

Revisions By Date

PROVIDENCE  
engineering



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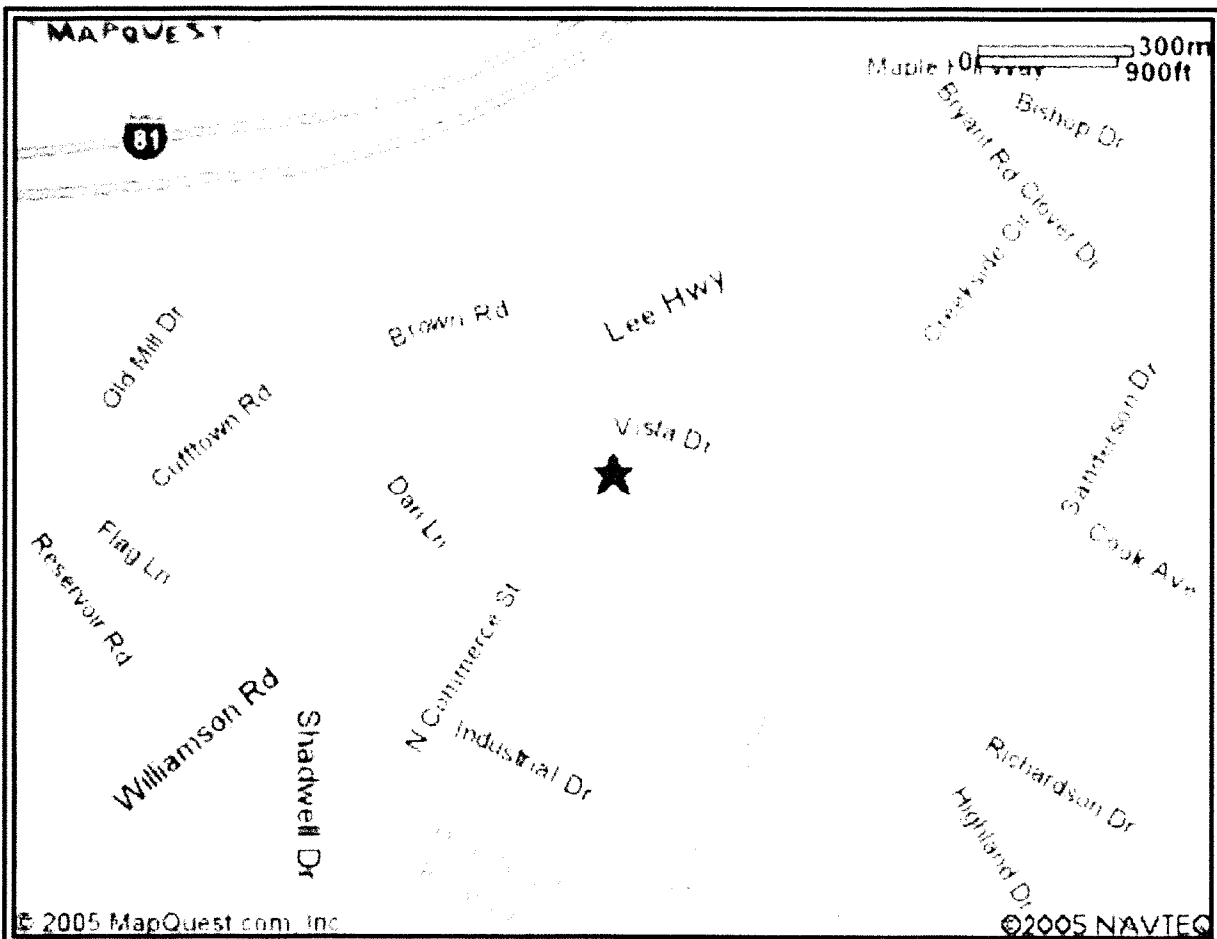
TITLE SHEET & DEVELOPMENT NOTES

EXTENSION OF PHASE 2 ADDITION  
LAWRENCE TRANSPORTATION - VISTA PARK  
BOTETOURT COUNTY, VIRGINIA

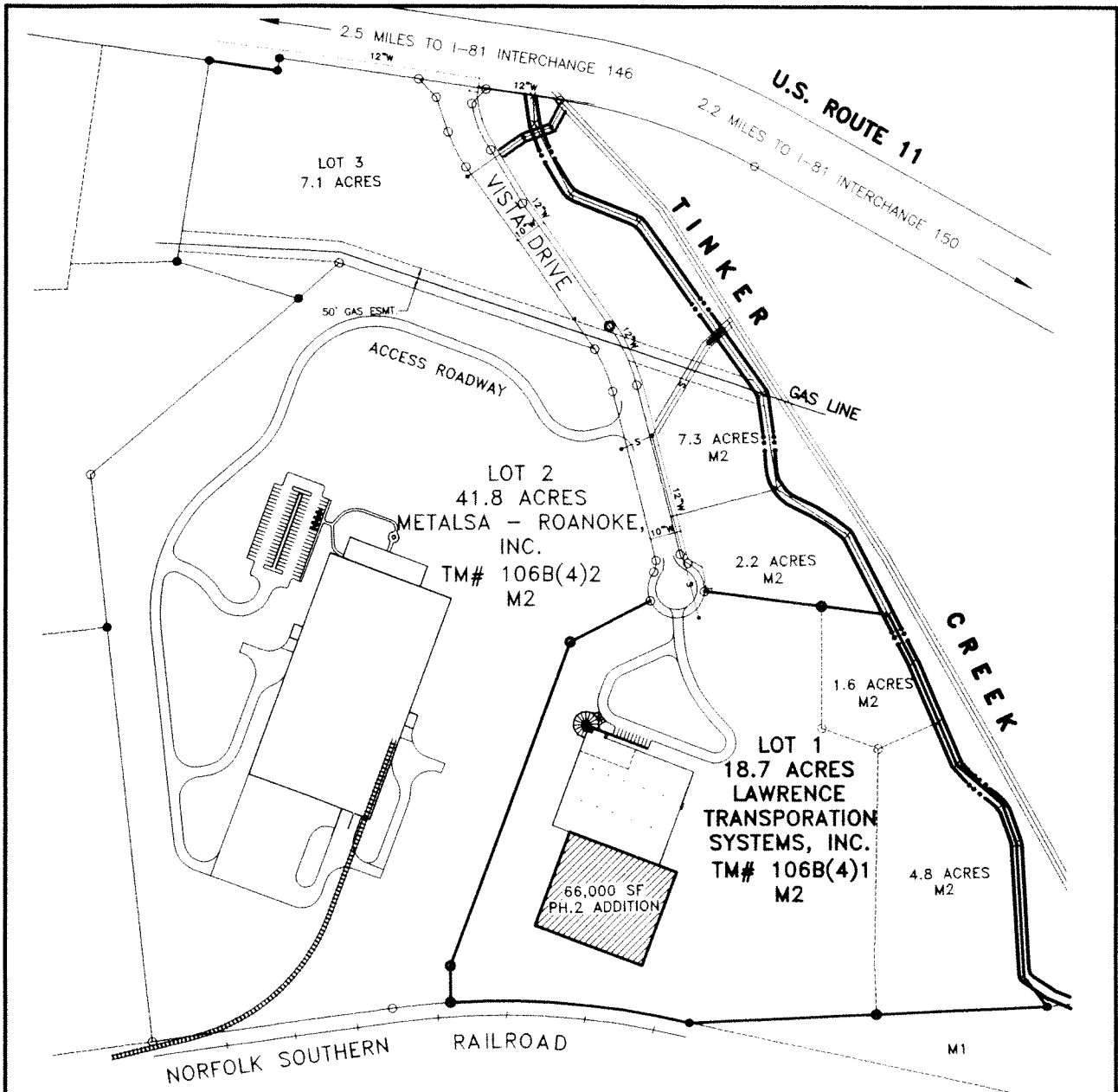
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Date: 1/7/08  
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Sheet No.  
**T1**

# SITE DEVELOPMENT ADDENDUM DRAWINGS FOR EXTENSION OF PHASE II ADDITION LAWRENCE TRANSPORTATION SYSTEMS BUILDING VISTA PARK BOTETOURT COUNTY, VIRGINIA



VICINITY MAP  
NOT TO SCALE



PARCEL KEY PLAN  
TAX ID INFORMATION BASED ON BOTETOURT  
COUNTY GIS RECORDS

Page C2  
To WSL  
5/22/12

## GENERAL DEVELOPMENT INFO. & NOTES

1. PROPERTY OWNER: LAWRENCE TRANSPORTATION SYSTEMS, INC.  
P.O. BOX 7667  
ROANOKE, VIRGINIA 24019  
CONTACT: CHIP LAWRENCE  
PHONE: 540-966-4576
2. TAX ID: #106B(4)1
3. TOTAL AREA OF LOT: 18.68 ACRES  
TOTAL DISTURBED AREA: 4.36 ACRES  
TOTAL LOT COVERAGE: 4.53 ACRES (24%)  
TOTAL LOT COVERAGE (WITH PHASE II-B): 5.91 ACRES (31.6%)  
ALLOWABLE IMPERVIOUS LOT COVERAGE = 60%
4. FLOODPLAIN: COMMUNITY PANEL NUMBER AND ZONE: S10018-175A  
NORTHERN PORTION OF SITE IS WITHIN FEMA DESIGNATED 100-YR FLOOD ZONE.
5. ZONING: M2
6. SETBACKS & YARD REQUIREMENTS: FRONT SETBACK: 80FT + IMPERVIOUS SURFACE DIST.  
REAR SETBACK: 50FT  
FRONT YARD: 50FT  
SIDE YARD: 20FT  
REAR YARD: 40FT
7. BUILDING INFORMATION:  
MAXIMUM HEIGHT=32'  
AREA:  
EXISTING FOOTPRINT AREA = 65,000 S.F. +/-  
NEW ADDITION PHASE II FOOTPRINT AREA = 66,000 S.F. +/-  
NEW ADDITION PHASE II-B FOOTPRINT AREA = 60,000 S.F. +/-  
TOTAL FOOTPRINT AREA = 191,000 S.F. +/-
8. PARKING: REQUIREMENTS  
TRUCK TERMINAL:  
1.0 PER EMPLOYEE IN LARGEST SHIFT, PARKING REQ'D: 8 SPACES  
PLUS 1 TRUCK SPACE. PARKING PROVIDED: 12 EXIST. SPACES
9. FLOOR AREA RATIO: ALLOWABLE=0.4x18.68 AC= 7.47 ACRES  
EXISTING F.A.R.=.08=1.5 ACRES PROPOSED F.A.R.=.081=1.5 ACRES  
TOTAL EXISTING & PROPOSED F.A.R.=1.5+3 ACRES  
TOTAL EXISTING & PROPOSED F.A.R.(WITH PHASE II-B) =.23=4.38 ACRES
10. SIGNAGE IS NOT INCLUDED AS PART OF THIS SUBMITTAL
11. CONTRACTOR SHALL MAINTAIN LIMITS OF CONSTRUCTION WITHIN THE BOUNDARIES OF THE PROPERTY AS INDICATED ON THE SITE PLAN.
12. BOUNDARY & FIELD TOPOGRAPHY BY MATTERN & CRAIG, INC. & McMURRY SURVEYORS
13. PARKING LOT LIGHTING SHALL NOT GLARE ONTO ADJOINING PROPERTIES OR RIGHT-OF-WAYS. NO NEW LIGHTING PROPOSED AS PART OF THIS WORK.

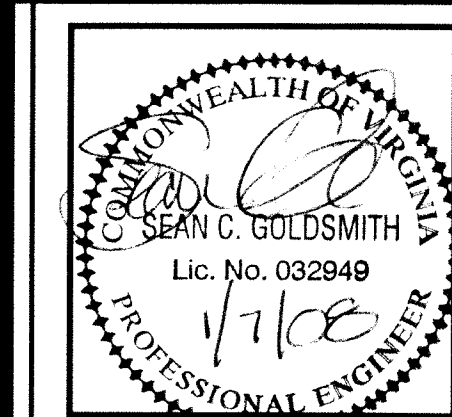
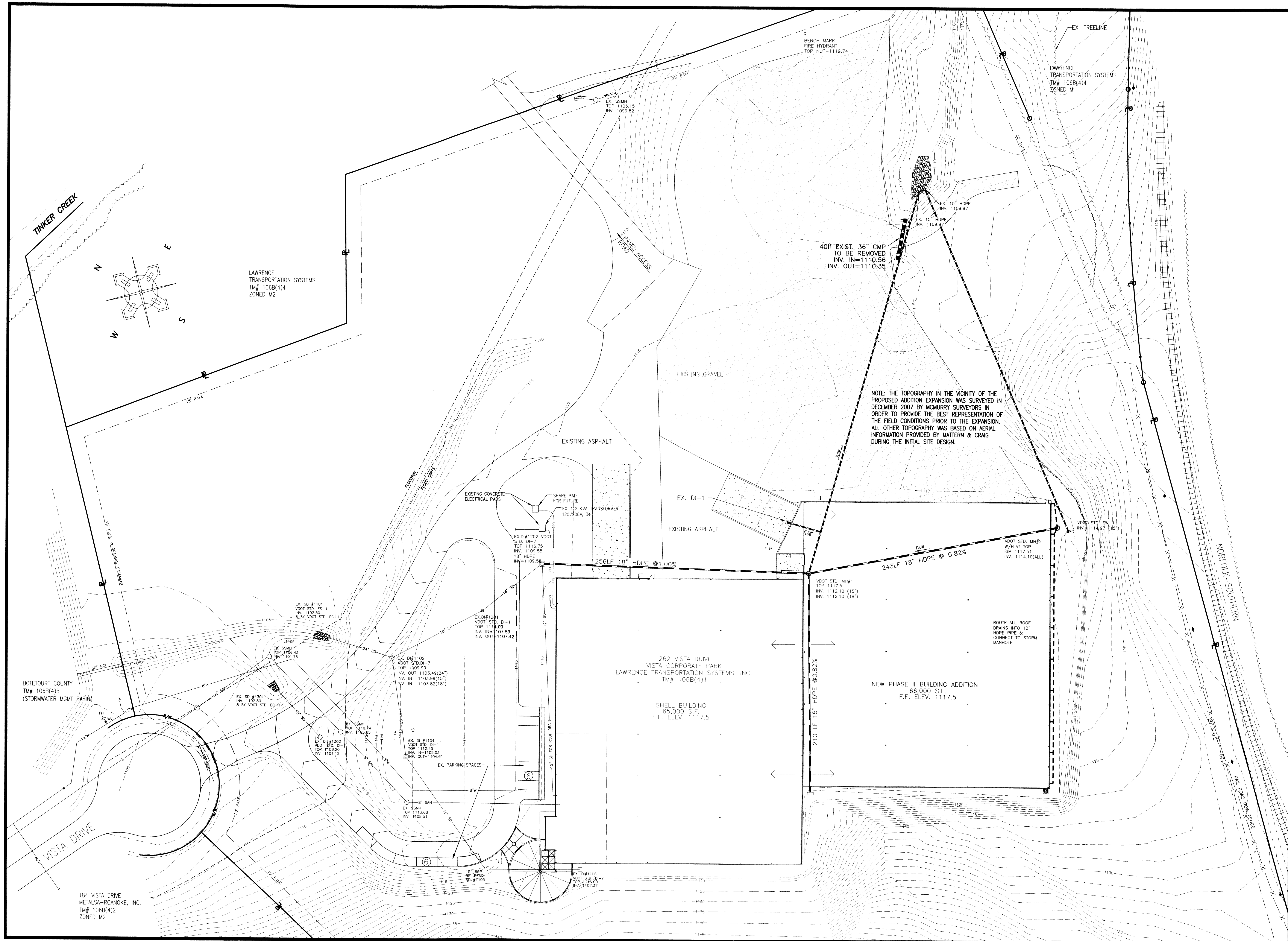
CONTRACTOR: PRICE BUILDINGS  
1111 CALLAWAY ROAD  
ROCKY MOUNT, VIRGINIA 24151  
CONTACT: HAVEN PRICE

ENGINEER: PROVIDENCE ENGINEERING  
819 NAFF RD.  
BOONES MILL, VIRGINIA 24065  
CONTACT: SEAN GOLDSMITH, PE

OWNER: CONTACT: CHIP LAWRENCE  
LAWRENCE TRANSPORTATION SYSTEMS, INC.  
P.O. BOX 7667  
ROANOKE, VIRGINIA 24019

## SHEET INDEX

- T1 TITLE SHEET & NOTES
- C1 EXISTING CONDITIONS & DEMOLITION
- C2 DIMENSIONAL LAYOUT
- C3 GRADING & EROSION CONTROL
- C4 UTILITIES PLAN
- C5 ESC DETAILS
- C6 SANITARY SEWER & MISC. DETAILS
- D1 DRAINAGE SHEET



Revisions by: \_\_\_\_\_ Date: \_\_\_\_\_

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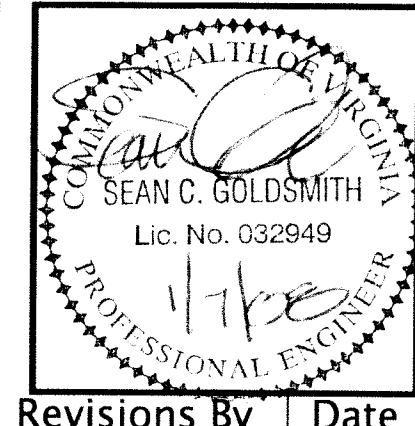
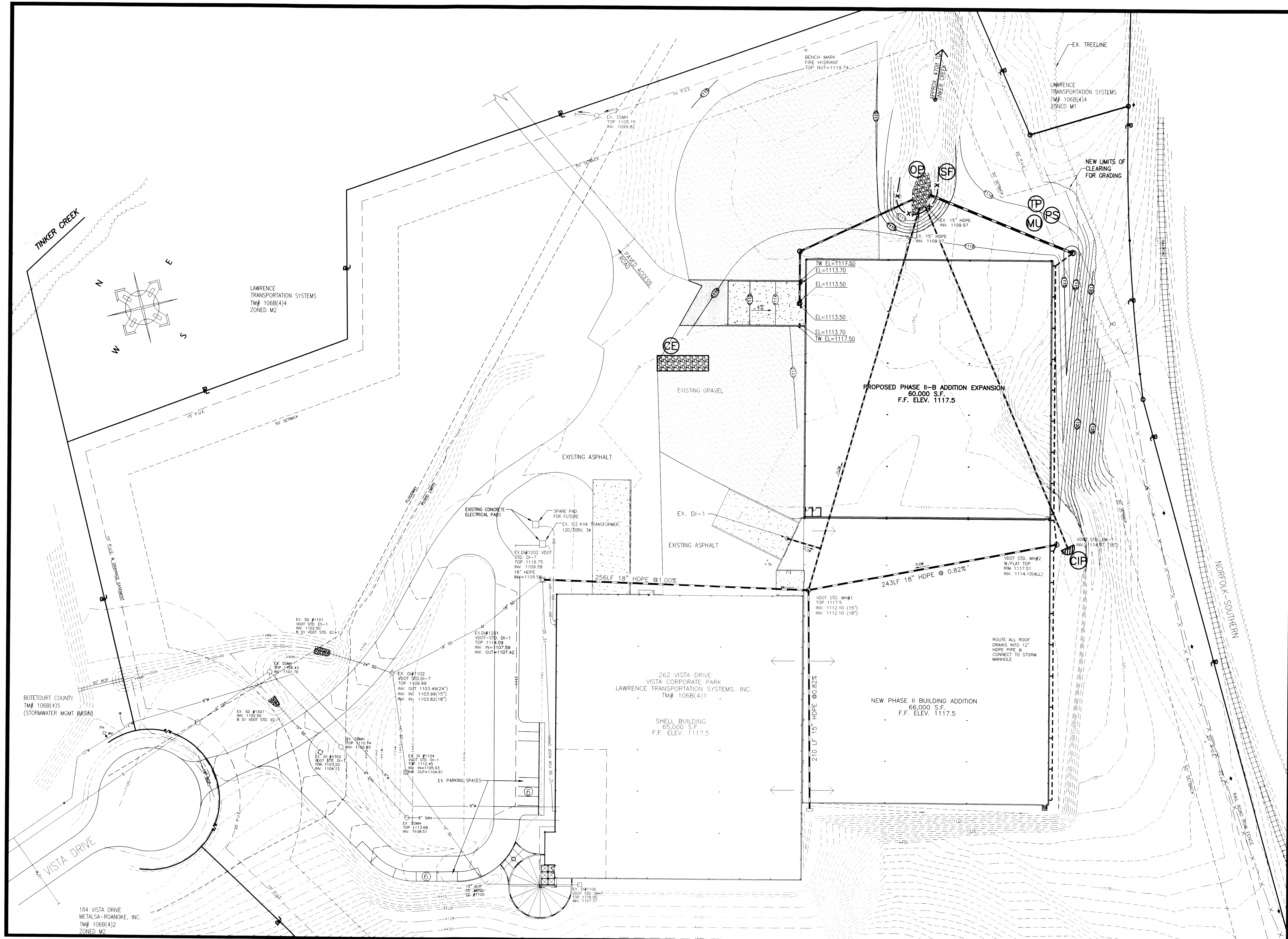
EXISTING CONDITIONS - WITH PH. II ADDITION

EXTENSION OF PHASE 2 ADDITION  
LAWRENCE TRANSPORTATION - VISTA PARK  
BOTETOURT COUNTY, VIRGINIA

Scale: 1"=40'  
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**GRADING & EROSION CONTROL**

**EXTENSION OF PHASE 2 ADDITION**

**LAWRENCE TRANSPORTATION - VISTA PARK**

**BOTETOURT COUNTY, VIRGINIA**

Scale: 1"=40'  
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Table with 5 columns: CLEANOUT ID, SIZE, TRAFFIC BEARING, TOP EL., INV. EL., LENGTH BETWEEN. Rows include CO1 through CO5 with specific measurements and elevations.

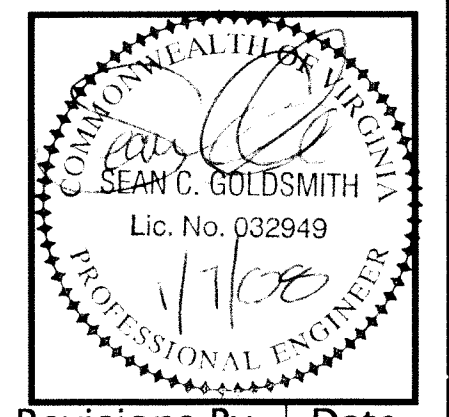
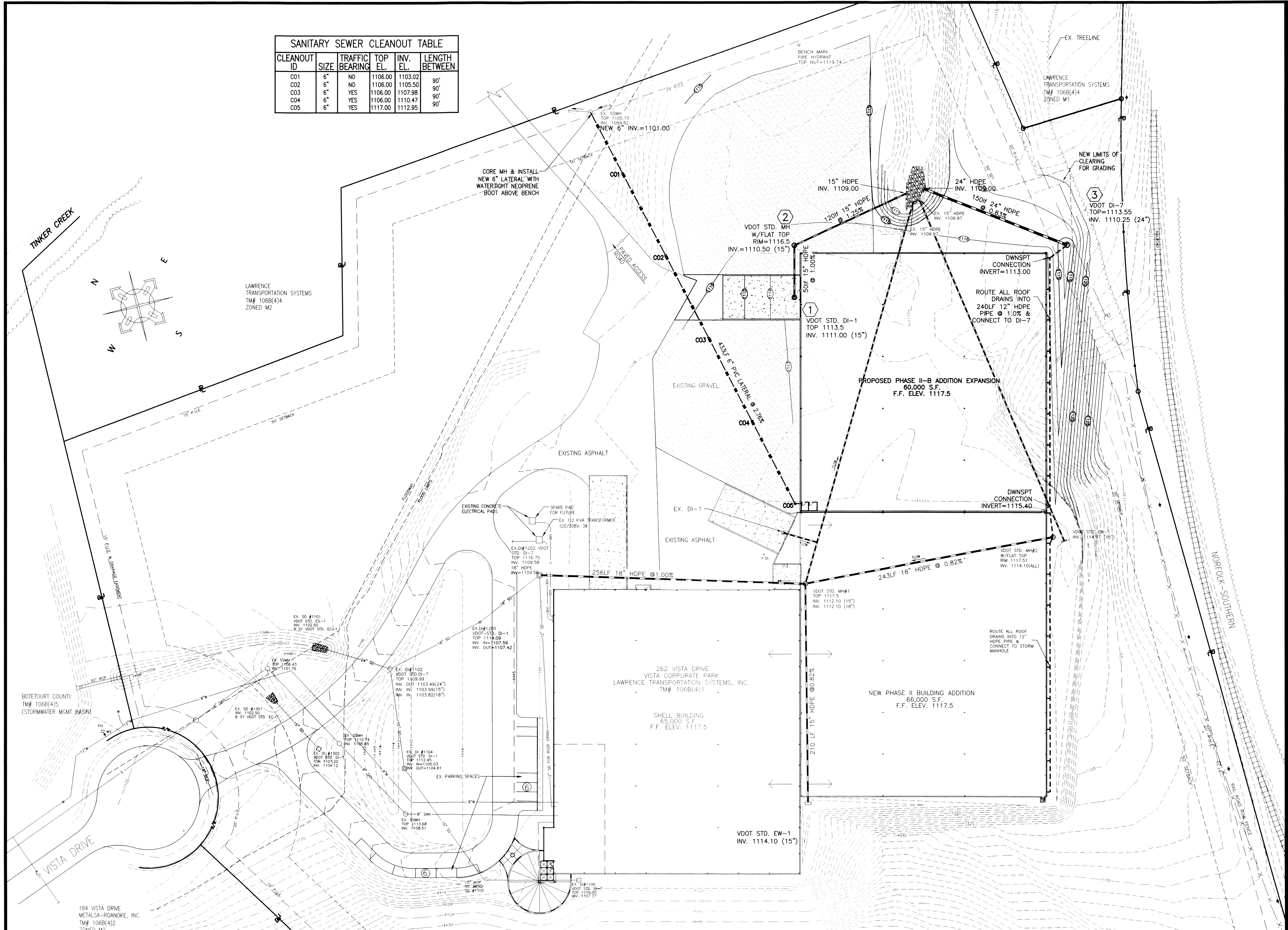


Table with 2 columns: Revisions By, Date. Contains revision history entries.

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UTILITIES PLAN

EXTENSION OF PHASE 2 ADDITION  
LAWRENCE TRANSPORTATION SYSTEMS - VISTA PARK  
BOTETOURT COUNTY, VIRGINIA

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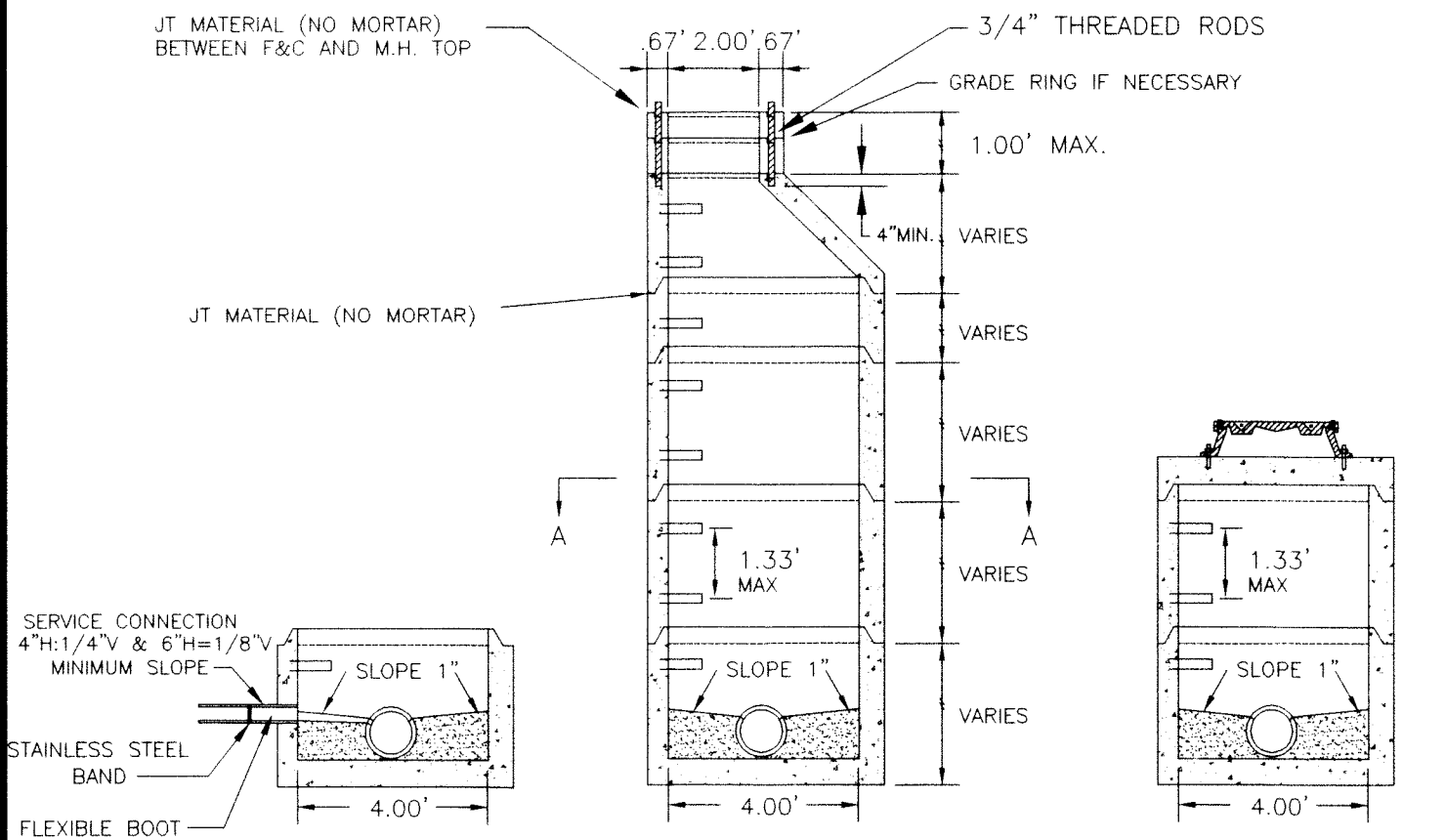
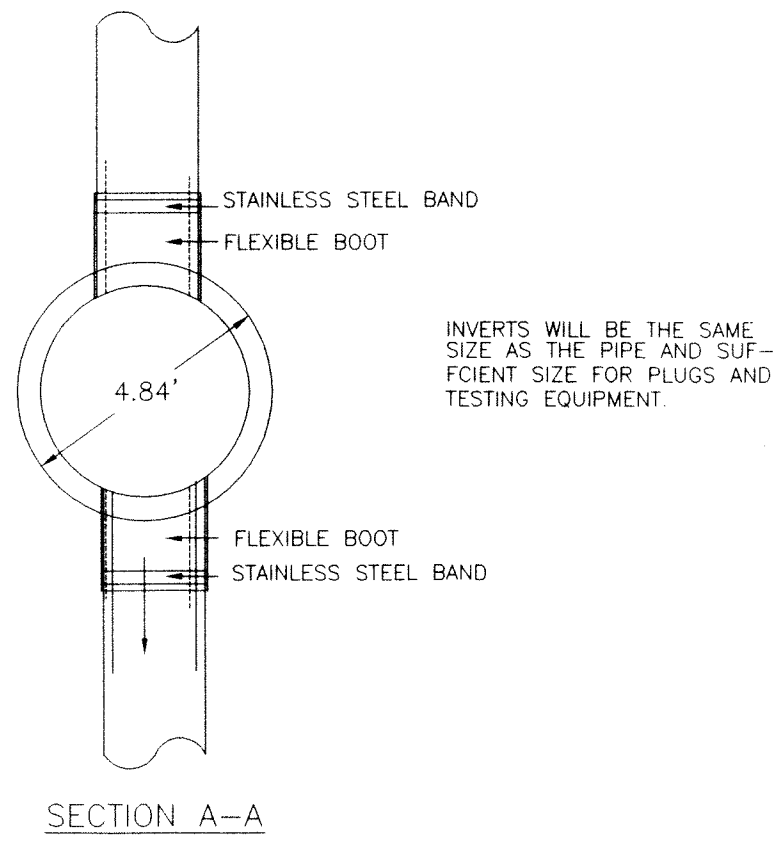




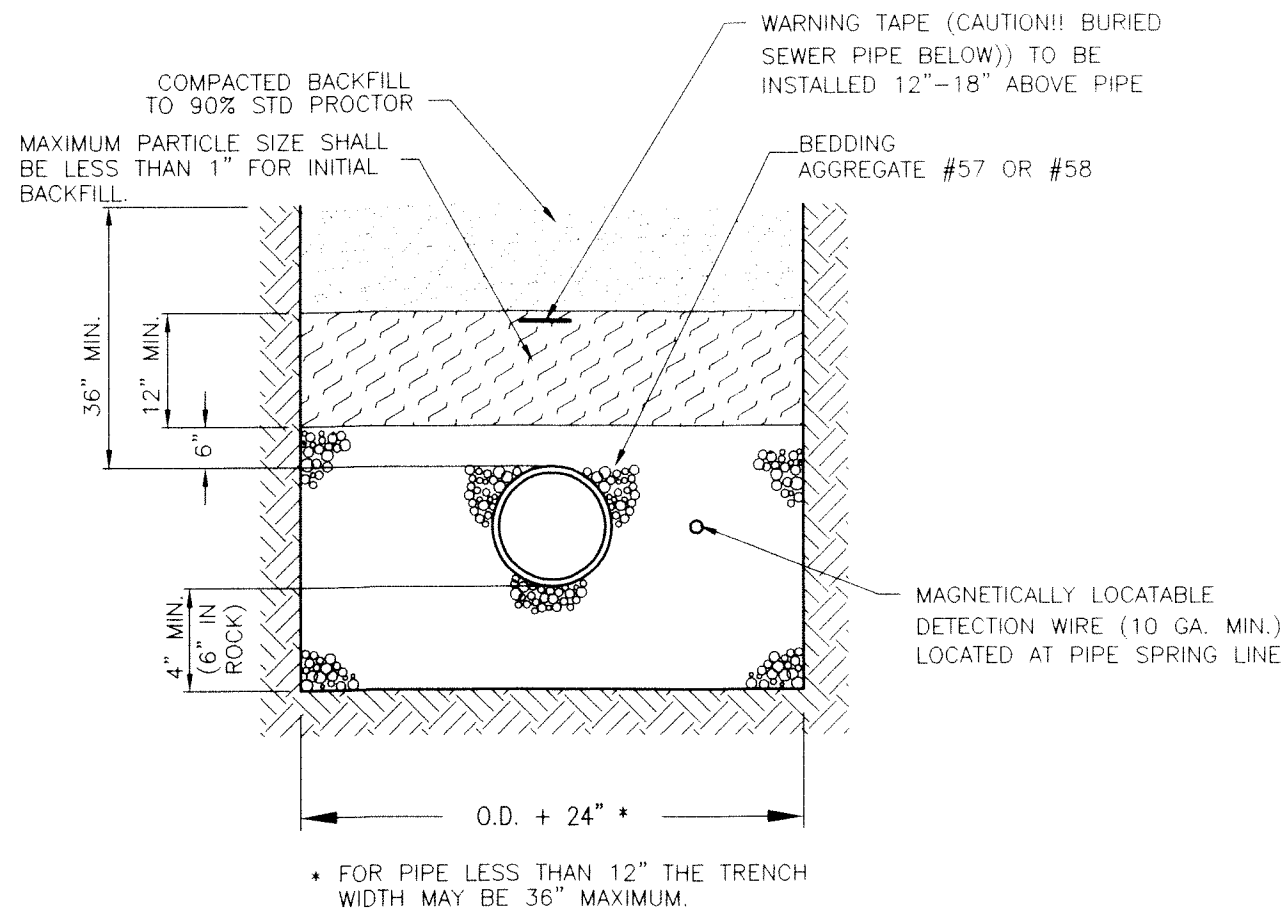


NOTES:

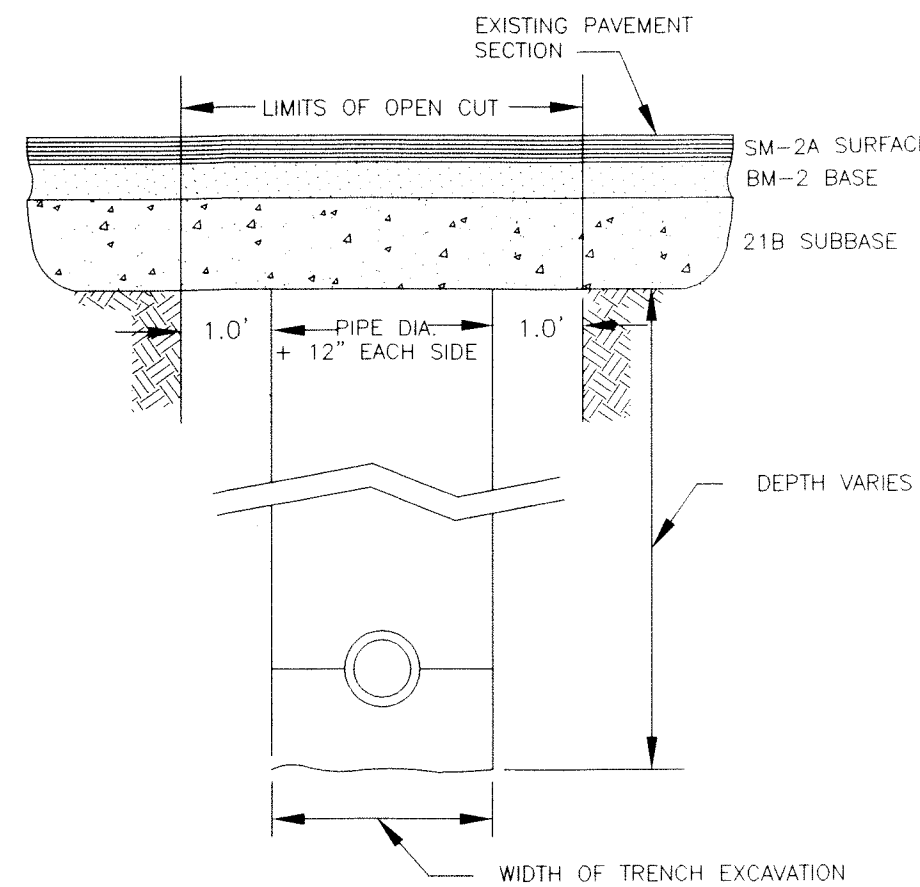
1. ALL MANHOLE FRAMES AND COVERS SHALL BE DEWEY BROTHERS, INC. MH-RCR-3000W IN NON-PAVED AREAS REQUIRING WATERTIGHT FRAME & COVERS AND MH-RCR-3000EC IN PAVED AREAS.
2. THE FIRST STEP IN THE ECCENTRIC MANHOLE SHALL BE 1 FOOT FROM THE BOTTOM OF GRADE RING AND A MAXIMUM OF 4.5 INCHES WIDE FROM THE INSIDE FACE OF THE CONE SECTION.
3. STRADDLE MANHOLE BASE SECTION WILL BE ALLOWED. THE ENTIRE MANHOLE STRUCTURE INCLUDING FRAME AND COVER SHALL BE INSTALLED BEFORE CUTTING THE TOP OF THE SEWER PIPE IN THE MANHOLE. BOTETOURT COUNTY PERSONNEL TO CUT EXISTING PIPE.
4. THE FRAME AND COVER SHALL BE PROPERLY ALIGNED WITH THE 2 FOOT OPENING OF THE MANHOLE STRUCTURE AND BOLTED IN PLACE.
5. ALL SAMPLING MANHOLES SHALL BE CONSTRUCTED AS PER MANHOLE DETAILS. WHEN NECESSARY, THE THE FLAT TOP MANHOLE MAY BE SUBSTITUTED, WITH ECCENTRIC OPENING AT STEPS.
6. FLAT TOP TO BE VDOT APPROVED FOR TRAFFIC BEARING. WHEN USED IN AREAS SUBJECT TO TRAFFIC.



**4' STANDARD MANHOLE  
FOR PIPE 15" OR SMALLER**



**SANITARY SEWER BEDDING DETAIL**



- A. THE CONTRACTOR SHALL REPLACE THE OPEN CUT WITH A MINIMUM TOP COURSE, 2" VDOT SM-2A, BASE COURSE, 3" VDOT BM-2, AND SUBBASE, 8" VDOT 21B.
- B. ALL CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE AS SPECIFIED OR AS REQUIRED BY VDOT.
- C. ALL EXPOSED EDGES OF EXISTING BITUMINOUS SURFACE COURSE SHALL BE PRIMED WITH A MATERIAL SATISFACTORY TO THE DIRECTOR BEFORE THE BITUMINOUS MIXTURES ARE REPLACED. EDGES OF TRENCH SHALL BE CUT TO A STRAIGHT LINE PRIOR TO PAVING.
- D. THE BACKFILL IN THE TRENCH SHALL BE SUITABLE AND THOROUGHLY COMPACTED IN 6-INCH LAYERS BY TAMPING OR BY OTHER APPROVED METHOD BEFORE THE OPENING IS PAVED. NO EXCAVATIONS UNDER THE EXISTING PAVEMENT WILL BE PERMITTED. SHEETING OR SHORING SHALL BE USED WHEN REQUIRED BY THE DEPTH OF THE TRENCH OR TYPE OF MATERIAL IN ACCORDANCE WITH VIRGINIA O.S.H.A. STANDARDS.

**PAVEMENT REPLACEMENT  
OPEN CUT ROADWAY**

**SANITARY SEWER NOTES:**

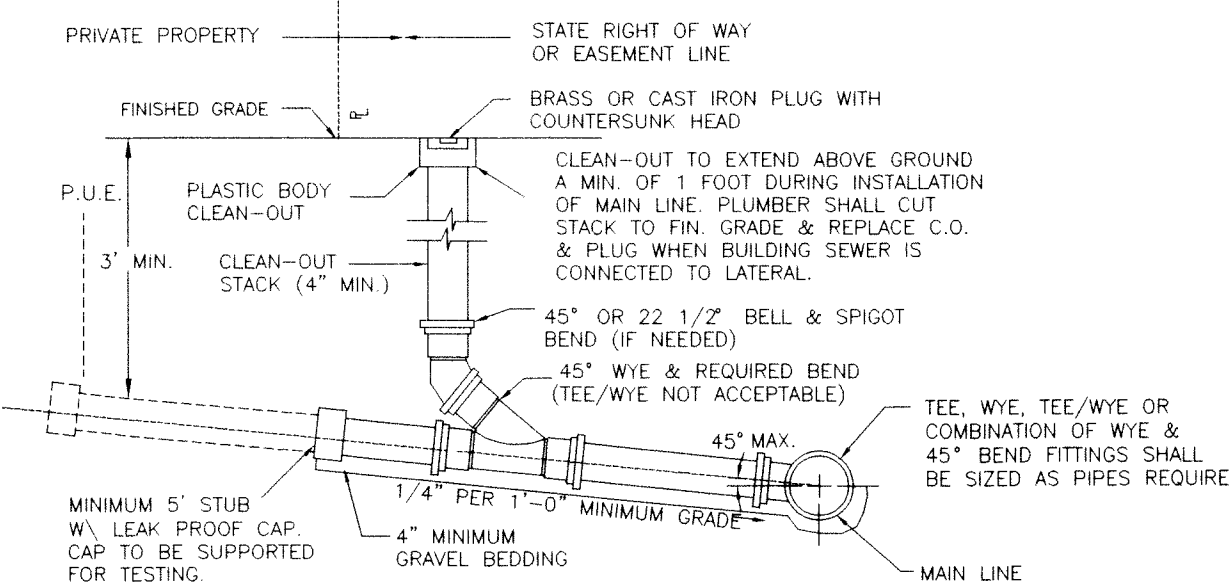
1. ALL CONSTRUCTION, INSTALLATION, AND TESTING OF WATER AND SANITARY SEWER SHALL COMPLY WITH THE CURRENT EDITION OF THE BOTETOURT COUNTY WATER AND SEWER STANDARDS.
2. CONTRACTOR SHALL OBTAIN A COPY OF THE MOST RECENT EDITION OF THE BOTETOURT COUNTY WATER AND SEWER CONSTRUCTION STANDARDS & SPECIFICATIONS. CONTRACTOR SHALL PROVIDE DOCUMENTATION TO THE COUNTY CONCERNING THE CONTRACTOR'S POSSESSION OF AND FAMILIARITY WITH STANDARDS AND REQUIREMENTS THEREIN.
3. CONTRACTOR SHALL SCHEDULE A PRECONSTRUCTION MEETING ONSITE TO BE ATTENDED BY NO LESS THAN THE FOLLOWING: BOTETOURT COUNTY REPRESENTATIVES, CONTRACTOR'S REPRESENTATIVE (INCLUDING SITE SUPERINTENDENT OF UTILITY INSTALLATION), DESIGN ENGINEER, ANY MATERIAL SUPPLIERS OR SUBCONTRACTORS THAT THE CONTRACTOR FEELS NECESSARY TO ATTEND.
4. 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 OWNER AND LOCAL UTILITY DEPARTMENT AS REQUIRED.
5. MINIMUM COVER ON ALL PIPE SHALL BE 3 FEET, UNLESS OTHERWISE SPECIFICALLY INDICATED ON THESE DRAWINGS. ALL PVC PIPE SHALL BE INSTALLED WITH COATED TRACER WIRE TO INDICATE FUTURE LOCATION OF PIPE AFTER CONSTRUCTION IS COMPLETED.
6. 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 RADIUS.
7. NO PLANTINGS SHALL BE ALLOWED WITHIN THE SANITARY SEWER EASEMENT. NO PLANTINGS SHALL BE ALLOWED WITHIN 10' OF SANITARY SEWER SERVICE CLEANOUTS.
8. ALL PIPING SHALL BE SDR-35 PVC UNLESS OTHERWISE NOTED. ANY DUCTILE IRON PIPE SPECIFIED SHALL BE TYTON JOINT, SEWER COAT, CLASS 52.

**SANITARY SEWER TESTING**

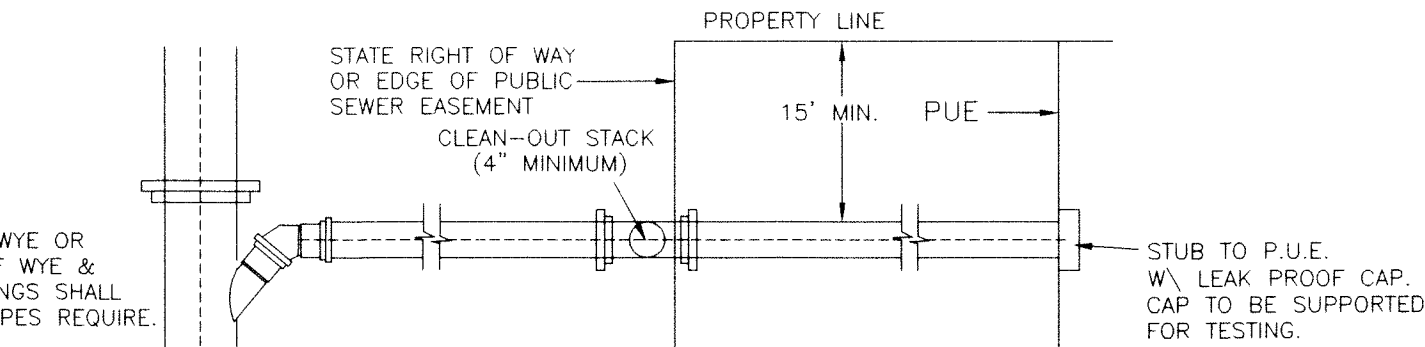
- A. Air Testing
1. The Contractor shall plug the pipe and shall conduct a low pressure air test to determine the acceptability of the completed work. The Contractor shall furnish all men, materials, and supplies necessary to assist in the conducting of the tests. The pressure tests shall conform to UNI-B-8-80 and ASTM F-447.
  - a. Plug Test: Pneumatic plugs shall have a sealing length equal to or greater than the diameter of the pipe tested. Plugs shall resist internal test pressures without requiring external bracing or blocking. Plugs shall be tested prior to installation in a pipe run. A joint of pipe shall be sealed at both ends with the plugs to be used in the sewer test. Air shall be introduced into the plugs to 25 psig. The sealed pipe shall be pressurized to 9 psig. The plugs shall withstand this pressure without bracing or movement. No personnel shall be allowed in the alignment of the pipe during plug testing.
  - b. Line Pressurization: The line segment to be tested shall be plugged and pressurized to 4.0 psi greater than the groundwater backpressure but not to exceed 9 psi. The line pressure shall be allowed to stabilize for at least 2 minutes. Upon stabilization, the air supply hose shall be disconnected from the control panel. The continuous monitoring pressure gauge shall then be observed while the pressure decreases to not less than 3.5 psi greater than the average back pressure of any groundwater over pipe.
  - c. Pressure Loss Timing: At a reading of 3.5 psi greater than the average back pressure of any groundwater over the pipe, the timing shall commence with a stopwatch that is at least 99.8 percent accurate. The time (to the nearest second) shall be noted for the pressure to drop 1.0 psig.
  - d. Test Time Criteria: All test times shall be calculated using Ramseser's equation  $T = 0.085 D^3 / KQ$ , where: T=Shortest test time allowed for air pressure to drop 1.0 psig, in seconds; K=0.000419 D^3 L, but not less than 1.0; Q=0.0015 cubic feet/minute/square feet of internal surface; D=nominal pipe diameter, in inches; L=length of pipe being tested, in feet. Accordingly, minimum test times shall be:  
3.8 minutes for 4 inch (L<597 ft)  
5.7 minutes for 6 inch (L<396 ft)  
7.6 minutes for 8 inch (L<296 ft)  
11.3 minutes for 12 inch (L<199 ft)
  - e. Acceptability: If the elapsed time to drop 1.0 psig is less than the test time criteria established above, then the air loss shall be considered excessive and the section of pipe has failed the test. Contractor shall, at his own expense, locate the source of the leakage, repair or replace all defective materials and/or workmanship, and re-test until satisfactory results are obtained.
- B. Deflection Testing for PVC Pipe: All PVC gravity sewer lines shall be subject to vertical deflection testing using a GO-NO-GO mandrel no sooner than two weeks following completion of backfill and compaction of the trench. Maximum permissible deflection shall be 5% of the pipe's internal diameter. A nine arm Mandrel with a proving ring sized at 5% less than the ASTM dimension for the pipe and a length equal to the nominal diameter of the pipe being tested. The mandrel shall be pulled through the sewer line manually. Any sewer not passing the mandrel test shall be corrected until the test is passed.
- D. Manhole Vacuum Testing: Installation of vacuum equipment and indicating devices shall be in accordance with equipment specifications and performance information as provided by the manufacturer and acceptable to the engineer.
1. A measured vacuum of 10 inches of mercury shall be established in the manhole. The time for the vacuum drop to nine inches of mercury shall be recorded.
  2. The minimum allowable elapsed time for a four-foot diameter manhole shall be in accordance with the following:  
Manhole Depth Min. Elapsed Time for a Pressure Change of 1" Mercury  
10ft. or less 60 seconds  
>10ft. but <15ft. 75 seconds  
>15ft. but <25 90 seconds
- For manholes five feet in diameter, add an additional 15 seconds. For manholes 6 feet in diameter, add an additional 30 seconds to the time requirements for four foot diameter manholes.
3. If the manhole fails the test, necessary repairs shall be made and the vacuum test and repairs shall be repeated until the manhole passes the test.
  4. If a manhole joint mastic or gasket is pulled out during the vacuum test, then the manhole shall be disassembled and the mastic or gasket replaced.

GENERAL NOTES:

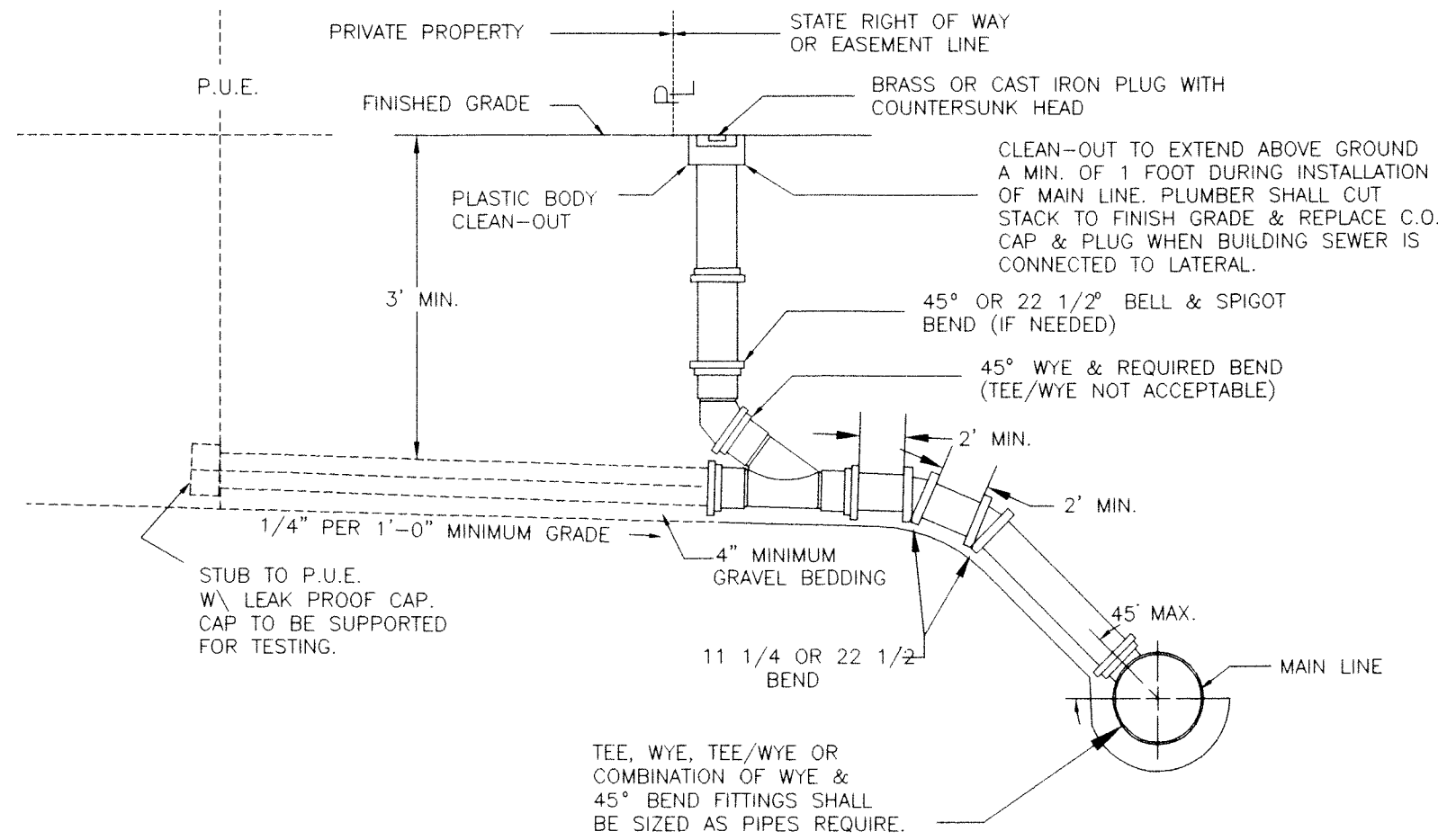
1. TRAFFIC BEARING BOX REQUIRED IN TRAFFIC AREAS.
2. ALL PIPE AND FITTINGS SHALL BE OF SIMILAR MATERIAL.
3. ALL PIPE SHALL BE OF SAME SIZE.
4. NO BENDS ARE ALLOWED IN THE LATERAL FROM THE MAIN TO THE CLEAN-OUT STACK WYE. (EXCEPT AS NOTED)
5. ALL MAIN LINE TAPS ON ACTIVE MAINS WILL BE PERFORMED BY BOTETOURT COUNTY UTILITY DEPT.
6. A DROP CONNECTION TO THE CLEAN OUT STACK WILL BE ACCEPTABLE ONLY WHEN THE FOLLOWING CONDITIONS APPLY (A) THE DEPTH EXCEEDS 8 FEET (B) CLEANOUT STACK AND FITTINGS ARE SCH-40 PIPE.
7. LATERAL MUST BE MIN. 15' FROM PROPERTY CORNER.
8. LATERAL SIZE MINIMUM 4" FOR RESIDENTIAL SERVICE 6" FOR NON-RESIDENTIAL SERVICE
9. MINIMUM COVER FOR ALL SEWER LATERALS SHALL BE THREE (3') FEET.



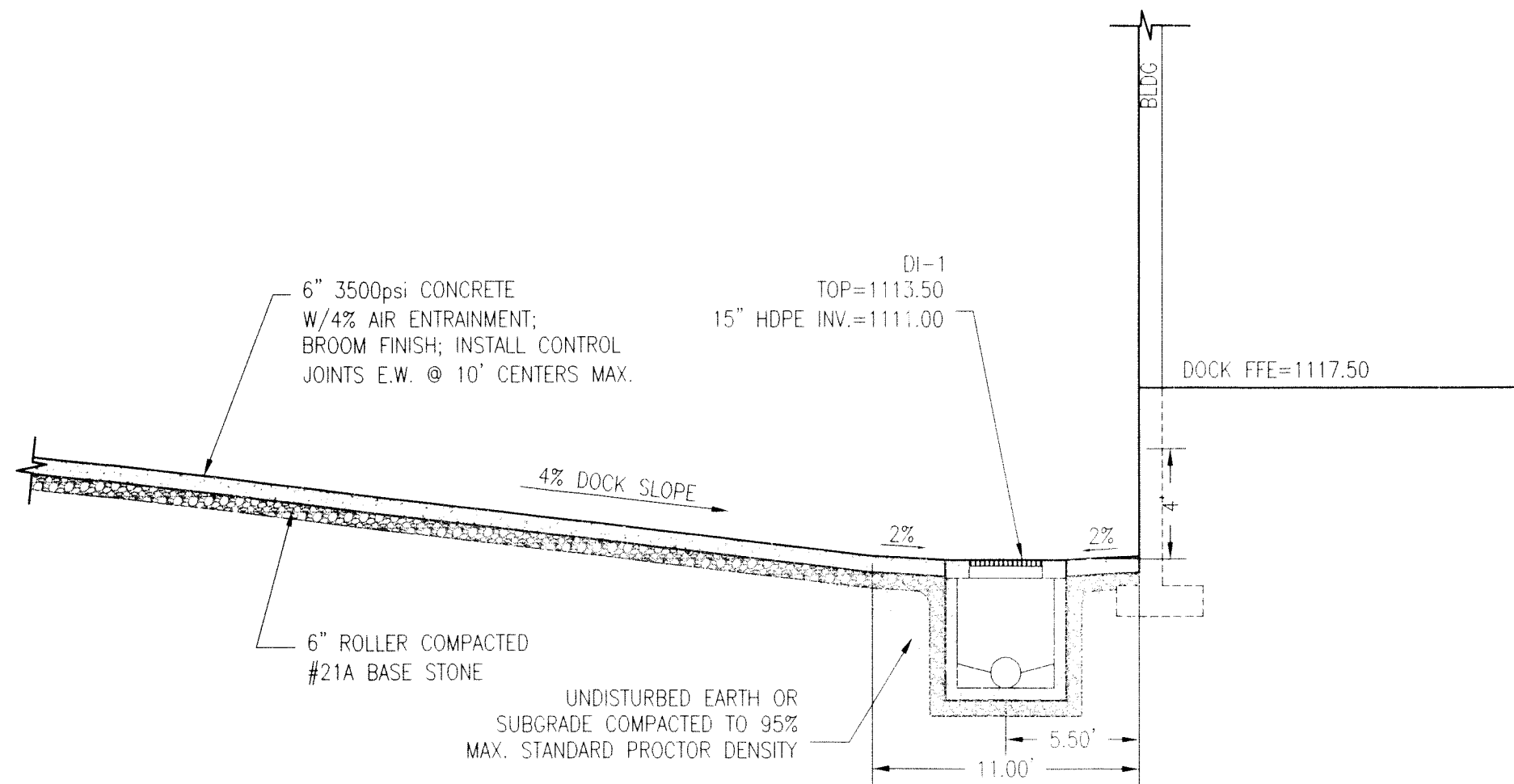
**SANITARY SEWER LATERAL**



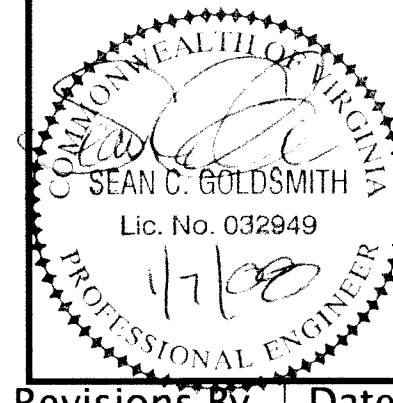
**SANITARY SEWER LATERAL**



**SANITARY SEWER LATERAL IN P.U.E.**



**LOADING DOCK DETAIL  
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UTILITY DETAILS

EXTENSION OF PHASE 2 ADDITION

LAWRENCE TRANSPORTATION - VISTA PARK

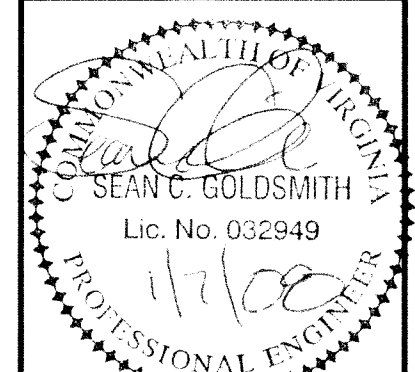
BOTETOURT COUNTY, VIRGINIA

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ADEQUATE CHANNEL DRAINAGE PLAN

PHASE 2B - ADDITION EXPANSION  
LAWRENCE TRANSPORTATION SYSTEMS  
BOTETOURT COUNTY, VIRGINIA

Scale: 1"=200'  
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