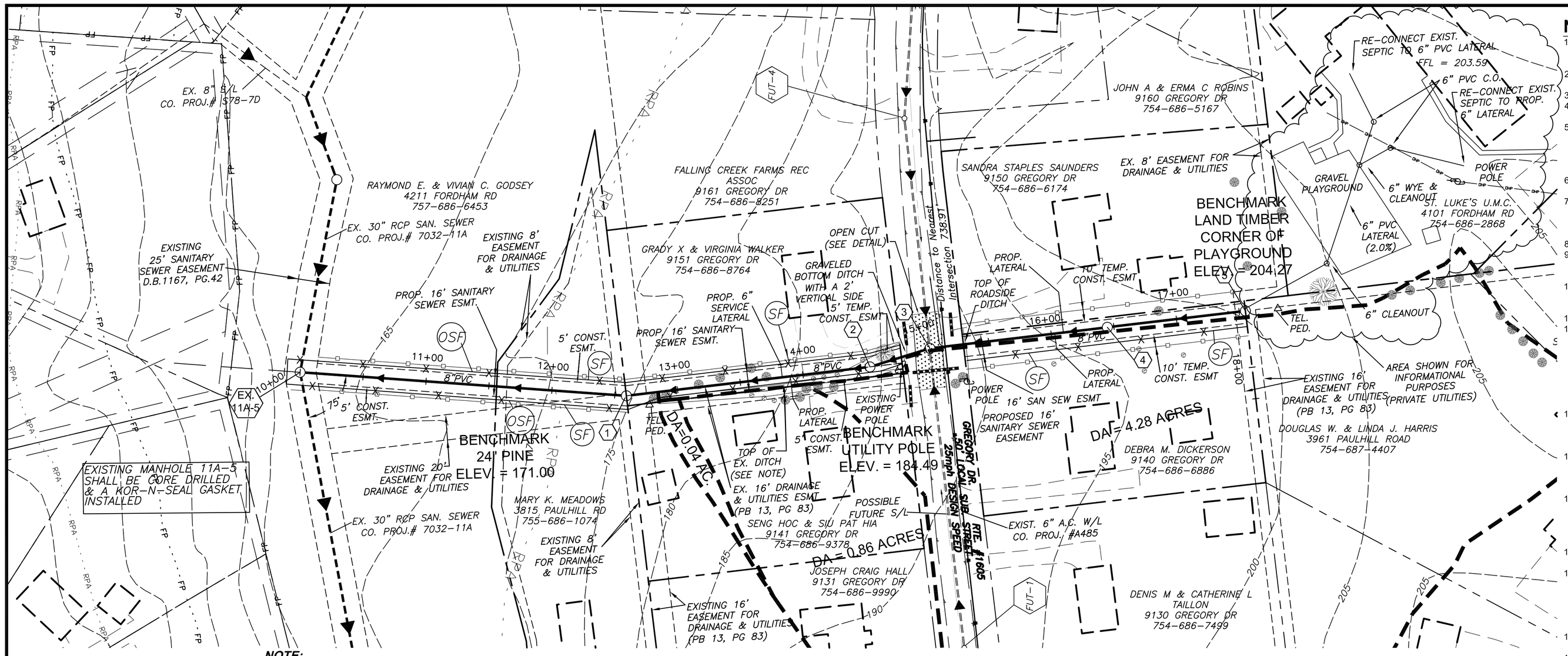


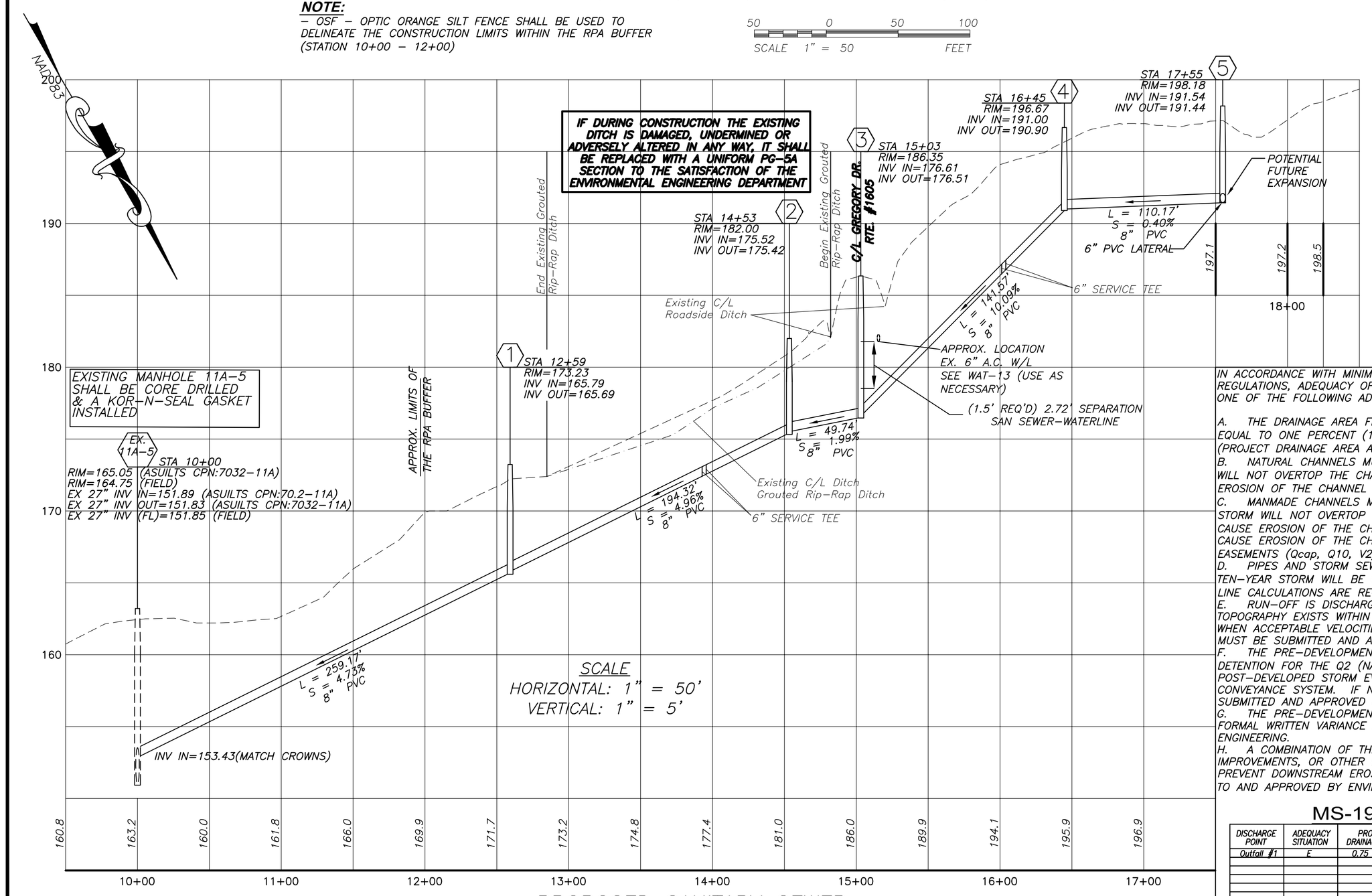

**NOTE:**
– OSF – OPTIC ORANGE SILT FENCE SHALL BE USED TO DELINEATE THE CONSTRUCTION LIMITS WITHIN THE RPA BUFFER (STATION 10+00 – 12+00)

SCALE 1" = 50 FEET

**NOTES:**
– ALL DAMAGE TO EXISTING DRIVEWAYS, MASONRY BLOCK WALLS, ETC. SHALL BE RESTORED AND REPLACED TO A NEW CONDITION.

– IF THE EXISTING DITCH IS DAMAGED, UNIFORMLY INSTALL PG-5 THROUGHOUT DAMAGED AREA. REFER TO THE CALCULATIONS AND DIMENSIONED CROSS SECTION DETAIL ON SHEET 5 OF 5 FOR CONSTRUCTION SPECIFICATIONS.

– PRIOR TO THE START OF CONSTRUCTION THE CONTRACTOR SHALL FIELD VERIFY THE INVERTS OF ALL UTILITIES, INCLUDING BUT NOT LIMITED TO MANHOLES, GAS LINES, STORM SEWER, AND ANY OTHER UTILITY WHICH MAY ALTER THE DESIGN OR INTERFERE WITH CONSTRUCTION.




## MS-19 ADEQUACY

IN ACCORDANCE WITH MINIMUM STANDARD 19 OF THE EROSION AND SEDIMENT CONTROL REGULATIONS, ADEQUACY OF RECEIVING CHANNELS OR PIPES MUST BE VERIFIED BY ADDRESSING ONE OF THE FOLLOWING ADEQUACY SITUATIONS:

A. THE DRAINAGE AREA FROM THE PROJECT AT THE DISCHARGE POINT IS LESS THAN OR EQUAL TO ONE PERCENT (1%) OF THE TOTAL DRAINAGE AREA AT THE DISCHARGE POINT (PROJECT DRAINAGE AREA AND TOTAL DRAINAGE AREA ARE REQUIRED).
B. NATURAL CHANNELS MUST BE ANALYZED TO DEMONSTRATE THAT (1) THE TWO-YEAR STORM WILL NOT OVERTOP THE CHANNEL BANKS AND (2) THE TWO-YEAR STORM WILL NOT CAUSE EROSION OF THE CHANNEL BED OR BANKS (Qcap, Q2 AND V2 ARE REQUIRED).
C. MANMADE CHANNELS MUST BE ANALYZED TO DEMONSTRATE THE THE (1) THE TEN-YEAR STORM WILL NOT OVERTOP THE CHANNEL BANKS AND (2) THE TWO-YEAR STORM WILL NOT CAUSE EROSION OF THE CHANNEL BED OR BANKS OR (3) THE 10-YEAR STORM WILL NOT CAUSE EROSION OF THE CHANNEL BED OR BANKS FOR IMPROVEMENTS WITHIN COUNTY DRAINAGE EASEMENTS (Qcap, Q10, V2/V10 ARE REQUIRED)
D. PIPES AND STORM SEWER SYSTEMS MUST BE ANALYZED TO DEMONSTRATE THAT THE TEN-YEAR STORM WILL BE CONTAINED WITHIN THE SYSTEM (Qcap, Q10, AND HYDRAULIC GRADE LINE CALCULATIONS ARE REQUIRED)
E. RUN-OFF IS DISCHARGED THROUGH AN ENERGY DISSIPATER WHERE FLAT POORLY DRAINED TOPOGRAPHY EXISTS WITHIN THE LIMITS OF THE 100 YEAR FLOODPLAIN, RPA, OR WETLAND AND WHEN ACCEPTABLE VELOCITIES ARE DEMONSTRATED. A FORMAL WRITTEN VARIANCE REQUEST MUST BE SUBMITTED AND APPROVED BY ENVIRONMENTAL ENGINEERING.
F. THE PRE-DEVELOPMENT RUN-OFF RATE IS MAINTAINED BY METHODS OTHER THAN ONSITE DETENTION FOR THE Q2 (NATURAL) OR Q10 (MANMADE) STORM EVENT DURING THE SAME POST-DEVELOPED STORM EVENT DISCHARGING INTO AN ADEQUATE NATURAL OR MANMADE CONVEYANCE SYSTEM. IF NOT ADEQUATE, A FORMAL WRITTEN VARIANCE REQUEST MUST BE SUBMITTED AND APPROVED BY ENVIRONMENTAL ENGINEERING.
G. THE PRE-DEVELOPMENT RUN-OFF RATE HAS BEEN ACHIEVED VIA ONSITE DETENTION. A FORMAL WRITTEN VARIANCE REQUEST MUST BE SUBMITTED AND APPROVED BY ENVIRONMENTAL ENGINEERING.
H. A COMBINATION OF THE ABOVE METHODS TO INCLUDE DETENTION AND DRAINAGE IMPROVEMENTS, OR OTHER MEASURES ACCEPTABLE TO THE ENVIRONMENTAL ENGINEERING TO PREVENT DOWNSTREAM EROSION. A FORMAL WRITTEN VARIANCE REQUEST MUST BE SUBMITTED TO AND APPROVED BY ENVIRONMENTAL ENGINEERING)

## MS-19 OUTFALL COMPLIANCE

| DISCHARGE POINT | ADEQUACY SITUATION | PROJECT DRAINAGE AREA | TOTAL DRAINAGE AREA | Q capacity | $Q_2/Q_{10}$ (cfs) | $V_2/V_{10}$ (fps) | CROSS SECTIONS, PROFILES, DA MAP & CALCULATIONS |
|---|---|---|---|---|---|---|---|
| Outfall #1 | E | 0.75 ACRES | 5.18 ACRES | 8.99 cfs | 3.92/4.86 | 9.21/10.42 | SEE HYDROLOGY CALCS |
| | | | | | | | |
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## Notes:

1. All materials and construction within the public right of way shall be in accordance with current Virginia Department of Transportation's specifications, standards, current work area protection manual, and all applicable location and design instructional and informational memorandums.
2. Land Use Permit (CE-7) must be obtained from the Virginia Department of Transportation prior to beginning any construction within the existing state maintained right of way (including access).
3. VDOT is to receive written notification 48 hours prior to commencing with initial construction activities.
4. Prior to any construction, the contractor shall consult the engineer and verify the approval of the plans by all applicable federal, state and local agencies.
5. Preliminary design of the pavement structure for all subdivision streets shall be in accordance with the current edition of The Pavement Design Guide for Subdivision and Secondary Roads in Virginia . The completed design worksheet appendix IV shall be included with the initial plan submittal for each proposed pavement section utilizing the predicted soil support value shown in Appendix I of The Pavement Design Guide .
6. The contractor shall verify the elevations of all points of connection or proposed work to existing curbs, sanitary lines, water lines, etc., prior to construction.
7. Upon discovery of soils that are unsuitable for foundations, sub-grades, or other roadway construction purposes, the contractor shall immediately contact a geotechnical engineer and VDOT. These areas shall be excavated below plan grade as directed by a geotechnical engineer, backfilled with suitable material and compacted in accordance with current VDOT specifications.
8. All storm sewer design and construction to be in accordance with VDOT I & I LD-94 (D) 121.13.
9. All drainage structures shall be in accordance with current versions of LD-97 (D) 121. Pipe within the right of way shall be a minimum CL-III or greater in accordance with current VDOT standards and specifications.
10. All pre-cast units shall be VDOT approved. Certification and VDOT stamp will be required on all units. Shop drawings, Geotechnical data and soil bearing capacity, and plan view shall be submitted as package for VDOT review and approval.
11. All concrete shall be minimum class A3-AE (air entrained 3,000 PSI).
12. All entrances are to be designed and constructed in accordance with current VDOT standards. Residential lot access shall be provided per the following criteria:
    - All driveway entrance culverts are to be a minimum of 15" diameter x 20' long pipe and shall conform to PE-1 private entrance standards unless otherwise directed by the Resident Engineer. No entrance culverts are to be installed within five (5) feet of a property corner.
    - VDOT standard CG-9D entrances shall be installed in curb and gutter neighborhoods. Inspections to be performed by VDOT shall be requested in writing, 48 hours prior to entrance installation.
13. The developer is responsible for furnishing and installing all signs deemed pertinent to the proposed development. The contractor shall contact VDOT inspection staff to establish locations for any signage requirements as deemed necessary by VDOT. Installation of said signs shall occur at no expense to the state and prior to state acceptance of roadway(s).
14. Design changes, specified materials changes and/or field changes from the approved plans need to be re-submitted to VDOT prior to proceeding with the work. A letter of explanation shall accompany the revised plans and/or drainage calculations, which must be submitted, to VDOT for review and approval by the Resident Engineer.
15. Contractor shall verify location and elevation of all underground utilities shown on plans in areas of construction prior to starting work. Contact engineer immediately if location or elevation is different from that shown on plan. If there appears to be a conflict, and/or upon discovery of any utility not shown on this plan, call Miss Utility of Central Virginia at 1-800-552-7001. The developer shall be responsible for the relocation of any utility within existing and/or proposed right of way required by the development.
16. All streetlights shall be located a minimum of 9.5' from the edge of pavement on curb and gutter streets and/or located a minimum of 5.5' behind the ditch line on open ditch streets.
17. Generally, paved roadside ditches are to be specified when velocities exceed current VDOT design criteria or when ditch slopes are less than 0.75%. Where ditch slopes exceed 5.0%, the developer may choose to implement erosion and sediment control measures in an attempt to achieve channel stabilization while acknowledging that additional paved ditch linings may be required prior to acceptance of the roads into the secondary system of state highways. Paved roadside ditches shall conform to VDOT-PG-2A standards and specifications.
18. VDOT approval of construction plans does not preclude the right to require additional facilities as deemed necessary for acceptance of the roads into the VDOT Secondary Road System.
19. VDOT and County approval of site plans will expire five (5) years from the date of the initial approval. VDOT and County approval of subdivision plans will expire three (3) years from the date of the initial approval.
20. VDOT shall have performed the required field inspection (proof roll) prior to placement of the aggregate base course(s). Contact VDOT, in writing, for subgrade inspection 48 hours prior to scheduling placement of aggregate base course(s).
21. A prime coat seal between the aggregate base and bituminous concrete will be required at a rate of 0.30 gallons per square yard (REC-250 Prime Coat) per VDOT standards and specifications.
22. The scheduling of aggregate base installation and subsequent paving activities shall accommodate forecast weather conditions per Section 315 of The Road and Bridge Specifications .
23. VDOT shall have approved all base course(s) for depth, template and performed the required field inspection (visual, proof roll, compaction or any additional as determined by VDOT inspector) prior to placement of any surface course(s). Contact VDOT, in writing, for inspection of the base course(s) 48 hours prior to application of the surface course(s).
24. An actual copy of the complete CBR report is to be submitted to VDOT in conjunction with final pavement designs. All pavement design recommendations shall be performed in accordance with the current edition of The Pavement Design Guide for Subdivision and Secondary Roads in Virginia.
25. A licensed geotechnical engineer shall ascertain cause and certify recommended method of repair for all pavement structural failures prior to state acceptance.
26. All vegetation and organic material is to be removed from the right of way limits prior to conditioning of the subgrade.
27. Dry gutter is not allowed in VDOT right of way.
28. The developer will be responsible for the design costs of any traffic signal installation and/or modification under an account receivable with VDOT.
29. The necessity and locations for additional VDOT standard underdrains to be determined at time of subgrade inspection.
30. Approval of a detailed construction sequencing/maintenance of traffic narrative for the work zone is a prerequisite for issuance of a Land Use Permit allowing access to and construction within VDOT maintained right-of-way.
31. VDOT shall be provided documentation by a licensed geotechnical engineer, certifying that all in-place pavements meet or exceed the approved pavement design thickness prior to state acceptance. The certifying documentation shall conform to VDOT specifications and the approved plans.
32. The establishment of a temporary vegetative cover is required on all denuded areas that are not to be fine graded for periods longer than 30 days.
33. No structure shall be constructed on state maintained rights of way unless said structures are shown on road construction plans approved by VDOT or covered by a VDOT Land Use Permit (or by a letter of intent from the Resident Engineer to issue said permit at the time of state acceptance).
34. The developer is responsible for contacting the Richmond District Traffic Engineering section at 804-524-6000 for guardrail location and placement requirements.
35. A pre construction meeting is required prior to undertaking any roadway construction activities. Developer or designee will contact Chesterfield Residency, in writing, five working days in advance of anticipated construction start to establish date, time and location for pre construction meeting. The primary function of the construction meeting will be to identify geotechnical parameters of proposed construction activities.
36. Existing pavement markings within state Right of Way are to be eradicated (all eradication scars shall be overlaid with surface mix or slurry seal #4). All new striping requires the use of Thermoplastic pavement markings. Contact District Traffic Engineering office at (804) 524-6193 ten days prior to proceeding for stripping layout.
37. A geotech report shall verify/approve stone depths prior to asphalt placement.
38. All construction debris, materials, dumpsters, etc shall be located outside the roadway prism prior to acceptance of the roads and shall be maintained outside the roadway prism within existing state routes.
39. Any landscaping, identification signs, lighting, etc. that may be indicated within the construction plans shall be for information purposes only. Non-standard items must be approved by separate submittal through the permitting process.

OPEN CUT FOR SAN. SEWER CROSSING OF GREGORY DR.(SEE DETAIL SHEET 5 OF 5)

COMMONWEALTH OF VIRGINIA
Christopher C. Mulligan
Lic. No. 031672
PROFESSIONAL ENGINEER

DESIGNED BY: C.C.M.
DRAWN BY: K.M.C.
CHECKED BY: C.C.M.

POTTS, MINTER, AND ASSOCIATES P.C.
Engineers, Land Surveyors, Land Planners
3520 S. Courthouse Road Richmond, Va. 23236
Phone: (804) 745-2876 Fax: 745-9571

# PLAN & PROFILE SHEET
## SAINT LUKE'S UNITED METHODIST CHURCH
DALE DISTRICT
of CHESTERFIELD COUNTY, VIRGINIA

| DATE: | REMARKS: |
|---|---|
| JULY 31, 2012 | COMMENTS |

REVISIONS

DATE: JUNE 28, 2012
SHEET NO.: 2 OF 5
SCALE: VARIES
JOB NO.: 1206-07

CPN: 08-0183