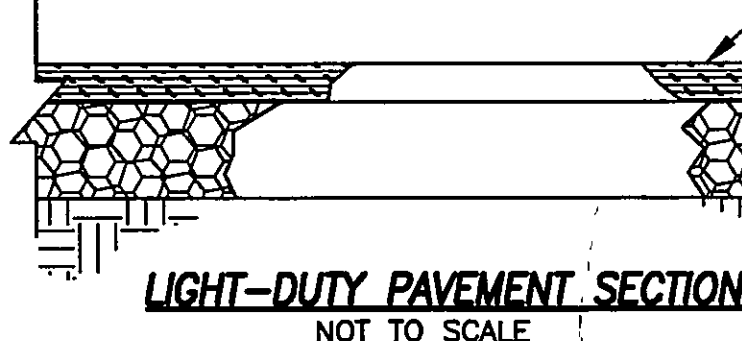
WATER NOTES

1. A MINIMUM COVER OF THREE (3) FEET IS REQUIRED OVER PROPOSED LINES.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND UNCOVERING VALVE VAULTS AFTER PAVING AND ADJUSTMENT FOR FINAL GRADE IF NECESSARY.
3. ALL EXISTING UTILITIES MAY NOT BE SHOWN IN THE EXACT LOCATION. THE CONTRACTOR SHALL COMPLY WITH THE STATE WATER WORKS REGULATIONS, SECTION 12.05.03, WHERE LINES CROSS.
4. ALL TRENCHES IN EXISTING OR FUTURE HIGHWAY RIGHTS-OF-WAY SHALL BE COMPACTED ACCORDING TO V.D.O.T. STANDARDS.
5. LINES SHALL BE STAKED PRIOR TO CONSTRUCTION.
6. WATER MAIN SHALL BE AS A MINIMUM DUCTILE IRON PIPE CL. 50.
7. A CONTINUOUS AND UNIFORM BEDDING SHALL BE PROVIDED IN THE TRENCH FOR ALL PIPE. STONES AND ROCKS FOUND IN THE TRENCH SHALL BE REMOVED FOR A DEPTH OF AT LEAST SIX (6) INCHES BELOW THE BOTTOM OF THE PIPE AND TAMPED SELECTED FILL BEDDING PROVIDED. AFTER THE PIPE HAS BEEN PLACED IN THE TRENCH, THE TRENCH SHALL BE BACKFILLED WITH SELECTED MATERIAL, THOROUGHLY COMPACTED TO 90%, 95% UNDER PAVEMENT OR CONCRETE SLAB, OF THE STANDARD PROCTOR (ASTM D-698) USING CARE NOT TO DAMAGE THE PIPE.
8. ALL WATER MAINS SHALL BE PRESSURE TESTED IN ACCORDANCE WITH ROANOKE CITY WATER DEPARTMENT. COORDINATE INSPECTIONS FOR TESTING.
9. 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 CITY ENGINEER. THE AIR TEST SHALL BE IN ACCORDANCE WITH ASTM C-828, CURRENT REVISION. THE CONTRACTOR SHALL DEFLECTION TEST THE ENTIRE LENGTH OF PIPE BY MEANS OF A 60-IN-60 GONDREL TO ASSURE THAT A 5.0% DEFLECTION HAS NOT BEEN EXCEEDED. GONDREL SHALL BE SIZED AT 5% LESS THAN ASTM DIMENSION FOR THE SEWER.
10. A MINIMUM COVER OF THREE (3) FEET IS REQUIRED OVER PROPOSED LINES.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND UNCOVERING ALL MANHOLES AFTER PAVING. MANHOLE TOPS SHALL BE ADJUSTED TO GRADE IF NECESSARY.
12. ALL EXISTING UTILITIES MAY NOT BE SHOWN OR MAY NOT BE SHOWN IN THE EXACT LOCATION. THE CONTRACTOR SHALL COMPLY WITH STATE WATER WORKS REGULATIONS, SECTION 12.05.03, WHERE LINES CROSS.
13. LINES SHALL BE STAKED PRIOR TO CONSTRUCTION.

CONSTRUCTION NOTES

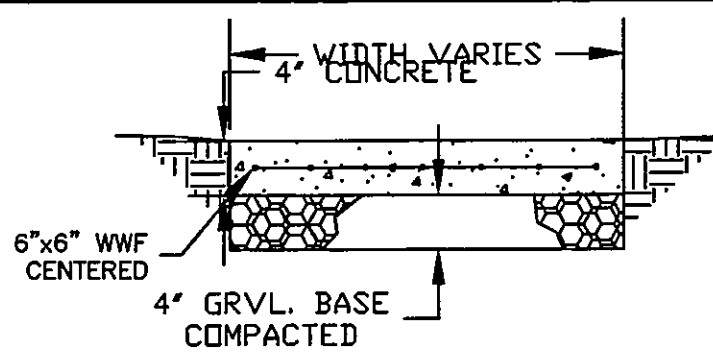
1. SITE PREPARATION SHALL BE IN ACCORDANCE WITH THE CITY OF ROANOKE DESIGN.
2. SLOPES STEEPER THAN 3 TO 1 (HORIZONTAL TO VERTICAL) SHALL BE BENCHED OR STEPPED PRIOR TO PLACING FILL ON THEM.
3. ON-SITE FILL MATERIAL OR BORROW FILL MATERIAL MAY BE UTILIZED. FILL MATERIAL SOILS, IN GENERAL:
  - A. SHALL BE COMPACTABLE.
  - B. SHALL BE WITHIN AN ACCEPTABLE RANGE OF MOISTURE CONTENT WHICH IS READILY CONTROLLED.
  - C. SHALL NOT BE HIGHLY SUSCEPTIBLE TO VOLUME CHANGE (SHRINKAGE OR SWELL) OR SETTLEMENT.
4. FILL MATERIALS CONTAINING ROCKS LARGER THAN SIX (6) INCHES (15.2 CM) SHALL NOT BE USED. THE UPPERMOST TWO (2) FEET (61CM) SHALL NOT HAVE ANY ROCK LARGER THAN TWO (2) FEET (61CM) IN DIAMETER.
5. THE APPROVED FILL SHALL BE PLACED IN EIGHT (8) INCH (20 CM) LOOSE LIFTS. EACH LIFT SHALL BE SPREAD IN UNIFORM LAYERS. FILL SOIL SHALL BE UTILIZED ONLY WITHIN A MOISTURE RANGE OF +/- 5% OF THE OPTIMUM MOISTURE CONTENT. COMPACTON OF THE FILL SHALL BE PERFORMED WITH APPROVED EQUIPMENT. COMPACTON OF THE LAYERS SHALL BE CONTINUOUS AND UNIFORM.
6. EMBANKMENT MATERIAL IN FILL AREAS SHALL BE PLACED IN LIFTS NOT EXCEEDING EIGHT (8) INCHES AND SHALL BE COMPACTED TO A MINIMUM 95% DENSITY IN ACCORDANCE WITH SECTION 303 OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS.
7. FIELD DENSITY TESTS ARE TO BE CONDUCTED BY AN INDEPENDENT SOILS TESTING LABORATORY UNDER THE DIRECTION OF A QUALIFIED GEOTECHNICAL ENGINEER. THE RESULTS OF THESE TESTS SHALL BE SUBMITTED TO THE CITY OF ROANOKE WITH AS-BUILT PLANS AS A CONDITION OF ACCEPTANCE OF THE FACILITY BY THE CITY. FIELD DENSITY TESTS, AS DIRECTED BY THE ENGINEER, SHALL BE PERFORMED PERIODICALLY TO DETERMINE THE DEGREE OF COMPACTON. ANY AREAS FAILING TO MEET THE ABOVE REQUIREMENTS SHALL BE REWORKED AND/OR RECOMPACTED UNTIL THE REQUIRED DEGREE OF COMPACTON IS ACHIEVED. OWNER SHALL PROVIDE ALL REQUIRED TESTING. CONTRACTOR SHALL COORDINATE ALL TESTING WITH OWNER AND ENGINEER.
8. ALL DISTURBED AREAS SHALL BE COVERED WITH FOUR (4) INCHES OF TOPSOIL AND SEEDED.

\* PAVEMENT DESIGN BASED ON A COR OF 6 OR GREATER. NOTIFY THE ENGINEER PRIOR TO PLACEMENT OF THE ASPHALT IF LESS THAN SPECIFIED.



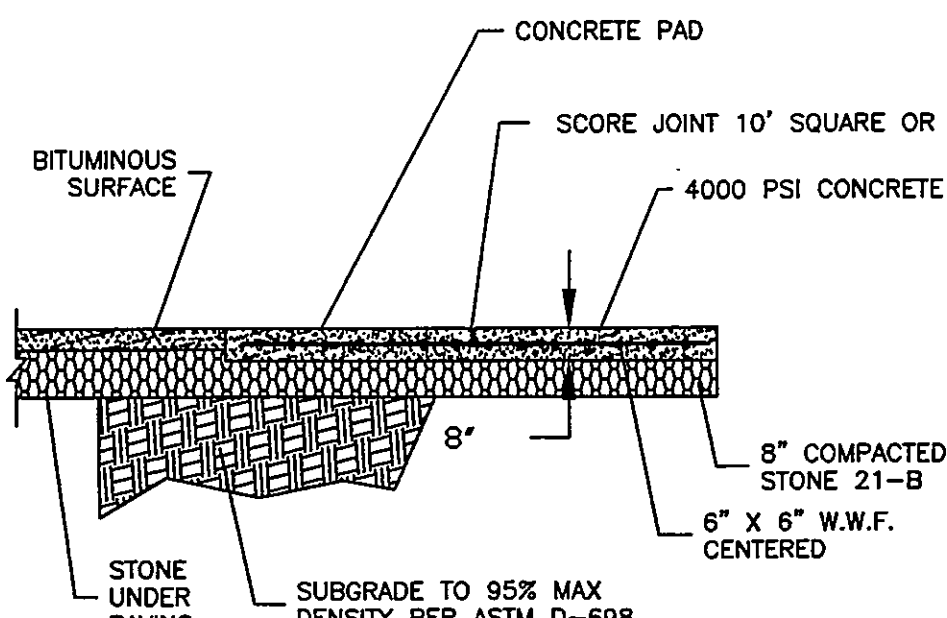
LIGHT-DUTY PAVEMENT SECTION  
NOT TO SCALE

CG-2 CURB & GUTTER  
NOT TO SCALE

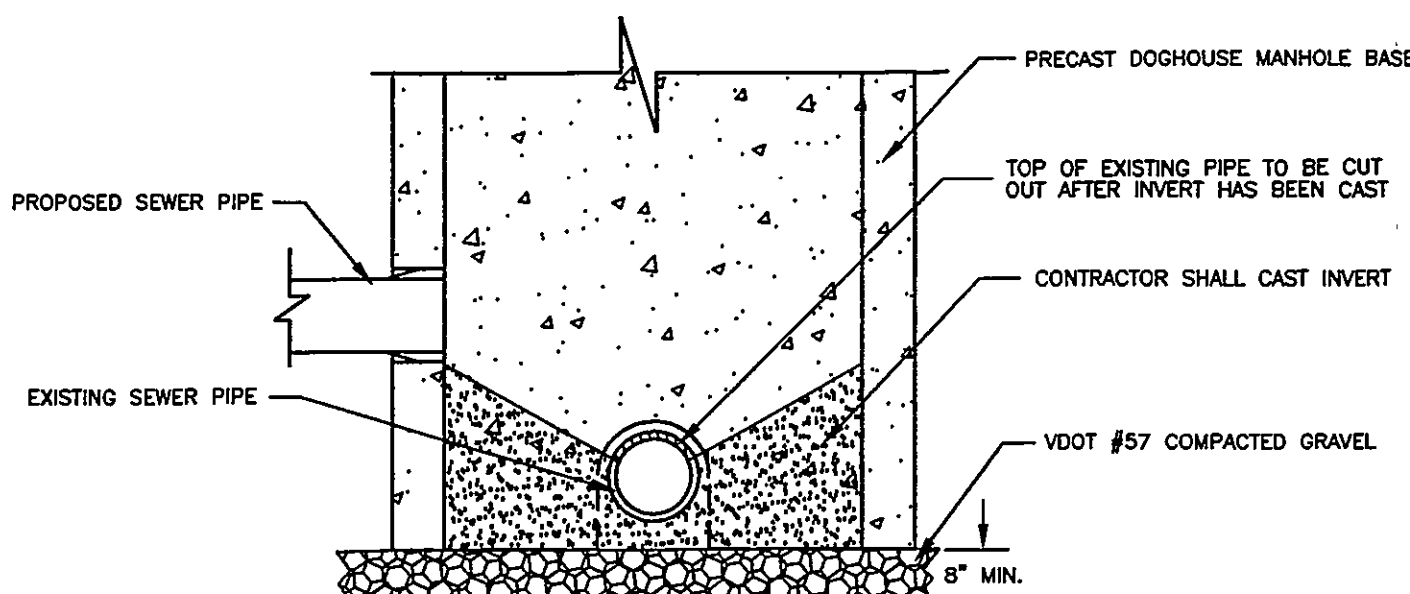


1. CONCRETE TO BE 3500psi (A.E.)
2. SCORE JOINTS SHALL BE PROVIDED @ INTERVALS EQUAL TO SIDEWALK WIDTH OR AS SHOWN ON PLANS. BITUMINOUS EXPANSION SHALL BE USED @ 25'-30' INTERVALS.

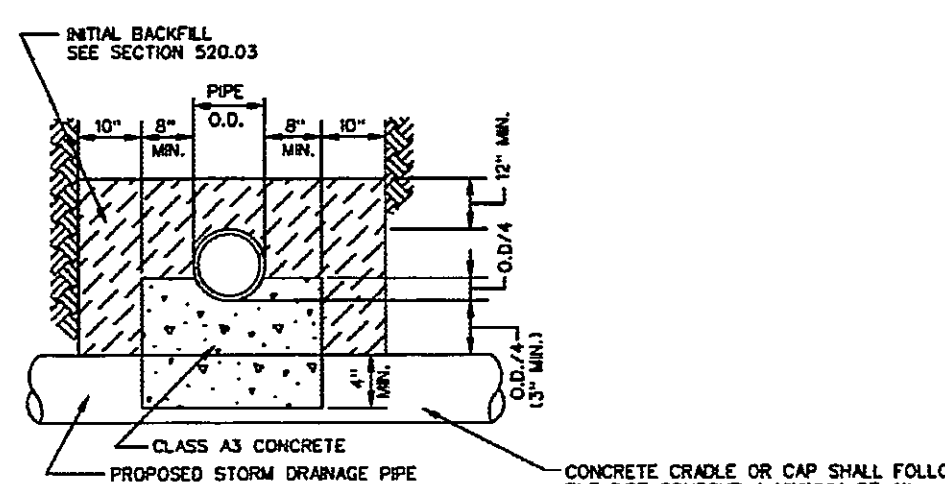
LIGHT DUTY CONCRETE  
NOT TO SCALE



HEAVY DUTY CONCRETE  
NOT TO SCALE

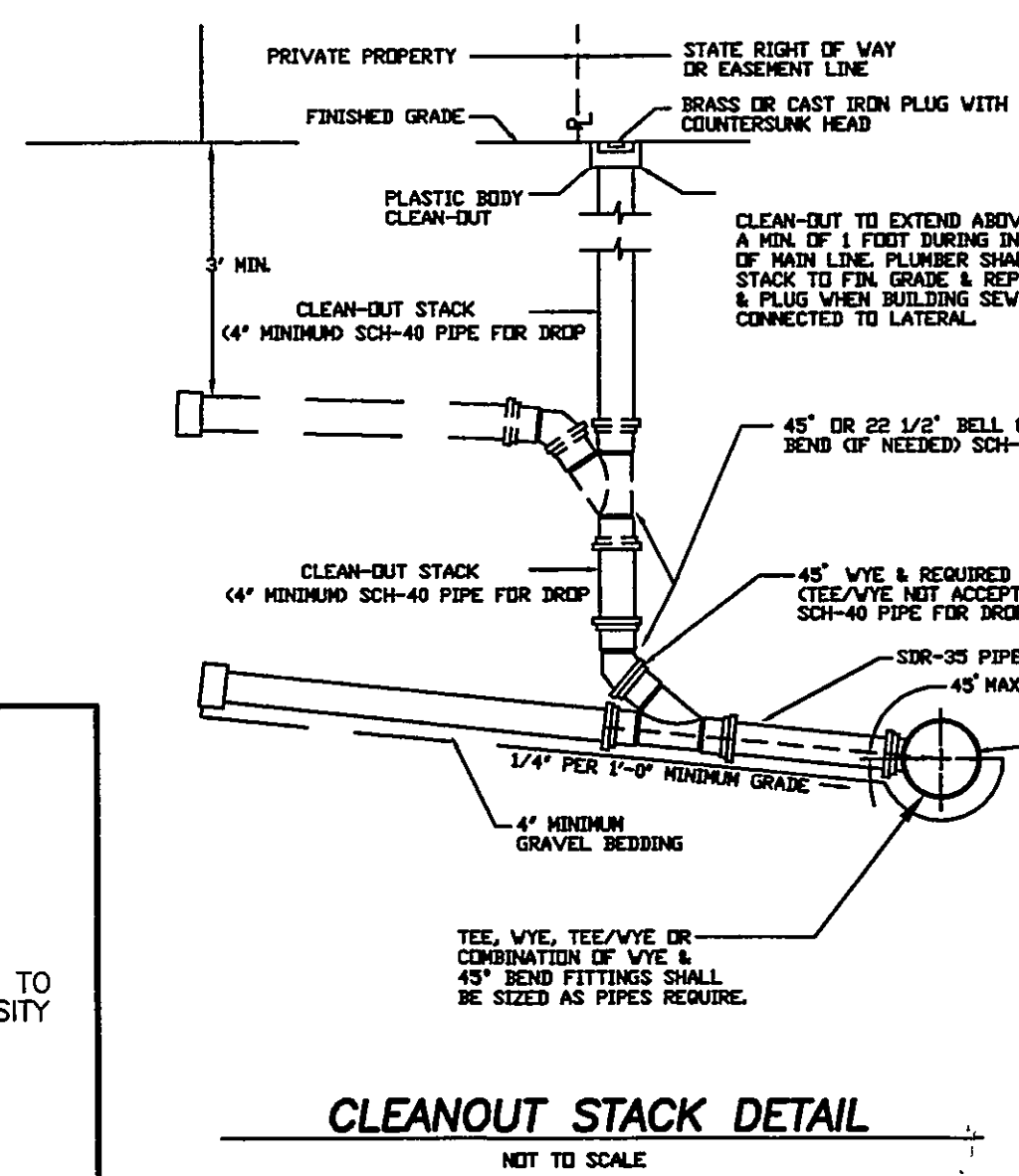


DOGHOUSE MANHOLE DETAIL  
N.T.S.

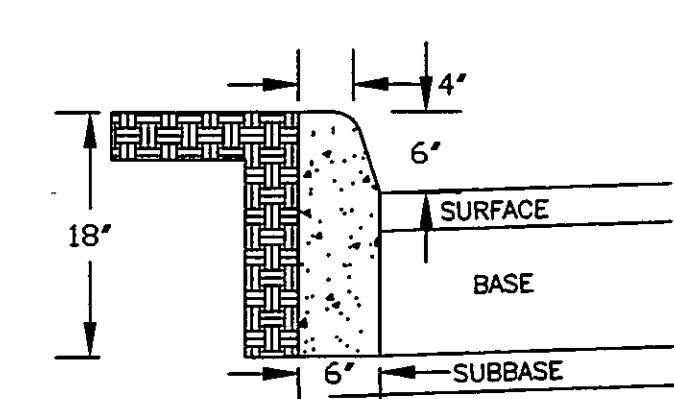


UTILITY CROSSING DETAIL  
NOT TO SCALE

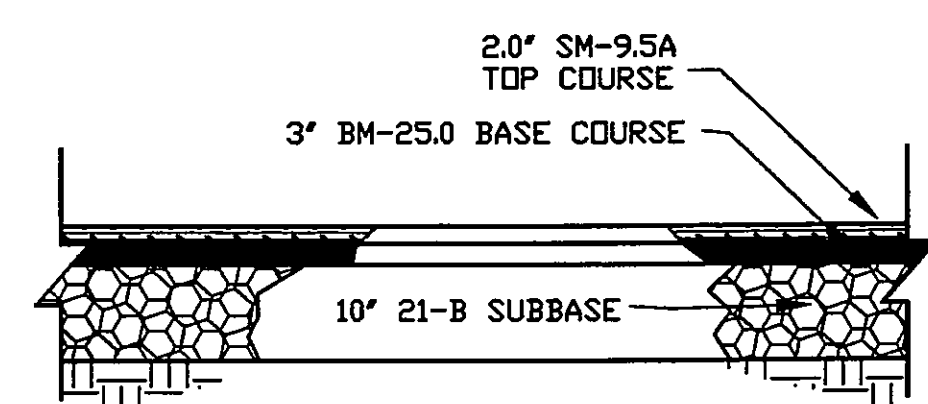
1. WHERE THE TRENCH BOTTOM IS IN ROCK, IT SHALL BE EXCAVATED TO A MINIMUM OF 8" BELOW THE BOTTOM OF THE PIPE AND BACKFILLED WITH BEDDING MATERIAL.
2. WHERE PIPE FOUNDATIONS ARE YIELDING, PIPE SHALL BE BEDDED ON A MINIMUM OF 8" BEDDING MATERIAL.
3. FOR PIPE LESS THAN 12" THE TRENCH WIDTH MAY BE 36" MAXIMUM.



CLEANOUT STACK DETAIL  
NOT TO SCALE



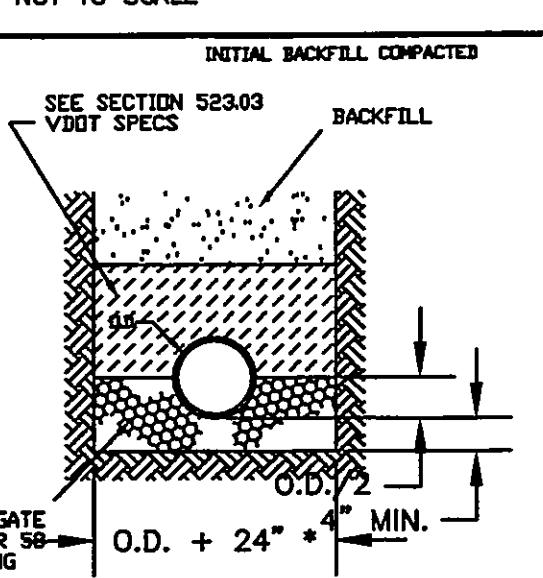
CONSTRUCTION OF A SILT FENCE



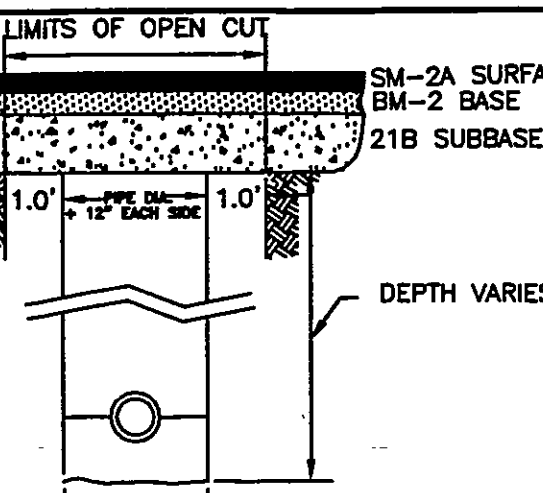
HEAVY-DUTY PAVEMENT DETAIL  
NOT TO SCALE

1. ALL EXPOSED EDGES OF EXISTING BITUMINOUS SURFACE COURSE SHALL BE PRIMED WITH ASPHALTIC MIXTURE PRIOR TO NEW ASPHALT PLACEMENT.
2. ALL PAVEMENT SECTIONS ARE "SUPERPAVE" DESIGNATIONS.

HEAVY-DUTY PAVEMENT DETAIL  
NOT TO SCALE



STORM SEWER BEDDING DETAIL  
NOT TO SCALE



PAVEMENT REPLACEMENT  
NOT TO SCALE

GENERAL 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 AND VIRGINIA REGULATIONS VS 625-02-00 EROSION AND SEDIMENT CONTROL REGULATIONS.
- ES-2 THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE 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 SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
- 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 SUPPLEMENTAL 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 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.

EROSION-SEDIMENTATION CONTROL COST ESTIMATE

ALL COSTS GIVEN ARE COMPLETE IN PLACE				
DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
SILT FENCE	LF	156	\$ 3.00	\$ 468.00
INLET PROTECTION	EA			
PERMANENT SEEDING	1000 SF			
SUB-TOTAL				\$ 468.00
10% CONTINGENCY				\$ 46.80
TOTAL PROJECT COST				\$ 514.80

**ENGINEERING CONCEPTS, INC.**  
P.O. BOX 610  
ROANOKE, VIRGINIA 24060  
540.473.1253 FAX 540.473.1254

DESCRIPTION	BY	MARK	DATE	REVISIONS

DATE	PROJECT	DESIGNED	DRAWN	CHECKED
APRIL 7, 2004				

RODRIGUEZ  
RIPLEY  
MADDOX  
MOTLEY  
ARCHITECTS

**M&W**  
McGowan, Williams & Lewis, Inc.  
820 N. Main Street  
Roanoke, VA 24004  
Telephone: 540-331-4441  
Facsimile: 540-344-5818

**POLICE BUILDING PHASE II**  
CITY OF ROANOKE  
ROANOKE, VIRGINIA  
DRAWING GENERAL NOTES AND DETAILS

SHEET 1  
WWW.ID# GREGEY  
**C-002**  
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